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VERSION 0.7 - Tauriko West Urban Growth Area Enabling Works Package

Tauriko West Urban Growth Area Enabling Works

Detailed Business Case to proceed from Initiation to Implementation

Approval

PREPARED BY	REVIEWED BY	ENDORSED BY	ENDORSED BY
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0.1	20/08/21	Draft report made available to partners for online review until October 2021
0.2	17/11/21	Draft report updated with partner comments and updated with information as it became available. Ready for next online partner review
0.3	10/12/21	Version 0.2 updated with partner comments
0.4	12/02/22	Version 0.3 Final version updated with partner comments and Spine Road removed
0.5	14/02/22	minor adjustments to financial case and formatting
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Introduction

Like other cities, Tauranga has a critical housing shortage. With ongoing population growth, the demand for housing is predicted to exceed supply in the next 5 years[1]. Via SmartGrowth and consistent with the Urban Form + Transport Initiative, several new greenfield and intensification areas are planned[2], including Tauriko West and further development in the Western Corridor which will help to support current and future growth.

The Tauriko West development area is located in the western part of Tauranga near the Tauranga Crossing (a significant retail, entertainment, dining space) and the Tauriko Business Estate (which helps to provide local job opportunities and services). Separating Tauriko and Tauriko West is State Highway 29 (SH29) which is a nationally strategic highway providing a critical connection between Auckland, Hamilton, Tauranga. Figure 1.1-1 provides some context between the Tauriko West development, Tauriko, and SH29. To support the first stages of Tauriko West to construct 2,000 houses starting in 2023/2024 (in parallel with construction of transport infrastructure), this Detailed Business Case (DBC) recommends transport improvements that provide access across SH29 joining Tauriko West with Tauriko and the wider Tauranga transport system.

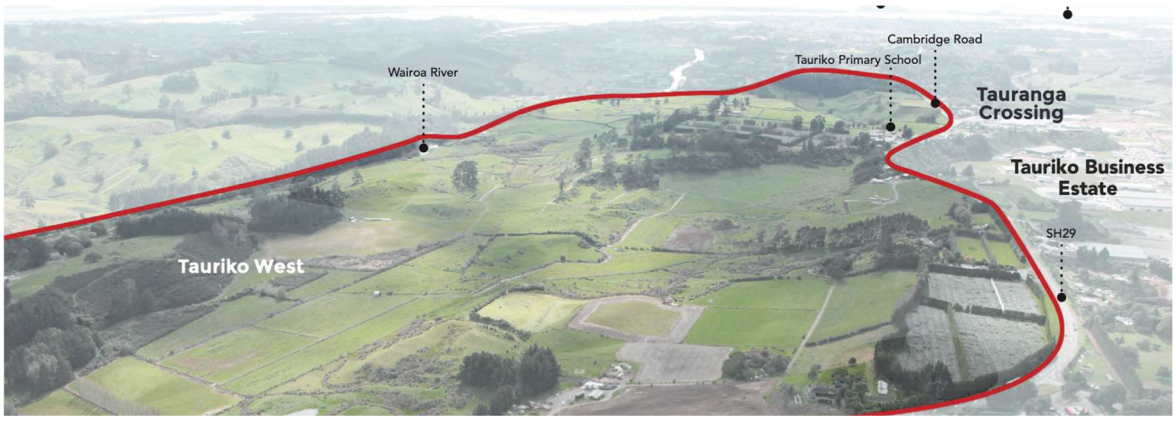


Figure 1.1-1: Tauriko Area

The improvements recommended in this Enabling Works DBC will support and provide multimodal access across SH29 between Tauriko and Tauriko West and into the local transport system and will improve safety. These improvements are focused on the development of new intersections on SH29, and new public transport and active mode connections into Tauriko to improve accessibility. These improvements fit within a broader package of additional public transport and SH29 improvements (see the Tauriko West Long Term DBC) that combined will deliver significant transport and housing outcomes for Tauranga and the Bay of Plenty region. Significantly, these improvements will help Tauranga achieve a modal shift step change by providing the public transport infrastructure to enable frequent services to move people quickly between Tauriko and the rest of the city, whilst improving freight accessibility.

1 TCC has notified the Minister for the Environment that the city's future housing supply will not comply with the capacity requirements of the NPS-UD.

2 The 2013 SmartGrowth Strategy sets the strategic vision and direction for the growth and development of the western Bay of Plenty by identifying corridors and focus areas to help deliver urban growth. Tauriko West is a part of the Western Corridor that has been identified through SmartGrowth as a key growth corridor.

With Tauriko West housing being constructed over 20-30 years, the wider Tauriko West transport package is staged over the next 30 years to meet the expected demand and funding available. The Long Term DBC scoped area is shown in Figure 1.1-2 and the staged approach is illustrated in Figure 1.1-3

Figure 1.1-2: Long Term DBC Scoped Area

The Long Term DBC is still developing with staging and delivery still to be assessed. The project is currently considering a three-stage delivery approach consisting of:

- Short-term accessibility improvements across SH29 – (between one and 10 years) – Enabling access for 2,000 houses, improving safety and maintaining freight efficiency to the Port. This includes three key intersection improvements, two of which allow direct access to new housing development in Tauriko West. The Tauriko West Urban Growth Area Enabling Works DBC reflects this short-term stage and therefore further detail is described in the Enabling Works section below and within the main report.

- A public transport package (between five and 15 years) – To support the journey between the Western Corridor and the CBD and to connect with the Cameron Rd public transport prioritisation improvements already underway, and to increase public transport facilities and service. This includes upgrades to Takitimu Drive/SH29 intersection, SH 29A, part of SH36 and some intersections within Tauriko Business Estate (TBE). More detailed information is provided in the Long-Term DBC.

- Longer-term state highway improvements to maintain accessibility within the context of growth in the Western Corridor and freight accessibility to the Port of Tauranga (possibly beyond 15 years) – Provision of infrastructure to support other modes and maintain freight efficiency to the Port in the context of long-term growth. More detailed information is provided in the Long-Term DBC.

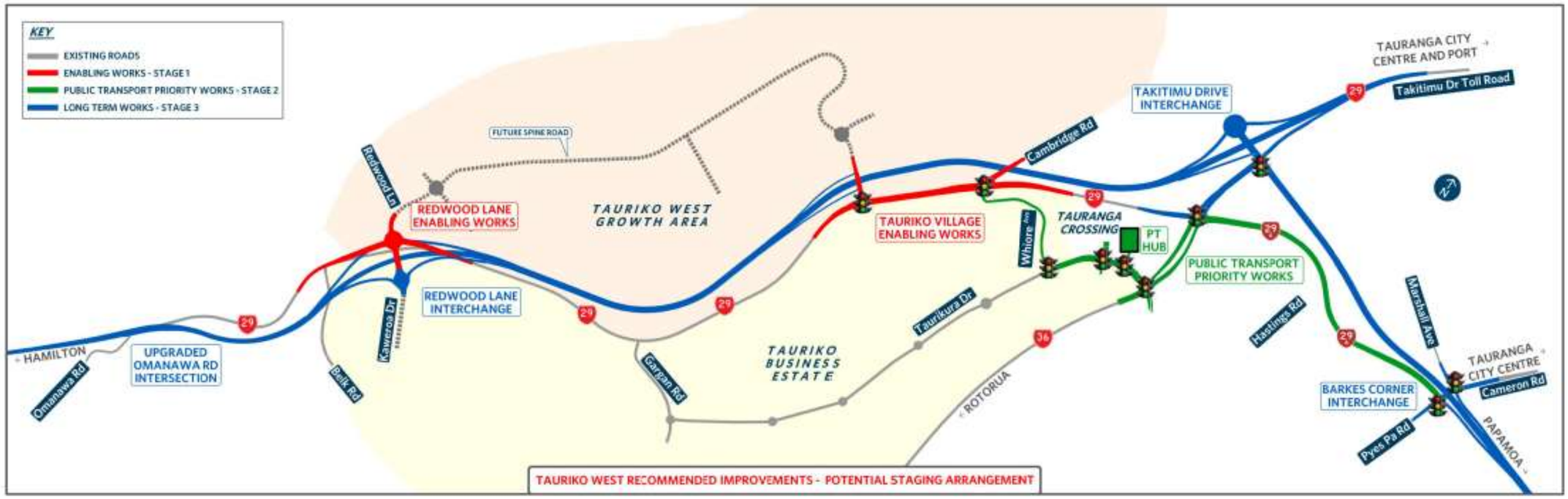


Figure 1.1-3: Short, Medium, and long term works overview plan

Outcomes for Each Stage

Table 1.1-1 shows the outcomes achieved from investing in the project. Importantly, as each stage has its own focus, it is only by delivering the entire package of works that the benefits are achieved in total.

Table 1.1-1: Short Term and Long Term outcomes

Cost Estimate		Benefit	Existing	Enabling Works	Long Term
$	Expected Costs[3] $149.2M	Housing			
	Upper Costs[4] $184.6M	No of Houses enabled	N/A	2000	3500[5]
Benefit Cost Ratio		Better Land Use Connections and Accessibility for all Modes			
	Indicative BCR = 1.05	*% Active journey to work Trips peak – Mode Shift*	6%[6]	7.5%[7]	>10-15%[8]
		Population in close to walking and cycling	N/A	80%	90%
		Annual PT Boarding's[9]	6,500	8,000	52,300
		Express PT (Peak) Travel Time (better than driving) – TWest to Tauranga Crossing	4-7min	yes[10]	yes
		Rezoning of TWest, and TBE Extn	yes	yes	yes
Investment Profile		Safety[11]			
	VH/H//L	All crashes	199[12]	14	41
		Deaths and Serious Injuries	9[12]	1.1	4.5
	Priority of 2	Freight			
		Travel Time (Omanawa to Takitimu (PM Peak)	10 mins	6.5mins	N/A[13]
		Variability (max)	9 mins	4.5mins	N/A

Many of the key transport benefits are achieved through the wider Tauriko West package which contains the improvements to support public transport journeys from Tauriko to the city centre. When assessed on its own, the Enabling Works DBC has a low benefit cost ratio and high NLTP investment priority (due to better travel options and safety improvements), but the actual measurable outcomes are low[14]. However, when considered as part of the total Tauriko West improvements package, these outcomes (for active trips, annual public

3 Includes Capital and Property (50%ile)
4 Includes Risks (95%ile Cost)
5 Indications are between 3000 – 4000 houses
6 As predicted by the TTHM (2018 census indicated 6.0%)
7 i.e., a 1.5% increase
8 Target
9 model outputs are for whole of TGA, not just the route with 6,500 trips. The assumption is that the growth in the model between options is all attributed to that route.
10 For the Enabling works this will not be an 'express' service
11 Long term figures based on 1% accident growth per annum as a result of 2% traffic growth)
12 Reported from the long term report – Crash Data 2016-2020
13 The long term modelling is unavailable at time of preparing report
14 Although the project provides safe multimodal transport that enables housing and urban development outcomes

transport boardings and travel times), safety and freight efficiency will be significantly higher.

The entire package of works addresses these key problems:

1 If not appropriately integrated into the transport system, planned land use development and growth in the Western Corridor is unlikely to proceed due to the scale of impacts on access, safety, and liveability (70%)
2 Poor geometry and negotiation of major intersections on SH29/29A through the Western Corridor leads to injury crashes and high severity outcomes (30%).

The potential benefits are:

1 The Western Corridor is better connected and accessible through a multimodal transport system which supports timely delivery of sustainable growth (40%)
2 Better access to international and major domestic markets on this national strategic route to the Port of Tauranga (20%)
3 Improved safety within the Western Corridor (40%).

A Range of Options Were Tested

A wide range of options was considered to address the problems and achieve the benefits. Options included all elements of transport to ensure an integrated multi modal solution. These elements included:

- Public transport networks and interchange facilities
- Cycle networks – development of new routes and linkages with existing routes to provide more connection journeys
- Walking facilities providing better connections and safety for a range of users
- Safety outcomes including Safe System Transport designs and speed management
- Travel Demand Management
- Highway infrastructure – intersection forms to cater for all modes and growth, corridors either online or offline, public transport lanes
- Local road connections and linkages to Tauranga City's street design guide to ensure good movement and place outcomes.

An optioneering and evaluation process was worked through to determine a preferred option. To determine a preferred option a multi criteria analysis and criteria and testing selected and agreed to by stakeholders.

The preferred option for the Tauriko Long-Term option is Option 2 (shown as Stage 3 in Figure 1.1-3). The Costs, BCR and Priority rating are to be confirmed in the Long-Term DBC mid-2022. This option is to be staged to deliver progressively on the benefits. Approval is being sought for funding over three NLTP time periods.

The Short-Term Enabling Works

This DBC focuses on the Short-Term Enabling Works, which are part of a larger package of work that will result in a more integrated transport and land use system. This package of work is focused on enabling the development of 2,000 houses by 2035 by providing access to the urban growth area (UGA) off SH29, improving safety for all users and improving freight efficiency to the port.

In summary, the Short-Term Enabling Works project:

- Enables access for 2,000 houses
- Improves safety
- Maintains freight efficiency to the Port of Tauranga.

This includes:

- Three key intersections to allow access to the Tauriko West UGA:
  - » A new roundabout at Redwood Lane and the newly-formed Kaweroa Drive (part of a requirement of an operative structure plan)
  - » A new signalised Intersection at Tauriko West
  - » Upgrading Cambridge Road to traffic signals, including opening up Whiore Avenue for public transport, walking and cycling.
- Speed management along the corridor between intersections
- Travel Demand Management and public transport services to help work towards the long-term mode shift targets and improve transport choice.

By delivering this project, the following will be achieved:

- The ability for land to be opened to start construction of houses by 2023 and enable 2,000 households by 2035 (Figure 4.2-1)
- Improved reliability along SH29 for freight. Modelling predictions from the TTSM indicate an average travel time from 10 mins to 6.5 mins with potential reduction in variability from 9 mins + 4.5mins variability between Omanawa Road and the Takitimu/SH36 roundabout
- A 1.5% increase in walking and cycling modes
- A 23% increase in public transport boardings from 6,500 per year (Route 52 – 2017) to 8,000 per year by 2031
- 15 fewer crashes compared to the baseline of 56 (for the Enabling works)
- 1.1 fewer death and serious injuries (5 years) compared to the baseline of three DSIs (for the enabling works).

For further details on the outcomes refer to section 11.5.

This report focuses on the Short-Term Enabling Works and more information on this part of the DBC is provided below.

Context - Urban Growth, Transport and Vision for Tauriko

In 2016 the Tauriko Network Programme Business Case (PBC) determined a preferred multimodal transport programme which included cycling, walking, public transport, local road, and state highway measures. This programme proceeded to an Indicative Business Case phase (IBC – 2017) and then the Tauriko Transport DBC to provide more detail around those programme activities. The area covered by the Tauriko DBC is shown in Figure 1.1-4. The remainder of the PBC areas including those areas to the east of SH36 (and SH36 itself) are covered by a separate business case.

Tauriko West UGA is proposed to deliver a new community with an estimated 3000-4000 homes from 2024 at an average housing density of 25 dwellings per hectare[15]. It is important that the development of this housing area is appropriately integrated with transport, otherwise there is a missed opportunity for Tauriko to be a safe and liveable community that provides travel choice.

Structure planning has commenced. Ensuring Tauriko West UGA (Figure 1.1-4) can be integrated with transport now and in the future needs careful planning. To address this, the Enabling Works is the first of three stages to deliver an integrated land transport system over the next 30 years. The structure plan for Tauranga has an acute shortage of housing. As the population has increased, the demand for housing has exceeded supply[16] and new areas for

[15] The average density of 25 dwellings per hectare is based on the nett developable area consistent with SmartGrowth.

[16] Veros Property Services Ltd: Western Bay Sub-Region Residential Development Capacity Review May 2019.

urban development (through both intensification and greenfield development) need to be enabled to meet the requirements of the National Policy Statement for Urban Development (NPS-UD).

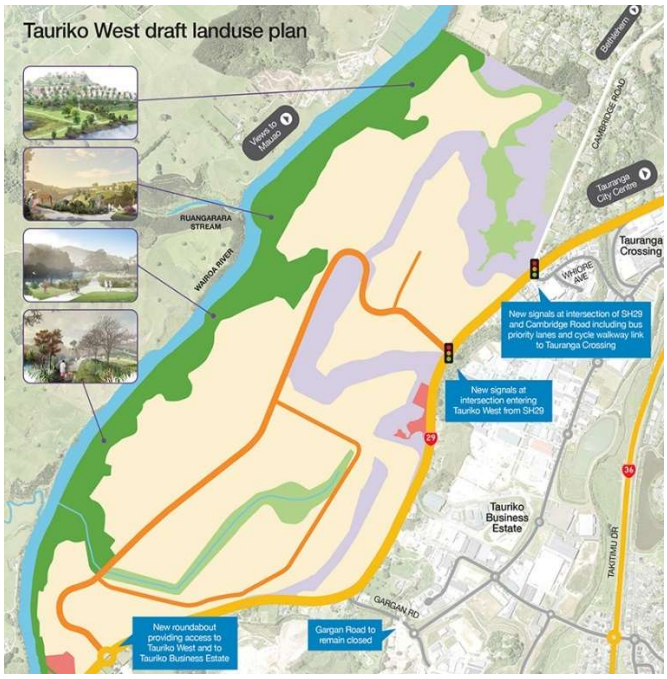


Figure 1.1-4: Tauriko West Draft Landuse plan[17]

Urban Growth, Transport and Vision for Tauriko

Tauriko West UGA[18] is proposed to deliver a new community with an estimated 3,000-4,000 homes from 2024 at an average housing density of 25 dwellings per hectare[19]. The vision is to create a thriving community for locals to live, learn, work, and play locally. To access onto and across SH29 and address current safety issues, the transport network needs to be modified and enhanced now and in the future.

Without investment for multimodal access to Tauriko West, the development of this area for housing cannot proceed and additional planned growth of Tauriko Business Estate (TBE) would also be limited.

Connections to the Port of Tauranga on a Nationally Significant Freight Corridor and Traffic Growth

Improving connections to the Port of Tauranga is a key outcome sought as part of this business case and the Long Term DBC. SH29 is a nationally significant[20] highway and forms part of the wider upper North Island golden triangle journey between Auckland, Hamilton and through to the Port of Tauranga. The Port of Tauranga is New Zealand's largest export port by volume, and this is expected to continue to grow with increasing volumes of road freight on SH29. A recent study[21] completed for UFTI shows a predicted increase of HCV traffic of 64% between 2018-2043 on the SH29 Kaimai Route. This translates to an increase from 4,500 to 7,500 HCVs per day through Tauriko.

[17] Building a new community - Tauriko West (taurikofortomorrow.co.nz)

[18] One of several growth areas planned for within the Western Corridor

[19] The average density of 25 dwellings per hectare is based on the net developable area consistent with SmartGrowth.

[20] As described in Arataki, Waka Kotahi New Zealand Transport Agencies (Waka Kotahi) 10 year view (2021 to 2031)20 for land transport system in New Zealand,

[21] https://ufti.org.nz/wp-content/uploads/2020/02/ufti-regional-freight-flows.pdf

Over the last 20 years, traffic volumes on SH29 have grown annually by around 2.5%–3.0% (Figure 4.2-7). However, over the five-year period 2015-2019, annual vehicle numbers have increased by 50% (to 26,900 vpd), equating to an average annual growth rate of 8.2%. With significant land use development for the Western Corridor planned, modelling indicates traffic will increase up to 49,100 trips per day by 2063 resulting in capacity being significantly exceeded and likely to result in a breakdown in flow conditions. This breakdown directly impacts freight movements and reduced accessibility to core community services (such as a school and a retail/commercial hub) for all road users.

Mode choice and Accessibility

SH29 customer levels of service will decline and create new severance issues due to the growth planned within the Western Corridor. There are limited and/or safe facilities with which to walk or cycle between the highway, Tauranga Crossing and the CBD.

With the development of Tauriko West there are significant opportunities to provide greater multimodal accessibility and choice to encourage people of all ages and abilities to walk, cycle, and scooter and reduce the high rate of car use percentages in Tauranga[22]. The long-term goal is to achieve up to 15% mode shift with even greater stretch targets being proposed as part of the design optimisation of the preferred long-term option. The Short-Term Enabling Works focus is on enabling housing, but the opportunity exists to contribute to mode shift within this package of works.

Safety

From a safety and access perspective the current corridor has risk. There are many residential accesses in amongst several at-grade intersections with high side-road traffic volumes. The Cambridge Road intersection is high risk. The corridor itself has a medium-high infrastructure risk rating, meaning the potential for risk is high and the corridor does not meet the expected customers levels of service for safety and access.

In the long term, the recommended option is designed to be a Safe System and address 50% of the Deaths and Serious Injuries (DSIs) in the wider Tauriko area. However, there is an opportunity within the Enabling Works project to address and minimise some of the current risk, particularly at the Cambridge Road intersection which includes almost half of the total number of crashes within the Enabling Works scoped area.

Further opportunities to improve safety can be address through the structure plan and TCCs streets for people-oriented designs that better reflect the movement and place functions for both the highway and local roads.

Investment Objectives

Iwi partners and stakeholders were involved throughout the development of this business case. Active engagement enabled buy-in to the problems or issues associated with the existing situation and to the outcomes sought from any investment. Specific investment in this Enabling Works project will contribute to the Long Term Tauriko Transport DBC investment objectives. The Enabling Works objectives are to:

1 Improve predictable travel times for freight access to international and domestic markets and to the Port of Tauranga by providing 6.5 mins (mid) + 2.5 mins (int) travel time with max 4.5 mins variability during AM/PM Peak by 2030 from Omanawa Road to Takitimu Drive Toll Road

2 Ensure land use planning reduces the need for travel in the Western Corridor by increasing the public transport and active journey to work trips during peak periods to/from/within the Western Corridor from 4.9% to > 10% by 2030

[22] with around 62%(New Zealand Census Data – 2018) of trips to work being made by private vehicles(https://www.nzta.govt.nz/assets/planning-and-investment/arataki/docs/regional-summary-bay-of-plenty-august-2020.pdf (reference from MoT household travel survey 2019), above the national average of 57.8%

3 Improve accessibility to active modes and public transport by increasing the spatial coverage of cycle lanes and public transport where 80% of homes are within 600m walk to a bus stop by 2030

4 Increase the number of trips made by public transport as an alternative to private vehicles, and increase the number of annual PT boardings from 6,500 (on Route 52 (2017) to >250k by 2030

5 Increase mode shift in the Western Corridor from private vehicles by ensuring the Express public transport (peak) travel times are better than driving by car (4-7mins) from Tauriko West to Tauranga Crossing by 2030

6 Enable timely delivery of appropriate urban and business/commercial growth areas in the Western Corridor by rezoning Tauriko West and TBE Extension by 2021 and Keenan Road growth area by 2026

7 Improve safety in the Western Corridor by reducing:

- All crashes (by severity) on SH29 between Belk Road and Cambridge Rd to 40% of the overall 30% target of 221 on opening for 5 years
- All DSIs on SH29 between Belk Road and Cambridge Rd to 15% of the overall 50% target of 10 on opening for 5 years

A Range of Options Were Considered

The option development was based on earlier decisions on the recommended programme and a subsequent Indicative Business Case phase. This includes a range of alternatives from public transport, travel demand measures, walking and cycling improvements and either new or upgraded/capacity improvements to highways and local roads. From a wider perspective, the optioneering has three main processes which have been coordinated together to provide one coherent project. This includes the long-term DBC components, the Tauriko West structure plan and the Short-Term Enabling Works component.

The Enabling Works projects based on the earlier decisions and with consideration of the whole long-term optioneering process, comprised a number of individual elements/sites that were taken through a series of individual option development and evaluation processes. This was also completed alongside a structure plan process for Tauriko West UGA to allow for up to 2000 new households to be developed. This effectively represents Stage 1 of Tauriko West UGA.

The transport option development and evaluation processes were done in collaboration with the stakeholders. The individual elements and option development of the Enabling Works includes a range of demand, supply, and productivity measures to achieve the benefits sought. These elements include:

- State highway improvements – New or upgraded intersections at Redwood Lane/Kaweroa Drive (Ring Road), Tauriko West Road (new), and Cambridge Road for all modes
- Speed management on SH29
- Local road improvements at Whiore Avenue and Kaweroa Drive (Ring Road) for all modes
- Public transport Improvements – Network Service Plan, Bus access into Whiore Ave from SH29
- Travel Demand Management – Wider network approach

The combination of those processes is described fully within the report and summarised in Figure 1.1-5. These recommended options for each element were selected as they provided the best balance in alignment to objectives, assessment of risks and potential environment impacts.

Based on the information provided in the evidence and option development section, a combined Enabling Works option has been developed and consulted on with stakeholders (as above), landowners, and the community. From a community perspective there was general support with a request to implement the works as soon as possible.

Recommended Option, Outcomes and Risk

The Enabling Works recommended option includes the elements shown in Figure 1.1-5. The option will improve safety and freight efficiency; support land use that reduces the need to travel; increase mode shift; and support urban, commercial, and business growth. For a full description refer to section 8.

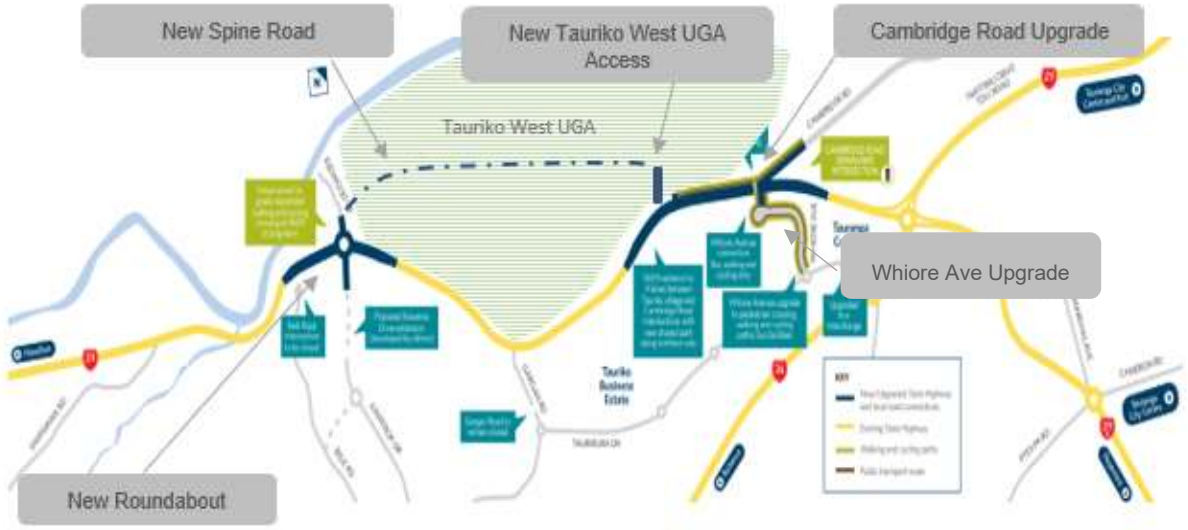


Figure 1.1-5: Summary of Recommended Enabling Works Option

With the development of a recommended option, the expected estimate, benefit cost ratio, investment profile and outcomes that will be achieved as part of delivering on this option are shown in Table 1.1-1. The outcomes this package delivers are described above on page three, noting that the expected outcomes are slight, but this work is part of a larger investment that supports a 25% increase in public transport services for both general and school services, results in the long term the ability for 3,000-4,000 houses to be built, maintains freight on a nationally significant corridor, allows for mode choice, and provides a Safe System-compliant highway network.

The key risks are:

- This DBC is not approved, although procurement of the Enabling Works pre-implementation is underway
- Lack of sufficient funds to implement the Enabling Works means housing in Tauriko West cannot proceed
- Enabling Works statutory approvals require public notification which significantly delays construction
- The need for compulsory land acquisition results in significant delays to the construction programme and subsequent loss of Crown Infrastructure Partners (CIP) funding.

The key opportunities are:

- Alternative sources of funding from CIP if the required programme can be met
- Direct commission of the pre-implementation phase ahead of the DBC approval to reduce the programme timelines to construction
- Prepare AEE/NoR based on the DBC concept design to minimise timeline for statutory processes

- Potential relocation of the Tauriko West intersection to vacant land / existing paper road to the north of the school to avoid early property purchase of the Caltex Service Station and enable early construction of this scope of work.

Implementation Pathway

This business case seeks endorsement for ongoing work to develop a pre-implementation design and obtain the necessary statutory approvals for implementation of the Enabling Works project. A direct commission of the design work and lodgements is proposed to support the programme timeframes, specifically to enable TTC to meet the requirements of CIP Financial Close of September 2022. Housing is expected to get underway in year 2024/2025 in parallel with the construction works which will be delivered in a staged approach over the following three years.

Recommendation

It is recommended that the Enabling Works project proceed into a pre-implementation phase and Notice of Requirement (NoR) to enable construction to start in 2024/2025 as programmed.

Part A – The Case for Change

1 Introduction and Background

1.1 Introduction

1.1.1 Urban Growth and Transport in Western Corridor

Tauranga is one of New Zealand's fastest growing cities. As the population has increased, the demand for housing has exceeded supply[23] and new areas for urban development (through both intensification and greenfield development) need to be enabled. This is necessary to meet the requirements of the National Policy Statement for Urban Development (NPS-UD) for Tier 1 Urban Environments and deliver on the vision and outcomes of the Government Policy Statement for Housing and Urban Development (GPS-HUD).

The Western Corridor of Tauranga (Figure 1.1-1) has been identified through the Bay of Plenty Regional Policy Statement (RPS), SmartGrowth, as a key corridor for housing and urban development to support the growth of the city over the next 50 years. The development of the Western Corridor will contribute to addressing demand for housing and business land in an integrated manner across the Western Bay of Plenty sub-region.

The transport outcomes for the Western Corridor have been considered alongside the land use planning to ensure the area can be serviced effectively and efficiently to meet the ultimate land use occupancy objectives and delivery of a well-functioning multi modal transport network. The Western Corridor has some challenges from a transport system perspective given its position on the key inter-regional freight corridor to the Port of Tauranga ('the Port'). Balancing these demands will be important to ensure provision of access to residential and business growth areas, while improving efficient freight access (in the pm peak) to the Port.

The Western Corridor will benefit from planned investment in public transport infrastructure and priority on the Te Papa peninsula via the Cameron Road multimodal corridor, which can be extended to Tauriko. The area also has the advantage of multiple east/west and north/south connections (including State Highways 29, 29A and 36 along with existing and planned local roads) enabling resilience and allocation of different functions for different corridors.

Large areas of existing and planned employment land are being established in the Western Corridor (particularly logistics and Port-related businesses) as part of the ongoing development of Tauriko Business Estate (TBE).

The existing urban growth areas (UGAs) in the Western Corridor – Pyes Pa, Pyes Pa West (i.e. The Lakes) and TBE are either complete or nearing completion. Tauriko West UGA, the extension of TBE into lower Belk Road, and Keenan Road are planned growth areas for the next 30 years, with infrastructure planning well underway by TCC. Beyond the 30-year timeframe, there is also a need to ensure that current planning considers the connectivity of additional urban growth areas at Merrick Road, Joyce Road, and upper Belk Road, to ensure that short- and medium-term interventions do not compromise potential future growth options.

To support the ongoing development of housing and business land in the Western Corridor and address current safety issues, the transport network needs to be modified and enhanced, both now and in the future. Without investment in the network to provide multimodal access to Tauriko West, the development of this area for housing cannot proceed. Furthermore, additional planned growth of TBE would also be limited.

[23] Veros Property Services Ltd: *Western Bay Sub-Region Residential Development Capacity Review May 2019*.

1.1.2 Scope of this Business Case

This Detailed Business Case (DBC) documents the background, processes, and decisions for the Tauriko West Enabling Works (the Enabling Works). The location and area covered by this DBC is shown on Figure 1.1-1. This DBC has been prepared in collaboration between Tauranga City Council (TCC) and Waka Kotahi New Zealand Transport Agency (Waka Kotahi), with support from Bay of Plenty Regional Council (BOPRC) and Western Bay of Plenty District Council (WBOPDC).

The Enabling Works, as the first phase of a wider programme of transport investment for the Western Corridor of Tauranga, considers the transport needs in the short term (<10 years). Specifically, this Enabling Works DBC outlines the need to:

- Enable the first stage of housing development in the Tauriko West UGA to commence in the short term (2 – 5 years) by providing multimodal transport infrastructure at the entry points and within the UGA
- Improve accessibility and transport links across and along SH29 for all modes, to better connect new and existing housing, commercial and industrial areas
- Address any current safety issues for all modes on SH29 and parts of the local road connections in the vicinity of the entry points to the UGA
- Increase mode shift from private vehicle to walking, cycling and public transport (PT), by providing facilities for active and vulnerable road users and priority for PT
- Provide a connection from SH29 to TBE in the vicinity of Belk Road[24] to allow for the ongoing consented, zoned, and future development of business land.

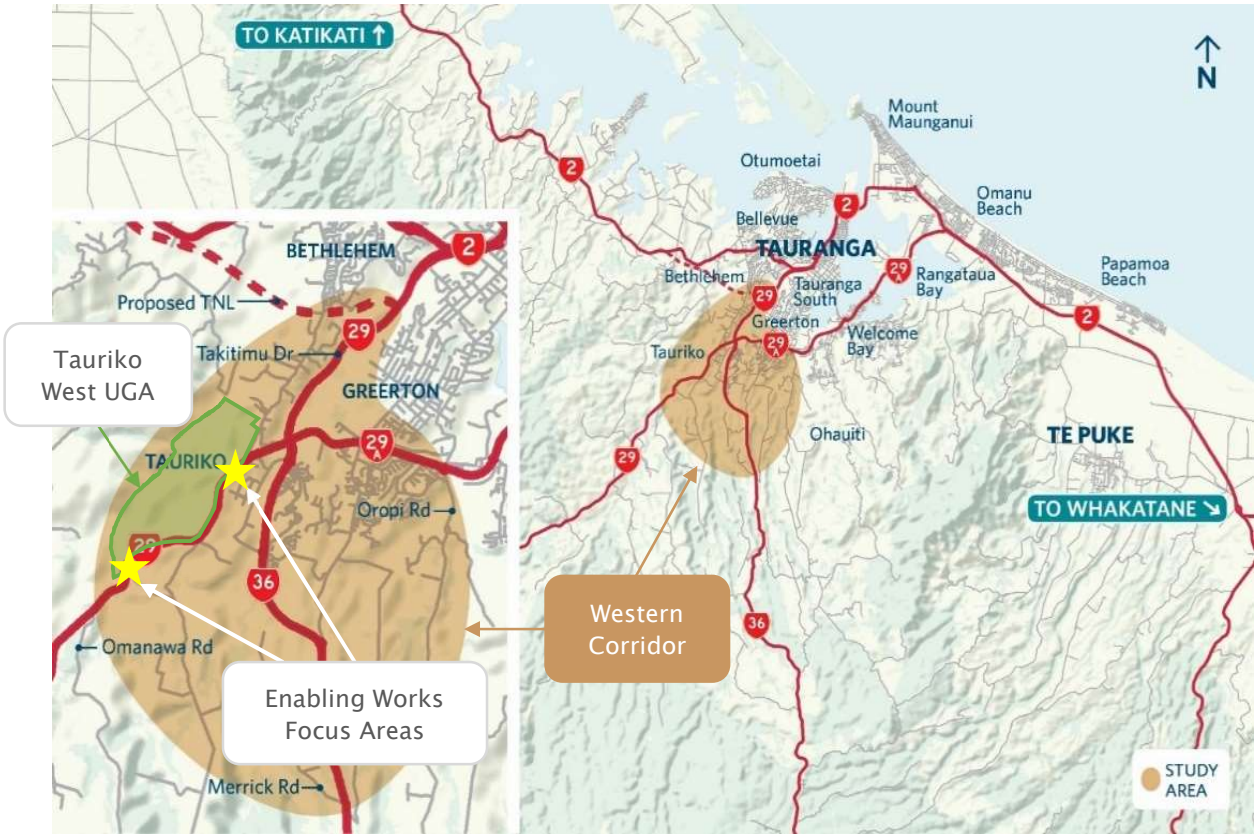


Figure 1.1-1: Enabling Works Location Plan within the Western Corridor

Based on current growth pressure and the anticipated implementation timing of the Long-Term Tauriko Transport DBC recommended option (+10 years), the Enabling Works is

[24] As part of a previous agreement between the developers of TBE, Tauranga City Council, and Waka Kotahi New Zealand Transport Agency (Waka Kotahi)

needed in the short term to work towards these objectives. This package as with all transport investment needs to be delivered in a way that:

- Manages environmental effects of infrastructure
- Avoids locking in future transport emissions in accordance with the Climate Change Response (Zero Carbon) Amendment Act 2019 (see section 1.3.5 for more detail)
- Recognises the cultural significance of the motu to tangata whenua while delivering opportunities that enhance these connections.

The Enabling Works DBC is a standalone document which is consistent with (and provides the baseline for) the Tauriko Network Connections DBC (Long-Term DBC), which is due for completion in 2022. The Long-Term DBC includes three stages: The Short-Term Enabling Works (This DBC), Medium-Term public transport improvements, and the Long-Term transport infrastructure. The Short-Term Enabling Works programme reflects the time needed to deliver the first 2,000 houses within Tauriko West UGA.

Subject to implementation of the enabling works package, the earthworks and land development to enable housing is currently scheduled to commence in 2024/2025, with projected dwelling uptake expected to occur gradually (approx. 300-400 dwellings per annum initially) from late 2025-early 2026, if not earlier. However, this is subject to completion of the structure planning and plan change to rezone Tauriko West for development, and the delivery of the required transport infrastructure (i.e. implementation of this DBC) and other utility services to the UGA.

In the first stage of development, it has been agreed that 2,000 dwellings can be realistically accommodated given the available transport capacity in the surrounding network. This is on top of required social infrastructure to support Tauriko West housing, such as the planned 10 hectares of sportsfields, relocated primary school and further community and educational facilities. The plan is ultimately to achieve upon completion 25 dwelling per hectare over the entire Tauriko West UGA. However, it is acknowledged that given the challenging land environment in the Stage 1 area, lower densities would likely be delivered in the first stage, which the Enabling Works package supports.

1.2 Background and Strategic Direction

1.2.1 SmartGrowth

The 'SmartGrowth' strategy established in 2004 uses a 50-year planning horizon and promotes consideration of environmental, social, economic, and cultural matters, and a balanced approach to growth management across the Western Bay of Plenty sub-region. The SmartGrowth partners[25] have worked to plan for sustainable and coordinated urban growth such as the development of a clear settlement pattern, objectives, and policies through the Bay of Plenty Regional Policy Statement (BoP RPS) for managing urban growth, including managing environmental values.

The earlier 2004 Settlement Pattern was anchored by the identification of urban limits, development sequencing and target densities expected over time within the BoP RPS. This has been implemented through the BoP RPS, Tauranga City Plan, the Western Bay of Plenty District Plan, and the Regional Land Transport Plan (RLTP).

The settlement pattern has been progressively reviewed and updated since then, with updates in 2013 and 2016 – the most recent of which was informed by the Western Corridor Strategic Study, which sought to identify the appropriateness of and confirmed urban development within the Western Corridor study area beyond the current extent of urban

[25] The SmartGrowth Partnership consists of Bay of Plenty Regional Council, Tauranga City Council, Western Bay of Plenty District Council, and Tangata Whenua together with implementation partners (including Waka Kotahi and Bay of Plenty District Health Board)

limits in the RPS. Tauriko West was subsequently progressed as a new proposed growth area following resolutions in 2016 by the SmartGrowth partnership.

The updated Settlement Pattern included four integrated urban growth projects: progression of a Compact City within Tauranga (i.e. urban intensification), Te Tumu, Keenan Road and Tauriko West (including the extension of TBE in the lower Belk Road area). These growth areas were re-confirmed as short-term (2018-2021) priority projects in the 2018 Draft[26] Future Development Strategy (FDS)[27] which aimed to ensure timely development capacity over the next 30 years. The layout of the growth areas in the Western Corridor and their indicative sequencing[28] is shown on Figure 1.2-1.

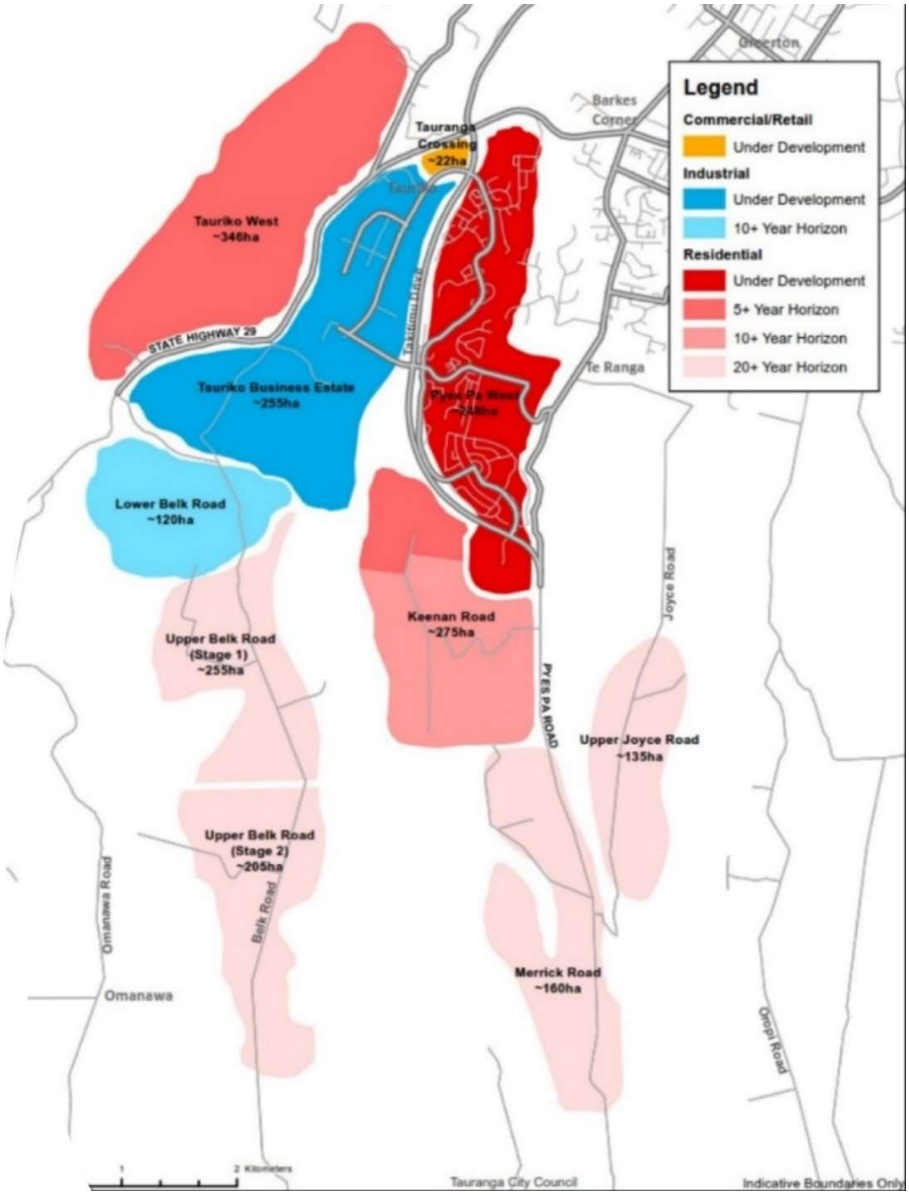


Figure 1.2-1: Indicative Sequencing schedule to deliver growth in Western Corridor[29]

26 FDS was never approved or fully endorsed by SmartGrowth on the basis of the public feedback received.

27 http://www.smartgrowthbop.org.nz/strategy/future-development-strategy/

28 Since this diagram was produced, development in Pyes Pa West (a.k.a. The Lakes) is complete, development of Tauriko Business Estate is nearing completion, and Lower Belk Road area is now in the <5 year timeframe.

29 https://cdn.boprc.govt.nz/media/744660/supporting-document-draft-s32-analysis-version-2-rps-proposed-change-4-tauriko-west.pdf

At the time, the draft FDS noted that Tauriko West had an estimated yield of 3,000 dwellings, based on a developable area of approx. 220 ha at a net density of 17-20 dwellings per hectare. These dwelling and density figures have since been revised to an average net density of 25 dwelling per hectare. However, development of Tauriko West required coordinating transport network improvements to provide multimodal access, including an interim access solution to SH29 (i.e. the enabling works package) prior to a comprehensive upgrade of the corridor (i.e. the Long Term DBC). The draft FDS identified the critical risk factor for Tauriko West as the timing of this work.

1.2.2 Tauriko Network Programme Business Case (PBC) – 2016[30]

During the same period as the SmartGrowth settlement pattern was being reviewed, the Tauriko Network Programme Business Case (PBC) was developed to identify the long-term transport needs to support the planned growth in the Western Corridor. This PBC was led by Waka Kotahi and supported by project partners TCC, WBOPDC and BOPRC. The PBC recommended a transport programme[31] for the Western Corridor area that focused on:

- Enhancement of the local network, including development of a local ring road linking SH29 through to SH36 and on to Oropi Road
- Investment in public transport, walking and cycling, and effective travel demand management to support modal shift
- State highway upgrades on or near the existing alignment, including capacity improvements and grade separation of intersections.

The PBC envisaged significant growth in terms of employment, housing, and freight movement in the western corridor. The recommended programme proposed a set of transport investments (cycling, walking, public transport, local road, state highway) that provide protection of SH29's strategic role as part of the Auckland-Hamilton-Tauranga national high-volume freight route whilst supporting the agreed settlement pattern for housing and urban development in the western corridor.

The recommended programme also included local roads within Tauriko West, with two short roads connecting the southern and northern areas of the Tauriko West UGA to a Spine Road (which is being developed separately) and linking to the local ring road between SH29 and SH36 through the TBE.

1.2.3 Transport Agency Investment Proposal (TAIP) Re-evaluation – 2018

As part of Waka Kotahi's review of the 2018 Transport Agency's Investment Proposal (TAIP), 16 state highway proposals (including the SH29 Western Corridor) were re-evaluated and assessed against the updated 2018 Investment Assessment Framework. This re-evaluation was to ensure the National Land Transport Programme (NLTP) for 2018-2021 delivered on the 2018-2021 Government Policy statement on Land Transport Funding (GPS).

The outcome of the evaluation was that Tauriko was needed to support growth and freight efficiency to supporting residential growth and providing multimodal accessibility and mode choice[32].

1.2.4 Urban Form and Transport Initiative (UFTI) – 2020

UFTI is a collaborative partnership including the SmartGrowth partners and Government. UFTI is focused on supporting liveable community outcomes – finding answers for housing

[30] https://www.nzta.govt.nz/assets/About-us/docs/oia-2017/Tauriko-Network-programme-business-case.pdf
[31] With much of the strategic context changing i.e. a focus on climate change, mode shift and other transport objectives, the preferred programme needs to be refined to reflect more current investment priorities. This refinement often takes place through the RLTP investment priorities and any subsequent business case phases to investigate components of the programme such as the Tauriko West components discussed in this DBC.
[32] The Waka Kotahi Board Endorsed the decision. NZ Transport Agency Board Paper 2018/10/1289

capacity, intensification, multimodal transport (such as public transport and cycleways) and improving accessibility.

In 2020, SmartGrowth partners agreed the Connected Centres Programme through the UFTI Programme Business Case, as set out in the UFTI Final Report[33]. An overview of the UFTI Connected Centres programme is shown at Figure 1.2-2 on the following page.

[33] Urban Form and Transport Initiative (UFTI) Final Report (https://ufti.org.nz/reports/)

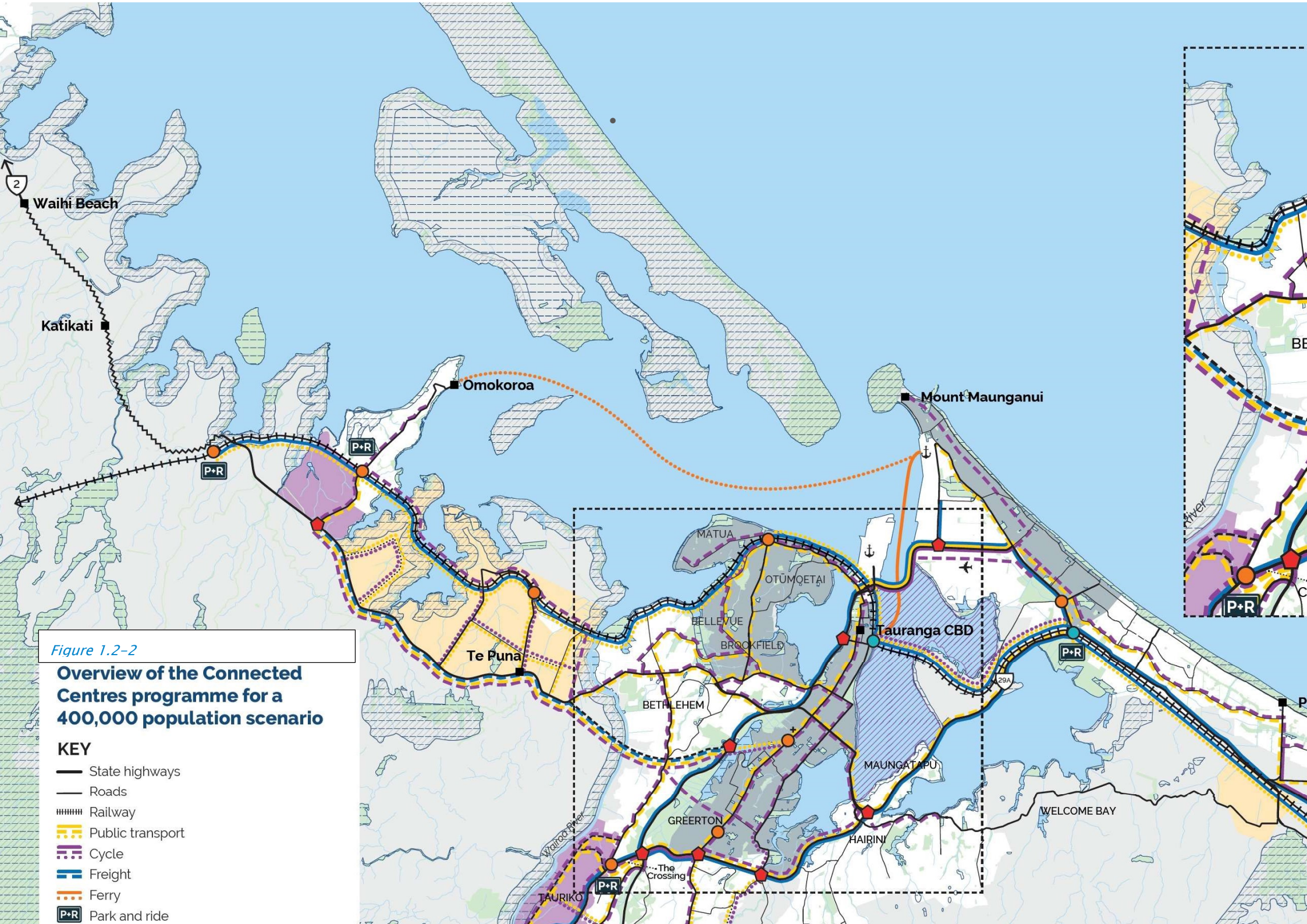


Figure 1.2-2

Overview of the Connected Centres programme for a 400,000 population scenario

KEY

- State highways
- Roads
- Railway
- Public transport
- Cycle
- Freight
- Ferry
- P+R Park and ride

The Connected Centres programme sets out an integrated land use and transport programme and delivery plan for the Western Bay of Plenty. It caters for the approximate 200,000 additional people, 95,000 new homes, and two million additional transport movements per day expected within the next 30 to 70 plus years.

The Connected Centres Programme effectively updated the previous SmartGrowth settlement pattern but had accepted the already provided priority development areas in the next 30 years. These priority areas include Te Tumu, Tauriko West, Ōmokoroa, Lower Belk Road (TBE Extension), and Keenan Road, which are all necessary to help meet the targets.

The Connected Centres Programme also excluded some areas that were previously identified in the settlement pattern, but further investigation has shown are not viable/preferred at this stage (e.g. Pukemapu/Neewood).

SmartGrowth is developing the joint spatial plan based on the endorsed Connected Centre Programme. This joint Spatial Plan will then become the Future Development Strategy (FDS) required under the NPS-UD, confirming the strategic direction provided via the endorsed UFTI Connected Centres Programme.

The SmartGrowth Priority Development Area Task Force is focusing on a number of areas and sites in the 2021/22 work programme. This SmartGrowth urban partnership work stream indicates the partners' commitment to progressing the following areas:

- Ōmokoroa – Greenfield development
- Te Papa – Intensification area within existing urban area
- Tauriko/Tauriko West – Greenfield development
- Wairakei-Te Tumu – Greenfield development
- Short-term development opportunities (including in Te Puke and Katikati).

UFTI also identified a number of 'envisioned growth areas – 30+ years', which are not necessarily known by the wider community. It has been agreed through SmartGrowth projects and processes that the UFTI 'envisioned growth areas – 30+ years' will be included in the next FDS 2023 for full community engagement[34].

As part of the UFTI implementation, one of the first steps (within 12 months) is to complete the Tauriko business cases (i.e. this Enabling Works DBC and the Long-Term DBC) to support multimodal transport and freight outcomes and enable housing. Of relevance to this DBC, is that the endorsed UFTI Connected Centres programme is based on achieving an average of 30 dwellings/ha for each new greenfield growth area, including those in the Western Corridor. UFTI also acknowledges that housing densities would be lower in the first ten years (20-25 dwellings/ha) but will reach an average of 30 dwellings/ha over time.

For Tauriko West, the UFTI final report shows Tauriko West with 3,000 dwellings from 2020 with an estimate for completion within 30 years. The impact of this level of housing density is an increase in travel demand on a transport network that is already at capacity. This DBC, together with the Long-Term DBC, address this increased demand through one of the project objectives, which is to cater for a higher number of walking, cycling and public transport trips.

1.2.5 Other Direction

Table 1.2-1: Strategic Direction shows other relevant strategies and policies that provide direction for this project in addition to those outlined above.

[34] SmartGrowth Priority Development Area Task Force documentation

Table 1.2-1: Strategic Direction

Project or Process	Purpose	Enabling Works Alignment
Government Policy Statement 2021 (GPS)	The GPS sets priorities, objectives for long/medium/short-term results, and ranges of funding for activity classes to guide decision-makers on where and how to prioritise investment. The GPS has four strategic priorities that the project is assessed against: safety, better travel options, improving freight connections and climate change.	This project considers all the priorities in the GPS through the development of specific investment objectives and alignment to the long-term DBC
Climate Change Response (Zero Carbon) Amendment Act 2019	The Climate Change Response (Zero Carbon) Amendment Act 2019 provides a framework by which New Zealand can develop and implement clear and stable climate change policies that: • Contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5° Celsius above pre-industrial levels • Allow New Zealand to prepare for, and adapt to, the effects of climate change.	This project will contribute to reducing emissions targets by increasing mode shift and aligning to the long-term transport network benefits.
National Policy Statement on Urban Development (NPS-UD)[35].	The NPS-UD 2020 requires councils to plan well for growth and ensure a well-functioning urban environment for all people, communities, and future generations. This includes: • Ensuring urban development occurs in a way that takes into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) • Ensuring that plans make room for growth both 'up' and 'out', and that rules are not unnecessarily constraining growth • Developing, monitoring, and maintaining an evidence base about demand, supply and prices for housing and land to inform planning decisions • Aligning and coordinating planning across urban areas.	The NPS-UD 2020 contains objectives and policies that councils must give effect to in their resource management decisions. Tauriko West is one of the key greenfield developments in the next 30 years, necessary to help meet statutory NPS-UD capacity requirements.
Bay of Plenty Regional Policy Statement (RPS)[36] and Draft Change 6[37]	The RPS provides a framework for sustainably managing the region's natural and physical resources and includes guidance for growth management in the Western Bay of Plenty and setting urban limits for residential area expansion.	Tauriko West and the TBE extension is included in the existing Urban Limits Line for the Western Bay sub-region. BoPRC is also progressing Proposed Change 6 to the Bay of Plenty RPS to support implementation of the NPS-UD.

35 www.hud.govt.nz/urban-development/national-policy-statement-on-urban-development-nps-ud/

36 https://www.boprc.govt.nz/your-council/plans-and-policies/policies/regional-policy-statemen

37 https://www.boprc.govt.nz/your-council/plans-and-policies/policies/regional-policy-statement/draft-change-6-nps-ud

Project or Process	Purpose	Enabling Works Alignment
Bay of Plenty Regional Land Transport Plan (RLTP)[38] 2021-2031	The Bay of Plenty Regional Land Transport Plan (RLTP) is a requirement under the Land Transport Management Act 2003 and combines the thinking from all councils in the region into a single strategic document for land transport investment. The RLTP provides the region's preferred approach on how it prioritises transport investment and is the mechanism by which the region seeks central government funding for transport activities ranging from road safety, to walking and cycling, to public transport and road improvements. The RLTP aims to manage demand for motor vehicle travel, reduce forecast congestion and make better use of the existing network. Several transport initiatives included in the RLTP lay the groundwork necessary to implement UFTI's Connected Centres programme. These transport initiatives are designed to unlock access to housing and employment opportunities in the wider Western Corridor and Tauriko areas and provide multimodal transport connections to other destinations.	In relation to the Western Corridor and this DBC, the RLTP includes the following prioritised activities: • Tauranga bus services and supporting infrastructure (#1), key journeys and connections (#2), and service frequency enhancements (#3) • Tauriko West Enabling Works package, including local road connections, walking, and cycling, and bus priority (#4), and state highway improvements at Cambridge Rd (#11) • SH29A multimodal corridor improvements between Barkes Corner and Tauranga Crossing (#12) • Cameron Rd multimodal improvements stage 2: 17th Ave to Barkes Corner (#19) • Western Corridor Ring Route: SH29 to SH36 (#34) and SH36 to Oropi Road (#33) • Tauriko Business Estate transport network improvements (#35) and Belk Road Improvements (#44), including connection to SH29 near Belk Road
Western Bay of Plenty Transport System Plan (TSP)[39]	The TSP identifies the right transport investments to support urban and rural development and provide people with better travel choices. TSP will help realise UFTI's vision and benefits. Some key aspects are that the TSP identifies the best place for each mode of travel, ensures projects are not done in isolation and outlines the decisions around investing at the right time.	A total of 72 projects have been prioritised to deliver the TSP objectives including this Tauriko West Enabling Works DBC. The TSP also includes a number of other projects important to enabling the Western Corridor such as the SH29 Tauriko Network Long-term business case, Western Corridor Ring Route business cases, Internal network connection projects, Keenan Road Growth Area business case, Pyes Pa Road improvement, and a broader sub-regional public transport service and infrastructure business case.
Te Papa Spatial Plan[40]	The Te Papa Spatial Plan responds to the NPS-UD by focusing on development of centres and surrounding areas supported by public transport, active modes, and improved amenities. On a sub level, the Spatial Plan's recommended centres-based approach responds directly to the UFTI's Connected Centres programme.	Specifically, for this DBC and Tauriko West, the Spatial Plan includes significant investment in public and active transport through the development of Stage 1 and Stage 2 of the Cameron Road multimodal corridor and on to Tauranga Crossing via SH29A (via the SH29 Tauriko Network Long-Term Business Case). Improvements to the Cameron Road

38 www.boprc.govt.nz/your-council/plans-and-policies/plans/regional-plans/regional-land-transport-plan

39 https://www.tauranga.govt.nz/council/council-documents/strategies-plans-and-reports/strategies/transport-plan

40 https://www.tauranga.govt.nz/our-future/enabling-growth/te-papa-peninsula

Project or Process	Purpose	Enabling Works Alignment
		and SH29a corridor support successful outcomes for the DBC.
Bay of Plenty Regional Public Transport Plan[41]	The Regional Public Transport Plan provides guidance and policies that direct the investment in public transport across the Bay of Plenty. It encourages councils and public transport operators to work together in developing public transport services and infrastructure. Public transport in the region needs to be delivered in partnership with local councils and Waka Kotahi to ensure that the services provided integrate with: • Other modes of transport • Surrounding land uses and planned growth • Infrastructure that is provided by Waka Kotahi and local councils.	These issues are all particularly relevant to development of the Western Corridor and this DBC.
Bay of Plenty Regional Mode Shift Plan (2020)[42]	The BoP Regional Mode Shift Plan recognises that mode shift is a key national priority as outlined in the GPS and in Waka Kotahi's 'Keeping Cities moving'. The plan focuses on three interventions: • Shaping urban form (such as Tauriko West) • Making shared and active modes more attractive (delivering more connected cycleways and pathways) • Influencing travel demand and transport choices such as completing travel demand management (TDM) packages for Tauriko West	Specific reference to Tauriko West TDM package of which the Enabling Works contributes to.
Arataki[43]	Arataki is Waka Kotahi's 10-year view (2021-2031)[44] for land transport system in New Zealand. Arataki identifies the SH29 corridor as being a "nationally significant" connection for freight. It establishes that the "road and rail routes between Tauranga and Auckland (via Hamilton) form the country's most important freight corridor".	The Enabling Works DBC maintains freight linkages, improves safety, and enables urban development.

Links between these strategies are shown in Figure 1.2-3, and Tauriko West projects are specifically identified in circles. The Enabling Works project has strong alignment with national, regional, and local policies.

41 https://www.boprc.govt.nz/your-council/plans-and-policies/plans/regional-plans/regional-public-transport-plan

42 https://www.nzta.govt.nz/assets/resources/keeping-cities-moving/BoP-regional-mode-shift-plans.pdf

43 Arataki is Waka Kotahi's 10-year view (2021 to 2031)43 for land transport system in New Zealand.

44 https://www.nzta.govt.nz/assets/planning-and-investment/docs/arataki/pan-regional-summary-upper-north-island-december-2019.pdf

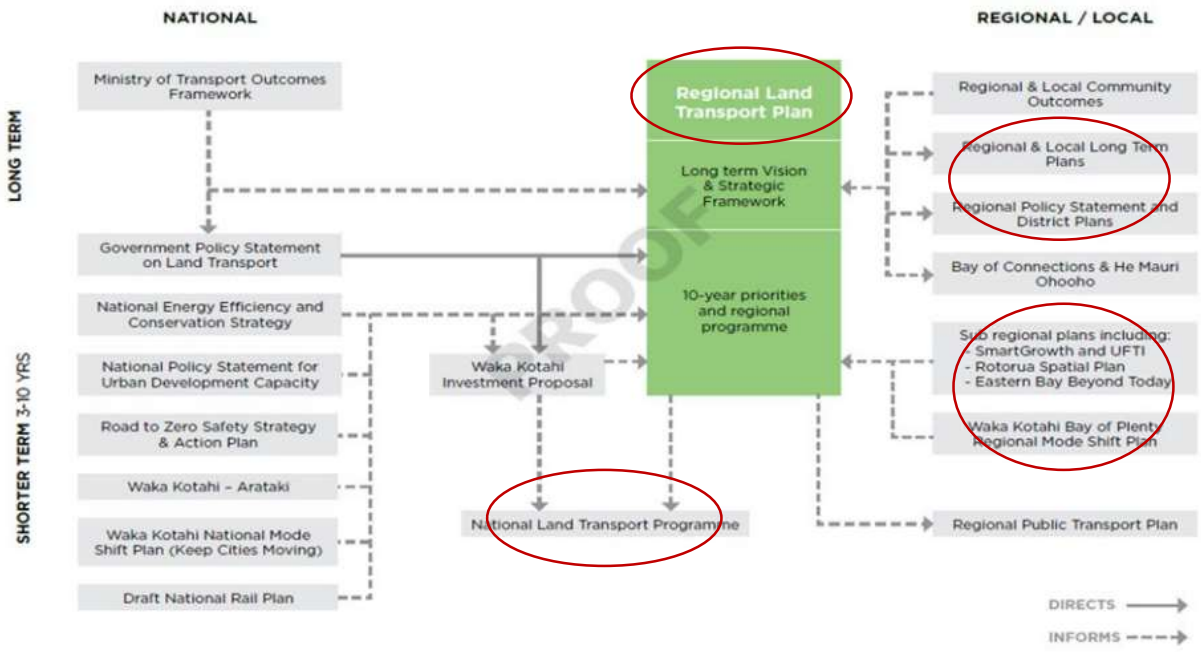


Figure 1.2-3: Strategic Document Linkages[45]

1.3 Work Completed To Date

The following sections highlight the work completed to date (as of August 2021), in addition to the background work outlined under section 1.2 and strategic studies outlined under section 1.2.5. Several technical assessments (including various scenarios, safety audits, and phases of traffic modelling) have also been completed. Rather than detail these assessments here, the details are provided where relevant throughout both this Enabling Works DBC and the Long-Term Tauriko Transport DBC.

1.3.1 Long-Term Tauriko Transport Detailed Business Case (DBC)

Based on the direction set by the preferred programme, the Long-Term DBC commenced in 2016. This followed the development of problems and benefits through an investment logic mapping (ILM) exercise, development, and evaluation of options for the corridor with the project partners and key stakeholders, and progress towards a preferred option for the corridor. The scope of the Long-Term DBC was to deliver a multi modal transport network that enables housing and urban development in the Western Corridor, with an initial focus on enabling development of Tauriko West. In addition, the DBC would seek to provide additional and safer facilities for all modes, cater for general traffic growth and freight needs, and improve accessibility and liveability in the area.

Due to the changes in the Government Policy Statement (GPS) for Transport, the development of this Long Term DBC was put on hold in January 2019. The investigations at that hold point in 2019 had identified a short list of options for the long-term transport improvements along SH29 from Omanawa Road to the Takitimu Drive Toll Road roundabout and continuing on SH29A to Barkes Corner. The shortlisted options sought to improve safety, provide travel choices for people, maintain freight access, and enable local growth. All the options encourage people to use public transport, walking and cycling, and include integration into the wider transport network and key local road connections.

In early 2021, the Long Term DBC was restarted, and evaluation of the shortlisted options continued with project partners: Waka Kotahi, TCC, WBOPDC, BOPRC, and tangata whenua. Engagement with potentially affected landowners and the community took place in April and May 2021. An emerging preferred option was identified following a multi-criteria

[45] https://hdp-au-prod-app-boprc-participate-files.s3.ap-southeast-2.amazonaws.com/6816/1482/3126/DRAFT_RLTP_-_March_2021_-_Consultation_Document.pdf

assessment (MCA), and that option is now being developed and evaluated further. The Long Term DBC is due for completion in 2022.

As a result of the work completed to date on the Long-Term DBC and a potentially phased implementation period (which is currently to be assessed and agreed but could be +10-years for some elements), it was clear that some work would be required in the short term (2-3 years) to enable housing and urban development to commence at Tauriko West, enable continued development of TBE, and address some of the accessibility and safety needs. These short-term requirements are the basis of this Enabling Works DBC.

1.3.2 Western Corridor (Tauriko West) – Eastern Ring Road Assessment (2017)

A feasibility and options report for the proposed Western Corridor is attached as Appendix A. The Tauriko West Eastern Ring Road includes a connection from SH29 to SH36 via TBE (Kaweroa Drive), and then along SH36 and further east towards Oropi Road at SH29A. The Ring Road was identified in the PBC as a component of the preferred programme.

The main purpose of the ring road is to separate state highway traffic from local movements, improve resilience by providing an alternative route to the state highways, and to integrate local amenities (walking, cycling and public transport). Separate business cases are now proposed for the SH29 to SH36 section (to be undertaken 2021-2022) and the SH36 to Oropi Road section (to be undertaken 2021-2024), as per the RLTP.

1.3.3 Safe Infrastructure and Speed Network Programme (SIP)

Waka Kotahi has identified the safe and appropriate speed (SaAS) on SH29 throughout the project area. This will have an impact on the safety outcomes, traffic modelling impacts and geometric design elements. Refer to section 5.6.4 for further discussion.

2 Vision for Tauriko West

TCC has worked alongside landowners, tangata whenua, and project partners to develop a vision for Tauriko West. The aim is to develop a thriving community for people to live, work, learn and play within, which includes the following features:

- Local amenities including schooling, neighbourhood shopping, parks, reserves, and connections to the Wairoa River
- A healthy community – walkable neighbourhoods with green links, cycleways, and walkways
- A connected community with transport choice – cycling, walking and public transport links to neighbouring employment and retail areas and the Tauranga CBD
- Integrated transport solutions, reducing the effect on the strategic transport network
- Located in a growing employment area, catering to local job opportunities, i.e. the Tauriko Business Estate and Tauranga Crossing
- A variety of housing densities and typologies to provide for all ages
- A community which recognises the cultural importance of the Wairoa River.

This vision would seek to achieve the delivery outcomes shown on Figure 1.3-1.

Figure 1.3-1: Development Outcomes for Tauriko West (Source TCC)

2.1 Planning Framework

Building a new community at Tauriko West will require changes to the Tauranga City Plan under the Resource Management Act 1991 (RMA). Currently, the land is zoned rural and needs to be rezoned for residential development. Preliminary processes to enable this, such as the change to the urban limits line in the RPS (led by BOPRC) and the local government boundary alteration (led by WBOPDC) have already been completed.

The higher order strategic planning documents (i.e. SmartGrowth, UFTI and the RPS) have established the planning framework for the development of Tauriko West. As a new

residential growth area, the planning for Tauriko West seeks to implement these higher order documents, and comply with the objectives, policies, and methods of the RPS.

Specifically, Method 18 of the RPS requires councils to prepare structure plans for all large-scale land-use changes to ensure coordinated development through the integrated provision of infrastructure, and integrated management of related environmental effects.

2.2 Technical Investigations

To provide a foundation for the required changes to the Tauranga City Plan, TCC has developed a draft Structure Plan to guide future development, establish land use and infrastructure networks, and identify the potential effects of urbanisation. As TCC has progressed the Structure Plan in partnership with key stakeholders, several matters have been investigated, including:

- The type and location of land uses that will be permitted in the growth area, including development type, density and staging
- Multimodal transport links and connectivity such as roading, public transport (infrastructure and services), cycle and pedestrian connections – within the growth area and connecting to surrounding areas
- Location, type, scale and staging of infrastructure (including stormwater, water, and wastewater) required to service the growth area, including delivery of that infrastructure to the boundary of the growth area
- Identification and protection of sites, features, or values of importance to the community (e.g. cultural, ecological, historical or amenity-related)
- Integration of the growth area with existing infrastructure, existing urban development, and future urban development in the Western Corridor
- Protection and enhancement of cultural values, the Wairoa River margin, landscape character and amenity values
- Provision of reserves and open space networks, and community facilities
- Identification of natural hazards and areas of contaminated land, and development of measures to avoid or mitigate risks.

2.3 Landform Modification

The existing landform of Tauriko West generally comprises elevated terraces and domes (RL30 to RL65 metres, Moturiki Datum) flanked by moderately steep to steep escarpments which extend down to incised low-lying gully features (RL2 to RL15 metres). Towards the west and south there are lower terrace features (RL5 to RL30 metres) with gentle to moderately steep slopes extending down to low-lying areas and the Wairoa River.

Modification of the existing landform through large-scale earthworks is proposed to create sufficient developable area needed to deliver the required level of housing and achieve the vision for Tauriko West. Without landform modification, the developable area would be approximately half what it is with modification. As a result, housing and urban development would be restricted to non-contiguous areas of land spread across the site, and the costs for infrastructure, such as roads and services, could not be offset by housing delivery.

At a minimum there is a requirement to maximise developable yield to provide for housing, provided the right balance on environmental limits to the site externally are maintained and/or enhanced and create connectivity.

With landform modification through large-scale earthworks, the infrastructure becomes more economically viable because of the housing yield potential and the increased possibility of the project vision and objectives being achieved. Contiguous areas of developable land provide for the development of a new medium density (25 dwellings per hectare) community by:

- Increasing the opportunities for higher density housing, better public transport, and delivery of a more compact city

- The creation of a river reserve to enhance and protect the river margin
- Significantly increased public access to the Wairoa River
- Reducing the risks from flooding and existing potentially unstable slopes; and
- Responding to potential climate change effects and reducing emissions.

2.4 Structure Planning

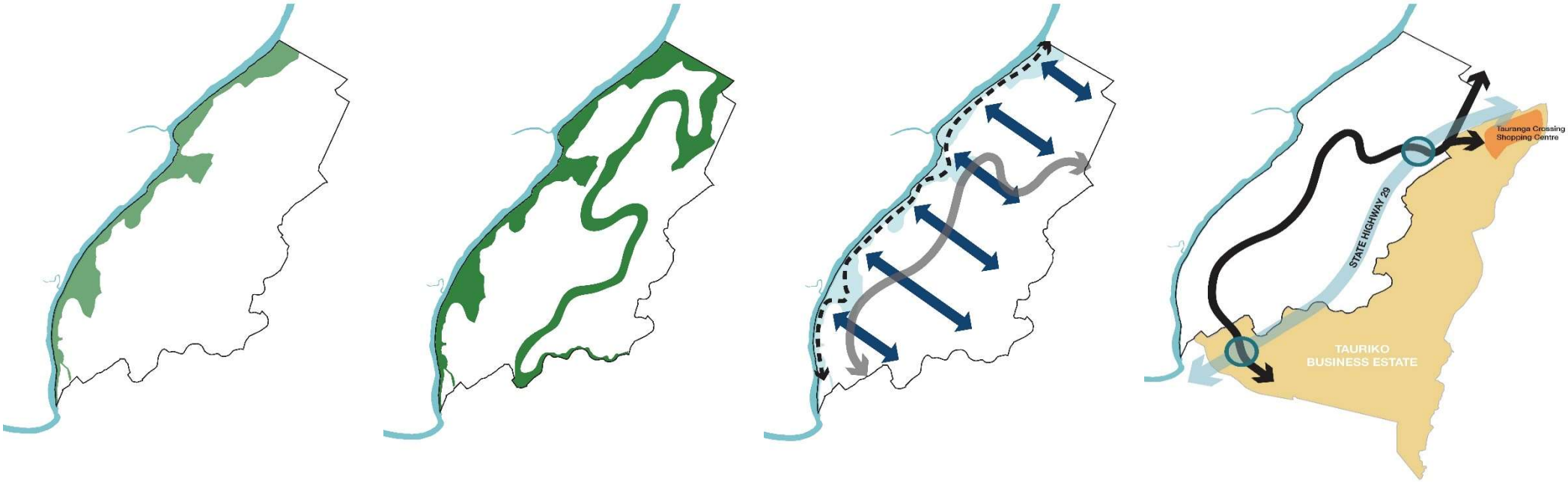
2.4.1 Framework Design

As part of the structure planning for Tauriko West, a framework design process was undertaken to determine how best to enable development of the new community through consideration of protecting the river, providing for housing, and creating connectivity. The purpose of the framework design process was to identify the key design challenges and opportunities on a spatial level, to guide the detailed structure planning and design work. The process was led by TCC with support from Studio Pacific Architecture and peer review of the proposals by RPS.

The framework design was developed taking the recommendations from the technical investigations into account and moulding these into an overall philosophy for delivery of a connected community, whereby housing is able to be delivered and the Wairoa River is protected. The framework design was created utilising the following key considerations:

- A developed landform model based on the preliminary land budget estimates, which maximises opportunity for medium density housing (25 dwellings per hectare) and urban development
- A recreated river margin, providing for recreation, access, cultural and heritage recognition, and community connectedness
- A transport network focusing on strong central connections through the community and connectivity with the Wairoa River Margins, while addressing inefficient land balance, earth-working imbalances, and road design requirements
- Views and viewshafts to the wider rural hinterland, north/south views along the Wairoa River, and connections to key prominent locations to provide vistas outside of the growth area to Mauao
- Maximisation of sunlight and north-facing aspects to maximise solar energy gain
- The relocation and expansion of the existing Tauriko School, and the positioning of it with wider commercial/recreation facilities, to create a connected hub
- Provision of recreation areas, and community gathering spaces along the Wairoa River, providing for activity (i.e. café/destination playground).

Key structural moves were identified to help realise the vision and objectives for the new community. These moves are shown on Figure 2.4-1, and have been taken forward into the draft Structure Plan and Spine Road alignment.



Protect the river through the creation of a river reserve

Provide mitigation of the urban expansion through the recognition and protection of the ecological values of the site; and where retention is not viable, provide mitigation and/or offsets (e.g. riparian planting, revegetation of escarpments)

Create an internally connected development through a central Spine Road for north/south movement, plus lateral connections across the site to the river

Provide good access to surrounding areas by responding to a changing state highway condition, northern and southern links to SH29 and to surrounding amenities, employment, and commercial centres

Figure 2.4-1: Framework Design – Key Structural Moves (Source TCC)

2.4.2 Transportation Planning

The framework plan for Tauriko West is based upon a fully connected internal road network. This means that all roads connect and cul-de-sacs are minimised. Community connectedness through street design, open space planning and creating a sense of place will be paramount within the design of street layouts and connectivity to the Wairoa River, and beyond. In terms of a hierarchy the network functions as follows:

- The Main Spine Road connects via two shorter local roads to State Highway 29 (SH29) at the northern and southern end of the site, providing a central Spine to service the entire site.
- Off the Spine Road are a series of Primary Local Roads which in turn feed a network of Local Streets. Interventions such as raised tables, shared space, greater street planting and restricted access mid-block and end-block are recommended to reduce design speeds and provide streets that are not more than just movement corridors.

The internal Spine Road is a key component of the draft Structure Plan but is not included within the Stage 1 – Enabling works scope. The proposed corridor delivers on the key structural moves identified through the framework design process and is the backbone to the new community, providing for:

- Access off the northern and southern connections described in this DBC
- Connectivity to employment areas, the wider Western Corridor, retail, and the City
- North-south connectivity within the growth area, allowing for more trip internalisation
- Increased modal shift, with more efficient walking, cycling and bus routes
- Amenity
- Stormwater treatment.

2.4.3 Draft Structure Plan

The outcome of the above investigations and design development has been the creation of a draft Structure Plan. The draft Structure Plan[46] is shown at Figure 2.4-2.

The draft structure plan provides for an entirely modified landform, outside of the recognised areas of value such as the Wairoa River margins, what will be recreated to provide for recreation, access, and cultural and heritage recognition. Within the residential zones, new housing will be provided for through a range of housing typology choices, styles, and densities. Activity hubs will be enabled along the Wairoa River, whilst a new local centre will support the needs of this future community.

The draft structure plan is aligned with transport planning for the wider Western Corridor as it aids trip self-containment (thereby managing travel demand), provides multimodal travel choices, improves safety, supports carbon emission reductions by providing facilities that encourage walking, cycling ad public transport, and importantly support the development of a well-functioning urban environment. The plan also provides the opportunity to connect walkways/cycleways along the full length of the Wairoa River, extending from Tauriko West towards Bethlehem in the north, and the Omanawa River in the south.

46 Because the draft Structure Plan has been developed alongside this DBC, the plan shown here reflects the recommended option for the Enabling Works package, including the internal Spine Road, however noting the Spine Road is not included in the Stage 1 – Enabling works scope. This will be included for further development in the Stage 2 Medium Term improvements package. Refer to the Tauriko Transport Long Term DBC

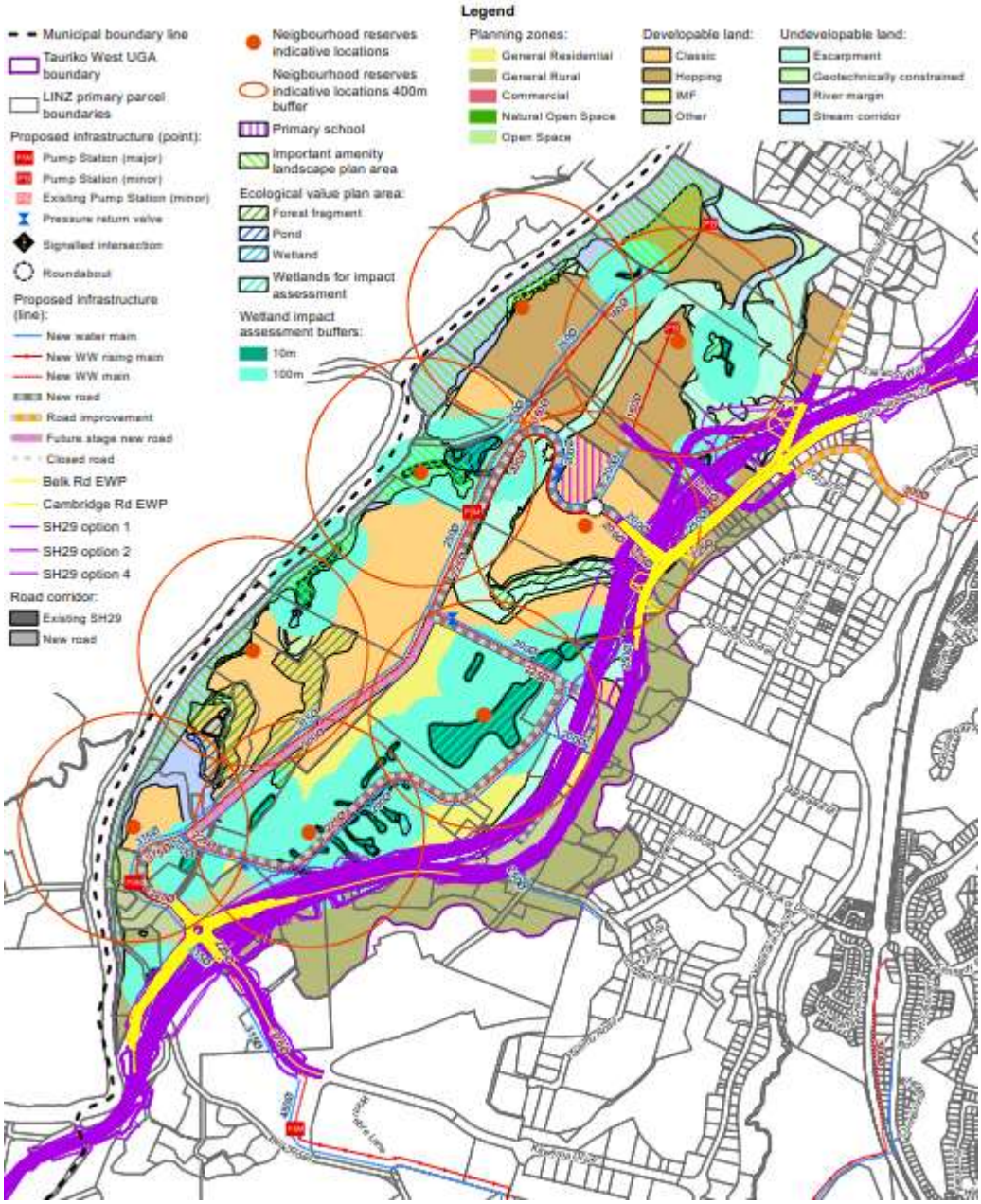


Figure 2.4-2: Tauriko West Draft Structure Plan – December 2021 Rev 5[47]

The draft Structure Plan is based on a land area of approximately 323 ha. Over 50% of this area is constrained and therefore undevelopable, including wetlands, streams, escarpments, and a riverside reserve. Of the remaining developable area it is anticipated that the approximate landuse allocation[48] will be:

- 135 ha of residential, which is proposed to provide for a mix of housing typologies (including general, medium, and high density) estimated to provide between 3000 – 4000 homes at an average density of 25 houses per hectare
- 10 ha of sport fields
- 13.5 ha for schools (primary school and high school)
- Opportunity (0.5ha) for other services and facilities to establish to support new community (e.g. neighbourhood centre, medical facilities, churches etc.).

The structure plan has been developed to accommodate the emerging preferred option for the long-term upgrade of SH29 and has sufficient flexibility to respond to changes as this

47 http://econtent.tauranga.govt.nz/data/city_plan/maps/S5/Diagram9.pdf
48 All land uses and resulting areas are approximate.

option is refined through the Long Term DBC. Following the completion of the Long Term DBC, the recommended option for SH29 and the associated local road connections will be integrated into the structure plan.

2.5 Implementation and Staging

Once the Structure Plan is finalised and the changes to the Tauranga City Plan are complete, implementation of the growth area itself is planned as a private developer led and funded undertaking. External transport infrastructure to enable the growth area to proceed is funded by both TCC and Waka Kotahi, with public transport services provided by BOPRC. Crown Infrastructure Funding is also expected to support the implementation of the project through an Infrastructure Funding and Financing Act 2020 (IFF) levy, along with investment through the Infrastructure Acceleration Fund (IAF).

To align implementation of Tauriko West with planned investment in the transport network, a staged approach has been developed as outlined in this DBC. This approach has tested impacts on the existing network from developing up to 2000 new households. This effectively represents Stage 1 of Tauriko West, which is based upon the below parameters:

- Connection of the southern and northern local roads to SH29 occur within Stage 1, as this will provide the greatest opportunity to enable the first 2000 houses to be built and contribute towards achieving walking and cycling aspirations, connection of the wider area, and accessibility to schools in the medium and long term
- Maximising investment of the EWP on the basis that both the northern and southern connections on SH 29 (along with all utility infrastructure) are required to be delivered at the same time (i.e. level of investment for the number of dwellings delivered)
- Maximising alignment of earthworks by landowners, timing, and investment to deliver the infrastructure and housing (ensures efficiency in delivery)
- Each developer provided with the opportunity to undertake development and commits themselves as an 'active developer'.

As a result, TCC has considered how the growth area could roll out based upon a Stage 1 and Stage 2 approach. Stage 1 seeks to deliver on the agreed 2000 dwellings. Stage 2 will include the development of the Spine Road to achieve the 3000-4000 houses and provide improved connection of social infrastructure, schools, sportsfields, reserves and the Wairoa River margin. Additional interventions will be required to manage wider growth on the state highway and local roading networks, separate to growth arising from the development of Tauriko West and the continued development and expansion of TBE.

3 Engagement Approach

Engagement with a range of partners and stakeholders, including directly affected landowners, the wider community, Bay of Plenty Regional Council (BoPRC), Western Bay of Plenty District Council (WBoPDC), and the project specific tangata whenua liaison group known as Te Kauae o Roopu was undertaken through the development of the Long Term DBC and this DBC for the Enabling Works.

Engagement commenced in 2016 as part of the Long Term DBC. As noted in Section 1.1.2, the Enabling Works was split off from the Long Term DBC in 2019 due to timing delays and to accelerate the provision of access to the Tauriko West UGA. A summary of the engagement approach for the Enabling Works DBC is provided in the following sections. A summary of the engagement results and stakeholder and public feedback on the options is also provided in Section 6 of this DBC.

3.1 Stakeholder and Community Engagement Plan

A Stakeholder and Community Engagement Plan (Engagement Plan) was developed for the Long Term DBC, which has also been used for this DBC. The Engagement Plan outlined the engagement approach to be taken and provided an implementation plan for engagement activities. The primary purpose and objectives of engagement were to:

- Shape project decisions or actions based on the perspectives and needs of the Engagement Partners[49]
- Identify problems and opportunities to address through the project
- Manage risk of stakeholder or community opposition to the preferred option(s)
- Generate alternatives, new ideas, and options.

The Engagement Plan is a "living" document and is revised and updated to respond to project circumstances and events as required.

3.2 Engagement Partners

The Engagement Partners have been grouped by the roles that they play and the potential influence that they have on the project, as outlined below.

- **Project Partners:** Project partners are those that have a critical influence over the success of the Project, and/or a statutory or funding role in aspects of the Project. Representatives of the Project Partners may also form part of the Project Team itself.
- **Stakeholders:** Stakeholders are those that have a vested interest in the project (including affected landowners) that is greater than the general public and potentially have greater influence over project outcomes.
- **Community:** The wider community includes the general public and other interested parties and groups that have an interest in the project, want to be kept informed, and provided with an opportunity to participate in engagement.

Using the IAP2[50] Public Participation spectrum in accordance with the Waka Kotahi Public Engagement Guidelines (2016)[51], the Engagement Partners have been allocated an appropriate level of engagement. The five levels of engagement in the IAP2 spectrum are:

Inform: *To provide the public with balanced and objective information to assist them in understanding the problem alternatives, opportunities and/or solutions.*

49 Engagement Partners is an all-encompassing term, and includes project partners, key stakeholders, advocacy groups, affected landowners, and the wider public.

50 International Association of Public Participation

51 https://www.nzta.govt.nz/assets/resources/public-engagement-manual/docs/nzta-public-engagement-guidelines.pdf

***Consult**: To obtain public feedback on analysis, alternatives and/ or decisions.*

***Involve**: To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.*

***Collaborate**: To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.*

***Empower**: To place final decision making in the hands of the public.*

The identified engagement partners and proposed level of engagement for this DBC is set out in Table 3.2-1.

Table 3.2-1: Level of Engagement

Engagement Partner	Level of Engagement
Project Partners	

• Waka Kotahi
• Tauranga City Council
• Western Bay of Plenty District Council
• Bay of Plenty Regional Council
• Tangata Whenua
  – Te Kauae a Roopu Partnership
  – Ngati Ranginui Iwi Authority
	Collaborate

Stakeholders	
Affected Landowners/Occupiers/businesses (depending on options)	Involve
Ministry of Education (MoE) and Tauriko School	Involve
Tauriko West developers and landowners	Involve
Tauranga Crossing Limited	TCL
Heritage NZ	Consult
Department of Conservation	Consult
NZ Police	Consult
Community	
Advocacy Groups, including: • Forest & Bird • Eastern Fish & Game • Priority One • Tauranga Chamber of Commerce • Tourism Bay of Plenty	Inform and Consult
Industry Groups, including: • Employers & Manufacturers Association (EMA) • Federated Farmers • Port of Tauranga	Inform and Consult
Transport and Freight Representatives, including: • Freight Logistics Action Group • Public Transport Operators/School Bus • Road Transport Forum (Road Transport Association, NZ Trucking, National Road Carriers) • Automobile Association (AA) • Bus and Coach Association • NZ Heavy Haulage	Inform and Consult
Bay of Plenty District Health Board	Inform and Consult
Local MPs	Inform and Consult
Network Utility Operators	Inform and Consult

In order to guide the engagement with the community (the results of which are described in Section 6 of this DBC) an engagement pyramid was developed to help categorise sub-groups within the community, as shown on Figure 3.2-1. This placed those parties who were most affected by the proposed works in the smallest grouping at the top of the pyramid. As you move down the pyramid, the groupings increase in size and extent while the potential impact (and consequently level of engagement) decreases.

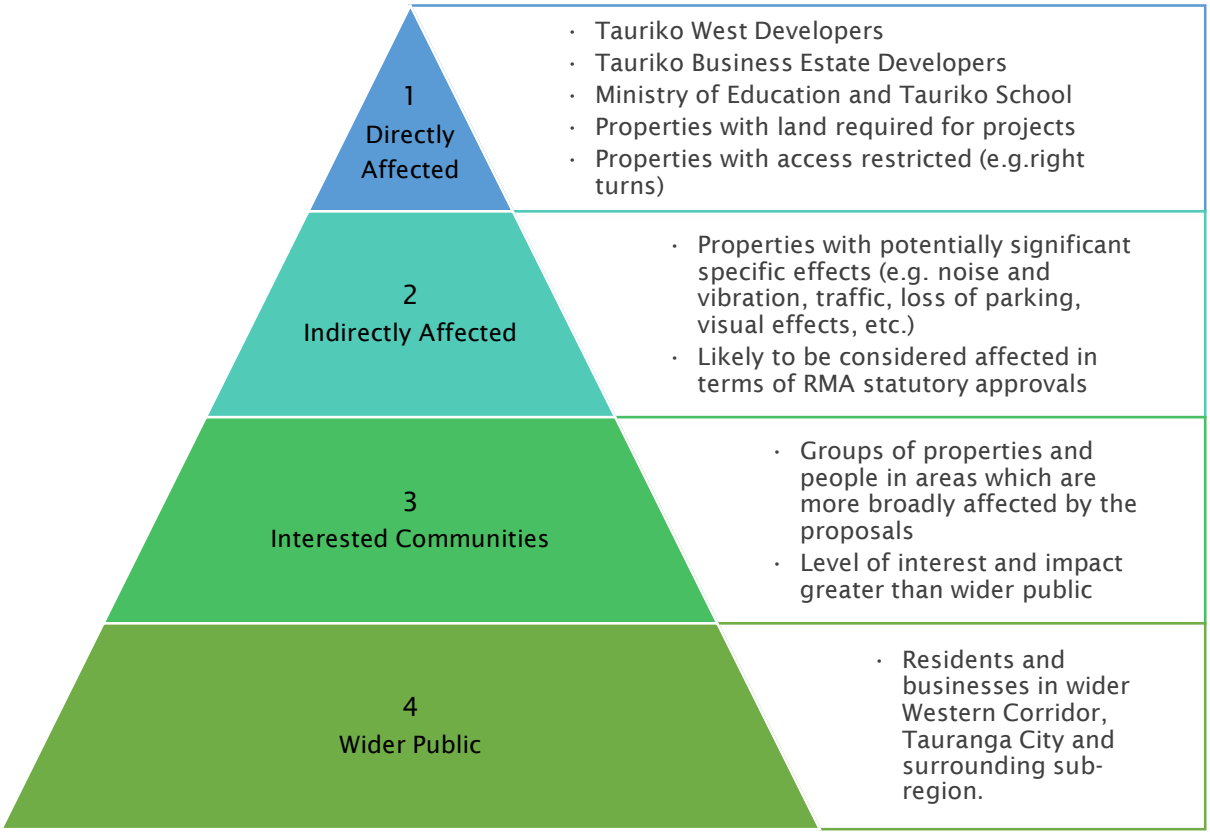


Figure 3.2-1: Tauriko for Tomorrow Engagement Pyramid

Note that the SmartGrowth partner councils and tangata whenua are not shown on the pyramid as they are directly involved in all stages of the project as partners.

3.3 Engagement Methods

Various engagement methods have been used throughout the DBC process, with one-on-one meetings and an Open Day being the two methods used primarily to discuss the options for the short and long term transport improvements for SH29/SH29A. These methods are discussed in Table 3.3-1.

These methods have been used not only to inform the DBC, but such engagement and consultation is also best practice to help inform the statutory approval process for the Tauriko West Enabling Works under the Resource Management Act 1991 (RMA).

Table 3.3-1: Engagement Methods

Engagement Method	Target Group	Level of Engagement	Reason for Method
Project website (incl. surveys and project updates)	Stakeholders & Community	Inform & Consult	Potential to reach a wide audience in an engaging and visual manner at various stages throughout the project.

Engagement Method	Target Group	Level of Engagement	Reason for Method
Project Updates	Community	Inform	Efficient way to disseminate key information to a wide audience.
Media Releases	Community	Inform	
Social Media	Community	Inform	
Online Surveys	Community	Inform & Consult	Seek feedback and ideas from a very wide audience in an interactive way using Maptionnaire or similar. Can also be used as a vehicle for informing the community.
Open Days	Community	Inform & Consult	Provides a 'people element' to engagement, an easy way to distribute information and an opportunity for participants to ask questions and respond to the preferred option.
One-on-one Meetings	Stakeholders & Partners	Involve & Collaborate	Builds trust and shows engagement is genuine.

3.4 Tangata Whenua

A specific tangata whenua partnership group, Te Kauae a Roopu, was also set up in 2017, with six hapu having ancestral links to the area, and who whakapapa to Ngati Ranginui and Ngai Te Rangi Iwi of Tauranga Moana:

- Ngati Kahu,
- Ngati Rangi,
- Ngati Pango,
- Pirirakau,
- Ngati Hangarau, and
- Ngai Tamarawaho.

Te Kauae a Roopu hui also involve representatives of TCC, WBOPDC, BOPRC, Waka Kotahi and the Ministry of Education (MoE). The format included meeting regularly on a six-weekly basis (generally) to work in partnership on the assessments and investigations required for technical aspects, heritage, and cultural values.

3.5 Engagement Outcomes and Next Steps

Engagement with partners, stakeholders, affected landowners and the community has ensured that all parties have been a part of the project. To date, there has positive feedback throughout the process about the transparency of the project, the availability of project team members to talk about the project, and the level of engagement that has taken place. A summary of the engagement results and stakeholder and public feedback on the options is provided in Section 6 of this DBC.

As the physical works are confirmed and planned for construction once this DBC has been endorsed by Waka Kotahi and TCC, engagement with those who are directly affected (where property acquisition is required or change to property access) and indirectly affected (wider community and stakeholders) will be required to take place.

The project partners will work closely with the directly and indirectly affected people and organisations to ensure that general and personalised messaging continues such as through updates to the Tauriko for Tomorrow project website, and letters to provide certainty around project timeframes and when land acquisition processes may commence.

4 Strategic Assessment

4.1 Problems and Benefits Summary

The problems and benefits that have been used for the development of this Enabling Works DBC are consistent with and align to the Long Term DBC problems and benefits. Although a standalone business case, this DBC is required to help meet the objectives of the Long Term DBC as it covers the first stage of a long-term investment package. As such project partners agreed that a separate investment logic map (ILM) was not required.

However, it is important to show how the Enabling Works contributes to delivering the Long Term DBC objectives. A high-level summary of the linkages and contribution is provided in Table 4.1-1, with more detail on how the Enabling Works measures and targets align and contribute to the Long Term DBC provided in

Table 4.4-1 and Appendix B.

Table 4.1-1: Enabling Works alignment to the Long Term DBC Transport Problems and Benefits

Long Term Problem	How the Enabling Works Aligns	Long Term Benefit	How the Enabling works align and/or impact
Problem 1: If not appropriately integrated into the transport system, planned land use development and growth in the Western Corridor is unlikely to proceed due to the scale of impacts on access, safety, and liveability (70%).	Enabling works looks to provide early (<10yrs) opportunities to open up land for housing and urban development, and to improve accessibility and transport links on SH29 and connecting local roads for all modes between new housing, commercial and industrial areas	Better access to international and major domestic markets on this national strategic freight route linking to the Port of Tauranga (20%)	The Enabling Works is expected to improve freight travel times and trip reliability to the port in the short term (<10yrs)
		The Western Corridor is better connected and accessible through a multimodal transport system which supports timely delivery of sustainable growth (40%)	The Enabling Works considers all modes to support development of Tauriko West and TBE in the short term (<10yrs)
Problem 2: Poor geometry and negotiation of major intersections on State Highway 29/29A through the Western Corridor leads to injury crashes and high severity outcomes (30%).	The Enabling works looks to address current safety issues at the SH29/Belk Road and SH29/Cambridge Road intersections in the short term (<10yrs)	Improved safety within the Western Corridor	The Enabling works looks to address current safety issues at the SH29/Belk Road and SH29/Cambridge Road intersections in the short term (<10yrs)

The evidence to validate those Long Term DBC problems (or the how the Enabling Works is contributing to addressing those problems) is provided in the following sections.

4.2 Problem 1 – The Evidence

A summary of the problems and benefits has been discussed in section 4.1 with further details on measures and targets provided in Appendix B. The evidence to validate those Long Term Tauriko Transport problems (or the how the Enabling works is contributing to addressing those problems) is provided in the following sections.

Long Term Tauriko Network Connections DBC - Problem 1:

If not appropriately integrated into the transport system, planned land use development and growth in the western corridor is unlikely to proceed due to the scale of impacts on access, safety, and liveability (70%).

Land use and transportation are integrally linked. If future land use is not well connected to the transport system, then the community will not have safe access affecting viability and liveability. Land use and transport in the western corridor is currently not well aligned. Walking, cycling and public transport routes are hardly available and local trips utilise the state highway network and interact with significant volumes of freight accessing international and domestic markets via the port.

All of this increases demand on critical intersections including Cambridge Road, Takitimu Drive and Barkes Corner. The Enabling Works will be required to help manage some of these issues in the short term (<10 years). In discussing the evidence required to validate some of the problem 1 statement the following has been considered:

- The growth challenge – how population growth has led to a demand for housing where supply is limited, which in turn has created a need to provide access to open up new land for housing and urban development. (Section 2.3.)
- The transport network – how the current network operates (CloS, ONF, Street Design) now for all modes, the restrictions on accessibility and liveability (Section 4.2.2.), and how this would function once additional housing is developed in the area. Safety is a key part of this and is discussed in more detail in section 4.3.

4.2.1 The Growth Challenge

Tauranga is currently the fifth-largest city in New Zealand, with over 140,000 residents. As noted in Section 1.2.4 of this DBC, the endorsed UFTI Connected Centres Programme outlined the requirement to plan for approximately 200,000 additional people, 95,000 new homes, and two million additional transport movements per day across the Western Bay of Plenty sub-region within the next 30 to 70 plus years.

Recently *TCC has notified the Minister for the Environment that the city's future housing supply will not comply with the capacity requirements of the NPS-UD.* TCC's recently-completed 2021 housing assessment forecasts that there is a shortfall of >400 dwellings in the short term (0-3 years). This means there are more people seeking a dwelling than there are dwellings available. When a 20% 'competitiveness margin' is factored in, the predicted dwelling shortfall exceeds 1100. Including the margin, smaller shortfalls are also predicted for the medium- (4-10 years) and long-term (10-30 years) periods.

To address this shortfall, meet the requirements of the NPS-UD, and achieve the outcomes identified in the GPS-HUD (September 2021), intensification of existing urban areas and the development of new areas are required. Providing for the development of the planned urban growth areas in Te Tumu, Keenan Road and Tauriko West, and intensification of the Te Papa peninsula is projected to provide sufficient land for housing supply out to 2043.

TCC has been progressing the long-term structure planning for the Tauriko West UGA, which will provide for approximately 3,000-4,000 new residential dwellings. These dwellings will be supported by a relocated and enlarged primary school, proposed secondary school (TBC), large riverside reserve areas, local commercial centre, and opportunity for the delivery of a variety of different housing typologies and densities.

Alongside housing there is also a need to establish a high quality of liveability for the new community and providing choice. An integral part of meeting those objectives, and the core of the western corridor, is TBE and Tauranga Crossing which provides the community with commercial and retail spaces and places to work.

TBE is a planned industrial and commercial business land development of approximately 195 hectares, which forms part of the Western Corridor. The existing zoned growth area is approximately 300 hectares and largely developed. The expansion of TBE into the lower Belk Road UGA (within the existing urban limits of the RPS) by approximately 120ha is underway via a private plan change process to zone the land for industrial use.

The development of existing and future stages of TBE is governed by a structure plan, supported by a main Spine Road, and collector road route, with the key corridors aligning with the PBC. Although the Spine Road is not included in this Enabling works stage, the planned connection from Kaweroa Drive to SH29, which forms part of the enabling works package is.

TBE provides and will continue to provide significant industrial zoned land supply and associated job creation, to support the sub-region's population growth.

Why now? – Pace of Development

As part of the Tauriko West structure planning, TCC has identified the likely timeframes for the plan change, resource consents for subdivision and land development, installation of infrastructure and services, issuing of building consents for dwellings and finally construction and completion. As shown in Figure 4.2-1, if external infrastructure delivery land development (civil works) commenced from 2023, projected dwelling uptake will occur gradually starting from 2025/26 onwards, with approximately 448 dwellings completed and occupied by 2028. The majority of uptake is expected within the 2028 to 2038 period, with 2000 occupied dwellings expected by 2035[52]. As noted above, the delivery of the Tauriko West UGA is critical to help meet housing demand and comply with the NPS-UD requirements. However, due to the long lead in times for infrastructure delivery the first dwellings are at least 3 years away.

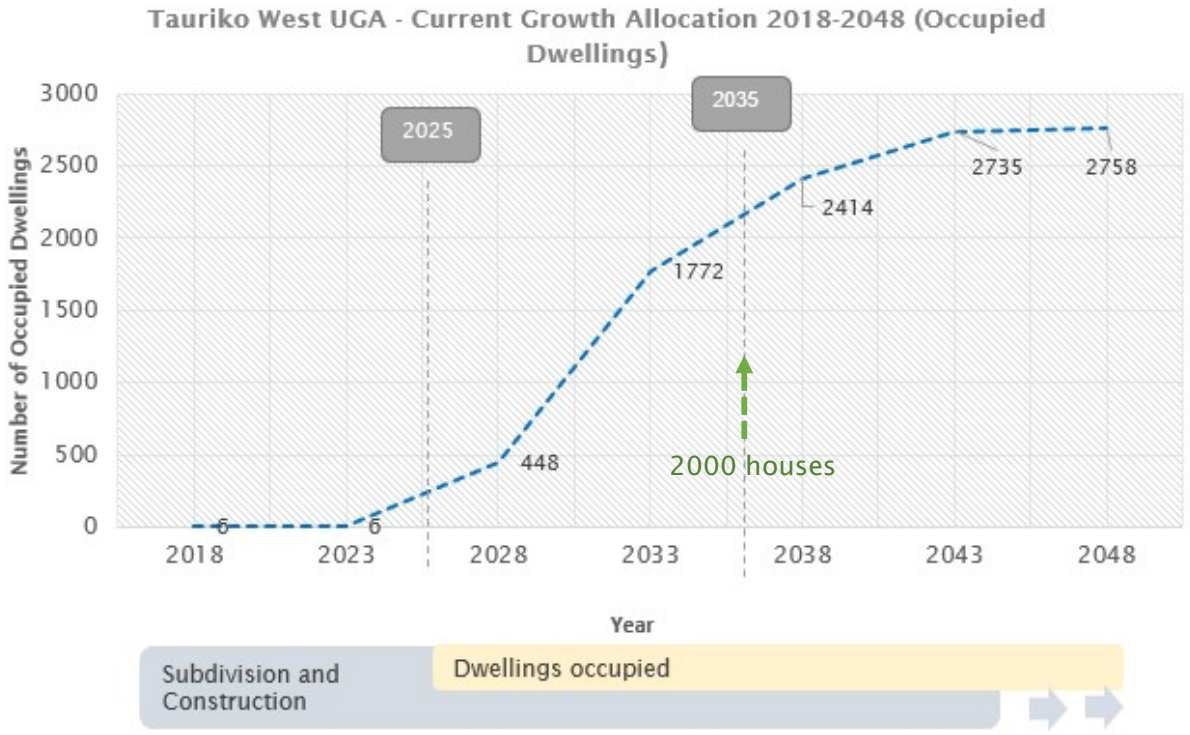


Figure 4.2-1: Subdivision consenting and Land development (Source TCC[52]

Why now? – Land Use Integration

Tauriko West is situated near TBE – which provides significant current and future employment opportunities – and Tauranga Crossing – a significant retail, entertainment, dining, and commercial development providing many local amenities.

The provision of multimodal *access off SH29 into Tauriko West is critical* to the structure planning of the *UGA and is a pre-requisite for construction of housing and urban development to proceed*. Without an agreed understanding on the location, design, and capacity of multimodal access to the UGA, along with an understanding of the impact of that access on the wider transport network, Tauriko West could not proceed.

Despite its relative proximity, Tauriko West is *separated from TBE and Tauranga Crossing by SH29,* a nationally strategic freight route to the Port of Tauranga. Due to current demand and *high traffic volumes along SH29 through Tauriko, there are existing safety, access, and*

[52] https://www.tauranga.govt.nz/Portals/0/data/council/reports/population-household-review-2021-app1.pdf

travel time reliability issues both along and across the highway. These issues would likely be exacerbated by inappropriate connection to Tauriko West.

On the eastern side of SH29, the *development of TBE has accelerated significantly over recent years to the point where the developer is constrained by consent conditions* from developing more than 80ha across stages 3A, 3B & 3C (as shown on Figure 4.2-2) until a new connection to SH29 is provided near the Belk Rd/Redwood Lane area. This connection will link up with Kaweroa Drive, which has been partially constructed within TBE. *The connection to SH29 is a requirement of the structure plan for TBE* and Tauriko Staging Diagram within the Tauranga City Plan – *and without it, full development cannot occur.*

As part of the initial planning for TBE in 2007, Waka Kotahi (then known as Transit New Zealand) reached agreement with TCC and the developers of TBE for the funding and construction of access to the southern part of TBE via a roundabout near the existing Belk Road intersection with SH29. This was deemed necessary to accommodate the increased heavy commercial vehicle traffic safely during and post construction of TBE. This access is not yet delivered but is required as part of the staging delivery of TBE. The Enabling works DBC provides the opportunity to:

- provide a more optimal, integrated multimodal solution to deliver this connection at Redwood Lane / Kaweroa Drive / SH29 rather than Belk Road / SH29.
- provide a link connecting SH29 through to SH36 in the east via a local Ring Road – which delivers part of the endorsed network recommended as part of the 2016 PBC (see section 1.2.2).
- combine access from SH29 to TBE with access into the southern part of Tauriko West, which would enable an early and staged approach to housing and urban development within the UGA.

Trips within the Tauriko West area for 2031, have been obtained from the Tauranga Transport Strategic Model which informs the Tauriko Aimsun Model. The Beca Report[53] indicates the 2031 land-use consisting of: full development in the TBE, Pyes Pā East and West areas, and 43% build out of the TBE Extension by 2031. Land use in the upper Belk, upper Joyce, Merrick, and Keenan areas was retained as per the 2018 development status of these areas, i.e. no addition households. Public Transport and active mode inputs are based on TTM Programme 8.1.

The proposed Stage 4 development as shown in blue in Figure 4.2-2 is subject to a private plan change. This also shows the new boundary change locations which follows the Wairoa and Omanawa Rivers.

[53] Tauriko Aimsun Early Works Option testing, Phase 2: 14 October 2019

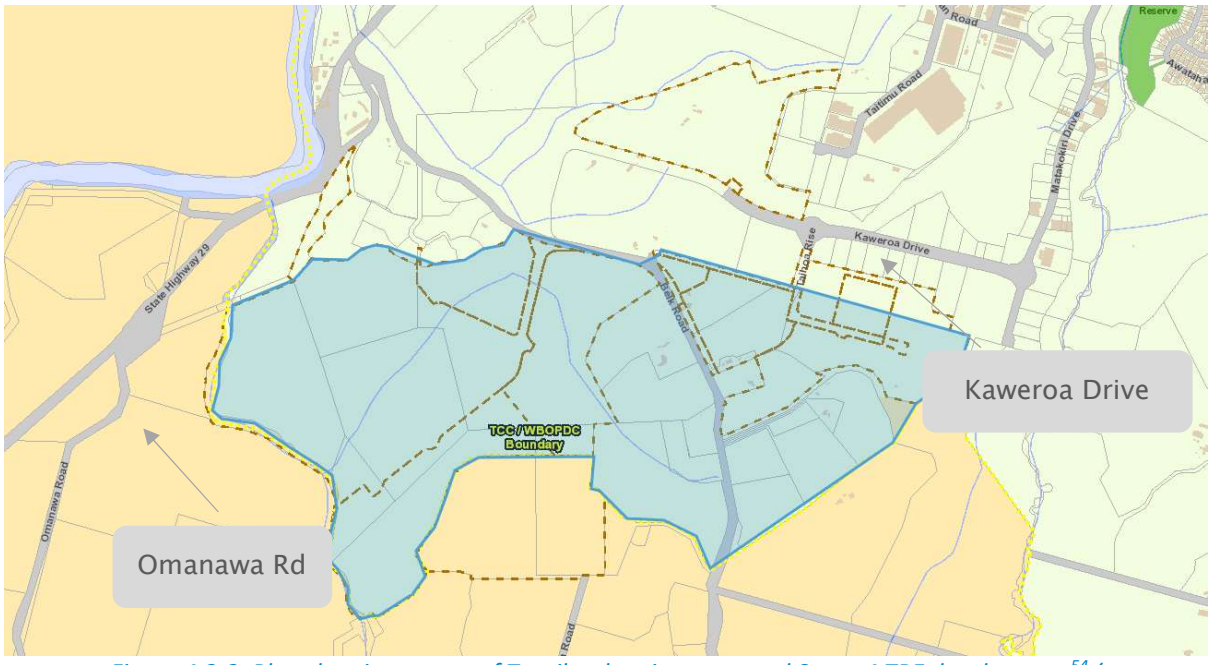


Figure 4.2-2: Plan showing stages of Tauriko showing proposed Stage 4 TBE development[54] (

Why now? – Tauriko West Internal Network

In addition to the external connections of Tauriko West into the transport network, the shape and nature of the internal transport network also helps to address the identified problems. In particular, the internal network is critical to achieve the identified benefit of ensuring that the Western Corridor is better connected and accessible through a multimodal transport system which supports timely delivery of sustainable growth.

Connecting Tauriko West to the external transport network will provide multimodal access, and this will be further facilitated through the internal network by providing for public transport services, walking, and cycling, which encourages trip internalisation and travel demand management. The design, form, and location of the internal transport elements are also required to support a well-functioning urban environment, including the provision of increased housing density within the new community and the benefits this brings in terms of housing affordability, mode shift, and emissions reductions. However, the Spine Road itself is unlikely to be required in the short term to enable 2000 houses to be built.

4.2.2 Transport Network

This problem statement is future-focused and based on the level of housing and urban development planned to occur in the Western Corridor, in accordance with SmartGrowth, UFTI and the Western Bay of Plenty Transport System Plan. The study area for this DBC is focused on SH29 from Belk Road to Cambridge Road through Tauriko, with the wider network considered under the Long Term DBC. The transport network discussion includes:

- what the form and function is now, what is desired and what are the gaps.
- which modes use the network now and what is desired.
- how the current network operates in terms of the one network road classification (ONRC) performance measures.
- One Network Framework (ONF) street typology (midblock and intersection operation, inappropriate connections) for all modes.
- restrictions on accessibility and liveability.

Safety is also a key part of this and is discussed in more detail in section 4.3.

The key for the Enabling Works is to determine what the issues are now, what the issues will be once housing is fully developed in Tauriko West and how this relates to the long-term

[54] TCC. Earlier staging plan found in http://econtent.tauranga.govt.nz/data/city_plan/maps/S5/Diagram9.pdf

form and function of the transport network, including SH29. Note that it is not the intention of the Enabling Works to deliver an outcome that fully meets the ONRC and ONF but to work towards this through the structure plan (internal transport network), the Enabling Works (connections to the wider transport system), and LT DBC (multimodal connections and freight reliability). The outcome should be a network that is consistent with ONCR and ONF.

The Enabling works determines what interventions are required to facilitate the development of at least 2,000 households in Tauriko West for the short term (while working towards the 3000-4000 households planned for the long term), addresses safety issues, and enables ongoing development of TBE in accordance with previous agreements. Noting, that in the long term, an integrated transport system is being planned for.

Function – One Network Road Classification (ONRC)

The ONRC provides several indicators for the levels of service to be provided on each class of road. These include safety, efficiency, amenity, travel comfort (such as ride quality, aesthetics and convenience), reliability, accessibility, and resilience. These levels of service need to be combined with the ONF (discussed later in this section) which is more focused on the desire for people movement.

The ONRC for the wider state highway network is addressed through the Long Term DBC. However, Table 4.2-1 summarises the performance of SH29 through the Enabling Works study area (defined as a national high volume state highway[55]) that currently exists, what it should be in the Long Term, and what needs to be addressed in the next 10 years as a minimum as part of the Enabling Works.

Table 4.2-1: ONRC Performance Measures - Now and Desired

ONRC Performance Measure	What do we have now – the evidence	What should we have in the Long Term?	What is the minimum that needs to be addressed as part of the Enabling Works?
Safety	A medium collective risk corridor and KiwiRAP 3-star rating, or a medium high IRR[56] rating of 1.64 on SH29 which *means the potential for risk is high* along the route. *Cambridge Road intersection with SH29 is high risk* (section 4.3.1) Refer also to ONF discussion and Table 4.2-2	Not high risk. No higher than medium collective risk and equivalent to KiwiRAP 4-star rating. Refer also to discussion of ONF below for walking and cycling infrastructure needs to reduce risk	Treat high risk corridors and intersection (Cambridge Road) with consideration of long-term infrastructure.
Resilience	Local Road alternatives are currently not available if SH29 from Belk Road through to Cambridge Road are blocked. Further south Poripori Road is an alternative route to the north and is an additional 27km route However, *Poripori Road is not suitable for large volumes of freight traffic. There is no ITS systems in place* to provide information and suitability of those routes.	Route or viable alternatives is always available. Rapid restoration. Road uses are advised well in advance of issues affecting the network.	Provide alternative and suitable connection near Belk Road into TBE to connect with local Ring Road (Kaweroa Drive) which will connect SH29 to SH36 via TBE and provide a suitable alternative.

[55] Defined within the ONRC as "roads that make the largest contribution to the social and economic wellbeing of New Zealand by connecting major population centres, major ports or international airports and have high volumes of heavy commercial vehicles or general traffic" (NZ Transport Agency, ONRC).

[56] Infrastructure Risk Rating (Refer section 4.3.1)

ONRC Performance Measure	What do we have now – the evidence	What should we have in the Long Term?	What is the minimum that needs to be addressed as part of the Enabling Works?
Amenity	Poor journey quality, comfort (in terms of roughness), and security result in poor amenity issues. on the State Highways in Tauriko. These problems will be addressed as part of the safety and efficiency improvements	High level of comfort, no discernible roughness	Some of these may be addressed by short term safety and resilience measures. Not likely to be fully addressed until long term measures are in place
Travel Time Reliability	Journey reliability in 2018 AM peak between Omanawa Rd & Takitimu Drive RAB is +4min and +10min in the 2018 PM peak. The evidence confirms that *there is a merging problem now during the PM peak which is expected to get significantly worse* as traffic growth increases, particularly on the Takitimu Toll Road approach. This variability in travel time will have a significant impact on freight trips between Omanawa Road and the Port of Tauranga.	The majority of road users experience consistent travel times	Improved reliability along SH29 for Freight. Although new intersections may slow traffic down, use of traffic signals will help manage fluctuations in travel times as priority can be shifted to SH29 as required during peak times.
Accessibility	Many cluttered residential accesses, with Cambridge Road being a high-risk intersection mixed with high traffic volumes. The evidence confirms that there *is currently a significant accessibility problem* onto SH29	Land use access for road users rare and highly engineered, usually only to highway service centres. High volume traffic will be unimpeded by other traffic at junctions	There is a need to provide more formal accesses to allow easier access on to and off the highway and into newly developed housing areas.

Function – One Network Framework (ONF)

The ONF is proposed to replace the existing ONRC and is more closely aligned with the Government outcomes focus areas[57]. The ONF classifies roads and networks by movement and place and ensures integration with strategies and land use. ONF must be implemented fully from the 2024/2027 NLTP period, although it is voluntary for 2021-2024 NLTP. TCC has also developed a street design guide, which also acknowledges the 'link' and 'place' concept[58].

As the Enabling Works DBC focuses on SH29 from Belk Road to Cambridge Road, the discussion around movement and place focussed on that area. Under the ONF Assessment, SH29 would be classified with a primary movement function. Table 4.2-2 and Figure 4.2-3 shows what would be the likely ONF now and desired. This shows that the desired form moves from a rural typology to an urban typology – which would be to provide a strategic transport corridor to capture all modes and provide separated facilities for non-vehicular modes.

[57] https://www.nzta.govt.nz/roads-and-rail/road-efficiency-group/one-network-framework/

[58] https://www.tauranga.govt.nz/our-future/strategic-planning/infrastructure-development-code/street-design-toolkit

Currently the route provides for vehicular traffic but nothing formal for active modes which means that SH29 in its current *form would not meet the expectations of an ONF Motorway/Expressway typology with the primary function of moving people and goods.*

Table 4.2-2: ONF Street Family - Now and Desired

Now – Rural Street Families	Desired – Urban Street Families
M2 – Priority Corridor linking main centres or significant destinations and travel hubs within a city or region. Typically, higher proportions of freight. P5 – Movement of people and goods the primary function. Limited on street activity and requirement for access.	M1 – Strategic transport corridor providing critical connections and moving high volumes. Often with separated mode and competition for space (expressways, cycleways, bus lanes etc). P5 – Movement of people and goods the primary function. Limited on street activity and requirement for access.

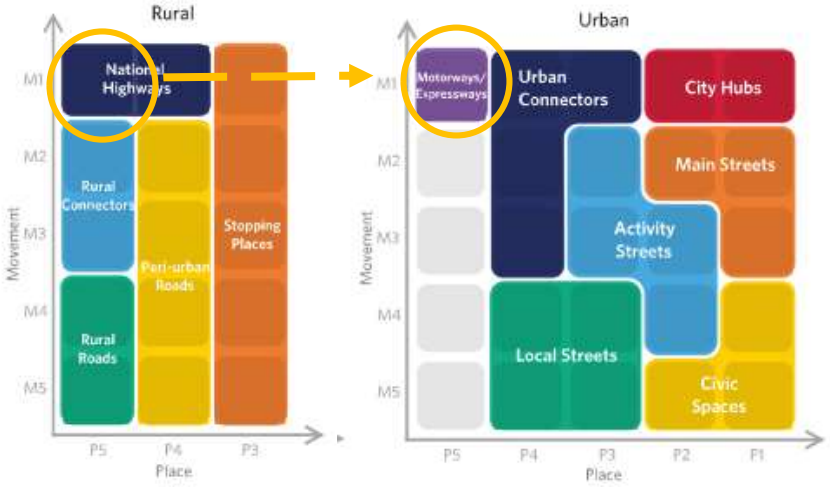


Figure 4.2-3: ONF Movement and Place Street Typology (Now and Desired)

In addition, the UFTI Final Report notes that Tauriko West "will be designed as a walkable neighbourhood with low carbon footprints, and where people can live work, learn and play. Addition growth areas in the west are developed to maximise the number of dwellings and deliver a transport system that encourages multimodal use and ensures access via SH29 and SH36 is not compromised by vehicle demand".

Further discussion on the wider transport network is provided in the Long Term DBC. However, as it stands, the challenge is to maximise accessibility between Tauriko West and Tauriko on the other side of SH29. Ensuring there are safe public transport and active travel connections is critical to providing safe access and minimise. This would have to be addressed in the short term to cater for the increased demand during development of Tauriko West.

Mode Share

Tauranga has one of the *highest car use percentages of any city in New Zealand* with around 62%[59] of trips to work being made by private vehicles[60], above the national average of 57.8%.

Figure 3-2 shows the overall mode share in Tauranga with most traveling by vehicle (either driving or being a passenger, either private or company vehicle) is 76.1%. *Even with those that want to cycle, there is minimal existing cycle infrastructure and that cycling feels unsafe in Tauranga* (based on public feedback). Even in households with access to a car, young people, elderly people and those with mobility and visual impairments are especially disadvantaged by *a lack of real alternatives to travel by car and therefore resulting in*

[59] New Zealand Census Data – 2018

[60] https://www.nzta.govt.nz/assets/planning-and-investment/arataki/docs/regional-summary-bay-of-plenty-august-2020.pdf (reference from MoT household travel survey 2019

restricted access to community services and reduced liveability. The existing limited mode choice places a high demand for car dependency.

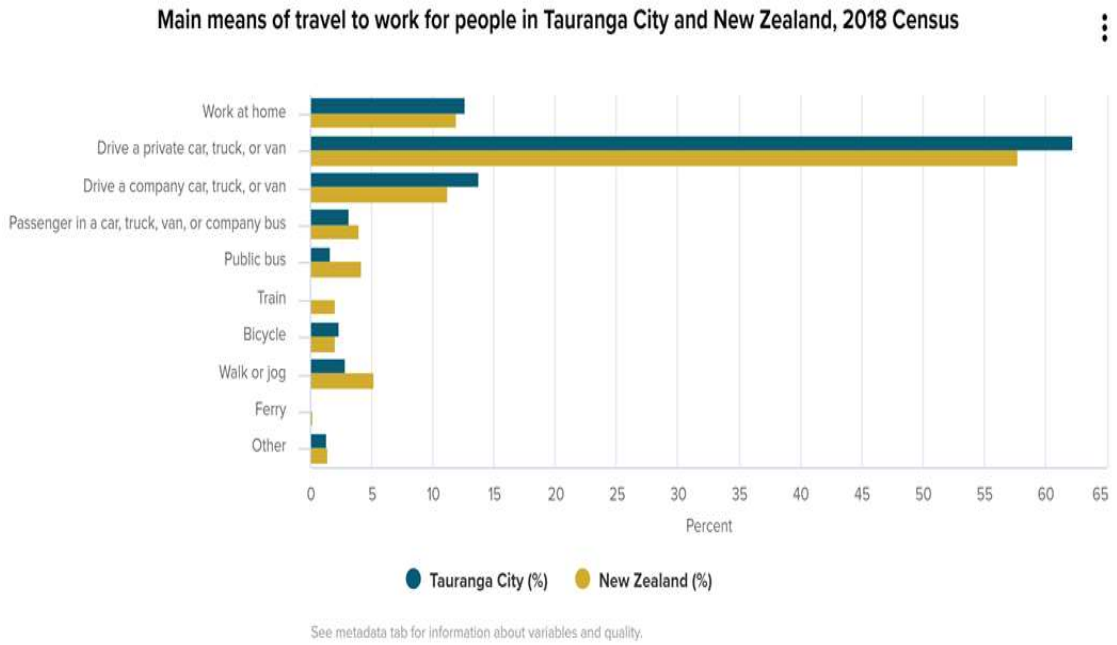


Figure 4.2-4: Means of Travel to Work by mode (Source: TCC[59])

Travel to work and education information[61] has been provided for the Tauriko area (Figure 4.2-4, Figure 4.2-5, and Figure 4.2-6 from the 2018 Census Data. This shows the current mode share (average of percentages to and from Tauriko) for using the public bus is 4%, walking is 1% and cycling is 1.5%. *Public transport use in Tauranga is the lowest of the six main urban centres in New Zealand[62] and the PT mode share is well below expected Enabling works targets* of >10[63]% during peak periods by 2030 (Table 4.1-1 and Table 15-1 in Appendix B) and 6% noted for Tauriko in the Tauriko Network Plan – Long Term Network Plan[64]. This plan also states a rough estimate of PT mode share for the Western Corridor is 5-6%[65].

61 https://commuter.waka.app/
62 https://www.nzta.govt.nz/assets/resources/keeping-cities-moving/BoP-regional-mode-shift-plans.pdf
63 This target is based on UFTI (2048) model
64 2021-02-13 – Tauriko Network Plan – Long Term PT Network Plan (002)
65 Excluding the school bus network

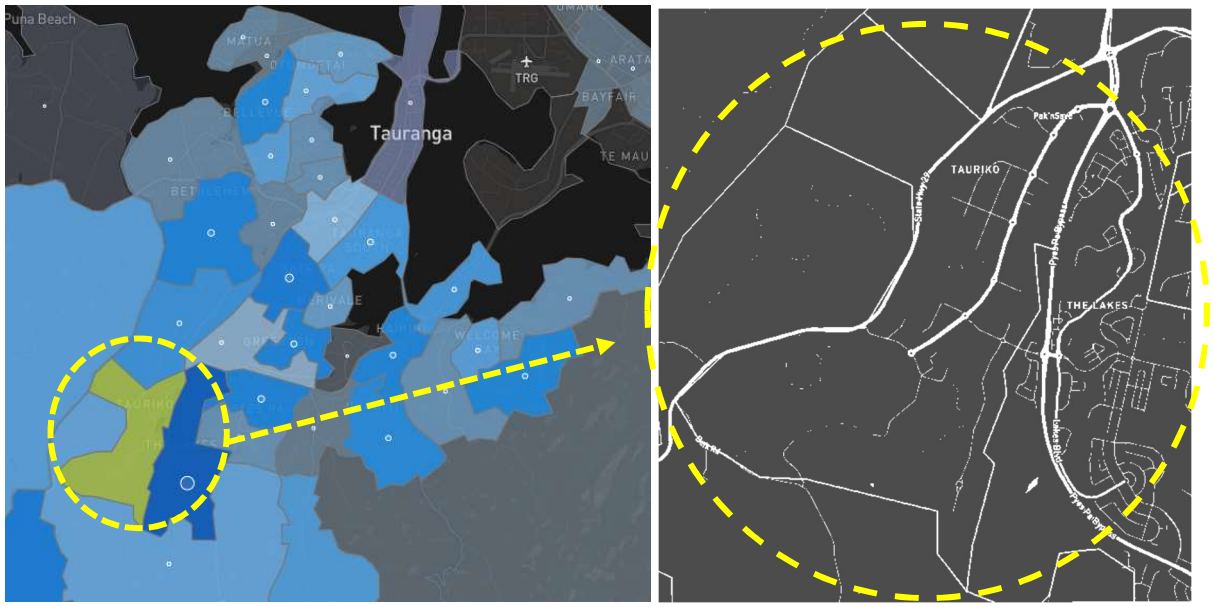


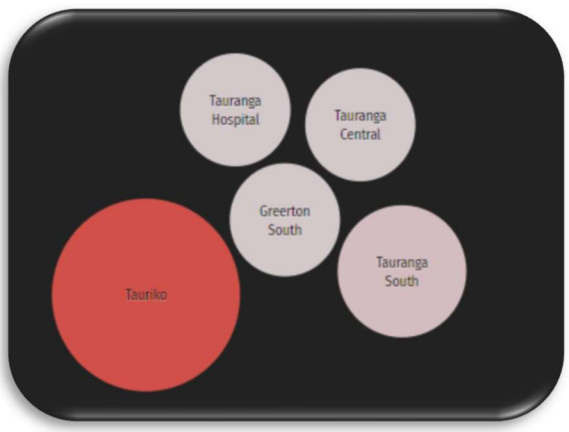
Figure 4.2-5: Tauriko Location for Destinations and Mode Splits

The key findings from the information are:

- 1,833 people travel to Tauriko for work or school (98%), while 45 people (2%) also live in Tauriko. People arrive from 59 different areas, the largest share being Pyes Pa West (183 people—10% of arrivals). The most common way to arrive to work or school is to drive a private car, truck, or van (62%); this is *due to very limited non-vehicular alternatives being available*
- 30 people (40%) leave Tauriko to four different areas for work or school. Tauranga South, with 12 departures (16%) is the top destination outside of Tauriko. To depart to work or school, people in Tauriko most often drive a private car, truck, or van (41%).

Coming to Tauriko

Leaving Tauriko



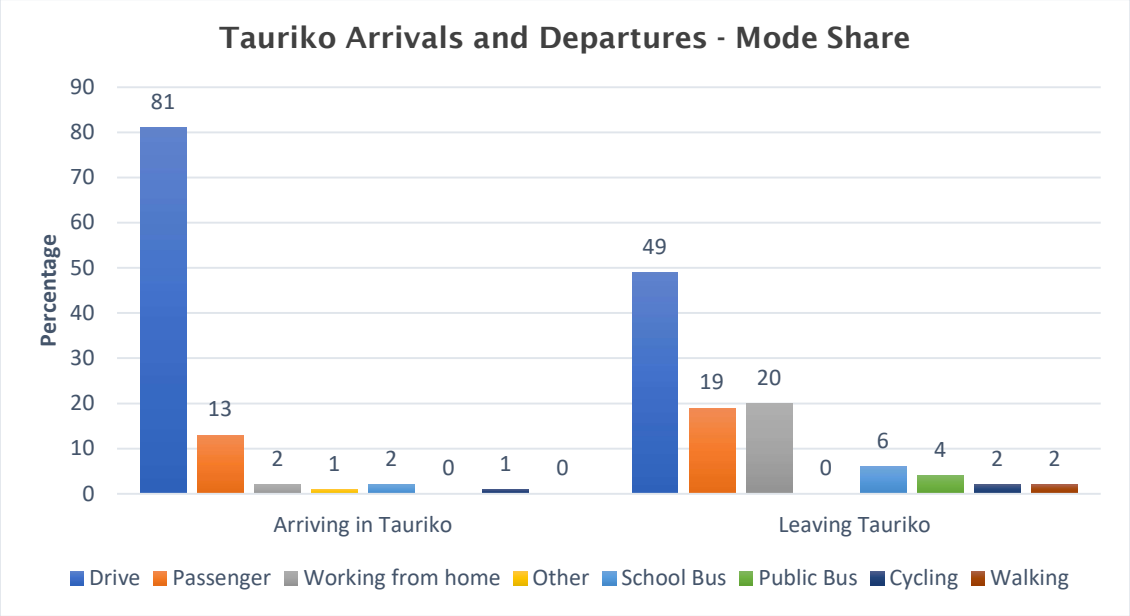


Figure 4.2-6: Tauriko West Location for Destinations and Mode Splits

Traffic Characteristics

Current and Future Traffic Flows

Sections of the existing SH29 between Omanawa Road and Takitimu Drive (part of the Tauriko Network) accommodated an average daily volume of 26,900 vehicles in 2019, of which 17% were Heavy commercial vehicles. As a result, SH29 is classified as a high-volume national road within the One Network Road Classification.

Over the twenty-three-year period (1997-2019), traffic volumes on State Highway 29 have grown steadily by an annual growth rate of between 2.5%-3.0% (Figure 4.2-7). However, over the last five years 2015-2019 annual vehicle numbers have increased from 18,000 to 26,900 daily vehicles, a 50% increase equating to an average annual growth rate of 8.2%. Continuation of this growth will impact on the ability to enter the highway from adjacent properties and intersections along SH29, and potentially affect freight reliability through the Tauriko West corridor highway operation for freight and through traffic but also for local traffic turning on and off the State Highway. The traffic growth rate reflects the rapid population growth of Tauranga, which is the fastest growing city in New Zealand and high mode percentage for private vehicles.

Tauranga's population is expected to continue to increase but needs both housing and supporting infrastructure to support this growth. There is a shortage of available suitable land in Tauranga, however, the Western Corridor surrounding SH29 has been earmarked for development including Tauriko West which will put more pressure on the SH29 corridor.

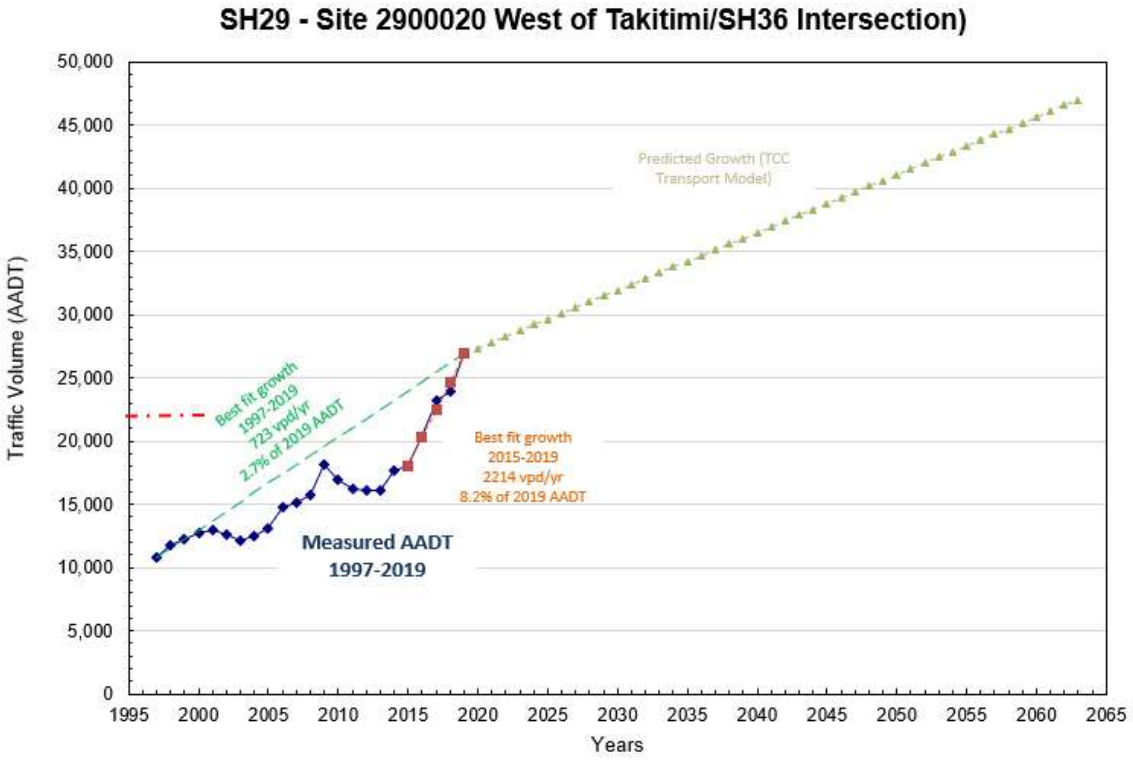


Figure 4.2-7: SH29 Historic and Predicted Traffic Flows West of Takitimu Drive/SH36 roundabout

Figure 4.2-7 indicates the past yearly average daily traffic flows and potential future flow on SH29 to the west of the Takitimu/SH36 intersection. Predicted flows beyond 2019 have been extracted from the Tauranga Transport Model[66] which includes development of land in the Western Corridor at Tauriko. Full development of the growth areas within the Western Corridor (Tauriko West, Pyes Pa west, and The Lakes) is predicted to be completed around 2063, increasing traffic[67] generation by about 22,000 trips per day from 26,900 trips per day in 2019 to 49,100 trips per day in 2063.

Figure 4.2-8 provides an indication of potential flows in year 2063 with full build-out of Tauriko West with 3000 households and underlying regional traffic growth.

[66] TTM5_12_TaurikoS5\model\Tauriko_Stage5\Y2063\Opt 1 – Oct 2021updates to the TTSM to reflect UFTI and TSP may indicate some changes to the predicted 2063 flows.

[67] Assuming mode share is the same as it is in 2019

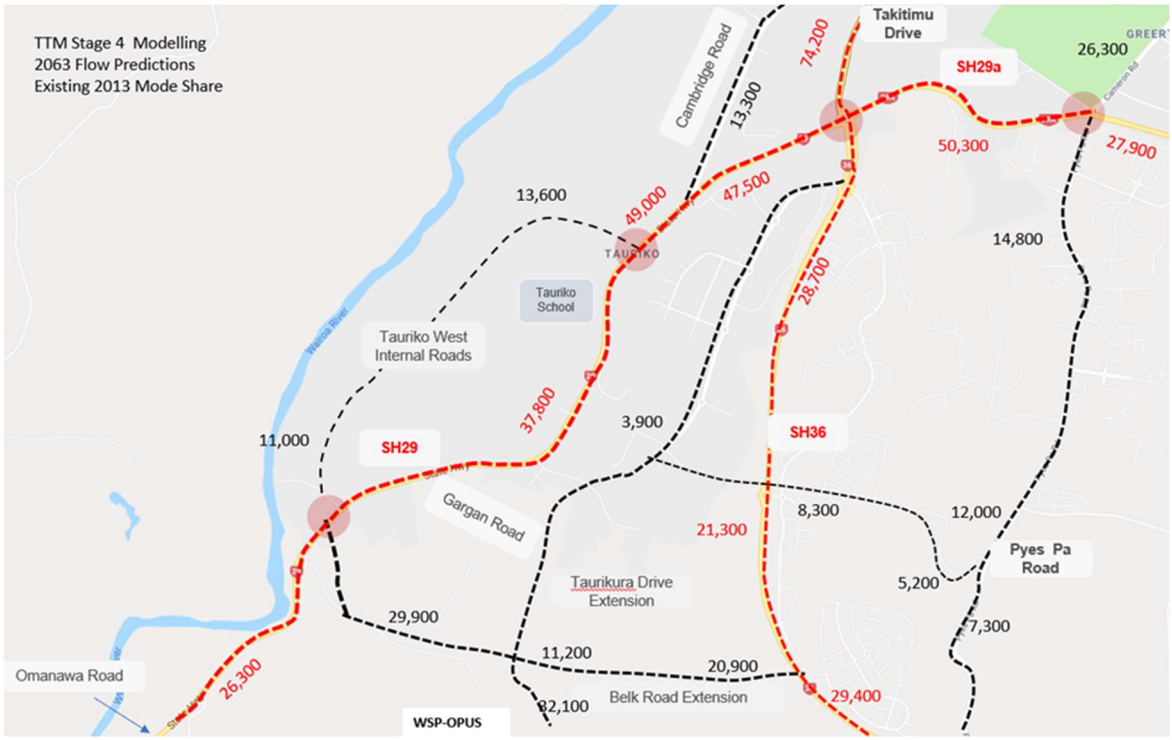


Figure 4.2-8: Predicted Year 2063 Network Traffic Flows[68]

With predicted 2063 traffic flows on SH29, between Belk Road and Cambridge Road, of around 38,000 vehicles per day, peak periods will exceed the two-lane highway capacity that also serves adjacent land use and side roads. This is likely to result in a break down in flow conditions that manifests itself into long slow-moving platoons of traffic, particularly as vehicles slow down to enter driveways and side roads. As adjacent land use is further developed, this will get worse. The opportunity is to provide greater transport choice via public transport and active travel to help reduce the need for private vehicle travel. Without a multimodal network, the traffic demand will adversely impact on accessibility through and within the Tauriko West area.

(a) SH29 Level of Service

Level of Service (LOS) is a key indicator of the level of delay experienced by road users and is measured differently depending on the mode choice (cars, biking or PT) and whether a rural or urban road or an intersection. The normal scale adopted is a range from LOS A representing minimal delay, or free travel speed, to LOS F representing congested conditions or intersection delays over 60sec/vehicle[69]. However, over recent years, drivers are more accustomed to lower travel speeds and intersection delays in peri-urban/urban environments and hence the traditional LOS measures are no longer as meaningful. In addition, the Government no longer places an emphasis on relieving congestion (poor LOS for private vehicles) but seeks to minimise carbon emissions by reducing the yearly vehicle kilometres travelled through the provision of alternative modes of transport.

Using the capacity methodology set out in Austroads the capacity of the midblock section of SH29 is calculated to be between 1,000 and 1,300vph in each direction. This capacity takes into consideration the percentage of HCVs, peak hour factors and the rolling terrain. As shown in Figure 4.2-9 the existing 2019 daytime traffic volumes, recorded on SH29 just west of the Takitimu/SH36 roundabout, are already close to capacity volumes. As Tauriko West develops, traffic flows during peak periods will exceed available lane capacity, resulting in a break down in flow conditions that manifests itself into long slow-moving platoons of

[68] Based on existing mode choice and 2019 model outputs. Oct 2021 updates to reflect UFTI may indicate different traffic forecasts

[69] Dependant on type of intersection being considered

traffic. When this occurs freight travel times are adversely affected and trip reliability reduces, resulting in a poor level of service.

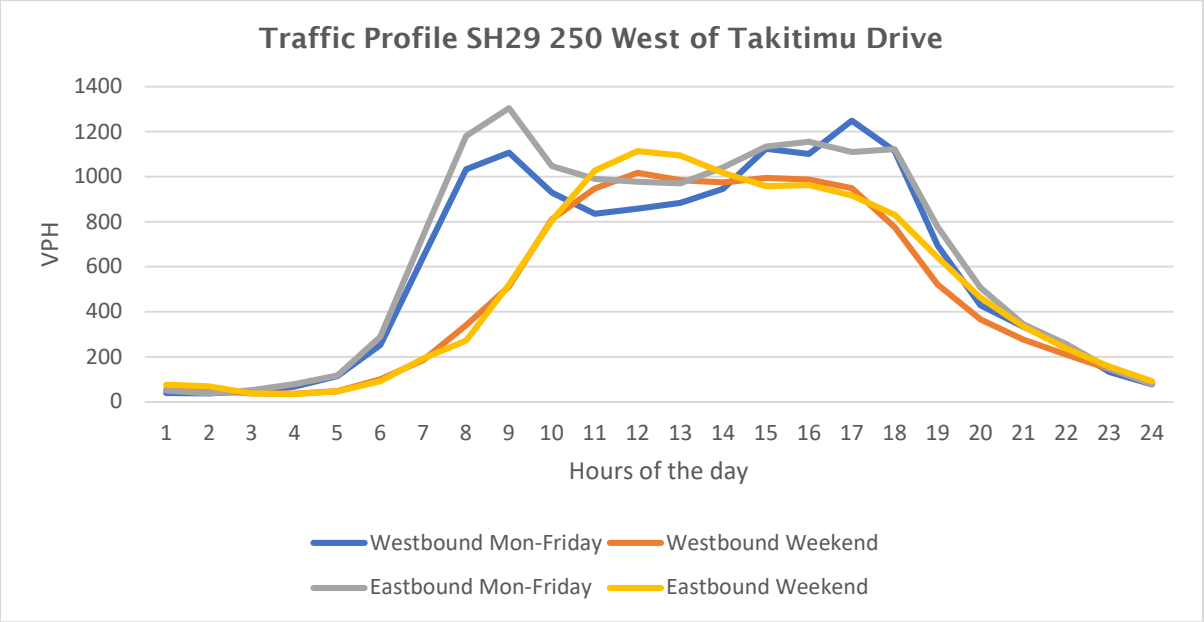


Figure 4.2-9: Daily traffic profile West of Takitimu Drive[70]

Observations on site also indicate eastbound traffic on SH29 regularly slows down or stops during the evening peak period to allow vehicles to right turn into and out of Cambridge Road. However, this goodwill creates an increasing queue length on SH29 eastbound as vehicles on SH29 arrive faster than the vehicles that have stopped can move on. As a result, evening queues often stretch back to the Ruahihi Power Station, a queue length of close to 6km, impacting on freight travel times heading to the Port.

(b) Freight Trips and Travel Time Reliability

State Highway 29 is a key part of New Zealand's transport network and is the preferred route for road-based freight between Auckland and Tauranga when the Waikato Expressway is complete. It is also the route that Waka Kotahi encourages and recommends for freight trips between Auckland and Tauranga.

The SH29 route supports the economic success of the Bay of Plenty region and enables growth to continue. However, growth is not viable without considering liveability, traffic safety and efficiency. Maintaining efficient and resilient road freight access to the Port of Tauranga through Tauriko is an important contribution to New Zealand's economy.

The *Port of Tauranga is New Zealand's largest export port by volume, and this is expected to continue to grow*. As Tauranga's industrial and commercial sectors continue to develop, combined with the expansion of the Port of Tauranga, road freight is expected to continue to be the dominant form of transport and *therefore the volume of road freight on SH29 is expected to increase.*

[70] TMS Data (Waka Kotahi), 2019

A recent study[71] completed for UFTI shows a predicted increase of HCV traffic of 64% between 2018 to 2043 on the SH29 Kaimai Route. This translates to an increase from 4,500 to 7,500 HCVs per day through Tauriko.

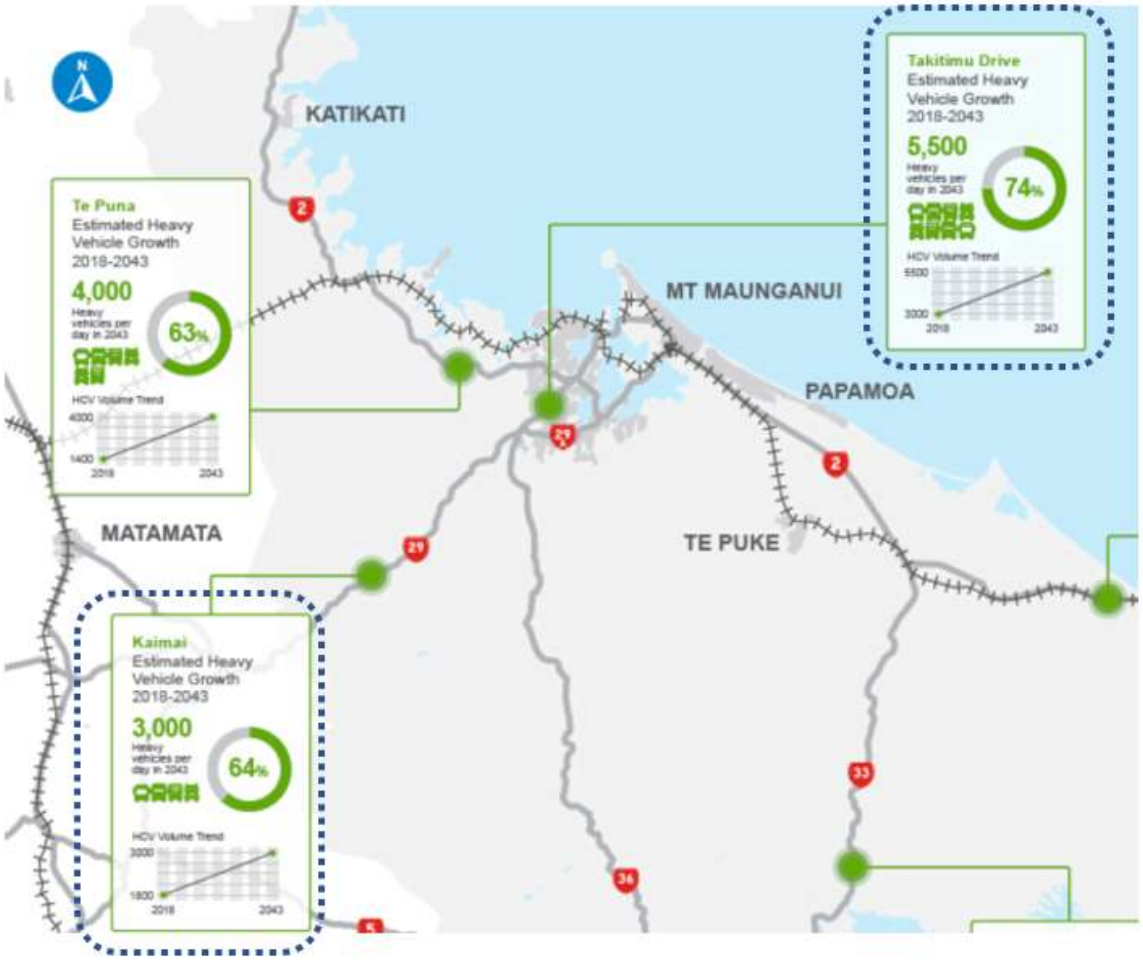


Figure 4.2-10: Estimated Freight AADT increases from 2018 to 2043

A trip reliability assessment was undertaken in 2018 to determine the variability in travel times on SH29 for any given day of the week. The results of this (shown in Figure 4.2-11) indicate most variability occurs during the peak periods of the day, with a steady increase in variability after 3pm through to at least 6pm. For example, between 5pm-6pm on weekdays, travel times can vary between an average of 10.5mins- 21.5mins for the same trip on any given day, a doubling in travel time. As SH29 inter-regional traffic flows increase and housing in the Tauriko development gets underway, this variability is expected to increase, thereby further impacting on the economic efficiency of freight.

[71] https://ufti.org.nz/wp-content/uploads/2020/02/ufti-regional-freight-flows.pdf. It is noted that since this study was completed, the government has set tighter emission control targets. This may change the distribution of freight between road and rail in the future.

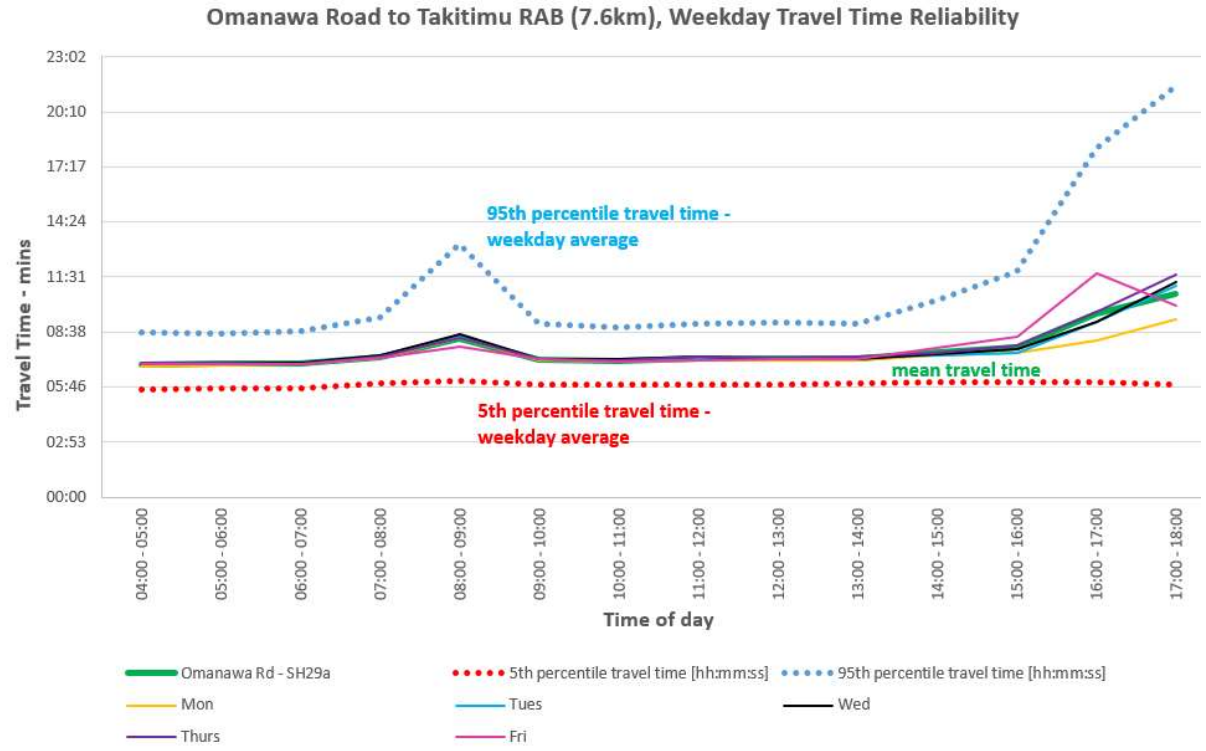


Figure 4.2-11: Weekday Travel Time Reliability Northbound

Freight operators rely on a safe and efficient road network and one that offers reliable journey times as it allows freight operators to confidently plan freight deliveries. Figure 4.2-10 indicates *that trip reliability is already a potential concern during the weekday afternoon peak periods, as all trips after 3pm are subjected to high fluctuations in travel time (+50% of the mean*). With the high projected growth in trip numbers, trip reliability may become a concern during other times of the day, if public transport and active modes do not carry an increasing proportion of the transport task associated with the Tauriko West development.

Adding 2,000 houses in Tauriko West by 2031 is expected to generate[72] an additional 700 vehicles eastbound in the AM and 380 vehicles in the PM on SH29 during the two-hour peak period. It is worth noting that the Aimsun modelling indicates that SH29 does not carry the total expected flow, as some vehicle trips take an alternative route through the Tauranga Business Estate.

This Enabling works DBC does not set out to address these existing freight issues, rather, it facilitates housing, improves safety, and provides for increase in active and public transport mode use in Tauriko West. However, any increases in mode shift away from driving private vehicles and any improvements for SH29 through traffic will provide benefits for freight movements. Further consideration will be required for the wider network and the form and function of existing and future intersections and interchanges as part of the Long Term development plans for SH29.

(c) Cambridge Road Intersection Performance

Within the Enabling Works project length, there are three existing intersections on SH29: Belk Rd, Redwood Lane, and Cambridge Road. Of these, Cambridge Road carries the highest side road volumes, and experiences significant congestion during the peak periods. In addition, *there is limited opportunity for cyclists and pedestrians to safely navigate through this site, and no opportunity to provide priority for bus movements*. In addition, residents of

[72] Tauriko Aimsun Early Works Testing Phase 2 – Oct 2019

both Belk Rd and Redwood Lane have indicated *problems exiting these side roads* during peak daily periods due to the constant traffic flow on SH29.

The SH29/Cambridge Rd intersection is currently a three leg 'seagull intersection' arrangement that gives priority to State Highway through traffic, although the right turn out of Cambridge Road has its own dedicated 90m long acceleration lane to turn into, thereby requiring this traffic to give way to eastbound and westbound traffic separately.

An assessment of this intersection using August 2017 surveyed traffic flows and SIDRA traffic modelling software, indicates high average delays (430secs/veh or 7min) and 95%ile queues of 620m (back to Takitimu RAB) for the right turn into Cambridge Road, as summarised in Table 4.2-3. The right-turn out from Cambridge Road also experiences average delays in excess of 1min/vehicle in the AM peak. In reality, delays may be different to this assessment, as on-site evidence indicates that drivers on SH29 often stop to allow right turns in and right out of Cambridge Road.

Table 4.2-3: SIDRA Summary Outputs for SH29/ Cambridge Road

TIMEPERIOD	TOTAL DEMAND FLOW	AV DELAY intersection (secs/veh)	WORST MOVEMENT (Right from SH29 into Cambridge Road)			
			Vol to Capacity Ratio	Max Queue(m)	Average Delay(secs/veh)	Level of Service
2017 AM	2501	78.2	1.4	620	430	F
2017 PM	2233	35.4	1.1	322	134	F

As stated above the traffic volume on SH29 has had *rapid growth since the 2017 traffic survey, which has also exacerbated the delays within the Cambridge Road Intersection*. For example, the right turn from SH29 into Cambridge Road has been observed to regularly reach back to the Takitimu Drive intersection (850 metres). Similarly, the queue for the right turn out of Cambridge Road has been observed to reach back to Miles Lane in the AM peak and afternoon school peak period, which is approximately 1700 metres west of SH29. Many are also observed to turn left and then use Takitimu roundabout to u-turn and head south.

The *inclusion of traffic flows from additional households in Tauriko West, with the existing layout at SH29/Cambridge Road, will create significantly more congestion at this site, resulting* in further delays to freight traveling along SH29 and buses that use the intersection, whilst also making it *very difficult for active modes to cross SH29 in this location*

(d) Access into new Tauriko West Residential Development

Tauriko West is one of the large-scale urban developments proposed to support the rapid growth in Tauranga, delivering a new community with an estimate between 3000-4000 (3500 midpoint) new homes from 2024/25. [73] The goal is to create a community that is accessible and well supported with high quality PT services and facilities for active modes The Enabling Works project proposes a southern access through existing Redwood Lane and a new northern access within Tauriko Village.

[73] Tauriko For Tomorrow (https://www.taurikofortomorrow.co.nz/)

From a traffic efficiency and safety perspective it is vital that the proposed accesses provide enough queuing capacity to cater for the turning traffic to and from this development to minimise impact to SH29 through traffic.

Accessibility and Liveability

Providing multimodal transport options creates a thriving community for locals to live, learn, work, and play locally. This means the community will have viable local access to amenities such as places of work, schools, parks, cycle and walkways, access to shopping and community facilities. Continued traffic growth within the Tauriko Transport Corridor impacts on accessibility to the Tauriko West UGA. There is an opportunity to provide interventions for Tauriko west that cater for this growth and improve accessibility in to and out of the UGA.

Such growth has implications regarding placing pressure on infrastructure, the requirement to provide additional and safer infrastructure at the right time to cater to this growth, and the need to provide for social infrastructure for these new communities. This additional growth and without providing transport facilities will undoubtedly result in limited travel choice, with the vehicle being the preferred option. *This reduces levels of service (for vehicle and active users) in terms of people's ability to move around, maintain access, safety and ultimately liveability*. Traffic impacts will become worse before larger scale infrastructure or significant mode shift is realised, requiring the need for early intervention.

In the long term, *without significant and staged intervention, vehicular traffic conditions will deteriorate unacceptably for both the through function element on the key inter-regional journey (i.e., freight to the Port of Tauranga) and for local movements between the growth areas and places of work, education and recreation* as shown in section above. With an expected 3000-4000 (3500 mid-point) houses planned in Tauriko West (section 4.2.1) impacting on the network this will require intervention (for all modes) in the short term prior to the long-term measures being implemented.

If nothing is done, people using SH29 will have poor levels of services and *people living in the Tauriko UGA within the western corridor will have limited transport choice impacting on both accessibility and liveability*.

4.3 Problem 2 – The Evidence

Problem 2: Poor geometry and negotiation of major intersections on SH29 from Belk Rd to Cambridge Rd is contributing to injury crashes and high severity outcomes (30%

This problem statement relates to the wider western corridor, but for the Enabling works the evidence relates to a section of SH 29 from Belk Road to Cambridge Road.

4.3.1 Crashes and Risk

There is a safety problem along State Highway 29. Given the growth in traffic volumes to date, the State Highway is congested with poor overall road design, and smaller and less frequent gaps for vehicles to access the State Highway, especially during peak periods (section 4.2.2). This can potentially result in risky driver behaviour increasing the likelihood of further crashes. Recent works such as a wide centreline and striped shoulder markings have improved safety on the corridor, albeit the infrastructure still does not meet the requirements expected of a high-volume national highway (Table 4.2-1).

Further analysis on the wider Western Corridor is to be provided in the Tauriko Transport Long Term DBC. The following analysis relates to the Enabling works section within the Western Corridor.

In the last five years, there have been 56 crashes on SH29 within the Enabling Work section including 0 Fatal, 3 Serious, 12 minor and 41 non-injury crashes with a total of 3 Deaths and Serious Injuries (DSIs). Figure 4.3-1 shows that overall crashes have decreased since a high in 2018.

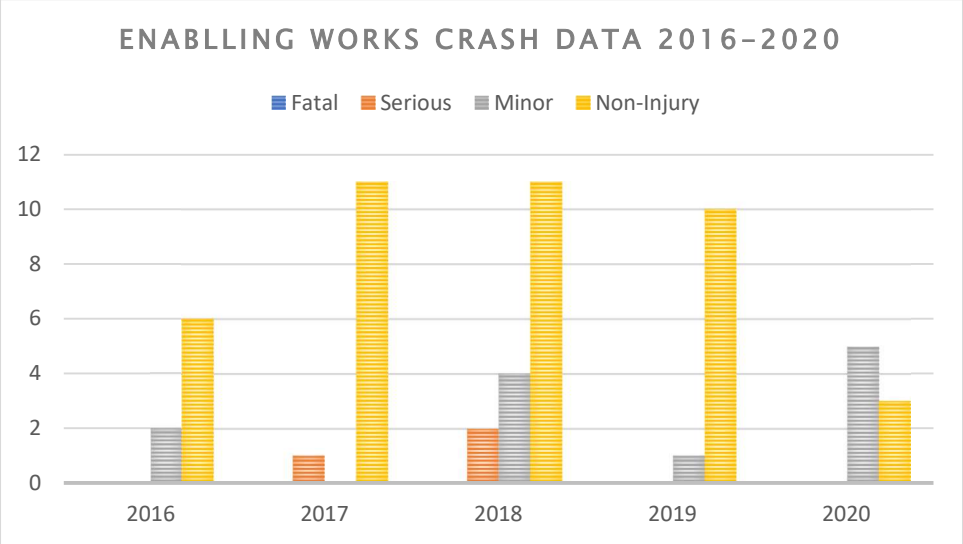


Figure 4.3-1: Crash Data – Enabling Works 2016-2020

Fifty-seven percent (57%) of the crashes on the Enabling works section of SH29 occur at intersections, with the most common location being at Cambridge intersection where 28 crashes have occurred including 2 serious crashes (Figure 4.3-4). The most common movement types at intersections generally are rear end crashes (F) and Crossing/Turning (J) with both accounting for two thirds of the crashes. For the midblock sections of SH29, the crashes are spread along the route but are mostly between Belk Road and Gargan Road, with the most common type of crashes being rear end type (F) and Loss of Control (D). Both account for just over 50% of midblock crashes. One cyclist crash occurred on SH29 just east of Redwood Lane.

Figure 4.3-2- Summary of crashes on SH29 (Enabling Works)

Traffic growth in key areas has exceeded road capacity earlier than expected in certain locations. This means that the ability for the current road network to cater for future predicted high traffic volumes will continue to be compromised, resulting in increased demand on the network and leading to drivers taking risks with reduced gap selection.

As identified by MegaMaps[74] this section of SH 29 from Belk Road to Cambridge Road has a:

- Medium Collective Risk
- Medium to Low-medium Personal Risk

74 www.nzta.govt.nz

- Safe and appropriate speed (SaAS) of 80km/h from Belk Road through to West of Tauriko Service Station to 60km/h from Service station to just east of Cambridge Road. The 60kmh section identified as a *high benefit speed management corridor*.
- Belk Road to Gargan Road – Medium High Infrastructure Risk rating of 1.64 (Similar to a three-star rating[75] (Figure 4.3-3). A medium High IRR would equate to a high safety results alignment. This infrastructure *does not meet the ONRC requirements of a 4-star road for a national high volume state highway* (Table 4.2-1).

Figure 4.3-3: SH29 - Infrastructure Risk Rating (IRR)

Overall, there has been a downward trend in reported crashes from 2018. However, Cambridge Road intersection has nine injury crashes recorded over the 2016-2020 data period, resulting in a medium high collective and personal risk and *is therefore defined as being high risk.* In addition, the calculated predicted risk at the *Cambridge Road intersection is almost 5 time worse than expected (based on EEM calculations[76]).*

Figure 4.3-4: Cambridge Road intersection Crashes 2016-2020

4.3.2 Side Road and Access Points

As part of this potential risk, there are several geometric deficiencies and inadequate sight distances, number of accesses and intersections from Belk Road to Cambridge Road which can be linked to the actual and the predicted road safety problem. There has been some work completed on this section of the corridor in the last 10 years including the removal of the passing lane between Belk Road and (to accommodate a wide centre line and wide shoulder for passing), right turn bay at Gargan Road and minor roadmaking changes to

75 Range calculated using IRR score against star rating (based on an injury crash rate of 25.6 injury crashes per 100 million VKT

76 Actual injury crash rate = 1.8 per year, EEM predicted = 0.38 injury crashes per year

Cambridge Road intersection. Although crash numbers over the last five years have reduced, the road infrastructure is medium high Risk and there is still the potential of serious outcomes given high speeds and traffic volumes (section 4.2.2).

Crashes located at intersections account for almost 60% of the total number of crashes in the Tauriko Enabling works Network. As previously stated, most of these are at Cambridge Intersection within the 70km/h posted speed limit and make up 80% of all the high severity crashes in the Enabling works highway corridor. *The percentage of intersections crashes on SH29 at 60% are over-represented when compared to similar national figures for two-lane state highways with posted speed limits of 70km/h and above at 16%.*

For this DBC, between Belk Road and Cambridge Road there are 46 known side road/access points along the existing SH29 corridor. This is a significantly high number for the role of the route as a national high volume state highway with a posted speed limit of 100km/h. There is currently no appropriate walking or cycling infrastructure on this part of the network. Walking and cycling access across SH29 for these modes is entirely unsafe, creating a significant severance issue between suburbs to the north and the Tauranga Crossing shopping centre. This severance is suppressing demand for active mode trips to and from the western corridor.

Accesses along SH29 comprise of three at-grade T-intersections with local roads (Belk, Redwood, Gargan), and one major intersection (Cambridge Road), with corresponding traffic volumes[77] on the side roads ranging between 300vpd (at Redwood Lane) to 12,000vpd (at Cambridge Road) and with the planned Tauriko West UGA housing area opening and TBE link at the new Redwood/Kaweroa Drive opening, side road traffic is predicted to significantly increase (Table 4.3-1).

Table 4.3-1: Current and Future 2031 Side Road Traffic Volumes (both directions)

Side Road	2020	2031[78]	2048[79]
Belk Road	1,100	N/A[80]	N/A
Redwood	300	3,200	8,600
Kaweroa Drive	N/A[81]	8,000	16,000
Gargan Road	350	N/A[82]	N/A
Cambridge Road	12,000	14,600	18,600

In addition to these formal intersections, there are direct access points to Tauriko School, Caltex Service station and a landfill site which contribute to large traffic volumes particularly during peak periods.

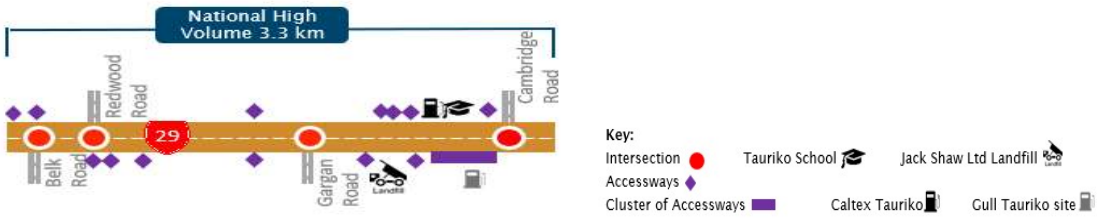


Figure 4.3-5: Existing Access along SH29

77 Traffic volumes noted are from 2020 data
78 2031 traffic volume TTSM_12 predictions (2000hh's)
79 2048 traffic volume TTSM_12 (3000hh's)
80 Local access road. Closed to SH29
81 New road through TBE
82 Assumed closed to the state highway in the future

The desired outcome for accessibility of a national high-volume state highway is that "*land use access for road users [are] rare and highly engineered with infrequent connections*[83]. This is clearly not reflective of this network with an over-representation of side road/access points. The number of side road/access points represent a safety risk by creating potential conflict points between varying customers. *The safety risk is increased by 2% for each additional access location*[84] *as its presence adds side friction and speed differentials between through and access traffic.*

4.3.3 Geometry

SH29 between Omanawa Road and Takitimu Drive forms the western approach to Tauranga and is posted with a speed limit of 100km/h except for a 500m section with side of Tauriko School. This section is posted 70km/h speed limit. *These posted speeds do not meet the safe system requirements for either side impact risk or pedestrians and cyclists*[85].

From a geometric perspective and using the standard design criteria[86],[87] for posted speed limits of 100km/h and 70km/h on SH29 between Gargan Road and Cambridge Road there are no geometric issues; however, from Omanawa Road to Gargan Road there are some issues with horizontal curves falling below the desired minimum radius of 437m. *This means safe intersection and stopping sight distance is compromised on this section because of the low standard of geometry*, albeit most of these issues occur in the section between Omanawa Road and Belk Road and is outside the Enabling works area. This will be addressed in the Long Term DBC.

4.4 The Benefits of Investment

The stakeholder agreed benefits for the long-term project which would be achieved by addressing the problems outlined in section 4.1. The benefits fall in to three categories of access, connection/accessibility and safety and are described below with their importance weighting: How the enabling works contributes to those long-term objectives is provided in section 4.5.

- **Benefit 1**: Better access to international and major domestic markets on this national strategic route to the Port of Tauranga (20%)
- **Benefit 2**: The Western Corridor is better connected and accessible through a multimodal transport system which supports timely delivery of sustainable growth (40%)
- **Benefit 3:** Improved safety on within the Western Corridor (40%)

The KPIS for the Long Term DBC benefits are shown in

83 ONRC
84 SH1 Strategic Corridor Study – 2010, Opus Consultants
85 https://www.nzta.govt.nz/assets/resources/safe-system/docs/safe-system.pdf
86 Austroads: Geometric Design Part 3
87 Values based on using 6% super-elevation and 0.36 deceleration rate

Table 4.4-1 and the Enabling works benefits mirror those. Noting that the targets for the Enabling works have specifically been adapted to the short term needs up until 2030 and this table illustrates how those benefits align at the time of this report. Further detail on the benefits, baseline and targets are provided in the benefit map contained in Appendix B.

Table 4.4-1: Benefits of Investment

Long Term Benefit	KPIs (For both the Long Term and Enabling Works)	
Better access to international and major domestic markets on this national strategic freight route linking to the Port of Tauranga (20%)	Predictable travel times for freight	
	LT Target:10 mins <5 mins travel time variability by 2030 until 2063	EW Target: 6.5 mins (mid) + 2.5 mins (int) travel time with max 4.5 mins variability during AM/PM Peak by 2030 from Omanawa Road to Takitimu Drive Toll Road
The Western Corridor is better connected and accessible through a multimodal transport system which supports timely delivery of sustainable growth (40%)	Land use planning reduces the need for travel	
	LT Target: >10% of Pt/Active journey to work trips during peak periods to/from/within Western Corridor by 2030 increasing to 15% by 2063	EW Target: 10% of Pt/Active journey to work trips during peak periods to/from/within Western Corridor by 2030
	Increase mode shift from private vehicles to walking, cycling and PT	
	LT Target: 80% of Population within 600m walk of a bus stop by 2030	EW Target: 80% of Population within 600m walk of a bus stop by 2030
	LT Target: >250k annual PT boarding by 2030 increasing to 1,500,000 p.a by 2063	EW Target: >250k annual PT boarding by 2030
	LT Target: Express PT (peak) travel times to the CBD better than driving by 2030 and maintained until 2063	EW Target: PT (peak) travel times better than driving from TW to Tauranga Crossing by 2030
	Transport system enables timely delivery of appropriate urban and business/commercial growth areas in the Western Corridor	
	LT Target _ rezoning adopted for TWest (2021), TBE (2021), and Keenan Rd (2026)	EW Target – rezoning adopted for TWest (2021), TBE (2021), and k Rd (2026)
	N/A	EW Target – Access to enable development of at least 2000 houses to commence in 2023
	N/A	EW Target: Access provided by 2023 to facilitate the remaining 80ha of commercial development in stage 3 of TBE
Improved safety within the Western Corridor (40%)	Reduce crashes by severity (all modes)	
	LT Target: 30% reduction on opening for 5 years	EW Target: 40% of the 30% reduction on opening for 5 years
	Reduce deaths and serious injuries	
	LT Target: 50% reduction on opening for 5 years	EW Target: 15% of the 50% reduction on opening for 5 years

Benefits and Targets were agreed with the Partner group.

4.5 Investment Objectives

From the KPIs described in the table above, three overarching SMART investment objectives were developed. Although there is no separate ILM for the Enabling works, the following

objectives and targets for the short term which contribute to the Long Term Tauriko Network Connections DBC benefits identified in

Table 4.4-1through investment are as follows:

- To improve predictable travel times for freight access to international and domestic markets and to the Port of Tauranga by providing 6.5 mins (mid) + 2.5 mins (int) travel time with max 4.5 mins variability during AM/PM Peak by 2030 from Omanawa Road to Takitimu Drive Toll Road
- To ensure Land use planning reduces the need for travel in the Western Corridor by increasing the increasing PT and active journey to work trips during peak periods to/from/within the Western Corridor from 4.9% to > 10% by 2030
- To improve accessibility to active modes and public transport by increasing the spatial coverage of cycle lanes & public transport where 80% of homes population are within a 600m walk to a bus stop by 2030.
- To increase the number of trips made by public transport as an alternative to the private vehicles increasing the number of annual PT boarding's from 6,500 (on Route 52 (2017) to >250k by 2030
- To increase mode shift in the Western Corridor from private vehicles by having the PT (peak) travel times better than driving (4-7mins) from Tauriko West to Tauranga Crossing by 2030
- To enable timely delivery of appropriate urban and business/commercial growth areas in the Western Corridor by rezoning Tauriko West and TBE Extension by 2021 and Keenan Road growth area by 2026.
- To improve safety in the Western Corridor by reducing all crashes (by severity) on SH29 between Belk Road and Cambridge Rd by 40% of the 30% target of 221 on opening for 5 years
- To improve safety in the Western Corridor by reducing all DSIs on SH29 between Belk Road and Cambridge Rd to 15% of the 50% target of 10 on opening for 5 years

4.6 Strategic Context

4.6.1 Project Alignment with Strategic Outcomes

The Enabling works DBC directly aligns with Strategic Outcomes as per those descriptions provided in Table 1.2-1. The project has strong links to national and regional policies including giving direct effect to the UFTI Connected Centres Programme in terms of increasing housing supply and the GPS for improving safety, multimodal accessibility and choice, and improving freight connections.

4.6.2 Alignment of Investment Objectives to Strategic Outcomes

The Investment objectives provided in section 4.5 have been developed with all partners, are consistent with national and regional strategies, and are based on providing a staged alignment to achieving the long-term project objectives. This is shown in Table 4.1-1.

The objectives provide realistic measures and targets as developed by the stakeholder group and are aligned with the Waka Kotahi Land Transport Benefits Framework[88]. Specifically, how the eight objectives (section 4.5) are aligned to the following benefits are shown in Table 4.6-1.

Table 4.6-1: Investment Objectives alignment to National Benefits Framework

[88] https://invest.nzta.govt.nz/pluginfile.php/793/mod_resource/content/2/17535%20-%20Detailed%20description%20benefits%20framework.png

Investment Objective Number	MoT Transport Outcomes Framework	Benefit	Benefits	Benefit
1	Economic Prosperity	Changes in Transport Costs	5.1 Impact on system reliability	5.1.2 – Travel Time Reliability (Freight)
2	Inclusive Access	Changes in access to social and economic opportunities	10.2 Impact on mode choice	10.2.10 Traffic –mode share
3				10.2.6 Spatial coverage – PT resident population
4			10.1 Impact on user experience of the system	10.1.1 People Throughput – PT boarding's
5				PT faster than vehicles – not an identified benefit
6	Not included as Housing is not a transport outcome			
7	Healthy and Safe People	Changes in user safety	Impact on social costs of DSIs	1.1.2 Crashes by severity
8				1.1.3 DSIs

Aside from the direct measurable benefits, the Enabling works projects as a result of achieving the investment objectives are likely to result in the following additional benefits:

- Enabling housing
- Improved safe system and changes in the perception of safety by seeking an approach that reduces DSIs.
- Changes in human health and reduction in greenhouse emissions by any increases to mode shift
- Impact on access to opportunities by recognising the importance of access and connections to key destinations such as Tauranga Crossing.

4.6.3 What is needed, timing and urgency

Based on the evidence and discussion there is a need to address the following in the short term and consider in the following optioneering phase:

- **Access from the highway to allow the Tauriko UGA be developed to meet demands for housing in Tauranga.** SH 29 has several intersections which could be modified and linked (such as Redwood Lane and Cambridge Road) to allow access to Tauriko West UGA, however they currently require property purchase to be fit for purpose (such as at Cambridge Road) or they are located some distance away from desired access locations (such as Redwood Road).
- **Safety improvements.** Cambridge Road is high risk and needs to be upgraded now. Consideration of any rationalisation of accesses, safe linkages in to TBE and any further corridor safety management that may be needed in the short term.
- **Catering for travel choice and future predictions.** Local Road linkages or facilities for active and public transport modes are limited and severed by SH29 between Tauriko West and Tauranga Crossing, with significant congestion at certain times of the day reducing liveability and accessibility. These linkages and facilities are either non-existent or not adequate to provide travel choice or relieve the effects of future vehicular traffic projections (even with a higher desired mode shift). In terms of meeting the desired ONF (Table 4.2-2), there is a need to separate modes and provide for competition of space (expressways, cycleways, bus lanes etc) with movement being the primary function, limitations for on-street activity and requirements for access.

Given this is short term and all interlinked, the desire is that all occur in the next 2-3 years. Constructability and stageability have been determined and this is discussed further in section 12 .

Option Development and Evaluation

5 Option Development

5.1 Wider context and Alternatives

The Options for the Stage 1 Enabling works have been developed as part of the direction provided within the Tauriko Transport PBC and the IBC phases. This included that a range of public transport, walking, cycling, travel demand measures, local road connections and highway upgrades were required to deliver on the long term benefits.

The PBC Recommended Programme, Programme 8 included:

- Dedicated waking and cycling networks
- TDM – New collector bus services, integrated smart ticketing, real time travel information, park and ride, school and workplace plans, and removal of off-street parking legislation
- local road upgrades and capacity improvements including a ring road
- highway corridor and intersection upgrades (including shape corrections) and capacity improvements

The IBC phase developed a range of strategic highway and local roads options which could be aligned with public transport services and walking and cycling connections. Prior to the Long Term DBC commencing, a range of long list options were assessed and evaluated by the project team stakeholders. This resulted in three short list options that then became the starting entry for the DBC. The intervention hierarchy has been used to optimise and stage interventions within the wider network approach, and Agencies are working together to achieve this in an affordable manner. Across the 'whole' of the project it has been applied in terms of TDM (PT, Walking, Cycling), Structure planning (25 dwellings /ha), speed management and transport interventions.

The Point of entry document[89] details the specific form and broad location for the development of two connections in to the Tauriko West UGA. These included:

- A roundabout in the vicinity of Redwood Lane, Belk Road and New formed Kaweroa Drive
- A signalised intersection of SH29 west of Cambridge Road within the Tauriko Village area.

Based on those earlier programme and IBC decisions and to achieve the investment objectives and an integrated transport system, a range of options were developed and evaluated for the following specific sites

- Tauriko West
- Cambridge Road
- Redwood Lane/Kaweroa Drive
- SH29 Corridor including speed management
- Whiore Avenue
- Public Transport
- Travel Demand Measures

5.2 Option Development Overview

The section outlines the options considered for the Tauriko West/Cambridge Road intersections (northern connection) and the Belk Road/Redwood Lane intersections (southern

[89] Reference –Draft dated 29_07_19 – refer Appendix U

connection); and how they were evaluated to address the agreed problems and benefits. A process chart outlining the process is shown in Figure 5.2-1.

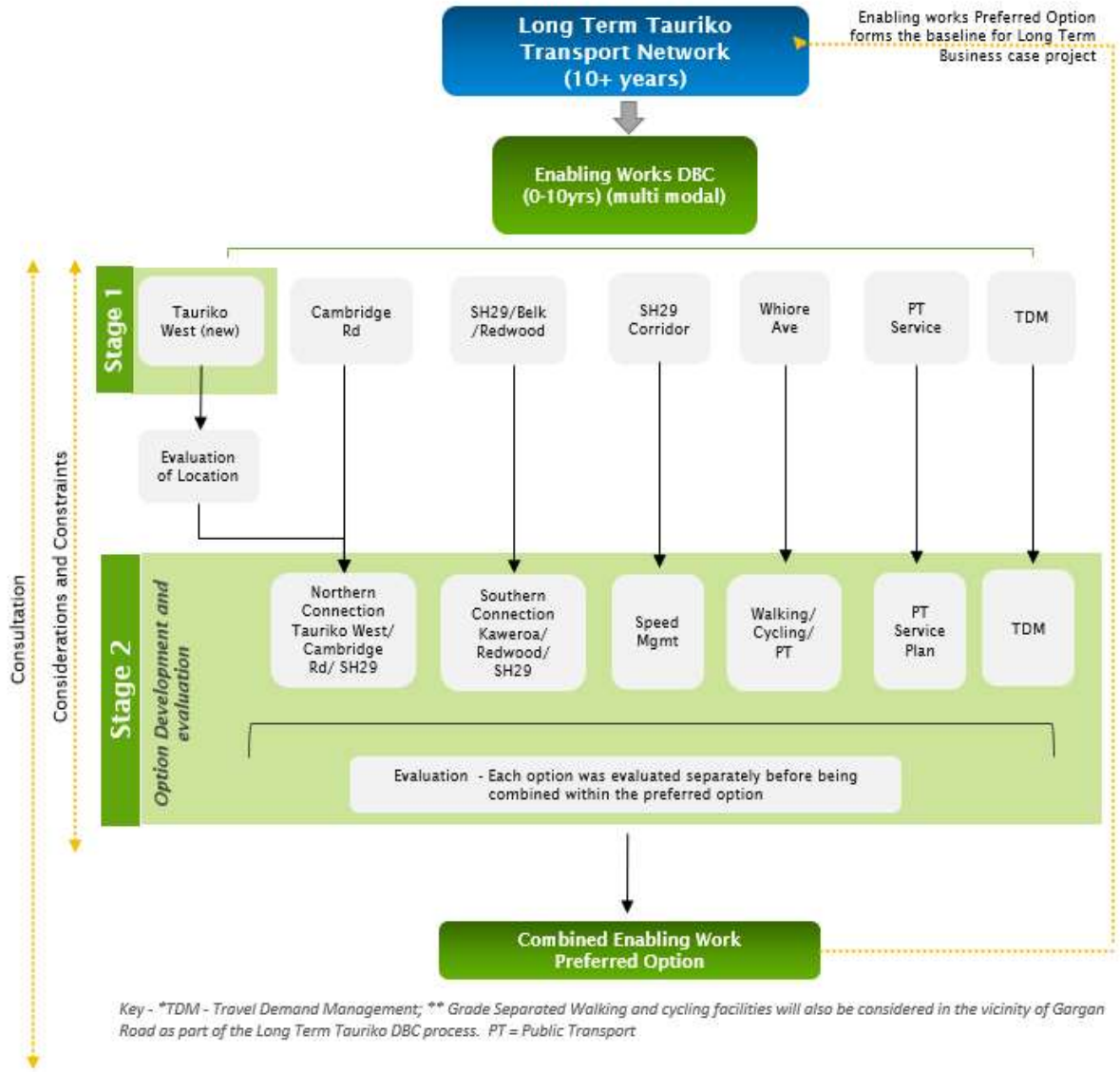


Figure 5.2-1: Enabling Works Option Development and Evaluation Process

5.3 Option Evaluation – Multi Criteria Analysis (MCA) Overview

Throughout this section and within each individual component (as shown in Figure 5.2-1) there is an activity-specific analysis process. Whilst the intent is that these processes provide some similarities to other processes and alignment with the overall long term objectives, it is important to note that criteria selected and scoring systems were developed with the specific activity in mind. For example, where one criteria might be important in providing a differentiating factor between some walking and cycling infrastructure, this might not be a differentiating criteria for a location-based intersection assessment where it is important to focus on the wider risk and effects. Within each of the sections a multi criteria analysis (MCA) framework has been provided to help provide clarity on the process to ensure it is translatable and repeatable.

Because the consideration of options at each local area were the same (either a roundabout or traffic signals), an incremental assessment of transport benefits for the actual location of the improvement was not required as benefits would be very similar for a similar level of cost. The MCA therefore focussed on the key differentiators between options to determine a decision on the preferred solution.

5.4 Considerations and Constraints

There were several considerations and constraints for this project to be taken to account when developing options, including property, UGAs, and wide vehicular transport networks. These are described further below.

Property

Any options which require private property from non-willing sellers would involve undertaking compulsory property acquisition and result in at least a two-year (minimum) process to resolve. This type of delay to the programme would not be in keeping with the enabling works timing requirements. Any option that is selected that involves compulsory land acquisition would have to be considerably beneficial over several specific criteria to be worth pursuing for this project.

TCC has been making progress towards working with landowners to identify any potential property issues throughout the course of this project and previously with regards to the options presented within the Draft Long Term DBC. The key constraints are:

- **Northern Connection** – the existing Caltex service station and Tauriko School, which both encroach into the legal road corridor, the Tauriko community hall, and private land holdings around the Cambridge Road/SH29 intersection. An alternative location for this access, slightly further to the north which access Tauriko West via an existing Paper Road has been considered and will be an opportunity developed further in the pre-implementation phase and prior to seeking an NOR.
- **Southern Connection** – the location of the proposed intersection form is constrained by the Wairoa River and private land holdings.
- **Tauriko West Spine Road** – private land holdings at Redwood Lane, agreement with developers required for alignment and design cross-sections between northern and southern connections.

Wider Vehicular Transport Network Impacts

There are traffic congestion issues on SH29 at peak times now, particularly at SH29/Cambridge Road and SH29/ Takitimu Dr and SH29a/Barkes Corner in peak hours. As part of this Enabling Works Package, it has been agreed with the project partners that the Takitimu and Barkes intersections will not be addressed, and the impacts on these intersections will be addressed in the long term DBC. However, the effects of not treating these intersections as part of the Enabling works are discussed within the outcomes and risks of the option, including the impacts of adding an additional 2000 houses to the network which is provided in section 5.6.2. Noting however, that the potential bottleneck effects at these intersections is considered by the project Aimsun modelling, either through peak spreading or assigning traffic to alternative routes (such as via SH36).

5.5 Stage 1: Tauriko Interim Access

5.5.1 MCA Framework

Because this stage had a specific focus of determining the location of this interim access, the evaluation adopted and agreed was to be a very simplified MCA using a small number of criteria and a simplified scoring system. The following criteria were assessed:

- Safety,
- Traffic (all modes and wider network),
- Ability to implement in 2021[90],
- Integration with the long-term project,
- Project partners

[90] Note, at the time of the assessment the ability to implement by 2021 was the date provided by the stakeholders. Given delays to the programme this date has now been reconfirmed as 2023 however does not change the outcome of the assessment at that time.

- Property.

The evaluation of each option has been assessed against the other options as there is no base case or 'do minimum' because no access exists. The criteria assessed ranged from minor/negligible impacts to something that was a major adverse consideration. Specifically, the scoring system used is as follows:

Table 5.5-1: MCA for Stage 1 Tauriko West Interim access

Rating	Score	Comments
Minor or negligible consideration	0	No, or minor, consideration that should not present a major obstacle for the option, or that results in a standard or routine technical solution.
Moderate adverse consideration	1	A moderate consideration that is likely to impose some impediment to proposed works and require some complex elements to address, but is achievable
Major adverse consideration	2	Major consideration that is likely to impose a significant risk to developing the option, and result in highly complex, non-standard solution, and should be avoided.

Details of these criteria are provided in the Stage 1 MCA Assessment Summary memo in Appendix C.

5.5.2 Stage 1: Tauriko Interim Access Option Development

Early in the optioneering phase, an alternative access connection onto Cambridge Road, rather than at Tauriko Village, was briefly considered. Discussions with the landowners at the time indicated a strong opposition to any construction of an internal access road through their property as they wanted to continue farming the land. In addition to this, a large escarpment (potential natural wetland) bisects the property, hence crossing this posed some technical challenges. For these reasons a decision was made not to pursue this option further, but to continue to focus on an access within the Tauriko Village in line with the IBC Short List options.

For any option development, the form and location of an intersection are typically developed together as part of an overall process. However, for this initial assessment the form was determined first. The project team developed the options with the following in mind:

- The interim access needs to be available by year 2023 in time for residential blocks to come to market.
- The Tauriko School is unlikely to relocate within the next 5 years.
- Cambridge Road/SH29 intersection will be upgraded, with traffic signals, to improve safety and efficiency problems as part of the NZ Transport Agency safety works programme.
- Bus priority measures will be provided as part of the interim access development to align with the Tauriko Network Connections business case objectives. Hence, the interim access form will be traffic signals in preference to a roundabout. This form will also need to provide a safe crossing over SH29 for walking and cycling.
- Whiore Ave is the desirable bus route connecting Tauriko West with the bus facility on Taurikura Drive, near Tauranga Crossing. Hence a bus connection will be provided between the interim access location along SH29 and in/out of Whiore Ave – linked with new Cambridge Rd/SH29 signals. No special bus priority treatment is required into Cambridge Road. TCC has purchased property in this location.
- Utility services will be required to service Tauriko West. These are understood to be located within the SH29 corridor. Whilst the exact location/form of these services is part of a separate TCC study, the project team will take into consideration any influencing factors on access locations that may arise from that study.

In September 2018, WSP held a workshop with the project partners, TBE and Tauriko West UGA developers (Appendix C and Appendix D) to discuss the interim access location for the Tauriko West UGA. Based on the requirements above, four options were presented and discussed (Figure 5.5-1). Three locations were at the northern end of SH29, near Cambridge Road and one additional location (site 4) at the garden shop.

Figure 5.5-1:Tauriko West interim access proposed locations – 1 to 4

Figure 5.5-2: Detail of Eastern Tauriko West interim access locations 1, 2 and 3

The purpose of the workshop was to discuss and agree on a preferred interim access location for sites 1, 2, 3 and 4 that are based on:

- The best location that will fit in with a long-term solution for SH29
- Fits in with the programme to deliver within 2 years (2023)
- The safest location that may also serve as the long-term access (i.e., preference not to have significant sunk investment).

WSP refined the interim access locations and undertook an assessment using an MCA type process to assess the four interim access locations (refer to minutes Appendix D Stage 1 Tauriko West Interim Access – Option Evaluation).

A workshop was held with the same group (project partners and developers) in December 2018 to discuss the results of the MCA (using the criteria discussed in section 5.5 of the Tauriko West interim access (Table 5.5-2).

Table 5.5-2: Stage 1 Tauriko Interim Access - Option Evaluation results

Criteria	Options			
	Option 1	Option 2	Option 3	Option 4
Safety	Rank 1	Rank 2	Rank 3	Rank 4
Traffic	Rank 1	Rank 2	Rank 2	Rank 4
Ability to Implement by 2021	Rank 1	Rank 3	Rank 3	Rank 1
Integration with Long-Term project	Rank 1	Rank 1	Rank 1	Rank 4
Project Partners	Rank 1	Rank 1	Rank 1	Rank 4

Criteria	Options			
	Option 1	Option 2	Option 3	Option 4
Property	Rank 3	Rank 3	Rank 1	Rank 1
Option Score[91]	0.2	0.5	0.3	1.0
Sensitivity Weighting Score	0.2	0.7	0.5	1.3
MCA order	*1*	*3*	*2*	*4*
Overall Ranked score	8	10	9	21
Ranking order	1	3	2	4

The WSP assessment ranked the access locations as most to least favourable using a series of criteria. It was concluded that there is little distinction between the Options 1 to 3 given uncertainties around integration with the long-term options and therefore the ability to be definitive around future proofing of infrastructure. Services work is also currently in development which would be required to further inform the analysis. Option 4 was ruled out because it is too far south to provide viable access to the UGA, and the geometry of SH29 does not provide safe sight lines.

Based on the assessment presented above, the location of the interim access can be either Option 1, 2 or 3, with the ultimate decision being made by TCC and the respective landowners/developers. Ongoing work in this space has the access located slightly west of Option 3. The recommendation is that the intersection is controlled by a signalised intersection with sufficient capacity to provide an agreed level of service (TCC/Waka Kotahi). The intersection will also provide for bus priority and safe crossing alongside and over SH29 for walking and cycling. The intersection design will also be subjected to a full road safety audit before it is constructed in accordance with usual Waka Kotahi practices.

Based on the discussion with the stakeholder group, the form of the new Tauriko West access was determined by the Long Term DBC project team (and agreed with partners) to be a set of traffic signals. Having traffic signals with appropriate Safe System design (including a raised safety platform (RSP) and will have 60km/h speed or less) provides a safer intersection form than a give way control Tee junction would for general traffic, walking and cycling, and allows for bus priority measures to be provided at the outset to help achieve the benefits sought.

After this discussion, a **decision was made that option 3 was the preferred option** because it was the only option that could be developed within the desired timeframe and involved a willing landowner. While this is the case, further work since this time has showed that Option 1 would also work and is able to be considered further post the completion of this DBC (and is within scope of the DBC for testing post approval of it through the detailed design). This further work and investigation have occurred post the land block affected by Option 1 being purchased by Kainga Ora, opening up the opportunity to consider this option further. Such a change would have the same/similar effects as Option 3 but may have the benefits of reducing property impacts to the south of the proposed intersection, reduced costs, acceptable network operational impacts, and greater ease of delivery. It would however have a greater impact on residents' ability to access their property access on the eastern side of SH29. Also refer section 5.6.2.

[91] Using Equal Weighting

5.6 STAGE 2: Full Option development and MCA evaluation

Stage 2 of the process involves the development of options and evaluation of the key components identified in Figure 5.2-1 including:

- Northern Connection – Tauriko West/Cambridge Road/SH29 (section 5.6.2)
- Southern Connection – Kaweroa/Redwood Lane/SH29 (section 18.12152232.2017239842)
- Walking and cycling (section 5.6.3)
    - » Northern Connection
    - » Southern Connection
- SH29 Corridor – Speed Management (section 5.6.4)
- Whiore Avenue _ Walking, Cycling and Public Transport Options (section 5.6.5)
- Public Transport Service Plan (section 5.6.6)
- Travel Demand Management (section 5.6.7)

Each of the components are discussed in more detail in the following sections.

5.6.1 Stage 2 Northern Connection and Southern Connection MCA framework

To assess the various options at Tauriko/Cambridge Road and Belk/Redwood Lane, a simplified MCA was followed.

Given that the forms for both sites have been largely determined through other processes and agreements (that is, a roundabout at Belk/Redwood Road, and Traffic Signals at Tauriko West UGA and Cambridge Road intersection – refer section 5.1), the MCA for this stage focussed on assessment of risk and effects rather than the alignment of the option to the investment objectives. This is also largely because all options would likely result in a similar alignment to those objectives and would not help differentiate the options. For the Stage 2 assessments, small groups of specialists from a range of organisations were formed (rather than the project team/specialists from WSP) to assess each option against the 'do nothing' for specific risk and effects criteria (Table 5.6-1). A workshop was held on 29 October 2019 with representatives from the respective project partner organisations (the NZ Transport Agency, TCC, BoPRC, WBoPDC) and local iwi to agree on the scores determined by each of the teams, the final outputs and therefore the preferred option for the northern and southern connections.

As there is only a limited number of criteria, the initial analysis had equal weighting across all the categories. Sensitivity testing was carried out which considered higher alignment of some of the criteria versus the others. The following risks and effects, along with key questions posed (refer to the MCA Framework document in the appendices for these) were used for evaluating the Early Works. These assessments were evaluated against a 'do nothing', however the Tauriko assessment assumed that the roundabout at SH29/Belk Rd/Redwood Lane would be in place.

Risks

All options were evaluated against risk in implementation. Risk criteria agreed to, and the scoring system, is shown in Table 5.6-1. The types of questions that were considered as part of the assessment are provided in the MCA framework (Appendix E).

Table 5.6-1 Key risk criteria and scoring

CRITERIA	RATING	SCORE	COMMENT
Technical/Constructability Consentability Financial Fundability Public	Neutral	0	No risk/issue, or not required
	Low Risk	-1	Standard or routine technical solution
	Medium Risk	-2	Some complex elements, but achievable

CRITERIA	RATING	SCORE	COMMENT
Integration (transport & land) - Future proof Programme/Housing	High Risk	-3	Highly complex, non-standard solution, likelihood of significant technical difficulty and potential for cost/programme increase
	Fatal Flaw	N/A	Not feasible/ practicable

Effects

All options were evaluated against environmental effects. The effect criteria and scoring system are shown in Table 5.6-2 and were selected by the stakeholders. The types of questions that were considered as part of the assessment is provided in the MCA framework (Appendix E).

Table 5.6-2 Key effects and scoring

CRITERIA	RATING	SCORE	COMMENTS
Traffic Safety Property Cultural	Significantly Positive	3	Significant positive effect and/or provide significant enhancement
	Moderate Positive	2	Moderate positive effect and/or provide significant enhancement
	Minor Positive	1	Minor positive effect
	Neutral	0	Negligible
	Minor Adverse Effect	-1	Standard or routine technical solution
	Moderate Adverse Effect	-2	Some complex elements but achievable
	Significantly Adverse Effect	-3	Highly complex, non-standard solution. Likelihood of significant technical difficulty and potential for cost/programme increase
	Fatal Flaw	Fatal Flaw	Of such national/regional/local significance that unlikely to be consented and/or effects can't be mitigated

Process

Each group of specialists undertook their assessment of the various options, considering reasonable mitigation and noting what this looked like. Consideration was also given to the results of the environmental and social responsibility screen (Appendix F) undertaken as part of the long-term Tauriko Network DBC, and how the critical issues/assumptions/mitigation considerations have been addressed.

The results were analysed by WSP specialists and sensitivity testing was undertaken where a higher alignment of some of the criteria was given versus the others. These results are provided in Table 5.6-4.

5.6.2 Stage 2 Northern Connection – Tauriko West and Cambridge Road

The new Tauriko West location is discussed and determined within this section. The Cambridge Road intersection had previously been the subject of recent low-cost safety and efficiency investigations by the Waka Kotahi NZ Transport Agency with feedback comments from TCC. However, this DBC supersedes that work.

For the Cambridge Road intersection with SH29, the project team has previously indicated a desire to include access into Whiore Ave as a bus-only link at the outset within the Enabling works to help maximise a shift to active and public transport modes from the Tauriko West UGA. With minimal delays expected along SH29, or entry/exit delays at the Tauriko West Road, bus priority lanes were determined to be unnecessary by the regional council. In addition, currently Cambridge Road suffers from a lack of adequate capacity during peak times and adding additional traffic to the network from the Tauriko West UGA will potentially

exacerbate the existing situation. Refer section 4.3.2 (evidence from 2000 households report).

Traffic modelling was undertaken in SIDRA based on existing traffic flows with adjustments to reflect short term growth and trips from the Tauriko West UGA. Future year traffic flows were extracted from TTSM models. This workstream also included the impacts of including/excluding a bus link to Whiore Ave. Hence, optioneering focused on intersection improvement options that improve safety and provide some relief to capacity. In addition, the inclusion or otherwise of the Ring Road may have an influence on the operation of SH29 and hence this intersection. The traffic analysis work ensured these risks and opportunities are clearly identified and conveyed to TCC and Waka Kotahi.

Aimsun modelling has been used to determine the traffic flows for each of the options. Specifically, the TCC Aimsun model (TTHM) has been used to assess the network performance during the AM and PM peak periods, which allowed the project team to understand the effects of the proposed changes on the SH29 corridor for the short-term horizon to year 2031.

Early Aimsun modelling indicated that with the inclusion of new traffic signals at Tauriko West and Cambridge Road, some existing users of SH29 may divert to SH36 using the new Kaweroa Road and Redwood Lane roundabout, depending on the destination. This results in some increased traffic flows on local roads, although in most cases, the increase on local roads is likely to be less than 100 vehicles per hour, which should not pose any operational issues.

Option Development

Given the discussions and decisions so far, the project team developed 3 options to take to the stakeholder group for further consideration.

All options provide a new signalised intersection to serve the Tauriko West interim access, a signalised intersection at Cambridge Road and 'opens up' access to Whiore Ave for buses and active modes. The location of the access at this point was the Option 3 close to the packhouse (section 5.5.2). There is a shared path on the northern side of SH 29 connected to Cambridge Road intersection and into Whiore Ave. The key difference between the options is the number of lanes at the intersections and in the midblock section of SH29 based on serving a different number of households.

The key characteristic of the option is provided in Table 5.6-3. A plan of each of the options is provided in Figure 5.6-1, Figure 5.6-2, and Figure 5.6-3.

Table 5.6-3: Key Differences of Northern Connection Options

Option Element	Option 1	Option 2	Option 3
Tauriko West intersection	New Signalised intersection – 1 through, 1 turning	New Signalised intersection – 2 through, 1 turning	New Signalised intersection – 1 through, 1 turning
Cambridge Rd Whiore Ave	New Signalised, 1 through, 1 turning	New signalised, 2 through, 1 turning	New Signalised, 2 through, 1 turning
SH 29 Midblock	1 lane each direction	2 lanes each direction	1 lane each direction – TW school -> SW 2 Lanes each direction – TW School -> NE
Houses enabled at TW	< 500	Approx. 2000	Approx. 1500
Other – 60km/h posted speed, raised platform, bus and active road users only on Whiore, provision of share path to TW along SH 29 (western side) + TDM			

Option 1: 1 Lane

Figure 5.6-1: Northern Connection - Option 1 Concept design used for MCA Evaluation

Option 2: 2 Lane

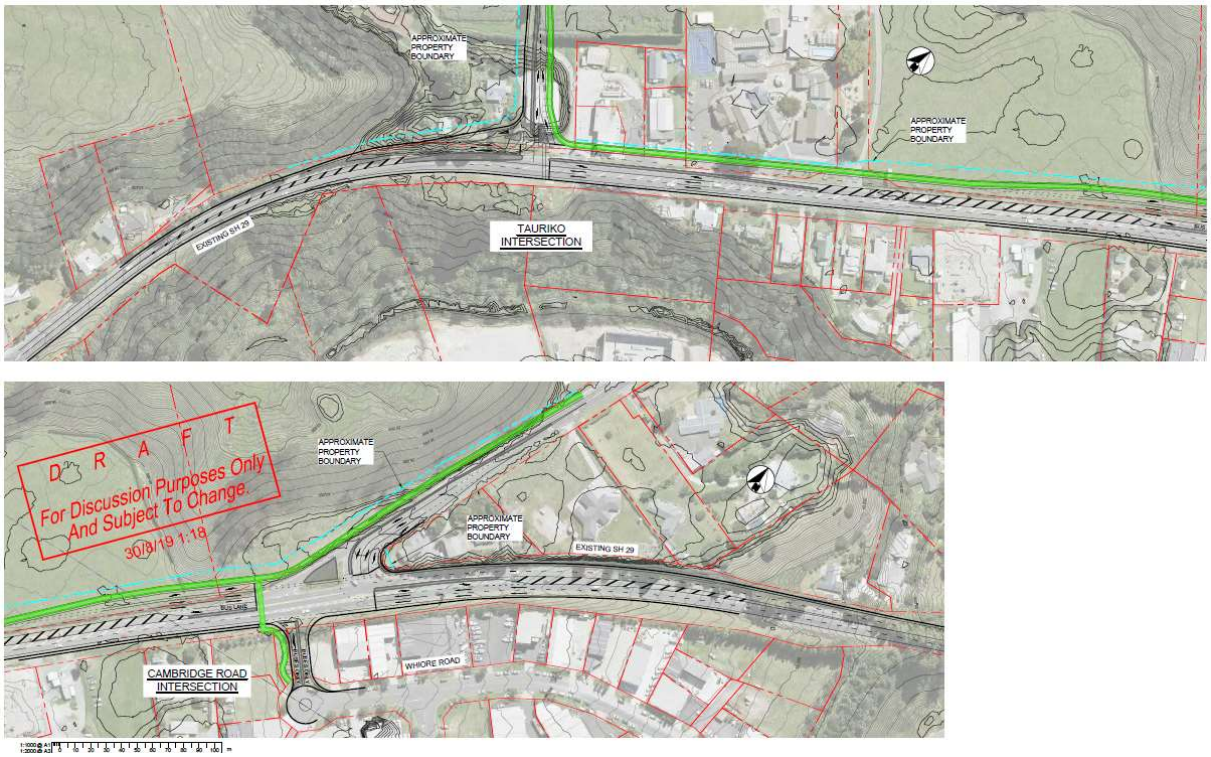


Figure 5.6-2: Northern Connection - Option 2 Concept design used for MCA Evaluation

Option 3: 2 Lane/1 Lane Combination

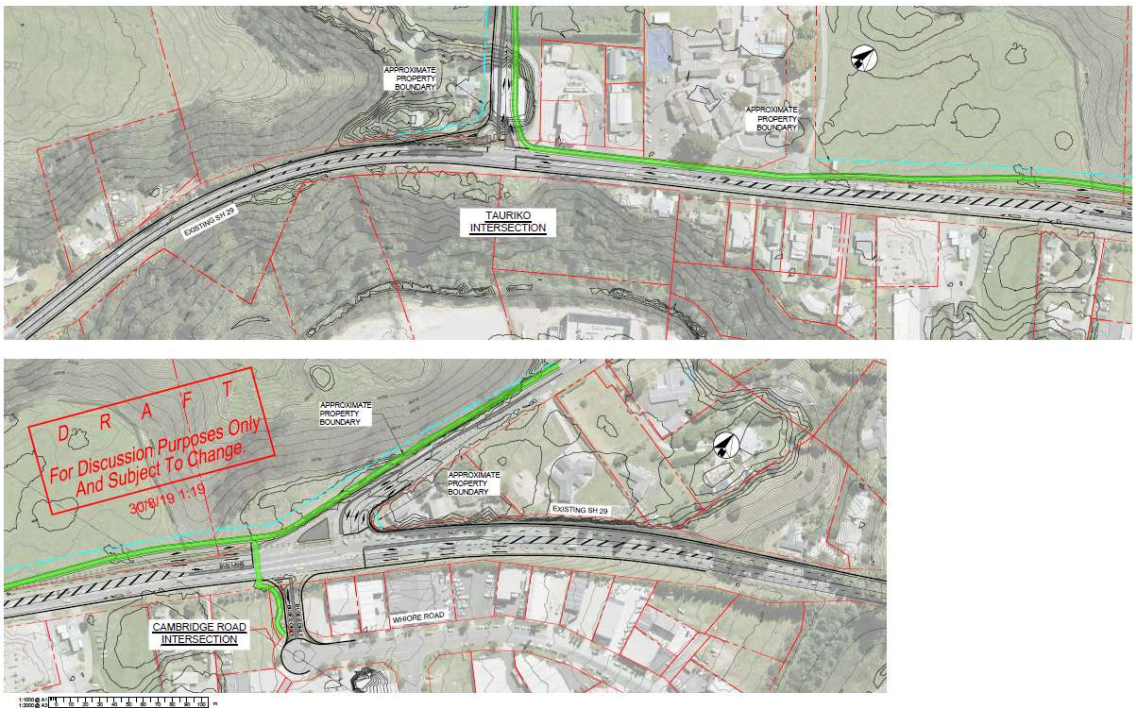


Figure 5.6-3: Northern Connection - Option 3 Concept design used for MCA Evaluation

Option MCA Evaluation

Using the MCA framework outlined in section 5.6.1, the stakeholder specialist groups undertook an MCA evaluation. These options were of a similar form so the alignment to the Enabling works investment objectives would not provide any differentiation; except for the number of houses that could be enabled. This outcome was captured and assessed in the programme/housing criteria along with other outcomes is also shown in Table 5.6-5 .

These assessments were challenged at the full stakeholder workshop on the 29 October 2019 and the results of those outcomes are provided in Table 5.6-4.

Table 5.6-4: Tauriko West Interim Access - MCA Results (post workshop)

		Option 1	Option 2	Option 3
Risks	Technical/Constructability	Low Risk	Medium Risk	Medium Risk
	Consentability	Neutral	Medium Risk	Low Risk
	Financial/Fundability (part of Value for Money)	Low Risk	Medium Risk	Medium Risk
	Public	Low Risk	Medium Risk	Medium Risk
	Integration (transport & land) – Future proof	Minor Positive	Minor Positive	Minor Positive
	Programme/Housing	Fatal Flaw	Significantly Positive	Moderate Positive
Effects	Traffic	Neutral	Neutral	Neutral
	Safety	Minor Positive	Moderate Positive	Minor Positive
	Property	Moderate Positive	Moderate Adverse Effect	Neutral
	Cultural	Neutral	Moderate Positive	Minor Positive

Other key outputs and outcomes for each of the options is shown in Table 5.6-5.

Table 5.6-5: Tauriko West Interim Access – Outputs and Outcomes

		Option 1	Option 2	Option 3
Costs $M	Expected cost	$3M - $4.5M	$12M - $18M	$10M - $15M
	95th %tile	$6M	$25M	$20M
	95th %tile Property	$1.4M	$6.9M	$3.1M
Investment Outcomes	Travel time reliability met	yes	yes	yes
	Access provided to enable land to be developed	yes	yes	yes
	Safe, attractive walking, cycling/ PT facilities	yes	yes	yes
	Average of 30 peak hour trips per household	yes	yes	yes
	PT in-vehicle peak travel time better than driving	yes	yes	yes
	Access to enable at least 1000 houses	no[92]	yes	yes
	30% reduction in all crashes	yes	yes	yes
	50% reduction in DSIs	yes	yes	yes

[92] Only achieves 500 houses

The base MCA scoring was applied to the MCA evaluation outcomes (shown in Table 5.6-4) as described, with equal weighting applied to each risk and effects. This identified the base ranking of options from the MCA (as shown in Table 5.6-6) with Options 2 and 3 being equally ranked as the number 1 option.

Table 5.6-6: Tauriko West/Cambridge Road/SH29 - Base Ranking (Raw Scores)

Tauriko West Interim Access/Cambridge Road/SH29		
Option 1	Option 2	Option 3
3	1	1

In addition, a range of sensitivity tests (S1 to S4) was applied to the MCA to determine any difference in ranking if various weightings were applied to the assessment (Table 5.6-7). In summary, the rankings did not wholly change for the worst-ranked option: Option 1. With regards to Option 2 and 3, these changed from being 1st or 2nd ranked across the four sensitivity tests. Option 2 overall had the best ranking, ranking 1st in 3 out of 4 of the sensitivity tests. Where the risks and effects were equally weighted, Option 3 was ranked first.

Table 5.6-7: Tauriko West Interim Access/Cambridge Road - Sensitivity Tests and Option Rankings

Sensitivity Test	Option 1	Option 2	Option 3
Raw Scores	3	1	1
S1: Risks (50%); Effects (50%)	3	2	1
S2: Risks (1/3); Effects (2/3)	3	1	2
S3: 25% Housing; Risks and Effects (75%)	3	1	2
S4: 25% Property; Risks and Effects (75%)	3	1	2

Some of the key discussion points from the group's assessments are shown in Table 5.6-8.

Table 5.6-8: Tauriko West/Cambridge Road - Summary of Key MCA findings

Option	Comments (key feedback – where there are differences)
1	– **Worst Ranked Option** as it does not meet the minimum objective for minimum households (Fatal flaw) – Moderate positive outcomes for safety due to formalised crossing points and lower speeds – Standard construction, however, could have restricted work hours due to peak flows/ school. State highway will need retaining north of Cambridge Rd. – Within existing legal road corridor simple consenting/designation process (if required at all). – May be seen as an under investment by the public given additional housing, despite improvements to the corridor safety. – Lowest rated option in terms of Kaitiaki role to advocate for housing and community impacts on affordability, homelessness etc. – Minor positive for traffic with good public transport, walking and cycling connections. However, does affect freight trip reliability. – Good integration between transport and land use – unlocks housing and improves the transport network for state highway and local roads. – This option is the cheapest and hence scores the best from a financial fundability perspective.
2	– **Ranked best option equally with Option 3**. However, **ranked best option overall** when taking the sensitivity tests into account. Overachieves the minimum household target. – Moderate positive outcomes for safety due to formalised crossing points and lower speeds – Moderate property risks. Option **requires the largest alteration to designation and land purchase** requirements.

Option	Comments (key feedback – where there are differences)
	– Complex construction especially at Cambridge Rd, the widening road lane, and the shared path over a very steep gully. Major temporary traffic management requirements/service relocations. Limited hours for construction due to school. – This option also **significantly impacts the school and would likely significantly affect the service station** making it potentially inoperable and would need to be managed. More complexity and more consents, larger designation area. – Additional investment (i.e., lane capacity) likely welcomed by the public, but potential concern for wider network over additional houses. – Highest rated option in terms of Kaitiaki role to advocate for housing and community impacts on affordability, homelessness etc. – Minor positive for traffic with good public transport, walking and cycling connections. However, does affect freight trip reliability. – Good integration between transport and land use – unlocks housing and improves the transport network for state highway and local roads. – Most expensive option and has lower value for money than Option 3
3	– **Ranked best option equally with Option 2**. However, ranked second best when considering the sensitivity tests. Overachieves minimum household target. – Moderate property risks. Option requires slightly reduced alteration to designation and land purchase requirements compared to Option 2. – Complex construction especially at Cambridge Rd, the widening road lane, and the shared path over a very steep gully. Major temporary traffic management requirements/service relocations. Limited hours for construction due to school. – This **option does not impact Tauriko School as much as Option 2** and probably would not make the service station inoperable (although access would need to be resolved. More complexity and more consents, slightly smaller designation area than Option 2. – Option rated slightly lower than Option 2 in terms of Kaitiaki role to advocate for housing and community impacts on affordability, homelessness etc. – Minor positive for traffic with good public transport, walking and cycling connections. however, does affect freight trip reliability. – Good integration between transport and land use – unlocks housing and improves the transport network for state highway and local roads. – Option 3 is cheaper and better value for money that Option 2.

Preferred Option

Based on the previous option evaluation, the outcomes achieved and discussions, the Stakeholders agreed at the workshop (29th October 2019) **that Option 2 is the preferred** solution, noting the staging was important, and that Option 3 could be implemented as the first stage, and then essentially "converted" to Option 2. Option 2 was preferred also as it had better positive impacts for housing, safety and cultural over Options 1 and 3.

In terms of Option 2, although it is a larger upfront investment, this would effectively 'buy more time' if the long-term solution was delayed, particularly if upstream bottle necks are resolved. In addition, since the decision, there has been ongoing discussion on the potential for an alternative location arrangement. This is discussed further below.

Through further detailed design and engagement, construction of the northern connection (Option 2) is likely to be held up through the land purchase process, as the widening has significant impacts on the operation of the Caltex Service Station (and the sub leases on the site) and School Frontage. There is therefore a risk that purchase of these properties has a detrimental impact on the ability to construct houses within the require timeframes.

Alternative location arrangement

An option to address the property concerns is to relocate the Northern Access onto the paper road north of the school and reduce the extent of the SH29 widening so that the enabling works does not impact on the Caltex site, noting that they are potentially affected by the Long Term DBC solution.

The overall cost to construct the Northern Access at the paper road site is expected to be similar, or cheaper, to that of the current solution (Option 2), depending on what provisions need to be provided to ensure safe and efficient access to the eastern SH29 properties.

This opportunity is being considered and assessed as part of early inputs to the Pre-implementation phase. The decision on whether to adopt this alternative location will be made by the project partners as the investigation of options and impacts are being worked through as a separate workstream to the business case.

Stage 2 Southern Connection – Kaweroa Drive93/Redwood Lane and SH29 Option Development

To facilitate the ongoing development of the existing zoned area of TBE in accordance with the Tauranga City Plan, and future expansion and as agreed by stakeholders (through the long term DBC optioneering phase), the southern connection at Kaweroa Drive and Redwood Lane is to be a roundabout which could ultimately integrate with the potential future grade separated intersection form and a grade separated walking and cycling facility (section 18.12152232.2017239842).

As a result of this early works project, four roundabout options (Figure 5.6-4) were developed in the vicinity of Redwood Lane/SH29 intersection with a realignment of Belk Road to connect with the roundabout. Apart from the location (which would need to be optimised), there were no other major differences in the form of intersection. This is because they were all large roundabouts with 2 lanes on approaches and all had the potential to accommodate grade separated walking and cycling facilities in the future (refer section 5.6.3) and any access to park and ride facilities which would be confirmed by TCC during the structure planning.

Figure 5.6-4: Kaweroa Road (Belk Road/Redwood Lane/SH29 Roundabout Option Locations

The detail of each of those options is shown below.

[93] Kaweroa Drive would be the new road name. Belk Road would be closed and linked in to Kaweroa Drive.

Option 1:

Figure 5.6-5: Option 1: Belk Road/Redwood Lane/SH29 Roundabout

Option 2

Figure 5.6-6: Option 2: Belk Road/Redwood Lane/SH29 Roundabout

Option 3

Figure 5.6-7: Option 3: Belk Road/Redwood Lane/SH29 Roundabout

Option 4

Figure 5.6-8: Option 4: Belk Road/Redwood Lane/SH29 Roundabout

Option Evaluation

Using the same MCA framework/method adopted for the Cambridge Road options (Section 5.6.1), the stakeholder specialist groups undertook an MCA evaluation. These assessments were challenged at the full stakeholder workshop on the 29 October 2019 and the results of those outcomes are provided in Table 5.6-9.

As discussed within the MCA framework (Section 5.6.1) these options were of a similar form so the alignment to the investment objectives would not provide any differentiation. Therefore, the alignment to those investment objectives is covered as a qualitative output (as shown Table 5.6-10).

Table 5.6-9: Kaweroa Road (Belk Road)/Redwood Lane/SH29- MCA Results (post workshop)

		Kaweroa Road (Belk Road)/Redwood Lane roundabout			
		Option 1	Option2	Option 3	Option 4
Risks	Technical/Constructability	Medium Risk	Medium Risk	Medium Risk	Low Risk
	Consentability	Medium Risk	Medium Risk	Medium Risk	Low Risk
	Financial/Fundability (part of Value for Money)	Medium Risk	Medium Risk	High Risk	Low Risk
	Public	Low Risk	Low Risk	Medium Risk	Neutral
Effects	Integration (transport & land) – Future proof	Minor Positive	Moderate Positive	Moderate Positive	Moderate Positive
	Programme/Housing	Moderate Positive	Moderate Positive	Moderate Positive	Moderate Positive
	Traffic	Minor Positive	Minor Positive	Minor Positive	Minor Positive
	Safety	Significantly Positive	Significantly Positive	Significantly Positive	Significantly Positive
	Property	Minor Adverse Effect	Significant Adverse Effect	Significant Adverse Effect	Minor Adverse Effect
	Cultural	Minor Adverse Effect	Neutral	Neutral	Neutral

Other key outputs and outcomes for each of the options are shown in Table 5.6-10.

Table 5.6-10: Kaweroa Road (Belk Road/Redwood Lane Outputs and Outcomes

		Kaweroa Road (Belk Road)/Redwood Lane roundabout			
		Option 1	Option2	Option 3	Option 4
Costs $M	Expected cost	$5 - $7.5M	$5.5 - $8M	$9 - $12M	$4 - $6M
	95th %tile costs 95th %tile	$10M	$11M	$16M	$8M
	95th %tile property costs	$3.8M	$5.3M	$3.8M	$3.1M
Investment Outcomes	Access provided to enable land to be developed	yes	yes	yes	yes
	Safe and attractive walking, cycling and PT facilities provided	Yes - future	Yes - future	Yes - future	Yes - future
	30% reduction in severity of all crashes[94]	yes	yes	yes	yes
	50% reduction in all DSis[Error! Bookmark not defined.]	yes	yes	yes	yes

[94] In combination with Tauriko West/Cambridge Road options

The base MCA scoring was applied as described in section 5.6.1 with equal weighting applied to each risk and effects. This identified the base ranking of options from the MCA (as shown in Table 5.6-11) with Option 4 ranked as the number 1 option.

Table 5.6-11: Kaweroa Road (Belk Road)/Redwood Lane/SH29 – Base Ranking (Raw Scores) from MCA Comparison

Kaweroa Road (Belk Road)/Redwood lane/SH29			
Option 1	Option 2	Option 3	Option 4
2	2	4	1

In addition, a range of sensitivity tests (S1 to S4) were applied to the MCA to determine any difference in ranking if various weightings were applied to the assessment (Table 5.6-12). In summary, the rankings did not wholly change for the worst ranked option, Option 3. Option 1 and 2 largely kept their 2nd and 3rd rankings respectively except for raw scores. The best option was Option 4 which ranked first across all of the tests, which was largely to do with Option 1 having no significant or moderate risks or adverse effects. Discussion around those key differences and summary of findings is also provided in Table 5.6-13.

Table 5.6-12: Kaweroa Road (Belk Road)/Redwood Lane/SH29 – Sensitivity Tests and Option Rankings

	Option 1	Option 2	Option 3	Option 4
Raw Scores	2	2	4	1
S1: Risks (50%); Effects (50%)	2	3	4	1
S2: Risks (1/3); Effects (2/3)	2	3	4	1
S3: 25% Housing; Risks and Effects (75%)	2	3	4	1
S4: 25% Property; Risks and Effects (75%)	2	3	4	1

Table 5.6-13: Kaweroa Road (Belk Road)/Redwood Lane – Summary of Key MCA findings

	Comments (key differences and comments)
Option1	• Ranked 2nd, No significant risks, or effects • Significant Safety improvements; changing two tee junctions to one safe system roundabout • This is a routine construction. Existing topography may cause minor issues. Can be constructed primarily offline with some temporary state highway. • Located closer to the Belk Rd drain, resulting in less room for stormwater treatment and more floodplain displacement – both of which add complexity and challenge to the consent. • Some cultural effects due to being closer to Wairoa River and associated stormwater run-off effects – but could potentially be mitigated. • Mostly positive traffic effects due to improved traffic movements for local side roads and does not preclude the future provision of a walking and cycling connection once land use change creates demand; however, some effects on freight trip reliability. • Integrates well with land use/ future intersection design. Provides slightly better terrain for future walking/cycling connection that options 3 and 4
Option 2	• Ranked 3rd out of 4; Significant property effects that may result in a notified consent and/or designation, and contested land acquisition process. • Significant safety improvements; changing two tee junctions to one safe system roundabout • This is a standard construction. Largely constructed offline. • Mostly positive traffic effects due to improved traffic movements for local side roads and do not preclude the future provision of a walking and cycling connection once land use change creates demand; however, some effects on freight trip reliability. • Integrates well with land use/ future intersection design. Provides slightly better terrain for future walking/cycling connection that options 3 and 4. • Better alignment with the TBE current and future development plans than Option 1

	Comments (key differences and comments)
Option 3	• Worst Ranked Option due to significant property risks that may result in a notified consent and/or designation, contested land acquisition process, and significant temporary traffic management disruptions as it will be built completely online. • Significant Safety improvements; changing two tee junctions to one safe system roundabout • Mostly positive traffic effects (improved traffic movements for local side roads/ does not preclude the future walking/cycling connection); however, some effects on freight trip reliability • Integrates well with land use and future intersection design • Better alignment with the TBE current and future development plans than Option 1 • Most Expensive option and less value for money
Option 4	• Best Ranked Option; No significant risks or effects • Significant Safety improvements; changing two tee junctions to one safe system roundabout • Easiest option in terms of constructability, with a standard consent process (assuming property can be purchased willingly) • Option is largely offline and therefore has less disruption to public during construction • Mostly positive traffic effects (improved traffic movements for local side roads/ does not preclude the future walking/cycling connection); however, some effects on freight trip reliability • Integrates well with land use and future intersection design • Better alignment with the TBE development plans than Option 1

Preferred Option

Based on the previous option evaluation and discussions, the Stakeholders agreed at the workshop (29th October 2019) that **Option 4 is the preferred solution**. Option 4 was the best ranked option with no significant risks or effects and the preferred solution because it performed better against the MCA criteria than Option 1, 2 and 3. This is because:

- Option 1 has:
  - more risk and slightly higher construction and property costs
  - worse alignment with TBE plans
- Options 2 and 3:
  - require more properties to be acquired and
  - given proximity to the current SH29 alignment would require more temporary traffic management causing more public frustration.

5.6.3 Walking and Cycling Facilities:

Northern Connection

In the Tauriko Village area there are no formal pedestrian and cycle facilities. The Enabling Works, which is an early part of the Long Term DBC solution, seeks to improve this situation, by providing a safe crossing over SH29, and a shared off-road walking & cycling pathway parallel to SH29 between Cambridge Road and the new Tauriko UGA access road. The new connection allows pedestrians and cyclists from the future Tauriko UGA and existing school to safely access Cambridge Road and Tauranga Crossing via the new pathway and facilities to be developed on Whiore Ave, which are also being delivered by the Enabling Works.

The presence of new traffic signals (and Road Safety Platforms) at Cambridge Road provides the opportunity to provide a low cost and safe solution to get pedestrians and cyclists across SH29. Whilst this is considered acceptable in the short to medium term, the enabling works safety review (Appendix G) recommends that a grade separated pedestrian/cycling facility is explored once the preferred long term option is known. This was particularly relevant if the Long Term solution was to remain on the existing SH29 alignment (Option 1). However, given that the emerging preferred is now Option 2, an off-line corridor through Tauriko, the future traffic flows on the old SH29 corridor will be considerably less.

Hence, the need for a future grade separated pedestrian crossing over/under the old SH29 in the vicinity of Tauriko Village is being investigated, as part of developing the emerging preferred Option 2 under the Long Term DBC.

The staging and timing of need for this facility is provided in section 12.4 as part of the implementation discussion.

Southern Connection

As part of the Tauriko Enabling works process it was identified that a grade separated walking and cycling facility be provided in the vicinity of the Redwood Lane/Kaweroa Drive to improve connectivity and provide a safer crossing point from between Tauranga Crossing and Tauriko West Urban Growth Area and proposed walking and cycling facilities (Figure 5.6-9) including the Wairoa cycling trail. The type and placement of this facility not only takes into account the Enabling works roundabout (and stormwater treatments) but would also need to be considered in relation to the long term form. These are shown in Figure 5.6-10.

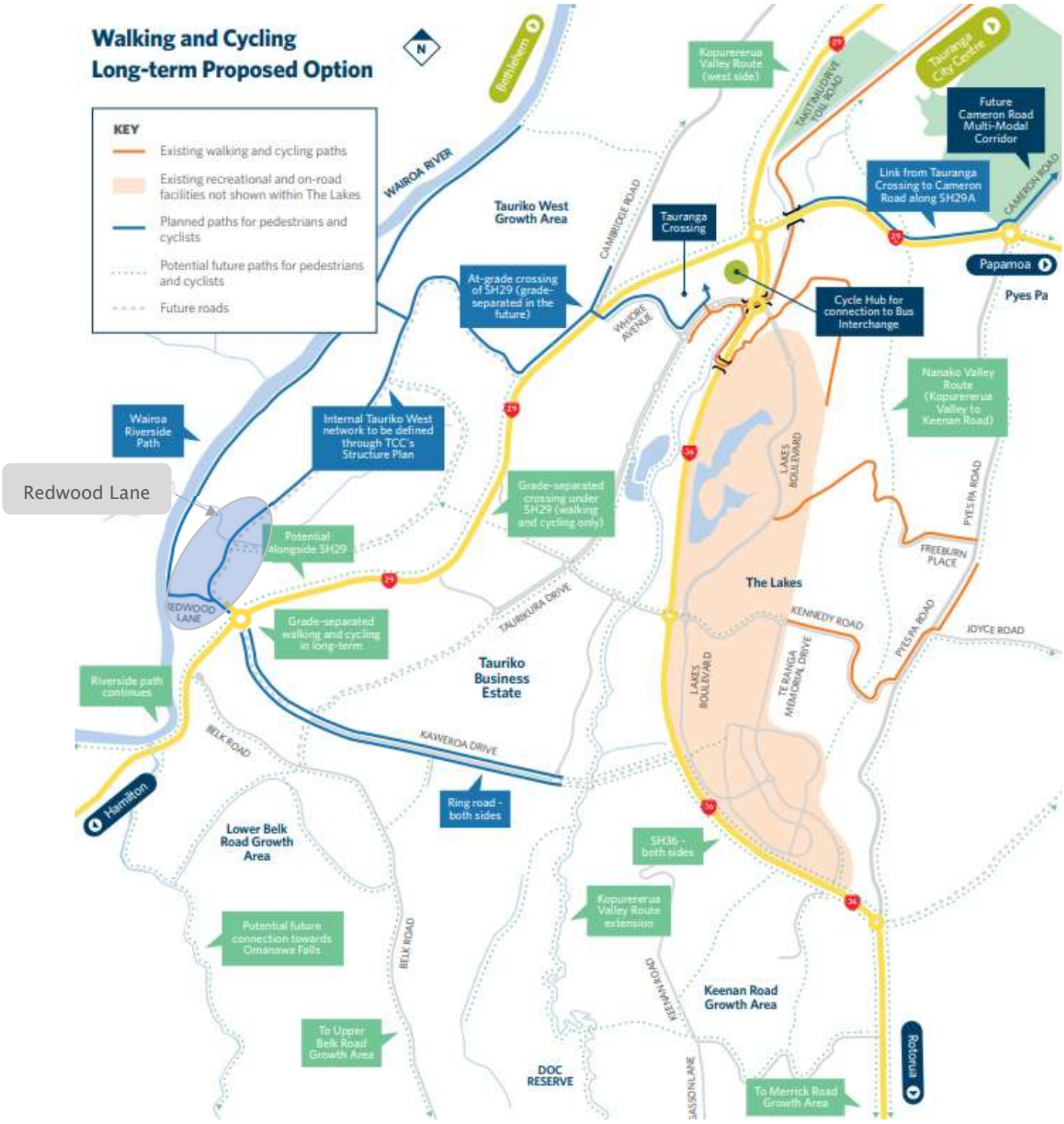


Figure 5.6-9: Tauranga City Councils Aspirational Walking and Cycling Network

Figure 5.6-10: Short-Term Enabling Works (left); Long-Term Emerging Preferred Option 2 (right)

As part of this process, the project team undertook an evaluation of not only what the form of this grade separated facility would be (i.e. underpass versus overpass) but also what the location of this facility would be.

Option Evaluation Framework

An MCA framework was developed for the walking and cycling option which considered the following criteria for assessment:

- Useability – would people use it given the design i.e. CPTED (social safety), gradient, length of ramp; does this option align with desire lines and provide connectivity to user generator locations such as the Tauriko West UGA, Park and Ride facilities, aspiration walking and cycling routes; is it close to both residential and commercial areas minimising route journeys and maximising comfort
- Constructability/Engineering Complexity – how easy is this to construct and what risks are there
- Operation and Maintenance (including SiD) – level of difficulty and any health and safety concerns in managing and maintaining the option
- Alignment to Enabling works and Long term form – does this option work in with both the Enabling works design and the long term form, or would it require demolition and rebuilding once the long term form is being constructed
- Cost – what is the scale of cost between options
- Environmental impact – what are the key environmental impacts for this option
- Property Effects – are there any significant issues with property in this location, including whether there is a need to provide connectivity to other paths (e.g. linking from Belk Rd towards Wairoa River Path and Redwood requires additional paths and land to link back to Redwood Lane)
- Safety – what are the impacts on all transport users including road, cyclists and pedestrians, and Park and ride users
- Other Effects – would any works impact on the wider water network and stormwater flooding; location to stormwater ponds; would the option result in flooding of the facility or further upstream and how often would this occur.

These options were not tested against the investment objectives as this was unlikely to provide any differentiation between the options.

The scoring for this option used a seven-point scale, similar to other frameworks used in this project. This scoring system is outlined in Table 5.6-2. The results of the evaluation are provided below.

Option Development

The location of the under or overpass option was determined using the Tauriko West Long term walking and cycling plan developed by TCC (Figure 5.6-9). This originally had four locations: A, B, C and D (as shown on Figure 5.6-11) with a combination of both under and overpass at each of these sites resulting in a total of eight options for evaluation. After discussion with the stakeholder working group, three other options were added to the long list of options.

The total long list of options is as follows:

- A: Omanawa Stream (and a short section along Wairoa River or along SH29 to connect to T-West TBC):
  - » Underpass
  - » Overpass
- B: Belk Rd (and a short section to connect to T-West – TBC.)
  - » Underpass
  - » Overpass
- C: South of Redwood Ln
  - » Underpass
  - » Overpass
- D: North of Redwood Ln.
  - » Underpass
  - » Overpass
- E: Option C/D (underpass) – Hybrid – Path on both side of road, 2 underpass structures under SH29, 1 underpass on Redwood
- F: Option C/D (Underpass) – Hybrid – diagonal underpass
- G: Facility north of Redwood Lane (I.e. At Gargan Road)

Figure 5.6-11: Proposed Option Locations (overlaid on both Enabling works and Long Term Option

Option Evaluation

In summary, a small team (from Waka Kotahi, TCC and WSP) undertook a high level MCA process using the MCA framework and scoring system provided in section above.

Early discussions were held to determine whether any of the long list options could be filtered out early where the team agrees that the combination of certain locations and forms aren't feasible and shouldn't proceed any further. As a result of this discussion, the following outcomes for the long list of options is shown in Table 5.6-14.

Table 5.6-14: Redwood Lane – Pedestrian/Cycle Facility Long List Option evaluation outcomes

Option	Comment	Decision
Option A – Underpass	Underpass – Not desirable from a useability point of view. There is no desirable path for the short to medium term but the option for the long term could be for recreational use. There may be an opportunity to develop some connection in conjunction with TBE in the future. However, in the interim this option was discarded as there are other more suitable options.	Discard
Option A – Overpass	Based on the topographical constraints this bridge would be quite high (in conjunction with the preferred long term option, Option 2) making it very unattractive for use. Not as good as other options.	Discard
Option B – Underpass	This option was only useable for the short term and not for the long term.	Discard
Option B– Overpass	This option is only useable for the short term and wouldn't be suitable in the long term as you would have to go under and over, resulting in reconstruction of half of the structure for the long term.	Discard

Option	Comment	Decision
Option C – Underpass	No significant impacts identified in first assessment	Keep
Option C – Overpass	This option is on one side of Redwood Lane. This means you still have to cross high volume roads which is not attractive or safe for users. Not as good as Options D and E.	Discard
Option D – Underpass	No significant impacts identified in first assessment	Keep
Option D – Overpass	Based on the topographical constraints this bridge would be quite high (in conjunction with the preferred long term option, Option 2) making it very unattractive for use. Not as good as other options	Discard
Option E – Option C/D (underpass) – Hybrid	No significant impacts identified in first assessment	Keep
Option F – Option C/D (Underpass)– Hybrid (diagonal)	No significant impacts identified in first assessment	Keep
Option G – Facility north of Redwood Lane	North of Redwood – Houses are not going to be built there for a while. In the first instance, useability will be very low given demand in the Redwood Area. Gargan location is still an opportunity as it may be needed more in the long term once housing is built out more.	Discard

As a result of the filtering assessment of the long list of options, this left 6 options in the short list. The results of the MCA process is shown in Table 5.6-15. A full description of the MCA is provided in Appendix H.

Table 5.6-15: Redwood Lane Pedestrian/Cycle Facility – Short List Evaluation outcomes

		Option C(U)	Option D(U)	Option E	Option F
Criteria	Useability	Slight positive	Moderate Positive	Significant Positive	Moderate Positive
	Constructability	Neutral	Neutral	Neutral	Neutral
	Op & Maint	Neutral	Neutral	Neutral	Slight Negative
	Alignment to EW and LT form	Significant Positive	Significant Positive	Significant Positive	Significant Positive
	Scale of Cost	Slight Negative	Slight Negative	Moderate Negative	Significant Negative
	Env Impact	Slight Negative	Neutral	Neutral	Neutral
	Property Impact	Neutral	Neutral	Neutral	Neutral
	Safety	Moderate Positive	Moderate Positive	Significant Positive	Slight positive
	Other Effects	Slight Negative	Neutral	Neutral	Neutral

Discussion and Results

The scores of those assessments shown in in Table 5.6-15 are from the MCA framework noted in Appendix H. The results of the MCA evaluation are provided in Table 5.6-16. The key findings from the evaluation are:

- All options align with both short-medium term and long term options
- All options have similar neutral impacts for constructability and property
- Option E is better than other options from the point of view of:
  - » useability – as it is more attractive and with better CPTED outcomes due to the short length and future proofing with other long term planned facilities

  - » safety – as it provides more grade separated facilities on desire lines without having to cross the road.

- Option F scale of cost is significant specifically compared to options C and D, as it involves the construction of a much longer structure. Option E is still expensive compared to Option C and D.
- Option C and F are lower ranked options
- Option D and E are quite close in overall score and are ranked 2 and 1 respectively. However, Option E provides better usability and safety outcomes than Option D.

Table 5.6-16; Redwood Lane Pedestrian/Cycle Facility Evaluation Results

	Option C(U)	Option D(U)	Option E	Option F
Sum	3	6	7	2
Rank	3	2	1	4

Recommended Option

Based on an equal weighting of the criteria, option E is ranked the highest with Option D a close second. However, Option E provides better usability and safety than Option D.

As a result of the MCA findings and discussion with the stakeholder working group, **Option E is the preferred option.**

In summary Option E includes:

- An underpass across Redwood Lane
- An underpass on SH29 south of roundabout
- An underpass on SH29 north of the roundabout.

Following the stakeholder decision to adopt Option E, concerns have been raised on the value for money, providing two underpass structures across SH29, rather than 1 underpass as provided with Option D.

The additional cost of the extra underpass is in the order of $3.2M. This removes the need for pedestrians using the pathways on the approaching roads (Kaweroa and Redwood) to cross the local roads 'at grade' (both carrying reasonable daily traffic flows of circa[95] 10,000 to 32,000vpd) hence providing improved safety. The final decision on whether to retain option E as the preferred option can be considered further as part of the Pre-implementation design once final costs are better understood.

5.6.4 SH29 – Corridor Speed Management

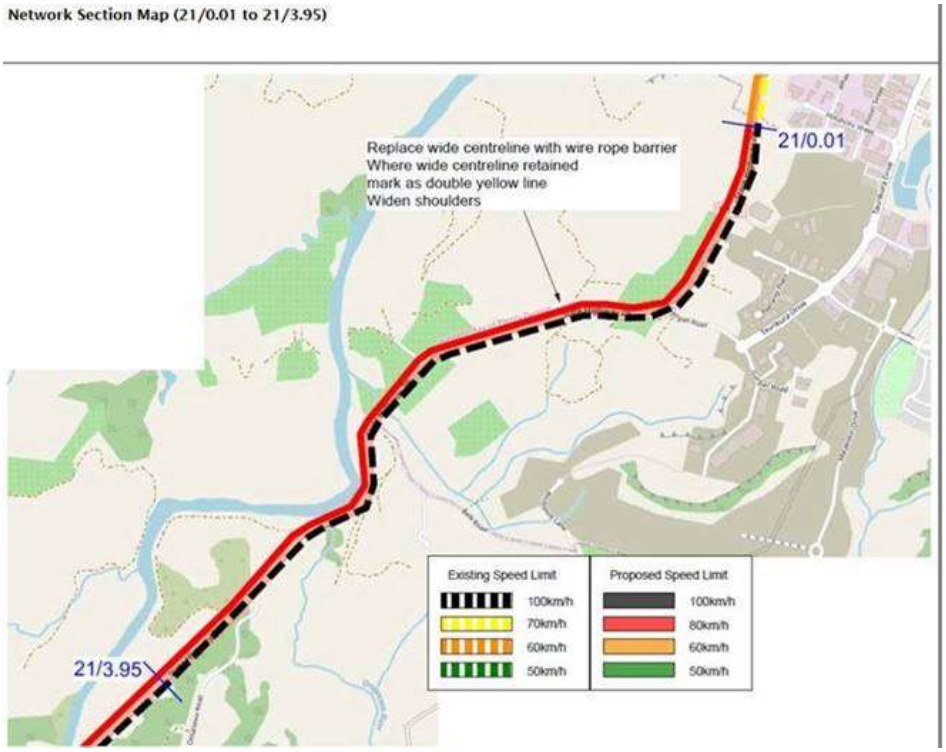
As part of an overall assessment on safety, a safe speed technical assessment was completed by Waka Kotahi on SH29. This review found that for the proposed of the long-term project, from Omanawa Road through to Barkes Corner, the proposed posted speed limit was recommended to be lower than currently exists. Specifically:

- From Omanawa Road to the existing 70km/h speed limit at Tauriko the speed limit is proposed to be reduced from 100m/h to 80km/h
- The 70km/h in Tauriko is proposed to be reduced from 70km/h to 60km/h
- The 100km/h from east of the Tauriko 70km/h zone is proposed to be reduced to 80km/h

[95] TTM5_12 Stage 4 model outputs – year 2063

This is also illustrated in Figure 5.6-12.

Note that these proposals have not yet been approved, and Waka Kotahi is currently seeking feedback from the public on the current speed limits to help inform the outcome. Albeit, with the recommended Enabling works option, and specifically the signalised intersection with raised safety platforms, the posted speed limit will have to be 60km/h or less to ensure the road corridor operates safely. The proposals have been shared with the public at open days held 12-16 May 2021, and the results of this consultation to be considered are provided in Appendix T.



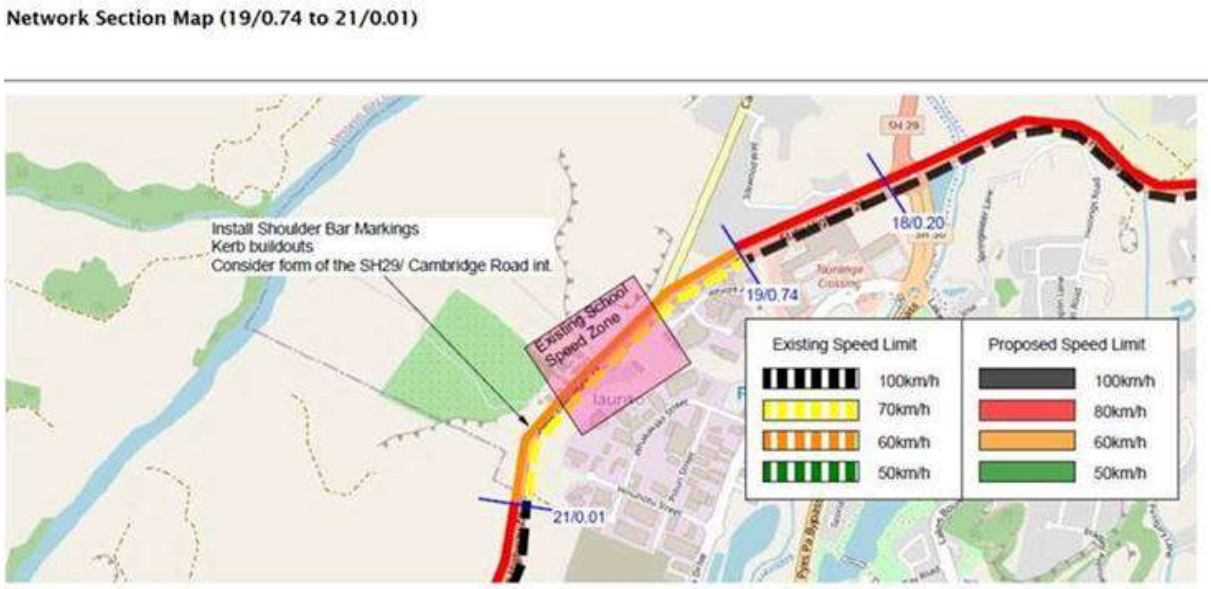


Figure 5.6-12: Proposed Speed Management

5.6.5 Whiore Avenue

Whiore Avenue connects from SH29 into Taurikura Drive and Tauranga Crossing (Figure 5.6-13). was identified as a core link from Tauriko West to Tauranga Crossing and public transport connections into the CBD. Whiore Avenue was identified as being the core link due

to the fact that dedicated public transport facilities on SH29 corridor were considered not feasible in this short term (ahead of the Long Term business case). Therefore, the Whiore Avenue link would need to provide a walking, cycling and PT component to address this linkage to help meet mode shift targets in the short term and to connect into improvements being undertaken at the intersection of Cambridge Road and SH 29 (section 5.6.2).

Figure 5.6-13: Whiore Ave Location

The process involved the development of options with the partner group, agreement of the assessment criteria, evaluation and determining the preferred option through a workshopping exercise. This is explained below.

Option identification

Seven walking and cycling options were proposed and agreed by the partner group, which included TCC, Waka Kotahi, BoPRC and the WSP project team. These are shown in Figure 5.6-14 to Figure 5.6-20. It was noted that the core concepts of walking and cycling were the key element of the options, and that public transport facilities, speed management, crossing facilities, access arrangements and the wider TDM measures (section 5.6.7) could be added to each of the options in some form or another in the next phase of design.

Key

Footpath

Shared Path

On Road 'protected' Cycle Lane

Bi-direction on road cycle lane

Option 1

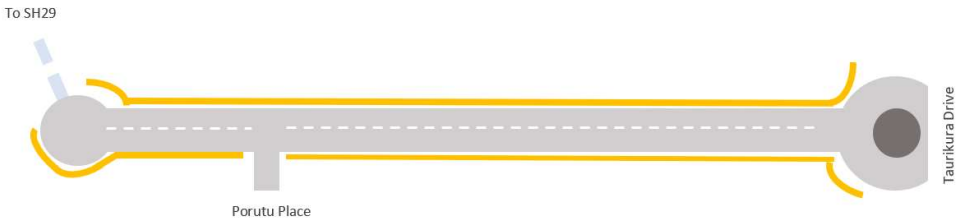


Figure 5.6-14: Whiore Ave – Walking and Cycling – Option 1

Option 2

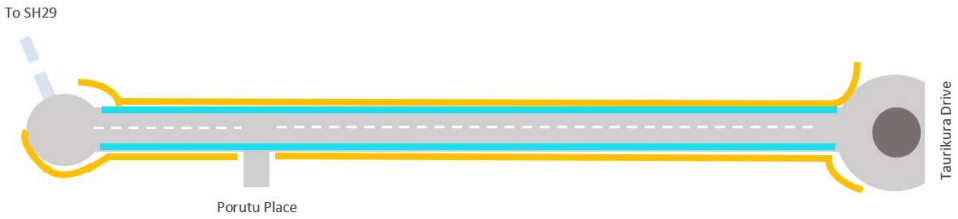


Figure 5.6-15: Whiore Ave – Walking and Cycling – Option 2

Option 3a

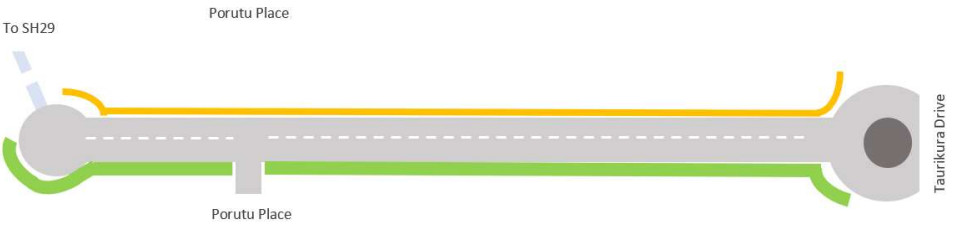


Figure 5.6-16: Whiore Ave – Walking and Cycling – Option 3a

Option 3b

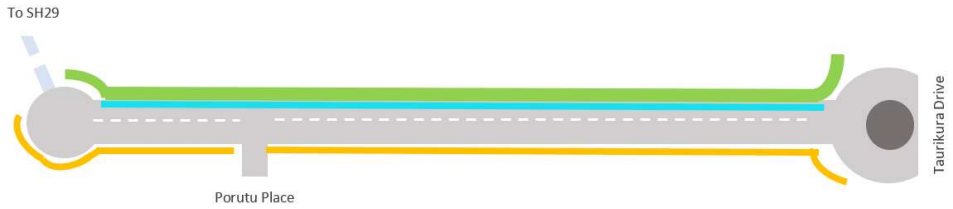


Figure 5.6-17: Whiore Ave – Walking and Cycling – Option 3b

Option 4

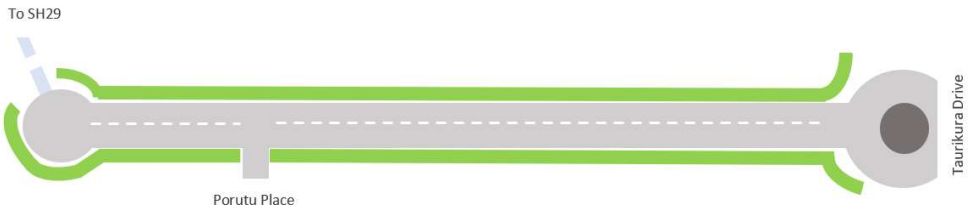


Figure 5.6-18: Whiore Ave – Walking and Cycling – Option 4

Option 5

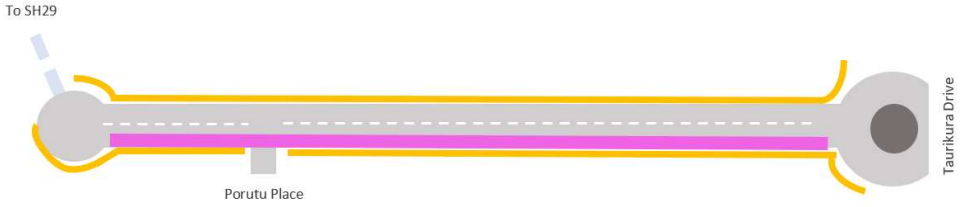


Figure 5.6-19: Whiore Ave – Walking and Cycling – Option 5

Option 6

Figure 5.6-20: Whiore Ave – Walking and Cycling – Option 6

Option Assessment

For the evaluation of the seven options, an MCA framework was developed to undertake the assessment using a number of different criteria which are described below:

- Investment Benefit – Increase mode shift
- Investment Benefit – Improve Safety
- Technical Implementability
- Alignment to Policy and Strategy/Integration with network
- Community/Residential – The Businesses
- Financial fundability/Value for money

Further details are provided in the MCA framework in Appendix I

The assessment was completed using a seven-point scale from -3 (Significant Negative) to +3 (Significant Positive) comparing against the 'do nothing' or existing arrangement, which is that no walking or cycling facilities currently exist.

The MCA for the option assessment is provided in Table 5.6-17 with full descriptions of findings provided in Appendix I.

Table 5.6-17: Whiore Ave – Option Evaluation Outcome

	Opt 1	Opt 2	Opt 3a	Opt 3b	Opt 4	Opt 5	Opt 6
Investment Benefit – increase Mode Shift	Slight Positive	Significant Positive	Moderate Positive	Significant Positive	Moderate Positive	Moderate Positive	Slight Positive
Investment Benefit – improve safety	Slight Positive	Moderate Positive	Moderate Positive	Moderate Positive	Moderate Positive	Neutral	Slight Positive
Technical Implementability	Neutral	Slight Negative	Neutral	Neutral	Neutral	Slight Negative	Neutral
Alignment to Policy and Strategy/integration	Slight Positive	Significant Positive	Slight Positive	Moderate Positive	Moderate Positive	Moderate Positive	Slight Positive
Community/Residential	Neutral	Significant Negative	Neutral	Moderate Negative	Slight Negative	Moderate Negative	Neutral
Financial Fundability/Value for Money	Neutral	Slight Negative	Neutral	Slight Negative	Neutral	Slight Negative	Neutral

The evaluation produced set of raw scores to help with determining the preferred option. In addition, some further sensitivity tests were undertaken to test each of the options with changes to weightings and rankings provided. The actual scores and rankings for each option are shown in Table 5.6-18.

Table 5.6-18: Whiore Ave – MCA Sensitivity Tests scores and ranking

		Opt 1	Opt 2	Opt 3a	Opt 3b	Opt 4	Opt 5	Opt 6
Equal Weighting	Score	3	3	5	4	5	0	3
	Rank	4	4	1	3	1	7	4
Equal Weighting with %	Score	0.50	0.50	0.83	0.67	0.83	0.00	0.50
	Rank	4	4	2	3	1	7	4
Equal Weighting with community removed	Score	0.60	1.20	1.00	1.20	1.20	0.40	0.60
	Rank	5	1	4	1	1	7	5

The key findings agreed by the partner group for this evaluation are shown in Table 5.6-19.

Table 5.6-19: Whiore Ave – Key MCA findings

Option	Key Points	Decision
Option 1	This option was considered the minimum that should be provided along the route but is better than the existing layout. Cyclists still have to share the road with traffic and may use a narrow footpath. Pedestrians will have a facility, albeit narrow that connects rather than walking on the berm. Public transport stops are provided. This is not as good as Options 2, 3a, 3b and 4. This option would not reduce DSIs as pedestrians already walk on the berm. It improves Level of Service (LoS) for walking but not for cycling as there are no changes to the cross section which would encourage cycling uptake. There would be an increase in volumes without protection from vehicles and therefore an increase in exposure to potential crashes. Overall a minimal impact, provides facility for staff to walk to work, no loss of street parking with some impact to berm parking. *Summary – This option scored ok but was considered a minimal effort for the long term and would need to be upgraded in the future.*	Discard
Option 2	This option separates modes and alongside the removal of parking would be more attractive to cyclists with protected facility and increase mode shift. Cyclists could still use the footpath but this is less likely. Better than Option 1 as it provides facilities for both modes. For pedestrians, similar to minimum requirements in Option1. With the likely removal of some of the parking, this could lead to unsafe parking on berms and across footpath. Access and vehicles crossing, especially downhill would increase likelihood of DSI and would require speed humps to slow vehicle turning and entry/exit speeds. Drivers will be looking in the same direction for cars and cyclists when exiting properties. Some concern with interaction of HCVS and cyclists in on-road facilities, but other road users expect to find cyclists in the direction they should be facing. Higher standard of road markings. Significant impact to the businesses with removal of parking *Summary: The biggest concern from stakeholders with Option 2 was consultation risk/business concerns with removing parking on both sides of the road. Without this risk, this would be the top-ranking option. However, stakeholders felt that this would be a big issue and it should not proceed.*	Discard
Option 3a	This option is more attractive to pedestrians and cyclists with a shared path down one side of the route and a footpath on the other. Better than Option 1 but not as good as Option 2 for cyclists and ped. Attractive for interested but not confident cyclists as they are away from HCVs. If shared path constructed right next to kerb and parking might be less attractive to users. On-road risk for cyclists is the same as existing layout. Some high-speed conflict risk on the shared path. Parking would largely remain except around accesses on shared path side, buses could have dedicated bays or in lane. If there is limited clearance from parked vehicles there could be a risk of car doors opening onto the cycle path. May have to remove street	Discard

Option	Key Points	Decision
	trees with shared path options. Loss of berm where cars are being parked currently. No loss of street parking. *Summary: Although this option scored well, the team felt that you would not take both Option 3a and 4 through and 4 provided better level of service for all modes.*	
Option 3b	Similar level of attractiveness for pedestrians to Option 3a. Cyclists have more protection on the high-speed downhill and would use this rather than pedestrians. More attractive for pedestrians and cyclists than Option 1 and 3a (as on the northern side) and better desire lines to the Tauranga crossing and PT links if going into crossing or CBD. Not as good as Option 2. Cyclists would have a protected lane on one side of the road and a shared path on other side. High speed cyclists may use the road facility rather than the shared path, reducing conflict with pedestrians. Pedestrians have same safety and LoS as Option 3a and better than Option 1 and 2. Parking is removed on one side, which may create unsafe parking due to demand. Buses could stop in a lane or bay on one side. May have to remove street trees with shared path options. *Summary: Although this option scored high, the team felt that there could be additional safety risk with an on-road cycle facility in this location and conflicts with HCV and commercial accesses. Option 4 was considered to have a better balance for all users of the environment without too much risk*	Discard
Option	**Key Points**	**Decision**
Option 4	This option is better/more attractive for pedestrians with a shared path on both sides of the road. Cyclists would have a facility to use but would have to interact with pedestrians, which could be manageable unless cyclist volumes grow significantly high. From a comfort point of view, on the northern side of road there are accesses and grade changes, which is not as attractive as Option 2 as modes are separated. Option 4 is better than Option 3a and 3b for all peds and cycles with two shared paths and a step change from Option 1. Some risk of cyclist conflict caused by high speeds downhill, so it would be better for pedestrians if cyclists were on the road in a protected facility such as Option 2 and 3b. Parking remains largely unaffected except at accessways. Some on-street parking may have to be modified to provide sufficient width, but this is expected to be minimal. Buses could be stopped in lane. Access and vehicles crossing especially downhill would increase likelihood of DSI, and would require speed humps to slow vehicles turning and entry/exit speeds. Some loss of parking on berm which currently exists and is being used. No loss of street parking. The detail of this would need to be determined in the next phase. *Summary: Not gold plated for separating all modes but provides good balance for all users and should be acceptable to businesses (least risk). This option in the future could also include speed management, crossing points and PT, which is consistent with rest of EW package.*	Keep
Option 5	This option would be similar to Option 3a in terms of its attractiveness for modes. Pedestrian facilities are minimal and limited to one side and less than Option 1. The bidirectional facilities are available and protected but would not provide a significant difference in terms of attractiveness and mode share than other options. Bidirection – There are positives for cycling when cycling volumes are low in the opposite direction, as you can ride side by side and overtake. Inclusive' for all types of bikes, separated from traffic and pedestrians. The negative is accessibility to destinations on the side of the road; however, this would be minimal as most would look to cross at intersections. The team felt this was a step change from Option 1 Dedicated cycle facility for both directions, however high speed between two directions. Not as good as Option 2. Pedestrians have only one narrow path and would have to walk on the berm on the other side. Although better than the existing, not as good as an of the other options. Parking would have to be removed off one side of road and could lead to unsafe parking due to demand. Buses could be either via a stop or an in-lane stop facility. Confusion for other road users as to which way cyclists are coming from. Concerns over access safety issues versus bidirection, truck, and cyclists etc. *Summary: Clear Outlier in terms of scoring. Negative for businesses with removal of parking and some other minor negatives*	Discard
Option 6	Minimal facility option but still improves connections and therefore attractiveness for walking and cycling with the introduction of a path. Which side of the road the path is on could be changed. Do minimal	Discard

Option	Key Points	Decision
	facilities on both sides of the road equate to one better facility on one side of the road? Cyclists would have to share the road or use a shared path with pedestrians on the southern side. Risk with speed differential for downhill versus uphill. Not as good as options which provide facilities on both sides of the road or protected on road. Pedestrians have one wider path but would be shared with cyclists and high downhill speeds may create risk. No change to parking and buses could be in lane or stops. May have to remove street trees with shared path options. *Summary: Minimal level of service, not considered an option as would expect better.*	

Preferred Option

As a result of the assessment and discussion, the evaluation team agreed that the preferred option for Whiore Ave will be:

- Option 4 – A 3m+ shared path on both sides of the road and the existing road cross section largely stays the same. i.e., there are no separated on-road cycle facility and parking remains largely unaffected

After the team agreement on Option 4, there was ongoing discussion about slightly modifying Option 4 (without changing the intent) to improve safety. This included:

- Option 4 (v2) – 3m+ shared path on southern side and increase the width of the shared path to around 4m (where possible) on the northern side to see if we can accommodate more room and more separation for pedestrians and cyclists. Noting: Early indications are that this is feasible, and trees and utilities would need to be relocated.

The evaluation team agreed to the modified option shown in Figure 5.6-21.

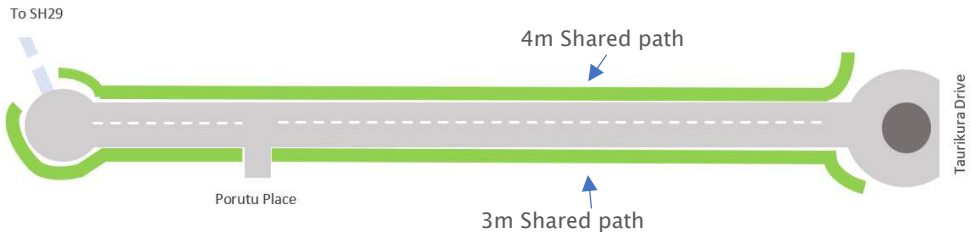


Figure 5.6-21: Whiore Ave – Preferred Walking and Cycling Option – Option 4

Further consideration/details on the following are still yet to be determined:

- Speed management
- Bus Stop locations and facilities – including Taurikura Drive
- Access treatments
- Any intersection treatment needed at Taurikura Drive to accommodate the option and across road facilities

All this work does not preclude any future modifications; however, Option 4 (v2) is the option that is preferred and will be costed and put into the Enabling Works given that the minor widening to 4m on the northern side will be achievable.

Future works could be to upgrade the facilities to include separated and protected cycle facilities as per the guidance in TCC street design guide when and if desired. The long term DBC will further assess future requirements to the local road network which will include the consideration of walking and cycling paths.

Next Steps

This concept is included in with the other Enabling Works Design with details to be determined. How this option fits within the option preferred elements of the Enabling works are provided in section 8. The expected costs for this option have also been included in the overall Enabling works estimate in section 9.

5.6.6 Public Transport Service Plan

The Enabling Works Objectives

The Tauriko Network Long Term PT network plan[96] has been developed alongside both the Enabling works and the Long-Term Works. The modelled services in Enabling works are 100% consistent with the work done for the TSP. They diverge in the Long Term as TSP did not provide services for growth areas in Kennedy, Belk, or Keenan Road areas.

The short and long-term investment objectives for public transport are described in Appendix B. As summarised in Table 5.6-20, to achieve the short-term objectives the following is needed:

Table 5.6-20: Public Transport Short Term objectives and requirements

Short Term Objectives and Targets	What is required
PT and active mode journey to work trips should be greater than 10% during peak periods by 2030	Achieving a mode share of 10% across active and public transport modes should be achievable in the short to medium term. The UFTI report identified a PT network that would deliver 8% mode share for the Western Corridor by 2048 using a similar level of service for public transport services and infrastructure in the Western Corridor. It is also reasonable to expect that at least a 5-6% active mode share can be achieved particularly given high level of internal trips, planned cycling infrastructure, and having schools and services within the walking/cycling catchments. Achieving the long-term mode share target of 15% (with stretch targets also being considered) will be more challenging and is likely to require policy changes outside of the business case that will encourage public transport and cycling use (e.g. travel demand management initiatives; Parking Strategy implementation across the city; review and implementation of a new public transport service operating model). • The Public Transport Infrastructure and Services business case will further assess the proportion and number of trips that are able to be delivered. This may identify the need for further priority measures or service enhancements
80% of population within 600m walk of a bus stop by 2030	PT network plan that provides services on all major arterials as well as a structure plan that supports short walk distances and bus stop placements in advantageous locations. The Structure plan, highway and any local road linkages need to: • accommodate beneficial placement of bus stops throughout the development. • ensure high levels of active mode permeability throughout the development.
250,000 PT trips per annum by 2030	Modelling results indicate that approximately 250 trips (i.e 125 in and 125 trips out) per weekday to and from Tauriko West would be made on the public bus network, providing 75,000 annual trips. This would result in 3% PT mode share which is three times higher than the rest of Tauranga. However the Enabling works support the overall Long term objectives which is targeting >10% mode shift. The number of trips to and from Tauranga Crossing amounts to approximately 1,300 per day or a total of 390,000 annual trips.

[96] Tauriko Network Plan – Long Term PT network plan (002) – 2021-02-14

Short Term Objectives and Targets	What is required
	In addition to this there will be a significant number of trips made on the school bus network particularly for intermediate and high school students where there is unlikely to be local provision until after 2030.
PT Peak travel time from Tauriko West to Tauranga Crossing is faster than driving by 2030.	Requires a high level of priority on key corridors. In the long term network plan each option provides this between Tauriko West, Tauranga Crossing, and Cameron Rd but there may be localised areas of the network where additional PT priority is required to maintain relativity in travel times. Maximum intersection delays for PT are identified in the Travel Demand Management plan however this needs to be explored further within the long term business case and/or modelling. If delays are deemed to be unacceptable then priority measures should be identified and implemented, particularly to identify whether any PT priority measures will be needed.

The long-term plan is provided for the wider Western Corridor and has been developed around a hub and spoke model with a combination of express services to the CBD and local services connecting at Tauranga Crossing (Figure 5.6-22). Tauranga Crossing makes for a natural hub given that most roads in the area converge to this point and the centre is the most significant attractor in the area. The network plan is consistent with the intent of the TSP, noting that the Public Transport Services and Infrastructure business case will assess the existing service model to confirm whether it should change (e.g. from hub-spoke to through-routing; a hybrid; other; remain as is).

In addition to urban services, school services will also need to be provisioned. The number of these will vary somewhat dependant on school locations. Under current BOPRC fare policy settings, these school services will make up a significant part of the bus transport demand in the Western Corridor.

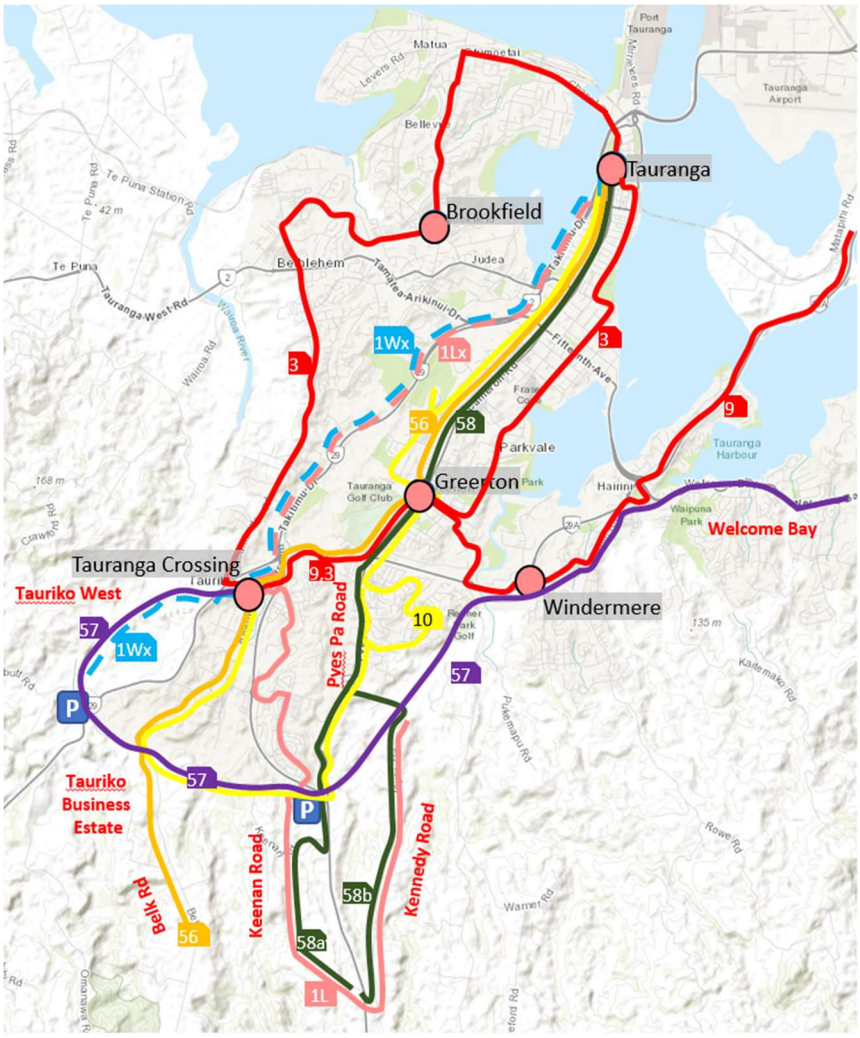


Figure 5.6-22: Western Corridor Public Transport Network Plan

In terms of staging the delivery of this plan, the service levels provided are based on a full build-out of the following growth areas:

- Keenan Rd (2,000 households)
- Tauriko West (3,000 households)
- Upper Belk (6,000 households)
- Tauriko Business Estate (255ha commercial/industrial)

It is expected that the services will be introduced in a staged approach as development occurs. There is also potential to utilise on-demand services in early development stages when there are only a limited number of houses and providing fixed route bus services would be prohibitively expensive.

In addition, and as per the evidence gathered as part of the long-term project, there is no identified need for bus priority lanes at intersections in the short term except for priority access into Whiore Avenue (section 5.6.5). Intersection delays (up until 2031) are expected to be below 1 min.

Bus Interchange

Due to the number of buses expected to operate through Tauriko and Greerton, new transport facilities will be required in the long term at both of these locations. The location of the Tauriko public transport facility is being investigated via the Long Term Tauriko DBC, and the PT infrastructure and services business case will be required to confirm other facilities.

Although the Enabling works DBC does not include an Bus interchange at Tauriko Crossing, the project is working towards integration within the overall long term project which will provide a bus interchange as part of delivering an integrated multi modal transport system. Given, this, the planned PT improvements of additional bus bays, plus shelters on Taurikura Drive (Westbound side) are expected to remain in place for the short to medium term and may be subject to relatively minor improvement (e.g. additional shelters). Further information on this is provided in the PT plan (Appendix J).

Park and Ride

Park and ride (PnR) facilities can enable public transport for users who are too far from a regular bus service, and reduce parking demand in the CBD and other high-demand areas where land use objectives are not supported or where the cost of providing parking is high (the latter being not applicable in Tauranga). PnRs also potentially reduce the vehicle kilometers travelled (vkt) going into the city centre, reducing queuing and carbon emissions.

As per an agreement with Bay of Plenty Regional, TCC and Waka Kotahi, neither the Enabling works DBC or Long Term DBC considers PnRs. Rather, any requirement for PnR in the western corridor will be considered through the PT infrastructure and services business case.

5.6.7 Travel Demand Management

A Travel Demand management (TDM) package[97] has been developed by TCC, BOPRC and Waka Kotahi for the Enabling works DBC. TDM provides an important opportunity to support and enable multimodal and quality urban development outcome to encourage mode shift in line with the investment objectives of this DBC. The Enabling works objectives are provided in section 4.5.

These are also included and as part of a larger set of measures required to help achieve the Tauriko Long Term objectives.

- The Enabling and Long term objectives are required to be consistent with delivering the long term targets.
- Long term planning for the Western Growth Corridor (incorporating Tauriko West) aims to achieve an active mode and PT mode share of greater than 10% and increasing to 15% by 2063. However, stretch targets for the long term are also being proposed. Refer to the Long term DBC.

The full list of objectives is provided in Appendix B. Stretch Targets as part of the Long term DBC are also being developed.

Previous activities identified by MRCagney for this project in an earlier phase were also assessed. Details of the purpose, investigation process and outcomes of TDM for the Enabling works is provided in Appendix K. The following information provides a summary of this report.

Table 5.6-21 provides a summary of the TDM measures recommended as a priority for the Enabling works with full information including how it fits into the enabling works, what measures are appropriate for the enabling works, and what linkages and requirements are needed for the long term Tauriko Network Connections measures and ownership provided in Appendix K.

[97] Tauriko West UGA: Enabling Works Travel Demand Management Package, March 2021 (TCC, WBOP, Waka Kotahi)

Table 5.6-21: Leadership and Design TDM measures for Enabling Works

Element	Code	Measure	Responsibility[98]
Facilitate Transit –Oriented Development (TOD) along the Western corridor	2.1	Put Active and Public Transport at the centre of land use planning and development for Tauriko West	TCC/BOPRC
	2.2	Prioritise peds and cyclists over vehicular access routes (TCC street design – TW UGA) (Whiore Ave)	TCC/Developer
	2.3	Facilitate self-containment by locating retail and essential service activities (Medical for example) within local neighbourhood or at key interchange points	TCC
	2.4	Ensure provision of childcare centres/schools within local catchment	TCC/MoE
	2.5	Consolidate and encourage more efficient use of parking supply around local neighbourhood centre at Tauranga Crossing and Business Estate)	TCC
Strong PT/AT Connectivity and accessibility to the Tauranga Crossing shopping Centre (L1)	2.6	As per 2.1	TCC/Developer
	2.7	Key Pedestrian and Cycle Routes	TCC/Developer
Adopt Complete Street Design Principles	2.9	Smaller lanes/walkways to improve ped connectivity between neighbourhoods	TCC/Developer
	2.10	Land either side of central boulevard purposed for cycle lanes, shared pathways and associated tree planting and lighting to ensure high amenity for peds and cyclist to encourage active urban realm	TCC/Developer

Table 5.6-22: Modal TDM Measures for Enabling Works

Element	Code	Measure	Responsibility[98]
Cycling Initiatives	3.1	Install Counters at strategic sites	TCC
	3.2	Incorporate Parklets at Tauriko Village local centre	TCC/Developer
	3.3	Install free bike repair stands in neighbourhood	TCC
	3.4	Provide secure bike parking/storage – plan change requirement	TCC
Wayfinding Initiatives	3.8	Adopt Wayfinding design Principles	TCC/Developer
Support PT Initiatives	3.15	Enhance PT Legibility and branding (M3)	TCC/BoPRC
	3.16	Integrate with active travel	TCC
	3.17	Integrate ride-sharing and private vehicles with PT	TCC
	3.18	Provide Real-Time passenger info (M4)	TCC
	3.22	Expand PT options via technology (App promotion)	TCC/BoPRC
Facilitate take up of share services	3.24	Considered through TBC initiatives – Car share	TCC

Table 5.6-23: Private Vehicle Dependency TDM Measures for Enabling Works

Element	Code	Measure	Responsibility[98]

[98] Responsibility to implement. Does not refer to funding responsibility. There are 5 different roles, and these are described in more detail in Appendix K

Demand Management Measures To address private vehicle dependency	4.2	Review Parking Pricing (DM1 and DM3)	TCC

Table 5.6-24: Travel Planning and Programmes

Element	Code	Measure	Responsibility[98]
Introduce School TBC	7.1	School Travel Plan	TCC/MoE
	7.2	Walking to School	TCC/MoE
Encourage Cycling to School	7.3	Cycle Programmes	MoE/TCC
	7.4	Cycle Parking	TCC/MoE
Encourage School Bus use	7.5	School Travel plans	TCC/MoE
	7.6	Reduced Bus fare for students	BoPRC
	7.7	Car Parking Restrictions near schools	TCC/MoE

Table 5.6-25: Residential TBC Measures

Element	Code	Measure	Responsibility[98]
Residential TBC Programme	8.1	Residential TBC programme (information, packs etc)	Developer/TCC
		Website Development with transport information	Developer/TCC
		New Residents Welcome pack	Developer/TCC
		Marketing Strategies	Developer/TCC

Table 5.6-26: Workplace TBC – TDM Measures for Enabling Works

Element	Code	Measure	Responsibility[98]
Monitoring effectiveness of travel demand package	9.1	Yearly travel survey with businesses, residents, and schools	TCC
		Cycle and pedestrian counters at strategic locations Refer to section 3.1	TCC/Developer
		Vehicular traffic counters at strategic locations	TCC/TTOC

5.7 Kaweroa Drive (Ring Road) and SH36

5.7.1 Kaweroa Drive (Ring Road)

As part of the PBC, "Tauriko Western Corridor DBC partners [worked] with the developer of [TBE] in planning for and enabling the futureproofing of a ring road corridor" [99] and recommended the east west link option though TBE, across Kopurererua Stream to SH 36. TBE largely determined the alignment as a private landowner/developer. The Tauriko West Network Eastern Ring Road report is provided in Appendix A.

[99] NZ Transport Agency Point of Entry form for early works– Refer Appendix U

The aim of the ring road is to support access to the TBE and was to reduce pressure at Barkes Corner and Takitimu Drive. It had three main sections which are shown in Figure 5.7-1):

- Linking SH36 through TBE to SH29 (sections a and b),
- Along SH36 to the SH36/Pyes Pā intersections
- From the SH36/Pyes Pā Road intersection cross country to Oropi Road (section c).

TBE agreed to acquire a long-term futureproofed road corridor and has worked together with TCC to construct and provide sufficient road width in section 'a1' by 2021 and section 'a2' by 2023 to act as a future ring road (Kaweroa Drive). Part 'b' is part of a separate SH36 to Pyes Pā Business Case yet to be undertaken. Further work was completed on section 'a1' of the ring road and TCC held discussions with TBE. This included defining the road form and function and agreeing design criteria.

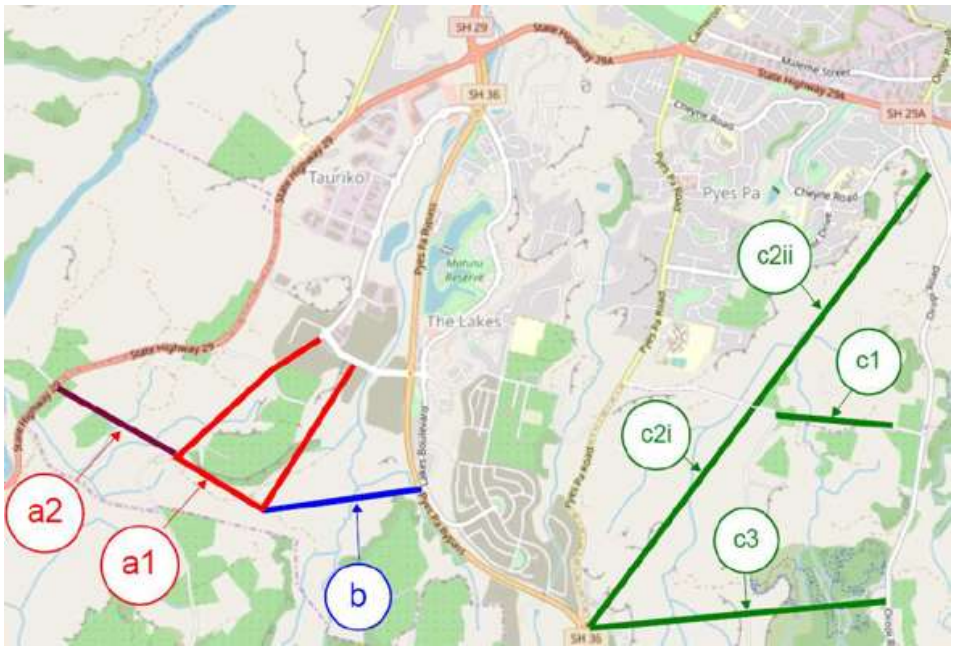


Figure 5.7-1: Ring Road Section – Staging plan (Source – Point of Entry[100] Form)

TBE only requires a 2-lane local road. However, aligned to the Western Corridor PBC, TCC as part of the strategic network identified the ring road as an arterial route and that a wider road reserve would be needed to enable an additional lane for priority bus/HOV/freight travel and cater for safer off-road cycling and pedestrian facilities in the future.

TCC is seeking investment in widening the route for section 'a2' within this DBC. Noting that the first 100m of part 'a2' is to be covered under the UGA Enabling works project as a 'tie-in' component.

The Adopted Cross Section for the Kaweroa Drive (Ring Road) ('Road 15, both East (E) and West (W) are included in the Subdivision Agreement on page 26 (Appendix L)

The ultimate cross sections have been developed based on Tauranga's Infrastructure Development Code (IDC) and include off-road walking and cycling facilities on both sides to accommodate the mode-shift anticipated through the business case. The ultimate cross section is shown in Figure 5.7-2Figure 5.6-4 and further detail provided in Appendix A. It is noted that two of the four lanes could in future be allocated to some form of HOV when the need arises.

[100] Appendix U

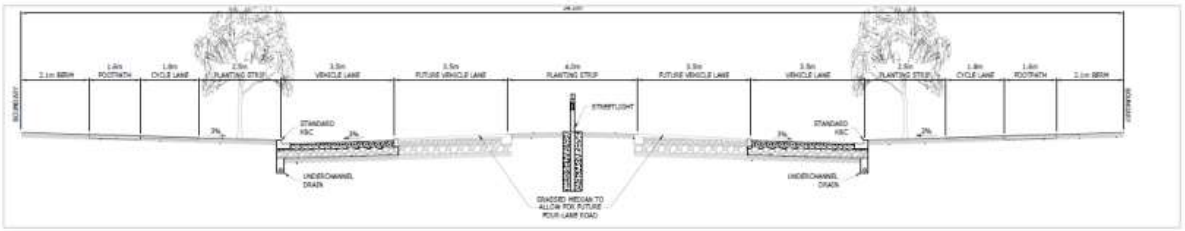


Figure 5.7-2: Ultimate Design cross section for Kaweroa Drive (Ring Road0

In order to secure the corridor, TCC and TBE agreed a fixed square metre price for the 'over-width'.

Section 'b' is now part of a separate SH36 to Pyes pā Business Case yet to be undertaken by TCC (Section 5.7.2).

5.7.2 SH36 – Pyes Pā to Oropi Road

This investigation of this link (shown as section 'c' in Figure 5.7-1) is not included in either the Enabling works or the Long Term DBC. A separate business case process is being planned and timeframes for completion are to be determined.

6 Stakeholder Engagement

A summary of the engagement undertaken for the Enabling Works DBC is provided in the following sub-sections. A summary of the engagement approach is provided in section 3.

Engagement used a combined approach and has covered the changes to the RPS and local government boundary, the structure planning for Tauriko West, and the long- and short-term transport improvements. The engagement outcomes described here reflect this approach.

6.1 SmartGrowth Partners

SmartGrowth partners (TCC, BOPRC, WBOPDC, and Waka Kotahi) have all been closely involved with the management of the Tauriko for Tomorrow project and the development of the Enabling Works DBC. Representatives of all partners participated in the various MCA workshops for the long- and short-term transport improvements

At an operational level, the project team has included representatives from TCC, Waka Kotahi and BOPRC working alongside WSP as lead consultant, and it has been involved in all aspects of the project. Strategic governance has also been provided by the Tauriko Governance Group, consisting of senior managers from the SmartGrowth partners. Key strategic decisions have been considered by this group, to provide direction to the project team where required.

6.2 Tangata Whenua – Te Kauae a Roopu

In 2017, a specific tangata whenua partnership group was formed, known as Te Kauae a Roopu. The purpose of the partnership is to provide a framework to work collaboratively as equal partners for the Tauriko for Tomorrow projects.

Te Kauae a Roopu is made up of hapū who whakapapa to Ngāti Ranginui and Ngāi Te Rangi iwi of Tauranga Moana, and who have an interest in the Tauriko area. This includes Ngāti Kahu, Ngāti Rangi, Ngāti Pango, Pirirakau, Ngāti Hangarau, and Ngāi Tamarawaho. The partnership also includes representatives of Waka Kotahi, TCC, WBOPDC and BOPRC working on the project, along with (more recently) Ministry of Education (MoE).

Engagement, including regular hui and other project wananga (workshops), has been undertaken since 2017 and will continue as the project moves from business case to implementation. Matters discussed include the changes to the RPS, the changes to the local government boundary, the structure planning and plan changes for Tauriko West, and the short- and long-term improvements to the transport network.

The regular hui provided opportunity for the presentation of technical assessments and heritage and cultural reports commissioned for the structure planning of Tauriko West, as well as providing a forum to discuss strategic issues such as the city-wide transport network, climate change, wastewater disposal, and abstraction for municipal water supply. This included consideration of the long-term upgrade options for SH29/SH29A, the Tauriko West enabling works, and Spine Road alignment.

Te Kauae a Roopu have been involved in the option evaluation and assessment process. They have expressed in-principle support for the short- and long-term transport upgrades, in particular those that will increase safety in recognition of the impact safety issues have on the local community. They have also expressed support for the development of additional housing in the Western Corridor, to help address housing supply and affordability issues. Te Kauae a Roopu highlighted the need for connectivity with the Wairoa River and sites of cultural significance, as well as walkable neighbourhoods and accessibility to social infrastructure, open space, commercial and business areas. The Spine Road (as part of the medium-term implementation) is recognised as fulfilling a key role in this regard.

In 2021, a Cultural Values Assessment (CVA) was prepared on behalf of Te Kauae a Roopu – "Nga Hapu of Te Kauae a Roopu Cultural Values Assessment 2021". The CVA sets out a conceptual framework developed in accordance with tikanga and key cultural values, which will be applied to the planning, design, and construction of the projects. The CVA is described in more detail under Section 8.3.2 of this DBC.

6.3 Tauriko West Developers

In 2017, the Tauriko West Developers Forum was set up by TCC to provide for proactive involvement of the three major landowners in the structure planning with all supporting technical investigations and specialist assessments. This forum has continued to meet regularly with TCC, generally on a fortnightly basis. Representatives from Waka Kotahi and MoE have also attended from time to time to present to the forum.

There are three large landholdings represented in this forum, which comprise the majority of the land within the growth area. They are:

- Tauriko Property Group Limited (a partial subsidiary of Classic Group Limited)
- Tauriko West Limited (a company within the broader Element IMF development group)
- Ferncliffe Farm, which was purchased by Kāinga Ora – Homes and Communities in November 2021 (previously owned by the Hopping family).

The developers support the vision for Tauriko West (refer to Section 2 of this DBC) and recognise the key components required to achieve it, including establishment of the Spine Road and integration of transport planning within the structure plan. The developer input to the vision and structure planning process is critical, as they are the delivery partners for the new community. Without their involvement, it would be difficult to achieve the vision and to address matters of climate change, resilience, walkable communities and mode shift, emissions reduction, and housing for the city.

TCC and the landowners have jointly agreed on the technical studies required to support the structure planning and determined how best to prepare the scope of works and to share the costs accordingly. Although the Spine Road is not included within the Short-Term Enabling Works. this has included work required for the Spine Road design elements, and consideration of TCC's Street Design Tool and IDC requirements, and the TCC Design Philosophy Statement on stormwater management, as well as the requirements for buses, pedestrian crossings/refuges, right turn lanes and intersections with local roads.

Other matters raised and traversed in this forum include the outcomes of traffic modelling supporting the enabling works, and how this identifies the need for a cap of 2000 dwellings – until such time as the long-term upgrade for SH29/SH29A is implemented. More recently, the Kainga Ora purchase of Ferncliffe Farm has led to further discussion on the best way to serve the development of this block, to enhance the opportunity for walking, cycling, scooters, public transport, and modal shift for future communities.

6.4 Redwood Lane Residents

In addition to the three major landowners within Tauriko West (see above), there is a small cluster of existing rural zoned properties accessed from Redwood Lane. These properties are all located within the Tauriko West growth area and are proposed to be rezoned for residential development under the Tauranga City Plan. TCC has therefore led engagement with this group, with support from Waka Kotahi where relevant.

Phone discussions and one-to-one meetings with residents were held in early 2021 to update them on progress with the structure planning (including planning for water and wastewater connections) and to get a feel for their aspirations for their properties following rezoning. Residents were also presented with the proposed option for the enabling works, which would replace the existing Redwood Lane / SH29 intersection with a new roundabout,

which also connected into TBE via Kaweroa Drive. Some of the existing Redwood Lane properties were also directly affected by the enabling works.

Following the engagement in early 2021, a request for further discussion on roading and urban growth matters came from some of the existing residents in Redwood Lane. This group raised concerns about a number of matters, including:

- The long-term options for the SH29/SH29A upgrade options
- An alternative southern bypass option
- The proposed roundabout location at the Redwood Lane / SH29 intersection
- The alignment of Redwood Lane between the roundabout and the Spine Road.

Further engagement with this group involved a combined TCC and Waka Kotahi meeting with residents on 7 July 2021, and a further meeting on 13 October 2021.

The residents expressed their preference for an alternative southern bypass alignment for the long-term options. The southern bypass option has been investigated and assessed several times through different business cases. The most recent assessment of the southern bypass alignment via the Long Term DBC shows that although this option scored well, the cost was the highest overall of all the short list options and therefore the costs are not offset by any additional outcomes or performance benefits. As such TCC and Waka Kotahi are not recommending the southern bypass option as a solution for the long term (refer to the Long Term DBC for full details).

Other outcomes from these meetings included general support for the recommended option for the Redwood Lane realignment and linkage to the Spine Road, although these are not part of the Enabling works package. There is also a commitment to maintain ongoing consultation regarding the structure planning and associated transport matters.

6.5 Directly Affected Landowners

Properties that would be directly affected by the Enabling Works were identified by WSP in early 2021, based on the concept designs of the proposed option for the northern and southern connections. Properties were considered directly affected where land acquisition may be required because of the proposed improvements, or where the existing access to a property was affected – for example, right-turning movements into and out of a property being restricted by a central median barrier.

The owners (and occupiers where applicable) of these properties were contacted by letter and/or email, with a follow up phone call inviting them to a one-on-one meeting with the project team to discuss the various potential effects of the Enabling Works might have on their property. Almost all landowners took up the opportunity to meet (mostly on site at their property) with the team, which included representatives from TCC, Waka Kotahi and WSP (planning and property specialists).

These meetings involved sharing the plans for the proposed short term transport improvements, including intersection layouts and road widening, and discussing the various potential effects on properties. Landowners were also briefed on the shortlisted options for the long-term transport improvements, as in many cases these were also likely to impact their property in some way. The process for land acquisition and compensation under the Public Works Act was also discussed, along with project implementation timeframes.

While owners were broadly supportive of works that would improve safety and better manage congestion, a number of owners were concerned about the restriction of turning movements in and out of their property – particularly where this might have an impact on their business. Some owners also raised concerns around allowing for the development of housing at Tauriko West to commence before the long-term transport improvements, given the current traffic congestion issues they experience on the network.

Landowners were encouraged to keep in touch with the project team, who emphasised that the meeting was a first step of the engagement process as the DBC is finalised and the projects move to implementation. Waka Kotahi and TCC wrote to these owners in August and November 2021 to provide an update on the community engagement and progress on the business cases for the short- and long-term transport improvements. Ongoing engagement with landowners will be required as the project moves to implementation.

Since this engagement occurred, further refinement of the design for the Enabling Works has meant that some additional direct property impacts have been identified, which those landowners are not yet aware of. Any further changes to the location or design of the northern connection (relating to the purchase of Ferncliffe Farm by Kāinga Ora) will also need to be assessed for changes in property and access impacts. However, it is noted that any proposed changes to the northern access are being investigated, evaluated and consulted on as part of the early phase of the pre-implementation design phase.

6.6 Ministry of Education and Tauriko School

Tauriko School is located on the western side of SH29 between Cambridge Road and the proposed new access into Tauriko West. The existing access and parking of the school would be affected by road widening and intersection improvements as part of the Northern Connection. Tauriko School is also significantly affected by some of the options for the long-term upgrade of SH29.

In addition to the potential impacts on the existing school by the short- and long-term transport projects, the current school site and buildings are not suitable for the future needs of the school in light of the significant population growth planned for within the school catchment. The school and the MoE, supported by TCC, are therefore in the process of investigating alternative sites for Tauriko School within Tauriko West itself. MoE is also investigating the establishment of a secondary school within Tauriko West.

TCC and Waka Kotahi representatives have engaged a number of times with the school Principal and Board, as well as with MoE, to work through plans for the short- and long-term transport improvements. These include timing and staging of the Enabling works, possible interim access and car-parking solutions, and selection of new sites for schooling. As noted above, MoE representatives have also been attending hui with Te Kauae a Roopu to discuss the selection of new school sites and establishment of new schools.

6.7 Whiore Avenue Landowners and Businesses

Whiore Avenue landowners and businesses (many of the properties along Whiore Avenue are occupied by businesses who lease the premises and do not own the site) were assessed as being affected by proposed changes to Whiore Avenue to provide for improved public transport and walking and cycling between Tauriko West and the commercial and retail area.

It is proposed that all these changes take place within the road corridor, and the changes are not expected to significantly effect on-street car parking, or current movements into and out of businesses. However, a small number of on-street car parks may be lost to accommodate new bus stops, as well as a loss of berm space to accommodate new shared walking and cycling paths, and minor adjustments to vehicle entranceways.

Prior to the Community Open Days (see Section 6.10), a letter drop was distributed to Whiore Ave businesses to ensure they were aware of the proposals and invite them to the Open Days. Further letters were sent to landowners and businesses in August and November 2021, to provide an update on the community engagement and progress on the business cases for the short- and long-term transport improvements. To date, limited feedback has been received from this group.

6.8 Kaweroa Drive (Ring Road)

For the Kaweroa Drive (Ring Road), engagement has primarily been undertaken with TBE. The engagement started in 2005 when a connection between SH29 and TBE was investigated. Access from SH29 was confirmed in a 2007 legal agreement between Transit (now Waka Kotahi), TCC and TBE. The design and the cross sections have been prepared in cooperation with the landowner. Refer to Section 5.7.1.

6.9 Other Stakeholders

As noted in Table 3.2-1 earlier in this DBC, there are several other stakeholders, including regulatory bodies, emergency services, community organisations, industry bodies, and advocacy groups who have an interest in the project. Engagement with these stakeholders on both the Long Term DBC and the Enabling Works DBC has been led by Waka Kotahi. Generally, stakeholders have been kept informed through regular email updates at key project milestones, with any feedback recorded and shared with the team.

6.10 Community Open Days

Community open days were held in May 2021 to present information to the community and obtain feedback on the proposals. The open days were supported by print, social media, and online campaigns to raise awareness. The open days were attended by representatives from Waka Kotahi, TCC, and WSP to help attendees understand the information presented and to answer questions and record feedback. The open days covered:

- growth and transport within the western corridor and across the city,
- the proposed option for the enabling works,
- proposed improvements to public transport services and walking and cycling,
- the short list of options for the long-term transport improvements, and
- progress on the structure planning for Tauriko West.

People were able to provide feedback verbally to staff or place post-it comments on the maps at the open days, submit written or online feedback forms, or follow up with staff by email or phone. Across five days at Tauranga Crossing, 1,044 people visited the open days. By the end of the four-week feedback period, there had been 11,500 views of the Tauriko for Tomorrow website (with an average time of 2.3 minutes spent on the site), and over 200 pieces of feedback received.

The feedback received generally shows that the community feels that the plans to improve the transport network and for the new community at Tauriko West are on the right track. Community feedback also highlighted the importance of continuing with a coordinated and integrated approach to planning for a safer community and growth in Tauriko West and Tauranga's Western Corridor.

The majority of those who provided feedback specific to the proposed enabling works were supportive overall, with many requests to implement the works as soon as possible. However, there was some concern that the enabling works are not enough to get through the next 10 years of traffic growth before implementation of the long-term transport upgrades. Many people noted that the transport infrastructure needs to be put in place prior to the first houses being built within the Tauriko West urban growth area.

There was overall support for the development of housing at Tauriko West, with feedback focused on the provision of a range of housing choice, styles and densities, the need for a new community hub, community facilities, schools. Respondents also emphasised their views that the supporting transport network needs to be upgraded well in advance of the first houses in the new Tauriko West community.

A significant amount of feedback was received regarding the speed limit along SH29, with the majority requesting to a reduction in the current limit. This feedback will be factored into Waka Kotahi's corridor speed management (as described under 5.6.4 of this DBC).

Refer to Appendix T for a summary of the Tauriko for Tomorrow community engagement feedback prepared by Waka Kotahi and TCC, published in November 2021.

7 Summary and Next Steps

Based on the information provided in the evidence section and option development section a combined preferred option for the Enabling works has been developed and consulted on with stakeholder, landowners, and the community. An illustration of that combined option is provided in Figure 6.10-1 and more detail including key features, constraints and dependencies and risks and opportunities has been provided in section 8. Concept design drawings are included in Appendix M. This is a short term package of works which is the first step in supporting medium and long term stages to develop an integrated system. How this short term works fits within the longer term plan is provided in Figure 6.10-1.

In summary, the preferred short term Enabling works option provides a wide range of measures and includes:

- Walking, cycling and public transport infrastructure improvements
- Highway intersection and midblock upgrades including:
  - A roundabout at Redwood Lane/Kaweroa Drive
  - New signalised intersection at Tauriko West to provide access in to the new UGA (with potential to move this further north subject to property constraints)
  - Intersection upgrade to traffic signals at Cambridge Road with access to Whiore Avenue for Public Transport, Walking and Cycling modes
  - Upgrade corridor between Tauriko West and Cambridge Road with walking and cycling facilities
  - Grade separated walking facility in the vicinity of Redwood Lane and Kaweroa Drive
- Speed Management along the corridor (Between Redwood Lane and Takitimu)
- Local Road improvements at Whiore Ave for walking, cycling and Public Transport
- Travel Demand Management measures.

The key benefits and outcomes of the recommended option are provided in section 11.

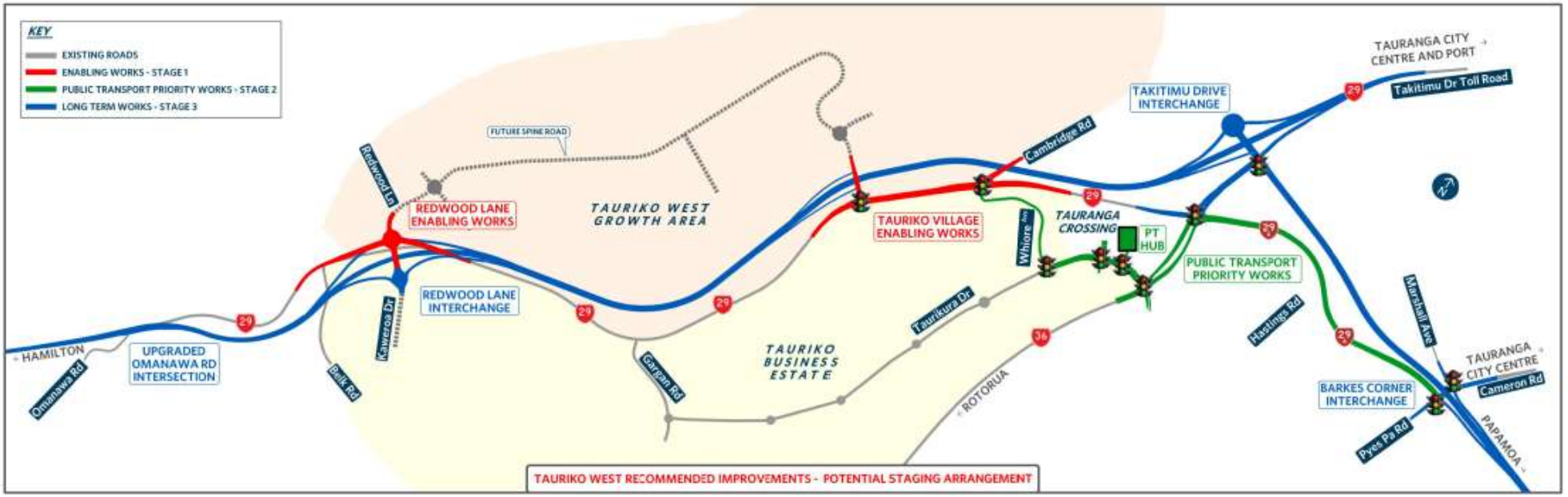


Figure 6.10-1: Tauriko UGA Enabling Works Preferred Option-as provided to the community open days showing wider context

The Recommended Option

8 Description of the Recommended Option

8.1 Description and Key Features

The preferred options within each of the components making up the Enabling works combined option is provided in Table 8.1-1. An illustration of this is provided in Figure 6.10-1. Refer to section 8 for details on the scope and organisation leads, and Appendix M for drawings.

Table 8.1-1: Description of Enabling Works Preferred Option – Infrastructure and measures

Element	Description
State Highway Improvements (including services)	• Cambridge Road upgrade to Traffic Signals with raised safety platform with PT priority in to Whiore Ave • At grade walking and cycling connections between Tauriko West and Cambridge Road and across SH29 to Whiore Ave • New Traffic Signals Intersection with raised safety platform at Tauriko West south of Caltex Service Station. Includes the new access road (with service connections at end points) to connect to the first intersection (and provide access to Ferncliffe Farm) on the Structure plan/proposed primary school location (Figure 2.4-2) • This is part of the main construction work but will be funded separately by TCC and CIP. • Convert Tee Junction at Redwood Road to Roundabout with new Kaweroa Drive Connection. Tie in points (see below in Local Roads description) • Grade Separated walking and cycling facilities under SH29 in the vicinity of Kaweroa Road and Redwood Lane. • Speed Management: – Omanawa Road to the new 60km/h section at Tauriko West will be 80km/h (TBD101) – Tauriko West to east of Cambridge Rd 60 km/h (TBD)
Local Road Improvements (including services)	• Whiore Avenue – Shared path on both sides of the road to accommodate walking and cycling. Public transport facilities include in-lane bus stop and speed management. Linkages to facilities on Taurikura Drive and Tauranga Crossing (being developed as part of the long-term project).
Tauriko West UGA	• Delivery of intersections with SH29 at the northern (Tauriko West) and southern connections for future connection to the Spine Road • Water and wastewater services delivered to the boundary of the growth area via road corridors, including: – Water to the northern connection from Cambridge Road, and from TBE area via Gargan Road and SH29 – Water to the southern connection from TBE via Kaweroa Drive and Redwood Lane – Wastewater to the northern connection from TBE via Whiore Ave and SH29 – Wastewater to the southern connection from TBE via Kaweroa Drive and Redwood Lane.
PT Improvements	• Planned cycling infrastructure, and having schools and services within the walking/cycling catchments • PT on-street facilities included on Whiore Ave and by Pak n Save
Travel Demand Management (Refer to the detail in section 5.6.7	• Range of Measures including: – Leadership and Design TDM measures – Modal TDM Measures – Private Vehicle Dependency TDM Measures

101 Note – the intention is a lowering of posted speed, however the preferred speed has not been determined yet as public consultation is underway.

Element	Description
	– Outreach – Changing Travel Behaviour TDM Measures – Workplace TBC – TDM Measures – Primary School TBC Programme TDM measures – New Residents TBC Programme TDM measures – Other additional measures for Monitoring • Note a complete list of these measures for both the Enabling works and long term project is included in Appendix K.

8.2 Optional Project Elements

The following are opportunities that could be pursued (separately or as part of the pre-implementation phase) to provide improved outcomes:

- Alternative Tauriko West access location to the north of the Tauriko School. This would reduce the need to purchase the Caltex Service Station early in the timeline and allow construction of this access earlier than would otherwise be possible.
- Potential value engineering to reduce costs of implementing the Enabling Works
- Enabling connection to cycle trails from newly-constructed Redwood Lane grade separated pedestrian/cycle trails in the vicinity of the intersection.

8.3 Wider Project Impacts

Wider project impacts have been considered throughout the development of each of the components of this Enabling works business case and through the work undertaken as part of the Tauriko Transport Long Term DBC process. This has been specifically through the use of constraint identification, analysis, mapping, and MCA processes – the latter of which involved a number of specialists identifying and discussing impacts and opportunities on a number of options.

8.3.1 Environment and Social

An environment and social responsibility screen has also been prepared and is included in Appendix N. This identifies potential opportunities and also any impacts or risks. A summary of the key potential environment and social risks in provided in 8.3.1, 8.3.2 and 8.3.3.

There are some potential unknowns in terms of archaeology, stormwater, and environment impacts. Further assessments are required in the next phase.

The preferred option will undergo a full assessment of environmental effects (AEE) required under the RMA in the pre-implementation phase.

8.3.2 Impact on Cultural Values

The CVA prepared on behalf of Te Kauae a Roopu sets out a conceptual framework developed in accordance with tikanga based on seven key cultural values. The CVA also outlines requirements for cultural amenity treatments to be assessed through the planning, design, and construction of the projects. Specifically, the treatments apply to:

- The short and long term transport improvements – Waka Kotahi
- The relocation of Tauriko School and establishment of a new secondary school – Ministry of Education
- The structure planning, change to the Tauranga City Plan, and Three Waters infrastructure (including a comprehensive stormwater consent) – TCC
- The design of subdivision layouts, and delivery of infrastructure (including the Spine road) and housing – Developers.

These matters are regularly traversed in the Te Kauae a Roopu hui held every 6 – 8 weeks. While each matter is set out individually in the CVA, it is recognised that they need to be addressed holistically and in an integrated manner through the implementation of the projects. Some examples of key aspects recognised, discussed, and currently being considered are set out in Table 8.3-1 below – noting many will not be implemented until future development actually commences, and that they have not been 'locked in' or fully agreed i.e. still subject of ongoing hui/discussions:

Table 8.3-1: Cultural Values and Cultural Amenity Treatments (Source – CVA)

Cultural Value	Topics Discussed / Ongoing Discussions
Kotahitanga: Social and community connectivity and cohesion	Walkable community, neighbourhood reserves within 400m, river margin walkway/cycleway and open space with cultural recognition, social infrastructure provision, schools, playcentre, and sports fields
Wairuatanga: Mauri embedded emotional and receptive connection to space, place, and people	Wairoa River margin to capture elements of cultural recognition, sight lines, and opportunities for cultural narratives. At the confluence of Wairoa River and Ruangarara there is opportunity to enhance cultural recognition of history, ancestral links, taniwha (Poripori and Te Pura), iwi and hapu links, and there is a high point to be retained above what is recognised as the former Ruangarara Camp (1867), and near to sites recognised as Captain Tovey's house site and a shell midden, and terraced kainga (also to be retained). Other measures to be adopted in recognition of Mauri and Wairuatanga in liaison with Te Kauae a Roopu when development commences (sculptures, pou, cultural design, information boards and QR Codes).
Manaakitanga: Social care and responsibility	Linkage opportunities to open spaces, reserves, and enhanced wetlands/stream corridors for the community for aesthetics and cultural use. Walkways, cycleways and public transport provision, easy walking distance to active reserves and opportunity outdoor fitness equipment. CPTED (crime prevention through environmental design) environmental design, health, safety, and wellbeing through urban design.
Whanaungatanga: Social and community interaction	Common spaces with opportunity to reflect cultural heritage and local narratives, and community facilities enabled, with access to public transport, and walkable distances to facilities and open space/places.
Kaitiakitanga: Protection and guardianship of the physical and cultural environment	Enhancement of waterways – Wairoa River and its margin, as well as wetland enhancement where required for offsetting purposes, and treatment of connecting streams. Stormwater management / treatment, and opportunity for Water Sensitive Urban Design. Escarpments, Wairoa River margin and stream corridors to provide for indigenous vegetation and encourage native wildlife.
Rangatiratanga: Assertion of authority, presence, influence, control,	Traditional names for streets and spaces. Provide for naming opportunities that may include ancestors, events and flora/fauna species associated with the rohe. Restore place names to form knowledge of rohe narratives. Built environment to create sense of presence and adopt a higher density with recognition of the high points to create stature. Memorials, heritage information boards and QR codes, signage. Protect culturally sensitive areas.
Turangawaewae: A sense of identity and independence associated with having a particular home base	Consideration of bilingual Te Reo Maōri immersion in schools to be considered by Ministry of Education regarding the new primary school proposed. Council can also consider bilingual Te Reo Maōri and English for signage when development gets underway in the growth area.

These matters will be the subject of ongoing engagement through Te Kauae a Roopu as the projects transition from business case to implementation.

8.3.3 Wider Network Impact on Traffic

During construction of the Enabling Works, existing SH29 and Cambridge Road users may choose to alter their travel patterns or travel times. Given that there is a limited number of alternative routes available, any likely traffic diversion is expected to be minor. Hence, minimal impact on the wider network is likely.

NZ Upgrade Programme Takitimu Northern Link (TNL): Construction on Stage 1 is planned to commence in 2021 and be completed by 2026. The impact of TNL on this DBC and the Western Corridor is mainly to divert traffic from Cambridge Road to the Takitimu Drive Toll Road for those travelling between Tauriko and Bethlehem.

8.4 Constraints

Current investigations have not identified any constraints that would significantly impact on the ability to implement the Enabling works. There are, however, a number of obstacles that require further consideration as part of developing the concept design. These include:

- Areas of land that may be determined as natural wetlands, that require special attention/mitigation
- Stormwater quality discharge into the Wairoa River
- Contaminated sites (including the service station)
- Acceptable property access arrangements in Tauriko Village
- Provision of temporary carparking for the Tauriko School and playcentre

8.5 Risk, HSID and Opportunities

For the purposes of the risk assessment, the context of the project outcomes to deliver the Enabling works were assumed to be:

1 That the DBC is approved (or approved to proceed 'at risk') to allow the preparation of an Assessment of Environment Effects (AEE) and Notice of Requirement (NoR) to be lodged in conjunction with the TCC structure plan by mid- 2022.

2 That land is secured to enable construction and opening of intersections to allow access into Tauriko West by 2024/2025.

Risks associated with delivery of the final DBC have been managed by the contributing parties and are now complete. However, risks still remain with regard to the two items above.

The AEE and NoR are part of the Pre-implementation phase and have been actively managed collaboratively between TCC and Waka Kotahi.

Table 8.5-1 below outlines some of the potential risks ahead.

Table 8.5-1: Enabling Works Key Risks (at Business Case)

Risk	Score	Proposed Mitigation	Score
Landowners do not accept option, and land required for EW to proceed has to go through compulsory acquisition resulting in delays of up to 2 years to the programme	Critical	Early and ongoing consultation with affected landowners Start willing seller acquisitions once designation confirmed Commence process for compulsory purchase under PWA at earliest appropriate stage.	Critical
The upper plateau portion of the project may require a public hearing to secure the NOR resulting in delays to opening the Tauriko West access by due date, thus delaying construction of housing	Critical	Early discussions with TCC to verify consenting pathway and lodge applications based on the DBC Concept plans. Lodge application for Redwood and Tauriko village separately to reduce likelihood of RMA delays affecting construction of housing.	Medium
There are delays at the pre-implementation approval stage due to extended scope and costs agreements, approvals and alignment between partners, resulting in reputational risk and not meeting CIPs financial critical path dates to allow part implementation to be funded	Critical	Agreement to fund pre-DBC approval workstreams from TCC (Council decision) Seeking approval for departure from policy and practice (Waka Kotahi CE decision) Clear reasons and requirements to secure departure	Medium
The DBC does not contain sufficient detail to enable approval by Waka Kotahi and funding to implement enabling works options may not be available resulting in delays to securing land and starting construction to enable housing	Critical	Early identification of costs, and ongoing consultation with key investors and IQA team to ensure document provides appropriate information.	Low
Opportunities			
• Secure Funding from CiP • Direct Commission of Pre-implementation phase ahead of Business Case Approval • Prepare and lodge AEE/NoR based on Business Case Concept Plans • Relocation of the Tauriko West access to north of the school to avoid early purchase of Caltex Service Station			

8.6 Project Interdependencies

At the time of the preparing this DBC, there are no known projects being progressed or planned which have the potential to be impacted by this project, or vice versa.

8.7 Health and Safety in Design (HSiD)

The top Health and Safety in Design (HSiD) issues for the Enabling Works DBC are shown in Table 8.7-1 and the remainder provided in Appendix O. The risks are based on the threat to meeting the above project outcomes, and take into account the probability of this threat occurring and the consequences if it does.

Table 8.7-1: Health and Safety in Design Key Issues

Hazard	How will it be managed in Design?	Score
There are existing transformers on Whiore Avenue which are remaining in place – at these locations construction of the shared path will require removal of car parks and widening of the berm into the carriageway parking spaces to achieve the full width pathway. Risk to workers of working around high voltage power supply.	Identify location of all electrical services in the vicinity of the transformers and ensure all works have appropriate permits and approvals including confirming any safe proximity requirements before any excavation is undertaken.	Critical
Known and Unknown underground utilities are at risk of being struck during excavation work – which could affect the safety of the construction workers and disrupt essential lifelines.	Extensive potholing programme to identify underground utilities.	Critical
The section from Tauriko West to Cambridge Road is urban in nature. There is potential for conflict with cars, peds, cycles.	Separate pedestrian and cyclists from vehicles after considering desire lines and anticipated use	Critical
Online alignment of SH29 means tighter radii and steeper grades, a less desirable outcome as this needs to be retrofitted into the existing alignment and to tie into property access and side roads. Risk of road geometry and grade out of context with road speed environment which could lead to crashes.	Look at access restrictions to reduce requirement to tie into existing properties.	Critical
The work is predominantly online and there is a risk of injury resulting from conflict between vehicles along the corridor, at property accesses, where parking is permitted, at retail/commercial sites, and at side roads.	Provide adequate sight distance and stopping sight distances on roads and at intersections, making allowance for steep grades	Critical
Online properties have direct access to state highway. Potential for more conflicts with vehicles entering/exiting all along the corridor.	Look at the possibility of access management.	Critical
At grade intersections create conflict points for opposing traffic and between traffic and pedestrians.	Minimise conflicts or consequence of conflicts by providing safe and efficient intersection designs with sufficient sight distance and intervisibility. Roundabouts should have appropriate entry and circulating angles and be used where flows are balanced. Signalised intersections should be compact and based on design vehicle tracking, with clear sightlines and phasing that runs as many non-conflicting movements together as possible to optimise efficiency and safety	Critical
Electrical Hazards Risk to personnel of working with live electricity. Power supply goes to all poles. Working at height.	Only use contractors certified to work with electricity. Consider mounting electrical terminations lower on poles to allow working from ground level. Consider public access to poles and likelihood of vehicles striking pole when considering lower mounting height.	Critical

8.8 Peer Review

External Peer reviews have been completed and resolved in accordance with Waka Kotahi requirements. These specifically included the following.

- Peer review Business Case – Stuart McDougal – Resolve Group
- Parallel Estimate – David Jewel – Bond CM
- Economics – Richard Paling
- Road Safety Review stage 2 (Appendix O)
- Transport Models (TTSM) – Ian Clark – Flow

The Estimate, Economics and Safety Review are provided in Appendix P, Appendix Q and Appendix G.

9 Financial Case

9.1 Project Delivery Costs

This section focuses on the Financial Case for all elements of the project.

The total expected project out turn cost to deliver the Tauriko West UGA Enabling Works Package (Transport elements) is between $149.2M (50%ile) and $184.6M (95%ile). These costs reflect Q4 2021 and cover, Redwood Lane roundabout, Tauriko Northern Access, Cambridge Road, SH29 widening, Whiore Ave improvements and Travel Demand Management measures. They exclude GST and escalation unless noted otherwise.

A breakdown of the various components is provided in Table 9.1-1. Although costs are GST exclusive, the portion of land cost associated with Kaweroa Drive does include GST in accordance with the Developer/TCC agreement. Escalation is also excluded, except for land.

Table 9.1-1: Tauriko West UGA Enabling Works Project Cost Estimate

Description	Enabling Works Components	
	50%ile	95%ile
Whiore Ave Walking / Cycling and Bus Improvements	2,921,000	3,531,000
Cambridge Road intersection + portion of SH29 widening + Bus access to/from Whiore Ave	43,451,000	52,752,000
Tauriko Village Access Road intersection + portion of SH29 widening + Service Station site clearance	33,965,000	45,292,000
Tauriko School Temporary Carpark	5,610,000	6,528,000
Redwood Lane – Walking and cycling elements (underpass)	7,088,000	8,490,000
Redwood Lane realignment	3,871,000	4,721,000
Redwood Lane/ SH29 roundabouts SH29 approaches and Kaweroa Drive (100m)	46,255,000	56,803,000
Belk Road Closure	383,000	444,000
Kaweroa Drive (600m of over and above)	3,100,000	3,460,000
Travel Demand Management (TDM) Package [102]	$2,552,000	$2,552,000
TOTAL	**$149,196,000**	**$184,573,000**

Further detail on the cost assumptions is provided in sections 9.1.1 to 9.1.3. A DBE for the SH29 and Whiore Ave improvement works is provided in Appendix P.

9.1.1 SH29 and Whiore Ave Improvements

The expected project cost to deliver the Redwood Lane RAB, Tauriko Northern Access, Cambridge Road and Whiore Ave Improvements is $143.5M (50%ile) to $178.6M (95%ile). This is exclusive of GST and Escalation in accordance with SM014 and reflects Q4 2021. A project cost estimate, external parallel estimate review and reconciliation report is provided in Appendix P.

[102] TDM costs reflect a high-level estimate. Risks and contingencies are not specifically identified, hence the same estimate value is adopted for both the 50% and 95%.

Table 9.1-2: SH29 & Whiore Ave Project Cost Estimate

Description	Enabling Works Project $M	
	Expected	95%ile
Property Cost	33.3	48.5
Pre-implementation Cost	13.3	17.0
Implementation – Physical Works Costs plus fees	96.9	113.1
TOTAL	**$143.5M**	**$178.6M**

The key assumptions used in developing the estimate are based on the following:

- The overall scope of the project is described in section 8 and shown on the concept drawings provided in Appendix L
- Escalation (except land) and GST are excluded
- Limited geotechnical investigations have been carried out to date, so the concept design is based on ground conditions determined from general knowledge of the corridor. The Estimate makes allowance for the uncertainty through inclusion of a +30% contingency risk allowance.
- An understanding and estimation of the likely impact on service utilities. This includes the assumption that the high-pressure gas main near Belk Road will need protection from increased loading, but not relocation (either horizontally or vertically)
- The large culvert under SH29, near Belk Road, is extended based on the same physical dimensions
- Stormwater treatment is via swale drains and wetland ponds before discharge into natural watercourse
- 100m of side road construction (Redwood Lane, Kaweroa Drive, and closure of Belk Road with provision of a turning head
- Designations, resource consents and other statutory authorities are obtained without RMA hearings or appeal to the environment court
- A single procurement strategy under a conventional measure and value contract
- Current land valuations and all costs associated with transactions, legal costs, etc. This includes escalation based on procurement occurring between mid-2022 and completion by end-2022
- Pre-implementation costs for professional fees and client costs are included based on general industry percentages
- Implementation fees are based on professional fees and an assessment of client fees.

9.1.2 Kaweroa Drive (Ring Road)

This estimate includes a 600m section of Kaweroa Drive from 100m south of SH29 towards Taurikura Drive. TCC requires the developer to construct a multimodal arterial corridor, whereas the developer is only required to construct a two-lane industrial roadway under the district plan rules. The cost estimate shown below covers the cost of the additional widening only.

Table 9.1-3: Kaweroa Drive (Ring Road) Cost Estimate

Description (TCC portion)	Kaweroa Drive $M	
	Expected	95%ile
Construction Costs	$0.8	$0.96
Property Costs	$2.3	$2.5
TOTAL	**$3.1M**	**$3.46M**

The key assumptions used in developing the estimates are based on the following:

- Land costs are based on an agreed value of $1,809,600 for 6032sqm representing areas G, H, I, J, K and L of the TBE drawings. The cost in Table 9.1-3 above includes an allowance of escalation and associated fees of +10% and includes 15% GST (as per agreement). TCC Land requirements as per TBE drawings.
- The expected construction cost component has been provided by Tauriko Business Estate. It is assumed to be exclusive of GST and Escalation
- The funding risk allowance for road construction is based on +20% over the 50%ile estimate value provided by TBE.

9.1.3 Travel Demand Management Costs

The TDM costs have been developed through a 'bottom up' methodology using assumption of outputs and time needed. These are broken down by type of output with reference to the TDM code assigned to it. The detail of each of those codes is provided in Appendix K.

Table 9.1-4: TDM Cost Estimate

Description	TDM Measures		
	Code Reference	Cost build up	Estimate
One Full time equivalent (FTE) role to deliver measures for first 5 years then 0.5 FTE for following 5 years	2.1-2.5, 4.2, 7.1-7.5, 8.1, 9.1	$120,000 per year for 5 year and $60,000 for 5 years	$900,000
Traffic counters	3.1	10 @ $10k each for installation + time to monito($5k)	$150,000
Bike repair stands	3.3	5 @ $7500k each + PM	$50.000
Wayfinding Signs	3.8	50 signs @ $1000 each	$50,000
Marketing for PT	3.15	Bus Stop signage	$150,000
Real time passenger info digital signs	3.18	10 bus stops at $15k per device	$150,000
Facilitate take up of share services	3.24	Provide a subsidy to supplier get cars involved ($20k per year) and operational costs for supplier for 5 years or until financially viable say $100k @ 2 vehicles = $200k	$200,000
Cycle Programme	7.3	Every year there are 100 new students at school. Need 320 hours/yr for 10 children (10*4*8). Hourly rates are $35/h, so 320 * 35 = $11,000 (for one school) for one year. Two schools for 5 years =$110k (2*11k*5)	$110,000
Cycle Parking	7.4	Provide secure cycle parking at two new schools. Assume $100k per school ($200k) = FTE + PM	$200,000
Reduced Bus fare use	7.6	BoPRC currently subsidises. If this should stop, could be $4/day for 800 children in primary and 2000 in high school. Proportion taking bus is around 10% - with 280 children @ $4 per day for 40 weeks is $800 per child/year. Total cost $224k/year (280 * $800)	$220,000

Description	TDM Measures		
	Code Reference	Cost build up	Estimate
New Residents Welcome pack	8.1	Loaded bus card – 2000 houses * $21 (3 * return trip @ $7) = $42K	$42,000
Yearly Travel Survey	9.1	External consultant $50k per year for 5 years) – $250k	$250,000
Traffic Counters	9.1	3 counters and analysis, $20k per year for 5 years	$100,000
TOTAL			$2,552,000

9.2 Cost sharing principles

Since July 2021, Waka Kotahi, CIP and TCC has undertaken a series of workshops to commence the transfer of the Tauriko West UGA Enabling Works package lead from TCC in the Business case phase to Waka Kotahi post-business case phase, i.e. the pre-implementation and implementation phases. As a result of those meetings, it was confirmed and agreed by stakeholders[103] that Waka Kotahi will take the lead after the business case has been approved. The scope and lead responsibilities for each of the following elements are for:

- State Highway (including links to the first roads on both Redwood lane, Tauriko West, Cambridge Road and Whiore Ave) – Waka Kotahi
- Speed Management – State Highway – Waka Kotahi
- Whiore Ave – Waka Kotahi
- SH29/Redwood Lane roundabout – Waka Kotahi
- Kaweroa Drive (Ring Road) – Private Developer
- Public Transport Facilities – TCC
- Transport Demand Measures (Described in section 5.6.7) – TCC, BoPRC, Developer and MoE.

A more defined scope of area for responsibilities (including who is the lead agency for the pre-implementation phase and implementation phase, and who is the owner of the asset) is provided in the management case. Based on the points above, the total costs provided in Table 9.1-1 are likely to be apportioned to the funding sources in Table 9.2-1.

Table 9.2-1: Funding Sources

Project and cost estimate		NLTF funding (percentage and dollar value)		Other Funding (percentage and dollar value)	
Whiore Ave improvements	50%	51%	$1,489,710	49%	$1,431,290
	95%		$1,800,810		$1,730,190
Cambridge Road intersection and including section of SH29 widening and Whiore Avenue 'bus gate'	50%	51%	$22,160,010	49%	$21,290,990
	95%		$26,903,520		$25,848,480
Tauriko Village 'northern access' and including section of	50%	51%	$20,183,250	49%	$19,391,750

[103] Memo – Outcome of Sprint Workshop Process and Areas for further action for Tauriko West Enabling Works, 7 September 2021 (Kaylene Meyer to CIP, TCC, Chris Gasson and other Waka Kotahi teams)

Project and cost estimate		NLTF funding (percentage and dollar value)		Other Funding (percentage and dollar value)	
SH29 widening, relocated school car park, and service station site clearance	95%		$26,428,800		$25,391,800
Redwood Lane / SH29 roundabout including Redwood Lane realignment connection and walking & cycling elements	50%	32%	$18,474,668	68%	$38,739,332
	95%		$23,424,223		$46,589,777
Kaweroa Drive connection (600m) 'over & above' width	50%	51%	$1,581,000	49%	$1,519,000
	95%		$1,764,600		$1,695,400
Belk Road Closure	50%	51%	$195,330	49%	$187,670
	95%		$226,440		$217,560
Tauriko West Spine Road		0%		100%	
Travel Demand Management package	N/A	51%		49%	

9.3 Ongoing Maintenance and Operation Costs

The economic analysis identifies the maintenance cost for the preferred option. The maintenance costs for the preferred option includes increased areas of pavement, traffic signals, highway lighting, wetland maintenance in the early years, and general berm maintenance. Appropriate costs of these have been included in the economic assessment of the project. Costs of $100,000/year for maintenance activities on the Enabling Works has been adopted.

9.4 Other

In addition to the project costs outlined above, TCC will provide and fund the water and wastewater infrastructure to support the Tauriko UGA at a combined cost of circa $51M as provided in Table 9.4-1 and Table 9.4-2 below.

Table 9.4-1: Water Estimate

Water	Description	LTP 2021 budget	Current Estimate
Water Main – Northern Connection	Water main from Taurikura Drive/Gargan Road/SH29 to Northern Connection	2,978,000	7,463,000
Water Main – Southern Connection	Water main from Kennedy reserve/Kaweroa Drive (western corridor) to Redwood Lane area	6,900,000	20,317,000
Total		**9,878,000**	**27,780,000**

Table 9.4-2: Wastewater Estimate

Wastewater	Description	LTP 2021 budget	Current Estimate
Whiore Avenue	Full package of WW works from Tauriko West boundary to Landing pump station via Whiore Avenue	4,739,964	7,047,000
Interim / Stage 1A – Southern Connection	Full package of WW works from Tauriko West boundary to Kennedy Rd pump station via TBE	24,025,630	15,880,000
Total		**28.765,594**	**22,927,000**

The key assumptions used in developing the estimates are based on the following:

- Water main from Taurikura Drive/Gargan Rd/SH29 to EWP Northern Connection
- Water main from Kennedy Kaweroa Drive (Western Corridor) to Redwood area
- Wastewater Whiore Ave – Full package of WW works from Tauriko West boundary to Landing pumps station via Whiore Ave
- Wastewater Interim Stage 1A Southern connection – Full package of wastewater works from Tauriko West boundary to Kennedy Road pump station via TBE.

10 Economic Assessment

10.1 Background

TCC has identified that the Tauriko UGA area is the only currently available site available for residential development, subject to completion of its Structure Plan. To provide connectivity into this development, access from SH29 is required in two locations, being Redwood Lane and at Tauriko Village. The recommended solution is to provide a roundabout at Redwood Lane and a signalised intersection at Tauriko Village and at Cambridge Road. Due to pressure to release new housing, the Enabling Works DBC seeks to provide this access no later than year 2024. Work is already underway to develop the detailed designs to meet CIP funding requirements and the required opening dates. Based on the above, the Economic Assessment is purely transport-focused, with benefits derived from the TTSM. Hence, it ignores the social benefits associated with provision of new housing.

To undertake a Transport Economic Assessment requires a Do Minimum scenario. In this case, access into the Tauriko UGA is assumed to rely on the existing Redwood Lane priority-controlled Tee intersection, and a new priority controlled Tee intersection within the Tauriko Village area. The option then consists of upgrading these two access points to a roundabout and signals and Traffic signals at Cambridge/Whiore.

10.2 Economic summary of recommended option

The economic analysis of the Enabling Works (SH29 and Whiore Improvements) is in Appendix Q along with detailed information describing the assumptions and methodology. This includes the outcome of the external economic peer review. The analysis is summarised in Table 10.2-1. The Enabling Works has a calculated BCR of 1.05 based on the parameters and assumptions outlined in this section.

Table 10.2-1: Economic summary table for Enabling Works

Parameter Description	Enabling Works
Earliest Implementation Start Date	July 2022 (economic purposes only)
Expected Duration of Construction	3 years
Time zero	1st July for 2021
Base date for costs & benefits	1st July for 2021
Assessment period	40 years
Discount factor	4%
Traffic growth	Based on TTSM
Present value of total project cost of do minimum	$3.4M M
Net Present value project cost of preferred option	$124.9M
Net Present value benefit of preferred option	$127.5M
BCR (exc. Wider economic benefits)	1.05
First Year Rate of Return	0.2%

10.3 Economic Assumptions

The economic assessment for the enabling works is based on the following assumptions:

- Costs for Do Minimum are based on construction of a priority controlled Tee intersection at Tauriko Northern Access/SH29 (near Caltex Station) and 100m of the access road.
- Operating costs are based on an urban arterial road type
- Enabling Works – $100,000 periodic maintenance costs on an 8year cycle, with $15,000/annual maintenance cost after Enabling works complete.
- The benefit stream is based on 40 years once construction starts. Benefits beyond year 2060 are capped.
- Vehicle travel time, vehicle operating costs, cycle benefits and emissions are based on outputs from the TTSM which assumes 3000 households in Tauriko West by year 2048. Assessment years consisted of 2031, 2048 and 2048+, with three daily time periods (AM, IP, PM) annualised to provide yearly totals.
- The Spine Road is completed by year 2031, connecting Redwood Lane with the Tauriko Northern Access.
- No benefit between 2025 and 2031 has been included as the transport models were only available for 2031 onwards. This is a conservative approach as some benefit would be expected between these dates assuming houses are starting to be occupied by 2025. In addition, this approach does not account for the significant existing delay[104] at Cambridge Road which creates up to +5km queues eastbound on SH29.
- Crash costs for the Enabling Works is calculated using the crash model predictions in the MCBM.
- Wider Economic Benefits (WEBs) have not been specifically assessed for the Enabling works. These benefits will be determined as part of the Long Term DBC. However, a sensitivity test has been completed whereby +20% of the Travel Time benefits have been included[105].

10.4 Benefits

The benefits of the option are summarised in Table 10.4-1.

Table 10.4-1: Summary of benefits

Benefits	Component	
	Enabling Works	% Contribution
Travel Time	89.5M	70
VOC	19.6M	15
Public Transport	1.7M	1
Walking/Cycling	5.2M	4
TDM	4.3M	3
Emission benefits	0M	0
Crash Benefits	7.1M	6
TOTAL	**$127.4M**	**100%**

Emission benefits are based on the Waka Kotahi MCBM procedures and relate to air quality associated with vehicular traffic. As the Transport Model does not indicate a significant reduction in VKT the emission benefits are determined to be a very small negative sum. This is not unexpected, given the project installs a roundabout at Redwood Lane and two signalised intersections on SH29, which increases idle time for stopped vehicles on SH29 (who currently are not required to stop).

A significant source of the benefits is derived from travel time savings. The other major source are vehicle operating benefits resulting from either reduced congestion or less VKT.

[104] As the queues are created by SH29 eastbound drivers stopping ad-hoc and letting right turns into and out of Cambridge Road, the transport model does not replicate this particular human behavior . Hence, the model underpredicts the actual on site delay.

105 (Advice from a specialist in this field has advised that 20% is a reasonable value for this purpose)

Public Transport, Walking and Cycling and the TDM components provide a combined contribution of 8%.

10.5 Sensitivity analysis – Cost Benefit variability

A range of sensitivity tests have been undertaken to gauge the impact on the BCR. These have been limited to the key influencing factors, being the costs, potential inclusion of wider economic benefits (+20%) and discount rates (Table 10.5-1). This indicates that regardless of the sensitivity test undertaken, the BCR is within the range 0.7 to 1.3 for Enabling Works.

Table 10.5-1: Sensitivity analysis for Enabling Works

SCENARIO	UPPER	LOWER
Base case	1.1	
Discount rate (3%/6%)	1.4	0.7
Cost (95th percentile)	–	0.8
Time period (60 years)	1.2	–
Benefits (+ 20%)	1.3	

11 Assessment of Recommended Option

11.1 Achieving project outcomes

The assessment of Tauriko Enabling works ability to achieve or contribute to each of the investment objectives is provided in Table 11.1-1. An Appraisal Summary Table (AST) for the preferred option is also included in Appendix R and some of the key benefits are summarised below. Importantly, as the Enabling works is focused on providing access to allow housing to be developed, the project in isolation does not provide significant alignment to the long-term benefits or government outcome. The Enabling works as it is, is Stage 1 of the three-stage process for the long term DBC (Figure 6.10-1). Further supporting comments as to how the Enabling works contributes to the long-term investment objectives is provided in Appendix B. Further information on how this option aligns to Waka Kotahi's Benefit framework is provided in section 4.6.2.

Table 11.1-1: Enabling Works Project Outcomes

Investment Benefit	Long Term Measure and Target[106]	How the EW contributes
Predictable Travel Time for Freight	Improving travel time variability from 10 minutes with 9 mins variability PM Peak. 9 mins with 5 mins variability in AM (2017) on SH29 from Omanawa Rd to TNL	Forecast to achieve partially as Enabling works is locally specific. Travel time expected to be 6.5 mins (mid-block) +2.5 mins (intersections) travel time with max 4.5 mins variability during AM/PM Peak by 2031 from Omanawa Rd to Takitimu Drive Toll Rd
Land Use Reduces the need for travel	Increasing mode shift from 4.9% to >10% of PT/Active trips during peak periods to/from/within Western Corridor by 2030 increasing to 15% by 2063	Forecast to achieve 1.5% of PT/Active Trips during peak periods in 2031 in the whole of Tauriko Zone107. Noting this is very low, however the purpose of the Enabling works is to open up land for housing and support an overall long term mode shift goal rather than trying to achieve a high alignment to mode shift in stage 1.
Increase mode shift from private vehicles to walking, cycling and PT	Increase % of population to 80% within a 600m walk to a bus stop by 2030	Fully achieves outcomes. 80% of population within 600m walk of a bus stop by 2030
	Increase the number of annual boardings from 6500pa (route 52 – 2017) to >250,000 pa by 2030 increasing by 1.5M by 2063	Forecast to achieves 8,000 PT trips per annum by 2031
	Express PT (peak) travel times are better than 3-7 mins driving time from: Tauriko to Cameron Rd and 4-7 mins driving time from Tauriko to Takitimu Dr 2017 by 2030 and maintained until 2063	Achieved partially as Enabling works is locally specific. PT (peak) travel times better than driving from TW to Tauranga Crossing by 2030
Transport System Enables timely delivery of appropriate urban and	Rezoning of Tauriko West, TBE Extension, and Keenan Road growth	Partially achieved. Tauriko West and TBE re-zoned but Keenan Road part of Long Term project

106 These investment benefits, measures and targets form the Tauriko Transport long Term DBC investment objectives. How the Enabling works contributes to those objectives is provided in the Table 11.1-1

107 Zone 11 in the TTSM model

Investment Benefit	Long Term Measure and Target[106]	How the EW contributes
commercial growth areas in the Western Corridor	areas are adopted by TCC for Year 2021 – TWest, Year 2021 – TBE, Year 2026 – K Rd	
Reduce crashes by severity (all modes) [108]	Reduce all crash by severity by mode from 301 to 200 (30%) on opening 5 years.	EW target was developed to achieve a 40% of the 30% long term target which would be to address 36 crashes. Based on the assessment of the preferred option (with intersection safe system forms and speed management reducing >10% of operating speeds) plus an addition intersection, it is expected to achieve an overall reduction in all crashes of around 25% which equates to 15 crashes, i.e. not quite half of those 36 crashes. This reflects that although overall corridor measures are being applied, this is not providing an overall transformation to the corridor (as would occur under the long term project). In inclusion of an additional intersection is being added to the network which is likely to lead to additional non injury crashes.
Reduce DSIs	Reduce DSIs from 14 to 7 (50%) on opening for 5 years	EW target was developed to achieve 15% of the long term 50 % target. However, the actual number of DSIs addressed is higher (40% of actual DSIs) given a Safe System form is being applied to Cambridge Road intersection (a high risk site) and speed management is being implemented along the SH29 corridor which will address 30%[109] of the DSIs on SH29. This would result in 1.1 actual DSIs being addressed

11.2 ONF Outcomes

As the Enabling Works DBC focuses on SH29 from Belk Road to Cambridge Road, the discussion around movement and place is focused on this area. Under the ONF Assessment, SH29 would be classified with a primary movement function. Table 4.2-2 and Figure 4.2-3 shows what would be the likely ONF now and desired. This shows that the desired form moves from a rural typology to an urban typology – which would be to provide a strategic transport corridor to capture all modes and provide separated facilities for non-vehicular modes.

The recommended option for the Enabling works was never intended to provide total alignment to the desired ONF as the intention of this DBC was to enabling housing whilst also working towards increasing mode shift and improving safety. The recommended option provides increased and separated walking and cycling facilities, improved PT networks and provides safer more formalised access to the highway in specific locations.

The Tauriko Transport Long term DBC would provide a total alignment with this desired function.

11.3 Climate Change Outcomes

A Whole of life Carbon (tCO_2e) assessment was undertaken for the Enabling Works project using modelled VKT data (Figure 11.3-1). This shows that as a result of construction, carbon

108 This was agreed to be removed as a KPI by the group – confirm

109 Based on chart provided in the Australian road safety strategy (2011-2020)

emissions will be at their highest and over a period of 25 years will reduce by around 40%. The following is a summary of the key outcomes:

Construction & Maintenance:

- Construction emissions for the enabling works are estimated to be more than 14,000 tCO2-e. This includes emissions from embodied carbon of materials, haulage of materials to site and construction effort.
- Pavement maintenance has also been estimated using an assumption that re-pavement will occur every 8 years. The carbon emitted from maintenance is small compared to the amount emitted in construction.
- Three wetlands will sequester carbon throughout the design life, however the amount sequestered is insignificant and will not offset the amount of carbon emitted by construction and maintenance.

Enabled Emissions:

- Enabled Emissions were modelled using VEPM for years 2031 and 2048 under a current policy scenario (Enabled Emissions VEPM).
- The VEPM output for VKT was then modeled further using the New Zealand Climate Change Commission's Demonstration pathway (Enabled Emissions CCC Demo). This was the decarbonisation pathway that was recommended to the Government.
- Both enabled emissions scenarios have factored in VKT from the enabling works, however the CCC Demo path factors in a more aggressive uptake of EVs on top of the mode shift delivered by the enabling works.

A summary of the climate change outcomes in relation to the investment assessment profile is also provided in Table 11.4-4.

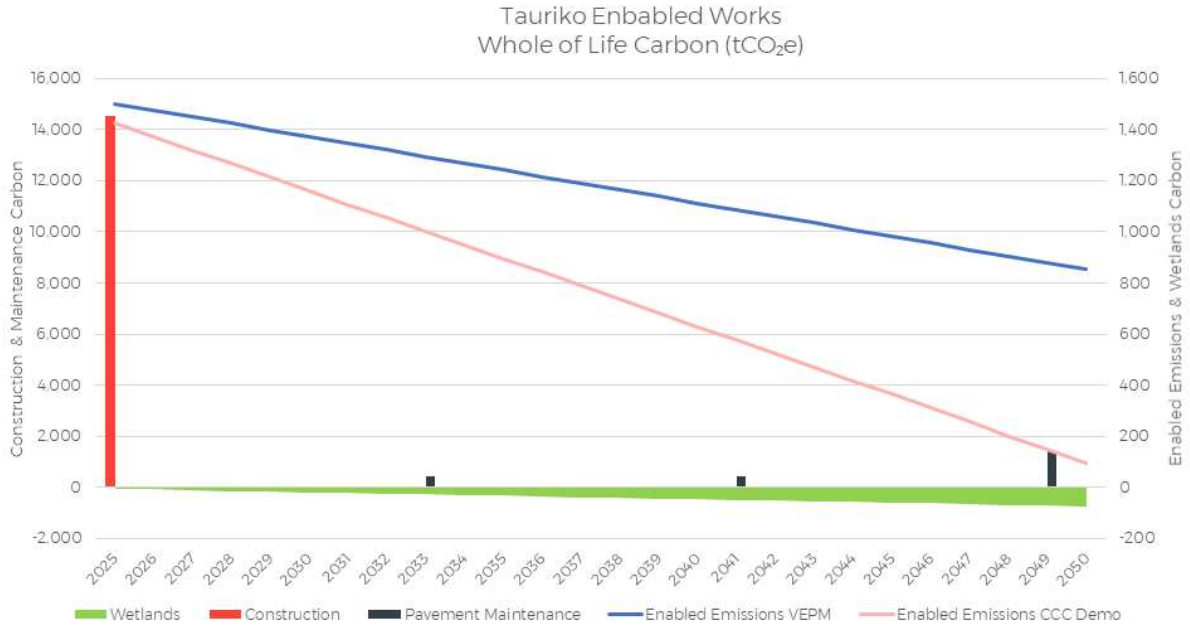


Figure 11.3-1: Tauriko Enabling Works Whole of Life Carbon Assessment

11.4 Investment Assessment Profile

An investment priority assessment, using the latest Waka Kotahi guidelines[110], the Investment Prioritisation Method (IPM) for the 2021-24 National Land Transport Programme, was undertaken on the recommended option.

[110] https://www.nzta.govt.nz/assets/P-and-I-Knowledge-Base/docs/Waka-Kotahi-Final-Investment-Prioritisation-Method-for-2021-24-NLTP.pdf

The assessment measures the project's alignment with GPS priorities (GPS 2021 released by the Minister of Transport in September 2020), the scheduling criticality and interdependence with other activities, and the efficiency of the project as a return on investment and whole of life cost/benefits consideration.

11.4.1 Results (GPS) Alignment

The GPS has four strategic priorities that the project is assessed against:

- Safety
- Better Travel Options
- Improving Freight Connections
- Climate Change.

The strongest alignment against a GPS strategic priority will form the overall rating of GPS alignment for the purposes of this business case.

Table 11.4-1: Assessment against alignment with GPS priorities (estimated)

GPS Strategic Alignment		
GPS Strategic Priority	Benefit	Rating
Safety	Impact on social cost and incidences of crashes	**VERY HIGH** Although this Enabling works is not a safety project, the benefits from the option provide a very high alignment to safety. This is because: • Very High: Speed Limit Changes are part of the recommended option and will reduce operating speeds by >10km/h both in the corridor (through the implementation of lower speed limits) and at intersections (through the implementation of a roundabout at Redwood Lane and Raised Safety Platforms at both Tauriko West and Cambridge Road intersections). Speed Management will likely result in 30% reduction in DSis. This would address 0.3 DSis • High: This option targets a section of the corridor with the medium-high or high collective risk intersection at Cambridge Road to achieve DSI reduction of >40% with the introduction of a signalised intersection and raised safety platform. This would address 0.8 DSis • The Total DSI addressed would be 1.1 which is a reduction of 33%
Better Travel Options *and* Climate Change	Impact on mode choice	**MEDIUM** The option provides not only a number of facilities for walking, cycling and public transport, but is supported by travel demand measures to encourage mode shift. The earlier target for mode shift was expected to be >10% by 2030, however the modelling is suggesting a much lower percentage at (1.5%) which meets the medium rating based on up to 3% mode shift being achieved. This recognises that the Enabling works Stage by itself does not provide a large mode shift but provides the first stage to the long term work which will achieve a much greater mode shift of increasing to 15% by 2063. In addition, stretch targets are being developed for the long term project.
Better Travel Options	Impact on access to opportunities	**VERY HIGH** This project meets the very high Strategic alignment for "Better Travel Choice" based on the 45min access to employment metric. At the moment (with the Do Minimum in place) there would be very few employment opportunities in the vicinity accessible by walking and cycling. With the EW project this would increase access to employment opportunities specifically to Tauranga crossing by walking, cycling and PT. Access by PT is also improved by reducing

GPS Strategic Alignment		
GPS Strategic Priority	Benefit	Rating
		PT travel times through Whiore Ave and with less delays on the intersection in/out of Tauriko West. This option supports access to a new community development in the Tauriko UGA, and therefore targets a high proportion (>8%) of new population being within 15 mins access of social opportunity at Tauriko and at Tauranga Crossing (schools, medical and supermarkets) by providing improvement (at intersections and Whiore Ave) for all modes in the morning peak. This option has >greater than 10% in the percentage of population within 500m walk of a bus stop by 2030. The target for the EW is 80% of population within 600m. The option provides improved access for non-vehicle users to key parts of the community including Tauranga Crossing, and increases connections and availability to public transport links into the city. This is via targeted safety interventions both at intersections and across SH29 which are currently severed.
Improving Freight Connections *and* Climate Change	Impact on mode choice	**LOW** This option will make no difference to domestic or regional freight mode share.
Improving Freight Connections	Impact on network productivity and utilisation	**LOW** With the introduction of three new intersection forms that will impact through traffic, this option is likely to make no difference or decrease network productivity and utilisation of freight networks for freight.
Climate Change[111]	Impact on GHG	**MEDIUM** This option will likely provide (estimated): • A 1.7% reduction in VKT, which meets the medium rating based of up to 3%. This is achieved via the introduction of walking, cycling and public transport facilities and predicted electrification of vehicles • With the introduction of new and changed intersection forms requiring vehicles to stop and start more, this will result in more carbon dioxide equivalents from construction. However, based on modelling this will reduce over time (Figure 11.3-1). This reduction is largely to do with electrification of vehicles and not mode shift.
	Impact of air emissions on health/impact of noise and vibration on health	**LOW** This option will likely provide (estimated): • No reduction (i.e. with a new intersection it will increase) in the population being exposed to elevated concentrations of land transport related air pollution • No reduction in traffic noise level (may increase).

In the short term (and before the long-term option has been implemented), there is likely to be a reduction in DSIs due to the implementation of much safer intersection forms and speed management along the corridor. Mode shift will increase based on the available facilities which provides more choice, although the model suggests only a small % of mode share, however this is based on no demand currently being there.

There is unlikely to be any change in freight transport, based on the Upper North Island Freight Study findings. This has study identified an increase in freight movement by trucks

111 Although climate has an overarching priority in the GPS, in terms of the investment prioritisation process, the strategic priority with the strongest alignment against a GPS will form the overall rating of GPS investment prioritisation for the purposes of this business case.

of up to 40%. Although there is a predicted >10% mode shift it is unlikely this will offset those negative benefits given the high volumes of traffic which will be using this corridor.

11.4.2 Project Scheduling (Readiness)

Criticality

Criticality: the significance of the activity's/combination of activities' role as part of the network, and the degree of impact to users, particularly due to availability (or not) of alternatives. In terms of network resilience this is based on the additional travel time imposed through detours required if there is a risk of unplanned loss of service[112] of part of the network[113].

This option is critical in terms of the need to undertake this activity now with implementation within the 2021-2024 NLTP (Table 11.4-2). Not only to address a high-risk intersection but also to allow access to the Tauriko West UGA for housing to be developed and to meet the consent conditions at Kaweroa Road as part of the TBE development.

In terms of significance, network resilience and loss of service if this option is not in place will be high, as there is no other close alternative route as the alternative route through TBE would not be available. For trips to the north there is Poripori Road, however this route is not fit for purpose for either large volumes of traffic or heavy vehicles.

Table 11.4-2: Criticality Assessment

	Low	Medium	High
Criticality	*Need to undertake this activity in order to deliver/ prepare for remainder of programme/package which does not need full implementation for 7 or more years (all options) *Significance of activity (if it is not in place) as part of the network, with any loss of service having minimal impact to users due to availability of alternative(s)	*Need to undertake this activity in order to deliver/ prepare for remainder of programme/package which does not need full implementation for 4-6 years *Significance of activity (if it is not in place) as part of the network, with any loss of service having moderate impact to users due to some availability of alternative(s)	Need to undertake this activity in order to deliver/ prepare for remainder of programme/package where its implementation is to begin in 2021-24 NLTP *Significance of activity (if it is not in place) as part of the network, with any loss of service having severe impact to users due to limited availability of alternative(s)

Interdependency

Interdependency with other activities: Degree to which the activity is necessary to unlock the benefits of another related or integrated investment. The other investment may be part of the same transport programme or package, or a major housing or industrial development or international event. Each phase of an activity is treated as a separate investment for the purposes of setting NLTP priority for inclusion or funding approval. This means that preparation of business cases (e.g. indicative and detailed business cases) may have a different rating from each other, during pre-implementation, and implementation phases.

The Enabling works option scores high in terms of interdependency (Table 11.4-3). It forms the baseline to the long-term project (and ultimately UFTI) and opens up land for housing, increases mode shift and addressing current safety issues.

Table 11.4-3: Interdependency Assessment

112 crash occurring, major security event, flooding. These incidents put stress on the network in terms of capacity, operations, congestion, demand, and safety.

113 This is independent of the GPS alignment rating for resilience improvements associated with improving freight connections or climate change adaptation.

	Low	Medium	High
Interdependency	* Activity/combination of activities is part of a programme or package, but will not hold up the overall delivery of another investment (e.g. housing development or international event), or other parts of programme or package that it belongs to *Non-delivery of the proposed activity will not impact negatively on benefits realisation of the programme/package	*Activity/combination of activities is part of a programme or package, but relies on the delivery of another phase or activity before being actioned *Non-delivery of proposed activity may impact negatively on benefits realisation of the programme/package	*Activity/combination of activities is required to enable the delivery of another investment (e.g., development or event), or other parts of programme or package that it belongs to. Non-delivery will hold up the programme *Non-delivery of the proposed activity will impact negatively on benefits realisation of the programme/package

11.4.3 Efficiency

The recommended combined option (Enabling Works) has an indicative BCR of 1.05.

The Efficiency factor rating is Low.

11.4.4 Investment Decisions Summary

The overall findings of the investment prioritisation assessment result is shown in Table 11.4-4, and provides a rating VH-H-L and an overall priority score of 2.

Table 11.4-4: Summary of Investment Prioritisation Decision

Assessment		Rating
GPS Alignment	Safety and Better Travel options and Climate change	Very High (VH)
Scheduling	Criticality	High (H)
	Interdependency	High (H)
Efficiency	Efficiency Factor Rating	Low (L)

11.5 Summary of Outcomes

If we address the problem by investing in those benefits agreed, the key outcomes of the Enabling works project will be:

- The ability for land to be opened to start construction of houses by 2024 and enable 2000 households by 2035 (Figure 4.2-1)
- Improved reliability along SH29 for Freight. Modelling predictions from the TTSM indicate an average travel time from 10 mins to 6.5 mins with potential reduction in variability from 9 mins+ 4.5mins variability between Omanawa Road and the Takitimu/SH36 roundabout. Although new intersections may slow traffic down, use of traffic signals at Cambridge Road will help manage fluctuations in travel times and remove the current actions of SH29 users that stop to let Cambridge Road traffic exit, which is causing considerable queueing during evening peak periods.
- A 1.5% increase in walking and cycling modes from having an increased number of facilities that are safer and better connected to key destinations, and a range

of TDM measures to help facilitate a significant shift in walking, cycling an PT mode use.

- A 23% increase in PT boardings from 6,500 per year (Route 52 – 2017) to 8,000 per year by 2031
- 16 fewer crashes compared to the baseline of 56 (for the Enabling works)
- 1.1 fewer DSIs (5 years) compared to the baseline of 3 DSIs (for the Enabling works). This is not based on the target (15% of the 50% DSI Target for the long-term value) but the actual predicted reduction in DSI by using safer intersection forms and speed management along the total corridor which provides better safety outcomes than the original target measure.

Implementation

12 Implementation Pathway

12.1 Introduction

The future components of work required to deliver the infrastructure part of the project are provide in section 12.1.1. The implementation pathway for Public Transport Services and TDM are provided in section 12.1.2 and section 12.1.3

12.1.1 Infrastructure Pathway

The future components of work required to deliver the infrastructure part of the project are shown in Table 12.1-1 and timing of some of those phases is shown in Figure 13.1-1.

The following sections summarise the key components, along with the associated complexity and risks. In summary, the complexities of the project are associated with:

- Land purchasing that affects the programme
- Need to complete the design and tender quotes by September 2022 to meet needs of CIP funding.

There are potential opportunities to share different elements of the pre-implementation to provide a more efficient delivery moving into the implementation phase, for example:

- Although Waka Kotahi is leading the pre-implementation phase including property acquisition on behalf of TCC, TCC could lead the property inputs with guidance from Waka Kotahi.
- Some efficiencies for implementation could be considered as part of the development of the procurement strategy (in the pre-implementation phase).

Table 12.1-1: Implementation Pathway Phases

Phase	Component of Work	Description, Complexity and Risk
DBC	Programme	A programme has been developed and is provided in section 13. Dependencies are approvals from Waka Kotahi and TCC (including Commissioner's approvals) overseeing the conclusion of the documentation to finalise the document.
	Finalise 2022 DBC Review and Approve	DBC will require Waka Kotahi Board approval after internal reviews from TCC (Commissioner's approvals), BoPRC (updates to elected members) and Waka Kotahi IQA review in April 2022. The main risk is associated with the low BCR and investment priority level. However, there are other sources of funding which are to be considered which lowers the risk to Waka Kotahi.
Pre-implementation	Engagement	Partners and Stakeholders have been highly engaged in the project to date resulting in a significant level of buy in to the preferred option. The community has been consulted and feedback on the enabling works has been positive. Landowners have also been consulted and a property plan is discussed in section 12.3.
	Consenting & Statutory Processes	These are discussed further in section 12.2 and include alteration to designation and resource consents. The sequence of those is dependent on the property purchase pathways, i.e. willing seller/buyer, or compulsory acquisition.
	Further investigations	Geotechnical and pavement testing will be required. To complete the AEE and NoR phase, further technical assessments will also be required.
	Detailed Design	Tauriko Enabling works will likely be tendered using a direct appointment model. Detail will focus on Property Acquisition land requirement plans and enough information for consenting purposes. Tender level design is required for July 2022 to enable fix price tenders to be gathered and evaluated by Sept 2022. This will support CIP Financial Close requirements by Sept 2022.

Phase	Component of Work	Description, Complexity and Risk
DBC	Programme	A programme has been developed and is provided in section 13. Dependencies are approvals from Waka Kotahi and TCC (including Commissioner's approvals) overseeing the conclusion of the documentation to finalise the document.
	Finalise 2022 DBC Review and Approve	DBC will require Waka Kotahi Board approval after internal reviews from TCC (Commissioner's approvals), BoPRC (updates to elected members) and Waka Kotahi IQA review in April 2022. The main risk is associated with the low BCR and investment priority level. However, there are other sources of funding which are to be considered which lowers the risk to Waka Kotahi.
	Contract Documentation	Based on provision of information needed to meet CIP funding processes and programme requirements this is to be a direct appointment as part of the detailed design phase.
	Land entry and property acquisition.	Land acquisition will start early in 2022 with willing buyer willing seller. Once the DBC approval is given and land requirement plans confirmed Waka Kotahi will lead the PWA land acquisition process. The consultant to be engaged is TPG.
	Procurement	As stated in Section 13 this is likely to be a direct appointment to expediate the process and includes design, AEE, NoR and implementation tender documentation. Contact likely to be fixed price or measure and value. The timeframe for this programmed January to August 2022. Tender period for implementation is programmed for August – Sept 2022.
Implementation	Construction & MSQA	An approved funding decision (based on multiple investors) will need to be agreed by June 2022 if construction is to be started for Redwood Lane as programmed in October 2022. Construction timeframes for Cambridge Road, Tauriko West and Whiore Ave is likely to be completed late 2025, however this will need to be determined with an updated delivery and procurement plan in the next phase.
Operation	Operation	The operation of these intersections and midblock treatment are business as usual. The key operation complexities are associated with traffic signals
	Maintenance	The initial design work has taken maintenance into account, particularly through the HSiD review which indicated that (amongst others) residential access and tie-in control, sight visibility (design standards), and the type, placement and access restrictions to utilities would need to be considered as part of the design. Compared to the current highway, additional maintenance will be required for the preferred option, as there are more structures in place (such as the underpass at Redwood Lane which will require more inspections), traffic signals on existing intersection and another new intersection with signals at Tauriko West. More bus traffic loaded on to Whiore Avenue.

12.1.2 Public Transport Pathway

In addition to those components covered in Table 12.1-1, the pathway to implement the public transport measures is as follows:

- Funding and delivery of public transport services will be provided for through the Public Transport and Infrastructure Single Stage Business Case. This SSBC is identified through the TSP and funded through the BOPRC LTP and the NLTP. It is a partnership project with TCC and Waka Kotahi.
- The SSBC will bring together infrastructure and PT function identified through other business cases including Cameron Road Stage 1, Stage 2, Tauriko West Enabling Works, Arataki, etc to produce a cohesive network operating model that is supported by appropriate infrastructure.
- The project brief is currently being developed and confirmed through BOPRC, and commencement of the SSBC is expected in April 2022 with completion by the end of 2023.

12.1.3 Travel Demand Measures Pathway

In addition to those components covered in Table 12.1-1the pathway to implement the travel demand measures is provided in Table 12.1-2.

Table 12.1-2: TDM Implementation Pathway

Phase	Component of Work	Description, Complexity and Risk
Pre-implementation	Engagement	Project partners have been highly engaged in the development of the Travel Demand Management (TDM) package. The need to encourage walking, cycling and the use of public transport has been key throughout the engagement with the community and landowners.
	Consenting & Statutory Processes	The TDM package primarily focusses on promoting alternative modes, as the infrastructure part of the business case covers the actual designs for these modes. Many TDM elements will be developed by applying using Tauranga's Street Design Guide. Information panels and marketing does not require consents.
	Further investigations	Further detailing of the TDM measures and details on implementation will be required. This will take place through the structure plan and plan change processes.
	Detailed Design	n/a for most TDM measures.
Implementation	Implementation	The TDM investment is an integral part of the business case and requires an approved funding decision. The TDM table (Appendix K) includes an overview of the proposed way to implement, this also includes responsibilities, and the 'role' Tauranga City Council can play in the encouragement of travel options. The implementation of TDM measures will start in tandem with the construction of the infrastructure
Operation	Operation	The day-to-day lead of the TDM package sits with Tauranga City Council.

12.2 Consenting Strategy

The purpose of the consenting strategy is to outline what is likely to support the implementation strategy for the DBC and to provide potential pathways for obtaining approvals under the RMA for the construction, operation, and management of the project. This strategy should be read in conjunction with the property plan for the Enabling Works Transport Package and the yet to be developed property strategy.

12.2.1 Northern Connection to Tauriko West Urban Growth Area

For the preferred intersection along State Highway 29 (SH29) at Tauriko West and Cambridge Road, land acquisition is required from 11 properties along the northern boundary of SH29. This includes Ferncliffe Farm (Kāinga Ora, formerly owned by the Hopping family), Tauriko School (Ministry of Education), Tauriko Hall (TCC), the Caltex Service Station, and land already acquired by one of the developers. Access to a number of other properties may also be affected (e.g. by restricting right turn movements in and out of the property) depending on the final design and safety review requirements.

As part of any alteration to the state highway designation (NZTA6), the existing Ministry of Education (MoE) designation (ME24) for Tauriko School will also need to be altered. The process to alter the MoE designation and transfer land from MoE to Waka Kotahi will need to be resolved prior to any works proceeding.

12.2.2 Southern Connection

For the preferred roundabout location at SH29 / Redwood Lane, land acquisition is required from up to 11 properties along both sides of SH29 – some of which have already been acquired by one of the developers. Access to a number of other properties may also be affected (e.g. by restricting right turn movements in and out of the property) depending on the final design and safety audit requirements for the road carriageway.

The Local Government boundary alteration process was completed in January 2021, and all designation and consenting work will therefore be within TCC's jurisdiction. The alteration to designation will need to be assessed against only the Tauranga City Plan as well as the Proposed Plan Change for the Tauriko West Urban Growth Area (UGA) if it has been notified.

12.2.3 Consenting Pathway Options

The options for property acquisition, alterations to designations, and resource consent pathways are detailed in Table 12.2-1. Consenting Pathway Option (CPO) 1 is the identified pathway as Waka Kotahi is to take the lead on all implementation post the Business Case being approved. It is noted that while Waka Kotahi is identified as the lead agency for property acquisition at this time, this does not prevent TCC (or any of the other developers) from advancing property acquisition ahead of time.

Table 12.2-1: Consenting Pathways

	CPO 1	CPO 2	CPO 3	CPO 4
Lead Agency	Waka Kotahi	TCC	Waka Kotahi or TCC	TCC
Property	Willing Seller / Willing Buyer	Willing Seller / Willing Buyer	Compulsory Acquisition	Compulsory Acquisition
Designation	s181(3) minor alteration, or non-notified if full NoR alteration process under s181(1) and (2) deemed necessary	s181(3) minor alteration, or non-notified if full NoR alteration process under s181(1) and (2) deemed necessary	Full alteration process under s181(1) and (2), likely to be notified	Included in proposed plan change under s170
Resource Consents	BOPRC resource consents prior to construction. NESCS resource consents from TCC	BOPRC resource consents prior to construction. NESCS resource consents from TCC	BOPRC resource consents prior to construction. Likely joint application and AEE with NoR. NESCS resource consents from TCC	BOPRC resource consents prior to construction. NESCS resource consents from TCC
Sequence	1. Property acquisition 2. Alteration to designation and resource consents 3. Physical works	1. Property acquisition – vest as road 2. Resource consents 3. Physical Works 4. Alteration to designation (tidy-up)	1. Alteration to designation and resource consents (joint application) 2. Property acquisition 3. Physical Works	1. Plan change with designation included 2. Property acquisition 3. Resource consents 4. Physical works

The lead agency for property acquisition could be different to who seeks the alteration to designation and consents, as Waka Kotahi and TCC have different requirements to purchase property.

For the designation and consenting process, the lead agency will act as the 'Requiring Authority' for the designation and 'Consent Holder' for any resource consents.

In terms of the sequencing, some of the items listed in the above table could be undertaken in parallel to therefore reduce timeframes.

12.2.4 Statutory Approvals Assessment

The purpose of this section is to identify the relevant statutory provisions that need to be considered to progress the project, and to provide a high-level assessment of these respective provisions.

The focus of the assessment is on the Enabling Works intersection upgrades. These provisions are identified and assessed under the respective subsections below.

National Environmental Standards

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS) is a nationally consistent set of planning controls and soil contaminant values. It ensures that land affected by contaminants in soil is appropriately identified and assessed before it is developed – and if necessary, the land is remediated, or the contaminants contained to make the land safe for human use.

There are land parcels required for the project that are identified on BoPRC's geospatial planning maps as containing HAIL activities at the location of both the Northern and Southern Connections, as shown in the figures below. The underlying land use adjoining the State Highway 29 corridor is zoned as Rural under the operative Tauranga City Plan. TCC commissioned Aurecon to undertake a preliminary site investigation (PSI) which included the areas of the northern and southern connection.

At the Northern Connection, in the Tauriko Village, the property located at 745 State Highway 29, as shown in Figure 12.2-1 has been subject to pesticide use and is therefore potentially contaminated.

Figure 12.2-1: Tauriko Village contaminated sites

At the Southern Connection, the area of land, as shown in Figure 12.2-2 that is required for the project is currently in kiwifruit and mandarin orchards. Both the properties are identified as potentially contaminated also as a result of persistent pesticide use. Under the Hazardous Activities and Industries List (HAIL): October 2011, both potentially contaminated sites at each end of the project extent are classified as A10 – Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.

Figure 12.2-2: Redwood/ Belk Road contaminated sites

The NESCS consent provisions are likely to be applicable to the works at both the Northern and Southern Connection, as they both affect land identified as contaminated. A contaminated land Detailed Site Investigation (DSI) is recommended to determine the extent soil contamination for the potentially contaminated land at the Southern Connection. This will enable WSP to determine the consent requirements under the NESCS and seek any required resource consents from TCC.

TCC has also commissioned Aurecon to complete a Preliminary Site Investigation (PSI) assessment. The study area is shown in Figure 13-3.

Figure 12.2-3: Aurecon PSI study area – indicated by green outline (Source: Aurecon PSI)

The PSI identified, assessed, and classified the HAIL sites within the study area on the basis of likely contamination present, distribution, and the mobility of contaminants. This is shown in Figure 12.2-4.The three classes are:

- Class 1 – High risk
- Class 2 – Medium risk
- Class 3 – Low risk.

Of these 90 properties identified as containing HAIL activities (shown in Figure 13-3) there are 11 in Class 3, 22 in Class 2 and 57 within Class 1. As noted in the PSI, *"Thirteen types of*

current and historical HAIL activities were identified within the study area and fall into the following categories:

- Chemical manufacture, application, and bulk storage
- Mineral extraction, refining and processing, storage, and use
- Vehicle refuelling, service, and repair
- Cemeteries and waste recycling, treatment and disposal".

The 11 properties that fall into the Class 3 category are recommended by Aurecon to have more extensive investigations undertaken in the form of a Detailed Site Investigation and a remediation and/or management plan developed for each site. This is as a result of the potential for higher concentrations of widespread contamination given the land use activities such as timber treatment sites, railways and service station land use occurring within the study area that make up the majority of the Class 3 category.

Figure 12.2-4: HAIL Sites located within and next to the Tauriko West UGA

Designation

Alterations to designations generally follow a similar process to new designations, in accordance with section 181(1) and (2) of the RMA, as discussed above. The exception to these sections of the RMA is minor alterations under section 181(3), which offers a simpler pathway in certain circumstances. A full explanation of those sections is provided in the consenting strategy in Appendix S.

This would likely be a preferable designation pathway for the Enabling Works package in the event that compulsory land acquisition was required, or the consent authority indicated they were likely to notify the alteration to designation. It would be more efficient and enable more consistent decision making than a separate standalone designation process, or even joint notification and hearings.

This provision would also allow TCC to include the new designation for the relocated Tauriko School from the Ministry of Education, subject to their agreement.

Zoning and Features

The BoPRC Regional Natural Resources Plan (RNRP) does not identify zones. However, it does identify water quality standards for lakes, rivers, and streams. There is a watercourse located between Belk Road and Redwood Lane which drains to the Wairoa River. This watercourse is unnamed and is classified as 'Regional Base line' and the Wairoa is classified as 'Aquatic Ecosystem'.

Under the City Plan Maps, the project area is zoned Rural. At the southern end of the corridor, it is subject the following City Plan overlays and here are no overlays applicable at the location of the northern intersection to the UGA:

- Flood Hazard – Extreme Rainfall 100-year Event
- Outstanding Natural Features and Landscapes Plan Area – S7: Wairoa River Landscape Management Area[114]
- The area identified as visually significant includes the Wairoa River and margins (300m each side on Rural Zoned land) from McLaren Falls Dam to MHWS. This landscape feature is divided into two distinct areas. The area within 50m of the riverbank (shown as S7a on the Planning Maps) is deemed to be the more significant and thus greater restrictions apply.

Resource Consents

Land use and discharge consents are likely to be required from Bay of Plenty Regional Council (BoPRC) and possibly TCC, however this is dependent on the City Plan zone requirements as to whether or not consents may be required from TCC under the operative City Plan.

In terms of land use and discharge consents from BoPRC under the RNRP, these will likely be required for the following aspects of the Early Works transport package and will be confirmed through a pre-application meeting with the Regional Council:

- Earthworks for land disturbance to create the northern and southern intersection connections.
- Disturbance of contaminated land, given the potential for contaminated soils to be present at both the Caltex at the northern intersection connection, and within the orchard at the southern intersection connection.
- Stormwater discharge consent for the ongoing discharge of stormwater to the environment from the road carriageway.

A land use consent for earthworks may be required from TCC and will be confirmed through a pre-application meeting with the Council. Earthworks in the Road Zone are a permitted activity under Rule 4C.2.1 of the City Plan. The following designations under the City Plan apply to the project area:

- Designation D204[114] – Waka Kotahi NZ Transport Agency – Road purposes – State Highway 29
- Designation D139[114] – Waka Kotahi NZ Transport Agency – Road purposes – State Highway 29 (Alteration of Designation) – State Highway No 29, Redwood Lane to Ruahihi.
- NZTA [6] – Waka Kotahi NZ Transport Agency – Limited access road and interchange roundabout: Road as a State Highway.

Other Approvals

There are two archaeological sites recorded within the area of the Enabling Works, one at the northern end, adjoining Cambridge Road (Figure 12.2-5) and one at the southern end, adjoining the southern side of SH29 (Figure 12.2-6). These existing sites are protected under the Heritage New Zealand Pouhere Taonga Act 2014. The wider environment also contains a populated archaeological landscape. Therefore, an archaeological assessment in the form of a desktop and possibly an onsite survey is recommended to assess the extent of the recorded sites and determine the effects of the proposed road construction works on these recorded sites.

[114] Registered in the operative Western Bay District Plan

Figure 12.2-5: Archaeological site – Northern (left hand side picture)

Figure 12.2-6: Archaeological site – Southern (right hand side picture)

Depending on the outcome of the archaeological assessment, the road construction works will have to proceed under an Archaeological Authority from Heritage New Zealand Pouhere Taonga.

TCC has also commissioned an archaeological assessment by CFG Heritage for the Tauriko West urban growth area in 2018. The report concluded that there is no new archaeological evidence within the proposed urban growth area and two new sites were recorded during the site assessment. The location of the Southern Connection upgrades is located within an area of low risk of discovering unrecorded archaeological sites and features, and the Northern Connection is located in an area of high risk of unrecorded archaeological sites and features being found.

12.2.5 Technical Inputs and Management Plans

Technical Inputs

There are a range of technical inputs required to support a resource consent and designation application, and the key ones are summarised below.

- Stormwater Assessment
- Cultural Impact Assessment
- Air Quality Assessment
- Contaminated Land Assessment
- Archaeological Assessment
- Traffic Assessment
- Ecology Assessment

Management Plans

- An overarching Construction Environmental Management Plan (CEMP) will be required to be provided with the resource consent application. The CEMP will have a number of sub-plans that are identified below, with a brief discussion provided for each.
- Temporary Traffic Management Plan
- Construction Noise and Vibration Management Plan
- Environmental Management Plans:
  - » Erosion and Sediment Control Plan
  - » Spill response plan

Temporary Traffic Management Plan

The proposed road construction works will require works within the live traffic lane and adjacent to the traffic lane of SH29, as well as on local roads, including Redwood Lane, Whiore Ave and Cambridge Road. A Temporary Traffic Management Plan (TTMP) will be required from both TCC and Waka Kotahi to ensure that the disruption to road users is managed appropriately.

Construction Noise and Vibration Management Plan

The purpose of a Construction Noise and Vibration Management Plan (CNVMP) is to provide a mechanism to effectively and appropriately manage and control the noise and vibration effects of construction works upon nearby sensitive receivers. It is a tool to be used for the development and implementation of methodologies and practices on the construction site to appropriately avoid, remedy or mitigate adverse noise and vibration effects upon the health and amenity of the occupiers of nearby buildings and/or to protect against the cosmetic and structural damage to those buildings.

Environmental Management Plan

There are a number of environmental risks identified in undertaking this project including erosion of soils and sedimentation of the nearby watercourses, and contamination from fuel and hydraulic oils.

- Erosion and Sediment Control – Earthworks have the potential to generate adverse effects related to erosion, sediment, and dust. Given the scale of the earthworks required and the subsequent potential for the discharge of sediment laden water to water or to land, an Erosion, Sediment and Dust Control Plan will be required.
- Spill Response Plan – The use of machinery involves the use of fuel (primarily diesel), petrol (vehicles), hydraulic oils and other lubricants. Given the use of these fuels and oils, there is the potential for spillage to occur which could either lead to soil or surface water contamination. Fuels and oils must be stored in accordance with relevant standards and regulations to minimise the risk of spillage to the environment. A spill response plan shall be established prior to any works Methods for risk management and spill management include:

  - Minimise or eliminate bulk storage of fuels and oils on site where practicable
  - Locating storage facilities an adequate distance from the foreshore area.
  - Isolate and secure storage areas to minimise risk of damage or puncture from plant use.
  - Keep spill kits available and accessible at all times during the works.
  - Secure any spilled material at the time of event, which can include the use of bunding.
  - Undertaking the clean-up of spilled material, including excavation of contaminated soils and/or removal of liquids spilt. Disposal is to be at an authorised facility appropriate to the substance spilt.

A copy of this strategy is included in Appendix S.

12.3 Property purchase plan

12.3.1 Enabling Works

A property strategy is not being developed as part of this business case. However, a property purchase plan has been undertaken to determine the extent of property required and number of affected landowners.

Based on the preliminary work undertaken, approximately 7.3 hectares[115] of land is required from 17 landowners for the Enabling Works projects. In terms of specific areas of the project this includes:

- At Redwood Lane – a total of 41,985 m² of land required from nine groups of landowners including TBE, Tauriko West Ltd, Taurikura Holdings Ltd, and residential landowners
- At Tauriko West Village access, Cambridge Road and Whiore Ave, a total of 26,300 m² land is required from eight groups of landowners including TCC and MoE. The bulk of this required land (18,335m²) is however in Ferncliffe Farm adjacent to the Cambridge Road intersection,
- At Takitimu Toll Road – to the west of the SH29 and SH36 Roundabout where a stormwater pond is proposed. This requires 4675 m² of land from TCC as the owners.

These requirements are based on partial property acquisition, however the negotiation between landowner and the approved organisation still needs to occur. This could result in total property purchase resulting in a much larger amount of land required.

The timing for property negotiations and purchase will depend on the location, however a preliminary programme is provided in Figure 13.1-1

12.3.2 Kaweroa Drive (Ring Road)

TCC Land requirements for the short section of Kaweroa Drive are as per TBE drawings. (Appendix L) This drawing also includes parts of Kaweroa Drive that are currently being built, but these are not part of the business case (Waka Kotahi cannot subsidise projects retrospectively). Only Areas G, H, I, J, K and L would be part of the Tauriko EW Business Case. This is 6,032 sqm.

A Property purchase agreement is currently being drafted by TCC for the over widths. The remainder of the road width (22m) will be vested to Council. TCC's property team has started negotiations regarding the terms and conditions of the sale and purchase agreement to acquire the land required for the width of Kaweroa Drive (Ring Road).

12.4 Recommended Timing and Staging for Project Phases/Triggers

12.4.1 State Highway

Initial recommendations for timing of this project were to complete all phases as one project. However, there are still some uncertainties around purchasing property particularly around the new Tauriko West access in the vicinity of the school and service station. There is therefore an opportunity to stage some of the other elements of the recommended option before others. With this in mind, the following is a recommended approach to staging the Enabling works:

1 Stage 1: Redwood Lane Roundabout and Whiore Ave walking/cycling as there are no constraints whilst developing and negotiating land.
2 Stage 2: Tauriko West intersection, Cambridge Road intersection and midblock between them.

A programme of work is provided in Figure 13.1-1 and section 13.

12.4.2 Tauriko West Internal Network

TCC has developed an approach for the drivers for the growth area to roll out on, which is based upon the below parameters:

[115] based on draft land requirement plans dated August 2021

- The delivery of an approach which sees the connection of the Spine Road from SH 29 (but does not include the Spine Road itself in the Enabling works). This connection is between the southern and northern connection occur within the 2000 dwelling cap of the Enabling Works project as this will provide the greatest opportunity to promote and achieve walking & cycling aspirations, and connection of the wider area including to schools.
- Connection of social infrastructure, (provision for schools, sports fields, Reserves & river margin) through the above.
- Maximising investment of this Enabling Works on the basis both the northern and southern connections (along with all infrastructure) are required to be delivered at the same time, (level of investment vs delivery of housing).
- Maximising earthworks of landowners, timing, and investment to deliver the above and housing (ensures efficiency in delivery of the above).
- Any developer provided with the opportunity to undertake development commits themselves as an 'active developer.'

As a result of the above risk assessment, TCC has considered how the growth area could be developed. This roll out of dwellings assumes that 2000 dwellings can be delivered at the densities required, based upon the landform model, which is subject to change. To achieve this, the Stage 1 (providing for 2000 dwellings) is in the areas directly accessible from SH29 connected to developed UGA road corridors with water/wastewater located within them. These areas are within the upper plateau, closest to SH29, and the eastern upper areas of the Element IMF land. Stage 1 serviceable areas.

13 Commercial Case

13.1 Introduction

The commercial case describes how the recommended option will be implemented, including how it is to be procured, consented and how property is to be acquired. A draft procurement strategy is discussed below but will be confirmed by Waka Kotahi post-investment approval. The case also includes consideration of risk allocation and transfer, contractual management, and implementation timeframes. To be implementation-ready, the following stages are required:

1 Business Case approval and funding
2 Pre-implementation – (Section 13.3, including property, consenting and detailed design)
3 Implementation – (Section 13.4 – procurement and construction)
4 Post-implementation and Evaluation (section 14.5)

The Enabling works has a proposed starting pre-implementation date of January 2022 through to September 2022. There are various stages to construction based on available land purchase etc. This is discussed in section 12.4.

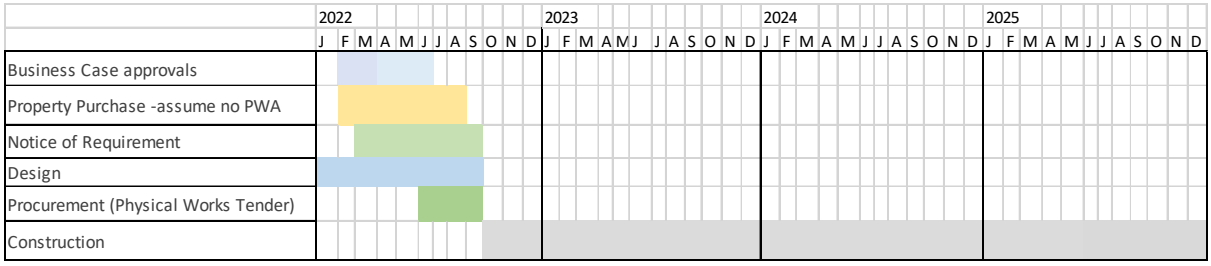


Figure 13.1-1: Pre-implementation and Implementation Programme Enabling Works

13.2 Arrangements – Enabling Works

TCC has sought financing assistance via the Infrastructure Financing Fund, which is managed by Crown Infrastructure Partners (CIP). In considering TCC's submission, CIP has approached Waka Kotahi seeking Waka Kotahi's involvement in the pre-implementation and implementation phases to deliver the support transport and Three Waters infrastructure necessary to enable the first stage of residential development. In this regard, Waka Kotahi would be managing the delivery of a local roading and Three Waters programme on behalf of TCC. The organisational arrangements are illustrated in Figure 13.2-1.

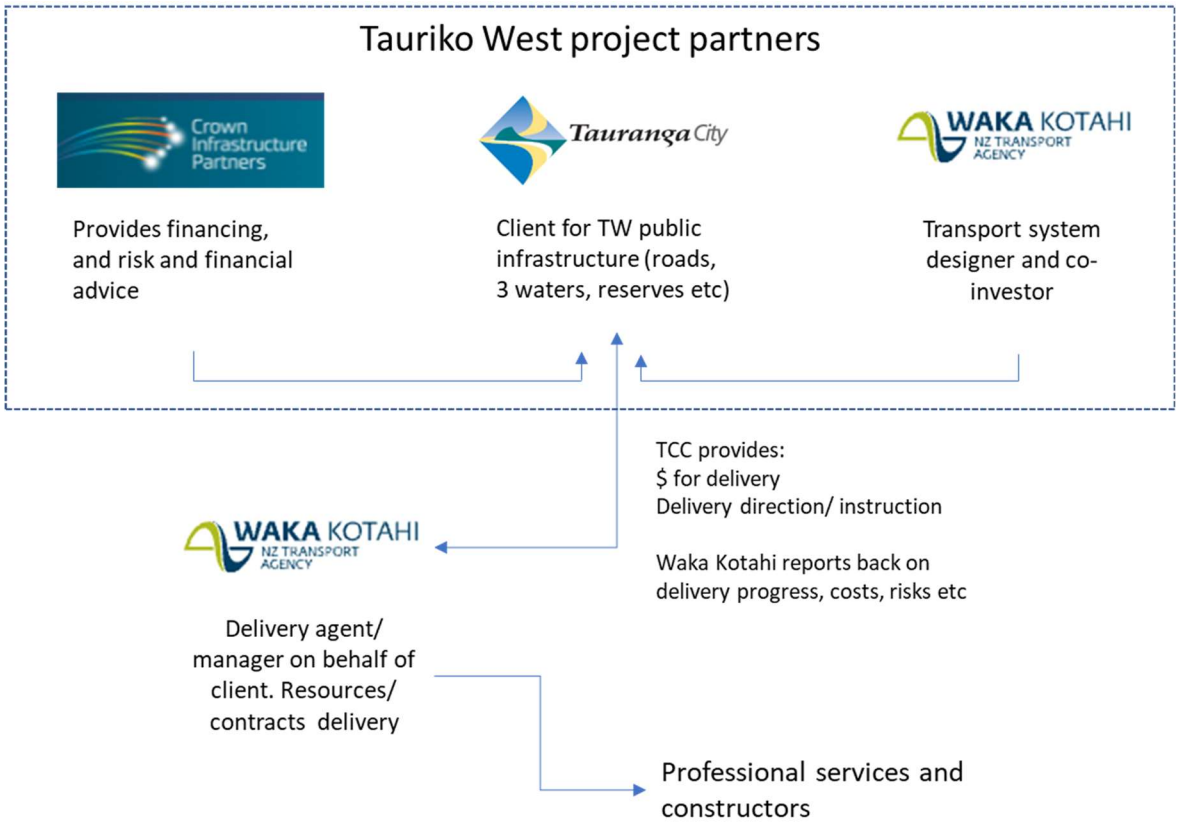


Figure 13.2-1: Proposed partnership arrangements for Tauriko West Enabling Works

These arrangements are based on the transport improvements being predominantly local road improvement. As such, TCC is the primary investor, and Waka Kotahi is co-investing via the FAR or an agreed cost-sharing agreement where there are additional state highway benefits. Where there is a state highway improvement, Waka Kotahi is the primary investor. Waka Kotahi is also the delivery agent on behalf of the three major stakeholders. The FAR agreements are provided in section 9.2.

Elements of the Tauriko West UGA Enabling Works estimates are provided in section 9.

Commercial arrangements will be aligned in accordance with Waka Kotahi's procurement manual (October 2019)[116].

There are a number of other interested parties, namely the three main developers within the Tauriko West Growth area. These are Classics, Element IMF, and potentially Kainga Ora, as well as the Ministry of Education who will be providing a primary and secondary school within the Growth Area.

Potential commercial arrangements could be:

- Crown Infrastructure Partners (CIP) – TCC has sought financing assistance via the Infrastructure Financing Fund which is managed by CIP
- Developer contribution:
  - » Classics
  - » Element IMF
- Kainga Ora

[116] https://www.nzta.govt.nz/assets/resources/procurement-manual/docs/Procurement-manual-amendment-5.pdf

The financial case discusses cost-sharing principles and FAR subsidies (section9.2) and the management case (section 14) notes that the preferred option has the following key parts of the next stages of delivery:

13.3 Pre-implementation Enabling Works

13.3.1 Scope

This phase of the Enabling Works (SH29 and Whiore Ave improvements) includes further development of the DBC design into a consenting design, Assessment of Environmental Effects (AEE), consent application and Notice of Requirement (NoR) through to the development of implementation tender document. Specifically, the Enabling works includes:

- Completing a detailed design (and supporting information) to a level appropriate to inform consenting and later procurement process. The design includes:
  - » Creation of a roundabout at the intersection with Redwood Lane with 100m of the Spine Road and 100m of Kaweroa Drive
  - » Upgrade of intersection of Cambridge Road to Traffic signals with new bus connection into Whiore Avenue
  - » Creation of a new signalised intersection for access to Tauriko West UGA
  - » Provision of three stormwater wetlands
  - » Provision of water and wastewater from Gargan Road and Whiore Ave into the Tauriko West UGA.
- Improved DBC concept design to include sufficient detail to enable a full and robust AEE to be undertaken.
- Based on the Consenting strategy (October 2021) a NoR application is expected to be lodged around March/April 2022 on a non-notified basis. This has some risk and is being worked through as part of initial investigations in the Pre-implementation phase.
- Development of tender documents to enable the tender process to occur and provision of construction drawings.

13.3.2 Pre-implementation delivery model and supplier selection

This project is on the medium end of the scale and has low levels of risk, uncertainty, and complexity as the scope is reasonably well defined. This will involve the approved organisation (Waka Kotahi) maintaining some form of involvement and control over the activity.

It has been determined that given the challenging timeframes and documentation requirements from CIP to confirm additional funding, the pre-implementation phase will be a direct appointment. This is also relevant given the scope is relatively well defined and the intention is that a full design, AEE, Notice of Requirement (NoR) and tender documents are completed before tender commences in June/July 2022.

The direct appointment contract is likely to be fixed price or measure and value.

13.3.3 Programme

The pre-implementation phase is expected to be started in January 2022 by Waka Kotahi prior to the Enabling works DBC being approved. This phase is proceeding ahead of the business case approval given the need to seek funding from CIP and start construction in late 2022. The pre-implementation phase is likely to take 6 – 8 months as the direct appointee could also be involved in the tender evaluation process.

The procurement of the implementation phase is likely to start in mid-2022 with a four to six week process.

Details of constructability and operation are provided in section 8 and a property plan is provided in section 12.3. A more detailed property strategy will be developed in the next phase.

13.4 Implementation Enabling Works

The implementation of the preferred option is programmed to start in the first quarter of 2023. Procurement of the preferred option will be progressed in accordance with the rules and guidelines provided in Waka Kotahi's procurement manual October 2019.

The delivery model for the Enabling Work main contract, the contract length and schedule, output based specification, risk allocation and transfer, supplier selection and any construction and constructability considerations are included in the following sections.

13.4.1 Implementation Delivery Model Options

In terms of the strategic context, this project is of medium scale, relatively low complexity, and has a scope that is reasonably well defined. Waka Kotahi (as the owners of this project post DBC approval) will also want to maintain control over the activity.

With this strategic context there are several delivery models that could be considered, including staged, design and build, shared risk, and supplier panel. The latter two are not likely to be suitable in this case. Design and build is also not suitable given the intention is to proceed into a pre-implementation phase with direct appointment and develop construction drawings that a contractor can tender on. For the implementation phase there is potential for the activity to be delivered through one or more separate contracts, and different supplier selection methods can be required for different contracts.

If this is confirmed as a 'staged' delivery model for the implementation phase, a scheme design would be provided to a physical works supplier for pricing. This is likely to be a price quality model to ensure best value for money will be obtained by having suppliers compete on both price and quality.

Although this contract is considered of relatively low complexity, tenderers will still likely need to be Waka Kotahi pre-qualified. However, the level of qualification will need to be further developed as part of a procurement strategy in the pre-implementation phase.

13.4.2 Contract Length and Schedule

It is expected that the overall project physical works for the Enabling works project will be completed within approximately three years of construction commencing, depending on how the work is packaged. There is an opportunity to stage this contract to prioritise those elements that can be easily separated from other elements such as the Redwood Lane Roundabout, and delay elements that have programme complexities (such as the new Tauriko West access where land requirement may take longer than other parts of the project).

A high-level programme for construction for four various components (Redwood Lane, Tauriko West Village/Cambridge Road/Whiore Ave, Kaweroa Road) (100m) and the Spine Road (100m) is provided in Figure 13.1-1.

13.4.3 Output based specification

Assuming a direct commission is progressed, a detailed design will be required, along with requirements during construction. Given the significant numbers of traffic and construction being largely online, detailed traffic management plans are required from tenderers.

13.4.4 Risk Allocation and Transfer

Risk Allocation and Transfer is dependent on how the preferred option is procured and delivered. For the projects that are delivered through the traditional approach it is expected that most risks would remain with TCC or Waka Kotahi. A key philosophy is that the risks will be allocated to the organisations that is best placed to manage them and this needs to be decided when determining the procurement model. Given the scale and low complexity of the project, it is likely to be a 'staged' delivery model.

Regardless of the delivery model shown it is recommended that prior to tendering, sufficient information (geotechnical investigation, survey, modelling etc) can be provided to tenderers to give confidence in their assumptions. This should reduce contractor contingencies and improve certainties, reducing the risk of unforeseen condition claims.

13.4.5 Suppliers

It is noted[117] that resources are constrained throughout the wider Bay of Plenty Region in all aspects – internal, external, design and construction. There may be a need to source some support from outside the region however this understanding of the programmes of a wider network of projects would need to be worked through to better understand whether these concerns are valid. Given the likely construction programme date of late 2022 (for Redwood Lane) those local resource working on TNL might become available. Any identified additional external resource needed to help support both Waka Kotahi and TCC are highlighted within the financial case section (Section 9).

13.4.6 Construction and Constructability Considerations

Project elements are discussed in section 8. All elements of the preferred option are expected to involve standard construction practices. However, based on key discussions and risks, it is important that the delivery mechanism and approach enable consideration of the following outcomes:

- Ensuring safe construction methodology to protect workers
- Minimal disruption to/innovation in managing people, traffic, and freight movements during construction to reduce the impact of delays on the road network during construction. Impact on the following areas need to be managed:
  - » Pedestrian and cyclist movements
  - » Accessibility to businesses, schools, and residents
  - » State highway traffic.
- Managing the environmental and ecological effects from construction
- Liaising with utility provides to relocate underground and overhead services.

[117] Tauriko West Enabling Works – Sprint workshop FINAL minutes – 10 August 2021

14 Management Case

14.1 Governance

The management case defines the roles and responsibilities for delivering the outcomes sought from the preferred options. This includes responsibility and roles, and how the project will be managed from the end of the business case through to implementation.

This DBC has been developed under a collaborative process with TCC, Waka Kotahi, BoPRC, WBoP DC, and Tangata Whenua.

The owner of this business case is TCC, however Waka Kotahi will manage and own the process once the business case has been approved by the Waka Kotahi Board for funding and implementation. As there are numerous elements with many of the investors and stakeholders having responsibilities to implement those elements, the pre-implementation and implementation phases will also be significantly collaborative. The governance structure for this is provided in Figure 14.1-1 and further details on roles and responsibilities are provided in Table 14.1-1. Role and responsibilities within each of the separate organisations will need to be determined.

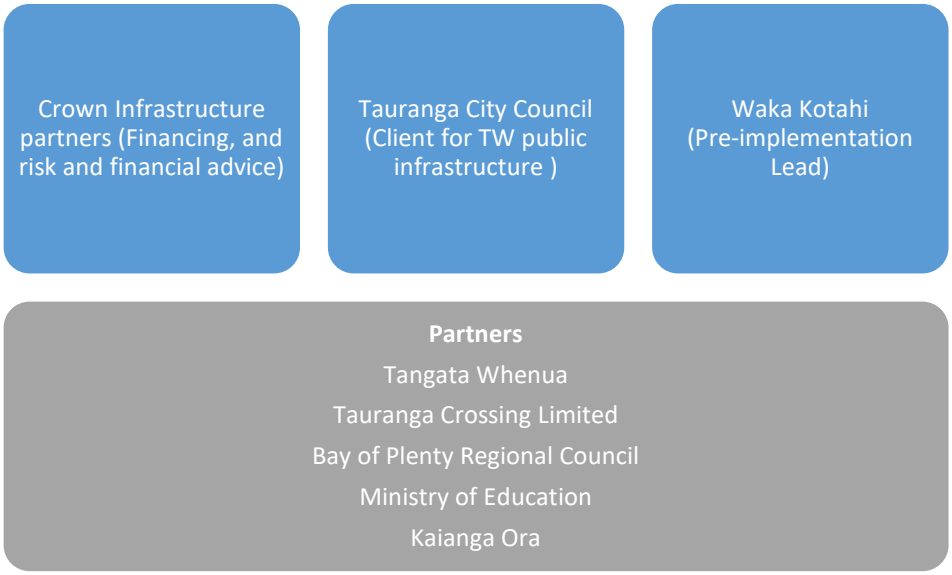


Figure 14.1-1: Governance Structure

14.1.1 Business Case Approvals

The following project assurance processes will need to be undertaken for the business case to be approved:

- TCC – Approvals sought through Commissioners (Executive Briefing) – March 2022
- Waka Kotahi – Independent Quality Assurance (IQA) – February 2022
- Waka Kotahi – Board Decision – June 2022

14.1.2 Roles and Responsibilities

The following information relates to the business case once it has been approved (Section 14.1.1). The roles and responsibilities for the various elements and inputs into the pre-implementation and implementation phase of the Enabling works are provided in Table 14.1-1.

Table 14.1-1: Pre-implementation and Implementation -Roles and Responsibilities

Task	Sub Task	Lead	Other Roles, Inputs and Comments
Infrastructure			
Design	Overall	Waka Kotahi	TCC Project Manager (Joint team) – coordinate all teams within TCC for design inputs, interfaces and any approvals needed. Waka Kotahi role includes all works within the SH corridor along with the infrastructure works required to service the Tauriko West UGA including (but not limited to) the water supply, wastewater supply, Whiore Ave upgrades and installed such as power, fibre, gas etc in to the Tauriko UGA. This will include the next phases of design on all aspects listed above along with construction. Enabling works also includes the first 100m of Redwood Road and the first 100m of Kaweroa Drive. Design for all components to be produced by one consultant as part of a direct appointment
Services	W/Water	TCC	TCC to provide requirements to Waka Kotahi for input in the design. This includes W/W line out of northern connection down Whiore Ave to Land Drive pump station across SH36 (in Lakes Development) – also included in the Drawings
	Water Line out of Gargan Rd	Waka Kotahi	TCC to provide requirements to Waka Kotahi for input in the design. This includes water line out of Gargan to Northern Connection
	Other	Service providers	Other services to stay with service providers for design and likely construction in shared trenches
Consenting	General	Waka Kotahi	A consenting strategy has been developed with consultation of various parties. This is attached in Appendix S
CVA		Te Kauae a Roopu	Te Kauae is to be briefed and feedback will be sought by the pre-implementation team on what is required to support the Enabling works designations and consents in terms of further work
Construction	General	Waka Kotahi	Waka Kotahi to lead all construction aspects including services infrastructure, procurement, tender documentation, and evaluation, contractual and supervision. Specific elements of the Design for construction are included in section 8.
Construction Kaweroa Drive (Ring Road)	South of Tie in point	TBE	100m south of SH29 to Taurikura Drive. Developer-led.
Redwood Lane and Kaweroa Drive	Tie in points	Waka Kotahi	Tie in points include first 100m of the Redwood Lane and first 100m of Kaweroa Drive
Programme	General	Waka Kotahi	Developed and updated on continuous basis through various phases of the project.
Property Designation and Acquisition		TCC	Land acquisition will start early 2022 with willing buyer willing seller. Once the DBC approval is given and land requirement plans confirmed Waka Kotahi will lead the PWA land acquisition process. The consultant to be engaged is TPG.
Monitoring and Evaluation	General	TCC/ BoPRC	Details of monitoring and evaluation outputs are provided in Table 14.5-1
Cultural Values			
CVA		Te Kauae a Roopu	Te Kauae is to be briefed and feedback will be sought by the pre-implementation team on what is required to

Task	Sub Task	Lead	Other Roles, Inputs and Comments
			support the Enabling works designations and consents in terms of further work
Public Transport			
PT Service		BoPRC	BoPRC to lead this project in partnership with TCC and Waka Kotahi. Details of the implementation pathway are included in section 12.1.2.
TDM			
TDM		TCC	Further investigations on measures and implementation will take place through the structure plan and plan change processes

14.2 Stakeholder Engagement and Communications plan

A stakeholder engagement and communications plan for the next phase of work is to be developed in partnership between TCC and Waka Kotahi. This plan will determine key steps for communication and also the roles and responsibilities for each of the organisations.

14.3 Assurances and Acceptance

Project assurance ensures that the project is being conducted appropriately and that the project's acceptance criteria, as developed by Waka Kotahi, are satisfied, along with any other criteria required by other funding partners.

The key project assurance deliverables for the pre-implementation and implementation are shown in Table 14.3-1. As agreed in workshop with key stakeholders[103], Waka Kotahi is to take the lead and ownership of the pre-implementation and implementation phase post the business case being finalised.

Table 14.3-1: Assurances and Acceptances

Item	Status	Comment (as required)
2022 DBC Update Approval & Funding Approval	yet to start	TCC is the owner of the business case and will seek approval through its executive leadership. Waka Kotahi will undertake the review and seek approval of the business case via the Waka Kotahi Board. This will also include decision on the FAR subsidies. However, some early discussion on these subsidies has occurred (section 9.2)
Consents, designation, and other statutory approvals	Yet to start	Waka Kotahi to lead process. Likely to be non-notified and a 7-8 month process from February 2022-Sept 2022
Design peer review	Yet to start	Will be determined once detailed design has been undertaken. Likely June to August 2022
Road safety review	Yet to start	A concept level safety review has been completed as part of the business case drawings which went beyond a typical stage 2 road safety audit. The review comments have been considered in this phase. Once detailed design has been developed another safety audit will be required. Likely August 2022
Physical Works RFT development	Yet to start	Likely to be a 4-month process between July 2022 and September 2022
Property acquisition	Yet to start	A property purchase plan has been developed (section 12.3) however TCC has engaged a property agent to develop the strategy and confirm timing for next phase. Property purchase (assume no public works act

Item	Status	Comment (as required)
		process) is likely between February 2022 and August 2022.

14.4 Change control and Issue Management

Change control and issues will be managed, captured, logged, reviewed, and approved in accordance with Waka Kotahi's guidelines. When issues are of a significant level, they will be managed and actioned in accordance with the roles and responsibilities defined in Table 14.1-1. Oversight of key decisions will be provided via a proposed project governance group.

14.5 Post Implementation Monitoring

In meeting the investment outcomes and defining what success looks like, a monitoring and evaluation approach for the Enabling works investment objectives and triggers, and an outline of responsibility for those actions, have been proposed (Table 14.5-1).

Table 14.5-1: Post Implementation Monitoring Measures

Benefit/Measure	Evaluation (Method)	Timeframe	Budget	Responsibility for
Investment objectives				
Freight Travel time reliability	Using Model; Tom Tom data	On Opening and every 5 years for 15-20 years	$10,000	Waka Kotahi
Mode shift	Using model, surveys + Walking and cycling number	Annually	$15,000	Tauranga City Council
Spatial Coverage – PT resident population	GIS based	3 years and 5 years after start of construction	$5,000	Waka Kotahi
People Throughput – Annual PT Boardings	Using surveys	Quarterly/Annual	No additional costs[118]	Bay of Plenty Regional Council
PT faster than vehicles	Using model, surveys	Quarterly/Annual	No additional costs[118]	Bay of Plenty Regional Council
Reducing all crashes	CAS: Maphub	Post Construction – CAS and Risk Review, 1 year after opening, and every 5 years	$4,000	Waka Kotahi
Reducing DSIs				
Other				
No of Houses Enabled	Using Survey	1 year and 5 years after start construction	$1,500	Tauranga City Council
Corridor Speeds	Using Surveys	1 year and 5 years after implementation	$10,000	Waka Kotahi

[118] As determined by BoPRC

15 Recommendation

The recommended Enabling works option aligns well with the Tauriko Long Term project objectives, provides an improved level of service for active and public transport modes, and is strategically important to housing demands and the national and regional freight network.

This report recommends that the Enabling works:

- Proceeds into the pre-implementation phase to enable land to be secured to allow the development of housing to proceed in the Tauriko West area
- Is funded so that implementation can occur prior to 2023, given limited land supply and housing and an already constrained transport network with a lack of safe facility choice for all modes
- Be constructed as one package of works with the potential staging option discussed in section 13.

Appendices

Appendix A : Tauriko West Eastern Ring Road Technical Report

Appendix B : ILM Targets – Long Term and Enabling Works

Appendix C : Stage 1 – MCA Option and Evaluation Memo

Appendix D : Interim Access – Meeting Minutes

Appendix E : Stage 2 – MCA Framework

Appendix F : Stage 2 – Environmental and Social Responsibility Screen for Long Term

Appendix G : Enabling Works Safety Review

Appendix H : Redwood Lane Walk/Cycle Facility Evaluation

Appendix I : Whiore Ave Evaluation

Appendix J : Public Transport Plan

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Appendix K : Travel Demand Measures

Appendix L : Kaweroa Drive Drawings and Subdivision Plan

Appendix M : DBC Enabling Works Drawings

Appendix N : Environmental Social Responsibility Screen – Recommended Option

Appendix O : Risk and SiD Registers

Appendix P : Recommended Option Estimate

Appendix Q : Recommended Option Economics

Appendix R : Appraisal Summary Table

Appendix S : Consenting Strategy

Appendix T : Summary of Community Feedback

Appendix U : Draft Early Works Point of Entry Document