Infrastructure Committee Committee Agenda

Date:	Thursday, 7 June, 2018
Time:	10:30 am
Location:	Council Chamber Forum North, Rust Avenue Whangarei
Elected Members:	Cr Greg Martin (Chairperson) Her Worship the Mayor Sheryl Mai Cr Stu Bell Cr Gavin Benney Cr Vince Cocurullo Cr Crichton Christie Cr Tricia Cutforth Cr Shelley Deeming Cr Sue Glen Cr Phil Halse Cr Cherry Hermon Cr Greg Innes Cr Sharon Morgan Cr Anna Murphy

For any queries regarding this meeting please contact
the Whangarei District Council on (09) 430-4200.

Infrastructure Committee – Terms of Reference

Membership

Chairperson: Councillor Greg Martin

Members: Her Worship the Mayor Sheryl Mai
Councillors Stu Bell, Gavin Benney, Crichton Christie, Vince Cocurullo, Tricia Cutforth, Shelley Deeming, Sue Glen, Phil Halse, Cherry Hermon, Greg Innes, Sharon Morgan, Anna Murphy

Meetings: Monthly

Quorum: **7**

Purpose

To oversee the management of council's infrastructural assets, utility services and public facilities.

Key responsibilities include:

- Services including the provision and maintenance of:
  - Infrastructure projects and support
  - Infrastructure project co ordination
  - Transportation
  - Waste and Drainage
  - Water
  - Parks and Reserves.
- Shared Services – investigate opportunities for Shared Services for recommendation to council.

Delegations

(i) All powers necessary to perform the committee's responsibilities, including, but not limited to:

(a) the approval of expenditure of less than $10 million plus GST.

(b) approval of a submission to an external body.

(c) establishment of working parties or steering groups.

(d) power to establish subcommittees and to delegate their powers to that subcommittee.

(e) the power to adopt the Special Consultative Procedure provided for in Section 83 to 88 of the LGA in respect of matters under its jurisdiction (this allows for setting of fees and bylaw making processes up to but not including adoption).

(f) the power to delegate any of its powers to any joint committee established for any relevant purpose under clause 32, Schedule 7 of the Local Government Act 2002

Item 3.1

Infrastructure Committee Meeting Minutes

Date:	**Thursday, 10 May, 2018**
Time:	**10:30 a.m.**
Location:	**Council Chamber** **Forum North, Rust Avenue** **Whangarei**
In Attendance	**Cr Greg Martin (Chairperson)** **Cr Stu Bell** **Cr Gavin Benney** **Cr Crichton Christie** **Cr Vince Cocurullo** **Cr Tricia Cutforth** **Cr Shelley Deeming** **Cr Sue Glen** **Cr Phil Halse** **Cr Cherry Hermon** **Cr Greg Innes** **Cr Sharon Morgan** **Cr Anna Murphy**
Not in Attendance	**Her Worship the Mayor Sheryl Mai**
Scribe	**C Brindle (Senior Democracy Adviser)**

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1. Declarations of Interest

2. Apology

Her Worship the Mayor (absent)

Moved By Cr Sharon Morgan
Seconded By Cr Anna Murphy

That the apology be sustained.

Carried

3. Confirmation of Minutes of Previous Infrastructure Committee Meeting

Moved By Cr Greg Innes
Seconded By Cr Sue Glen

That the minutes of the Infrastructure Committee meeting held on Thursday 12 April 2018, having been circulated, be taken as read and now confirmed and adopted as a true and correct record of proceedings of that meeting.

Carried

4. Decision Reports

4.1 Land Development Stabilisation - Policy and Technical Design Requirements

Moved By Cr Stu Bell
Seconded By Cr Shelley Deeming

That the Infrastructure Committee adopts;

1. the Land Development Stabilisation - Policy

2. the Land Development Stabilisation – Technical Design Requirements.

Carried

Cr Christie requested his vote against be recorded.

4.2 Parking Restrictions - Tania Place

Moved By Cr Vince Cocurullo
Seconded By Cr Tricia Cutforth

That the Infrastructure Committee approves the pursuant to the Whangarei District Council Parking and Traffic Bylaw 2017 Clause 14, the parking of vehicles be prohibited at all times as per the attached plan and the RAMM schedule below:

Road Name: Tania Place		
Road ID: 404		
	RAMM Displacement	
Side	Start	End
RHS	107	118

Carried

4.3 Western Hills Drive – Russell Road to Rust Avenue vegetation control

Moved By Cr Greg Innes
Seconded By Cr Sharon Morgan

That the Infrastructure Committee approves $62,000 plus GST, of un-budgeted expenditure for vegetation control on Western Hills Drive from Russell Road – Rust Ave.

Carried

Crrs Cocurullo, Christie and Halse requested their votes against be recorded.

5. Information Reports

5.1 Contracts Approved Under Delegated Authority May 2018

Moved By Cr Shelley Deeming
Seconded By Cr Vince Cocurullo

That the Infrastructure Committee note the Infrastructure contracts awarded under Chief Executive and General Manager delegated authority.

Carried

5.2 Infrastructure Capital Projects Report for the month ending 31 March 2018

Moved By Cr Phil Halse
Seconded By Cr Sharon Morgan

That the Infrastructure Committee notes the Infrastructure Capital Projects Report and Carry Forwards Report for the month ending 31 March 2018.

Carried

Cr Halse requested his vote against be recorded.

5.3 Infrastructure Operations Report - May 2018

Moved By Cr Shelley Deeming
Seconded By Cr Anna Murphy

That the Infrastructure Committee notes the Infrastructure Operations Report April 2018 update.

Carried

6. Public Excluded Business

There was no business conducted in public excluded.

7. Closure of Meeting

The meeting concluded at 11.42am

Confirmed this 7th day of June 2018

Councillor Greg Martin (Chairperson)

WHANGAREI DISTRICT COUNCIL

4.1 Hikurangi Flood Scheme Working Group - Terms of Reference

Meeting: Infrastructure Committee
Date of meeting: 7 June 2018
Reporting officer: Andrew Grant (Waste and Drainage Operations Engineer)

1 Purpose

To approve new Terms of Reference for Hikurangi Flood Scheme Working Group.

2 Recommendations

That the Infrastructure Committee:

a) Approve the Terms of Reference, dated February 2018, for the Hikurangi Flood Scheme Working Group.

b) Nominate the Manager, Waste and Drainage to chair the Hikurangi Flood Scheme Working Group.

3 Background

The Hikurangi Flood Scheme Working Group was formed in 2012 in order to provide input on the key issues relating to the Hikurangi Swamp Scheme and included the members detailed below.

- Invited representatives from each of the 7 pockets and one from each catchment upstream of State Highway 1;
- An invited iwi/hapu representative;
- An invited Fonterra representative
- A representative from Northland Regional Council.

The Working Group has been functioning well, but the original Terms of Reference, drafted in 2012, have become dated over time and some parts have become irrelevant. Since 2012 Councillor Christie has been the Chairman of the Working Group and this has worked very well. However, the Working Group has progressed to the point where there is no longer the requirement for a Councillor to Chair the meeting. It is intended that the Manager, Waste and Drainage chair the Working Group.

4 Discussion

New Terms of Reference for the Hikurangi Flood Scheme Working Group have been developed by Council officers in conjunction with the Working Group.

The main changes are:

- The introduction was removed;
- NRC and Fonterra are invited parties only, they were previously voting members;
- The Chair will be Council nominated;
- Conflicts of interest need to be declared and recorded prior to every meeting;
- Terms of Reference Reviews will now only be held at the start of every new term of Council.

5 Significance and engagement

The decisions or matters of this Agenda do not trigger the significance criteria outlined in Council's Significance and Engagement Policy, and the public will be informed via agenda publication on the website.

6 Attachments

1. 2018 Hikurangi Flood Scheme Working Group Terms of Reference.

2. 2012 Hikurangi Flood Scheme Working Group Terms of Reference.

Hikurangi Flood Scheme Working Group Terms of Reference

February 2018

1. The Hikurangi Flood Scheme Working Group (the Group) consists of:

   - A Representative from each of Junction, Te Mata, Otonga, Mountain, Tanekaha, Ngararatunua, and Okarika pockets;
   - A Representative from each catchment upstream of SH1: Whakapara and Waiotu
   - An Iwi/hapu representative;

   Any pocket, catchment or Iwi/hapu can elect to have a Deputy or not to have a Representative on the Group.

2. The Group will be chaired and have minutes recorded by a Council delegate (or Nominee) who will also chair public meetings of ratepayers for the Group. The Chair will not vote.

3. The Chair will issue an agenda to all representatives at least two weeks prior to any meeting, members will provide extra items and suggested changes at least 1 week prior to meeting

4. All Representatives (or Deputy) and the Chair (or Nominee) shall declare any conflict of interest at the start of each meeting; this will be recorded in the minutes.

5. The Group is to allow scheme stakeholders to have input into management of the Hikurangi Swamp Drainage Scheme by Whangarei District Council, which is the Scheme operator and administrator.

6. Each Representative (or Deputy) has one vote and can elect not to vote on any issue.

7. Meetings will be held as agreed by the Group;

8. The Group will make recommendations by consensus regarding the Scheme. The chair will decide which issues need a vote called; Council, or its representative, will decide on these matters after considering the recommendations and acting in accordance with Councils Delegation Policy.

9. Scheme works and expenditure will be made available to the Group including, relevant costs, contracts, and the latest Scheme Management Plan and any proposed changes. Information that is of wider interest to the Flood Scheme will be made available on Councils web site. Council, may not disclose details it where it would breach information release regulations. Council will report to the Group if this occurs.

10. If Council, or its representative, acts against a majority decision of the Group; it will report the matter the next Group meeting with reasons for that action.

11. Public meetings will be held as they are deemed necessary;

12. The Group may invite representatives from NRC, Fonterra, Living Water Partnership and other organisations to provide advice on scheme operation, environmental performance and/or progress reports on related activities.

13. These Terms of Reference shall be reviewed in each new term of Council.

14. Council will reasonably inform the Group of its actions and expenditure. It may act in any manner it considers necessary to meet its obligations. The Group recognises that WDC has legal obligations in operation of the scheme

Hikurangi Swamp Scheme Working Group Terms of Reference
May 2012

Introduction:

The Hikurangi Swamp Working Group was formed in order to provide input on the key issues relating to the Hikurangi Swamp Scheme. These key issues include the following:

Income: Rating options, subsidy applications, bermland grazing licences, etc

Capital improvements: Stop bank adjustments, pump replacement, asset management.

Operation: Cost monitoring, attendance at operations meeting, drain maintenance

Performance monitoring: Comparison of scheme performance against model, management of information in relation to flooded areas, maintenance of bermland condition (roughness)

Long term strategy: Impacts of global warming on scheme performance, long term planning for changes to scheme design, review of farming practices and flood impact in floodable areas, consent conditions, management of incoming water (upstream catchments),…

Environmental management and community liaison
Water quality, fisheries, other uses (reserves, recreational hunting), habitat enhancement, fencing

1. The Hikurangi Swamp Working Group shall consist of:

   - One invited representative from each pocket: Junction, Te Mata, Otonga, Mountain, Tanekaha, Ngararatunua, and Okarika;
   - One invited representative from each catchment upstream of SH1: Whakapara and Waiotu
   - An invited iwi/hapu representative;
   - An invited Fonterra representative
   - A representative from Northland Regional Council

   Any pocket, catchment or Iwi/hapu can elect not to have a representative on the working group.
   A substitute representative may be invited if the initial representative is unable to attend.

2. The purpose of the group is to provide a mechanism for scheme stakeholders to have input into management of the Hikurangi Swamp Drainage Scheme and provide direction to the Whangarei District Council, which is the Scheme operator and administrator. It is there to assist the interface between the Council and Farmers.

3. Each representative has one vote. A representative can elect not to vote on any issue. WDC is not bound to act in accordance with the wishes of the working group if these are considered contrary to meeting its' obligations.

4. The working group shall be chaired by WDC or its' delegated representative.

5. The working group shall meet on a monthly basis or as agreed by WDC.

6. That the group forms recommendations by majority decision with regards to expenditure and long term planning on the Scheme. Council will have final decision on expenditure, income or any other matter related to the scheme, taking into consideration the group recommendations and the requirements of the Local Government Act.

7. While Council will endeavor to inform the working group of its actions and expenditure, it may act in any manner it considers necessary to meet its obligations.

WHANGAREI DISTRICT COUNCIL

4.2 Whangarei City Transportation Network Strategy – Programme Business Case

Meeting: Whangarei District Council

Date of meeting: 31 May 2018

Reporting officer: Jeffrey Devine (Manager – Roading)

1 Purpose

To adopt the Whangarei City Transportation Network Strategy – Programme Business Case and approve its release for seeking the New Zealand Transport Agency endorsement.

2 Recommendations

That the Whangarei District Council:

1. Adopts the Whangarei City Transportation Network Strategy – Programme Business Case in Attachment 1.
2. Authorises the release of the Whangarei City Transportation Network Strategy – Programme Business Case for the purpose of seeking New Zealand Transport Agency endorsement.
3. Authorises the Chief Executive to make any minor amendments, including typographical / formatting / editing changes to the Whangarei City Transportation Network Strategy – Programme Business Case.

3 Background

The Whangarei City Transportation Network Strategy – Programme Business Case (the Strategy) is a 30-year strategy that outlines the issues that affect transportation in the city both now and in the future. It identifies possible solutions to address these issues and a preferred programme of work to achieve the desired outcomes.

The Strategy considers the case for investment to address transportation problems in Whangarei City. Whilst the Strategy is focussed on Whangarei City, it also includes consideration of the district wide transport network and state highways which also have a major influence on the city.

The Strategy builds off the previous Whangarei Transportation Network Strategy that was developed between 2009 and 2011 and endorsed by the NZ Transport Agency in October 2012. This previous strategy identified many transport improvements to reduce congestion and improve efficiency of the road network in Whangarei City. Many of these transport improvements have now been completed or are underway including:

- SH1 Kamo Bypass Stage 2 and Spedding Road extension
- SH1 Selwyn Ave to Fourth Ave 4-laning and intersection improvements
- SH1/SH14 intersection upgrade
- SH1 Kensington to Manse upgrades
- SH14 Hospital Road intersection upgrade
- Porowini Ave extension
- Lower Hatea River Crossing
- Mill Road/Nixon Street intersection improvements
- Raumanga/Maunu, Onerahi and Kamo off-road cycleways

In addition to those projects listed above, work is also just about to commence on the SH1 Tawera Road intersection upgrade.

In 2016, a full review of the previous strategy commenced. This review included discussions with key stakeholders over a 2-year period and has resulted in the development of the proposed Strategy. The Strategy was presented at the Infrastructure Update Meeting on 10 April 2018 and is now ready for adoption by Council.

4 Discussion

4.1 Why update the Strategy now?

The Strategy is being updated to reflect the change in growth patterns that have been identified using the 2013 Census data and the Council's updated growth model predictions. It is also being updated to take into account the impact of the transportation projects that have been undertaken over the past 5 years.

The Strategy has also incorporated the NZTA's business case approach which develops a robust programme of works based on addressing the identified problems and achieving the desired outcomes.

4.2 Stakeholder Group

A group of key stakeholders was involved in the development of the Strategy. This included:

- Council Roading and Policy staff,
- New Zealand Transport Agency
- Northland Regional Council
- Northland Inc
- Northland Chamber of Commerce
- Freight and bus industry representatives.

4.3 Problems with the transportation network

The population of Whangarei City is currently growing at 2% per annum which is being fueled by housing pressure from Auckland and is twice the historic growth rate. Freight is expected to increase in Northland by almost 40% by 2042 which will increase freight traffic on SH1 through Whangarei. Tourism growth for Northland was 5% in the last year and the Tai Tokerau Economic Action Plan proposes major projects such as the revitalization of the Twin Coast Discovery Highway which passes through Whangarei and the Hundertwasser Art Centre which will further increase tourism in Whangarei and is expected to boost economic growth. These demands are predicted to consume the available network capacity and lead to congestion and increasing safety concerns in the future.

Whangarei City is located in the Hatea River Valley and is nestled between two major hill ranges and the Whangarei Harbour. The North Auckland rail line also runs in a north-south direction directly through the middle of Whangarei which again is a major constraint for transport links. These constraints have led to only a few arterial roads carrying most of the City's traffic, which results in higher traffic volumes than would be expected for a city of this size.

Access is a significant issue for the City with most trips relying on single occupancy private vehicles. This is due to the arterial road networks and rail line causing severance issues to the local community which is exacerbated by inadequate provision of safe crossing points for pedestrians and cyclists. There is also no public transport for rural and coastal towns which force commuters to drive into the City for work and services.

Access to the regional hospital and Whangarei airport are both via a single arterial road that raises some significant resilience concerns about access to these key life line facilities in the event of an emergency.

There are also many arterials roads and intersections in Whangarei City that are identified as having high safety risk. There has been an increase in fatal and serious injury crashes in the City over the past five years and the increase in active mode crashes has been particularly significant with recent crash rates being almost double the ten year average.

An Investment Logic Mapping (ILM) workshop with the stakeholder group identified the following key problems:

- **Problem 1**: Whangarei's topography has constrained the City's arterial road footprint which means we cannot easily expand infrastructure to meet future growth in demand (50%).
- **Problem 2**: SH1 and other urban arterial routes traverse the City Centre which results in severance for pedestrians walking between key areas (30%).
- **Problem 3**: Whangarei has a high number of crashes on arterials, which results in a high collective risk (20%).

The benefits of successfully investing to address these problems were also identified as follows:

- **Benefit One**: The transport network enables people to live, work, play and learn in the City (40%).
- **Benefit Two**: Better able to manage and support economic and urban growth activity (35%).
- **Benefit Three**: People are able to make safe, healthy travel choices (25%).

4.4 Options considered

During the stakeholder workshops 138 options and alternatives were identified to address these problems and achieve the benefits, ranging from lower-cost interventions to significant capital projects. These options were assessed using a multi-criteria assessment to determine the best options to consider further.

These options were then grouped into seven programmes and analysed using another multi-criteria assessment. The preferred programme (Programme 5) best balances achieving the desired investment outcomes in an economically efficient manner. Programme 5 was the preferred programme for the following reasons:

- It delivers best against all of the investment objectives, providing for all modes of transport
- Is able to be implemented with a no more than moderate effect

- Is economically efficient with a benefit cost ratio (BCR) of between 1.0 and 1.6
- Provides a balanced programme of safety, additional traffic capacity and mode shift activities.

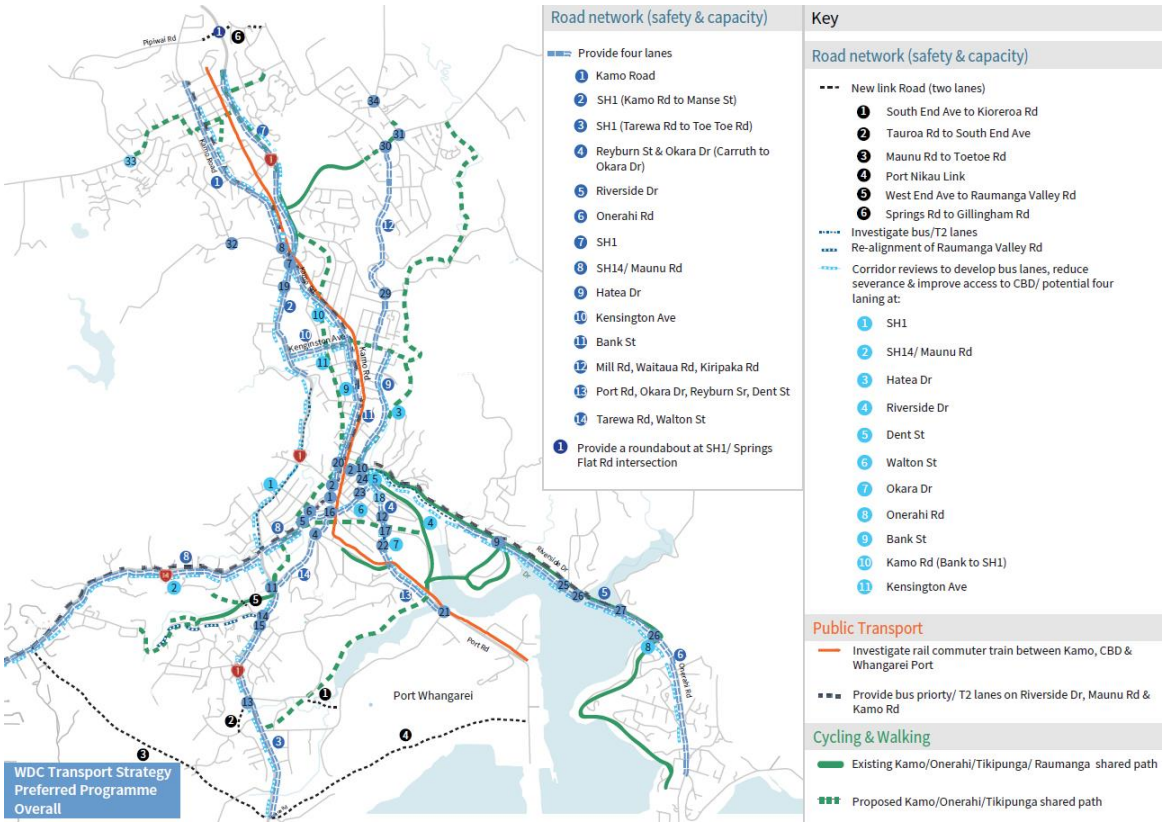
4.5 Recommended Programme

The recommended programme includes a suite of operational, mode shift interventions and capacity relief projects. These are summarised as follows:

- Capacity Improvements such as traffic signal upgrades, intersection upgrades, corridor reviews of arterial roads, investigation of tidal flow, four-laning of existing arterial routes and new link roads.
- Public Transport improvements such as more frequent buses, improved routes, mobile phone apps, VMS signs at bus stops, creating a network of bus lanes/transit lanes (T2 lanes), park and ride for rural commuters and considering a rail commuter train between Hikurangi, Kamo, CBD and Port Whangarei.
- Walking and Cycling improvements such as footpath extensions, completing the existing shared path routes (Raumanga, Onerahi and Kamo), constructing a new Tikipunga shared path, provide safe on-road facilities and crossing points, provide cycle training in schools, install bike facilities (e.g. bike racks, E-Bike charging stations etc.) and a bus fleet capable of carrying bikes.
- Travel Demand Management through strengthening the parking strategy with pricing and travel planning in school and businesses using campaigns such as LETSGO.
- Safety Improvement in conjunction with capacity upgrades, targeted safety improvement through crash reduction studies and on high risk roads, upgrade lighting on arterials and speed limit changes.

The recommended programme is outlined in Figure 1.

Figure 1 - Recommended Programme



The outcomes achieved by the recommended programme by 2030 include:

Investment Outcomes:

- Maintaining traffic flows free from congestion (Level of Service D or better) while accommodating planned growth in the City
- A 500% increase in public transport patronage
- 21,200 more people within a 400m walk of a bus stop or within 5km of a park and ride facility
- A 100% increase in walking and cycling trips
- 11,900 more people within a 400m walk of a shared path
- A reduction of 5 Deaths and Serious Injury Crashes (DSI's) per year
- A reduction in CO_2 emissions of 8,300 tonnes per annum

The recommended programme best matches the level of investment required to achieve the investment objectives. It also has the opportunity to deliver further benefits in terms of revitalizing Whangarei's CBD, improving network resilience and improving opportunities for tourism.

4.6 Financial/budget considerations

The estimated cost of the recommended programme over the 30-year Strategy period is $508 million with a range of $405 million to $660 million.

The breakdown of the $508 million expected cost is shown below:

Organisation	**30 Year Estimated Cost**
Whangarei District Council (with NZTA subsidy)	$315 million
New Zealand Transport Agency (for State Highway projects)	$123 million
Northland Regional Council (for additional bus services)	$70 million
Overall Total	**$508 million**

The Whangarei District Council funding has already been allowed for in the Council's 30-year Infrastructure Strategy and the funding required for the next 10 years has been included in the Roading Department's request to the 2018/2028 Long Term Plan.

The New Zealand Transport Agency funding is already included in their draft State Highway Investment Proposal.

The Northland Regional Council funding is largely included by their draft Long Term Plan, which includes a funding proposal for some rural commuter bus services. A further increase would be required in the future to fully cover the required funding.

4.7 Policy and planning implications

The Strategy is consistent with the Council's Sustainable Futures 30/50 Growth Strategy and the current District Plan. The Strategy is also consistent with the recently adopted City Centre Plan and the current Walking and Cycling Strategy.

Projects such as four laning, new road links will require some future land purchase. Wherever possible during the current review of the Transport Section of the District Plan, existing building line restrictions have been kept on potential four lane routes and indicative roads have been shown for new routes.

4.8 Risks

There are several risks which could impact on the Strategy. This includes the following:

- Changes in population growth, freight growth, tourism traffic
- Whangarei Airport relocation
- Expansion of North Port (e.g. part of Ports of Auckland moving to Marsden Point)
- Funding priorities change (e.g. State Highway 1 four laning being delayed)
- The effects of investment in rail diverting freight and potentially providing commuter services
- The effects of new technology and services such as autonomous vehicles and ride sharing (e.g. Uber)
- The effects of fuel price rises or changes in global/national economy

Most of these risks can be accommodated by accelerating or delaying affected projects within the programme as appropriate to match the demand.

However, a significant risk is the deferral of the SH1 four laning from Whangarei to Ruakaka announced by the new Government as that project is a key part of the strategy and is critical to Whangarei economy.

5 Significance and engagement

The decisions or matters of this Agenda do not trigger the significance criteria outlined in Council's Significance and Engagement Policy, and the public will be informed via Agenda publication on the website. Individual projects of significance such as the Riverside Drive Four-Laning will be consulted on through the Long Term Plan process.

Engagement with the key stakeholders identified in Section 4.2 has already occurred through collaborative workshops during the development of the Strategy.

6 Attachments

Attachment 1: Whangarei City Transportation Network Strategy – Programme Business Case

Attachment 2: Appendices to the Strategy

Whangarei City Transportation Network Strategy – Programme Business Case

Prepared by: Mark Seakins/Tony Innes
Reviewed by: Greg Monteith

18 May 2018
Revision 2

Contents

Executive Summary

Whangarei City is the capital of Northland and the only city north of Auckland. It has a population of 56,000 people and is a regional service center and commercial hub for Northland. It has the only regional Hospital in Northland and a regionally significant airport.

The population of Whangarei City is currently growing at 2% per annum which is being fueled by housing pressure from Auckland and is twice the historic growth rate. Freight is expected to increase in Northland by almost 40% by 2042 which will increase freight traffic on SH1 through Whangarei. Tourism growth for Northland was 5% in the last year and the Tai Tokerau Economic Action Plan proposes major projects such as the revitalization of the Twin Coast Discovery Highway which passes through Whangarei and the Hundertwasser Art Centre which will further increase tourism in Whangarei and is expected to boost economic growth. These demands are predicted to consume the available network capacity and lead to congestion and increasing safety concerns in the future.

The transport network is important to the economy of Northland and Whangarei, with 98% of freight carried by road in the region. Most business trips are undertaken by road due to lack of other modes and a dispersed population resulting in heavy reliance on private vehicles. The economy and population is growing, so a well-planned transport system is a critical component to enable this growth to happen.

State Highway One passes through the middle of the city and provides the main access route from Northland to Auckland. It also provides a major freight route carrying 1,600 trucks per day from Northland to NorthPort at Marsden Point and to markets in Auckland and beyond.

Whangarei City is located in the Hatea River Valley and is nestled between two major hill ranges and the Whangarei Harbour. The North Auckland rail line also runs in a north-south direction directly through the middle of Whangarei which again is a major constraint for transport links. These constraints have led to only a few arterial roads carrying most of the city's traffic, which results in higher traffic volumes than would be expected for a city of this size.

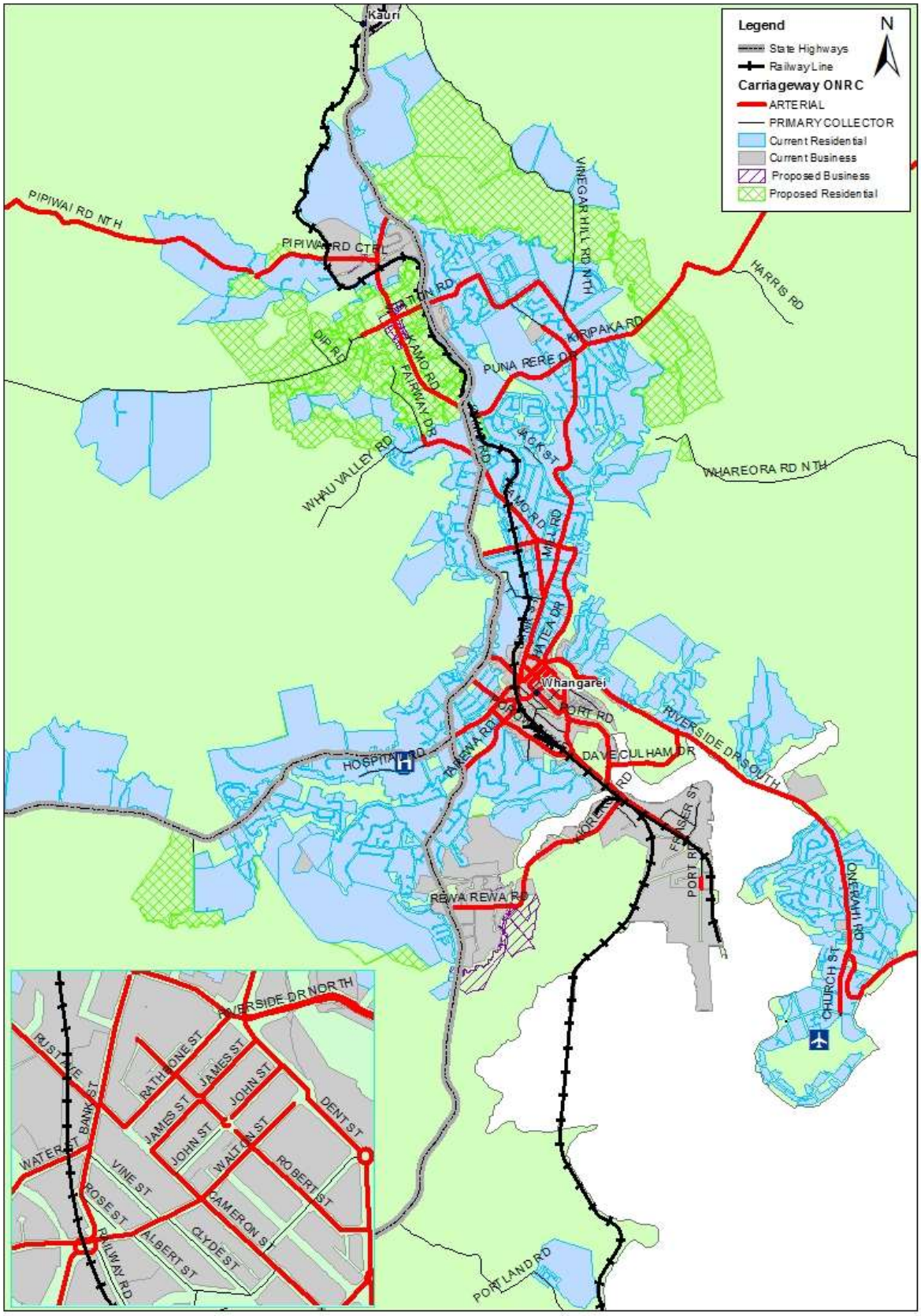
Access is a significant issue for the City with most trips relying on single occupancy private vehicles. This is due to the arterial road networks and rail line causing severance issues to the local community which is exacerbated by inadequate provision of safe crossing points for pedestrians and cyclists. There is also no public transport for rural and coastal towns which force commuters to drive into the City for work and services.

Access to the regional hospital and Whangarei airport are both via a single arterial road that raises some significant resilience concerns about access to these key life line facilities in the event of an emergency.

There are also many arterials roads and intersections in Whangarei City that are identified as having high safety risk. There has been an increase in fatal and serious injury crashes in the City over the past five years and the increase in active mode crashes has been particularly significant with recent crash rates being almost double the ten year average.

A map showing the arterial road network in Whangarei is included as Figure 1.

Figure 1 – Map of ONRC arterial road network in Whangarei City



Significant investment has been made by both the Whangarei District Council and the NZ Transport Agency to improve the road network over the last 5-10 years. These improvements have addressed some historic capacity and safety issues and provide for some future traffic growth. They also provide for the development of off-road walking and cycling facilities.

While these improvements, have addressed many historic problems, there are still other pinch points where further improvement is required to realise the full benefit of the work undertaken to date. In addition, future growth is likely to continue to use up any available capacity and there is limited ability to further widen some arterial roads to provide additional capacity due to the proximity of land and buildings on these routes.

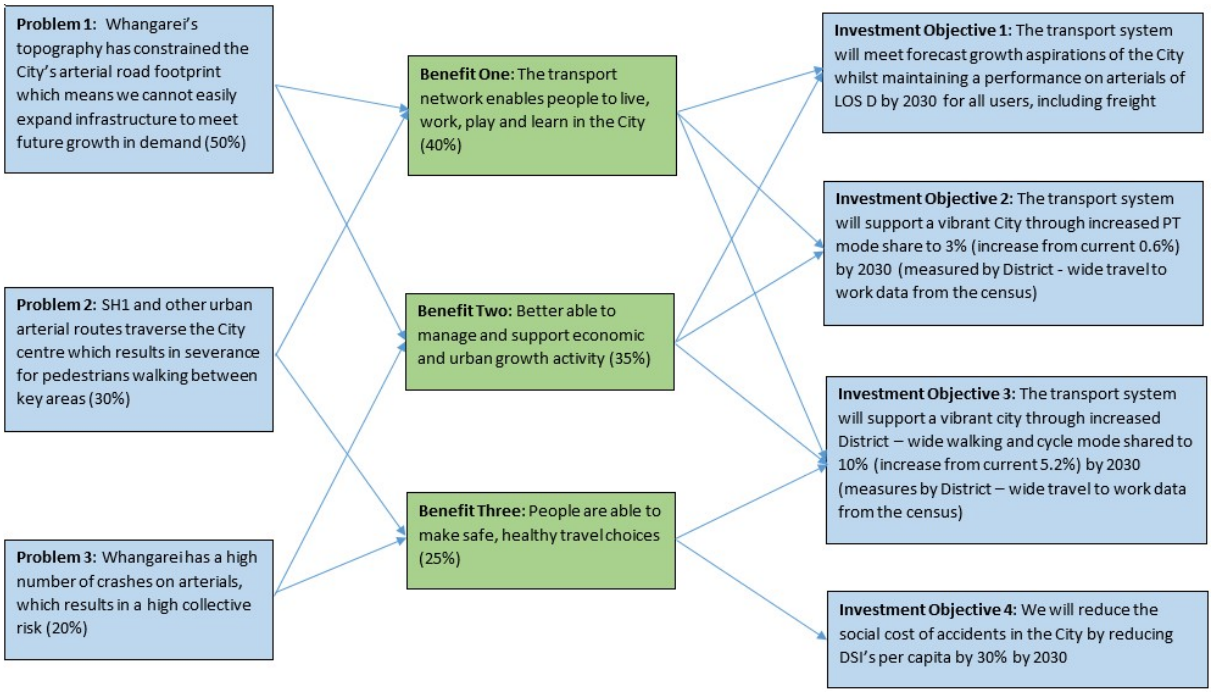
The total intersection delay in the Whangarei District is predicted to increase by 56% by 2043 and the intersection delay per vehicle is to increase by 20% over the same period. While these predictions are based on the whole district, the impact on Whangarei City is likely to be even greater due to the concentration of vehicles onto the few arterial routes.

Seventy six percent (76%) of all fatal and serious injury crashes in Whangarei City occurred on arterial roads. The total number of these fatal and serious injury crashes is currently higher the 10-year average and are showing an increasing trend over the past five years.

Eighty three percent (83%) of all pedestrian and cyclist crashes that resulted in fatalities or serious injuries in Whangarei City also occurred on arterial roads. The total number of these fatal and serious injury are again significantly higher than the 10-year average and are also increasing.

A series of stakeholder workshops were undertaken during the development of this Programme Business Case. This collaborative approach has resulted in alignment in the problems, benefits and investment objectives for the network as outlined in Figure 2.

Figure 2 – Investment Objective Development



The Programme Business Case has found that there is an opportunity to enhance the economic performance of Whangarei City, reduce severance effects and improve safety and resilience on the network through investment into the Whangarei City Transport Network.

Failing to address these problems would result in constraints to economic and urban growth, by restricting access to the CBD and Town Basin areas and urban growth areas. It would also limit Whangarei's potential as a tourist destination and continue to restrict alternative modes as viable transport options for the community.

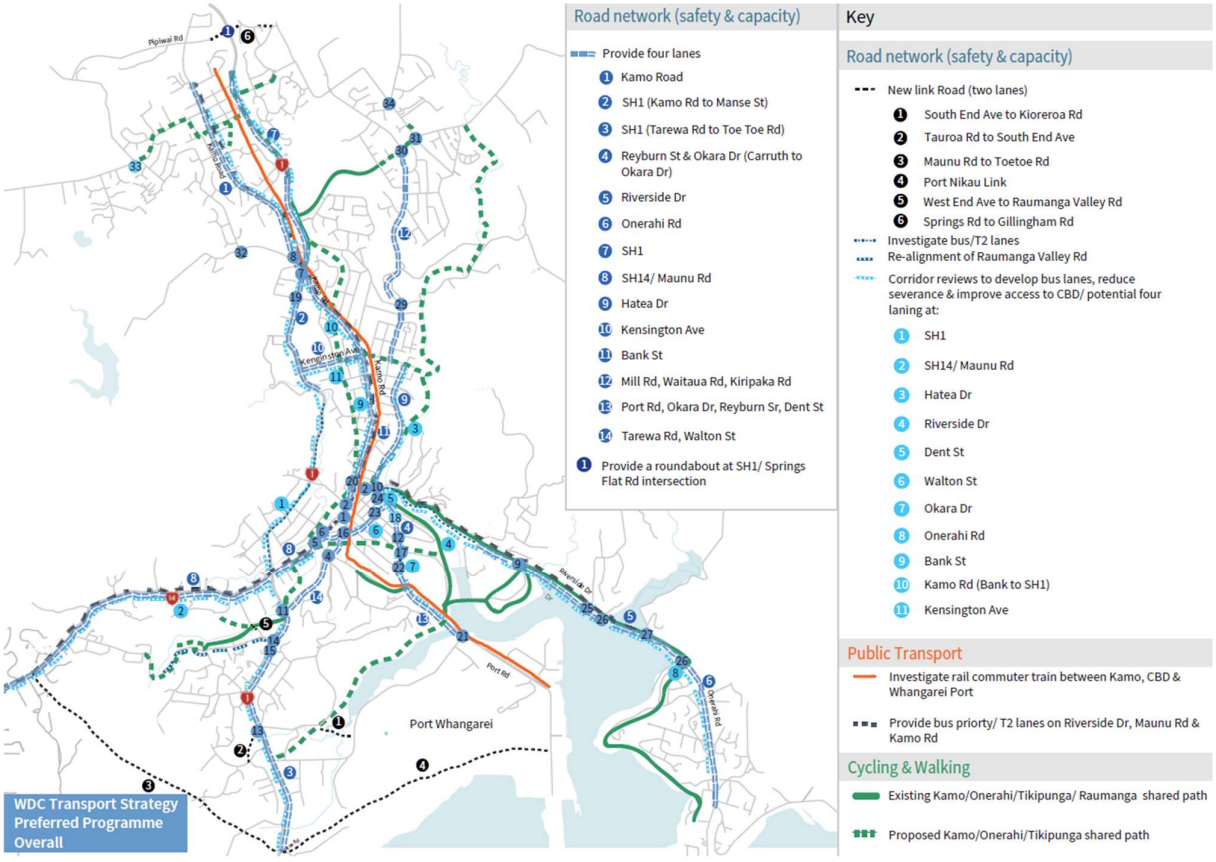
During the stakeholder workshops 138 options and alternatives were identified to address these problems and achieve the benefits, ranging from lower-cost interventions to significant capital projects. From these, seven programmes were developed and analysed using a multi-criteria assessment.

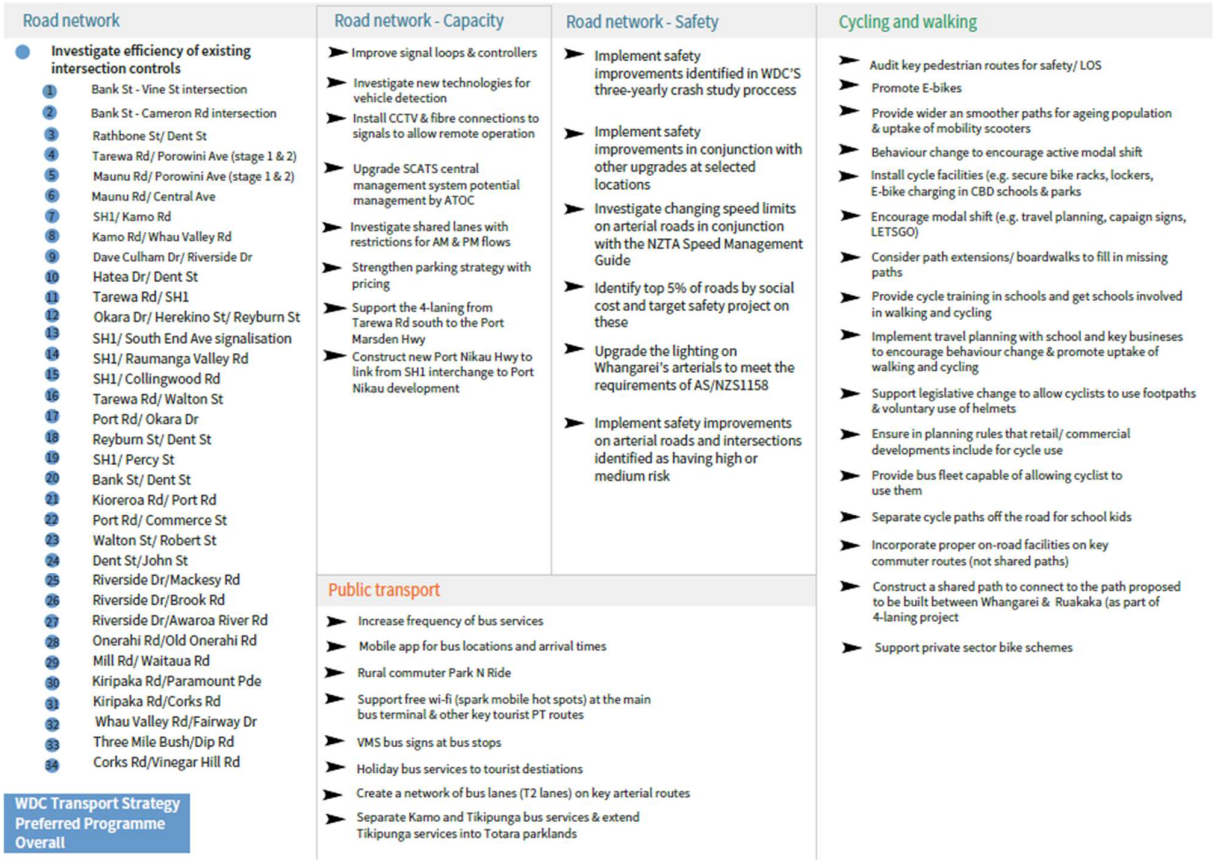
The preferred programme (Programme 5) best balances achieving the desired investment outcomes in an economically efficient manner. Programme 5 was the preferred programme for the following reasons:

- It delivers best against all of the investment objectives, providing for all modes of transport
- Is able to be implemented with a no more than moderate effect
- Is economically efficient
- Provides a balanced programme of safety, additional traffic capacity and mode shift activities.

The recommended programme is outlined in Figure 3.

Figure 3 - Preferred Programme





The recommended programme includes a suite of operational, mode shift interventions and capacity relief projects. These are summarised as follows:

- Capacity Improvements such as traffic signal upgrades, intersection upgrades, corridor reviews of arterial roads, investigation of tidal flow, four-laning of existing arterial routes and new link roads.
- Public Transport improvements such as more frequent buses, improved routes, mobile phone apps, VMS signs at bus stops, creating a network of bus lanes/transit lanes (T2 lanes), park and ride for rural commuters and considering a rail commuter train between Kamo, CBD and Port Whangarei.
- Walking and Cycling improvements such as footpath extensions, completing the existing shared path routes (Raumanga, Onerahi and Kamo), constructing a new Tikipunga shared path, provide safe on-road facilities and crossing points, provide cycle training in schools, install bike facilities (eg bike racks, E-Bike charging stations etc) and a bus fleet capable of carrying bikes.
- Travel Demand Management through strengthening the parking strategy with pricing and travel planning in school and businesses using campaigns such as LETSGO.
- Safety Improvement in conjunction with capacity upgrades, targeted safety improvement through crash reduction studies and on high risk roads, upgrade lighting on arterials and speed limit changes.

The outcomes achieved by the recommended programme by 2030 include:

PBC Investment Outcomes:

- Maintaining traffic flows free from congestion (Level of Service D or better) while accommodating planned growth in the City
- A 500% increase in public transport patronage
- 21,200 more people within a 400m walk of a bus stop or within 5km of a park and ride facility
- A 100% increase in walking and cycling trips
- 11,900 more people within a 400m walk of a shared path
- A reduction of 5 Deaths and Serious Injury Crashes (DSI's) per year
- A reduction in CO_2 emissions of 8,300 tonnes per annum

As can be seen from the investment outcomes above, this is an integrated programme that is mode neutral, improves safety, will improve accessibility and reduces vehicle emissions.

The estimated cost of the preferred programme is $405-660M with a Benefit Cost Ratio (BCR) of between 1.0 and 1.6. The preferred programme best matches the level of investment required to achieve the investment objectives. It also has the opportunity to deliver further benefits in terms of revitalizing Whangarei's CBD, improving network resilience and improving opportunities for tourism.

The programme has been assessed as having a **High** strategic fit and **High** effectiveness because the problems and benefits, supported by currently available evidence, are aligned with achieving the government and regional goals for the transport network. Without intervention, the problems will continue to worsen and importantly the benefits associated with economic growth, community severance and safety in the City will not be fully realised.

Overall, the investment profile of the recommended programme is H/H/ 1.0-1.6.

The recommended programme has been assessed as having manageable implementation risks. The programme will be staged to match growth and demand and will be implemented when projects are able to justify funding. In the short term the focus will be on improving the efficiency of the existing network through traffic signal improvements, road space re-allocation, intersection upgrades, safety improvements and implementing mode shift via shared paths, travel planning, parking charging and improved public transport services. In the medium to long term, the focus will move to more significant four-laning and bus lane/transit lane improvement projects, new road links and park and ride facilities for rural and coastal areas.

The recommended programme meets the investment outcomes for Whangarei City by supporting economic growth, reducing community severance effects and improving safety and resilience on the network. It will achieve the Draft GPS priorities of improving safety and accessibility, while reducing vehicle emissions. It is also integrated with the planned development of the City and promotes mode neutrality.

PART A – THE STRATEGIC CASE

1. Introduction

This Programme Business Case (PBC) considers the case for investment to address transportation problems in Whangarei City. Whilst the PBC is focussed on Whangarei City, it also includes consideration of the district wide transport network and state highways which also have major influences on the city. This PBC builds off the previous Whangarei Transportation Network Strategy that was developed in 2011 and endorsed by the NZ Transport Agency in October 2012.

Whangarei City is the capital of Northland and the only city north of Auckland. It has a population of 56,000 people and is a regional service centre and commercial hub for Northland. It has the only regional hospital in Northland, a regional stadium at Okara Park and a regionally significant airport. State Highway One passes through the middle of the city and provides the main access route from Northland to Auckland.

Whangarei City's transportation network is an enabler for economic growth in the Whangarei District and Northland as a whole by providing access through Whangarei which is the gateway to Northland and is the economic capital of the region. A significant proportion of Northland's freight travels through the city on State Highway One to NorthPort at Marsden Point and to markets in Auckland and beyond. Most tourists in Northland also pass through Whangarei on their way to the Bay of Islands and this is only likely to increase with the revitalisation of the Twin Coast Discovery Highway and the proposed Hundertwasser Art Centre, which is supported by the Tai Tokerau Growth Study and Economic Action Plan. A safe and efficient transport network in Whangarei City will support opportunities for economic growth in the region.

Whangarei City is located in the Hatea River Valley and is nestled between two major hill ranges and the Whangarei Harbour. The North Auckland rail line also runs in a north-south direction directly through the middle of Whangarei which again is a major constraint for transport links. These constraints have led to only a few arterial roads carrying most of the city's traffic, which results in higher traffic volumes than would be expected for a city of this size. These arterial roads also cause severance issues to the local community which is exacerbated by inadequate provision of safe crossing points for pedestrians and cyclists.

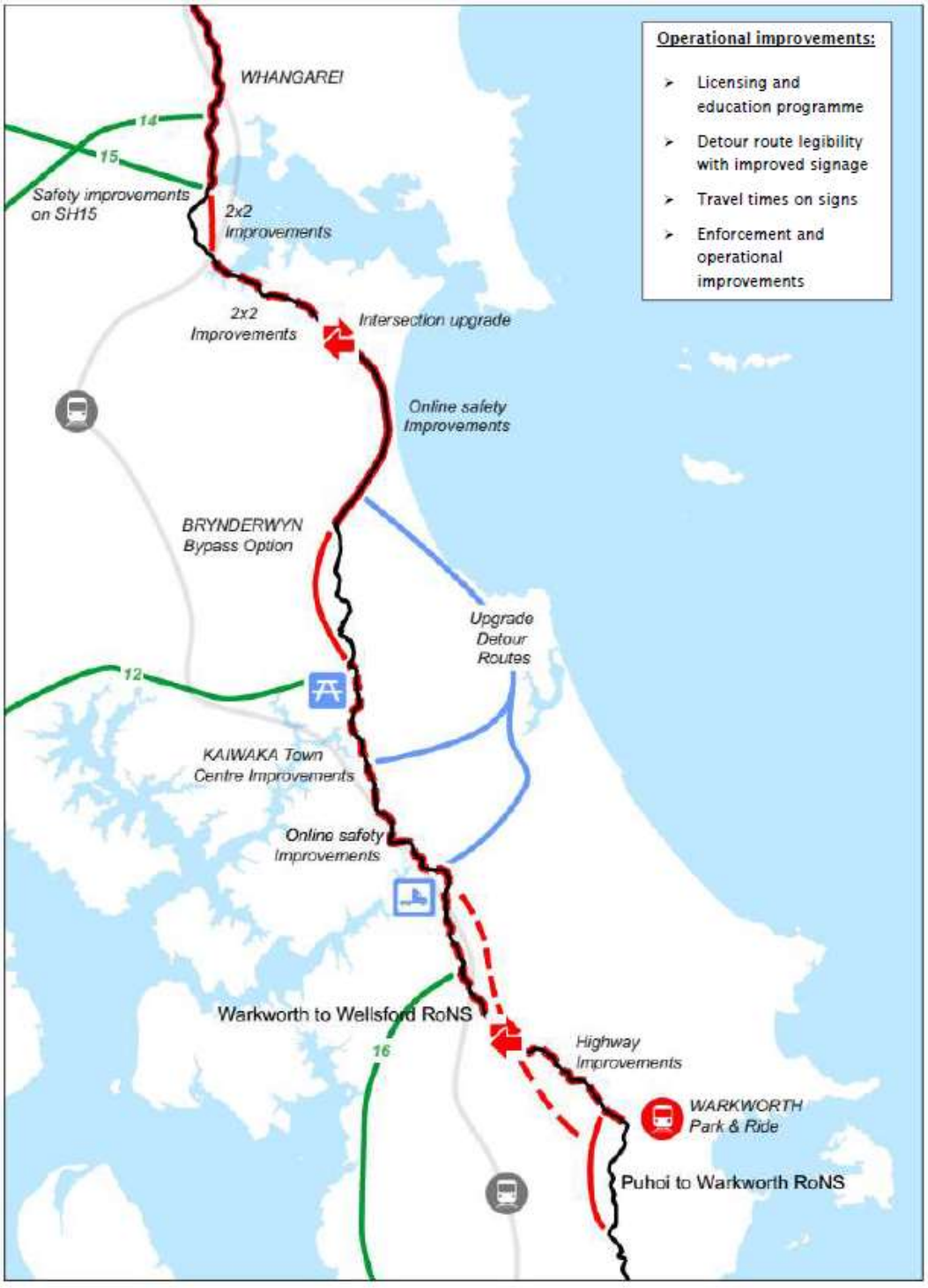
Significant investment has been made by both the Whangarei District Council and the NZ Transport Agency to improve the road network over the last 5-10 years. These improvements have addressed some historic capacity and safety issues and provide for some future traffic growth. They also provide for the development of off-road walking and cycling facilities.

While these improvements, have addressed many historic problems, there are still other areas where further improvement is required to realise the full benefit of the work undertaken to date. In addition, future growth is likely to continue to use up any available capacity and there is limited ability to further widen some arterial roads to provide additional capacity due to the proximity of buildings on these routes.

The government has announced that it will invest in the Auckland to Whangarei corridor as part of the Connecting Northland project shown in Figure 4. A commitment was made by the previous government to 4-laning the section of SH1 between Whangarei City and the Port Marsden highway (SH15) within the next 7 years. Although the new government has indicated that this project may no longer be a priority, it is still expected to be required in the short to medium term to address the high number of fatal and serious injury crashes on this length of highway. Potential new alignments to potentially bypass the Brynderwyn ranges

south of Whangarei are also being investigated as a longer term project. This creates a positive environment for regional investment and growth in Whangarei and Northland. Ensuring that the transport network of Whangarei is safe and efficient is therefore important in realising these growth opportunities. It is also consistent with the Tai Tokerau Economic Action Plan which promotes transport as an enabler to economic growth.

Figure 4 – Connecting Northland – Recommended Programme



This PBC has been developed with stakeholders and investors to ensure that all parties are directing change and improvement in the right areas. In particular, it:

- Confirms the Strategic Case problems and benefits;
- Confirms the need to invest and case for change;
- Develops investment objectives;
- Is informed by stakeholder and customer input;
- Investigates options and alternatives to address the problems in the city;
- Identifies a preferred programme of works to address the problems;
- Identifies the key asset and non-asset based projects that will support the programme outcomes, including proposed priority and timing;
- Seeks the early approval of decision-makers to develop subsequent project-based business cases.

2. Programme Context

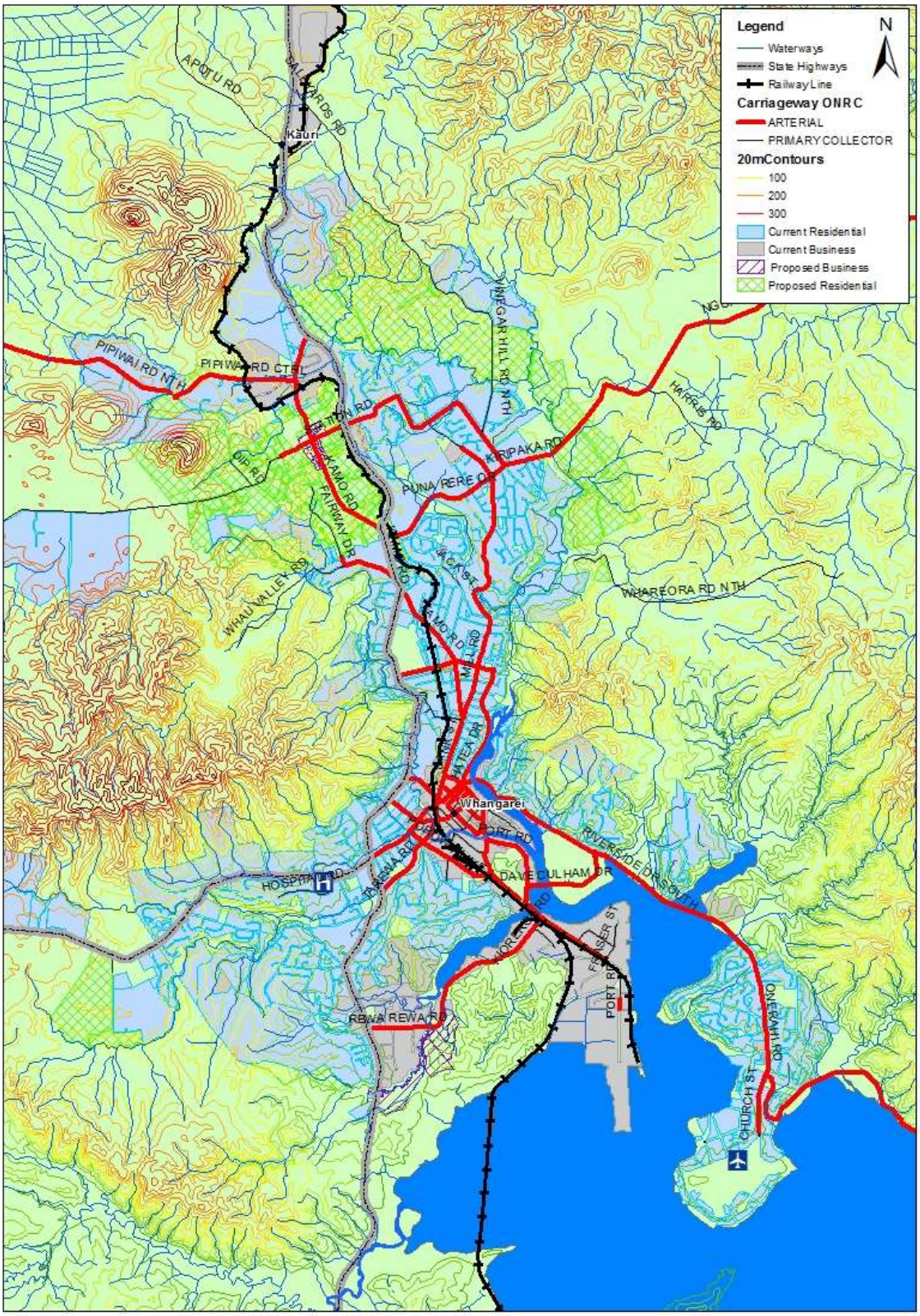
2.1 Geographic and Environmental Context

Whangarei City is located in the Hatea River valley which is surrounded by hills. To the east is Mt Parihaka and to the west are the Western Hills. At its narrowest point, north-south traffic in Whangarei is channeled through a 1km wide corridor between these hills.

Whangarei also straddles the Hatea River and numerous other tributaries such as the Waiarohia Stream, Raumanga Stream, Otangarei Stream and Limeburners Creek. These waterways provide natural barriers to transport links. In particular, the Hatea River is a major constraint which has only four road crossings. The Whangarei Harbour also provides a major constraint to the south east of the city.

The North Auckland rail line also runs in a north-south direction directly through the middle of Whangarei. This again is a major constraint for transport links, particularly for east-west links. In the central business district (CBD), the rail line is on a raised embankment which effectively severs the CBD apart from three rail overbridges on Walton St, Water Street and Rust Ave. The constraints to the arterial road network are shown in Figure 5.

Figure 5 – Map of constraints on the Whangarei network



2.2 Social Context

2.2.1 Region Economy

Whangarei City is the only city in the Northland Region and is the gateway to Northland. State Highway 1, which passes through the middle of the city, provides the main access to the Far North and to the Bay of Islands tourist area. An efficient and safe transport system in Whangarei City is therefore vital to the economic productivity of Northland.

Northland is one of the most deprived populations in the country. While 20% of New Zealand's population is in the lowest quartile of the deprivation index, the equivalent measure for Northland is 35%. Just over 20% of Northland's usually resident population live in areas that have the lowest deprivation score, compared to 10% nationally.

Northland is a regional economy that has been underperforming relative to other New Zealand regions and relative to its resource base for too long. The Northland Region is strongly focused on primary production with Whangarei City as its main service centre. The movement of primary products such as milk, logs, livestock and aggregate around the region, to markets in Auckland and further south and to the regional port of North Port is therefore critical for these goods to reach their markets.

Northland's economy accounts for 2.5% of New Zealand's Gross Domestic Product (GDP). Nominal GDP in the region increased by 2.6% per annum on average over the past 5 years, compared to the national average of 4.1%. Northland has an unemployment rate 3% above the national rate and nominal GDP per capita is 32% below the national average.

As a result of this poor economic performance, the government has developed the Tai Tokerau Growth Study and Economic Action Plan. This proposes major developments improve economic productivity of Northland. Projects of relevance in Whangarei City are the re-vitalisation of the Twin Coast Discovery Highway and the construction of the Hundertwasser Art Centre in Whangarei's Town Basin area. The Twin Coast Discovery Highway passes through Whangarei City using many of its arterial routes. Tourism is increasing rapidly in Northland with a 5% increase in guest nights in the year to September 2016 (source: NZ Statistics) and tourism spend is predicted to grow nationally by at least 26% by 2041 (source: Tourism Industry Authority). The Whangarei District is likely to get a fair share of this growth due to initiatives such as the re-vitalisation of the Twin Coast Discovery Highway and the Hundertwasser Art Centre which will put more pressure on the arterial road network in Whangarei City.

The MOT National Freight Demand Study (2014) predicts that freight in Northland is to grow by almost 40% from 2012 to 2042. Most of this freight is likely to be transported by road due to rail freight only accounting for 2% of all freight movements in Northland and because the rail network is currently in a state of decline in Northland. This will significantly increase the amount of heavy vehicles travelling on SH1 through Whangarei in the future and will further impact on the capacity of this route.

2.2.2 Growth

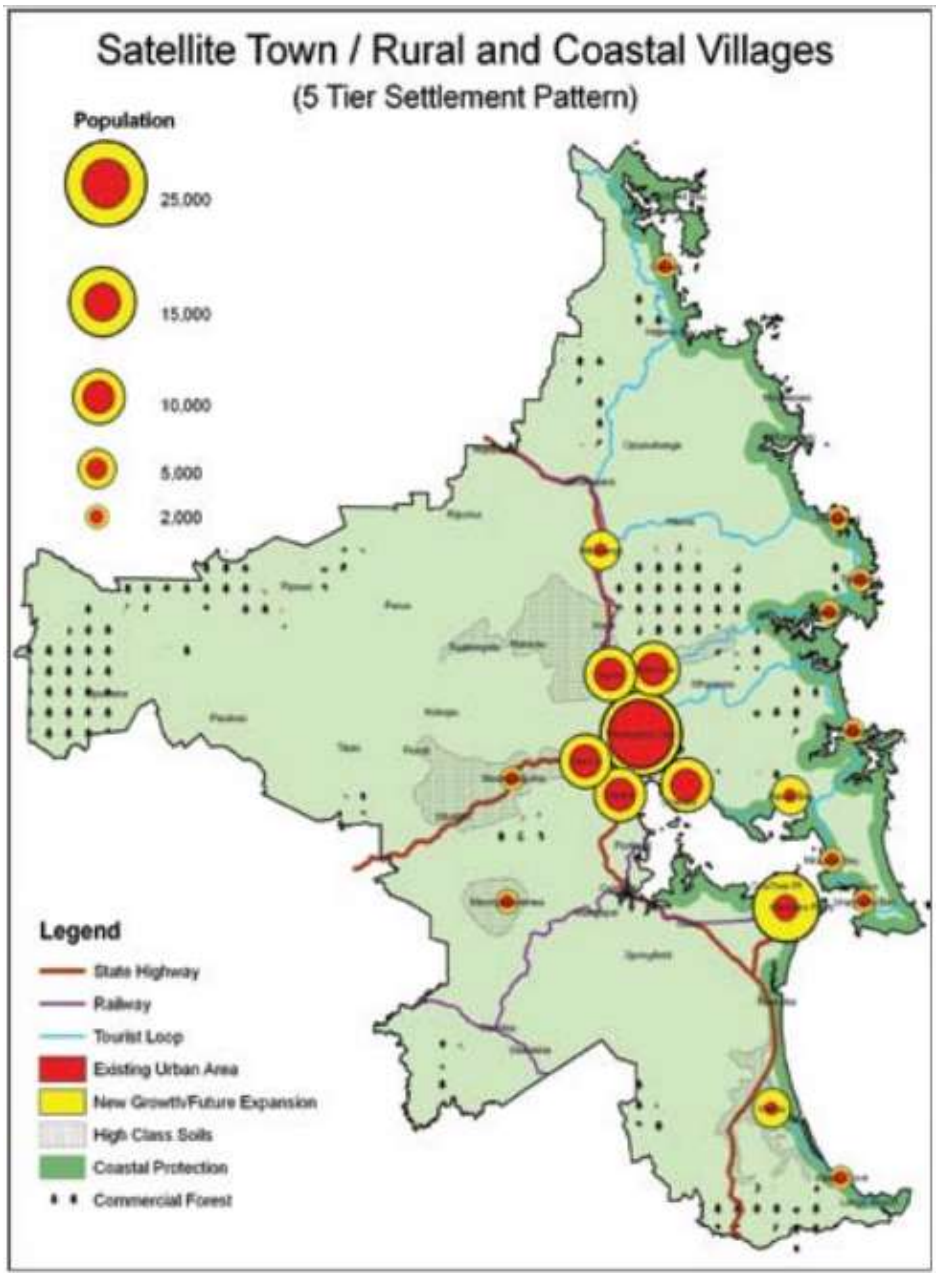
Long term growth in Whangarei is expected to be 1% for the next 50 years as defined in Whangarei's Sustainable Futures 30/50 year growth strategy. This growth strategy predicts that the population of the district will increase from 74,430 in 2006 to around 110,000 in 2041 (roughly the size of Tauranga) and to around 130,000 in 2061 (roughly the size of Hamilton). The 2013 census data showed the population was 83,700.

The key outcomes of the 30/50 Growth Strategy are to consolidate growth into a five tier settlement pattern as follows:

- Whangarei City as the primary district and regional urban centre with a strong, protected and enduring CBD.
- A satellite town at Marsden Point/Ruakaka which compliments, but does not compete with, Whangarei City. This satellite town was expected to have a population of about 14,600 by 2061.
- Five urban villages within the greater Whangarei urban area (Kamo, Maunu, Onerahi, Otaika/Toe Toe and Tikipunga).
- One rural and two coastal growth nodes (Hikurangi, Parua Bay and Waipu).
- Two rural villages (Maungatapere and Maungakaramea).
- Eight coastal villages (Matapouri, McLeods Bay/Reotahi, Ngunguru, Oakura, Pataua, Taurikura/Urquharts Bay, Tutukaka, Waipu Cove/Lang Beach).

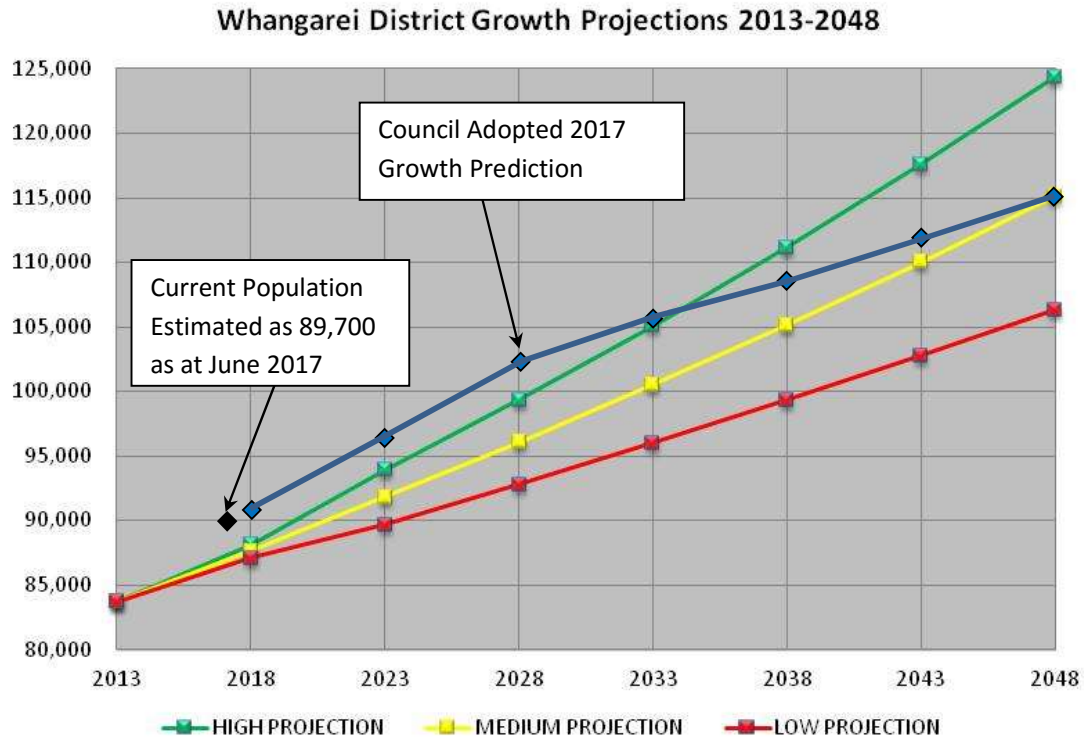
This development is shown in Figure 6 as follows.

Figure 6 – Proposed growth patterns from Whangarei's Sustainable Futures 30/50 growth strategy



The Whangarei Growth Model was updated in 2014 and had a range of growth scenarios. Council decided to adopt the medium projections for growth as shown in the Figure 7.

Figure 7 – Whangarei District Growth Projections 2013-2048



An update of the growth model was undertaken in 2017 using the latest Statistics NZ predictions that were released in 2017. Again, the Statistics NZ Medium Growth Prediction was used which predicts that Whangarei's population will grow by more than 10% over the next 10 years. On the basis of this data, Statistics NZ have now identified Whangarei as a High Growth Urban Area.

The Statistics NZ Medium Growth Prediction was amended by Council to reflect higher growth predictions in Marsden Point/Ruakaka due to rapid growth in this area and in the Port-Limeburners area to reflect the development of the Port Nikau development. The adopted 2017 growth model is shown in blue in Figure 7 above. This indicates that there will be steady growth of 1.3% for the next 10 years and lower growth of 0.5-0.6% per annum for the 2028 to 2048 period.

The findings of the 2017 Growth Model update are summarised below:

- Whangarei District's estimated resident population grew from 83,700 in 2013 to 89,700 in 2017. This resulted in an increase of 6,000 people, representing an average annual increase of 1,500 people or 1.8% per annum (7.16% over four years).

- The medium projection for the District sees an increase from 90,500 people in 2018 to 102,000 in 2028, resulting in an extra 11,700 people, averaging 1,170 additional people per year or 1.3% growth per annum.

- Total dwellings in the Whangarei District are forecast to increase from 38,200 in 2013 to 43,570 in 2028, resulting in an extra 5,370 dwellings, averaging 537 additional dwellings per year (1.4% growth per annum).

- The highest percentage increases in population between 2018-2028 are expected to be in Marsden Point/Ruakaka, Port Limeburners, Waipu, Bream Bay and Te Hihi.

- The total business floor area is expected to increase from 1,274,600 m^2 in 2018 to 1,367,000 m^2 in 2028, averaging an increase of 9,240 m^2 per annum (0.7% growth per annum).

Actual population growth in the district in the last year (year to June 2017) was 2.0%. This was the highest growth rate seen in the district in the last 20 years and is due mainly to high net immigration into the country and overflow from the housing pressure in Auckland. This is likely to be a short – medium term trend while net immigration is high, but could result in a spike in traffic growth which could rapidly use up the available capacity. The traffic growth rate in the Whangarei District for the year ended September 2016 was 4.9% (source: InfoMetrics). This indicates that the current growth predictions could be too low, increasing the risk that urban growth will have considerable impact on the transport network.

2.3 Transport Context

Between 2009 and 2011, the Whangarei District Council developed a long term strategy for the Whangarei transport network. This strategy is known as the Whangarei Transportation Network Strategy. The strategy was supported by the NZ Transport Agency in October 2012.

This strategy identified many transport improvements to reduce congestion and improve efficiency of the road network in Whangarei City. Many of these transport improvements have now been completed or are underway including:

- SH1 Kamo Bypass Stage 2 and Spedding Road extension
- SH1 Selwyn Ave to Fourth Ave 4-laning and intersection improvements
- SH1/SH14 intersection upgrade
- SH1 Kensington to Manse upgrades
- SH14 Hospital Road intersection upgrade
- Porowini Ave extension
- Lower Hatea River Crossing
- Mill Road/Nixon Street intersection improvements
- Raumanga/Maunu, Onerahi and Kamo off-road cycleways

In addition to those projects listed above, work is also just about to commence on the SH1 Tarewa Road intersection upgrade.

While these projects have increased capacity and improved road safety on the network, they have also utilised most of the available road reserve and adjoining land. Any future capacity upgrades are likely to require substantial land take and removal of residences and commercial buildings on some routes to provide any additional width which is likely to be cost prohibitive.

As discussed in Section 2.2, the population in Whangarei is currently growing at 2%, which is twice its historic growth rate due to pressure from Auckland. Freight traffic in Northland is also expected to increase by almost 40% by 2042 and tourism traffic is also increasing rapidly. Given that traffic volumes are currently increasing at 5%, it is likely that there will be further capacity issues in the future. It is therefore important that we plan for this growth appropriately to ensure right sized responses and the most cost effective outcome for the transport system given that previous studies were based on a lot less growth.

The transport network is important to the economy of Northland and Whangarei, with 98% of freight carried by road in the region. Most business trips are undertaken by road due to lack of other modes and a dispersed population resulting in heavy reliance on private vehicles. The economy and population is growing, so a well-planned transport system is a critical component to enable this growth to happen.

2.4 Environmental & Planning Context

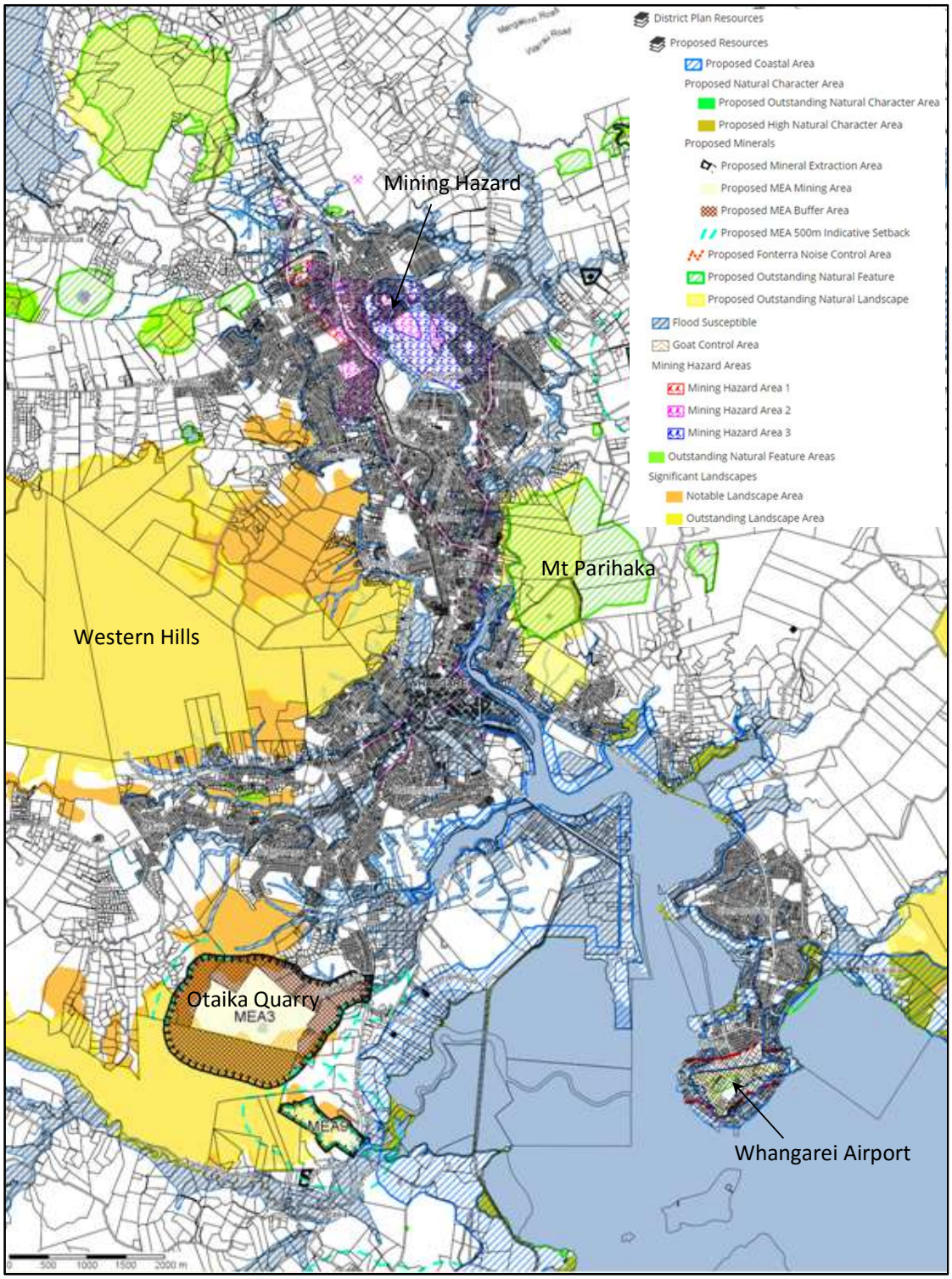
As well as the physical constraints identified in Section 2.1, there are many environmental hazards and planning constraints that affect the transport network. Mt Parihaka to the east and the Western Hills to the west of Whangarei City are proposed outstanding natural landscapes and Mt Parihaka is also a proposed outstanding natural feature. There are also numerous areas subject to flooding in the city, mostly around the many waterways and the Whangarei Harbour.

In the suburbs of Kamo and Tikipunga, there are old mine shafts that may pose a constraint for transport development. The Whangarei Airport also restricts development on the end of the Onerahi peninsular and Winstone's Otaika Quarry in the south restricts transport options in this area.

Planning work is currently underway to identify a possible location for a new regional airport near Whangarei. This could have a significant local effect on traffic patterns around the new airport and there could be redevelopment of the Onerahi area where the current airport is which could change traffic demands in this areas. However, at this stage the location and timing of any new airport is unknown.

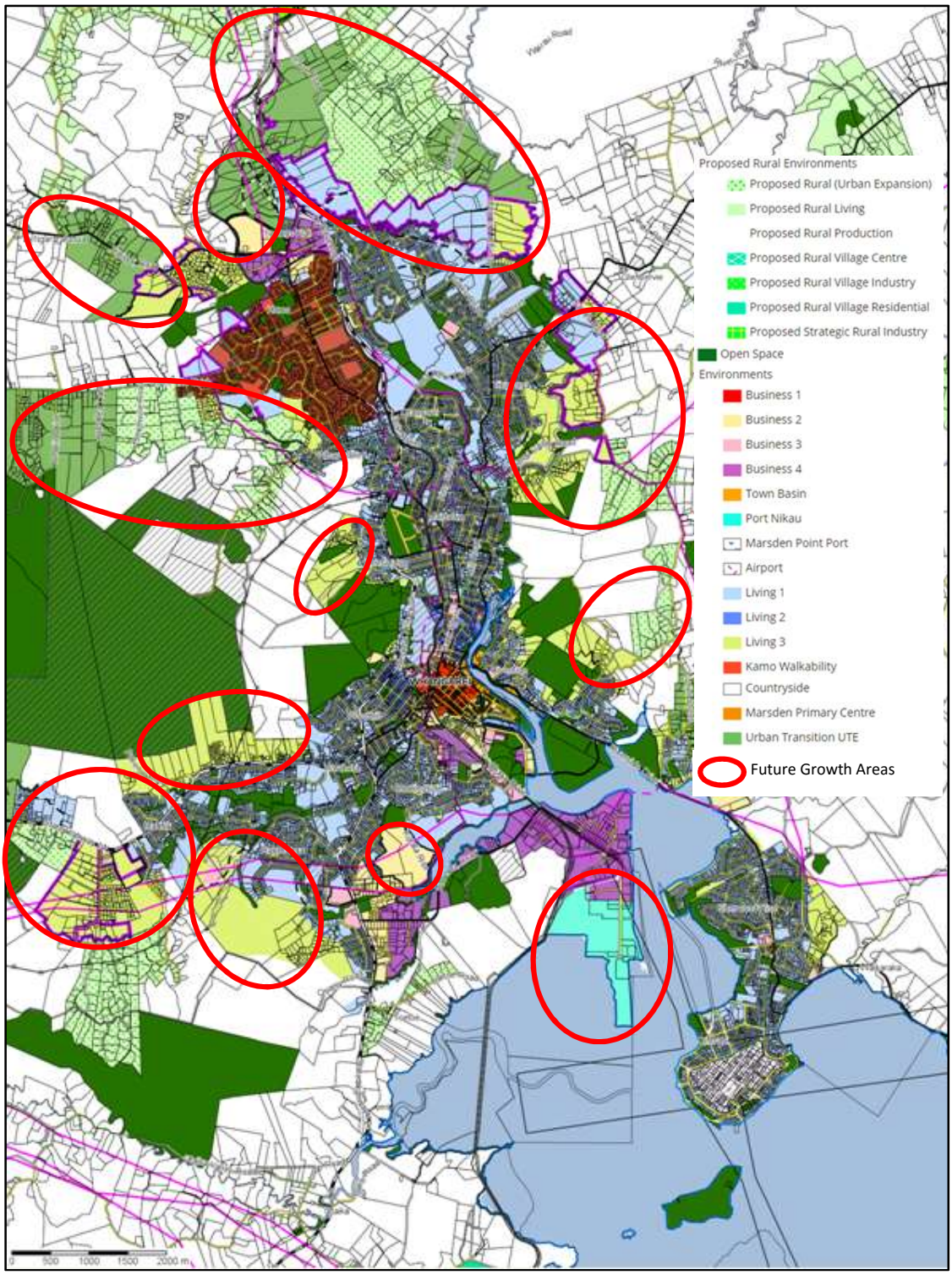
These features are shown on the Figure 8 which shows the resource areas from the Whangarei District Plan that affect Whangarei City.

Figure 8 – District Plan Resource Areas in Whangarei City



The District Plan also identifies areas planned for growth in the City. These are mainly in the Kamo, Tikipunga, Whareora, Maunu, Raumanga and Port Nikau areas of Whangarei and is shown in Figure 9. Most of these areas are on the outskirts of the current urban area and will continue to increase pressure on Whangarei's existing arterial roads over time. This planning is consistent with the 30/50 Growth Strategy.

Figure 9 – District Plan Environments in Whangarei City showing areas of potential urban growth



3. Partners and Key Stakeholders

The activities and problems relating to Whangarei City's transportation network affect a number of different organisations and customers. The engagement through the PBC built on the engagement undertaken during the development of the Strategic Case and widened the number of stakeholders to ensure a broader level of engagement across the network.

3.1 Investment Partners

The scope of the Whangarei Transport Network Strategy requires the NZ Transport Agency and Whangarei District Council to be responsible for delivering outcomes. Accordingly, this PBC is being delivered in partnership.

3.1.1 NZ Transport Agency

The NZ Transport Agency is a Crown entity with statutory responsibility for managing the state highway network and for making investments from the National Land Transport Fund (NLTF) in the national, regional and local transport systems (including co-investment with the Whangarei District Council in local roads and with the Northland Regional Council for public transport service in Whangarei).

The Transport Agency is responsible for giving effect to the Government Policy Statement (GPS), which sets out the Government's strategic direction for investment in the land transport network. The GPS places particular importance on the investment in the state highway network and major arterials, in recognition of their importance to the efficient movement of people and freight, and safety.

3.1.2 Whangarei District Council

The Whangarei District Council is a local government territorial authority with statutory responsibility for managing the local road network in the Whangarei District and for making investments using ratepayer funds in accordance with its Long Term Plan (LTP). The Whangarei District Council also has responsibility for the economic, social, cultural and environmental well-being of the district and its residents.

The purpose of local government, as defined in the Local Government Act 2002, is to enable democratic local decision-making to meet the current and future needs of communities for good quality local infrastructure, local public services and performance of regulatory functions in a way that is most cost effective for households and businesses.

3.2 Investment Partners

Based on engagement with stakeholders, the following key focus areas have been identified. Generally, there is strong alignment between stakeholders regarding the focus areas for the network.

Table 1 describes the key stakeholders for this PBC.

Table 1: Key Stakeholders

Stakeholders	Focus Area
Whangarei District Council (WDC – Roading)	Developing a programme of works that provides for a safe and efficient transport network in Whangarei City.
Whangarei District Council (Policy & Planning)	Focused on a programme that provides for efficient movement of people, is multi-modal, encourages development and supports growth.
NZ Transport Agency	Development of a programme of works that has a sound evidence base, represents a good investment and provides for the safe and efficient operation of the state highway networks in the city.
Northland Regional Council (NRC)	Development of a programme that increases accessibility both within the city (particularly with regard to public transport) and to the wider Northland region.
Northland Chamber of Commerce	Focused on enhancing business activity and growth opportunities in Whangarei City and the CBD.
Northland Inc	Development of a programme that enhances business and tourism opportunities in Whangarei and supports the Tai Tokerau Economic Action Plan.
Public Transport Industry	Focused on enhancing public transport in the city to encourage more use of this mode.
Freight Industry	Focused on reducing the cost of travel and delays to freight through the city.

3.3 Alignment to Existing Strategies / Organisational Goals

This section describes how the proposed outcomes align to relevant national, regional and local organisational strategies. The strategies with the most direct impact on this PBC are outlined below.

3.3.1 Land Transport Management Act 2003 (LTMA)

The LTMA requires the Transport Agency to assess all potential projects against the GPS, the relevant Regional Land Transport Plan (RLTP) and Connecting New Zealand's three key areas of focus across the transport system.

- Economic growth and productivity
- Road safety
- Value for money

In developing this strategic business case, a number of key problems and potential benefits were identified using the knowledge and data that was available. A number of issues emerged from the process that were considered significant to this project including:

- The economic impact of significant delay and poor reliability associated with congestion in Whangarei impacting on the movement of people, tourists and freight both in Whangarei and Northland.
- The economic impact of poor access to the CBD and future growth areas of the city limiting business and urban growth and opportunities.
- The risk of death or serious injury as a result of poor intersection layout and lack of safe pedestrian and cyclist crossing points.

The resolution of these problems would contribute to the GPS key areas of focus.

3.3.2 Government Policy Statement on Land Transport Funding 2015/16 -2024/25 (GPS 2015) and Draft GPS 2018

The GPS 2015 sets out the priorities, objectives and funding levels for land transport, establishing funding ranges for land transport activity classes and identifying the results expected from this investment. The GPS 2015 priorities are:

- A strong and continuing focus on economic growth and productivity
- Road Safety
- Value for money

The objectives underpinning these priorities are listed as:

- A land transport system that addresses current and future demand
- A land transport system that provides appropriate transport choices
- A land transport system that is reliable and resilient
- A land transport system that is a safe system, increasingly free of death and serious injury
- A land transport system that appropriately mitigates the effects of the land transport system on the environment.

A draft GPS has been developed for the 2018/19 – 2027/28 period (Draft GPS 2018). The Draft 2018 priorities are:

- Safety;
- Access;
- Environment;
- Value for money.

The strategic objectives which underpin these priorities in the Draft GPS 2018 are:

- A land transport system that is a safe system, free of death and serious injury
- A land transport system that provides increased access for economic and social opportunities
- A land transport system that enables transport choice and access
- A land transport system that is resilient
- A land transport system that reduces the adverse effects on the climate, local environment and public health
- A land transport system that delivers the right infrastructure and services to the right level at the best cost

The Draft GPS 2018 has introduced the following themes to assist understanding of how to effectively deliver on the priorities:

- A mode neutral approach to transport planning and investment decisions
- Incorporating technology and innovation into the design and delivery of the land transport investment
- Integrating land use and transport planning and delivery

The benefits of investing in the Whangarei City transport network, improving access for current and future demand, providing better transport choices, improving access by improving public transport and walking and cycling links, increasing the reliability and resilience of the network, improving its safety and mitigating the severance effects of the network are all closely aligned with the both the GPS 2015 and Draft GPS 2018 priorities and objectives.

3.3.3 NZTA Long Term Strategic View, March 2017 (LTSV)

The draft Long Term Strategic View (LTSV) sets out how the NZ Transport Agency will respond to ensure they continue to deliver a transport system that supports greater prosperity, security and opportunities. The value statement of the LTSV is "Great journeys to keep New Zealand moving".

The strategic responses to achieve this value are focused on the following three big areas of change:

- One connected transport system
- People-centred services
- Partnerships for prosperity

The LTSV has six external focus areas as follows:

- Shape New Zealand's land transport system and influence its delivery
- Partner for tailored solutions that support wider outcomes for communities, regions and New Zealand
- Balanced solutions for customers in high growth urban areas
- Solutions that contribute to improved safety and public health outcomes and reduce environmental harms
- Deliver innovative services and experiences customers and citizens value
- Lead the integration of a digitally connected land transport system

Of particular relevance to Whangarei City are two of the strategic focus areas of the LTSV detailed as follows:

- Growth Centres - The LTSV considers the range of transport interventions that will be required in each centre to support and enable growth, including transport choice, demand management, network optimisation and new infrastructure and services. In 2017, Whangarei has been identified as a High Growth Urban Area with Statistics NZ forecasting more than 10% growth in the next 10 years.

- Regional Economic Development Areas – The LTSV will consider the opportunities for transport to support and enable economic growth and productivity in these regions. Northland has been identified as a region with high levels of unemployment and social deprivation which should be considered for Regional Economic Development. This has been formalized with the development of the Tai Tokerau Economic Action Plan which is discussed in Section 3.3.6.

3.3.4 Northland Regional Policy Statement, 2016 (RPS)

The Regional Policy Statement (RPS) for Northland covers the management of natural and physical resources in the Northland Region. It provides the broad direction and framework for managing the region's natural and physical resources. It identifies significant resource management issues for the region and sets out how resources such as land, water, soil, minerals, plants, animals and structures will be managed.

Policy 5.2.3 promotes the "provision of infrastructure as a means to shape, stimulate and direct opportunities for growth and economic development". It recognizes that infrastructure can create opportunities for growth and development, such as those described in this business case related to the Whangarei transport network.

Policy 5.3.2 recognises regionally significant infrastructure such as State Highway 1, the Whangarei airport and hospital and allows it to be protected from adverse effects.

3.3.5 Northland Regional Land Transport Plan, 2015-2021 (RLTP)

The current Northland Regional Land Transport Plan (RLTP) identifies seven key strategic outcomes that the region seeks to achieve. These are:

- A sustainable transport system that enhances the growth and existing economic development of Northland and New Zealand.
- All road users are safe on Northland's roads.
- Northland is well connected to Auckland and the rest of New Zealand.
- Northland's roading network is developed and maintained so that it is fit for purpose.
- Our people have transport choices to access jobs, recreation and community facilities.
- The transport system enhances the environmental and cultural values of Northland (including reducing severance effects).
- Effective ports servicing Northland and New Zealand.

A revision to the RLTP for the 2018-2021 period is underway and this has identified an additional strategic outcome and a change to an existing outcome as detailed below:

- The transport system that encourages and facilitates increased tourism to the region.
- Northland's roading network is developed and maintained so that it is fit for purpose and resilient. (emphasis added to highlight change)

Seven of the eight main outcomes are key to supporting the desired outcomes of the Whangarei transport network.

3.3.6 Tai Tokerau Economic Action Plan

The Tai Tokerau Economic Action Plan (February 2016) brings into focus a group of projects that together will contribute to transforming Northland's economy. It is an "all of government" action plan to improve the economic performance of Northland.

The Action Plan is short to medium term, covering 10 years and aims to encourage new projects to be included as existing projects come to completion. A broad range of organisations will contribute to the success of the Action Plan, ranging from business and Iwi/Maori through to not-for-profit organisations and local and central government, including the Whangarei District Council and NZ Transport Agency.

The Action Plan focuses around projects that are considered to make the greatest short to medium term difference to economic outcomes in Northland. These projects have been organized together into common work areas that fall under four broad work streams. The objectives for each are:

1. **Enablers:** To bring Northland's transport, digital infrastructure, skills and capabilities and water resources to a standard that creates an enabling environment for economic development in Northland.
2. **Land & Water:** To identify and develop opportunities for more productive use of land and water resources across a range of primary industry sectors.
3. **Visitor Industry:** To reduce the impact of seasonality, improve product dispersal across the region and enhance tourism promotion.
4. **Specialised Manufacturing & Services:** To support the development of new innovation and specialized manufacturing and service sectors.

The Action Plan has identified that the lack of robust transport accessibility between Northland and the rest of the country is a contributing factor to the area's poor economic situation and has identified four "game changers" to underpin business growth. The first of these game changers is:

- ***1 Transport:*** *- better connectivity with Auckland, within the region and with export markets. Northland is a place-based economy. Roading in particular, is critical for Northland to develop and affects virtually every part of the economy.*

Specific projects that will be affect by or have an effect on the Whangarei transport network are outlined as follows:

Enablers:

- 1.2 – Connecting Northland (Roading) – Wellsford to Whangarei section (Years 10+)
- 1.3 - The re-vitalisation and upgrade of the Twin Coast Discovery Highway which passes through Whangarei (Years 1-5)
- 1.9 - Investigation into the options for, and opportunities created by, the relocation of Whangarei airport (Years 1-5)
- 3.8 - Tertiary Education Precinct/Cluster in Whangarei: A collaborative arrangement to build a tertiary campus focused on delivery of Diploma & Degree level education to people in the Northland Region (Years 1-3)

Visitor Industry:

- 4.2 - Hundertwasser Art Centre with Wairau Mäori Art Gallery - multi-functional including a main gallery of Hundertwasser's work and a contemporary Mäori Art Gallery (Years 3-4)

Specialised Manufacturing and Services:

- 1.1 - Installation of travel lifts in Whangarei to support the expansion of the marine manufacturing industry (Year 1)

Investment into the Whangarei transport network will directly assist these projects.

3.3.7 Whangarei District Long Term Plan, 2015-2025 (LTP)

The current Whangarei District Long Term Plan (LTP) identifies five key community outcomes that the district plans to achieve. These are:

- Easy and safe to move around

- A growing, resilient economy
- Clean healthy and valued environment
- Vibrant and healthy communities (improved by removing community severance and providing for active modes)
- Well managed growth

Four of the five outcomes are likely to be improved by investment in the Whangarei transport network.

3.4 Workshop Collaboration

The Strategic Case and PBC has been developed through a collaborative process with active involvement from a technical stakeholder group. The stakeholders were chosen based on having a broad range of skills and experience which would be useful in determining the issues facing Whangarei's transport network and in identifying and prioritizing potential options. The workshops held and the attendance is outlined in Table 2 below:

Table 2 – Workshop Stakeholder Participation

Workshop	Date	WDC	NZTA	NRC	Northland Chamber of Commerce	Northland Inc	Freight Industry	Bus Industry
Strategic Business Case								
1. Agree the Problems and Benefits (ILM Workshop))	5 Jul 2016	✔	✔	✔	✔	✔		
2. Agree the Investment Measures and KPIs (ILM Workshop)	11 Aug 2016	✔	✔	✔	✔	✔		
Programme Business Case (PBC)								
3. Confirm the Problems, Benefits, Investment Objectives and Development of Options	4 May 2017	✔	✔	✔	✔		✔	✔
4. Evaluation of foundation programmes and development of recommended programmes	26 Jun 2017	✔	✔	✔	✔	✔	✔	✔
5. Confirmation of the preferred programme and prioritisation/ timing of programme	15 Nov 2017	✔	✔	✔		✔		✔

The first two workshops developed the Investment Logic Maps (ILMs) for the strategy. These ILMs were undertaken with a certified facilitator (Stephen Davis Howard) and the results of the ILM workshops are detailed in the following section.

Workshops 3, 4 and 5 expanded on the problems and benefits identified in the ILM workshops and developed the investment objectives, long list of options and alternatives, development of programmes and confirm the preferred programme.

4 Strategic Assessments – Outlining the Need for Investment

4.1 Defining the Problem / Opportunity

A facilitated workshop was held on 5 July 2016 with key stakeholders from the Whangarei District Council (WDC), NZ Transport Agency (HNO and P&I), Northland Regional Council, Northland Inc and Northland Chamber of Commerce to gain a better understanding of the current issues with the transport network in the Whangarei City. The stakeholder group developed and agreed the following key problems:

- **Problem 1**: Whangarei's topography has constrained the City's arterial road footprint which means we cannot easily expand infrastructure to meet future growth in demand (50%).
- **Problem 2**: SH1 and other urban arterial routes traverse the City centre which results in severance for pedestrians walking between key areas (30%).
- **Problem 3**: Whangarei has a high number of crashes on arterials, which results in a high collective risk (20%).

The Investment Logic Map is attached as **Appendix A**.

4.2 The Benefits of Investment

The benefits of successfully investing to address these problems were identified as part of the ILM process at the second workshop on 11 August 2016. Three benefits were identified for the Whangarei City network if the problems are addressed.

These are outlined in the Benefits Map in **Appendix B** and are summarised below:

- **Benefit One**: The transport network enables people to live, work, play and learn in the City (40%).
- **Benefit Two**: Better able to manage and support economic and urban growth activity (35%).
- **Benefit Three**: People are able to make safe, healthy travel choices (25%).

During the first PBC workshop (Workshop 3), there was discussion and engagement in relation to problems and benefits identified in the ILM workshops. The PBC workshops confirmed these problem and benefit statements developed during the Strategic Case remain appropriate.

4.3 Identification of Uncertainty and Risk

During the workshops, stakeholders identified risk and uncertainty that could affect the PBC. Table 3 outlines the identified risks and uncertainties. These uncertainties and risks were considered in the development of the programmes and in the sensitivity analysis.

Table 3 – Identified Uncertainty and Risk

Risk	Timeframe	Likelihood	Severity/Impact on Network	Comments
Land use changes				
Growth forecasts in Whangarei change.		Reasonably foreseeable	Medium	NZ Medium growth projection used with High growth forecast for Marsden Point.
Whangarei Airport moves	Unknown	Hypothetical	Low	Informed by Whangarei Airport Study.
Economic Development				
Port Marsden (North Port) increases in size and capacity, potentially taking containers or other bulk goods	Post 2020	Hypothetical	Medium	Informed from the Upper North Island Freight Study and the Auckland Port Study.
Investment in rail network including Marsden Point connection.	Unknown	Hypothetical	Low	Greater portion of freight transported by rail. Reduction of heavy vehicles on road.
Increase of tourism industry activity – more visitors	Post 2020	Reasonably foreseeable	Low	Informed by tourism growth strategies.
Hundertwasser Art Centre creates significant change to traffic patterns in Whangarei	Post 2020	Reasonably foreseeable	Medium	Informed by traffic impact studies associated with the Hundertwasser development.
Environmental changes				
Sea level rise/climate change affects Whangarei City transport system.	Post 2050	Reasonably foreseeable	Low	Potential flooding of low lying roads in Whangarei.
Transport baseline				
Autonomous vehicles/ride sharing	Post 2025	Hypothetical	Medium	Use of autonomous vehicles or ride sharing (Uber) changes vehicle use.
Fuel prices	Unknown	Reasonably Foreseeable	Medium	Change in fuel price will affect vehicle travel and may result in mode shift.
Global/National economy changes	Unknown	Hypothetical	Medium	Change in economy could result in the number of trips increasing or decreasing.
Funding changes				
Funding changes/priorities introduced through GPS.	2018	Reasonably foreseeable	High	Could affect transport modes where funding is directed.

4.4 Problem 1 – Topography Constrains the Road Network and Growth

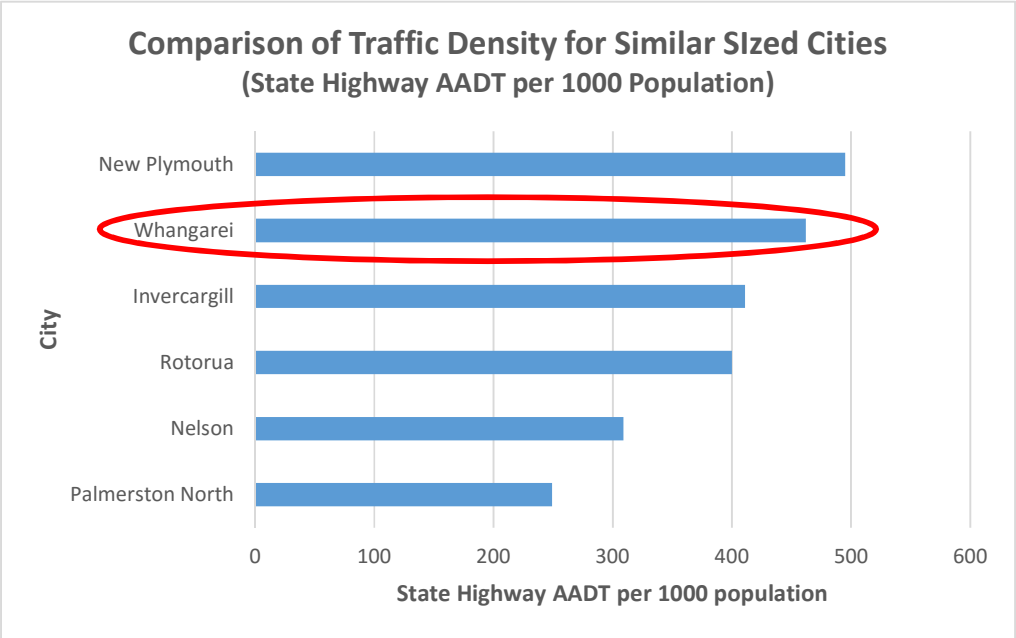
"Whangarei's topography has constrained the City's arterial road footprint which means we cannot easily expand infrastructure to meet future growth in demand"

4.4.1 The Evidence

As described in Section 2.1 Geographic and Environmental Context, Whangarei City is constrained to the east by Mt Parihaka and to the west by the Western Hills. Whangarei also straddles the Hatea River and the Whangarei Harbour provides a major constraint to the south east of the city. In addition to these topographical constraints, the North Auckland rail line also runs in a north-south direction directly through the middle of Whangarei.

The effect of these constraints is to concentrate traffic flows in Whangarei to only a few major arterial roads. This results in Whangarei having much greater traffic volumes on its key arterials than similar sized cities. A comparison of the traffic flows on the main state highways that run through similar sized cities to Whangarei was undertaken to demonstrates this. This is shown in Figure 10 below.

Figure 10 – Comparison of Traffic Density for Similar Sized Cities



This shows that, apart from New Plymouth which also has similar constraints, Whangarei has the highest traffic volume per population. This is most obvious in the CBD where the only north-south links are SH1, Bank Street and Walton Street/Hatea Drive.

Land use in Whangarei City is similarly constrained by the topography which results in urban growth mostly occurring on the generally flatter land on the extremities of the city. This forces urban growth further away from the city centre and results in further demand on the few arterial roads traversing through the city.

In addition, there is only one arterial link to Onerahi to the east (Riverside Drive east of Dave Culham Drive) which provides access to Onerahi and the Whangarei Heads as well as Whangarei's regionally significant airport. There is also only one arterial link to Maunu to the west (SH14) which provides access to Northland's regional hospital. Lack of viable alternatives on these routes again concentrates traffic flows and raises some significant resilience concerns about access to these key life line facilities in the event of an emergency.

Whangarei City is also the primary access link for traffic from further north (Far North) along SH1 heading south to NorthPort at Marsden Point or to Auckland and beyond. SH1 is also a major freight route carrying almost 1,600 heavy vehicle movements per day through Whangarei.

Whangarei has a successful bus service called CityLink which provides passenger transport for the city area. However, Whangarei also has a large rural and coastal community (population of 31,000) which commute into Whangarei and, due to a lack of rural commuter public transport services in these areas, results in higher reliance on private vehicles and increased traffic flows in the city.

Maps showing the rural and coastal community and the urban bus service are shown in Figures 11 and 12.

Figure 11 – Map of wider district showing rural and coastal communities that generate commuter traffic to Whangarei City

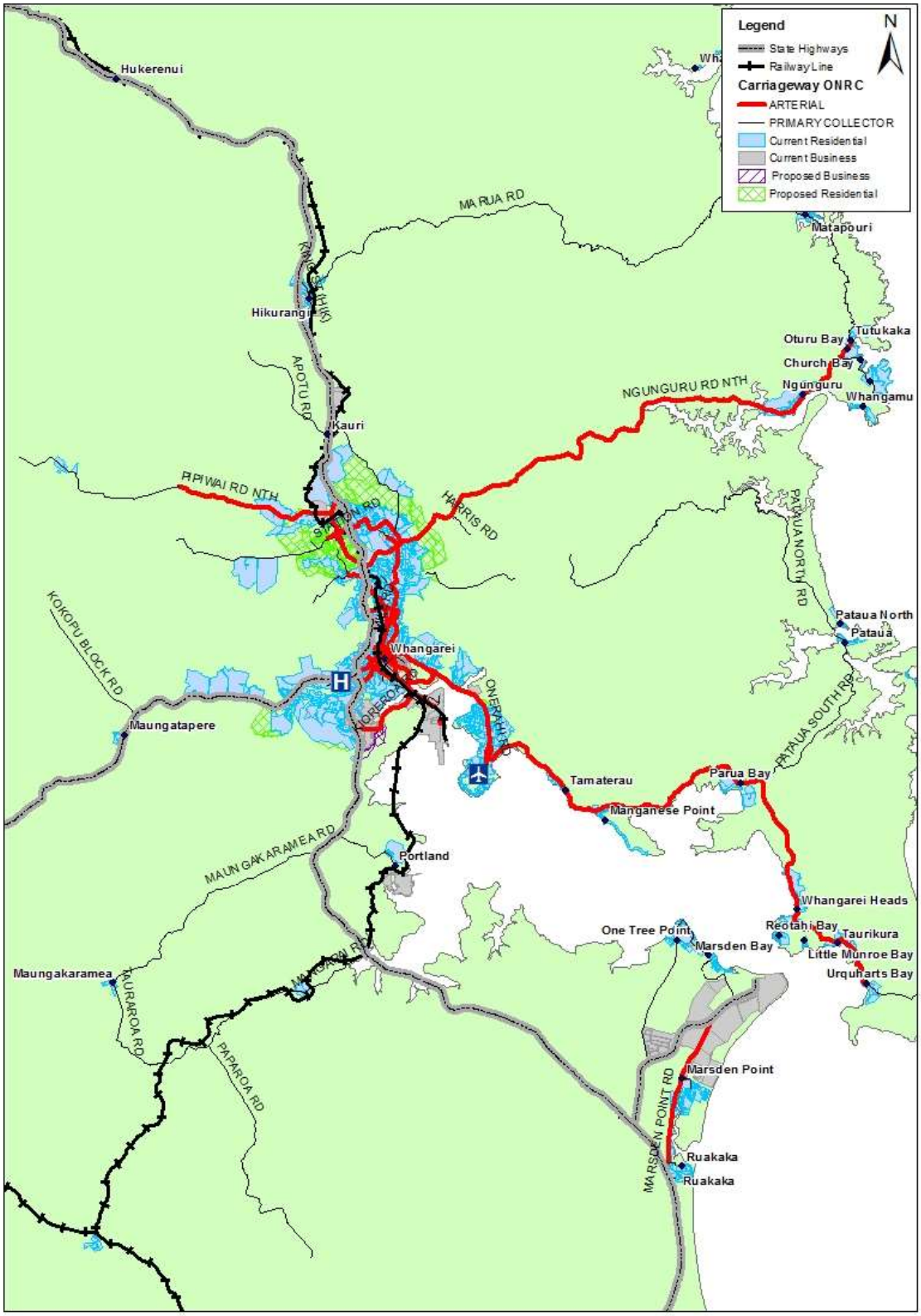
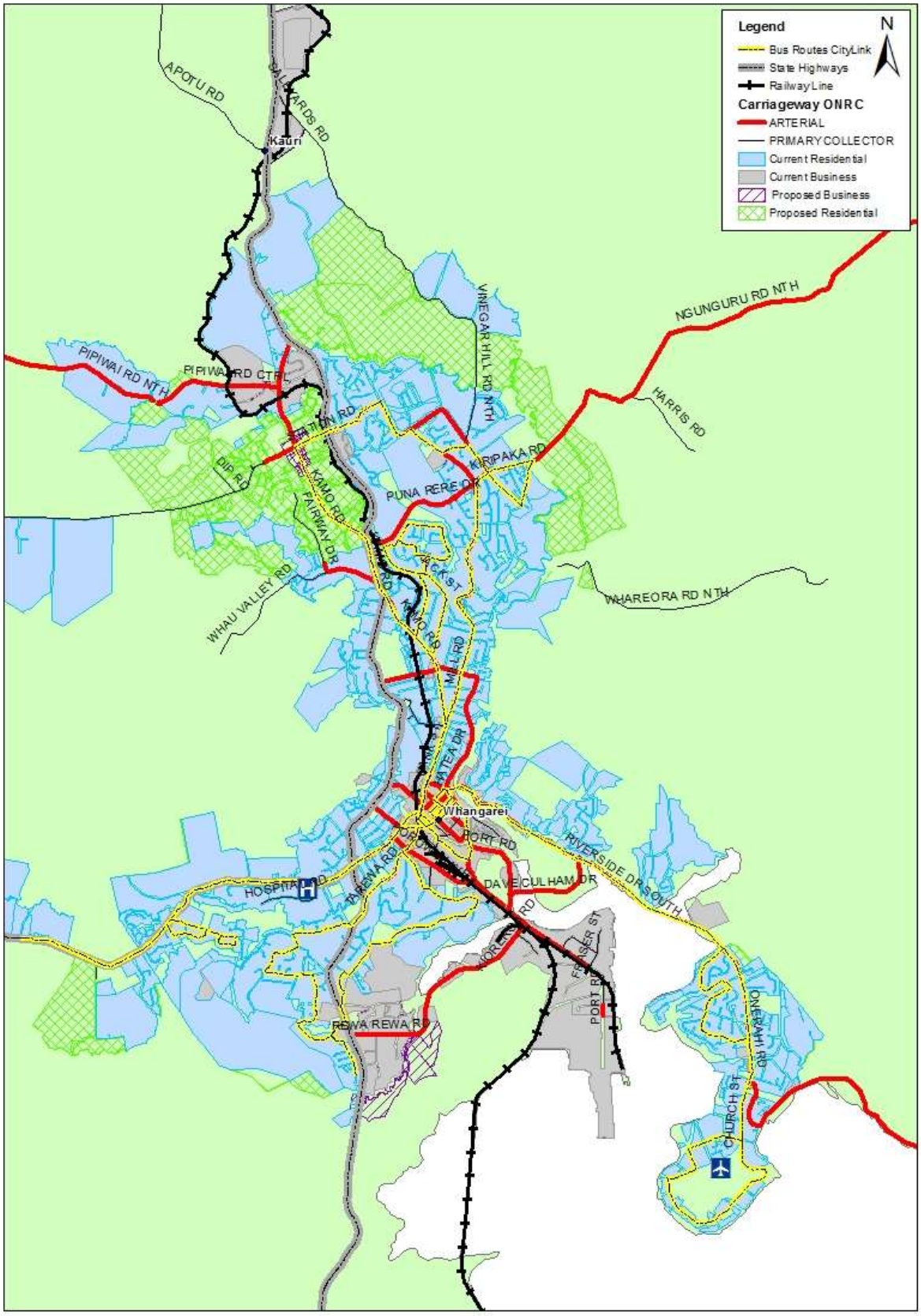


Figure 12 – Map of the CityLink urban bus service in Whangarei City



In the last 5-10 years, there has been a significant investment in road upgrades in Whangarei to provide improved capacity and reduce congestion. These projects have typically addressed a backlog of historic issues and while they will provide capacity for future growth, further investment for capacity would be required in the next 10-20 years. This is shown in the level of service (LOS) plots in Figure 13 which have been generated from Council's Transportation Model. While these LOS plots pick up some areas of identified congestion, the Transportation Model may not be refined enough to identify all of the congested areas.

The LOS is predicted to drop to LOS F (heavily congested) as follows:

By Year 2023

- SH1/Kamo Road (Kamo Bypass) Intersection
- Dent St/Hatea Dr/Riverside Dr intersection
- SH14/Hospital Road intersection – Hospital Road approach
- SH1/Collingwood St intersection – Collingwood St approach
- SH1/Tauroa St intersection – Tauroa St approach

By Year 2033

- SH14/West End Ave intersection – West End Ave approach

By Year 2043

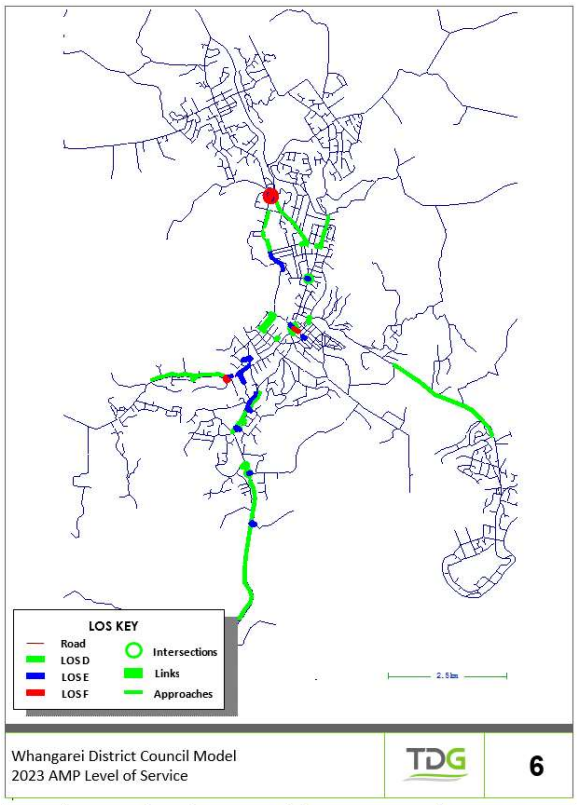
- SH1/Cheviot St intersection – Cheviot St approach
- SH1/Rewa Rewa Rd intersection – Rewa Rewa Road approach
- SH1/Toe Toe Road intersection – Toe Toe Road approach
- Bank St/Cameron St/Rust Ave intersection – Cameron St and Rust Ave approaches
- Riverside Dr/Dave Culham Dr intersection

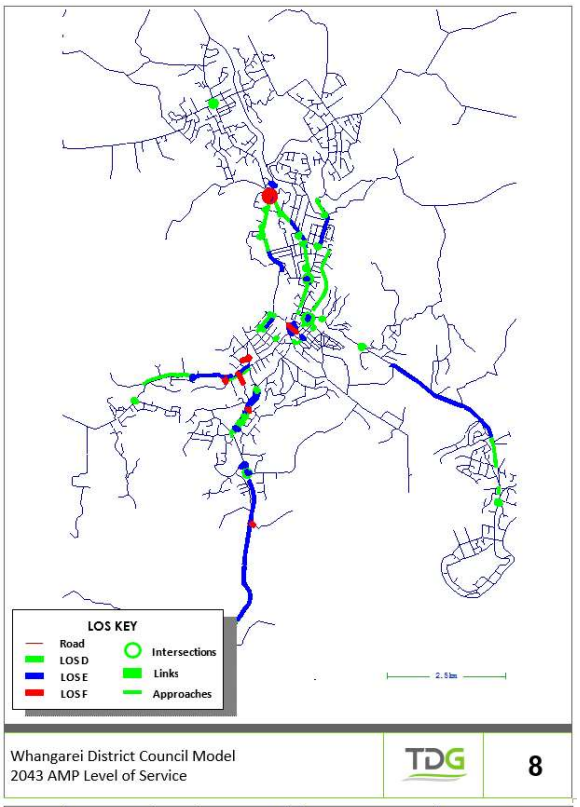
Many other intersections and arterial road links are to drop to LOS E (congested).

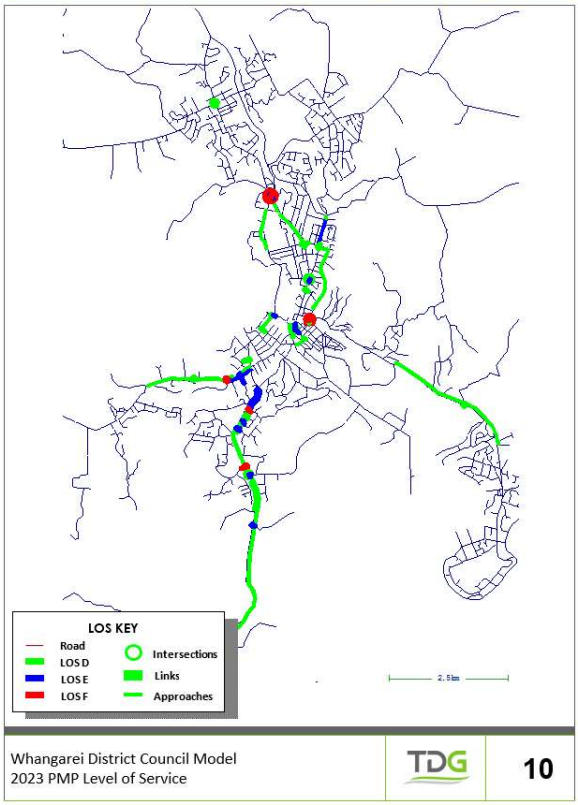
The total intersection delay in the Whangarei District is predicted to increase by 56% by 2043 and the intersection delay per vehicle is to increase by 20% over the same period. While these predictions are based on the whole district, the impact on Whangarei City is likely to be even greater due to the concentration of vehicles onto the few arterial routes.

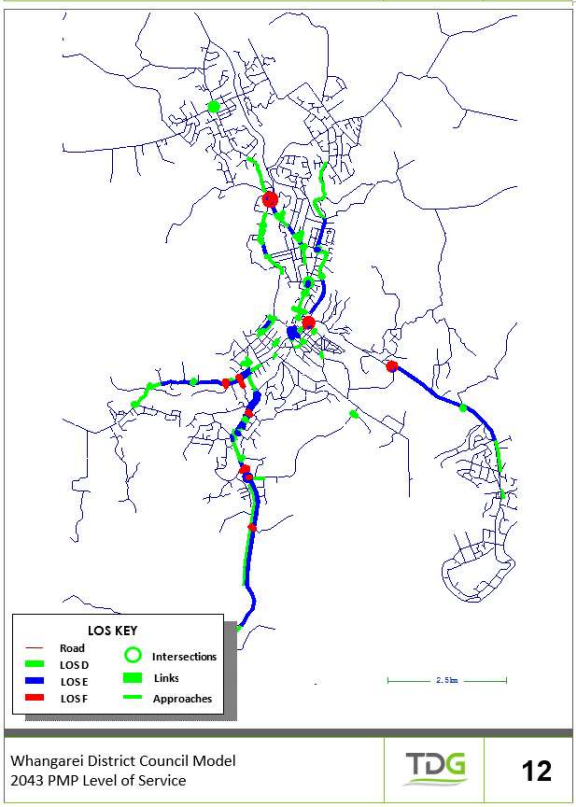
Improvement of alternative transport modes such as public transport and walking and cycling could have a positive impact on these LOS predictions. Current barriers to public transport use such as the poor main bus terminal at Rose St, lack of rural commuter services, lack of bus shelters and seating at bus stops and frequency of service at peak times would need to be improved to encourage more people to use this service. Likewise, current walking and cycle shared paths would need to be connected to the end destination and more safe crossing points provided on arterial roads to encourage more people to walk and cycle.

Figure 13 – Level of Service Plots for Whangarei City for the Year 2023 and 2043 (AMP = AM Peak, PMP = PM Peak)









It should be noted that these predictions were based on the current Transportation Model which is based on the 2014 growth model which assumed population growth at 1% per annum. However, population growth is currently at 2% per annum which is twice the 2014 growth model prediction and will use up the available capacity more rapidly than shown in these LOS plots. This discussed in the following text.

Table 4 below shows several key arterial roads in Whangarei with current traffic count data and growth rates. This demonstrates that the demands described above are having an impact on traffic growth. In particular, new road links such as Porowini Ave and Dave Culham Drive are seeing significant growth rates due to constraints on other routes. Many routes are seeing annual traffic growth of over 4% as highlighted in the table below.

Table 4 – Traffic counts and growth rates for Whangarei arterial roads

Road	Daily Traffic Flow (ADT)	Annual Growth
SH1 Western Hill Drive	26,033	4.7%
SH1 Otaika Road	25,322	0.8%
SH14 Maunu Rd	20,180	1.7%
Riverside Drive	18,919	6.9%
Kamo Road	17,340	0.5%
Mill Road	17,295	5.1%
Hatea Drive	17,004	2.3%
Bank Street	16,252	0.2%
SH1 Te Rau Ponga Dr (Kamo Bypass)	15,679	6.0%
Maunu Road	15,620	1.9%
Walton Street	13,029	0.0%
Porowini Ave	11,756	18.9%
Tarewa Road	11,566	1.4%
Okara Drive	11,509	1.7%
Dave Culham Drive	11,000	12.4%

Routes with lower growth rates are either at maximum capacity (eg SH1 Otaika Road, SH14 Maunu Road, Kamo Road, Bank Street), or have been affected by the recently constructed new road links (eg the new route across the harbour on Dave Culham Drive has significantly slowed traffic growth on Walton). This is why higher growth rates are being seen on routes that have spare capacity. However, this spare capacity is being rapidly used up by the high traffic rates on these routes.

While not showing up as an issue in the LOS predictions, known pinch points in the network such as the Tarewa Road/Porowini Ave intersection and the Maunu Road/Porowini Ave intersection will need to be addressed, particularly with the rapid growth being experienced on Porowini Ave.

There is very little ability to build additional capacity in the future to accommodate growth on Whangarei's arterial roads. This is because many of the main road corridors have very narrow legal road widths and will require significant land take and in some cases removal of buildings to provide further road width which is likely to be cost prohibitive. The following photographs in Figure 14 give examples of buildings constraining the road width.

Figure 14 – Examples of building constraining arterial roads (Bank St top and Walton St bottom)

Instead the focus going forward should be on implementing projects and services that maximize the use of existing capacity rather than provide extra capacity. The intention is to try and reduce or eliminate the effects of future growth on the network by increasing use of other modes such as public transport and walking/cycling as well as increasing occupancy rates of private vehicles and reallocating existing road space including removal of parking on some arterial roads.

4.4.2 Implications of the Evidence

The evidence is consistent with that gathered in the Strategic Case. The evidence has identified that Whangarei does have a high volume of traffic on its network compared to other similar cities and this is contributed to the geographic, environmental and planning constraints of the Whangarei City area. The key issue identified in the evidence is about the amount of vehicle growth on the network and how this is affecting available capacity given the lack of arterial routes.

The evidence shows that traffic growth on some key arterials is over 4% which is rapidly using up any spare capacity. This growth is likely to continue given that population growth is currently 2% per annum, heavy vehicles are predicted to grow by almost 40% by 2042 and tourism is expected to continue to its strong growth. Whangarei has recently been named a High Growth Urban Area with the population expected to increase by over 10% the next 10 years.

Modelling of the transport network indicates that there are sections of the network that will suffer from high congestion particularly in the medium and long term as a result of this growth. This will result in increasing delays and consequential loss of productivity. This is particularly important as SH1 which passes through Whangarei City is the gateway to Northland and carries almost 1,600 freight movements per day. It is also a key tourist link to the destinations further north including the Bay of Islands.

This evidence shows that Whangarei City's arterial network is constrained, is expected to have high growth and cannot easily provide for this forecast growth. The transport links through Whangarei City support the Northland economy which is one of the poorer performers in New Zealand. The evidence therefore supports the following problem:

"Whangarei's topography has constrained the City's arterial road footprint which means we cannot easily expand infrastructure to meet future growth in demand"

A 50% weighting was identified for this problem, as it is the most significant issue for Whangarei City's transport network. Addressing this problem will make a real difference in supporting growth and the Northland economy.

4.5 Problem 2 – Pedestrian Severance

"SH1 and other urban arterial routes traverse the City centre which results in severance for pedestrians walking between key areas"

4.5.1 The Evidence

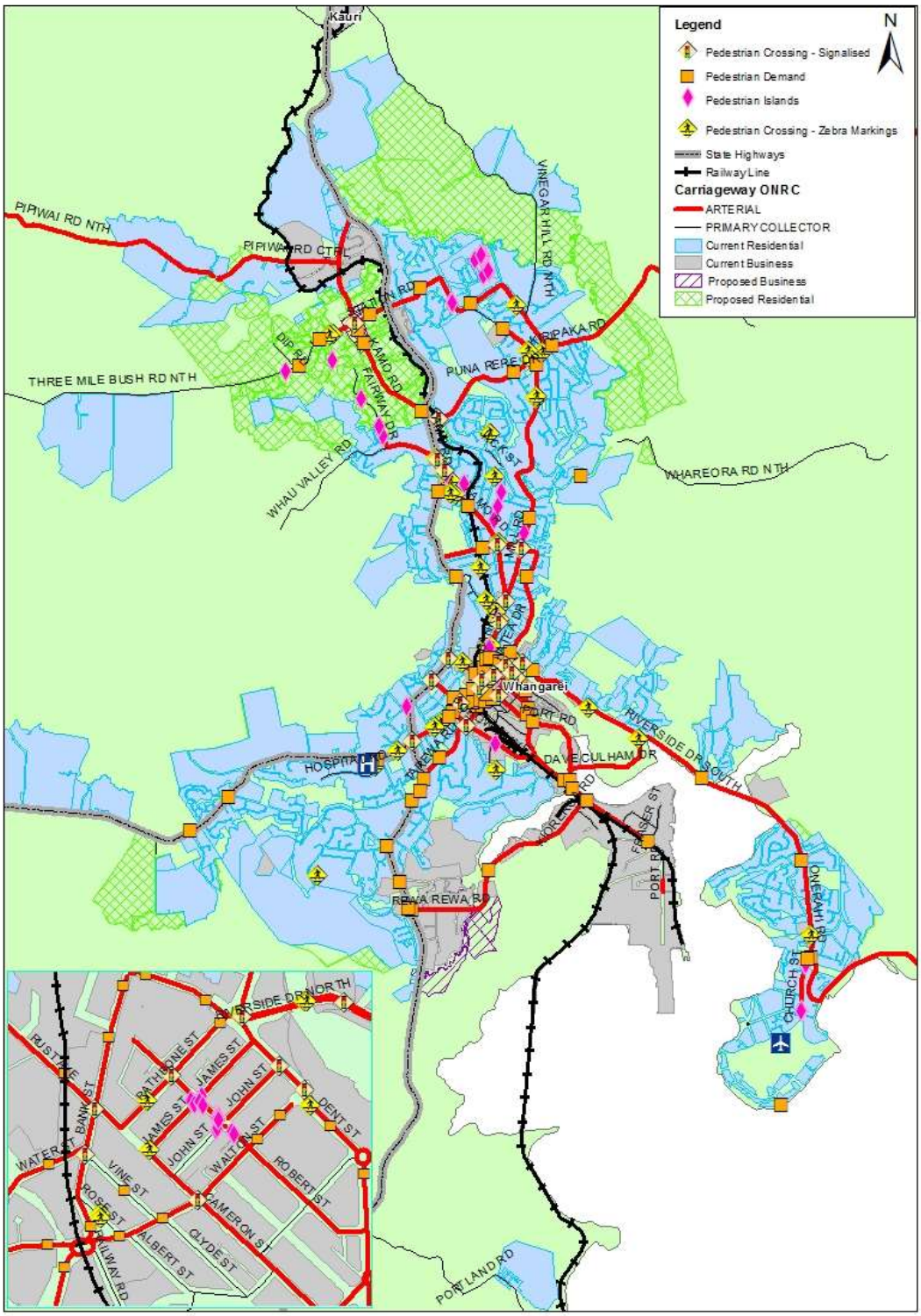
Because of the constraints of Whangarei as discussed in Section 4.4.1 above, major arterial roads cut through the main CBD and residential areas. These roads are often wide (4-lanes) with significant traffic flows and create a barrier for pedestrians and cyclists to cross. Whangarei's road network has historically been developed with a car-centric view which has resulted in very few safe crossing points. Almost 60% of high demand crossing points on arterial roads have no safe facilities provided to help pedestrians and cyclists to cross. This is demonstrated in Figure 15 which shows unprotected high demand crossing points in orange.

This has resulted in local residents utilizing private vehicles for even short trips because it is considered too unsafe or difficult to walk or cycle. This is most obvious in school children where a significant proportion are taken to school in their parent's car.

In addition, the CBD is surrounded by arterial roads (Bank Street, Dent Street and Walton Street) which act as a barrier for easy access to shops and services. This is one of the factors leading to the decline and stagnation of the CBD and the resulting shift in businesses to other sites. This has resulted in fragmentation of the CBD and the development of many satellite commercial areas (such as the Okara Park Shopping Centre and Tarewa Mega Centre) which creates additional traffic demand as people are forced to take

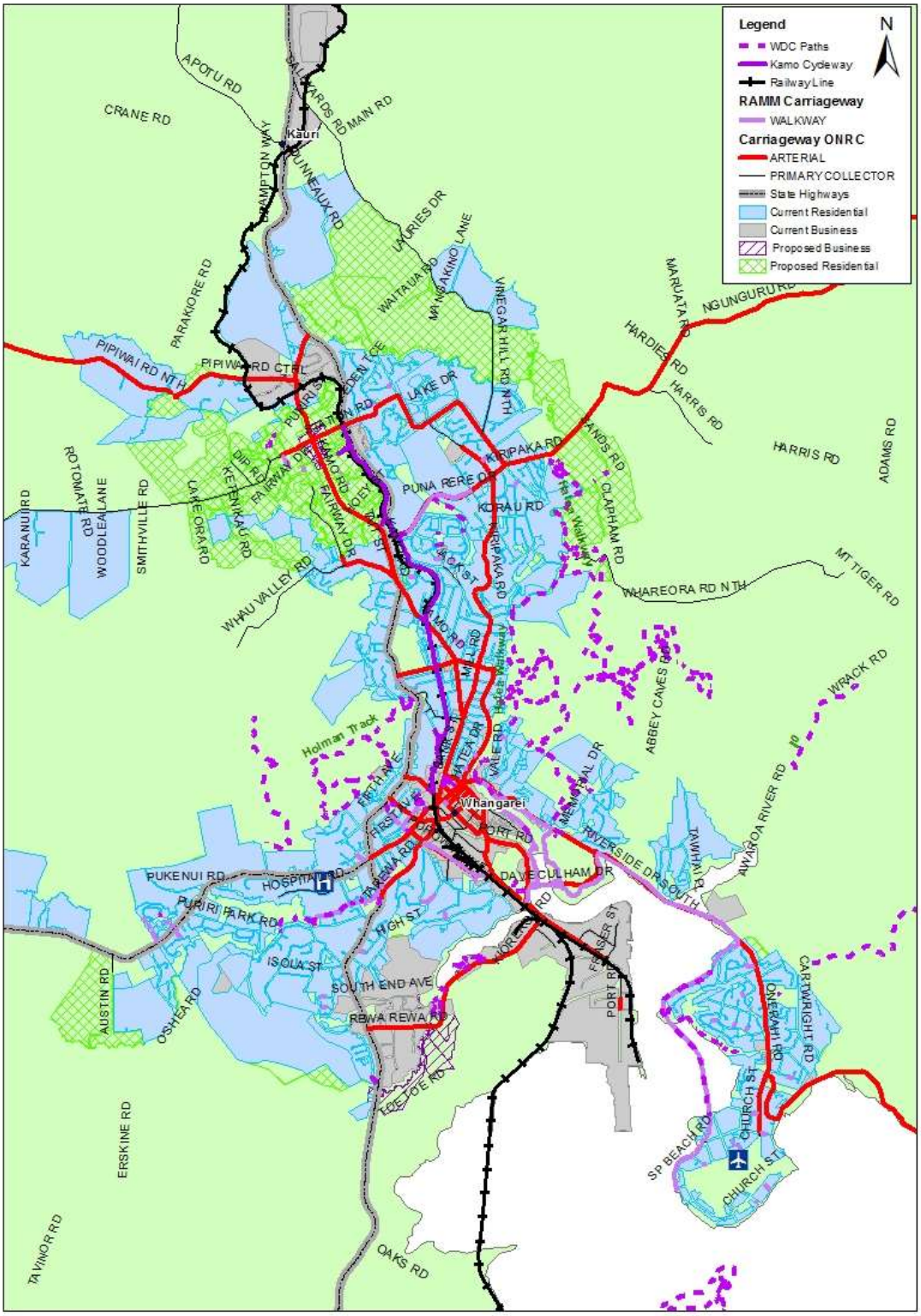
private vehicles to get their shopping and to carry out business. The health and vibrancy of the CBD is a concern to the community as this is the "heart" of the city.

Figure 15 – Map of existing crossing points and crossing demand in Whangarei City



WDC is currently implementing a significant programme to provide off-road cycleways to encourage school children to cycle or walk to school. These routes are shown in Figure 16. Safe crossing points are being provided on these routes.

Figure 16 – Current and proposed walking and cycling routes in Whangarei City

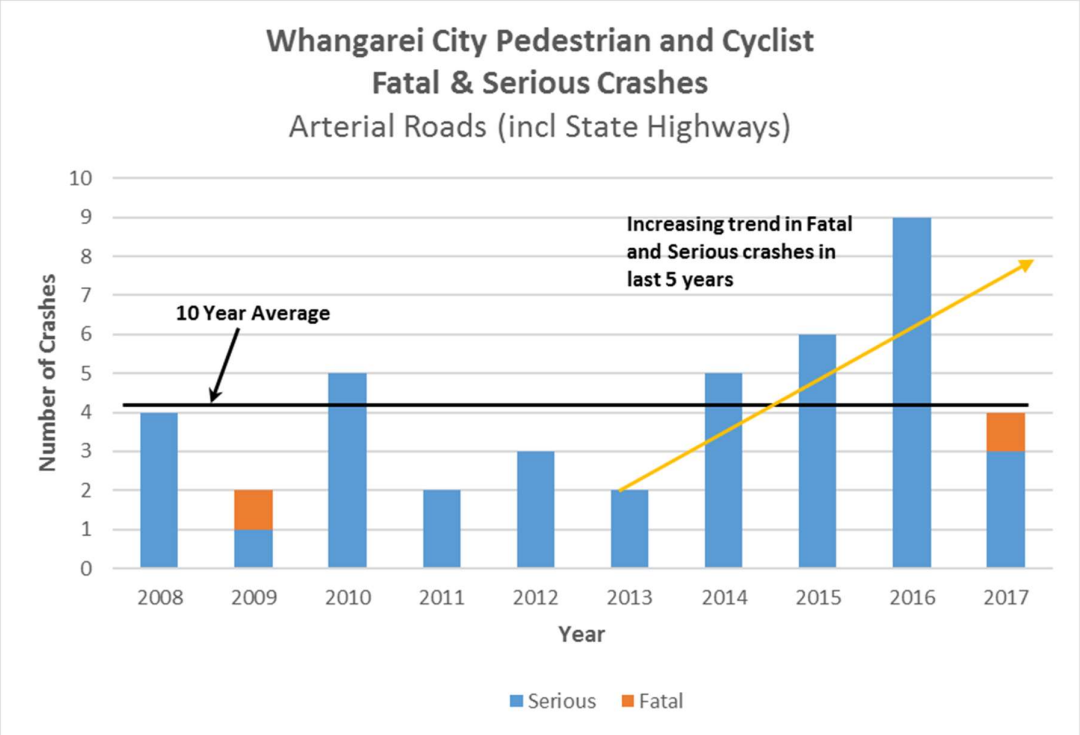


This will help provide the main trunk of a walking/cycling network, but further work is required to provide safe links and crossing points across arterial roads to allow residents to get to places of education, employment and recreation. This will reduce community severance, increase active modes and reduce reliance on private vehicles.

Crashes involving pedestrians and cyclists are high in Whangarei because of issues crossing major roads. The 2015 NZTA Communities at Risk Register identified that pedestrians in Whangarei were a Medium Risk.

Fatal and serious injury crashes involving pedestrians or cyclists on arterial roads in Whangarei City have been increasing steadily over the last 5 years. The fatal and serious injury crashes were highest in 2016 with 9 crashes which is over double the 10-year average of 4.2 crashes per year. This is shown in Figure 17 as follows.

Figure 17 – Fatal and serious pedestrian and cyclist crashes in Whangarei City



This indicates that pedestrian and cyclist safety is worsening. This trend is expected to continue as a result of the predicted increase in traffic on the arterial road network combined with more pedestrians and cyclists due to population growth.

Eighty three percent (83%) of all pedestrian and cyclist crashes that resulted in fatalities or serious injuries in Whangarei City occurred on arterial roads. This demonstrates the increased level of risk to pedestrians and cyclists negotiating the arterial road network.

4.5.2 The Implications of the Evidence

The evidence indicates that almost 60% of high demand crossing points on arterial roads in Whangarei City have no safe facilities for pedestrians and cyclists to cross. This results in severance of walking and cycling routes, making this an unattractive mode of transport in Whangarei. The evidence also shows that there is

an increasing rate of high severity pedestrian and cyclists crashes in Whangarei over the past 5 years with 2016 being a particularly high with over twice the 10 year average.

This community severance is likely to be holding Whangarei City back from being a thriving community. It also limits uptake of active transport modes resulting in continued reliance on private vehicles for transport.

Given this evidence, the following problem has been identified:

SH1 and other urban arterial routes traverse the City centre which results in severance for pedestrians walking between key areas

A 30% weighting was identified for this problem as this is a significant issue for the network which is severing communities, constraining walking and cycling as being viable transport modes and resulting in increasing numbers of high severity crashes.

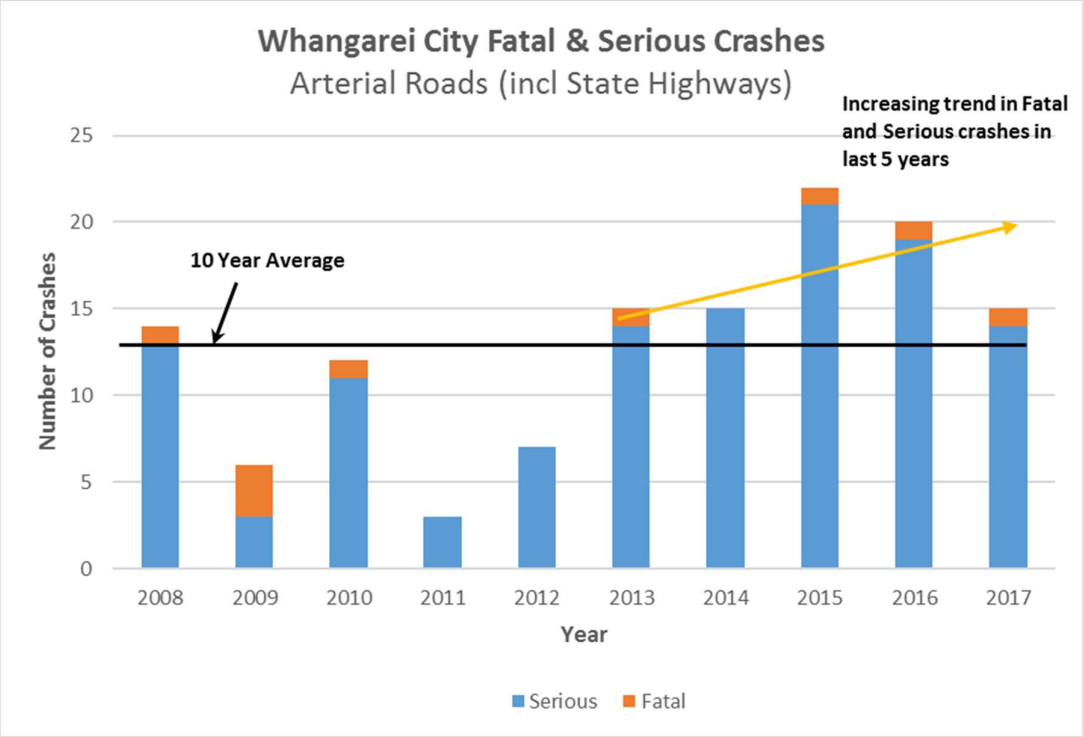
4.6 Problem 3 – Safety

"Whangarei has a high number of crashes on arterials, which results in a high collective risk"

4.6.1 The Evidence

Fatal and serious injury crashes in Whangarei City have been increasing steadily over the last 5 years. The fatal and serious injury crashes were highest in 2015 and 2016 with 22 and 20 crashes respectively which is significantly higher than the 10-year average of 12.9 crashes per year. This is shown in Figure 18 as follows.

Figure 18 – Fatal and serious crashes in Whangarei City



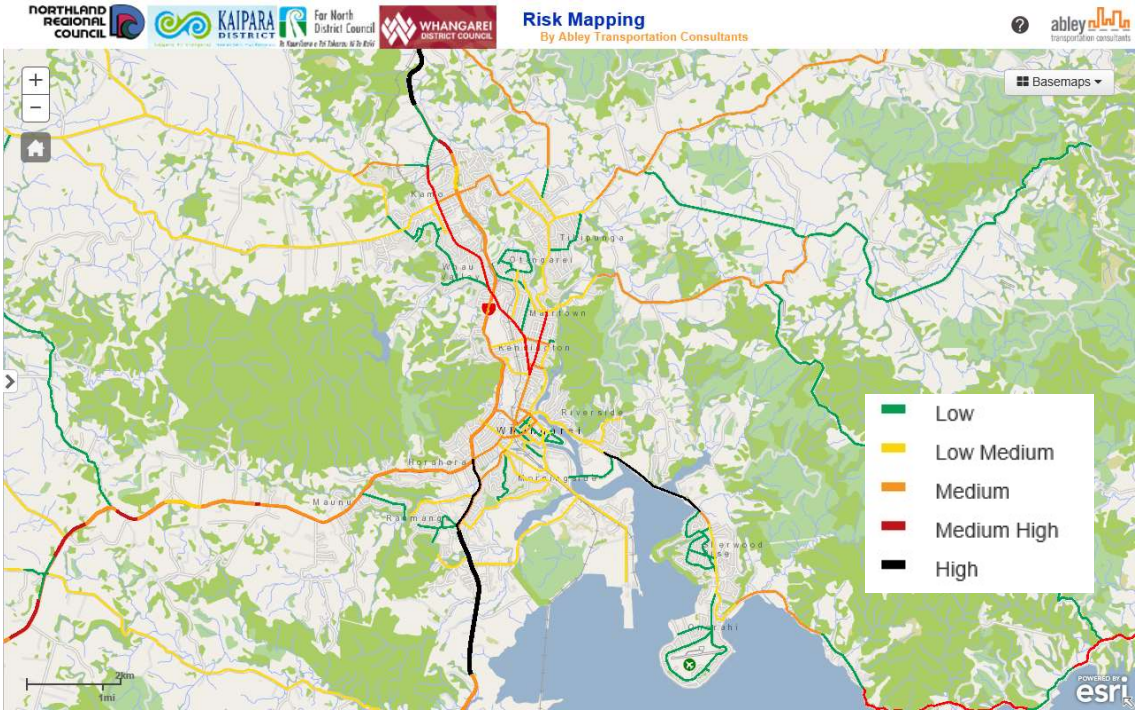
Of all the fatal and serious injury crashes that have occurred in Whangarei City in the last 10 years, 76% of these have occurred on the arterial road network. This demonstrates that the arterial roads in Whangarei City are resulting in most of the fatal and serious injury crashes.

The following diagrams are screenshots from the 2016 SafetyNet risk mapping system which identifies high risk roads and intersections which should be investigated further for possible safety improvements.

Collective risk is the average annual fatal and serious injury crashes per kilometer. Collective risk ratings of High or Medium High are considered serious and investigation of treatments should be a priority.

The Collective Risk diagram for the Whangarei urban area below (Figure 19) shows that there are some key urban arterials which have High or Medium High ratings.

Figure 19 – Collective Risk map for roads within Whangarei City



These High and Medium High risk roads are:

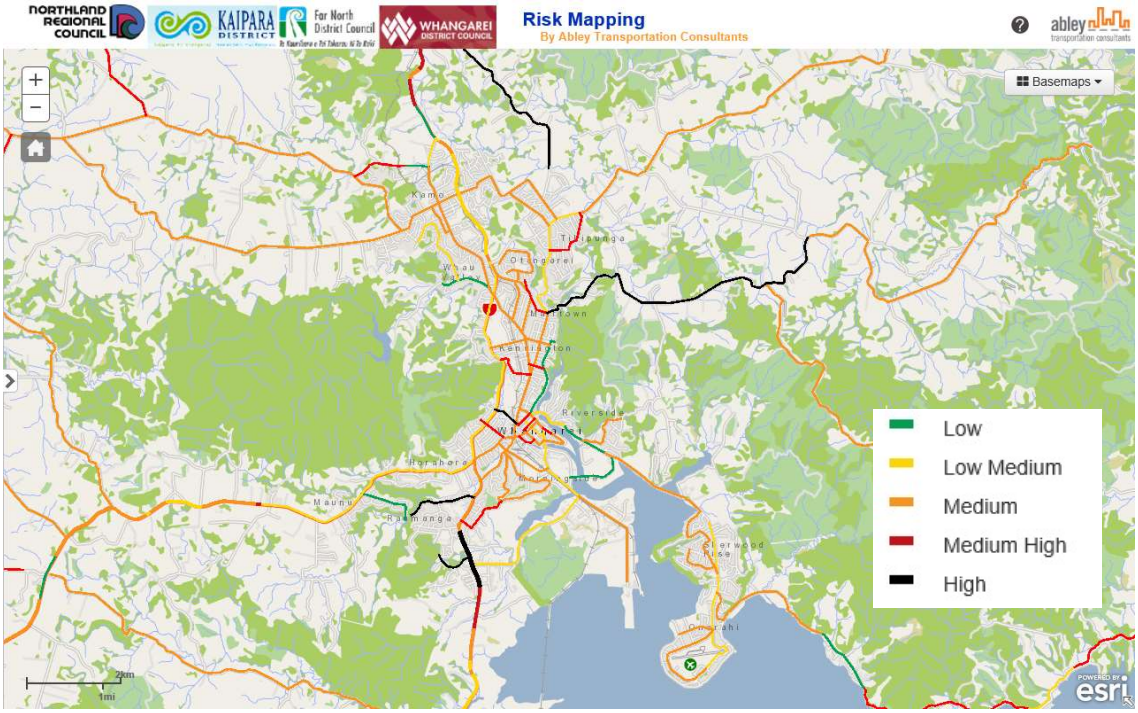
- SH1, south from SH14 (High Risk)
- Riverside Drive (High Risk)
- Kamo Road (Medium High Risk)
- Mill Road (Medium High Risk)

The recently completed Mill Road/Nixon Street Upgrades project will address an intersection on both the Kamo Road and Mill Road routes and will have a positive effect on the crash rates on these routes.

Personal risk is the average annual fatal and serious injury crashes per 100 million vehicle-kilometres. Personal risk ratings of High or Medium High are considered serious and investigation of treatments should be a priority.

There are many roads identified as having High or Medium High Personal risk in the Whangarei Urban area as shown in the Figure 20 as follows.

Figure 20 – Personal Risk map for roads within Whangarei City



The most significant of these roads are detailed below:

- SH1, between Murdoch Cr and Toe Toe Road (High and Medium High Risk)
- Whareora Road (High Risk)
- Selwyn Ave (High Risk)
- Rust Ave (High Risk)
- Central Ave (Medium High Risk)
- Rathbone Street (Medium High Risk)
- John Street (Medium High Risk)

There are several High and Medium High Collective risk intersections identified for the Whangarei City's road network as shown in Figure 21 as follows.

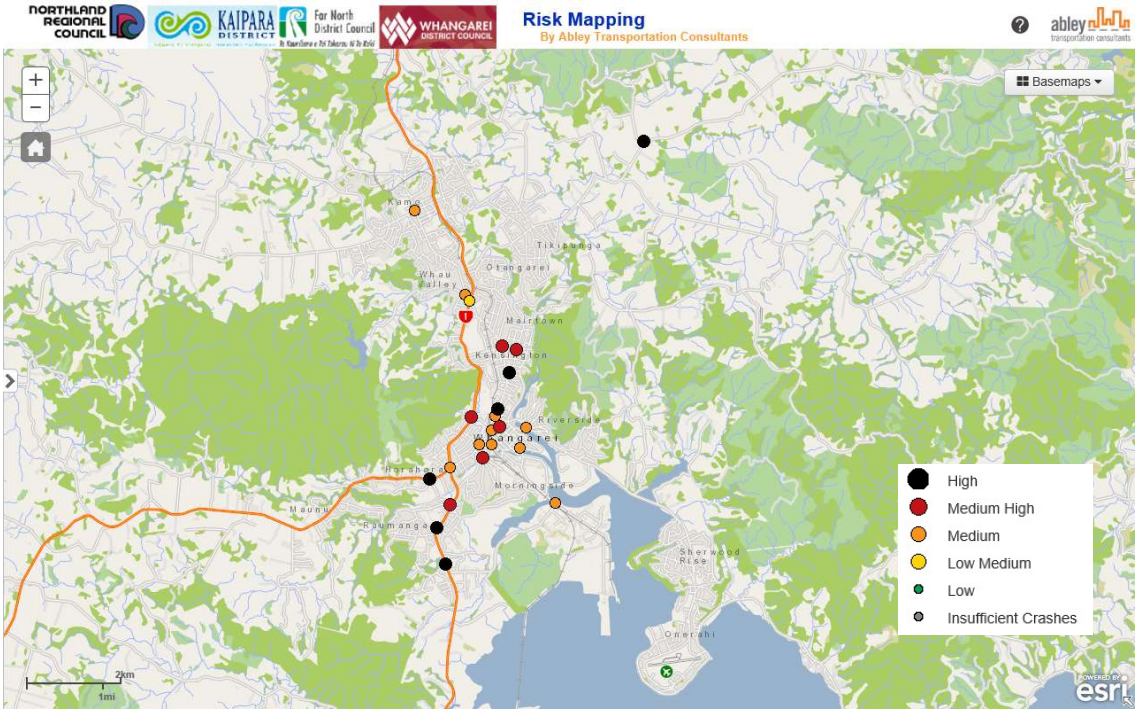
Figure 21 – Collective Risk map for intersections in Whangarei City

High and Medium High risk intersection are:

- SH1/Raumanga Valley (Actual High)
- SH1/Tauroa (Actual High)
- Mill Road/Nixon Street (Medium High) – intersection improvements completed in 2015/16.
- Kamo Road/Nixon Street/Kensington Ave (Medium High) – intersection improvements completed in 2016/17.

There are several intersections identified as having High or Medium High Personal risk as shown in Figure 22 below.

Figure 22 - Personal Risk map for intersections in Whangarei City



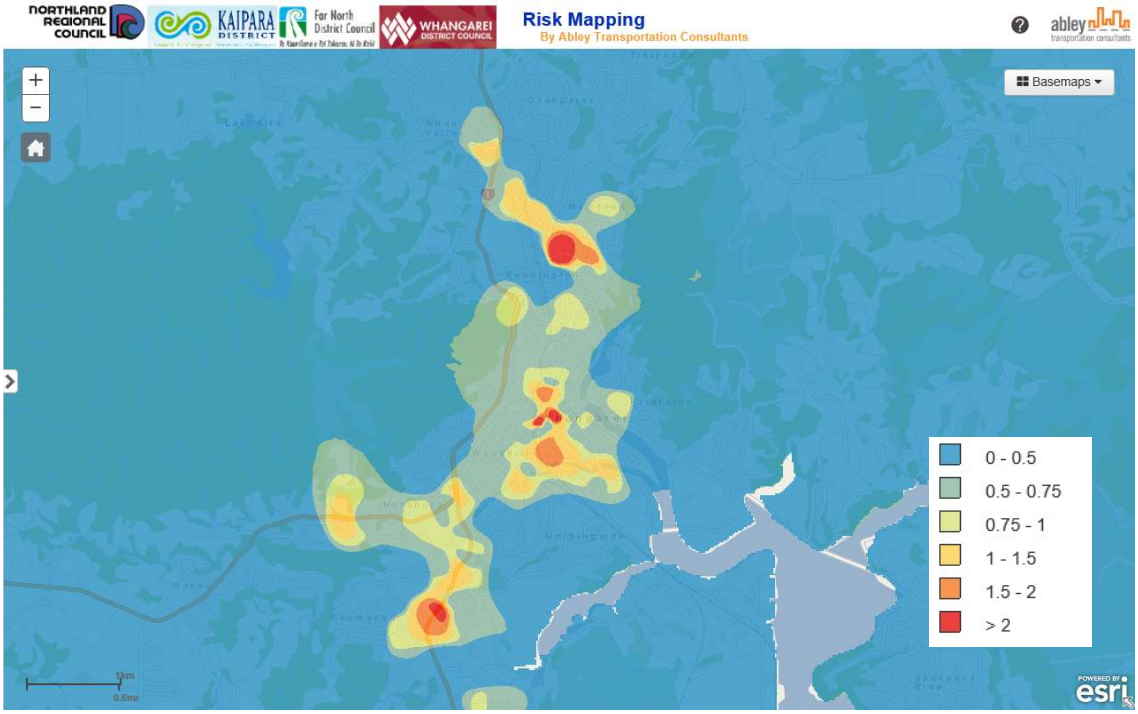
These are all located on key intersections in the Whangarei urban area and include:

- SH1/Mt Pleasant Road (High) – at Otaika shops
- SH1/Tauroa Street (High)
- SH14/West End Ave (High)
- Bank Street/Deveron Street (High) – crashes due to short term detour route during Mill/Nixon intersection upgrade project.
- Bank Street/Grey Street/Mansfield Terrace (High)
- SH1/Selwyn Ave (Medium High) – intersection upgrade in 2014/2015 may have addressed this risk.
- SH1/Raumanga Valley Road (Medium High)
- Mill Road/Nixon Street (Medium High) – intersection improvements completed in 2015/16.
- Kamo Road/Nixon Street/Kensington Ave (Medium High) – intersection improvements completed in 2016/17.
- Rathbone Street/Robert Street (Medium High)
- Tarewa Road/Porowini Ave (Medium High)

As can be seen from the above evidence, there are several sections of road and intersections that have High or Medium High risk that should be considered for treatment.

Figure 23 below is a heat map showing active user crashes involving pedestrians and cyclist in Whangarei City. The different colours represent active user crashes per year.

Figure 23 – Heat map of walking and cycling crashes in Whangarei City



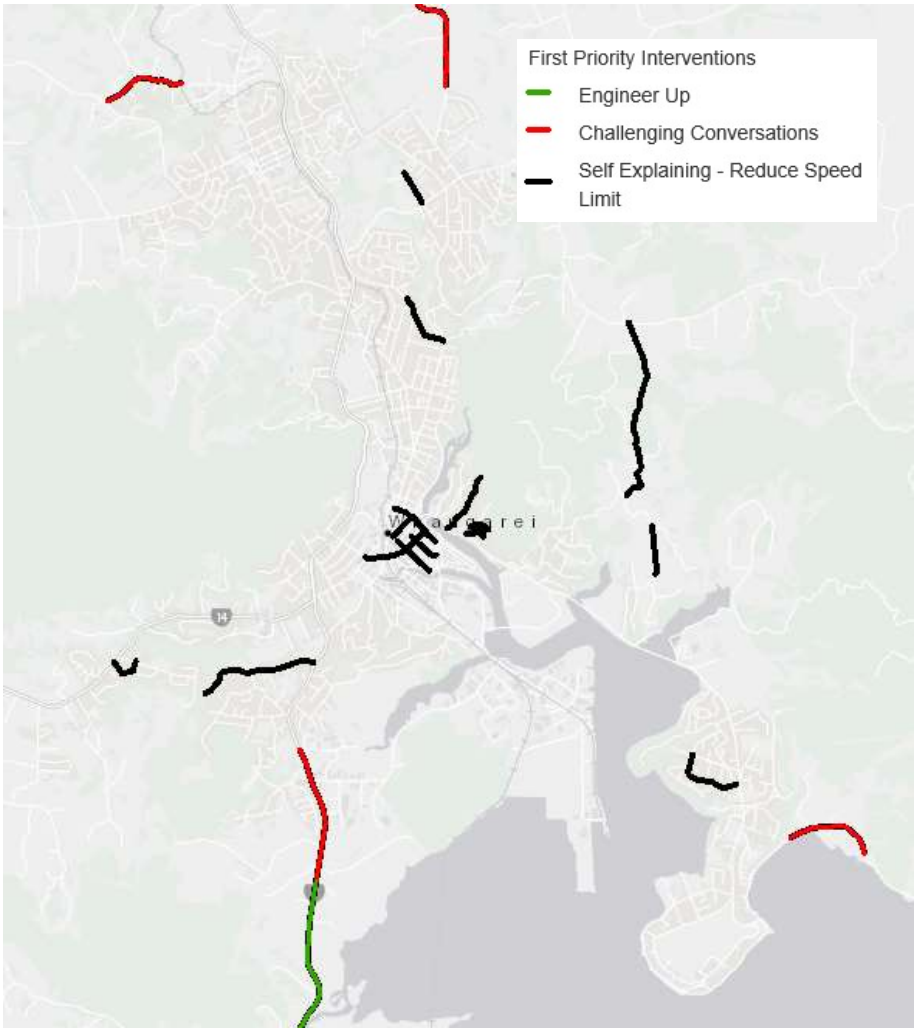
This map shows that the high risk areas are:

- SH1/Otaika shopping centre – recent upgrades to the pedestrian crossing on SH1 may have helped to address these crashes.
- Kamo Road/Nixon Street/Kensington Ave intersection – upgraded in 2016/17.
- Mill Road/Nixon Street – upgraded in 2015/16.
- The Whangarei CBD and in particular at the following intersections: Bank Street/Cameron Street, Rathbone Street/Robert Street, Bank Street/Dent Street/Vinery Lane roundabout, Walton Street/Bank Street roundabout, Walton Street/Albert Street and Walton Street/Vine Street.

This evidence shows that there are many areas where active users are at risk. These areas should be considered for potential treatment to reduce crashes involving pedestrians and cyclists.

Figure 24 below shows areas identified for speed management interventions from the 2016 NZTA Speed Management Framework mapping.

Figure 24 – Speed management map of Whangarei City



This identifies indicative treatments for the following arterial routes within the city:

- Engineer Up (Green) – None within the Whangarei City area
- Challenge Conversations (Red) – SH1 from South End Ave to Toe Toe Road (this speed limit has recently been reduced from 80km/h to 60km/h), Whangarei Heads Road leading into Onerahi.
- Self Explaining – Reduce Speed Limit (Black) –Walton Street, Robert Street, Rathbone Street, Dent Street and Cameron Street.

These roads need to be reviewed to determine whether an intervention is necessary and what the appropriate treatment should be. Where appropriate, these roads shall be considered for speed management treatments through changes to the speed limit in consultation with the local community.

4.6.2 The Implications of the Evidence

The evidence indicates that safety on Whangarei's arterial roads is an issue. The number of fatal and serious injury crashes in Whangarei City has been above the 10 year average for the past 5 years and is showing an increasing trend. Of all fatal and serious injury crashes in Whangarei City, 76% of them have occurred on arterial roads.

The evidence also indicates that there are many arterial routes or intersections within Whangarei City that have high or medium/high Collective or Personal Risk. There are also many areas that are high risk for active users and roads which need speed management interventions.

The worsening safety record and the relatively high risk of the network demonstrates that Whangarei's road network is not meeting the GPS priority to improve road safety.

Given this evidence, the following problem has been identified:

Whangarei has a high number of crashes on arterials, which results in a high collective risk.

A 20% weighting was identified for this problem as safety is a significant issue and addressing this problem would reduce the harm and trauma to road users on the network.

4.7 The Benefits of Investment

The benefits of successfully investing to address these problems are summarised below:

- **Benefit One**: The transport network enables people to live, work, play and learn in the City (40%).
- **Benefit Two**: Better able to manage and support economic and urban growth activity (35%).
- **Benefit Three**: People are able to make safe, healthy travel choices (25%).

The following sections outline in more detail the benefits identified for this network.

4.7.1 Benefit One: The transport network enables people to live, work, play and learn in the City

Investment in the Whangarei City transportation network has the potential to provide stronger links for the community from their homes to their workplaces, shopping areas, recreational areas such as parks and sports fields, and education centres such as schools, the Northland Polytech campus and Auckland University Campus. Improvements such as reducing congestion pinch-points, providing more resilient routes, reducing the severance effects of the arterial road network, fully connecting the walking and cycling network and providing a rural commuter bus service will all enable the people of Whangarei to improve their access to these community facilities.

This will have a positive impact on the local communities and will improve access to the CBD and also enable easy movement around the CBD once there, particularly for active modes. It will also will provide resilient routes to key regionally significant facilities such as the airport and hospital, will provide strong transport links to urban growth areas and will improve the wider economy as a whole.

4.7.2 Benefit Two: Better able to manage and support economic and urban growth

Investment in the Whangarei City transportation network will help realise stronger economic growth in the Whangarei District and Northland as a whole by improving access through Whangarei which is the gateway to Northland and the economic capital of the region. Improvements that will increase capacity on State Highway 1 through the city will make this key freight route more efficient and reduce transport costs for freight being taken to markets south of Whangarei such as NorthPort or Auckland.

Improvements to the arterial road network in Whangarei will also help improve capacity and improve perception of tourists travelling on the Twin Coast Discovery Highway and/or accessing the Hundertwasser Art Centre, which is supported by the Tai Tokerau Growth Study and Economic Action Plan. This would help achieve the Action Plan's aspiration for transport not to be a constraint but an enabler for growth.

Investment in the transport network would be an opportunity to improve the experience of visitors leading to further urban growth as visitors may then see Whangarei as a desirable place to live. It will improve access in and around the CBD which would enable economic growth to build upon the previous investment in Whangarei such as the Town Basin and Cameron Street Mall. It will also enable the transport network to cater for urban growth which is increasing through strong immigration flows into the country.

4.7.3 Benefit Three: People are able to make safe, healthy travel choices

Investment in the Whangarei City transportation network is also likely to have a positive effect on road safety by targeting improvements on high risk arterial roads, reducing driver frustration in congested areas and providing safe walking and cycling linkages and crossing points. This is consistent with the Safe System approach and will help reduce the increasing trend in fatal and serious injury crashes from occurring in the future.

It will also provide transport mode choice and the confidence that it will be safe. This will have more than just the effect of reducing crashes and congestion, but also will improve the vibrancy of the city and people's health by supporting active modes and making the city more attractive to visitors.

4.8 Investment Objectives

This programme business case (PBC) aims to identify a programme of works for investment in the Whangarei District transport system. A series of workshops with key stakeholders were held to identify problems, benefits and investment objectives. Through the ILM process a raft of objectives and measures were developed as shown in **Appendix B**.

During the first PBC workshop, it was decided to simplify the investment objectives to better capture the key outcomes desired. The investment objectives identified from this process were:

- **Investment Objective 1**: The transport system will meet forecast growth aspirations of the City whilst maintaining a performance on arterials of LOS D by 2030 for all users, including freight;
- **Investment Objective 2**: The transport system will support a vibrant City through increased PT mode share to 3% (increase from current 0.6%) by 2030 (measured by District-wide travel to work data from the census)

- **Investment Objective 3**: The transport system will support a vibrant city through increased District–wide walking and cycle mode shared to 10% (increase from current 5.2%) by 2030 (measured by District–wide travel to work data from the census)

- **Investment Objective 4**: We will reduce the social cost of accidents in the City by reducing DSI's per capita by 30% by 2030

4.8.1 Investment Objective 1

As Whangarei grows there will be increased traffic and potentially increased congestion. This investment objective is focussed on ensuring that the transport road network continues to perform to a certain level. A LOS D was selected as this was considered to show an acceptance of congestion, but not LOS E which would be network wide flow breakdown.

4.8.2 Investment Objective 2

A key input from stakeholders and Council officers during the development of this PBC was the need for serious consideration of public transport (PT) as a viable mode as the city and district grows. There was an acknowledgement that simply providing more road capacity was not necessarily the most sustainable outcome. This was highlighted in the evidence that showed without mode shift very substantial capacity improvements (and their impacts) were required.

A 3% mode shift was identified as a target as being achievable initially given current trip locations and the form of the city centre. This represents a five-fold increase in current public transport usage.

4.8.3 Investment Objective 3

This investment objective was focussed on increasing the use of active modes throughout the city and District. A target of 10% was identified as this is an approximately doubling of the mode share. This is considered appropriate and consistent with what has been achieved in other parts of the country.

Providing greater active mode share is considered to offer health and wellbeing benefits as well as transport system performance benefits. A separate investment objective was identified as there was a risk that it would be lost if included with the PT mode shares.

4.8.4 Investment Objective 4

This investment objective was focussed on improving safety in the city through a reduction in accident costs of 30% by 2030. The 30% target was development based on a challenging but achievable safety target that stakeholders considered was appropriate. The use of the words 'social cost' was identified as it was felt that if more effort was made to reducing accidents with the highest social cost this would result in a focussed and prioritised safety response.

4.9 The Key Performance Attributes and Measures

It is important that the potential benefits of successfully investing are able to be assessed and measured in order to demonstrate optimum option selection.

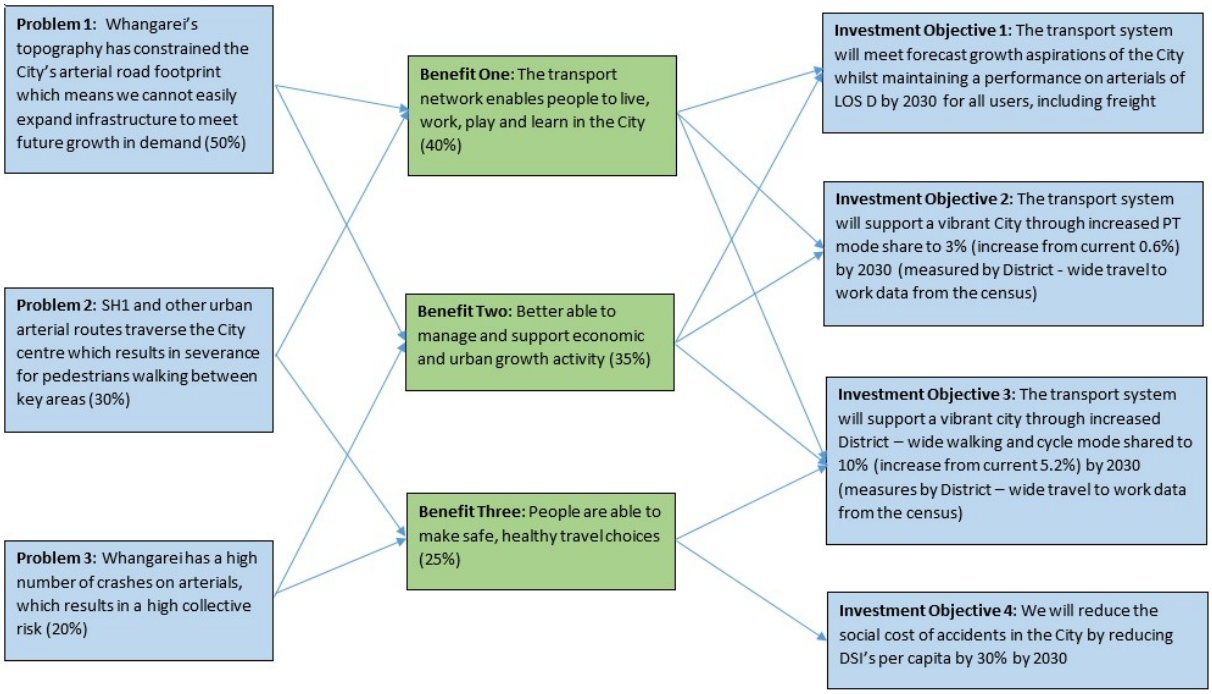
Across the different benefits highlighted in Section 4.8, a number of Key Performance Indicators (KPI's) have been identified during the ILM process, as set out in Table 5 below. Possible measures have also been highlighted.

Table 5 – Key Performance Indicators and Measures

Investment Objective	Investment KPI	Measure	Baseline	Target
Investment Objective 1- Growth	Achieve an Acceptable Level of Service	Number of vehicles per day exposed to LOS E or worse during peak periods	23,400	0 by 2030
Investment Objective 2 – PT Mode Share	Improve PT mode share	% of PT use on Census Travel to Work Data (District-Wide)	0.6%	3% by 2030
Investment Objective 3 – Walking & Cycling Mode Share	Improve Walking and Cycling mode share	% of Walking & Cycling use on Census Travel to Work Data (District–Wide)	5.2%	10% by 2030
Investment Objective 4 - Safety	Reduce the social cost of crashes	5-year average of arterial road DSI crashes/year per 100,000 population	30.9	21.6 by 2030 (30% reduction)

Figure 25 shows how these investment objectives interrelate to the problems and benefits identified.

Figure 25 – Investment Objective Development



The vision for the Whangarei City network is a safe network which provides reliable journey times and alternative means of transport to support economic growth for the region and access to key markets. The long term goal is a multi-modal network that is safe and reliable.

The investment objectives identified in the PBC are consistent with the long term vision for the network and the Draft GPS 2018 priorities.

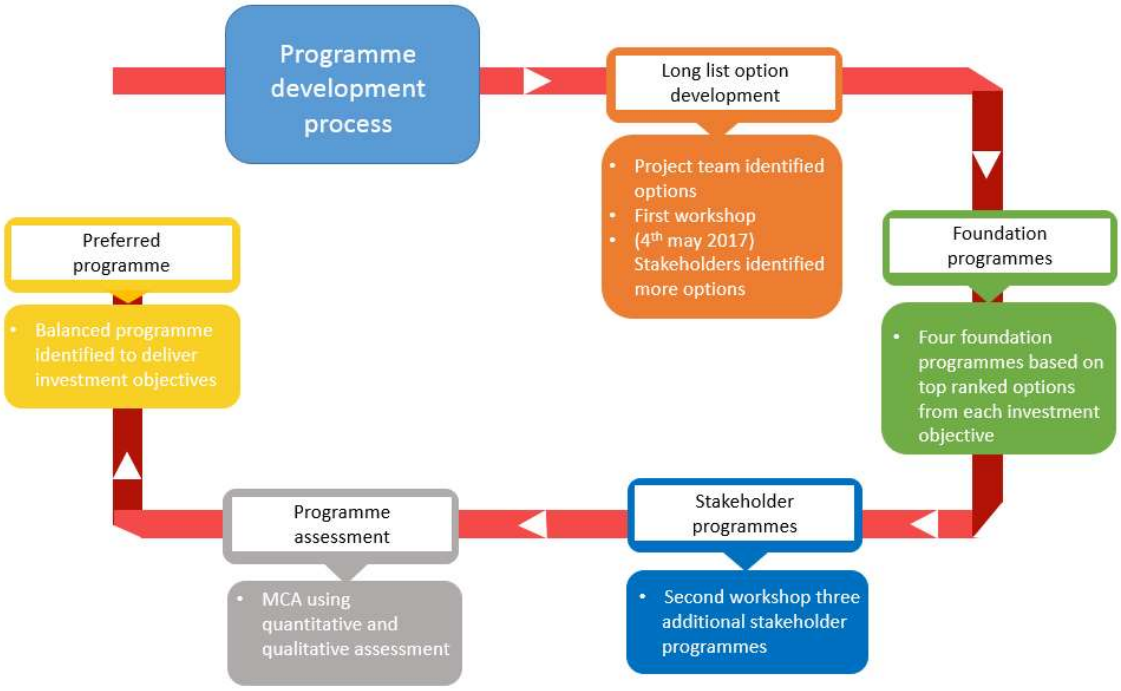
PART B – DEVELOPING THE PROGRAMME

5 Alternatives and Option Assessment

5.1 Process

A structured process has been used to identify the preferred programme of works as outlined in Figure 26.

Figure 26 - Programme development process



5.2 Option Identification and Assessment

Options and alternatives have been developed to address the problem statements and deliver the agreed investment objectives as agreed with stakeholders. The agreed problem statements and investment objectives for the road corridor are set out in Part A – Strategic Case.

The methodology adopted for this process was:

- Initial development of options by the project team;
- Preparation of assessment criteria by project team, based on Transport Agency guidelines;
- Workshop with key stakeholders on 4th May 2017 to further develop and identify new options;
- Presentation and endorsement of assessment criteria at workshop on 4th May 2017
- Assessment of options and ranking by project team;
- Endorsement of option assessment by wider team at workshop on 26th June 2017;

Assessment criteria were taken from NZ Transport Agency guidelines for option evaluation, agreed with stakeholders and used to evaluate the identified options and alternatives with respect to their relative ability to deliver against the agreed investment objectives for the corridor.

This allowed the options to be ranked, with the ranking then informing the compilation of programmes.

The assessment criteria agreed for this project and endorsed by the stakeholders is shown in *Table* 6.

The assessment criteria have been grouped according to a number of headline categories, relating to investment objectives, ability to be implemented and an assessment of effects and opportunities.

The ability for an option to be implemented was further broken down into feasibility, affordability and public / stakeholder support. The assessment of effects and opportunities was broken down into cultural heritage, environmental, social and community wellbeing, economy and safety considerations.

At the option long list stage, options have been considered against these headline categories, while the more detailed considerations were used to evaluate the performance of programmes, once these were developed.

Table 6 - Assessment criteria

Objectives	Considerations	Measures
Investment objectives		
Investment Objective 1	The transport system will meet forecast growth aspirations of the City whilst maintaining performance on arterials of LOS D by 2030 for all users, including freight	Increase capacity of corridor or encourage mode shift to meet forecast growth aspirations
Investment Objective 2	The transport system will support a vibrant city through increased PT mode share to 3% (increase from current 0.6%) by 2030 (measured by District – wide travel to work data from the census)	Increase PT mode share on the transport network
Investment Objective 3	The transport system will support a vibrant City though increased District – wide walking and cycle mode shared to 10% (increase from current 5.2%) by 2030 (measured by District – wide travel to work data from the census)	Increase district wide walking and cycle mode shares on the transport network
Investment Objective 4	We will reduce the social cost of accidents in the City by reducing DSI's per capita by 30% by 2030	Reduced deaths and serious injuries on the corridor
Ability to be Implemented		
Feasibility	How straightforward is it to implement this alternative / option?	Level of complexity. I.e. tunnelling, community consultation, challenging ground conditions etc.
	Are innovative technologies involved?	Level of innovation
	Are there significant hazards that may pose a health, safety in design risk?	Level of hazards
	Are there likely property risks?	Impact of project on property
	Are other infrastructure providers affected?	Other organisations beside NZTA

Objectives	Considerations	Measures
	Are there consenting risks that could affect delivery or cost risk?	Level of consenting risk for option
	Are there factors likely to affect the ability to operate / maintain the option over its projected life without major additional costs?	Maintenance and operation costs
Affordability	What are the funding risks of the alternative/option?	Included in the RLTP to no funding allocation
	Can the alternative be funded traditionally? (economic efficiency)	Estimated economic efficiency of project
	Are alternative funding mechanisms required?	yes / no
	Are there cashflow risks that might affect the delivery programme?	yes / no
	Are there ongoing operating cost risks?	Level of operating costs
	Are operating subsidies required? How will these be funded?	Tolling / PQP procurement
Public / Stakeholders	Has the alternative been made public?	Yes / no
	How acceptable is the alternative?	Level of anticipated acceptance
	Are there real or anticipated objections from the community or stakeholders?	Level of anticipated acceptance by stakeholders
Assessment of Effects		
Cultural heritage, environmental, social and community wellbeing	Are there any sites or features (including their setting) of significance to Maori (archaeological or existent) affected?	
	Are there any historic heritage places (including their setting) (e.g. archaeological or buildings, sites, remnants) affected?	
	Are any (first tier) outstanding landscapes or natural features, or (second tier) significant/special landscape or natural features affected?	Environmental mapping
	Are there any ecological areas, or areas with habitat value (inc large areas of native vegetation) affected?	
	Are there any coastal marine areas, wetlands, lakes, rivers, streams or their margins affected?	Environmental mapping
	Are there any areas of contaminated land affected?	

Objectives	Considerations	Measures
	Are there community facilities (park/schools/ hospitals etc.), or residential or other sensitive land uses in the area that could be affected by adjacency effects (e.g. noise, disruption, vibration, air quality etc.)?	Assessment of proximity to settlements
	Are there potential effects from hazards or risks (including from future climate change) from erosion, flooding, fault lines, sea level rise	
	Extent to which the option integrates transport and land use to make best use of existing networks and infrastructure.	Extent of integration with land use aspirations
	Are there any communities affected by reduced cohesion, connectivity or accessibility?	Qualitative assessment of access to the road network
	Are there opportunities to enhance the active travel modes - cycling and walking and/or linkages to other national or regional recreational cycle networks for longer distance cyclists?	Qualitative assessment of access to alternative modes
	Extent and significance of land take, severance; negative and positive opportunities	Severance / connectivity
Economy	How will the alternative/option affect traffic volumes?	Level of growth catered for
	Does the option provide an opportunity to reduce vehicular travel time on SH1 between the Auckland and Northland regions?	Qualitative evaluation
	Does the option improve journey time reliability?	Qualitative evaluation
	Are there gainers and losers (modes / regions)? What is the overall effect?	Qualitative assessment of overall benefits to surrounding communities
	Does the option provide for more efficient freight supply chains between the Auckland and Northland regions	Route quality
	How well does the option integrate with land use with reference to regional growth strategies	Consistency with regional growth strategies
	How well does the option enhance the development potential of adjacent land / attract new jobs / help existing businesses?	Qualitative assessment of access to land use
	How well does the option preserve the function of SH1 as a National High Volume route, consistent with ONRC	Qualitative evaluation
	How well does the option address route security, resilience and flexibility	Extent to which the option improves route resilience
Safety	How will the alternative enhance safety for different types of transport users?	Alternative mode safety
	Will it involve gainers and losers in terms of safety?	Adverse safety effects from the option.

Objectives	Considerations	Measures
	Are there impacts on personal safety / security?	Assessment of the reduction in crash risk
	What is the impact on fatal / serious injuries?	Assessment of reduction in DSI

5.3 Option Long List

A list of 138 options were developed with the project team and stakeholder groups to address the problem statements and deliver on the investment objectives.

Options were first developed by the project team and then presented to the wider team, during the first workshop held on 4th May 2017, to obtain feedback and identify more options.

Firstly, a range of options that aimed at increasing the capacity of the road network to meet future growth were identified. This included implementing corridor reviews, land-use planning and identifying existing key points on the network which are congested and upgrading these areas (e.g. intersection improvements, lane re-utilization, lane widening and increasing street-amenity provisions).

Options aimed at increasing public transport mode share were identified next. These options, derived based on improving the ease of use of these services to drive a change from vehicle to public transport, included increasing public transport services, improving digital connectivity and expanding the routes to reach the wider areas and providing priority and increased capacity for PT services.

A range of new cycling infrastructure options, in conjunction with the existing provisions, were also identified. This included completing existing shared paths, forming new shared paths, installing cycle facilities at key destinations and promotion of E-bikes.

Options aimed at improving safety included, improving arterial routes identified as having a medium-high/ high risk rating, improving selected intersections on the road network where safety is considered defective and improving street amenities (e.g. lighting).

The full list of options is included in **Appendix C** as well as further detail on how the assessment criteria was applied to the assessment of each option.

5.3.1 Do Minimum

The Do Minimum network is the transport network which existed as at 30 June 2017 as well as any projects that were committed at that time. This includes the following projects:

- SH1 Kensington to Manse project which includes a new roundabout for the SH1/Kensington Ave intersection (to have two lanes for south bound vehicles and a northbound slip lane) and turning restrictions for the side roads between Kensington Ave and Manse St (including Manse). This project was completed by June 2017;
- Mill/Nixon and Kamo/Kensington intersection upgrades and Nixon St 4-laning. This project was completed in February 2017;
- SH14/Hospital Road intersection upgrades which were completed in 2017;

- Kamo Cycleway which is currently underway and is forecast for completion in 2019.

Projects which are currently being planned but not yet committed have not been included in the Do Minimum. This includes the following projects:

- SH1 Tarewa Road intersection which includes the signalisation of the intersection and the 4-laning of SH1 from the SH14 junction to the Whangarei Visitor Centre;
- Porowini Ave/Tarewa Road and Porowini Ave/Manu Road intersection upgrades.

5.3.2 Options Not Included in PBC Assessment

Several options for new roads to provide for new housing developments and for potential subdivision were identified by the stakeholders. Given that these new roads would primarily be constructed to serve new developments, it was expected that these would be funded either directly by the developer or through development contributions. For the purposes of this strategy, these roads have been excluded from the PBC assessment as they are likely to be common to all programmes and may not have a financial impact on the funding partners.

Some examples of the roads identified through the PBC are:

- SH1 / Gillingham Road intersection and extension of Gillingham Road.
- Sands Road extension to Clapham Road.

Each one of these projects will need to be considered on its merits by WDC and NZTA to make a decision as to whether a funding contribution is required.

5.4 Alternative and Option Assessment

An initial assessment of all the options was undertaken for each 'head' criteria including investment objectives, ability to implement and assessment of effects. A seven point assessment system was used, ranging from +++ for a strongly positive performance to --- for a strongly negative performance in comparison with the do minimum as outlined in Table 7.

Table 7 : MCA scoring criteria

Rating	Definition	Score
Significantly positive	Significant positive impact, likely resulting in long term improvements	+3
Moderately positive	Moderate positive impact, which may provide improvements and opportunities	+2
Slightly positive	Minor positive impact	+1
Neutral	Similar impact to the do-minimum	0
Slightly adverse	Minor adverse impact, which can be mitigated or managed	-1
Moderately adverse	Moderate adverse impact, that may be managed or mitigated	-2
Significantly adverse	Significant adverse impact with serious long term effects	-3

The application of the assessment criteria to the options identified the following key outcomes:

- The best performing option was to improve cycle connections by completing the Kamo shared path followed by the four-laning of SH1 south from Whangarei (Tarewa Rd) to the Port Marsden turnoff.
- The shared path and capacity options showed an overall positive effect for all of the investment objectives.
- The parking and signage & marking options showed no noticeable positive effect for any of the investment objectives.
- There were a number of highly ranked options which included public transport interventions such as providing a separate Kamo and Tikipunga bus service and extending the Tikipunga bus service to the Totara Parklands subdivision. The majority of pedestrian options were also highly ranked.
- The worst performing options were providing a truck stop in both directions on SH1 near the city and constructing a new parking building in the CBD.

Overall, the conclusion of this long list assessment is that there is a wide range of options and ways to meet the project objectives from cheaper operational options, through to large scale capital intensive interventions.

5.4.1 Option analysis

Option analysis considerations are summarised by the following sub-groups below:

Traffic signals – Options listed under this sub-group were primarily focused at improving signals for vehicles (rather than pedestrians). Physical changes to the priority of the intersection were considered better performing than improving vehicle detection at the intersection. These improvements were also considered to improve the safety performance at the intersection therefore were scored positively for investment objective 4, but showed no noticeable effect for objectives 2 and 3.

CBD Access – These options were primarily aimed at improving vehicle access into the city by investigating upgrades to some intersection controls, improving the entrance to Whangarei and supporting inner city development. These options scored well against investment objective 1 (capacity). Options where the access into the city was reduced scored negatively for investment objective 1 as capacity was reduced but scored positively for objectives 2 and 3 as this would improve the pedestrian environment and drive a

mode shift to other alternative modes of travel. The improvement of the Rathbone St intersection (to allow right turns) was the only option scored as having an effect on the safety investment objective. Removal of road connections on the network was ranked as negatively effecting stakeholders and customers (compared with the do-minimum) as this would likely increase travel time, whereas improving the appearance of Whangarei was scored the highest for this criteria. Overall, these options were considered to have little to no effect on the social and surrounding environment.

Lane-re utilization – These options included investigating introducing transit (T2)/ shared lanes and removal of parking along the corridor. These scored fairly well against investment objectives 1 and 2 but were considered to perform negatively against objective 3 as this would increase vehicle and PT mode share and reduce the cycling mode share. The majority of the options were considered as highly unattractive to stakeholders and customers (e.g. removing parking would result in customers having to park outside the city and walk/ use public transport services) but on average were all fairly easy to implement.

Freight – Options within this sub-group were focused on accommodating the road network for freight vehicles, specifically on the SH1 the freight route. These options scored well against investment objective 1 (capacity) but had no impact on any of the other investment objectives. All options were scored negative for affordability.

Public transport – Options that aimed at increasing bus services, extending the range of services on the network and providing shared/T2 lanes were scored positively for all investment objectives. The remaining options were considered to only affect investment objective 2 (PT).

Land–use planning - All options scored well for the first three investment objectives but showed no noticeable effect on the safety objective. The majority of options were considered easier to implement compared with the do-minimum excluding options which aimed at limiting rural growth and implementing planning rules to discourage small/ medium developments. Options were considered to have a positive effect on the social and surrounding environment compared with the do – minimum.

Capacity improvements - The majority of these options performed well against investment objectives 1, 2 and 4 however some options showed little to no effective for investment objective 3. These options aimed at increasing capacity on the road network and included a mix of upgrades, new links and supporting existing/ proposed developments. All options addressed investment objective 1.

Parking – The majority of these options involved adjusting the parking in the city. Options that aimed at increasing or improving the parking supply near the city were negatively scored against investment objective 2 as this would likely encourage users to use private vehicles rather than utilising the public transport services. The parking options, for which funding cannot be gained by the NLTP, were considered costly and therefore were scored as negative in affordability. Therefore, on average these options were ranked as negative for ability to implement.

Travel demand planning - All these options were scored as having a slightly positive outcome in relation to investment objective 1 (capacity). Some of these options were aimed at all modes of travel, such as increasing knowledge of congestion for the network via a mobile app therefore were considered to have a positive effect on both investment objectives 2 and 3. Options that collected data were scored highly

positive for stakeholders/ customers, as this information can be further used in development of traffic applications, compared with options that encouraged a modal shift.

Signage and markings - On average these options were assessed as having little to no effect on any investment objective. All options were considered easy to implement with no noticeable effect on the surrounding environment.

Pedestrians - These options scored highly against investment objectives 3 (pedestrians & cyclists) and 4 (safety). Where some options increased the pedestrianization environment in the city and included installing pedestrian crossings, these were considered to reduce the capacity of vehicles on the corridor therefore scored negatively against investment objective 1 (capacity).

Shared paths (pedestrian and cyclists) - These options primarily consisted of completing existing shared paths and constructing new shared paths. Such options, were scored highly against investment objective 1 (capacity). This was because improving cycle connections was considered likely to drive a mode shift from vehicle to other transport modes thereby reducing some of the traffic volumes on the corridor allowing for more capacity. On average, these options were scored as fairly easy to implement with little to effects on the surrounding environment. It is noted, that the new shared path option, to connect from the Tikipunga shared path to tie in with Tikipunga to Tutukaka, was considered to have a slightly negative effect on the natural and cultural/ historical environment due to the nature of the surrounding area.

Travel planning – Overall, all options listed under this sub-group were considered to have a positive effect on investment objective 3 (walking and cycling) with the school related options (implement travel planning in schools and businesses to encourage behaviour change and provide cycle training) ranked higher. Compared with the MCA criteria, on average these options were scored as easily implementable with little to no negative effect on the surrounding environment.

Safety - These options scored highly against the investment objective 4 (safety). These options were also considered to have a slight positive affect against the cycling and walking objective as safety improvements to the road would likely bring about a safer environment for cyclists on the corridor. Safety improvements were selected at specific locations determined by the wider team and for sections on the corridor which comprised a medium rating as per KiwiRAP risk rating. Upgrading lighting and targeting projects on high/ medium high risk sections were scored (on average) as the easiest to implement and investigating intersection controls as the worst.

At the long list stage of the assessment all of the options were retained however not all remaining options were included in a programme in the next stage. The full assessment is shown in **Appendix D**.

6 Programme Options Development and Assessment

6.1 Initial Programme Development

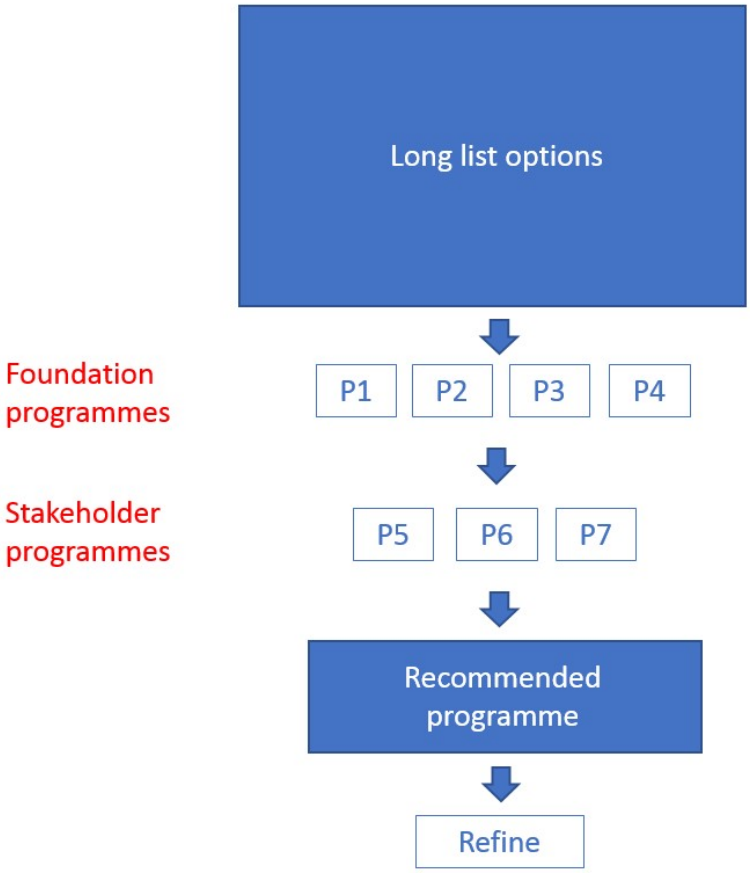
The Whangarei PBC is a programme of works to address the network problems and deliver on the investment objectives. The preferred programme will almost certainly be a package comprising a number of options.

This section summarises how the development of the proposed programmes has been undertaken in a robust and transparent manner. The assessment of long list options against the above criteria and relevant scoring between options was a key consideration when developing each programme.

Initially four foundation programmes (P1 – P4) were developed based each on an investment objective and were assessed against the MCA criteria to establish the effectiveness of each programme. Each programme included the top 20 ranked options based on an investment objective respectively i.e. the 20 highest ranked options against the 'safety' criteria were combined to make the safety programme. These were presented at the second PBC workshop for stakeholders to review and to stimulate consideration of other more 'balanced' programmes. The options included for each foundation programme is shown in **Appendix E**. There was general agreement that the programmes had individual merits, but overall no single programme addressed all of the investment objectives.

During the second PBC workshop, stakeholders were separated into three groups and provided with maps detailing the options for each programme. Each of the groups were required to produce a programme of works, which they anticipated would deliver on all of the investment objectives. An outline of the process adopted is provided in Figure 27 below.

Figure 27 - Process for obtaining preferred programme



6.1.1 Foundation programmes

The foundation programmes (P1 – P4) were based on each investment objective respectively with each programme including the best performing options (ranked 20 or better) for each investment objective. A total of four programmes were developed by the project team including the following:

- **Foundation Programme 1 - Capacity**: This programme, based on the first investment objective, addresses the key congested areas along the corridor that require improvements and upgrades to cater for the future growth. These locations were identified by the project team and stakeholders. The majority of options included in this programme involved lane widening and upgrading routes on SH1, SH14, Kamo Road, Riverside Drive, Mill Rd/Kiripaka Rd, Maunu Rd and other roads located within the central area. Other options such as rail enhancements, increase in frequency of public transport, corridor reviews and bus lanes/ Transit lanes (T2) also ranked highly against delivering this investment objective and have been included.

- **Programme 2 - Public Transport**: This programme focused on the second investment objective to increase the mode share of public transport for commuters. Similar to the first programme, this included a high number of lane widening options. Also included were more areas to investigate for bus lanes/ T2 lanes. Lane widening can be included in either programme, as the additional lanes will be able to cater for a higher frequency of bus services (or vehicles) on the road network.

Parking strategy options were also included in this programme such as removing parking within CBD and encouraging a modal shift via campaigns (LETSGO), improving PT amenities (e.g. bus stops) and increasing the frequency public transport services. These options are aimed at driving a mode shift from private vehicles to PT.

- **Programme 3 - Walking/ cycling**: This programme aims to increase the mode share of pedestrians and cyclists (commuters) by broadening and improving the cycle facilities (e.g. shared paths, bike racks, E-bike charging areas) to drive a mode shift. This includes a wide range of options from completing the existing Raumanga, Onerahi and Kamo shared paths (including connections to schools), to proposing a new shared path between Whangarei and Ruakaka, thereby improving the connection between the central city and the wider suburbs.

- **Programme 4 – Safety**: This programme aims to reduce the number of DSI's on the corridor. Options included were four laning of Riverside Drive and SH1 (from Toe Toe Road to Tarawera Road and Kensington Road to Kamo Road). Other roading improvements included upgrades to Hatea Drive, Kamo Road and Port Road. Implementing safety improvements along arterials with high/ medium-high risk and identified in the WDC's 3 yearly crash study process were also included.

Following the development of the foundation programmes, the project team undertook an assessment against the MCA criteria to establish the effectiveness of each. This assessment was presented to the stakeholder group at PBC Workshop 2.

6.1.2 Further Programme Development

Each foundation programme was developed to address a specific project objective. At PBC workshop 2, with the knowledge of how each foundation programme performed against the investment objectives, stakeholder groups were asked to develop programmes that best responded to all of the investment objectives. Groups were asked to take the best aspects of each foundation programme as well as any other options that they felt would be appropriate to create a recommended programme. Using this approach, three further programmes were developed, being:

- **Programme 5 – Stakeholder Group 1**: This group used the capacity programme as the base model with the exclusion of the rail enhancements option (Marsden Point rail link). Options from the other programmes including several SMARTS options incorporated from the PT programme, infrastructure projects from the cycling programme and implementing safety improvements and speed changes from the safety programme were combined with the capacity programme.

- **Programme 6 - Stakeholder Group 2:** This group used the capacity programme as the base, excluding the rail enhancements option, as they believed this contained the majority of the PT benefits. The options set out in the walking and cycling programme were added to this base model plus several minor works projects of intersections and the parking strategies to increase pricing option.

- **Programme 7 – Stakeholder Group 3**: A variant of options from each programme were included, excluding the safety programme as these problems were thought to have been addressed by capacity options. Options included corridor reviews along key arterial routes, provision of links to south and growth areas and an alternative route to SH1 (east-west link). Completion of the existing

Raumanga and Kamo shared paths, and construction of Tikipunga shared paths and Whangarei to Ruakaka shared paths were also included.

Appendix F outlines these programmes in detail.

6.2 Programme Assessment

A three-stage programme assessment approach was used as shown in Figure 27 above. Firstly, the foundation programmes were assessed against the MCA criteria and then the programmes developed in collaboration with the stakeholders were assessed against the same criteria.

The programmes were assessed against each criterion using a mixture of qualitative and quantitative assessments. Table 8 summarises the outcome of this assessment and the ranking of the programmes after this assessment assuming no weighting of the assessment criteria. A more detailed assessment is provided in **Appendix G**.

Table 8: Programme assessment summary

		DoMIn	Programme 1	Programme 2	Programme 3	Programme 4	Programme 5	Programme 6	Programme 7
			P1	P2	P3	P4	P5	P6	P7
Outcomes	Objective 1 – Ensure capacity of transport system meets forecast growth aspirations		+++	++	+	+	+++	+++	++
	Objective 2 – Increase PT mode share on transport system		++	+++	+	0	+++	+++	++
	Objective 3 – Increase district wide walking and cycling mode shares on transport network		+	+	+++	+	+++	+++	++
	Objective 4 – reduce deaths and serious injuries		++	++	+	+++	+++	+	+
MCA	Feasibility		--	--	-	-	--	--	-
	Affordability		0	-	+	+	-	-	0
	Stakeholders/Customers		0	0	0	0	0	0	0
	Safety		++	++	+	+++	+++	++	+
	Cultural and Historic Heritage		--	-	-	-	--	--	-
	Built Environment		--	--	+	-	--	--	-
	Natural Environment		--	-	--	-	--	--	--
	Social		--	-	0	-	-	-	-
	System Integration		++	+	+	0	++	++	+
	Economy		++	++	+	+	++	++	++
	Overall MCA ranking		7	4	3	5	1	2	6
Cost	Cost estimate (estimated)		$ 561	$ 410	$ 93	$ 154	$ 492	$ 489	$ 368
BCR	Benefit Cost Ratio		0.6	1.0	1.4	0.4	1.3	1.2	1.4

6.2.1 Objectives Assessment

As shown in *Table* 8, the foundation programmes (P1-P4) focussed on a specific investment objective whereas the more balanced stakeholder programmes (P5-P7) deliver much better against the four investment objectives.

P5 delivered best against all of the investment objectives, followed by P6 and then P2 and P1. P4 was assessed as providing no improvement in the second investment objective related to mode shift. All other programmes were assessed as providing at least a minor benefit against all investment objectives.

6.2.2 Differing Levels of Effect

Each programme has differing levels of impact related to its implementation. Interestingly no programme was assessed as having a significant adverse impact against any of these criteria, with a moderate adverse impact the highest assessed.

P1 had the highest effect with five moderate adverse scores, including for affordability, cultural, built environment, natural environment and social effects. P5 and P6 scored the same as P1 with the exception of the social effect, where only minor adverse effects were assessed.

This is not surprising as these three programmes are of the largest scale and therefore a larger scale effect from implementation is also predicted.

P4 has the least effects associated with its implementation due to it being of the smallest scale of all of the programmes.

6.2.3 Programme Costs

The programme costs have been developed through considering the recent NLTP costing exercise and further costing analysis undertaken by WDC.

This has resulted in an indicative cost for each programme as outlined in *Table* 9

Table 9 : Programme costings

Programme	Cost (M)
P1	$561
P2	$410
P3	$93
P4	$154
P5	$508
P6	$489
P7	$368

This is a total cost for implementation for all programme partners including WDC, the Transport Agency and Northland Regional Council.

Appendix G includes the detail of the costings.

6.2.4 Programme Economic Benefits

As part of the technical evaluation of options some transport modelling was undertaken using the WDC transport model. Due to time constraints and the similarity of a number of the programmes, three scenarios were modelled, being:

- Increase capacity (IC) – Implemented P1 capacity works with current future model demands
- Mode share (MS) – Reduces transport mode by private vehicle and increase mode share by PT and active modes[1]
- Increase capacity and mode share (IC + MS) – Combine the two tests from above.

This testing was considered to provide a ranging pf potential benefits for consideration and benchmarking each programme.

[1] Current and tested modes shares:

- 0.6% of trips currently using PT for journey to work – changed to 3%
- 5.2% of trips currently walking or cycling for journey to work – changed to 10%

The Whangarei Transportation Model (WTM) has been used to assist in analysing the programme benefits of the WDC Programme Business Case (PBC). Modelling of the three scenarios has been undertaken for the years 2013, 2023, 2033 and 2043. Using the model output factors for each scenario, calculations in accordance with the Economic Evaluation Manual (EEM) were conducted to determine the associated travel time (TT), vehicle operating cost (VOC) and Accident cost benefits (ACC).

How the benefits from these three transport scenarios were converted into programme benefits is summarised as follows:

- P1 – Includes PT improvements T2 lanes and increased frequency of PT trips so the benefits have been assessed as 100% IC + 50%MS
- P2 – Exclude the walking benefits of the MS option, but the IC benefits due to 4-lane/T2 lanes and intersection upgrades. Therefore the benefits have been assessed as 80% IC + 60% MS
- P3 – Exclude the PT benefits of the MS option. Assume 20% of MS benefits.
- P4 – Includes some 4-laning and walking improvements so the benefits were assessed as 60% IC + 10% MS benefits.
- P5 – Includes PT and road capacity works so the benefits were assessed as 100% IC + MS benefits.
- P6 – Includes PT & Walking Cycling benefits so the benefits were assessed as IC + MS benefits, less 10% of PT benefits from MS. Effectively this option is almost the same as P5.
- P7 – Includes some of P1 and P3 so the benefits were assessed as 80% IC + MS

Appendix F includes a more detailed note on the transport analysis and economics undertaken.

Combining these costs and benefits provides the BCR's outlined in Table 10. This shows that most programmes are forecast to be economically positive with Benefit Cost Ratios of between 0.4 and 1.4.

6.3 Identification of Preferred Programme

Based on the above assessment the following conclusions have been made to identify the preferred programme:

1. P4 does not deliver against all of the identified investment objectives and was therefore discarded.
2. P1 is the most expensive option, however it does not deliver the highest level of project outcomes or economic benefits and was therefore discarded.
3. P3 has a strong BCR, however delivers the smallest number of benefits and delivers a minor positive impact against three of the four investment objectives and was therefore discarded.
4. P6 & P7 are a similar cost to P5 however do not deliver as well against the investment objectives and therefore P5 is the strongest candidate of the 'Stakeholder Programmes'.
5. P2 delivers a strong economic outcome, however when compared to P5 (the remaining programme at this point) it did not deliver as strongly against the investment objectives and in particular the walking and cycling objective and was therefore discarded.

This is shown in Table 10 below.

Table 10 : Preferred programme assessment

		DoMin	Programme 1	Programme 2	Programme 3	Programme 4	Programme 5	Programme 6	Programme 7
			P1	P2	P3	P4	P5	P6	P7
Outcomes	Objective 1 – Ensure capacity of transport system meets forecast growth aspirations		+++	++	+	+	+++	+++	++
	Objective 2 – Increase PT mode share on transport system		++	+++	+	0	+++	+++	++
	Objective 3 – Increase district wide walking and cycling mode shares on transport network		+	+	+++	+	+++	+++	++
	Objective 4 – reduce deaths and serious injuries		++	++	+	+++	+++	+	+
MCA	Feasibility		--	--	-	-	--	--	-
	Affordability		0	-	+	+	-	-	0
	Stakeholders/Customers		0	0	0	0	0	0	0
	Safety		++	++	+	+++	+++	++	+
	Cultural and Historic Heritage		--	-	-	-	--	--	-
	Built Environment		--	--	+	-	--	--	-
	Natural Environment		--	-	--	-	--	--	--
	Social		--	-	0	-	-	-	-
	System Integration		++	+	+	0	++	++	+
	Economy		++	++	+	+	++	++	++
	Overall MCA ranking		7	4	3	5	1	2	6
Cost	Cost estimate (estimated)		$ 561	$ 410	$ 93	$ 154	$ 492	$ 489	$ 368
BCR	Benefit Cost Ratio		0.6	1.0	1.4	0.4	1.3	1.2	1.4

P5 is the preferred programme for the following reasons:

- It delivers best against all of the investment objectives, providing for all modes of transport
- Is able to be implemented with a no more than moderate effect
- Is economically efficient
- Provides a balanced programme of safety, additional traffic capacity and mode shift activities .

This recommendation was tested at the final workshop with stakeholders on the 15th November 2017. At this workshop stakeholders confirmed Programme 5 as the preferred programme and then spent time confirming the staging and implementation of this programme (discussed in the next section of this report). There was particular interest in understanding the funding needs. When compared to the current spend the stakeholders drew comfort from the proposed programme and also the intention of the preferred programme to prioritise safety and other modes (to drive mode shift from private vehicles) in the long term and Whangarei transitions form a car based city to a larger city with greater transport choices for its citizens.

6.4 Sensitivity Testing

To further test the robustness of the recommended option sensitivity testing was undertaken. The above MCA assessment assumes no weighting of the criteria. Sensitivity testing was then undertaken as shown in Table 11. This including a doubling of particular weighting compared to all other criteria.

Table 11: Sensitivity testing

	Sensitivity Testing	DM	P1	P2	P3	P4	P5	P6	P7
Sensitivity Ranking	Objective 1 – Ensure capacity of transport system n	8	4	3	5	7	1	2	6
	Objective 2 – Increase PT mode share on transport s	8	6	3	4	7	1	2	5
	Objective 3 – Increase district wide walking and cyc	8	7	4	3	6	1	2	5
	Objective 4 – reduce deaths and serious injuries	8	6	3	5	2	1	4	7
	Feasibility	8	7	5	3	4	1	2	6
	Affordability	8	7	6	2	3	1	4	5
	Stakeholders/Customers	8	7	4	3	5	1	2	6
	Safety	8	6	4	5	3	1	2	7
	Cultural and Historic Heritage	8	7	3	2	5	1	4	6
	Built Environment	8	7	5	2	4	1	3	6
	Natural Environment	8	7	2	5	4	1	3	6
	Social	8	7	4	3	5	1	2	6
	System Integration	8	5	3	4	6	1	2	7
	Economy	8	5	3	4	7	1	2	6

As shown in Table 11 this changes some specific rankings, however does not fundamentally change the overall pattern. Key differences from this sensitivity testing include:

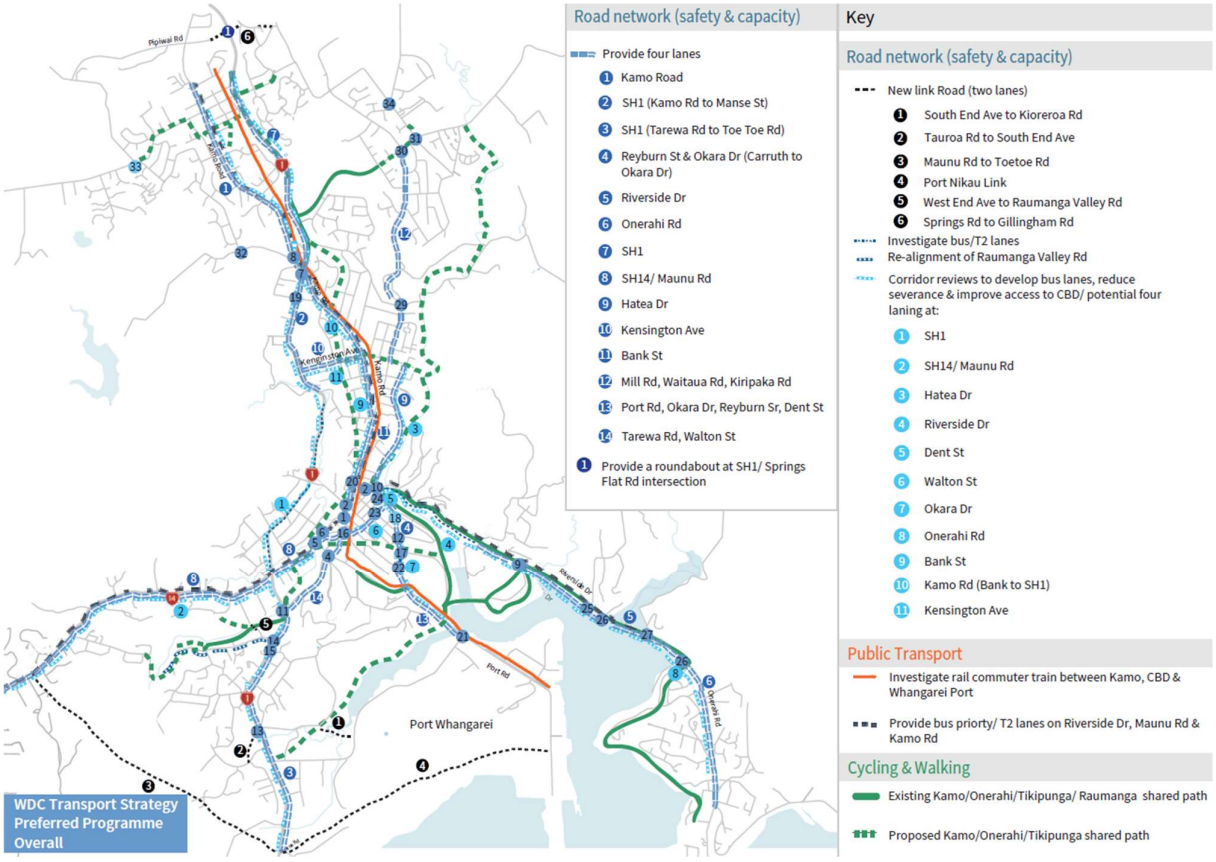
- Do minimum remains the worst performing programme under all tests
- Programme 1 is generally 7th, rising to 4th in some sensitivity tests
- Programme 6, the second best performing programme generally remains 2nd, dropping to 4th against a couple of sensitivity tests
- Programme 3, the third best performing programme ranges from 2nd to 5th
- **Programme 5 remains the best performing programme for all sensitivity tests as its performance is strong against many criteria**

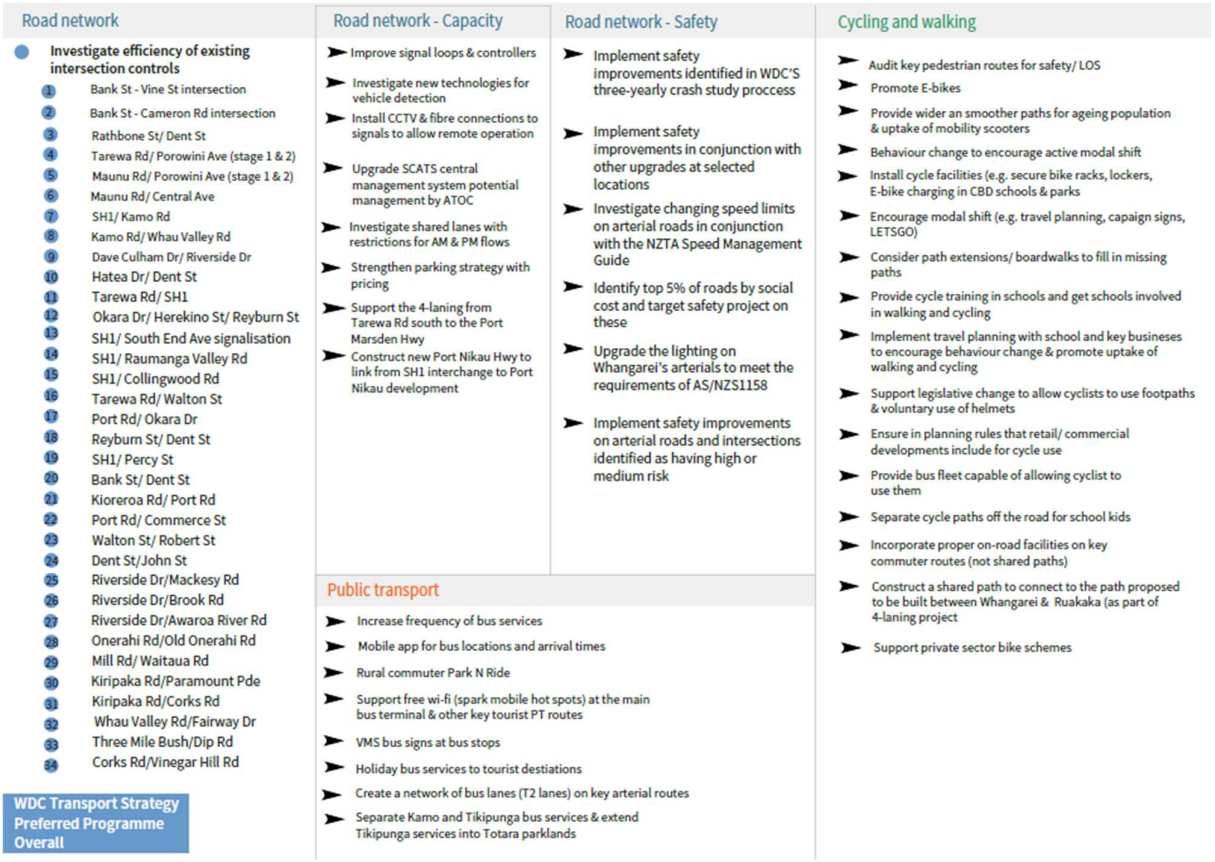
7 Recommended Programme

7.1 The Programme

The preferred programme includes combination of capacity improvements on key arterials, PT services, safety works and walking and cycling initiatives as outlined in Figure 28.

Figure 28 - Preferred Programme





7.2 Impacts

P5 is a significant programme of works over a large part of the city's transport system and will be implemented over a number of years. Therefore, there will be impacts associated with the implementation of this programme.

Key impacts that will need to be developed in more detail at a project by project level include:

- The programme scale has been assessed as carrying a moderate **feasibility** risk. This is driven in part by the total scale of RMA consents required with the widening and shared paths elements of the programme. There is also some risk that the PT elements will be challenging to implement given their focus on mode shift initially, rather than being demand driven.
- The inclusion of additional PT services has the potential to create an **affordability** risk as it is understood that additional PT services are typically funded once there is demand, whereas the additional services in the programme are proposed to attracted PT customers and generate a mode share change.
- There are identified risks of potential impacts to known (and unknown) **cultural and heritage** areas within the city. It will be important that this risk is managed carefully in the consideration of individual project elements of the programme and an approach adopted of seeking first to avoid and then mitigate. This needs to done in conjunction with the appropriate Mana Whenua and the Historic Places trust.

- There will be road widening and new shared path routes associated with the additional capacity, safety and walking and cycling aspects of the programme. This will result in impacts on the **built environment** and the urban form which will need to be considered and appropriately managed and mitigated at the individual project phase.
- As with the built environment, there will also be impacts on the **natural environment**. This includes parks and works near and through watercourses which will need to be carefully managed during implementation.
- There will be impacts on a number of properties that will require either partial or potential full purchase. This will need to be carefully managed through the next phase of implementation. Potential social severance impacts will be balanced by the increase in accessibility to the communities near where the works are proposed.
- Economic growth is forecast to increase as a result on the increased accessibility provided by P5. This should be considered at an individual project level as well to assist in the case for implementation of specific project elements of the preferred programme.

As well as the above impacts, the economic efficiency of the total programme is just above 1.0 and has been calculated on some indicative transport modelling. This is considered appropriate for a programme of this scale, however individual elements within the programme will need a more detailed and project specific economic analysis.

7.3 Implementation

7.3.1 Overall

P5 is a programme of substantive scale at just under $500M. This is anticipated to be implemented over a 30 year time frame. The individual elements of the programme range from signal upgrades through to significant widening of the state highway through Whangarei.

It is anticipated that the programme will be implemented in stages as outlined in Table 12. Short term implementation is within the next five years, Medium term is from five to 15 years and Long term is from 15 to 30 years. This implementation plan was confirmed (and fine-tuned) by stakeholders at the final project workshop.

Table 12 : Indicative implementation programme for P5

No.	Option	Next Step (DBC or implementation)	Potential Implementation (Short, Medium or Long term)
1	Improve signal loops and controllers	Implement	Short
2	Investigate new technologies for vehicle detection	Implement	Short
3	Install CCTV and fibre connections to signals to allow remote operation	Implement	Short
4	Upgrade SCATS central management system with potential management by ATOC	Implement	Short
5	Investigate other intersection controls (e.g. roundabouts)	Implement	Medium
6	Closure/ turn restrictions at key intersections	Implement	Medium
7	Improvement of Rathbone St connection to enable right turns out and access to Riverside Dr and Hatea Dr	Implement	Medium
8	Investigate shared lanes with restrictions for AM and PM flows	DBC	Medium

No.	Option	Next Step (DBC or implementation)	Potential Implementation (Short, Medium or Long term)
9	Increase frequency of bus services	DBC	Short
10	Separate Kamo and Tikipunga bus services and extend Tikipunga services into Totara parklands	Implement	Medium
11	Mobile app for bus locations and arrival times	Implement	Short
12	Support free Wi-Fi (spark mobile hot sports) at the main bus terminal and other key tourist PT routes	Implement	Short
13	VMS bus signs at bus stops	Implement	Medium
14	Holiday bus services to tourist destinations (i.e. tourist bus)	DBC	Medium
15	Investigate rail commuter train between Kamo and CBD and to the Whangarei Port	DBC	Long
16	Create a network of bus lanes (T2 lanes) on key arterial routes	DBC	Medium
17	Provide bus priority/ T2 lanes on Riverside Dr, Maunu Rd and Kamo Rd	DBC	Medium
18	Corridor reviews to develop bus lanes, reduce severance and improve access to CBD on selected arterials	Implement	Short
19	Upgrade the Tarewa Rd/ Porowini Ave (Stage 1) and Maunu Rd/ Porowini Ave intersections (Stage 1)	Implement	Short
20	Upgrade the Tarewa Rd/ Porowini Ave (Stage 2) and Maunu Rd/ Porowini Ave intersections (Stage 2)	Implement	Long
21	Upgrade the Maunu Rd/ Central Ave intersection	Implement	Short
22	Upgrade the SH1/ Kamo Rd and Kamo Rd/ Whau Valley Rd intersections	Implement	Medium
23	Upgrade the Dave Culham Dr/ Riverside Dr roundabout	Implement	Medium
24	Widen Riverside Dr and Onerahi Rd to 4 lanes and install central wire rope barriers	DBC	Medium
25	Support the 4-laning from Tarewa Rd south to the Port Marsden Highway	DBC	Short
26	Upgrade SH1 to 4-lanes from Kamo Road to Manse St	DBC	Medium
27	Improve the capacity of the Dent St/ Hatea Dr/ Riverside Dr intersection	Implement	Medium
28	SH14 to Hospital 4 – laning	DBC	Medium
29	Upgrade the SH1/ Tarewa Rd intersection	DBC	Short
30	SH1/ Tarewa Rd TO Toe Toe Rd (Blue Goose) 4 – laning and Tauroa Rd closure/ connection to SH1 at South End Ave and signalisation of SH1/ South End Ave. Also include realignment of Raumanga Valley Rd and upgrade of SH1/Raumanga Valley Rd/Collingwood Rd intersection.	DBC	Short
31	Major East-West link from Toe Toe Rd to Maunu Rd	DBC	Long
32	Upgrade route along Port Rd (from Kioreroa Rd), Okara Dr, Reyburn St, Hatea Dr and Kamo Rd (north of Nixon St to SH1)	DBC	Medium
33	Upgrade intersections/ roundabouts on outer limits of the city at selected locations	Implement	Medium
34	SH1 from Kamo Rd to Manse St 4-laning (and other improvements and SH1/ Percy St intersection upgrade	DBC	Medium
35	Upgrade the Okara Drive/ Herekino St intersection to improve capacity and pedestrian connectivity	Implement	Medium
36	Reyburn St and Okara Dr 4 – laning from Carruth St to Okara Dr	DBC	Medium
37	Construct new Port Nikau Highway to link from SH1 interchange to Port Nikau development	DBC	Long
38	New link road between South End Ave and Kioreroa Road	DBC	Long

No.	Option	Next Step (DBC or implementation)	Potential Implementation (Short, Medium or Long term)
39	4 laning of selected major arterial routes (Riverside Dr)	DBC	Medium
40	4 laning of selected major arterial routes (SH1, SH14, Tarewa Rd/Walton St, Hatea Dr & Kensington Ave, Bank St & Kamo Rd, Mill Rd/Waitaua Rd/Kiripaka Rd, Port Rd/Okara Dr/Reyburn St/Dent St & Onerahi Rd.)	DBC	Long
41	Strengthen parking strategy with pricing	Implement	Short
42	Encourage modal shift (e.g. travel planning, campaigns, LETSGO)	Implement	Short
43	Consider path extensions/ boardwalks to fill in missing paths	Implement	Medium
44	Provide wider and smoother paths for ageing population and uptake of mobility scooters	Implement	Medium
45	Audit key pedestrian routes for safety/ LOS	Implement	Short
46	Complete the Raumanga and Onerahi shared paths	Implement	Short
47	Complete the Kamo shared path including connections to schools	Implement	Short
48	Connect the Tikipunga shared path to tie in with Tikipunga to Tutukaka Heartlands ride	Implement	Medium
49	Construct a shared path to connect to the path proposed to be built between Whangarei and Ruakaka (as part of 4 – laning project)	Implement	Medium
50	Install cycle facilities (e.g. secure bike racks, lockers, E-bike charging in CBD schools and parks	Implement	Medium
51	Promote E-bikes	Implement	Medium
52	Separate cycle paths off the road for school kids	Implement	Medium
53	Behaviour change to encourage active modal shift	Implement	Short
54	Provide cycle connections or on-road facilities at destinations	Implement	Short
55	Provide bus fleet capable of allowing cyclist to use them	Implement	Medium
56	Ensure in planning rules that retail/ commercial developments include for cycle use	Implement	Short
57	Support legislative change to allow cyclists to use footpaths	Implement	Short
58	Incorporate proper on-road facilities on key commuter routes (not shared paths)	Implement	Medium
59	Implement travel planning with school and key businesses to encourage behaviour change and promote uptake of walking and cycling	Implement	Short
60	Provide cycle training in schools and get schools involved in walking and cycling	Implement	Short
61	Implement safety improvements in conjunction with other upgrades at selected locations (carrying out intersection improvements and signalization of the Otaika pedestrian crossing as part of the Whangarei to Marsden Point 4-laning; also installation of a wire rope central median and bridge widening as part of the Riverside Drive 4-laning.	DBC	Medium
62	Implement safety improvements on arterial roads and intersections identified as having high or medium risk	Implement	Medium
63	Implement safety improvements identified in WDC's 3 yearly crash study process	Implement	Short
64	Investigate changing speed limits on arterial roads in conjunction with the NZTA Speed management Guide	Implement	Medium
65	Upgrade the lighting on Whangarei's arterials to meet the requirements of AS/NZS1158	Implement	Short

No.	Option	Next Step (DBC or implementation)	Potential Implementation (Short, Medium or Long term)
66	Identify top 5% of roads by social cost and target safety project on these	Implement	Medium
67	Park N Ride for rural commuters	DBC	Long
68	Provide connection from West End Ave to Raumanga Valley Road	DBC	Medium
69	SH1 / Springs Flat Road roundabout with Springs Flat Road extension and potential extension of Alcoba Road to SH1. Could also consider extension of Alcoba Road to Beacondale Road	DBC	Short

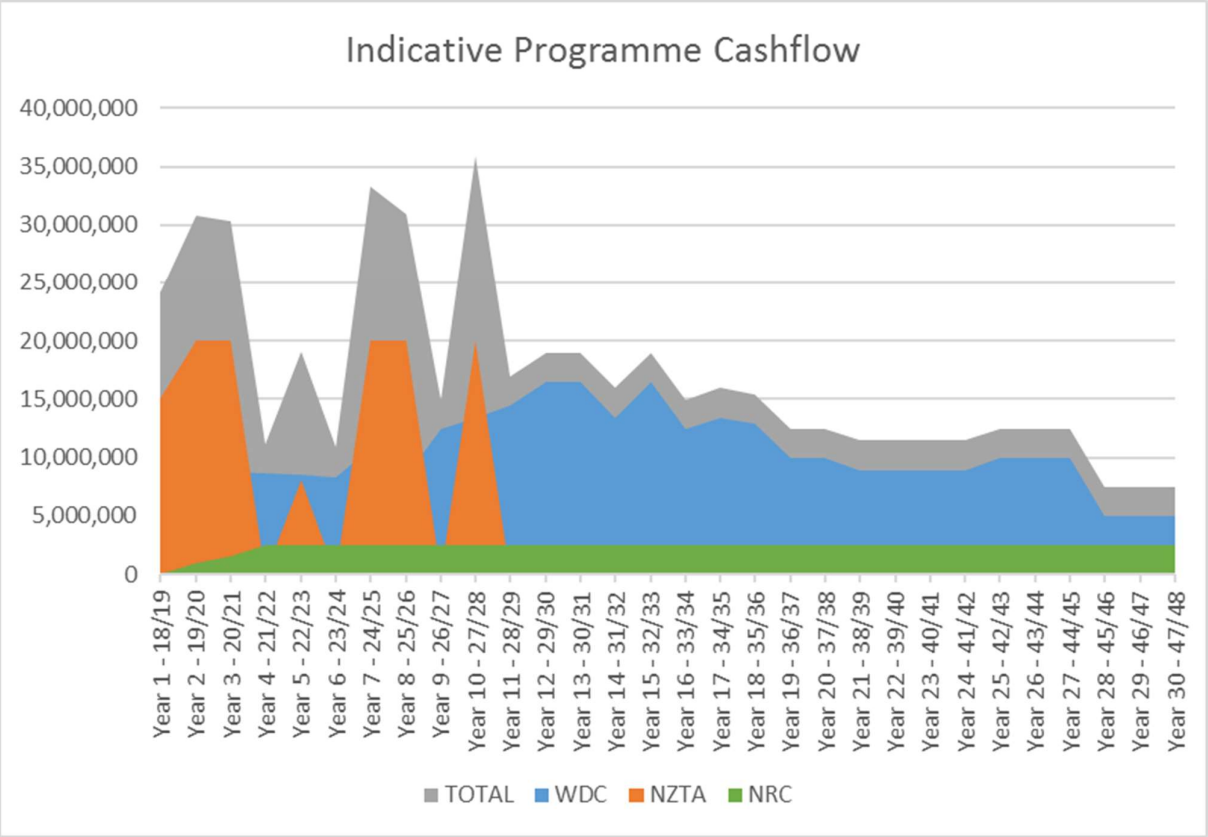
A number of the elements will be implemented as the need arises, particularly the safety improvements.

This proposed implementation programme is also shown pictorially in **Appendix I.**

7.3.2 Funding

The indicative implementation plan results in the following programme cashflow (shown in Figure 29), including spend by either WDC or the Transport Agency (for state highway works). There will also be Northland Regional Council costs associated with some of the PT elements of the recommended option of approximately $2.5M a year.

Figure 29 : Recommended programme implementation cashflow



7.3.3 Implementation Risks

There have been a number of implementation risks (and the appropriate mitigation) identified. These risks are summarised in Table 13.

Table 13 : Risk table

Risk	Current Rating	Mitigation
Individual projects to meet funding criteria	High	Ensure individual elements are programmed at appropriate time (when needed) to maximise economic case, and ensure PBC economics mentioned.
Pressures to implement elements earlier or later than programmed	Low	Ensure sufficient flexibility in the programme funding to move projects as demands require this.
Ability to gain appropriate RMA consents with workable conditions	Medium	Follow appropriate consenting processes and ensure stakeholder understand the PBC story for the individual elements role in the wider programme.
Interface challenges between programme elements	Low	Develop interface plan for each individual project and consider the implications of the programme and nearby projects.
Amount of funding available to implement is insufficient	High	Remain in constant contact with Transport Agency and review programme costs bi-annually.

8 Recommended Programme - Assessment

8.1 Programme Outcomes

Programme 5 was selected as it delivers on the outcomes sought for the network in an economically efficient manner. Programme 5 offers a value for money programme that is affordable to the investment partners and can be implemented in stage over the next 30 years, with manageable impacts on the environment, built environment, communities and culturally sensitive areas.

Programme 5 delivers the following outcomes by 2030:

PBC Investment Outcomes:

- Maintaining traffic flows free from congestion (Level of Service D or better) while accommodating planned growth in the City
- A 500% increase in public transport patronage
- 21,200 more people within a 400m walk of a bus stop or within 5km of a park and ride facility
- A 100% increase in walking and cycling trips
- 11,900 more people within a 400m walk of a shared path
- A reduction of 5 Deaths and Serious Injury Crashes (DSI's) per year
- A reduction in CO_2 emissions of 8,300 tonnes per annum

As can be seen from the investment outcomes above, this is an integrated programme that is mode neutral, improves safety, will improve accessibility and reduces vehicle emissions.

The investment objectives describe the outcomes sought from investing in the Whangarei City network. A summary of the outcomes achieved by the recommended programme is provided below:

8.1.1 Growth Outcomes

Programme 5 will provide additional capacity through the transport system to enable the network to cope current traffic demands and the effects of future growth. This includes capacity improvements through 4-laning of the arterial road network and intersection upgrades in combination with improved and more frequent bus services and improved walking and cycling facilities. The existing traffic signal network will also be upgraded to improve its efficiency and resilience.

In the long term, new road links are to be provided to improve connectivity between State Highway 1 and growth nodes such as Maunu and the Port Nikau (old Port) areas.

These improvements will be timed to coincide with traffic growth so that they are implemented on a just in time basis and integrates with the planned growth areas in the City and surrounding District. The programme will also result in improved access around the City and reduced carbon dioxide emissions through reduced congestion and delays.

8.1.2 Public Transport Outcome

Programme 5 will see a step change in public transport use with an anticipated five-fold increase in patronage to 3% of all commuter trips (District-wide) and an additional 21,200 people within a 400m walk of a bus stop or 5km drive of a park and ride facility. This will greatly improve access, will promotes mode neutrality and reduce carbon dioxide emissions by reducing use of single occupant private vehicles.

This will be delivered by doubling the number of bus trips during peak periods, providing bus/T2 lanes in conjunction with 4-laning, improving bus shelters, seating and bus bays and providing better information to users of when buses are arriving via mobile phone apps and VMS signs.

In the longer term, park n ride facilities will be provided in rural and coastal communities such as Hikurangi, Tutukaka, Maungatapere, Parua Bay, Ruakaka and Waipu to provide an alternative means of transport and reduce the reliance of private vehicles.

Options for a commuter rail service from Kamo and the Port Nikau growth node to the CBD would also be considered in the long term.

8.1.3 Walking & Cycling Outcome

Programme 5 will continue the current investment in walking and cycling with an expected doubling of commuter walking and cycling to 10% of all commuter trips (District-wide) and an additional 11,900 people within a 400m walk of a shred path. This will again greatly improve access, promotes mode neutrality and reduces carbon dioxide emissions. It will also increase active travel modes which will improve peoples health.

There is also expected to be a significant resurgence of school children using active modes which will help reduce traffic flows around the school start and end times.

The programme will see the completion of the current Raumanga/Maunu, Onerahi and Kamo cycleways as well as the construction of the Tikipunga cycleway. It will also include a significant increase in the number of safe crossing points on arterial roads across the network and provision of improved cycle facilities such as bike racks and cycle-friendly buses.

8.1.4 Safety Outcome

Programme 5 will address the most significant safety risk areas such as Riverside Drive and State Highway 1 south of Tarewa Road by 4-laning these roads with associated safety improvements such as raised or wire rope medians. The programme will also address high risk intersections and will provide more safe crossing points for active users.

The implementation of this programme is expected to see a reduction of 5 death and serious injury crashes per annum. This will provide a safe network and a significant improvement over its current safety performance for all road users, including freight, tourists and vulnerable users.

8.2 Programme Risk

The recommended programme has a number of risk s associated with its implementation that were assessed. These are summarised below:

8.2.1 Feasibility

Programme 5 was considered to have minor risks with respect to feasibility. Generally the options proposed are straight forward, well understood and 'standard' in nature.

The 4-laning and bus/T2 lanes will require widening in a built up urban area and will have potential consenting and property risks.

The potential new road links such as the SH1 to Maunu link and the SH1 to Port Nikau links will also have some property and consenting risk, particularly as these may encroach into sensitive areas.

The increased bus services carry some minor risk, as they will require collaboration with the Northland Regional Council to ensure that implementation is appropriately planned and rolled out.

8.2.2 Affordability

Programme 5 is considered to be relatively affordable with a BCR of 1.3. Therefore, it is considered that the programme is likely to be efficient and fundable through the National Land Transport Fund (NLTF).

Table 14 : Programme Cost Risk

	Programme 5
Cost (Lower Bound)	$405M
Expected Cost	$508M
Cost (Upper Bound)	$660M
BCR Lower	1.6
BCR Expected	1.3
BCR Upper	1.0

The table above indicates that even with the upper bound estimate of the $660M the preferred programme would still be efficient with a BCR of 1.

The programme does have a prioritization risk with a BCR of between 1.0 to 1.6, when compared to other programmes being funded through the NLTF. However, individual projects within the programme will be timed when they are eligible for NZTA co-investment over a number of years which will minimise this risk.

Further analysis is required to confirm these funding arrangements, as major projects are developed in more detail through Indicative and Detailed Business Case phases.

Aspects of the programme, particularly with regard to public transport and the SH1 to Port Nikau link road, will require implementation by other parties. The details of these funding arrangements are yet to be confirmed.

8.2.3 Stakeholder/Public Considerations

Stakeholder and public perceptions are always a risk for infrastructure projects. To mitigate this risk and to ensure that as many perspectives as possible were included in the development of the PBC, stakeholders were invited to attend a number of interactive workshops.

Options and alternatives were developed collaboratively with stakeholders at a workshop. Assessment criteria were taken from NZTA guidelines for option evaluation, agreed with stakeholders and used to

evaluate the identified options and alternatives with respect to their relative ability to deliver against the agreed investment objectives for the network. Stakeholders then participated in a workshop to develop a range of potential programmes for the network. Programme 5 was developed by one of these stakeholder groups with only minor modification by the project team.

Programme 5 is considered to likely attract both support and opposition like most infrastructure projects. Some people whose properties are directly affected by road widening projects or new links are likely to oppose the works, while others who are getting direct benefit from the projects are likely to support the projects. Overall it is expected that the programme will be well received by the Whangarei community because it aims to reduce congestion, provide for future growth, provide viable alternative transport modes, improve safety and reduce community severance.

8.2.4 Cultural Heritage, Environmental and Social Responsibility Considerations

There are identified areas of significance from a cultural heritage, environmental and social perspective on the network. Programme 5 is considered to have some risk in these areas, however, as it does not affect any specifically identified areas, it is considered that this risk can be managed.

Culturally there are some areas of significance on the network. In particular, any new road links or bridge works to be undertaken associated with road widening work are likely to be of interest to local iwi. In particular, the proposed SH1 to Maunu link road is likely to encroach in areas of cultural significance. The Porowini Ave/Tarewa Rd intersection upgrades are also likely to be a concern to local iwi as they are adjacent to the main Marae in the city.

There are some areas of environmental significance that will be affected by the proposed programme. As for cultural heritage above, the proposed new link roads, particularly the SH1 to Maunu link traverse some areas of environmental sensitivity that will need to be managed.

There will be social enhancements with improved safety, accessibility and reduced community severance delivered by Programme 5. This will be balanced against potential social impacts of property purchase.

More work is required to understand these issues in detail however no significant concerns have been identified to date.

8.2.5 Safety

While the programme is being implemented there will be a safety risk while traffic is being managed during construction. This will be mitigated through normal traffic management measures and is a well understood risk that can be managed. Overall there will be a net gain in safety through the programme by achieving the Safety Objective by providing a safer network.

8.2.6 Economy

Programme 5 will improve the safety, reliability and performance of the Whangarei City transportation network. The programme will result in 7,500 vehicles per day having reduced congestion and a reduction in average travel time of 20-30 seconds per trip. This improvement in transport performance will create a greater level of confidence for investors and business in Whangarei and further north.

8.3 Programme Opportunities

As well as achieving the investment objectives, the recommended programme also offers a number of opportunities to users, investors and the wider community. These include:

8.3.1 Revitalisation of the CBD

Programme 5 will result in improved access to the CBD through providing improved transport links as well as improved pedestrian/cyclist crossing points to reduce severance and improved public transport access reducing the reliance on private vehicles. This presents a significant opportunity for the CBD which currently is in decline to revitalize itself with opportunities for inner city living and becoming a pedestrian friendly space. This would give the CBD a distinct point-of-difference between it and the competing big box developments such as Okara Park. Paid parking in the CBD has been an issue for many years and so improved public transport would help remove parking as being a barrier to people wanting to access the CBD.

8.3.2 Improved Resilience

Programme 5 also provides several new link roads which will provide viable alternatives to the existing routes. In particular, the proposed SH1 to Maunu link road will form a viable alternative to access the growing suburb of Maunu and the Regional Hospital. At the moment, the only viable route is using SH14 which is congested during peak periods and could be closed in the event of a crash or other incident. The 4-laning of the arterial routes will also provide opportunities to improved resilience by being able to close one side of the road during an incident and opening the other two lanes up to two way traffic.

8.3.3 Tourism

The preferred programme includes greater opportunities for tourism through providing greater cycling opportunities in the city which are expected to connect to Heartland Ride tourist routes such as the Tutukaka Cycleway and the Waipu Cycleway. Improved public transport and in particular, the proposed Park and Ride services to rural and coastal communities, will enable tourists to explore Whangarei further and access areas of interest for tourists such as the Tutukaka Coast, Whangarei Heads, Marsden Point Refinery Visitor Centre and Waipu Cove.

8.4 Assessment Profile

An assessment of the anticipated Strategic Fit and Effectiveness has been undertaken in accordance with the NZ Transport Agency's Investment Assessment Framework (IAF). Overall the anticipated profile for Programme 5 would be **H/H/1.0 – 1.6.**

8.4.1 Strategic Fit

Overall the network has been indicatively given a **High** strategic fit rating.

The Whangarei transport network carries inter-region freight on State Highway 1. The Whangarei transport network also supports initiatives from the Tai Tokerau Economic Action Plan such as the revitalisation of the Twin Coast Discovery Highway and the proposed Hundertwasser Art Centre. Whangarei City is the gateway to Northland and its commercial heart.

Whangarei City has recently been identified as a High Growth Urban Area, with grow forecast by Stats NZ to be more than 10% over the next 10 years due to the effects of the housing pressure in Auckland (current annual growth is 2%). Investment in the transport network will directly benefit this growth.

Access around the City is primarily by private vehicle due to significant issues with social severance caused by the State Highway network, arterial roads and constraints such as the North Auckland rail line which limit safe pedestrian and cyclist links. There is also no public transport to the outlying rural and coastal townships which forces commuters to drive into town for work and services. These issues also result in greater vehicle emissions and less use of active modes which impacts on peoples health.

The network has only one primary access to the regional hospital and regionally significant airport which result in a lack of resilience to these key life lines.

Sections of the Whangarei City arterial network are a High safety risk and there has been a significant increase in fatal and serious injury crashes in the past five years, particularly for active road users.

8.4.2 Effectiveness

The Whangarei City Transportation Network Strategy has been indicatively given a **High** effectiveness rating at this stage.

The following table (Table 15) provides an indicative view on the potential effectiveness of improving the Whangarei transport network.

Table 15 – Indicative Effectiveness Assessment

IAF Criteria	Comment	Rating
Outcomes focused	The problems associated with the Whangarei transport network have been identified through the ILM process. These problems involve limitations in the arterial road network to provide for economic growth and resilience, community severance limiting active modes and high safety risk on some arterials. Addressing these problems is consistent with the national, regional and district outcomes.	High
Integrated	The Whangarei City Transport Network Strategy will integrate with the current land use and proposed urban growth as well as with developments associated with the Tai Tokerau Economic Action Plan. It considers a range of transport modes including PT and walking and cycling. The problems and benefits of the Whangarei City Transport Strategy have been determined through ILM and consultation with appropriate stakeholders.	High
Correctly Scoped	The PBC is appropriately scoped to consider the problems and contributing factors on the Whangarei City transport network. The options and alternatives considered have been sized to fit the problems identified through the ILM. The PBC considers the whole of network impact of the proposed options.	High
Affordable	The programme is affordable for all parties. The WDC elements have been allowed for in the WDC's draft Long Term Plan which is currently out for consultation. The programme includes the SH1/Tarewa intersection improvements and SH1 4-laning south from Tarewa Road to the southern boundary of the city which are both already programmed by NZTA in their current RLTP request. NRC have indicated that they will accommodate additional bus services once growth pressures make these viable.	High
Timely	The programme will provide enduring benefits over the 30 year life of the strategy. Individual projects within the programme will be undertaken at an appropriate time to best suit the problem they are addressing. This is likely to be driven by when individual projects achieve an appropriate benefit and cost appraisal which would attract NZTA co-investment.	High
Provides confidence	The PBC has identified problems with the Whangarei City transport network through a robust approach. Programme risks have been identified and the impacts of these on achieving the programme outcomes or on the programme costs have been assessed.	High
Overall		**High**

8.4.3 Efficiency

Details of the benefit and cost appraisal are provided in Section 8.2.2. The BCR has been assessed as 1.0-1.6.

9 Programme Financial Case

9.1 Indicative Cost

The cost of the programme was developed through the development of costs for each individual option that made up the recommended programme. These individual costs were then combined to give the total cost of the programme.

These costs were developed through knowledge of previous projects and previous costings for options from earlier investigations (where this existed). All cost estimates have been expressed as a range, ie upper-bound and lower-bound values only have been provided.

Given the strategic nature of the programme business case, detailed option development has not been undertaken and therefore a range best represents the costs at this stage in the programme life cycle. Table 16 shows the cost per project element within the programme.

It indicates that the expected total cost range for Programme 5 is **$405M to $660M** in today's dollar terms.

Table 16 – Breakdown of Programme Cost

Section	Road Infrastructure Investment	Cost of Project ($M undiscounted)
NZTA Projects		
SH1/Tarewa Rd	Intersection signalisation and four laning	$12-20
SH1/Tarewa to Toe Toe Rd	Four laning and intersection upgrades	$32-52
SH1/Kamo Rd	Intersection upgrade – additional Kamo SBD lanes	$6-10
SH1/Kamo Rd to Manse St	Four laning	$16-26
SH14/SH1 to Maunu	Four laning and intersection upgrade	$32-52
WDC Projects		
Shared Paths	Completing existing routes, Tikipunga route, Limeburners route and heartland rides. Includes travel planning for schools and businesses and LETSGO website.	$60-98
Footpath Upgrades	New footpaths	$10-16
Intersection Upgrades	Rolling programme of intersections upgrades	$36-58
Safety Upgrades	Safety upgrades targeting high risk areas	$33-54
Springs Flat Roundabout	SH1/Springs Flat Roundabout, extension of Springs Flat Road and Alcoba St. Potential extension of Alcoba St to Beacondale Pl	$3-4
Riverside Dr	Four laning, wire rope median and two lane RAB at Dave Culham Dr	$16-26
Reyburn/Okara/Port Rd	Four Laning/Bus Priority Lane	$12-20
Kamo Rd	Four Laning/Bus Priority Lane	$10-16
Hatea Dr	Four Laning	$10-16
Mill/Waiatawa/Kiripaka Rd	Four Laning/Bus Priority Lane	$14-23
Maunu/Water St	Four Laning/Bus Priority Lane	$12-20
Tarewa Rd	Four Laning	$9-14
Park and Ride	Rural and coastal Park and Ride facilities at Hikurangi, Tutukaka, Maungatapere, Parua Bay, Ruakaka/Waipu	$13-21
Traffic Signal Upgrades	Improved communications and CCTV cameras	$3-5
PT Infrastructure	New bus shelters and seats	$3-4
NRC Projects		
Bus Service	Increased frequency of bus services and new routes	$56-98
TOTAL		**$405-660**

9.2 Sensitivity Analysis

The forecasting of future costs and benefits at the programme level involves a degree of uncertainty and the economic analysis is sensitive to the assumptions made in the analysis.

To ensure that the recommended programme has been selected on a robust basis, a sensitivity analysis has been undertaken using elements of the uncertainty log developed through the Strategic Case as shown in Table 3. Five scenarios were developed to assess the sensitivity of Programme 5. The scenarios were:

- **Growth Forecasts Increase** – This is possible through sustained high population growth, lowering fuel prices which could see a further increase in private vehicle use or an upsurge in the global economy. A sensitivity test was undertaken to understand the effect on the programme if the current long-term growth forecast doubled from 1% to 2% per annum.
- **Growth Forecasts Decrease** – This is possible through a drop off in population growth, increasing fuel prices, a weakening in the global economy, the possible effects of ride sharing or autonomous vehicles or as a result of increased rail usage. A scenario was developed assuming that current growth rates of 1% halved to 0.5% per annum.
- **NorthPort Expansion** – This scenario considers the impact if NorthPort expanded which would result in an increase of trucks (500 trucks/day assumed) and increased rail freight.
- **Whangarei Airport Relocation** – This scenario considers the impact if the Whangarei Airport is relocated from Onerahi to a rural location north of south of Whangarei. It also considers that the existing airport land would be redeveloped into residential area.
- **Hundertwasser Tourism Increases** – This scenario considers the impact if the Hundertwasser Art Centre attracts double the amount of tourism than forecast (300,000/pa vs the 150,000/pa currently forecast).

The results of the sensitivity analysis of these scenarios is shown in Table 17 below.

Table 17 – Sensitivity Analysis Outcomes

Scenario	Capacity Objective	Public Transport Objective	Walking & Cycling Objective	Safety Objective	Economic Efficiency
Increased Growth	Increased demand may accelerate the implementation of the programme. However, unlikely to require more significant interventions.	PT usage would increase with growth. However if this was through falling fuel prices, this could see the PT mode share drop.	Active mode share would stay the same with increased growth. However if this was through falling fuel prices, this could see the active mode share drop.	30% reduction in crashes would be achieved for the network.	Increases to approx. 1.1 – 1.8
Reduced Growth	Reduced demand may slow the implementation of the programme and will reduce congestion on the network.	PT usage would decrease with reduced growth. However if this was through rising fuel prices, this could see the PT mode share increase.	Active mode share would stay the same with reduced growth. However if this was through rising fuel prices, this could see the active mode share increase.	30% reduction in crashes would be achieved for the network.	Decreases to approx. 1.0 – 1.5

Scenario	Capacity Objective	Public Transport Objective	Walking & Cycling Objective	Safety Objective	Economic Efficiency
NorthPort Expansion	The timing of the State Highway 1, Port Rd 4-laning and the Port Nikau link projects would be advanced. However, unlikely to require more interventions.	PT mode share achieved.	Active mode share likely to be achieved, although there will be more reliance on motor vehicle use.	30% reduction in crashes would be achieved for the network.	Increases to approx. 1.1 – 1.7
Whangarei Airport Relocation	The timing of the State Highway 1 and Riverside Dr 4-laning projects would be advanced. However, unlikely to require more interventions.	PT mode share achieved. Likely that the Hikurangi or Ruakaka Park N Ride would service the new Airport location.	Active mode share achieved.	30% reduction in crashes would be achieved for the network.	Increases to approx. 1.1 – 1.7
Hundertwasser Tourism Increases	The timing of the Tarewa and Walton St 4-laning would be advanced. However, unlikely to require more interventions.	PT mode share achieved and possibly increased with more tourist activity.	Active mode share achieved.	30% reduction in crashes would be achieved for the network.	Increases to approx. 1.1 – 1.7

Overall, the conclusion of the sensitivity analysis is that the timing of individual projects within the programme may be delayed or accelerated depending on the scenario. If the scale of the change was significant, it may be necessary to revisit the need for some of the options.

It is concluded that the recommended programme responds to these sensitivity scenarios well.

9.3 Funding Arrangements and Affordability

The expected programme BCR of 1.0 to 1.6 is at the minimum end of the fundable threshold. Therefore, it is expected that the programme will be efficient and fundable through the National Land Transport Fund (NLTF).

As described in Section 8.2.2, there is a prioritisation risk with respect to the potentially limited funds available through the NLTF, particularly with a BCR just above the funding threshold.

Construction will be staged over the 30 year life of the programme, which will spread the programme cashflow and make it more affordable to all parties. It is noted that the NZTA projects are largely within the first 10 year period.

Further detailed costings will be prepared during the Indicative/Detailed Business Cases for each major project within the programme. This will also confirm the individual projects BCR and confirm the optimal timing of the work.

Funding for the first 7 years of the programme will need to be confirmed through the inclusion of individual components of the programme in the 2018/2021 National Land Transport Plan (NLTP), which is currently being developed. The projects within this period have already been applied for by both the Whangarei District Council and NZ Transport Agency through the NLTP process. The Whangarei District Council has also included the projects within the first 10 years in its 2018/2028 Draft Long Term Plan as well as the whole 30 year programme in its Draft 30 Year Infrastructure Strategy.

Aspects of the programme, particularly with regard to public transport and the SH1 to Port Nikau link road, will require implementation by other parties. The details of these funding arrangements are yet to be confirmed.

PART C – DELIVERING AND MONITORING THE PROGRAMME

10 Management Case

The management case assesses whether a programme is deliverable. It tests the programme planning, governance structure, risk management, communications and stakeholder management. It sets out a plan to ensure that the programme benefits are realised and includes measures to assess and evaluate this.

10.1 Programme Governance and Reporting

The programme will be led jointly by the Whangarei District Council and the NZ Transport Agency. Some components of the programme will require investment from other organisations including the Northland Regional Council and developers.

A project management team will be responsible for the day-to-day management of the programme. A project control group will meet monthly to review the progress on the programme and to make any required decisions.

The project team will engage professional service consultants and specialists to develop Single Stage Business Cases for individual projects as required. These professional services resources would report directly to the in-house project team. The subsequent stages of the programme development should use this PBC as a key reference document for any subsequent project. This PBC may need to be updated should any of the key assumptions change.

Inputs from a number of teams from both the Whangarei District Council and NZ Transport Agency will be required. The table below shows the responsible person in each case:

Table 18 – Project Team

Role	Whangarei District Council	NZ Transport Agency
Programme Sponsor	Jeffrey Devine	Sebastian Reed
Transport Planning	Greg Monteith	Sebastian Reed
Road Safety	Nick Marshall	Brian Rainford
Network Management	Michael Batchelor	Wayne Sharplin
Stakeholder / Communications	Ann Midson	Kelli Sullivan
Planning and Investment Case Manager		Martin Taylor

10.2 Stakeholder Engagement and Communications Plan

A stakeholder plan will be developed to ensure that the stakeholder relationships are appropriately managed and to optimise the development of Indicative/Detailed Business Cases as required. This will also address the specific details for each stakeholder, including key contact person and approach for engagement.

The stakeholders who were involved in the development of the Strategic Case and the PBC will be continue to be engaged through this process. These stakeholders are:

- Whangarei District Council – Policy and Planning
- NZ Transport Agency – System Design
- Northland Chamber of Commerce

- Northland Inc
- Road Transport Association
- Ritchie Buses

In addition to these, other stakeholders will be engaged as appropriate for each project as follows:

- Local iwi
- New Zealand Automobile Association
- Walking and Cycling Advocacy Groups (such as Bike Northland)
- Disability Advisory Group

Stakeholders will be managed through the Programme Manager, with support from the communication's team, who know the stakeholders well and will assist with organisation and preparation for this stakeholder engagement.

External communications will also be managed through the Programme Manager, with support from the communications team. A Communications Plan will be prepared for any significant project.

10.3 Programme Performance and Review

It is important that performance against investment objectives and desired outcomes be reviewed following the implementation of each major programme element. This review may indicate that other parts of the programme may not need to be pursued or need to be altered to achieve the investment objectives.

Individual performance objectives will be set for each major component of the programme to monitor their success in achieving the programme outcomes.

In addition, after every 5 yearly census a major review of the performance of the network will be assessed against the investment objectives. This timing will suit the regular update of the Whangarei Transportation Model which occurs approximately a year after the census is undertaken. It will also enable the PT and walking and cycling mode share data from the census to be analysed.

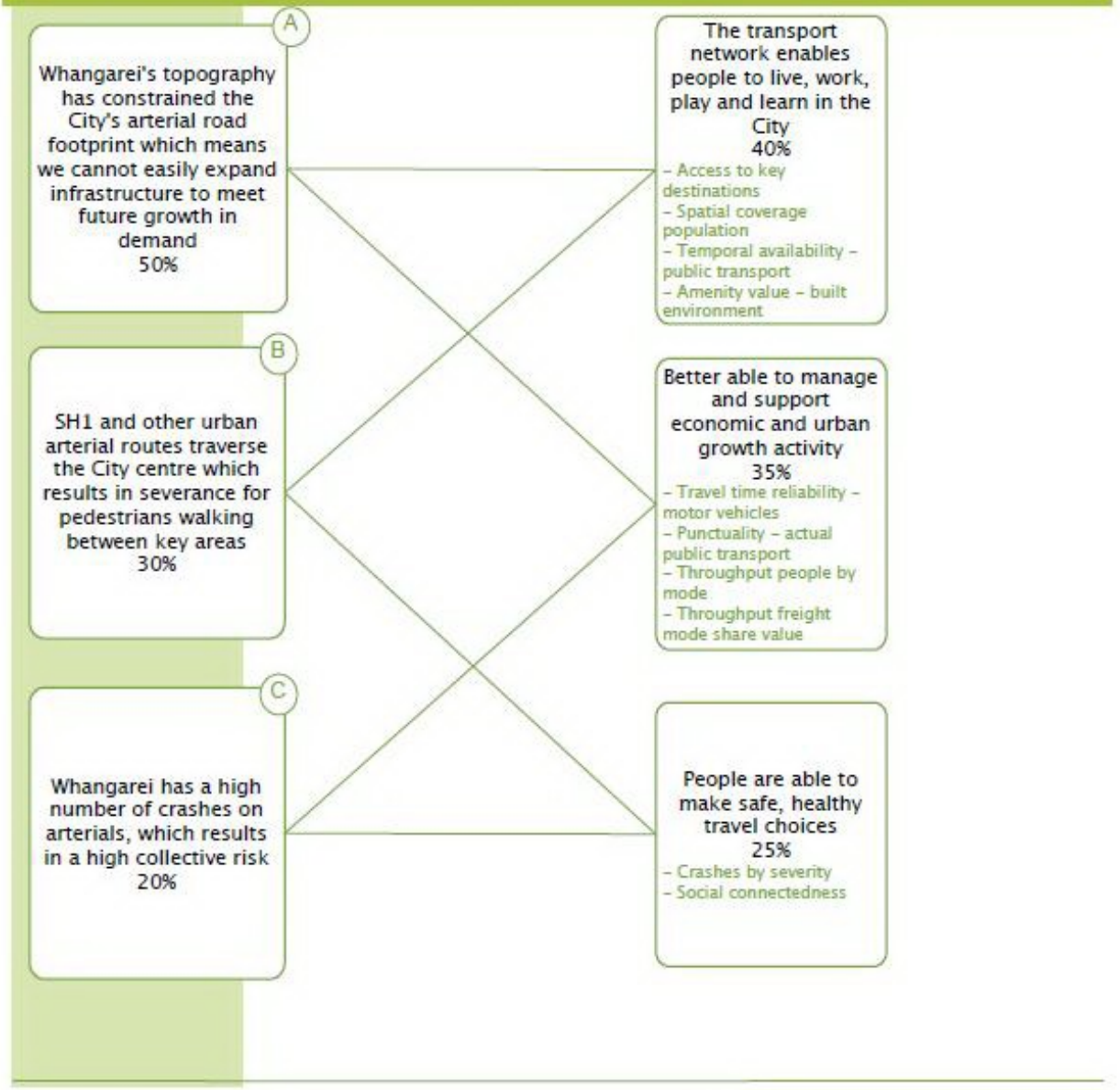
Appendix A – ILM Problem Definition

Whangarei District Council

NZ TRANSPORT AGENCY WAKA KOTAHI

Whangarei Transportation Strategy

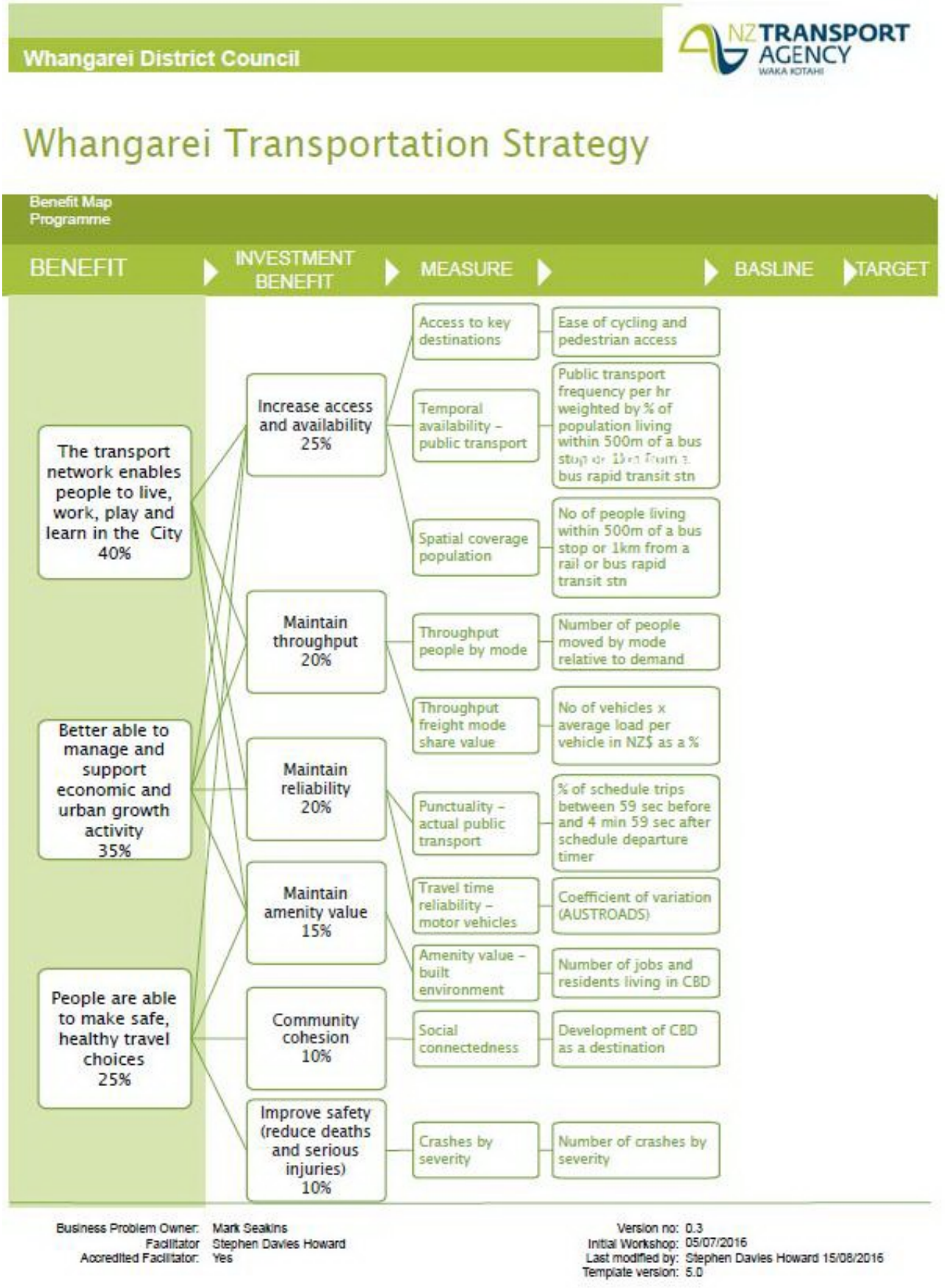
INVESTMENT LOGIC MAP
Programme



Business Problem Owner: Mark Seakins
Facilitator: Stephen Davies Howard
Accredited Facilitator: Yes

Version no: 0.3
Initial Workshop: 05/07/2016
Last modified by: Stephen Davies Howard 15/08/2016
Template version: 5.0

Appendix B – ILM Benefit Map



Appendix C – Long List Options

Section	Option number		Current Evaluation sheet option wording
Traffic signals	1	1	Improve signal loops and controllers
	2	2	Investigate new technologies for vehicle detection
	3	3	Install CCTV and fibre connections to sgnals to allow remote operation
	4	4	Upgrade SCATS central management system with potential management by ATOC
	5	5	Utilise bluetooth tracking of vehicles to provide real time info of road network
	6	6	Investigate other intersection controls (eg roundabout)
	7	7	Closure/ turn restrictions at key intersections
CBD Access	8	8	Support existing inner city development
	9	9	Investigate the signalization of the Walton St/ Robert St intersection
	10	10	Remove connection between Dent St to John and James St
	11	11	Improvement of Rathbone St connection to enable right turns out and access to Riverside Dr and Hatea Dr.
	12	12	· Restrict further traffic inside the Cameron/John/Robert/Rathbone cordon – pedestrianize and have parking outside of this area.
	13	13	Improve entrance to Whangarei
Lane re-utilization	14	14	Removal of parking on arterial roads near intersections
	15	15	Investigate bus/ T2 lanes where already 4 lanes are provided.
	16	16	Investigate shared lanes with restrictions for AM and PM flows
Freight	17	17	Review/ replace/ upgrade bridges 50t vehicles in city
	18	18	Consider rail enhancements to get additional freight onto rail. Would include Marsden Point Rail link
	19	19	Provide an alternative route to SH1 for 62 tonne High Productivity Motor Vehicles (HMPV).
	20	20	Provide truck stop in both directions on SH1 near city
Public transport	21	21	Increase frequency of bus services
	22	22	Relocation/ upgrade of the Rose St bus terminal
	23	23	Investigate hospital bus service
	24	24	Separate Kamo and Tikipunga bus services and extend Tipikunga servie into Totara parklands
	25	25	Provide more bus shelter and upgrade existing bus shelters
	26	26	Provide bus pull-off bays
	27	27	Mobile phone app for bus locations and arrival times
	28	28	Support free wifi (Spark mobilehotspots) at the main bus terminal and other key tourist PT routes
	29	29	VMS bus signs at bus stops
	30	30	Rural bus services for commuters and Park n Ride stations for rural areas
	31	31	Holiday bus services to tourist destinations (i.e. tourist bus)
	32	32	Rail commuter train between Kamo and CBD and to the Whangarei Port
	33	33	Commuter rail between Marsden Point and Whangarei with Park n Ride stops at Portland and Mangapai
	34	34	Investigate starting/ subsidizing car sharing schemes
	35	35	Run buses later in evenings to encourage nightlife
	36	36	Ferry services/ water taxis at selected locations
	37	37	Create a network of bus lanes (T2 lanes) on key arterial routes
	38	38	Provide bus priority/ T2 lanes on Riverside Dr, Maunu Rd and Kamo Rd
Land-use planning	39	39	Consolidate urban growth by incentivising densification of the urban area
	40	40	Promote central living in CBD and expand densification zoning
	41	41	Limit rural growth apart from at identified growth nodes and at rural/ coastal villages
	42	42	Major subdivision developments and plan changes to include integrated multi-modal transport plans
	43	43	Corridor reviews to develop bus lanes, reduce severance and improve access to CBD on selected arterials
	44	44	Asses existing and future major retail centres in Whangarei
	45	45	Planning rules to discourage small/medium developments in favour of collaborative larger scale developments
	46	46	New developments to include provisions for bus, walk and cycle trips.
	47	47	Encourage development of large mall development in central city with provision of alternative travel mode links
	48	48	Review key intersections for rationalization of pedestrian phase and potential left turn slip ramp metering
	49	49	Upgrade the Tarewa Rd/ Porowini Ave (stage1) and Maunu Rd/ Porowini Ave intersections (Stage 1)

Capacity improvements	50	50	Upgrade the Tarewa Rd/ Porowinin Ave (stage2) and Maunu Rd Maunu Rd/ Porowini Ave intersections (Stage 2)
	51	51	Upgrade the Maunu Rd/ Central Ave intersection
	52	52	Upgrade the SH1/ Kamo Rd and Kamo Rd/ Whau Valley Rd intersections
	53	53	Upgrade the Dave Culham Dr/ Riverside Dr roundabout
	54	54	Widen Riverside Dr and Onerahi Rd to 4 lanes and install central wire rope barrier
	55	55	Support the 500M 4-laning fro Tarewa Rd south to the Port Marsden Highway
	56	56	Construct a Minor SH1 connection to Maunu as an alternative route to the Whangarei Hospital (Raumanga to Maunu Link)
	57	57	Upgrade SH1 to 4-lanes from Kamo Rd to Manse St
	58	58	Improve the capacity of the Dent St/ Hatea Dr/ Riverside Dr intersection
	59	59	SH14 to Hospital 4-laning
	60	60	Upgrade the SH1/ Tarewa Rd intersection
	61	61	Road amenity improvements at selected locations
	62	62	Major East-west link from Toe Toe Rd to Maunu
	63	63	Upgrade route along Port Rd (from Kioreroa Rd), Okara Dr, Reyburn St, Hatea Dr and Kamo Rd (north of Nixon St to SH1).
	64	64	Upgrade intersections/ roundabouts on outer limits of the city at selected locations
	65	65	SH1 from Kamo Rd to Manse St 4-laning (and other improvements) and SH1/ Percy St intersection upgrade
	66	66	Upgrade the Okara drive/ Herekino St intersection to improve capacity and pedestrian connectivity
	67	67	Reyburn St and Okara Drive 4 laning from Carruth St to Okara Dr
	68	68	Consider a series of roundabouts (with ramp metering) along Hatea/ Reyburn/ Okara route
	69	69	Improve connection between the city and the Town basin (target key routes)
	70	70	Construct new Port Nikau Highway to link from SH1 interchange to Port Nikau development
	71	71	If Port Nikau Highway constructed, install new link road from Kioreroa Road to Port Nikau Highway
	72	72	If Port Nikau Highway constructed, extend Dyer St to Port Nikau Highway
	73	73	New link road between South End Ave and Kioreroa Road
	74	74	If SH1/SH14 bypass proceeds, extend O'Shea Road to the new bypass road
	75	75	4-laning of selected major arterial routes
Parking	76	76	Improve parking for the Town Basin and associated developments
	77	77	Construct new parking building if required by parking strategy
	78	78	Provide parking on outskirts of CBD (with good pedestrian connections and line of sight to destinations)
	79	79	Investigate covering public off-street parking (users pary a premium to use)
	80	80	Provide covered pedestrian ways from outskirt parking to CBD
	81	81	Provide more VMS signs to indicate locations of available parks on-street in CBD
	82	82	Mobile phone app to show number of available parks in each main carpark
	83	83	Electric vehicle charging stations at each main carpark
	84	84	Improve signage to main carparks and indicate which parks include parking for campervan
	85	85	Remove parking in CBD
	86	86	Integrate undercover parking or parking building to retail development in CBD
	87	87	Strengthen parking strategy with pricing
	88	88	Update planning rules to ensure Business 1 properties provide for on-site parking provisions
Travel demand planning	89	89	Utilise streetlight central management system to pick up traffic flow data to determine real time congestion
	90	90	Mobile phone app and website to indicate congestion on rotues
	91	91	Radio frequency with network updates
	92	92	Support the ultra-fast broadband roll out into rural areas to incentivise home working
	93	93	Employment approach - change working hours
	94	94	Encourage modal shift -(eg travelling planning, campaigns, LETSGO
	95	95	Encourage proper worklplace travel planning
	96	96	Encourage walking/ cycling for schools by providing safe routes, education and training, and limit pick up/ drop off areas and times
Signage and markings	97	97	Improved destination signage at main intersections including intersection and confirmation signs
	98	98	Sign improvements required in conjunction with TCDR PBC
	99	99	Arrows on roads after rest areas and tourist destinations
	100	100	Provide signs to direct camper vans to existing parking and waste disposal

	101	101	Edgelines maked on urban arterial roads to support autonomous vehicles
	102	102	LED or other adaptable roadmakings to facilitate instantaneous lane re-assignment/ tidal flow changes
Pedestrians	103	103	Install signalised puffin crossings and zebra crossings on arterial roads
	104	104	Provide facilities/ visual clues to direct pedestrians to safe locations and raise driver awareness (If puffins or zebras not warranted)
	105	105	Consider path extensions/ boardwalks to fill in missing paths
	106	106	Construct a land bridge from CBD to town basin development at John St
	107	107	Continue the pedestrianisation and beautification of the CBD plus linking to residential areas
	108	108	Upgrade the lighting and cameras in the CBD to improve nightime safety/ security for pedestrians
	109	109	Upgrade lighting to acceptable levels in local/ collector streets
	110	110	Provide wider and smoother paths for ageing population and uptake of mobility scooters
	111	111	Audit key pedestrian routes for safety/ LOS
	112	112	Improve pedestrian wayfinding
Shared paths (pedestrians and cyclists)	113	113	Complete the Raumanga and Onerahi shared paths
	114	114	Complete the Kamo shared path including connections to schools
	115	115	Construct the Tikipunga shared path to tie in with Tikipunga to Tutakaka Heartland ride
	116	116	Construct a shared path to connect to the path proposed to be built between Whangarei and Ruakaka (as part of 500M 4-laning project)
	117	117	Install cycle facilities (e,g, secure bike racks, lockers, E-bike charging in CBD shcools and parks
	118	118	Promote E-bikes
	119	119	Separate cycle paths off the road for school kids
	120	120	Behaviour change to encourage active modal shift
	121	121	Provide cycle connections or on-road facilities at destinations
	122	122	Provide bus fleet capable of allowing cyclist to use them
	123	123	Ensure in planning rules that retail/ commercial developments include for cycle use
	124	124	Support legislative change to allow cyclists to use footpaths and voluntary use of helmets
	125	125	Incorporate proper on-road facilities on key commuter routes (not shared paths)
Travel planning	126	126	Implement travel planning with schools and key businesses to encourage behaviour change and promote uptake of walking and cycling
	127	127	Provide cycle training in schools and get schools involved in walking and cycling
	128	128	Construct a cycling training facility on Pohe Island to provide road training for cyclists in a risk free environent
	129	129	LETSGO - website, branding, events etc
Safety	130	130	Implement safety improvements in conjunction with other upgrades at selected locations
	131	131	Implement safety improvements on arterial roads and intersections identified as having high or medium risk
	132	132	Implement safety improvements identified in WDC's 3 yearly crash study process
	133	133	Investigate changing speed limits on arterial roads in conjunction with the NZTA Speed management Guide
	134	134	Upgrade the lighting on Whangarei's arterials to meet the requirements of A/NZS 1158
	135	135	Underground power lines and remove power poles on arterial roads in city
	136	136	No stopping markings around schools and at intersections to clear sightlines
	137	137	Identify top 5% of roads by social cost and target project on these
	138	138	Investigate adjusting existing T-intersections, turn restrictions or roundabouts

Appendix D – Option Assessment

Whangarei Transportation Network Strategy — **OPTIONS**

Programme Business Case

	0 Do Min	1 Improve signal loops and controllers	2 Investigate new technologies for vehicle detection	3 Install CCTV and fibre connections to sgnals to allow remote operation	4 Upgrade SCATS central management system with potential management by ATOC	5 Utilise bluetooth tracking of vehicles to provide real time info of road network	6 Investigate other intersection controls (eg roundabout)	7 Closure/ turn restrictions at key intersections	8 Support existing inner city development	9 Investigate the signalization of the Walton St/ Robert St intersection	10 Remove connection between Dent St to John and James St	11 Improvement of Rathbone St connection to enable right turns out and access to Riverside	12 Restrict further traffic inside the Cameron/John /Robert /Rathbone cordon	13 Improve entrance to Whangarei	14 Removal of parking on arterial roads near intersections	15 Investigate bus/ T2 lanes where already 4 lanes are provided
Group		Traffic signals	Traffic signals	Traffic signals	Traffic signals	Traffic signals	Traffic signals	Traffic signals	CBD Access	CBD Access	CBD Access	CBD Access	CBD Access	CBD Access	Lane re-utilization	Lane re-utilization
Investment Objectives																
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations		+	+	+	+	+	++	++	+	+	0	+	-	0	+	++
Objective 2 - Increase PT mode share on transport system		0	0	0	0	0	0	0	+	0	0	+	+	0	0	+++
Objective 3 - Increase district wide walking and cycling mode shares on transport network		0	0	0	0	0	-	+	++	+	0	0	+	0	-	0
Objective 4 - reduce deaths and serious injuries		+	+	+	+	0	0	+	0	0	0	+	0	0	+	0
IMPLEMENTABILITY																
Feasibility																
How straightforward is it to implement this alternative / option, including social, cultural and environmental interventions (eg additional planting)?		0	0	0	0	0	-	--	0	0	0	0	0	0	0	0
Are any novel/untried/leading edge technologies involved?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Are there any technical risks involved in developing or implementing this option?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
What is the level of complexity in gaining statutory approvals and how significant are the costs of mitigation?		0	0	0	0	0	-	0	-	0	0	-	0	0	0	0
Is a new designation or alteration required?		0	0	0	0	0	0	0	-	0	0	0	0	0	0	0
Could the option include activities prohibited under the policies and rules of the District or Regional Plan?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Are there significant hazards associated with the option which pose a H&S risk in design, build and final product?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Can safety be developed into the design process to control it?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Affordability																
Are there any factors that might affect the ability to operate or maintain the option over its projected life without major additional costs?		+++	+++	++	+++	+++	--	+	--	0	0	-	0	+	++	++
Can capital costs of the option be funded (e.g from the NLTP, NEA, TIF)?		0	0	0	0	0	0	0	-	0	0	0	0	-	0	0
What is the likely BCR?		+++	+++	++	+++	+++	+	++	--	+	+	++	-	---	+++	+++
Stakeholders/Customers																
How acceptable is the option?		++	++	+	+	0	++	-	-	+	--	++	0	+++	--	---
Are there real or anticipated objections from the community or stakeholders?		++	++	+	+	0	++	-	-	+	--	++	0	+++	--	---
ASSESSMENT OF EFFECTS																
Safety																
To what extent will the option enhance safety for different types of transport users?		+	+	+	+	0	0	+	0	0	0	+	0	0	+	0
What is the impact on personal safety / security?		0	0	+	+	0	0	0	0	0	0	+	0	0	+	0
What is the impact on fatal / serious injuries?		+	+	+	+	0	0	+	0	0	0	+	0	0	+	0
Cultural and Historic Heritage																
Does the ESR screen indicate the option could impact on cultural and iwi values?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Built Environment																
To what extent does the option impact on the built environment, including urban design, landscape character and visual amenity		0	0	0	0	0	+	0	-	0	0	-	0	+	0	0
Natural Environment																
To what extent does the option impact on the natural environment as described in the ESR screen?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Social																
Does ESR screen indicate the option could affect accessibility for the public, including access to jobs, communities, shops, services and other facilities?		+	+	+	+	+	+	0	+	+	-	++	0	0	--	-
Does ESR screen indicate the option could result in significant risk to human health related to noise, air quality or contaminated land?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
How does the option impact on property?		0	0	0	0	0	-	0	-	0	0	-	0	0	0	0
Will additional property purchases be required?		0	0	0	0	0	-	0	-	0	0	-	0	0	0	0
Are there property risks to delivery and can they be effectively managed?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Is there any Maori land required as part of the project?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Does the option affect other infrastructure providers (will agreements need to be entered into with service providers)?		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
System Integration																
Are there any wider transport system effects?		+	+	++	++	+	+	+	+	0	0	0	0	0	0	++
Does ESR screen indicate Urban and Landscape design impacts?		0	0	0	0	0	+	0	+	0	0	0	0	+	0	0
How well does the option meet the forecast transport demand?		+	+	+	+	+	++	++	+	0	0	0	0	0	+	++
Economy																
How does the option impact economic growth?		0	0	0	0	0	0	0	+	+	0	+	0	+++	0	+
How well does the option enhance the development potential of adjacent land / attract new jobs / help existing businesses?		0	0	0	0	0	-	--	+++	+	0	++	0	0	--	-
Ranking (by subgroup)	0	1	1	4	3	7	6	5	4	3	6	1	5	2	2	1
Ranking (over whole project list)		65	65	82	73	108	106	101	117	99	135	79	126	91	125	89

	16 Investigate shared lanes with restrictions for AM and PM flows	17 Review/ replace/ upgrade bridges 50t vehicles in city	18 Consider rail enhancements to get additional freight onto rail. Would include Marsden Point Rail	19 Provide an alternative route to SH1 for 62 tonne High Productivity Motor Vehicles (HMPV).	20 Provide truck stop in both directions on SH1 near city	21 Increase frequency of bus services	22 Relocation / upgrade of the Rose St bus terminal	23 Investigate hospital bus service	24 Separate Kamo and Tikipung a bus services and extend Tipikung a servie into Totara	25 Provide more bus shelter and upgrade existing bus shelters	26 Provide bus pull-off bays	27 Mobile phone app for bus locations and arrival times	28 Support free wifi (Spark mobile hotspots) at the main bus terminal and	29 VMS bus signs at bus stops	30 Rural bus services for commuters and Park n Ride stations for rural areas
Group	Lane re-utilization	Freight	Freight	Freight	Freight	Public transport	Public transport	Public transport	Public transport	Public transport	Public transport	Public transport	Public transport	Public transport	Public transport
Investment Objectives															
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations	++	+	++	+	0	++	+	0	++	+	0	+	0	0	+
Objective 2 - Increase PT mode share on transport system	+	0	0	0	0	+++	++	+	+++	++	+	++	+	+	++
Objective 3 - Increase district wide walking and cycling mode shares on transport network	-	0	0	0	0	+	+	0	+	+	0	+	0	0	+
Objective 4 - reduce deaths and serious injuries	--	0	0	0	0	+	+	0	+	+	+	+	0	0	+
IMPLEMENTABILITY															
Feasibility															
How straightforward is it to implement this alternative / option, including social, cultural and environmental interventions (eg additional planting)?	0	-	--	-	-	0	-	0	0	-	0	0	0	0	-
Are any novel/untried/leading edge technologies involved?	--	0	0	0	0	0	0	0	0	0	0	-	-	0	0
Are there any technical risks involved in developing or implementing this option?	--	-	0	0	0	0	0	0	0	0	0	0	0	0	0
What is the level of complexity in gaining statutory approvals and how significant are the costs of mitigation?	0	-	---	--	--	0	-	0	0	0	0	0	0	0	-
Is a new designation or alteration required?	0	0	0	0	--	0	0	0	0	0	0	0	0	0	-
Could the option include activities prohibited under the policies and rules of the District or Regional Plan?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Are there significant hazards associated with the option which pose a H&S risk in design, build and final product?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Can safety be developed into the design process to control it?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Affordability															
Are there any factors that might affect the ability to operate or maintain the option over its projected life without major additional costs?	++	-	---	-	0	--	-	--	0	-	-	++	+	+	--
Can capital costs of the option be funded (e.g from the NLTP, NEA, TIF)?	0	0	---	0	---	0	0	0	0	0	0	0	0	0	0
What is the likely BCR?	++	-	--	-	---	--	--	---	+	+	-	+++	+	+	+
Stakeholders/Customers															
How acceptable is the option?	+	+	+++	+	-	0	+	++	++	+	++	+++	++	+++	+++
Are there real or anticipated objections from the community or stakeholders?	+	+	+++	+	-	0	+	++	++	+	++	+++	++	+++	+++
ASSESSMENT OF EFFECTS															
Safety															
To what extent will the option enhance safety for different types of transport users?	--	0	+	0	0	+	+	0	+	+	+	+	0	0	+
What is the impact on personal safety / security?	--	0	0	0	0	+	+	0	+	+	+	+	0	0	+
What is the impact on fatal / serious injuries?	--	0	+	0	0	+	+	0	+	+	+	+	0	0	+
Cultural and Historic Heritage															
Does the ESR screen indicate the option could impact on cultural and iwi values?	0	-	-	-	0	0	0	0	0	0	0	0	0	0	0
Built Environment															
To what extent does the option impact on the built environment, including urban design, landscape character and visual amenity	0	0	0	0	-	0	+	0	0	0	0	0	0	0	0
Natural Environment															
To what extent does the option impact on the natural environment as described in the ESR screen?	0	-	--	-	-	0	0	0	0	0	0	0	0	0	0
Social															
Does ESR screen indicate the option could affect accessibility for the public, including access to jobs, communities, shops, services and other facilities?	-	+	0	+	++	+	+	+	+	0	0	0	+	0	++
Does ESR screen indicate the option could result in significant risk to human health related to noise, air quality or contaminated land?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
How does the option impact on property?	0	0	-	0	-	0	-	0	0	-	0	0	0	0	-
Will additional property purchases be required?	0	0	-	0	-	0	0	0	0	0	0	0	0	0	-
Are there property risks to delivery and can they be effectively managed?	0	0	-	0	0	0	0	0	0	0	0	0	0	0	-
Is there any Maori land required as part of the project?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Does the option affect other infrastructure providers (will agreements need to be entered into with service providers)?	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0
System Integration															
Are there any wider transport system effects?	-	+	+	+	+	++	+	0	++	+	0	+	0	0	+
Does ESR screen indicate Urban and Landscape design impacts?	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0
How well does the option meet the forecast transport demand?	++	0	+	0	0	++	+	0	++	+	0	+	0	0	+
Economy															
How does the option impact economic growth?	+	+	+++	+	-	+	+	0	+	0	0	0	+	0	++
How well does the option enhance the development potential of adjacent land / attract new jobs / help existing businesses?	-	0	++	0	-	+	+	0	+	0	0	0	+	0	++
Ranking (by subgroup)	3	2	1	2	4	7	8	18	1	11	16	3	13	14	4
Ranking (over whole project list)	131	133	122	133	138	45	48	124	9	69	103	19	95	96	28

	31 Holiday bus services to tourist destinations (i.e. tourist bus)	32 Rail commuter train between Kamo and CBD and to the Whangarei Port	33 Commuter rail between Marsden Point and Whangarei with Park n Ride stops at Portland	34 Investigate starting / subsidizing car sharing schemes	35 Run buses later in evenings to encourage nightlife	36 Ferry services/ water taxis at selected locations	37 Create a network of bus lanes (T2 lanes) on key arterial routes	38 Provide bus priority / T2 lanes on Riverside Dr, Maunu Rd and Kamo Rd	39 Consolidate urban growth by incentivising densification of the urban area	40 Promote central living in CBD and expand densification zoning	41 Limit rural growth apart from at identified growth nodes and at rural/ coastal villages	42 Major subdivision developments and plan changes to include integrated	43 Corridor reviews to develop bus lanes, reduce severance and improve access to CBD on selected arterials	44 Asses existing and future major retail centres in Whangarei	45 Planning rules to discourage small/medium developments in favour of collaborative larger
Group	Public transport	Public transport	Public transport	Public transport	Public transport	Public transport	Public transport	Public transport	Land-use planning	Land-use planning	Land-use planning	Land-use planning	Land-use planning	Land-use planning	Land-use planning
Investment Objectives															
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations	0	++	+	+	0	0	++	++	+	+	0	+	++	+	+
Objective 2 - Increase PT mode share on transport system	+	+++	++	++	+	+	+++	+++	+	+	+	+	++	+	+
Objective 3 - Increase district wide walking and cycling mode shares on transport network	0	+	+	+	0	0	+	+	+	++	+	+	+	+	+
Objective 4 - reduce deaths and serious injuries	+	+	+	+	+	+	+	+	0	0	+	0	+	0	0
IMPLEMENTABILITY															
Feasibility															
How straightforward is it to implement this alternative / option, including social, cultural and environmental interventions (eg additional planting)?	0	-	--	0	0	--	-	-	-	-	--	0	0	--	--
Are any novel/untried/leading edge technologies involved?	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0
Are there any technical risks involved in developing or implementing this option?	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0
What is the level of complexity in gaining statutory approvals and how significant are the costs of mitigation?	0	-	---	0	0	0	0	0	-	-	--	0	0	--	--
Is a new designation or alteration required?	0	0	0	0	0	--	0	0	0	0	0	0	0	-	-
Could the option include activities prohibited under the policies and rules of the District or Regional Plan?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Are there significant hazards associated with the option which pose a H&S risk in design, build and final product?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Can safety be developed into the design process to control it?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Affordability															
Are there any factors that might affect the ability to operate or maintain the option over its projected life without major additional costs?	-	--	---	-	-	--	-	-	0	0	0	+++	+	0	0
Can capital costs of the option be funded (e.g from the NLTP, NEA, TIF)?	0	---	---	0	0	0	0	0	0	0	0	0	0	0	0
What is the likely BCR?	-	0	--	+	-	-	+	+	+++	++	+	+++	+++	++	++
Stakeholders/Customers															
How acceptable is the option?	+++	++	++	+	++	++	+	+	0	++	-	+++	++	+	-
Are there real or anticipated objections from the community or stakeholders?	+++	++	++	+	++	++	+	+	0	++	-	+++	++	+	-
ASSESSMENT OF EFFECTS															
Safety															
To what extent will the option enhance safety for different types of transport users?	+	+	+	+	+	+	+	+	0	0	+	0	+	0	0
What is the impact on personal safety / security?	+	+	+	+	+	+	+	+	+	+	0	0	+	0	0
What is the impact on fatal / serious injuries?	+	+	+	+	+	+	+	+	0	0	+	0	+	0	0
Cultural and Historic Heritage															
Does the ESR screen indicate the option could impact on cultural and iwi values?	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0
Built Environment															
To what extent does the option impact on the built environment, including urban design, landscape character and visual amenity	0	0	0	0	0	0	-	-	+	+	0	0	0	+	0
Natural Environment															
To what extent does the option impact on the natural environment as described in the ESR screen?	0	0	--	0	0	-	0	0	0	0	+	0	0	0	0
Social															
Does ESR screen indicate the option could affect accessibility for the public, including access to jobs, communities, shops, services and other facilities?	++	++	++	+	+	+	+	+	++	++	+	++	+	++	+
Does ESR screen indicate the option could result in significant risk to human health related to noise, air quality or contaminated land?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
How does the option impact on property?	0	-	-	0	0	0	-	-	0	0	-	0	0	0	-
Will additional property purchases be required?	0	-	-	0	0	0	-	-	0	0	0	0	0	0	0
Are there property risks to delivery and can they be effectively managed?	0	0	-	0	0	0	0	0	-	0	-	0	0	0	-
Is there any Maori land required as part of the project?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Does the option affect other infrastructure providers (will agreements need to be entered into with service providers)?	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
System Integration															
Are there any wider transport system effects?	0	++	+	+	0	0	++	++	+	+	0	+	++	+	+
Does ESR screen indicate Urban and Landscape design impacts?	0	0	0	0	0	0	0	0	++	+	+	0	0	+	+
How well does the option meet the forecast transport demand?	0	++	+	+	0	0	++	++	+	+	0	+	++	+	+
Economy															
How does the option impact economic growth?	+++	++	+++	0	++	+	+	+	++	++	+	+	+	++	+
How well does the option enhance the development potential of adjacent land / attract new jobs / help existing businesses?	+++	++	++	0	++	+	+	+	+++	+++	+	+	+	++	+
Ranking (by subgroup)	9	2	15	10	12	17	5	5	6	3	8	5	1	7	9
Ranking (over whole project list)	50	16	98	63	81	118	35	35	46	15	94	37	9	56	107

P P P
5 10 30

P P P

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations	+	+	+	+	+	++	++	+	+	0	+	-	0	+	++
Objective 2 - Increase PT mode share on transport system	0	0	0	0	0	0	0	+	0	0	+	+	0	0	+++
Objective 3 - Increase district wide walking and cycling mode shares on transport network	0	0	0	0	0	-	+	++	+	0	0	+	0	-	0
Objective 4 - reduce deaths and serious injuries	+	+	+	+	0	0	+	0	0	0	+	0	0	+	0
IMPLEMENTABILITY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feasibility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Affordability	++	++	+	++	++	0	+	--	0	0	0	0	-	++	++
Stakeholders/Customers	++	++	+	+	0	++	-	-	+	--	++	0	+++	--	---
ASSESSMENT OF EFFECTS	+	+	+	+	0	0	+	0	0	0	+	0	0	+	0
Safety	+	+	+	+	0	0	+	0	0	0	+	0	0	+	0
Cultural and Historic Heritage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Built Environment	0	0	0	0	0	+	0	-	0	0	-	0	+	0	0
Natural Environment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Social	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ranking (by subgroup)	1	1	4	3	7	6	5	4	3	6	1	5	2	2	1
Ranking (over whole project list)	65	65	82	73	108	106	101	117	99	135	79	126	91	125	89

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations	++	+	++	+	0	++	+	0	++	+	0	+	0	0	+
Objective 2 - Increase PT mode share on transport system	+	0	0	0	0	+++	++	+	+++	++	+	++	+	+	++
Objective 3 - Increase district wide walking and cycling mode shares on transport network	-	0	0	0	0	+	+	0	+	+	0	+	0	0	+
Objective 4 - reduce deaths and serious injuries	--	0	0	0	0	+	+	0	+	+	+	+	0	0	+
IMPLEMENTABILITY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feasibility	-	0	-	0	-	0	0	0	0	0	0	0	0	0	0
Affordability	+	-	---	-	--	-	-	--	0	0	-	++	+	+	0
Stakeholders/Customers	+	+	+++	+	-	0	+	++	++	+	++	+++	++	+++	+++
ASSESSMENT OF EFFECTS	--	0	+	0	0	+	+	0	+	+	+	+	0	0	+
Safety	--	0	+	0	0	+	+	0	+	+	+	+	0	0	+
Cultural and Historic Heritage	0	-	-	-	0	0	0	0	0	0	0	0	0	0	0
Built Environment	0	0	0	0	-	0	+	0	0	0	0	0	0	0	0
Natural Environment	0	-	--	-	-	0	0	0	0	0	0	0	0	0	0
Social	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
Ranking (by subgroup)	3	2	1	2	4	7	8	18	1	11	16	3	13	14	4
Ranking (over whole project list)	131	133	122	133	138	45	48	124	9	69	103	19	95	96	28

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations	0	++	+	+	0	0	++	++	+	+	0	+	++	+	+
Objective 2 - Increase PT mode share on transport system	+	+++	++	++	+	+	+++	+++	+	+	+	+	++	+	+
Objective 3 - Increase district wide walking and cycling mode shares on transport network	0	+	+	+	0	0	+	+	+	++	+	+	+	+	+
Objective 4 - reduce deaths and serious injuries	+	+	+	+	+	+	+	+	0	0	+	0	+	0	0
IMPLEMENTABILITY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feasibility	0	0	-	0	0	-	0	0	0	0	-	0	0	-	-
Affordability	-	--	---	0	-	-	0	0	+	+	0	++	+	+	+
Stakeholders/Customers	+++	++	++	+	++	++	+	+	0	++	-	+++	++	+	-
ASSESSMENT OF EFFECTS	+	+	+	+	+	+	+	+	0	0	+	0	+	0	0
Safety	+	+	+	+	+	+	+	+	0	0	+	0	+	0	0
Cultural and Historic Heritage	0	0	-	0	0	-	0	0	0	0	0	0	0	0	0
Built Environment	0	0	0	0	0	0	-	-	+	+	0	0	0	+	0
Natural Environment	0	0	--	0	0	-	0	0	0	0	+	0	0	0	0
Social	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ranking (by subgroup)	9	2	15	10	12	17	5	5	6	3	8	5	1	7	9
Ranking (over whole project list)	50	16	98	63	81	118	35	35	46	15	94	37	9	56	107

Whangarei Transportation Network Strategy																																												
Programme Business Case			Capacity improvements																											Parking														Travel demand plannir				
	New developments to include provisions for bus, walk and cycle trips.	Encourage development of large mall development in central city with provision of	Review key intersections for rationalization of pedestrian phase and potential left turn	Upgrade the Tarewa Rd/ Porowini Ave (stage1) and Maunu Rd/ Porowini Ave intersections (Stage 1)	Upgrade the Tarewa Rd/ Porowinin Ave (stage 2) and Maunu Rd	Upgrade the Maunu Rd/ Central Ave intersection	Upgrade the SH1/ Kamo Rd and Kamo Rd/ Whau Valley Rd intersec	Upgrade the Dave Culham Dr/ Riverside Dr roundabout	Widen Riverside Dr and Oneriahi Rd to 4 lanes and install central wire rope	Support the 500M 4-laning fro Tarewa Rd south to the Port Marsden Highway	Construct a Minor SH1 connection to Maunu as an alternative route to the Whangarei Hospital (Raumano	Upgrade SH1 to 4-lanes from Kamo Rd to Manse St	Improve the capacity of the Dent St/ Hatea Dr/ Riverside Dr intersection	SH14 to Hospital 4-laning	Upgrade the SH1/ Tarewa Rd intersection	SH1/Tarewa to Toe Toe Rd (Blue Goose) 4-laning and Tauroa Rd closure/connectio n to SH1	Major East-west link from Toe Toe Rd to Maunu	Upgrade route along Port Rd (from Kiorero a Rd), Okara Dr, Reyburn St, Hatea	Upgrade intersections/ roundabouts on outer limits of the city at selecte	SH1 from Kamo Rd to Manse St 4-laning (and other improvements and	Upgrade the Okara drive/ Herekino St intersection to improve capacit	Upgrade Okara Drive 4 laning from Carruth St to Okara Dr	Reyburn St and Okara Drive 4 laning from Carruth St to Okara Dr	Consider a series of roundabouts (with ramp metering) along Hatea/ Bowhun	Improve connection between the city and the Town basin (target key	Construct new Port Nikau Highway to link from SH1 interchange to Port Nikau	If Port Nikau Highway constructed, install new link road from Kiorero	If Port Nikau Highway constructed, extend Dyer St to Port Nikau Highway	New link road between South End Ave and Kiorero a Road	If SH1/SH 14 bypass proceeds, extend O'Shea Road to the new bypass road	4-laning of selected major arterial routes	Improve parking for the Town Basin and associated developments	Construct new parking building if required by parking strategy	Provide parking on outskirts of CBD (with good pedestrian connections and line of	Investigate covering public off-street parking (users pary a premium to use)	Provide covered pedestrian ways from outskirt parking to CBD	Provide more VMS signs to indicate locations of available parks on-street in CBD	Mobile phone app to show number of available parks in each main carpark	Electric vehicle charging stations at each main carpark	Improve signage to main carparks and indicate which parks include parking for campervan	Remove parking in CBD	Integrate undercover parking or parking building to retail development in CBD	Strengthen parking strategy with pricing	Update planning rules to ensure Business 1 properties provide for on-site parking provisions	Utilise streetlight central management system to pick up traffic flow data to determine real time congestion	Mobile phone app and website to indicate congestion on rotues	Radio frequency with network updates	Support the ultra-fast broadband roll out into rural areas to incentivise home working	Employment approach - change working hours
	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
Investment Objectives																																															
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations	+	+	+	+++	+++	++	+++	+++	++	+++	+	++	+++	++	++	+++	++	+++	++	++	++	+++	++	+	+++	+	+	++	+	+++	+	0	0	0	0	+	+	0	0	+	+	+	0	+	+	+	+	+
Objective 2 - Increase PT mode share on transport system	+	+	0	+	+	+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	0	+	0	0	0	0	+	-	-	-	-	-	-	0	0	+	0	+	-	+	+	0	0	0
Objective 3 - Increase district wide walking and cycling mode shares on transport network	+	+	--	0	0	0	0	0	0	+	+	0	0	0	+	+	+	++	+	+	+	+	+	+++	+	+	+	0	+	+	-	-	0	0	0	0	0	0	+	0	+	0	+	+	0	0	0
Objective 4 - reduce deaths and serious injuries	0	0	-	+	+	+	+	+	+++	+++	0	+	+	+	++	+++	+	++	+	++	+	+	+	0	0	0	0	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IMPLEMENTABILITY																																														
Feasibility																																														
How straightforward is it to implement this alternative / option, including social, cultural and environmental interventions (eg additional planting)?	0	-	0	-	--	-	--	-	-	---	--	--	--	--	--	--	--	--	--	--	+	--	-	-	--	-	-	--	--	--	0	--	-	0	0	0	0	0	--	--	-	-	0	0	0	0
Are any novel/untried/leading edge technologies involved?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	-	-	0	0
Are there any technical risks involved in developing or implementing this option?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	-	-	0	0
What is the level of complexity in gaining statutory approvals and how significant are the costs of mitigation?	0	--	0	0	-	0	-	0	-	---	--	-	-	--	-	--	---	0	0	-	0	-	0	0	---	--	-	--	--	--	-	-	0	0	0	0	0	0	-	0	-	0	0	0	0	0	0
Is a new designation or alteration required?	0	-	0	0	-	0	-	0	-	---	--	-	-	--	-	--	---	0	0	-	0	-	0	0	---	--	-	--	--	--	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0
Could the option include activities prohibited under the policies and rules of the District or Regional Plan?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Are there significant hazards associated with the option which pose a H&S risk in design, build and final product?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Can safety be developed into the design process to control it?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Affordability																																														
Are there any factors that might affect the ability to operate or maintain the option over its projected life without major additional costs?	+++	+	+++	0	0	0	-	0	-	---	-	-	-	-	-	-	--	0	0	-	0	-	0	0	--	-	0	-	-	-	--	-	0	+	++	+	+	+++	+	++	+	++	+	+++
Can capital costs of the option be funded (e.g from the NLTP, NEA, TIF)?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	---	---	---	---	0	0	0	0	0	---	0	0	0	0	0	0
What is the likely BCR?	+++	++	+++	+++	++	++	+++	+++	++	+	+	+	++	+	++	++	+	++	++	+	++	+	++	0	0	0	0	+	-	++	-	---	---	---	---	++	+++	+	+	---	+++	++	+++	+++	++	+	+++
Stakeholders/Customers																																														
How acceptable is the option?	+++	++	+	++	+	++	+++	+++	+++	+++	+	++	+	++	++	++	++	+	+	++	++	++	0	+++	0	+	+	+	+	++	++	+	+	++	+++	++	++	+++	+	--	+++	-	0	++	+++	+++	+++	+
Are there real or anticipated objections from the community or stakeholders?	+++	++	+	++	+	++	+++	+++	+++	+++	+	++	+	++	++	++	++	+	+	++	++	++	0	+++	0	+	+	+	+	++	++	+	+	++	+++	++	++	+++	+	--	+++	-	0	++	+++	+++	+++	+
ASSESSMENT OF EFFECTS																																														
Safety																																														
To what extent will the option enhance safety for different types of transport users?	0	0	-	+	+	+	+	+	+++	+++	0	+	+	+	++	+++	+	++	+	++	+	+	+	0	0	0	0	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
What is the impact on personal safety / security?	+	+	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	+	+	0	0	0	0	+	+	0	0	0	0	0	0	0
What is the impact on fatal / serious injuries?	0	0	-	+	+	+	+	+	+++	+++	0	+	+	+	++	+++	+	++	+	++	+	+	+	0	0	0	0	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cultural and Historic Heritage																																														
Does the ESR screen indicate the option could impact on cultural and iwi values?	0	0	0	0	-	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Built Environment																																														
To what extent does the option impact on the built environment, including urban design, landscape character and visual amenity	0	+++	0	0	0	0	0	0	0	+	0	0	0	0	0	+	0	0	0	0	0	0	0	+	0	0	0	0	0	0	-	--	-	0	0	0	0	0	0	+	0	0	0	0	0	0	0
Natural Environment																																														
To what extent does the option impact on the natural environment as described in the ESR screen?	0	0	0	0	0	0	0	0	-	--	-	0	0	0	0	0	--	0	0	0	0	0	0	0	--	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Social																																														
Does ESR screen indicate the option could affect accessibility for the public, including access to jobs, communities, shops, services and other facilities?	+	+++	+	+	+	+	+	+	+	++	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	0	0	0	0	0	-	++	0	+	+	+	+	+	+
Does ESR screen indicate the option could result in significant risk to human health related to noise, air quality or contaminated land?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0
How does the option impact on property?	0	--	0	0	0	0	-	0	0	-	--	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	-	0	0	-	0	0	0	0	0	0	0	+	0	0	0	0	0	0	0
Will additional property purchases be required?	0	0	0	-	--	-	-	0	-	---	-	-	-	-	-	-	--	-	-	-	-	-	0	0	--	-	-	-	-	-	0	--	-	0	0	0	0	0	0	0	--	0	0	0	0	0	0	0
Are there property risks to delivery and can they be effectively managed?	0	--	0	0	--	0	0	0	0	--	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Is there any Maori land required as part of the option?	0	0	0	0	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Does the option affect other infrastructure providers (will agreements need to be entered into with service providers)?	0	0	0	-	--	-	--	-	-	--	-	-	--	--	--	--	-	-	-	--	-	--	0	0	-	-	-	-	-	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
System Integration																																														
Are there any wider transport system effects?	+	+	0	+	++	+	++	++	++	+++	+	++	++	++	+	++	+	++	+	++	+	++	+	+	++	+	+	+	+	++	-	-	-	0	0	0	0	0	0	+	+	+	0	+	+	+	+
Does ESR screen indicate Urban and Landscape design impacts?	0	++	0	0	0	0	0	0	+	++	0	0	0	0	0	+	+	0	0	0	0	0	0	+	+	0	0	0	0	0	-	--	-	0	0	0	0	0	0	+	0	0	0	0	0	0	0
How well does the option meet the forecast transport demand?	+	+	+	++	+++	++	+++	+++	++	+++	+	++	+++	++	++	+++	++	+++	++	++	++	+++	++	+	+++	+	+	++	+	+++	+	0	0	0	+	+	0	0	+	+	+	0	+	+	+	+	+
Economy																																														
How does the option impact economic growth?	+	+++	0	+	++	+	++	++	++	+++	+	+	++	+	+	++	+	++	+	+	+	++	+	++	++	+	+	+	+	++	+	++	++	+	+	+	+	+	0	--	++	-	+	0	0	0	+++	0
How well does the option enhance the development potential of adjacent land / attract new jobs / help existing businesses?	+	+	-	0	0	0	0	0	+	++	0	+	0	+	0	+	++	0	0	+	0	+	0	+	++	+	+	+	+	+	+++	++	++	+	+	+	+	+	0	--	+	-	0	0	0	0	++	0
Ranking (by subgroup)	4	2	28	12	20	15	7	5	4	2	27	17	14	18	11	1	21	3	16	9	13	8	19	10	23	25	22	26	24	6	10	13	12	11	7	2	3	5	6	8	1	4	9	3	2	7	1	8
Ranking (over whole project list)	34	13	132	38	64	51	22	12	8	5	121	54	47	60	30	2	85	7	53	24	42	23	61	29	109	111	105	116	110	21	129	137	136	130	123	96	102	113	119	127	92	112	128	72	58	86	57	92

Objective 1 - Ensure capacity of transport system meets forecast growth aspirations	+	+	+	+++	+++	++	+++	+++	++	+++	+	++	+++	++	++	+++	++	+++	++	++	++	+++	++	+	+++	+	+	++	+	+++	+	0	0	0	0	+	+	0	0	+	+	+	0	+	+	+	+	+
Objective 2 - Increase PT mode share on transport system	+	+	0	+	+	+	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+	+	+	0	+	0	0	0	0	+	-	-	-	-	-	-	0	0	+	0	+	-	+	+	0	0	0
Objective 3 - Increase district wide walking and cycling mode shares on transport network	+	+	--	0	0	0	0	0	0	+	+	0	0	0	+	+	+	++	+	+	+	+	+	+++	+	+	+	0	+	+	-	-	0	0	0	0	0	0	+	0	+	0	+	+	0	0	0
Objective 4 - reduce deaths and serious injuries	0	0	-	+	+	+	+	+	+++	+++	0	+	+	+	++	+++	+	++	+	++	+	+	+	0	0	0	0	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IMPLEMENTABILITY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feasibility	0	-	0	0	-	0	-	0	-	---	--	-	-	--	-	--	---	0	0	-	0	-	0	0	---	--	-	--	--	--	-	-	0	0	0	0	0	0	-	0	-	0	0	0	0	0	0
Affordability	++	+	++	+	+	+	+	+	0	-	0	0	0	0	0	0	0	+	+	0	+	0	+	0	-	0	0	0	0	0	---	--	--	--	+	+	-	+	---	++	+	++	++	+	++
Stakeholders/Customers	+++	++	+	++	+	++	+++	+++	+++	+++	+	++	+	++	++	++	++	+	+	++	++	++	0	+++	0	+	+	+	+	++	++	+	+	++	+++	++	++	+++	+	--	+++	-	0	++	+++	+++	+++	+
ASSESSMENT OF EFFECTS	0	0	-	+	+	+	+	+	++	++	0	+	+	+	+	++	+	+	+	+	+	+	+	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Safety	0	0	-	+	+	+	+	+	++	++	0	+	+	+	+	++	+	+	+	+	+	+	+	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cultural and Historic Heritage	0	0	0	0	-	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Built Environment	0	+++	0	0	0	0	0	0	0	+	0	0	0	0	0	+	0	0	0	0	0	0	0	+	0	0	0	0	0	0	-	--	-	0	0	0	0	0	0	+	0	0	0	0	0	0	0	0
Natural Environment	0	0	0	0	0	0	0	0	-	--	-	0	0	0	0	0	--	0	0	0	0	0	0	0	--	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Social	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ranking (by subgroup)	4	2	28	12	20	15	7	5	4	2	27	17	14	18	11	1	21	3	16	9	13	8	19	10	23	25	22	26	24	6	10	13	12	11	7	2	3	5	6	8	1	4	9	3	2	7	1	8
Ranking (over whole project list)	34	13	132	38	64	51	22	12	8	5	121	54	47	60	30	2	85	7	53	24	42	23	61	29	109	111	105	116	110	21	129	137	136	130	123	96	102	113	119	127	92	112	128	72	58	86	57	92

Whangarei Transportation Network Strategy																																											
Programme Business Case	g			Signage and markings						Pedestrians											Shared paths (pedestrians and cyclists)														Travel planning				Safety							
	Encourage modal shift -(eg travelling planning campaigns, LETSGO	Encourage proper workplace travel planning	Encourage walking/ cycling for schools by providing safe routes, education and training, and limit pick up/ drop off	Improved destination signage at main intersections including	Sign improvement s requi red in conj unct on with	Arrows on roads after rest areas and tourist destinations	Provide signs to direct camper vans to existing parking and waste disposal	Edgelines maked on urban arterial roads to support autonomous vehicles	LED or other adapta ble roadma kings to facilitat e instant aneous lane re	Install signalised puffin crossings and zebra crossings on arterial roads	Provide facilitie s/ visual cues to direct pedestr ians to safe location s and raise	Consider path extensions/ boardwalks to fill in missing paths	Construct a land bridge from CBD to town basin develop ment at John St	Continu e the pedestri anisatio n and beautifi cation of the CBD plus linking to	Upgrade the lighting and cameras in the CBD to improve nighttime safety/ security for pedestrians	Upgrade lighting to acceptabl e levels in local/ collector streets	Provide wider and smoother paths for ageing population and uptake of mobility scooters	Audit key pedestria n routes for safety/ LOS	Improve pedestria n wayfindin g	Complete the Raumanga and Onerahi shared paths	Complete the Kamo shared path including connectio ns to schools	Construct the Tikipunga shared path to tie in with Tikipunga to Tutukaka Heartland ride	Construct a shared path to connect to the path proposed to be built between Whangar ei and	Install cycle facilities (e.g. secure bike racks, lockers, E-bike charging in CBD shools	Promote E-bikes	Separate cycle paths off the road for school kids	Behaviou r change to encourag e active modal shift	Provide cycle connectio ns or on-road facilities at destinati ons	Provide bus fleet capable of allowing cyclist to use them	Ensure in planning rules that retail/ commerci al develop ments include for cycle use	Support legislative change to allow cyclists to use footpaths and voluntary use of helmets	Incorpora te proper on-road facilities on key commute r routes (not shared paths)	Impleme nt travel planning with schools and key businesse s to encourag e behaviou r change	Provide cycle training in schools and get schools involved in walking and cycling	Constr uct a cycling training facility on Pohe Island to provide road	LETSGO - , brandin g, events etc	website	Implem ent safety improv ements in conjunc tion with other upgrad es at	Implem ent safety improv ements on arterial roads and interse ctions identifi	Implem ent safety improv ements identifi ed in WDC's 3 yearly crash study	Invest igate changi speed limits on arteri al roads in	Upgrade the lighting on Whangar ei's arterials to meet the requirem ents of AS/NZS	Undergr ound power lines and remove power poles on arterial roads in city	No stopping markings around schools and at intersect ions to clear sightline s	Identify top 5% of roads by social cost and target project on these	Investiga te adjusting existing T- intersect ions, turn restrictio ns or roundab outs
	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138
Investment Objectives																																												
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations	+	+	+	0	0	0	0	+	+	-	0	+	+	-	0	0	0	0	0	+	++	+	+	+	+	++	+	+	+	+	+	+	+	0	+	0	0	0	-	0	0	0	0	0
Objective 2 - Increase PT mode share on transport system	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	+	0	0	+	0	0	0	-	+	0	0	0	0
Objective 3 - Increase district wide walking and cycling mode shares on transport network	+	+	+	0	0	0	0	0	0	+++	++	+++	++	+++	++	++	++	+++	+	++	+++	++	+	++	++	+++	++	++	++	++	+	+	++	++	+	+	+	+	+	+	+	+	+	+
Objective 4 - reduce deaths and serious injuries	0	0	0	0	0	+	0	0	+	++	+	++	+	+	+	+	+	+	++	+	++	+	+	+	0	0	++	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
IMPLEMENTABILITY																																												
Feasibility																																												
How straightforward is it to implement this alternative / option, including social, cultural and environmental interventions (eg additional planting)?	0	0	0	0	0	0	0	0	0	-	-	0	--	-	0	0	0	0	0	0	-	-	-	0	0	-	-	0	-	0	-	0	0	0	0	+	-	-	- -	0	-	-	-	-
Are any novel/untried/leading edge technologies involved?	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Are there any technical risks involved in developing or implementing this option?	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
What is the level of complexity in gaining statutory approvals and how significant are the costs of mitigation?	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Is a new designation or alteration required?	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Could the option include activities prohibited under the policies and rules of the District or Regional Plan?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Are there significant hazards associated with the option which pose a H&S risk in design, build and final product?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Can safety be developed into the design process to control it?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Affordability																																												
Are there any factors that might affect the ability to operate or maintain the option over its projected life without major additional costs?	+++	+++	+++	+++	+++	+++	+++	+++	++	+	++	++	0	0	++	+	++	++	+++	+	+++	0	+	++	+++	+	+++	++	++	+++	+++	+	+++	++	++	+++	+	+	+	++	+	0	+++	+	-
Can capital costs of the option be funded (e.g from the NLTP, NEA, TIF)?	0	0	0	0	0	0	0	0	0	0	0	0	0	---	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
What is the likely BCR?	+++	+++	+++	++	++	+++	0	++	+++	-	+	+	+	---	+	0	+	++	0	+++	+++	++	++	+++	++	+++	++	++	+++	+++	++	++	++	++	++	++	++	++	++	++	+	+++	+++	++
Stakeholders/Customers																																												
How acceptable is the option?	+	+	++	+	+	+	+	+	+	-	+	+++	+++	++	+++	+++	++	+++	+	++	+++	++	++	++	++	+++	++	++	++	++	+	+	++	+++	+++	+++	++	++	+++	+	+++	+++	+	+++	+
Are there real or anticipated objections from the community or stakeholders?	+	+	++	+	+	+	+	+	+	-	+	+++	+++	++	+++	+++	++	+++	+	++	+++	++	++	++	++	+++	++	++	++	++	+	+	++	+++	+++	+++	++	++	+++	+	+++	+++	+	+++	+
ASSESSMENT OF EFFECTS																																												
Safety																																												
To what extent will the option enhance safety for different types of transport users?	0	0	0	0	0	0	0	0	+	+	+	+	+	+	++	++	+	+	0	+	++	+	+	0	0	++	0	++	+	+	0	+	0	0	+	0	++	+++	+++	+++	++	++	+++	+++	++
What is the impact on personal safety / security?	0	0	0	0	0	0	0	0	0	++	+	+	++	++	+++	+++	+	+	0	++	++	+	++	0	0	++	0	++	+	+	0	0	0	+	+	0	++	++	++	+	+++	+	++	++	++
What is the impact on fatal / serious injuries?	0	0	0	0	0	+	0	0	+	++	+	++	+	+	+	+	+	++	+	+	++	+	+	0	0	++	0	++	+	+	0	+	0	+	+	0	++	+++	+++	+++	++	++	+++	+++	++
Cultural and Historic Heritage																																												
Does the ESR screen indicate the option could impact on cultural and iwi values?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Built Environment																																												
To what extent does the option impact on the built environment, including urban design, landscape character and visual amenity	0	0	0	0	0	0	0	0	0	0	0	0	++	+++	0	0	0	0	0	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	++	0	0	+
Natural Environment																																												
To what extent does the option impact on the natural environment as described in the ESR screen?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Social																																												
Does ESR screen indicate the option could affect accessibility for the public, including access to jobs, communities, shops, services and other facilities?	+	+	+	+	+	0	0	+	+	+	+	+	+++	++	+	+	+	+	+	++	++	++	++	+	+	++	+	++	+	+	0	+	+	+	0	+	0	0	0	0	0	0	0	-
Does ESR screen indicate the option could result in significant risk to human health related to noise, air quality or contaminated land?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	+	+	+	0	0	+	0	+	0	0	0	+	0	0	0	0	0	0	0	0	0	0	0	0
How does the option impact on property?	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	-	-	0	-	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0
Will additional property purchases be required?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	-	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Are there property risks to delivery and can they be effectively managed?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Is there any Maori land required as part of the project?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Does the option affect other infrastructure providers (will agreements need to be entered into with service providers)?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
System Integration																																												
Are there any wider transport system effects?	+	+	+	+	0	0	0	+	+	0	0	+	0	0	0	0	0	0	0	+	++	+	+	+	+	++	+	+	+	+	+	+	+	+	0	+	+	0	0	0	0	0	0	0
Does ESR screen indicate Urban and Landscape design impacts?	0	0	0	0	0	0	0	0	0	0										+	+	+	+	0	0	+	0	+	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0
How well does the option meet the forecast transport demand?	+	+	+	0	0	0	0	+	+	-	0	+	+	-	0	0	0	0	0	+	++	+	+	+	+	++	+	+	+	+	+	+	+	+	0	+	0	0	0	-	0	0	0	0
Economy																																												
How does the option impact economic growth?	0	0	0	0	+	0	0	0	+	0	0	+	++	+++	++	+	0	0	+	0	0	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	+	0	0	0	0
How well does the option enhance the development potential of adjacent land / attract new jobs / help existing businesses?	0	0	0	0	0	0	0	0	-	+	+	++	+++	+++	++	+	+	+	+	+	+	+	+	0	0	+	0	+	0	0	0	+	0	0	0	0	0	0	0	+	+	0	0	0
Ranking (by subgroup)	4	4	4	5	4	3	6	2	1	10	8	1	2	5	4	6	7	3	9	4	1	8	6	9	9	2	11	3	5	7	13	12	3	1	4	2	7	5	2	9	1	4	6	2	8
Ranking (over whole project list)	76	76	76	115	114	104	120	99	84	90	80	4	6	33	20	44	62	17	87	17	1	49	32	65	65	3	70	14	31	40	88	74	55	41	71	52	59	39	25	83	11	27	43	25	75

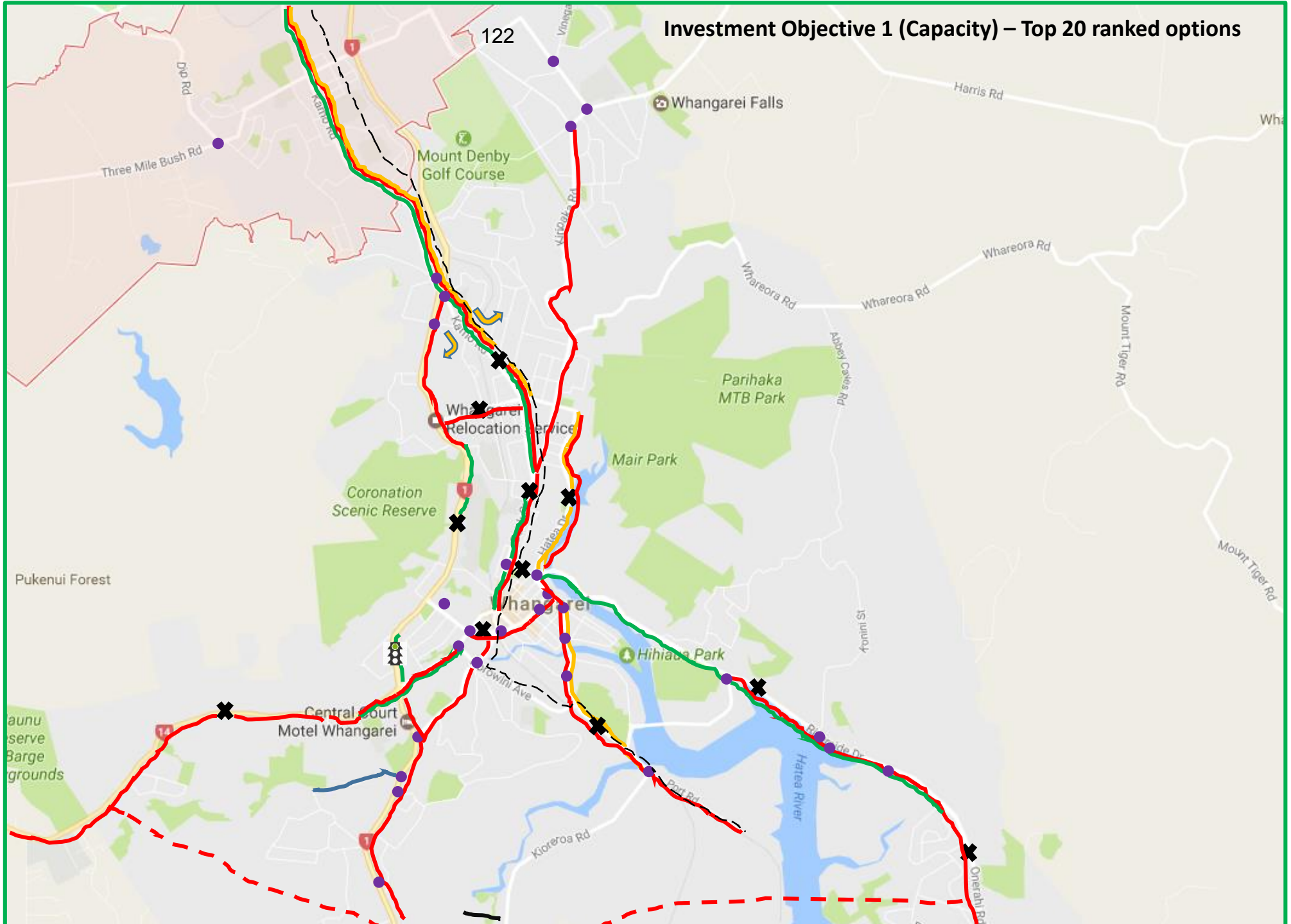
				P	P	P																			P	P		P															
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations	+	+	+	0	0	0	0	+	+	-	0	+	+	-	0	0	0	0	0	+	++	+	+	+	+	++	+	+	+	+	+	+	+	0	+	0	0	0	-	0	0	0	0	0
Objective 2 - Increase PT mode share on transport system	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	+	0	0	+	0	0	0	-	+	0	0	0	0
Objective 3 - Increase district wide walking and cycling mode shares on transport network	+	+	+	0	0	0	0	0	0	+++	++	+++	++	+++	++	++	++	+++	+	++	+++	++	+	++	++	+++	++	++	++	++	+	+	++	++	+	+	+	+	+	+	+	+	+	+
Objective 4 - reduce deaths and serious injuries	0	0	0	0	0	+	0	0	+	++	+	++	+	+	+	+	+	++	+	+	++	+	+	+	0	0	++	0	+	+	+	0	+	0	+	+	0	++	+++	+++	+++	++	++	+++	+++	++
IMPLEMENTABILITY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feasibility	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Affordability	++	++	++	++	++	+	++	++	0	+	+	+	--	+	0	+	+	++	+	+	+	+	+	++	++	+	++	+	+	++	+	+	++	+	+	++	+	+	++	+	0	++	+	0
Stakeholders/Customers	+	+	++	+	+	+	+	+	+	-	+	+++	+++	++	+++	+++	++	+++	+	++	+++	++	++	++	++	+++	++	++	++	++	+	+	++	+++	+++	+++	++	++	+++	+	+++	+++	+	+++	+
ASSESSMENT OF EFFECTS	0	0	0	0	0	0	0	0	+	++	+	+	+	+	++	++	+	+	0	+	++	+	+	0	0	++	0	++	+	+	0	+	0	0	+	0	++	+++	+++	+++	++	++	+++	+++	++
Safety	0	0	0	0	0	0	0	0	+	++	+	+	+	+	++	++	+	+	0	+	++	+	+	0	0	++	0	++	+	+	0	+	0	0	+	0	++	+++	+++	+++	++	++	+++	+++	++
Cultural and Historic Heritage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Built Environment	0	0	0	0	0	0	0	0	0	0	0	0	++	+++	0	0	0	0	0	+	+	+	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	++	0	0	+
Natural Environment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Social	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ranking (by subgroup)	4	4	4	5	4	3	6	2	1	10	8	1	2	5	4	6	7	3	9	4	1	8	6	9	9	2	11	3	5	7	13	12	3	1	4	2	7	5	2	9	1	4	6	2	8
Ranking (over whole project list)	76	76	76	115	114	104	120	99	84	90	80	4	6	33	20	44	62	17	87	17	1	49	32	65	65	3	70	14	31	40	88	74	55	41	71	52	59	39	25	83	11	27	43	25	75

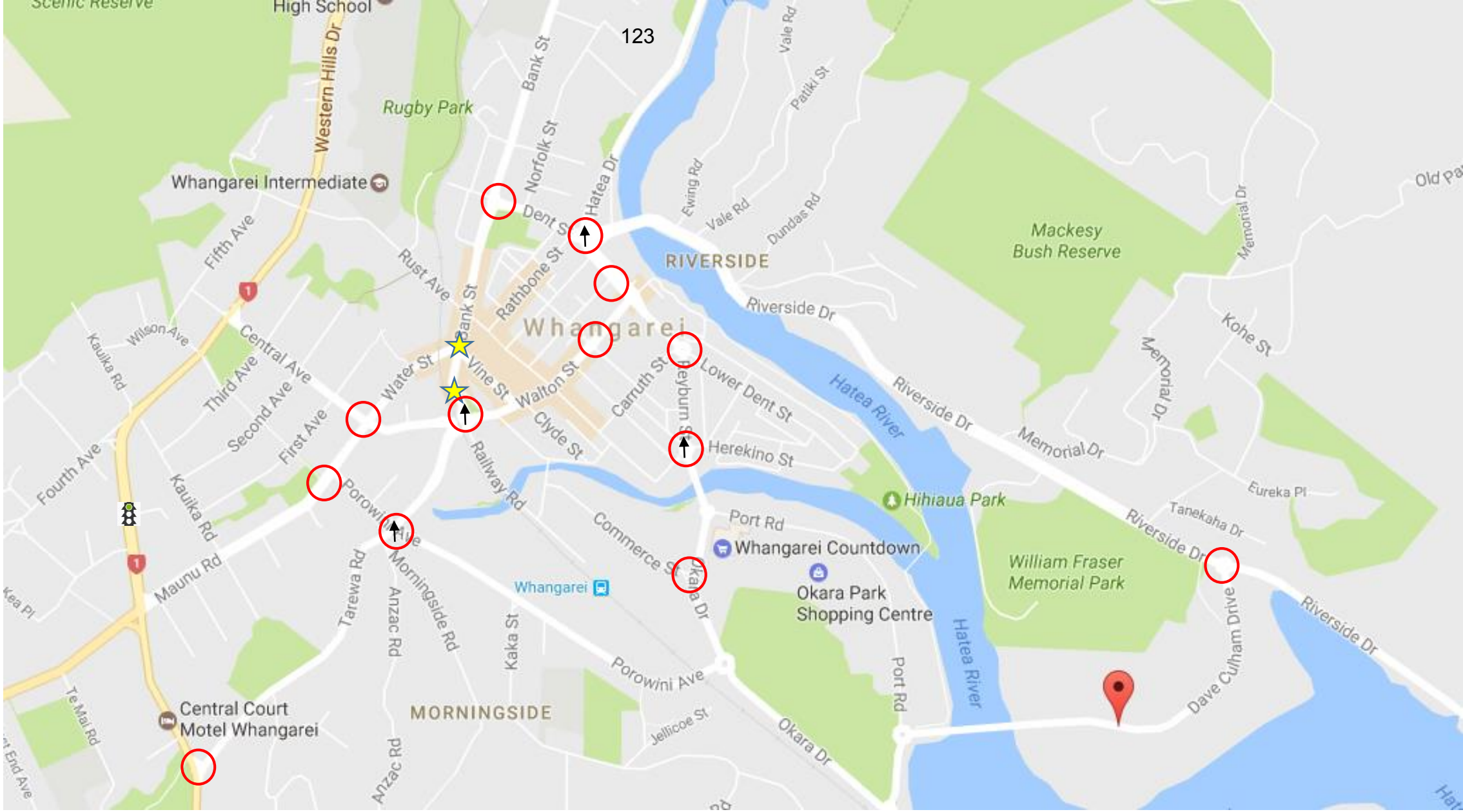
Appendix E – Foundation Programmes

Investment Objective 1 (Capacity) – Top 20 ranked options

Key

- Investigate Bus/T2 lane
- Widen to 4 lanes
- Major link from toe toe road area
- Upgrade route
- Insert new link road
- Intersection improvements
- Road realignment
- Separate Kamo and Tikipunga bus services and extend Tikipunga service into Totara Parklands
- Corridor reviews to develop bus lanes (T2 lanes), reduce severance and improve access to CBD on selected roads
- Rail commuter train between Kamo/ CBD, Whangarei and Marsden Port





Insert new link road

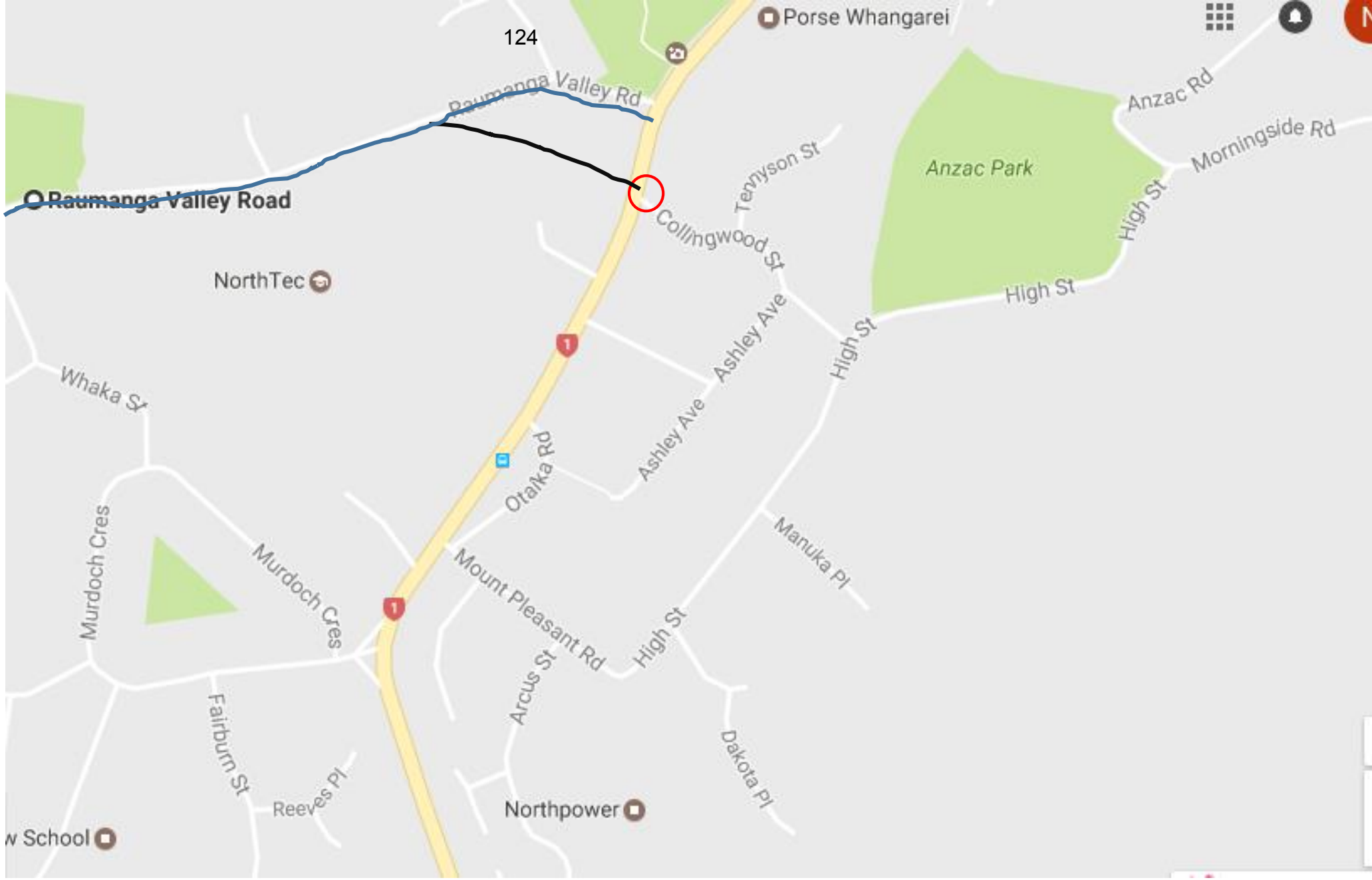
Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection



Insert new link road

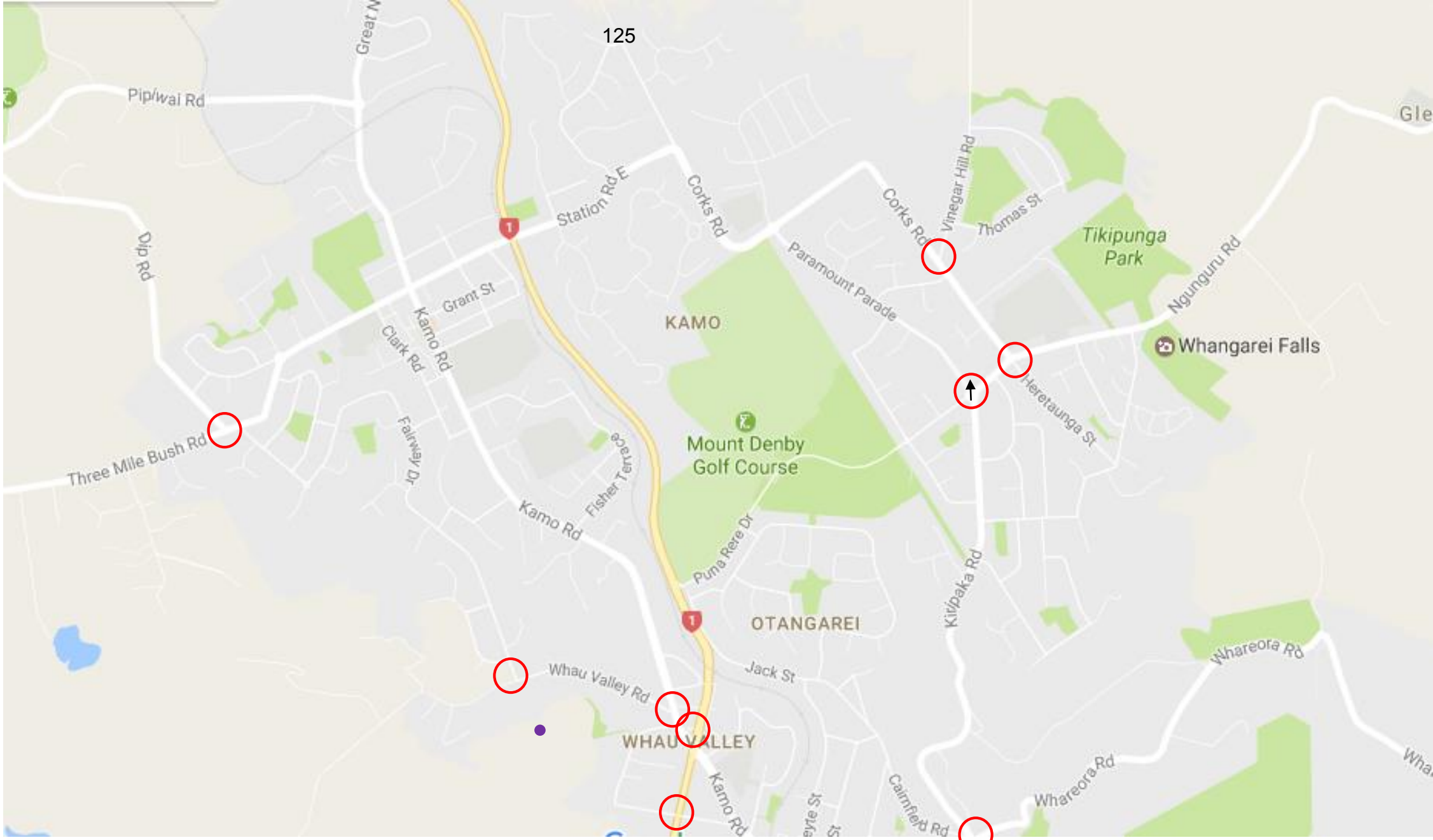
Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection



Insert new link road

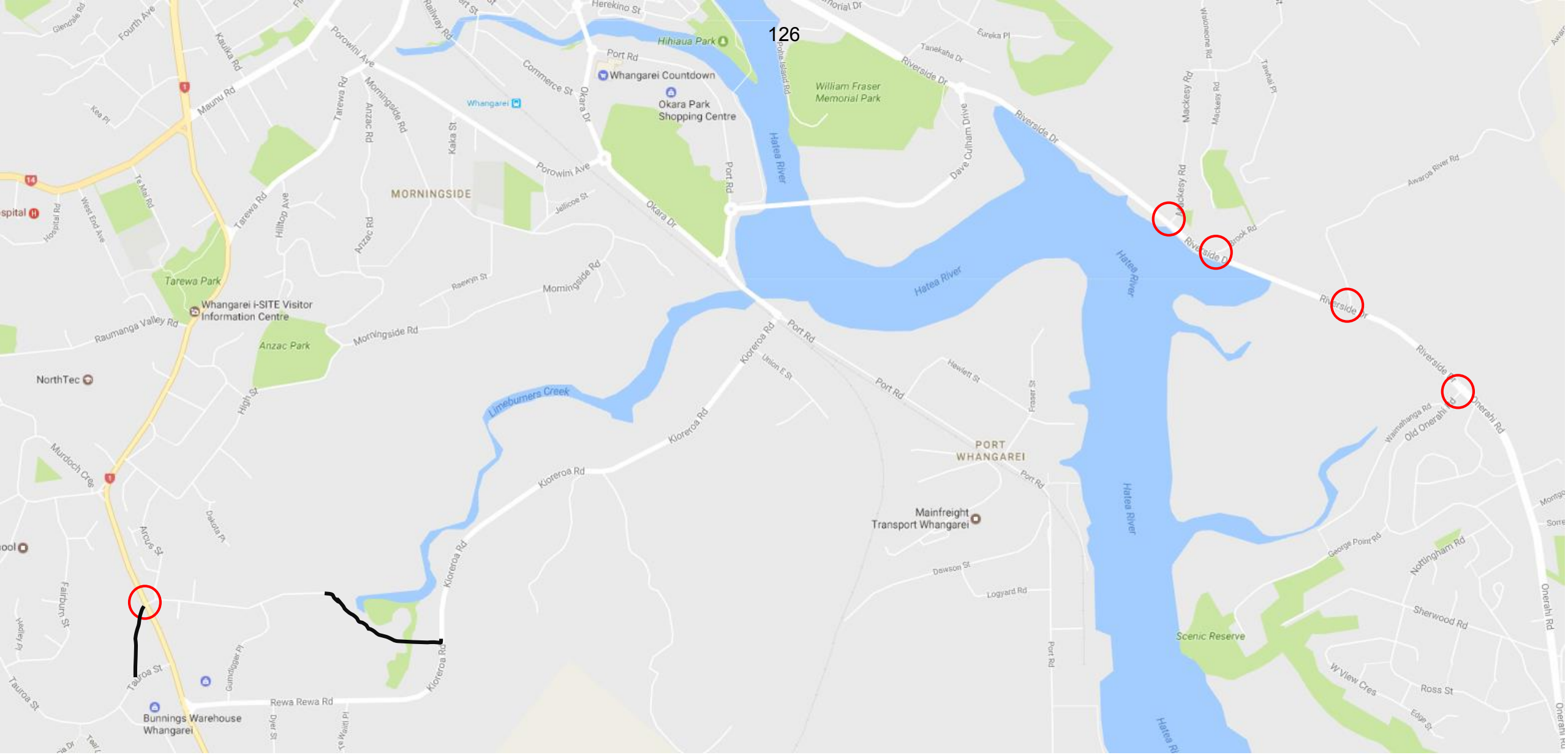
Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection



Insert new link road

Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

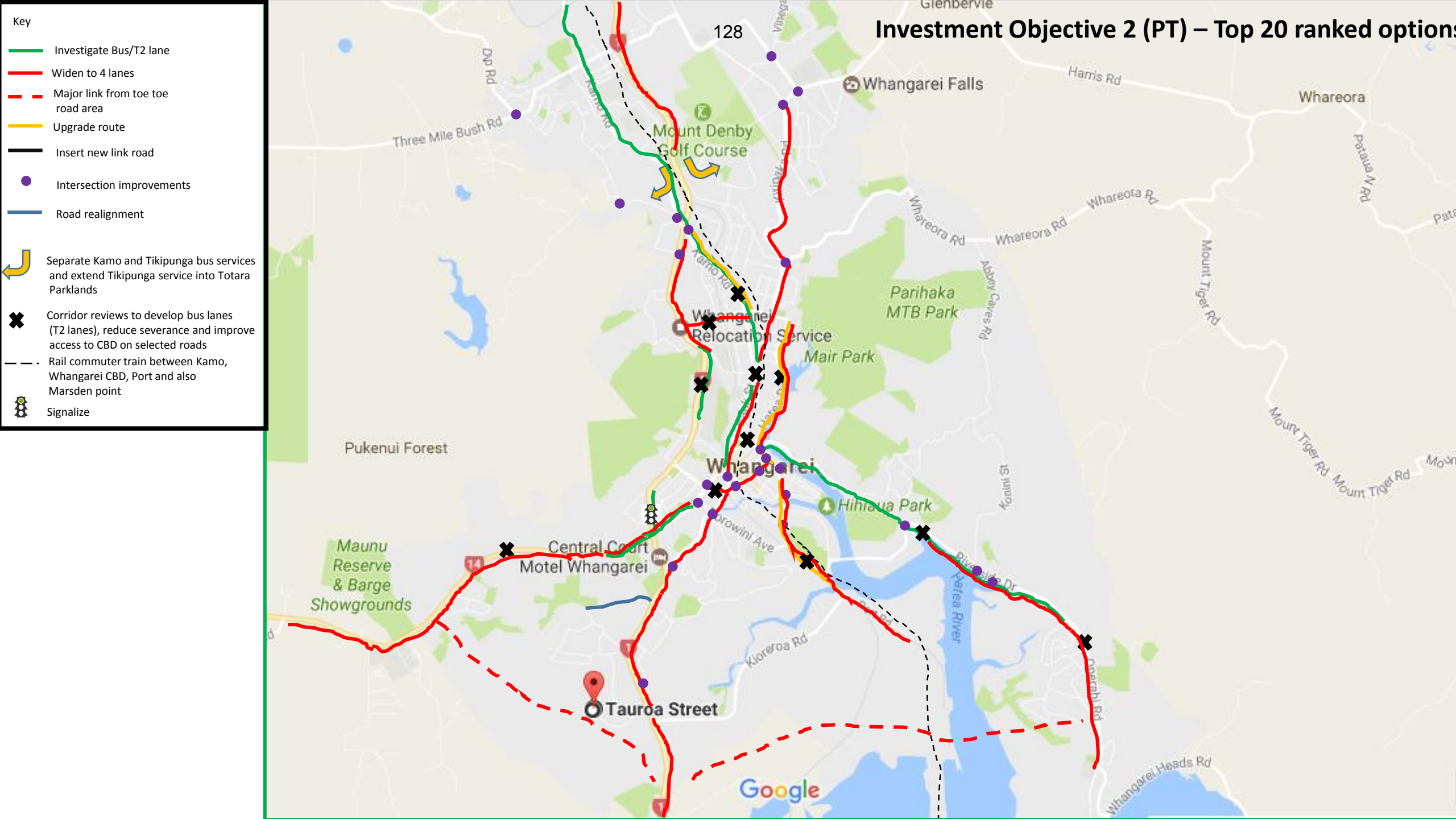
Road realignment

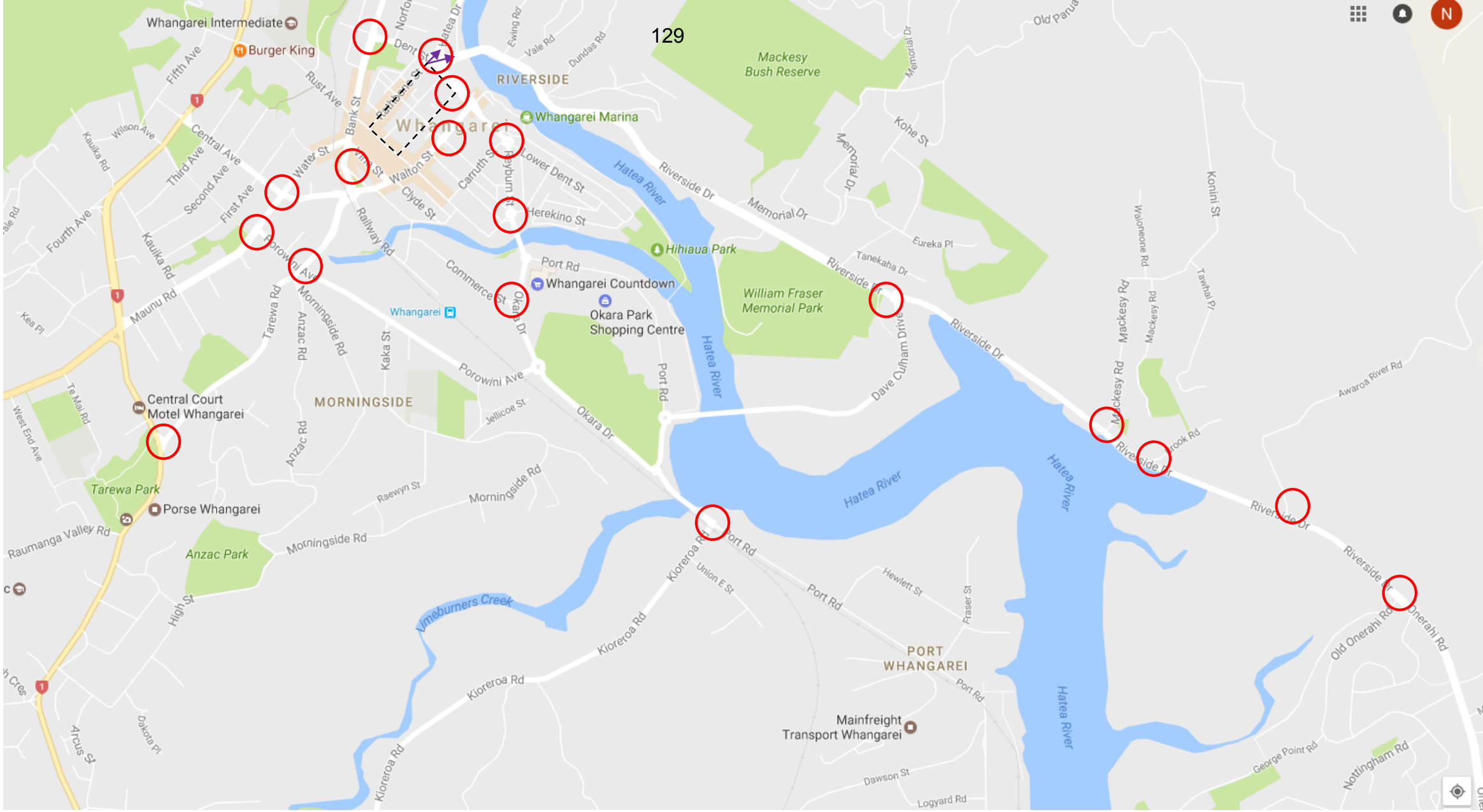
Signalize intersection

Network wide options

- Improve signal loops and controllers (1)
- Investigate new technologies for vehicle detection (2)
- Install CCTV and fibre connections to signals to allow remote operation (3)
- Upgrade SCATS central management system with potential management by ATOC (4)
- Tidal flows – Investigate shared lanes with restrictions for AM and PM (16)
- Consider rail enhancements to get additional freight onto rail. Would include Marsden Point Rail Link (18)
- More frequent buses (15 minute buses in peak hours vs typically 30 – 60 minutes currently (21)
- Create a network of bus lanes (T2 lanes) on key arterial routes to give PT a journey time advantage over private Vehicles to encourage PT take up (37)
- Corridor reviews to develop bus lanes, reduce severance and improve access to CBD on selected arterials (43)
- Support the 500M 4-laning from Tarewa Rd south to Port Marsden highway (55)
- Consider a series of roundabouts (with ramp metering if needed) along Hatea/ Reyburn/ Okara route) (68)
- Construct new Port Nikau Highway to link from SH1 interchange to Port Nikau development (70)

Investment Objective 2 (PT) – Top 20 ranked options





Provide connection

Restrict traffic/ pedestrianize/ provide parking outside areas

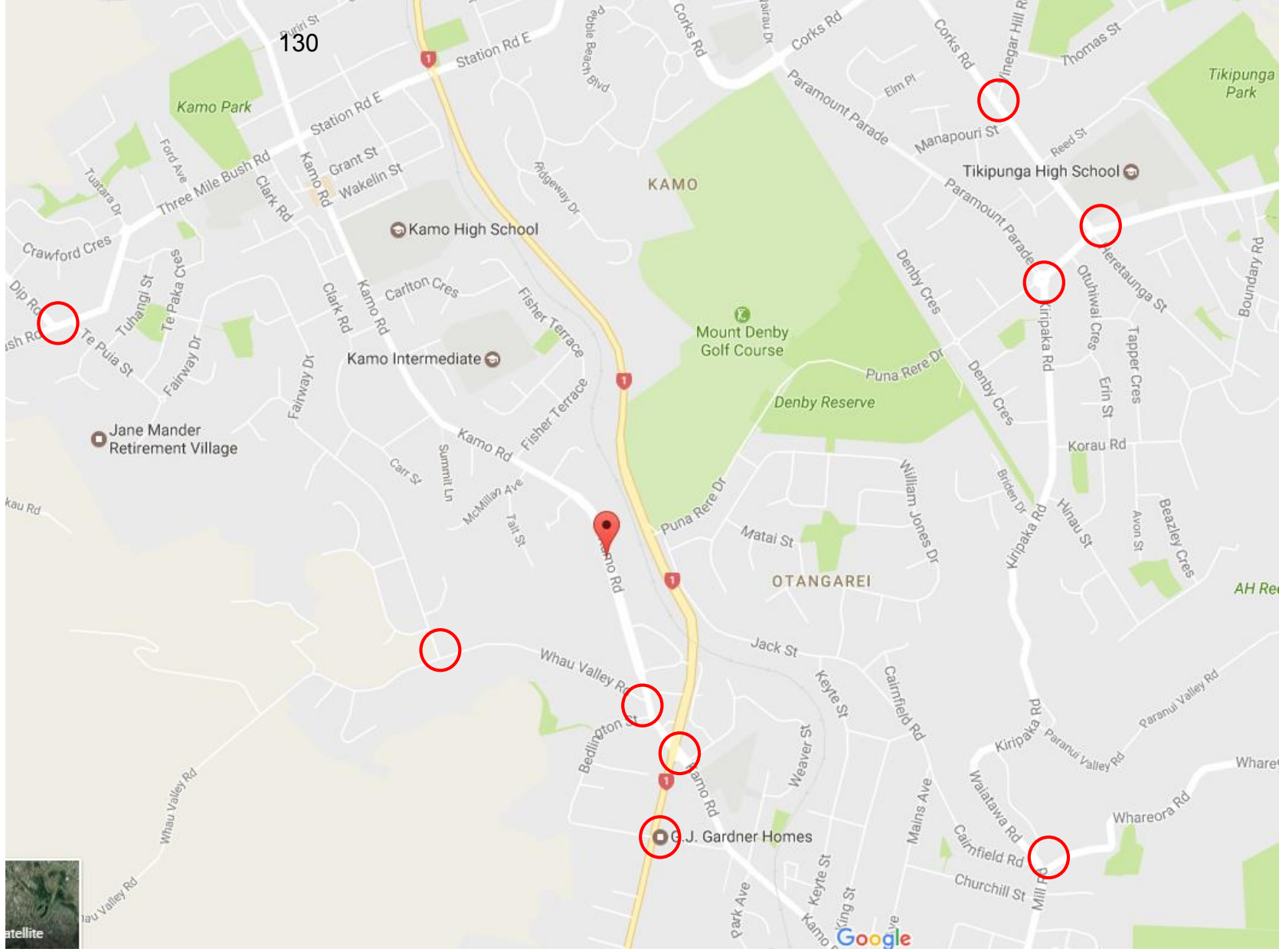
Insert new link road

Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment



Provide connection

Restrict traffic/ pedestrianize/ provide parking outside areas

Insert new link road

Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Network wide options

- Support existing inner city development (8)
- ? Tidal flows: investigate Can shared lanes (i.e. 3rd lanes) be incorporated and assigned to AM & PM flows (16)
- Increase frequency of buses (21)
- Relocation/ upgrade of Rose St bus station (22)
- ? Investigate hospital bus service (23)
- Provide more bus shelters and upgrade existing bus shelters (25)
- Provide bus pull-off bays (26)
- Mobile phone app for bus locations and arrival times (27)
- ? Support free Wi-Fi (spark mobile hotspots) at the main bus terminals and other key tourist PT routes (28)
- ? VMS signs at bus stops to indicate the arrival time of the next bus. (29)
- Rural bus services for commuter park n ride stations for rural areas (30)
- Holiday bus services to tourist destinations (i.e. tourist bus) (31)
- Rail commuter train between Whangarei and Marsden point (32)
- Investigate starting / subsidizing car sharing schemes (34)
- Run buses later in evenings to encourage nightlife (35)
- Ferry service/ water taxis at selected locations - eg Onerahi to Town Basin/Whangarei Heads to Marsden, Heads to Onerahi, Town Basin to Okara area (36)

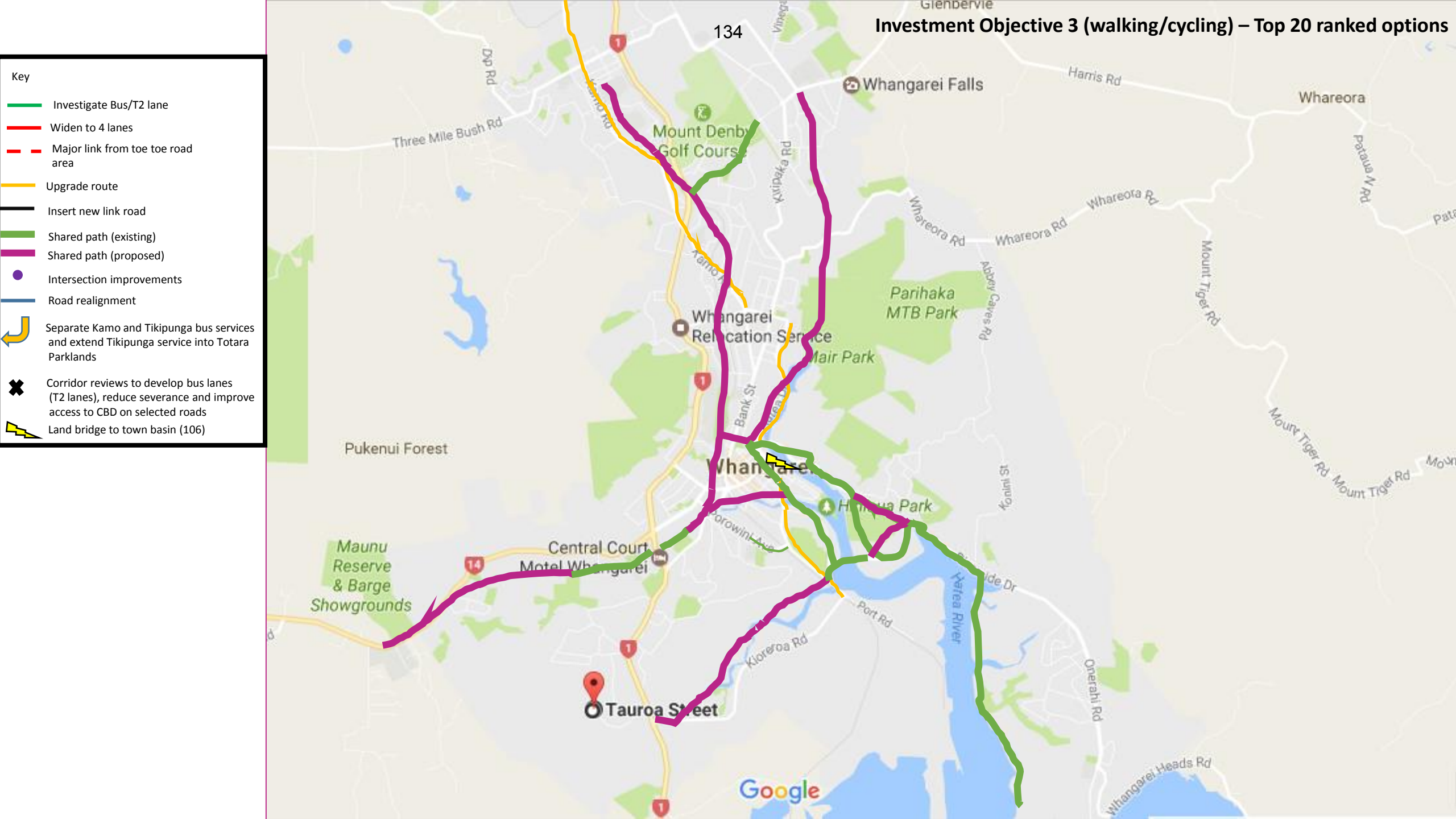
Network wide options

- Consolidate urban growth by incentivising densification of the urban area (39)
- Promote central living in CBD and expand densification zoning (40)
- Limit rural growth apart from at identified growth nodes and at rural/ coastal villages (41)
- Major subdivision developments and plan changes to include integrated multi-modal transport plans (42)
- Corridor reviews to develop bus lanes, reduce severance and improve access to CBD on selected arterials (43)
- Assess existing and future major retail centres in Whangarei (44)
- Planning rules to discourage small/ medium developments in favour of collaborative larger scale developments (45)
- New developments to include provisions for bus, walk and cycle trips (46)
- Encourage developments of large mall development in central city with provision of alternative travel modes links (47)
- Support the 500M 4-laning from Tarewa Road south to the Port Marsden highway (55)
- Consider a series of roundabouts (with ramp metering) along Hatea/ Reyburn/ Okara route (68)
- Construct new Port Nikau Highway to link from SH1 interchange to Port Nikau development (70)
- Remove parking in CBD (85)
- Strengthen parking strategy with pricing (87)
- Utilize streetlight central management system to pick up traffic flow data to determine real time congestion (89)
- Mobile phone app and website to indicate congestions on routes (90)
- Encourage modal shift – (eg travelling planning campaigns, LETSGO) (94)
- Encourage proper work place travel planning (95)

Network wide options

- Provide bus fleet capable of allowing cyclist to use them (122)
- Implement travel planning with school and key businesses to encourage behaviour change and promote uptake of walking and cycling (126)
- LETSGO website – branding events etc (129)
- Upgrade the lighting on Whangarei arterials to meet the requirements of A/NS 1158 (134)
- Commuter rail between Marsden point and Whangarei with Park n ride stops at Portland and Mangapai (33)

Investment Objective 3 (walking/cycling) – Top 20 ranked options



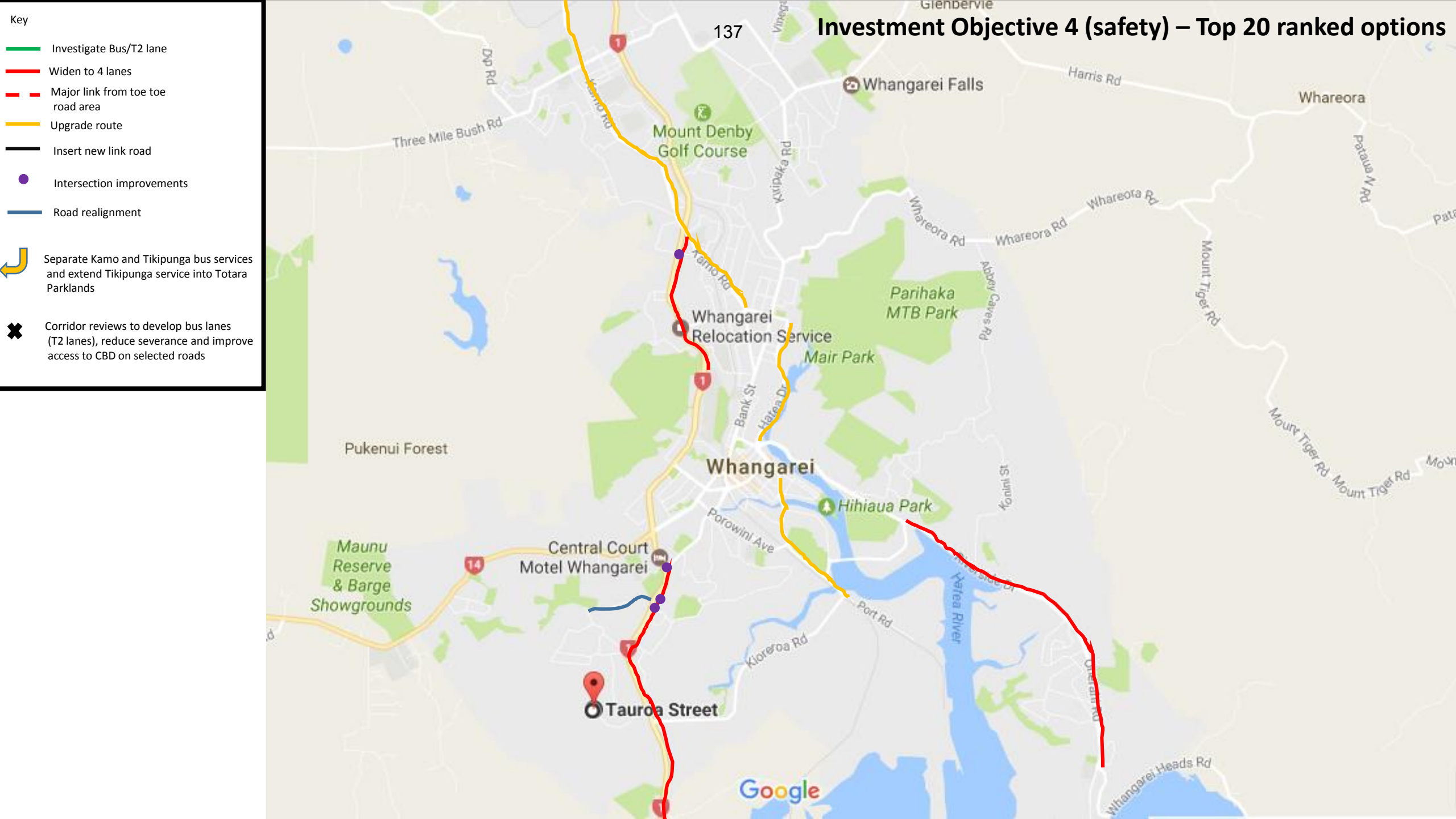
Network wide options

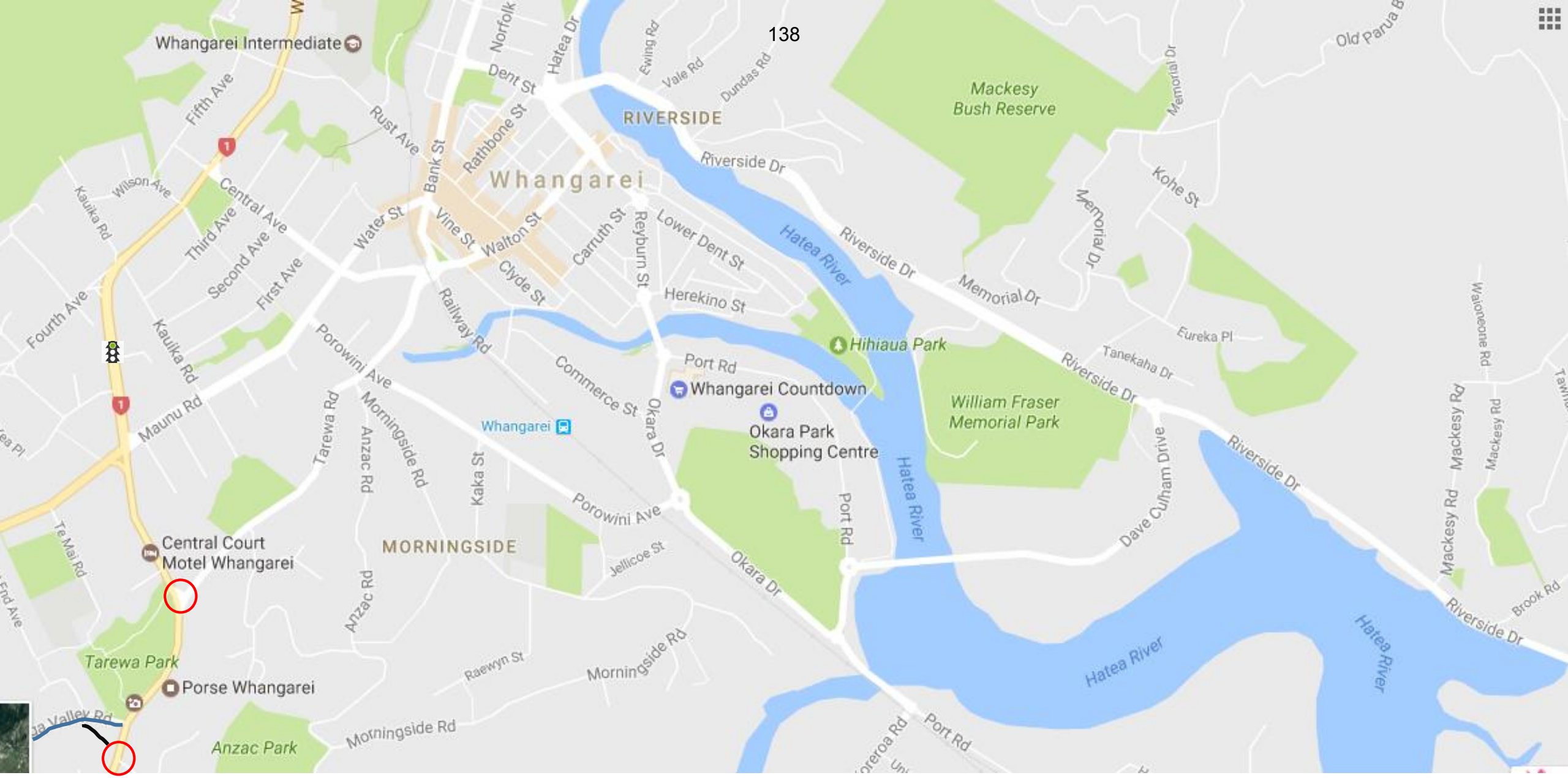
- Support existing inner city development (8)
- Promote central living in CBD and expand densification on zoning (40)
- Improve connection between the city and the Town basin (target key routes) (69)
- Install signalized puffin crossings and zebra crossings on arterial roads (103)
- Consider path extensions/ boardwalks to fill in missing paths (105)
- Provide facilities/ clues to direct pedestrians to safe locations and raise driver awareness (if puffins or zebras not warranted) (104)
- Continue the pedestrianization and beautification of the CBD plus linking to residential areas (107)
- Upgrade the lighting and cameras in the CBD to improve night-time safety/ security for pedestrians (108)
- Upgrade lighting to acceptable levels in local/ collector streets (109)
- Provide wider and smoother paths for ageing population and uptake of mobility scooters (110)
- Audit key pedestrian routes for safety/ LOS (111)
- Complete the Raumanga, Onerahi shared paths (113)
- Complete the Kamo shared path including connections to schools (114)

Network wide options

- Construct the Tikipunga shared path to tie in with Tikipunga to Tutukaka heartland ride (115)
- Construct a shared path to connect to the cycle path between Whangarei and Ruakaka (116)
- Install cycle facilities (e.g. secure bike racks, lockers, E bike charging in CBD, schools and parks) (117)
- Promote E bikes (118)
- Separate cycle paths off the road for school kids (119)
- Behaviour change to encourage active modal shift (120)
- Provide cycle connections or on-road facilities at destinations – its not enough to just terminate facilities at a point in the CBD and let cyclists battle to their ultimate destination from there. (121)
- Provide bus fleet capable of allowing cyclist to use them (122)
- Ensure in planning rules that retail/ commercial developments include for cycle use (123)
- Implement travel planning with schools and key businesses to encourage our change and promote Uptake if walking and cycling (126)
- Provide cycle training in schools and get schools involved in walking and cycling (127)

Investment Objective 4 (safety) – Top 20 ranked options





Provide connection

Restrict traffic/ pedestrianize/ provide parking outside areas

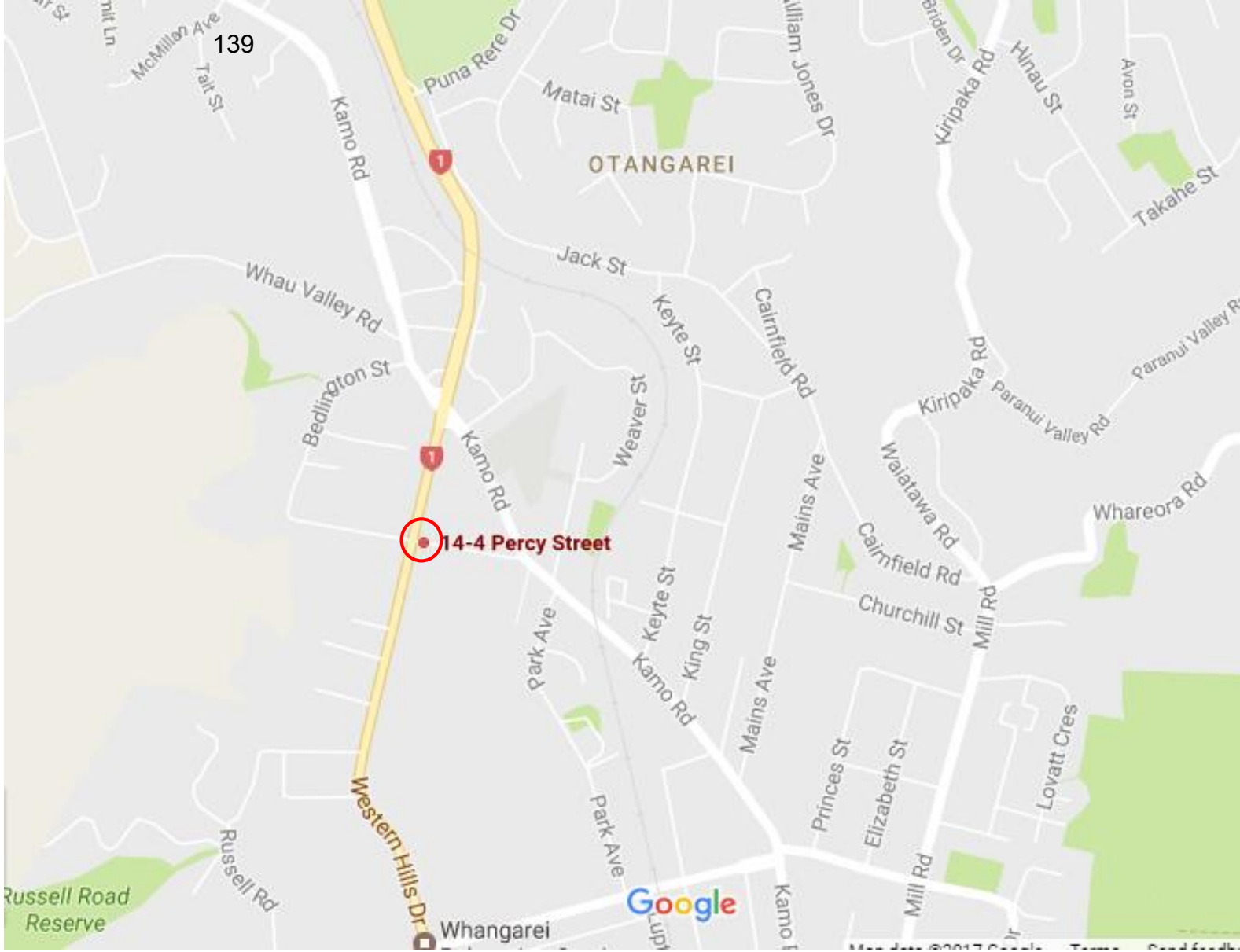
Insert new link road

Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment



Provide connection

Restrict traffic/ pedestrianize/ provide parking outside areas

Insert new link road

Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

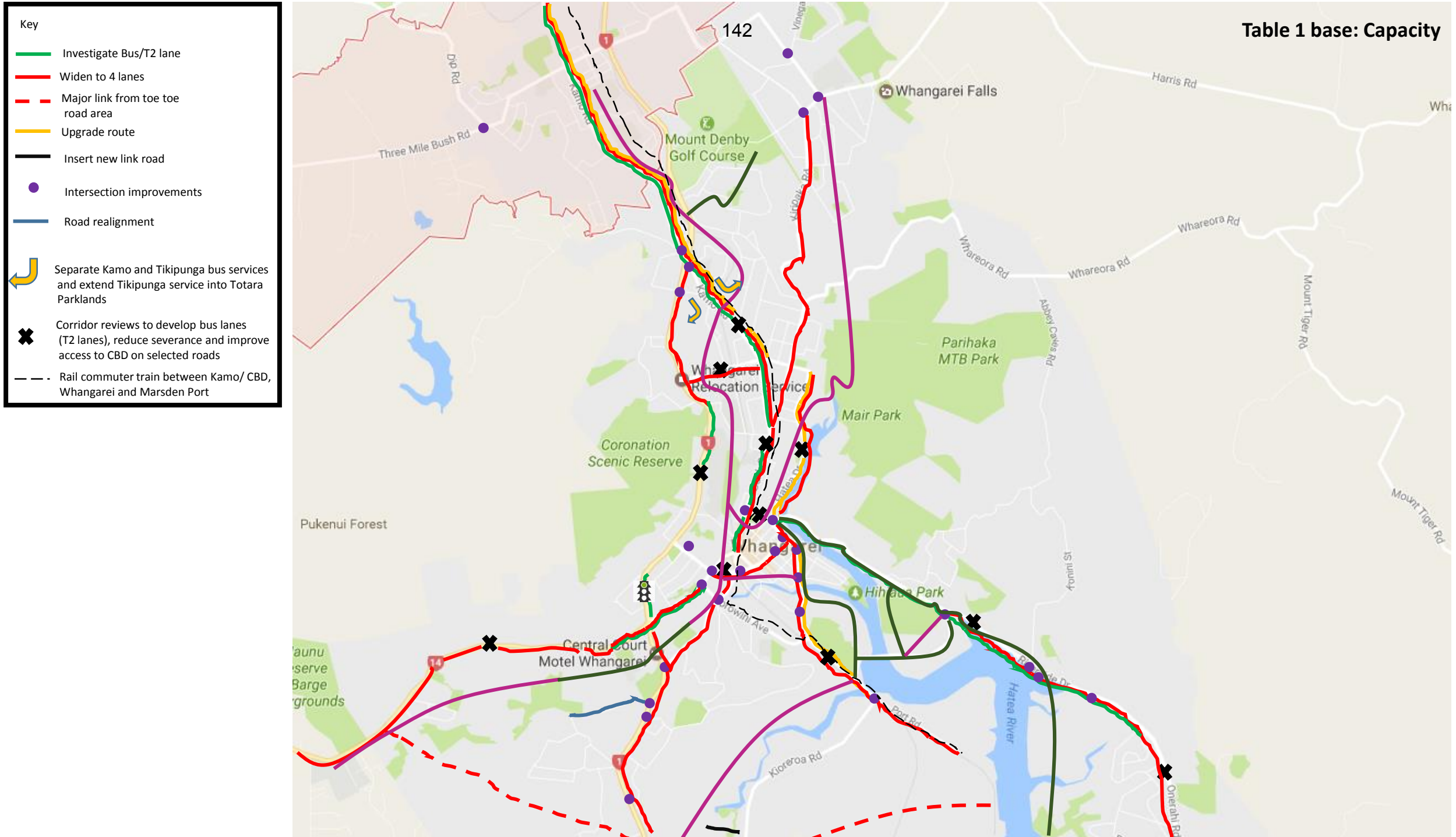
Road realignment

Network wide options

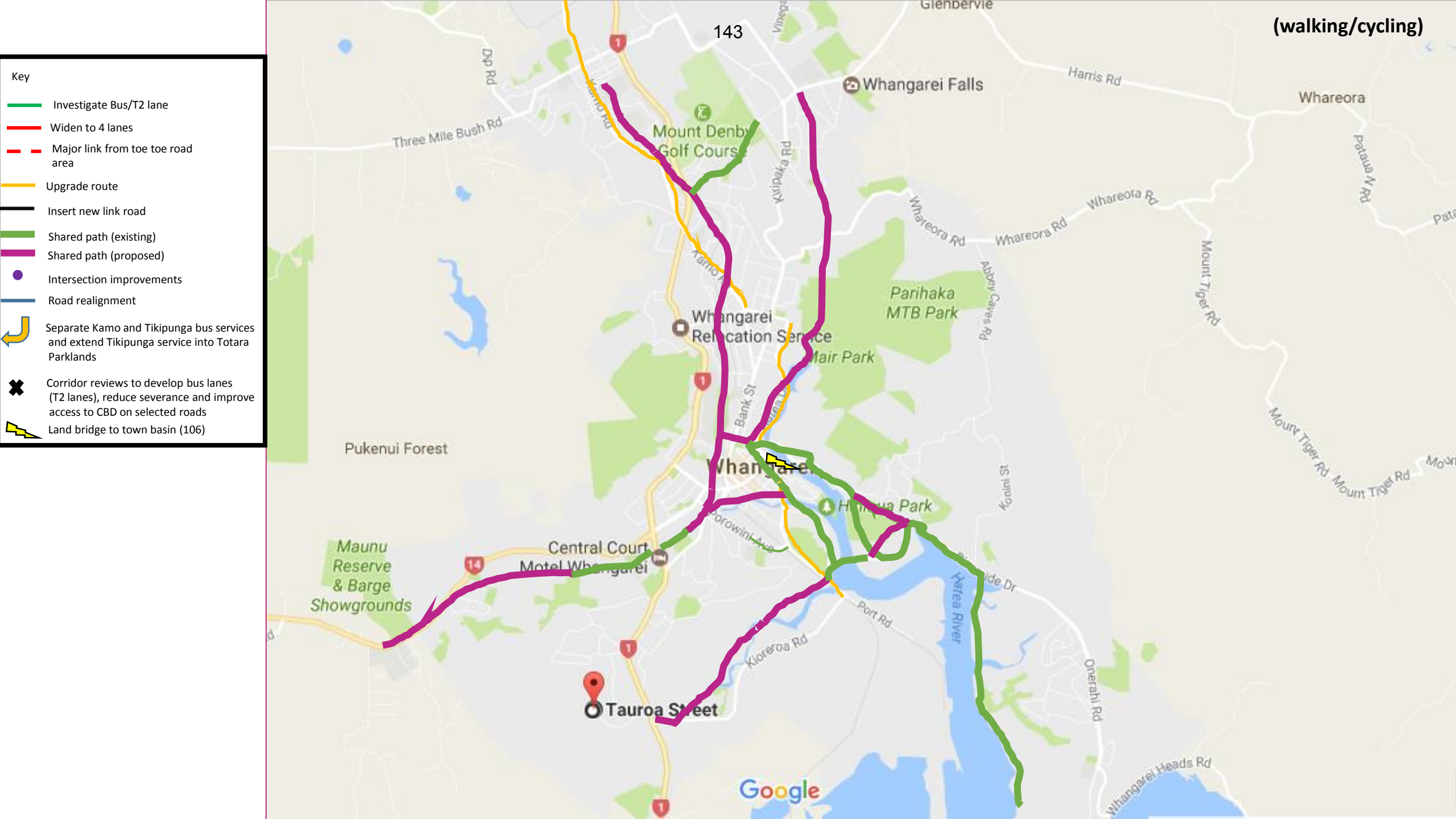
- Support the 500M 4-laning from Tarewa Road south to the Port Marsden highway (55)
- Install signalized puffin crossings and zebra crossings on arterial roads (103)
- Consider path extensions/ boardwalks to fill in missing paths (105)
- Audit key pedestrian routes for safety/ LOS (111)
- Complete the Kamo shared path including connections to schools (114)
- Separate cycle paths off the road for school kids (119)
- Provide cycle connections or on-road facilities at destinations – its not enough to just terminate facilities at a point in the CBD and let cyclists battle to their ultimate destination from there. (121)
- Implement safety improvements in conjunction with other upgrades at selected locations (130)
- Implement safety improvements identified in WDC's 3 yearly crash study process (132)
- Implement safety improvements on arterials within high/ medium-high risk (131)
- Investigate changing speed limits on arterial roads in conjunction with the NZTA speed management guide (133)
- Upgrade the lighting on Whangarei arterials to meet the requirements of AS/NZS 1158 (134)
- Underground power lines and remove power poles on arterial roads in city (135)
- No stopping markings around schools and at intersections to clear sight lines (136)
- Identify top 5% of roads by social cost and target project on these (137)
- Investigate adjusting existing T-intersections, turn restrictions or roundabouts (138)

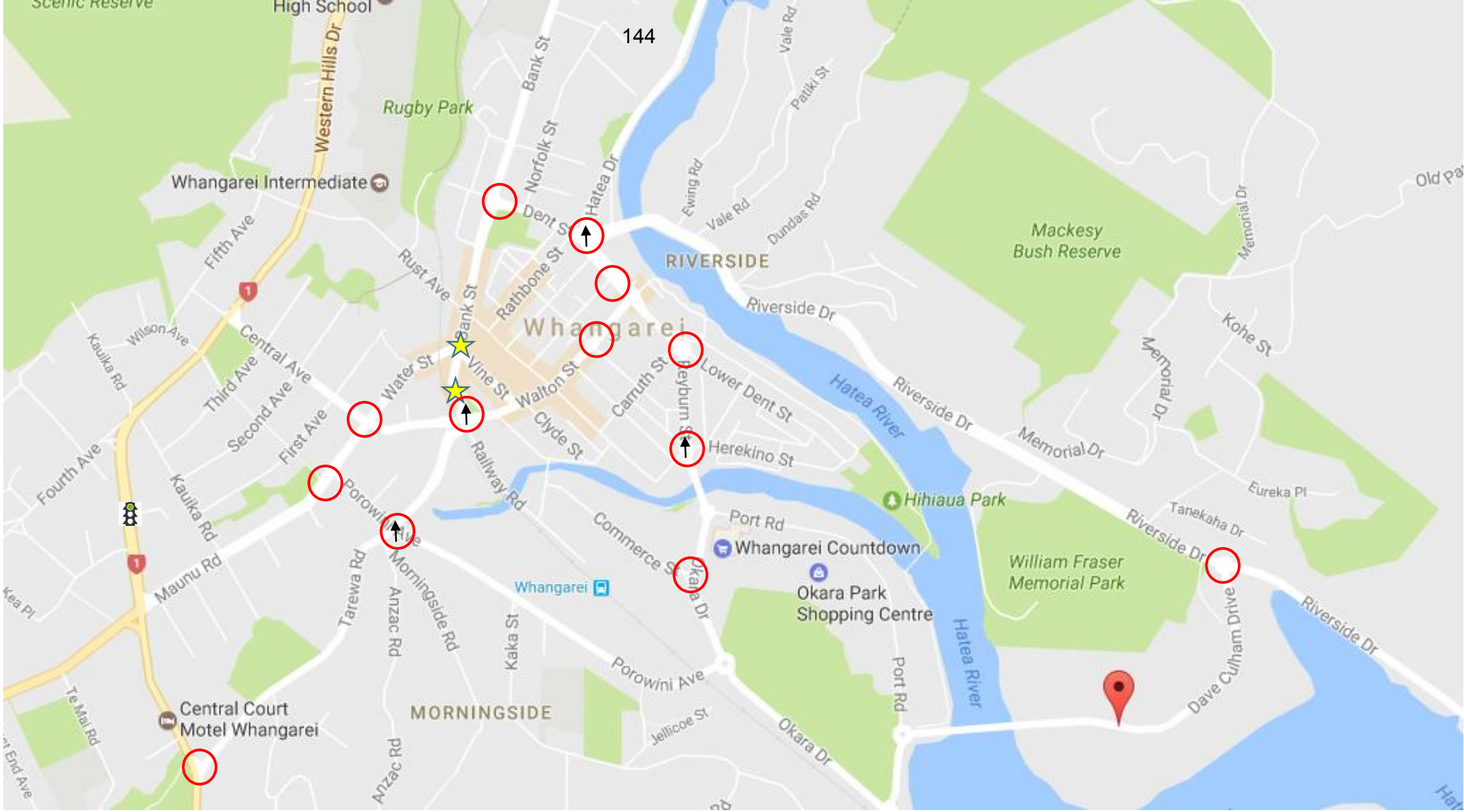
Appendix F – Stakeholder Programmes

Table 1 base: Capacity



(walking/cycling)





Insert new link road

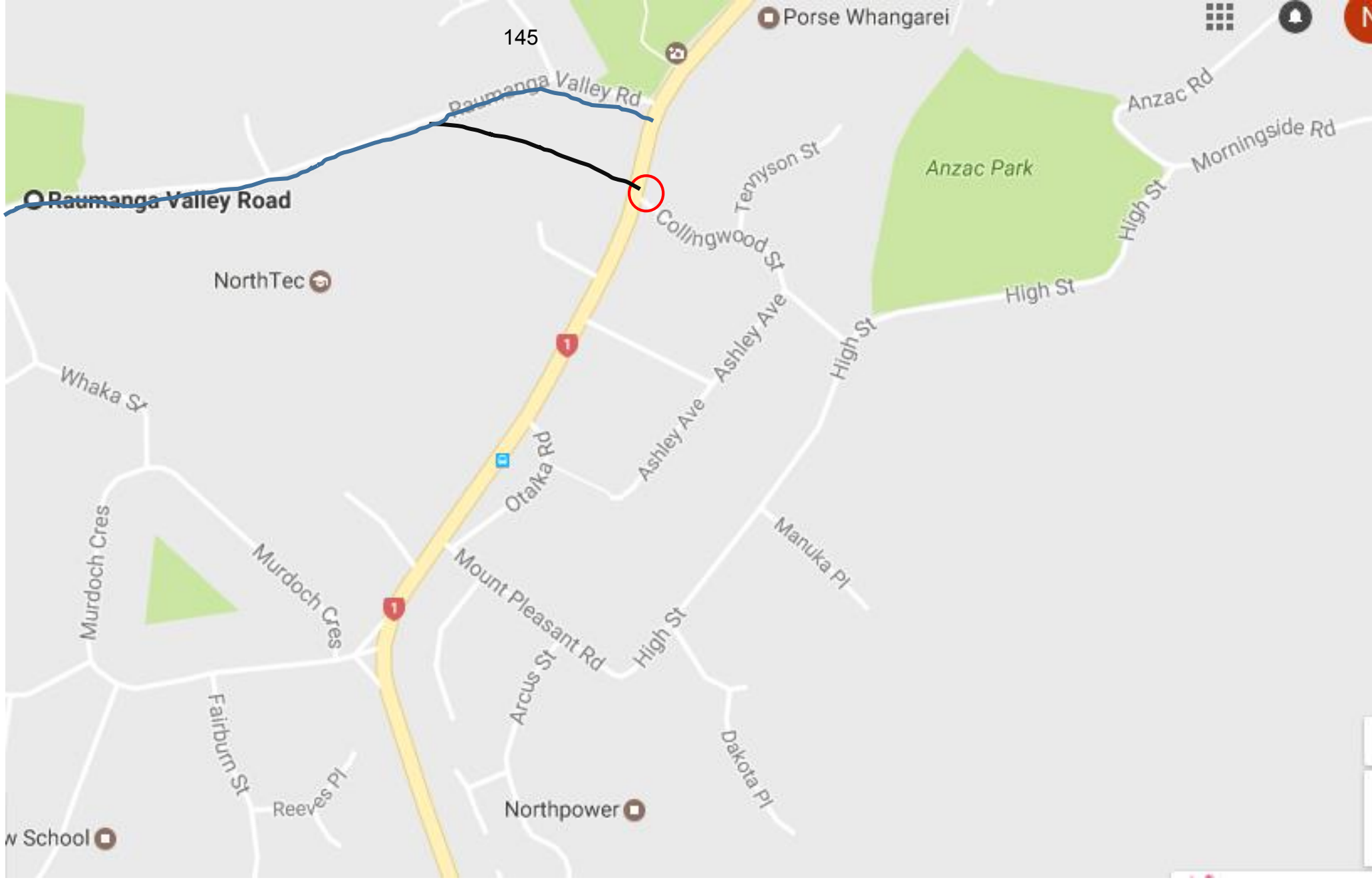
Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection



Insert new link road

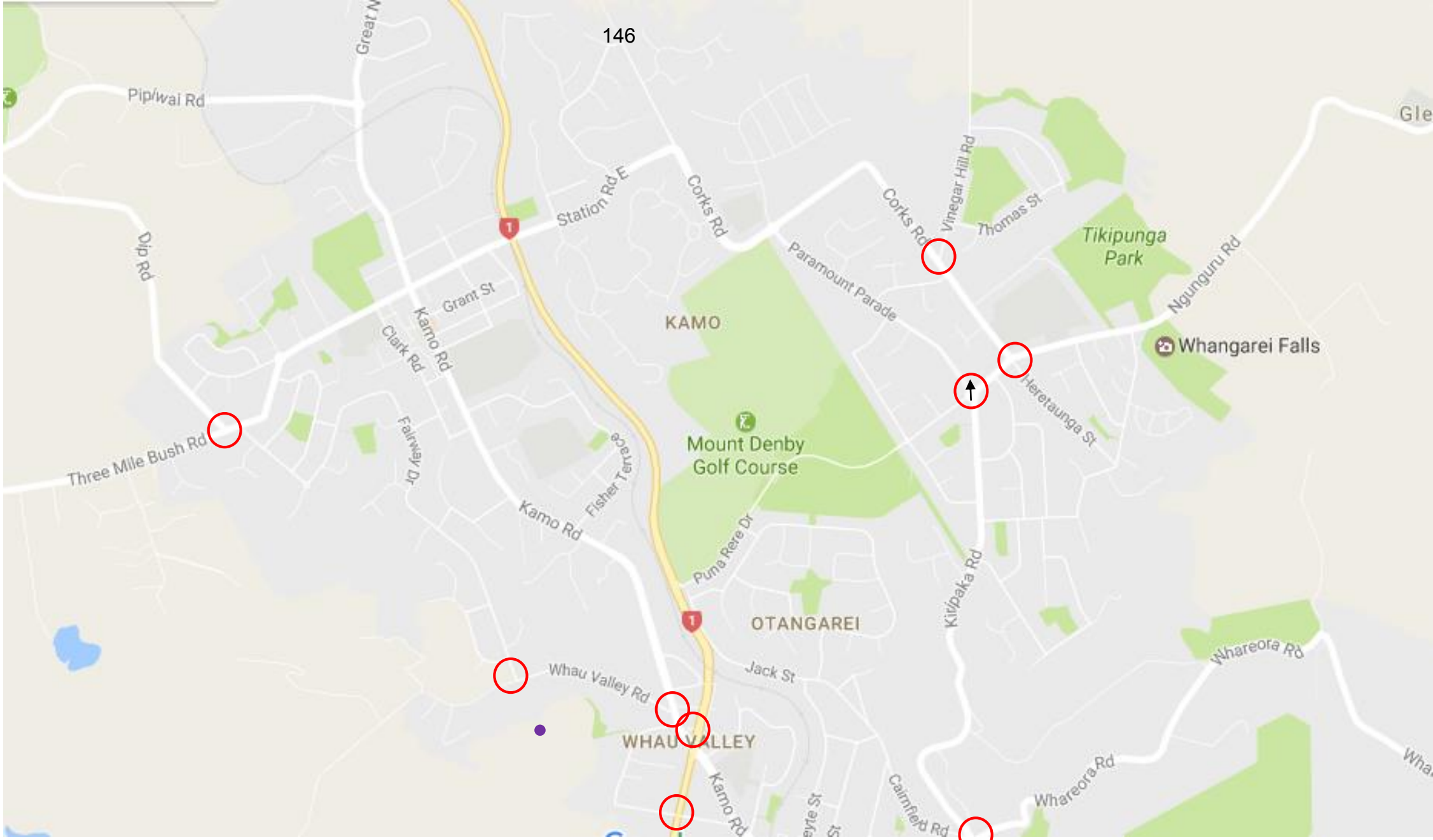
Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection



Insert new link road

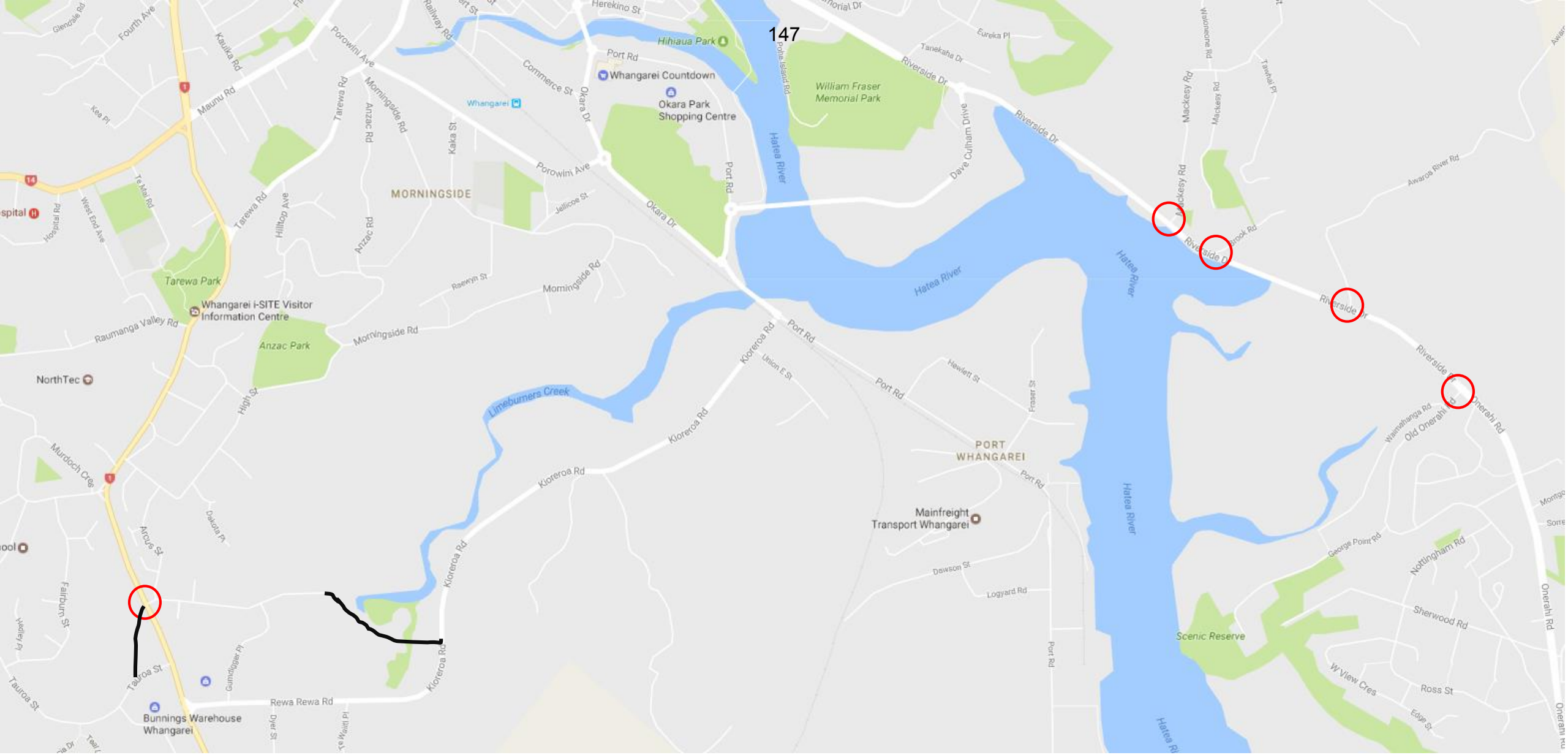
Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection



Insert new link road

Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection

Network wide options

Capacity

- Improve signal loops and controllers (1)
- Investigate new technologies for vehicle detection (2)
- Install CCTV and fibre connections to signals to allow remote operation (3)
- Upgrade SCATS central management system with potential management by ATOC (4)
- Tidal flows – Investigate shared lanes with restrictions for AM and PM (16)
- More frequent buses (15 minute buses in peak hours vs typically 30 – 60 minutes currently (21)
- Create a network of bus lanes (T2 lanes) on key arterial routes to give PT a journey time advantage over private Vehicles to encourage PT take up (37)
- Corridor reviews to develop bus lanes, reduce severance and improve access to CBD on selected arterials (43)
- Support the 500M 4-laning from Tarewa Rd south to Port Marsden highway (55)
- Construct new Port Nikau Highway to link from SH1 interchange to Port Nikau development (70)

PT

- Mobile phone app for bus locations and arrival times (27)
- Support free wi-fi (spark mobile hotspots) at the main bus terminals and other key tourist PT routes (28)
- VMS signs at bus stops to indicate the arrival time of the next bus (30)
- Holiday bus services to tourist destinations (ie tourist bus) (31)

Network wide options

- Strengthen parking strategy with pricing (87)
- Encourage modal shift – (eg travelling planning campaigns, LETSGO) (94)

Cycling and walking

- Consider path extensions/ boardwalks to fill in missing paths (105)
- Provide wider and smoother paths for ageing population and uptake of mobility scooters (110)
- Audit key pedestrian routes for safety/ LOS (111)
- Complete the Raumanga, Onerahi shared paths (113)
- Complete the Kamo path including connections to schools (114)
- Construct the Tikipunga shared path to tie in with Tikipunga to Tutukaka heartland ride (115)
- Construct a shared path to connect to the cycle path between Whangarei and Ruakaka (116)
- Install cycle facilities (e.g. secure bike racks, lockers, E bike charging in CBD, schools and parks) (117)
- Promote E bikes (118)
- Separate cycle paths off the road for school kids (119)
- Behaviour change to encourage active modal shift (120)
- Provide cycle connections or on-road facilities at destinations – its not enough to just terminate facilities at a point in the CBD and let cyclists battle to their ultimate destination from there (121)

Network wide options

- Provide bus fleet capable of allowing cyclists to use them (122)
- Ensure in planning rules that retail/ commercial development include for cycle use (123)
- Implement travel planning with schools and key businesses to encourage our change and promote uptake of walking and cycling (126)
- Provide cycle training in schools and get schools involved in walking and cycling (127)

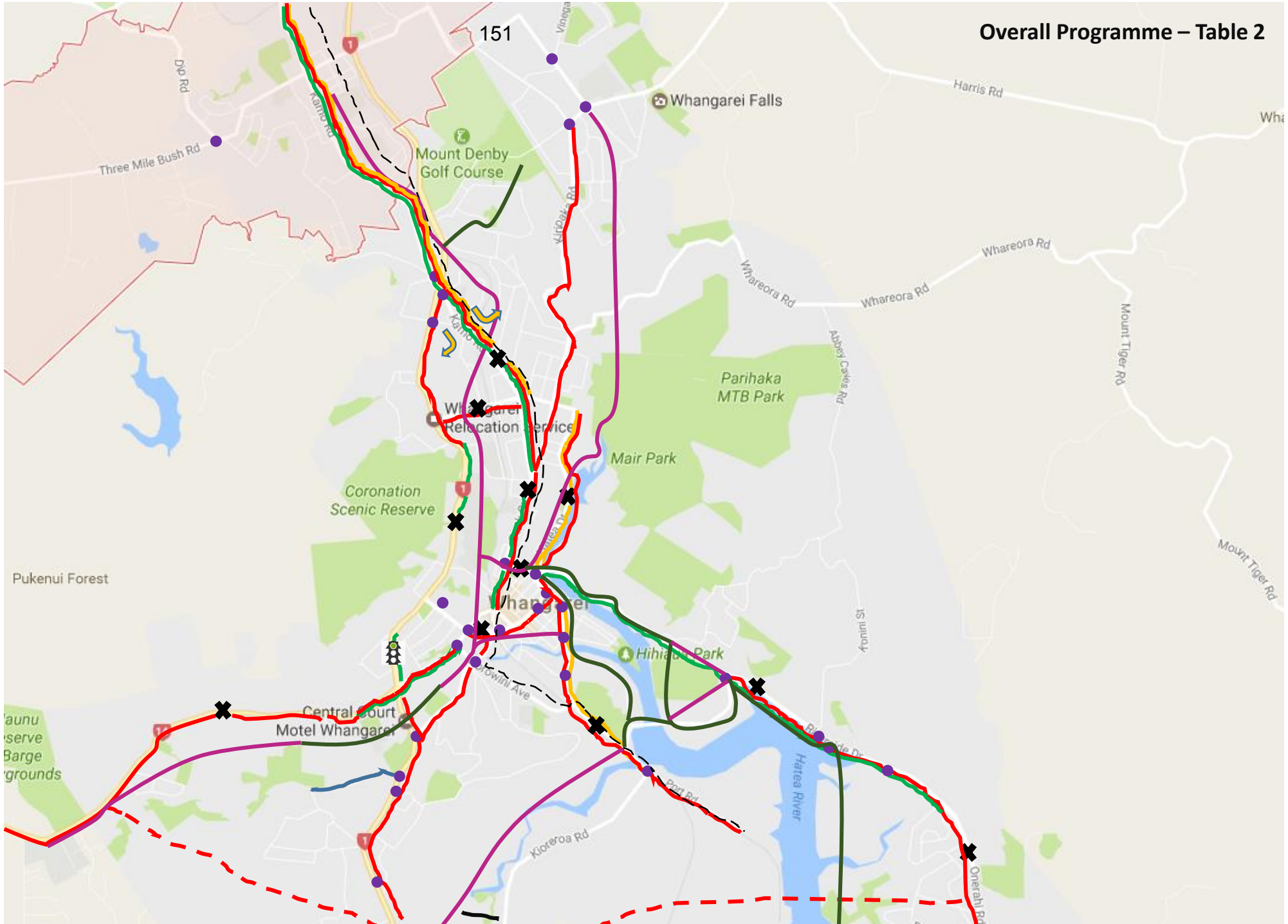
Safety

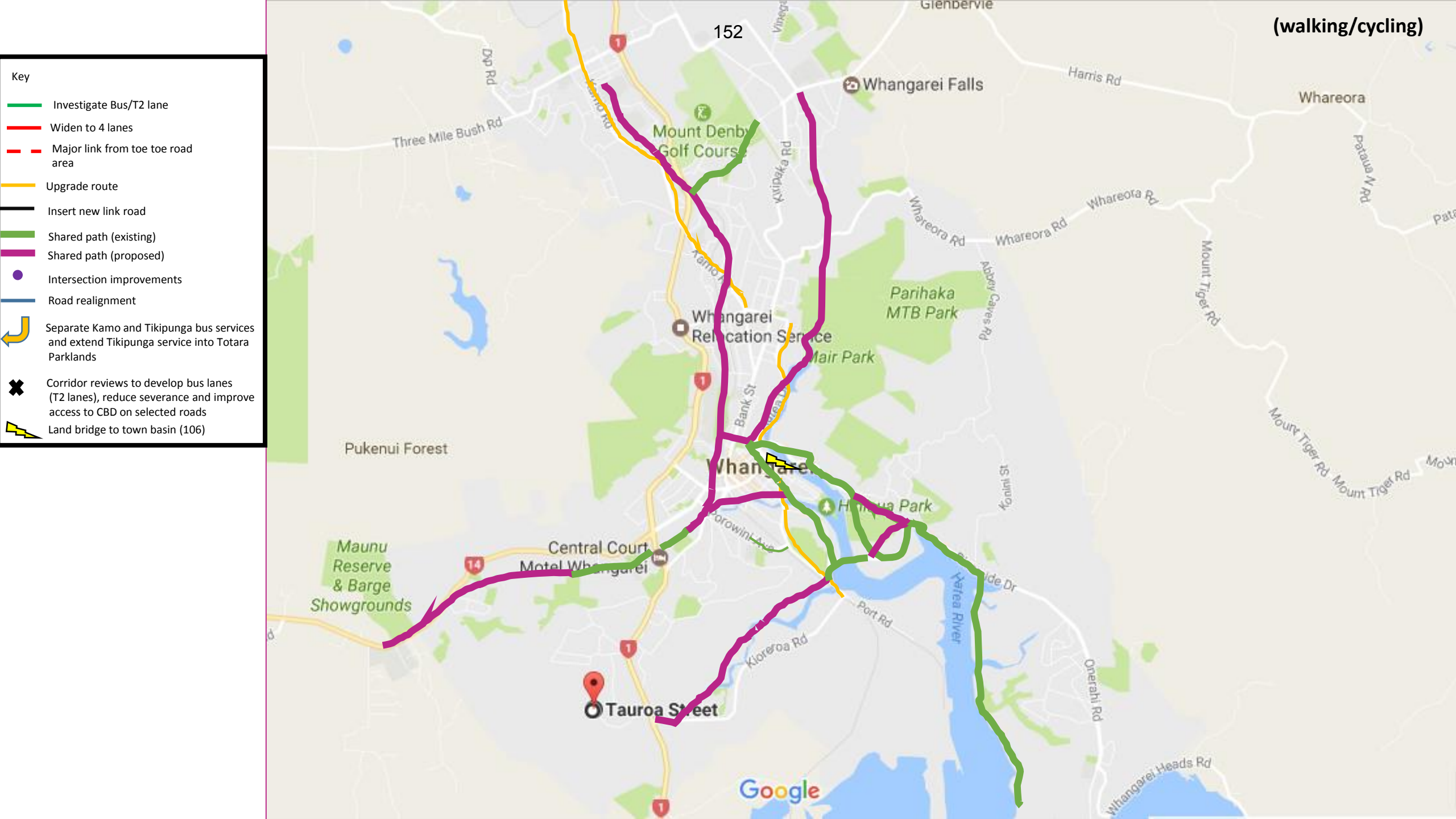
- Implement safety improvements in conjunction with other upgrades at selected locations (130)
- Implement safety improvements on arterials within high/medium – high risk (131)
- Implement safety improvements identified in WDC's 3 yearly crash study process (132)
- Investigate changing speed limits on arterial roads in conjunction with the NZTA speed management guide (133)
- Upgrade the lighting on Whangarei arterials to meet the requirements of AS/NZS 1158 (134)
- Identify top 5% of roads by social cost and target project on these (137)

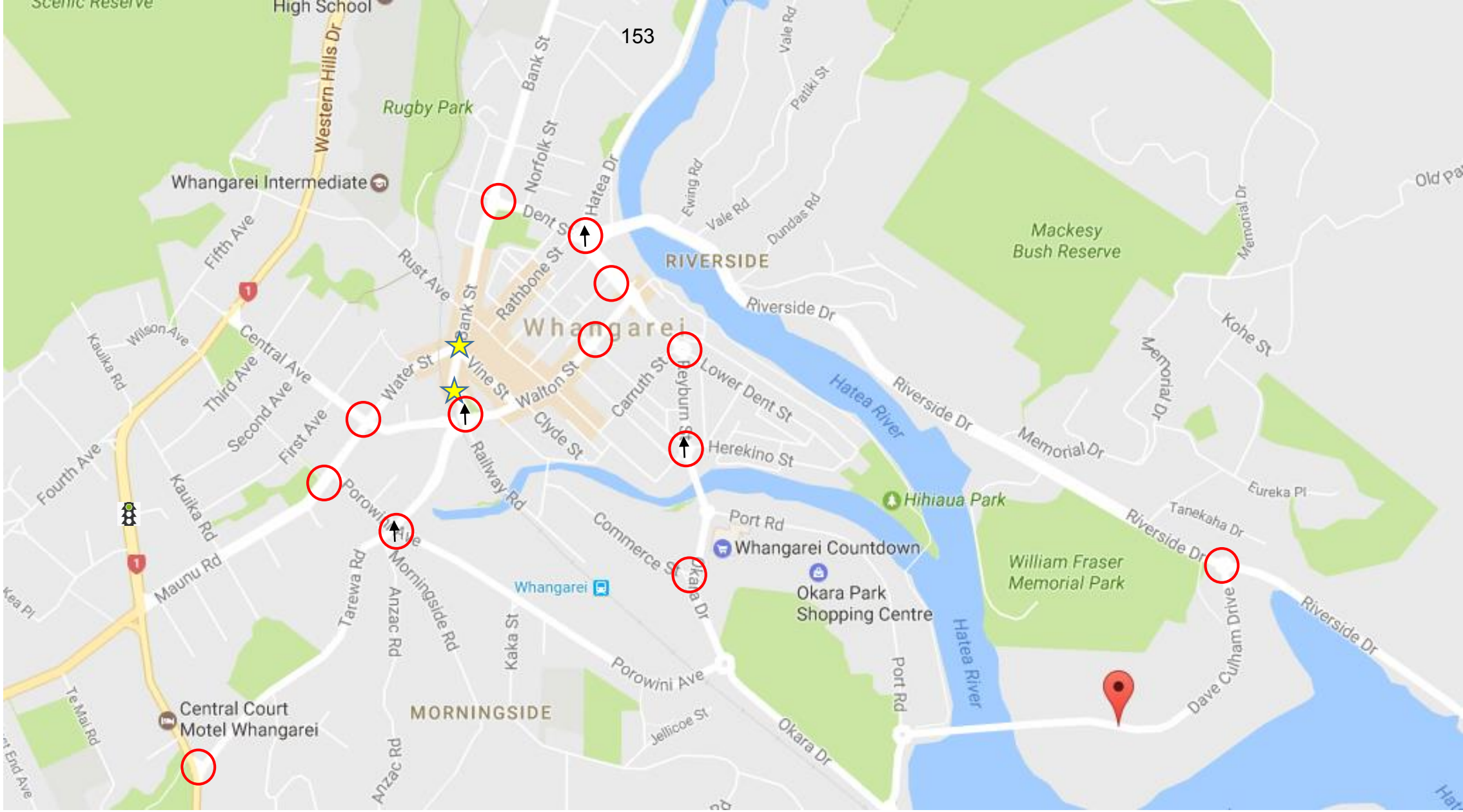
Overall Programme – Table 2

Key

- Investigate Bus/T2 lane
- Widen to 4 lanes
- Major link from toe toe road area
- Upgrade route
- Insert new link road
- Intersection improvements
- Road realignment
- Separate Kamo and Tikipunga bus services and extend Tikipunga service into Totara Parklands
- Corridor reviews to develop bus lanes (T2 lanes), reduce severance and improve access to CBD on selected roads
- Rail commuter train between Kamo/ CBD, Whangarei and Marsden Port
- Shared path (existing)
- Shared path (proposed)




Key
Investigate Bus/T2 lane
Widen to 4 lanes
Major link from toe toe road area
Upgrade route
Insert new link road
Shared path (existing)
Shared path (proposed)
Intersection improvements
Road realignment
Separate Kamo and Tikipunga bus services and extend Tikipunga service into Totara Parklands
Corridor reviews to develop bus lanes (T2 lanes), reduce severance and improve access to CBD on selected roads
Land bridge to town basin (106)
(walking/cycling)
Whangarei Falls
Harris Rd
Whareora
Three Mile Bush Rd
Mount Denby Golf Course
Kamo Rd
Kiripaka Rd
Whareora Rd
Parihaka MTB Park
Abbey Caves Rd
Mount Tiger Rd
Pukenui Forest
Bank St
Maunu Reserve & Barge Showgrounds
Central Court Motel
Kioreroa Rd
Port Rd
Hātea River
Onerahi Rd
Tauroa Street
Whangarei Heads Rd
Google



Insert new link road

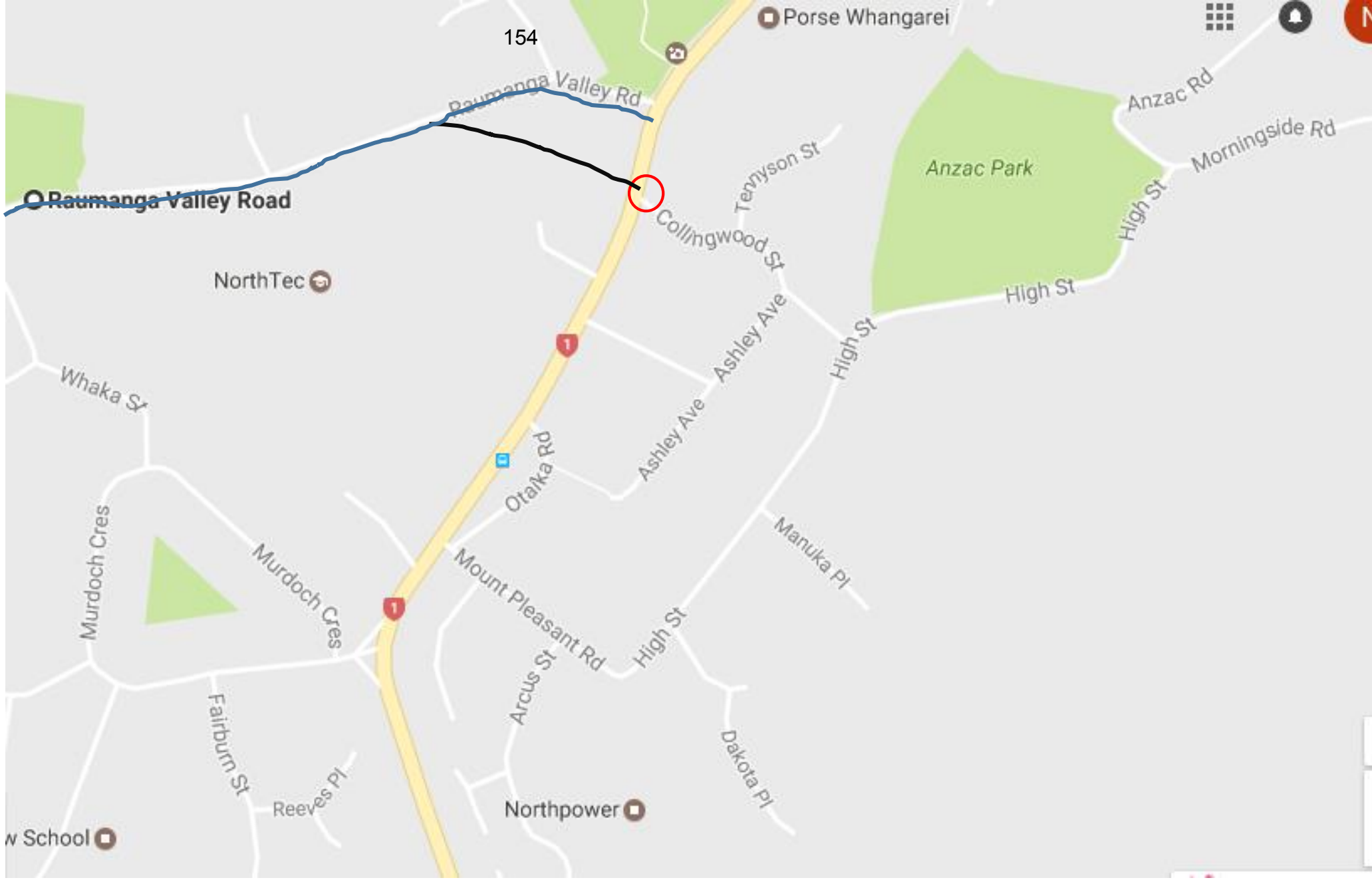
Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection



Insert new link road

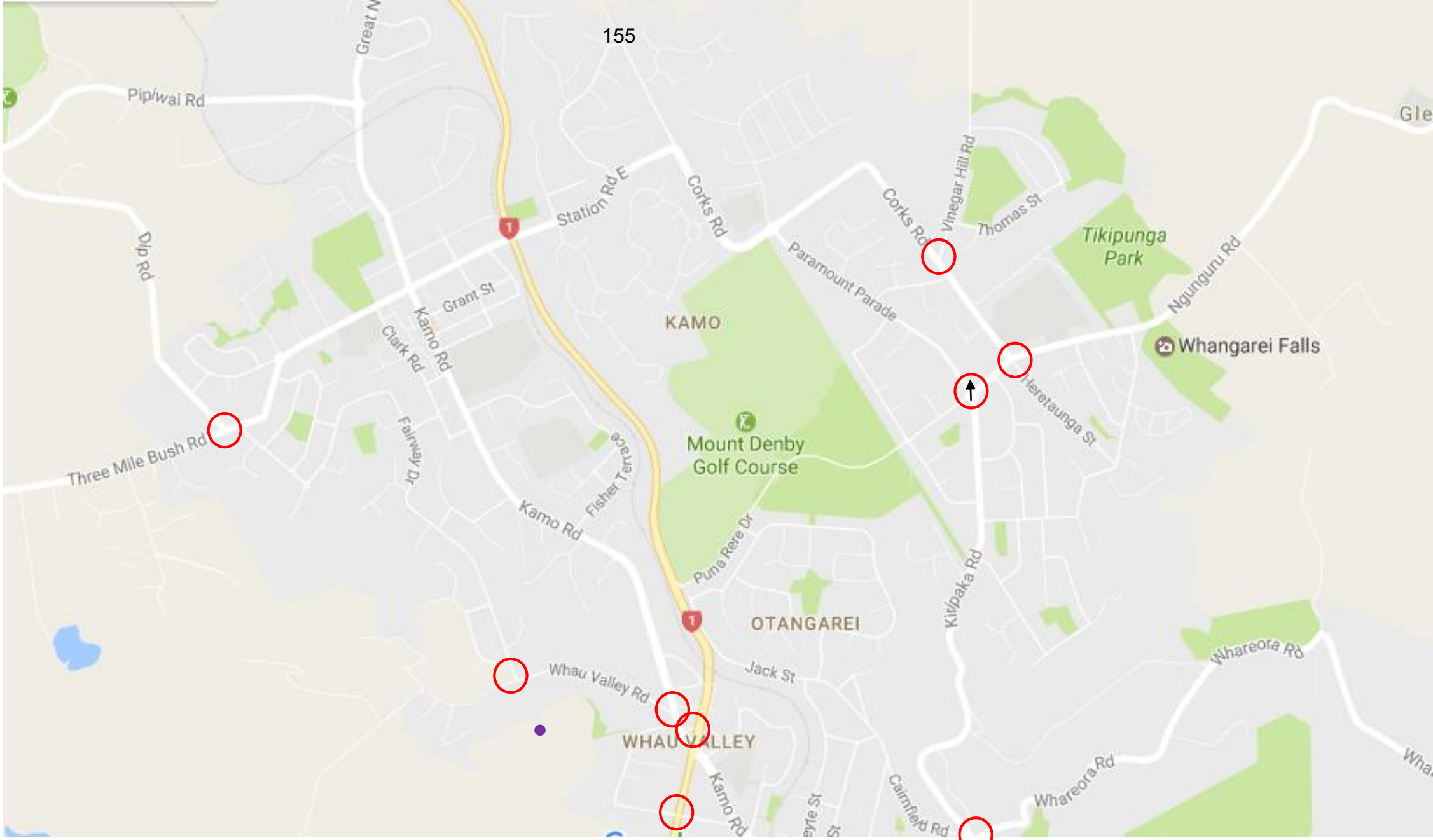
Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection



Insert new link road

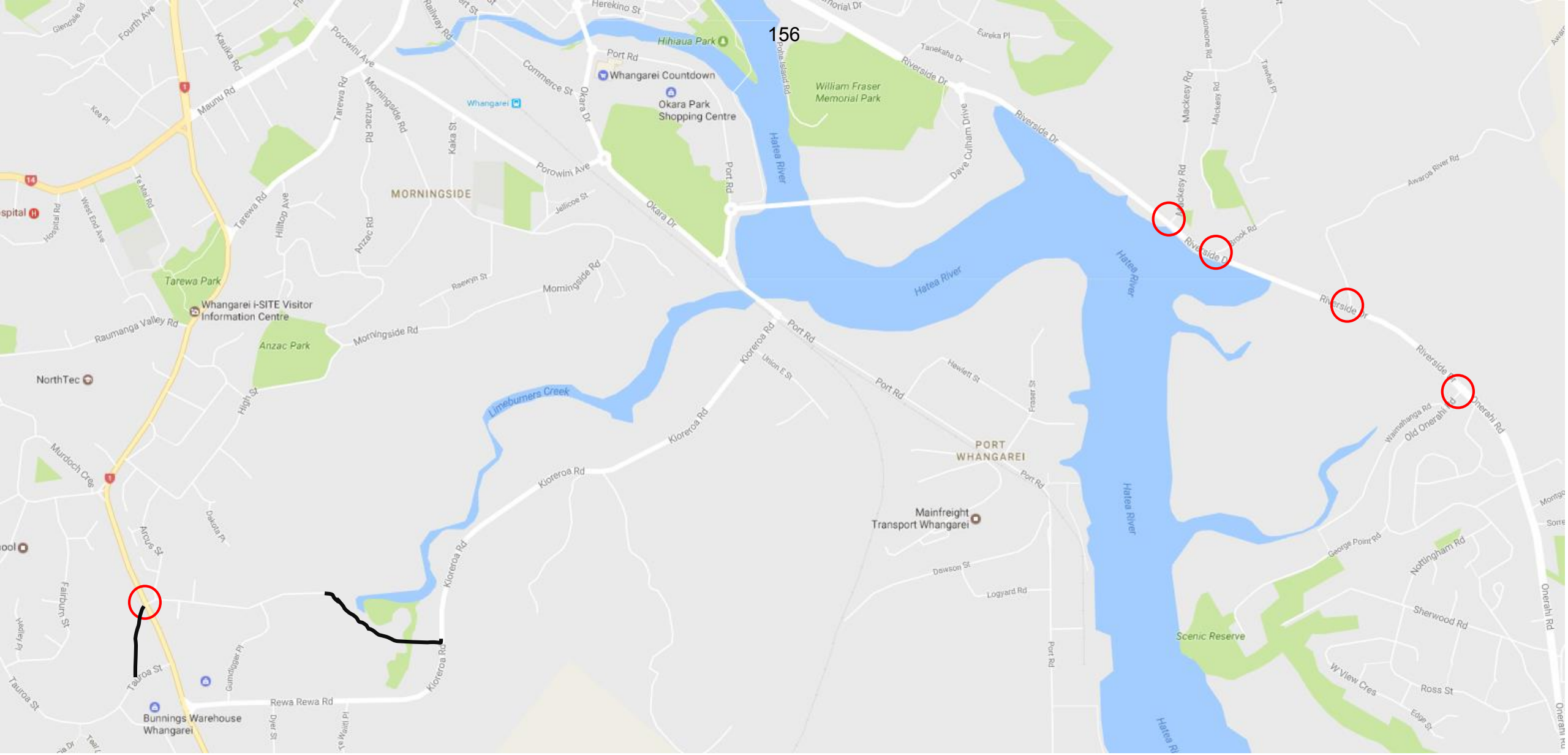
Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection



Insert new link road

Investigate other intersection controls (eg roundabout) and/or closure/turn restrictions

Intersection upgrade.

Improve capacity of intersection

Road realignment

Signalize intersection

Network wide options

- Improve signal loops and controllers (1)
- Investigate new technologies for vehicle detection (2)
- Install CCTV and fibre connections to signals to allow remote operation (3)
- Upgrade SCATS central management system with potential management by ATOC (4)
- Tidal flows – Investigate shared lanes with restrictions for AM and PM (16)
- More frequent buses (15 minute buses in peak hours vs typically 30 – 60 minutes currently (21)
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- Corridor reviews to develop bus lanes, reduce severance and improve access to CBD on selected arterials (43)
- Support the 500M 4-laning from Tarewa Rd south to Port Marsden highway (55)
- Consider a series of roundabouts (with ramp metering if needed) along Hatea/ Reyburn/ Okara route) (68)
- Construct new Port Nikau Highway to link from SH1 interchange to Port Nikau development (70)
- Strengthen parking strategy with pricing (87)

Network wide options

Cycling and walking

- Support existing inner city development (8)
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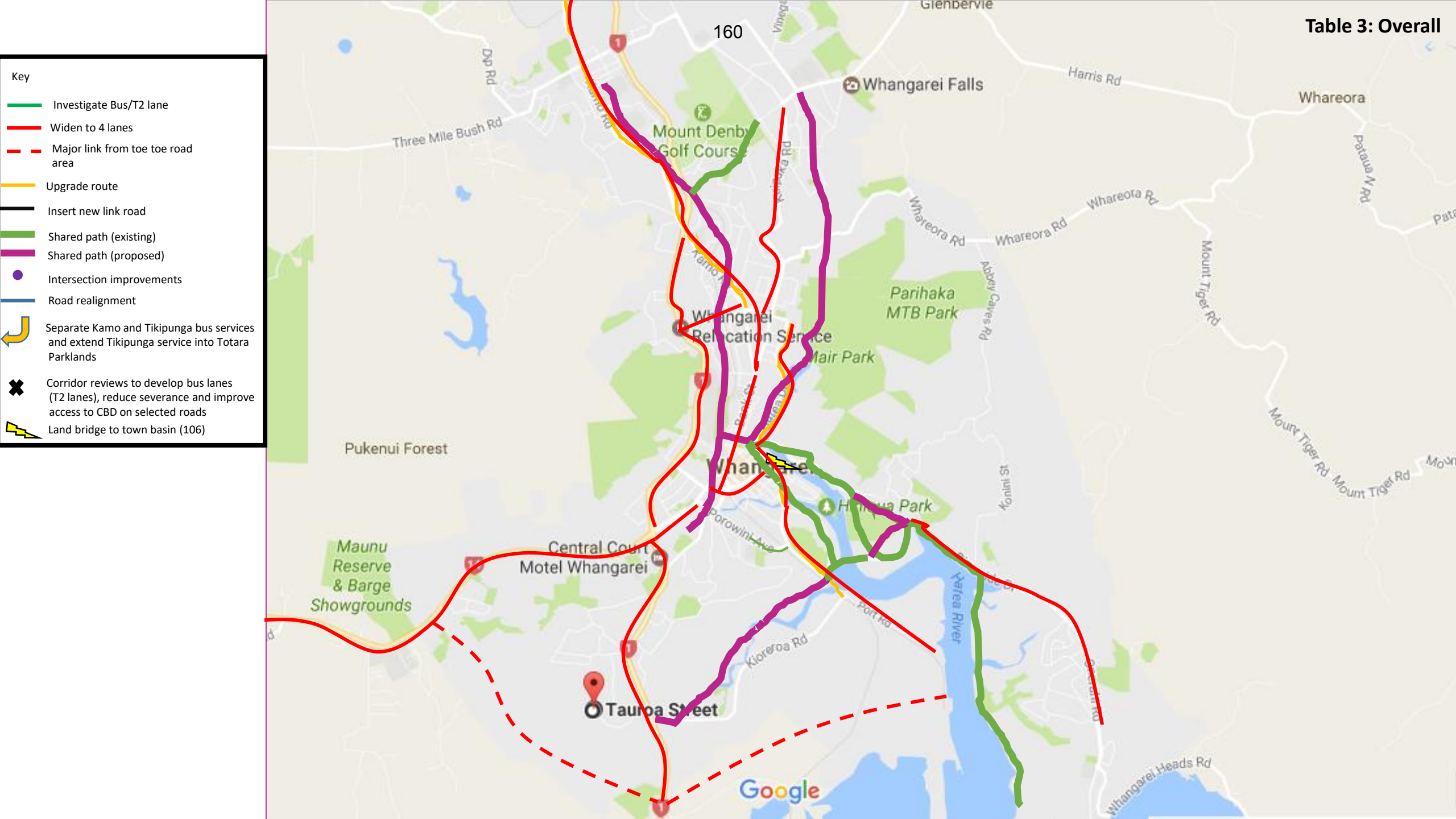
- Consider path extensions/ boardwalks to fill in missing paths (105)
- Provide facilities/ clues to direct pedestrians to safe locations and raise driver awareness (if puffins or zebras not warranted) (104)
- Continue the pedestrianization and beautification of the CBD plus linking to residential areas (107)
- Upgrade the lighting and cameras in the CBD to improve night-time safety/ security for pedestrians (108)
- Upgrade lighting to acceptable levels in local/ collector streets (109)
- Provide wider and smoother paths for ageing population and uptake of mobility scooters (110)
- Audit key pedestrian routes for safety/ LOS (111)
- Complete the Raumanga, Onerahi shared paths (113)
- Complete the Kamo shared path including connections to schools (114)

Network wide options

- Construct the Tikipunga shared path to tie in with Tikipunga to Tutukaka heartland ride (115)
- Construct a shared path to connect to the cycle path between Whangarei and Ruakaka (116)
- Install cycle facilities (e.g. secure bike racks, lockers, E bike charging in CBD, schools and parks) (117)
- Promote E bikes (118)
- Separate cycle paths off the road for school kids (119)
- Behaviour change to encourage active modal shift (120)
- Provide cycle connections or on-road facilities at destinations – its not enough to just terminate facilities at a point in the CBD and let cyclists battle to their ultimate destination from there. (121)
- Provide bus fleet capable of allowing cyclist to use them (122)
- Ensure in planning rules that retail/ commercial developments include for cycle use (123)
- Implement travel planning with schools and key businesses to encourage our change and promote Uptake if walking and cycling (126)
- Provide cycle training in schools and get schools involved in walking and cycling (127)

Table 3: Overall



Network wide options

- Support existing inner city development (8)
- Promote central living in CBD and expand densification on zoning (40)
- Improve connection between the city and the Town basin (target key routes) (69)
- Install signalized puffin crossings and zebra crossings on arterial roads (103)
- Consider path extensions/ boardwalks to fill in missing paths (105)
- Provide facilities/ clues to direct pedestrians to safe locations and raise driver awareness (if puffins or zebras not warranted) (104)
- Continue the pedestrianization and beautification of the CBD plus linking to residential areas (107)
- Upgrade the lighting and cameras in the CBD to improve night-time safety/ security for pedestrians (108)
- Upgrade lighting to acceptable levels in local/ collector streets (109)
- Provide wider and smoother paths for ageing population and uptake of mobility scooters (110)
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- Ensure in planning rules that retail/ commercial developments include for cycle use (123)
- Implement travel planning with schools and key businesses to encourage our change and promote Uptake if walking and cycling (126)
- Provide cycle training in schools and get schools involved in walking and cycling (127)

Network wide options

Capacity

- Construct new Port Nikau Highway to link from SH1 interchange to Port Nikau development (70)
- Support the 500M 4-laning from Tarewa Rd south to Port Marsden highway (55)
- Corridor reviews to develop bus lanes, reduce severance and improve access to CBD on selected arterials (43)
- Create a network of bus lanes (T2 lanes) on key arterial routes (37)
- Strengthen parking strategy with pricing (87)

PT

- Increase frequency of buses (21)
- VMS signs at bus stops to indicate the arrival time of the next bus. (29)
- Mobile phone app for bus locations and arrival times (27)

New options

- Promote car share
- Remove parking in peak periods

Appendix G – Detailed Programme Assessment

Whangarei Transportation Network Strategy		PROGRAMMES						
Programme Business Case								
	DoMin	Programme 1: Capacity	Programme 2: PT	Programme 3: Walking/ cycling	Programme 4: Safety	Programme 5: Stakeholder 1	Programme 6: Stakeholder 2	Programme 7: Stakeholder 3
	0	P1	P2	P3	P4	P5	P6	P7
Customers								
Investment Objectives								
Objective 1 - Ensure capacity of transport system meets forecast growth aspirations		+++	++	+	+	+++	+++	++
Objective 2 - Increase PT mode share on transport system		++	+++	+	0	+++	+++	++
Objective 3 - Increase district wide walking and cycling mode shares on transport network		+	+	+++	+	+++	+++	++
Objective 4 - reduce deaths and serious injuries		++	++	+	+++	+++	+	+
IMPLEMENTABILITY								
Feasibility								
How straightforward is it to implement this alternative / option, including social, cultural and environmental interventions (eg additional planting)?		--	--	-	-	--	--	--
Are any novel/untried/leading edge technologies involved?		--	--	-	-	--	--	-
Are there any technical risks involved in developing or implementing this option?		--	--	-	-	--	--	-
What is the level of complexity in gaining statutory approvals and how significant are the costs of mitigation?		--	--	--	-	--	--	--
Is a new designation or alteration required?		--	--	--	-	--	--	--
Could the option include activities prohibited under the policies and rules of the District or Regional Plan?		0	0	0	0	0	0	0
Are there significant hazards associated with the option which pose a H&S risk in design, build and final product?		0	0	0	0	0	0	0
Can safety be developed into the design process to controll it?		0	0	0	0	0	0	0
Affordability								
Are there any factors that might affect the ability to operate or maintain the option over its projected life without major additional costs?		-	--	0	0	--	--	-
Can capital costs of the option be funded (e.g from the NLTP, NEA, TIF)?		0	-	0	0	-	-	0
What is the likely BCR?		+	0	++	+++	+	+	++
Stakeholders/Customers								
How acceptable is the option?		0	0	0	0	0	0	0
Are there real or anticipated objections from the community or stakeholders?		0	0	0	0	0	0	0
ASSESSMENT OF EFFECTS								
Safety								
To what extent will the option enhance safety for different types of transport users?		++	++	+	+++	+++	++	+
What is the impact on personal safety / security?		++	++	+	+++	++	++	+
What is the impact on fatal / serious injuries?		++	++	+	+++	+++	++	+
Cultural and Historic Heritage								
Does the ESR screen indicate the option could impact on cultural and iwi values?		--	-	-	-	--	--	-
Built Environment								
To what extent does the option impact on the built environment, including urban design, landscape character and visual amenity		--	--	+	-	--	--	-
Natural Environment								
To what extent does the option impact on the natural environment as described in the ESR screen?		--	-	--	-	--	--	--
Social								
Does ESR screen indicate the option could affect accessibility for the public, including access to jobs, communities, shops, services and other facilities?		++	++	+	0	+++	+++	++
Does ESR screen indicate the option could result in significant risk to human health related to noise, air quality or contaminated land?		--	0	+	-	-	-	0
How does the option impact on property?		--	--	-	-	--	--	--
Will additional property purchases be required?		---	-	-	-	--	--	-
Are there property risks to delivery and can they be effectively managed?		-	-	-	-	-	-	-
Is there any Maori land required as part of the project?		-	0	0	0	-	-	-
Does the option affect other infrastructure providers (will agreements need to be entered into with service providers)?		--	--	-	-	--	--	-
System Integration								
Are there any wider transport system effects?		+	++	+	+	++	++	+
Does ESR screen indicate Urban and Landscape design impacts?		+	+	+	0	+	+	+
How well does the option meet the forecast transport demand?		+++	++	+	+	+++	+++	+
Economy								
How does the option impact economic growth?		+++	++	+	+	+++	+++	++
How well does the option enhance the development potential of adjacent land / attract new jobs / help existing businesses?		++	++	++	+	++	++	++
Programme Ranking	0	7	4	3	5	1	2	6

Appendix H – Economics Note

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28 September 2017

WHANGAREI DISTRICT COUNCIL PBC BENEFITS

This note summarizes the process for analysing the modelled programme outputs, and determining the associated travel time benefits, vehicle operating and congestion benefits and accident benefits. This note should be read in conjunction with the WDC Transport Strategy Modelling specification note dated 7th July 2017 (referred to as the 'modelling note').

1 INTRODUCTION

The Whangarei Transportation Model (WTM) has been used to assist in analysing the programme benefits of the WDC Programme business case (PBC). Modelling of three scenarios, detailed within the modelling note, have been considered for the years 2013, 2023, 2033 and 2043. The three scenarios are as listed:

- Increase capacity (IC)
- Mode share (MS)
- Increase capacity and mode share (IC + MS)

The above tests were developed to give an indication of the economic benefit of each of the programmes identified. Further detail regarding the options included in each scenario is provided in the modelling note. Using the model output factors for each scenario, calculations in accordance with the Economic Evaluation Manual (EEM) were conducted to determine the associated travel time (TT), vehicle operating cost (VOC) and Accident cost benefits (ACC). We report as follows:

2 DISCOUNTING

Transport benefits were evaluated for a period of 40 years using a 6% discount factor. All three programmes have been assessed with consistent assumptions around construction and benefit realisation:

- Time zero: 2020
- Construction Start: 2021
- Construction end: 2025
- Benefits realized: 2025 onwards

Benefits were calculated for each of the modelled years (2013, 2023, 2033 and 2043) and anything in between was determined on a pro rata basis.

The above proportions were applied to respective EEM values of travel time for each road type to determine a blended rate of **$18.94 dollars/ hour**. The total travel time cost for a year, was calculated for each scenario and modelled year

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3 CHALLENGES

There are a number of challenges with calculating the exact economic benefits of the programme as outlined below:

- There are a large number of projects that make up the programme and identifying individual benefits is difficult. We have looked at the benefits and costs at the programme level.
- The transport model is only for three future time periods (2023,2033 and 2043) and the full PBC programme was modelled in each scenario. This is an approximation as in reality the programme will be delivered over the period of the programme.
- As with the benefits, the timing of costs is not known and therefore the same issues as the benefits applies. To match the benefits approach the costs were also assumed all at once.
- The transport model only models traffic and therefore the programmes that altered the mode split reduced the traffic (and subsequent congestion), however the corresponding PT travel time for those journeys transferred to PT are not modelled
- The exact form of the intersection upgrades has not known. These have been modelled as roundabouts. This could be the implemented form or other options may be implemented. This has the effect of increasing delays on some movements (ie those movements that are currently free flowing). It is considered that this is understating the benefits.

How these challenges were dealt with are summarised in

Challenge	Methodology	Likely impact
Large number of projects	Economic benefits will be calculated at a programme level, rather than a specific activity level.	Neutral
Benefit timing	Likely to overstate the benefits somewhat as project benefits coming on earlier than needed potentially, however will also highlight reduced benefits as implemented before needed, overall considered to result in overstatement of benefits potentially.	Overstate benefits
Cost timing	As with benefits discussion above, costs likely to be overstated as coming on earlier than needed and therefore discounted cost higher. Results in costs being overstated. Somewhat cancels out the above benefits over statement. Important that benefit and cost approach consistent.	Overstate costs
Mode Split	Has potential to overstate benefits substantially as not including same demand. Will address this by reducing benefits in proportion to proportion of benefits related to congestion (not PT mode change) calculated at 55% for scenario MS and 50% for MS+IC.	Overstate benefits
Intersection upgrades	The best form of intersection improvement will be undertaken after analysing all the options and ensuring the project is economically efficient. The roundabout assessment is likely to understate the benefits as this delays all vehicles. This will be tempered somewhat by using the peak period model analysis only when the congestion is greater and therefore this impact is reduced somewhat.	Understate benefits

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4 TRAVEL TIME BENEFITS

4.1 INPUT FACTORS

The travel time benefits were calculated based on the following factors;

- Total vehicle minutes (in-motion and delay) for AMP and PMP, for each year modelled
- Hourly to daily flow conversion: 5 x AMP, 5 x PMP
- Number of working days in a year: 320 days (used to take account of holiday and weekend traffic)
- EEM Update factors A12.3 (TTC savings): 1.45

As the model covers both the urban and rural road network in the district, a blended value of travel time cost was used based on the split between urban and rural roads. The split of urban and rural roads was based on the split observed in the model and is outlined below:

- 30% Urban arterial road;
- 30% Urban other;
- 20% Rural strategic; and
- 20% rural other.

The vehicle operating cost and congestion cost are provided as outputs to the TRACKS model. Costs for each model run were annualised using the following factors;

- Hourly to daily flow conversion: 5 x AMP, 5 x PMP
- Number of working days in a year: 320 days
- EEM Update factors A12.3 (VOC savings): 0.98

A similar trend to the travel time cost benefits was observed here.

5 ACCIDENT COSTS BENEFITS

Crash data was obtained from New Zealand Transport Agency (NZTA) Crash analysis system (CAS) of all crashes reported within the Whangarei District network for a five-year period (2012 – 2016). The number of fatal, serious and injury crashes were obtained from the CAS database which were further split into crashes occurring within a rural and urban environment.

Crash reduction factors were estimated based on the location within the city, and are outlined in Table 1. The 30% accident reduction (for the scenarios with mode shift) is consistent with the targeted reduction from the programmes safety investment objective.

Table 1: Crash reduction factors

Reduction factor	Urban - IC	Urban – MS & IC+MS	Rural - IC	Rural – MS & IC+MS
Fatal	0.25	0.3	0.05	0.05

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Serious	0.25	0.3	0.05	0.05
Injury	0.25	0.3	0.025	0.025
Non-injury	0.25	0.3	0.3	0.3

The reduction factor for mode share was considered greater as this will result in lesser vehicles on-road and more residents utilising the public transport network. While the increase capacity scenario does involve improvements to intersections and road realignment, the provision of four laning can result in a higher number of vehicles on-road therefore, compared with the mode share option, this is likely to have a lesser impact on reducing crashes on the network.

The total accident cost benefits ($/year) for the urban and rural road network are as follows:

Table 2: NPV Total safety benefits

Crash cost benefits	IC	MS	IC + MS
$/year (M)	$9.4	$11.0	$11.0

6 COSTS

WDC have recently completed the NLTP planning process for 2018-2021. The costs of those activities identified in that process included in the above programmes has been used. This has resulted in the following costs for the different scenarios.

- IC : $318.7M Cost, $148.7M (NPV)
- MS : $188.9M Cost, $89.0M (NPV)
- IC + MS : $507.6M Cost, $237.7.7M (NPV)

The PT operational costs have been included in the MS sceanrios.

7 TOTAL ECONOMIC PERFORMANCE SUMMARY

Applying the above approach results in the following economic benefits for this programme:

Benefit	IC	MS	IC + MS
Travel time benefits (NPV $M)	$72.6	$199.9	$174.4
Vehicle operating costs (NPV $M)	$2.8	$42.0	$36.7
Safety benefits (NPV $M)	$74.5	$87.1	$87.1
Total benefits (NPV $M)	$149.9	$329.0	$298.2

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Total costs (NPV $M)	$148.7	$89.0	$237.7
Indicative BCR	**1.0**	**3.7**	**1.3**

The above analysis should be taken as a broad indication of the programmes economic performance, that is the programmes provide a similar level of benefit to their costs. As outline above there are a number of challenges with developing the above economic benefits and therefore caution in their use must be taken.

The capacity programme BCR has the greatest level of confidence (as there is not the complicating mode share issue creating uncertainty), however the programmes with mode share changes have what is considered to be conservative BCR's at this point in time.

Importantly each individual programme activity will need to go through a robust economic appraisal before implementation. This further work is critical from an economic analysis perspective.

8 PROGRAMME IMPLICATIONS

To convert the modelled scenarios to the programme options the following simplistic assumptions have been made:

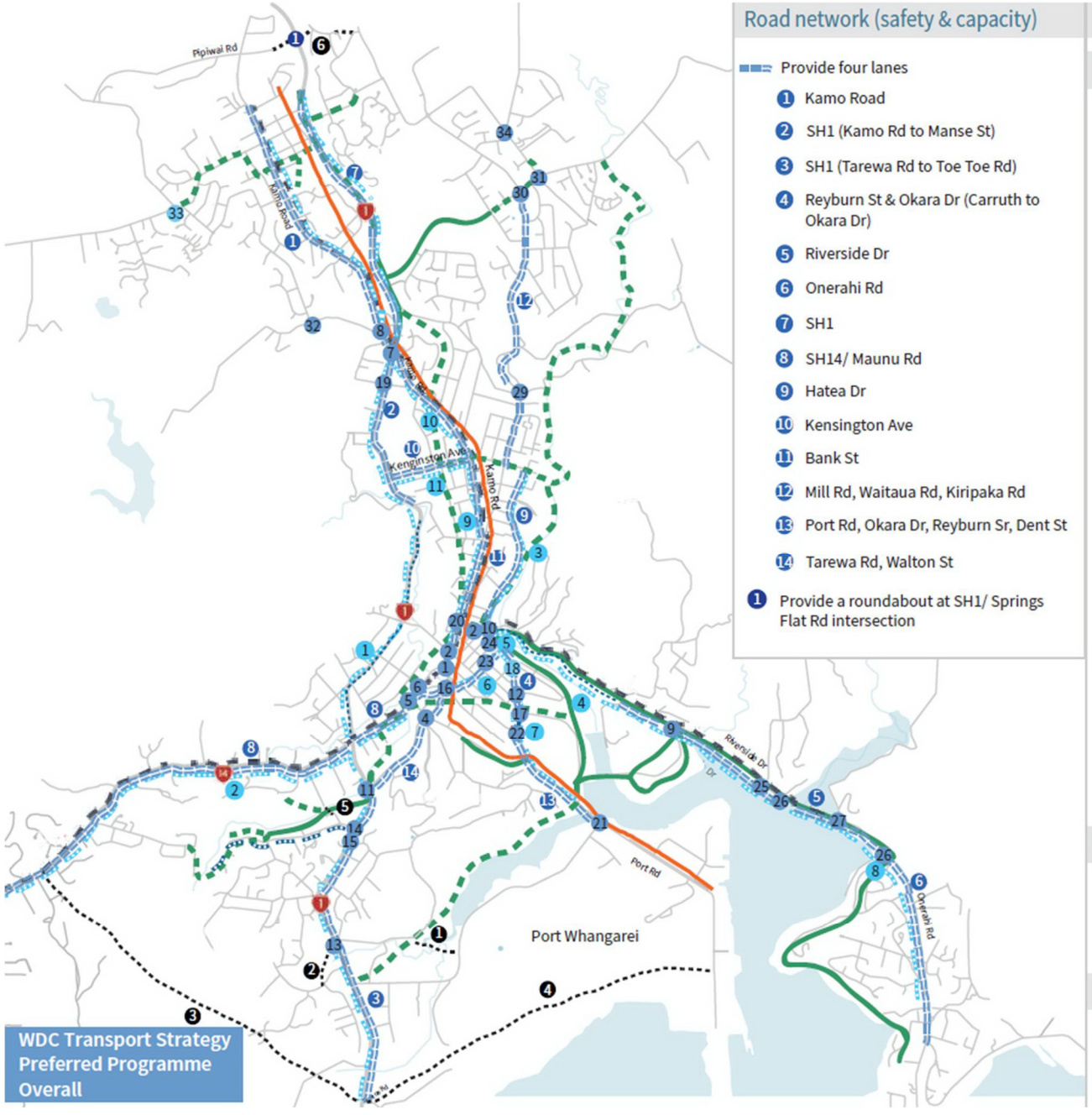
- **P1 Capacity** – Same as modelled option IC
- **P2 PT** – Same as modelled option MS
- **P3 Walking and Cycling** – 40% of MS benefits, 60% of the costs
- **P4 Safety** – 50% of IC benefits and costs
- **P5 Balanced** – Same as IC+MS
- **P6 Balanced PT** – 80% of IC+MS benefits, 90% of the costs
- **P7 Balanced** – Add P1 and P3 together

This results in the following economic outcomes:

Benefit	P1	P2	P3	P4	P5	P6	P7
Total benefits (NPV $M)	$149.90	$329.00	$131.60	74.95	$298.20	$238.56	$281.50
Total costs (NPV $M)	$148.70	$89.00	$53.40	74.35	$237.70	$213.93	$202.10
Indicative BCR	**1.0**	**3.7**	**2.5**	**1.0**	**1.3**	**1.1**	**1.4**

Appendix I – Preferred Programme Maps

WHANGAREI DISTRICT COUNCIL



WDC Transport Strategy
Preferred Programme
Overall

Road network (safety & capacity)

Provide four lanes

1. Kamo Road
2. SH1 (Kamo Rd to Manse St)
3. SH1 (Tarewa Rd to Toe Toe Rd)
4. Reyburn St & Okara Dr (Carruth to Okara Dr)
5. Riverside Dr
6. Onerahi Rd
7. SH1
8. SH14/ Maunu Rd
9. Hatea Dr
10. Kensington Ave
11. Bank St
12. Mill Rd, Waitaua Rd, Kiripaka Rd
13. Port Rd, Okara Dr, Reyburn Sr, Dent St
14. Tarewa Rd, Walton St

1. Provide a roundabout at SH1/ Springs Flat Rd intersection

Key

Road network (safety & capacity)

New link Road (two lanes)

1. South End Ave to Kioreroa Rd
2. Tauroa Rd to South End Ave
3. Maunu Rd to Toetoe Rd
4. Port Nikau Link
5. West End Ave to Raumanga Valley Rd
6. Springs Rd to Gillingham Rd

Investigate bus/T2 lanes

Re-alignment of Raumanga Valley Rd

Corridor reviews to develop bus lanes, reduce severance & improve access to CBD/ potential four laning at:

1. SH1
2. SH14/ Maunu Rd
3. Hatea Dr
4. Riverside Dr
5. Dent St
6. Walton St
7. Okara Dr
8. Onerahi Rd
9. Bank St
10. Kamo Rd (Bank to SH1)
11. Kensington Ave

Public Transport

Investigate rail commuter train between Kamo, CBD & Whangarei Port

Provide bus priorty/ T2 lanes on Riverside Dr, Maunu Rd & Kamo Rd

Cycling & Walking

Existing Kamo/Onerahi/Tikipunga/ Raumanga shared path

Proposed Kamo/Onerahi/Tikipunga shared path

WHANGAREI DISTRICT COUNCIL

Road network

Investigate efficiency of existing intersection controls

1. Bank St - Vine St intersection
2. Bank St - Cameron Rd intersection
3. Rathbone St/ Dent St
4. Tarewa Rd/ Porowini Ave (stage 1 & 2)
5. Maunu Rd/ Porowini Ave (stage 1 & 2)
6. Maunu Rd/ Central Ave
7. SH1/ Kamo Rd
8. Kamo Rd/ Whau Valley Rd
9. Dave Culham Dr/ Riverside Dr
10. Hatea Dr/ Dent St
11. Tarewa Rd/ SH1
12. Okara Dr/ Herekino St/ Reyburn St
13. SH1/ South End Ave signalisation
14. SH1/ Raumanga Valley Rd
15. SH1/ Collingwood Rd
16. Tarewa Rd/ Walton St
17. Port Rd/ Okara Dr
18. Reyburn St/ Dent St
19. SH1/ Percy St
20. Bank St/ Dent St
21. Kioreroa Rd/ Port Rd
22. Port Rd/ Commerce St
23. Walton St/ Robert St
24. Dent St/John St
25. Riverside Dr/Mackesy Rd
26. Riverside Dr/Brook Rd
27. Riverside Dr/Awaroa River Rd
28. Onerahi Rd/Old Onerahi Rd
29. Mill Rd/ Waitaua Rd
30. Kiripaka Rd/Paramount Pde
31. Kiripaka Rd/Corks Rd
32. Whau Valley Rd/Fairway Dr
33. Three Mile Bush/Dip Rd
34. Corks Rd/Vinegar Hill Rd

WDC Transport Strategy Preferred Programme Overall

Road network - Capacity

- Improve signal loops & controllers
- Investigate new technologies for vehicle detection
- Install CCTV & fibre connections to signals to allow remote operation
- Upgrade SCATS central management system potential management by ATOC
- Investigate shared lanes with restrictions for AM & PM flows
- Strengthen parking strategy with pricing
- Support the 4-laning from Tarewa Rd south to the Port Marsden Hwy
- Construct new Port Nikau Hwy to link from SH1 interchange to Port Nikau development

Road network - Safety

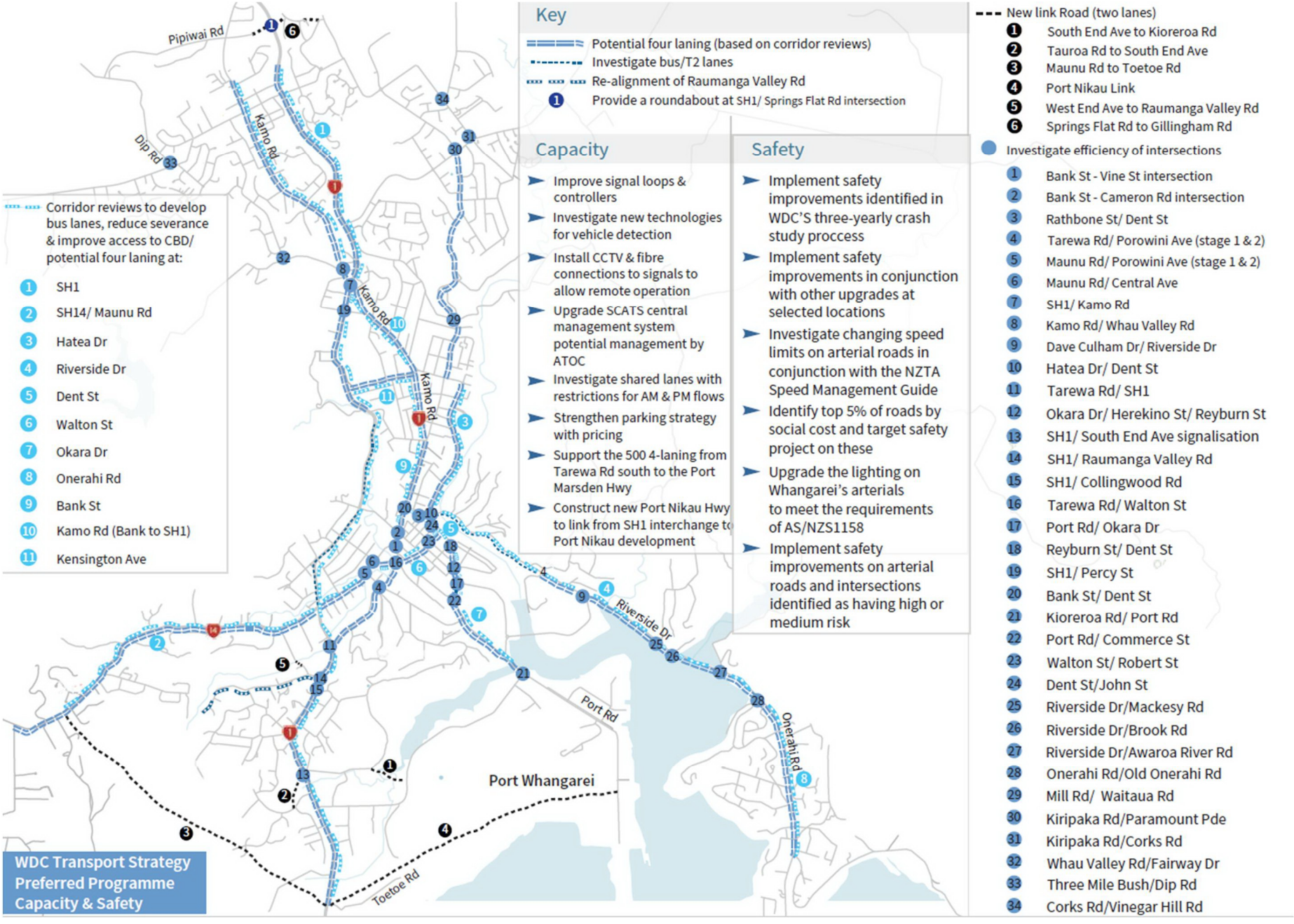
- Implement safety improvements identified in WDC'S three-yearly crash study proccess
- Implement safety improvements in conjunction with other upgrades at selected locations
- Investigate changing speed limits on arterial roads in conjunction with the NZTA Speed Management Guide
- Identify top 5% of roads by social cost and target safety project on these
- Upgrade the lighting on Whangarei's arterials to meet the requirements of AS/NZS1158
- Implement safety improvements on arterial roads and intersections identified as having high or medium risk

Public transport

- Increase frequency of bus services
- Mobile app for bus locations and arrival times
- Rural commuter Park N Ride
- Support free wi-fi (spark mobile hot spots) at the main bus terminal & other key tourist PT routes
- VMS bus signs at bus stops
- Holiday bus services to tourist destiations
- Create a network of bus lanes (T2 lanes) on key arterial routes
- Separate Kamo and Tikipunga bus services & extend Tikipunga services into Totara parklands

Cycling and walking

- Audit key pedestrian routes for safety/ LOS
- Promote E-bikes
- Provide wider an smoother paths for ageing population & uptake of mobility scooters
- Behaviour change to encourage active modal shift
- Install cycle facilities (e.g. secure bike racks, lockers, E-bike charging in CBD schools & parks
- Encourage modal shift (e.g. travel planning, capaign signs, LETSGO)
- Consider path extensions/ boardwalks to fill in missing paths
- Provide cycle training in schools and get schools involved in walking and cycling
- Implement travel planning with school and key busineses to encourage behaviour change & promote uptake of walking and cycling
- Support legislative change to allow cyclists to use footpaths & voluntary use of helmets
- Ensure in planning rules that retail/ commercial developments include for cycle use
- Provide bus fleet capable of allowing cyclist to use them
- Separate cycle paths off the road for school kids
- Incorporate proper on-road facilities on key commuter routes (not shared paths)
- Construct a shared path to connect to the path proposed to be built between Whangarei & Ruakaka (as part of 4-laning project
- Support private sector bike schemes


Key
Potential four laning (based on corridor reviews)
Investigate bus/T2 lanes
Re-alignment of Raumanga Valley Rd
1 Provide a roundabout at SH1/ Springs Flat Rd intersection
Capacity
Improve signal loops & controllers
Investigate new technologies for vehicle detection
Install CCTV & fibre connections to signals to allow remote operation
Upgrade SCATS central management system potential management by ATOC
Investigate shared lanes with restrictions for AM & PM flows
Strengthen parking strategy with pricing
Support the 500 4-laning from Tarewa Rd south to the Port Marsden Hwy
Construct new Port Nikau Hwy to link from SH1 interchange to Port Nikau development
Safety
Implement safety improvements identified in WDC'S three-yearly crash study proccess
Implement safety improvements in conjunction with other upgrades at selected locations
Investigate changing speed limits on arterial roads in conjunction with the NZTA Speed Management Guide
Identify top 5% of roads by social cost and target safety project on these
Upgrade the lighting on Whangarei's arterials to meet the requirements of AS/NZS1158
Implement safety improvements on arterial roads and intersections identified as having high or medium risk
Corridor reviews to develop bus lanes, reduce severance & improve access to CBD/ potential four laning at:
1 SH1
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4 Riverside Dr
5 Dent St
6 Walton St
7 Okara Dr
8 Onerahi Rd
9 Bank St
10 Kamo Rd (Bank to SH1)
11 Kensington Ave
New link Road (two lanes)
1 South End Ave to Kioreroa Rd
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Investigate efficiency of intersections
1 Bank St - Vine St intersection
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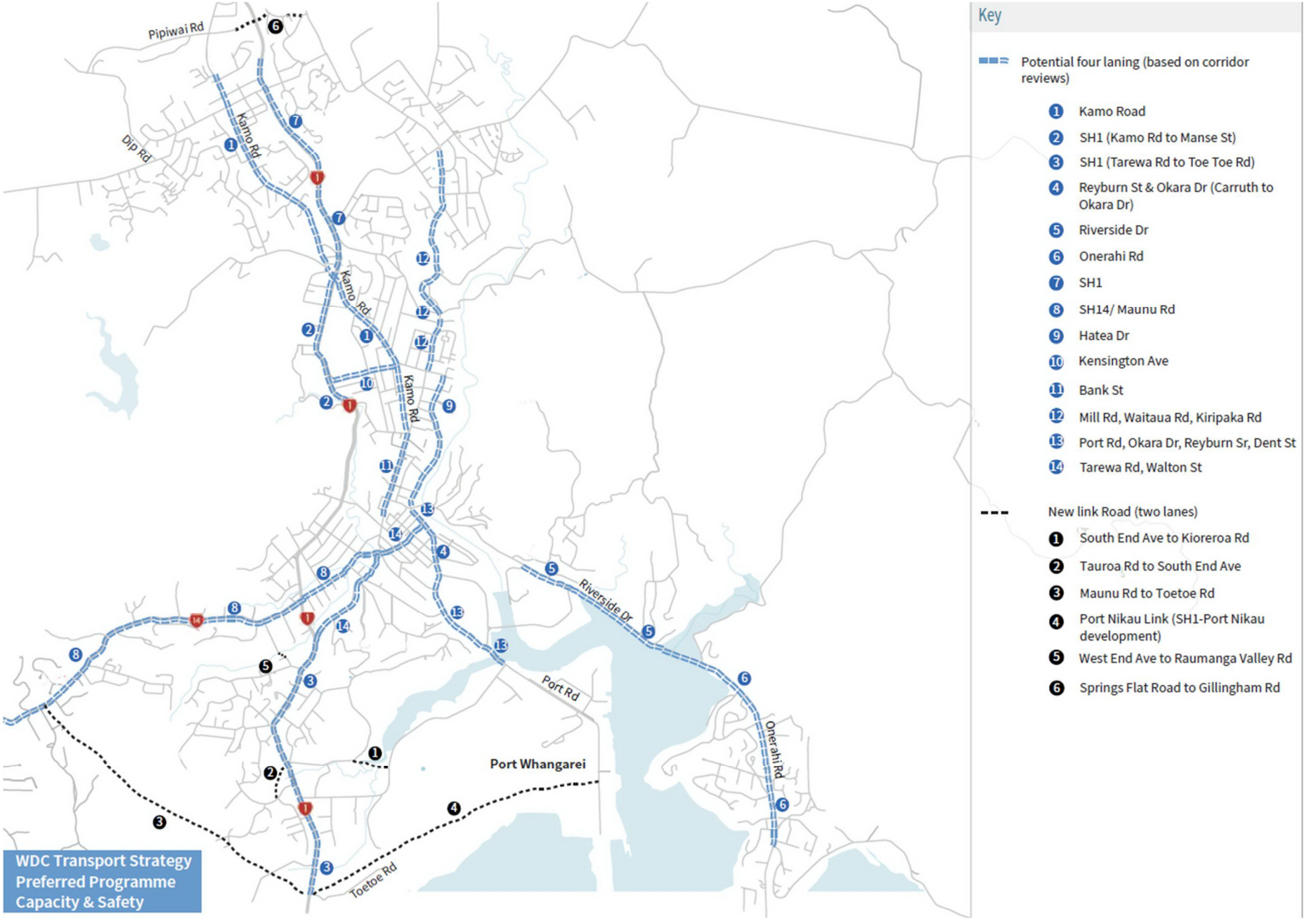
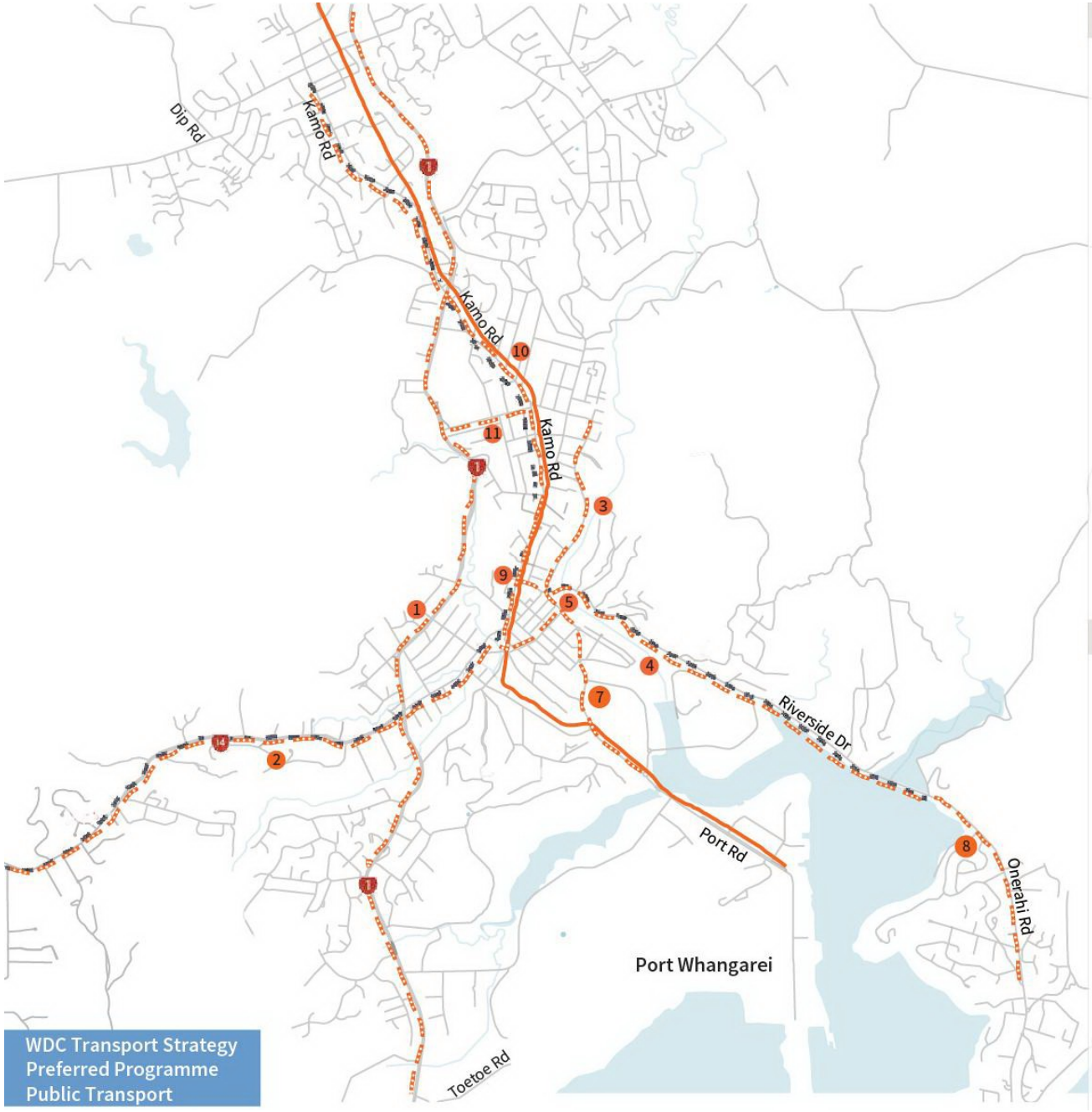
28 Onerahi Rd/Old Onerahi Rd
29 Mill Rd/ Waitaua Rd
30 Kiripaka Rd/Paramount Pde
31 Kiripaka Rd/Corks Rd
32 Whau Valley Rd/Fairway Dr
33 Three Mile Bush/Dip Rd
34 Corks Rd/Vinegar Hill Rd
Pipiwai Rd
Dip Rd
Kamo Rd
Riverside Dr
Port Rd
Onerahi Rd
Port Whangarei
Toetoe Rd
WDC Transport Strategy
Preferred Programme
Capacity & Safety


Pipiwai Rd
Dip Rd
Kamo Rd
Kamo Rd
Kamo Rd
Riverside Dr
Port Rd
Onerahi Rd
Port Whangarei
Toetoe Rd
WDC Transport Strategy
Preferred Programme
Capacity & Safety
Key
Potential four laning (based on corridor reviews)
1 Kamo Road
2 SH1 (Kamo Rd to Manse St)
3 SH1 (Tarewa Rd to Toe Toe Rd)
4 Reyburn St & Okara Dr (Carruth to Okara Dr)
5 Riverside Dr
6 Onerahi Rd
7 SH1
8 SH14/ Maunu Rd
9 Hatea Dr
10 Kensington Ave
11 Bank St
12 Mill Rd, Waitaua Rd, Kiripaka Rd
13 Port Rd, Okara Dr, Reyburn Sr, Dent St
14 Tarewa Rd, Walton St
New link Road (two lanes)
1 South End Ave to Kioreroa Rd
2 Tauroa Rd to South End Ave
3 Maunu Rd to Toetoe Rd
4 Port Nikau Link (SH1-Port Nikau development)
5 West End Ave to Raumanga Valley Rd
6 Springs Flat Road to Gillingham Rd

WHANGAREI DISTRICT COUNCIL



Key

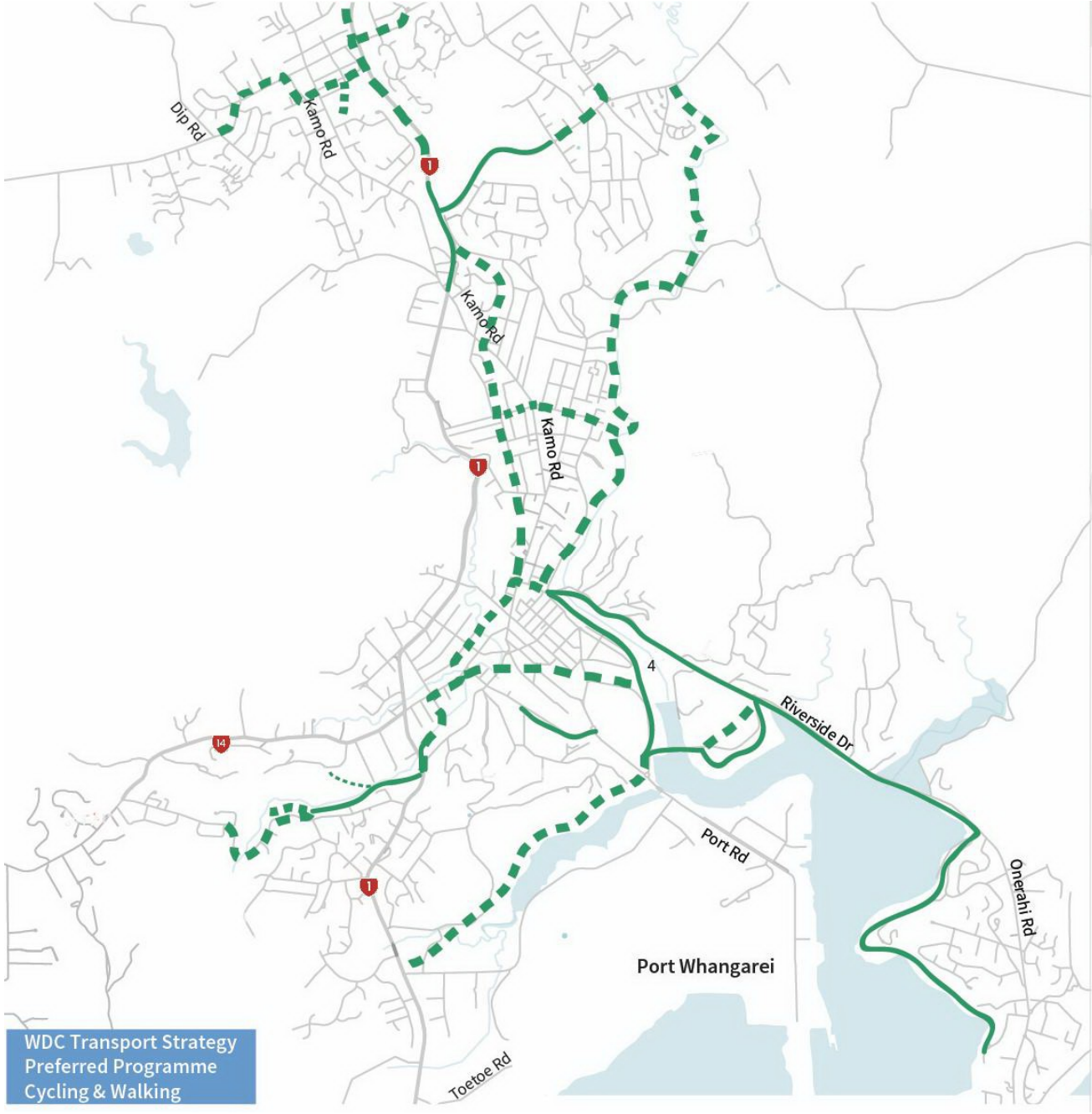
- Investigate rail commuter train between Kamo, CBD & Whangarei Port
- Provide bus priorty/ T2 lanes on Riverside Dr, Maunu Rd & Kamo Rd
- Corridor reviews to develop bus lanes, reduce severance & improve access to CBD on/ potential 4-laning:
  - 1 SH1
  - 2 SH14/ Maunu Rd
  - 3 Hatea Dr
  - 4 Riverside Dr
  - 5 Dent St
  - 6 Walton St
  - 7 Okara Dr
  - 8 Onerahi Rd
  - 9 Bank St
  - 10 Kamo Rd (Bank to SH1)
  - 11 Kensington Ave

Non-spatial options

- Rural commuter park n ride
- Increase frequency of bus services
- Mobile app for bus locations and arrival times
- Support free wi-fi (mobile hot spots) at the main bus terminal & other key tourist PT routes
- VMS bus signs at bus stops
- Holiday bus services to tourist destiations
- Create a network of bus lanes (T2 lanes) on key arterial routes
- Separate Kamo & Tikipunga bus services & extend Tikipunga services into Totara parklands

WDC Transport Strategy
Preferred Programme
Public Transport

WHANGAREI DISTRICT COUNCIL

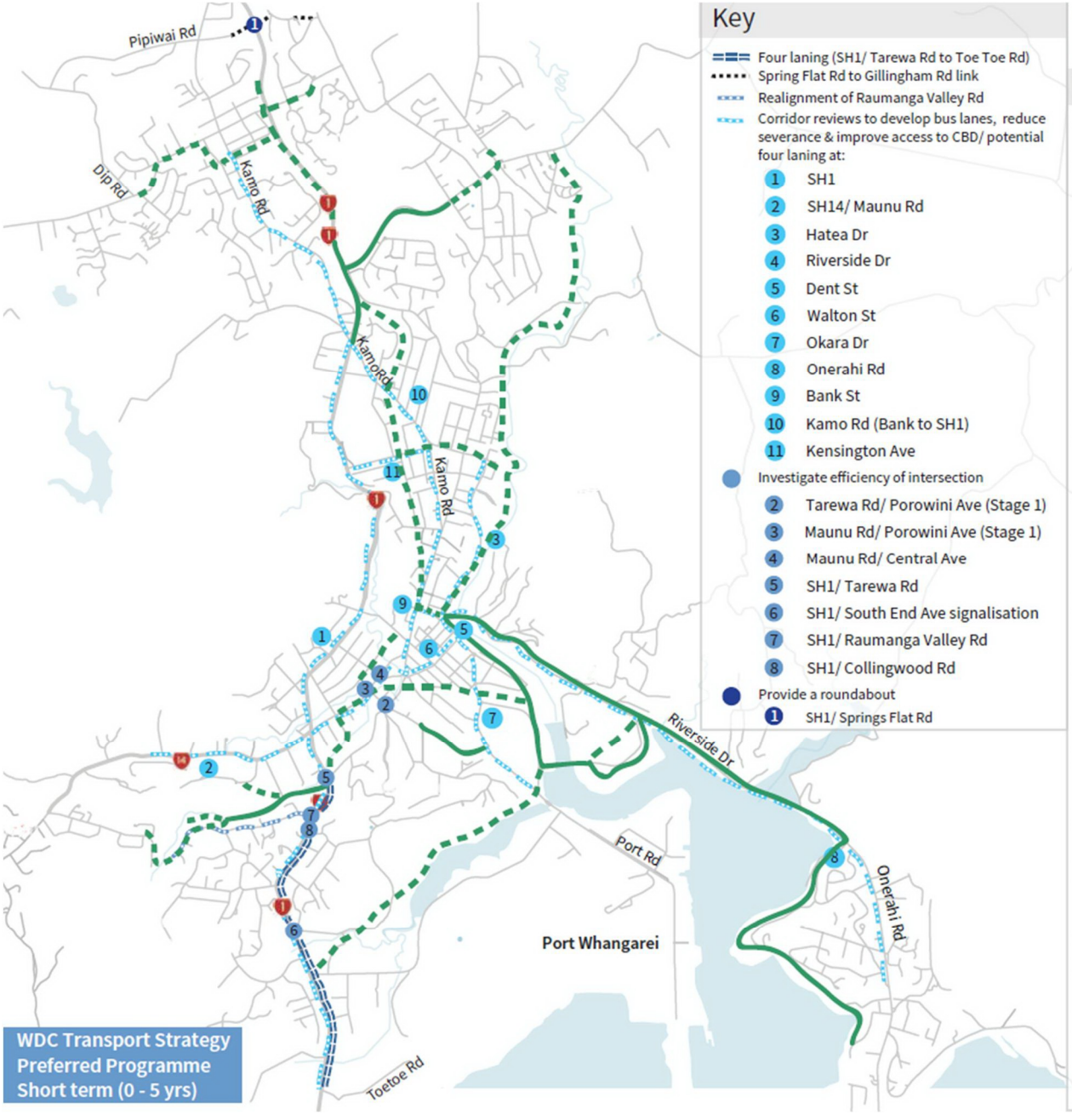


Key

- Existing Kamo/Onerahi/Tikipunga/ Raumanga shared path
- Proposed Kamo/Onerahi/Tikipunga/ Raumanga shared path

Non-spatial options

- Audit key pedestrian routes for safety/ LOS
- Promote E-bikes
- Provide wider & smoother paths for ageing population & uptake of mobility scooters
- Support private sector bike schemes
- Behaviour change to encourage active modal shift
- Install cycle facilities (e.g. secure bike racks, lockers, E-bike charging in CBD schools & parks
- Encourage modal shift (e.g. travel planning, capaign signs, LETSGO)
- Consider path extensions/ boardwalks to fill in missing paths
- Provide cycle training in schools & get schools involved in walking and cycling
- Implement travel planning with school & key businesses to encourage behaviour change & promote uptake of walking and cycling
- Support legislative change to allow cyclists to use footpaths & voluntary use of helmets
- Ensure in planning rules that retail/ commercial developments include for cycle use
- Provide bus fleet capable of allowing cyclist to use them
- Separate cycle paths off the road for school kids
- Incorporate proper on-road facilities on key commuter routes (not shared paths)
- Construct a shared path to connect to the path proposed to be built between Whangarei & Ruakaka (as part of 4-laning project



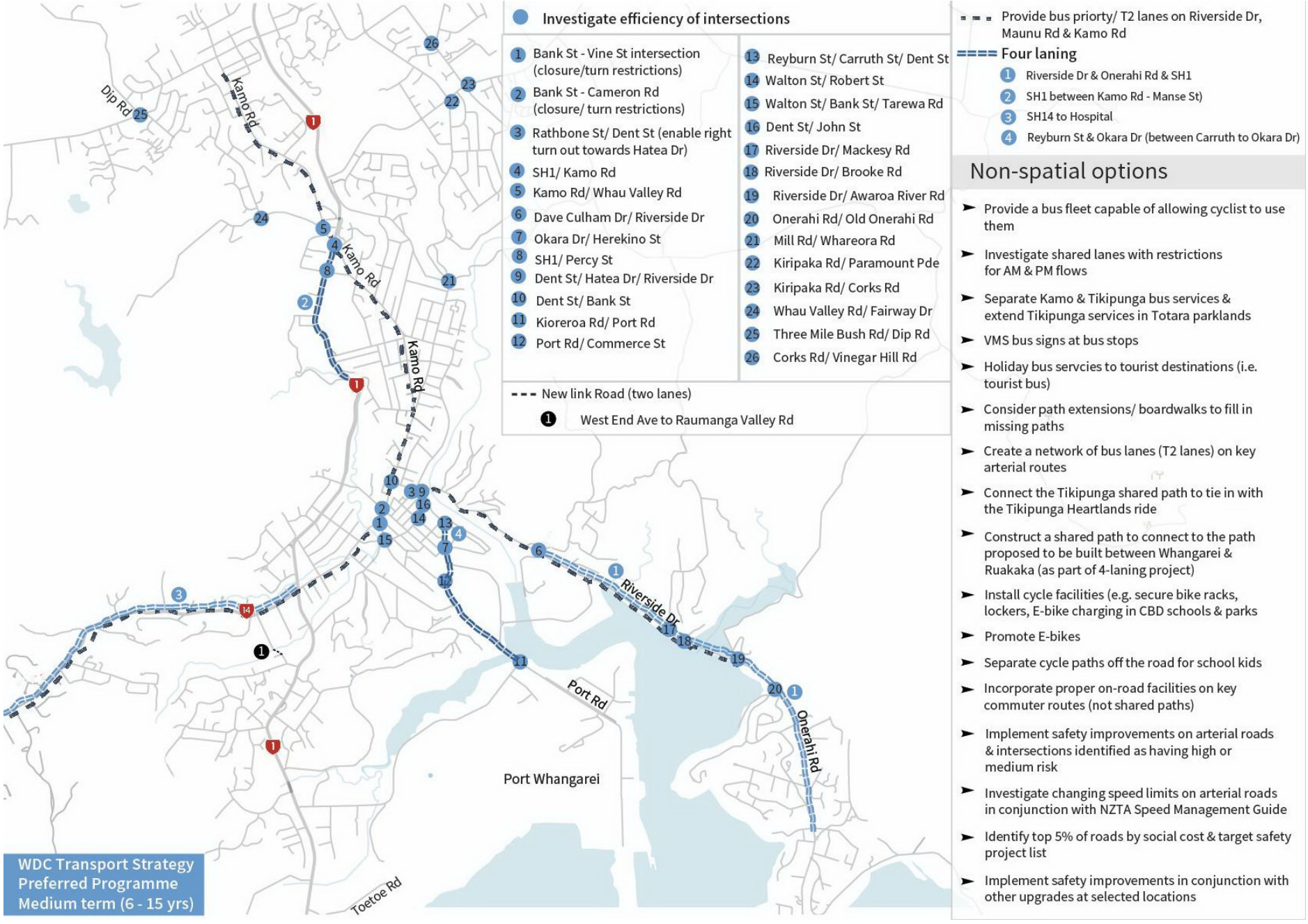
Key

- Four laning (SH1/ Tarewa Rd to Toe Toe Rd)
- Spring Flat Rd to Gillingham Rd link
- Realignment of Raumanga Valley Rd
- Corridor reviews to develop bus lanes, reduce severance & improve access to CBD/ potential four laning at:
  - 1 SH1
  - 2 SH14/ Maunu Rd
  - 3 Hatea Dr
  - 4 Riverside Dr
  - 5 Dent St
  - 6 Walton St
  - 7 Okara Dr
  - 8 Onerahi Rd
  - 9 Bank St
  - 10 Kamo Rd (Bank to SH1)
  - 11 Kensington Ave
- Investigate efficiency of intersection
  - 2 Tarewa Rd/ Porowini Ave (Stage 1)
  - 3 Maunu Rd/ Porowini Ave (Stage 1)
  - 4 Maunu Rd/ Central Ave
  - 5 SH1/ Tarewa Rd
  - 6 SH1/ South End Ave signalisation
  - 7 SH1/ Raumanga Valley Rd
  - 8 SH1/ Collingwood Rd
- Provide a roundabout
  - 1 SH1/ Springs Flat Rd

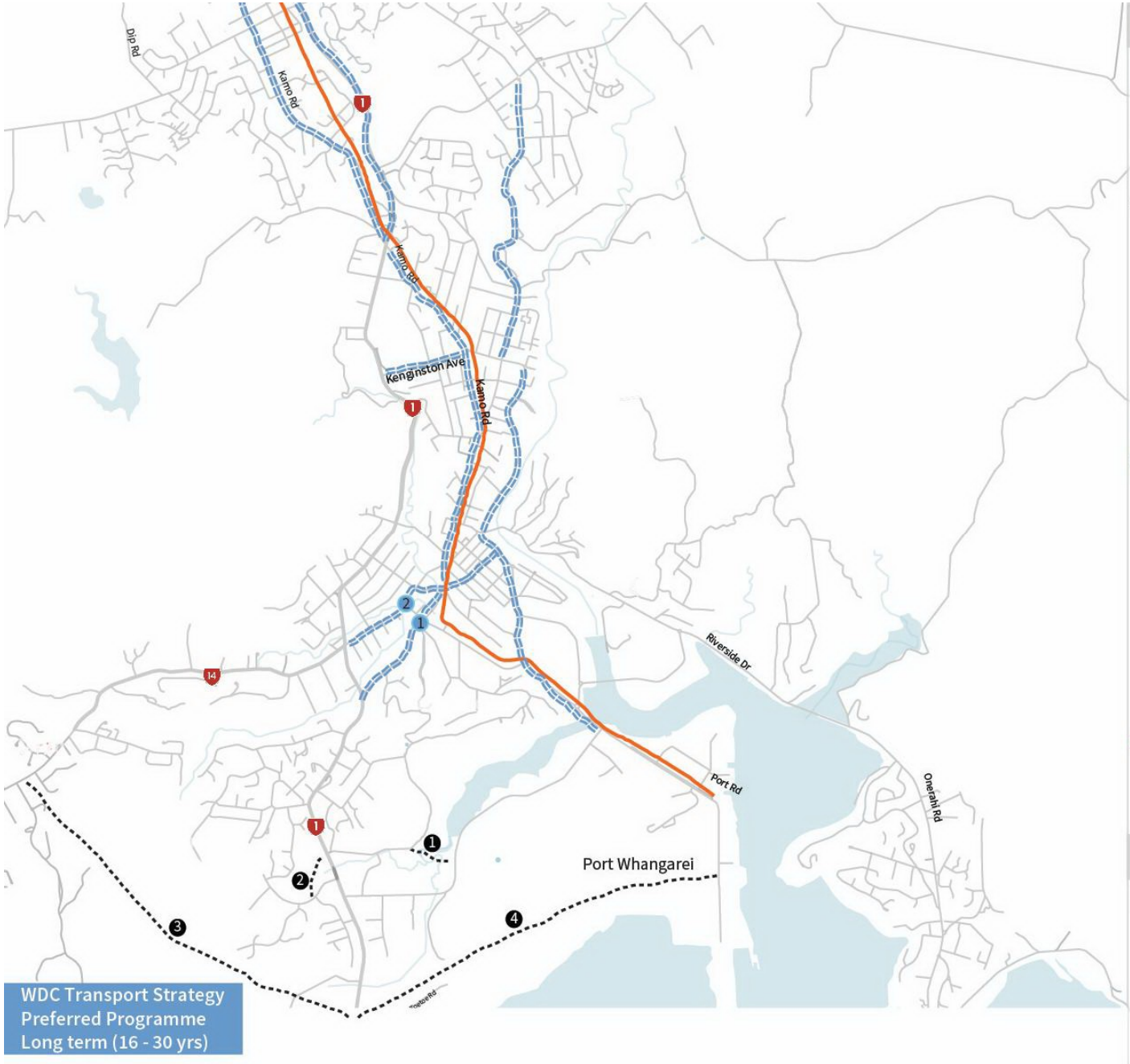
- Existing Kamo/Onerahi/Tikipunga/ Raumanga shared path
- Proposed Kamo/Onerahi/Tikipunga/ Raumanga shared path

Non-spatial options

- Support private sector bike schemes
- Upgrade the lighting on Whangarei's arterials to meet the requirements of AS/NZS1158
- Improve signal loops & controllers
- Upgrade SCATS central management system potential management by ATOC
- Install CCTV & fibre connections to signals to allow remote operation
- Investigate new technologies for vehicle detection
- Increase frequency of bus services
- Support free WI-FI (mobile hot spots) at the main bus terminal and other key tourist PT routes
- Encourage modal shift (e.g. travel planning, campaigns, LETSGO)
- Provide wider and smoother paths for ageing population and uptake of mobility scooters
- Audit key pedestrian routes for safety/ LOS
- Behaviour change to encourage active modal shift
- Provide cycle connections or on-road facilities at destinations
- Ensure in planning rules that retail/ commercial developments include for cycle use
- Support legislative change to allow cyclists to use footpaths & voluntary use of helmets
- Provide cycle training in schools & get schools involved in walking and cycling
- Implement safety improvements identified in WDC's three yearly crash study process
- Mobile app for bus locations and arrival times
- Support the 4-laning from Tarewa south to Port Marsden Highway
- Strengthen parking strategy with pricing
- Implement travel planning with school & key businesses to encourage behaviour change /promote uptake of walking & cycling


Investigate efficiency of intersections
1 Bank St - Vine St intersection (closure/turn restrictions)
2 Bank St - Cameron Rd (closure/ turn restrictions)
3 Rathbone St/ Dent St (enable right turn out towards Hatea Dr)
4 SH1/ Kamo Rd
5 Kamo Rd/ Whau Valley Rd
6 Dave Culham Dr/ Riverside Dr
7 Okara Dr/ Herekino St
8 SH1/ Percy St
9 Dent St/ Hatea Dr/ Riverside Dr
10 Dent St/ Bank St
11 Kioreroa Rd/ Port Rd
12 Port Rd/ Commerce St
13 Reyburn St/ Carruth St/ Dent St
14 Walton St/ Robert St
15 Walton St/ Bank St/ Tarewa Rd
16 Dent St/ John St
17 Riverside Dr/ Mackesy Rd
18 Riverside Dr/ Brooke Rd
19 Riverside Dr/ Awaroa River Rd
20 Onerahi Rd/ Old Onerahi Rd
21 Mill Rd/ Whareora Rd
22 Kiripaka Rd/ Paramount Pde
23 Kiripaka Rd/ Corks Rd
24 Whau Valley Rd/ Fairway Dr
25 Three Mile Bush Rd/ Dip Rd
26 Corks Rd/ Vinegar Hill Rd
New link Road (two lanes)
1 West End Ave to Raumanga Valley Rd
Provide bus priorty/ T2 lanes on Riverside Dr, Maunu Rd & Kamo Rd
Four laning
1 Riverside Dr & Onerahi Rd & SH1
2 SH1 between Kamo Rd - Manse St)
3 SH14 to Hospital
4 Reyburn St & Okara Dr (between Carruth to Okara Dr)
Non-spatial options
Provide a bus fleet capable of allowing cyclist to use them
Investigate shared lanes with restrictions for AM & PM flows
Separate Kamo & Tikipunga bus services & extend Tikipunga services in Totara parklands
VMS bus signs at bus stops
Holiday bus servcies to tourist destinations (i.e. tourist bus)
Consider path extensions/ boardwalks to fill in missing paths
Create a network of bus lanes (T2 lanes) on key arterial routes
Connect the Tikipunga shared path to tie in with the Tikipunga Heartlands ride
Construct a shared path to connect to the path proposed to be built between Whangarei & Ruakaka (as part of 4-laning project)
Install cycle facilities (e.g. secure bike racks, lockers, E-bike charging in CBD schools & parks
Promote E-bikes
Separate cycle paths off the road for school kids
Incorporate proper on-road facilities on key commuter routes (not shared paths)
Implement safety improvements on arterial roads & intersections identified as having high or medium risk
Investigate changing speed limits on arterial roads in conjunction with NZTA Speed Management Guide
Identify top 5% of roads by social cost & target safety project list
Implement safety improvements in conjunction with other upgrades at selected locations
Kamo Rd
Dip Rd
Riverside Dr
Port Rd
Onerahi Rd
Port Whangarei
Toetoe Rd
WDC Transport Strategy
Preferred Programme
Medium term (6 - 15 yrs)

WHANGAREI DISTRICT COUNCIL



Key

- Investigate efficiency of intersections
  - 1 Tarewa Rd/ Porowini Ave (stage 2)
  - 2 Maunu Rd/ Porowini Ave (stage 2)
- New link Road (two lanes)
  - 1 South End Ave to Kioreroa Rd
  - 2 Tauroa Rd to South End Ave
  - 3 Maunu Rd to Toetoe Rd
  - 4 Port Nikau Link (SH1 to Port Nikau development
- Realignment of Raumanga Valley Rd
- Four laning
  - 1 Kamo Road
  - 2 SH1
  - 3 Hatea Dr
  - 4 Kensington Ave
  - 5 Bank St
  - 6 Tarewa Rd, Walton St
  - 7 Mill Rd, Waitaua Rd, Kiripaka Rd
  - 8 Port Rd, Okara Dr, Reyburn Sr, Dent St
- Investigate rail commuter train between Kamo, CBD & Whangarei Port

Non spatial options

- Park n ride for rural commuters

WHANGAREI DISTRICT COUNCIL

4.3 Parking Restrictions - Kendon Place

Meeting: Infrastructure Committee
Date of meeting: 07 June 2018
Reporting officer: Nick Marshall (Senior Roading Engineer)

1 Purpose

To seek Council's approval for implementing 'No Stopping at All Times' parking restrictions in Kendon Place.

2 Recommendation

That the Infrastructure Committee, pursuant to the Whangarei District Council Parking and Traffic Bylaw 2017 Clause 14, approves that the parking of vehicles be prohibited at all times in Kendon Place as per the attached plan and the RAMM schedule below:

Road Name: Kendon Place		
Road ID: 230		
	RAMM Displacement	
Side	Start	End
Left	20	120
Right	96	120

3 Background

Council has received 3 requests in the last two years from the visitors and residents of Kendon Place to implement 'No Stopping At All Times' (NSAAT) restrictions in Kendon Place. This agenda is to discuss the issues being faced in Kendon Place and a solution to those issues.

4 Discussion

4.1 Issues

Kendon Place is a local cul-de-sac road in Raumanga, with unrestricted on-street parking on both sides of the road. Other than the residential properties, the Raumanga Medical Centre is the main attraction in this area. The medical centre has an off-street carpark for their staff and patrons, which is mostly fully occupied in their working hours and is insufficient to accommodate for the parking demand of their staff and patrons.

When parking is unavailable in the medical centre's private carpark, drivers park their vehicles in Kendon Place. At peak times, all the parking on both sides of the street is fully occupied by the staff and patrons of the medical centre, which causes access and safety

problems to the residents and visitors in the street. Kendon Place is a 7m wide local cul-de-sac road and when vehicles are parked on both sides of the street, it becomes very problematic for vehicles to pass through.

Moreover, when vehicles are parked very close to the intersection on both sides of the road, it severely blocks sightlines at the intersection for vehicles turning in/out of the street and forces the vehicles to cross the road centreline at the intersection while turning in/out from/to the State Highway 1 Otaika Road. Near misses have been reported of vehicles entering into Kendon Place almost colliding with vehicles exiting onto SH1 while stuck between vehicles parked on both sides because of lack of road width. Furthermore, vehicles are unable to turn around at the cul-de-sac turning head because of the parked vehicles in that area.

4.2 Photos

Photo 1: View from Kendon Place towards SH1 Otaika Road

Photo 2: View from SH1 Otaika Road towards Kendon Place

4.3 Proposed Solution

It is recommended that 'No Stopping at All Times' (NSAAT) parking restrictions be implemented in Kendon Place on the western side of Kendon Place for the entire length and around the cul-de-sac turning, as per the attached plan.

4.4 Alternative solution considered

Options were considered to construct recessed parking bays in Kendon Place to solve the above issues by retaining the existing on-street parking. It is estimated that the construction of these recessed parking bays will provide 15 parking spaces and it will cost the Council between $150k to $200k + GST. This estimate does not allow for any major service protection or relocation (telecom, fibre, power and gas) as a detailed investigation is required to assess such risks.

During further consultation, the Medical Centre has advised that they will not contribute towards the construction of recessed parking. The Medical Centre has future plans to expand their business, which may include purchasing of adjacent properties or relocation of their business. In either case, it will trigger a resource consent application and as part of their application process they will be required to provide sufficient on-site parking facilities for their activity. The construction of the recessed parking bays is unlikely to be supported by the New Zealand Transport Agency (NZTA) from a funding perspective and therefore, it will be an unsubsidised activity for the Council. Furthermore, the construction of recessed parking in Kendon Place is not budgeted in the Council's operative Long Term Plan, therefore, allocation of additional funding will be required by the Council for this activity.

On this basis, Roading does not recommend the construction of recessed parking bays in Kendon Place.

5 Consultation

Consultation was carried out with all the residents in Kendon Place and the New Zealand Transport Agency (NZTA) to remove parking on the western side of Kendon Place for the entire length and around the cul-de-sac turning head of Kendon Place – all the parties were in favour of the proposed parking restrictions.

When consulted, the medical centre expressed some concerns regarding loss of parking in the street. Therefore, a second option was then proposed to them to remove parking only near Kendon Place/SH1 intersection and around the cul-de-sac turning head. The medical centre mentioned that if they had to choose from the two options, they will choose the original option which was also favoured by the residents. Therefore, this is the Roading's recommended option.

6 Impacts

The proposed parking restrictions will effectively remove 15 parking spaces in the street. However, there are more than 60 parking spaces available in the area within 1-2 minutes walking distance from Kendon Place in Otaika Road Service Lane, Mount Pleasant Road, Murdoch Crescent and the NZTA owned gravel carpark off Murdoch Crescent.

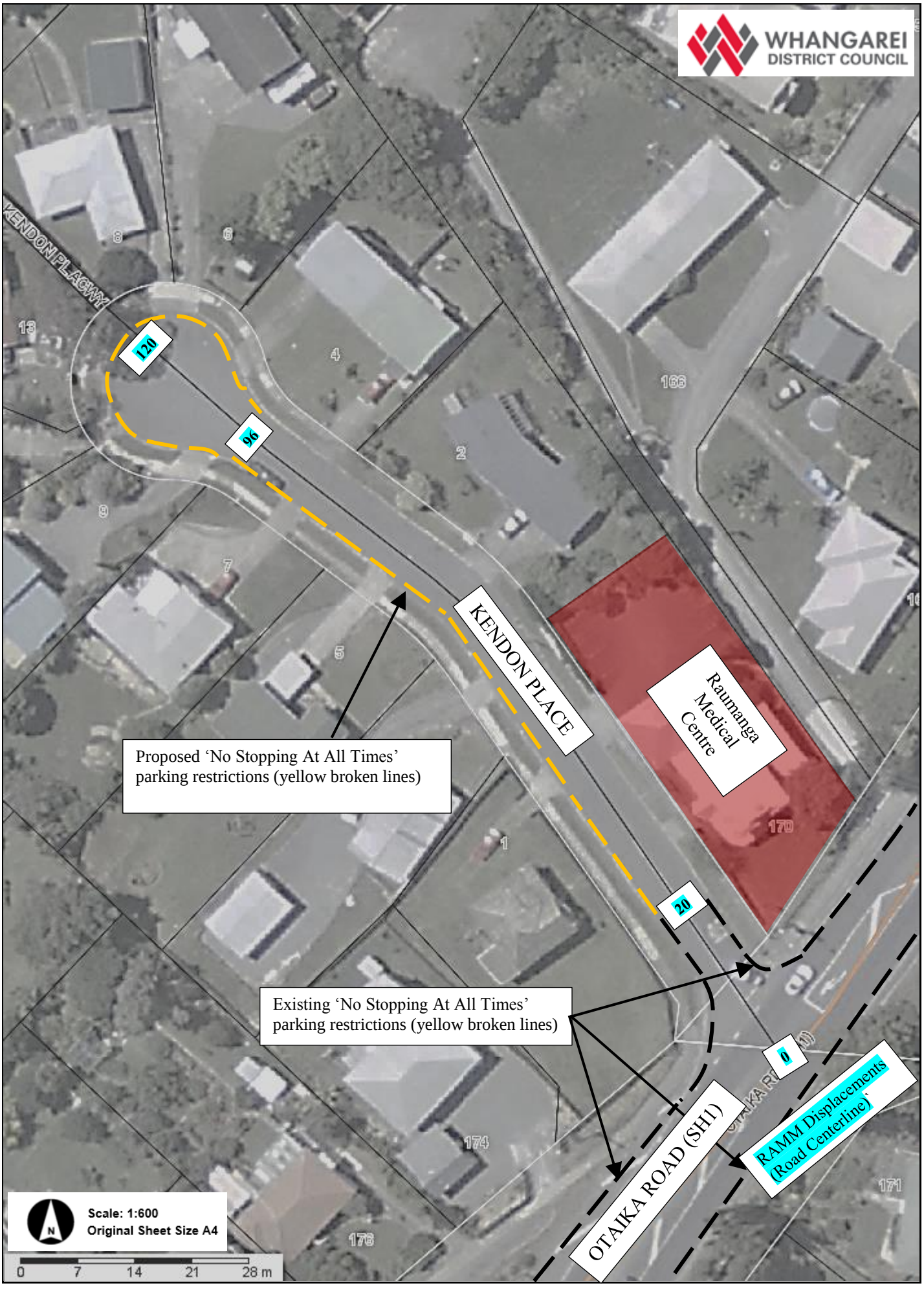
7 Significance and engagement

The decisions or matters of this Agenda do not trigger the significance criteria outlined in Council's Significance and Engagement Policy, and the public will be informed via Agenda publication on the website.

8 Attachment

Attachment 1 – Proposed Parking Restrictions on Kendon Place

ATTACHMENT 1 – PROPOSED PARKING RESTRICTIONS ON KENDON PLACE



WHANGAREI DISTRICT COUNCIL

4.4 Parking Restrictions – South End Avenue

Meeting: Infrastructure Committee
Date of meeting: 07 June 2018
Reporting officer: Nick Marshall (Senior Roading Engineer)

1 Purpose

To seek Council's approval for implementing 'No Stopping at All Times' parking restrictions in South End Avenue.

2 Recommendation

That the Infrastructure Committee, pursuant to the Whangarei District Council Parking and Traffic Bylaw 2017 Clause 14, approves that the parking of vehicles be prohibited at all times in South End Avenue Place as per the attached plan and the RAMM schedule below:

Road Name: South End Avenue		
Road ID: 389		
Side	RAMM Displacement	
	Start	End
Left	290	690
Right	575	690

3 Background

Council has received 16 requests in the last two years from the business owners in South End Avenue, to implement 'No Stopping At All Times' (NSAAT) restrictions in South End Avenue at various locations. This agenda is to discuss the issues faced by business owners, their staff and visitors; and a solution to those issues.

4 Discussion

South End Avenue is a local industrial road in Raumanga, which was once a cul-de-sac road and was later extended as part of a subdivision. Further extension of South End Avenue has just been undertaken earlier this year as part of another subdivision and now it connects to High Street in Raumanga. This road carries extremely high volumes of Heavy Commercial Vehicles (HCVs) because of the nature of businesses in the area.

4.1 Issues

Many incidents have been reported to the Council by local business operators regarding their HCVs unable to get in and out of their properties. The parked vehicles in the street obstruct turning movements of the HCVs as they require very large turning areas. Moreover, the parked vehicles also block sightlines for vehicles turning out of the businesses.

The road has a mountable kerb and most of the businesses in this area have very wide vehicle crossings for their HCVs. Drivers perceive the wide vehicle crossings, mountable kerb and adjoining footpath as parking bays and park over them, consequently blocking the vehicle crossings and the footpaths. Infringement notices are issued to the offending vehicles on a regular basis in this area, which further justifies the need of parking restrictions. Complaints have also been made to the Council regarding people parking in the old cul-de-sac blocking the accessways.

All the businesses directly adjacent to the proposed parking restrictions support this proposal as they all have private on-site parking for their businesses except the truck repair business at 24 South End Avenue. The trucks and trailers are parked unattended by the truck repair business for weeks and sometimes months adding further to the problem.


ATR

4.2 Proposed Solution

It is recommended that the No Stopping At All Times (NSAAT) restrictions be implemented on South End Avenue as per the attached plan – on the northern side between the vehicle crossing of 25 South End Avenue to the eastern vehicle crossing of 67 South End Avenue (approximately 400m long) and on the southern side 115m from South End Avenue/Gumdigger Place intersection for a length of 115m – to alleviate the above issues.

5 Consultation

Consultation was carried out with all the directly affected businesses regarding the proposed parking restrictions and all of them were in favour of the proposed changes except a truck repair shop which doesn't have enough on-site parking and relies upon on-street parking in South End Avenue.

Requests were also made by Mikes Woodshop Ltd, Rotorua Forestry Ltd and Stan Semenoff Transport Ltd to remove all the on-street parking from South End Avenue. They were advised that this request will be brought to the elected members' attention for consideration. However, Roading believes that the removal of parking on such a large scale is not justified at this stage and the proposed parking restrictions will solve the current problems. It is recommended that the proposed parking restrictions be implemented and the post-implementation parking conditions be observed for at least a period of 6 months, before making any further changes to on-street parking.

6 Impacts

The proposal will effectively remove approximately 30 parking spaces from South End Avenue.

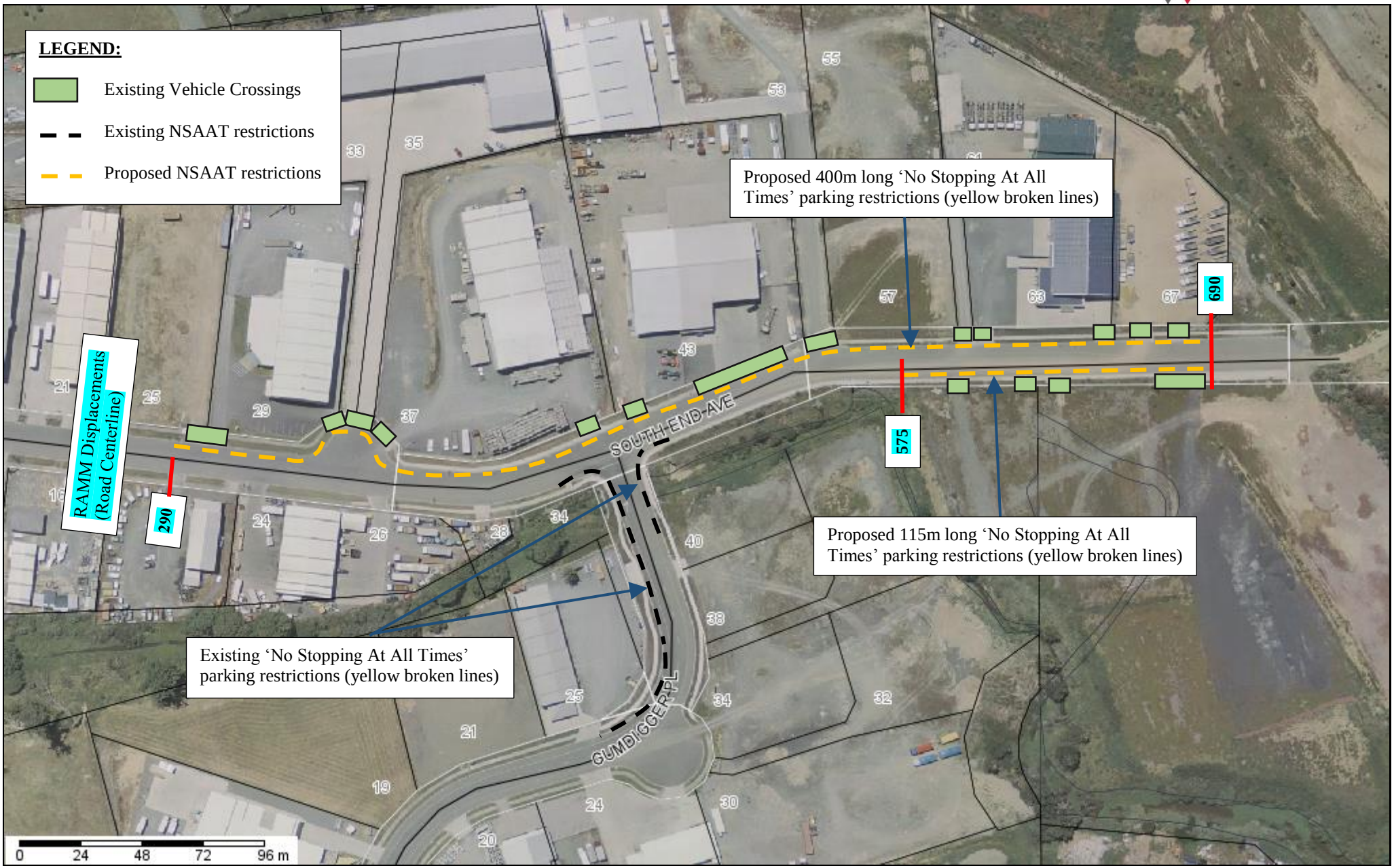
7 Significance and engagement

The decisions or matters of this Agenda do not trigger the significance criteria outlined in Council's Significance and Engagement Policy, and the public will be informed via Agenda publication on the website.

8 Attachment

Attachment 1 – Proposed Parking Restrictions on South End Avenue

ATTACHMENT 1 – PROPOSED PARKING RESTRICTIONS ON SOUTH END AVENUE



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WHANGAREI DISTRICT COUNCIL

4.5 Parking Restrictions - Tui Crescent

Meeting: Infrastructure Committee
Date of meeting: 07 June 2018
Reporting officer: Nick Marshall (Senior Roading Engineer)

1 Purpose

To seek Council's approval for implementing 'No Stopping at All Times' parking restrictions in Tui Crescent.

2 Recommendation

That the Infrastructure Committee, pursuant to the Whangarei District Council Parking and Traffic Bylaw 2017 Clause 14, approves that the parking of vehicles be prohibited at all times in Tui Crescent as per the attached plan and the RAMM schedule below:

Road Name: Tui Crescent		
Road ID: 401		
	RAMM Displacement	
Side	Start	End
Right	10	48

3 Background

Council has received 6 requests in the last two years from the visitors, business operators and residents of Tui Crescent to implement 'No Stopping At All Times' (NSAAT) restrictions in Tui Crescent at its intersection with State Highway 14 Maunu Road (SH14). This agenda is to discuss the issues faced by residents, local businesses and visitors; and a solution to those issues.

4 Discussion

Tui Crescent is a local road in Maunu with unrestricted on-street parking on both sides. Other than the residential properties, businesses located near the Tui Cres/SH14 intersection are the main attractions in this area. These businesses include a medical centre, a pharmacy, a takeaway shop, a hair dressing salon, a food market and a liquor shop. There is a recessed parking bay formed on the eastern side of Tui Crescent near the SH14 intersection outside the shops. People visiting these businesses usually park their vehicles in this recessed parking bay. At times when parking in the recessed parking bay is unavailable, people park on the opposite side of the road in front of the Tui medical centre.

4.1 Issues

When vehicles are parked very close to the intersection on both sides of the road, it severely blocks sightlines at the intersection for vehicles turning in/out of the street and forces the

vehicles to cross the road centreline at the intersection while turning in/out from/to SH14. Near misses have been reported regarding vehicles entering Tui Crescent almost colliding with vehicles exiting onto SH14 while stuck between vehicles parked on both sides because of lack of road width. In addition, because of the narrow road width and vehicles parked in front of the medical centre, it also becomes difficult for the vehicles parked in the recessed parking bay to reverse into Tui Crescent before exiting onto SH14.

4.2 Proposed Solution

It is recommended that the No Stopping At All Times (NSAAT) restrictions be extended on Tui Cres as per the attached plan – by 38m on the western side of Tui Crescent – to alleviate the above issues.

4.3 Alternative solution considered

Options were considered to construct recessed parking bays in Tui Crescent outside the Medical Centre to solve the above issues by retaining the existing on-street parking. It is estimated that the construction of these recessed parking bays will provide 4 parking spaces and it will cost the Council between $30k to $40k + GST. This estimate does not allow for any major service protection or relocation (telecom, fibre, power and gas) as a detailed investigation is required to assess such risks. This will also require removal of a heritage tree in the grass berm, which will require a resource consent.

Attempts were made to discuss with the medical centre, the possibility of getting funding support from them to construct the recessed parking bay, however, their general manager who makes such decisions was overseas and unavailable for this discussion. The medical centre already has sufficient on-site parking facilities to serve their staff and patrons, and most of the times people who park here are the customers visiting the shops on the opposite side of the road. When the Medical Centre was originally consulted regarding the proposed parking restrictions, they were in favour of the proposal. Therefore, it is very unlikely that the medical centre will contribute towards constructing the recessed parking bay.

Parking in Tui Crescent is sufficient to serve the current activities in the area. It is anticipated that the proposed parking restrictions will not have any adverse impact on the businesses in this area as parking is always available in Tui Cres within 1-2 minutes walking distance to the shops. The construction of the recessed parking bays is unlikely to be supported by the New Zealand Transport Agency (NZTA) from a funding perspective and therefore, it will be an unsubsidised activity for the Council. Furthermore, the construction of recessed parking in Tui Crescent is not budgeted in the Council's operative Long Term Plan, therefore, allocation of additional funding will be required by the Council for this activity.

On this basis, Roading does not recommend the construction of recessed parking bays in Tui Crescent.

5 Consultation

Consultation was carried out with those who were directly affected by the proposed parking restrictions – all the businesses and the New Zealand Transport Agency (NZTA) – all of them were in favour of the proposed parking restrictions.

6 Impacts

The proposed parking restrictions will effectively remove 4 parking spaces on the western side of Tui Cres. However, there are more than 30 parking spaces available within 1-2 minutes walking distance to the shops, which are available most of the times.

7 Significance and engagement

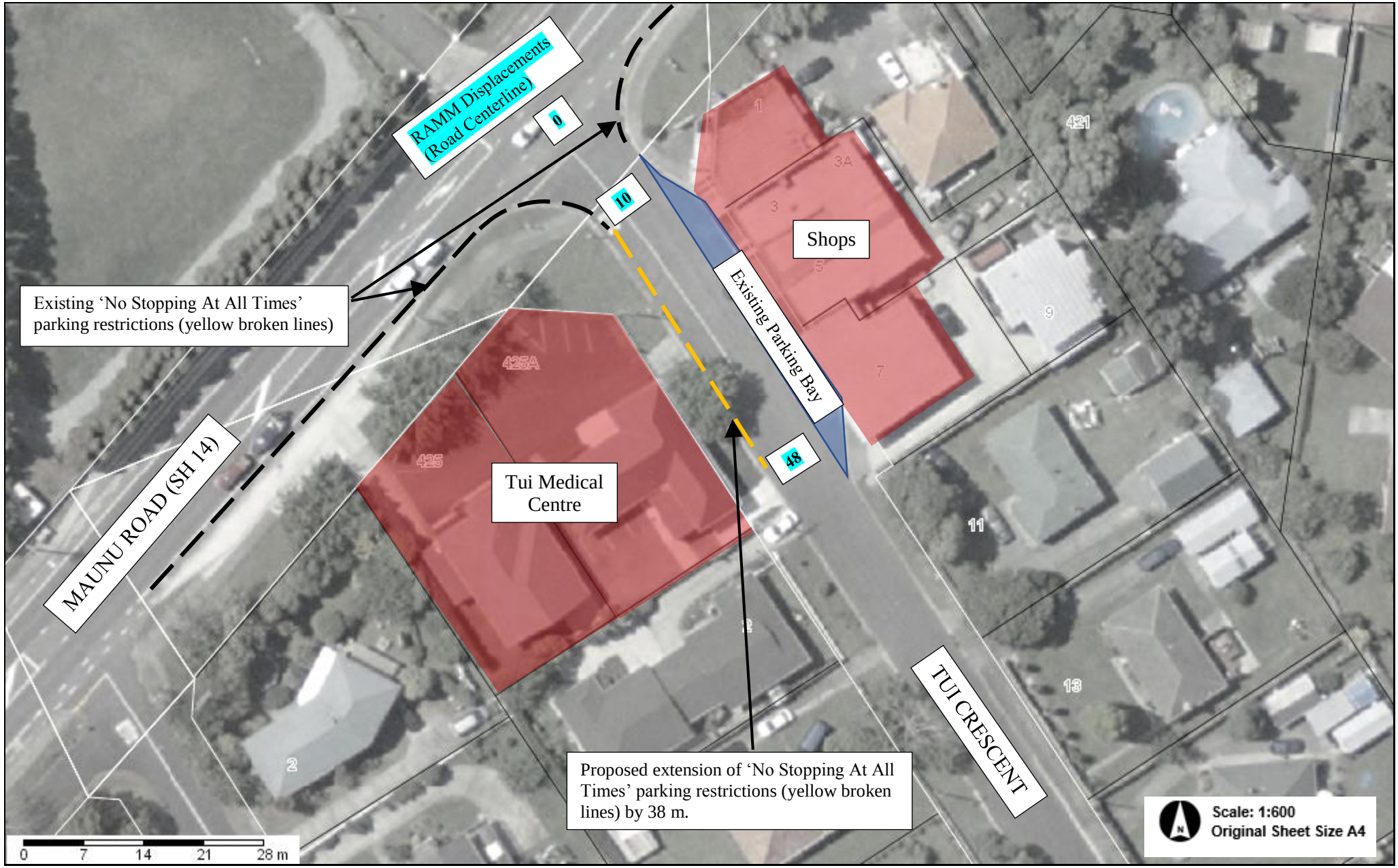
The decisions or matters of this Agenda do not trigger the significance criteria outlined in Council's Significance and Engagement Policy, and the public will be informed via Agenda publication on the website.

8 Attachment

Attachment 1 – Proposed Parking Restrictions on Tui Crescent

ATTACHMENT 1 – PROPOSED PARKING RESTRICTIONS ON TUI CRESCENT

WHANGAREI DISTRICT COUNCIL



WHANGAREI DISTRICT COUNCIL

5.1 Town Basin Parking Review

Meeting: Infrastructure Committee
Date of meeting: 7 June 2018
Reporting officer: Greg Monteith

1 Purpose

To report on the charges introduced at the Town Basin and Carruth Street car parks.

2 Recommendation/s

That the Committee notes the information.

3 Background

The Council at its meeting on the 13 July 2017, approved the implementation of parking charges at the Town Basin and Carruth Street car park. The parking charges were introduced on 1 February 2018. As part of this recommendation staff were required to monitor and report back to Council after three months of use.

4 Discussion

4.1 Occupancy Survey

Parking occupancy surveys were undertaken at 9am, 12 noon and 3pm from Monday 14th May to Sunday 20th May. The survey results are detailed within **Attachment 1**.

Table 1 (below), summarises the Monday to Friday and Saturday to Sunday Average occupancy rates. Based on the results of the survey:

- The parking at the Town Basin car parks is busiest during the mid-day period (70-100%) with parking occupancy levels reaching saturation during the weekend mid-day period (90-100%)

- The occupancy rate of the Carruth Street car park remains low during the week but increases on the weekend when the charges do not apply, however this carpark still has significant amounts of available parking.

	Survey Time	Town Basin Batch Paid	Town Basin Clock Museum Paid	Town Basin Clock Museum Free	Carruth Street Car Park Paid
Mon - Fri average	9 am	30%	53%	43%	9%
	Mid-day	67%	83%	73%	14%
	3pm	44%	55%	59%	9%
Sat - Sun average	9 am	26%	38%	39%	26%
	Mid-day	89%	98%	97%	47%
	3pm	53%	88%	82%	34%

Table 1: Average Occupancy rate results

4.2 Revenue Report

Table 2 sets out the revenue collected during the three months February to March 2018. Note the Town Basin figures include both the parking by the Batch and the Clock Museum car parks.

Location	February	March	April	Total
Town Basin	$23,743.20	$23,777.20	$29,652.30	$77,172.70
Carruth St Car Park	$367.20	$571.20	$419.60	$1,358.00

Table 2: Monthly revenue collected

Table 3 sets out the maximum monthly revenue possible for each car park based on the 3 month period and the calculated occupancy rate based on revenue received over that period.

Location	Max Possible Revenue	Revenue Occupancy Rate
Town Basin	$293,700	26%
Carruth Car Park	$88,800	1.4%

Table 3: Revenue occupancy rate

When the parking charges for these carparks were introduced by Council the target occupancy rate based on revenue was 35% based on the revenue received at the Forum North carpark.

Councils Parking Management Strategy seeks to manage parking availability and occupancy rates through supply and charging fees. The intention is to achieve between 70 and 80% occupancy, ensuring a carpark would be available when required by the customers. Even with the introduction of charges at the Town Basin carparks, peak midday occupancy rates are exceeding 90% on Fridays and at the weekends, however overflow parking is still available in the Carruth St carpark as designed.

Council's objective to relocate all-day parkers from the Town Basin carpark and provide availability of parking for shoppers and tourists to support the Town basin activities appears to be working well, even though the new charging regime has only been in place for 4 months now.

With the construction of the Hundertwasser and CarPark to Park developments, the addition spaces in Carruth St are expected to be utilised in the future as well as further new parking spaces on Robert and Hannah St's as identified in the Parking Strategy Implementation Plan.

4.3 Business Feedback

The business operators at the Town Basin have been contacted and asked for feed-back on the recent parking changes. The survey question was purposely left generic as to not influence or lead the feedback.

Survey question

"Further to the installation of the charged parking at the Town Basin we would like to hear your feed-back on these recent changes. It would be much appreciated if you could take the time to send us your thoughts / experiences of these changes.

Your comments will be reported to the June infrastructure Council meeting and all reference to who made the comments will be removed."

Unfortunately, at the time of writing this report, the feedback survey has not been completed, but will be provided to the Committee prior to the meeting.

5 Significance and engagement

The decisions or matters of this Agenda do not trigger the significance criteria outlined in Council's Significance and Engagement Policy, and the public will be informed via the publication of this Agenda on the website.

6 Attachment

Attachment 1: Occupancy Survey Results

Attachment 1 – Occupancy Graphs

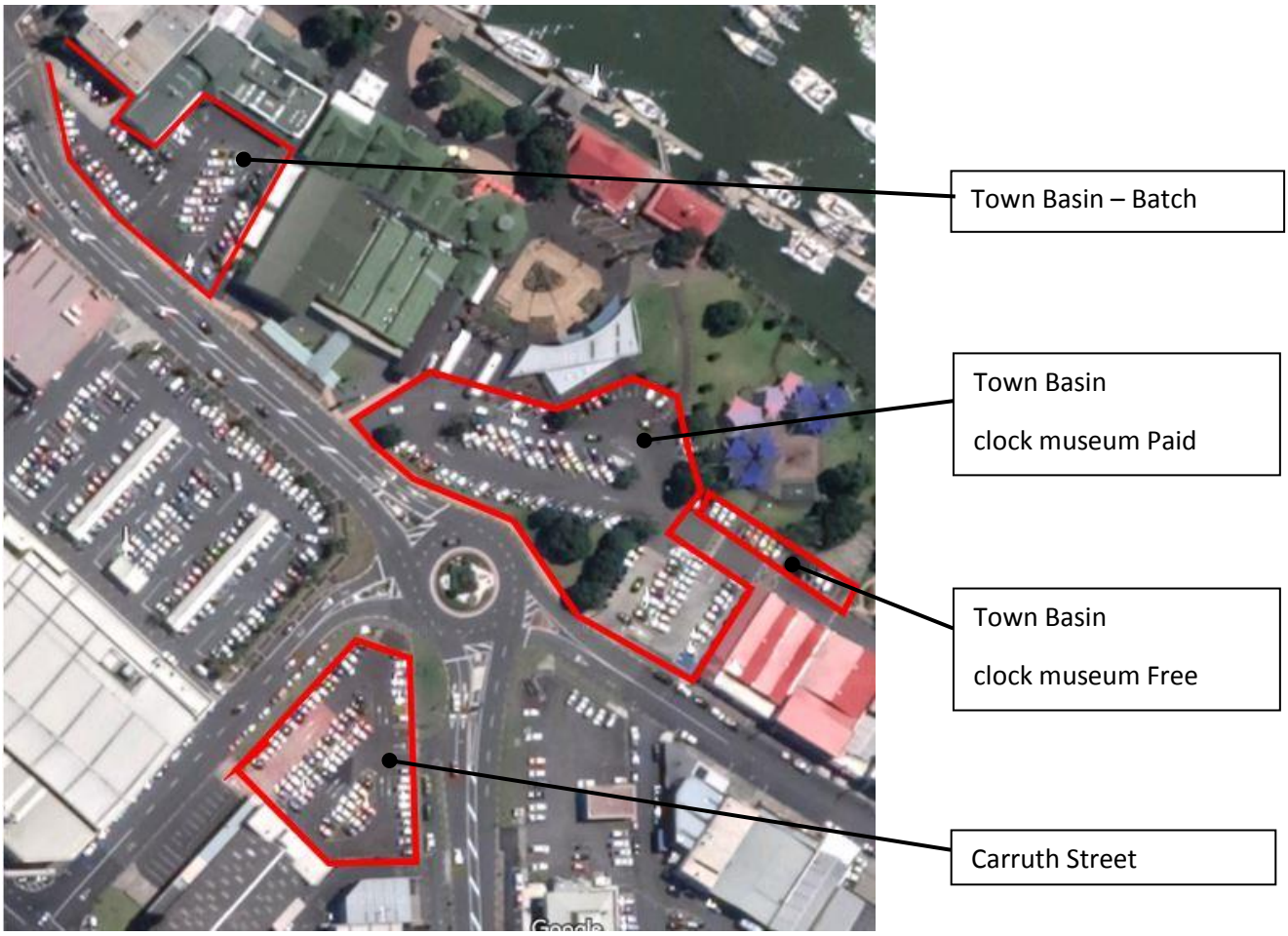
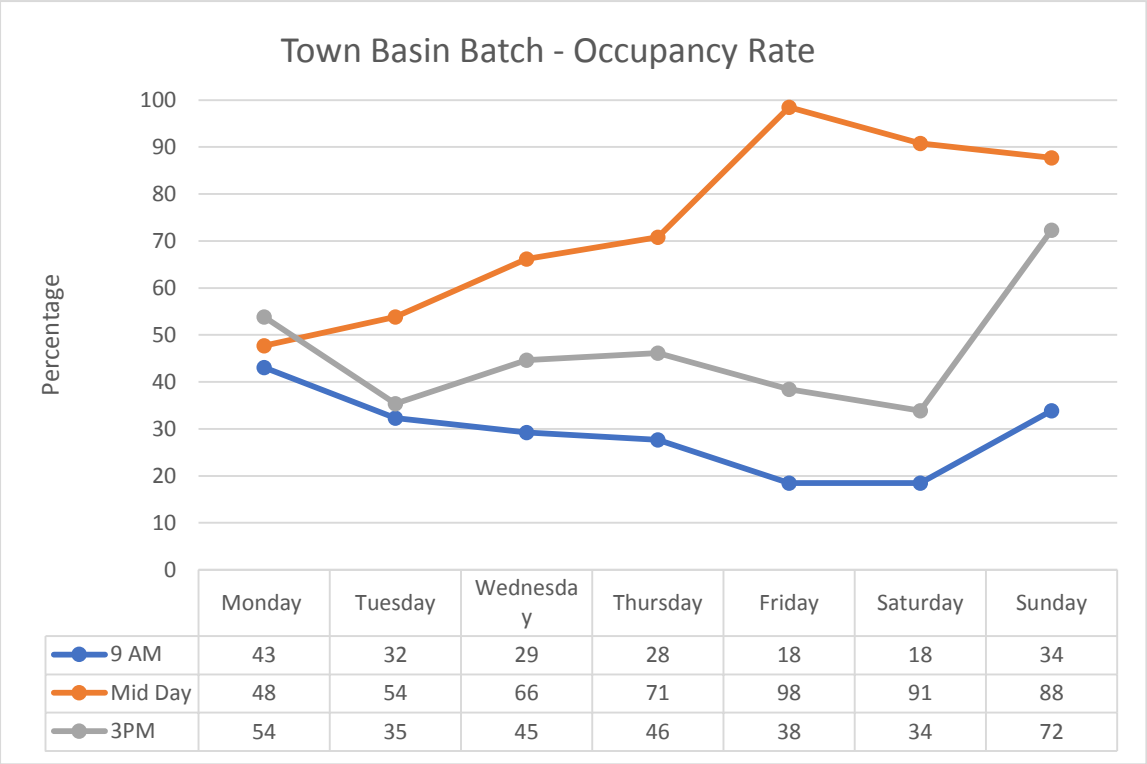
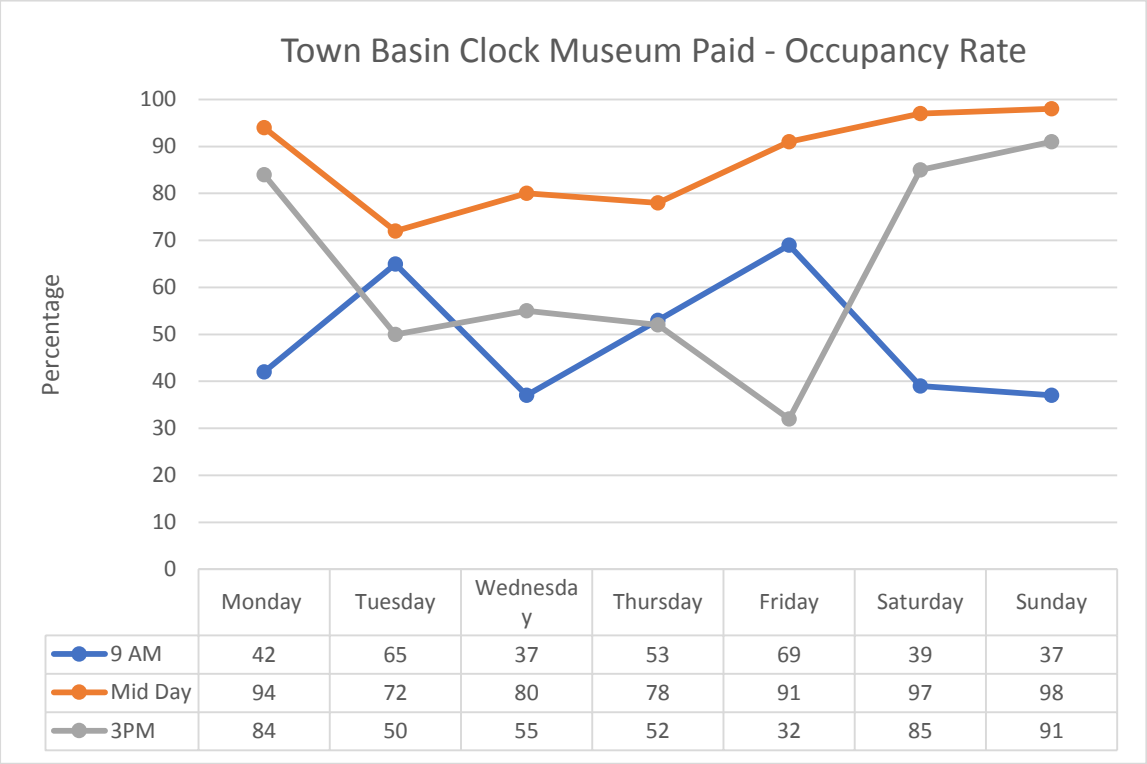


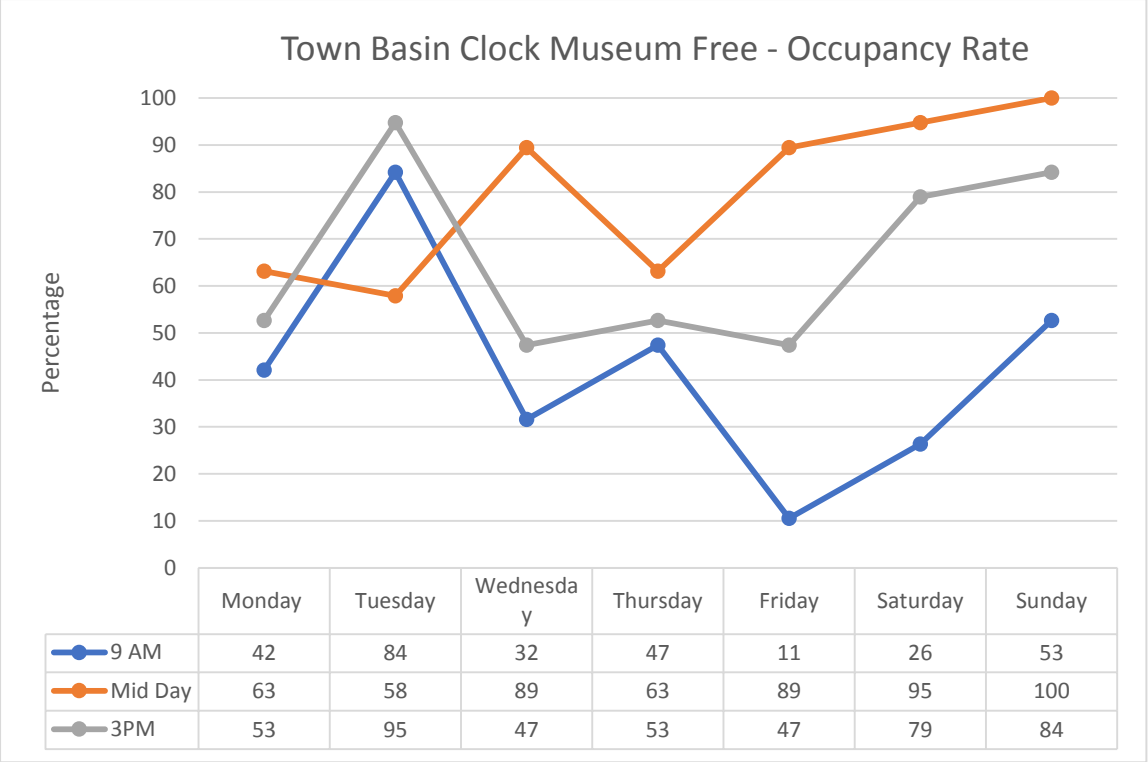
Figure 1: Survey Location Plan



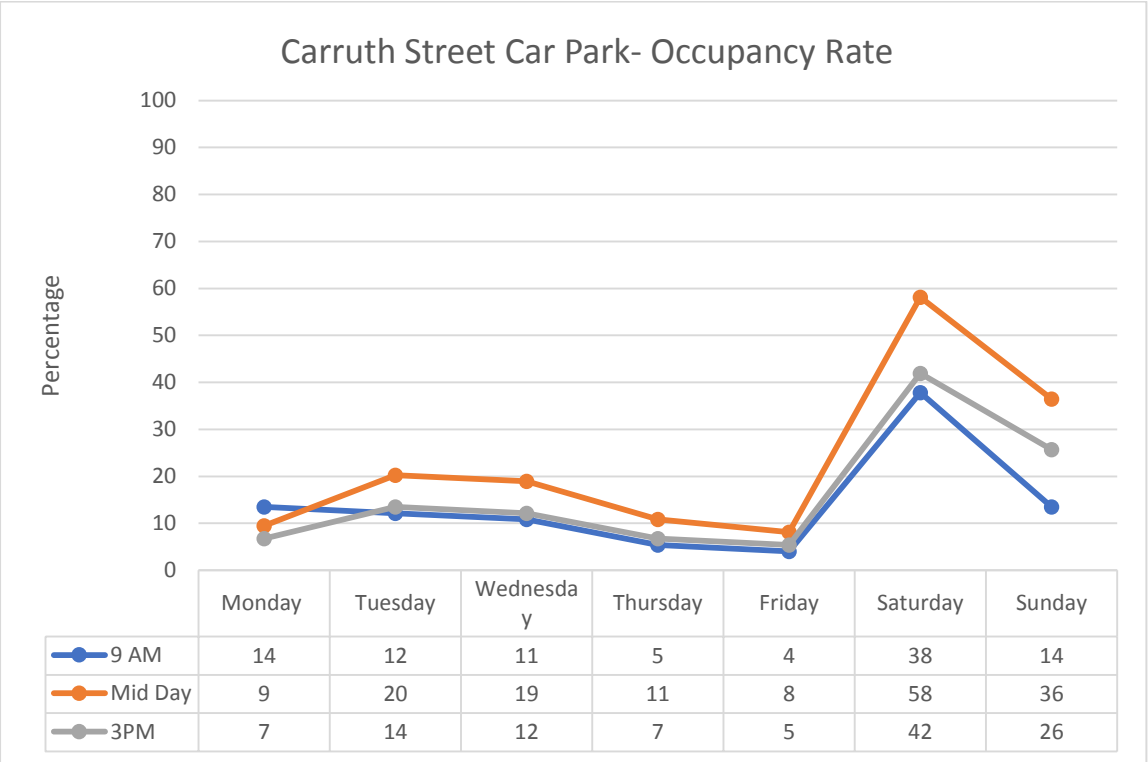
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9 AM	43	32	29	28	18	18	34
Mid Day	48	54	66	71	98	91	88
3PM	54	35	45	46	38	34	72



	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9 AM	42	65	37	53	69	39	37
Mid Day	94	72	80	78	91	97	98
3PM	84	50	55	52	32	85	91



	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9 AM	42	84	32	47	11	26	53
Mid Day	63	58	89	63	89	95	100
3PM	53	95	47	53	47	79	84



	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9 AM	14	12	11	5	4	38	14
Mid Day	9	20	19	11	8	58	36
3PM	7	14	12	7	5	42	26

WHANGAREI DISTRICT COUNCIL

5.2 Contracts Approved Under Delegated Authority

Meeting: Infrastructure Committee
Date of meeting: 7 June 2018
Reporting officer: Simon Weston (General Manager Infrastructure)

1 Purpose

For the Infrastructure Committee to note Infrastructure contracts awarded under Chief Executive and General Manager delegated authority

2 Recommendation

That the Infrastructure Committee note the Infrastructure contracts awarded under Chief Executive and General Manager delegated authority.

3 Background

Table 1 (below) records Infrastructure contracts awarded under Chief Executive and General Manager delegated authority. Attachment 1 provides a summary of the award process for each contract and a brief description of the works being undertaken

Table 1: Infrastructure Contracts Awarded Under Delegated Authority

1. Water	
CON14073	Water Meter Reading
CON18020	Ruakaka WTP Clarifier Upgrade
2. Parks and Recreation	
CON18005	Limestone Island Pontoon Replacement
CON18006	Ritchie Road Seawall Renewal
3. Roading	
CON16024	Pipiwai Road and Kokopu Road Pavement Rehabilitation
CON18026	Siemens – Kamo Shared Path Rail Level Crossing Stage 2
3. Waste and Drainage	
CON17081	Ruakaka WWTP Rama Road Irrigation Field Extension Stage 2
CON18016	Whangarei District Catchment Management Strategy

4 Significance and engagement

The decisions or matters of this Agenda do not trigger the significance criteria outlined in Council's Significance and Engagement Policy, and the public will be informed via Agenda publication on the website.

5 Attachment

1. Summary of Contracts Approved Under Delegated Authority

1.0 Summary of Contracts Approved Under Delegated Authority

This attachment provides a summary of the award process and works being undertaken for Infrastructure contracts awarded under Chief Executive and General Manager delegated authority.

1.0 Water

CON14073
Water Meter Reading

Purpose

To extend Contract 14073 for Council's Water Meter Reading to Arthur D Riley and Company Limited for two years.

Background

On 1 April 2015, DataCol NZ Limited were awarded CON14073; to read water meters in the district for Whangarei District Council (WDC) for the tender price of $430,965.00 (excl. GST).

At the time, three tenders were received as follows:

Tenderer	Amount (excl of GST)
Gary Stewart	$330,380.00
DataCol NZ Ltd	$430,965.43
Gordon McKay	$923,760.00
Engineers Estimate	**$284,024.00**

The tenders were evaluated using a Weighted Attribute Method. A summary of the results is given in the table below.

Tenderer	Attribute Score as a percentage
Gary Stewart	25%
DataCol NZ Ltd	75%
Gordon McKay	6%

DataCol NZ Ltd. are a specialist meter reading company who undertake meter reading for a number of councils across New Zealand as well as Watercare.

In September 2017, Arthur D Riley and Company Ltd. purchased DataCol NZ Ltd. and a Deed of Assignment to Contract 14073 was entered into.

The meter reading contract provides that:

> *"the contract period is for three years and the start date for the contract is 1 July 2015. The contract may be extended to a total contract period of eight years, upon satisfactory performance and agreement of both parties, which shall be reviewed on an annual basis. Rates shall be fixed for the first year of the contract period".*

Furthermore, it states that:

> *"The initial contract period is three years, with provision for up to three extensions, varying between one and two years each, to a total maximum contract period of eight years".*

The table below shows essential dates relating to this contract:

Description	Date of Commencement/ Completion
Commencement date	01 July 2015
Due date of completion	01 July 2018
Extension – 2 additional years	01 July 2020
Second extension – 2 additional years	01 July 2022
Third extension – 1 additional year	01 July 2023

This agenda item recommends that the Water Meter Reading Contract with Arthur D Riley and Company Ltd, be extended for a further two years.

Discussion

For many years, the districts meters were manually read by one meter reader and his assistant. The retirement of this reader meant that a new meter reading contractor had to be procured. The contract involves reading over 1,000 meters per week and has grown such that it is now too large for a single person to undertake.

The Arthur D Riley has a steady workforce of reliable meter readers and communication is good. They have sound health and safety practices and have introduced technology to the meter reading process. Meter readings are now entered directly by the meter reader into a handheld computer which uploads the information to the contractor's central database. The contractor then checks the data before forwarding to Council where revenue staff download it into the billing system. This process saves the billing staff considerable time compared to the old system when they had to manually enter every reading.

During the first year of the contract, there were several teething problems as a result of moving from manual readings to electronic readings and also due to the new meter readers not being familiar with locations of meters etc. By the start of the second financial year, most of these problems had been resolved.

The contractor has successfully achieved the overall KPIs for this contract within the first two years of this contract, and continues to do so in this, their third year.

Financial/budget considerations

The contract includes a Cost Fluctuation Adjustment by Indexation clause to allow for inflation. The CPI, All Groups (Table 1) is used to adjust the contractors rates each year (except for Year 1) which will then result in a revised Schedule of Prices applicable for the following year. This is applied from the start of the financial year commencing 1 July, with the first adjustment applying from Year 2. To date, the cost fluctuations have been as follows:

- Year 2 adjusted rates - 0.4%
- Year 3 adjusted rates - 2.2%

It is difficult to predict what the rate of inflation will be in the next two years, however in order to forecast a revised contract value the figure of 2% has been used.

The following table shows the increases to date for years 2 and 3 and the anticipated increases for years 4 and 5.

Financial Year	Contract value increase (assumed for years 4 and 5)	Annual Contract Value (including cost increase)
1. (2015-2016)	N/A	$126,696
2. (2016- 2017)	$766 (0.4%)	$127,463
3. (2017-2018)	$2,694 (2.2%)	$130,157
4. (2018-2019)	$2,503 (2.0%)	$132,660
5. (2019-2020)	$2,553 (2.0%)	$135,213
Overall Contract Value to end year 5		**$652,190**

Significance and Engagement

The decisions or matters of this Agenda do not trigger the significance criteria outlined in Council's Significance and Engagement Policy, and the public will be informed via Agenda publication on the website.

Chief Executive Approval

That CON14073 for Water Meter Reading is granted an extension from 1 July 2018 until 30 June 2020 and the contract be increased to the sum of $ 652,190.00 excluding GST.

CON18020
Ruakaka WTP Clarifier Upgrade

Purpose

Approval is sought for a variation in procedure to Council's Procurement Policy for the procurement of Professional Services for Contract **Error! Reference source not found.**Ruakaka WTP Clarifier Upgrade.

Background

In January 2018, an incident occurred at the Ruakaka water treatment plant causing the plant to be shut down for a number of hours and nearly running the Marsden Point Oil Refinery out of water. A report on the incident identified that the performance of the clarifiers was a major contributing factor to the length of time the plant was shut down. Recommendations in the report suggested that scrappers be installed in the clarifiers to improve performance. Given the critical nature of the supply to the Refinery this project has a high degree of urgency.

Variance to Procurement Policy

Water Services wish to procure the services of a consultant to design the clarifier upgrade. The Ruakaka water treatment plant was upgraded in 2006 and Harrison Grierson we the consultants on that project. It is proposed to use Harrison Grierson to undertake the design and supervision on this project for the following reasons.

(a) They have a thorough knowledge of the plant and its operation having designed the upgrade. They also have all the as built documentation and records, reducing the amount of rework and allowing the project to proceed quickly. Using Harrison Grierson also provides total ownership with a single consultant so there can be no blaming of other consultants designs or information if there are future issues.

(b) Harrison Grierson did a similar upgrade at the Kerepehi water treatment plant. The size of the clarifiers was identical to Ruakaka so the design costs can be reduced accordingly. Water Services have spoken to staff at Kerepehi and they are pleased with the clarifier upgrade done by Harrison Grierson.

(c) There are no local consultants with the skills and experience to undertake this work. Harrison Grierson came second behind Beca in the weighted attribute scoring for the Whau Valley water treatment plant project and are a well-respected company. Beca have a significant amount of work with Water Services as the consultants on the Whau Valley project as it enters the detailed design phase.

Financial

The project is split into two phases. The design phase and the tendering and construction phase.

The design phase involves the Preliminary Design, Hazop, Safety in Design and Detailed Design. Harrison Grierson have estimated $29,513.50 for this phase on a target cost basis. We consider that this is reasonable for this amount of work.

The tendering and construction phase has been proposed to be done on a time cost basis. This allows Water Services staff to be more or less involved as time and technical requirements permit. Harrison Grierson have estimated a medium level of involvement would be approximately $55,052.00.

Given the uncertainty around the timing and length of the construction phase it is suggested a 15% contingency be allowed to the project. This gives a total value for the professional services of the clarifier upgrade of $66,833.33. This project will be funded out of the Minor Projects Emergency Works budget spread over 2 years. The capital cost is estimated between $300,000 and $400,000.

General Manager Approval

It is recommended that the professional services work required for the upgrade of the Ruakaka water treatment plant be awarded to Harrison Grierson for the sum of $66,833.33 excluding GST.

2.0 Parks and Recreation

CON18005 Limestone Island Pontoon Replacement

Background

This contract is for the manufacture and installation of a new 8m by 4m pontoon on Limestone island and the installation of new piles to support the pontoon. The old pontoon was removed in July 2017 for investigation and it was decided it was not cost effective to repair.

Tenders

There are limited number of suppliers who can manufacture and install pontoons and the associated piles. Each of them were contacted individually to discuss availability. Each of the three companies was sent the specifications and drawings and asked to provide a quotation.

Total Marine Services submitted a price to undertake the work as described in the scope and specifications which was considerably lower than that supplied by Bellligham Engineering who submitted a price of $377,890.00. The third supplier did not submit a price.

Total Marine Services have provided a price of $99,821.25 (GST Excl) to undertake the work as detailed in the RFQ.

This price does not include a further sum of $5,685.00 (GST Excl) which may be required if divers are needed to cut off the old piles.

Financials

This project will be funded from PJ 00338.

General Manager Approval

That Total Marine Services be awarded the Contract to undertake the replacement of the Limestone Island Pontoon for the tendered price of $105,506.25 (GST Excl.) including a Provisional Sum of $5,685.00 for removing piles (One hundred and five thousand, five hundred and six dollars and twenty five cents).

CON18006
Ritchie Road Seawall Renewal

Background

This Contract is for the construction of a rock revetment seawall at Ritchie Road, Parua Bay. Including the replacement of a concrete dinghy ramp and stormwater manhole lid.

Contract Tender

The tender was publicly advertised through tenderlink on the 16th of April 2018 and closed on the 8th of May 2018.

The tender evaluation method was Lowest Price Conforming in accordance with NZ Transport Agency's Procurement Manual. Five tenders were received as follows;

Tenderer	Total Tendered Price (excl GST)
Asset Construction Limited	$196,743.37
Clements Contractors	$92,916.68
Donovan Enterprises T/a Hutton & Cameron	$108,929.44
Huband Contractors Ltd	$105,011.20
United Civil Construction Ltd	$132,533.96

The Engineer's estimate is $125,455.

Clements Contractors submission was the lowest price and was found to conform with all of the tender requirements.

Financial

The Total Tendered Price submitted by Clements Contractors is within the budget allocated to the seawall renewal.

General Manager Approval

CON18006 for Ritchie Road Seawall Renewal is awarded to Clements Contractors for the tendered sum of nighty two thousand nine hundred and sixteen dollars and sixty eight cents ($92,916.68 exclusive of GST).

3.0 Roading

CON16024
Pipiwai Road and Kokopu Road Pavement Rehabilitation

Introduction

This contract was awarded on 23 November 2016 to Downer New Zealand Ltd for the completion of pavement rehabilitation works at Kokopu Road and Pipiwai Road for the Tender Sum of $1,209,421.11 (excluding GST). On 5th December 2017 Council approved the request to increase contract award value by $26,000.00 (excluding GST) to the total current contract value of $1,235,421.11 (excluding GST) which was required on Kokopu Rd for additional pavement, safety features and drainage works.

Additional works to the value of $14,868.00 (excluding GST) were required for additional rocking in the drains at Pipiwai Road and Kokopu Road to prevent scouring. These additional quantities have been measured and approved by the Engineer throughout the works.

These additional works can be funded from the 2017/18 sealed road pavement rehabilitation category.

Chief Executive Approval

That the contract value (16024 – Pipiwai Rd & Kokopu Rd Pavement Rehabilitations) be increased by $14,868.00 excluding GST (fourteen thousand eight hundred and sixty-eight dollars) from $1,235,421.11 to $1,250,289.11 (excluding GST).

CON18026
Siemens Kamo Shared Path Rail Level Crossing Stage 2

Background

The Kamo Shared Path generally follows the North-Auckland Rail Line, for most of the route the path is within the live rail corridor. The main path crosses the rail line at Whangarei Primary School and has several connections to the main path which also cross the rail line (refer to attached plan of route).

Council awarded the Stage 1 (CON17083) to Siemens in November 2017, which was for the first 1km, including the upgrade to Vinery Lane crossing and the new crossing at Whangarei Primary School. This Contract is for the remaining singalised rail crossings within the Kamo Shared Path route. The works includes upgrades to three major level-crossing;

1. Manse Street – upgrade to existing
2. Kensington Avenue – upgrade to existing
3. Kamo Road – upgrade to existing.

The works that Siemens have quoted on for the three level-crossings are part of KiwiRail's requirements to Council to enable the construction of the shared path within their rail corridor (refer attached letter from KiwiRail dated 11 November 2016).

Contract

As per CON17083 – Stage 1 - this works is normally completed by KiwiRail and then billed directly to Council. However, due to the earthquake rebuild works, KiwiRail do not have sufficient capacity

to do this works, therefore KiwiRail have nominated that Siemens complete the works. Siemens is the only certified contractor that can undertake this work in New Zealand (sole supplier). Refer attached email from KiwiRail outlining that they are the only qualified/certified supplier in New Zealand and that their quote is reasonable compared to KiwiRail commissioning the works themselves.

This is outside our procurement rules; however, this is a unique situation where there are no other suitably qualified suppliers in New Zealand. NZTA have endorsed this works and the direct commissioning of Siemens. Without these works the path cannot be opened to the public.

Financial

The budget for this element of the Kamo Shared Path project is $1,100,000.00, Siemens quote is $998,176.00.

Most of this works will be completed this financial year, with the remainder completed early in 2018-19.

Chief Executive Approval

Contract for Siemens Ltd – Kamo Shared Path Rail Level-crossings – Stage 2 is awarded to Siemens Ltd for the sum of One million dollars ($1,000,000.00 excluding GST).

4.0 Waste and Drainage

CON17081
Ruakaka WWTP Rama Road Irrigation Field Extension Stage 2

Introduction

Contract 17081 is for the extension of the Rama Rd irrigation field at Ruakaka Wastewater Treatment Plant.

The work is required to increase the disposal capacity of treated wastewater as the amount of wastewater being received at the plant is at or exceeding the limit allowed by the resource consent condition.

Tender Submission

The contract was publicly advertised on Tenderlink and closed on 6 March 2018. Three tenders were received as follows:

Tenderer	Amount (excl of GST)	Adjusted Amount (excl of GST)
Northern Drainage LTD	$431,462.70	$488,291.25
United Civil Construction LTD	$721,932.74	-
Map Projects Limited	$772,287.79	-
Engineers Estimate	**$607,250.00**	

The tender evaluation method was lowest price conforming and in accordance with the Whangarei District Council Procurement Procedures Manual.

Tender Evaluation

The Tender submitted by Northern Drainage was the lowest conforming at $431,462, approximately $290,000 lower than the second lowest price.

However, during the pre-award meeting, Northern Drainage brought to attention that their tender rates do not include overheads and profits. The tender document was inconsistent as the Preamble to Schedule of Prices asked the tenderers to exclude the overheads and profits in their rates, but there was no separate item to allow for the overheads and profits in the Schedule of Prices. It is not clear whether the other two tenderers included the overheads in their prices.

Northern Drainage were asked to price the overheads and profits, and the adjusted tender price came to $488,291.25, still $233,641.49 cheaper than the second lowest tender. Note that the tender price was adjusted using the onsite and off-site overheads rates which were supplied in their original submission as 8% each. Overheads and profit adjustments was not applied to contingency, Dayworks and Time Related Costs. Overheads are deemed to be included in the Time Related Costs in accordance to the Preamble to Schedule of Prices. The amount subject to overheads and profits adjustment is $341,517.70, calculated as follows:

		Comment
Tender Price (Original)	$ 431,462.70	
Contingency	$ 50,000.00	No overheads & profits applicable
Daywork (Scheduled Item 6.0)	$ 8,295.00	No overheads & profits applicable
Item 1.2 (Time Related Costs)	$ 31,650.00	Overheads are deemed to be included in accordance to the Preamble to Schedule of Prices
Tender Price less Contingency, Daywork and Time related Costs	**$ 341,517.70**	Total cost of Items for overheads adjustment (Overheads are deemed to be excluded in accordance to the Preamble to Schedule of Prices)
Onsite overheads	8%	
Offsite Overheads	8%	
Onsite & Offsite overheads (1.08*1.08)	117%	
Apply Overheads to "Total cost of Items that excluded overheads"	**$ 398,346.25**	
Plus Daywork and Time Related Costs	$ 438,291.25	
Plus Contingency	$ 488,291.25	
Total Adjusted Price	**$ 488,291.25**	

The decision to accept the tender from Northern Drainage Ltd as the lowest conforming tender was independently reviewed by Frank Aldridge (The Integral Group Ltd).

Northern Drainage's adjusted tender price is 80% of the Engineers Estimate.

Financial

The project is funded under the Wastewater Treatment Plant Upgrades and has a budget of $250,000 this year and $350,000 in 2018/19. The project PJ 00137 has approximately $50,000 committed to professional fees for detailed design, and there is $200,000 available for construction this year.

Chief Executive Approval

That contract 17081 for Ruakaka WWTP-Rama Rd irrigation Field Extension Stage 2 be awarded to Northern Drainage Limited for the adjusted tender sum of Four Hundred and eighty-eight thousand, two hundred and ninety-one dollars and twenty-five cents ($488,291.25 exclusive of GST).

CON18016
Whangarei District Catchment Management Strategy

Introduction

Contract 17081 is for the development of a strategy to inform the development and implementation of an integrated, long-term approach to stormwater and flood planning for Whangarei District.

The strategy will provide guidance for a comprehensive approach to catchment management. It will also provide advice on the collection, analysis and accessibility of data, and the prioritized delivery of Catchment Management Plans across the district in light of the new Proposed Regional Plan.

Contract Tender

A Registration of Interest was advertised publicly on Tenderlink and closed on the 161h March. Of the thirteen applications, the Tender Evaluation Team shortlisted six applicants.

A closed Request for Proposal was subsequently sent to the shortlist via Tenderlink and closed on 261h April 2018. Six tenders were received as follows:

Tenderer	Attributes: score x weighting (60%)	Price: score x weighting (40%)	Overall score(%)	Amount (excl of GST)
Opus	34	30	64	$74,860
Morphum Environmental	38	33	**71**	$66,765
Tonkin and Taylor	36	26	62	$83,800
Stantec	38	22	60	$95,525
GHD	35	32	67	$69,000
AECOM	42	21	62	$98,680
Budget Limit				**$100,000**

The tender evaluation method was price and attributes, in accordance with the Whangarei District Council Procurement Procedures Manual.

The tender from Morphum Environmental scored the highest in the tender evaluation process.

Financial

The lowest tender is 66% of the budget limit.

The project is funded under Catchment Management Plans. The project PJ 00113 has approximately $100,000 committed to professional fees for this year.

General Manager Approval

That contract 18016 for the Whangarei District Catchment Management Strategy be awarded to Morphum Environmental for the tendered sum of Sixty-six thousand, seven hundred and sixty five dollars ($66,765.00} exclusive of GST.

WHANGAREI DISTRICT COUNCIL

5.3 Infrastructure Operations Report – June 2018

Meeting: Infrastructure Committee
Date of meeting: 7 June 2018
Reporting officer: Simon Weston (General Manager Infrastructure)

1 Purpose

To provide a brief overview of work occurring in the current financial year across services that the Infrastructure Committee is responsible for.

2 Recommendation

That the Infrastructure Committee notes the Infrastructure Operations Report update.

3 Background

In December 2016, Council adopted committee terms of reference for the 2016 – 2019 triennium, with the purpose of the Infrastructure Committee being to 'oversee the management of Council's infrastructural assets, utility services and public facilities'.

This report provides the Committee with a brief summary of the operational highlights from the Infrastructure Monthly Report, April 2018.

4 Significance and engagement

The decisions or matters of this report do not trigger the significance criteria outlined in Council's Significance and Engagement Policy, and the public will be informed via report publication.

5 Attachment

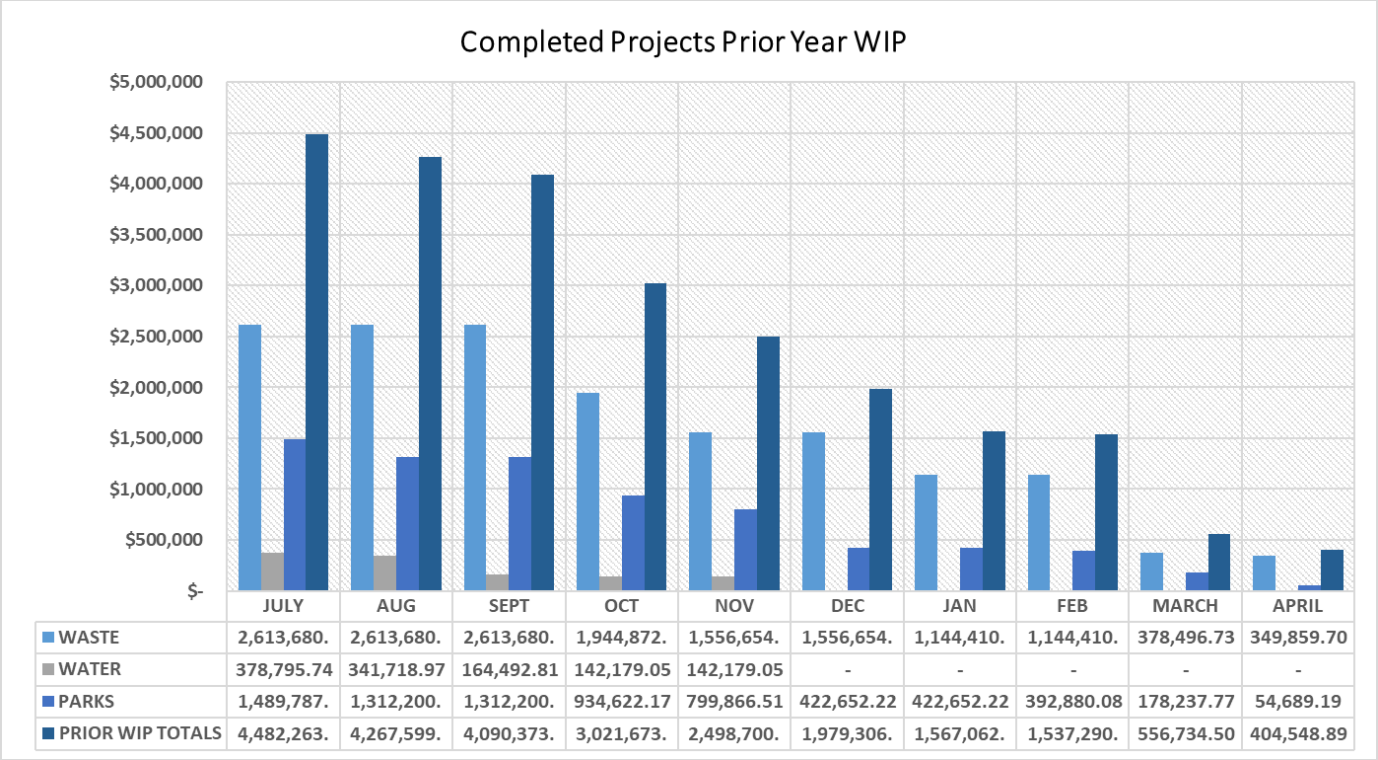
Infrastructure Operations Report – June 2018

Infrastructure Operations Report – June 2018

Infrastructure Development

Capitalisation

Projects from Parks, Water and Waste and Drainage enter the work in progress account (WIP) upon commencement and are removed to Hansen Clearing once closed and documentation required for capitalisation has been provided. The prior period WIP reduced by $1.01 million in March as staff worked through some of the larger, more complex, projects and one on one sessions were arranged with the Department Managers and staff responsible for capitalisation of each activity. This was followed by a relatively modest reduction of $152,186 in April, the breakdown of which is provided below:



	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL
WASTE	2,613,680.	2,613,680.	2,613,680.	1,944,872.	1,556,654.	1,556,654.	1,144,410.	1,144,410.	378,496.73	349,859.70
WATER	378,795.74	341,718.97	164,492.81	142,179.05	142,179.05	-	-	-	-	-
PARKS	1,489,787.	1,312,200.	1,312,200.	934,622.17	799,866.51	422,652.22	422,652.22	392,880.08	178,237.77	54,689.19
PRIOR WIP TOTALS	4,482,263.	4,267,599.	4,090,373.	3,021,673.	2,498,700.	1,979,306.	1,567,062.	1,537,290.	556,734.50	404,548.89

Since July the balance of prior period WIP has reduced by $4.08 million. During April the team also worked alongside Finance to deliver capitalisation training/workshops to key business users.

Asset Management and the Long Term Plan

One of the key projects currently underway for the team is the upgrade or replacement of our Asset Management System, the current version of which is no longer supported. While driven through the ICT department the project has significant input from the asset data and asset management teams who are ultimately the business owners for the system. Over April staff from across Council finalised requirements for the new system and the ICT Department commenced the request for proposal process.

Over April asset managers also worked through submissions received on the draft Long Term Plan (LTP), providing staff analysis and recommendations for the Issues and Options report being compiled in support of deliberations briefings/meetings in May. Following deliberations any changes that Council wishes to include in the Long Term Plan will be fed back into activity management plans and development contributions modelling.

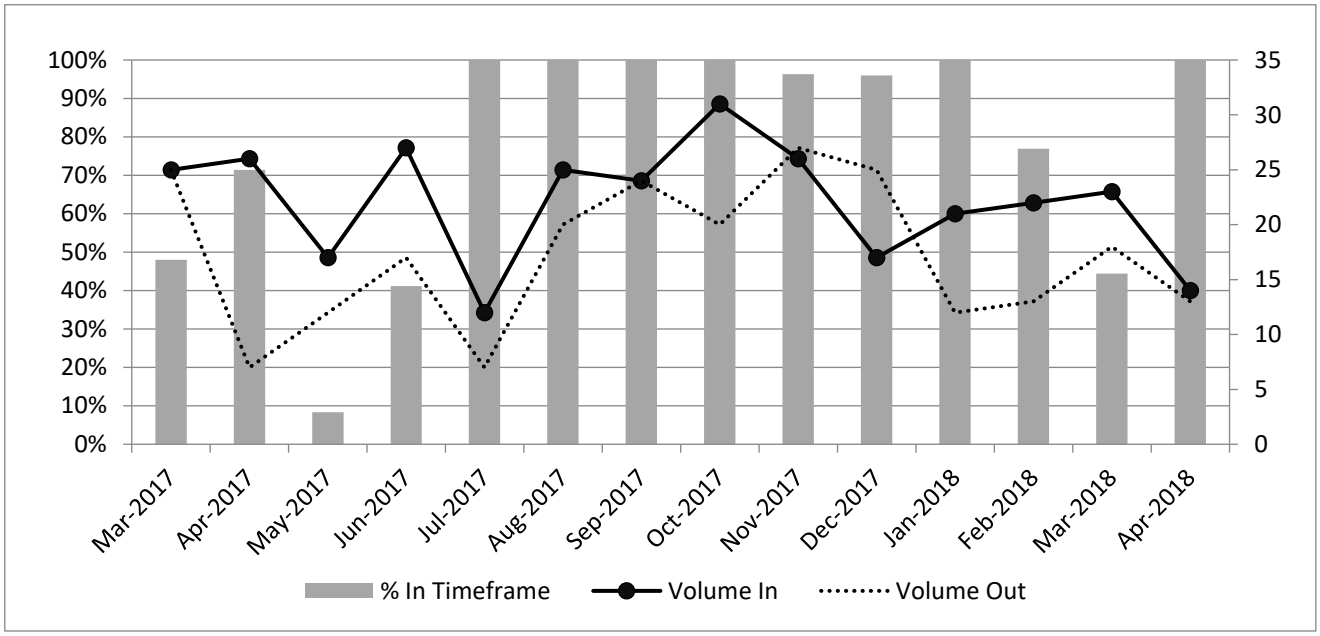
Engineering Standards

As reported previously the Planning and Development and Infrastructure teams have been working closely to align the reviews of the Engineering Standards (the ES) and the District Plan. In doing so a new approach has been taken whereby the ES will sit outside the District Plan, with technical triggers from the Standards instead being included in relevant chapters of the Plan.

This approach, along with key changes proposed through the ES review, was workshopped with Council on 04 April. Following the workshop hard copies of the draft ES were provided in the councillors room. Since the workshop staff have been compiling a full register of changes requested/made through the practitioner engagement on the ES, which will be available shortly. The next step for the ES will be to undertake formal consultation once the relevant chapters of the District Plan are finalised for public notification.

Development Engineering

The Development Engineers shifted to Infrastructure when the new structure came into effect on 01 July. This coincided with the Team filling the vacant Development Engineer's position, which in turn assisted in 100% of applications being processed within timeframe from July to October.

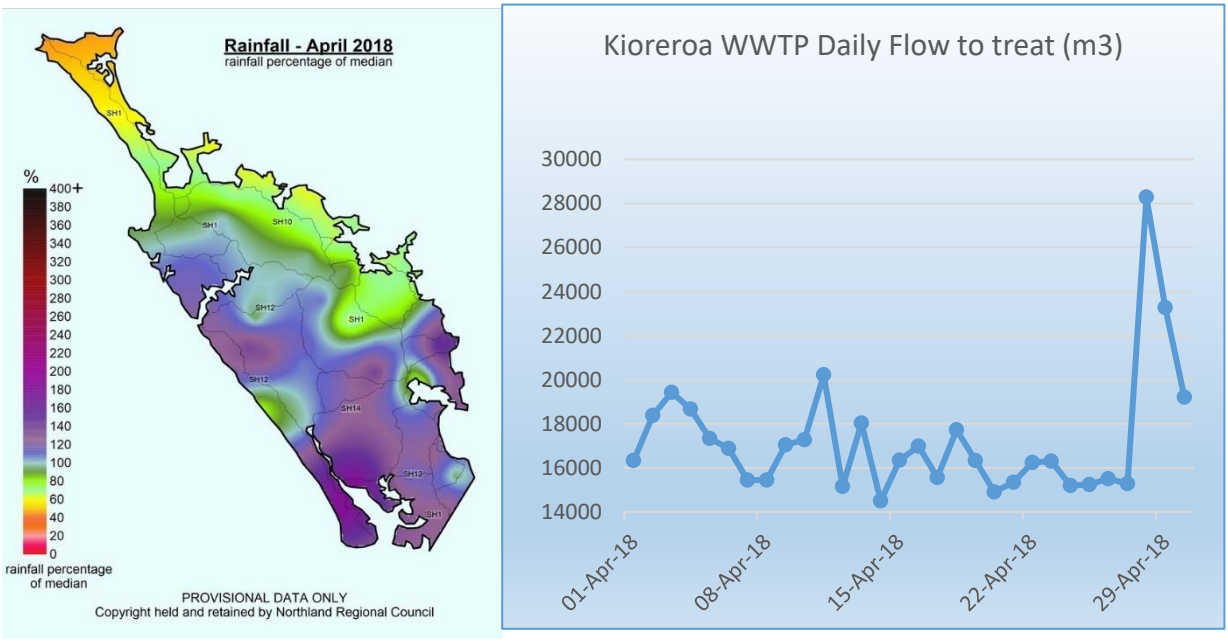


However, while applications processed within timeframe returned to 100% January (having dropped to 96% in November and December) the team received a number of larger, more complex applications in February and March. As a result, applications processed within timeframe dropped markedly over that period before returning to 100% in April.

While the return to full compliance with internal timeframes was largely driven by a reduction in new applications the team have been working through resourcing options to clear backlog and meet demand going forward. As a result of this a 'panel' of professional services providers have now been procured to enable staff to select providers that can address temporary fluctuations in workload.

Waste and Drainage

Operations and Maintenance



NRC image depicting the percentage of normal rainfall and graph illustrating the flow in m^3/d through Whangarei WWTP

Health and Safety
3 WWTP staff attended chemical handler training and Confined Spaces training has been organised. Machine guarding audit has been arranged for all sites. Sam will be attend the OH&S conference in May.

Kioreroa WWTP
The Biogas generator has been reconditioned and installed. A 670KVA generator has been priced for the WWTP and is awaiting the business case before being approval. The emergency lagoon was cleaned by Hydrotech.

Rural WWTP
The Hikurangi WWTP membrane was cleaned with sodium hypochlorite.

Human Resources
Staff training and assessment training/mentoring is being organised through HR to allow transfer of skills between W&D operations staff.

Reticulation
There was one sewerage spill in April.

Date Spill Started / Ceased	Location	Cause	Volume (m^3)	NHDB Notified of the event	Type of Sewage	Action Taken
16/04/2018	Briden Drive, Tikipunga	Fatty solids blockage in downstream line, surcharging manhole not able to be located due to location in dense gorse and pampas	<2m^3	Yes	Raw/unscreened	Line cleared, NRC and DHB notified, no disinfection or clean up required due to site being very difficult to access

Capital Works Projects

Sewer CAPEX
The Hikurangi Union Street sewer project quoted at $220K will start in mid-May. A public meeting was held in Hikurangi to discuss issues. The Manager W&D, W&D Asset Engineer and W&D Operations Engineer attended along with Councillors Anna Murphy and Greg Martin. Councillors provided support for the staff during the meeting and this was appreciated.

WIP accounts are being worked on by staff, and the majority will be capitalised by the end of the financial year.

Sewer and Stormwater Renewals
The Ikatere Place sewer was replaced at a value of $82K.

Consents and Compliance
Ngunguru ammonia is still non-compliant with consent conditions due to poor performing wetlands. This will be discussed with NRC.

Hikurangi is also non-compliant around disinfection and solids due to membrane problems, the initial report on the membrane indicates sulphur blocking the membrane; the pH needed to clean the membrane would damage the membranes. This issue is being worked through with the supplier.

Policy and Procedures
Maintenance Contract CON16080 - Stormwater and Wastewater Operations Maintenance

Several changes have been made to the management of contract CON16080. Meeting will be held at WDC to allow better transfer of information between Council and contractors. Team building was held between W&D and Hydrotech to improve working relationships.

Hikurangi Swamp Flood Management Scheme
Drain clearing was undertaken in March as agreed with the Swamp Working Group. The details are shown below.

Hikurangi Swamp Drain Cleaning 2017-2018

WO #	Area	Equipment/Item	Description	Remedy	Hansen Code	Distance	Rate	Cost	Date Added
1381154	McKenzie Drain	Long Reach Digger	Weed Clearing	Weed Clearing	HB9400	501.0	$ 2.61	$ 1,308.98	30/04/2018
1381154	Peterson Drain	Long Reach Digger	Weed Clearing	Weed Clearing	HB9400	1725.0	$ 2.61	$ 4,506.96	30/04/2018
1381154	Whyte Drain	Long Reach Digger	Weed Clearing	Weed Clearing	HB9400	387.0	$ 2.61	$ 1,011.13	30/04/2018
			Total	Kms		2613.0		$ 6,827.06	

Solid Waste Operations

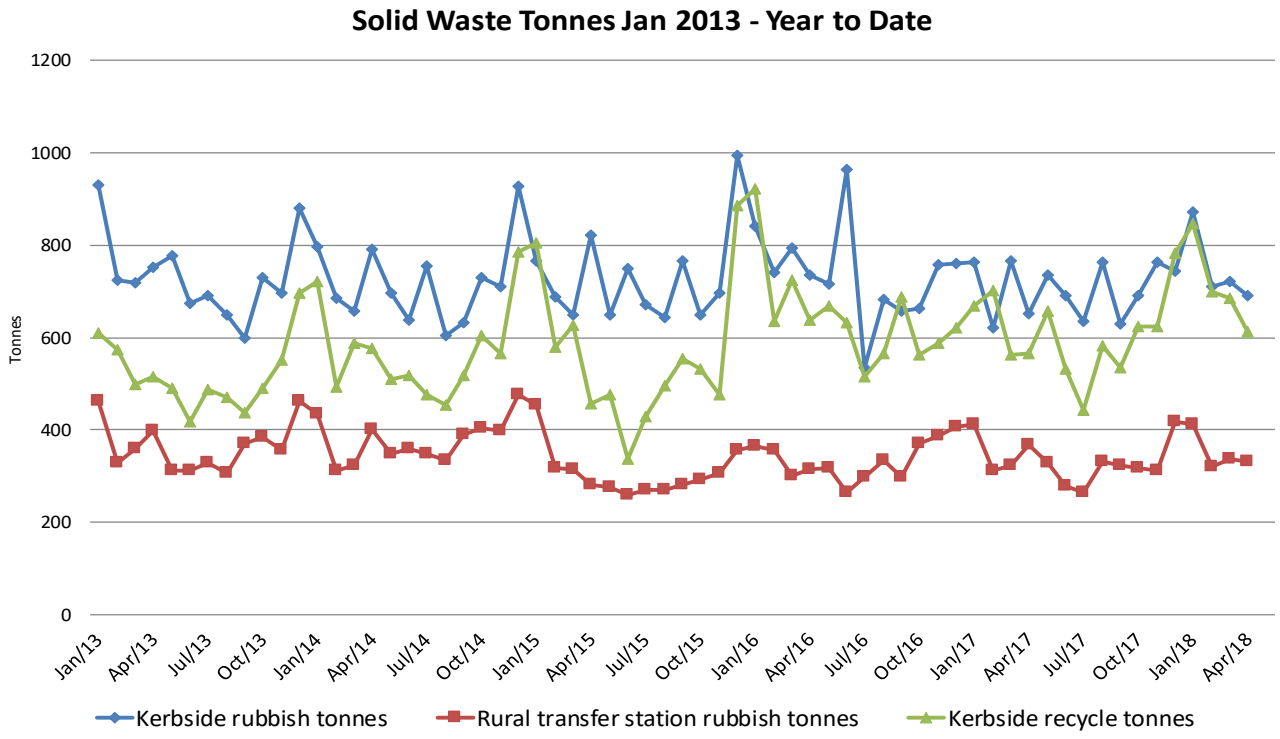
Kerbside mixed recyclables will be taken to Auckland from the 1st of May. The charge for this will be $154 per tonne in gate fee and $212 in haulage, the average amount of mixed recyclables is 100 tonnes per month. Alternative processing options are being explored through the Joint Venture – Whangarei Waste Limited.

Monthly waste tonnages are shown in the table and charts below.

Rubbish Collection Tonnes	2017/18	2016/17	RTS Tonnes	2017/18	2016/17	Recycling Tonnes	2017/18	2016/17
June		690	**June**		277	**June**		532
May		736	**May**		328	**May**		658
April	690	653	**April**	329	368	**April**	611	566
March	722	766	**March**	335	321	**March**	685	561
February	711	622	**February**	320	311	**February**	700	701
January	873	762	**January**	412	412	**January**	848	668
December	742	760	**December**	439	406	**December**	783	621
November	764	758	**November**	311	386	**November**	624	589
October	690	663	**October**	316	371	**October**	623	563
September	630	656	**September**	323	298	**September**	527	688
August	764	681	**August**	330	332	**August**	441	567
July	634	535	**July**	264	297	**July**	583	515
Total for period	**7220**	**8282**	**Total for period**	**3379**	**4107**	**Total for period**	**6425**	**7229**

Kerbside Rubbish and Recycling Collection and Rural Transfer Station Operations

Rubbish and transfer station tonnage figures are similar to last year, kerbside comingled recycling was lower than usual.



Laboratory Report

Production

The Laboratory received 835 samples requiring 2410 tests during April; 357 tests were subcontracted. 53% of jobs were reported within 5 working days. Sample numbers continue to show an increase compared with last year, current increase percentage of test numbers for the year to date is 12.3%.

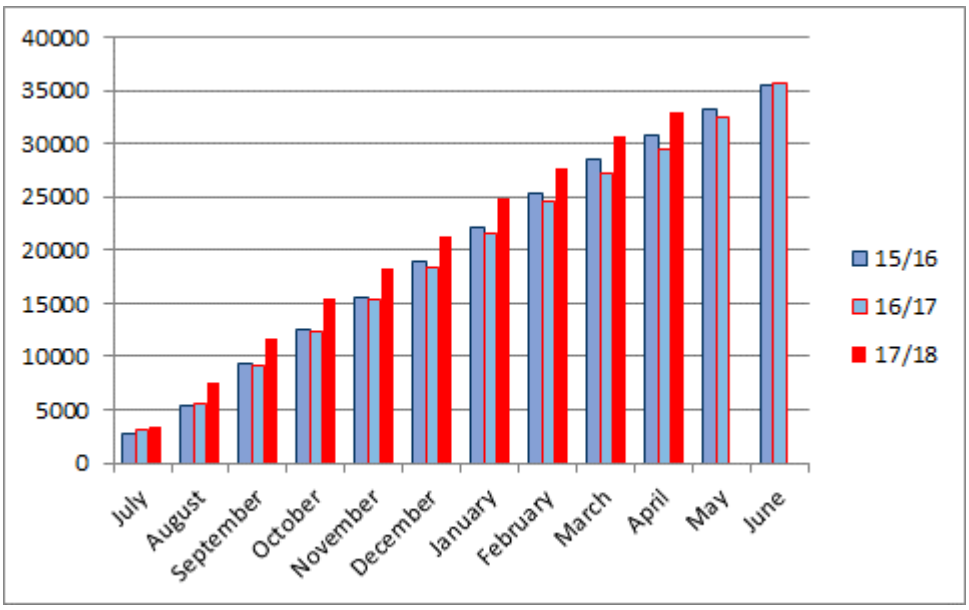


Figure 1; Tests performed to date for current year ending.

Equipment and Maintenance

The leaking roof above the equipment room is scheduled to be repaired during May. Other equipment replacement and general maintenance includes

- An air-conditioning unit has been replaced in the microbiological laboratory.
- The BOD incubator replacement ordered in January finally arrived and is installed and in use.
- A new autoclave has been delivered and installed. This has been a major project in the Lab and gives increased autoclaving capacity. The picture below shows the new equipment; the autoclaves being replaced are the two stainless items towards the left of the new machine.

Infrastructure Planning & Capital Works

Major Projects

Sense of Place Projects

- Carpark to Park: Initial project scoping is complete, including concept design and budget estimate. The Car Park to Park Working Party is meeting regularly. A decision has been made to time the physical works so that they do not interfere with the construction of Hundertwasser Art Centre. It is likely that construction of Car Park to Park will need to start in 2019-2020 with completion in late 2020.
- Amenity Dredging: This year's dredging is underway, starting outside the Art Park where last year ended.
- Camera Obscura: The external project team are in the process of seeking funding for the construction of a camera obscura on Pohe Island. Preloading of the site with metal was completed in April. Construction is provisional planned to start in August 2018 pending funding applications.

Parks & Recreation Projects

- Matapouri Beach Restoration: Peer review of the engineering design is complete and comments are being addressed. Community consultation will begin in June and the consent application will be lodged. If the community consultation goes well, we anticipate that replenishment works start in spring 2018.
- One Tree Point Seawall Investigation: The investigation will look at the entire length of coast around the One Tree Point area and will be the first step to develop a consistent approach to erosion management in the area. The professional services tender was awarded to RS Engineering who have completed their investigative work and are in the process of developing options and finalising a prioritisation matrix.
- Seawall Renewals 17/18: The design and consenting works have been completed and Ritchie Road and Princes Road seawalls are out to tender for construction.
- Ngunguru Seawall Renewal: Stage 1 at Te Maika Road is completed with agreed remedial works to the top of the wall and grass area to be completed once the contractor is available. Stage 2-3 seawall renewals along Ngunguru Road frontage are being reviewed based on community feedback. A concept plan is being prepared to refine the scope of work. Cost estimates will then be compared to budget. Additional funding would be necessary to achieve the community's desired outcomes. Hence we may need to either do less than the community wants or delay or suspend the project.
- Sandy Bay Beach Restoration: An investigation is underway to determine a long-term solution to manage erosion. Once this has been completed, a concept plan will be presented to the community for consultation. This plan will include dune protection areas.
- Otaika Sports Park Field Construction: Construction of two new sports fields, including lighting, irrigation and drainage is currently underway, and the fields will be ready for the winter season April 2019.
- Hikurangi Multiuse Hardcourt: Construction of the hardcourt is complete with only minor finishing works required. Resource Consent to install the lighting has been granted.
- William Fraser Memorial Park Development Pohe Island: Professional Services have been awarded to Hawthorn Geddes to design and document the central island carpark through to physical works. Detailed design is going through finalisation processes including a staged plan for the works to meet budgeting constraints.
- Ruakaka Sports Fields: The design for the two new fields and refurbishment of the existing fields is nearly completed.
- Laurie Hall Park: Design for stage 2 of the upgrade of Laurie Hall Park is under revision. Construction of the new pathways and lighting is planned to start in the 2018/19 financial year after Armistice Day.
- Parihaka Track Renewals: The contract has been awarded to Plantpro & Sons. The Drummond Track was completed and opened the Thursday before Easter weekend. Work on the Dobbie / Hokianga track is underway, and the stair sets have been air lifted into place.
- Limestone Island Pontoon – Pontoon has been designed and priced. Installation to begin July/Aug 2018.
- Abbey Caves Car Park and Toilet Facility - The feasibility study for this facility has been awarded to Hawthorne Geddes. Preliminary concept plans are due to Council at the beginning of May. Final concept plans and a report will be completed by the beginning of June.

- Quarry Gardens Car Parking Facility – A consultant has been engaged to undertake a topographical survey and provide a feasibility study to increase the number of car parks available at the Quarry Gardens, consider the safety of pedestrians and investigate the feasibility of providing access and parking for buses.

Water Projects

- New Whau Valley Water Treatment Plant: The preliminary design was completed in April, and the detailed design contract was awarded to Beca Ltd in May. An 'Expression of Interest' is planned for June to start the contractor selection process. Detailed design is programmed to be completed in November 2018, and tendering for the physical works contract is planned for November – December. Construction is planned to commence in January 2019, and is estimated to take 20 months.
- Ridermain Replacements 2018/19: The in-house design is complete, professional drafting services will begin in May, followed by the tender period and construction in 2018/19.
- Three Mile Bush Reservoir: Previous site location studies are currently being assessed and validated, with additional site investigation work to be performed to inform site selection process.
- Reservoir Rehabilitation 2017/18: Contract awarded to Steve Bowling Contractors. Works are complete at the Onerahi and Parua Bay Reservoirs. Work at Ruakaka and Ruddells is underway with completion due in June 2018.

Waste & Drainage Projects

- Tarewa Storage and Emergency Overflow Tank: Construction is currently underway and is due to be completed July 2018 with commissioning work in August. Extremely wet weather during January and February has reduced the number of days on site and consequently extended the completion date.

Compliance & Regulatory Projects

- New Animal Shelter: This project is currently being scoped. Concept plans followed by a feasibility study to determine a suitable site will be undertaken during the 2019/20 financial year. This will be followed by a detailed design and price estimate for construction. Construction will be undertaken in 2020/21.

Infrastructure Planning

The team is continuing work on the comprehensive review of designations held by WDC. This requires research on the history and function of each designation to establish whether it has been given effect to. In many cases, corrections or changes to the designation are needed to provide for the effective ongoing operation of the facility. The report on designations are on the Council Meeting agenda for May.

The Proposed Regional Plan for Northland submission was lodged in early November 2017. Evidence is being prepared for the hearings, which are likely to start in August 2018.

The team is continuing to review a steady stream of subdivision and land use consent applications and providing input to plan changes and the Environmental Engineering Standards review.

Landscape Architects

The team is busy with various projects including leading the design of Pohe Island Masterplan, Pohe Island Central Carpark, the Town Basin Carpark to Park project, and Whangarei Falls Amenity Upgrades. Work is starting on input to the City Centre Precinct Plan and design palette.

Parks and Recreation

Operational updates

Tree maintenance

The new Tree Maintenance Contract CON17031 commenced this month. Additional funding is now allocated to tree maintenance and progress on completing work should be quicker with a full-time team now operating.

This calendar year there are 60 streets programmed to be maintained under Category C (every 5 years). Maintenance of these streets is overdue and should have been completed between April 2015 and December 2016. With the increased budget, we expect the contractor to average around 10 streets per month depending on other work such as Cut or Trim notices or safety issues. In April, the first month of the new contract, 9 streets were completed. Work was largely in Onerahi and Kamo.

Category A trees (due every 3 months) are due to be completed at the end of May.

Northpower have issued several ‘Cut or Trim Notices’ and a power shut-down was necessary at Ruakaka in order to complete work there.

Leaves and lower sun angles have resulted in a high number of complaints from residents. These residents are generally disappointed to have it confirmed that trees are not removed for these purposes. Inspections are always made however and any work that might assist built into the planned cycle.

Tracks:

April is the first month of the new maintenance contract CON17033 with 54 tracks now maintained with a total length of 54.5km. New routes have been added: Waipu Coastal Walkway, Forest Roads on the eastern side of Parihaka and the track between Ngunguru and Whangaumu.

A deluge at the end of the month resulted in no known damage, the drainage network accepting the steady rainfall. Audits of the tracks over Mount Aubrey and around Reotahi showed them to be in good condition overall and well maintained. A large rimu blew over on the Hatea Walkway leaving a dangerous steep drop. This was repaired quickly but was a big job requiring retaining to be built.

The upgrade of the walking tracks on Parihaka is going well. The completed work on the Drummond Track has received a lot of compliments from users and the new surface is bedding in well under the heavy use. It is a little soft in two places as moisture is drawn up by the action of foot pressure. It may take until next summer to resolve this. Meanwhile, work on the Dobbie Track is progressing well and this is due to be surfaced and completed middle of May. The Ross Track will be next to receive an upgrade.

Dobbie Track upgrades

Coastal Structures

Pyle Road West timber Seawall structural repairs are complete although cosmetic finishes to remaining top sections are underway.

The illegal seawall constructed of pipes has been removed along with all readily accessible tyres. The contractor is installing temporary fencing and signage around the caves as a safety precaution until the One Tree Point strategic report has been reviewed.

Illegal pipe seawall being removed

The Coastal structures condition report has been delayed and is now due 18th May. We had made allowance for delay so this should not affect release of the new Maintenance tender.

Only 2 CRM's were received. One relating to minor seawall repairs which will be covered in the Engineering report. The other to fly-tipping and vegetation encroaching upon a boat ramp.

Sports Fields

Just 44.8 mm of rain allowed fields to dry out for the start of the winter season, with some cooler temperatures slowing grass growth. Ground conditions fortunately firmed up.
Cricket wicket renovations started with spraying out of the blocks.
Key couch fields are transitioned into ryegrass for the winter to provide additional wear for the couch and also to maintain the fields looking green. Those couch fields which are not transitioned, eventually loose all their green leaf, and while they still provide a good playing surface, they are brown in colour.
A spate of padlock vandalism at Otaika Sportspark continues and a covert surveillance camera is to be installed.

The new Head Groundsman starts 14-May.

Lights being installed at Otaika Sports ground

Parks and Gardens

The month of April was all about planting out the winter annual bedding displays. The contractor continued to prepare the beds, adding compost/ topsoil mixtures to sites as required and then the displays planted, having everything in the ground prior Anzac Day. Some of these have been vandalized with either large number of plants being pulled out (Town Basin – Fudge Farm, Town Basin – Mokaba, Town Basin – raised beds in front, Cafler Park – scented garden) or cars driving through the gardens (Tikipunga RA).

To ensure there were no issues on ANZAC Day from the drainage work carried out earlier at Laurie Hall Park carpet was put down to provide a stable surface for chairs provided for the elderly. The RSA appreciated Council going the extra mile and sent a letter of thanks.

The contractor has employed two new staff members in their horticulture area. One of these ladies, Raelene has taken on the role of Town Basin custodian. It is hoped the fresh eyes and a renewed enthusiasm will lift the standard of maintenance at the Town Basin.

April remained busy for the contractors mowing crews with the grass growth only just beginning to slow down. The addition of two new members to their mowing team will help get on top of the grass growth. The flail mower was put into Pohe Island to knock down the areas prone to extreme wetness.

Pohe Island was given a big clean up in preparation for the International Rally of Whangarei. The rally road was given a major overhaul to get it in a condition ready for the rally. The rally cars have a tenancy the spit the gravel off the road, particularly on the corners. The road was down to underlying mud in places and a large quantity of metal was needed to reform the road. We also carried out some drainage work along the road shoulders to redirect over land water flow away from the road. In doing this work we spent $30K which was not budgeted for. It is likely that remedial work will be needed after the rally as well, to repair damage caused by this year's rally. If Council wants to support this event in the future, we need to add a line item in our budgets for the maintenance of the rally road, rather than taking the money out of our general parks maintenance budget.

At the dog park, we have been busy making improvements to the facilities. The existing shelter has been renovated to extend the roof and put walls on two sides. A new concrete pad has been laid for a 2nd shelter, to be built by the dog owner community, using materials sourced through donations. The perimeter fence has had diamond mesh netting attached around the base of the fence, to make the park more secure for little dogs.

New bollard lines have been installed at Puriri Park (Council portion of road frontage) and at Kamo Sports Park, around a new carpark area near the scout hall.

Freedom campers remain an issue from Sandy Bay to Matapouri, and also Lake Waro.

Staff have been invited to be part of a predator free Whangarei working group initiated by Dr Dai Morgan (Tutor in Applied and Environmental Sciences at NorthTec and also leads the Parihaka Community Landcare Group) being funded by NRC. The concept is to extend the environmental controls being undertaken on land surrounding Whangarei city, into the city e.g. Pukenui Trust working in the western hills, Parihaka Community Landcare Group working on Parihaka, Kiwi Coast working to the east of the city and the Friends of Matakohe – Limestone Island working on Limestone island. All these groups are already working hard to remove animal pests from our region with the goal of improving our natural environment – making our native forests healthier, bring back native birds. These goals are already being seen with the recent release of Kiwi into Pukenui Forest.

This initiative takes the next step, making our urban area more friendly for our native fauna and flora amd providing ecological pathways across our city, from the western hills to Parihaka, to encourage our native animal and birds to migrate between our forests.

The initial concept is to do 'back yard trapping' by residents for rats, mice and possums. The working group will assist with education and the supply of subsidised traps.

There are a number of stakeholders supporting this initiative including NRC who are funding it. While the initial focus is on private property with back yard trapping, there is potential benefits to WDC in the future. Reducing the rat and

mouse population has to be good for the health of the city. It will lead to fewer calls to our call centre about rats. Our waterways will become healthier. The highly-motivated residents who join this initiative will not want to stay within their own boundary. They will want to expand into adjoining or nearby land, potentially reserves, helping remove these pests from our land. There is potential for new land care groups to be formed, taking ownership and pride in their little piece of paradise.

While it is early days for this initiative, it could have great benefits for our City and for WDC. As a Council, we may wish to give greater support to this initiative if it gains momentum.

The contractor has cleaned and repaired the seats through the town centre at Waipu in preparation for the community to paint them in tartan. A couple of picnic tables will be replaced in the next financial year.

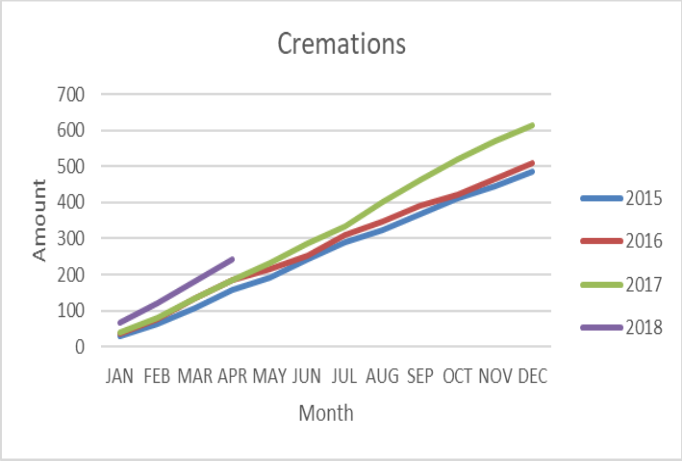
Playgrounds and Skate Parks

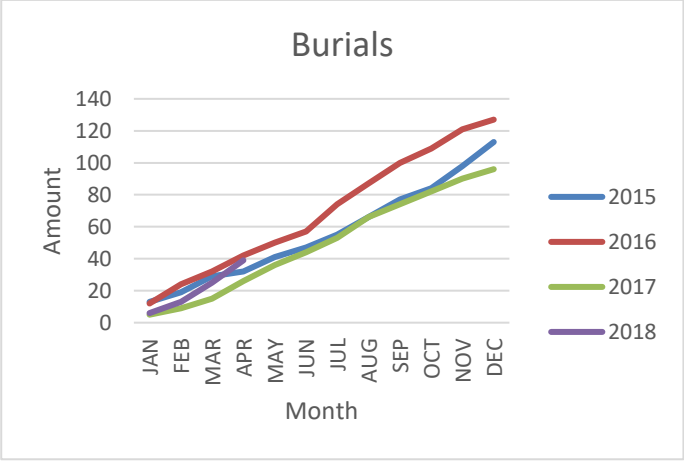
During April and variety of minor issues kept the contractor busy. At Morningside Park, Puriri Park and Laurie Hall Park, swings were damaged and either needed replacement or repair. At Kensington Park the wobbly bridge was vandalised, requiring the bridge to be removed until it could be repaired. At Mander Park a seesaw seat has been broken and has been replaced and at Ngunguru the gate latch broken needing repair, a peg holding scuff mats down became raised and had to be hammered down again, and human faeces were found on the playground, needing removal and disinfection. On William Fraser skate park, some small holes have appeared in the quarter ramp which causes issues for the skateboarders and need to be repaired.

The Otangarei playground and the associated shade sail are being manufactured at present and the installation of these is scheduled for 18 June.

Cemetery:

A busy month for cremations with the Kerikeri crematorium still out of action for the renewal of their cremator, which is long overdue as the old machine was constantly breaking down.





Year to date burials are significantly higher than 2017. April was no exception with another busy month for the team with 14 burials and 15 ash burials. Saturday burials are very popular at the moment with the guys working most Saturdays lately.

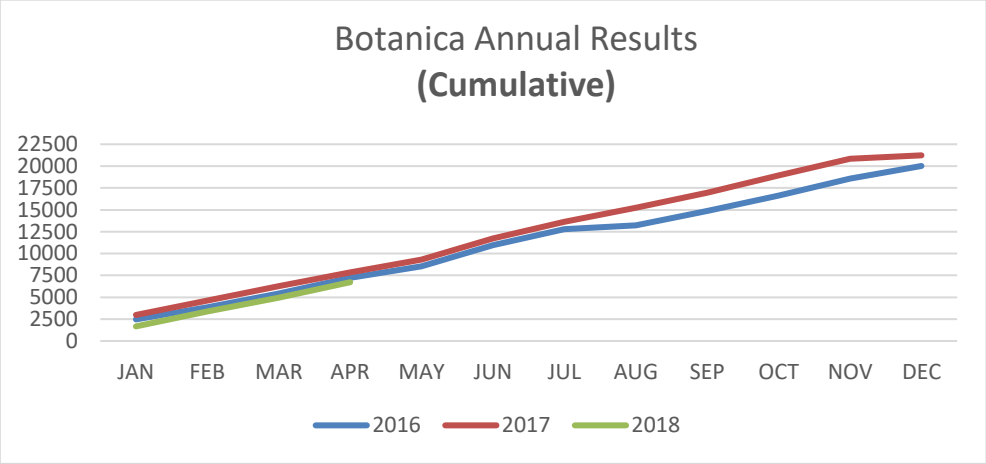
There has been interest in a natural burial area in Whangarei and a report will be prepared for Council to consider a suitable site.

Work has been done on preparing what was a paddock into our newest burial area at Maunu. The construction of the berms has started and we should soon have another 54 available plots with another 189 plots to be built soon after. This new block will be sufficient for the next couple of years. Work has also begun on the new stillborn baby plots, which is a cheaper option for families who wish to bury their little ones. The only option currently available is for them to purchase a children's plot.

New burial plots under construction

Botanica

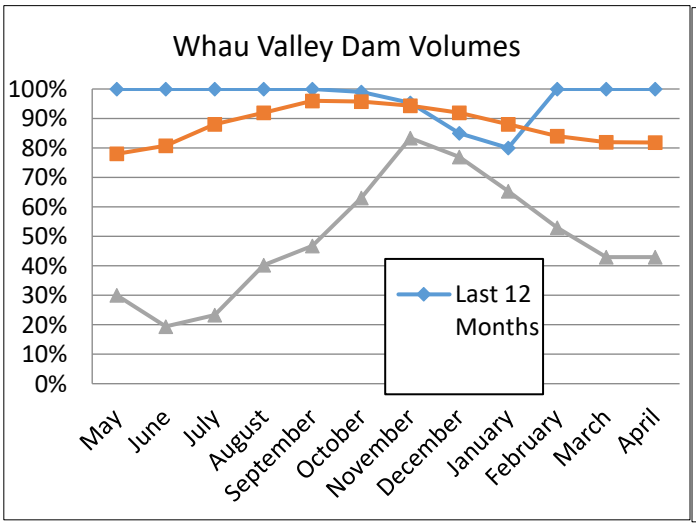
Nothing outstanding to report at Botanica other than Rose and Florence doing an outstanding job as usual with Debra being away after knee surgery.

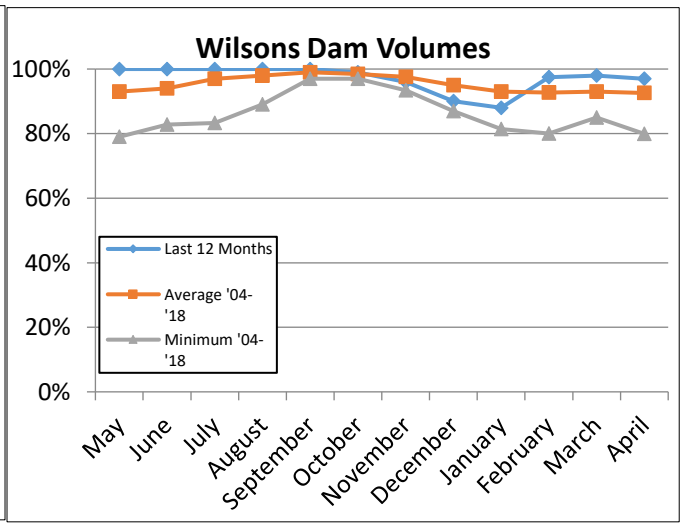


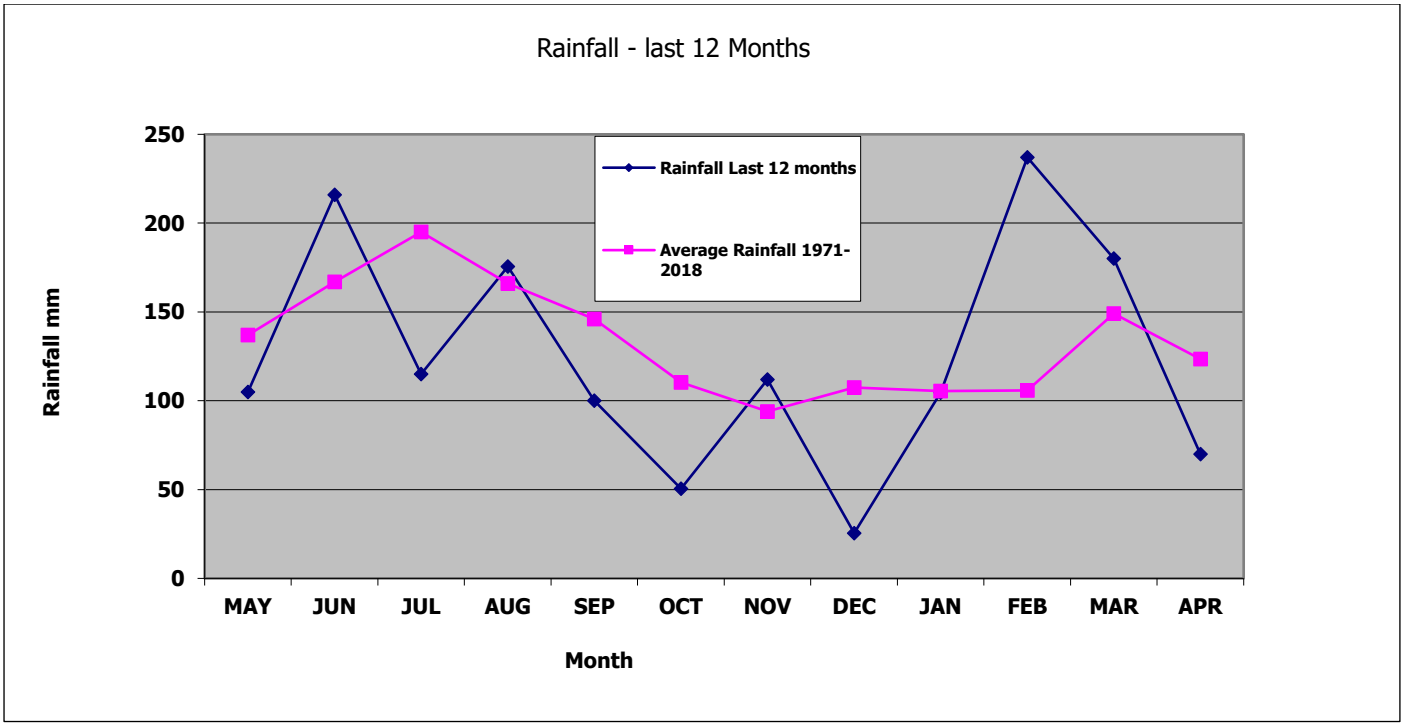
Water Services

Rainfall and Water Sources

After a couple of wet months to finish summer, the start of autumn has been dry with only 70mm of rain falling in April. This compares to the normal monthly rainfall of 123.4mm. The surplus of rain for the year to date is 100mm although the long-range forecasts suggest this could rise as above average rainfall is expected over winter. Both dams remain near 100% full and rivers have more water than normal for the time of year.







Production Report

Treatment plants ran well during April with callouts reduced from previous months and no major incidents. The Algal bloom at Wilsons Dam persists and the Ruakaka plant continues to struggle to cope with the volumes of sludge produced. In addition, the Miex Ion exchange process has been performing poorly with the additional loading. A project has been started to put scrappers into the clarifiers at Ruakaka which should assist with the overall performance of the plant. Whau Valley Dam also experienced a bloom although nowhere near the extent of Wilsons. The bloom only lasted a couple of weeks before levels dropped back to normal. The Whau Valley Dam carpark is being reinstated after the logging operations and weather permitting should be open to the public again at the end of May.

Capital Works

Work is complete on the preliminary design for the new Whau Valley Water Treatment Plant and the contract awarded for the detailed design. An expressions of interest document is being produced for the physical works contract. This is expected to be publicly advertised in early June. A shortlist of contractors will then be selected to proceed to the final tendering stage in September.

Work on the meter replacement is now complete for the year. The Ruddells raw water line replacement is well underway and all the pipe is now in the ground. Connections to the existing lines will take a few more weeks but final reinstatement may have to be delayed until the ground dries out in the spring. The main replacement contract is also underway with mains being replaced in Albany Road, Tikorangi Place and Kent Road. Work is expected to be complete by the middle of June.

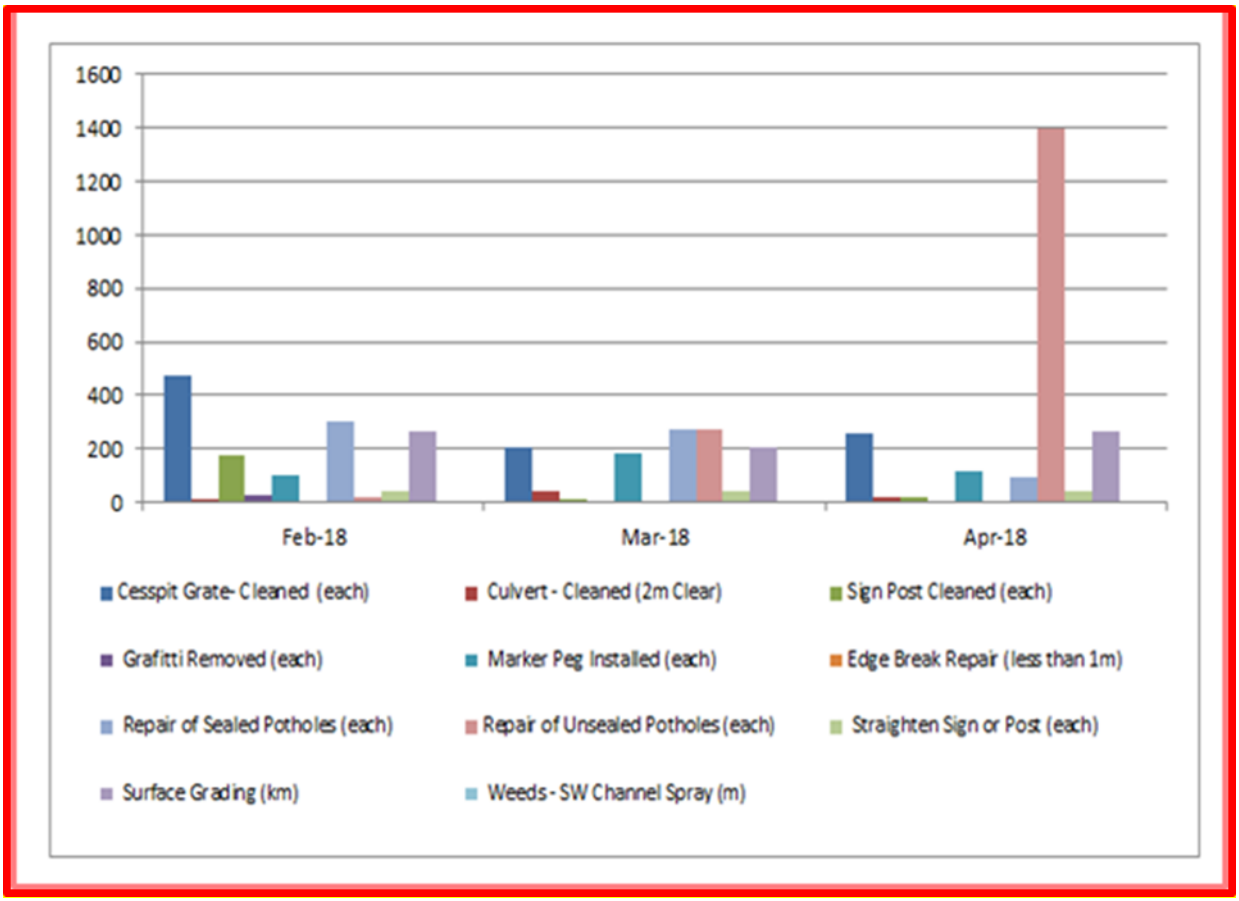
Roading

Maintenance

Authorised works this month include vegetation control, drainage works and stabilised pavement works. Routine works this month has mainly consisted of pothole repairs, edge break repairs and maintenance grading. Two dedicated patrol units have undertaken routine work including general maintenance of signage and other assets, edge marker pegs, minor vegetation sight clearing and cesspit grate/surface water channel cleaning.

The annual remark has been completed.

Roading Operational Outputs - **Monthly Achievement – Routine Works**



Pavement Rehabilitation and Seal Extensions.

The programme of rehabs on rural roads has commenced and is programmed to be all completed by April this year. Works have been completed on 3 small sections on Kokopu Rd, as well as a major slip repair on Abbey Caves Rd. A section on Springfield Rd, and Rehabs on Pipiwai Rd and Whatitiri Rd are also now complete.
The seal extension contract for 2.5km of new seal on Wrights Rd and McCardle Rd has been completed. Design of the final 4km of sealing for this road is underway.

Springfield Road Rehab.

Wright Road Seal Extension

Bridge Repair

The upgrade of the first of the bridges on Doctors Hill Road and the Thompson and Old Tokatoka Rd bridges are now complete. Upgrade of the second bridge on Doctors Hill Road, Ararua Rd and Wilson Rd bridges will be completed by April of this year. Major bridge maintenance contracts for scour protection and general maintenance are under construction.

Jellick Rd Bridge Repair

Wilson Rd Bridge

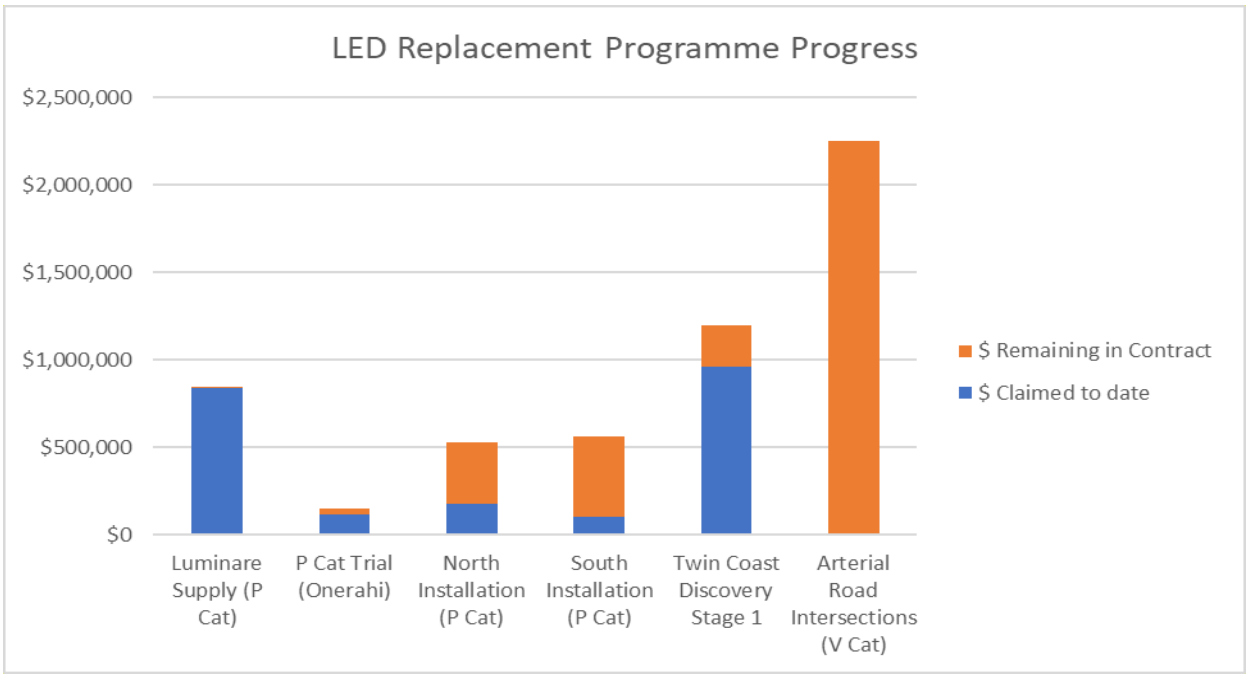
LED Street Light Conversion

Funding has been approved from NZTA for $6.6M to replace the existing streetlights with energy efficient LEDs. This work was funded at 85% FAR (subsidy) for work completed by 30 June 2018. NZTA have just announced that the 85% subsidy rate has been extended up until June 2021.

The installation trial that was undertaken on the Onerahi/Whangarei Heads area is now complete.
The two contracts for the installation of the P-Category lights in the northern and southern halves of the Whangarei District Council area have been awarded to Currie Electrical and McKays. Work on these contracts started in January and is due to be completed in May. In total, 1,915 P-Category lights (58%) have been installed to date.

The upgrade of the V-Category (Arterial road) lights on the Twin Coast Discovery Highway in Whangarei City, which is being undertaken by Currie Electrical, is nearing completion.
The V Category lights for the arterial road intersections have been designed and the luminaires ordered. These luminaires are expected to arrive in June. As there are only 83 intersection lights, this work is likely to be included in the Twin Coast Discovery Highway contract as a variation.

The remaining 1,200 V-Category lights are currently being designed and it is expected that these designs will be received in late May. Given that there is a 3-4 month lead time, this will result in these lights arriving in September/October. The installation of these lights is likely to be undertaken by June 2019.
We are currently determining whether the central management system (CMS) to control the new LED streetlights can be provided by the Spark proposed “Smart Cities” LoRaWAN network.



Kamo Cycleway

The stage 2 contract (Cross St to Kamo Rd) has been awarded and construction has commenced. Construction of the cycleway for Stage 1 were completed by the end of January but works on the Railway and Crossing controls were not completed until May.

The programme of works and progress is reported below:

Stage 1 (CON16020 Rust Avenue to Cross Street)

- Civil works complete, except those components to be completed by KiwiRail.
- A portion of the fencing at Whangarei Club is on hold. KiwiRail are opting to fix a slump in the upper dry stonewall embankment (near Rust Ave) before we complete this section in June 2018.
- Railway signalling works are now complete at the Vinery Lane and new Whangarei Primary School crossings. (see photo below). This works is led by KiwiRail and their sub-contractor. The section of path from Vinery lane to Manse St is now open to the public.
- Planting works has started and will be completed in May.
- Stage 1 has a target official opening of August 2018, but with some sections available for use earlier.

Stage 2 (CON16086 Cross Street to Kamo Road)

- SP 1 Cross Street to Wrack St (target completion of Spring 2018)
- Earthworks and services work is nearly complete, and the section north of Manse Street is nearly ready for pouring.
- Manse St / Lupton Ave intersection improvements is partially completed, Broadspectrum is working with KiwiRail to complete the rail crossing improvements in early May with phase the pedestrian signal crossing works programmed for June.
- First section of concrete along Cross Street has been poured. All concrete pours are programmed to be completed by the end of June 2018.
- SP 2 Wrack St to Kensington Ave has started. Closure of Wrack St intersection with Lupton Avenue is planned for June 2018.
- SP 2 Kensington Ave to Kamo Rd has started, with clearing and earthworks nearly complete. The target completion date is late-2018.

Stage 3 (Kamo Rd to Jack Street)

- Design completed, awaiting KiwiRail feedback
- Tender will be uploaded in early June.
- Physical works is programmed to start in spring 2018 with a target completion of early 2019

Stage 4 (Adams Place to Fisher Terrace)

- Path design mostly complete – this section will be tendered with Stage 3 as a separable portion, however, excluding the underpass, which will be a separate tender.
- underpass preliminary design is completed, KiwiRail 50% review is completed and tender will be released in early May.
- Underpass construction is to take place during the Christmas railway shutdown.

Stage 5 (Fisher Tc to Kamo village)

- Scoping design underway for future links to Kamo Intermediate, Kamo High School and Kamo Village. This will involve a combination of shared paths and traffic calming (greenways). Note that this section is not part of the 2015-18 programme of works and will be completed as part of the 2018-21 LTP.

The Walking and Cycling Strategy

The Walking and Cycling Strategy 2012 is currently undergoing its 5-yearly review. The updated strategy will be the keystone for securing funding for urban walking and cycling projects, as well as strategic regional Great Rides and Great Walks throughout our District.

The draft strategy is complete and will now be taken to Council for formal adoption to enable public consultation.

It is anticipated that the Draft Strategy will be available for formal public feedback in June 2018.

We are working with NRC, Northland Inc, KDC and FNDC to develop a robust regional strategy with associated maps, regional priorities and economic justification for a series of high-quality easy trails following our unique coastlines. These trails once complete, will link Auckland's east coast with the Bay of Islands, via the Bream Coast and Tutukaka Coast, then connect across to the Hokianga Harbour via Twin Coast Discovery Trail then back down to Auckland's west coast via the Kauri Coast Trail. The three Councils are working together to put forward a serious of applications to Government's Provincial Growth Fund to build some of the key sections of these regional trails.

Waipu Walk Cycle Trust – Stage 2 Estuary View Heights to Waipu Cove – Physical works is planned for mid-2018. Stage 1 got a highly-commended award for the NZTA's Taking Communities on The Journey, which was announced at the Asia Pacific Cycle Congress in Christchurch on October 19. The NTA and the Trust have submitted a combined Provincial Growth Fund Expression of Interest application to complete the Trail from Waipu to Waipu Cove.

Whangarei District Road Safety Promotion April 2018

SAiD (Stop Alcohol Impaired Driving): 6 participants completed the programme in April.

Drive Soba: 13 recidivists are currently attending 2 programmes due for completion in June respectively.9 completed the programme which finished in April. One programme ah dot be cancelled for lack of numbers.

SADD: 6 students from 3 high schools attended the SADD conference.

Young Drivers:. Of 20 learners, 16 completed, 15 sat and 12 passed at People Potential. 7 out of 7 passed Learners at Ngatiwai Learning Trust.

Speed: Programme on bus backs and cinema

Key district issues

- Young Drivers
- Alcohol and/or drugs
- Speed
- Rural speed zone loss of control / head on
- Intersections

Community Mentor Driver Programme: 41 learners are being mentored by 12 volunteers mentors, including 2 new. They carried out 126 hours and 12 sat and 10 passed restricted licences.

Restraints: 1 workshop with 8, 1 checking clinic with 6 seats checked and training for 5 technicians.

Motorcycle Get Ride Ready Safety Campaign: 30 motorcyclists took advantage of the subsidy for training courses under the Spring17 Campaign. 16 attended the Ride Forever Bronze ($320). 22 were from the Whangarei District. 11 attended the Silver ($550). 6 were from the Kaipara District. 3 attended the Gold ($150) 2 were from the Far North District. Digital Impressions purchased for various social media formats – 47,619 – size 300 x 250. Approx. 40 Fluro Ride Forever vests were given to motorcyclists during the campaign.

Fatigue Stops

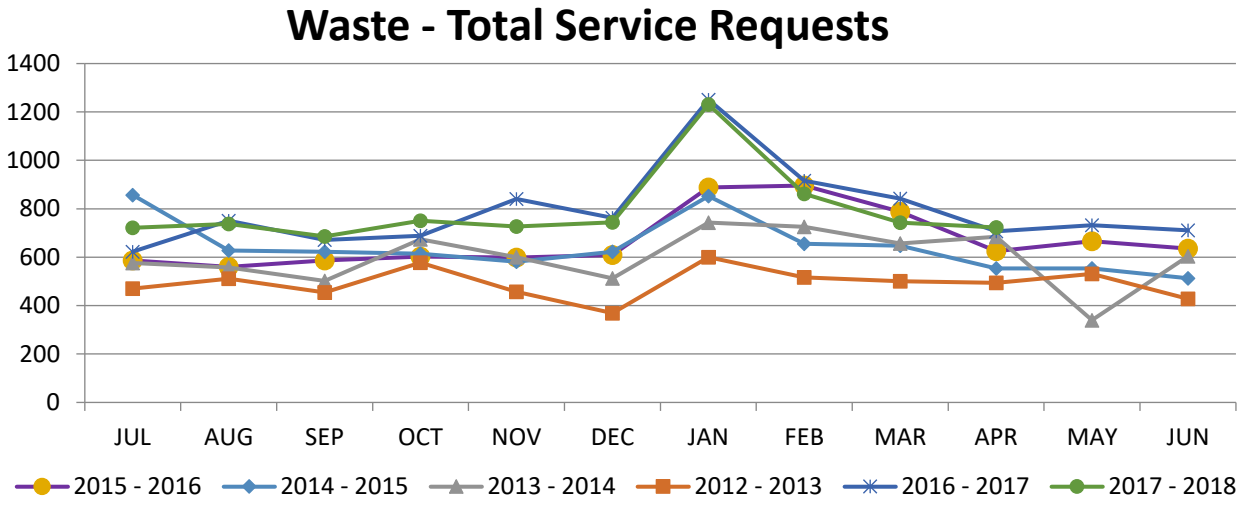
Date	Vehicles	People	Date	Vehicles	People
20.10.17	69	115	2.02.18	95	220
24.11. 17	28	75	29.03.18	105	208
26 .01.18	95	220	30.04.18	35	78

Northland Road Toll

Road Toll	Total for all 2017	Total at End April 2018	Northland SH Network	Northland Local Network
Whangarei	14	8	4	4
Kaipara	5	2	2	0
Far North	22	7	6	1
Totals	41	17	12	5

Customer Request Management Services (CRMs)

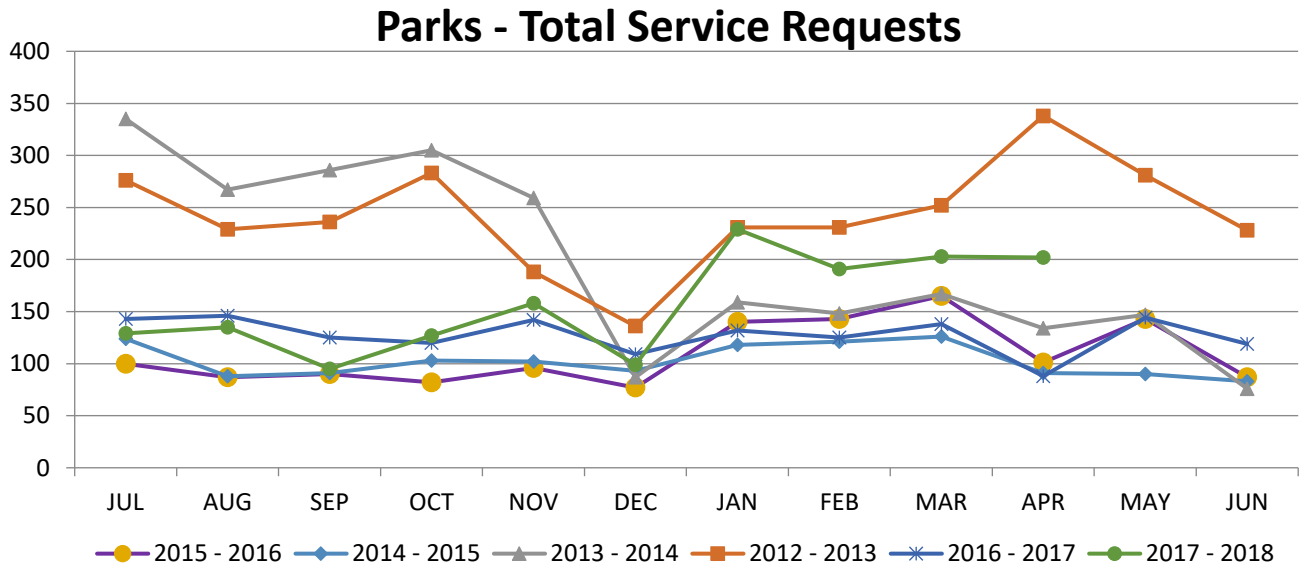
The Infrastructure Group received a total of 1707 CRMs in the month of April 2018. 7,962 CRMs for 2018 to-date with 28,852 CRMs in total for 2017.



The Waste and Drainage Team received 723 CRMs in April 2018. 3 were impressed CRMs, 9 acceptable and no dissatisfied calls.

The top five CRM issues for our Waste and Drainage Department for the month of April were:

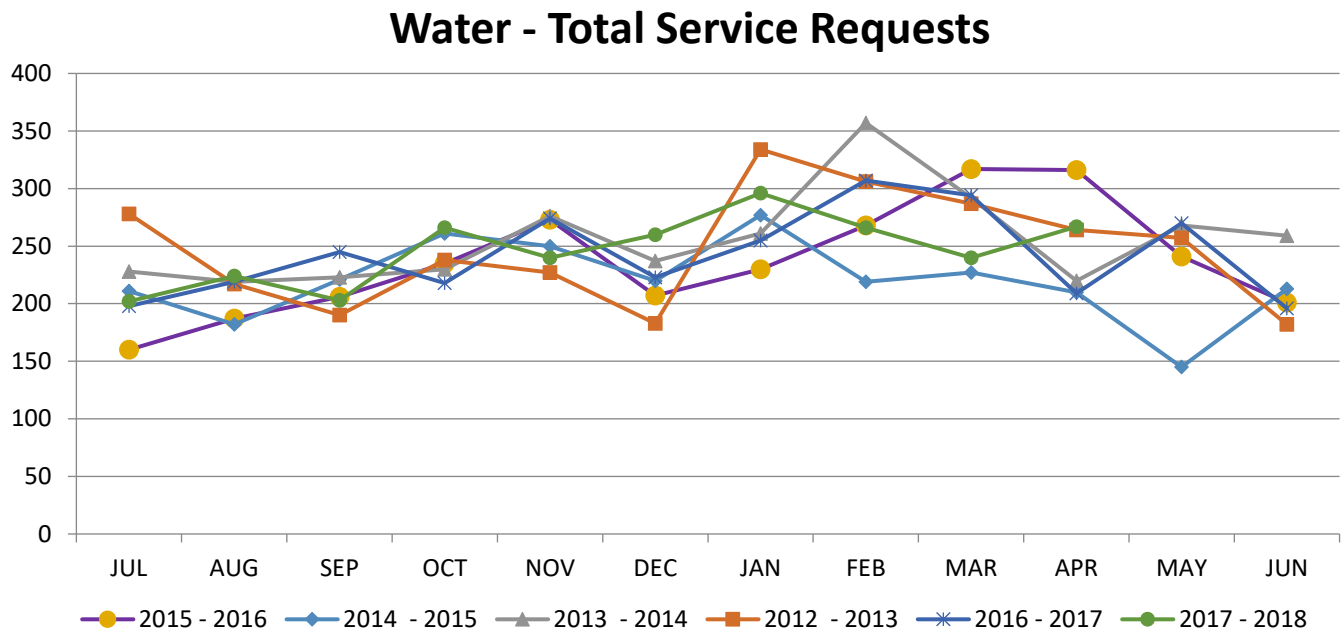
- Rubbish Queries – 128 calls (non-collection, fly tipping etc)
- Public Toilet queries/complaints 78 (eg Soap dispenser empty).
- Recycling queries and complaints- 48 (eg Bin missed during collection)
- Stormwater queries- 19 (eg blocked storm drain)
- Sewer queries- 19 (eg blocked waste drain)



The Parks team received 202 CRMs in April 2018. There were 3 impressed CRM's recorded for the Parks Team for the month, along with 5 acceptable and 1 dissatisfied call.

The top five CRM issues for our Parks and Recreation Department for the month of April were:

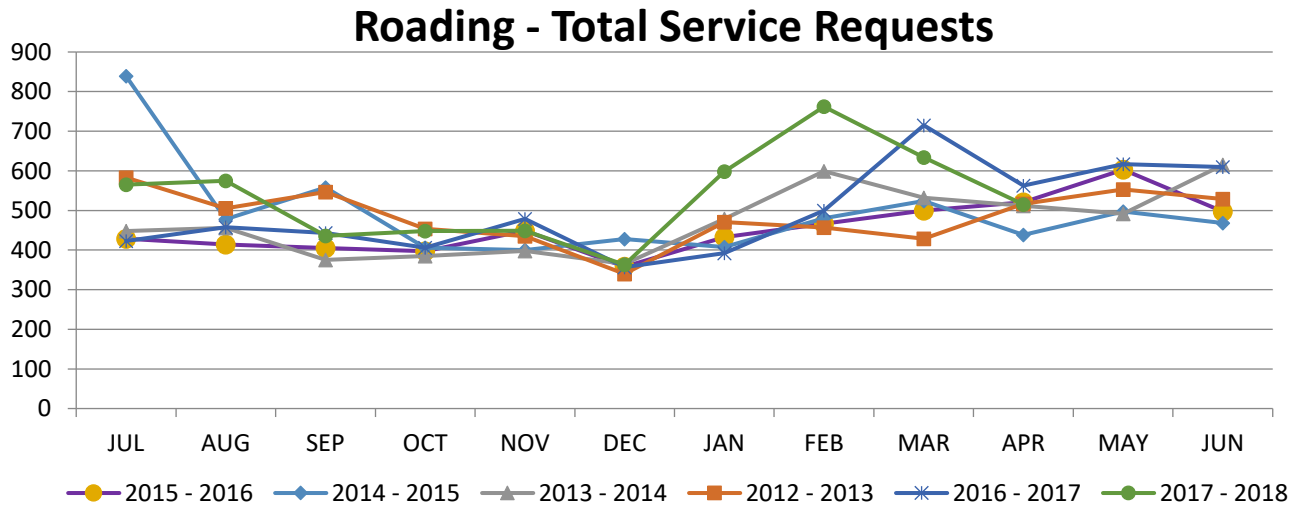
- Tree and Street Tree queries- 62 (eg tree fallen over)
- General Parks queries- 53 (eg access to reserves, Drone requests etc)
- Cemetery enquiries- 15 (Burial enquiries etc)
- Walkways- 10 (Works on walkways)
- Playgrounds 7 (Playground queries and issues)



The Water team received 267 CRMs in April 2018. The Water Team received 16 impressed calls and 12 acceptable calls during the month. No instances of dissatisfied feedback were received.

The top five CRM issues for our Water Department for the month of April were:

- Water Leaks- 137 (Leak repairs or concerns)
- Meter Box Queries- 53 (New box, new meters)
- General Water Queries- 18 (land enquiries etc)
- Water Pressure- 6 (Pressure related queries)
- Water Quality- 4 (Water quality issues- clarity, odour, taste)



The Roading Team received 515 Customer Service Requests in April 2018. There were 38 follow up calls made in the month of April. Four customer were dissatisfied. Twenty customers found our service acceptable. Fourteen customers were impressed by the Roading team and contractors.

The top five CRM issues for our Roading Department for the month of April 2018 were:

1.	75 reports of Roading General	E.g. General and Safety issues.
2.	59 reports of Street Lights	E.g. Maintenance and queries re LED conversion.
3.	50 reports of Parking Meters	E.g. Parking meter issues.
4.	46 reports of Unsealed Roads	E.g. Maintenance on unsealed network.
5.	46 reports of Stormwater issues	E.g. Clearing cesspits and stormwater issues

RESOLUTION TO EXCLUDE THE PUBLIC

That the public be excluded from the following parts of proceedings of this meeting.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under Section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

1.	The making available of information would be likely to unreasonably prejudice the commercial position of persons who are the subject of the information. {Section 7(2)(c)}
2.	To enable the council (the committee) to carry on without prejudice or disadvantage commercial negotiations. {(Section 7(2)(i)}.
3.	To protect the privacy of natural persons. {Section 7(2)(a)}.
4.	Publicity prior to successful prosecution of the individuals named would be contrary to the laws of natural justice and may constitute contempt of court. {Section 48(1)(b)}.
5.	To protect information which is the subject to an obligation of confidence, the publication of such information would be likely to prejudice the supply of information from the same source and it is in the public interest that such information should continue to be supplied. {Section7(2)(c)(i)}.
6.	In order to maintain legal professional privilege. {Section 2(g)}.
7.	To enable the council to carry on without prejudice or disadvantage, negotiations {Section 7(2)(i)}.

Resolution to allow members of the public to remain

If the council/committee wishes members of the public to remain during discussion of confidential items the following additional recommendation will need to be passed:

Move/Second

"That _____ be permitted to remain at this meeting, after the public has been excluded, because of his/her/their knowledge of Item _____.

This knowledge, which will be of assistance in relation to the matter to be discussed, is relevant to that matter because _____.

Note:

Every resolution to exclude the public shall be put at a time when the meeting is open to the public.