

Whangarei to Te Hana
Re-evaluation summary

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EXECUTIVE SUMMARY

The transport system between Auckland and Whangarei is critical for the Northland region, providing connection with the rest of the country and ensuring the economic and social prosperity of the region is not compromised. SH1 is the critical transport link in this system for the majority of transport movements. It is therefore imperative that is a safe and reliable transport connection for the customers using it. Currently that is not the case, the route has an ONRC classification of a National Route and the current safety performance does not meet the levels commensurate with this classification. Between Whangarei and Te Hana there have been on 100 DSI's over the last five years.

There has been sustained transport growth along the corridor at approximately 5% per annum for over 5 years and this is further exacerbating the safety and resilience challenges in the corridor. There is also the opportunity to refocus on providing greater choice and priority for access in this area.

With a renewed focus from the GPS 2018 on safety and access, the long term strategy for this critical corridor has been reviewed and refined. This refined approach includes:

- In the short term:
 - Consideration of corridor wide speed management strategy to improve safety
 - Localised safety improvements designed and implemented in a number of locations (including Loop Road, southern Brynderwyns as examples)
 - Increase investment in enforcement and driver licensing facilities through the corridor to address the behavioural factors impacting on the poor safety record
 - Strengthening network resilience through consideration of alternative routes to ensure a robust transport system for Northland
 - Development of more integrated landuse and transport plan at the northern end of the corridor, and in particular the Whangarei urban area, to drive better transport choices
 - Identification of measures and locations for prioritisation of more efficient modes of transport (including PT, HOV and freight between Whangarei and SH15A)
- In the medium term:
 - Implementation of identified safety, resilience and efficient modes projects
 - Route protection of longer term priority works such as Brynderwyns bypass
- In the long term
 - Implementation of longer term priority works as identified by earlier stages

More specific details of the preferred programme of works are shown in the figure below. It is important to note that this refined corridor approach focusses investment on safety as the first priority and looks to address the access needs of the corridor by firstly making best use of existing infrastructure and using this infrastructure in the smartest way to enhance choices for customers (which are currently lacking in this corridor). This is proposed to be achieved through the careful and deliberate implementation of any required additional capacity (whether localised at intersections or in specific sections of the corridor) for higher efficient customers, being PT, HOV or freight.

This approach is anticipated to improve the safety of the corridor and provide greater transport choice for customers.

1 INTRODUCTION AND CONTEXT

1.1 REGIONAL CONTEXT

The Northland economy performs poorly when compared to other regions of New Zealand. This is particularly disappointing given its proximity to Auckland. One of the key enablers for improving the economic performance of Northland is transport accessibility. Northland is one of the Governments Regional Economic Development (RED) regions which should be prioritised to increase jobs, income and investment. This has been confirmed through the recent all-of-government Tai Tokerau Northland Economic Action Plan.

State Highway One (SH1) plays a critical transport accessibility role, connecting Northland with New Zealand. Improving the northern state highway network will help Northland contribute to the so-called 'golden triangle' of Auckland, Hamilton and Tauranga. Together these three centres generate 36% of New Zealand's Gross Domestic Product (GDP) with a prediction for this to rise to 47% by 2026. Investment in transport between Auckland and Whangarei will contribute significantly to this.

At present the corridor between Auckland and Whangarei is closed up to 200 hours a year, its alignment is comparatively unsafe by national standards and the poor accessibility is an impediment to economic growth in Northland. This is not consistent with the One Network Road Classification (ONRC) aspirations of a National (High Volume) Strategic Route.

Providing a safer, more resilient route between Auckland and Whangarei not only provides better accessibility between Auckland and Northland, but also Northland and the rest of New Zealand, and indeed the rest of the world through the Ports of Auckland and Auckland Airport.

The SH1 road corridor is identified as a National route from Wellsford to Whangarei and SH15A, due to their role providing access between Whangarei and Auckland (including international airport and port facilities).

The current demand and shows that traffic flows range from 12,000 (Te Hana) – 28,000 (urban Whangarei) vehicles per day from Te Hana to SH14 in Whangarei. It indicates that the heaviest flows are between Whangarei and SH15 and HCV make up between 6-11% of the traffic composition. Growth has been relatively consistent through the corridor for the last 5 years at approximately 5% per annum. By 2030 traffic volumes in the corridor could be over 35,000 vpd.

The route is also currently unsafe with 104 DSI over the last 5 years. In accordance with the ONRC, this National state highway should have at least a 3-4 star KiwiRAP rating. Currently the corridor has approximately 36% of its length is rated 2-star. The evidence shows that the current SH1 safety record is poor and is not commensurate with its ONRC. The Safer Roads Alliance (SRA) are currently looking at on line improvement throughout the corridor.

There is also an existing rail line that provides very few (freight) services a day and is subject



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to both size and weight restrictions. Journey time from Whangarei to Auckland via the existing rail line is 5.5 hours, compared to a 2.5-3.5 hour trip via road. As a result of current constraints to rail freight, usage of the freight rail service is restricted to selected industries. Coastal shipping plays an important role in the transport of freight out of Whangarei. Due to the nature of shipping and current Northland economic conditions, this has been restricted to moving large volumes of low value goods such as aggregate, processed timber, logs and oil. More recently, perishable items including kiwifruit have been exported directly from Northport.

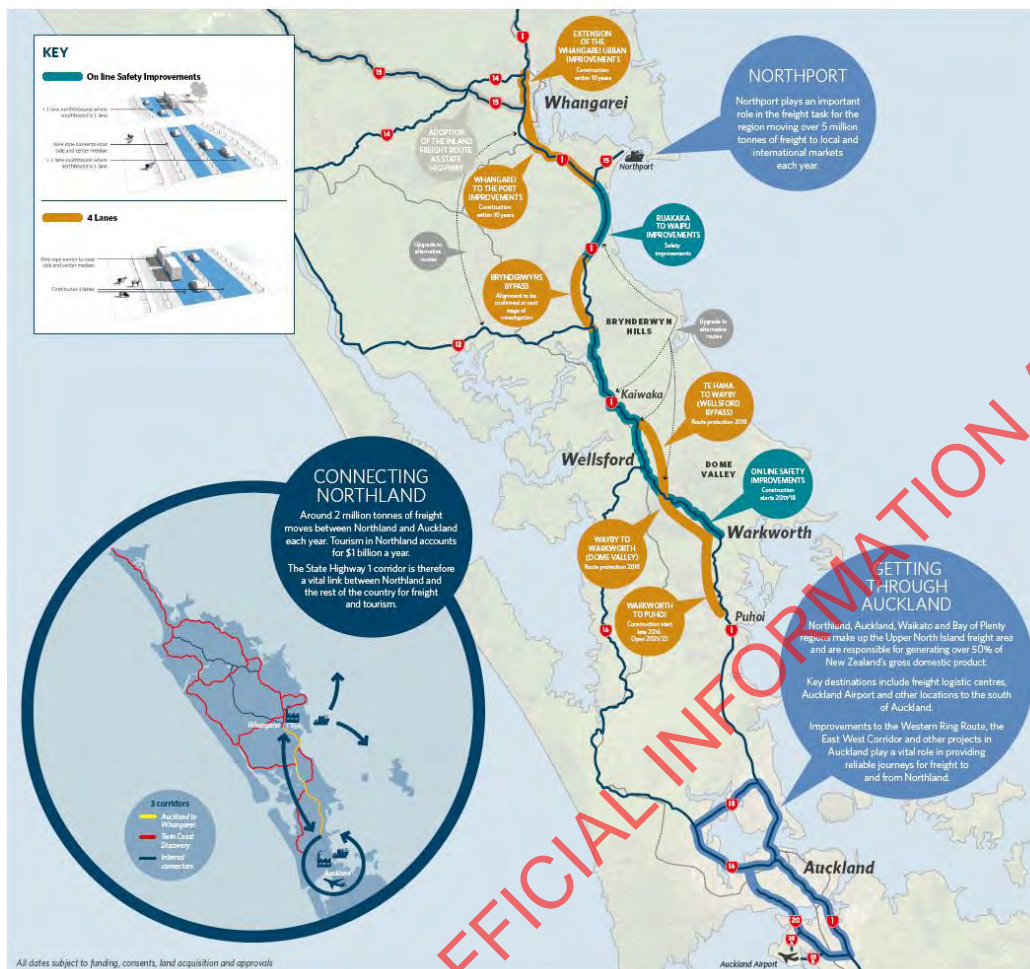
The recent MBIE Tai Tokerau Northland Economic Action Plan has identified the importance of the transport network as a key enabler for economic growth in Northland and in particular the role of SH1 in providing access to the rest of the country. Given the economic structure of the region with a high proportion of primary activities relying on export markets, freight movements within the region and to Northport are of major strategic importance. An Upper North Island Freight Strategy is currently being developed, in support of the Northland Economic Action Plan.

1.2 PROJECT CONTEXT

The Auckland to Whangarei PBC was completed in 2017 and identified a number of improvements for SH1 between Whangarei and Te Hana, including 4 lanes in some sections and minor safety improvements in others as well as a suite of non-infrastructure interventions to primarily address safety. The identified physical interventions have more recently been progressed to the Detailed Business Case phase, which is currently in the early stages of development.

The current objectives for this work include:

- Provide safer, easier and more reliable journeys for all road users
- Significantly reduce the number of deaths and serious crashes between Auckland and Whangarei
- Improve route capacity, improve the route quality and provide resilience to the wider state highway network
- Reduce the cost of travel
- Encourage safer driver behaviour and improve the journey experience



2 OVERVIEW OF RE-EVALUATION FINDINGS

2.1 PROBLEMS AND INVESTMENT OBJECTIVES

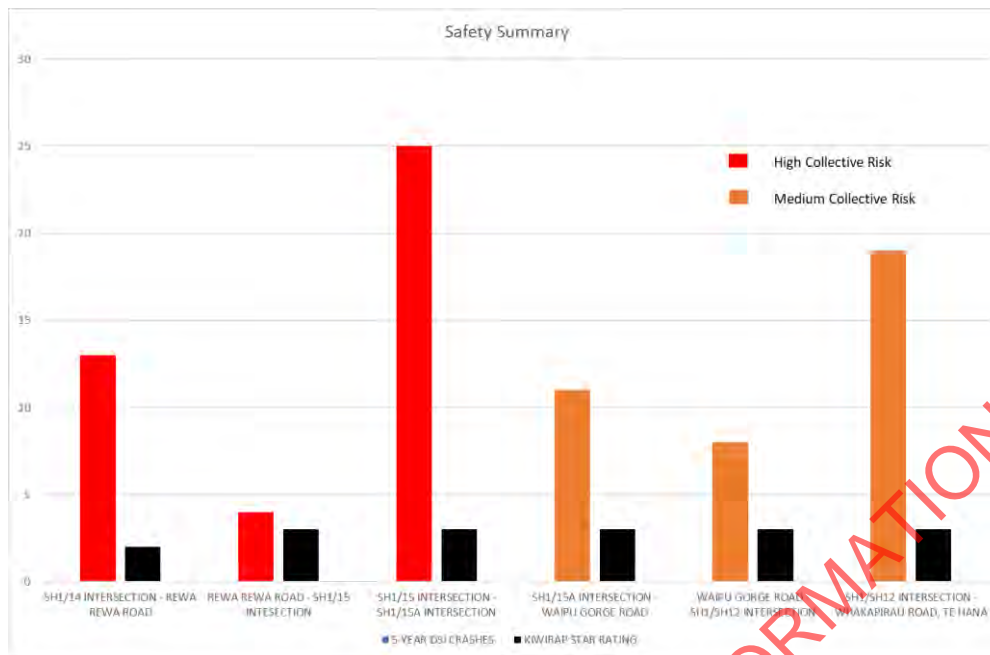
A review of the problems, benefits and investment outcomes as part of the re-evaluation processes has been undertaken and concluded that, the case for improved capacity and a reduced cost of travel is less relevant within the current policy setting but there remains a strong case for addressing safety and resilient access on this section of the corridor as well also providing increased access through greater choice between Northland and key markets and social opportunities.

2.1.1 SAFETY

The corridor has a very poor safety record, with 104 DSIs from 2013 to 2017. The worst sections of the corridor are north of SH15A and the Brynderwyns.

Significantly, of these crashes, more than 50% were head-on incidents. Analysis of the major contributing factors indicate that alcohol and drugs were a significant factor related to over 50% of these crashes, with speed (25%), fatigue (22%) and heavy vehicles (28%) also important contributors.

The route is also predominantly either 2 or 3 star rated as per the KiwiRAP ratings system and based on the ONRC classification, this should be 3-4 star. This shows that the form of the infrastructure is a substantive contributing factor to the current safety record.



2.1.2 ACCESS – RESILIENCE

SH1 from Whangarei to Te Hana suffers regularly from unplanned incidents, which affect its resilience and availability. In 2014, there were 27 full closures along the route, with an average delay of 7-8 hours. This gave a total of 216 hours of closure, equivalent to an average of nearly 20 hours per month. This data excludes partial closures, which would further compound the issues. These closures impact on access as there are limited (and lengthy) viable alternatives in many locations along the corridor.

Of these unplanned incidents, 70% resulted from crashes with the remainder a combination of other predominantly environmental factors. The data indicates resilience challenges in the Brynderwyn Hills and shows a high number of crashes along the section between Whangarei and SH15 contributing to the delays. The detour routes for many of these closures are also challenging. These detour routes are not able to carry full HPMVs. These two factors, the length of the detour routes and their inability to carry HPMVs, significantly restrict the ability to divert freight traffic away from incidents.

2.1.3 ACCESS – CHOICE

There is very limited travel choice for customers in this corridor and as a result single occupancy vehicles make up the significant majority of trips in the corridor. There is an inter-regional buses service but that is all.

Choice will become increasingly important as growth continues and transport demand increases. The land use development in the Marsden area as well as the Port are anticipated to grow considerably over the next few years.

Northport is an important regional and National multi-purpose port facility and ensuring safe and reliable access will become increasingly important as growth puts pressure on the transport system. Road will continue to be the critical supply chain route to Auckland for the foreseeable future. However coastal shipping to Tauranga has started to provide alternative routes for Northland business, avoiding congestion and expensive storage/packing costs. Rail also has a place in the supply chain, but will require extensive upgrades to the existing line to be viable.

2.2 INTEGRATED LAND USE, TRANSPORT PLANNING AND MODE NEUTRALITY

There are a number of opportunities in this corridor to drive different transport outcomes with the appropriate approach and desire.

Mode choice is dominated by single occupancy vehicles. With development proposed in Marsden Point, Ruakaka and the Northport hub there is an opportunity to change this through both integrated transport and land use planning, greater consideration of PT services and HOV priority between this area and Whangarei. This will require an integrated approach with Whangarei District Council for services and the implementation of priority at pinch points to enhance the attractiveness of these options for customers.

Rail is another potential option between Whangarei and Marsden. The potential for further rail investment in this area of the corridor is currently being investigated. Current forecasts indicate that rail line investment could reduce HCV movements on SH1 by up to 600 vehicles a day. This level in heavy vehicle reductions has been determined based on an analysis of the different types on industries in Northland and those that could feasibly transfer to rail. Whilst not transformative, this still represents an opportunity to delay further transport investment in the road corridor and provide time for other interventions to be implemented.

2.3 ENVIRONMENT

In the longer term, sections of the corridor, particularly around Ruakaka, Oakleigh and Otaika may become more susceptible to coastal inundation and flooding events, as a result of climate change impact. A package of options considering environmental resilience and climate change adaptation will be important, particularly along the SH1 corridor that borders low lying coastal areas. Consideration is also required toward protecting sensitive fauna habitats south of the Brynderwyns.

2.4 TECHNOLOGY

Whangarei has installed 13 electric vehicle charging stations to help customers travel around the north, and was recently recognised at EVWorld NZ 2018 as New Zealand's most electric vehicle friendly town. In addition to futureproofing for new technologies, the DBC has considered the use of other technologies such as traveller information signs, variable message signs and future EV charging locations.

3 RECOMMENDED PROGRAMME

3.1 PROPOSED PROGRAMME

The conclusion from the re-evaluation is that there is a case for investment to address a significant level of service gap for safety and resilience on this section of the nationally significant State Highway 1 between Whangarei and Te Hana.

With forecast growth levels there is also a case for some degree of enhanced capacity in the corridor to support economic growth if current growth trends continue. There is some uncertainty around when this growth will eventuate. It is however critical that any additional capacity be considered in the context of people capacity and within a hierarchy of capacity prioritisation for higher priority customers such as freight, PT and HOVs.

There is also an immediate and substantial safety problem in the corridor that needs to be prioritised and the interventions required are not only physical but also non-physical and it is recommended that these non-physical interventions are given the same (if not greater) priority.

Therefore the recommended investment direction for the corridor is:

- A safer and more resilient SH1 corridor with limited additional capacity
- Non-infrastructure interventions are given the same priority as physical interventions
- Any additional capacity be considered in the context of people capacity and within a hierarchy of capacity prioritisation for higher priority customers such as freight, PT and HOVs
- Any transport solution must be undertaken in close collaboration with Whangarei District Council and include an integrated transport and land use response

3.1.1 STATE HIGHWAY INTERVENTIONS

The Auckland to Whangarei PBC identified a preferred programme but also considered a low cost safety option at nearly half the cost. The larger scale programme delivered a wider range of benefits and was chosen, interestingly whilst the recommended programme delivered a greater DSI saving compared to the low cost safety programme, this was achieved at nearly twice the cost per DSI (being \$10M per DSI vs nearly \$6M. With a renewed focus on safety and value for money, this programme was closely reviewed and forms the basis of the new recommended programme.

Working south from Whangarei, the current transport demand and forecast growth in the urban area to Rewa Rewa Road justifies additional capacity (with over 20,000vpd) in the short to medium term. This is a built-up urban environment and planning for this additional capacity now through route protection is recommended. This should be done with an integrated transport and land use corridor plan, as the implications and opportunities for landuse changes as result of this transport intervention are considerable. The exact form of this additional capacity need also be examined closely as peak hour priority lanes for HOV or PT should be the highest priority. Freight has other options (SH15). Walking and cycling is also a priority in this section of the corridor given the urban nature of the environment. Investment in PT services and localised priority in the short term should also be an area of focus.

Between Rewa Rewa and Marsden (SH15) there is considerable current transport demand and a substantial safety problem. This should be addressed through the following approach:

- Localised safety enhancements at Loop Road and where identified by Safe Road Alliance (SRA) along this section
- Upgrade the quality of existing alignment to enhance safety and resilience (flooding) for the entire length of the route
- Prioritise transport choices between Marsden growth area and Whangarei through localised prioritisation of PT, HOV and potentially freight, including:
 - Intersection prioritisation (HOV and PT)
 - High quality PT services
- Route protection of additional off line capacity for the long term in the form of protection for an additional 4 lanes capacity. Use of this additional capacity (and

whether 2 or 4 lanes are initially constructed) to be confirmed closer to implementation, with a focus on managed capacity (for PT, HOV, Freight) as a priority.

- Safety enhancements on SH15 to improve safety and resilience of the network

Between Marsden and the top of the Brynderwyns the focus is on safety and resilience with localised safety enhancements where required and defined by SRA. The Brynderwyns are a known safety challenge, and therefore strengthening of alternative routes in the short to medium term is recommended. This would include localised widening, signage, paint markings and bridge strengthening on Cove Road and Mangawhai Road. In the longer term, a western bypass should be considered and designated if a strong enough case can be brought from a safety and resilience perspective (likely).

From the Brynderwyns to Te Hana the focus is also on safety and resilience. The southern side of the Brynderwyns is susceptible to landslip closures and has a poor safety record. Immediate safety works are to be considered and implemented on the southern side (it is acknowledged that this will be difficult to achieve something significant). The long term solution of a western bypass will address the long term needs of the corridor. Further south to Te Hana localised safety enhancements are proposed through SRA. A focus will be on high risk locations and also at Kaiwaka where severance issues will need to be addressed.

It is noted that south of Te Hana a similar approach is being adopted with short term safety improvements being implemented in the Dome Valley whilst planning and protection of the long term intervention continues.

3.1.2 OTHER INTERVENTIONS

As well as the above physical measures there are a number of non-physical interventions to address the safety problem. With 50% of the DSIs being related to behaviour including Alcohol and drugs the following measures are also recommended immediately:

- License assistance programmes for young drivers in partnership with police and local councils
- Greater police enforcement including drink driving, speed and *555 response
- Safe Police observation bays
- Alcohol education

A speed management strategy for the corridor should also be considered, this will need to consider the trade off between improved safety outcomes from changes in speed against the degradation of access for customers.

3.1.3 PROGRAMME SUMMARY

The above approach focussed on the immediate safety challenges through the corridor whilst also considering localised enhancements for PT, HOV and potentially freight given the high freight demand in and around the Port in particular. The focus of this approach is on making best use of the current alignment and capacity to address the safety and resilience challenges whilst providing investment in access outcomes with increased choice through PT and HOV investment.

To ensure the corridor has the flexibility to respond to the inherent uncertainty of a fast growing economy, route protection of long term alignments is also recommended to provide this flexibility.

WHANGAREI TO TE HANA DBC RECOMMENDED PROGRAMME - DRAFT

LEGEND

Whangarei

- 1 • Develop integrated corridor land use plan
- Identify PT plan in corridor including prioritisation on SH1 (including Whangarei to Marsden)
- Implementation of PT services
- Localised PT priority

- 2 • Designate four lanes (SH14 - Rewa Rewa Rd)

Whangarei to Northport

- 3 • Complete Loop Road upgrade & safety works

- 4 • Safety & resilience works
- Prioritised access for PT & HOV
- PT services
- Route protection of long term transport capacity

- 5 • Online safety improvements (SRA)

Northport to Brynderwyn Hills

- 6 • Online safety improvements (SRA)

- 7 • Upgrade detour routes (resilience, bridges, slopes)

Brynderwyn Hills to Te Hana

- 8 • Determine long term solution

- 9 • Online safety improvements (SRA)

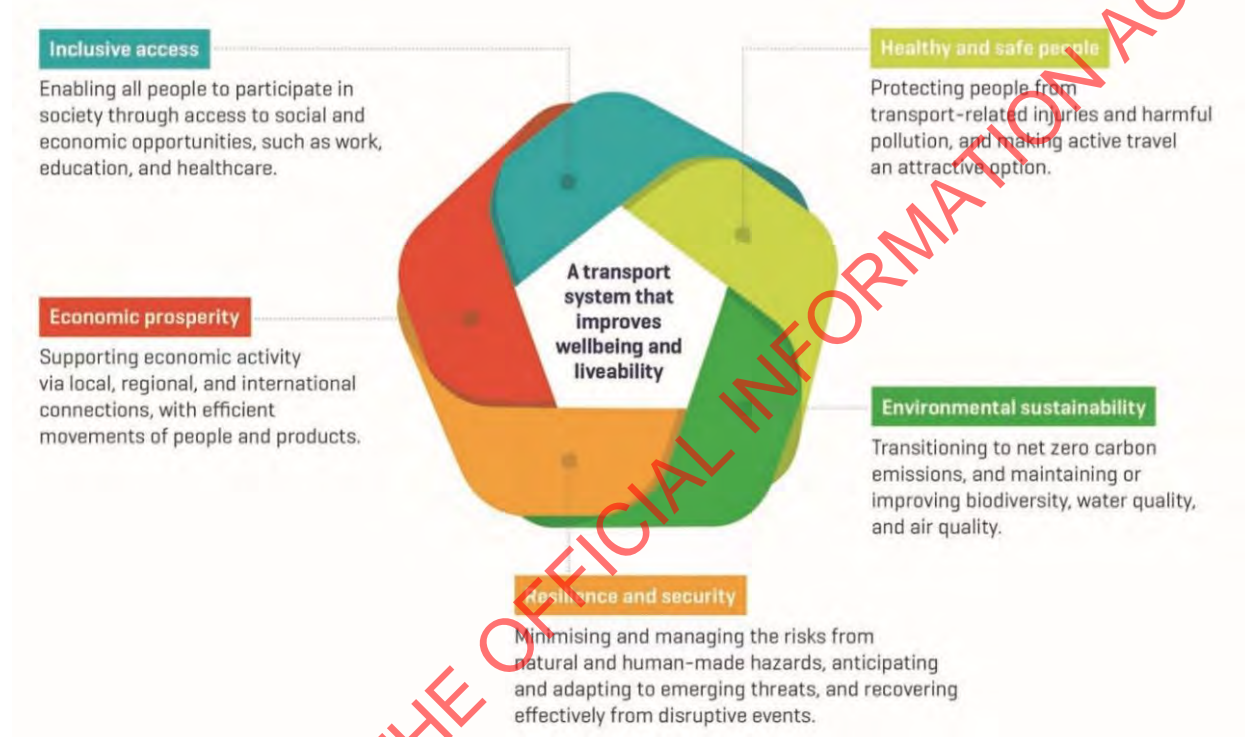
Non infrastructure measures

- License assistance programme
- Greater Police enforcement
- Safe Police Observation Bays
- Speed Management System



3.2 PROGRAMME IMPLEMENTATION

The table below outlines the proposed programme of work and timescales and current estimate of key benefits. In addition, an assessment of the proposals against the Government’s recently published Outcomes Framework is presented. The framework states that the purpose of the transport system is to “improve people’s wellbeing and liveability of places”. The Framework gives broad direction about how the transport system can achieve this, by contributing to five inter-related outcomes as shown.



The cost of the recommended programme will need to be determined through the DBC process, however based on the PBC estimates, is in the order of \$500 to \$800M. A detailed analysis of the outcomes as a result of this investment has not been completed, however initial analysis indicates:

- Approximately 60 DSI savings over five years
- Greater Resilience with 70% of corridor having viable alternative
- Improved access

Activity	Timing			Key Benefits	A transport system that improves wellbeing and liveability				
	Short (2018-21)	Medium (2021-27)	Long (2028+)		Inclusive access	Healthy & safe people	Economic prosperity	Resilience & security	Environmental sustainability
Land-Use & Transport Integration									
Work with Whangarei District Council to confirm land use in and around Whangarei, Marsden	✓			<ul style="list-style-type: none"> Optimises land-use/transport integration Increased liveability 	H	M	H	M	M
Making improvements in Kaiwaka to address severance and safety		✓			H	M	H	M	M
Public Transport Investment									
Develop an PT improvements plan following exploring the potential for enhancing public transport choices. Items to consider include: <ul style="list-style-type: none"> Whangarei service enhancements Whangarei to Marsden services PT Prioritisation improvements identified 	✓			<ul style="list-style-type: none"> Supports mode shift & travel choice Reduces single occupancy vehicles 	H	M	M	M	M
Implement the findings of the PT improvements plan		✓	✓		H	M	M	M	M
System Interventions									
Speed management strategy	✓			<ul style="list-style-type: none"> Contributes to DSI reduction 	L	VH	L	L	L
Speed management & enforcement and *555 responses	✓			<ul style="list-style-type: none"> Contributes to DSI reduction 	L	VH	L	L	L
Safe Police observation bays	✓			<ul style="list-style-type: none"> Contributes to DSI reduction 	L	VH	L	L	L
Alcohol education programme	✓			<ul style="list-style-type: none"> Contributes to DSI reduction 	L	VH	L	L	L
License assistance programme	✓			<ul style="list-style-type: none"> Contributes to DSI reduction 	L	VH	L	L	L
SH Investment									

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Whangarei (SH14 to Rewa Rewa Rd)									
Undertake route protection for four laning in Urban Whangarei, to include for enhanced safety, walking and cycling, prioritised users and integrated land use	✓			• Contributes to DSI reduction and enhanced access to Whangarei	M	M	H	M	L
Implement four laning in Urban Whangarei, to include for enhanced safety, walking and cycling, prioritised users and integrated land use		✓		• Contributes to DSI reduction and enhanced access to Whangarei	M	M	H	M	L
Rewa Rewa Rd to Marsden (SH15A)									
Implement Loop Road Safety improvements	✓			• Contributes to DSI reduction	L	H	L	M	L
Identify online safety and resilience works	✓			• Contributes to DSI reduction	L	H	L	M	L
Implement online safety and resilience works	✓	✓		• Contributes to DSI reduction	L	H	L	M	L
Identify localised priority points and works for PT, HOV and freight	✓			• Contributes to an enhanced access, resilience and DSI reduction	M	M	M	M	L
Implement localised priority points and works for PT, HOV and freight		✓		• Contributes to an enhanced access, resilience and DSI reduction	M	M	M	M	L
Identify and route protect long term additional capacity (2 lanes) for prioritised use	✓			• Contributes to an enhanced access, resilience and DSI reduction	M	M	M	M	L
Implement additional capacity (2 lanes) for prioritised use			✓	• Contributes to an enhanced access, resilience and DSI reduction	M	M	M	M	L
Marsden (SH15A) to Brynderwyns									
Identify and route protect resilience works on Cove and Mangawhai Road	✓			• Contributes enhanced access and resilience	L	L	L	H	L
Implement resilience works on Cove and Mangawhai Road		✓		• Contributes to enhanced access and resilience	L	L	L	H	L
Identify online safety and resilience works	✓			• Contributes to DSI reduction	L	H	L	M	L
Implement online safety and resilience works		✓		• Contributes to DSI reduction	L	H	L	M	L
Brynderwyns to Te Hana									
Identify online safety and resilience works on south side of Brynderwyns	✓			• Contributes to DSI reduction and resilience	L	H	L	M	L

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Implement online safety and resilience works on south side of Brynderwyns		✓		• Contributes to DSI reduction and resilience	L	H	L	M	L
Identify and route protect (if confirmed as required) western Brynderwyns bypass	✓			• Contributes to DSI reduction and enhanced access and resilience	M	L	M	M	L
Implement Brynderwyns bypass			✓	• Contributes to DSI reduction and enhanced access and resilience	M	L	H	H	L
Identify online safety and resilience works	✓			• Contributes to DSI reduction and resilience	L	H	L	M	L
Implement online safety and resilience works		✓		• Contributes to DSI reduction and resilience	L	H	L	M	L

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