SINGLE STAGE BUSINESS CASE

HAMILTON TO AUCKLAND START-UP PASSENGER RAIL SERVICE

PREPARED FOR WAIKATO REGIONAL COUNCIL

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Stantec

QUALITY STATEMENT

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6	19/10/18	Review document	SB		SB	
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9	8/11/18	Final draft	SB, AM, DW	DW	DW	AM
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Abbreviations

AC	Auckland Council
AT	Auckland Transport
ATAP	Auckland Transport Alignment Project
CBD	Central Business District
DBC	Detailed Business Case
GPS	Government Policy Statement (on Land Transport)
H2ACSP	Hamilton to Auckland Corridor Plan
HCC	Hamilton City Council
HLITA	High Level Integrated Transport Assessment
IAF	Investment Assessment Framework
LTP	Long Term Plan
MoT	Ministry of Transport
MBIE	Ministry of Business Innovation and Employment,
NIMT	North Island Main Trunk (rail)
NLTP	National Land Transport Programme
NZTA	New Zealand Transport Agency
ODP	Operative District Plan
PBC	Programme Business Case
RMA	Resource Management Act
RLTP	Regional Land Transport Plan
RTC	Regional Transport Committee
SBC	Strategic Business Case
SH1	State Highway One
SSBC	Single Stage Business Case
TAIP	Transport Agency Investment Proposal
TIO	Transport Investment Online
TMP	Traffic Management Plan
Treasury BBC	Treasury Better Business Case
WRC	Waikato Regional Council
WDC	Waikato District Council
WaDC	Waipa District Council

Executive Summary

Both the Auckland and the Waikato sub-region (comprising Hamilton City, Waikato and Waipa Districts) are currently experiencing very high population growth, particularly in Auckland and Hamilton but also in the urban settlements along the interceding corridor between the two cities. The population growth and the transformation being planned for the corridor is putting increased pressure on the existing transport connections, and also highlighting an opportunity to establish areas of transit-oriented development with the re-establishment of an inter-regional rail service.

As a result, the Minister for Transport requested in February 2018 that the business case for the proposed Hamilton to Auckland Passenger Rail Service be completed as a priority, and work be commenced on a plan for the adjacent corridor (the Hamilton to Auckland Corridor Spatial Plan {H2ACSP}). Work completed to date on the H2ACSP identified the Start-Up inter-regional rail service as a key enabler for the corridor's envisaged transformation. In addition, following start-up and as part of the corridor work, a longer-term plan for transport connections envisages progression of an express service in the medium term and eventually a rapid rail connection to Auckland in the longer-term, plus the eventual expansion of the service through to Tauranga.

Given the Ministers stated priority, this Hamilton to Auckland Passenger Rail Single Stage Business Case (SSBC) is being completed ahead of the H2ACSP and ahead of completion of the long-term transport vision. However, work has progressed sufficiently on the H2ACSP to confirm key stakeholder expectations, which are that this Start-Up service is a key part and enabler of the longer-term vision for the Corridor and the interconnecting transport services.

The Hamilton to Auckland Transport Connections Strategic Business Case identified three problem statements, two of which were particularly relevant to this SSBC:

Problem 1: A significant increase in demand for travel within the Hamilton-Auckland corridor, driven by rapid growth, is reducing transport system levels of service and placing economic performance at risk.

Problem 2: Limited travel options in areas facing high growth is reducing liveability and impacting on quality of life, safety and environmental outcomes.

The primary benefits of addressing these problems are considered to be:

- Improved Journey Times
- Improved Reliability
- Improved Access to Social and Economic Areas
- Improved Attractiveness of Potential Growth Areas

The following investment objectives were subsequently identified and agreed with stakeholders (note: a baseline for investment objectives 4 and 5 would be established prior to implementation):

1. A shorter journey time by public transport between Hamilton and Central Auckland compared to by road during peak periods.
2. A more reliable journey time by public transport between Hamilton and Central Auckland, compared to by road during peak periods.
3. Daily patronage of 250 passengers, three years after start-up of a new public transport service.
4. X% increase in people living within 5 km of towns with direct access to a new public transport service by 20XX.
5. $X value of building consents granted per annum within 5 km of towns with direct access to a new public transport service by 20XX.

A wide range of options and alternatives were considered to address the problems and achieve the investment objectives.

The preferred option is a Start-Up rail service for a minimum five-year period between Frankton (Hamilton) and Auckland (Papakura) to start, with intermediate stations at The Base (Hamilton)and Huntly (Waikato District). The trip duration between Frankton and Auckland CBD (allowing for a transition at Papakura) is expected to be approx. 2.5 hours long. If operating as planned, the Start-Up service presents as a reliable journey time alternative when compared to travelling by road.

The proposed Start-Up service would commence as a weekday peak hour service (two services for each peak direction) and a singular return Saturday service. The Start-Up service would begin with two train consists of four-carriages, with an overall capacity of 300 passengers each way daily, which transitions to two five-carriage train consists with an overall capacity of 400 passengers each way daily as demand dictates. A Sunday and public holiday service would be brought online as demand grows and track access permits (construction of key Auckland Rail projects restrict this), but is unlikely to start until Year 4 or Year 5 due.

This incremental approach has the service building year by year, providing a clear implementation pathway that responds to customer requirements over time, within cost and infrastructure constraints.

Projected passenger demand:

	Weekday one-way patronage	Total annual patronage
Year 1*	120	20,600**
Year 2	160	82,400**
Year 3	200	103,000**

* *A part year from March to June (four months)*

** *Excludes Sunday and public holiday service*

Beyond the initial Start-Up period, and depending upon demand, the service would look to integrate further with a 'through service' to Puhinui (Auckland International Airport connection once the interchange there is completed) and Auckland Central (subject to available capacity on the Auckland Transport Metro network). Any service enhancement would be subject to further assessment before confirmation and implementation if deemed feasible. All service options that involve further penetration into the Auckland Metro Network would be subject to the completion of the key Auckland rail projects, before the services could be established.

The capital cost of the Start-Up service is estimated at $49.46m (including contingencies), around 52% of which is locomotive and rolling stock-related, and 48% station-related infrastructure. Annual operating cost is estimated at $7.739m once the service is fully implemented (post 2023). This would be offset by fare revenue of $1.56m once the service is fully implemented, which would grow with patronage and any future service enhancements. The benefit cost ratio is 0.5 at the standard 6% discount rate, based on Present Value net benefits of $62.4m and Present Value net costs of $118.8m over the 30-year evaluation period.

The preferred option has been assessed against the June 2018 Investment Assessment Framework, given its expected alignment with National Land Transport Programme (NLTP) investment criteria based on the signals provided in the Transport Agency Investment Proposal (TAIP) and the June 2018 Government Policy Statement (GPS) on Land Transport. The results alignment rating of High and cost benefit appraisal rating of Low give the investment proposal a priority order rating of 5 (five) in the improvement activity scale of 1 to 8, which suggests that it would be eligible for NLTP funding.

The preferred option has also been reviewed against the investment objectives. It is expected to achieve investment objectives 1, 2 and 3. Once baseline data to enable quantifying the scale of benefit is collated, it is also expected to achieve investment objectives 4 and 5 with more people settling within a short distance of the townships with stations, and increased investment (commercial and residential) in these towns as a result.

WRC has commenced a detailed project planning process with a view to establishing a dedicated project team that would oversee the delivery of the overall programme in support of the Start-Up passenger rail service.

It is recommended that funding for the next steps to establish the start-up service is provided for:

Project management and control

WRC as the lead agency to establish a dedicated project management team to deliver the programme of work as a single consistently managed project. This would include:

- Context and scope management.
- Risk (including demand model updates and associated data gathering for risk mitigation planning), Governance and Stakeholder Management (including agreements such as timetables with the Timetable Committee).

- Timeline, procurement (including operational contracts, ticketing) and resources.
- Quality and costs (including finalising fares and revenue forecasting for service operations).

Locomotives, Rolling Stock, and Maintenance Facilities

WRC to:

- Procure locomotives and rolling stock

KiwiRail to:

- complete detailed design for rolling stock following procurement of the rolling stock.
- complete refurbishment of locomotives before December 2018.
- commence preliminary design of the maintenance facilities in Te Rapa to optimise the preferred solution.

Tracks and signals

KiwiRail to:

- Confirm station concepts with station designers.
- Commence preliminary design of track slewing and signal works associated with stations.

Stations

Hamilton City Council and Waikato District Council to procure designers for each of the stations with:

- The Base to proceed with completion of preliminary design to DBC detail (subject to completion of KiwiRail level crossing safety assessment).
- Huntly to confirm concept operational feasibility with KiwiRail then to proceed with completion of preliminary design to DBC detail if side platform is feasible for five-year start-up period.

Waikato Regional Council

Hamilton to Auckland Start-Up Passenger Rail Service

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PART A – THE CASE FOR THE PROJECT

1. Introduction

Both the Auckland and the Waikato sub-region (comprising Hamilton, Waikato and Waipa Districts) are currently experiencing very high population growth, particularly in Auckland and Hamilton but also in the urban settlements between the two cities. This population growth is putting increased pressure on the transport connections between these locations. The main focus of the pressure is State Highway One (SH1), a nationally significant transport corridor (classified as a National High Volume road under the One Network Road Classification {ONRC}), as limited other options exist.

This report presents the Single Stage Business Case (SSBC) for investing in a start-up passenger rail service between Hamilton and Auckland to improve transport connections and travel choice for local residents. There was an initial desire to implement this in October 2019, and Waikato Regional Council (WRC) and its partners did their best to meet this date. The revised date of March 2020 was determined following further assessment of the options and allows more time for rolling stock and station construction. Detailed programming had showed there was a high risk of some infrastructure works not being completed in time for an October 2019 start up.

This SSBC is a summary and collation of a wide range of investigations and decisions in relation to this project over the last couple of years. It presents the work that has been undertaken and identifies any gaps that need to be filled during the pre-implementation phases to enable a successful service to begin as soon as possible.

2. Background

2.1 Strategic Case

The Hamilton to Auckland Transport Connections Strategic Business Case (SBC) was developed collaboratively by WRC, Hamilton City Council (HCC), Auckland Council (AC), Waikato District Council (WDC), Auckland Transport (AT), the NZ Transport Agency (NZTA) and KiwiRail. It has also been supported by the Ministry of Transport (MoT) and Treasury. This report references the latest version dated 27 June 2018 as endorsed by the Hamilton to Auckland Transport Connections Working Group (TCWG). Refer to Section 3 for list of members of the TCWG.

The partners and stakeholders agreed the following problems exist in relation to the Hamilton to Auckland Transport Corridor:

Problem 1: A significant increase in demand for travel within the Hamilton-Auckland corridor, driven by rapid growth, is reducing transport system levels of service and placing economic performance at risk.

Problem 2: Limited travel options in areas facing high growth is reducing liveability and impacting on quality of life, safety and environmental outcomes.

Problem 3: Limited land use and transport integration across administrative boundaries is reducing our ability to effectively manage growth impacts and achieve key growth-related objectives.

The SBC identified that the Hamilton to Auckland Start-Up Passenger Rail Detailed Business Case was a key workstream under the SBC, along with a range of other activities. The SBC was endorsed by the Hamilton to Auckland TCWG and WRC. Subsequently it was submitted to NZTA who then endorsed it subject to conditions to be met through the development of the SSBC.

The SBC provided the foundation for this SSBC.

2.2 North Waikato Integrated Growth Management Programme Business Case

The North Waikato Integrated Growth Management Programme Business Case (PBC) was developed over the 2016-18 period and follows the Future Proof Strategy Study[1]. Partners in this PBC included WDC (lead agency), WRC, HCC, AC, AT and NZTA. The PBC was endorsed by the WDC on 11 December 2017 and the WRC and their Strategy and Policy Committee in March 2018. The PBC was subsequently endorsed by NZTA. The PBC has informed the Problem Statements and Investment Objectives associated with this SSBC. Essentially this PBC looked at the growing concerns of largely unplanned growth in the north of the Waikato District and the role that this area plays in the growth of the Upper North Island, largely as a result of its proximity to Auckland and the housing pressure within Auckland City.

Two problem statements were developed and agreed with stakeholders that reflect the key areas to address through future investment. These problem statements are:

Problem 1: Ad-hoc responses to growth pressure is creating communities disconnected from services, amenities and employment (60%).

Problem 2: Current and future demand on the transport network is impacting on safety, commercial activity and service reliability (40%).

The PBC looked at a range of development options and subsequent infrastructure requirements. One of the key determinants of locations for further development growth was the availability of existing services and amenities to serve the community. The PBC essentially highlighted service levels in each of the locations as shown in Figure 2-1.

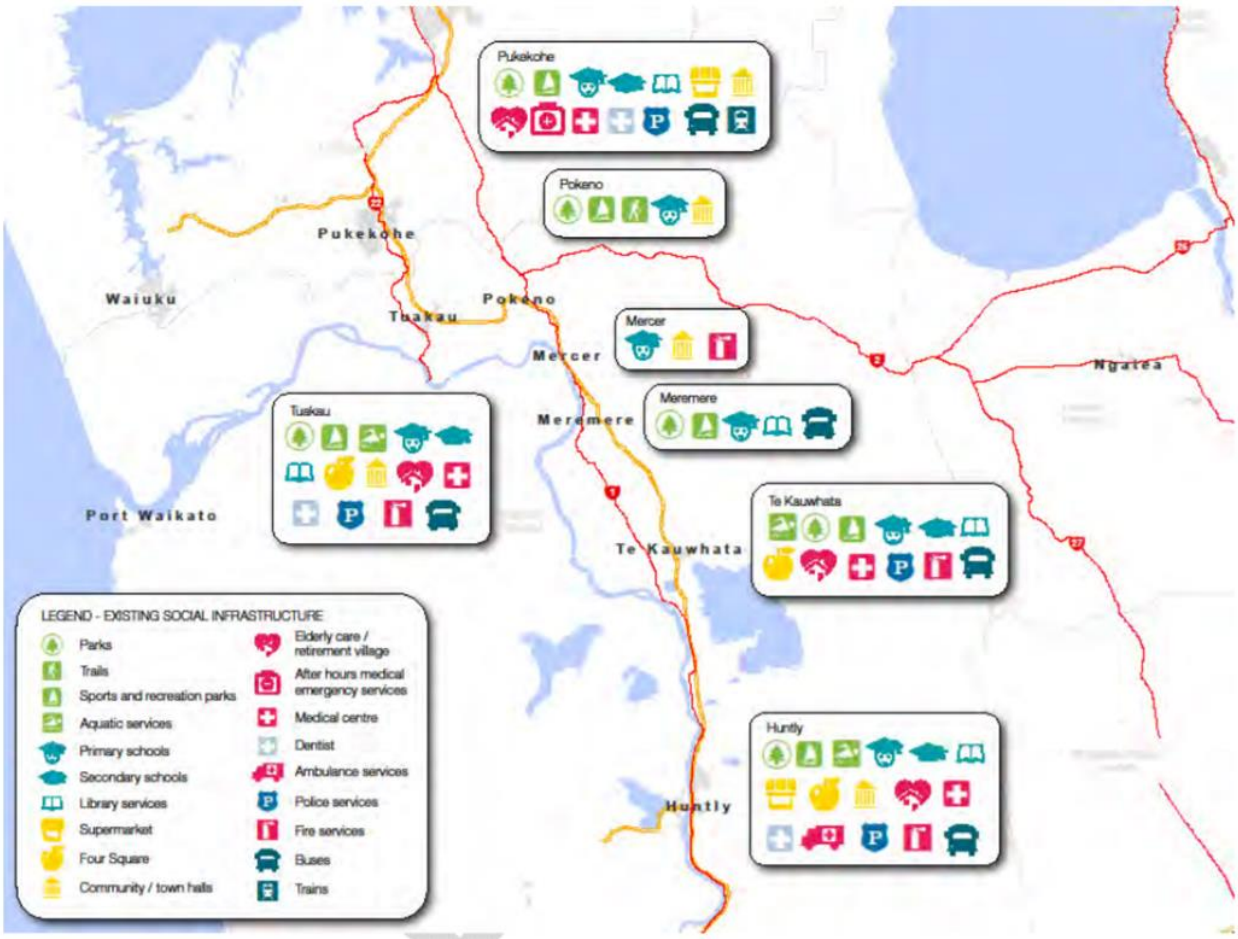

Figure 2-1: Extract from North Waikato Integrated Growth Management PBC – services in each settlement

[1] A 30-year growth management and implementation plan specific to the Hamilton, Waipa and Waikato sub-region (Future Proof sub-region). The Strategy provides a framework to manage growth in a collaborative way for the benefit of the Future Proof subregion both from a community and a physical perspective.

The ability to absorb both additional housing and cater for additional employment was considered to be driven somewhat by existing access to services, this has now been formalised in the Proposed Waikato District Plan. However, it remains to be seen whether the private sector market will undertake development in line with the growth in employment and population as outlined in the PBC. The PBC is also being used as a resource for the Hamilton to Auckland Corridor Spatial Plan (work currently underway and driven by central government.

From the perspective of this SSBC the North Waikato Integrated Growth Management PBC did include the rail option with the text 'Future transport connections between Tuakau, Pokeno and Auckland Central Business District (CBD)' in the programme summary.

2.3 Draft Hamilton to Auckland Corridor Spatial Plan

The purpose of the Hamilton to Auckland Corridor Spatial Plan (H2ACSP) is to better support growth and increase connectivity within the Auckland to Hamilton corridor, in a way that realises its social, economic, cultural and environmental potential.

The plan's scope is as an integrated plan for development and infrastructure in the corridor between Hamilton and Auckland, developed and owned by iwi, central government and local government, which accelerates transformational opportunities. A high-level spatial plan is expected to be completed by the end of 2018.

The plan has four inter-related objectives:

- improving housing affordability and choices.
- enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor.
- improving access to employment, public services and amenities
- creating employment opportunities in the corridor.

These objectives are highly dependent on the provision of high-quality public transport services to provide a step-change in accessibility, enabling new housing, while reducing reliance on private passenger vehicles.

The plan will include a number of 'transformational projects' at a number of towns along the route including Drury, Paerata, Tuakau, Pokeno, Meremere, Te Kauwhata, Huntly, Ngaruawahia, The Base and Ruakura. These projects include actions that are expected to enable accelerated business growth, residential growth, a more transit oriented urban form, and supporting iwi to grow employment and development.

The Government has committed to enabling the plan to be delivered through new and existing tools such as Kiwibuild, funding/financing mechanisms, the Provincial Growth Fund, transport pricing and legislative reform.

2.3.1 Key findings from the work to date

At the time of this SSBC being completed the plan is still in development, however some initial findings and draft outputs are emerging which are set out below. Five key findings from work to date are outlined in Table 2-1.

Table 2-1: Key findings from work to date (October 2018)

Key Findings	
The corridor is a key asset for its people and the region	The corridor is a key natural, social, economic, cultural and physical infrastructure asset for the Upper North Island and indeed New Zealand, where rural and urban communities are braided together by significant natural, transport, marae and recreational networks.
...with significant long term development potential	There is significant housing and employment growth potential in the *Drury-Paerata-Pukekohe-Tuakau-Pokeno* cluster in the north, and in the larger Hamilton that stretches from Ngaruawahia in the north to Cambridge and Hamilton airport in the south.
... but also enduring limits to growth and with immediate needs.	Some of the 'river towns' have more limited population growth potential due to enduring natural constraints; however, all of them have potential and imperatives for revitalisation and more limited targeted development.
Successful development will require **investment...**	The full realisation of development potential will require supporting investments in social and network infrastructure and services of which water, wastewater, flood, drainage and a range of new regional, metro and intercity public transport services improvements will be key.
... as well as new tools, partnerships and approaches.	There is opportunity for increased scale and/or pace of housing and employment development in several key locations but new planning approaches, partnerships and delivery tools will be required to realise such potential and need.

2.3.2 Emerging Five-Part Growth Strategy

A diagram extracted from the October 2018 presentation (Figure 2-2) shows *'an analysis of the corridor's assets, constraints, opportunities, needs and requirements generate five possible focus areas'.*

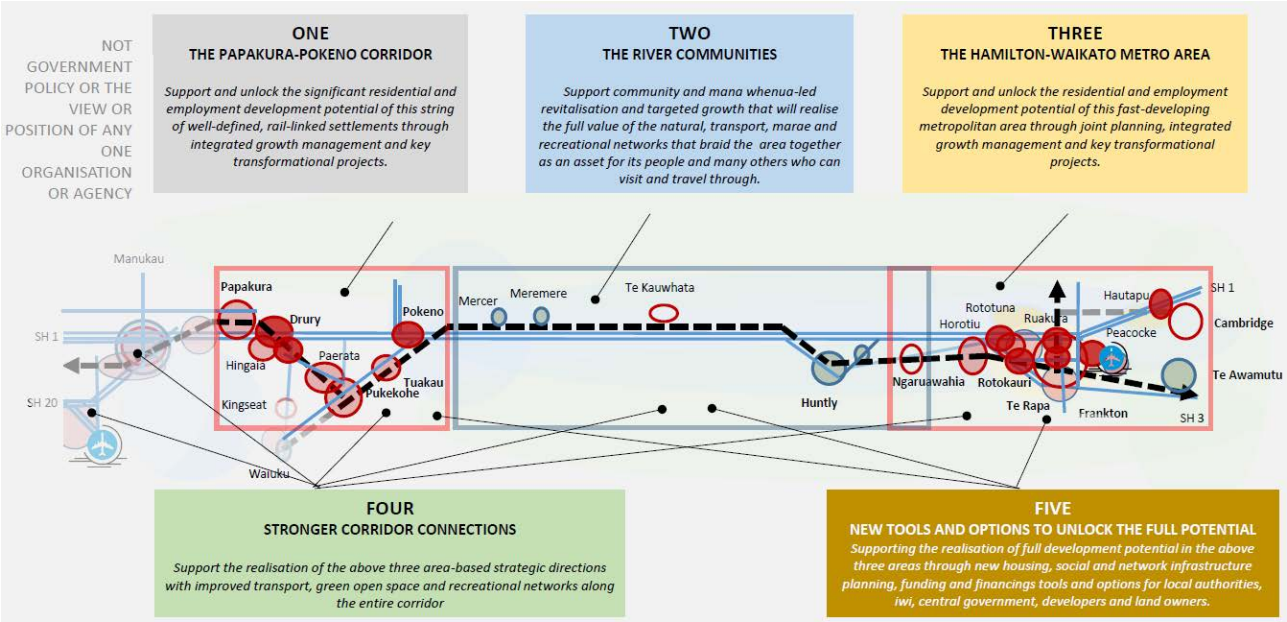

Figure 2-2: The emerging five-point growth strategy

2.3.3 Potential Future Public Transport Context

Figure 2-3 outlines the aspirational concepts for a wider Auckland Council and Waikato District public transport future emerging from the corridor plan. This includes short, medium and long-term staging of each concept. The start-up service sits in the top left-hand corner of this wider plan which will be informed by NZTAs decision on this business case. This concept is draft and has yet to be endorsed.

CONCEPTS	Stage 1: A possible shorter term (years 1-3) package	Stage 2: A possible medium term package (years 4-10)	Stage 3: A possible longer term (year 10+) package
New intercity services	Introduce non-stop diesel rail service from Rotokauri (or Frankton) to Papakura (or if at all possible, to Puhinui-Manukau) + a level of service that ideally matches customer needs and expectations	Add tracks and improved alignment (where needed) to achieve higher speeds. Extend service to new Hamilton CBD stations and a stop closer to Britomart	Electrify whole corridor; add tracks and new alignment (where need) to achieve higher speeds
Metro services (as noted above under other focus area)	AUCKLAND: Extend current Papakura-Pukekohe diesel shuttle service to Tuakau and Pokeno (would need 2 new stations and related tracks etc.)	Electrify Papakura to Pukekohe and Tuakau and Pokeno, if at all possible – and then run EMU rail service all the way to Pokeno	Electrify to Pukekohe Pokeno, if not done in medium term
	HAMILTON: Introduce a new diesel metro rail service from Huntly-Ngaruawahia-Rotokauri-Frankton-Hamilton CBD-Ruakura-Cambridge as part of a larger mass transit network (needs new 4 new stations and related tracks, signals etc.)		Extend rail to Hamilton airport and electrify the new metro network
Regional/rural services (as noted above)	Introduce peak and more frequent off peak bus services between Huntly, Te Kauwhata, Meremere, Mercer and Pokeno	Upgrade all bus stations and service frequency, and possible extend bus services north from Pokeno to new Drury station (bus runs along SH1)	Add bus lanes on SH1 Pokeno-Drury and/or Replace bus service + all-stop rail service on new electrified track

Figure 2-3: Potential future public transport context

2.4 Draft Detailed Business Case

A draft Detailed Business Case (DBC) was previously prepared for this investment but was not finalised. The draft document identified several strategic reasons for the service:

- to alleviate congestion pressures across existing transport network.
- to respond to projected growth in commuters and freight volumes in the Upper North Island.
- to provide alternative transport choices for the projected growth in commuters.
- to support a mode shift to lower emission forms of transport.
- to assist regional development.
- to provide efficient and effective access to employment and housing areas.

A key point to note was that the DBC started at a time when there was no mechanism under which regional passenger rail was to be assessed. On this basis WRC and the other partners undertook the detailed business case work broadly in line with the Treasury Better Business Case (BBC) processes but not under the NZTA Investment Assurance Framework (IAF) process.

NZTA was involved in these early stages and did undertake some basic reviews of the work. However, given that it was expected to be funded via other government departments (with slightly differing investment case approaches) they did not assess against their own IAF.

Clearly with the confirmation of rail funding in the 2018 Government Policy Statement on Land Transport (GPS), the DBC now falls fully into the portfolio of NZTA for funding in the National Land Transport Programme (NLTP) and as such, is required to comply with the IAF.

Whilst the draft DBC document was not in line with NZTA requirements of a business case, it did provide valuable information around the infrastructure and operation of the service along with a high level financial, management and commercial case. For this current SSBC phase, the underlying work and

assumptions were queried and tested and as things have crystallised for both the wider stakeholder group and WRC, the SSBC work has incorporated these aspects.

3. Collaboration

The project, which is to provide a start-up passenger rail service that has long been identified in the Regional Land Transport Plan (RLTP) as a vision for the Region, has involved eight main partners who jointly formed the TCWG. These partners have been working together on this and predecessor projects over the last two years. The partners are:

- Waikato Regional Council (WRC) – the lead organisation for delivery of a passenger rail service linking to Auckland and being the manager of public transport in the Region. WRC have promoted the service through their 2018-2028 Long Term Plan (LTP), the 2018 update to the RLTP 2015-2045, and the Draft 2018-28 Regional Public Transport Plan.
- Hamilton City Council (HCC) – representing the Hamilton-Waikato metropolitan urban focus for the proposal and being the promoters of rail station sites at Frankton and a new modern public transport interchange facility at The Base (Rotokauri) which would help support the growth to the north east of city. The development of the Base transport hub was included in their 2018-2028 Long Term Plan (LTP). HCC is a key member of the Future Proof growth collaboration alongside WRC, WDC, Waipa District Council, tangata whenua representatives and NZTA.
- Waikato District Council (WDC) – the territorial authority responsible for the Waikato District which lies geographically between Hamilton and Auckland. The north of the District is currently accommodating larger scale growth than would have been anticipated less than 10 years ago. WDC is a key partner in the 'Future-proof' growth collaboration (see Section 4).
- Auckland Transport (AT) – AT is the transport authority for Auckland Council and supports the proposal on the premise that it can be operated without detriment to existing and planned Metro services, which form a critical component of Auckland's transport system and are essential to support planned growth areas. AT may potentially be the contracted manager of the start-up passenger rail service.
- Auckland Council (AC) – Auckland councillors are members of the Hamilton to Auckland TCWG overseeing the development of the SSBC.
- KiwiRail – Owner and operator of the rail network, KiwiRail are a key partner in the delivery of the project and are therefore working to provide costs and delivery information for rolling stock and station upgrades.
- NZ Transport Agency (NZTA) – Representatives from NZTA are members of the Hamilton to Auckland TCWG and have been actively involved in the project since its inception. NZTA will receive the SSBC and undertake an Independent Quality Assessment (IQA) prior to it going to the NZTA Board for endorsement in December 2018.
- Ministry of Transport (MoT) – Provides key support to the project in line with the requests from the Minister of Transport and the direction set by the GPS.

The partners have met on a regular basis to discuss potential solutions, constraints risks and trade-offs. Where relevant these are documented within the body of this SSBC.

4. Strategic Alignment

The Hamilton to Auckland start-up passenger rail service aligns closely with national, regional and local strategies, policies and plans, as demonstrated in Table 4-1. Further information is provided in Appendix A.

Table 4-1: Alignment with National, Regional and Local Strategies, Policies and Plans.

Document	Alignment
National	
Government Policy Statement on Land Transport (GPS) 2018-28	The MoT prepares the GPS which sets out the Government's strategy to guide land transport investment over the next ten years. NZTA is responsible for giving effect to the GPS, through the NLTP and the region must be consistent with the GPS, through the RLTP. When the start-up passenger rail service is assessed against the GPS it shows: • **Strong** alignment with all three GPS objectives under **access**: by providing increased access to economic and social opportunities along the corridor; a more resilient network through providing a new mode; and improved transport choice and access by providing a new mode. • **Strong** alignment with **safety**: by moving people onto a safer mode, notwithstanding interactions at level crossings with rail. • **Moderate** alignment with **value for money**: by using the business case approach for decision making and collaborating with investment across the organisations to realise efficiencies. • **Strong** alignment with **environment**: investing in public transport to increase use, lower greenhouse gas emissions and improve health has strong alignment with the GPS objectives. The GPS also created a 'transitional rail' funding category for the first time, which is specifically intended to "*support investment in…. new interregional commuter rail services, including the capital costs associated with the rolling stock to support housing and employment opportunities*" (par. 183 of GPS)
Regional	
Waikato Regional Policy Statement (RPS)	The Waikato RPS was made operative in May 2016 (after being notified in late 2010). It identifies the North Island Main Trunk (NIMT) railway as regionally significant infrastructure which it describes as supporting the wellbeing of the regional community and being important to NZ as a whole. It sets out that in areas of actual/anticipated significant growth, territorial authorities should develop and maintain growth strategies which identify a spatial pattern of land use and infrastructure development and staging for at least a 30-year period. The RPS seeks to protect the effectiveness and efficiency of (and investment in) regionally significant infrastructure through district plans avoiding adverse effects on its function; avoiding adverse effects of ribbon development along the corridor and avoiding the need for additional access points onto those corridors. It also seeks to avoid the exacerbation of community severance caused by transport corridors. Onus is put on infrastructure providers to develop ways to maintain and improve the resilience of regionally significant infrastructure, such as through back-up systems and protection from the risk of natural hazards.
2018 Update to the 2015-45 Waikato Regional Land Transport Plan (RLTP)	The Waikato RLTP **advocates** for a start-up passenger rail service between Hamilton and Auckland, in line with the Government's commitment to increasing the use of rail to enable efficient interregional passenger transport. The start-up passenger rail service is listed as a prioritised significant transport activity in the RLTP.
WRC 2018-28 Long Term Plan	The start-up passenger service between Hamilton and Auckland is included in the WRC LTP with levels of service and stops broadly set up. WRC has set aside funds for this project in their respective LTP (which was adopted in June 2018).
Draft Waikato Regional Public	The Draft Waikato Regional Public Transport Plan 2018-28 was released for public consultation on 23 August 2018. The Plan supports the start-up

Document	Alignment
Transport Plan 2018-2028	passenger rail service by inclusion of policies and a description of the phased development of the service. Submission received on the Draft RPTP broadly support the start-up passenger rail service.
Auckland Regional Land Transport Plan (RLTP)	The Auckland RLTP identified inter-regional rail services and notes that changes in policy in response to growth pressures in Auckland and the Upper North Island mean that provision of inter-regional rail is now being considered. The plan notes that the Government has signalled its intention to introduce inter-regional rail services between Auckland, Hamilton and Tauranga as a means of supporting growth, housing and reducing congestion on the Southern Motorway (SH1).
The Auckland Plan 2050	In relation to this SSBC, the Auckland Plan **includes** discussion on Hamilton to Auckland Rail: *While major upgrades to SH1 to the north and south of Auckland are planned or underway, these improvements may have to be complemented by future upgrades to the rail network to better connect the upper North Island.*
Auckland Transport Alignment Project (ATAP)	In relation to this project ATAP already have some commitments in the vicinity, with upgrades and electrification of the NIMT now approved to Pukekohe. In the medium to longer term the expectation is that there would be further rail network upgrades to enable express and inter-regional passenger rail service. The reports indicate that as further funding becomes available, investigating the acceleration of these investments into the first decade should be a priority. These improvements are intended to "support the progressive implementation of inter-regional rail passenger services between Auckland and the Waikato, which will also help to unlock growth opportunities around the rail network in the Waikato[2]".
Sub-Regional	
Future Proof Strategy Study	The Future Proof Strategy is a growth strategy that sets out a 30-year vision specific to the Hamilton, Waipa, and Waikato sub-region. The main focus of the Future Proof Strategy study is to ensure identified growth issues are managed including by creating nucleated settlements with densities that are suited to the requirements of long-term growth. The start-up passenger rail service shows **strong** alignment with the Future Proof Strategy.
North Waikato Integrated Growth Management Programme Business Case (PBC)	The North Waikato Integrated Growth Management PBC follows the Future Proof Strategy. Essentially the PBC looked at the growing concerns related to largely unplanned growth in the north of Waikato District and the role that this area plays in the growth of the Upper North Island, largely as a result of its proximity to Auckland and the housing pressure within Auckland City. The PBC looked at a range of development options and subsequent infrastructure requirements. One of the key determinants of locations for further development growth was the availability of existing services and amenities to serve the community in the short term. From the perspective of this SSBC the North Waikato Integrated Growth Management PBC did **include** an option of 'Future transport connections between Tuakau, Pokeno and Auckland CBD' in the programme summary.
Waikato Plan 2017	Through 2016/17 Waikato councils, central government and other private and public agencies have worked together to create the Waikato Plan. The Plan provides the region with one voice about important issues that affect the region over the next 30 years. A key action in the Plan is to advocate for sub-regional or inter-regional public transport services not currently being provided, specifically to and from key services (including education and health providers) and between live and work locations. This includes passenger rail, which is linked to Key Action 4

[2] Auckland Transport Alignment Project Report, April 2018, pages 24 and 25

Document	Alignment
	(Advocate on behalf of regional transport priorities) and Key Action 5 (Integrate Waikato and Auckland transport networks).
Hamilton to Auckland Corridor Spatial Plan in preparation	The Auckland to Hamilton Corridor Spatial Plan is a Central Government initiative supported locally and is expected to be completed by the end of 2018. The plan's scope is as an integrated spatial plan for development and infrastructure provision in the corridor between Auckland and Hamilton. The outcomes sought by the Corridor Plan, particularly in the North Waikato, are highly **dependent** on the provision of high-quality public transport services towards which the start-up passenger rail offering is being seen as a first step. In particular, high quality public transport connections are being relied on to provide a step-change in accessibility (and reliability of journey times), enabling new housing, while reducing reliance on private passenger vehicles and associated costs.
District	
HCC and WDC 2018-28 Long Term Plans (LTPs)	The rail service between Hamilton and Auckland is included in the HCC and WDC LTPs with levels of service and stops broadly set up. HCC and WDC have set aside funds for train platform infrastructure in their respective LTPs (which have now been adopted).
Hamilton and Waikato District Plans	The Hamilton District Plan identifies the location of the Base Station as a key public transport interchange. While the Waikato plan does not specifically discuss passenger rail services, it re-iterates growth is planned to occur at the settlements between Hamilton and Auckland.

5. Context

5.1 Location and Social Context

The geographical scope of this SSBC is the area from Hamilton in the south to Auckland in the north (as shown in Figure 5-1). At start-up stage the SSBC is focussed upon the potential for passenger demand between Hamilton and Papakura, with transfers to AT Metro services at Papakura for Britomart and there is an anticipated improvement to run the service further into Auckland to the Strand within five years.

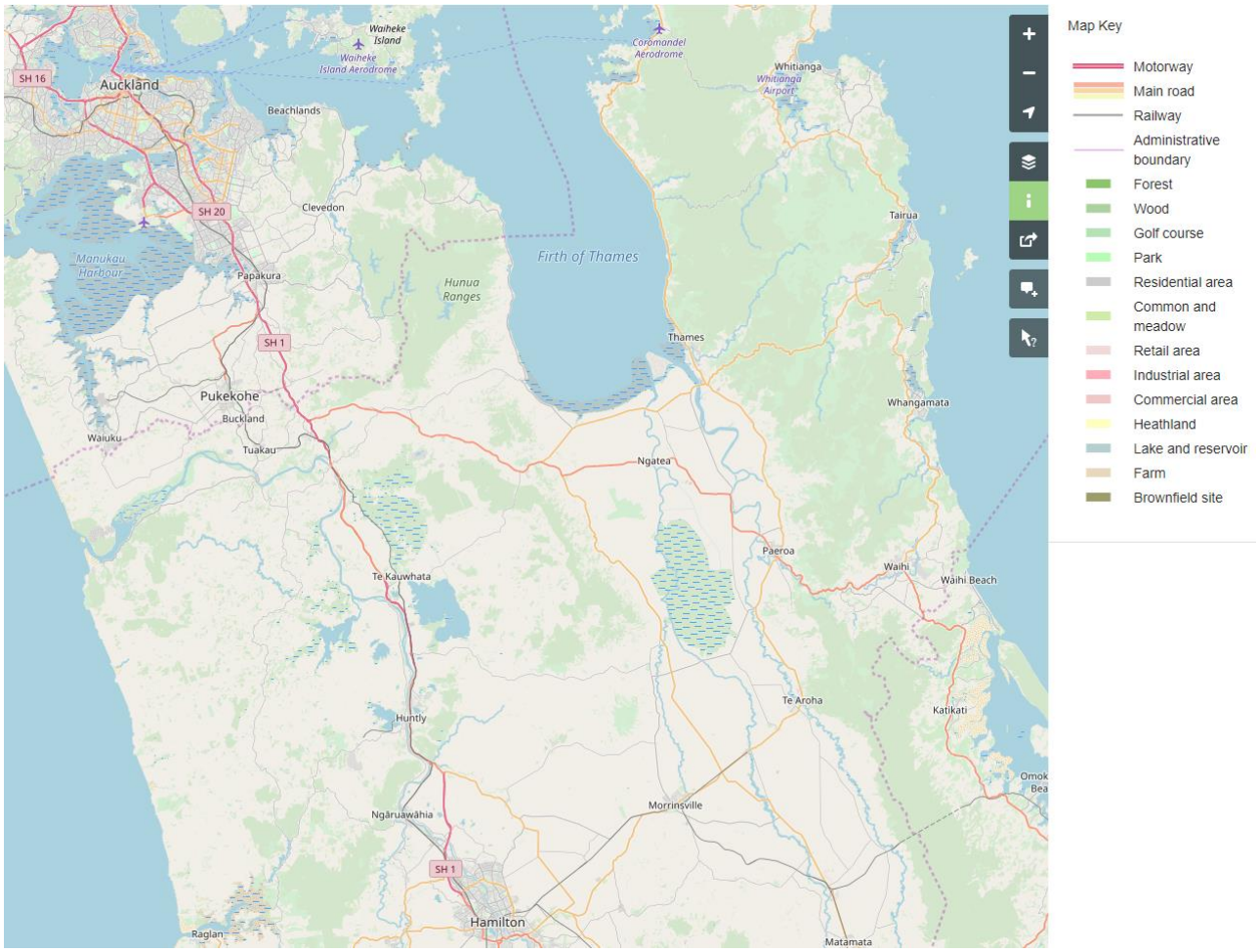

Figure 5-1: Geographical area of Business Case

The context that sits behind the start-up service is the existing and potential rapid growth in demand for both housing and therefore commuting from North Waikato and Hamilton City. It is widely acknowledged that this is largely related to the housing market (relatively high median price of land and housing compared to Waikato) in Auckland, which is also driven by the rapid growth of the population in Auckland City (a situation that is expected to continue):

> *More than 1.66 million people live in Auckland already. Over the next 30 years this could increase by another 720,000 people to reach 2.4 million. This could mean another 313,000 dwellings and 263,000 jobs are required over this period. Auckland's population growth is driven by both natural growth, meaning more births than deaths, and migration from overseas and from other parts of New Zealand. Natural growth is more easily planned for over the long-term, while changes in immigration patterns often require a more immediate response.*[3]

[3] Auckland Plan 2050 (June 2018) – '*a long-term spatial plan to ensure Auckland grows in a way that will meet the opportunities and challenges of the future*'.

Another key factor is the growth of settlements in the northern Waikato area, driven by the availability of affordable housing and the relative proximity to Auckland.

Whilst the Auckland Plan 2050 intends to ensure the future population can be accommodated with the Auckland Plan area, the current housing market is known to be a restriction and the plan itself acknowledges that of the half a million potential building consents created, a large proportion may be unviable for several reasons. This is mitigated in some respects by over provision.

Whilst the Auckland Plan 2050 therefore sets out a way forward, the impact of this plan and the resource consents created and subsequent lags between this and construction probably mean that the efforts of the Plan are unlikely to felt on the Auckland and north Waikato housing market for some time, possibly 10 years. Interestingly, median house prices in Auckland in the last reported quarter have fallen slightly whilst the median prices in Waikato district and Hamilton city have continued to rise. The graph in Figure 5-2 (using data provided by the Ministry of Business, Innovation and Employment {MBIE}) shows the trends in median house prices over the three districts of Hamilton, Waikato and Auckland since 1993.

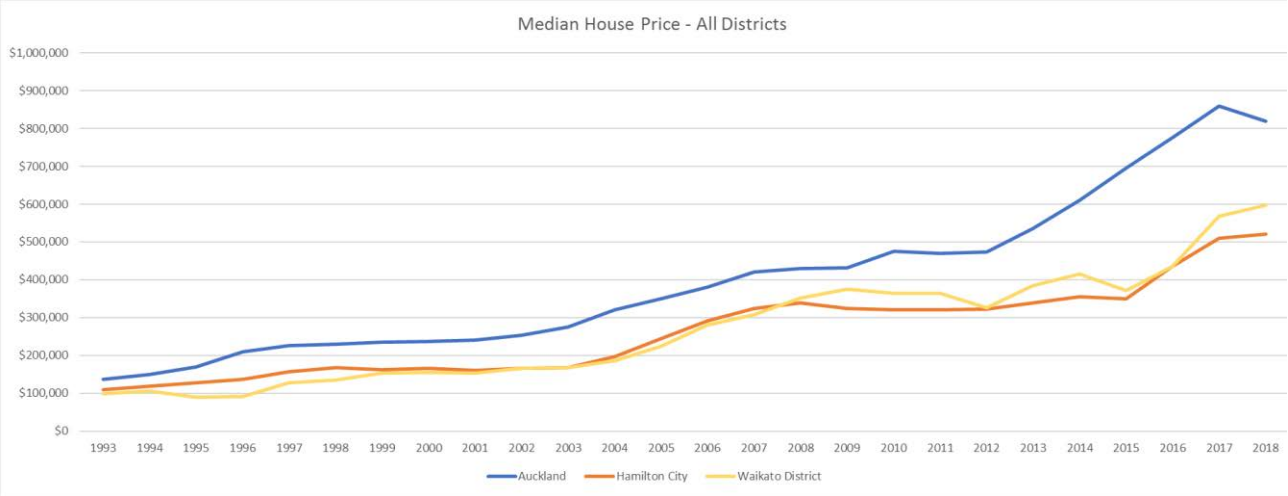

Figure 5-2: Median House Price Data: Hamilton City, Waikato District and Auckland (source: MBIE)

The graph indicates very little to no lag between the house price increases of Auckland and those of the neighbouring economies, this either indicates that the market is rapidly responding to the price increases in Auckland or that there is wider and more entrenched trend in house price increases since approximately 2003.

Household consent data has also been provided, the graph in Figure 5-3 shows the consents per annum for the three main affected Councils since 1993. The market in housing development is complex, but looking at both graphs (median house price and consents) it seems likely the trend in the low number of consents in Auckland between 2003 and 2013 has contributed to the more rapid rise in median house prices since 2013. Clearly this is difficult to remedy as development; particularly in areas with high land values, is affected by economic confidence (and by association, access to favourable bank loans). Other factors that may have contributed to this drop in consents but not investigated, are related to policy (for example, intensification restrictions and car parking standards can limit development in high value/high density areas). Hamilton City and Waikato District also had a similar dip in consent demand in post 2003 (though with a much smaller level of consenting). There is also a dip across the three authorities in consents in 2013, once again whilst the cause of this dip may be a result of many factors, the construction industry was thought to be stretched over this period by the focus of reconstruction in Christchurch.

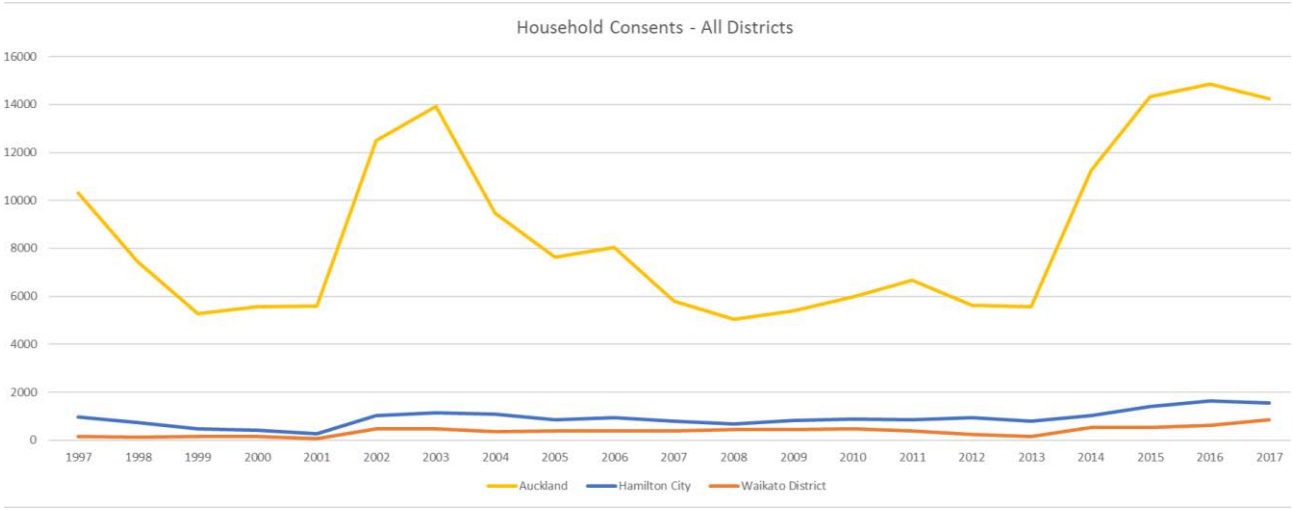

Figure 5-3: Household consents, Hamilton City, Waikato District and Auckland

The overall picture related to housing is that pressures are continuing to build and that whilst more recently there have been concerted efforts to consent and fund new housing across the three regions (as discussed in the sections above with Future Proof Strategy study), there is likely to be a large lag in effect.

There is a growth trend emerging which is illustrated in the following series of maps, and there are subtle population changes taking place along both the North Waikato / Auckland border, but also along the SH1 corridor and in Hamilton. The map in Figure 5-4 shows the population growth percentages by mesh block between 2001 and 2006. This indicates a fairly even growth on and around the SH1 corridor. The map in Figure 5-5 shows the growth percentages between 2006 and 2013, which shows a slightly less even pattern with subtle increases in population along the SH1 corridor and South Auckland.

The final map in Figure 5-6 shows the overall percentage increases between 2001 and 2013, which illustrates slightly more boldly the largest growth in South Auckland locations and fairly consistent growth in North Waikato, with a subtle shift in populations towards these areas and SH1. It should be noted that where percentages are used, particularly in relation to larger, more rural districts, the actual change in the total numbers may be relatively low.

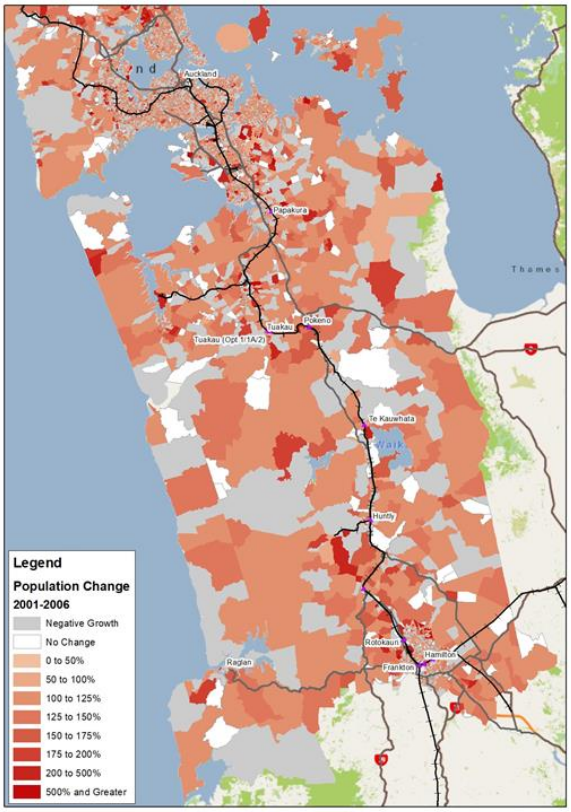

Figure 5-4: Population Growth % 2001-2006

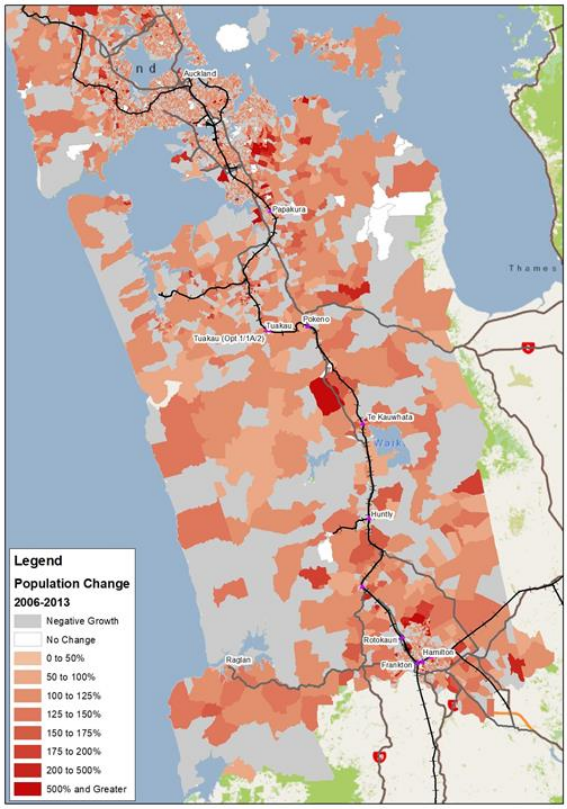

Figure 5-5: Population Growth % 2006-2013

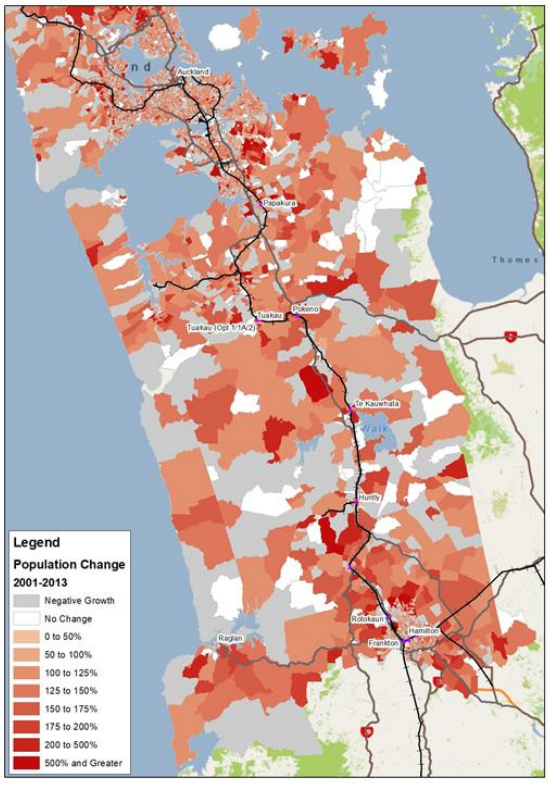

Figure 5-6: Population Growth % 2001-2013

The following three maps (Figure 5-7, Figure 5-8 and Figure 5-9) show there was little employment growth in the central areas of Auckland over the period 2001-2013, with patches of larger employment growth largely on the periphery and in locations along SH1.

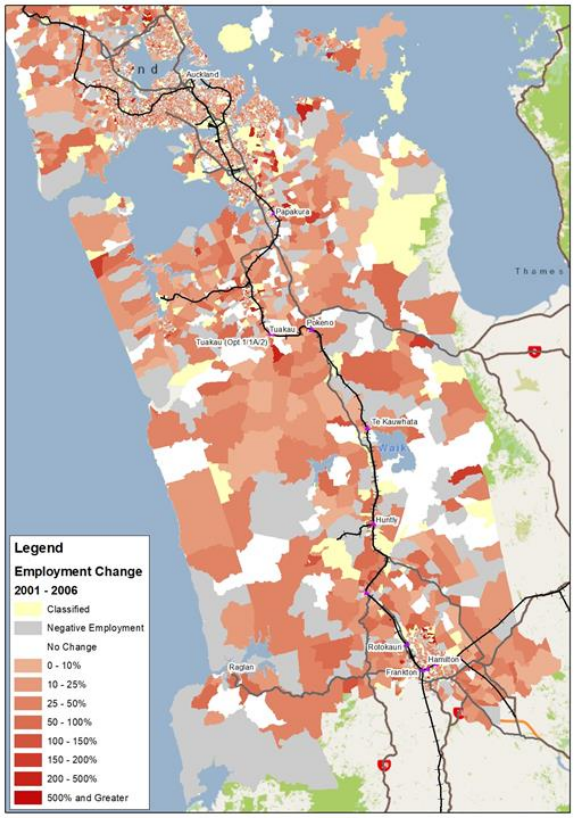

Figure 5-7: Employment Growth 2001-2006 percentages

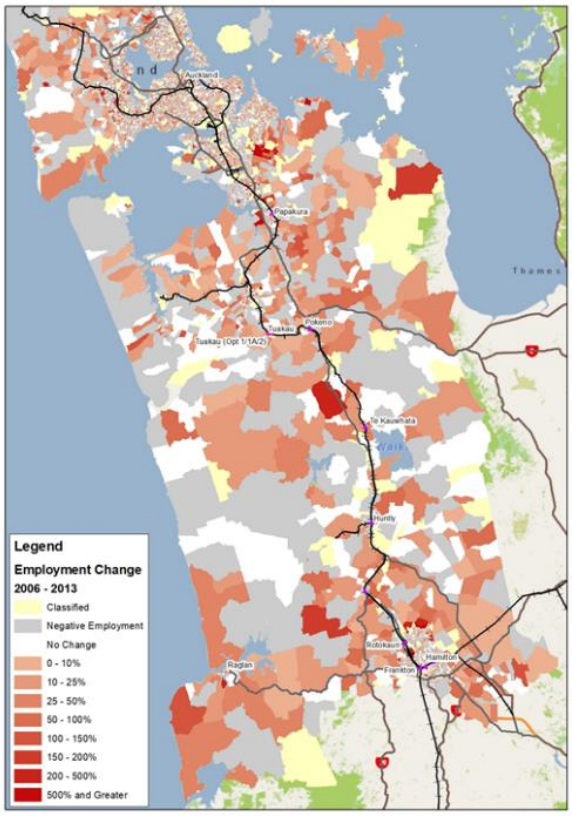

Figure 5-8: Employment Growth 2006-2013 percentages

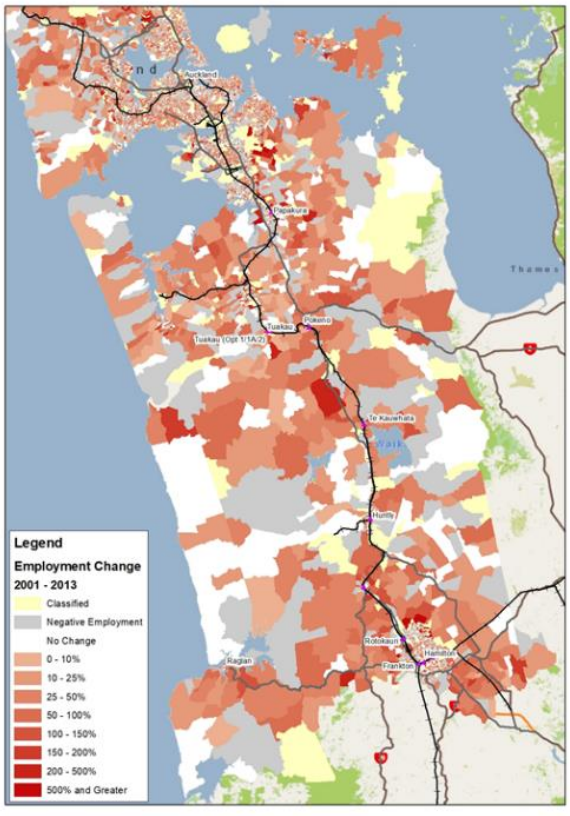

Figure 5-9: Employment Growth 2001-2013 percentages

5.2 Regional Transport Context

The current options to commute between Hamilton and Auckland favour private vehicle by road. Existing public transport options either cost too much or the timetables are not commuter friendly. WRC and WDC, coupled with NZTA have proposed plans to improve bus services in the North Waikato corridor, which are outlined in Section 5.2.3.

5.2.1 Road

The primary transport route between Hamilton and Auckland is SH1. This nationally strategic corridor is currently being upgraded to expressway standard of at least two lanes in each direction and a central median barrier as shown in Figure 5-10.

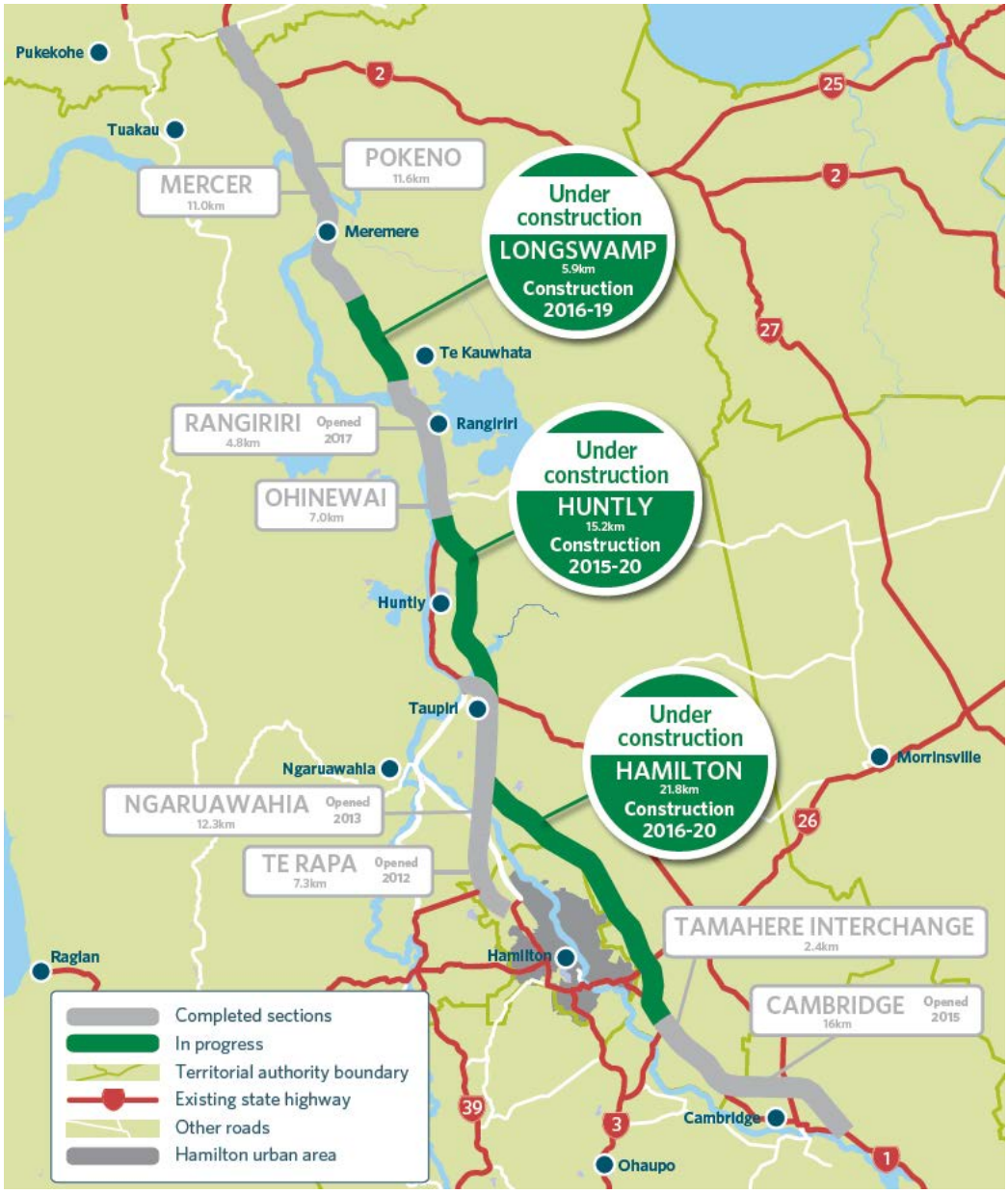

Figure 5-10: Primary Transport Route Upgrades

The state highway upgrades to the Waikato Expressway and sections of the Southern Motorway on the periphery of Auckland, are all likely to impact on Annual Average Daily Traffic (AADT) demands, with traffic demand on SH1 growing at an increased rate in recent years since improvements on the route started.

As the graph in Figure 5-11 shows, volumes monitored at the SH1 Bombay Telemetry site have increased from 37,282 in 2014 to 44,312 in 2017 (7,030 or a 19% increase). There is slower AADT growth at locations further north (Rosehill) which is likely due to existing traffic congestion on this section of SH1. The AADT at Taupiri also shows a similar slower growth, but this may be somewhat constrained by incomplete works at

the Hamilton end of SH1. If in the future, similar percentage growth increases are witnessed on other SH1 route sections as for Bombay, then the capacity improvement works planned to the Southern Motorway at the southern edge of Auckland are likely to have a brief lifespan before becoming congested again.

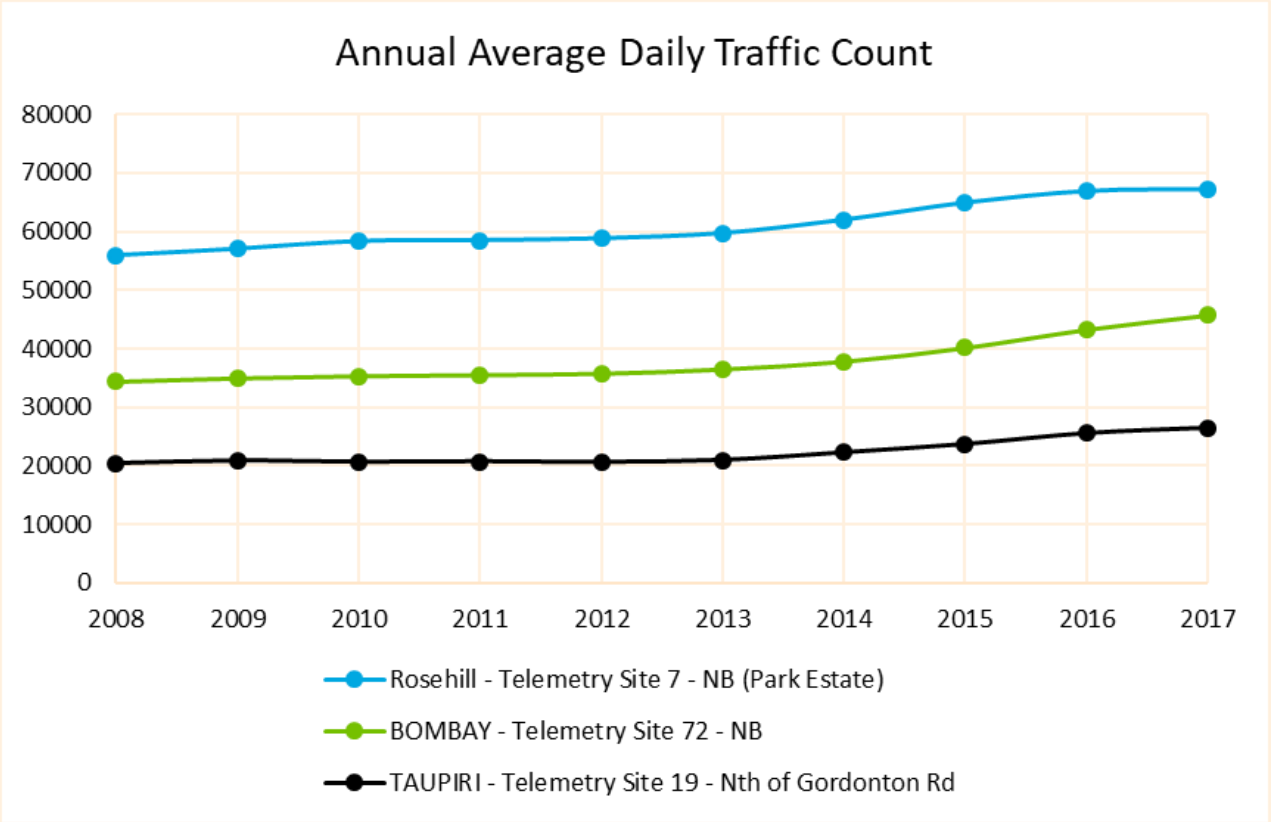

Figure 5-11: NZTA Telemetry Count Sites

The state highway improvements on the Waikato Expressway (Longswamp to Hamilton sections) have a total project cost of $1,605M. The effect of this is anticipated to achieve a 35-minute time saving for journeys between Pokeno and Tirau. As alluded in the previous paragraph, whilst this may be achieved in the short term, journey time savings are rapidly eroded as demand grows to use the available road space. It is also clear from the Future Proof Strategy that the route would experience additional traffic demand because of new development (residential and commercial). It is also considered likely that further growth would occur because of changes to the make-up of the towns on the route as houses are sold to people specifically targeting these areas to live as a result of the proximity to the improved SH1 corridor. On this basis, having a passenger rail link would perform an essential role in protecting the Waikato Expressway investment, both through offering mode choice but by also creating a robust reason for directing growth in the townships rather than at locations near to SH1 junctions. It is anticipated that these overarching issues would be addressed as part of other works to consider regional rail and the 'second stage' GPS.

Figure 5-12 shows the proposed forecast growth planned across the Waikato, Hamilton and Waipa District Plans, it is worth reiterating that the total growth anticipated in this area over the next 30 years is a total of just over 95,000 households and nearly 1,000 hectares of employment land. With a modest projection of travel demand towards Auckland of 10% commute/education and 5% per day visiting Auckland, those 95,000 households would create approximately 14,000 additional trips per day heading to the Auckland Urban Area. Similarly, if one hectare of industrial land is assumed to generate around 50 trips per day and 10% of these are going into Auckland then it could be expected to have another 5,000 one-way vehicular trips. It is simply not possible to continue to expand the state highways going into Auckland to cater for both this and internal (to Auckland) demand. Looking at the Auckland Plan 2050, the projected consents sit at around half a million over a similar time period, whilst not all of this would be delivered – the consent demand is predicted to be at around 450,000. This level of growth is supported by some very timely investment in mass transit solutions, but even with this level of investment there is a good chance that household and retail/office/industrial growth would result in a steady state situation within the city for traffic.

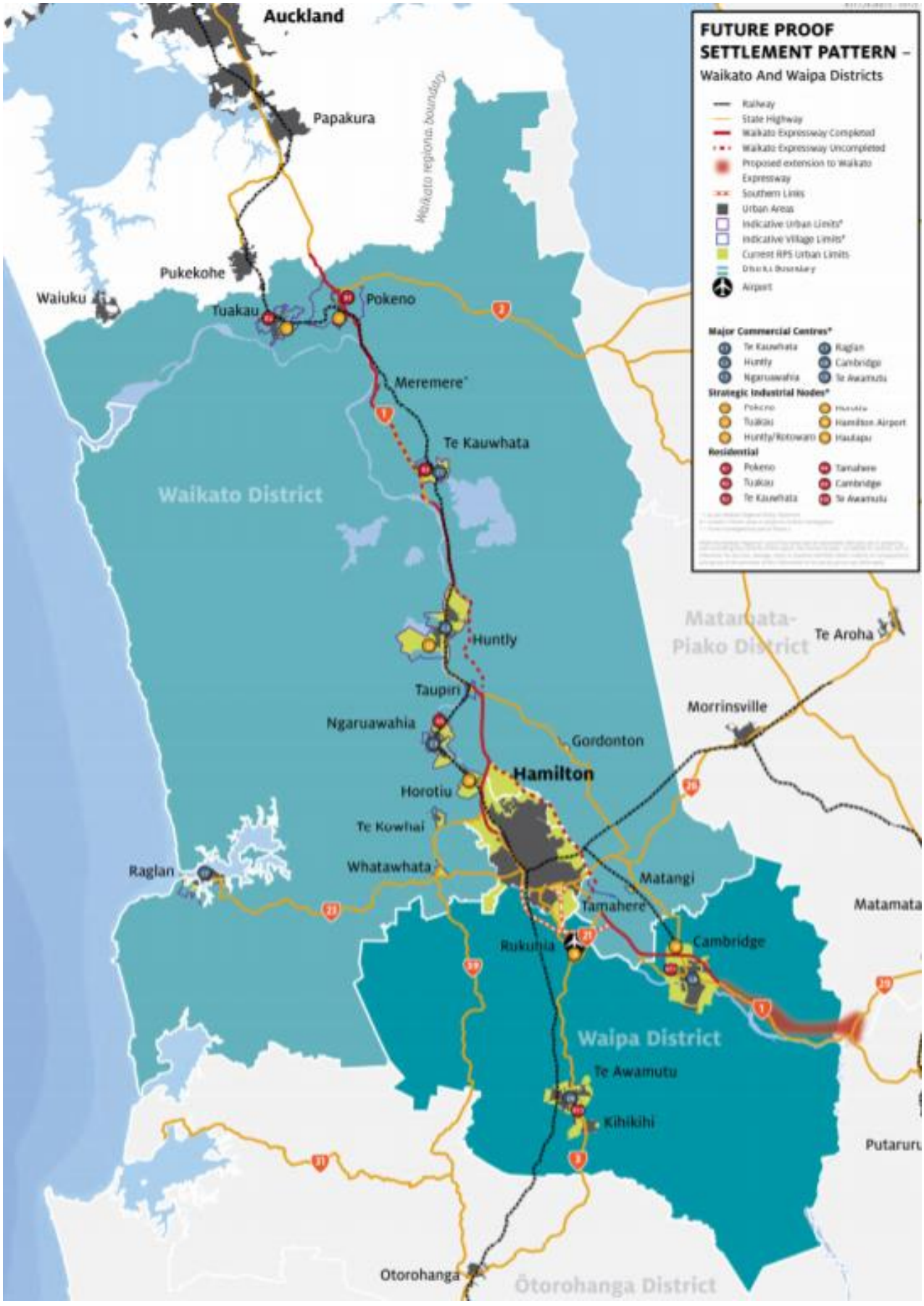

Figure 5-12: Future Proof Strategy study map showing areas of growth

For the figures for each district, refer to extracted tables shown in Appendix A.4 and Appendix E.

5.2.2 Rail Services

There is an existing rail passenger service operating between Hamilton and Auckland, which is the KiwiRail Northern Explorer service. The Northern Explorer travels between Wellington and Auckland over the course of a day and then makes the return journey the following day (there is one lay day per week). This service is primarily set up as a long-distance tourist train and is not a viable option for commuters to consider for work purposes at all. Ticket prices between Hamilton and Auckland start at $59 each way, so are set much higher than would be expected of a potential passenger rail start-up service.

Historically this service was daily, with a train travelling each direction but this ceased in 2009 to the current service model today. Prior to 2004 it was a twice daily service.

A previous trial passenger rail service between Hamilton and Auckland, the Waikato Connection, operated in 2000 and 2001. This was not commercially viable and ceased operation after 14 months.

AT also has contracted Diesel Multiple Unit (DMU) passenger rail services between Pukekohe and Papakura and Electric Multiple Unit (EMU) passenger rail services north of there. The latter have reasonably high frequency.

5.2.3 Bus Services

There are several bus services in the Waikato Region, with few inter-regional services available to get to Auckland. Most of the existing options that connect to Auckland are not suitable for commuters based on the cost and timetable constraints in place. Available services are:

- InterCity: the nationwide bus service that could theoretically be used daily by commuters to reach Auckland. If they departed Hamilton at 5:30am they could be in Auckland Central by 8:00am, with a 4:45pm service returning at 7:00pm. The cost of such a return trip is approximately $50 return, however ticket prices can fluctuate depending on availability. Intercity travel along the state highway corridors and generally only stop at smaller centres on request, apart from certain scheduled stops en route.
- Minibus Express: a bespoke Hamilton to Auckland International Airport service, generally for those passengers travelling overseas ($80 one way or $150 return).
- Council contracted bus services – As part of its 2018-28 Long Term Plan, WRC is committed to improve the bus network in the North Waikato area, with the following new projects approved for implementation over the next two years:
    - Pokeno to Pukekohe - a regular bus service between Pokeno and Pukekohe via Tuakau on weekdays and weekends. Designed to integrate with train services from Pukekohe to Auckland. Proposed service levels - 30min peak and 60-120min off-peak, Monday to Friday
    - Huntly to Pukekohe - a daily off-peak return service between Huntly and Pukekohe via north Waikato towns Monday to Friday, providing community connectivity and broader access to essential services.
    - Te Kauwhata to Hamilton– Extension of the existing Huntly bus service to Te Kauwhata for one return trip during peak periods on weekdays, providing access to employment, education and social opportunities
    - Community Transport Initiatives – WRC/WDC will investigate the opportunity of community initiated transport solutions to provide improved transport access, particularly in areas where public transport may not be a suitable/cost effective option.

In July 2018, the national commercial bus service provided by Naked Bus ceased operation. This removed a low-cost travel option for the regional. Naked Bus operated similarly to Intercity, but on a smaller scale.

5.3 Other Rail Projects

There are several other rail projects in construction or planning in the greater Auckland area, that provide certain limitations or influence what can be initially achieved by the start-up passenger service. These limitations, or influences, are referred to within the SSBC where relevant. These other rail projects are listed in Table 5-1 and provide indicative background information on the project and possible timings.

Table 5-1: Other rail projects in Greater Auckland area

Project	Information
Papakura to Pukekohe Electrification	Electrification of the line between Papakura and Pukekohe is planned for completion over the next five years (2023), subject to final funding approval. A DBC is currently being updated to allow full funding application towards the end of this financial year. The current DBC assumes electrification of the existing two track railway. Changes to assumptions may mean that provision of additional tracks may need to be brought forward. The cost and timing implications of this have yet to be established. Access to the rail network for the electrification works is a key driver of delivery timeframes. It is likely that regular closures of the rail line will be required to complete the electrification works. Following completion, unless further work has been undertaken to facilitate operation of regional trains further north, the termination point of the Hamilton to Auckland passenger rail service would shift to Pukekohe. The design of Pukekohe will allow for this. Extension of electrification further south to Pokeno/Mercer may be under consideration as part of the Hamilton – Auckland corridor project. No detailed work has been undertaken in respect to this concept.
Puhinui Station	An initial upgrade of Puhinui Station to facilitate interchange with a dedicated bus service to Auckland International Airport, is currently in the design phase and is planned to be operation by 2021. This upgrade has been future proofed for four tracks and additional rail turn back facilities, but these are not included within the first stage of the project. Later stages include provision of a dedicated bridge crossing the railway, and an expanded passenger concourse. Provision of additional tracks would need to be brought forward to accommodate terminating regional trains, or provided as part of the 3rd main project. If there is capacity on the network for through running trains, then it is likely that they would call at this station. This is subject to further operational analysis and would require provision of appropriate customer facilities/information. Construction requires blocks of line, which would be co-ordinated with other works where possible.
City Rail Link (CRL)	The CRL will provide a connection between Mt Eden and Britomart via 3.5km twin tunnels and significantly improve access to the Auckland CBD. The project includes provision of additional platforms at Otahuhu and Henderson, and reconfiguration of Newmarket Junction. A new grade separated junction is also required at Mt Eden. Construction of these works on the existing rail network require blocks of line between now and project completion in 2024. The capacity provided at Otahuhu will largely be absorbed by planned metro services. There is no specific provision at this stage for regional trains to call, although if a path can be found to run trains north of Papakura, then calls at this station are likely to be possible.
Wiri To Quay Park (3rd Main)	NZTA have recently approved funding to update the business case for the third main and commence pre-implementation works. The programme for completion will be updated as part of this process, but it is planned to be completed prior to the opening of CRL (potentially by end of 2021/22). The project is primarily conceived for freight use, with added benefits for metro resilience, but it may provide additional capacity to enable regional trains to run in service north of Papakura (subject to growth in freight traffic, the timing of the service and operational modelling). The project also includes upgrade to Westfield Junction to enable a 15-minute interpeak metro service, and reconfiguration of freight access to the Auckland Port. Provision of the third main does not provide the step change in capacity required to run full express services through the Auckland network (which requires a fourth main) but it may facilitate limited stop services and/or regional trains.
4th Main	A fourth main line has been identified as necessary to provide capacity to meet planned metro passenger services and freight service growth. This is not provided for within the current Auckland RLTP funding envelope and not currently envisaged within the next 10 years. The timing for delivery of the fourth main is subject to review.

Project	Information
Other Works	Other works planned for completion on the AT Network prior to CRL completion that remain subject to funding include; completion of deferred renewals, additional power supplies, additional EMU stabling facilities, signalling headway improvements, Auckland Control Centre, Level Crossing Removal, station upgrades etc. Temporary access to the network will be required to complete these projects, which will be managed through normal industry process. The volume of work planned for completion will result in a higher level of disruption than might normally be expected. There is a desire to complete as much of this work as possible prior to introduction of more frequent trains enabled by the CRL.

6. Constraints, Issues, Assumptions and Key Risks

6.1 Constraints

The following constraints advised by key project stakeholders have influenced the development of the SSBC:

- A requirement for a service to commence operation by March 2020 (was previously targeted for October 2019), and associated lead times that require an investment request to be lodged to the NZTA Board in December 2018.
- Because of constrained timeframes, it was determined that rolling stock would be limited to available used rolling stock within New Zealand that could be cost effectively re-purposed. The short 5-year focus of the business case would not provide sufficient justification for investment in new train sets for a service that might not operate beyond the start-up period.
- A focus on a start-up service only and the immediate five-year post-implementation period, therefore a longer-term investment pathway cannot be determined. The H2ACSP has the mandate to identify the longer-term transport vision for the rail corridor.
- Rail services cannot operate to an express pattern north of Papakura until several key rail projects are completed: Wiri To Quay Park (3rd Main), 4th main line, City Rail Link and Puhinui Station.
- The Hutt Workshop needs at least two months advanced notice to book a refurbishment on their production line. This is due to limited space and resources.

6.2 Issues

The following issues have influenced the development of the SSBC:

- Insufficient time to competitively tender the provision of rolling stock within the implementation timeframe (see constraints), limiting rail options and increasing cost risk.
- Insufficient time to competitively tender rail operations within the implementation timeframe, limiting rail options and increasing cost risk.
- Net funding cap of $250,000 (local share) for rail stations within the Waikato District.
- Insufficient information on rail maintenance facility costs.
- Further investigation is required to confirm whether inter-regional passenger rail services can operate north of Papakura and directly into the Auckland CBD.

6.3 Assumptions

The following assumptions have influenced the development of the SSBC:

- Improved transport connections, including Passenger Rail services will emerge as key enablers of longer-term corridor development by the H2ACSP (which is currently under development)
- The Passenger Rail Service will enable agglomeration and land value uplift benefits making the passenger rail service a long-term value for money investment (this has not been quantified nor

included in the benefits when undertaking the project economic analysis in this business case because of the early stage of corridor planning)

- The start-up service will be incrementally improved over time to match customer service needs and expectations, and the adjacent authorities will invest in marketing to promote its use, which in turn will drive future growth and demand. This will include an assessment (preferably prior to start up services commencing) and identification of the earliest date whereby services can be run through to Central Auckland rather than terminating at Papakura.
- The approach taken to engaging with stakeholders throughout the business case process has led to the recommendation of an option that is on balance, and given the information that is currently available, the most widely supported option by the stakeholders
- The Capital Connection passenger rail service operating between Palmerston North and Wellington provides a suitable benchmark service.
- WRC collects targeted rates from HCC ratepayers to support investment in a service for the full five-year start-up period.
- There is sufficient track capacity for a rail service to operate south of Papakura.
- Stakeholders have a level of service expectation of two weekday services in each peak period direction and one weekend day service in each direction.
- Late running trains can be accommodated under the rail options, but this could change with Metro services and electrification to Pukekohe.
- AT Metro services have the capacity to take passengers north of Papakura and the net cost (operating cost less fare revenue) of carrying those passengers is neutral, for connecting service options.
- The Start-Up service can operate empty from Papakura to Westfield (for stabling purposes) and is not prioritised north of Papakura Station.

6.4 Key risks

A long list of risks were identified (Appendix L). The key risks include:

- Levels of service:
  - There is a risk The Base and Huntly stations will not be completed and ready for the initial start-up service date of March 2020. This is a low risk if funding is approved in December 2018.
  - There is a risk that the two consists[4] of four carriages plus the maintenance spares are not ready for the scheduled March 2020 start date. This is a low risk if rolling stock procurement funding is approved in December 2018.
  - There is a risk that four carriages will not have enough capacity in the first few months if a high number of people want to 'trial' the service. This could put off potential or existing users from using the service.
  - There is a risk that the journey time of two and a half hours is longer on certain journeys due to operational issues occurring. If operational issues occurred often enough, then potential or existing users could be put off by the level of reliability.
- Costs:
  - Costs are being refined for all elements of the project as the design progresses, so there is a likelihood that these costs will change. Contingencies have been included in all estimates. Locomotives and rolling stock have been priced to a higher degree of certainty than other elements.

[4] Train consist is rail terminology for a train and carriage set.

  - KiwiRail costs are subject to the approval of KiwiRail's Board, but WRC has indicated that it cannot receive funding is the costs have not been approved by KiwiRail.
  - The long-term feasibility of any service would also depend on the 75.5% (or greater) FAR rate being available. WDC contribution is dependant that a FAR of 76% is provided where a local share is required for the start-up service.
- Demand:
  - Demand is uncertain until the service starts, so there is a risk that the available capacity is not fit for purpose (too high or too low).
  - Revenue and benefits may not be as great as assumed if demand does not meet expected projections which would lead to service viability concerns.
- Project delivery:
  - There are multiple parties and interdependent activities requiring coordination throughout the life of the project making it a complex delivery. This leads to a higher risk of critical path delays with potential cost and reputational issues for all parties.

7. Problems, Opportunities and Benefits

Due to the constrained time period to produce this SSBC, it was not possible to redo the Investment Logic Map (ILM) from the Strategic Case, instead it was refined it to be more appropriate for this particular investment.

7.1 Problem 1: Transport System

A significant increase in demand for travel within the Hamilton-Auckland corridor, driven by rapid growth, is reducing transport system levels of service and placing economic performance at risk.

This problem was adopted straight from the Strategic Case:

Cause	Increased demand for travel driven by rapid growth.
Effect	Increasing travel on the Hamilton to Auckland corridor.
Consequence	Delays and impacts on economic performance.

7.1.1 Cause

There has been a significant increase in population in the Upper North Island over the last 20 years and this rate of growth is predicted to continue over the next 20 years.

Figure 7-1 shows that population growth in Auckland, Hamilton and Waikato District was much greater than the New Zealand average, with approximately 40-45% growth over the last 20 years. The same growth again is forecast over the next 20 years in Auckland and the other districts are not far behind. However, the population projection is based on the Statistics New Zealand Medium Growth prediction, which has often underestimated growth.

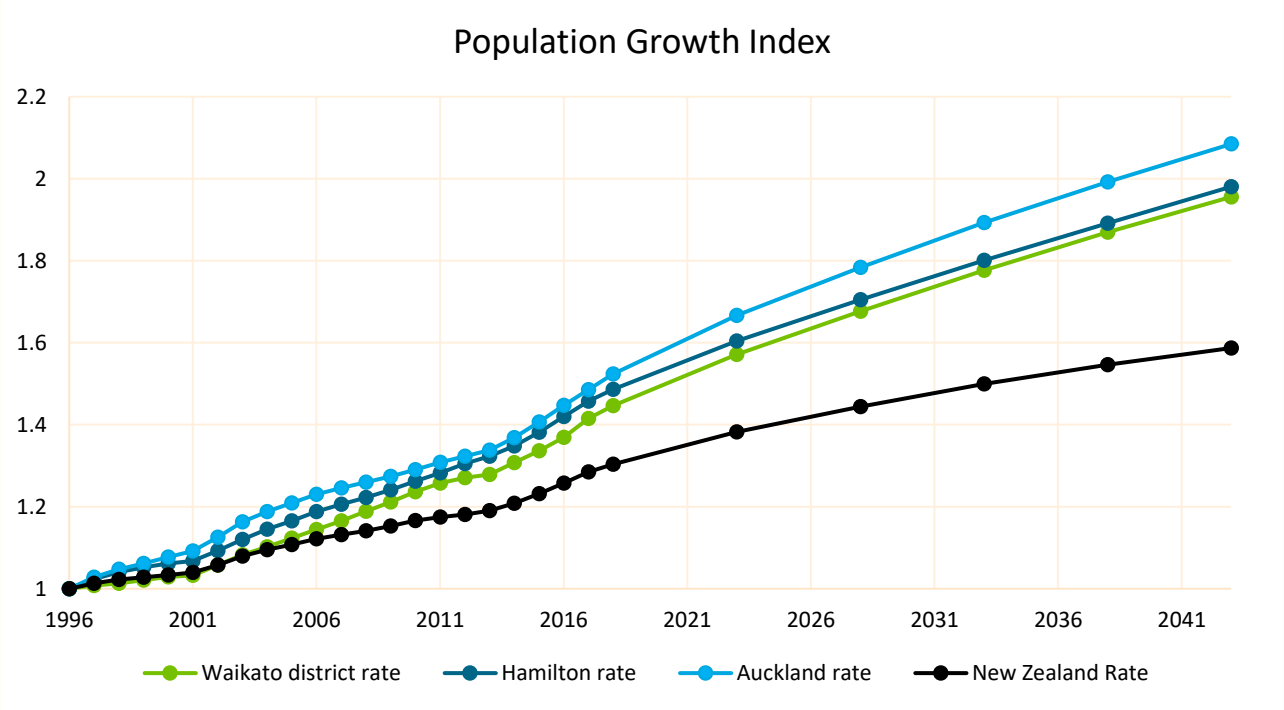

Figure 7-1: Population Growth Index – 1996 to 2041 (source: NZ Business Demography Statistics: Feb 2017)

Whilst population growth has been relatively similar across the Auckland and Waikato regions since 2010, employment growth has been significantly greater in Auckland as shown in Figure 7-2.

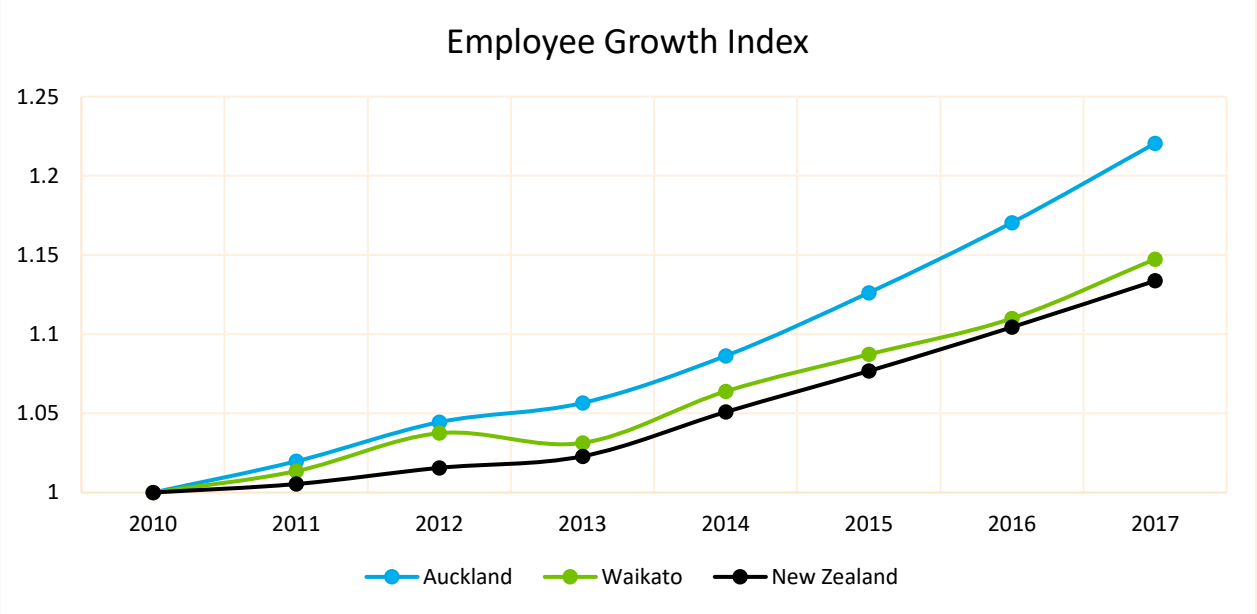

Figure 7-2: Employee Growth Index – 2010 to 2017 (source: NZ Business Demography Statistics: Feb 2017)

7.1.2 Effect

The large population increases in the Upper North Island, coupled with the increase in the number of jobs in Auckland is causing considerable growth in the demand for travel between the Waikato and Auckland Districts.

Overall the growth in travel is evidenced by the traffic volumes on the state highway corridor, as previously shown in Figure 5-11. Traffic growth was reasonable static over the period from 2008 to 2013, but since that time, traffic growth has greatly increased with 25% growth at the Bombay and Taupiri sites.

Future year traffic volumes were obtained from outputs of the 2006 Waikato Regional Transport Model (WRTM). By the year 2041, traffic volumes north of Hamilton are expected to be 40,000 vehicles per day, and at Bombay this increases to over 60,000 vehicles per day – a huge increase over the current volumes of 44,312 at Bombay.

However, less robust data was collected from Census data regarding commuting trips, as outlined in Section 7.1.2.1.

7.1.2.1 2013 Census Data

A review of the 'Workplace Address'[5] dataset from the 2013[6] census concluded that it provided limited information of likely existing or potential future demand for a Hamilton-Auckland passenger rail service. However, Table 7-1 and Figure 7-3 suggest that the number of people travelling from Hamilton City and the Waikato and Waipa districts to work in Auckland on census day have increased significantly between 2006 and 2013. This trend is thought to have continued at an increased rate over the last five years.

Table 7-1: Census Data (Workplace Address)

	2001				2006				2013			
District	Waikato District	Hamilton City	Waipa District	Total	Waikato District	Hamilton City	Waipa District	Total	Waikato District	Hamilton City	Waipa District	Total
Total	360	510	120	990	549	573	153	1275	4803	1523	411	6737

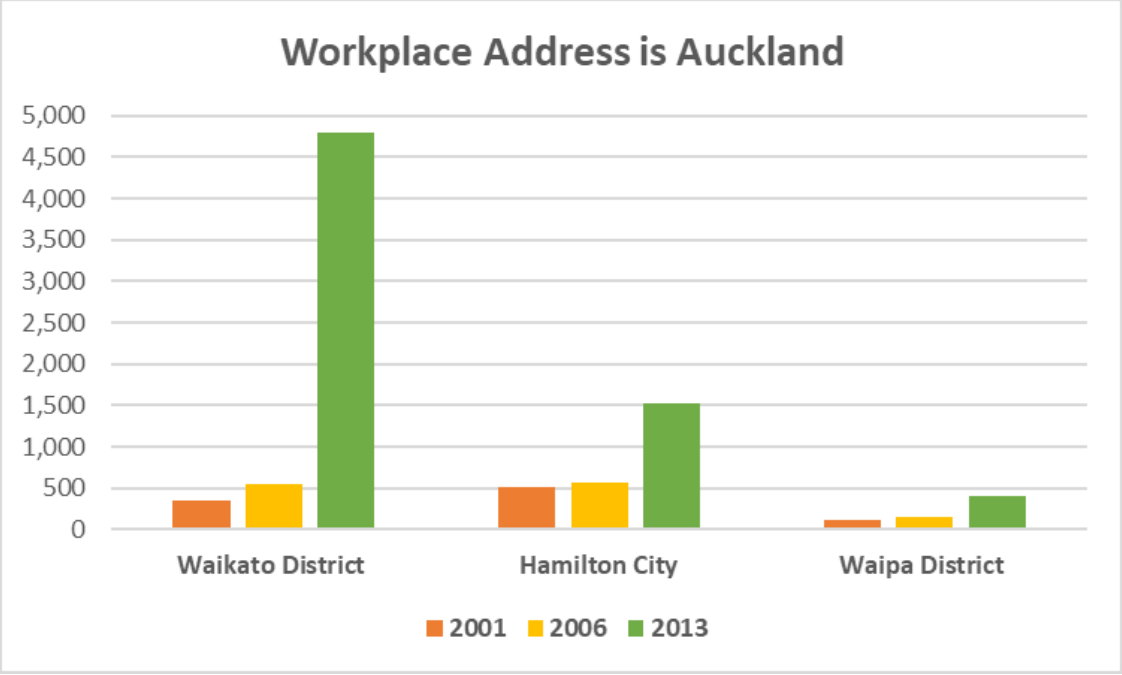

Figure 7-3: Workplace Address 2013 Census data

Note that all counts list Auckland as the place of destination (counted through workplace address) and at these times, Franklin was still technically part of Auckland.

It is considered that 'Workplace Address' dataset is overstating the number of Hamilton to Auckland commuting trips. Reasons why may relate to:

- People who share their work time between two places;

[5] StatsNZ: Commuting patterns in Auckland: Trends from the Census of Population and Dwellings 2006–13.
[6] At the time of writing the 2018 Census data was not published and was therefore unavailable for analysis.

- Inflated numbers by incorrect workplace coding to a head office in Auckland. This can occur when a respondent does not supply sufficient information for their workplace to be coded correctly; or
- On Census day, people must report where they were on that particular day even if it is not their normal place of work. As Auckland is New Zealand's largest city, there is likely to be a high number of out of town workers there on any given day.

7.1.2.1.1 Auckland Transport Macro Strategic Model Outputs

The Auckland Transport Macro Strategic Model (MSM) provides traffic forecasts covering the entire Auckland region for the years 2016, 2026, 2036 and 2046. The Model is a sophisticated four stage transport model built using the EMME software platform. It is owned and operated by the Auckland Forecasting Centre (part of AT) and covers the entire Auckland Isthmus between Warkworth in the North and Pukekohe in the South. It covers the road, rail and ferry networks for the AM, PM and Inter Peaks. Whilst the model does not specifically cover the Waikato region, it is included as an external zone, and therefore provides forecasts for the number of trips travelling to/from SH1 south of the Pokeno and various parts of Auckland.

Table 7-2 provides a summary of the person trips between destinations south of Pokeno and new employment destinations in Auckland. The values are in terms of the daily combined (southbound + northbound) person trips.

Table 7-2: Forecast Daily Person Movements between the Waikato and Key Auckland Destinations

Year	Auckland Airport	Auckland CBD	Newmarket	Papakura	TOTAL
2016	800	1,200	200	100	2,300
2026	900	1,500	200	200	2,800
2036	1,100	1,800	300	200	3,400
2046	1,400	2,300	400	300	4,400

Note: These forecasts assume there is no passenger rail between Hamilton and Auckland.

7.1.2.1.2 Waikato Regional Transportation Model Outputs

Table 7-3 shows the forecast average daily traffic movements between Hamilton city and Waikato and Waipa districts, and points in Auckland north of Drury, from the Waikato Regional Transportation Model in 2021.

Table 7-3: Forecast 2021 AADT volumes between greater Waikato and Auckland

	Auckland	HCC	WDC	Waipa DC	AADT from Auckland
Auckland		1,828	13,481	191	15,500
HCC	1,603				
WDC	11,373				
Waipa DC	198				
AADT to Auckland	13,174				

The table suggests there are more vehicles leaving Auckland and heading to greater Waikato per day, than travel in the opposite direction. However, the car users represented by this traffic movement[7], represent a potential market for a Start-Up rail service. Naturally, not all of these motorists would be interested in using the Start-Up service, nor would the times of travel correlate to the train schedule, but the table suggests that there may be sufficient travel needs to support a rail service with a small (5-10%) market share.

[7] Car users are approximately the same number once light and heavy good vehicles are discounted, and when vehicle occupancy is considered.

7.1.2.2 Summary

Several data sources show a considerable number of people travelling between the Hamilton City and the Waikato and Waipa districts, and locations in Auckland. While the different sources quantify this travel in different ways, they all show demand is increasing with time. They also suggest that there is a potential market for a rail service between Hamilton and Auckland.

7.1.3 Consequence

The overall consequence of the increasing population and transport movements is traffic delays and reduced economic performance.

NZTA's EfficiencyNet system plots where the problematic areas of the state highway network are located. Figure 7-4 shows the most problematic areas are north of Pukekohe, where the Hamilton to Auckland commuter traffic joins with the internal Auckland traffic.

Figure 7-4: Map showing Level of Service (LoS A = Dark Green, LoS F = Red) (source: NZTA)

7.1.3.1 Indicative journey duration by private vehicle

The distance from Frankton to Britomart by vehicle is currently 124 km long, which is unlikely to differ much once the final stages of the Waikato Expressway are completed. The following provides analysis of NZTA supplied traffic data from 2016 and 2018 for both the AM and PM peaks in the March weekdays[8] of each year.

The travel durations provided in the following tables are not the result of complete journeys, rather the addition of the median durations (in hourly lots) to drive through three defined segments at a certain time

[8] Note that the 2016 data did not exclude the two Easter public holidays, not did 2018 exclude the one Easter public holiday that fell in March of those years.

during the peak periods. Therefore no 'one true' journey time between Frankton and Britomart can be presented. The data is provided to indicatively compare the possible travel time durations between road and rail. Caution is urged not to make decisions based on the information provided here, as these results have not been peer reviewed. It is instead the best available data at the time of writing the SSBC.

To provide a wider context, along with the mean travel time, a range of travel time durations (50th to 85th percentiles) for the complete journey are provided in Table 7-4. This shows that the journey time can be quite variable by upwards of an hour. This variability relates to the available capacity of the road, because if a vehicle crash occurs it can negatively impact on the journey duration and reduce capacity if lanes are closed as a result.

Table 7-4: Peak travel time mean duration and percentile range between Frankton and Britomart

Percentile	Frankton to Britomart AM Peak 06:00 – 09:00		Britomart to Frankton PM Peak 16:00 – 18:00	
	2016	2018	2016	2018
MEAN	2:42:05	2:30:40	2:03:31	2:08:37
50th	2:30:33	2:16:33	1:47:28	1:50:46
65th	2:34:54	2:23:58	1:59:34	2:06:05
75th	3:07:30	2:49:09	2:12:42	2:21:42
85th	3:22:57	3:04:55	2:36:46	2:47:15

The NZTA data was presented in three segments, of which the mean travel time values have been reproduced in Table 7-5 and Table 7-6 to allow some additional commentary and analysis.

Table 7-5: AM Peak mean travel time duration from Frankton to Britomart

YEAR	Segment 1: Frankton to Pokeno	Segment 2: Pokeno to Papakura	Segment 3: Papakura to Britomart	Total Average Duration
	6:00-7:00am	7:00-8:00am	8:00-9:00am	
2016	59:24	35:06	1:07:35	2:42:05
2018	55:25	41:19	53:56	2:30:40

Table 7-5 shows an AM peak mean journey time of approximately two hours and thirty-five minutes for each year, with the journey time reducing in 2018 from 2016. There are two possible explanations for this reduction in travel time. Since 2016, the Rangiriri section of the Waikato Expressway (in Segment 1) has opened which would help to reduce travel time and it is possible that there is less roadworks to impede traffic. The second reason for the larger reduction in Segment 3 is possibly due to the Waterview Tunnel opening in July 2017. This had a positive impact at reducing traffic congestion for central Auckland. The increase in travel time for Segment 2 is unknown but could be due to the increase in commuter traffic from North Waikato as more subdivisions come online and Auckland residents move there to find affordable housing.

Table 7-6: PM Peak mean travel time duration from Britomart to Frankton

YEAR	Segment 3: Britomart to Papakura	Segment 2: Papakura to Pokeno	Segment 1: Pokeno to Frankton	Total Average Duration
	4:00-5:00pm	4:00-5:00pm	5:00-6:00pm	
2016	53:11	15:00	55:20	2:03:31
2018	56:37	14:38	57:22	2:08:37

Table 7-6 shows a PM peak mean journey time of approximately two hours and five minutes, with the segment time comparison providing no noticeable difference between each year.

7.2 Problem 2: Land Use Integration

Limited travel options in areas facing high growth is reducing liveability and impacting on quality of life, safety and environmental outcomes.

Cause	Limited travel options in high growth areas.
Effect	Reducing Liveability.
Consequence	Affects current residents and limits future growth within affordable areas of the golden triangle.

This problem was adopted straight from the Strategic Case. It is a problem likely to occur rather than one which is currently evidenced.

7.2.1 Cause

The evidence in Problem 1 showed a significant increase in population across both Waikato and Auckland but a greater increase in jobs in Auckland. Accordingly, people appear to be moving out of Auckland but commuting back to Auckland for employment.

One reason for this may be the relatively high median house prices in Auckland. The stakeholder group and the work completed as part of the Future Proof Strategy study identified that there was a growing issue of people moving out of Auckland into areas in North Waikato and near to state highway connections for people to then commute for work in Auckland.

The graph in Figure 7-5 (also discussed in Section 5.1) shows the continuing rise in house prices across Auckland, Hamilton and Waikato. Over the period between 1993 and 2017 median house prices rose in each district:

- Auckland – from $137k to $820k i.e. $623K increase or an approximate five-fold increase in value between 1993 and 2017;
- Hamilton – from $110k to $520k i.e. $410k increase or an approximate four-fold increase in value between 1993 and 2017;
- Waikato District – from $99k to $598k i.e. $409k increase or an approximate five-fold increase in value between 1993 and 2017.

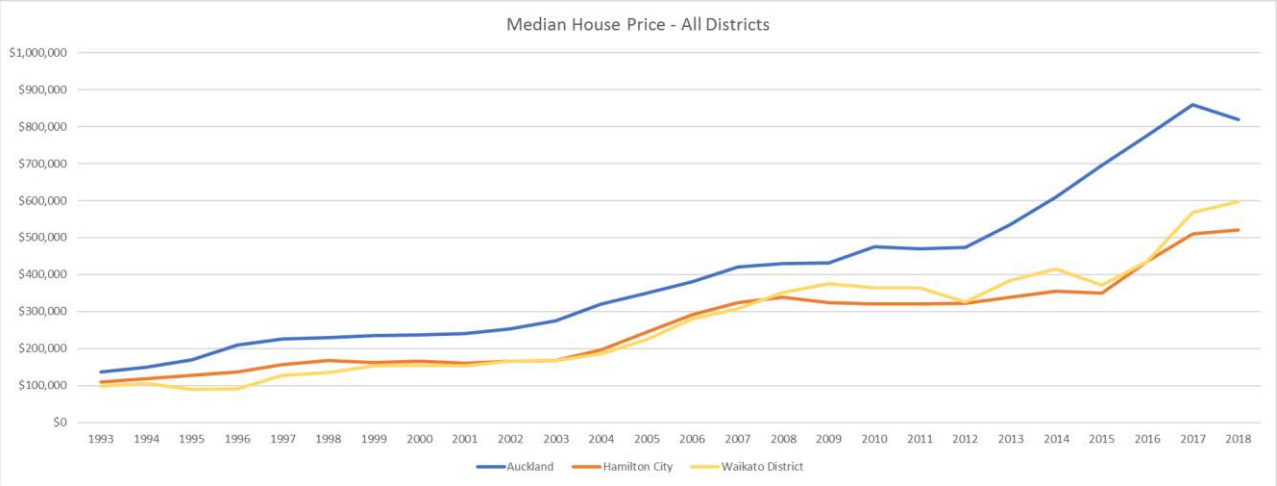

Figure 7-5: Median House Prices (source: MBIE)

Although the rate of increase may be similar across the three districts over the last 25 years, the rise in the last 10 years is much more marked in Auckland and the absolute cost of buying a house in Auckland is unaffordable for many people, even those in gainful employment.

People moving out of Auckland into North Waikato (to still be reasonably close to employment) may find themselves without any alternative transport choices apart from the private motor vehicle. There are currently limited travel options between Hamilton and Auckland, particularly to/from the townships between the two locations.

Evidence:

- *In terms of other transport modes, Intercity run a regional coach service that offers regular services between Auckland and Hamilton, the two other regional coach operators have recently left the market.*
- *WRC operates bus services between Hamilton and Huntly. These services operate approximately half hourly during the commuter peaks and hourly during the day. WRC also operate a bus service within Huntly twice a day on weekdays. From Hamilton, a bus service is provided once every two weeks that goes to Pukekohe via Huntly, Te Kauwhata and Meremere. AT operates a daily return bus service between Pukekohe and Tuakau in North Waikato. They also operate a return bus service on a Thursday between Pukekohe and Port Waikato, via Tuakau.*
- *From Pukekohe, AT diesel passenger rail shuttle services connect to onward EMU AT Metro services departing to Papakura. The diesel rail shuttles currently operate three times per hour during the commuter peaks, and hourly through the day, the service is soon to be improved to half hourly. There are no existing passenger rail services south of Pukekohe, apart from the Northern Explorer (Scenic Journeys) between Auckland and Wellington, which runs one train every second day (i.e. a northbound train one day, and a southbound train the next).*

The above illustrates the very clear lack of mode choice on the corridor, particularly for regular commuters and business trips.

7.2.2 Effect

The effects of this problem are:

- Reduced liveability (quality of life) due to constraints on access to social and economic area and opportunities
- Limited access to social and economic areas because of no modal choice and long timeframes for travel.
- More time spent by commuters in their vehicle rather than time where they could be working productively, for example on a train service, which would then free up more of the day for other activity.

Note that this aspect would need to be investigated further and more evidence gathered during the course of the start-up service, to support development of longer-term service options.

7.2.3 Consequence

A potential consequence of limited accessibility and this impacting on liveability is that the identified growth areas do not reach their full potential, thereby not achieving the aspirations of the H2ACSP (refer to Section 2.3 and the Future Proof Strategy Study.

As a result, this particular problem is considered to be best addressed when considering the longer-term service options, and the start-up service has been proposed as a first step in enabling development of a solution to this problem. This aspect would be investigated in more detail in the H2ACSP study being led by MBIE.

7.2.4 Side Effect

Other side effects of growth happening in these areas without providing additional modes are:

- Road Safety: In considering rail, the alignment to safety objectives are positive, at a strategic level rail is a safer mode than private car across most developed transport networks worldwide, notwithstanding the interactions at level crossings.
- Environmental: transfer of trips from private car to public transport reduces emissions and therefore has a positive effect on the environment.

7.2.5 Opportunities

There is a wider opportunity of rail in terms of increasing accessibility, as it can help not just those moving to North Waikato, but those who are already there. However – purely providing another mode would not create this opportunity:

- The new service needs to be paired with development in locations that are accessible to rail and not have development directed at SH1 intersections.

- Government needs to ensure that the transport system is equitable and that those on lower incomes can access the same main labour markets as those on higher incomes.
- Specifically, to ensure that families with limited access to a car can access similar opportunities to those with access.

7.3 Problem 3

The strategic case also included another problem statement:

> *Limited land use and transport integration across administrative boundaries is reducing our ability to effectively manage growth impacts and achieve key growth-related objectives.*

This problem statement was not brought forward for this project as it is not seen as being attributable to this investment. Our reading of the strategic case was that the above problem statement was more about better co-ordination between government agencies rather than integration of land use planning and transport. Currently integration of agencies is happening separately and is not something that the SSBC should cover.

However, the key outcome of this problem statement (that being harmonious transport and land use integration), is a key aspect which is inherent in the two problem statements taken forward and would be brought to the fore with the investment objectives.

7.4 Opportunities

In addition to the above problem statements, there are also several opportunities that could be realised if the problem statements are solved. These are summarised as:

- Improved accessibility to goods, services, employment and amenities to enhance inter-regional productivity.
- Improved resilience, safety, quality of life and environmental outcomes for communities with a greater range of travel choices.
- Creating a credible alternate mode of travel for people to choose.
- Initiate momentum towards developing long term growth goals.
- Show strong desire for a mass transit mode.
- Reduce environmental impact.
- Ability for townships to grow and support local communities.
- Reduce Auckland congestion impacts.
- Optimised performance of transport service levels across the existing road and rail network.
- Passengers could work on the train, hence are more productive with their time while travelling.
- Reduced journey times for travel between Hamilton and central Auckland.
- Lower cost of travel by train when compared to travel by private car (and parking).

7.5 Benefits

The benefit statements were identified by looking purely at the problem statements; i.e. if we were to solve the problems, what benefits would be realised?

The benefits, and how they relate to the problem statements, are shown in Figure 7-6.

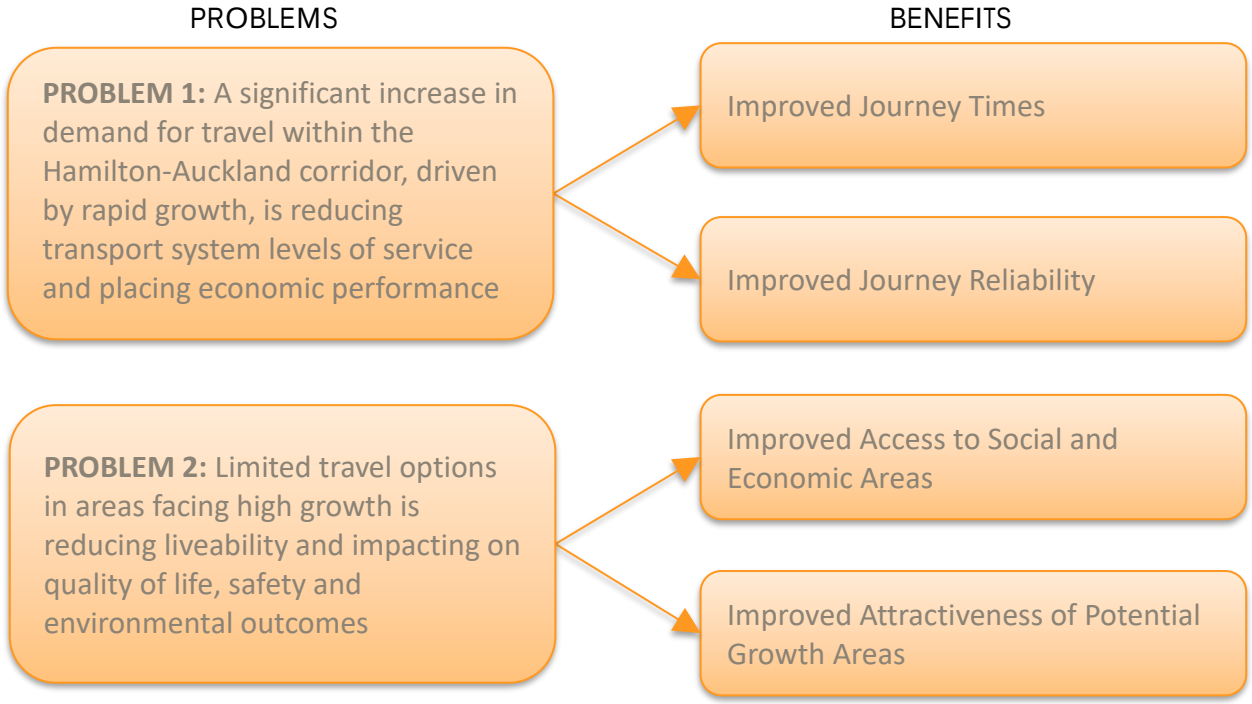

Figure 7-6: Problem and Benefit Statements

The benefits of addressing Problem 1 are improved journey times and improved journey reliability. It is acknowledged that the ultimate benefit of improving the transport system is improved economic performance; however, this is not directly attributable to transport investment and therefore has not been included as a benefit in this instance.

The benefits of addressing Problem 2 are improved access to social and economic areas (for people living, working and playing at either end, or along the route) and improved attractiveness of the growth areas located along the transport corridor for people to live and play in.

8. Investment Objectives

The investment objectives were developed from the benefit statements and are presented in Figure 8-1.

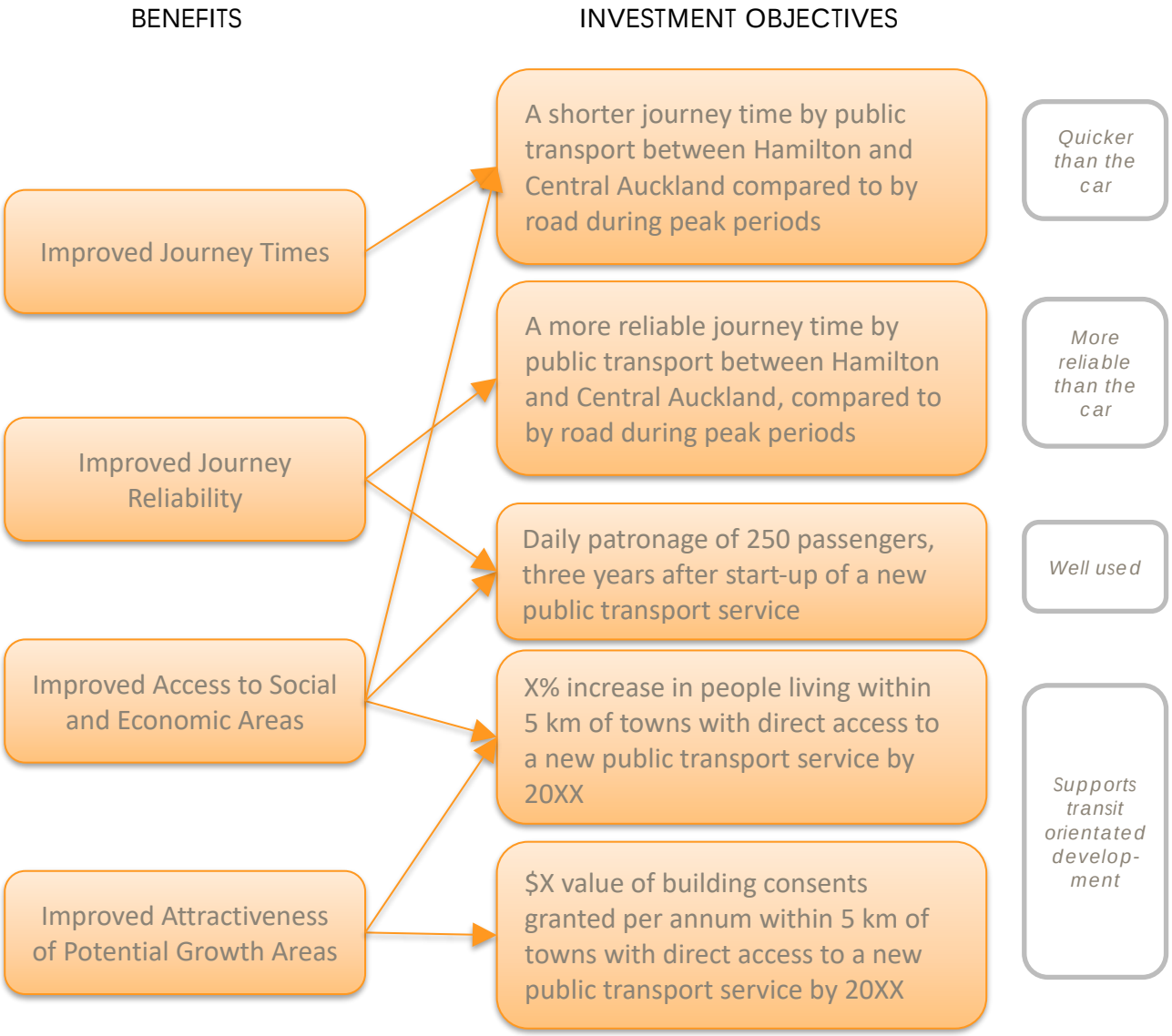

Figure 8-1: Investment objectives developed from the benefit statements

Five investment objectives were developed. Some relate to attracting people to use the service rather than taking their private vehicle and others relate to improving the social and economic fabric of the communities that the passenger service would serve.

The first two objectives relate to a public transport service that is faster and more reliable than travelling by private vehicle. The third objective relates to patronage, which accounts for the fact it would take more than just a quick reliable service to attract as many people as possible to the new service.

The last two objectives measure the number of people serviced by a new passenger service and the building consents granted as a proxy to understand the growth in the towns serviced, once the service is up and running.

The investment objectives were presented to and tested with the Hamilton to Auckland Transport Connections Working Group on 13 August 2018 (minutes of workshop in Appendix D). The above investment objectives have incorporated feedback received from the key stakeholders.

The long-term vision for this corridor is a high-speed mode of transport that reduces the journey to make the service more attractive to potential users. The H2ACSP considers the start-up service outlined in this SSBC as an enabler for longer term transport vision.

Exact targets and timeframes for the Investment Objectives would be determined when an implementation programme has been confirmed. This would be done by completing the measures of success in Table 8-1.

Table 8-1: Indicators and Outcomes

Investment Benefit	Why	Key Performance Indicator	Measure	Baseline	Target	Timeframe	Source
Improved Journey Time	To make rail attractive	Journey time on public transport between Hamilton and central Auckland.	Shorter journey time than private vehicle in AM peak period.	To be calculated annually	PT to be quicker than road	Every year	TomTom Journey Times (road) Actual Journey Times for rail (WRC)
Improved Reliability	To make rail attractive	Journey time reliability on public transport between Hamilton and central Auckland	Difference between average and 85%ile travel time smaller than private vehicle in AM peak period.	To be calculated annually	PT to be more reliable than road	Every year	TomTom Journey Times (road) Actual Journey Times for rail (WRC)
Improved access to social and economic areas	To promote growth areas	People living close to a public transport service	Increase in people living within 5 km of towns with direct access to a new public transport service by 20XX	Is measurable but no baseline data available at time of BC	XX% increase in people	Is measurable but no baseline data available at time of BC	Dwelling counts from Councils
Improved Attractiveness of Potential Growth Areas	To promote growth areas	Value of building consents	Dollar value of building consents granted per annum within 5 km of towns with direct access to a new public transport service by 20XX	Is measurable but no baseline data available at time of BC	$XX of building consents	Is measurable but no baseline data available at time of BC	Building Consent data from Councils
All		Patronage	Daily patronage of XX passengers, three years after start-up of a new public transport service	Zero	250 passengers each weekday in each direction	2022	From WRC

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8.1 Comparison to Government Policy Statement Objectives

Table 8-2 outlines how the SSBC investment objectives relate to the GPS objectives.

Table 8-2: Investment Objectives Relating to the GPS Objectives

Hamilton to Auckland Investment Objectives	GPS Objectives			
	Safety	Access	Environment	Value for Money
Improved Journey Time		Increased access to social and economic areas.		
Improved Journey Reliability		Increased access to social and economic areas.		
Increased Patronage	Fewer vehicles on the road where risk of serious injury is greater	Enables Transport Choice and Access.	Reduced greenhouse gas emissions.	Greater patronage increases fare box revenue.
Increase in people living close to service		Enables Transport Choice and Access. Increased access to social and economic areas.		
Increased value of building consents				

The table shows that the four government objectives are met by the investment objectives. Access is particularly well represented with many of the investment objectives contributing towards improved access to social and economic areas and enabling transport choice.

PART B – OPTION DEVELOPMENT

9. Option Development and Assessment

9.1 Process Overview

The Hamilton to Auckland TCWG was established in September 2017. This working group has met regularly to identify transport options that support the overarching transport connections outcomes within the North Waikato Integrated Growth Management PBC study. Key stakeholders included in this working group are:

- NZ Transport Agency
- Waikato Regional Council
- Auckland Transport
- Auckland Council
- Waikato District Council
- Hamilton City Council
- Ministry of Transport
- KiwiRail

The overall process of option identification has included:

- Feedback from working group meetings
- Customer demand survey
- Input from industry experts
- Collation of a long list of potential interventions
- Identification of key principles to use in evaluating options
- Screening of long list against investment objectives
- Evaluation of remaining options against key principles to arrive at a short list.

At the TCWG meeting on 13 August 2018, levels of service were explored and stakeholder preferences tested (see Appendix D presentation and Appendix B workshop minutes) to arrive at a list of key principles.

In addition to the Investment Objectives, the following key principles were agreed to and were used for the evaluation of options with a multi-criteria assessment:

1. Outcomes:
    a. Flexibility of option to allow longer term options
    b. Alignment with corridor partnership objectives
    c. Attractiveness to customers
    d. Enables choice and access (GPS alignment).

2. Implementability:
    a. Technical feasibility (for October 2019 Start-up[9])
    b. Consent-ability (for October 2019 Start-up)
    c. Land constraints (for safe access, parking etc)
    d. Safety.

Scoring of options was completed qualitatively using a seven-point scale:

- +3: Significant benefit or alignment
- +2: Moderate benefit
- +1: Slight benefit
- 0: Neutral / No impact
- -1: Slight disbenefit
- -2: Moderate disbenefit
- -3: Significant disbenefit or misalignment (Fatal flaw).

9.2 Long List Development

A wide range of potential attributes and interventions were identified. Key risks, constraints and uncertainties were identified where relevant against specific interventions, particularly against the fit for purpose context. These are outlined in Table 9-1.

9.2.1 Attributes and Interventions

Table 9-1: Attributes, Interventions and Levels of Service

Characteristic	Attribute/Intervention	Description of Intervention and Relevant Level of Service Trade-off Considerations
Primary mode	Bus	Bus offers greater coverage, while rail offers faster travel times and a dedicated right of way, which provides better reliability. Active modes were considered for connecting to these primary modes rather than interventions on their own. An integrated transport assessment was undertaken for each connecting point for the shortlisted options.
	Train	
	Other (car)	
Service type	Connecting service (to AT Metro services at Papakura)	Other options that were excluded from the long list included: • An express service through to Auckland central. • A connecting service starting in Hamilton but stopping prior to the connection with the AT Metro network (this would rely on a bus service as a PT connection to AT Metro rail service).
	Through service (to Auckland central)	
Start-up stops	Kahikatea Drive	Existing corridor townships and stations were identified as potential stopping points. Stops south of Frankton were excluded by stakeholders from consideration for this start-up service. Frankton is currently used by KiwiRail for the Northern Explorer, so was considered likely to be a low-cost option to establish in this new service by October 2019. It is relatively
	Ruakura	
	Claudelands	
	Hamilton Central/Hamilton Transport Centre	
	Frankton	

[9] The Start-Up date was moved to March 2020 after the option selection process had been completed. While the scores may change for a March 2020 start up date, the relativity will not. Therefore, the scoring was not revisited as it would not change the outcome of the shortlist process.

Characteristic	Attribute/Intervention	Description of Intervention and Relevant Level of Service Trade-off Considerations
	The Base/Rotokauri	centrally located within Hamilton, and it offers a large active mode catchment as well as car parking facilities. Hamilton Central Transport Centre was only considered for the bus options, as it is the main bus station in Hamilton, although an out-of-use underground rail station still exists in that central location and could be reactivated in the future (however a new station at the intersection of Bryce Street and Seddon Road is considered more likely). The Base was considered for bus-based options and neighbouring The Base for the rail-based options. A stop in this location aligns with a key area of forecast growth for Hamilton City and provides space for the development of park and ride and bus interchange facilities. HCC has already commenced concept work for a station in this location, in discussion with KiwiRail and the TCWG. Ngaruawahia, Te Kauwhata, Meremere and Tuakau have former station facilities that could be reactivated, but most are in poor condition, so these locations were primarily considered in relation to the bus options. Te Kauwhata was considered to be the easiest of these stations to reactivate for rail purposes. Huntly station is in the town centre. It has been used more recently than most other stations (by the Overlander, which the Northern Explorer replaced, and previously the Silver Fern service), and it has good walk-up access and space for park and ride facilities. It is likely to be relatively easy to reactivate. Tuakau station is located near the town centre. Reactivation of the station is a focus for WDC and a budget allocation was made for this in their current LTP (and the two previous ones). The station has not been used for a significant period and substantial work is required to reactivate the station. Papakura is a key station on the Auckland rail network and currently caters to a large number of rail services, including connecting services from Pukekohe. Pukekohe, Puhinui, Otahuhu and Newmarket were excluded to limit disruption by the start-up inter-regional service on existing metro timetables. However, market research has indicated that the connection with Auckland Airport is important and work is currently underway to significantly improve the Puhinui-airport link, so this was considered as a stopping option. The Strand is currently used by KiwiRail for the Northern Explorer, so was considered likely to be a low-cost option to establish in this new service.
	Ngaruawahia	
	Taupiri	
	Huntly	
	Te Kauwhata	
	Meremere	
	Pokeno	
	Tuakau	
	Pukekohe	
	Papakura	
	Puhinui	
	Otahuhu	
	Newmarket	
	Auckland Central / The Strand	
Frequency	One peak-direction trip per peak	A variety of service level options were considered, including weekday peak services (primarily to Auckland), weekday off-peak services, and weekend services. Higher and lower peak frequencies were considered, with lower frequencies at off and inter-peak times. A higher frequency provides better travel options for customers, and generally drives higher patronage levels, but increases operating costs, so is usually linked to patronage requirements. Train consist sizes are also linked to patronage requirements. A single longer train (i.e. 6 cars) could be sufficient to meet short-term patronage demand and would have lower
	Two peak-direction trips per peak	
	One counter peak-direction trip per peak	
	One inter-peak trip in each direction	
	One weekend trip in each direction (each day)	

Characteristic	Attribute/Intervention	Description of Intervention and Relevant Level of Service Trade-off Considerations
		operating costs than two shorter (i.e. 3-5 car) trains, which also require an additional locomotive. Connecting service options allow enough time for passengers to change platforms. It is assumed that sufficient capacity will be available on the connecting Auckland Transport services, although detailed analysis of this has not been done.
Vehicle features	Table and/or tray table seating	Most of these features are considered standard for similar service elsewhere in New Zealand. There is a strong desire from some key stakeholders' elected representatives for Wi-Fi to be included in the start-up service. Wi-Fi is not offered on rail services elsewhere in New Zealand, but it is in some other countries. It would likely be a higher cost than customers could purchase for themselves (from mobile network operators) for the length of the service, and cell phone coverage maps show good coverage for almost the entire journey. The customer demand work identified WI-FI as one of four key on-board amenities desired by potential passengers. A servery is appropriate for longer-distance services, such as between Hamilton and central Auckland. However, it is not usual to deploy a servery on shorter-distance services, such as between Hamilton and Papakura.
	Disabled hoist and capacity	
	Wi-Fi	
	Toilets including disabled toilet	
	Air conditioning	
	At-seat power	
	Luggage capacity	
	Bike capacity	
	Servery	
Stop features	Shelter	Along with vehicle features, this is a key part of customer experience. Stakeholders have expressed a desire for the inter-regional service to appear seamless between the inter-regional service and the metro service in Auckland. AT standards were considered for the stations, however, this is considered a longer-term investment than start-up services, and stakeholders have felt a lower standard of service to suit a five-year start-up is more appropriate where these features are provided.
	Seating	
	Passenger information (paper or electronic)	
	Walking & cycling links	
	Local bus stops (where available)	
	Bike racks	
	Drop-off/taxi	
	Park & ride	
Fares	WRC fare integration	Services could utilise a stand-alone fare structure, the WRC fare structure or the AT fare structure. The first of these was discounted as being inconsistent with policy direction before the long list was developed. AT subsequently indicated that the last would be challenging to implement. The WRC fare structure was assumed for all options.
	AT fare integration	
Ticketing	Paper-based	It is expected that many passengers would be irregular users of the service, so some form of paper-based ticketing is desirable. This can be part of an electronic ticketing system and WITS offers this functionality. Two electronic ticketing systems are available for the options. The AT Hop system would ease the transfer requirement at Papakura for regular passengers, and better facilitate other public transport connections in Auckland. The new WITS system offers better control for WRC (the funder of the Start-Up service) and would better facilitate bus connections to the trains in the Waikato region.
	AT Hop	
	New Waikato Integrated Ticketing System (WITS)	
Commercial	Operator-owned vehicles	There are two key commercial considerations: vehicle ownership and the operating contract. Bus options would include competitive tendering of services and vehicle provision.
	Regional Council-owned vehicles	

Characteristic	Attribute/Intervention	Description of Intervention and Relevant Level of Service Trade-off Considerations
	Negotiated operating contract	Rail services should also be competitively tendered in the long run, but the proposed implementation timeframe is insufficient for this, so rail contracts may have to be negotiated by necessity. This introduces a cost risk, so such negotiations should be informed by benchmarking. Rail rolling stock is usually owned by the regional council to allow for contracting flexibility, but WRC has indicated that it does not wish to own rolling stock, so rail vehicles are likely to be owned by the operator, which could make future contracting more difficult. This would be managed through an agreement between KiwiRail, WRC and the NZTA. Locomotives are usually owned by KiwiRail.
	Tendered operating contract	

9.2.1.1 Rolling Stock, Locomotives and Maintenance Facilities

Time constraints for implementation meant options were limited (refer to Constraints, Issues, Assumptions and Key Risks in Section 6). Nevertheless, the following options were considered.

- Rolling stock considered included:
  - Silver Fern railcars
  - Ex-AT carriages
  - Tourist operator owned carriages
- Locomotives:
  - Limited to KiwiRail owned locomotives (non-electric)
  - Only DFBs were submitted for consideration
- Maintenance facilities:
  - Servicing and regular maintenance were considered for:
    - Several options at Westfield
    - Several options at Te Rapa
  - Heavy maintenance is undertaken at Hutt Workshops in Wellington
- Stabling (rolling stock storage during the day and overnight):
  - Options considered included:
    - The Strand
    - Papakura
    - Westfield
    - Te Rapa

Required levels of service agreed with WRC have guided the specific requirements for each of the above, which is discussed in Section 9.4 Shortlist Identification.

9.2.2 Risks, constraints and uncertainties identified against the attributes and interventions

Table 9-2 outlines the identified risks, constraints and uncertainties of the attributes and interventions.

Table 9-2: Risks, Constraints and Uncertainties identified against the Attributes and Interventions

Characteristic	Attribute/intervention	Risk/Constraint/Uncertainty
Primary mode	Bus	Constraint: Delayed by road traffic congestion if not prioritised.
	Train	Constraint: the need to connect to another train service. Constraint: must stop at each station from Papakura into The Strand which reduces competitive versus private vehicle travel. Constraint: cannot travel at high speeds (>100 km/h) south of Papakura due to rail infrastructure max speed limits / track design. Risk: longer travel time due to train connection.
	Other (car)	
Service type	Connecting service (to AT Metro)	
	Through service (to Central Auckland)	
Start-up stops	Kahikatea Drive	Assumption: not part of start-up service consideration.
	Ruakura	Assumption: not part of start-up service consideration.
	Claudelands	Assumption: not part of start-up service consideration.
	Hamilton Central/Hamilton Transport Centre	
	Frankton	
	The Base/Rotokauri	Risk: Railway station may not be available until after the proposed 1 October 2019 commencement date.
	Ngaruawahia	Not applicable for the start-up service
	Taupiri	Not applicable for the start-up service
	Huntly	Risk: Railway station may not be available until after the proposed 1 October 2019 commencement date.
	Te Kauwhata	Uncertainty: Could be an alternative start-up railway station to Huntly - appears to primarily require platform height improvements.
	Meremere	Not applicable for the start-up service
	Pokeno	Not applicable for the start-up service
	Tuakau	Risk: Railway station may not be available until after the initially proposed 1 October 2019 commencement date.[10]

[10] Tuakau was considered as part of the option selection process, but it was subsequently decided to align improvements there with the future metro service direction of the H2ACSP and it is not included in the preferred option. The commencement date also changed to March 2020 from October 2019 originally.

Characteristic	Attribute/intervention	Risk/Constraint/Uncertainty
	Pukekohe	Assumption: not part of start-up service consideration.
	Papakura	Constraint: Rolling stock cannot be stabled at Papakura and must travel to Westfield for turning and stabling.
	Puhinui	Constraint: Insufficient time for a through service to stop at this station at present. Uncertainty: Subject to the availability of train paths through the Auckland rail network.
	Otahuhu	Constraint: Insufficient time for a through service to stop at this station at present. Uncertainty: Subject to the availability of train paths through the Auckland rail network.
	Newmarket	Constraint: Insufficient time for a through service to stop at this station at present. Uncertainty: Subject to the availability of train paths through the Auckland rail network.
	The Strand	Uncertainty: CRL works contingency required.
	Britomart	Constraint: Diesel operations not permitted
Frequency	One peak-direction trip per peak	Risk: Undersupply of seats. Risk: Passengers miss the evening peak train home.
	Two peak-direction trips per peak	
	One counter peak-direction trip per peak	Uncertainty: Not proposed for start-up rail service but could be added in first five years.
	One inter-peak trip in each direction	Constraint: Through train options subject to ability to turn train/locomotive or lead return service with SD carriage[11]. Uncertainty: Not proposed for start-up but could be added in first five years.
	One weekend trip in each direction	Uncertainty: Whether the demand would exist. Risk: a private vehicle journey is free flowing to Auckland, thus rail would take much longer and could drive passenger demand down.
Vehicle features	Table and/or tray table seating	
	Disabled hoist and capacity	
	Toilets including disabled toilet	
	Air conditioning	
	At-seat power	
	Luggage capacity	

[11] SD is simply a naming convention for different carriage types used by KiwiRail. Others include: SA, SR, SRC and SRV.

Characteristic	Attribute/intervention	Risk/Constraint/Uncertainty
	Bike capacity	Constraint: Only a certain number of bikes can be carried, when demand might be higher. Constraint: While AT Metro does permit bikes on their services (at the discretion of on-board staff), they do recommend that doing so at peak times should be avoided. Folding bicycles may be taken on board at any time if folded and stored under a seat.
	Servery	Uncertainty: A servery could be added to all rail options, but the investment may not be warranted for connecting trips with shorter journeys. The long-term intention is for services through to Auckland CBD, so providing servery future proofs the service.
	Wi-Fi	Uncertainty: Wi-Fi can be added to all options, but the investment may be more than is required to make the Wi-Fi service fit for purpose, given that no other long-distance rail services offer this feature in New Zealand.
Stop features	Shelter	Risk: That low cost shelter options do not protect waiting passengers well in poor weather, which deters passengers from the service on wet days particularly during winter.
	Seating	
	Passenger information (paper or electronic)	
	Walking & cycling links	
	Local bus stops (where available)	
	Bike Storage	Risk: Unsecured bike storage facilities are unattractive to potential passengers, as they believe their bike could be stolen.
	Drop-off/taxi	
	Park and ride	Risk: That supply of parks does not meet demand.
Fares	WRC fare integration	
	AT fare integration	Constraint: AT has indicated that AT fare system integration would be challenging and it is not consistent with WRC objectives.
Ticketing	Paper-based	Risk: A solely paper-based system is more susceptible to fraud and doesn't provide the same degree of information as an electronic ticketing system.
	AT Hop	Constraint: Lack of integration with WRC bus services.
	WITS	Constraint: Lack of integration with AT Metro and bus services.
Commercial	Operator-owned vehicles	Risk: Operator ownership of rail rolling stock and supporting facilities is a potential cost risk. However, while the rolling stock will be owned by KiwiRail, NZTA will be able to have the rolling stock redeployed elsewhere if this service is discontinued.
	Regional council-owned vehicles	Constraint: WRC does not wish to own rolling stock.

Characteristic	Attribute/intervention	Risk/Constraint/Uncertainty
	Negotiated operating contract	Risk: Negotiated operating contracts are a potential cost risk.
	Tendered operating contract	Constraint: There is insufficient time to competitively tender the operating contract due to March 2020 start-up date. Constraint: There are limited tenderers in the market, but KiwiRail has agreed to an open book audit of their capital expenditure and operational expenditure.

9.3 Long List of Options

The interventions included were collated into a long list of options in Figure 9-1.

Characteristic	Attribute/intervention	Do minimum (do nothing)	Increased park & ride	Connecting bus - limited stops peak	Connecting bus - all stops peak	Connecting train - low frequency peak	Connecting train - higher frequency peak	Connecting train - low frequency all day	Connecting train - higher frequency all day	Connecting train - low frequency peak with facilities	Connecting train - higher frequency peak with facilities	Connecting train - low frequency all day with facilities	Connecting train - higher frequency all day with facilities	Through train - low frequency peak with facilities	Through train - higher frequency peak with facilities	Through train - low frequency all day with facilities	Through train - higher frequency all day with facilities
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Primary mode	Bus			■	■												
	Train					■	■	■	■	■	■	■	■	■	■	■	■
	Other (car)		■														
Service type	Connecting service (to Auckland Transport)			■	■	■	■	■	■	■	■	■	■				
	Through service (to Central Auckland)													■	■	■	■
Start-up stops	*Kahikatea Drive*																
	Ruakura																
	Claudelands																
	Hamilton Central/Hamilton Transport Centre			■	■												
	Frankton					■	■	■	■	■	■	■	■	■	■	■	■
	Rotokauri/The Base			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Ngaruawahia				■												
	Taupiri				■												
	Huntly			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Te Kauwhata				■												
	Meremere				■												
	Pokeno			■	■												
	Tuakau					■	■	■	■	■	■	■	■	■	■	■	■
	Pukekohe																
	Papakura		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Puhinui																
	Otahuhu																
	Newmarket																
	Auckland Central/The Strand													■	■	■	■
Frequency	One peak-direction trip per peak					■		■		■		■		■		■	
	Two peak-direction trips per peak			■	■		■		■		■		■		■		■
	One counter peak-direction trip per peak			■	■												
	One interpeak trip in each direction							■	■			■	■			■	■
	One weekend trip in each direction			■	■	■	■	■	■	■	■	■	■	■	■	■	■
Vehicle features	Table and/or tray table seating			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Disabled hoist and capacity					■	■	■	■	■	■	■	■	■	■	■	■
	Toilets including disabled toilet					■	■	■	■	■	■	■	■	■	■	■	■
	Air conditioning			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	At-seat power			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Luggage capacity			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Bike capacity					■	■	■	■	■	■	■	■	■	■	■	■
	Servery									■	■	■	■	■	■	■	■
	Wifi																
Stop features	Shelter			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Seating			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Passenger information (paper or electronic)			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Walking and cycling links			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Local bus stops (where available)			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Drop-off/taxi			■		■	■	■	■	■	■	■	■	■	■	■	■
	Park & ride		■	■		■	■	■	■	■	■	■	■	■	■	■	■
Fares	WRC fare integration			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	AT fare integration																
Tickeing	Paper-based			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	AT Hop			■	■	■	■	■	■	■	■	■	■				
	New WRC ETS system													■	■	■	■
Commercial	Operator-owned vehicles			■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Regional council-owned vehicles																
	Negotiated operating contract					■	■	■	■	■	■	■	■	■	■	■	■
	Tendered operating contract			■	■												

Legend: *Excluded from start up services*

Figure 9-1: Attributes and Interventions against Long List Options

9.3.1 Assessment of Long List

Qualitative assessments were moderated internally by the SSBC technical advisers (Stantec), and then moderated in discussion with key stakeholders including WRC and NZTA. The results are provided in Figure 9-2.

9.3.1.1 Long list screen against investment objectives

Option		Investment objectives					Score
		A shorter journey time by public transport between Hamilton and Central Auckland compared to by private vehicle during peak periods	A more reliable journey time by public transport between Hamilton and Central Auckland, compared to by private vehicle during peak periods	Daily patronage of XX 2 years after start up of a new public transport service	X% increase in people living within X km of towns with direct access to a new public transport service by 20XX	$X value of building consents granted per annum within X km of towns with direct access to a new public transport service by 20XX	
1	Do minimum (do nothing)	-3	-3	-3	-3	-3	-15
2	Increased park & ride	0	0	1	0	0	1
3	Connecting bus - limited stops peak	-1	-1	1	1	0	0
4	Connecting bus - all stops peak	-2	-2	1	1	0	-2
5	Connecting train - low frequency peak	1	1	1	1	1	5
6	Connecting train - higher frequency peak	1	1	2	2	1	7
7	Connecting train - low frequency all day	1	1	1	1	1	5
8	Connecting train - higher frequency all day	1	1	2	2	1	7
9	Connecting train - low frequency peak with facilities	1	1	1	1	1	5
10	Connecting train - higher frequency peak with facilities	1	1	2	2	1	7
11	Connecting train - low frequency all day with facilities	1	1	1	1	1	5
12	Connecting train - higher frequency all day with facilities	1	1	2	2	1	7
13	Through train - low frequency peak with facilities	2	2	2	2	2	10
14	Through train - higher frequency peak with facilities	2	2	3	3	2	12
15	Through train - low frequency all day with facilities	2	2	2	2	2	10
16	Through train - higher frequency all day with facilities	2	2	3	3	2	12

Figure 9-2: Long list screen against investment objectives

Key

- +3: Significant benefit or alignment
- +2: Moderate benefit
- +1: Slight benefit
- 0: Neutral / No impact
- -1: Slight disbenefit
- -2: Moderate disbenefit
- -3: Significant disbenefit or misalignment (Fatal flaw).

The initial screen showed that Options 1 to 4 were unlikely to contribute materially (overall) to the stated investment objectives and were therefore discounted from further assessment.

9.3.1.2 Multi-criteria assessment of options against key principles

The remaining options were then assessed using the key principles (Outcomes and Implementability) for guidance, as per Figure 9-3.

	Option	Assessment criteria									
		Outcomes				Implementability					
		Flexibility	Corridor	Customer appeal	Enables choice and access	Feasibility	Consents	Property	Safety	Outcome Score	Implementability Score
1	Do minimum (do nothing)	*Carried forward for baseline only*								-	-
2	Increased park & ride	*Does not achieve investment objectives*								-	-
3	Connecting bus - limited stops peak	*Does not achieve investment objectives*								-	-
4	Connecting bus - all stops peak	*Does not achieve investment objectives*								-	-
5	Connecting train - low frequency peak	2	0	1	1	-1	-1	0	0	4	-2
6	Connecting train - higher frequency peak	2	1	2	1	-2	-1	0	0	6	-3
7	Connecting train - low frequency all day	2	1	1	1	-1	-1	0	0	5	-2
8	Connecting train - higher frequency all day	2	2	2	2	-2	-1	0	0	8	-3
9	Connecting train - low frequency peak with facilities	2	0	1	1	-1	-1	0	0	4	-2
10	Connecting train - higher frequency peak with facilities	2	1	2	1	-2	-1	0	0	6	-3
11	Connecting train - low frequency all day with facilities	2	1	1	1	-1	-1	0	0	5	-2
12	Connecting train - higher frequency all day with facilities	2	2	2	2	-2	-1	0	0	8	-3
13	Through train - low frequency peak with facilities	3	1	2	2	-1	-1	0	0	8	-2
14	Through train - higher frequency peak with facilities	3	2	3	2	-2	-1	0	0	10	-3
15	Through train - low frequency all day with facilities	3	2	2	2	-1	-1	0	0	9	-2
16	Through train - higher frequency all day with facilities	3	3	3	3	-2	-1	0	0	12	-3

Figure 9-3: Multi-criteria assessment of options

Key

- +3: Significant benefit or alignment
- +2: Moderate benefit
- +1: Slight benefit
- 0: Neutral / No impact
- -1: Slight disbenefit
- -2: Moderate disbenefit
- -3: Significant disbenefit or misalignment (Fatal flaw).

The result of the MCA showed that a 'Through Service' would better achieve key stakeholder desired outcomes, and better achieve the Investment Objectives. All options have technical challenges.

9.4 Shortlist Identification

From the evaluation of the long list, stakeholders confirmed the shortlist in Table 9-3 to examine in more detail. The three shortlisted options were:

Table 9-3: Shortlisted Options

Shortlisted Option	Discussion
Option 10 – Connecting train – higher frequency peak with facilities	This option was the initial preference identified by stakeholders prior to the MCA. Stakeholder preferences were to: • provide more than one peak trip to provide peak travel options, • provide seven day travel, • operate services into the Auckland CBD when a suitable train path is available in the future (reflecting the customer preference identified through market research), and • servery seen as being essential for that given trip length. There was concern that off-peak demand may be insufficient to cover costs of services at those times.
Option 12 - Connecting train – higher frequency all day with facilities	This is the highest scoring 'Connecting Train' option that includes a servery as a future proof service. This is the same as Option 10 with off-peak services added to provide: • travel options for peak commuters (e.g. options in personal emergencies) • better options for travel for work purposes (e.g. to business meetings) • better options for airport-bound journeys given its importance as a destination for Waikato residents, and • better options for leisure / non-work journeys (i.e. more customer-friendly departure times than peak requirements allow).
Option 16 - Through train higher frequency all day with facilities	This was the highest scoring of all options. This is the same as Option 12 except that its final stop is The Strand in Auckland's CBD. This option assumes that train path limitations can be addressed prior to or soon after implementation This option is most closely aligned to customer preferences identified through market research, offering good service levels and direct access to the Auckland CBD and potentially key intermediate stops such as Puhinui for the airport.

The principle reason for the stakeholders selecting the three options were:

- A connecting and a through service were selected to enable an understanding of the range of value for money choice between options.
- Highest scoring against investment objectives (Option 14 and Option 16) and highest scoring against the key principles for each of a connecting service (Option 12) and a through service (Option 16).
- Closest alignment with the option defined by key stakeholders prior to undertaking the short list evaluation as a baseline for an informed trade-off discussion to decide the final recommended option.

9.4.1 Rolling Stock, Locomotives and Maintenance Facilities – option refinement

Rolling stock and locomotives:

- Options for the ex-AT carriages:
  - Refurbish to standard specification.
  - Refurbish to higher specification.
- Options for the DFB Locomotives included:

At this point, capacity was assumed following some preliminary demand modelling. Requirements were specified to KiwiRail by WRC based on the preliminary projected demand and feedback from customer surveys (requirements presented in Appendix N Report to TCWG Passenger Rail specification – 4 July 2018). This led to the development of the most viable number of locomotives, carriages and their configurations. More detail is presented in Appendix H Rolling Stock options.

Other KiwiRail facilities:

- Servicing and regular maintenance: two options were considered at Te Rapa:
  - Use existing facilities: this proved operationally difficult to achieve.
  - Addition to existing facilities: this was considered the only feasible solution.
  - Options were operationally constrained and a KiwiRail Committee resolved that a new facility at Te Rapa is the preferred option.
- Heavy maintenance: No alternatives were explored for heavy maintenance of rolling stock. All KiwiRail heavy maintenance is undertaken at the Hutt Workshops.
- Stabling: Westfield was considered the most viable stabling site during the daytime, therefore is the preferred option. Trains would travel (without passengers) to Westfield, where they would lay-over in the KiwiRail yards until the southbound journeys in the evening peak period. Night time stabling would occur at Te Rapa.

9.4.2 Stations – option refinement

Potential stations were considered against the investment principles. The full analysis is contained in Appendix J.

The analysis in Appendix J highlighted that the proposed stations of Frankton, The Base, and Huntly and the terminating station at Papakura are suitable for the start-up service. Given that rail tends to be a long-term investment, the proposed stations reflect the locations primarily of growth (The Base) or of deliverability (Frankton/Huntly).

Once the stations were reviewed and shortlisted options determined then each site was considered in greater detail (Appendix K Rail Station HLITA) with respect to:

- Pedestrian and cycle access.
- Public transport integration.
- Vehicular and car parking access and locations.

In all cases, given the early morning timing of the train services and the likely patronage, local traffic impacts are considered negligible. In all the proposed locations there is the capability to accommodate car parking, either on Council owned land (land purchased at The Base by HCC) or on street. In most cases additional works are required to enhance car parking areas. Frankton and Huntly have adequate walking and cycling access with a need for only minor works (for example, additional spurs off the existing Rail Trail walking and cycle route to the station in Frankton, and bike storage facilities). Cycle access to The Base is limited to the road, which does not currently have a footpath, limiting pedestrian access to park and ride and bus access only. Integration with other existing public transport, for example with local bus services, largely depends on the build-up of additional train services. Existing local bus services can easily be re-routed and timetables altered to integrate with the Start-Up service.

However, in the case of both Huntly and Frankton Stations, the main town centres are located only a short walk from the existing stops, so whilst an allowance was made in the design, this could change to provide additional parking or pick-up/drop off facilities.

9.5 High-Level Economic Assessment of the Shortlisted Options

Table 9-4 shows how the three shortlisted options compare from an economic perspective at a high level, along with their comparison to the qualitative assessment findings.

The economic assessment has similar parameters to the economic assessment of the preferred option (see Section 10.2), including a 30-year evaluation period and 6% discount rate, although NZTA Economic Evaluation Manual simplified procedures were used for simplicity. It was undertaken at an earlier point in the business case development process and assumed four Start-Up stations (the three that are included in the preferred option, and Tuakau, which was later aligned it with the future metro service direction of the H2ACSP), and costs and demand were consequently expected to be higher than the preferred option (250 weekday peak one-way passengers after a two-year ramp up period). Outputs are presented as ranges that reflect 40% variability (plus or minus 20%) in expected patronage and 40% variability in expected costs.

Option 10 has the lowest net cost (the funding gap between revenue and cost) and transport benefits, with a benefit cost ratio (BCR) range of 1.2 to 3.0. Option 12 and Option 16 have higher net costs and benefits, but broadly similar BCR ranges to Option 10, at 1.1 to 2.8 and 1.1 to 3.0 respectively. Both latter options have progressively higher incremental BCRs than the target incremental BCR of 1.0 at this patronage level, which indicates that the additional investment in these options is warranted if sufficient funding is available and operational constraints are addressed.

Option 16 is a limited-stops service, but not express service since trains cannot pass others on the corridor. It therefore does not offer travel time savings over the other options and its main benefit comes from the elimination of the connection to AT Metro services, which market research has indicated is a barrier to passengers wanting to use the service. Its return on investment would significantly improve if services could run to an express timetable with shorter running time north of Papakura, as may be possible in the future when the until capacity enhancements are completed between Wiri and Westfield by end of 2021/22.

Table 9-4: Shortlisted Options Economic Assessment

	Option 10	Option 12	Option 16
Capital cost (2018 $m)	$42.0 - $62.9	$42.0 - $62.9	$42.0 - $62.9
Operating cost (2018 $m)	$75.0 - $112.4	$103.7 - $155.6	$115.9 - $173.9
Revenue (2018 $m)	$14.8 - $21.3	$17.4 - $26.0	$26.1 - $39.2
Net Cost Summary	**$102.2 – $154.0**	**$128.0 - $192.5**	**$131.8 - $197.6**
Transport benefits	$190.5 - $285.7	$224.7 - $337.0	$238.0 - $356.9
BCR	1.2 – 3.0	1.1 – 2.8	1.1 – 3.0
Incremental BCR	-	1.3	3.9
Qualitative assessment			
Investment objectives score	7	7	12
Outcomes	6	8	12
Implement-ability (by October 2019)	-3	-3	-3

Stakeholders recommended that Option 10 be implemented at start-up despite its lower incremental BCR and lower qualitative scoring, due to its relative ease of implementation at commencement, lower cost, and consistent BCR with other the options. The service enhancements associated with the other options will be reconsidered once the preferred option has been fully implemented and infrastructure is in place to support service improvements at the Auckland end of the corridor.

10. Preferred Option

Option 10 was selected by the TCWG workshop on 5 October as the preferred option for the start-up service. However, as this section outlines, it has been modified as further decisions were confirmed by stakeholders that had a bearing on the final option. The preferred option changes respond to the draft H2ACSP and issues on the corridor.

10.1 Description

This section outlines the final version of the Start-Up service chosen for operation on Day 1 in March 2020. This Start-Up service is adapted from Option 10 in the short list, with the main changes being:

- No station stop at Tuakau. The decision to remove this station from the Start-Up was made at the 5 October workshop by the TCWG, to instead align investment there with the future metro service extension on that part of the corridor. Bus service improvements would provide the short-medium term response necessary.
- No Sunday and public holiday service for the first three or four years, due to planned track works, including addition of third and fourth tracks to network and electrification between Pukekohe and Papakura.

10.1.1 Overview

The preferred option has the following attributes and interventions as noted in Table 10-1.

Table 10-1: Preferred Option Attributes and Interventions

Characteristic	Attribute/Intervention
Primary mode	Conventional locomotive-hauled carriage train utilising three locomotives and 11 refurbished carriages (sufficient to provide two four-carriage train consists and locomotive and carriage spares), plus two unrefurbished carriage spares for growth. Refer options report.
Service type	Connecting service to AT Metro services at Papakura. Operation north of Papakura to be investigated once the Wiri to quay Park 3rd main project has been completed (mid 2022).
Start-Up stops (stations)	• Frankton (existing platform, no changes). • The Base (new island platform, track slewing[12]). • Huntly (upgraded side platform). • Te Kauwhata (to be further investigated within the five-year period). • Papakura (existing platform, no changes).
Frequency	Two weekday services in each direction, operating northbound in the morning peak and southbound in the evening peak (March 2020). One Saturday service in each direction, operating northbound in the morning and southbound in the evening (March 2020). One Sunday and public holiday service commencing after the Papakura to Pukekohe electrification project has been completed, operating northbound in the morning and southbound in the evening (late 2023). Interpeak services to be investigated (either aligned with an extension of operation north of Papakura or the later introduction of Sunday and public holiday services).
Vehicle features	• Table and/or tray table seating. • Disabled hoist and capacity. • Toilets including disabled toilet. • Air conditioning. • Luggage capacity. • Bike capacity. • Servery. • Wi-Fi capable.

[12] Track slewing is rail terminology for moving or realigning rail tracks.

Characteristic	Attribute/Intervention
	• At-seat power points and USB ports.
Stop features	• Minimum length 102m platform (Huntly), other platforms at least140m. • Lighting and CCTV for personal safety and security. • Shelter. • Seating. • Passenger information (expected to be paper-based at start-up). • Future local bus connections at Frankton, The Base and Huntly. • Bike storage (Frankton and Huntly to be confirmed) • Drop-off/taxi space at all stations. • Park and ride at all stations. • Walking and cycling links.
Fares	WRC fare integration.
Ticketing	WITS ticketing with on platform ticket infrastructure and the ability to issue paper-based tickets by train attendants.
Commercial	Operator-owned locomotives and rolling stock, maintained and serviced at Te Rapa (addition to existing facility).
	Negotiated operating contract.

10.1.2 Rolling Stock and locomotives

A description of the start-up service for the preferred option is provided in Table 10-2.

Table 10-2: Preferred Option forecast requirements

In service Date	March 2020	Future
Train Consist	2 x 4 carriage consist operational (may be operated as 1 x 3 carriage consist and 1 x 5 carriage consist if weekday demand is uneven) 300 seat capacity (150 per consist, or 100 and 200 per consist)	2 x 5 carriage consist if required to provide sufficient capacity to respond to higher than projected demand 400 seat capacity (200 per consist)
Forecast Demand	Approximately 120 in each direction on weekdays Approximately 30 in each direction on Saturdays.	Approximately 205 in each direction on weekdays (end 2023) Approximately 50 in each direction on weekend days (end 2023).
Locomotive[13]	2 x in operation rebuilt DFB 1 x maintenance spare rebuilt DFB	
Rolling Stock[14] *SR – 50 patrons* *SRC – 20 patrons* *SRV – 30 patrons*	Refurbished ex-AT SA & SD carriages **Operational:** / **Spares:** SR x 4 / SR x 1 SRC x 2 / SRC x 1 SRV x 2 / SRV x 1 SA x 2 (unrefurb)[15]	Refurbished ex-AT SA & SD carriages **Operational:** / **Spares:** SR x 6 (if req.) / SR x 1 SRC x 2 / SRC x 1 SRV x 2 / SRV x 1
Features Included	Vestibule Luggage Racks	

[13] If KiwiRail finds a use for the locomotives outside of their commitment to the Start-Up service, they could be made available for use by KiwiRail for freight services when not in use for passenger rail. The operating contract will make provision for KiwiRail contribution to all associated costs.
[14] SR = a standard passenger carriage; SRC = a servery and disabled access carriage; SRV = carriage with a generator.
[15] The two unrefurbished growth spare SA carriages will only be refurbished to SR standard in the future if required to enter service to provide sufficient capacity to respond to higher than projected demand.

In service Date	March 2020	Future
	USB and power points Universal toilets Disabled access (2 per train consist) Wi-Fi capable Servery (*future proof through service*) Work friendly environment Security	
Operating Features	Stabled during the day in Westfield Maintained and serviced overnight and in the weekends in Te Rapa	
Capital Costs	Locomotives $7,040,000 Rolling stock $14,232,000 Maintenance and stabling facilities $4,238,000 Ticketing equipment: $300,000	
Annual operations and maintenance costs (including track access charges):	$7,081,000	$7,739,000 (includes Sunday and public holiday services after 2023, - excludes inflation)

The spare locomotive one spare of each carriage type will be sufficient to cover scheduled maintenance requirements, and unscheduled maintenance requirements in many cases, while maintaining services. Breakdowns will be managed on a case by case basis according to procedures laid out in the operating contract.

10.1.3 Track infrastructure

KiwiRail track and associated infrastructure requirements are described in Table 10-3.

Table 10-3: Rail Infrastructure Proposal

KiwiRail Infrastructure:	2019/2020
Tracks	The Base: Track slewing for central island platform Huntly: Rebuilt station siding track and switches
Signals	The Base Huntly
Level crossings	The Base: Pedestrian level crossing
Cost	Capital: $7,380,000 ($6,380,000 at The Base and $1,000,000 at Huntly) Operational costs included in the track access charge

10.1.4 Stations

The specific features of each train station concept are detailed in this section, along with key attributes and concept diagrams. If more information on each station is required, refer to Appendix F for Features and Appendix C on the RMA Assessment. All three stations are expected to be operational by March 2020.

10.1.4.1 Frankton Station

Features of the Frankton Station concept are outlined in Table 10-4 and Figure 10-1. The infrastructure investment noted in 'Features' is provisional and will be determined if required once the station has commenced operation.

Table 10-4: Frankton Station Proposal

Forecast Demand (average weekday 2021-22)	Features (recommended improvements)	Platform and Pedestrian Access	RMA	Cost Estimate
80 - 125 passengers	**Shelter** – use existing **Seating** – use existing **Passenger information** (paper or electronic) – upgrade signage **Walking and cycling links** – use existing cycling, additional footpath, build cycle cage for security **Local bus stops** – not currently used, but re-mark existing **Drop-off/taxi** – use existing but re-mark **Park & ride** - use existing but re-mark with additional markings **Safety and Security** – (CCTV, lighting) – upgrade (however KiwiRail already installing new CCTV)	150+m long Side platform – use existing KiwiRail operational feedback: Concept reviewed, no objections	Passenger transport activities a permitted activity Changes to car parking may require consent	**Capital**: $200,000 (all above track) - provisional allowance only. **Annual Maintenance and Operations**: Allowance of $150,000 maintenance and $50,000 KiwiRail land lease costs

Approximately one third of passengers are expected to come from Hamilton, with a mix of walk, cycle or car access. Approximately 25% are expected to come from Raglan or Tamahere by car, another 25% from the Waipa district via car, with the remainder from rural parts of the Waikato district that are easily accessible to Frankton via car. Dinsdale bus services will be reviewed to provide a bus connection to the Frankton station from Hamilton CBD. WRC will ensure that the existing bus services integrate well with the rail timetable when is finalised.

Figure 10-1: Concept layout for Frankton Station

Concept diagram notes:

- the existing 25 car park spaces are shown as a block in blue
- around the periphery is space for a further 70-75 spaces, shown in teal
- three disabled spaces, shown in green
- taxi is shown yellow
- two buses (14m +14m + 6m swing in at rear) space of 34m is in orange.

10.1.4.2 The Base Station

Features of The Base Station concept are outlined in Table 10-5 and Figure 10-2.

Table 10-5: The Base Station Proposal

Forecast Demand (average weekday 2021-22)	Features	Platform and Pedestrian Access	RMA	Cost Estimate
45 – 70 passengers	**Shelter** – build new **Seating** – build new **Passenger information** (paper or electronic) – signage (possible kiosk in future)	140m long New island platform One new pedestrian level crossing	Passenger transport activities a permitted activity The proposed	**Capital**: $21,410,000 (includes platform, facilities[16], the track infrastructure

[16] $4,355,00 of the facilities cost relates to road construction to enable a park and ride.

Forecast Demand (average weekday 2021-22)	Features	Platform and Pedestrian Access	RMA	Cost Estimate
	Walking and cycling links – provision for new footpath to park and ride, build cycle cage for security **Local bus stops** – (where available) – build new bus bay on Tasman Road **Drop-off/taxi** – build new on Tasman Road **Park and ride** – – Build new 100 parking space, chip sealed for start-up on HCC land – Facility for 450 in future **Safety and Security** – (CCTV, lighting) – build new	Road crossing on raised platform in new 30 km/h zone. KiwiRail operational feedback: Concept reviewed, no objections. However, review of level crossing concept and electric gates is still in progress	car parking should be considered a permitted activity	changes noted in Table 10-3, and $6,400,000 for land purchase) **Annual Maintenance and Operations:** Allowance of $150,000 maintenance and $50,000 KiwiRail land lease costs

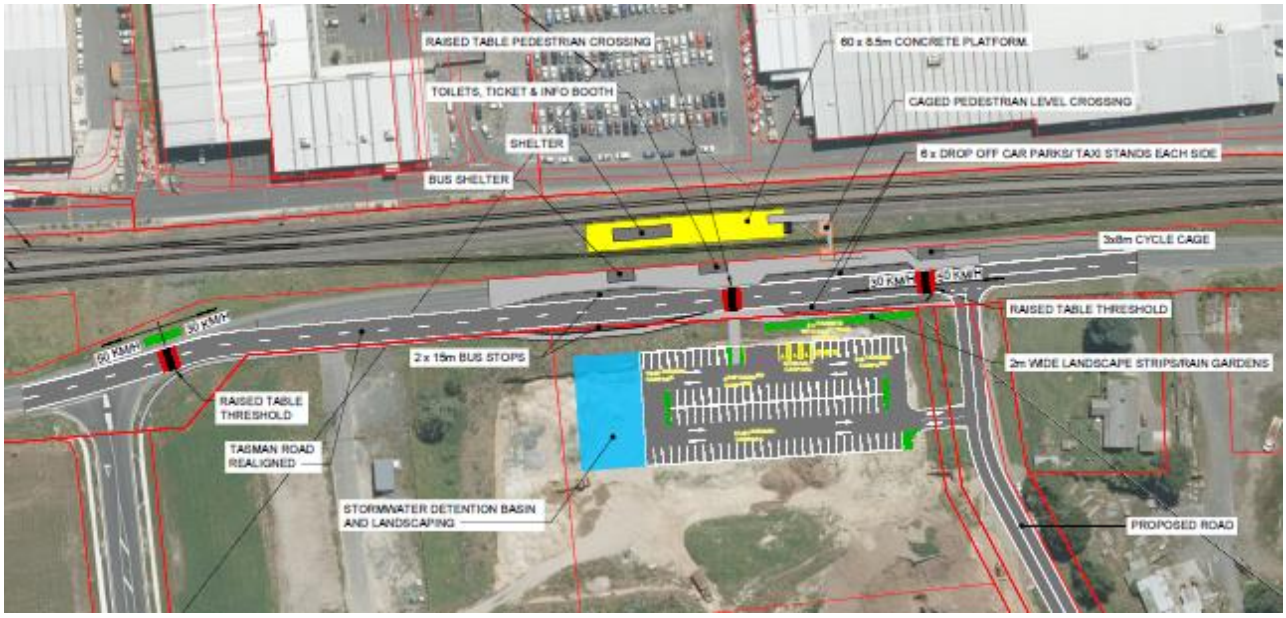


Figure 10-2: Concept layout for The Base Station

Approximately 60% of passengers are expected to come from Hamilton, with a mix of walk, cycle or car access. Approximately 15% are expected to come from Horotiu by car, and the remainder from rural parts of the Waikato district that are easily accessible to The Base via car. The Orbiter and Northern Connector bus services will be reviewed to provide a bus connection to The Base station. WRC will ensure that the existing bus services integrate well with the rail timetable when is finalised.

10.1.4.3 Huntly Station

Features of the Huntly Station concept are outlined in Table 10-6 and Figure 10-3.

Table 10-6: Huntly Station Proposal

Forecast Demand (average weekday 2021-22)	Features	Platform and pedestrian access	RMA	Cost Estimate
30 – 45 passengers	**Shelter** – build new **Seating** – build new **Passenger information** (paper or electronic) – new signage. **Walking and cycling links** – use existing, including pedestrian overbridge, build cycle cage for stations for security. **Local bus stops** – On existing bus access road. **Drop-off/taxi** – to use parking area. **Park and ride** – refurbish existing area, new chip seal and marking. **Safety and Security** – (CCTV, lighting) – build new.	102m Use existing side platform Platform lifted and extended. KiwiRail operational feedback: Concept reviewed, no objections at this stage, however concept review is still in progress.	Parking activity could be permitted if no more than 300 vehicle movements per day. Car parking could be permitted within the KiwiRail designation providing they have financial responsibility for it.	**Capital**: $2,240,000 (includes platform, facilities and the track infrastructure changes noted in Table 10-3) **Annual Maintenance and Operations**: Allowance of $150,000 maintenance and $50,000 KiwiRail land lease costs

Figure 10-3: Concept layout for Huntly Station

Approximately 20% of passengers are expected to come from Huntly, with a mix of walk, cycle or car access. Approximately one third are expected to come from Taupiri or Ngaruawahia by car, with the remainder from rural parts of the Waikato district that are easily accessible to Huntly via car. The Northern Connector and Huntly-Pukekohe bus services will be reviewed to provide a bus connection to Huntly station. WRC will ensure that the existing bus services integrate well with the rail timetable when is finalised.

Residents from Te Kauwhata north, are generally not expected to use the service they are not expected to travel against their journey direction to board the service.

10.1.5 Service levels

10.1.5.1 Timetable

An outline of the service levels proposed for the initial service at commencement is provided in Table 10-7. All passengers travelling to, or from, points north of Papakura will change trains and platforms at that location, with standard AT Metro rail services providing the northward connection from there.

Table 10-7: Service Levels Summary

	March 2020	Future
Service Frequency	2 x weekday peak (am, pm) 1 x weekend (Sat – am, pm)	2 x weekday peak (am, pm) 2 x weekend (Sat & Sun – am, pm) 1 x public holiday (am, pm)
Approximate journey and connection times	Frankton – Papakura: 90 mins Papakura transfer time: 5-10 mins Papakura – Britomart: 50 mins (AT Metro) TOTAL TIME: 2 hrs 25 mins to 2 hrs 30 mins	

Table 10-8 provides a suggested weekday commencement timetable, based on an initial assessment and current AT Metro timetables. The departure and running times are indicative only and subject to further development and later confirmation by the Auckland Network Timetable Committee in 2019. They may therefore vary, and overall travel time could potentially reduce. They should not be regarded as exact timings.

Table 10-8: Indicative start-up service timetable

Station	AM Peak		Station	PM Peak	
	Train 1	Train 2		Train 1	Train 2
Hamilton (Frankton)	5:54	6:33	Britomart	16:30	17:30
The Base	6:02	6:41	Newmarket**	16:38	17:38
Huntly	6:25	7:04	Puhinui*	17:02	18:02
Papakura Arrival	7:22	8:01	Papakura Arrival	17:18	18:18
Transfer	0:12	0:11	Transfer	0:09	0:09
Papakura Depart	7:34	8:12	Papakura Depart	17:27	18:27
Puhinui*	7:51	8:30	Huntly	18:23	19:28
Newmarket**	8:15	8:55	The Base	18:45	19:50
Britomart	8:24	9:04	Hamilton (Frankton)	18:52	19:57

* Connections can be made to the Manakau Line and buses for Auckland International Airport.

** Connections can be made to the Western Line.

The indicative timetable suggests a 11 to 12-minute Papakura transfer time, which is sufficient for passengers to change platforms, which they will need to do via the overbridge in the northbound direction. This results in an overall Hamilton to central Auckland travel time of around 2 hours 30 minutes, which is comparable with private vehicle between the two points at peak times as shown in Table 7-4. It is likely to be competitive in the longer term if congestion increases as expected, particularly at the Auckland end of the corridor[17].

Weekend timetables will be developed and confirmed prior to commencement in a similar fashion to weekday timetables. Departure times reflect the preferred market research timings.

[17] The Congestion Question: Phase 1 Report prepared by six agencies involved in the Auckland Transport Alignment Project notes that Auckland Forecasting Centre modelling indicates that the proportion of Auckland vehicle travel in severe congestion will increase by 29 percent by 2046 (from 2016) in the morning and afternoon peaks.

10.1.5.2 Fares and Ticketing

The new WRC zonal fare structure will apply south of Papakura and AT's fare structure to the north[18]. Smartcard and cash fare options are available in both regions but will not be supported by fare integration or free transfer at Papakura, due to the complexities of integrating the two fare structures. Standard concession fares will apply on the respective services as per the policy of each region, but free travel for SuperGold card holders would not be available on the start-up service, as current scheme policy exempts inter-regional services. An outline of the current adult smartcard fares under the WRC fare schedule is provided in Table 10-9.

Table 10-9: WRC adult smartcard fares under the zonal fare structure adopted in September 2017

	Hamilton (Frankton and The Base)	Huntly	Papakura
Hamilton (Frankton and The Base)		$4.00 (3 zones)	$12.20 (7 zones)
Huntly	$4.00 (3 zones)		$7.80 (5 zones)
Papakura	$12.20 (7 zones)	$12.20 (7 zones)	

Table 10-10 shows the fares that will apply for a typical Hamilton-Auckland journey. Passengers will need separate smartcards for the Hamilton-Papakura and Papakura-Auckland (AT Metro) sections of their journey[19].

Table 10-10: Fares overview

	Current (subject to change)	Future
Example Adult one-way Fare	*Hamilton-Papakura:* $12.20 (smartcard), $17.10 (cash) *Papakura-Auckland:* $6.20 (smartcard), $9.00 (cash)	Subject to future fare changes

WRC selected its new WITS ticketing system for the Start-Up service[20]. This will be implemented on the WRC bus network in 2019 and permit integrated ticketing with connecting bus services. The system will allow:

- Smartcard passengers to tag on and off using validators at train doors, similarly to the way that they will do on buses.
- Smartcard top-ups and pre-purchase of paper tickets via cashless ticket vending machines at Frankton and The Base (ticket vending machines are not currently planned for Huntly or Papakura).
- Smartcard top ups via an app and auto-payment.
- Onboard staff to monitor passengers with smartcards and pre-purchased tickets and issue cash paper tickets using mobile retail devices.

Extension of WITS to the Start-Up service is expected to cost $300,000. Operational costs have yet to be confirmed, but they are expected to be lower than those for AT Hop, the AT smartcard that passengers will use north of Papakura, which was previously considered as a ticketing option.

10.1.5.3 Fare Comparison Versus Cost of Private Vehicle Travel

Table 10-11provides a high-level comparison between the cost of a return train journey versus a return private car journey between Frankton and Britomart (on a weekday). It assumes there is only one person in the private vehicle and that the train passenger is not using a cash fare. The values for the vehicle

[18] Due to the need to switch services at Papakura.
[19] The future national ticketing scheme may address this issue, but it is not likely to be fully implemented in both regions within the five-year Start-Up period that is the focus of this SSBC.
[20] Subject to formal confirmation at a 21 November 2018 WRC council meeting

operating costs per hour and travel time costs per hour are based on those in the NZTA Economic Evaluation Manual. All values have taxes excluded, to provide a more appropriate comparison. The return journey time for a train was set at five hours and a vehicle journey was based on the 2018 mean AM and PM peak journey time of four hours and thirty-eight minutes (refer to Section 7.1.3.1).

Table 10-11: Train vs private car journey cost comparison

	Private car	Train	Difference
Hamilton to Papakura return	-	$21.22 (smartcard)	-
Papakura to Britomart return	-	$10.78 (AT Hop)	-
Vehicle operating costs	$53.20	-	-
CBD Parking all day	$20.87	-	-
Subtotal (per weekday)	$74.07	$32.00	$42.07
Travel Time costs ($19.58/h)	$90.72	$97.90	$(7.18)
TOTAL (per weekday)	$164.79	$129.90	$34.89

Table 10-11 shows a commuter travelling by train between Frankton and Britomart versus a commuter who currently drives between the two stations, could make an approximate saving of $42.07 per day versus travelling by their private car. If the commuter values their time spent travelling to work and therefore the travel time cost of each trip is considered, a train journey is still cheaper by $34.89 per day. This is perhaps an unfair comparison, because a train passenger could work productively on the train, whereas a private vehicle driver cannot. Therefore, time spent on the train working remotely could in theory count towards the commuter's normal working day, something not possible by private vehicle currently (this excludes the future possibility of autonomous vehicles).

Over the course of a five-day working week, the saving (excluding travel time costs) would be $210.35. If extrapolated out to a 220-day working year, this would equate to $9,255.40 per year saving on train journeys versus private car journeys. The amount of savings calculated here are approximate and subject to changes in the cost of fuel, parking and train fares.

10.1.6 Demand

Demand is highly uncertain as new start-up rail services are rare in New Zealand. The last was the trial Waikato Connection service on the same corridor, which was unsuccessful and ceased running after 14 months in 2001 as noted in Section 5.2.2, although it should be noted that the character and scale of travel on the corridor has changed significantly since that time. A further complication is the end-to-end connecting nature of the service, which is unlike anything in New Zealand and is rare internationally.

Patronage demand projections have therefore been derived from market research, which was conducted by Mobius Research in early 2018. This provided information on the current travel behaviour of participants, and their interest in using three potential public transport options: a limited-stops through express rail service to central Auckland, a rail service connecting to AT Metro services at Papakura, and bus service connecting to AT Metro services at Papakura. The second option was very similar to the Start-Up service proposal and provided the following specific information, which has been used to help identify demand for the new service, both overall and at key stations:

- Location of the respondent
- Interest in the proposed service
- Likely frequency of use
- Willingness to pay at various fare levels.

The market research findings were combined with an estimation of overall demand for travel between Hamilton, Waipa district and Waikato district, and Auckland, based on the outputs of the Waikato Regional Transportation Model.

The demand assessment determined at the proposed service and fare levels, the level of weekday demand is likely to be approximately 200 passengers per day each way, following a 16-month ramp-up period. This is consistent with, but slightly lower than the level of demand for the Capital Connection, which runs as a single weekday peak service between Palmerston North and central Wellington (southwards in the morning peak and northwards in the afternoon peak).

Weekend and public holiday demand was estimated as being in the vicinity of 50 passengers per day each way following the ramp-up period[21], based on the off-peak/peak demand split of Greater Wellington Regional Council's long-distance Masterton-Wellington Wairarapa services[22].

Figure 10-4 shows the resulting projected annual patronage total for the five-year start-up period. This climbs from an estimated 21,000 in 2019-20 (four months of operation), to 82,000 in 2020-21, to 103,000 in 2021-22. Demand beyond the 2021-22 financial year is conservatively based on the combined (2011-2017) Hamilton/Waipa/Waikato annual population growth rate of 2.0% (arithmetic growth), with a jump in the 2023-24 financial year when Sunday and public holiday services are expected to be introduced. This climbs to a projected 167,000 passengers at the end of the 30-year assessment period (see Section 10.2.3 for an explanation of the economic assessment parameters). Actual growth could potentially be much higher, as traffic growth on the parallel state highway has increased by an average of 3.7% and urban development may increase the population by a much faster rate in the future, so the 2.0% growth rate should be regarded as conservative.

Most users of the Start-Up service are expected to be adults, given the focus of investment on weekday peak periods. The market research indicates that only one quarter of them are expected to use it for work/study/meeting travel purposes at start-up, although this proportion is likely to change significantly as the service becomes embedded as transport 'infrastructure' and people make locational decisions around it. Another quarter are expected to use it to reach Auckland International Airport, and the remainder for other purposes. The latter groups would be relatively infrequent users, as is characteristic of this type of long-distance service, but provide an important source of demand.

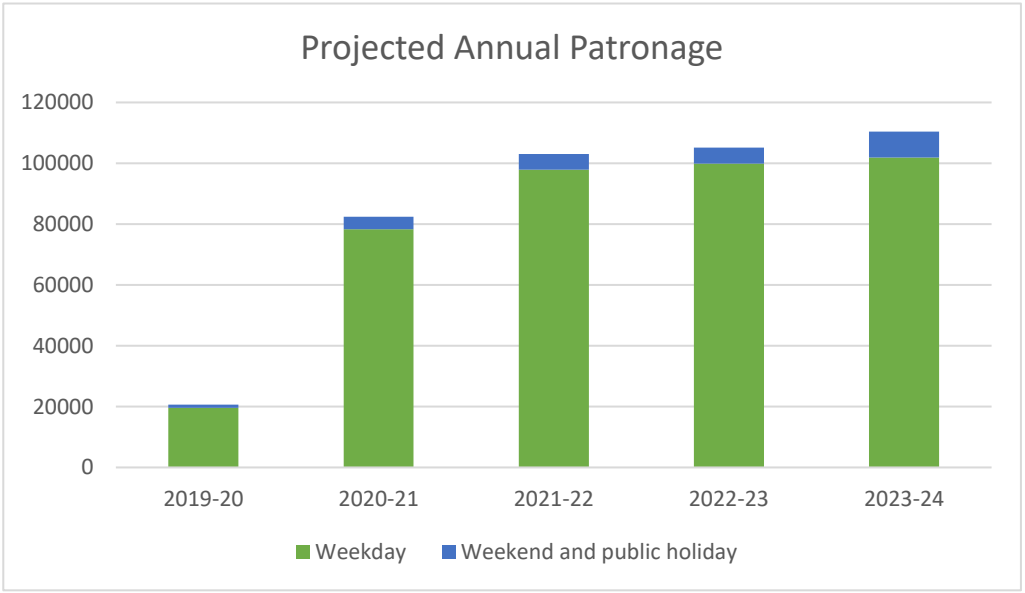


Figure 10-4: Projected annual patronage volumes (five-year start-up period)

It is important to note that both weekday and weekend/public holiday estimates are indicative. Patronage is uncertain until demonstrated, as with all new public transport services, and will need to be the subject of ongoing and close monitoring throughout the five-year commencement period.

[21] New service public transport patronage typically builds up over the 12 to 18-month period following introduction. This business case has conservatively assumed 60% of projected demand after four months, 80% of projected demand after sixteen months, and 100% of projected demand after 28 months, following a typical demand ramp up profile.
[22] Weekend demand could be greater as Auckland is a greater attractor and Hamilton has a larger catchment.

10.2 Economic Assessment

10.2.1 Cost Components

10.2.1.1 Capital Costs

The anticipated total cost of the capital cost components described in previous sections is shown in Table 10-12. These account for 32% of gross costs over the 30-year assessment period, with locomotive and rolling stock costs accounting for approximately two-thirds of this total, and station, track and support infrastructure accounting for the remainder. The following should be noted:

- Two of the three locomotive overhauls have been completed and the third is close to completion. The locomotives will operate in freight service until they are required, but they will be allocated specifically to the Start-Up service when it commences. They have been overhauled specifically for this service and the cost has been allocated to it accordingly.
- Locomotives and rolling stock will have a 15-year life once overhauled, which is well beyond the immediate start-up horizon of this business case.
- Rolling stock conversion costs include design costs and margin, but not warranty-related costs.
- Rolling stock and station related costs are subject to confirmation through the design and procurement process.
- Costs that include a defined contingency are noted.
- KiwiRail costs are indicative and subject to KiwiRail Board approval.
- Frankton Station improvements are provisional and will be determined if required once the station has commenced operation. This cost has not been included in the table but could be up to $0.20m.

Table 10-12: Capital Cost Components

Type	Description	Financial Period	Cost ($m)
Locomotives	Overhaul DFB x 2	2018-19	$4.54
	Overhaul DFB x 1	2018-19	$2.50*
	SUBTOTAL		$7.04
Rolling stock	Purchase SA and SD carriages x 13	2018-19	$0.97
	Convert carriage to SR specification x 5	2018-20	$5.81**
	Convert carriage to SRC specification x 3	2018-20	$4.24**
	Convert carriage to SRV specification x 3	2018-20	$3.21**
	Maintenance facility	2018-20	$3.80
	Stabling (Te Rapa) and access (Westfield)	2018-20	$0.44**
	Ticketing equipment	2019-20	$0.30
	SUBTOTAL		$18.77
Stations	Frankton facilities	2018-20	Provisional
	The Base land acquisition	2018-19	$6.40
	The Base track infrastructure	2018-20	$6.38***
	The Base platform	2018-20	$2.20
	The Base facilities	2018-20	$6.43***
	Huntly track infrastructure	2018-20	$1.00
	Huntly platform	2018-20	$0.77
	Huntly facilities	2018-20	$0.47
	SUBTOTAL		$23.65
TOTAL			$49.46

* Includes 10% contingency
** Includes 20% contingency
*** Includes 30% contingencies on some costs

The stations are very long-term infrastructure assets, which are required to enable the service to operate. Their level of service has been matched to short-term demand requirements. However, they do add considerable cost to the start-up service, even though the benefit of them will be realised over a very long term if the service is successful, particularly if it is improved in due course.

10.2.1.2 Operating costs

The anticipated annual cost of each of the operating cost components described in previous sections is shown Table 10-13. These account for 68% of gross costs over the 30-year assessment period, and increase following the introduction of Sunday and public holiday services in 2024. The following should be noted:

- The pre-end 2023 calendar costs are based on full year operation of two weekday peak services daily and a Saturday service in each direction.
- The post-end 2023 calendar year costs include the addition of Sunday and public holiday services in each direction.
- All stations are assumed to be operational from start-up.
- Communications, marketing and customer complaints are assumed to be managed through WRC's existing public transport operation, in partnership with KiwiRail and AT.
- The KiwiRail operations and maintenance costs shown in the table include a 7% margin and assume a cost-plus contract arrangement, with operational and performance risks being borne by the regional council. Such risks include fuel price, bus replacement, on-board sales profitability, incident costs, unplanned locomotive and carriage maintenance, vehicle availability and third-party damages. A higher margin may be applicable if some risk is borne by KiwiRail.
- A contingency of 5% is included to allow for the costs that have yet to be confirmed, which include (but are not limited to) cover for locomotive failure or train derailment, incident investigation, security monitoring, bus replacements for planned or unplanned network disruption, any additional ticketing-related costs, and security-related operational costs.
- KiwiRail costs are indicative and subject to KiwiRail Board approval.
- All costs are subject to confirmation through the procurement process.
- Costs for the first four months of operation in 2019-20 have been prorated in the economic assessment.

Table 10-13: Operating Cost Components

Type	Description	Annual Cost Prior to End 2023 ($000)	Annual Cost Post 2023 ($000)
Rail operations	Hook and tow (locomotive and engineer costs)	$2,743	$3,016
	Other labour and related costs	$694	$773
	Track access	$605	$674
	External services*	$281	$313
	Materials and supplies*	$275	$307
	Generator fuel	$242	$269
	Other costs	$222	$224
	SUBTOTAL (includes 7% margin)	$5,063	$5,577
Rolling stock maintenance	SUBTOTAL Includes 7% margin	$981	$1,093
Station maintenance	SUBTOTAL (three stations)	$450	$450
Other	Land lease allowance	$150	$150
	Management contract allowance	$100	$100
	SUBTOTAL	$350	$350
Contingency	5% allowance for unconfirmed items	$337	$369
TOTAL		$7,081	$7,739

*Includes ticketing-related costs

10.2.1.3 Revenue

Indicative annual fare revenue for the first five years of the start-up period is shown in Table 10-14. This provides 15% farebox cost recovery of operating costs after the ramp-up period in the 2021-22 financial year and increases to 24% at the end of the 30-year assessment period, assuming the conservative patronage growth rate described in Section 10.1.6. The following should be noted:

- The fare revenue projection is based on the mid-range patronage projection noted in Section 10.1.6. The actual revenue would be highly dependent on the actual demand, both in total and by station, given the zone-based fare structure proposed.
- For simplicity, revenue calculations assume that all passengers pay an adult smartcard fare – the actual average fare would be dependent on the mix of passenger types (e.g. adult versus concession) level of use of different payment methods (e.g. smartcard versus cash fares).
- Servery revenue is excluded and assumed to be cost-neutral.
- Both Start-Up service fare revenue and the increase in AT fare revenue are included in the economic assessment.

Table 10-14: Indicative Fare Revenue

	2019-20 (4 months)	2020-21	2021-22	2022-23	2023-24
Start-up service fare revenue ($000)	$204	$817	$1,021	$1,042	$1,094
Increased AT fare revenue ($000)	$86	$345	$431	$440	$462
Total fare revenue ($000)	$290	$1,161	$1,452	$1,481	$1,556

10.2.2 Benefit Components

10.2.2.1 Transport Benefits

Two types of transport benefit are available, those that would accrue to users of the new rail service and those that would accrue to non-users, particularly road users. The benefit assessment assumes that most passengers would otherwise use private vehicles for their trip, either as driver or passenger based on the market research findings, but a small number identified themselves as existing bus users. This split has been considered in the assessment of these benefits.

10.2.2.1.1 Public Transport User Benefits

The following public transport user benefits apply:

- Travel Time Cost Savings: The saving of travel time gained by passengers using the Start-Up service over existing travel options. This saving is based on the indicative train timetables noted in Section 10.1.5.1 and the mean road travel times noted in Section 7.1.3.1. It is expected to increase as road travel times increase as congestion worsens in the Auckland Region at weekday peak periods.
- Vehicle Operating Cost Savings: A saving in the cost of operating a motor vehicle, which is linked to travel time and accrued by former vehicle drivers.
- Parking Cost Savings: A saving in the cost of parking a motor vehicle, which accrued by some former vehicle drivers.
- PT Vehicle Benefit: A recognition of the value placed by passengers on key rail rolling stock features that the Start-Up service will have.
- Consumer Surplus: A recognition of the perception of value of the availability of the service to passengers, which reflects their willingness to pay for it.

These have been conservatively assessed in accordance the NZTA's Economic Evaluation Manual (EEM), and account for approximately 80% of the overall benefit. This is relatively high as a proportion but reflects the start-up nature of the service. A summary of each benefit's provisional value over the 30-year assessment period is provided in Table 10-15.

Table 10-15: Public Transport User Benefit Components

Benefit Type	30-Year Discounted Value ($m)
Travel time cost savings	$1.74
Vehicle operating cost savings	$32.54
Parking user cost savings	$6.36
Public transport user and infrastructure benefits	$2.19
Consumer surplus (price user benefit)	$7.40

10.2.2.1.2 Non-User Benefits

The following non-user benefits apply:

- Decongestion: The benefit to other road users of removing vehicles previously driven by public transport users at peak times.
- Crash Cost Savings: A saving associated with a reduction in crashes, due of the removal of the vehicles previously driven by public transport users.
- Vehicle Emission Reduction: A reduction in the emission of pollutants, due of the removal of the vehicles previously driven by public transport users.

These have been conservatively assessed in accordance with the EEM, and account for approximately 20% of the overall benefit. A summary of each benefit's provisional value over the 30-year assessment period is provided in Table 10-16.

Table 10-16: Non-User Benefit Components

Benefit Type	30-Year Discounted Value ($m)
Decongestion	$5.47
Crash cost Savings	$4.72
Vehicle emission reduction	$1.97

10.2.2.2 Other Benefits

The investment proposal is likely to provide a wider range of social, economic, environmental and other benefits, such as those relating to accessibility, productivity (through on-train work), resilience (through the availability of a modal alternative), and option and non-use (valuation of the service by people who do not use it), and be a key enabler of future public transport service improvements and longer-term development on the corridor. These benefits have not been quantified in this business case, as they are difficult to place a specific value on, but they are expected to provide significant wider economic benefits. These benefits are discussed further in an associated report by WRC[23], which provides more context around the potential benefits that are likely to supplement the direct benefits discussed above.

The WRC report identifies two main high-level benefits (the following italic text was extracted from the executive summary of the report):

- *An inter-regional rail service would bring Auckland and Hamilton/North Waikato business and potential employees closer together.*
- *Inter-regional rail is likely to have a stimulating effect on urban development and redevelopment in the places that the start-up rail service connects, particularly important at the Waikato / Hamilton end of the service.*

Further benefits are also expected from the start-up service and are listed in the report as:

[23] Hamilton to Auckland Inter-Regional Rail: Potential Wider Benefits (October 2018)

- *The movement of freight, by addressing constrains in the upper North Island strategic freight road and rail network that re currently limiting the ability to enhance economic performance and reduce the costs of doing business.*
- *Access to wider employment, further education and health care facilities. These benefits would initially arise for Huntly residents, and may arise for Te Kauwhata if established in the future.*

An area of potential benefit not explored is Tourism. By providing an alternative mode of transport tourists arriving in Auckland may be more likely to also visit Hamilton and the Waikato, potentially leveraging investment in initiatives such as the regional cycle trails network. This may be enhanced by the potential to, over time, offer airport connecting services.

While the above benefits may arise (some more than others) from the start-up rail service investment alone, these are expected to amplify over time as the service evolves and service levels improve. They may also be amplified by other products of the Corridor Plan including approaches to enabling land development and augmenting urban form towards being more transit-oriented and alternative approaches to infrastructure and financing.

Two other reports provide indirect support for a rail service between Hamilton and Auckland, those being; The Economic Linkages between New Zealand Cities (MBIE, May 2011) and The Economic Impacts of Connectivity (NZTA, February 2017). These reports provide some positive affirmation of the potential benefits, but they indicate that more detailed work is needed to quantify the level of benefits that would be realised from improvements to rail accessibility along the Hamilton to Auckland corridor.

The Economic Linkages between New Zealand Cities report states that '*the economic dominance and continued high rates of economic and population growth being experienced by Auckland, Hamilton and Tauranga provides a strong rationale for the investigation of the economic linkages between these three cities*'. At the time of writing (2011) it stated there was limited commuting between the three cities (citing 2006 Census data), whereas this pattern has most likely changed (for North Waikato in particular) with the surge in Auckland house prices since 2013.

The Economic Impacts of Connectivity report state that '*the effect on regional economies of large transport projects can be significant but it can also be challenging to measure and predict*'. Two economic models were built for the report and applied to the combined areas around the cities of Auckland, Hamilton and Tauranga (as a case study). One of the models indicated that a 0.4% regional overall GDP increase could be possible, but this figure does not include for any passenger rail benefits. The percentage also includes a wider study area than is the focus of this SSBC.

10.2.3 Cost Benefit Appraisal

The cost benefit appraisal input parameters are shown in Table 10-17. The following should be noted:

- Operating costs, fare revenue and benefits are based on the provision of two weekday peak services and one Saturday service in each direction between Hamilton and Papakura at Start-Up, with the addition of Sunday and public holiday services (at the Saturday service level) from 2024.
- No other service enhancements are assumed over the evaluation period, either within the five-year start-up period or beyond that. Any future upgrades would be subject to separate business cases.
- Additional rolling stock is refurbished as required to provide sufficient capacity as required by growth in the scenarios described on the following page. It is assumed that these are available for purchase where the requirement is above the 13 carriages covered in this business case.
- Rolling stock replacement is assumed to be like-for-like (i.e. upgraded used locomotives and rolling stock) with allowance for the additional capacity noted above. All 13 carriages are refurbished at replacement. Any future upgrades would be subject to a separate business case.
- AT services that provide the connection for the Start-Up service are assumed to have sufficient capacity to cope with demand (as advised by AT) on an ongoing basis without impact on their operating costs.

Table 10-17: Cost Benefit Appraisal Parameters

Input Type	Value
Evaluation period	30 years
Standard EEM discount rate (with sensitivity testing)	6%
Rolling stock life-cycle	15 years
The implementation points noted in Section 10.1	
The demand parameters noted in Section 10.1.6	
The costs noted in Sections 10.2.1.1[24] and 10.2.1.2	
The revenue noted in Section 10.2.1.3	
The benefits noted in Section 10.2.2.1	

Table 10-18 shows provides the provisional results of the start-up service benefit cost appraisal under three discount rate values, and the following four realistic scenarios that sensitivity test around key parameters:

- Low Scenario: This has starting patronage 20% below the projection, the same patronage growth rate as the Mid scenario below (2.0%), and operating and capital costs 10% above it. This is a low benefit, high cost scenario.
- Mid Scenario: The option defined in this business case, as summarised in Table 10-17.
- High Scenario: This has starting patronage 20% above the projection, a patronage growth rate set at the level of traffic growth on the parallel state highway (3.7%), the same operating cost as the Mid scenario, and capital costs 20% below it (which might be achievable if the contingency amounts embedded in most capital costs are not required). This is a high benefit, low cost scenario.
- Very High Scenario: This has starting patronage 40% above the projection, the same patronage growth rate as the High scenario, the same operating cost as the Mid and High scenarios, and capital costs 20% below it, similarly to the High Scenario. This is a very high benefit, low cost scenario.

Patronage drives the benefits under all scenarios and also contributes to the net cost or finding gap, since it also drives fare revenue. Demand thus has a significant effect on the outcome.

The table shows that:

- The BCR[25] ranges between 0.4 and 1.0 at the standard 6% discount rate, with a BCR of around 0.5 under the Mid scenario parameters that are described in the business case. The investment proposal has present value benefits of around $62.4m and present value costs of $118.8m at this level.
- It is higher (0.4 to 1.1), under a low discount rate, with a Mid scenario BCR of around 0.6.
- It is lower (0.3 to 0.9) under a high discount rate, with a Mid scenario BCR of 0.5, similarly to the standard discount rate.

The above indicate that the preferred option is only likely to provide greater direct transport benefits than its costs if patronage is higher than the current projection. This is possible, since patronage is subject to a high degree of uncertainty, which will only be quantifiable when the service us established as previously noted. Wider economic benefits, although unquantified in this assessment, would also be likely to support the proposal given the role of the start-up service in wider proposals for the corridor. It should also be

[24] The cost of land and roading changes that are required to support the provision of park and ride at The Base are not included in the cost benefit assessment.
[25] The BCRs presented are government BCRs that show the value for money that the investment provides from a central and local government investment perspective.

reiterated that the service must bear the cost of much of the infrastructure that will support the development of other rail services on the corridor.

Table 10-18: 30-Year Present Value Benefits, Costs and BCR Outputs

	Scenario			
	Low	Mid	High	Very High
Patronage at start	-20%	As defined	+20%	+40%
Patronage growth	As defined	As defined	3.7%	3.7%
Operating costs	+10%	As defined	As defined	As defined
Capital costs	+10%	As defined	-20%	-20%
4% Discount Rate				
Benefit	$65.19m	$81.48m	$111.44m	$130.01m
Net Cost	$165.55m	$142.61m	$123.46m	$118.19m
BCR	0.4	0.6	0.9	1.1
6% Discount Rate				
Benefit	$49.92m	$62.40m	$84.36m	$98.42m
Net Cost	$137.33m	$118.81m	$102.92m	$99.03m
BCR	0.4	0.5	0.8	1.0
8% Discount Rate				
Benefit	$39.25m	$49.06m	$65.61m	$76.54m
Net Cost	$116.98m	$101.59m	$87.98m	$85.02m
BCR	0.3	0.5	0.7	0.9
Rolling stock				
Refurbishment required	No	No	Year 11	Year 6 & 11
Extra carriage and refurbishment	No	No	Year 22 & 28	Year 16, 21 & 26

Note: All Benefits and Net Costs are Present Value totals

10.2.4 Assessment Profile

The preferred option was assessed against the June 2018 IAF, given its expected alignment with NLTP investment criteria based on the signals provided in the Transport Agency Investment Proposal (TAIP) and the 2018 GPS. The IAF rates a proposal on two factors: results alignment and cost benefit appraisal. The ratings are then brought together to form an overall assessment profile that determines a proposal's priority for NLTP investment.

10.2.4.1 Results Alignment – overall rating alignment is High

Results alignment is an assessment against the outcomes sought from the GPS. There are four rating bands – Low, Medium, High and Very High – each with criteria specific to the activity class. The improvements have been assessed against the public transport, rapid transit and transitional rail activity class criteria.

Table 10-18 shows the outcome of this assessment, based on an appraisal of the problems, benefits and investment objectives described in this SSBC and the strategic alignment outlined in Section 4. It indicates the preferred option responds strongly to the outcomes sought by the GPS. Two Medium ratings and eight High ratings are recommended against the ten criteria across three of the four results alignment categories. These include both the thriving regions and liveable cities "access" priorities, given the preferred option's key dual urban and regional impact.

The ratings collectively suggest that an overall results alignment rating of High is appropriate. The proposed Start-Up service would not enable a substantial increase in access for large numbers of people in its current form, due to its peak-only nature, low frequency and transfer requirement, so does is not

recommended for the Very High rating that could be available under the liveable cities priority. That may be appropriate in the future as service levels are improved and are able to support full transit-oriented development.

Table 10-19: GPS Results Alignment

GPS Priority	Criteria	Alignment
Access to opportunities, enables transport choice and access, and is resilient - thriving regions	• Addresses a significant gap in level of service in accessing social or economic opportunities and is identified in an approved regional economic development programme as making a significant contribution • Makes best use of the public transport service operations in a multi-modal context with land use.	High
	• Addresses a significant gap for inter-regional public transport.	Medium
Access to opportunities, enables transport choice and access, and is resilient - liveable cities	• Addresses a significant gap in level of service in accessing social or economic opportunities and makes a significant contribution • Addresses a significant gap in access to new housing in high growth urban areas • Supports agreed integrated land use, multi-modal plans and land use in major metros • Improves intermodal connectivity where this enhances the appropriate use of public transport • Makes best use of the public transport service operations and connection to other services.	High
Environment - reduce adverse effects on the climate, local environment and public health	• Enables long term reductions in greenhouse gas emissions from land transport.	High
	• Enables reductions in harm to the environment and people, particularly arising from land transport-related air pollution and noise.	Medium
	Overall Results Alignment	HIGH

10.2.4.2 Cost Benefit Appraisal of Low

The IAF classifies BCR ratings into the following four bands:

- Low (1 to 2.9),
- Medium (3 to 4.9),
- High (5 to 9.9), and
- Very High (10 and above).

The investment proposal has an overall BCR of between 0.4 and 1.0. The high end of this range is classified as being in the Low band.

10.2.4.3 Improvement activity priority order rating of 5

A results alignment rating of High and cost benefit appraisal rating of Low, gives the investment proposal a priority order rating of five (5) in the improvement activity scale of 1 to 8 (as shown in Table 10-20), which suggests that it would be eligible for NLTP funding if the very high patronage, lower cost outcome is achieved. A lower BCR does not enable the investment to be directly prioritised. The final assessment profile and funding approval is subject to the NZTA's funding approval process, which takes a wide range of factors into account.

Table 10-20: IAF Priority Order for Improvement Programmes

Results Alignment	Cost Benefit Appraisal	Priority Order
Very High	L/M/H/VH	1
L/M/H	Very high (BCR 10+); PV_EoL	2
High	High (BCR 5-9.9)	3
High	Medium (BCR 3-4.9)	4
Medium	High (BCR 5-9.9)	4
High	*Low (BCR 1-2.9)*	*5*
Medium	Medium (BCR 3-4.9)	5
Medium	Low (BCR 1-2.9)	6
Low	High (BCR 5-9.9)	7
Low	Medium (BCR 3-4.9)	8
Low	Low (BCR 1-2.9)	Exclude

11. PART C – READINESS AND ASSURANCE

For the first time the (2018) GPS included a transitional rail activity class to provide scope for funding key rail projects that cannot wait for the rail review and second stage GPS. While the GPS makes provision for rail funding, the scope of this funding is tight. This activity class is known as Work Category 545 (WC545) Transitional Rail[26]. The GPS supports investment in:

- improving urban rail services for passengers accessing housing, major employment areas and major metropolitan areas, where demand is outstripping capacity, to improve reliability or to reduce conflict between freight and passenger trains
- existing and new interregional commuter rail services, including the implementation of trial inter-regional rail commuter services to support housing and employment opportunities.

11.1 Funding Case

The following funding is proposed for the start-up service (see Appendix E for detail).

The WRC Council meeting on 28 May allocated $300,000 in Year One and $150,000 for Year Two at NZTA's 51% FAR. They also agreed the following:

- WRC, HCC and WDC are budgeting on an expected Funding Assistance Rate (FAR) of 100% for capital expenditure and 75.5% for operational expenditure (76% for WDC).
- Transitional Rail WC545 for platform and track (below platform) infrastructure.
- KiwiRail will own the rolling stock. KiwiRail is not an Approved Organisation under NZTA therefore WRC is applying for funding for the carriages and will have a contractual arrangement to transfer ownership of the assets to KiwiRail for them to refurbish for the inter-regional rail service.

Costs were assessed for all elements of the project. A review of station costs and associated risks is presented in Appendix E. KiwiRail estimates were examined and have been benchmarked against other services elsewhere in New Zealand.

Table 11-1 outlines the funding case under each Work Category for the first six years of the Start-Up service (two NLTP cycles). It should be noted that WRC is rating HCC ratepayers to fund the net cost of the service. WRC is the Public Transport and rating authority for bus and rail, and as such, it is expected that it will fund the balance of the net cost if NZTA is able to fund the service with a FAR equivalent to 75.5% throughout the first two years. The following three years of operations will align with the 2021-2024 NLTP and the enhanced FAR policies and rules are likely to be revised by the NZTA. WRC will review their funding contribution to the service through their Long Term Plan, and it will be subject to a significant financial contribution being received from the NZTA through the 2021-2024 NLTP.

[26] This work category provides for activities primarily related to 'below-track' improvements on the rail network that improve the passenger rail service reliability and capacity, enabling better access to housing and employment.

Table 11-1: Funding Case

Work Category	Activity	FAR	Approved Organization	18/19 Budget (total cost)	19/20 Budget (total cost)	NZTA 18/19 - Share	NZTA 19/20 - Share	NZTA 20/21 - Share	NZTA 21/21 - Share	NZTA 22/23 - Share	NZTA 23/24 - Share	NZTA Share over 6 year period ($)	Councils Share over 6 year period ($)	Total Budget (over 6 year period)
WC 324: Road improvements	Road changes to accommodate park and ride facility at The Base	75.5%	HCC	$1,866,429	$2,488,571	$1,409,154	$1,878,871					$3,288,025	$1,066,975	$4,355,000
WC 514: Public Transport Operations and Maintenance	Ongoing maint. and leasing costs of Frankton station	51%	HCC				$34,000	$102,000	$102,000	$102,000	$102,000	$442,000	$424,667	$866,667
	Ongoing maint. and leasing costs of The Base station						$34,000	$102,000	$102,000	$102,000	$102,000	$442,000	$424,667	$866,667
	Ongoing maint. and leasing costs of Huntly station	52%	WDC				$34,667	$104,000	$104,000	$104,000	$104,000	$450,667	$416,000	$866,667
WC 515: Passenger Rail Services	Funding for the operation of the Start-Up service	75.5%	WRC				$1,299,155	$3,743,303	$3,589,140	$3,573,412	$3,966,546	$16,171,555	$5,247,723	$21,419,278
WC 531: Public Transport Infrastructure and major Renewals	The Base 'above track' infrastructure	75.5%	HCC	$889,286	$1,185,714	$671,411	$895,214					$1,566,625	$508,375	$2,075,000
	Land for park and ride facility at the Base			$6,400,000		$4,832,000						$4,832,000	$1,568,000	$6,400,000
	Extend WITS ticketing system to service		WRC	$128,571	$171,429	$97,071	$129,429					$226,500	$73,500	$300,000
	Huntly 'above track' infrastructure	76.0%	WDC	$201,429	$268,571	$153,086	$204,114					$357,200	$112,800	$470,000
WC 545: Transitional Rail Infrastructure	Procurement of rolling stock	100%	WRC	$970,000		$970,000						$970,000	$0	$970,000
	Refurbishment of rolling stock			$5,682,857	$7,577,143	$5,682,857	$7,577,143					$13,260,000		$13,260,000
	Locomotive overhaul			$3,017,143	$4,022,857	$3,017,143	$4,022,857					$7,040,000		$7,040,000
	Rail maint. facility and stabling - Te Rapa / Westfield			$1,816,286	$2,421,714	$1,816,286	$2,421,714					$4,238,000		$4,238,000
	Ongoing maint. costs of rolling stock						$735,845	$981,126	$981,126	$981,126	$1,093,109	$4,772,334		$4,772,334
	The Base platform		HCC	$942,857	$1,257,143	$942,857	$1,257,143					$2,200,000		$2,200,000
	The Base 'below track' infrastructure			$2,734,286	$3,645,714	$2,734,286	$3,645,714					$6,380,000		$6,380,000
	Huntly platform upgrade		WDC	$330,000	$440,000	$330,000	$440,000					$770,000		$770,000
	Huntly 'below track' infrastructure			$428,571	$571,429	$428,571	$571,429					$1,000,000		$1,000,000
				$25,407,714	$24,050,286	$23,084,721	$25,181,295	$5,032,429	$4,878,266	$4,862,538	$5,367,655	$68,406,905	$9,842,707	$78,249,612

11.2 Commercial Case – industry delivery

Different elements of the project would be procured by different stakeholders, however, the plan presented in Table 11-2 will be reviewed as part of a detailed project planning session to be completed.

Table 11-2: Procurement and Resulting Asset or Service Owner

Work Category	Name	Phase	Procurement	Owner
WC 514: Passenger Rail Services[27]	Operational phase of start-up passenger rail service	Implementation - Funding for the start-up service	WRC	WRC
	The Base Station (Start-Up Rail Service)	Implementation - Ongoing Maintenance of railway station	HCC	HCC
	Huntly Station (Start-Up Rail Service)	Implementation - Ongoing Maintenance of railway station	WDC	WDC
WC 531: Public Transport Infrastructure and Major Renewals	The Base Station (Start-Up Rail Service)	Implementation - The Base 'above track' infrastructure	HCC	HCC
	Huntly Station (Start-Up Rail Service)	Implementation - Huntly 'above track' infrastructure	WDC	WDC
WC 545: Transitional Rail Infrastructure[28]	Rolling Stock Refurbishment and Maintenance Facility	Implementation - Procurement of Rolling Stock	WRC	KiwiRail
		Implementation - Refurbishment of Rolling Stock	WRC	KiwiRail
		Implementation - Locomotive Overhaul	WRC	KiwiRail
		Implementation - Rail Maintenance Facility - Te Rapa	WRC	KiwiRail
		Implementation - Ongoing Maintenance Costs of Rolling Stock	WRC	KiwiRail
	The Base Station (Start-Up Rail Service)	Implementation - The Base Platform	HCC	KiwiRail
		Implementation - The Base 'below track' infrastructure	HCC	KiwiRail
	Huntly Station (Start-Up Rail Service)	Implementation - Huntly Upgrade Platform	WDC	KiwiRail
		Implementation - Huntly 'below track' infrastructure	WDC	KiwiRail

[27] AT may be contracted to deliver operational management of the passenger rail services.

[28] Rolling stock and locomotive procurement, refurbishment, and ongoing maintenance and operations will be provided by KiwiRail (including investment in the rail maintenance facility at Te Rapa) on an open book basis with agreed margins (i.e. a cost plus contract).

KiwiRail confirm they have capacity to deliver the track infrastructure and signal improvements on time. Rolling stock is available for procurement immediately upon funding approval, and KiwiRail has planned and booked the necessary workspace in its workshops to enable refurbishment to be completed in a timely way (as per programme detailed later). Adequate resource is available (staff and subcontractors), and long lead time items have been incorporated in the development of the baseline delivery programme. Refurbishment of locomotives has already commenced and they are scheduled to be completed prior to the end of the 2018 calendar year.

For logistical purposes, stations can be divided into work more than 4 metres from the live rail and work required within 4 metres of the live rail. The rail corridor is a busy freight corridor, and even with 'block of line' for work within 4 metres of the live line, there would be trains coming through that cause delay to works. The Base will have the greatest impact on rail operations (with the creation of a new island platforms). The development of platforms has been staged in a way that is expected to be achievable within KiwiRail operating constraints by March 2020, particularly with opportunity for a more solid 'block of line' through Christmas 2019 for The Base.

AECOM had prepared a draft programme for delivery of The Base, which was considered feasible, albeit constrained by available block of line from KiwiRail, and no programme float, so with a high risk of delay. These concerns are alleviated by the March 2020 start date compared to the original October 2019 planned service start-up date.

All elements of the project will be managed by a dedicated project team that is expected to have nominated or seconded representatives from each of the Client organisations. Resourcing was reviewed in the September 2018 project planning workshop across each of the key delivery stakeholders – WRC, KiwiRail, HCC and WDC.

11.3 Management Case – how it will get implemented

11.3.1 Project Plan

WRC commenced a detailed project planning process with a view to establishing a dedicated project team that would oversee the delivery of the overall programme in support of the start-up passenger rail service.

Several issues would be discussed and resolved through this planning process. Planning commenced on 11 September 2018 with a workshop including key stakeholders and covered the following items detailed in Table 11-3. This preliminary plan is now being built into a more detailed project plan.

Table 11-3: Detailed Project Planning Process - Meeting 11 September 2018

Session	Topic	Description	Comment
1	Context and scoping	• Confirming the project / programme delivery strategy (integration, including relationship with other projects / programmes). • Confirm extent of programme (scope definition)	• Will discuss interdependencies with other projects and interface with AT network and Metro Operations. • A detailed Gantt chart (critical path) will be agreed with key stakeholders. • Scope is defined in the SSBC and includes: ○ Rolling stock and locomotive procurement and refurbishment ○ Track and signal works ○ Stations including platforms, station facilities, level crossing works, car parking and associated local road access work
2	Risk, Governance and Stakeholder Management	• Key risks and risk management approach. • Key stakeholders, stakeholder engagement and communications management.	• Anticipated governance: ○ Corridor Implementation Plan ○ Passenger Rail Project Control Group ○ Programme Manager (overall responsibility for the programme of work up to handover and commencement of services) ○ Media relations and project team ○ Project team includes:

Session	Topic	Description	Comment
		• Project / programme governance.	- Programme Manager - Project Managers from: WDC, WRC, HCC, AT and KiwiRail • The Programme Manager would escalate decisions outside delegation to the control group and decisions would be referred to elected representatives of the various parties in a controlled and coordinated way as needed. A formal political governance is to be agreed between the funding partners. An example of a decision that may be escalated, is where a station location is changed because of feedback from the Corridor Planning study. • A Communication and Engagement Plan commenced for this project (Appendix G). • Many risks were identified in developing this SSBC. These were included in a risk log shown in Appendix L. The team would identify, evaluate and treat any additional risks led by the Programme Manager.
3	Timeline, procurement and resources	• Review of draft timeline (Gantt) – Existing. • Procurement strategy/plan (Clarify and confirm existing procurement business rules to operate within). • Resources/ resource planning.	• Each of the Councils have NZTA approved procurement strategies and there is a Local Authority Shared Services Panel from which design services can be procured for stations and associated works • KiwiRail would deliver track works and signalling, rolling stock and locomotive refurbishment, and maintenance depot development; procured through WRC. • WRC would procure services from KiwiRail and potentially AT for ongoing operational contract management. • The respective Councils would deliver the above ground station works and access utilising either tender processes or existing consultant panels. • Procurement from KiwiRail would require open book pricing and appropriate margins to be negotiated (this is anticipated to be between KiwiRail and NZTA Chief Executives). Further, KiwiRail have advised they would build price tension into sub-elements of the work (such as through competitively priced subcontracts). KiwiRail costs would be subject to independent audit. • A Programme Manager would be appointed to lead the project. This is not anticipated to be a full-time resource. • KiwiRail, WDC, HCC and WRC would provide project management resource to deliver their elements of the project coordinated by the WRC appointed Programme Manager.
4	Quality and costs	• Quality control approach and systems. • Cost control and financial management (including funding.)	• The project team would administer the financial management of the programme for the elements of the programme their organisation is responsible for. • The Programme Manager will have oversight of the overall financial performance and will report regularly to the Passenger Rail Project Control Group against project performance goals.

Session	Topic	Description	Comment
			• Accountability for cost overruns resides with the respective responsible organisations, such as HCC and WDC for stations.

11.3.2 Delivery programme

11.3.2.1 Business case delivery

A NZTA SSBC typically combines an IBC and DBC into a single stage of delivery i.e. SSBC. It is therefore anticipated that all elements of long listing, to shortlisting, through to preliminary design are included. However, for this SSBC not all elements have been progressed through preliminary design. In overview, the status of the development of the SSBC are shown in Table 11-4. The limitations in completing all elements to completion of DBC are detailed in Table 11-4. Completion of activities such as preliminary design where needed have been included in the next stage delivery programmes.

Table 11-4: Business case status

	Element	SSBC status
1	Rolling stock and locomotives	DBC
2	Tracks and signalling	IBC***
3	Stations including high level impacts/deliverability review*	IBC**
4	Maintenance facility	IBC***
5	Level of service	DBC

* Excludes specific community engagement, however, stations and the rail service in general have been raised in the respective local government organisations LTP.

** All stations have an agreed concept with the respective Council. Subject to KiwiRail operational 'no objections' each of these stations would be able to proceed to preliminary design upon approval of the SSBC. With approval of the SSBC by the NZTA, it is anticipated that funding would then be approved for each station providing fit for purpose level of service is proposed in the preliminary design and costs do not escalate above allowances to a degree that undermines achievement of the BCR for the overall Passenger Rail project.

*** KiwiRail has made progress on maintenance facilities options and have examples of what they have developed elsewhere. They therefore have requirements in some detail but need to complete investigations and detailed design. They are confident maintenance and servicing facilities would be available when needed and would not delay service commencement. Tracks and signalling are planned in The Base programme and KiwiRail have the available resources to deliver; The Base is the key project to be managed around tracks and signalling.

11.3.2.2 Overarching delivery programme

A programme has been developed for delivery of:

- Rolling stock, locomotives (separate programme elements) and maintenance depot and facilities (part of rail operations roll out)
- Stations
- Ticketing
- Timetabling
- Fares
- Rail operations
- Rail infrastructure (programmed as part of the stations).

The overarching programme is outlined in Figure 11-1:

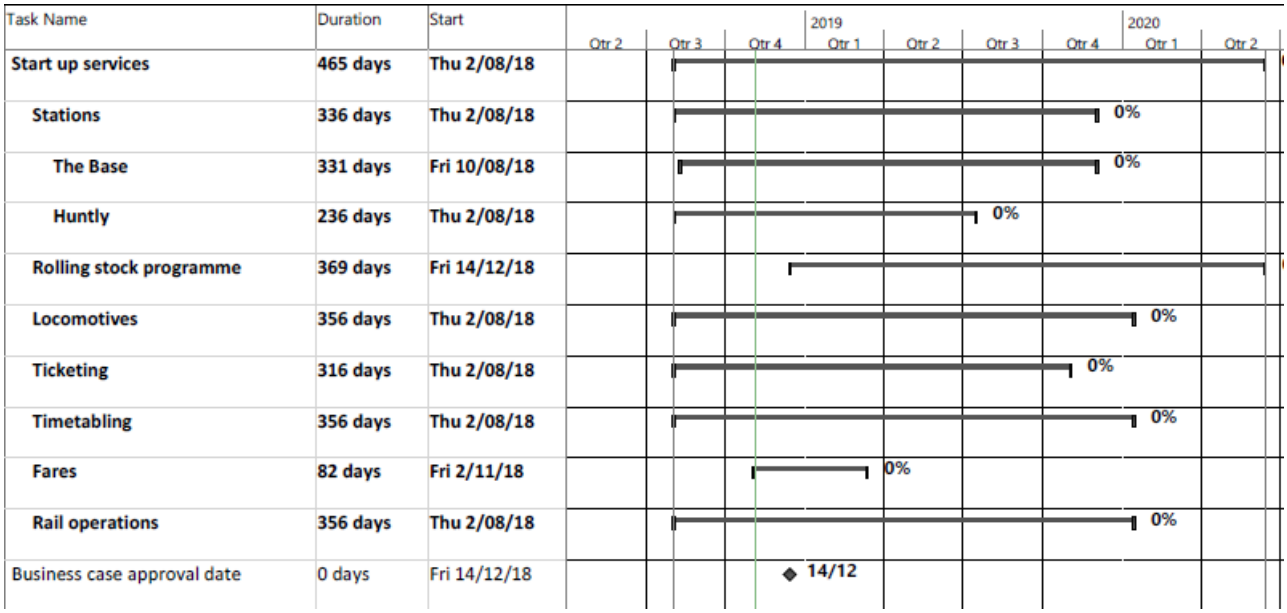


Figure 11-1: Overarching Programme

This programme aligns with the proposed transitional start-up service with all three stations (Frankton, The Base and Huntly) operational in March 2020.

Locomotives are expected to be ready by late 2018, as KiwiRail has already commenced refurbishing these.

Ticketing, timetabling, fares and operations, are all expected to be resolved prior to a scheduled start-up date of March 2020. The timetable has already been proposed to the Auckland Network Timetable Committee and is expected to be accepted at the Committee meeting early in 2019.

The rolling stock programme and stations are discussed in more detail in 11.3.2.3 and 11.3.2.4.

11.3.2.3 Rolling stock programme

The rolling stock programme provided by KiwiRail is shown in Figure 11-2. This programme has identified an earliest procurement date of 14 December 2018 for rolling stock.

The programme shows a delivery of two full train consists and spares by March 2020.

Key activities driving the programme include:

- Funding commitment from NZTA Board on 14 December 2018.
- Rolling stock refurbishment start in February 2019.
- Lead time for procurement of specialist materials/parts.
- Confirmation of required levels of service (this SSBC).

Task Name	Duration	Start
Start up services	**465 days**	**Thu 2/08/18**
Stations	**336 days**	**Thu 2/08/18**
The Base	**331 days**	**Fri 10/08/18**
Huntly	**236 days**	**Thu 2/08/18**
Rolling stock programme	**369 days**	**Fri 14/12/18**
Interpeak decision	0 days	Fri 14/12/18
Purchase rolling stock	1 day	Fri 14/12/18
Marshalling	15 days	Mon 17/12/18
H2A 13 Car inidicative timeline	**81 days**	**Tue 5/02/19**
Design	41 days	Tue 5/02/19
Planning	56 days	Tue 12/02/19
Resourcing	61 days	Tue 12/02/19
Initial procurement (material	66 days	Tue 26/02/19
Layout design	22 days	Fri 22/03/19
Production	**310 days**	**Fri 22/03/19**
First consist	**178 days**	**Fri 22/03/19**
SRC 1	80 days	Fri 22/03/19
SRV 1	110 days	Fri 7/06/19
SR 1	64 days	Fri 7/06/19
SR 2	51 days	Thu 5/09/19
Commission first consist	7 days	Fri 15/11/19
Service commencement	0 days	Tue 26/11/19
Second consist	**185 days**	**Fri 12/07/19**
SRC 2	60 days	Fri 12/07/19
SRV 2	100 days	Fri 8/11/19
SR 3	50 days	Fri 4/10/19
SR 4	50 days	Fri 13/12/19
Commission second consis	7 days	Mon 9/03/20
Service commencement	0 days	Wed 18/03/20
Manufacture Spares	**140 days**	**Fri 15/11/19**
SRC 3	61 days	Mon 9/03/20
SRV 3	90 days	Mon 10/02/20
SR 5	50 days	Fri 15/11/19

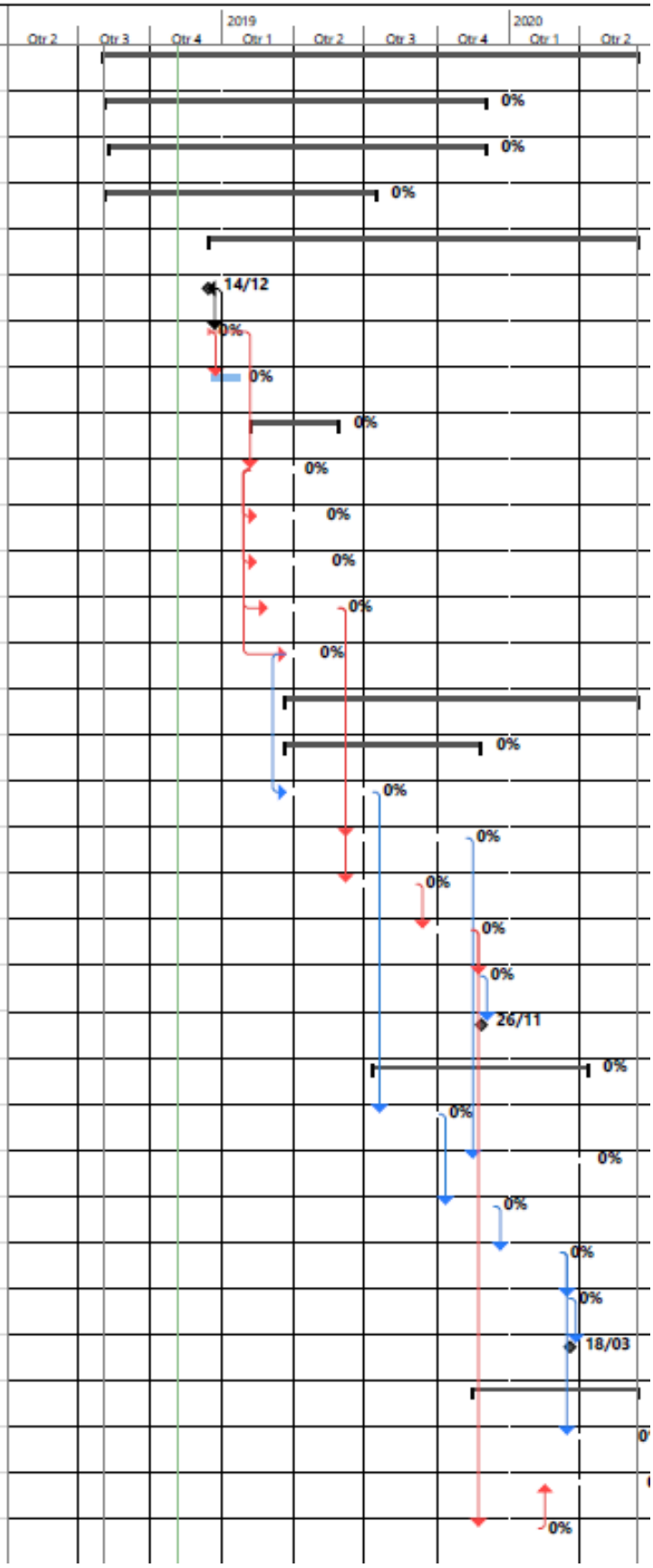


Figure 11-2: Key activities for rolling stock programme

11.3.2.4 Stations

The establishment of Huntly and Frankton stations for the Start-Up service is considered relatively straightforward to achieve. However, with the establishment of an island platform and associated track slewing at The Base, it means a lot more work is necessary prior to March 2020 for this station compared to Frankton and Huntly, but it is still achievable.

Key challenges include.

- 'Block of line' for KiwiRail tracks during busy freight periods for platform works, track slewing and pedestrian level crossings.
- Long lead time items such as luminaires (AT luminaires have a 14-week lead time).
- Remediation of the loop track to passenger operational standards required at Huntly
- The Base Station programme now has more contingency with the March 2020 start date as opposed to the original October 2019 date. There is now greater certainty associated with delivery of this station by March 2020, however some of the issues to overcome remain the same:
    - Accessibility to the tracks for the contractor to build the platform – the time period shown in the programme is very dependent on what time KiwiRail can allocate to work in the corridor (typically it is a few hours at a time, weekends or nights only), and acceptability of bi-directional running (reverse tracking) on the southbound track during construction. However, a larger 'block of line' window is available over the Christmas 2019 period, which can be taken advantage of.
    - Without the preliminary design it is not known what space would be available to keep Tasman Road open during the civil works for the track slewing.
    - Depending on the platform design, it may be possible to build some elements of the station concurrently with the track slewing, which would help the programme.
    - The usual arrangement is for KiwiRail to construct just the ballast, sleepers and track, not the civil works (i.e. formation, under-ballast and drainage). The project could explore KiwiRail to be responsible for the track slewing and civil works, level crossing and platform. That might ease some of the construction co-ordination but it depends on KiwiRail's resources and whether they want to manage that, including procurement.
    - The fast tracked programme has little time for approvals of design, by KiwiRail, the WRC and HCC; however while still a risk this has been mitigated to some extent by a later service start-up date scheduled for March 2020.
    - Geotechnical work is becoming critical given that Traffic Management Plan approval and rail corridor access could delay the site testing.
    - Work cannot commence until SSBC and funding are approved.
    - KiwiRail may yet decide a pedestrian level crossing at The Base is not acceptable meaning an overbridge is required at significant additional cost.

An expanded programme for The Base is shown in Figure 11-3. This baseline programme does not include additional business case steps such as:

- community engagement in relation to the station design as per a detailed business case process
- gateway funding approvals
- funder review points.

Task Name	Duration	Start
Detail Design	**115 days**	**Fri 14/12/18**
Track Realignment	**40 days**	**Fri 14/12/18**
Acceptance of Prelim Design	0 days	Fri 14/12/18
NB Track realignment detailed de	40 days	Mon 17/12/18
Parking & Stormwater Treatment	**85 days**	**Mon 17/12/18**
Parking Layout Design	15 days	Mon 17/12/18
Water / Wastewater Design	5 days	Tue 22/01/19
Stormwater Design	10 days	Tue 5/03/19
Parking Pavement Design	10 days	Tue 26/02/19
Streetlighting Design	10 days	Tue 22/01/19
Urban & Landscape Design	15 days	Tue 5/03/19
Drawing Production	10 days	Tue 26/03/19
Tender Documentation, Engineer	15 days	Tue 9/04/19
Tasman Road Realignment	**115 days**	**Mon 17/12/18**
Tasman road realignment design	20 days	Mon 17/12/18
Stormwater Design	10 days	Tue 29/01/19
Retaining wall design	20 days	Tue 9/04/19
Parking Pavement Design	10 days	Tue 12/03/19
Drawing Production	10 days	Tue 7/05/19
Tender Documentation, Engineer	15 days	Tue 21/05/19
Central Platform and at-grade cros	**115 days**	**Mon 17/12/18**

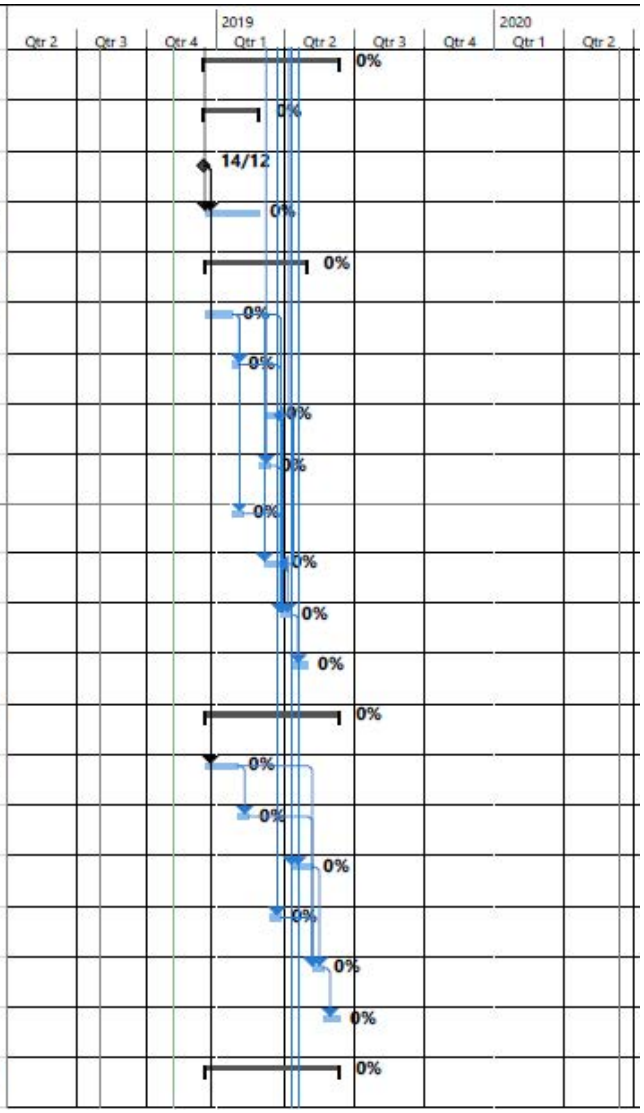


Figure 11-3: Expanded programme for The Base Station

11.3.2.5 Other activities

Other activities have been programmed and have some assumptions that were tested with key stakeholders, to the extent that they can assure delivery by start-up. These other activities include:

- Timetabling: the timetable option has already received preliminary approval (time has been set aside in the timetable for the service to Papakura) from the Timetable Committee for the Auckland Network and is locked into the Committee process enabling confirmation prior to scheduled service commencement.
- Ticketing, fares, rail operations and associated assumptions for start-up service are shown in the programme in Figure 11-4. This shows a reasonable amount of float for the establishment of these activities prior to start up on a critical path basis.
- Note that programmes assume activity start up immediately following the NZTA Board approval of the programme of work.

Task Name	Duration	Start
Ticketing	**316 days**	**Thu 2/08/18**
SSBC:	**96 days**	**Thu 2/08/18**
Customer requirements	0 days	Thu 2/08/18
Preferred option	0 days	Thu 2/08/18
Feasibility assessment	0 days	Thu 2/08/18
Business case approval process	30 days	Fri 2/11/18
Pre-implementation	**60 days**	**Fri 14/12/18**
Specify requirements (confirm customer	30 days	Fri 14/12/18
Procurement	30 days	Mon 11/02/19
Implementation	**160 days**	**Mon 25/03/19**
Deployment (testing phase)	100 days	Mon 25/03/19
Testing and acceptance	30 days	Mon 12/08/19
Marketing	30 days	Mon 23/09/19
Mobilise service	**0 days**	**Fri 20/09/19**
Earliest deployment date (operational)	0 days	Fri 20/09/19
Timetabling	**356 days**	**Thu 2/08/18**
Fares	**82 days**	**Fri 2/11/18**
SSBC:	**30 days**	**Fri 2/11/18**
Preferred option	0 days	Wed 5/12/18
Financial and economic case	0 days	Wed 5/12/18
Business case approval process	30 days	Fri 2/11/18
Pre-implementation	**28 days**	**Thu 6/12/18**
WRC endorsement	14 days	Thu 6/12/18
AT endorsement	14 days	Thu 10/01/19
Implementation	**30 days**	**Wed 30/01/19**
Marketing	30 days	Wed 30/01/19
Mobilise service	**0 days**	**Tue 12/03/19**
Earliest deployment date (operational)	0 days	Tue 12/03/19

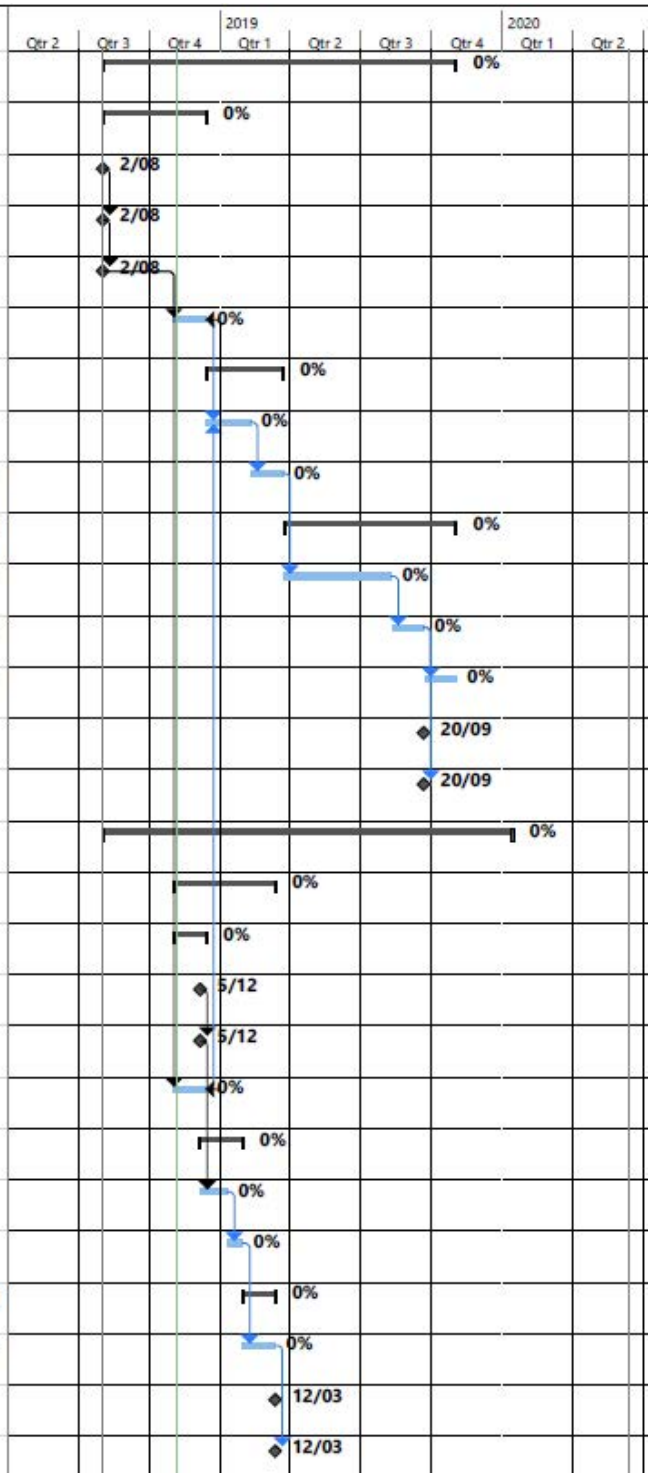


Figure 11-4: Timetable Option

11.3.3 Services establishment

A high-level transition plan was identified based upon a review of the delivery programme. The key challenge is the delivery of The Base Station by March 2020. The plan is presented in Table 11-5. It shows both the Start-Up service as defined in this document and potential enhancements to it. These are described further in the following sections.

Table 11-5: High-Level Transition Plan

	Day 1 (Mar 2020)	Year 1 (by June 2020)	Year 2 (by June 2021)	Year 3 (by June 2022)	Year 4 (by June 2023)	Year 5 (by June 2024)
Frankton, The Base & Huntly stations available	■					
Two train consists complete with 4 carriages	■					
Two weekday peak services to Papakura introduced (northbound am and southbound pm)	■					
Saturday service introduced (northbound am and southbound pm)	■					
Sunday and public holiday services (northbound am and southbound pm)						■
All services extended to Puhinui (subject to further assessment)				■		
Inter-peak services added (subject to further assessment)					■	
New station and stop at Te Kauwhata (subject to further assessment)					■	
All services extended to The Strand (subject to further assessment)						■

11.3.3.1 Start-up Service

Implementation of the proposed Start-Up service is proposed to be staged as per Table 11-5. Due to the infrastructure and construction constraints listed in Section 6.1, a Sunday and public holiday service is not likely until Year 5, although it might be possible from Year 4 onwards, dependent on other rail construction projects being successfully completed. This would be reassessed at the appropriate time. The demand for a Sunday and public holiday service is likely be much better understood once the Start-Up service has bedded in weekday and Saturday services.

While a servery would not be required for the Day 1 service, a servery is considered to be an essential component of the offering, if and when, it extends beyond Papakura. The proposed configuration of the train consist with disabled facilities in the carriage with the servery (providing equal access for all passengers) means that investment in the servery is required at Start-Up to avoid disruption to the service in the future and it has been included in the preferred option.

11.3.3.2 Longer Term Service Options

Several incremental enhancements have been discussed earlier in this document and could be implemented within the five-year period that is the focus of this business case. These are shown in italics in the lower half of Table 11-5, with suggested implementation dates. All would be subject to further assessment before confirmation and implementation if deemed feasible. All that involve further penetration into the Auckland Metro Network would be subject to the completion of the major projects noted in Table 5-1.

A link to Auckland International Airport through Puhinui was highlighted as highly desirable through the H2ACSP workshops, customer surveys and key stakeholders (HCC, WRC). A Puhinui Station stop would provide access to Auckland International Airport and Auckland's eastern suburbs via a proposed Bus Rapid Transit service.

Interpeak services could be established within the five-year period if demand is demonstrated, and this aligns with our understanding of government expectations for the corridor. However, this has been pushed out to a later suggested implementation, given the associated operational cost and expected low revenue return. It could be implemented at an earlier point if desired.

WRC would like further consideration of a Te Kauwhata station stop within a similar timeframe. A new station there would support urban development in an area that has a strong Auckland orientation. Preliminary investigations have been conducted through this business case.

It is assumed The Strand (or another CBD station) would be accessible by the service within the first five years, however this has been suggested for the last year to align with the anticipated (date to be confirmed) completion of the CRL. It and through services do not form part of the start-up service.

AT requires that the extension of the Start-Up service to Puhinui, followed by The Strand, and the inclusion of an inter-peak service, are all subject to further assessment closer to commencement of the Start-Up service. AT will incorporate this thinking into planning and implementation for Pukekohe electrification, the third main between Wiri and Westfield, fourth main line, Puhinui interchange, and post-CRL timetables.

11.4 Next Steps

Following the anticipated funding approval by NZTA in December 2018, the next steps are set out below.

11.4.1 Project management and control

A dedicated project management team would be established to deliver the programme of work as a single consistently managed project. This would include:

- Context and scope management.
- Risk (including demand model updates and associated data gathering for risk mitigation planning), Governance and Stakeholder Management (including agreements such as timetables with the Timetable Committee).
- Timeline, procurement (including operational contracts, ticketing) and resources.
- Quality and costs (including finalising fares and revenue forecasting for service operations).

11.4.2 Locomotives, Rolling Stock, and Maintenance Facilities

WRC to:

- Procure locomotives and rolling stock

KiwiRail to:

- complete detailed design for rolling stock following procurement of the rolling stock.
- complete refurbishment of locomotives before December 2018.
- commence preliminary design of the maintenance facilities in Te Rapa to optimise the preferred solution.

11.4.3 Tracks and signals

KiwiRail to:

- Confirm station concepts with station designers.
- Commence preliminary design of track slewing and signal works associated with stations.

11.4.4 Stations

Designers would be procured for each of the stations with:

- The Base to proceed with completion of preliminary design to DBC detail (subject to completion of KiwiRail level crossing safety assessment).
- Huntly to confirm concept operational feasibility with KiwiRail then to proceed with completion of preliminary design to DBC detail if side platform is feasible for five-year start-up period.

Appendices

Appendix A Strategic Alignment

A.1 Government Policy Statement

The Government Policy Statement (GPS) on Land Transport was released on the 28Th June 2018 and became operative on the 1st July 2018. The emphasis of the GPS was upon re-focusing investment for two key strategic priorities (of four in total), the four being:

1. Safety.
2. Access.
3. Environment.
4. Value for Money.

The GPS acknowledges that in pursuing the top two objectives (safety and access) the second (environment and VfM) would be 'supporting' but not key priorities.

In terms of access, the sub headings are:

- provides increased access to economic and social opportunities
- enables transport choice and access
- is resilient.

In considering rail, the alignment to safety objectives are positive, at a strategic level rail is a safer mode than private car across most developed transport networks worldwide, notwithstanding the interactions at level crossings.

In relation to access, a passenger rail service could deliver on all three sub-priorities. The delivery of an additional modal option, particularly for those on low incomes or without access to a car, may be one of the key drivers of social and economic wealth and health. Rail offers a modal choice with less compromise from the user compared to bus services. In terms of resilience there is a clear benefit in having another method of accessing Auckland aside from private car that offers a similar or better journey time. However, rail's real contribution to resilience is actually via reliability, a particular issue on this corridor.

GPS 2018 supports an increased focus on public transport and reducing the reliance on single occupant vehicles. Rail has an important role to play in this, as part of an integrated transport system.

GPS 2018 enables some beneficial passenger rail projects to progress by including them in the same decision-making framework as other transport modes. GPS 2018 includes a transitional rail activity class to provide scope for funding key rail projects that cannot wait for the future of rail study and second stage GPS. GPS 2018 supports investment in:

- Improving urban rail services for passengers accessing housing, major employment areas and major metropolitan areas, where demand is outstripping capacity, to improve reliability or to reduce conflict between freight and passenger trains.
- Existing and new interregional commuter rail services to support housing and employment opportunities.

The Hamilton to Auckland start-up passenger rail service is considered to be very consistent with the GPS.

A.2 Investment Assessment Framework

The Investment Assessment Framework (IAF) is the framework the NZTA uses to assess and prioritise projects and programmes for inclusion in the NLTP, consistent with the direction and funding ranges in the GPS. The current IAF was released at the same time as the updated GPS. The IAF reflects the priorities of the GPS by defining investment outputs for projects and programmes to achieve.

In addition it requires a cost benefit assessment to determine value for money.

How the Hamilton to Auckland start-up service meets the IAF requirements are presented later in this business case.

A.3 Draft Transport Agency Investment Proposal

The Draft Transport Agency Investment Proposal (the TAIP) sets out the 10-year programme of activities that the NZTA proposes for inclusion in the 2018-27 National Land Transport Programme (the NLTP), to give effect to the GPS.

The TAIP specifically mentions the investigation of passenger rail between Hamilton and Auckland. It states that "The NZTA will consider proposals for inter-regional commuter services (such as between Auckland and Hamilton, or Wellington and Palmerston North) through the Public Transport activity class, subject to the usual requirements for business cases that demonstrate strategic alignment and value for money."

A.4 Future Proof Study

The future proof study is a growth strategy specific to the Hamilton, Waipa, and Waikato sub-region and has been developed jointly by Hamilton City Council, Waikato Regional Council, and Waipa District Council and Waikato District Council, as well as Tangata Whenua, NZTA and Matamata-Piako District Council. The latest growth report, dated November 2017 sets out a 30 year vision for the sub region and takes into consideration the following key issues:

- The impact of Auckland on the northern Waikato and other parts of the sub-region
- The growing influence of Hamilton and Auckland, influencing growth and development within the sub-region
- The effect of key transport routes which provide a boundary for urban development and can encourage
- Development to locate close by
- Shorter travel times because of improved transport access is changing the nature of some urban areas (and would continue to do so).

The main thrust of the Future Proof Strategy is to ensure that the above issues are sustainably managed, a key part of this is trying to create nucleated settlements with densities that are suited to the requirements long term growth:

> *'The settlement pattern provides the blueprint for growth and development and aims to achieve a more compact and concentrated urban form over time. The settlement pattern is made up of key growth areas that have been identified within the sub-region: Hamilton City, Cambridge, Te Awamutu and Kihikihi, Pokeno, Tuakau, Huntly, Te Kauwhata, Ngaruawahia and Raglan.'*

The future proof strategy also sets out in more detail the scale of the growth for each settlement, as shown in the extracted tables below which cover the period from 2016 to 2045[23].

[23] Future Proof Strategy, Planning for Growth, A summary – November 2017 He Whakakaupapa Whanaketanga page 23, 24, 25.

Decade 1: Years 1 – 10, 2016 - 2025

Area[1]	UoW Low Projections[2]		UoW Medium Projections	
	Household Demand	Household Supply / Capacity[3]	Household Demand	Household Supply / Capacity
Hamilton City				
Greenfield[4]	6,148	9,607	7,151	9,607
Infill / Intensification	6,148	6,148	7,151	7,151
City Total	**12,296**	**15,755**	**14,302**	**16,758**
Waikato District				
Tuakau	817	1,202	839	1,202
Pokeno	750	1,200	1,110	1,200
Te Kauwhata	353	2,579	369	2,579
Huntly	333	300[5]	412	300
Ngāruawāhia	147	163	152	163
Raglan	371	200[5]	386	200[6]
Sub-total	2,771	5,644	3,268	5,644
Rest of District	2,592	2,801	3,142	3,295
District Total	**5,363**	**8,445**	**6,410**	**8,939**
Waipa District				
Cambridge	1,932	5,002	2,385	5,002
Te Awamutu	1,019	2,394	1,205	2,394
Rest of District	702	702	941	941
District Total	**3,653**	**8,098**	**4,531**	**8,337**

Decade 2: Years 11 – 20, 2026 – 2035

Area[7]	UoW Low Projections[8]		UoW Medium Projections	
	Household Demand	Household Supply / Capacity[9 10]	Household Demand	Household Supply / Capacity
Hamilton City				
Greenfield[11]	5,871	11,332	7,221	10,329
Infill / Intensification	5,871	5,871	7,221	7,221
City Total	**11,742**	**17,203**	**14,442**	**17,550**
Total *(Decades 1 and 2)*	**24,038**	**32,958**	**28,744**	**34,308**
Waikato District				
Tuakau	755	725[12]	909	703
Pokeno	1,360	1,450	1,945	1,090
Te Kauwhata	248	2,398	255	2,382
Huntly	333	643	247	564
Ngāruawāhia	133	322	130	317
Raglan	167	129[13]	122	114
Sub-total	2,996	5,667	3,608	5,170
Rest of District	1,706	1,866	2,517	2,544
District Total	**4,702**	**7,533**	**6,125**	**7,714**
Total *(Decades 1 and 2)*	**10,065**	**15,978**	**12,535**	**16,653**
Waipa District				
Cambridge	2,138	4,000	2,616	3,547
Te Awamutu	818	1,963	1,092	1,777
Rest of District	529	529	977	977
District Total	**3,485**	**6,492**	**4,685**	**6,301**
Total *(Decades 1 and 2)*	**7,138**	**14,590**	**9,216**	**14,638**

Decade 3: Years 21 – 30, 2036 – 2045

Area[14]	UoW Low Projections[15]		UoW Medium Projections	
	Household Demand	Household Supply / Capacity[16 17]	Household Demand	Household Supply / Capacity
Hamilton City				
Greenfield[18]	4,575	7,961	6,217	5,608[19]
Infill / Intensification	4,575	4,575	6,217	6,217
City Total	**9,150**	**12,536**	**12,434**	**11,825**
Total *(Decades 1, 2 and 3)*	**33,188**	**45,494**	**41,178**	**46,133**
Waikato District				
Tuakau	485	4,698	823	4,522
Pokeno	1,222	1,090	991	145
Te Kauwhata	75	2,741	48	2,718
Huntly	57	310	67	316
Ngāruawāhia	60	873	62	870
Raglan	-35	162	-82	192
Sub-total	1,864	9,874	1,909	8,763
Rest of District	1,381	1,452	3,067	2,933
District Total	**3,245**	**11,326**	**4,976**	**11,696**
Total *(Decades 1, 2 and 3)*	**13,310**	**27,304**	**17,511**	**28,349**
Waipa District				
Cambridge	811	4,406	1,284	3,476
Te Awamutu	624	3,257	782	2,797
Rest of District	214	214	797	797
District Total	**1,649**	**7,877**	**2,863**	**7,070**
Total *(Decades 1, 2 and 3)*	**8,787**	**22,467**	**12,079**	**21,708**

With reference to this project the key growth points are Tuakau with a growth total of 6,625 additional household required supply (low projection), Pokeno with a supply requirement of 3,740 and Te Kauwhata with a requirement of 7,718 additional households over the 30 year horizon considered. These figures are based on a continuance of Auckland overspill and so are proposed to consider both.

Good planning requires that there is a good balance between housing land and employment land, the Future Proof study also provides some insight into employment land requirements over the period. These are acknowledged to be early estimates and it is anticipated in the document that these will change.

Table 3: Future Proof and RPS industrial land allocation

Strategic Industrial Nodes located in Central Future Proof area (based on gross developable area) [1]	Industrial land allocation and staging (ha)			Total Allocation 2010 to 2061 (ha)
	2010 to 2021	2021 to 2041	2041 to 2061	
Rotokauri	85	90	90	265
Ruakura	80	115[2]	210[2]	405
Te Rapa North	14	46	25	85
Horotiu	56	84	10	150
Hamilton Airport	74	50	0	124
Huntly and Rotowaro	8	8	7	23
Hautapu	20	30	46	96
TOTAL HA	**337**	**423**	**388**	**1148**

[1] Being the centre focused on and incorporating The Base shopping centre and generally comprising the block bordered by Te Rapa Road, Avalon Drive, Te Kowhai Road East and the Railway.

[2] Pokeno and Tuakau are not included in Table 6-4 of the RPS.

Table 4: Future Proof and RPS industrial land allocation – Northern Waikato

Strategic Industrial Nodes located in the North Waikato (based on gross developable area) [1]	Industrial land allocation and staging (ha)			Total Allocation 2010 to 2061 (ha)
	2010 to 2021	2021 to 2041	2041 to 2061	
Tuakau	116	0	0	116
Pokeno	92	0	0	92
TOTAL HA	**208**	**0**	**0**	**208**

[1] Gross Developable Area includes land for building footprint, parking, landscaping, open space, bulk and location requirements and land for infrastructure including roads, stormwater and wastewater facilities.

As with the previous allocations, the North Waikato development is focussed on Tuakau and Pokeno – it is considered likely that strategic logistics would potentially favour Pokeno due to its proximity to SH1 and SH2. This is likely to reflect an ongoing tension where there is a requirement for planning policy intervention as the best sites for commercial/logistics locations may have to compete with housebuilding, this typically results in poor outcomes for commercial developers who, in a booming housing market, cannot compete to purchase the land that is best for their activities.

Later in this section, the impact of the Future Proof work on the final Local Plans, particularly for North Waikato are discussed. The next piece of work that has emerged from this study is discussed below.

A.5 North Waikato Integrated Growth Management PBC

The North Waikato Integrated Growth Management PBC has been underway for around 12-18 months and follows the Future Proof study. In March 2018 a Draft PBC was submitted to the Strategy and Policy Committee of Waikato Regional Council. The report was endorsed by this group and this PBC has informed the Problem Statements and Investment Objectives associated with this DBC. Essentially this PBC looked at the growing concerns of largely unplanned growth in the north of Waikato District and the role that this area plays in the growth of the North Island, largely as a result of its proximity to Auckland and the housing pressure within the City. The PBC looked at a range of development options and subsequent infrastructure requirements. One of the key determinants of locations for further development growth was the availability of existing services and amenities to serve the community in the short term. The PBC essentially highlighted service levels in each of the locations as shown in the extracted figure below.

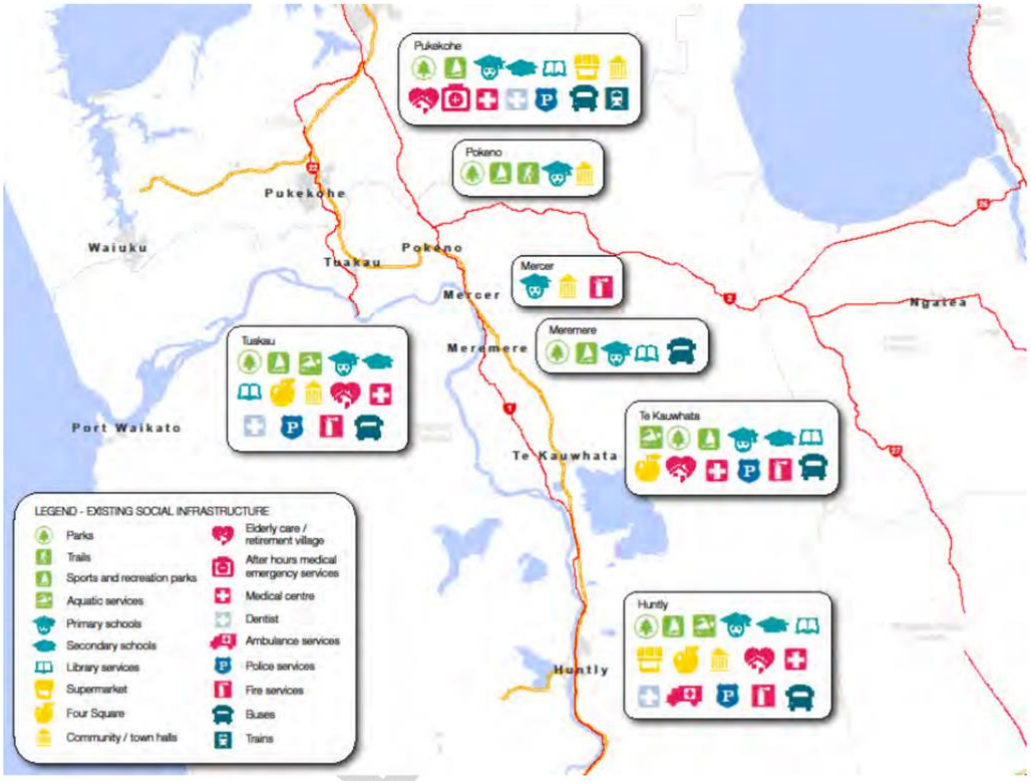


Figure A1: Extract from North Waikato Integrated Growth Management PBC – services in each settlement

The ability to absorb both additional housing and cater for additional employment was considered to be driven somewhat by existing access to services, this has now been formalised in the Proposed Waikato District Plan. However, it remains to be seen whether the private sector market would follow the same logic as the Council.

From the perspective of this DBC the North Waikato Integrated Growth Management PBC did include the rail option with the text 'Future transport connections between Tuakau, Pokeno and Auckland CBD' in the programme summary. It should be noted that at the time that the draft was endorsed, costs related to the rail service were not known and as such were not included in the PBC.

A.6 Waikato Regional Land Transport Plan

This Plan (updated in 2018) contains three 'problems' to be addressed within the region:

- Problem 1: Protecting the function of our strategic corridors.
- Problem 2: Road safety.
- Problem 3: Providing for access and mobility needs for our communities.

The document advocates for a start-up passenger rail service between Hamilton and Auckland is also, in line with the Government's commitment to increasing the use of rail to enable efficient interregional passenger transport.

This document highlights that this would assist with Problem 2 and protecting the function of our inter- and intra-regionally significant corridors (road and rail)

- - freight
- - tourism
- - people movement
- - future passenger rail.

This directs investment to priority strategic corridors, Hamilton to Auckland corridor (including future passenger rail.

A.7 Draft Auckland to Hamilton Corridor Plan

The Auckland to Hamilton Corridor Spatial Plan is a Government initiative, supported by Cabinet to progress the Government Urban Growth Agenda, being delivered in partnership with local government and iwi. It is overseen by a steering group which comprises senior officials from Waikato-Tainui, Auckland Council, Waikato Regional Council, Hamilton City Council, Waikato District Council, the NZTA, Ministry of Transport, Treasury and Ministry of Business Innovation and Employment.

The Plan is expected to be completed by the end of 2018 with draft outputs from an inter-agency inquiry-by-design process produced concurrently with this Business Case.

The purpose of the Auckland to Hamilton Corridor Spatial Plan is to better support growth and increase connectivity within the Auckland to Hamilton corridor, in a way that realises its social, economic, cultural and environmental potential.

The plan's scope is as an integrated plan for development and infrastructure in the corridor between Auckland and Hamilton, developed and owned by iwi, central government and local government, which accelerates transformational opportunities. The plan is focused on the land area within 5km of the State Highway 1 and the Main Trunk Railway from Mount Wellington in Auckland to the North and to Hamilton in the South taking. It also takes in the Auckland Airport and Cambridge.

As well as identifying transformational opportunities the Plan will:

- Outline the key housing, employment, social, environmental and network infrastructure priorities for the corridor over the next 30 years to successfully accommodate growth and also address levels of service, remedial or renewal needs.
- Identify planning, development, infrastructure, mitigation and restoration works required, and funding and legislative projects partners may take over the next 1-3, 3-10 and 10-30 years.

The plan has four inter-related objectives:

1. Improving housing affordability and choices.
2. Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor.
3. Improving access to employment, public services and amenities.
4. Creating employment opportunities in the corridor.

There are a further two objectives (that were proposed as the workshops):

1. Creates a viable Hamilton to Auckland passenger rail services.
2. Is deliverable.

These are underpinned by five principles:

1. Create a platform for the future that will change lives.
2. Make efficient use of existing infrastructure and future infrastructure funding, design and delivery. Protect high quality soils for growing food.
3. Contribute to the restoration and protection of the Waikato and Waipā Rivers and indigenous biodiversity within the corridor.
4. Anticipate the transition to a low-carbon future, build climate resilience, and avoid increasing the impacts and residual risks of natural hazards.
5. Early in the development of the Plan the project partners agreed on a desired settlement form that is expected to be achieved. Specifically that future development in the Auckland to Hamilton corridor should:
    - be transit-oriented and connected
    - provide affordable choices that respond to demands, including quality intensification
    - provide live-work-play settlements.

The outcomes sought by the Corridor Plan, particularly in the North Waikato, are highly dependent on the provision of high quality public transport services towards which the start-up passenger rail offering is being seen as a first step.

In particular, high quality public transport connections are being relied on to provide a step-change in accessibility (and reliability of journey times), enabling new housing, while reducing reliance on private passenger vehicles and associated costs. The benefits for existing communities are expected to include, improved access to employment, education, amenity, health and social services. While wider benefits sought by improving accessibility and moving to a more transit-oriented form of development, include access to more affordable housing and business locational options. Through the recent stakeholder workshops, 'supporting a viable Auckland to Hamilton passenger rail service' has also been proposed as a specific objective for the Corridor Plan. Specifically some 'transformational projects' are being considered, enabled by the improved transport connection. Noting that these are formative only the time of writing and not exhaustive, in the North Waikato this includes:

- Tuakau: Additional business growth in the town centre and industry in the surrounds that leverages off Pokeno and Pukekohe business.
- Pokeno: inducing a strong town centre and community services.
- Meremere: Assisting Waikato Tainui in jobs that also support local employment in the township and undertake feasibility for additional areas along the river.
- Te Kauwhata: Measured residential growth which is balanced by the provision of schools, services, new jobs, and acceptable water quality outcomes.
- Huntly: Comprehensive social housing upgrades and intensification in the West, Puketerini employment, skills and technology cluster; and employment opportunities in the north.
- Ngaruawahia: Support Waikato District Council growth and revitalisation strategy.
- The Base: The use of an Urban Development Authority and/or Kiwibuild type vehicle to drive integrated more intensive de3velopment.
- Ruakura: Supported by a future rail connections, integrated more intensive development driven by Urban Development Authority and/or Kiwibuild type vehicle.

In the long-term, as high service levels for rail (potentially rapid rail services) are able to be offered significant agglomeration benefits are also expected to be enabled. Some consideration is being given, through the corridor plan process to route identification and security for a future high-speed rail connection that would directly connect Hamilton and Auckland with a journey time in the order of 40minutes.

Importantly, the Corridor Plan has the full backing of the partners who also support the start-up rail proposal, including NZTA, MoT and Local Government agencies.

In terms of the rail elements of the Corridor Plan rail services being considered include:

1. An all-stops 80km/h service that effectively builds of the start-up services and can run on the existing track infrastructure.

While such a service would provide the highest access benefits for existing settlements between Hamilton and Auckland, it would have low agglomeration benefits.

2. A limited stops 140km/h service that could run along the existing track alignment, but would require significant track upgrades. Such a service would stop at identified growth nodes only – potential stops include Hamilton Central, possibly The Base, Huntly, Pokeno, Te Kauwhata and Auckland CBD.
3. A high speed (~240km/h) non-stop service connecting Hamilton centre to Auckland Central. This service would maximise agglomeration benefits through a 40m travel time from Hamilton to Auckland, but would not service towns in between. This would require new wide-gauge track infrastructure and potentially alternate alignments.

These options are not considered to be mutually exclusive and there is clearly a process of additionality that needs to be considered.

The remaining Plans reviewed in this section relate to the statutory instruments under which development is directed and controlled and infrastructure, where identified is to be paid for via local rates.

A.8 HCC and Waikato: 10 Year Plans

The rail service between Hamilton and Auckland features in both 10 year plans with levels of service and stops broadly set up. Hamilton City Council and Waikato District Council have set aside funds for this project. Both plans are now adopted.

A.9 The Auckland Plan 2050

The Auckland Plan anticipates continuing high levels of growth over the next 30 years with a need for nearly half a million additional homes. Whilst the plan does contain methods to achieve this target, the approach is one of continuing intensification of the existing urban form with some limited additional growth around the urban area and limited growth in rural areas. Whilst this approach is clearly a sensible one, the higher cost of building intensively is predicated on continuing high values in the City. There is also likely to be an impact on the surrounding regions as people who want the typical three bedroomed house with garden look to move outside of Auckland to achieve that 'dream property'.

The Auckland Plan contains three 'directions' for transport these being:

Direction 1: Better connect people, places, goods and services

Direction 2: Increase genuine travel choices for a healthy, vibrant and equitable Auckland

Direction 3: Maximise safety and environmental protection

In relation to this transport business case, the Auckland Plan identifies the Hamilton to Auckland Rail as a part of Direction1:

> *While major upgrades to State Highway 1 to the north and south of Auckland are planned or underway, these improvements may have to be complemented by future upgrades to the rail network to better connect the upper North Island. Read about passenger rail transport between Auckland, Hamilton and Tauranga[24].*

However a reduction in visitors, commuters and business users travelling into Auckland by car from further afield would also contribute to the achievement of Direction 3 by reducing congestion effects on the Southern Motorway.

The Auckland Plan largely relies on the Auckland Transport Alignment Project (ATAP) to develop and deliver the transport networks required to support the future growth of the area. ATAP is discussed briefly below.

A.10 Auckland Transport Alignment Project (ATAP)

This project which is a joint effort by Auckland Council and Central Government seeks to develop an approach to transport in Auckland that prioritises:

- getting much more out of existing infrastructure
- maximising new opportunities to influence travel demand
- ensuring investment is targeted to the greatest challenges.

In relation to this project ATAP already have some commitments in the vicinity, with upgrades and electrification now approved to Pukekohe.

In the medium to longer term the expectation is that there would be further rail network upgrades to enable express and inter-city trains. It is anticipated that supporting express rail services would require around $800 million of investment in track upgrades. This investment would deliver the following projects:

- Fourth main rail line between Westfield and Wiri
- Third and ultimately Fourth Main between Wiri and Papakura

[24] https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/transport-access/Pages/direction-create-integrated-transport-system-connecting-auckland.aspx

- Third Main between Papakura and Pukekohe.

The reports indicate that as further funding becomes available, investigating the acceleration of these investments into the first decade should be a priority. By helping to accommodate a larger number of trains and different stopping patterns, these improvements will:

> *'Increase employment access for growing areas in the far south of Auckland's urban area by reducing journey times on express services*
>
> *Create a stronger connection between areas served by the rail network and Auckland Airport (via an interchange at Puhinui)*
>
> *Support the progressive implementation of inter-regional rail passenger services between Auckland and the Waikato, which will also help to unlock growth opportunities around the rail network in the Waikato[25]'*

ATAP is primarily concerned with supporting the development and growth of the Auckland area and as such, the emphasis is upon funding schemes that would unlock congestion and support the development of the urban area. Nonetheless, though not funded as part of ATAP (for obvious reasons) the project does support regional rail services.

A.11 Hamilton City Council Operative District Plan (HCC ODP)

The Local Plans of Hamilton and North Waikato are those that are most pertinent in relation to the start-up service, as such these plans are briefly covered in relation to support for inter-regional rail.

In relation to the HCC ODP there is a commitment to growth of the city to meet the expectations set out in the Future Proof Strategy, put simply this provides for the development of around 15,000 additional households over the next 10 years. HCC are well underway and have secured Housing Infrastructure Fund (HIF) contributions to get the Peacockes growth cell underway. The main areas for growth around the city are shown in the extracted below. Yellow areas are primarily industrial/commercial and the red areas are proposed for additional housing. In keeping with the approach in Auckland there is also an intention to intensify housing around the CBD, this has been facilitated in the ODP through decreasing car park requirements and intensification zones.

[25] Auckland Transport Alignment Project Report, April 2018, pages 24 and 25

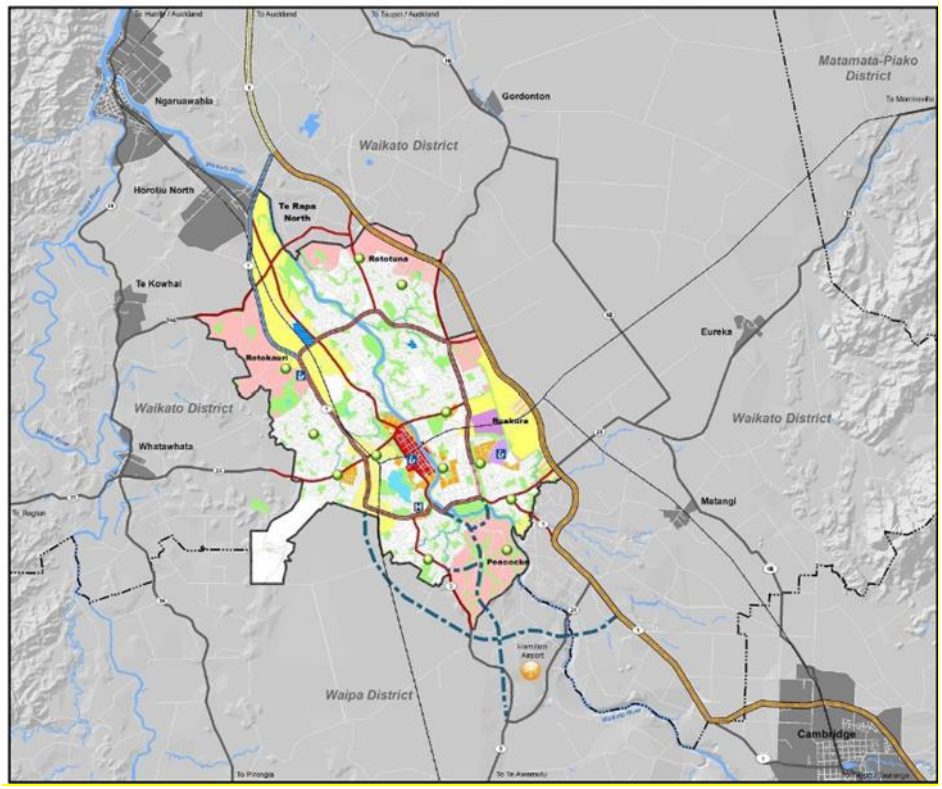


Figure A2: HCC ODP 'Figure 2 – Hamilton's Plan at a Glance'

Frankton Station retains its designation as 'Railway Purposes' designation F, the proposed Rotorkauri site lies within an area zoned for 'Industrial' this zone provides for passenger transport activities as permitted activities. RMA analysis of the rail stations is contained in Appendix C.

A.12 Waikato District Council Operative District Plan (WDC ODP)

The WDC ODP is now in the process of being updated and is likely to come online at around the time that this project would be under construction however, for the purpose of this report the ODP remains the key statutory instrument under which development is delivered. The thrust of this document as with the HCC ODP is related to the work completed as part of Future Proof, albeit the 2009 edition. This results in policies that seek to encourage growth in existing settlements. Unlike Hamilton, Waikato District relies upon its mineral, agricultural and forestry industries for its economic health and employment. As a result of this key policies relate to the protection of good agricultural land, mineral extraction and forestry.

In this current ODP Te Kauwhata is targeted as a place destined for substantial growth, as such it has its own ODP chapter and policies relating to its future growth. In amongst these policies are those that seek to protect future rail services and provide appropriate P&R:

> *'15A.2.4 Development of the town centre and its expansion into its immediate surrounds should involve the integration of:*
>
> *a. pedestrian-oriented retail development that provides active frontages*
> *b. community facilities*
> *c. c)conveniently located parking, including park-and-ride, facilities that do not dominate pedestrian-oriented streets*
> *d. high amenity access to public transport nodes including any future railway station'*[26]

In relation to Huntly the rail corridor is clearly designated as such and the land surrounding it is largely zoned for 'Business' this would allow car parking as a permitted activity, albeit with a cap on vehicle movements. There are no special policy provisions associated with this site.

[26] See Chapter 15A of the WDC ODP 'Te Kauwhata Structure Plan'

The route to the north nearer the border with Auckland is covered by the Franklin District Plan as with the Waikato section the Franklin Plan seeks to approve development around a settlement hierarchy this is set out as follows:

> *'Policy*
>
> *Growth is managed in a way that gives effect to compact, contained and integrated communities. Key features of this policy for Franklin include:*
>
> *Schedule A - Rural and Coastal Settlements Accommodating the Majority of Franklin's Growth*
>
> *Main Town:*
>
> *Pukekohe*
> *Waiuku*
> *Tuakau*
> *Town:*
> *Clarks Beach*
> *Pokeno*
> *Kingseat'*

As evidenced in more recent work as part of the updates to Future Proof – this hierarchy remains largely the same. This shows the relative hierarchy of possible station locations to north – and as with Future Proof Pokeno is further down the hierarchy than Pokeno. This plan made limited provision for any passenger transport services – it instead relied heavily on the Transport Plans and Policies related to the wider Auckland Area (of which it was part), as such there is limited additional text on this aspect of the plan.

In terms of the proposed plan, Tuakau has an improved designation plan that clearly shows the railway through the town centre and station. The plan allocations provide improved clarity on the ability of the 'business' zoning as a suitable zone for public transport infrastructure.

Appendix B Workshop Notes 13 August

Meeting Notes

Hamilton to Auckland Connection s Working Group

And Supplementary Business Case Workshop

Date/Time:	August 13, 2018 / Time
Place:	Franklin –The Centre, 12 Massey Road, Pukekohe
Next Meeting:	September 14, 2018
Attendees:	Cr Hugh Vercoe (WRC – Chair), Cr Dave McPherson (HCC), Cr Russ Rimmington (WRC), Damien Flynn (AT), David Shepherd (KiwiRail – alternate), Erin Wynne (MoT), Andrew Maughan (Stantec), Doug Weir (Stantec), Dharmendra Singh (HCC), Megan Kettle (NZTA), Barry Dowsett (NZTA), Mike Garrett (WRC), Jose Gonzalez (WRC), Mark Tamura (WRC), Dynes Fulton (WDC)
Absentees:	Deputy Mayor Bill Cashmore (AC), Cr Chris Darby (AC), David Gordon (KiwiRail) Parekawhia McLean (NZTA), Chris Allen (HCC)

Agenda:

1. Introductions
2. Four key material issues
3. SSBC governance pathway and milestones
4. Update on advanced funding
5. Review of draft service options (3 phase concept presented for discussion)
6. Hamilton-Auckland Corridor Partnership
7. *(Supplementary)* Business Case workshop:
    a. SSBC Strategic Case Review
    b. SSBC Preferences and Options evaluation
    c. Other business
8. Stantec information requests
9. Workshop close

Workshop notes:

1. Introductions:
    - Stantec and business case role introduced to Councillors
    - Councillors expressed concern that bureaucracy seems to be slowing process; requested explanation why more required additional to BERL business case
    - Councillors advised that NZTA had raised a number of key issues that needed to be addressed, Stantec engaged to resolve these with NZTA in a revised business case
    - Political risk highlighted by Councillors resulting from delayed start up of service beyond October 2019
2. Four key material issues:
    - Timetable:
        i. Proposed timetable submitted to Timetabling committee
        ii. No serious concerns raised
        iii. Expected to be endorsed in release of new timetable February 2019
        iv. CONSTRAINT: noted that carrying service through to the Strand has been discounted for a number of reasons, including that it would be following another Metro service all the way in so of limited benefit to the system

v. SUCCESS FACTOR: noted that seamless transition into AT network is a key success factor

- Ticketing:
  i. Options outlined
  ii. All presented as technically feasible
  iii. Councillors expressed desire for seamless service as more attractive to customers
  iv. Business case options evaluation pending
- Contract management:
  i. Options presented
  ii. WRC advised preference to delegate day-to-day management
  iii. Councillors request consideration of future proofing for service extensions, for example through to Tauranga, to be included in options evaluation
  iv. RISK: priority of regional service versus Metro highlighted as a future risk to the service
  v. UNCERTAINTY: Government is undertaking a rail study, it is difficult to make assumptions on future requirements until this study has been completed
- Rolling Stock ownership:
  i. Rolling stock ownership will be transferred to KiwiRail and supported through some form of use agreement
  ii. Councillor requested explanation of why rolling stock was to be procured through WRC
  iii. Advised WRC is an Approved Organisation under the LTMA, whereas KiwiRail is not
  iv. Advised KiwiRail cannot procure from itself

3. SSBC governance pathway and milestones:
   - WRC looking for confirmation that key risks are understood and appropriately managed in the business case document
   - NZTA looking for key questions to be answered, key gaps closed
   - Ongoing weekly check ins with NZTA to advise of progress
   - Councillors expressed far too much slippage in programme to date and concerned timetable adds more slippage
   - WRC request working party to reconvene to endorse draft business case by 14 September; require that all Councils including AT and Ac to be represented at this workshop. The endorsement of key stakeholders is a key expectation of NZTA.
   - TIO: noted requirement that additional information to be uploaded into TIO by HCC, WRC and WDC
   - HCC and WDC advise only governance requirement for them is approval of business case by NZTA then no encumbrance to them proceeding with all necessary enabling work
   - HCC undertaking enabling work ahead of approval, but awaiting approval to then activate necessary land purchase
   - WDC exploring station options analyses with Stantec as part of SSBC
   - ASSUMPTION:
     i. ECONOMICS:
        1. Agreed that Business Case provides long term view of economics <u>only as context for start up service</u>
        2. This is not the business case for the long term service
        3. Long term service economics are a part of the 'Hamilton-Auckland Corridor Partnership'

4. Update on advanced funding:
    - Fergus Gammie and Peter Reidy agreed no letter of comfort, funding awaiting approval of business case at 5 October Board meeting
    - KiwiRail confirm this means October 2019 service start with 4 or 5 carriages, and up to 6 carriages by December 2019
    - HCC Councillors express frustration at timeline and request MoT raise their level of concern with the Minister that funding approval process is reducing possibility of service start up by October 2019
5. Review of draft service options:
    - Three phases of service development presented, and associated options discussed
    - CONSTRAINTS:
        i. Rotokauri Station needs to complete traffic, water and noise impact assessments through consent process.
        ii. Very little track work is possible between October and February; programming should assume work outside this envelope
        iii. Level crossing safety impact assessments are required (one completed, remainder commissioned and in progress)
        iv. KiwiRail Policy of no new level crossings; introduction of a new level crossing needs to be redressed by removal of another level crossing somewhere on the line. Agreed process of trade-off between TLA areas, and also timing where a level crossing can be added through negotiation where removal of another crossing will then be made at a later date (case by case basis)
        v. NZTA rail safety team need to see level crossing safety has been dealt with and evidence presented in the business case
        vi. Platform sizes to allow for minimum 6 rail cars
        vii. Track capacity limited if want faster services needing significant additional investment for the long term
        viii. Track capacity limited if you want more services with varying number of stops; passing points and additional tracks
        ix. ASSUMPTION:
            1. new rolling stock will have a 30 year life
            2. Enhanced passenger services future consideration, not start up service
    - OPTIONS DISCUSSION:
        i. RESILIENCE OPTIONS:
            1. Government wants high level of service reliability
            2. consider service resilience options to account for reliability of rolling stock and contingencies such as:
                a. additional locomotive, or
                b. additional maintenance on locomotive to minimise risk of breakdown, or
                c. bus services to address breakdown risk during start up
        ii. Number of rail cars per consist discussed, trade off between 5 and 6 rail cars and associated capacity and service resilience trade offs.
        iii. Two consists of 5 rail cars each agreed as optimal start up service, but discussed option of 1 consist of 6 (5 in October to 6 by December 2019) at early start up transitioning to 2 consists of 5 cars when refurbishment of stock completed (march 2019)
        iv. New rolling stock:

1. Decision on new rolling stock after start up service needed within 15 year remaining life of refurbished stock
2. Investment decision triggers need to be identified and monitored to ensure decisions made early enough to mitigate future potential capacity constraints if start up successful

v. Wifi, KiwiRail presented options:
   1. $30k to put hardware into carriage
   2. Up to $350k per annum to get a high level of service for wifi
   3. $0 for a low level of service wifi
   4. Option to install hardware then trial different levels of service between $0 and $350k
   5. Noted that individuals can get a cheaper service rate than KiwiRail can get through government contracts

vi. Ticketing options; card top up for AT Hop option:
   1. Through local retail outlet
   2. On station ($50k per annum maintenance and servicing cost)
   3. Online

vii. Interpeak service:
   1. Options:
      a. No interpeak at start up:
         i. Potentially bad marketing outcome for service
      b. Interpeak with immediate return:
         i. SD lead to Hamilton (currently seeking sign off)
         ii. Turn at Paerata
         iii. Two locomotives
      c. Interpeak with delayed return:
         i. Turn at Westfield
   2. Business case to outline options and make recommendation. Would interpeak make service more viable for the long term?

viii. ASSUMPTION:
   1. Transition time from H2A service to Metro in Papakura is expected to be around 4 minutes, with Train departing every 10 minutes from Papakura at that time

- RISK:
   i. Capacity of AT rail system with Waikato patrons entering system at Papakura. Will be an issue in future, but AT is working through timings of services so that it is not an issue at start up and is managed into the future.
   ii. Service limitation if two services in to Auckland in the morning, and two services back to Hamilton in the afternoon, if people want to use rail to get to Hamilton they will have to stay overnight to return.
- BENEFITS:
   i. Councillors advised community see benefits most excited about:
      1. Fixed time to get to Auckland
      2. Food services on carriages
      3. Wifi service
   ii. Other level of customer service expectations:
      1. Frequency
      2. Speed

3. Cost

- OPTION REFINEMENTS:
    i. List travel times from Rotokauri rather than Frankton
    ii. If no stop at Pokeno people will drive from Pokeno to Drury to park and ride
    iii. Preferred option assumes that Public Holiday Services operate similarly to weekend services
    iv. Future services:
        1. Decision to be made whether electric or diesel for next stage beyond start up, however, noted that refurbishment is for 15 year life for rolling stock.
        2. Note where connection to airport will be in future (Puhinui)
        3. Group new stops into their respective potential rail lines, for example Cambridge, Te Awamutu, Tauranga (all different lines)
        4. Note that phase 2 of development of the service requires track and rolling stock improvements (and possibly electrification) to get travel time down to circa 60 minutes

6. Hamilton-Auckland Corridor Partnership:
    - Start-up rail service is seen as a catalyst for development
    - Corridor roughly 5km either side of rail line, extended where needed to ensure SH1 incorporated and wider catchment at each end of corridor ('dumbbell')
    - Concept is to accelerate transformational opportunities in corridor
    - Predicated requirement for high quality transport connection
    - Transit oriented development driving principle of work,
        i. consistent with government agenda,
        ii. is a government pilot
        iii. incorporate live, work and play centres along corridor
        iv. avoid ribbon development
        v. looking for economic and social development along corridor and transport solution to enable this
7. Business case workshop:
    - Context:
        i. Business case presented as supporting element of overarching Corridor Plan Work
        ii. Strategic case problems presented and ILM discussed
        iii. Key problems to be addressed by this business case discussed (2 out of the 3 problems)
        iv. Supporting evidence discussed:
            1. Fonterra study highlighted as additional evidence to explore
            2. Link to Corridor Plan objectives pointed to by MoT, to be referenced in the business case (particularly future settlements planned)
            3. HCC advise growth information needs to include new SHA agreed, don't just use University figures
        v. Potential RISKS discussed:
            1. Size of start up service quite small
            2. Very little learning room
            3. 'What if' we hit patronage target on day one? Risk that we can't increase service fast enough to meet demand and we lose patronage opportunity
        vi. DRAFT INVESTMENT OBJECTIVES (IOs) PRESENTED:
            1. IOs proposed based on review of problem statements, benefits, KPIs and measures developed in Strategic Case

2. Workshop participants acknowledge consistency of IOs with discussions today
3. IOs to be distributed with workshop minutes for feedback from stakeholders

- Long list discussion:
    i. Purpose of IOs outlined to workshop participants and acknowledged (see presentation attached)
    ii. Structure of elements that will be considered in defining option requirements (see presentation attached)
    iii. Options already discussed through workshop today, requirements aligned with definition framework provided
    iv. Key principles discussed (to be issued with workshop minutes for review and feedback by participants) to be used to formulate criteria for option evaluation
    v. Key principles for consideration:
        1. Flexibility of option to allow longer term options
        2. Alignment with Corridor partnership objectives
        3. Technical feasibility (for October 2019 start up)
        4. Attractiveness to customers
        5. Consent-ability (for October 2019 start up)
        6. Land constraints (for safe access, parking etc)

8. Information requests:
    - Urgent information requirements highlighted by Stantec
    - Meeting agreed with KiwiRail this week for programming and cost review
    - HCC Rotokauri detail
9. Workshop Close, 4.10pm

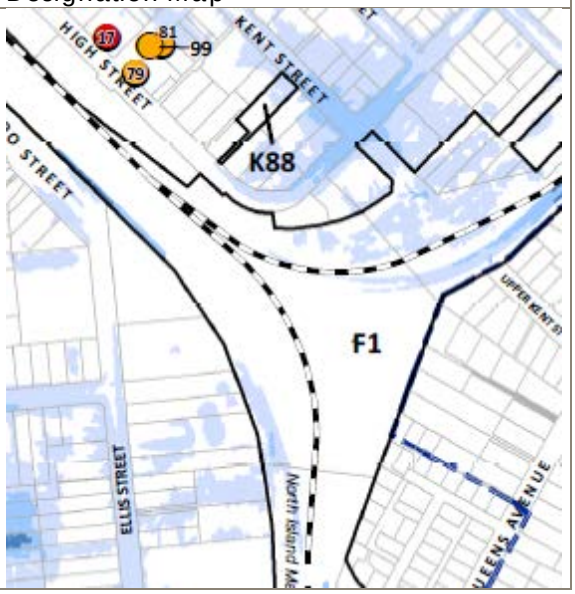
Appendix C RMA Assessment of Stations

RMA Planning Assessment

The following provides a high level assessment of how the district planning instruments will apply in terms of the development of the stations and associated parking facilities.

The Frankton and Rotokauri Stations are subject to the provisions of the Operative Hamilton City District Plan. The Huntly Station is subject to the provisions of the Operative Waikato District Plan (Waikato Section). The Tuakau Station is subject to the provisions of the Operative Waikato District Plan (Franklin Section). The Proposed Waikato District Plan has recently been notified. At this stage little weight can be placed on this Plan as it is very early in the plan review process. However, as the Proposed Plan progresses through the review process more and more weight can be placed on this Plan. It is for this reason that the Proposed Plan has been included in this assessment.

Frankton Station

Hamilton City District Plan Provisions	Description
Designation	The railway line, station and associated carpark is designated "Railway purposes" (Designation F1). The designation is quite wide at the station location (approximately 150m) as it provides for the convergence of the East Coast Main Trunk Railway Line with the North Island Main Trunk Railway Line KiwiRail is listed as the requiring authority
Zoning	The land under the designation is zoned Industrial. The eastern side of the designated land that adjoins the General Residential Zone is also subject to an Industrial Amenity Protection area.
Definitions	**Passenger transport facility:** Means land and buildings, used for scheduled passenger transport services. This may include bus bays, taxi ranks, drop-off and pick-up points, cycle parking, shelters, waiting rooms, ticket office, information centre, luggage lockers, public toilets, showers, changing rooms and ancillary activities. **Ancillary:** Means an activity or structure which is subordinate or subsidiary to the principal activity on the site.
Zoning Map	Designation Map
	

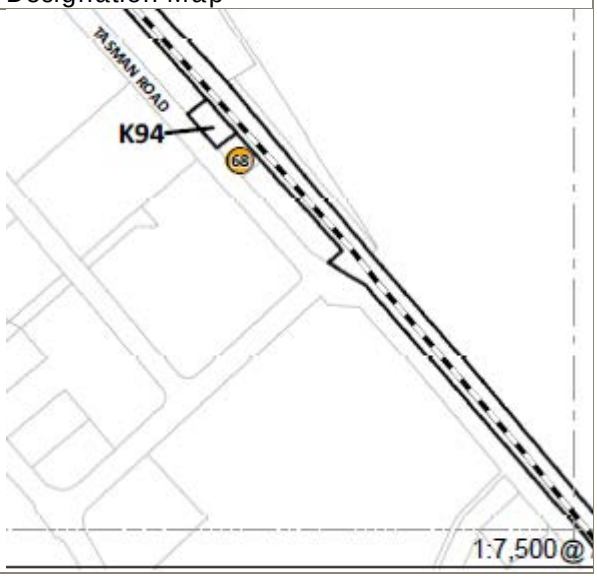
Assessment

The existing Frankton Station and associated carpark are located within the KiwiRail designation. Any required changes to the station or the carpark could be considered to be in accordance with the designated purpose of "Railway purposes". There could however, be an issue with relying on the designation if KiwiRail does not have financial responsibility for any of the proposed works. If another entity such as the Hamilton City Council has financial responsibility for the proposed works then the underlying zoning will apply.

The underlying Industrial Zone provides for passenger transport activities as permitted activities. These activities are a defined term in the District Plan and include drop-off and pick-up points, cycle parking, shelters, waiting rooms, ticket office and ancillary activities. Car parking would fall under the category of ancillary activities.

It should be noted that while parking lots and parking buildings are permitted activities in the Industrial Zone, these provisions should not be relied upon for any works involving changes to the existing carpark. This is because parking lots and parking buildings are defined in the District Plan as "land or buildings used specifically for the lease or hire of car parking as the primary activity on the site". A carpark associated with a train station would not fall within this definition.

Rotokauri Station

Hamilton City District Plan Provisions	Description
Designation	The railway line is designated "Railway purposes" (Designation F1). The designation is very narrow and only appears to cover the physical extent of railway line. KiwiRail is listed as the requiring authority
Zoning	The land under the designation is zoned Industrial. The land to the east of the railway line is zoned Business 5 – Sub-Regional Centre. Tasman Road forms the western boundary of the railway line and the land across the road where the proposed carpark will be located is zoned Industrial.
Definitions	**Passenger transport facility:** Means land and buildings, used for scheduled passenger transport services. This may include bus bays, taxi ranks, drop-off and pick-up points, cycle parking, shelters, waiting rooms, ticket office, information centre, luggage lockers, public toilets, showers, changing rooms and ancillary activities. **Ancillary:** Means an activity or structure which is subordinate or subsidiary to the principal activity on the site.
Zoning Map	Designation Map
	

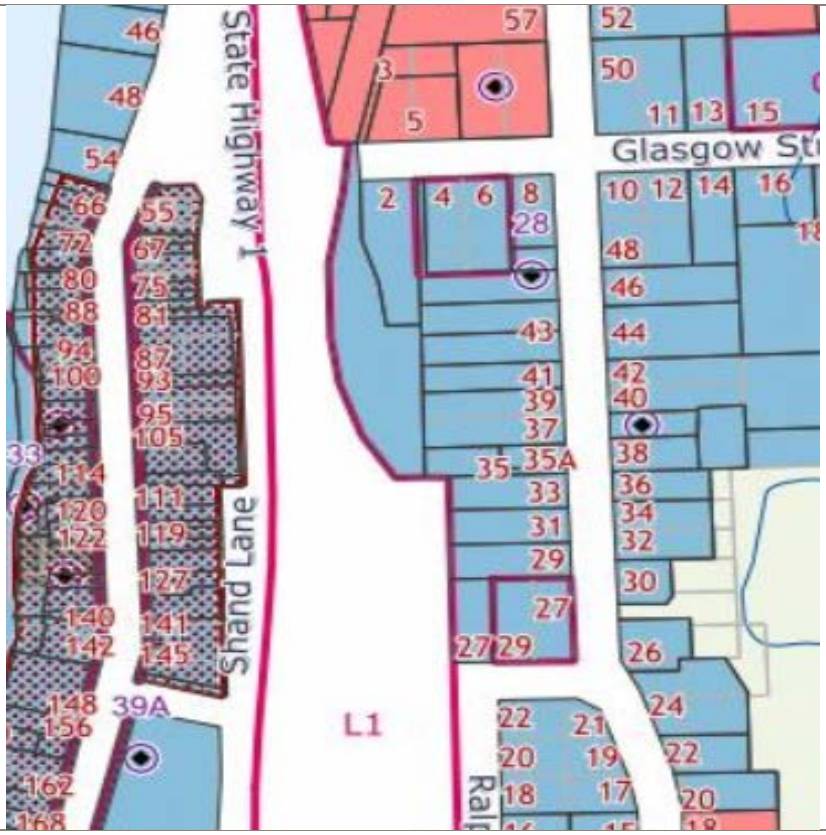
Assessment

The railway designation is very narrow (approximately less than 20 metres) and therefore may not be able to accommodate all the activities associated with the proposed station. Confirmation will be required as to whether any of the proposed station activities will be located within the road reserve. The designation could be relied upon to enable the establishment of the proposed station. There could however, be an issue of relying on the designation if KiwiRail does not have financial responsibility for any of the proposed works.

The land on which the proposed carpark will be located is zoned Industrial. The zone provides for passenger transport activities as permitted activities. The definition of passenger transport activities includes ancillary activities. The proposed carpark should be considered an ancillary activity and treated as a permitted activity. As discussed above a carpark associated with a train station would not fall within the definition of parking lots and parking buildings.

Huntly Station

Operative Waikato District Plan (Waikato Section)	Description
Designation	The railway line is designated for the purpose of "North Island Main Trunk Railway" (Designation L1). The proposed site for the station and carpark appears to be located outside the designation. The width of the designation adjoining the proposed site is some 30m. The width of the designation to the south of the proposed site is much wider (approximately 70m) The New Zealand Railways Corporation is listed as the requiring authority
Zoning	The land under the designation is zoned Rural. The land where the proposed station and carpark appear to be located is zoned Business (Waikato). The proposed station and carpark could be considered as permitted activity provided no more than 300 vehicle movements per day are generated.
Definitions	**Vehicle movement** Means the single passage of any vehicle between a road and a site.
Planning Map	



Assessment

If the proposed station and associated carpark were to be located within the designation they could be considered to be in accordance with the designated purpose of "North Island Main Trunk Railway". There could however, be an issue with relying on the designation if KiwiRail does not have financial responsibility for any of the proposed works.

The proposed site is zoned Business (Waikato). The station and associated parking are activities that are not specifically provided for in the Business Zone. However, the way the Operative Plan is drafted means that these activities could be considered as a permitted activity provided no more than 300 vehicle movements per day are generated. As set out above vehicle movement is defined in the Operative Plan and means the "single passage of any vehicle between a road and a site". If 300 vehicle movements is exceeded then a resource consent for a discretionary activity will be required.

Proposed Waikato District Plan	Description
Designation	The railway line is designated for the purpose of "North Island Main Trunk Railway" (Designation L1). The proposed site for the Station and carpark appears to be located outside the designation. The width of the designation adjoining the proposed site is some 30m. The width of the designation to the south of the proposed site is much wider (approximately 70m) The KiwiRail is listed as the requiring authority
Zoning	The land under the designation is zoned Rural. The land where the proposed station and carpark appear to be located is zoned Business. Public Transport facilities are permitted activities in the Business Zone
Definitions	Public Transport Facility Means land and/or buildings used for, or ancillary to, scheduled passenger transport services. It may include a public transport interchange, park and ride facilities, bus bays, taxi ranks, drop-off and pick-up points and associated cycle parking, shelters, waiting rooms, ticket offices, information centres, luggage lockers, public toilets, showers and changing rooms.
Planning Map	
	

Assessment

The rail designation is quite wide to the south of the proposed site. If the proposed station and associated carpark are to be located within the designation the proposed activities could be considered to be in accordance with the designated purpose of "North Island Main Trunk Railway". There could however, be an issue of relying on the designation if KiwiRail does not have financial responsibility for any of the proposed works.

The proposed site is zoned Business. Public Transport Facilities which include park and ride facilities, bus bays, taxi ranks, drop-off and pick-up points and associated cycle parking, shelters, waiting rooms, ticket offices are permitted activities in the Business Zone. Unlike the Operative Plan there do not appear to be any rules restricting the number of vehicle movements.

Tuakau Station

Operative Waikato District Plan (Franklin)	Description
Designation	The railway line is designated for the purpose of "Railway" (Designation 89). The proposed site for the station and carpark appears to be located outside the designation. The width of the designation adjoining the proposed site is quite narrow (approximately 15m). The New Zealand Railways Corporation is listed as the requiring authority
Zoning	The land under the designation is zoned Business (Franklin). The land where the proposed station and carpark appear to be located is zoned Business (Franklin). The proposed station and carpark could be considered as permitted activity subject to compliance with a variety of rules.
Definitions	
Planning Map	

Assessment

The rail designation is quite narrow adjacent to the proposed site. If the proposed station and associated carpark were to be located within the designation, the proposed activities could be considered to be in accordance with the designated purpose of "Railway". There could however, be an issue of relying on the designation if KiwiRail does not have financial responsibility for any of the proposed works.

The proposed site is zoned Business (Frankton). The station and associated parking are activities that are not specifically provided for in the Business Zone. However, the way the Operative Plan is drafted means that these activities could be considered as a permitted activity provided the meet the relevant permitted activity rules.

Proposed Waikato District Plan	Description
Designation	The railway line is designated for the purpose of "North Island Main Trunk Railway" (Designation L1). The proposed site for the Station and carpark appears to be located outside the designation. The width of the designation adjoining the proposed site is quite narrow (approximately 15m). The KiwiRail is listed as the requiring authority.
Zoning	The land under the designation is zoned Rural. The land where the proposed station and carpark appear to be located is zoned Business. Public Transport facilities are permitted activities in the Business Zone.
Definitions	Public Transport Facility Means land and/or buildings used for, or ancillary to, scheduled passenger transport services. It may include a public transport interchange, park and ride facilities, bus bays, taxi ranks, drop-off and pick-up points and associated cycle parking, shelters, waiting rooms, ticket offices, information centres, luggage lockers, public toilets, showers and changing rooms.
Planning Map	
	

Assessment

The rail designation is quite narrow adjacent to the proposed site. If the proposed station and associated carpark were to be located within the designation, the proposed activities could be considered to be in accordance with the designated purpose of "Railway". There could however, be an issue with relying on the designation if KiwiRail does not have financial responsibility for any of the proposed works.

The proposed site is zoned Business. Public Transport Facilities which include park and ride facilities, bus bays, taxi ranks, drop-off and pick-up points and associated cycle parking, shelters, waiting rooms, ticket offices are permitted activities in the Business Zone.

Conclusion

From this high level assessment of the relevant district planning instruments that apply to the four station locations, no significant consenting issues have been identified. Once more detail is available regarding the activities and their precise location further assessment will be required to check compliance with specific rules such as setbacks from roads and site boundaries, landscaping etc.

If there is an intention to utilise the KiwiRail designations for any proposed works there could be issue if KiwiRail does not have financial responsibility for the proposed works.

Appendix D Transport Connections Meeting Presentation

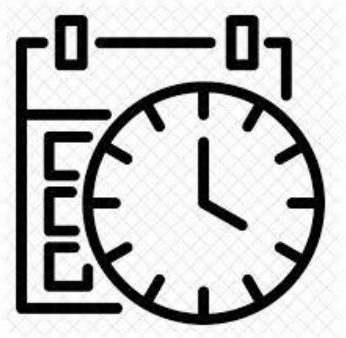
Transport Connections Working Party

Transport Connections Working Party

Working Party meeting 1 - 4 pm, Monday, 13 August 2018

Four key material Issues

1. Timetabling
2. Ticketing Options
3. Contract Management Arrangements
4. Rolling Stock Ownership



Timetabling

- Irrespective of the annual metro timetable changes, the Hamilton to Auckland passenger rail service will always be able to dock/depart from Papakura throughout peak periods (Timetable Committee confirmation received).

- There is a high level of confidence that a satisfactory timetable can be agreed through the industry process and that there is sufficient capacity for services to interchange at Papakura.

Ticketing Options

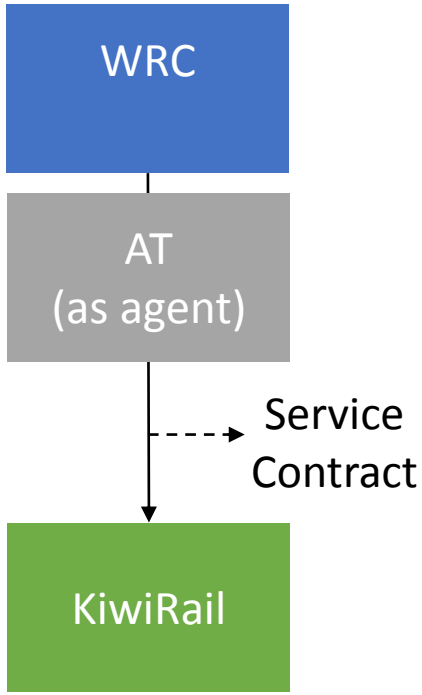
The 'BUSIT' card - the easy way to pay for bus fares in Hamilton

- The three ticketing options are:
  1. Waikato's Replacement Ticketing system (Former Busit card)
  2. AT HOP
  3. Paper Based
     1. WRC advises that using the replacement ticketing system for the rail service is operationally, technically and financial feasible.
     2. AT indicated that both ticketing solutions can be implemented but the on-train is AT's preferred option as it is the most cost effective one.
     3. Paper based is affordable from a capital expenditure perspective but would deliver a lower level of service than the other options.

**** The overall conclusion is that this issue has been significantly resolved and the Council strongly believes that a ticketing system will be installed and operational by the start of the service****

Contract Management Arrangements

- It is WRCs objective to delegate responsibility for day to day contract management to a party with existing relevant experience where possible (i.e. Auckland Transport).
- A number of options have been identified, including Auckland Transport acting as an Agent for WRC under a service agreement with KiwiRail. AT has confirmed its willingness to consider acting in this capacity.

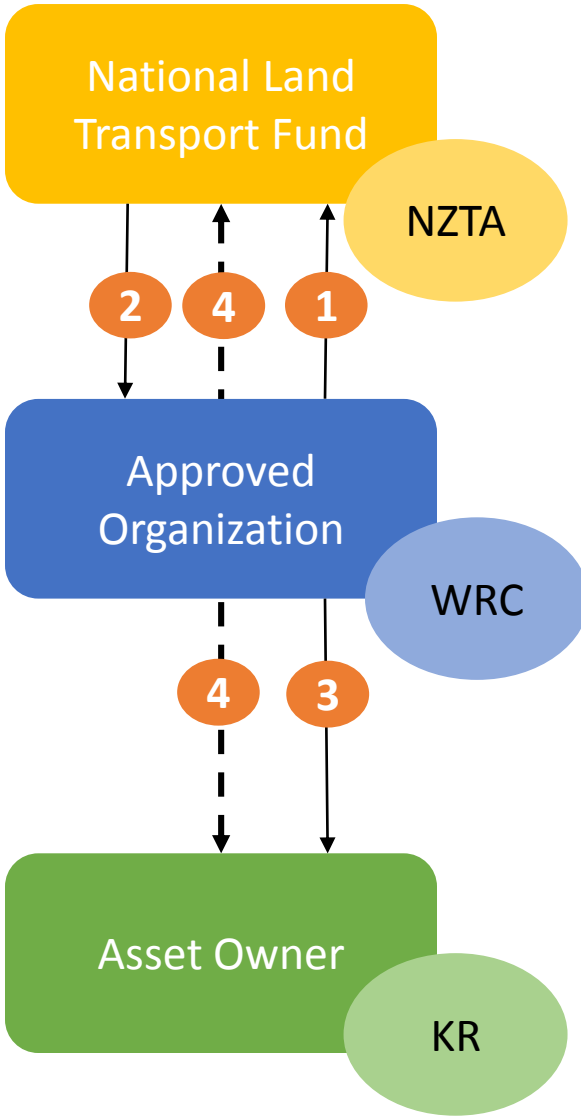


**** The contractual framework will be further developed and agreed through the DBC process and ultimately approved by NZTA. We do not consider this a significant risk to project implementation****

Rolling Stock Ownership

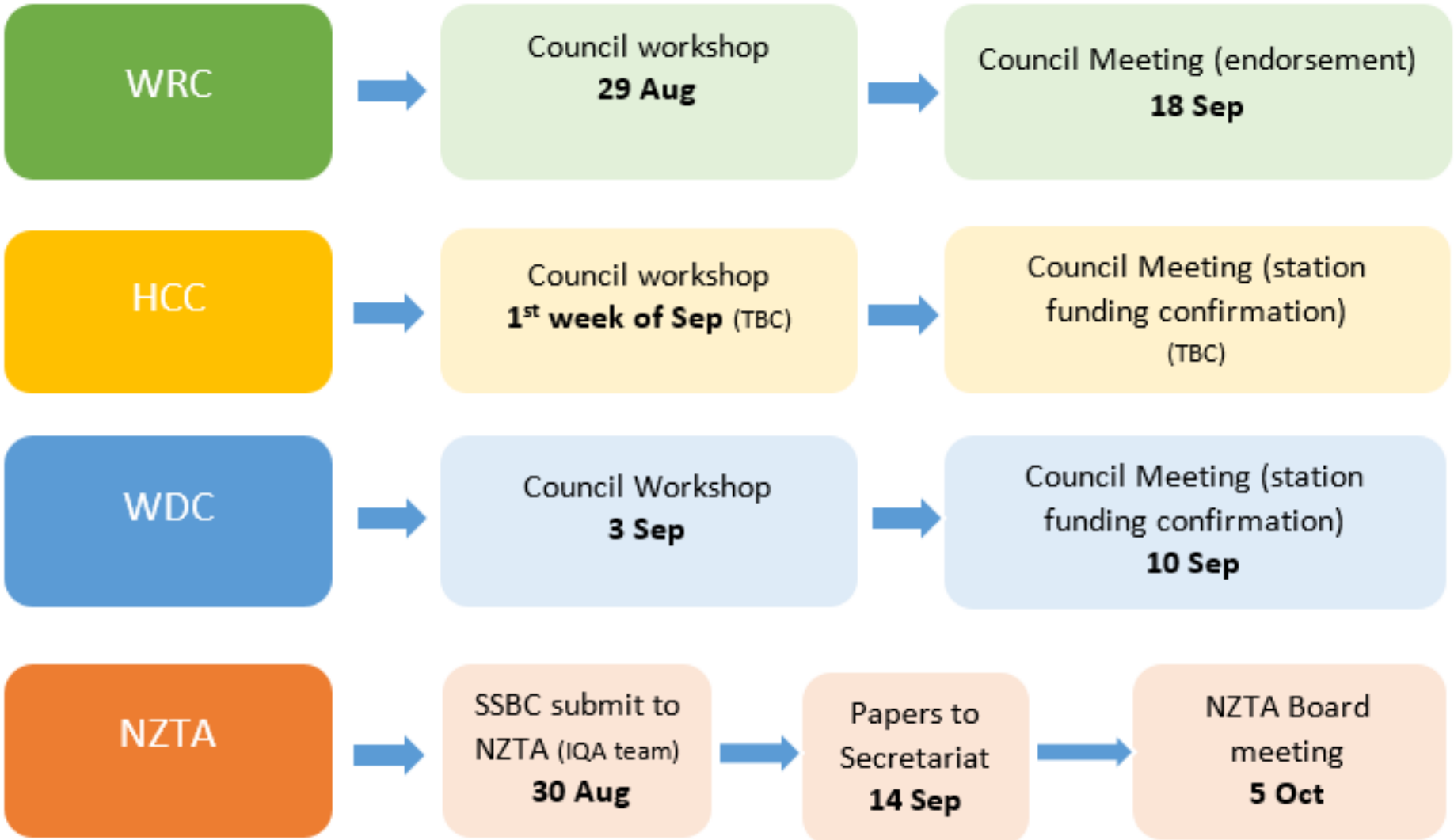
Outlined Ownership Process:

1. Waikato Regional Council will, in due time, apply for the funds to procure the rolling stock from Auckland Transport.
2. NZTA will approve the TIO funding application and release the funding for rolling stock at 100% FAR.
3. Subsequently WRC will transfer the funds to KiwiRail and use the conditional sales agreement that is in place for the purchase of the carriages.
4. This effective transfer of funds will be done subject to a set of conditions and clauses (multiparty agreement between WRC/KR/NZTA) to protect the crown's investment and ensure the availability of these carriages for other subsidized PT services in the future.

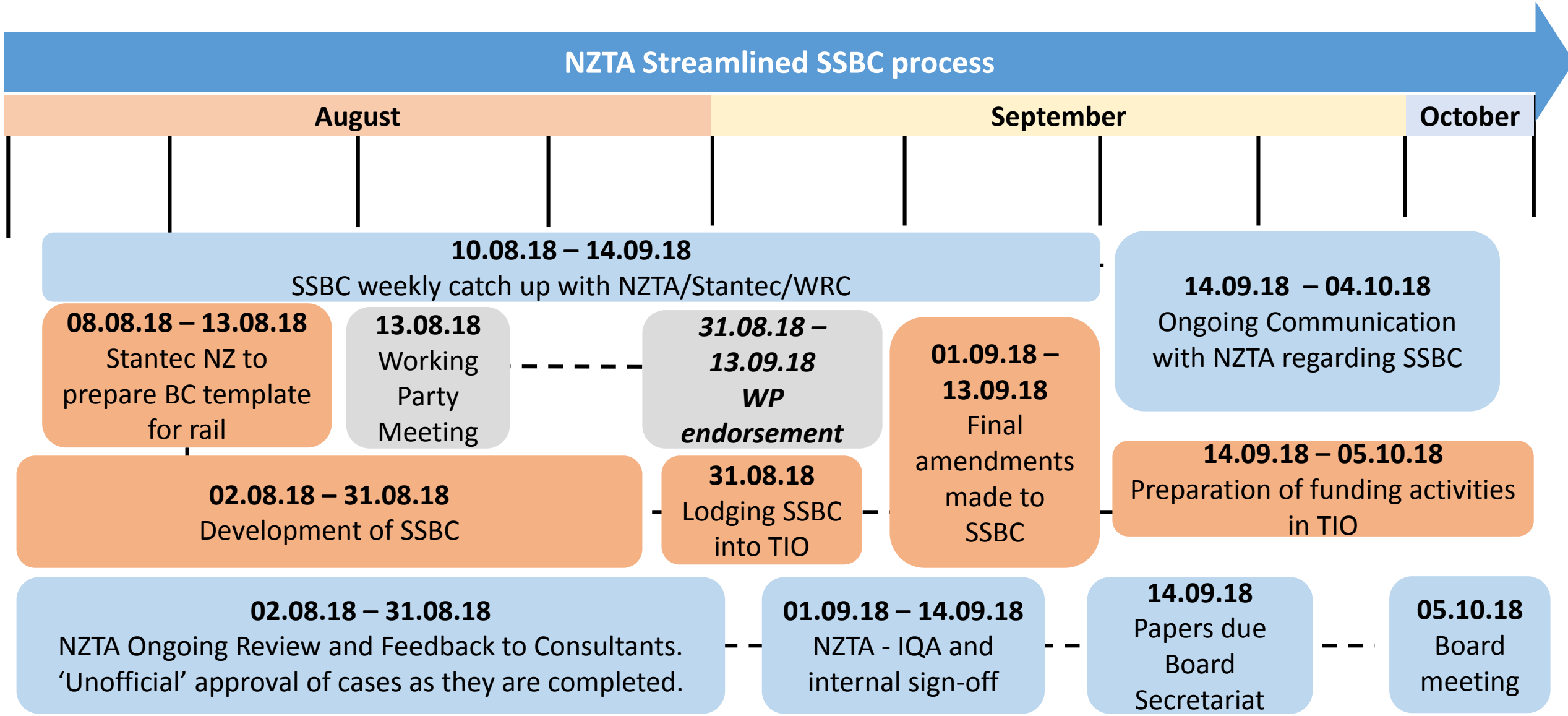


- The funded sum will be equivalent to the price of 13 carriages.

SSBC decision-making pathway

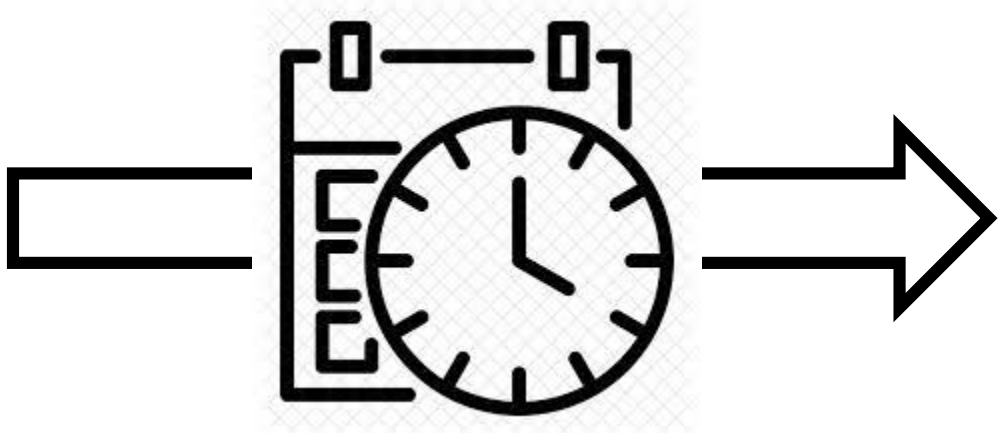


NZTA process and SBBC key dates



Verbal Update on Advanced Funding

Aspirational Levels of Service for interregional passenger rail service

Phase  **0 – 5 years**

Start-up interregional passenger rail

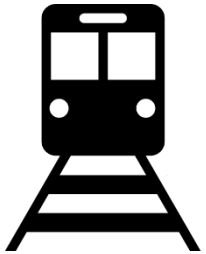
90 minutes

$12.20 (one-way)

50-60 minutes

$6.20 (one-way)

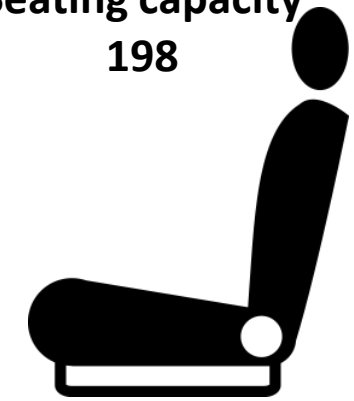
2 return weekday peak services and 1 daily weekend service



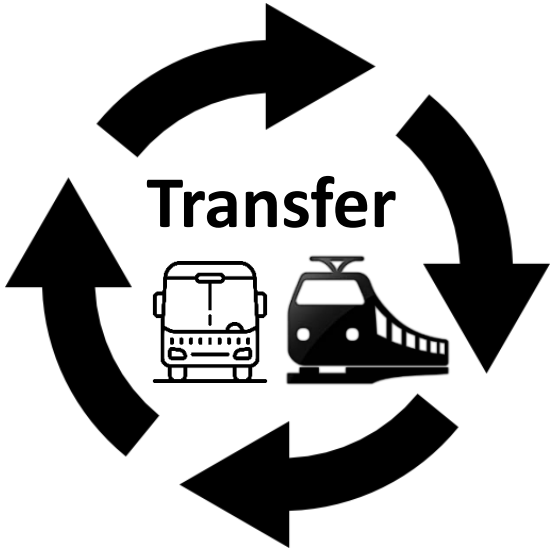
5 carriages

2 hrs and 20/30 mins

Seating capacity 198



Paper/Electric Ticketing System



Carriage Variants per Consist

	SA X 3	SAC	SD
Seating capacity per consist 	50	20	28

Capacity: 198 per service

On-board of the start-up service

Vestibule Luggage Racks

USB and power points

WIFI (potentially OB)

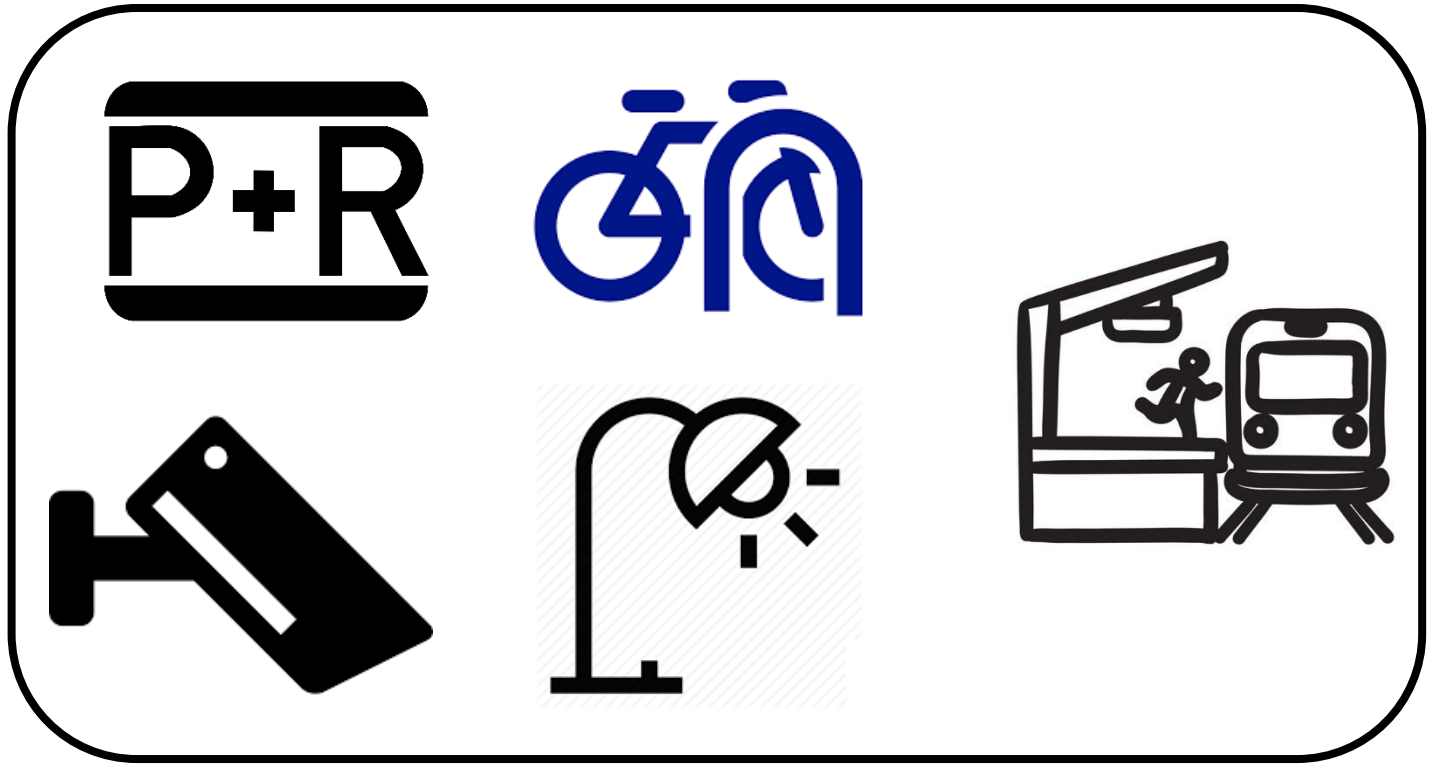
Work friendly environment

Universal Toilets

Servery / Cafeteria

On-Station amenities

=



Other Rail amenities

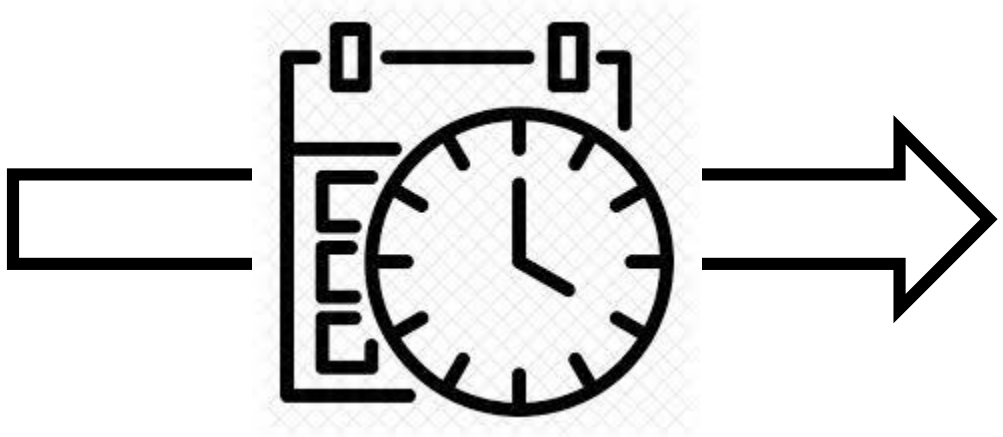
Westfield – Stabling location

TE RAPA – Maintenance Facility

Aspirational Targets

1. 95% of trips completed in less than 2 hours and 30 minutes

2. Southern Motorway benchmark – 50% of all trips completed in less than 2 hours and 30 minutes

Phase  **5 – 15 years**

Standard and Express interregional passenger rail

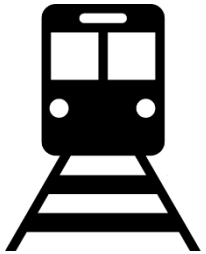
70 minutes

$Unknown (one-way)

50 minutes

$Unknown (one-way)

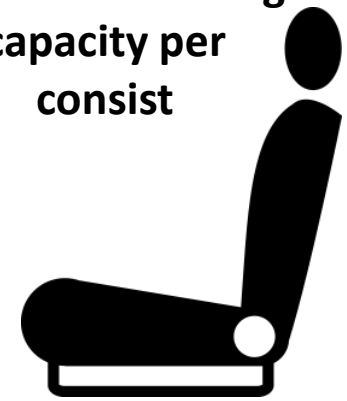
Frequent return weekday services and daily weekend services



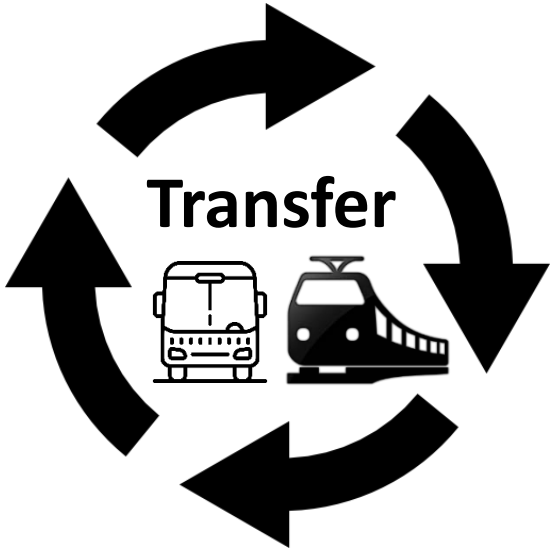
Sufficient number of carriages

<2.00 hrs

Maximum Seating capacity per consist



Integrated (AT/WRC) Ticketing System



Improvements to Level of Service

1. Additional rail stops/platforms along the way located in townships and villages like Ngaruawahia, Te Kauwhata, Mercer, Pokeno, Cambridge, Waitoa and Tauranga.
2. Increased track capacity and major track improvements.
3. Higher speed trains with greater capacity (procurement of new locomotives or carriages).
4. Fully integrated electronic ticketing system between WRC and AT.

Aspirational Targets

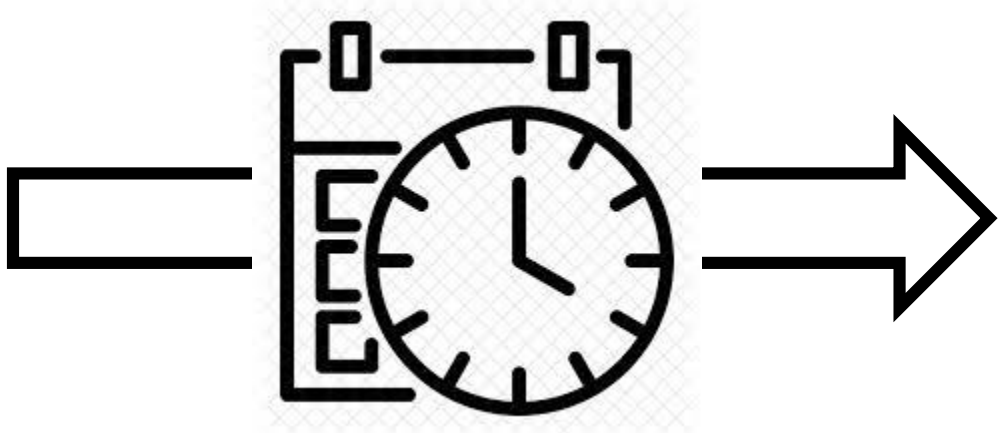
1

- Faster travel times between Hamilton and Auckland – more than 95% of trips completed in less than 2 hours.

2

- Services extended to new areas within Waikato and Bay of Plenty.

Phase



15 + years

Express interregional passenger rail through to Central Auckland

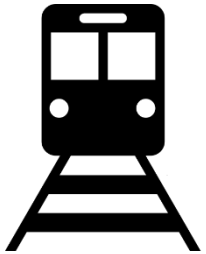
50 minutes

$Unknown (one-way)

40 minutes

$Unknown (one-way)

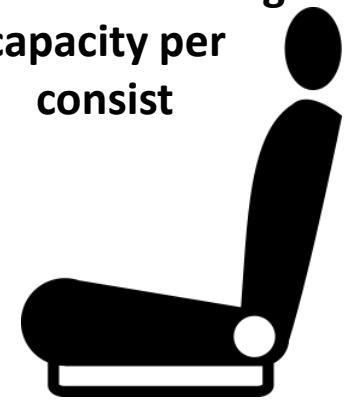
Frequent multidirectional return weekday services and daily weekend services



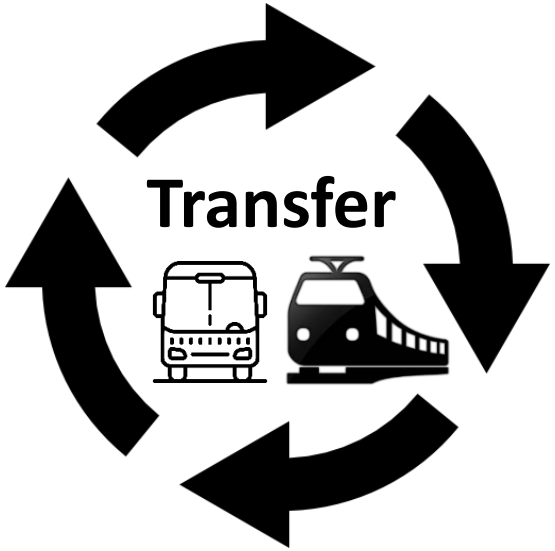
Sufficient number of carriages

<1.30 hrs

Maximum Seating capacity per consist



Integrated (AT/WRC) Ticketing System



Improvements to Level of Service

1. Network Electrification.
2. Additional rail platforms/stations and enhanced passenger facilities.
3. Increased track capacity.

Aspirational Targets

1

- Faster travel times between Hamilton and Auckland – more than 95% of trips completed in less than 1 hours and 30 minutes.

2

- Achieve track access North of Papakura with an express service to Central Auckland

The Hamilton-Auckland corridor partnership

Terms of Reference

Agreed between the Partners in Wellington on 25 June 2018

Important caveat

Please note *that we are still to complete the partnership interest discussions with all iwi in Tamaki-Makaurau and Hauraki, and these terms of reference are 'near final' subject to the views of iwi who may still join as partners.*

Contents

1. Parties to the Partnership

This Terms of Reference records the intention and understanding of the Parties for this project and agrees its governance arrangements. This project both reflects and forms part of an enhanced partnership between local government, central government and iwi.

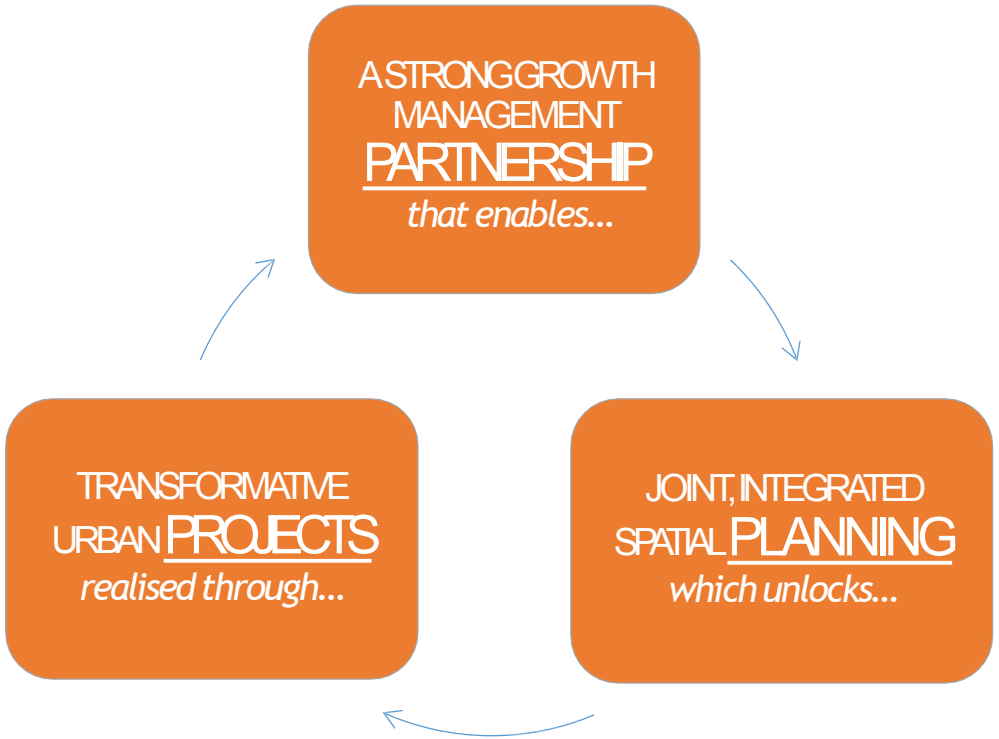
Partners

- NZ Government
- Waikato Regional Council
- Hamilton City Council
- Waikato District Council
- Auckland Council

- Waipa District Council
- Waikato Tainui
- Ngati Paoa
- Hauraki
- Other iwi, as to be determined

Governance of the Project

Ministers, Mayors, Chairs and Councillors representing the Partners will meet as required to consider the project's progress and deliverables, in addition to other aspects of the wider partnership. A senior level Steering Group consisting of nominated officials will be responsible for delivering the project in line with the agreed Terms of Reference.

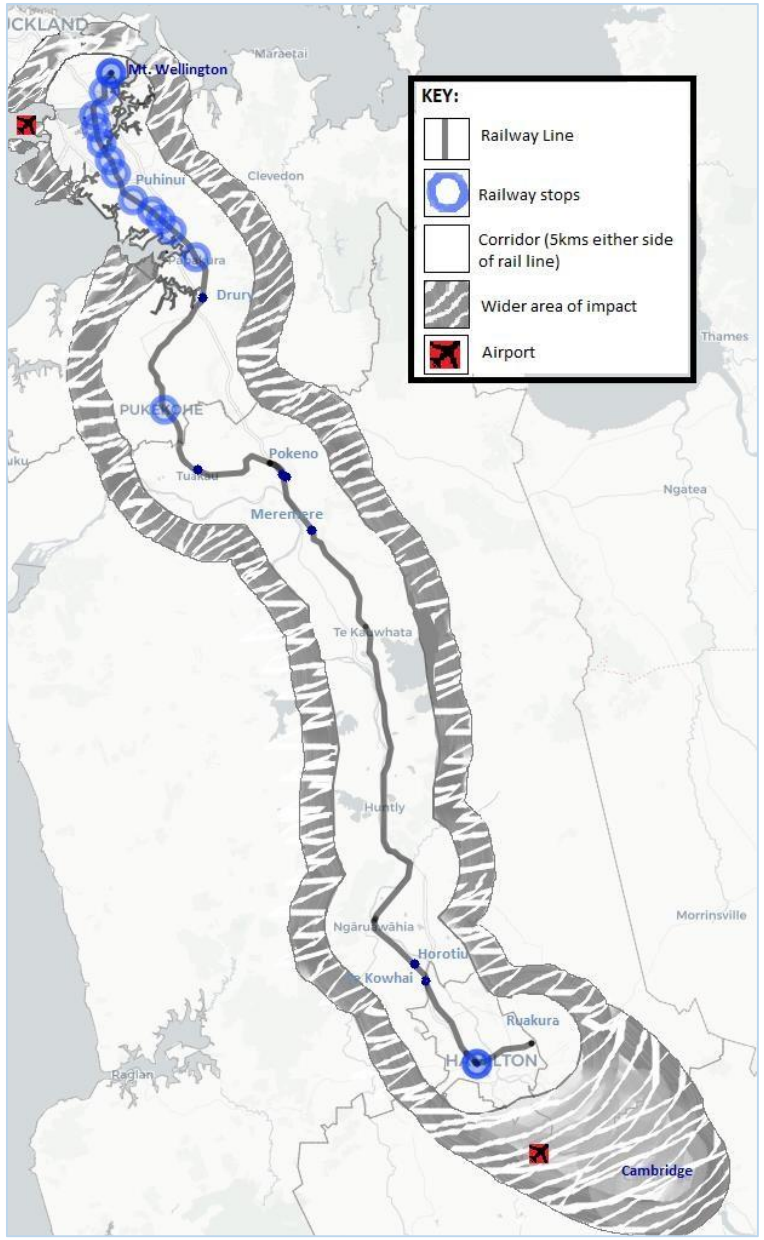


2. Project Scope

The dual purpose of the project is to (1) develop an integrated spatial plan and (2) establish an ongoing growth management partnership for the transport corridor between Hamilton and Auckland (as defined on the right) which:

1. Accelerates identified transformational opportunities
2. Outlines key housing, employment, social, environmental and network infrastructure priorities for the corridor over the next 30 years to successfully accommodate growth and also address levels of service, remedial or renewal needs
3. Identifies planning, development, infrastructure, mitigation and restoration works required, and funding and legislative projects partners may take over the next 1-3, 3-10 and 10-30 years.

This initiative will contribute and complement other relevant economic, social, cultural and environmental initiatives and programmes.



3. Project Objectives

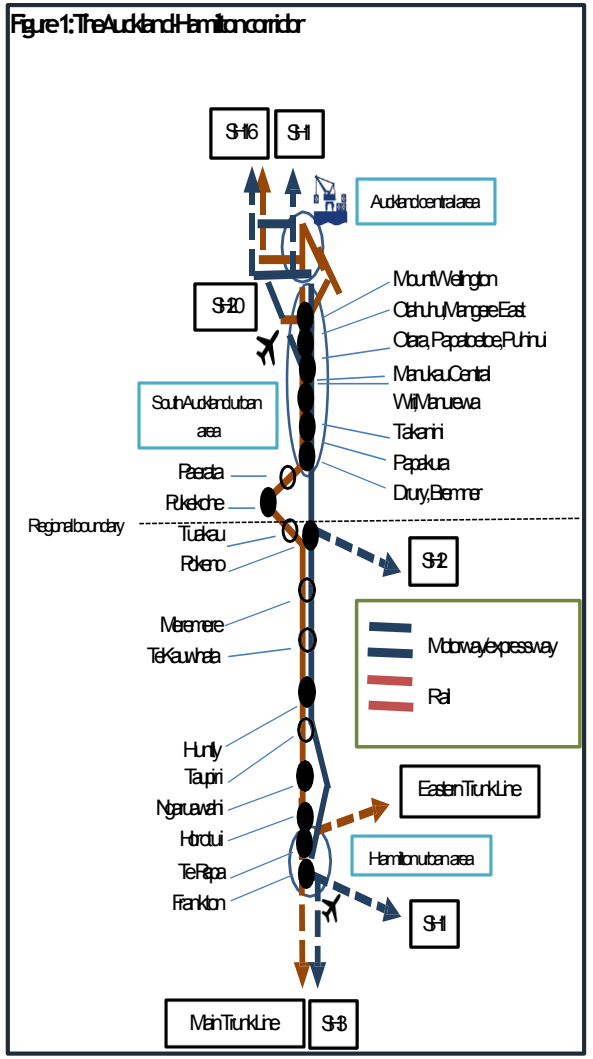
To better support growth and increase connectivity within the Auckland to Hamilton corridor, in a way that realises its social, economic, cultural and environmental potential by…

1. Improving housing affordability and choices
2. Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor
3. Improving access to employment, public services and amenities.
4. Creating employment opportunities in the corridor

Underpinned by these principles…

The agreed corridor plan will:

- Create a platform for the future that will change lives
- Make efficient use of existing infrastructure and future infrastructure funding, design and delivery.
- Protect high quality soils for growing food
- Contribute to the restoration and protection of the Waikato and Waipā Rivers and indigenous biodiversity within the corridor
- Anticipate the transition to a low-carbon future, build climate resilience, and avoid increasing the impacts and residual risks of natural hazards



4. Approach

The Project will achieve its objectives by making the most of a partnership between iwi, central government and local government in the corridor between Auckland and Hamilton, which coordinates their complementary planning, tools, assets, funding and powers.

A new, different form of partnership spatial planning and growth management that is definitive yet agile and responsive

- True joint planning and growth management between iwi, local and central government, including certainty of government support including co-investment
- Build on the strong foundation of collaboration and significant local investment in the region.
- Protection of key corridors, public open spaces and critically sensitive locations to provide the 'skeleton' for future growth
- Use of innovative new tools (e.g. Kiwibuild, Urban Development Authority, infrastructure funding/financing, PGF, transport pricing, environmental impact offsetting, legislative reform)
- A more responsive spatial planning approach that facilitates the market to deliver on desired outcomes through more competitive land markets as well as other means.

Desired settlement form

Future development in the Auckland to Hamilton corridor should:

- be transit-oriented and connected
- provide affordable choices that respond to demands, including quality intensification
- provide live-work-play settlements.

5. Deliverables, Process and Timeline

Deliverables/work streams

1. A spatial plan for the corridor that sets out:
   - Shared objectives, KPIs/targets
   - The key opportunities, challenges and constraints and solutions to navigate through these
   - A map and supporting statements that sets out the preferred approach to future housing, employment, environmental, social and network infrastructure development
2. Design and establishment of an ongoing growth management partnership that ensures:
   - Partners remain aligned with regard to the implementation of the plan, deliver agreed actions, and jointly monitor and address progress
   - Partners have the tools and ability to be more agile in responding to opportunities.
   - Partners successfully respond to new issues and opportunities as they arise
   - Future amendments are made to the plan as required.
3. An implementation/action plan with joint short, medium and long term transformative projects.
   - *Further investigations (e.g. business case development) will be required to support future decision-making on implementation of some of the actions i.e. further analysis to support investment by the partners.*

Process and Timeline

July- August: Completion of base information and analysis. Series of design workshops to craft corridor development options, test, re-develop, test. Engagement with stakeholder governors and selected stakeholders

Late August: Governance leaders meeting to review first draft of the plan. Complements planned Waikato economic summit on 30-31 August.

September: Refine the plan and further test with key stakeholders; amend as required

Early October 2018: Governance leaders consider proposed plan (Deliverable 1) and also first list of *projects* and draft *partnership* design (Deliverables 2 & 3)

Early December 2018: Governance leaders consider the partnership design and a refined list of projects (Deliverables 2 & 3).

6. Project Resource Plan

Core Resources

1. Planning Advisor – jointly appointed independent advisor
2. Project Coordinator – secondment from NZTA
3. Communication and Engagement Advisor – resource provided by Waikato Regional Council
4. Specialist Planners and Advisors from

   1.NZTA

   2.MBIE

   3.Auckland Council and Auckland Transport

   4.FutureProof Partnership (includes Waipa District)
5. Specialist GIS and Design support – NZTA and MBIE
6. Advisory and technical groups with representation from Auckland Transport, Watercare, local Iwi, Treasury, DIA, TPK, DHBs, Regional Health Alliance Ministry of Education, Housing NZ, Northern, MSD and other organisations as required.

Budget

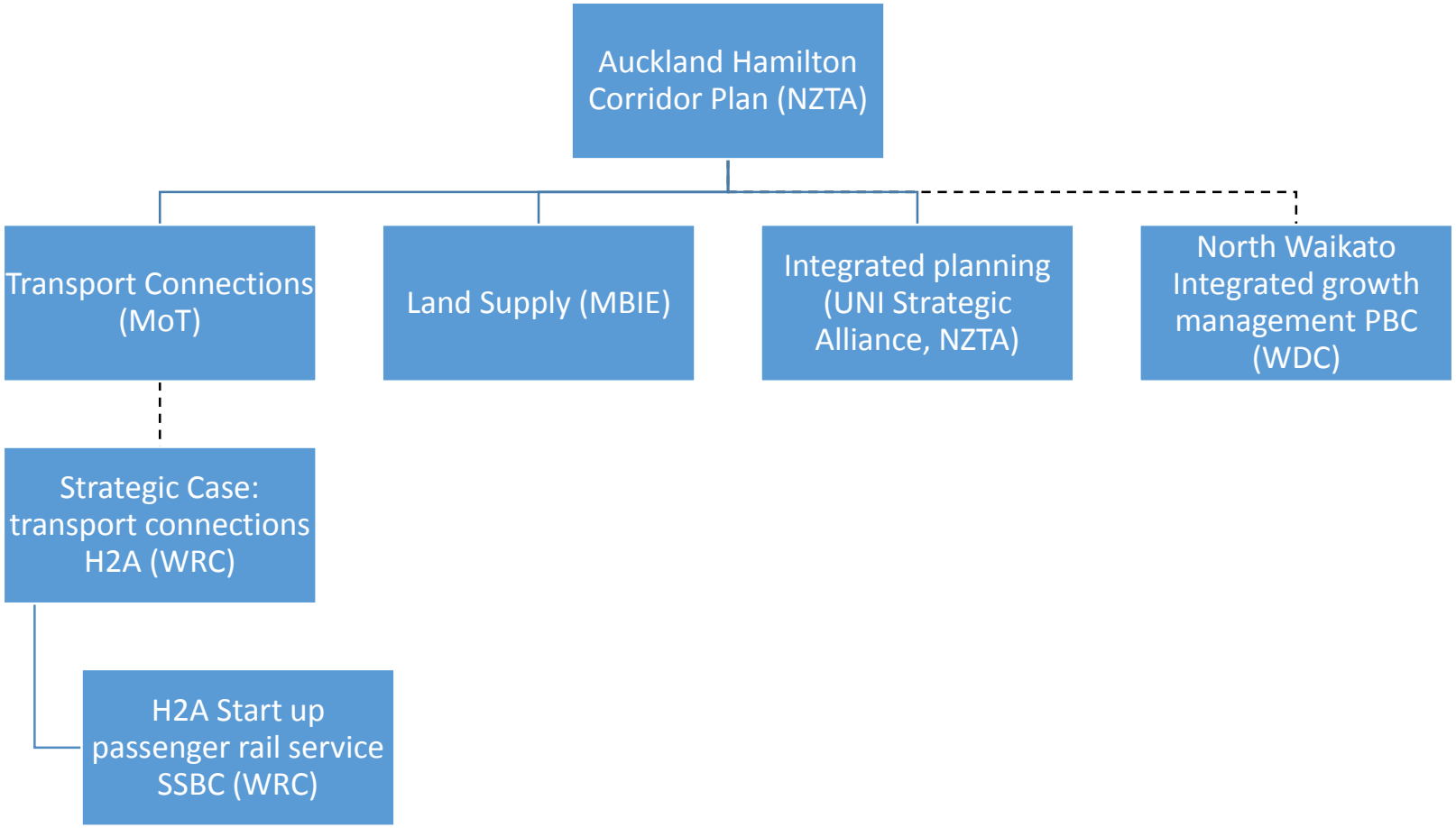
As far as possible the project will be delivered by the Partners contribution in-kind staff, material, facility and other technical support.

The project Partners are having conversations about contributions towards a budget of that will be used to procure:

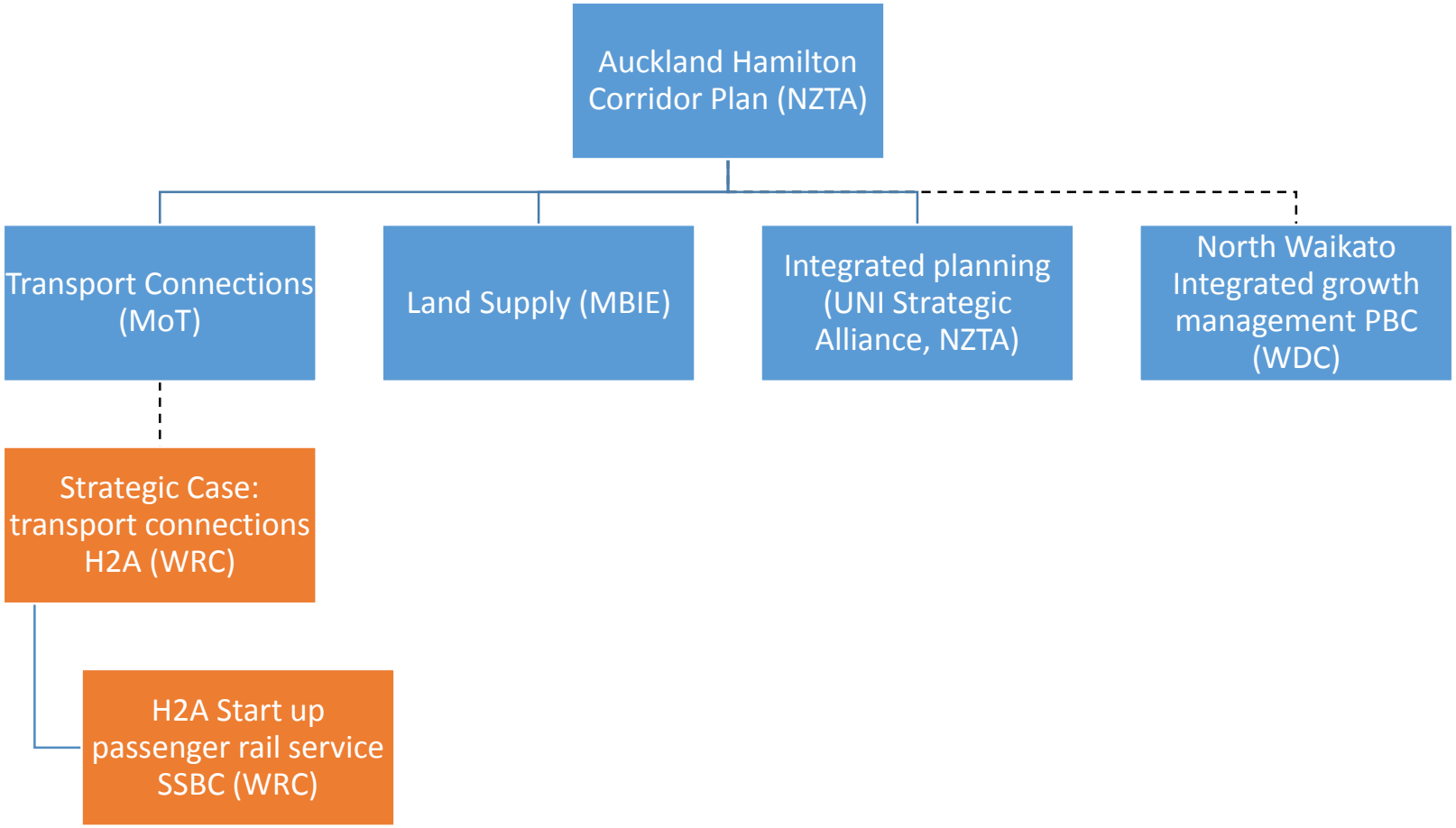
- Jointly appointed independent planning advisor
- Specialist advice that may not available within Partner or Associate Party organisations
- Venue hire and catering for the purposes of plan design and stakeholder engagement, beyond what can reasonably be contributed in-kind by one of the Partners.

The budget share of each Partner will be jointly agreed by the respective Chief Executives in June 2018.

Business Case overview for Transport Connections between Hamilton and Auckland



Business Case overview for Transport Connections between Hamilton and Auckland



Problems
From Strategic Case

A significant increase in demand for travel within the Hamilton-Auckland corridor, driven by rapid growth, is reducing transport system levels of service and placing economic performance at risk

Limited travel options in areas facing high growth is reducing liveability and impacting on quality of life, safety and environmental outcomes

Limited land use and transport integration across administrative boundaries is reducing our ability to effectively manage growth impacts and achieve key growth-related objectives

Benefits

Investment Objectives

Problems
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Investment Objectives

Problems
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Limited land use and transport integration across administrative boundaries is reducing our ability to effectively manage growth impacts and achieve key growth-related objectives

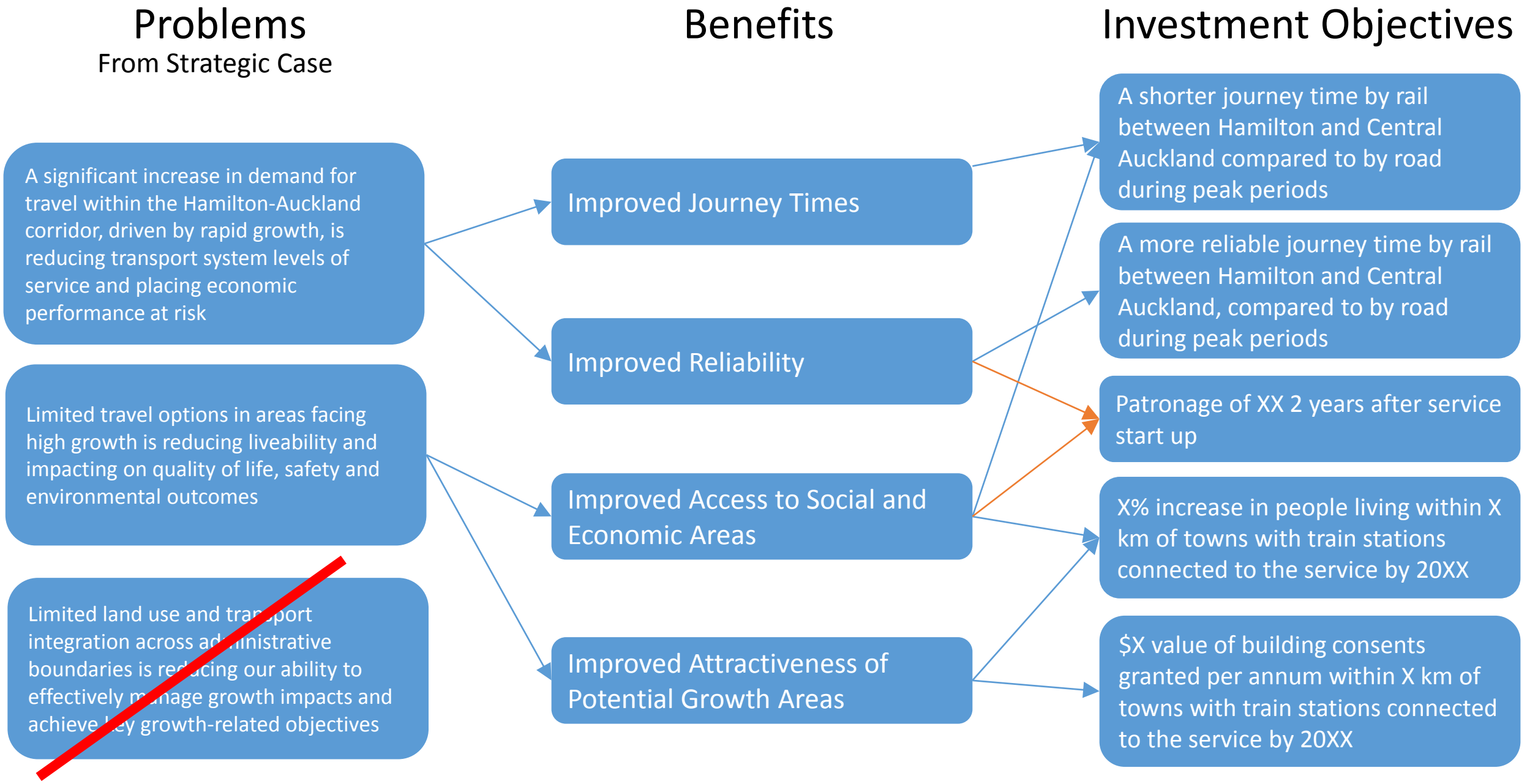
Improved Journey Times

Improved Reliability

Improved Access to Social and Economic Areas

Improved Attractiveness of Potential Growth Areas

Other benefits such as safety, resilience, emissions will be measures but are not considered to be as significant



Other benefits such as safety, resilience, emissions will be measures but are not considered to be as significant

Investment objectives

- Stakeholder feedback on draft investment objectives

Investment objectives

- Builds off existing Strategic Case ILM
- Screens options (short and long term); if options don’t contribute to any of these objectives then they are not considered further
- Quantifies what the investor is buying
- Informs benefits realisation plan so you can monitor and make future investment decisions

Single Stage Business Case option detail

- Geographic coverage (catchment)
  - End points
  - Intermediate stops
- Service levels
  - Days of operation
  - Periods of operation (by day as appropriate)
  - Travel time
  - Frequency (by period as appropriate)
- Vehicles
  - Type
  - Power source
  - Features
- Stations/stops
  - Passenger facilities
  - Access facilities
- Revenue collection
  - Fares
  - Ticketing

Key principles (workshop exercise)

- Why we might prefer one alternative to another

Key matters this week

- KiwiRail:
  - Costs (capex and opex)
  - Delivery programme and integration with infrastructure development
- WRC:
  - Demand forecasts
- WDC/HCC/AT:
  - Stations, constraints
- Data:
  - Tomtom
  - Qrious
  - Growth information

Appendix E Proposed Funding Approach Uploaded to TIO

Working Category	Activity	FAR	Approved Organization	18/19 Budget (total cost)	NZTA 18/19 - Share	NZTA 19/20 - Share	NZTA 20/21 - Share	NZTA 21/21 - Share	NZTA 22/23 - Share	NZTA 23/24 - Share	NZTA Share over 5 year period ($)	Councils Share over 5 year period ($)	Total Budget (over the 5 year start-up period)
WC 515: Passenger Rail Services	Funding for the operation of the start-up service	75%				$3,619,333	$4,575,436	$4,361,194	$4,352,448	$4,343,615	$21,252,026	$7,084,009	$28,336,035
WC 545: Transitional Rail Infrastructure	Procurement of Rolling Stock	100%	WRC	$980,000	$980,000						$980,000	$0	$980,000
	Refurbishment of Rolling Stock			$13,980,000	$13,980,000						$13,980,000		$13,980,000
	Locomotive Overhaul			$7,040,000	$7,040,000						$7,040,000		$7,040,000
	Rail Maintenance Facility - Te Rapa			$3,800,000	$3,800,000						$3,800,000		$3,800,000
	Ongoing Maintenance Costs of Rolling Stock					$1,112,250	$1,483,000	$1,483,000	$1,483,000	$1,483,000	$7,044,250		$7,044,250
	Rotokauri Platform		HCC	$2,200,000	$2,200,000						$2,200,000		$2,200,000
	Rotokauri 'below track' infrastructure			$6,380,000	$6,380,000						$6,380,000		$6,380,000
	Huntly Upgrade Platform		WDC	$1,400,000	$1,400,000						$1,400,000		$1,400,000
	Tuakau platform			$5,210,000	$5,210,000						$5,210,000		$5,210,000
	Tuakau 'below track' infrastructure			$3,600,000	$3,600,000						$3,600,000		$3,600,000
	Huntly 'below track' infrastructure			$300,000	$300,000						$300,000		$300,000
WC 531: Public Transport Infrastructure and major Renewals	Rotokauri 'above track' infrastructure	75%	HCC	$6,430,000	$4,822,500						$4,822,500	$1,607,500	$6,430,000
	Frantkon above track' infrastructure			$200,000	$150,000						$150,000	$50,000	$200,000
	Tuakau 'above track' infrastructure		WDC	$390,000	$292,500						$292,500	$97,500	$390,000
	Huntly 'above track' infrastructure			$670,000	$502,500						$502,500	$167,500	$670,000
WC 514: Public Transport operations and maintenance	Ongoing Maintenance of HCC railway station	51%	HCC			$76,500	$153,000	$153,000	$153,000	$153,000	$688,500	$661,500	$1,350,000
	Ongoing Maintenance of WDC railway station		WDC			$76,500	$153,000	$153,000	$153,000	$153,000	$688,500	$661,500	$1,350,000
W 532: Property Purchase	Land for Park and Ride Facility	75%	HCC	$6,400,000	$4,800,000						$4,800,000	$1,600,000	$6,400,000
			Sub-Total	$58,980,000	$55,457,500	$4,884,583	$6,364,436	$6,150,194	$6,141,448	$6,132,615	$85,130,776	$11,929,509	$97,060,285

Appendix F Station Costs

Hamilton to Auckland Start-Up Passenger Rail Service - Single Stage Business Case Report

Station Costs

Rev. No.	Date	Description	Prepared By	Checked By	Reviewed By	Approved By
1	30/8/18	Draft One	AM			
2	30/10/18	Update less Tuakau	SB			

1 Station Costs

Each of the proposed stations on the service, apart from Pukekohe and Papakura, require some degree of investment to provide a minimum level of service. Whilst that level of service is not entirely finalised, the following describes the upgrade assumptions made for DBC costing purposes. The costs identified are "expected costs" ie 50 percentile, and include contingencies that generally range from 30-50%, prelims, and design and consent fees.

2 Frankton

Frankton station is currently operational (serving the Northerner once a week) and is capable of a minimum level of service as-is, if certain assumptions are made. HCC have undertaken no investigation and thus the range submitted reflects the varying degree of refurbishment that may be needed.

Parking: The station has a circulating carriageway and a central fishbone angled parking arrangement for 25 spaces. In addition there are spaces for motorcycles, taxis and 2-3 buses, although nearly all markings have faded. There is width and length along the circulating carriageway for some 70 additional parallel parks, which modelling indicates is sufficient for at least short term parking. Thus, no additional parking hardstand is proposed although there is room available on the north side of the station if required. Parking upgrade is thus limited to remarking works.

Station: The station building is assumed to be opened when trains are running, allowing access to toilets, information, and ticketing (if required). The station is equipped with a large, lit canopy and seating on the platform. No further upgrade is required, other than CCTV.

Lighting: The station has parking area lighting which appears old and degraded. It is not needed for the current service and may not be operable. In addition Station Road has standard street lighting with sodium luminaires. The cost ranges from no lighting, to new LED luminaires and outreach arms on all lights plus a number of additional lights. CCTV is included in all options.

Platform: The existing platform has sufficient length and surfacing for a six car consist. The length under the canopy (40m) has tactile edge paving. However, all carriages other than the two in front of the station will be discharging passengers onto a dark unlit platform in winter, as the platform has no lighting. Thus, an additional seven light columns are allowed for. The costs include a cycle cage.

The platform is of the correct height but is curved. This affects platform gap to the carriage metro-style doors. The costs assume the platform does not require modification to mitigate any gap issue. KR have yet to confirm any issue.

The infrastructure investment noted is provisional and will be determined if required once the station has commenced operation

3 Rotokauri/The Base

Rotokauri station is a ground-up facility that has been investigated and costed by Aecom for HCC. Four options have been considered. The option considered in this DBC is a mixture of Options 3 and 3A, which assume a single central platform, a gated pedestrian level crossing from the west side only, and a park-n-ride for 100 cars. The central platform will require one track (up main) to be skewed to make room.

Parking: The 100-space parking facility will be sealed and marked, and includes wetland disposal of runoff. It occupies a land plot with sufficient capacity to be extended to 450 spaces, if required. The facility is accessed from a side road which is earmarked to be constructed by a local developer. This short stub road is not included in the costings.

Thomas Road: Thomas Road runs parallel to the tracks and must be eased sideways away from the tracks to allow space for the proposed track skew. This 300m realignment has been allowed for. Also, footpaths and a road-side bus and drop-off platform are allowed for. There are extensive services underneath Thomas Road and these have been identified and priced. In all, $1.1M plus contingencies.

Platform: A 150m platform has recently been identified. The platform will be equipped with basic hardware such as standard bus shelters, a kiosk, pre-fab style toilet block, cycle cage, seating, CCTV and lighting.

KR have previously provided a range of approximate costs which applied to a 60-150m platform, and are now considering the longer skew requirement of a bigger platform. The range, $3-5M, may thus increase. Platforms are both expensive and very difficult to build due to proximity of the live track, and it is believed there are futureproof advantages to the larger facility.

Crossings: An electric gated level crossing is chosen following LCSIA review and is included, costing $400k. In addition, a pedestrian crossing is required over Thomas Road. Thomas Road is posted 80kph which has imposed restrictions on the crossing options available: to mitigate this a temporary speed restriction is proposed, which will permit a signalised midblock crossing to be installed. This will be reinforced with thresholds.
Future access options include a three-pier bridge connecting the platform to both Thomas Road and the Base. This is not included in the costings.

4 Huntly

Huntly station is an existing station in central Huntly that requires extensive renovation. The facility consists of a single side platform adjacent to a disused siding track. An adjacent pedestrian overbridge enables access to the town centre (and toilets). There is a gravel area for parking immediately behind the station. WDC have not undertaken extensive investigation as has been done for Rotokauri, and thus costings are based on a brief site visit and measurements from aerial photos.

A central island style platform is identified as possibly a better long term solution that does not have the inherent operational issues that single side islands incur with the need for cross overs. However, the existing facility is recognised as being less disruptive and more achievable.

Parking: Driven access to the station is readily available from both sides of the track via Bell Crossing and Rayner Road overbridge.

The existing WDC area available for parking is gravelled but poorly drained. Costings allow the whole area to be levelled and sealed with reticulated drainage connecting to William Street. The area is long and narrow but there is room at the end to turn a bus if required. There is likely to be space for at least 40 cars. The entranceway to the carpark is narrow and will require confirmation that two-way access is possible. Lighting and CCTV is included in the costings.

Crossings: The overbridge is assumed functional and not requiring upgrade for this project, although it is basic (no lifts for the disabled, for example). As this option considers only the existing side island, no other track crossing or street crossing is required.

Platform: The existing platform appears sound but will need to be both raised and extended. A 102m platform is assumed. It is assumed the platform edge can be built up as per typical ATCOP methodologies. This is normally an exacting, expensive and difficult task due to track access, however, as the siding is disused and set back from the operating tracks, it is assumed there will be less restrictions (and cost) to construction. In addition there is only one side to retain, unlike central islands.

The platform will be equipped with basic hardware such as standard bus shelters, cycle cage, seating, CCTV and lighting. There will be no toilets; WDC expect passengers to use on-board facilities or walk the 180m over the bridge to the town centre. WDC do not expect the platform to be manned and have not allowed for a kiosk.

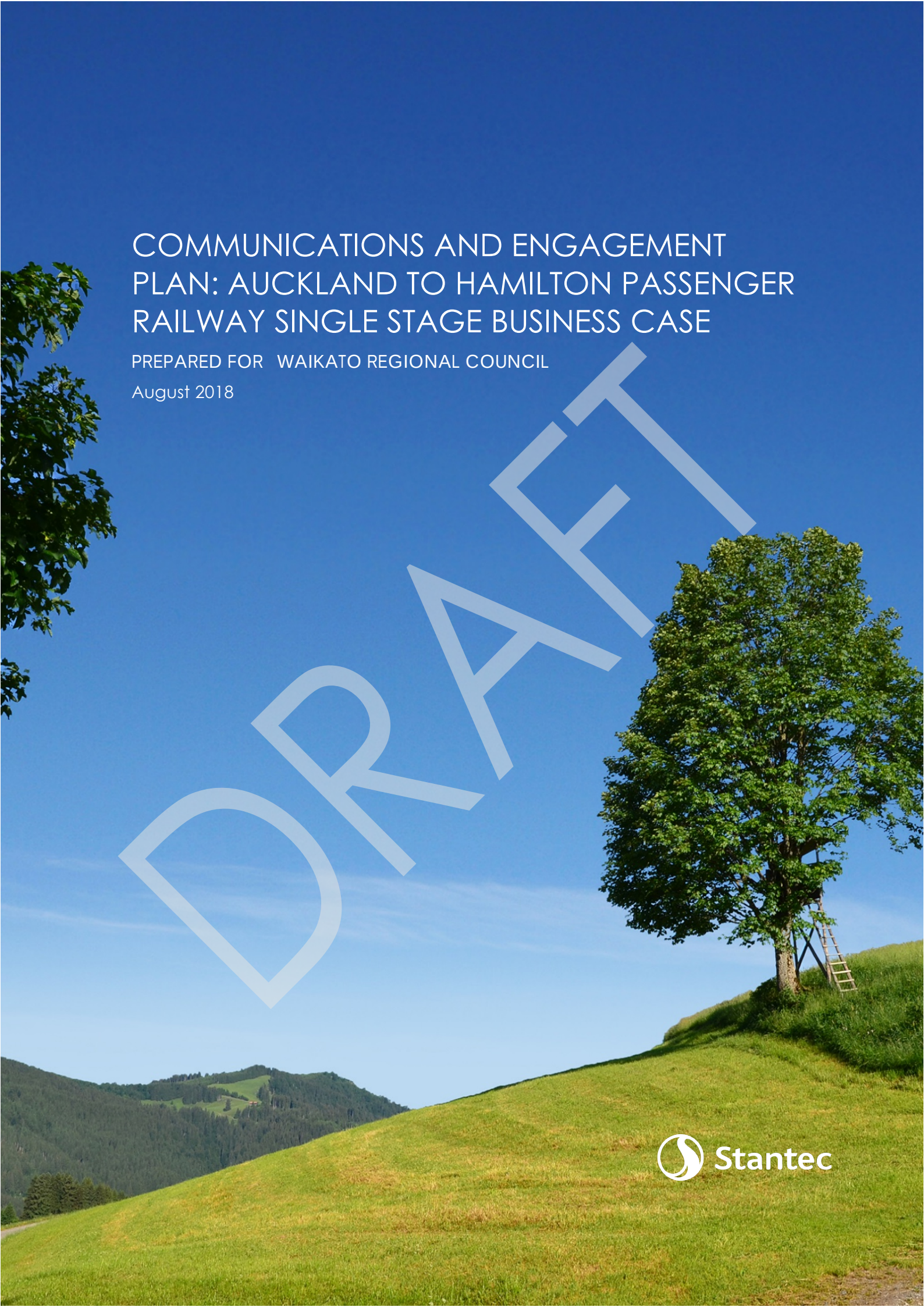
Track: KR have earmarked $0.3M for re-establishing the siding. The existing track, switches, crossovers and signalling are expected to be functional without major intervention, although this has yet to be confirmed by KR.

Appendix G Communications and Engagement Plan

COMMUNICATIONS AND ENGAGEMENT PLAN: AUCKLAND TO HAMILTON PASSENGER RAILWAY SINGLE STAGE BUSINESS CASE

PREPARED FOR WAIKATO REGIONAL COUNCIL

August 2018



Stantec

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This disclaimer shall apply notwithstanding that the report may be made available to the Waikato Regional Council and other persons for an application for permission or approval to fulfil a legal requirement.

QUALITY STATEMENT

PROJECT MANAGER		PROJECT TECHNICAL LEAD
Jose Gonzalez WRC		Andrew Maughan Stantec

PREPARED BY		
Annika Swanberg	.....	...../...../.....
CHECKED BY		
	.....	...../...../.....
REVIEWED BY		
	.....	...../...../.....
APPROVED FOR ISSUE BY		
	.....	...../...../.....

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Waikato Regional Council

Communications and Engagement Plan: Auckland To Hamilton Passenger Railway Single Stage Business Case

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APPENDICIES

Appendix A Engagement Spectrum

Appendix B Contact Database

Appendix C Engagement Register

1. Introduction

Working with/together – WRC internal comms team

A discussion will be necessary with the client comms team to work through the following:

- Key messages
- Risks
- Roles and responsibilities
- Branding
- Channels
- Media relations
- Web-platform
- Language
- Style Guide
- Sign-off process and approvals

2. Purposes of Communication and Engagement

Why do we want to talk to people?

- Inform people about the project
- Ask how people want to be involved
- Seek interested people to be involved more deeply
- Ask for views and input on options – generate alternatives and new ideas
- Understanding reactions and implications or consequences of a proposal
- Assist the council's decision making process
- Legal compliance – RMA process

Relationship building is another important purpose. The team will continue to cultivate the good relationships developed so far. Our ongoing conversations with the community will help shape the Detailed Business Case (DBC). The following communication and engagement "rules" apply to communications with our stakeholders:

- set out expectations
- be clear and genuine
- use the appropriate channels and level of engagement
- be clear about what stakeholders and the community can and can't influence
- close the information loop to ensure the stakeholders and the community understand decisions and outcomes.

3. Background

Include wider context and map…

[insert project map]

4. Measurable Objectives

The engagement objectives for this stage of the project are to:

- Develop a good relationship between the partners and agree on a project plan.
- Continue the conversation with key stakeholders and identify other stakeholders which need to be engaged.
- Anything else?

5. Audiences

Partners include:

Stakeholder / Group	Level of engagement: Inform Consult Involve Collaborate	Expected interest: High Medium Low	How much influence?
KiwiRail	Collaborate	High	
New Zealand Transport Agency	Collaborate	High	
Hamilton City Council	Collaborate	High	
Waikato District Council	Collaborate	Medium	
Auckland Council	Inform	Medium	
Auckland Transport	Collaborate	High	
Ministry of Transport	Involve	High	
Waikato Regional Council	Collaborate	High	

Who else?

- Political
- Tangata Whenua
- Statutory Authorities
- Environmental
- Technical
- Businesses
- Community interest
- Landowners
- Previous submitters
- Wider public
- Media

6. What do We Already Know?

To date the Waikato Regional Council has undertaken the following stakeholder and community activities:

- The partners:
  - Waikato Regional Council, Hamilton City Council, Waikato District Council, Auckland Council, Auckland Transport and the New Zealand Transport Agency have attended six meetings to partake in an Investment Logic Map (ILM) process.
  - The partners (listed above) identified and agreed on the three main problems.
  - The partners agreed on a strategic response of a new cross-boundary mode of transport connecting Auckland and Hamilton which was developed in an options workshop which was run in February 2018.
- Public consultation as part of Waikato Regional Council's long term plan 2018:
  - Three options were given to the public including no change and two funding options for the rail services.
  - A total of 134 submissions were received, including 59% in support of either funding option.
- Sub-regional Waikato customer demand survey for residents:
  - This aimed to identify what proportion of current commuters and also non commuters surveyed who travel from Waikato to Auckland once of more a month, identify which on-board services are important, identify the fare they would be willing to pay, identify the barriers to uptake of the service, and explore perceptions around costs associated with their current Waikato to Auckland travel.
  - The areas included were Waikato, Waipa and Hamilton.
  - This survey proved that 61% of those travelling to Auckland at least once a month are willing to use public transport as travel option and 56% would use the start-up rail service if they were content with the timetable, service level and ticket price.
- Sub-regional Waikato customer demand survey for the business community:
  - Waikato University, Waikato DHB, Perry Group, Fonterra, DataCom, and Wintec participated in an interview aimed at understanding current commuting trends, mode of transport used, and sharing vehicle rides across the wider business.
  - Fonterra executed an internal staff survey which resulted in 853 responses and 80%of people who responded said that they would depart from Hamilton on a rail service if it lowered the travel time (less than 3 hours).
  - The business community has been identified as a key beneficiary from an investment in rail infrastructure and the implementation of a service.
- Engagement with other regional Authorities across NZ:
  - Greater Wellington Regional Council (GWRC) has been engaged throughout teleconferences to understand the detailed operations of their metro services, rolling stock used, procurement process, contract management arrangements station/ platform investment and rail related activities.
  - GWRC and Horizons District Council are the only regional authorities that currently subsidize (local share) the operation expenditure of an interregional passenger rail service, which is called the Capital Connection. Given that their client contract managing, project management, and service details are fairly similar to the ones set out for the Hamilton-Auckland service, it was reasonable to establish a relationship and defined them as a key strategic/ technical stakeholder that could support the DBC completion, planning and implementation phases of the project.

7. Key Messages – to be developed

The key messages will vary for the duration of the project and will build on each other to gradually provide more information to stakeholders and the community as details are confirmed.

- General project information setting out project objectives; why the project is being conducted; links to other pieces of work; project benefits and the process that will be followed
- Information on the groups involved
- How and when people can give feedback
- How feedback will be used and how the project team will report back to people on decisions made
- Clarification around next steps.

8. Tools and Tactics

8.1 Emails and Phone Calls to Key Stakeholders

There are a number of initiatives currently underway which will provide further elements and key analyses that will need to be included in this DBC. These initiatives range from weekly phone catch-up meetings with key investment partners and co-investors, the formation a two tier group with representation by all partners and co-investors and through the engagement with an expert NZTA panel consultant. It will be vital for all stakeholders to agree with the proposed scope and any substantial changes made along the way.

Emails will be sent and phone calls made to the partners identified in the list above to ensure they are aware of how the project is progressing, any changes to the project, and when they have opportunities to provide feedback or input.

8.2 Workshops

A number of workshops will be undertaken which will involve a multi criteria analysis of the four themes (integrational transport and infrastructure, planning frameworks, funding approaches, and governance and management systems) to develop alternatives and options. This workshop will involve representatives from the partners as listed above.

Workshops will be carried out with the partners for passenger rail to re-valuate the strategic responses previously identified to short-list them and agree on the pathway forward to address each one of them, with different level of analysis, recommendations and delivery timeframes.

These workshops would be early on in the project and only involve the partners of the project.

8.3 Hui and Site Visits

Representatives of the iwi will need to be spoken with at the onset of the project to:

1) understand how they would like to be engaged throughout the DBC phase, and
2) identify any sites in the project area as tapu.

Public / Community facing channels:

Is it necessary to understand the need for rail transport from Auckland's perspective? E.g. do people commute from Auckland to Hamilton? Would people use it for holidays or day trips?

What sort of feedback do you want from the community and at what stage of the project?

This could be done in a variety of ways including feedback forms, open days, and online. It would be useful to do this early on to gather evidence in support of the project.

8.4 Website

A dedicated webpage will provide the latest information about the project, progress updates and highlight any upcoming engagement opportunities. Interested groups can then be able to register and receive updates on the project.

8.5 Newsletter

At agreed points during the project a newsletter will be used to provide the latest information and inform the wider community of the upcoming opportunities to get involved.

8.6 Community Open Days

Once the short list options have been developed another round of open days could be implemented along the route to gather feedback on these options. These would need to occur in Hamilton and Auckland and along the route.

8.7 Feedback Form

Online and paper, to find out who would benefit from this project and what the public think about the project.

8.8 Collateral

There will be a variety of consultation collateral developed, for instance; presentations, brochures, display boards, FAQs and drawings. This material will be used to support the consultation events, workshops and meetings and will be posted on the project website page. The information could also be made available at Council buildings and libraries.

8.9 Media

We will work with local publications to publicise community engagement, and the consultation.

8.10 Social Media

If appropriate, we can connect with groups via social media to inform about the project, encourage feedback and social sharing (such as the partners Twitter, Facebook and Instagram pages).

8.11 Letter to Landowners

Once the route has been chosen, directly affected landowner will need to be contacted.

9. Risks/Issues and Mitigation – to be worked through

Risk	Mitigation And Responses

Key points that will need to be further discussed by the partners:

- Funding pathways and certainty to ensure project delivery timeframes and deadlines are met.
- Cultural, environmental, housing and resource consent obstacles to success.
- Establishment of a framework for NZ Transport Agency and KiwiRail to work collaboratively and in an integrated manner to better integrate road/rail across the Corridor.
- Operational constraints that relate to the track and timetable capacity across the Auckland metro network.
- Standardization of rail infrastructure investment plans across different Council areas based on a shared code of best practice to comply with existing regulations and bylaws.

10. Key Milestones

Month	Activity
July	
August	Working Draft SSBC completed by 31st of August
September	Final SSBC submitted to NZTA on the 14th and endorsement by Council on the 18th.
October	SSBC approval received from NZTA o 5th of October

11. Evaluation

We will know we are successful when:

- we have a good record of stakeholder participation and buy-in
- the quality of input reflects an understanding of issues
- we have received plenty of feedback from affected groups
- there is a good amount of feedback from various channels
- feedback is positive and supportive
- media coverage is supportive or neutral at worst.

12. Action Plan – as the project progresses

Stakeholder	Communications and Engagement Action Planned	Lead Responsibility	Timing	Completed

Appendices

Appendix A Engagement Spectrum

IAP2'S PUBLIC PARTICIPATION SPECTRUM

The IAP2 Federation has developed the Spectrum to help groups define the public's role in any public participation process. The IAP2 Spectrum is quickly becoming an international standard.

INCREASING IMPACT ON THE DECISION

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Appendix B Contact Database

Group	Organisation	Interest	Name	Position	Address	Phone	Email
Working Group Member	Waikato Regional Council	Lead Agency	Jose Gonzalez	Policy Advisor	Private Bag 3038, Hamilton East, Hamilton 3240	6478592745	jose.gonzalez@waikatoregion.govt.nz
Working Group Member	Waikato Regional Council	Lead Agency	Bill McMaster	Team Leader	Private Bag 3038, Hamilton East, Hamilton 3240	P: +6478592771 M: +6421899632	bill.mcmaster@waikatoregion.govt.nz
Working Group Member	Waikato Regional Council	Lead Agency	Mark Tamura	Manager	Private Bag 3038, Waikato Mail Centre, Hamilton 3240	+6478592771 or +6421899632	mark.tamura@waikatoregion.govt.nz
Working Group Member	Waikato Regional Council	Lead Agency	Mike Garrett	Chief Financial Officer	Private Bag 3039, Waikato Mail Centre, Hamilton 3240	+6478590994 or +64212420849	mike.garret@waikatoregion.govt.nz
Working Group Member	Waikato Regional Council	Lead Agency	Hugo Vercoe	Chair	Private Bag 3039, Waikato Mail Centre, Hamilton 3240	027 490 4406	Hugh.Vercoe@waikatoregion.govt.nz
Working Group Member	Waikato Regional Council	Lead Agency	Russ Rimmington	Councillor	Private Bag 3039, Waikato Mail Centre, Hamilton 3240	027 671 1434	russ.rimmington@waikatoregion.govt.nz
Working Group Member	Waikato District Council	Investment Partner	Dynes Fulton	Deputy Mayor	Private Bag 544, Ngaruawahia 3742	027 275 8892	dynes.fulton@waidc.govt.nz
Working Group Member	Waikato District Council	Investment Partner	Vishal Ramduny	Planning and Strategy Manager	Private Bag 544, Ngaruawahia 3742	07 824 8091	vishal.ramduny@waidc.govt.nz
Working Group Member	Waikato District Council	Investment Partner	Ian Cathcart		Private Bag 544, Ngaruawahia 3742		ian.cathcart@waidc.govt.nz
Working Group Member	Working Group Member	Investment Partner	Luke McCarthy	Roading Asset Engineer	Private Bag 544, Ngaruawahia 3742	07 824 5752	Luke.McCarthy@waidc.govt.nz

Group	Organisation	Interest	Name	Position	Address	Phone	Email
Working Group Member	Auckland Council	Transport Connections Corridor Partnership	Bill Cashmore	Deputy Mayor		021 283 3355	bill.cashmore@aucklandcouncil.govt.nz
Working Group Member	Auckland Council	Transport Connections Corridor Partnership	Chris Darby	Councillor		021-2842888	chris.darby@aucklandcouncil.govt.nz
Working Group Member	Auckland Council	Transport Connections Corridor Partnership	Phil Haizelden	Team Leader	Level 22, 135 Albert Street, Auckland 1010	+64 27 305 8941	Phil.Haizelden@aucklandcouncil.govt.nz
Working Group Member	Hamilton City Council	Investment Partner	Dave Macpherson	Councillor	Private Bag 3010, Hamilton 3240	027 275 8892	dave.macpherson@hcc.govt.nz
Working Group Member	Hamilton City Council	Investment Partner	Chris Allen	General Manager Development	Private Bag 3010, Hamilton 3240	021 224 7939	chris.allen@hcc.govt.nz
Working Group Member	Hamilton City Council	Investment Partner	Dharmendra Singh	Access Hamilton Project Engineer	Private Bag 3010, Hamilton 3240	078585719 or 0278086809	dharmendra.singh@hcc.govt.nz
Working Group Member	New Zealand Transport Agency	Investment Partner	Megan Kettle	Principal Planning Advisor	PO Box 973, Level 1, Deliotte Building, 24 Anzac Parade, Hamilton 3240	+6479 587249 or +6421555759	Megan.Kettle@nzta.govt.nz
Working Group Member	New Zealand Transport Agency	Investment Partner	Barry Dowsett	Principal Advisor	PO Box 973, Level 1, Deliotte Building, 24 Anzac Parade, Hamilton 3240	+6479587224 or +64272928074	barry.dowsett@nzta.govt.nz
Working Group Member	New Zealand Transport Agency	Investment Partner	Parekawhia McLean	Director Regional Relationships	PO Box 973, Level 1, Deliotte Building, 24 Anzac Parade, Hamilton 3240		parekawhia.mclean@nzta.govt.nz

Group	Organisation	Interest	Name	Position	Address	Phone	Email
Working Group Member	New Zealand Transport Agency	Investment Partner	James Llewellyn	Manager Design Practice and Solutions	1 Queen Street, Private Bag 106602, Auckland 1143	64 27 604 7685	james.llewellyn@nzta.govt.nz
Working Group Member	New Zealand Transport Agency	Investment Partner	Bob Alkema	Senior Manager Investment Assurance	Private Bag 6995, Wellington 6141	64 027 2481528	Bob.Alkema@nzta.govt.nz
Working Group Member	New Zealand Transport Agency	Investment Partner	Nick Hunter	Principal Investment Advisor	Private Bag 6995, Wellington 6141	+64 4 894 6217	nick.hunter@nzta.govt.nz
Working Group Member	KiwiRail	Rail infrastructure, rolling stock and services	David Shepherd	Project Director - Commuter Rail	Private Bag 39988, Lower Hutt 5045, Wellington 6011	+64-4-498 3061	david.shepherd@kiwirail.co.nz
Working Group Member	KiwiRail	Rail infrastructure, rolling stock and services	David Gordon	GGM: Asset Management & Investment	Level 3, Wellington Railway Station, Bunny Street, Wellington 6011	+64 21 803 275	david.gordon@kiwirail.co.nz

Appendix C Engagement Register

Date	Stakeholder(S)	Channel	Notes	Outcome
1/08/2016	Public	North Waikato Household Transport Survey	Waikato Regional Council (WRC) and Waikato District Council (WDC) are jointly embarking on a review of public transport services in North Waikato to ensure the current service provision is fit for purpose and can meet current and future needs. The survey was available to all residents in the North Waikato area for a three week period, Monday 20 June to Sunday 10 July 2016 via printed surveys at council offices, libraries, on buses and at other key locations in the district, as well as online.	The survey results informed WDC and WRC on travel habits within the Waikato Region to north in relation to when they were travelling and what for. It also provided information on if residents would take the bus for this trip if one was available. It also provided information on how many residents would support rail services from Hamilton to Auckland and the current issues around transport.
22/11/2017	TCWG	First Working party meeting	• Indicative Programme for the next meetings of the WG were outlined (Bill McMaster) - First WP ILM Workshop on 19 December, Second WP ILM on 9 February and the last WP meeting on 2 March. All 4 councils support the need for the strategic business case. This was supported by the WG • Bill McMaster presented the budget breakdown for the SBC. The $50,000 costs for ILM and evidence gathering was to be split three ways between WRC, WDC and HCC. This was agreed. • It was noted that an additional $25K is required (on top of $50K) for the Customer Demand Survey.	• ACTION - Chris Allen to take the costs of the Customer Demand Survey proposal back to HCC councillors to discuss and then write to WRC with a budgeting proposal. • It was noted that the survey should also include persons from the North Waikato eg Pokeno. • David Shepherd offered KiwiRail assistance in providing data especially around the Capital Connections. Chris noted that the WG need further information on how Kiwirail's $3.5 Mill costs for the service are made up. • ACTION: The WG asked that a letter be written to the Minister of Transport from the WG noting that the WG understand that the ex AT rolling stock units in Taumaranui are potentially going to be sold in the next 6 months and asking the Minister to put a hold on any sale to

Date	Stakeholder(S)	Channel	Notes	Outcome
				• overseas interest pending the WG business case outcomes. The letter noting that this has the support from WRC, AC, HCC and WDC. • ACTION: Next meeting to be held in The Centre, Douglas Wright Room, 12 Massey Ave, Pukekohe on 19 December at 1pm. This will be the first ILM workshop to identify the transport connections problem.
19/12/2017	TCWG	Second meeting	Context setting: The shared mobility area; Technology; Transition and transformation; The implications for public transport; The role for government; Priorities for the new government. Agreed (draft) problem statements and weightings There was general agreement across the group on the updated problems and weightings proposed. Lack of a long-term vision and willingness to implement will lead to increasing congestion + inefficiencies (60%) Absence of travel choices is creating unpredictability (30%) Absence of integration / integrated planning has led to poor optimisation and capacity (10%)	
9/2/2018	TCWG	Third meeting	Agenda highlights: Presentation of further evidence (attachment 2).	

Date	Stakeholder(S)	Channel	Notes	Outcome
			Travel time trends to Auckland in the last 10 years. Average traveling speed to Auckland. How does this evidence verify our ILM problem statements? **Recapitulation and confirmation of ILM and presentation of market research results** Confirmation of ILM problem and benefits (attachment 3). Presentation of Market Research Results Strategic Business Case (SBC) – Potential SBC options analysis. Next Steps for SBC and closing. Possible extension of Working Group timeframe to oversee interim solution.	
10/02/2018	Working Party	Meeting	This workshop was to undertake an exercise to identify the constraints to address the problems identified through the Investment Logic Mapping. The Working Party members workshopped a long list of options to address the identified problems for Hamilton to Auckland Transport Connections.	
2/3/2018	TCWG	Fourth meeting	**Agenda highlights:** Report back from meeting with Ministers held in Wellington on 26 February 2018.	

Date	Stakeholder(S)	Channel	Notes	Outcome
			Further Evidence. Double Tracking of the North Island Main Trunk Line through the Whangamarino Wetlands (issues). Further Evidence and Demand Management Survey Update.	
27/4/2018	TCWG	Fifth meeting	Agenda highlights: Final Transport Connections Strategic Business Case • Report recommending approval of the final Hamilton to Auckland Transport Connections Strategic Business Case. • Process from here reporting back to RTC and partner organisations. Final Customer Demand Survey Update on Hamilton to Auckland Passenger Rail Detailed Business Case	
11/5/2018	H2A Rail Officials Steering Group	First meeting	Agenda highlights: Rail Infrastructure and Rolling Stock • CAPEX Costs and key assumptions used on levels of service & costings • Carriage refurbishment • Station Upgrades – below ground – The Base – Huntly/Tuakau Service Operating Costs and Key Assumption	

Date	Stakeholder(S)	Channel	Notes	Outcome
			Network Access Service Timetable Timeframe to Implement • Key lead times Fiona Stokes Ticketing Length of Trial, Ownership of Rolling Stock, Funding Risks Project Governance structure Next Steps in the Process • Discussion, summing up and next steps.	
15/6/2018	H2A Rail Officials Steering Group	Second meeting	Agenda highlights: Update on strategic business case and outline of process to complete detailed business case What must be addressed in the DBC Resolving critical issues for the DBC to be finalized. • Confirming the client contract manager/agent licensed to manage the service, along with responsibility for day to day oversight • KiwiRail project funding/deadlines • Alignment with corridor initiative – Waikato District stops • Securing timetable slots and confirming network access for the service • Confirming ticketing arrangements and costs.	

Date	Stakeholder(S)	Channel	Notes	Outcome
			Responsibilities going forward • Including project management and service specification. Hamilton and Auckland Transport Connections Working Group • Agreement on key messages for 22 June • The working Group's role going forward	
22/6/2018	TCWG	Sixth meeting	Agenda highlights: Current and Future role of the Hamilton and Auckland Transport Connections Working Group • Amended Terms of Reference for the Working Group going forward (attached). • Operational Decision making structures for Detailed Business case and pre-implementation of Start Up pass rail service Final Transport Connections Strategic Business Case • Current Status of the final Hamilton to Auckland Transport Connections Strategic Business Case • Strategic context of project • Process from here • Meeting with Minister on 25 June • Auckland to Hamilton Corridor Action Plan • Key messages from passenger rail project to Minister Hamilton to Auckland Start Up Passenger Rail Detailed Business Case	ACTIONS: Transport Connections Working Group terms of Reference to be amended to include delegation to the Officials Group for matters of technical details. Auckland Council staff rep to also be appointed to the Officials Steering Group. WRC 1. The FAR rate for the project to be determined by the new GPS and NZTA FAR decisions - likely to be at least 75% FAR for operations and 100% FAR for platforms (with approx. 50% for assets above the platform eg shelters). MOT and NZTA 2. Further work to done by WRC, AT and KR on contract management options. WRC, AT, KR 3. Funding for the immediate gap for KR carriage refurbishment and loco work, as per KR's identified $5.7Mill gap is to be discussed offline between KR, NZTA and MOT. The outcome of this discussion to be

Date	Stakeholder(S)	Channel	Notes	Outcome
			• Critical Issues to be addressed • Resolving critical issues – Funding options for train station platforms (Huntly and Tuakau) – Client /contract manager role – Risks – Other Next Steps and timetable for Completion of Hamilton to Auckland Passenger Rail Detailed Business Case • Officials group work • Report back Verbal Update on Auckland Transport Alignment Project (ATAP) and Auckland Regional Land Transport plan (RLTP) • Auckland Council support for start-up passenger rail service and how ATAP caters for the service	emailed back to the Working Group. MOT, KR and NZTA 4. Next meeting date to be confirmed based on progress on DBC. WRC
26/07/2018	Waikato Regional Council, NZ Transport Agency, Hamilton City Council, and Waikato District Council.	Funding Partners Meeting	Discussed project management and programming, scope and update on existing work, funding, NZ Transport Agency Business Case requirements, and contractual KPIs and milestones.	Closing and next steps • Weekly rail catch up teleconference • Upcoming rail Steering Group officials meeting – 7th of August • Elected members meeting - 13th of August
31/07/2018	New Zealand Transport Agency	Memo - Earlier Funding for Preparatory Works	This Memorandum has been prepared to provide a project update to support a decision on the release of funding by the New Zealand transport Agency in advance of the completion of Hamilton to Auckland Start Up Passenger Rail service Single Stage Business	NZTA has identified four key material issues that must be resolved for earlier funding to be considered. These four issues have been substantially addressed through discussions between stakeholders at a staff level.

Date	Stakeholder(S)	Channel	Notes	Outcome
			Case. KiwiRail has formally indicated that in order to meet a commencement date of October 2019 for the service, they must get access to $1.5 million to carry out preparatory works prior to the completion of the SSBC and are requiring an urgent decision on this funding.	KiwiRail has signaled that if funding is not made available the start-up service will only be able to commence in March 2020. Alternatively, the best case scenario will be for a partial consist to be ready for operation in October 2019 but no spare carriages/locomotives or contingencies will be in place which will severely affect the service level provided. The SSBC is in the process of being completed and the project programme is underway. The project is scheduled to be finalised by the 11th of September and official Council approval will be sought by September the 18th.
02/08/2018	New Zealand Transport Agency	Weekly meeting		What NZ Transport Agency is looking for in a nutshell: Financial (cost risk assurance of 40 year life), economic (robust BCR), Results alignment (needs to be fit for purpose), options (clear range of options including alternatives to rail), investment objectives (aligned with updated ILM and triggers for long term), management case (deliverability of the program), risks (program and cost), story (projected economic growth in corridor, providing a transport choice to help build momentum to that goal, investment objectives towards achieving that goal, 40 year time horizon), geographic constraint (Hamilton to Auckland), staging (short to medium, long term), and evidence (transit

Date	Stakeholder(S)	Channel	Notes	Outcome
				oriented development and demand forecast).
2/8/2018	SSBC Officials	Meeting	Agenda highlights: Review of Project Programme and Key Milestones • Test whether NZTA's involvement is correctly scoped. Confirm communication pathways and informal review process. • Confirm project programme and workshops incorporated (backward planning from the 5th of October) – Attachment 1 • Discussion of alternative SSBC approval and endorsement (CE delegation). Revision of SSBC deficiencies and gaps (Attachment 2 & 3 – NZTA's feedback) • Role of Strategic Business Case on Transport Connections – Problems, benefits and KPIs/measures relevant for rail solution? – Attachment 4 – IBC (long listing to short listing of options – scope) – Stakeholder involvement (Clarity provided) – Attachment 5 • Financial Case – OPEX/CAPEX – funding model (fares, payment, subsidy and others). - Long Term demand forecasting • Economic Case (Agreement in approach)	

Date	Stakeholder(S)	Channel	Notes	Outcome
			– List of passenger rail options – BCR for startup service • Management Case: Contractual and governance structure • Commercial Case: Procurement and risk management Discussion of Memorandum to Fergus Gammie regarding key four material issues (Attachment 6 to come): 1. Rolling Stock Ownership 2. Contractual arrangements 3. Ticketing options 4. Timetabling Mechanics of earlier funding application – TIO and approval process. • Evaluation of pathways to access funding. Closing and next steps • Weekly rail catch up teleconference – NZTA rep. • Upcoming rail Steering Group officials meeting – 7th of August • Elected members meeting -13th of August	

Date	Stakeholder(S)	Channel	Notes	Outcome
03/08/2018	Waikato Regional Council and NZ Transport Agency	Single Stage Business Case - Meeting	Project background and Single Stage Business Case state of play.	Weekly rail catch up teleconference – NZTA rep. Upcoming rail Steering Group officials meeting – 7th of August Elected members meeting -13th of August
7/8/2018	H2A Rail Officials Steering Group	Third meeting	Update on the key SSBC material issues • Memorandum send to Fergus Gammie (attachment 1) to address 4 key material issues and the matter of early funding. Discussion of options available to address the four key material issues of the SSBC (facilitated by Stantec NZ) Discussion of project programme and key milestones (attachment 2) • Confirm the project timeline for delivery of the SSBC • Discuss misalignment between NZTA and SSBC timelines • Refurbishment/Modification Phase - KiwiRail Timeline Pre-Implementation Funding (PIF) discussion • Discuss issues of interest for the PIF • Funding update for platforms and rolling stock maintenance facilities. Short, Medium to Long-Term Levels of Service (attachment 3)	

Date	Stakeholder(S)	Channel	Notes	Outcome
			• An introduction to the aspirational medium to long-term Level of Service proposed by Council staff through the draft RPTP 2018-2028 Hamilton and Auckland Transport Connections Working Group • Agreement on recommendations made to Working Group • Actions to take forward	
08/08/2018	New Zealand Transport Agency	Weekly meeting	Workshop to confirm investment objectives, preferred option, and long term preferred option.	
12/08/2018	New Zealand Transport Agency	Weekly meeting	HCC update, NZ Transport Agency advanced funding discussion, and Auckland Hamilton corridor access.	
13/8/2018	TCWG	Seventh meeting	Agenda highlights: SSBC Project Update. The four critical issues (attachment 1) Detailed business case update • Current thinking and preferred option • Rationale for discounting alternatives • Reconfirmation of investment objectives/story Current timeline for DBC (attachment 2) Rolling stock timeline and delivery • Update on advanced funding	

Date	Stakeholder(S)	Channel	Notes	Outcome
			• Update on rolling stock timeline' Stations • Hamilton CC stations update • Waikato DC stations update Service levels and assumptions • Timetable and potential inter-peak service • Stations and amenities • On board WiFi. Medium to Long-term service levels as described in the draft RPTP 2018-2028 (attachment 3) The Auckland to Hamilton Corridor spatial plan and the role of rail (attachment 4) Direction setting discussion (informed by above): setting the service up to succeed: *Given the role that rail may play, what does this mean for the long-term service levels for inter-regional rail?* *Are we setting up the start-up service right, in order for it to be the best first step towards this?* *What are the risks and opportunities that the start-up exposes the long-term service to, or assists with mitigating?*	
14/08/2018	New Zealand Transport Agency	Progress meeting discussion	Rail stations discussion: • Design for Rotokauri has limitations regards access.	

Date	Stakeholder(S)	Channel	Notes	Outcome
			• Auckland Transport has specific requirements. • Integrated transport hub interchange PT bus rail, similar to Pukekohe. • Guiding principles for station design; access for walk up and cycling, and beyond access from a one network perspective, so that people use the station. Not as flash but consistent for users. • Most people drive private vehicles • Building 100 car parks. • Customer demand, higher uptake from car to potential rail. • Auckland, population density is higher. • The Transport Agency will be interested in the mode neutral, rather than access via car focus. • Also view positive if approach consistent with Auckland. Keen to not endlessly reinvent the wheel. • This will speed up decision making over time. • Potential to have orbiter from start up – bus services supporting rail service. • PT linkage to Hamilton may influence ticketing solution to a Busit card. • Some commitment in consultation to change route. • Seek agreement from stakeholders to adopt AT design standard.	
15/08/2018	Ministry of Transport Waikato Regional Council Hamilton City Council	Meeting	Weekly progress meeting. Actions and Agenda presented beforehand. Draft multi-criteria issued for feedback.	Progress noted Importance of IOs highlighted seeking feedback Key milestones confirmed

Date	Stakeholder(S)	Channel	Notes	Outcome
	Auckland Transport Auckland Council NZ Transport Agency			
15/08/2018	NZ Transport Agency	Weekly meeting	Stantec updated on Transport Connections, meeting outcomes, a brief overview of the MCA process, and the timeline.	Delay is around: • Fundamental concerns around the business case full stop • However 5 October sign off will achieve 5 consist October, full 6 consist by December • This will come through the business case on whether this is the right thing to do. • Will a 5 consist provide sufficient capacity • It is an aggressive timeline, needs recruitment of 28 specialised staff, but don't yet know that people are in the market to deliver.
17/08/2018	KiwiRail	Meeting	Rail operations, costs and programme.	
17/08/2018	NZ Transport Agency	Weekly meeting	NZTA: • If not fit for purpose then may require some local share. • What is realistic for start-up service, and future proof to be sustainable for a period. • What are incremental costs to make it sustainable for a lot longer period. • Won't know where sitting with funds until after Board meets next week.	WDC meeting next Friday important: • Sarah to get a briefing together for that day. • Will have spoken to Eddie Cook, how Tuakau looks. Land acquisition: • Property purchase for transitional or passenger rail, is a fundable item. • If a large item it is a specific line item.

Date	Stakeholder(S)	Channel	Notes	Outcome
20/08/2018	KiwiRail	Meeting	Track and Station works: costs and programme.	
22/08/2018	NZ Transport Agency	Meeting		Corridor Plan workshop next week: • Provides good context for this business case. • Consistent story needs to be joined up around that • A lot of questioning about PT and rail, bus even went into Frankton, Ernst asking hard questions on things. • Another bus tour tomorrow, looking at Tuakau and Pokeno.
23/08/2018	Hamilton City Council	Rotokauri Programme Meeting		
26/08/2018	Chairman Deputy Chair Members	Meeting	Outline project and options.	Gain support for preferred option.

TCWG (Transport Connections Working Group) is made up of:

Waikato Regional Council

Waikato District Council

Auckland Council

Hamilton City Council

KiwiRail

NZTA

Auckland Transport

H2A Rail officials Steering Group is made up of:

Waikato Regional Council

Hamilton City Council

Waikato District Council

KiwiRail

NZTA

Auckland Transport

Business & Economic Research Limited (BERL)

Ministry of Transport

Stantec

SSBC Officials is made up of:

Waikato Regional Council

NZTA

Stantec

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Please visit www.stantec.com to learn more about how Stantec design with community in mind.

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Appendix H Rolling Stock Options Presented by KiwiRail

Carriage refurbishment proposal

Auckland to Hamilton trains – 3 July 2018

Agenda

- Capability
- Overview
- Next steps

KiwiRail

Previous projects: BR MkII

- KiwiRail engineering and workshop(s)
- In-house technical capability

Previous projects: S Class

- Capital Connection
- 1998 Hutt Workshops
- Narrow gauge conversion (X28020), servery, wheelchairs

KiwiRail

Previous projects: SA/SD Class

- Auckland Metro push-pull
- 2004-2009 Hillside Workshops
- Metro doors, saloon, driver controls
- SA all-seat
- SD driving trailer (cab)
- Originally X28020 bogies then S-Ride

Previous projects: SW Class

- Wairarapa commuter
- 2007 Hillside Workshops
- Window ribbon, servery, interiors, TMS
- X28020 bogies

KiwiRail

Previous projects: SE Class

- Wellington Metro push-pull
- 2008 Hillside Workshops
- SEG (generator), S-Ride bogies
- Wairarapa commuter
- 2012 Hutt Workshops
- Toilets, seating pitch

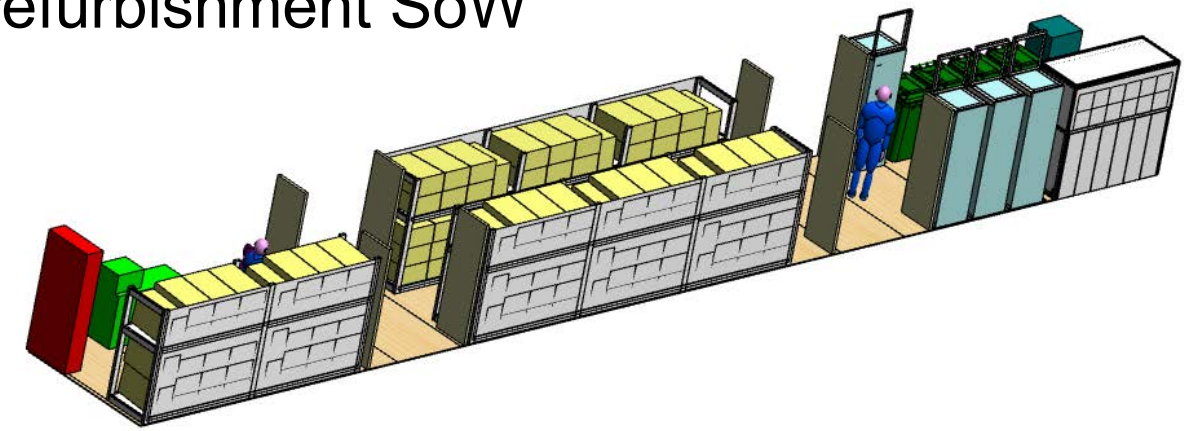
KiwiRail

Previous projects: AK Class

- KiwiRail tourism
- 2010 Hillside Workshops
- All-new carbody & P11 bogies, award winning interiors

KiwiRail “AKS”

- KiwiRail tourism
- Larger capacity luggage / support van for AK trains
- Donor SA carriages
- Interior configuration, lifts, electrical system integration, collision anti-climb
- Mechanical refurbishment SoW



A2H high-level requirements

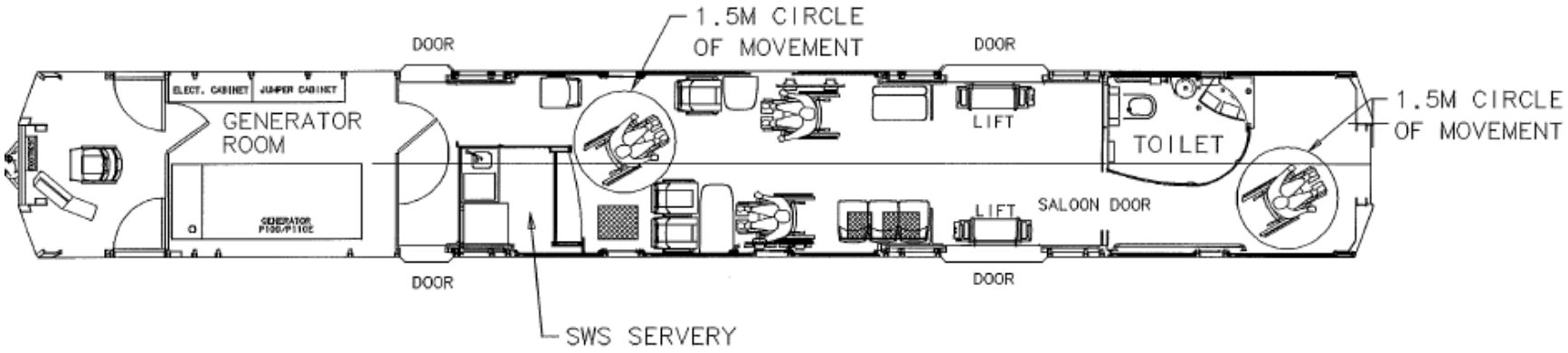
- Onboard TM & staff
- Vestibles, toilets
- New seats, tables, 230V, USB
- Disabled access, toilet
- Servery
- Bike racks

= SD?

KiwiRail

SD…

- Café, 3 seats, disabled access, toilet
- Underslung equipment?



OPTION 1

NO ROOM FOR MANY SEATS

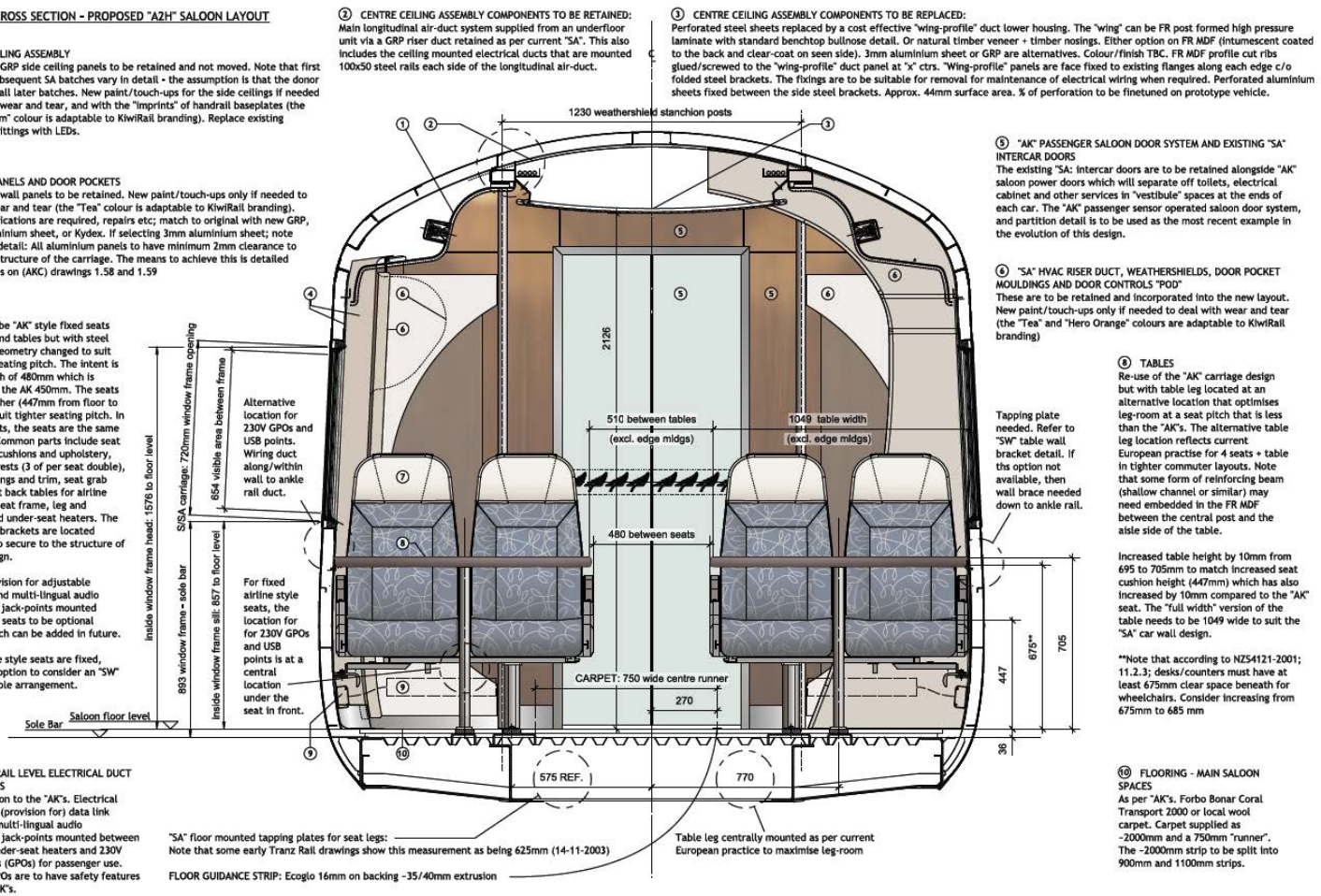
KiwiRail

Layouts & interiors

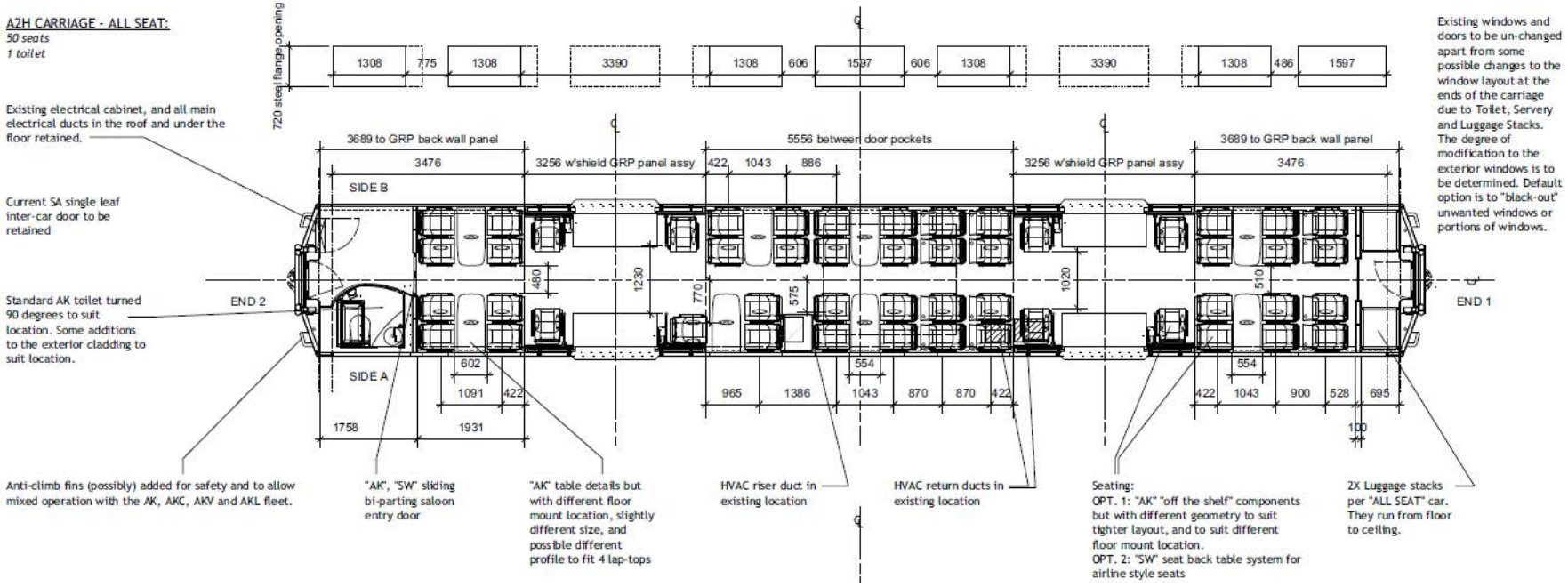
- Barnacle Design

KiwiRail

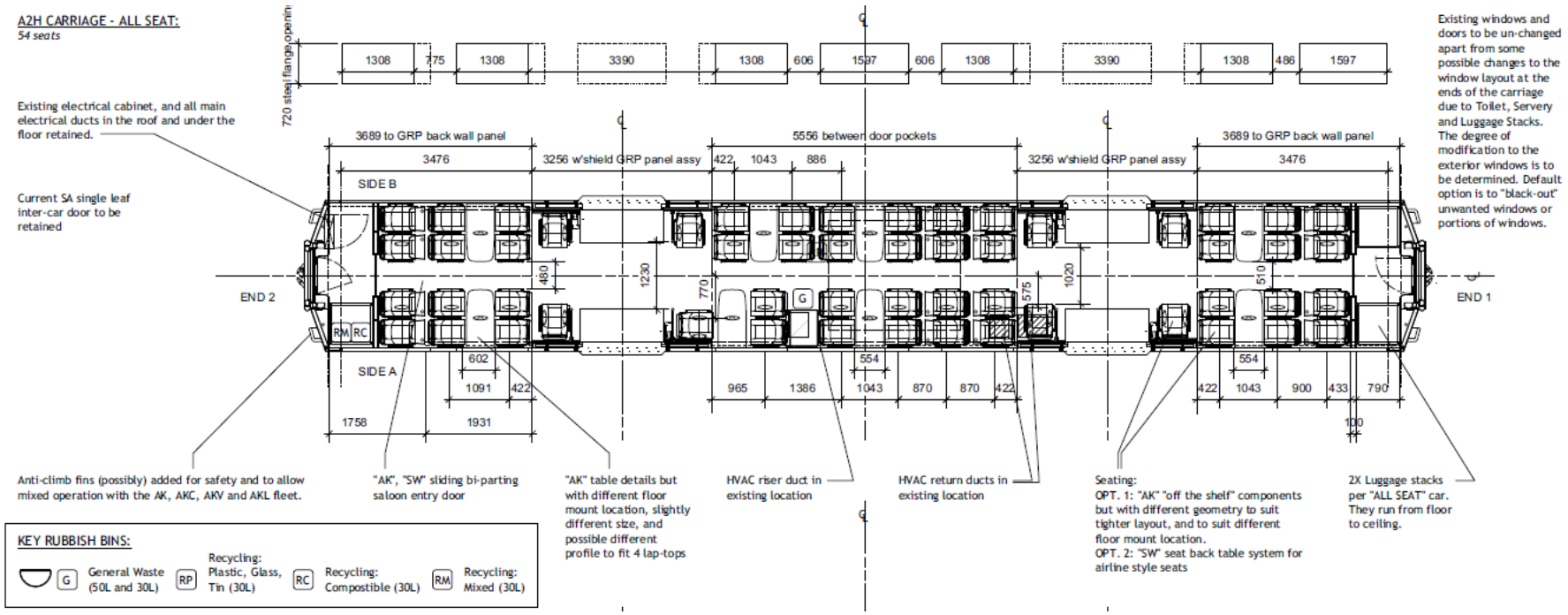
Cross section



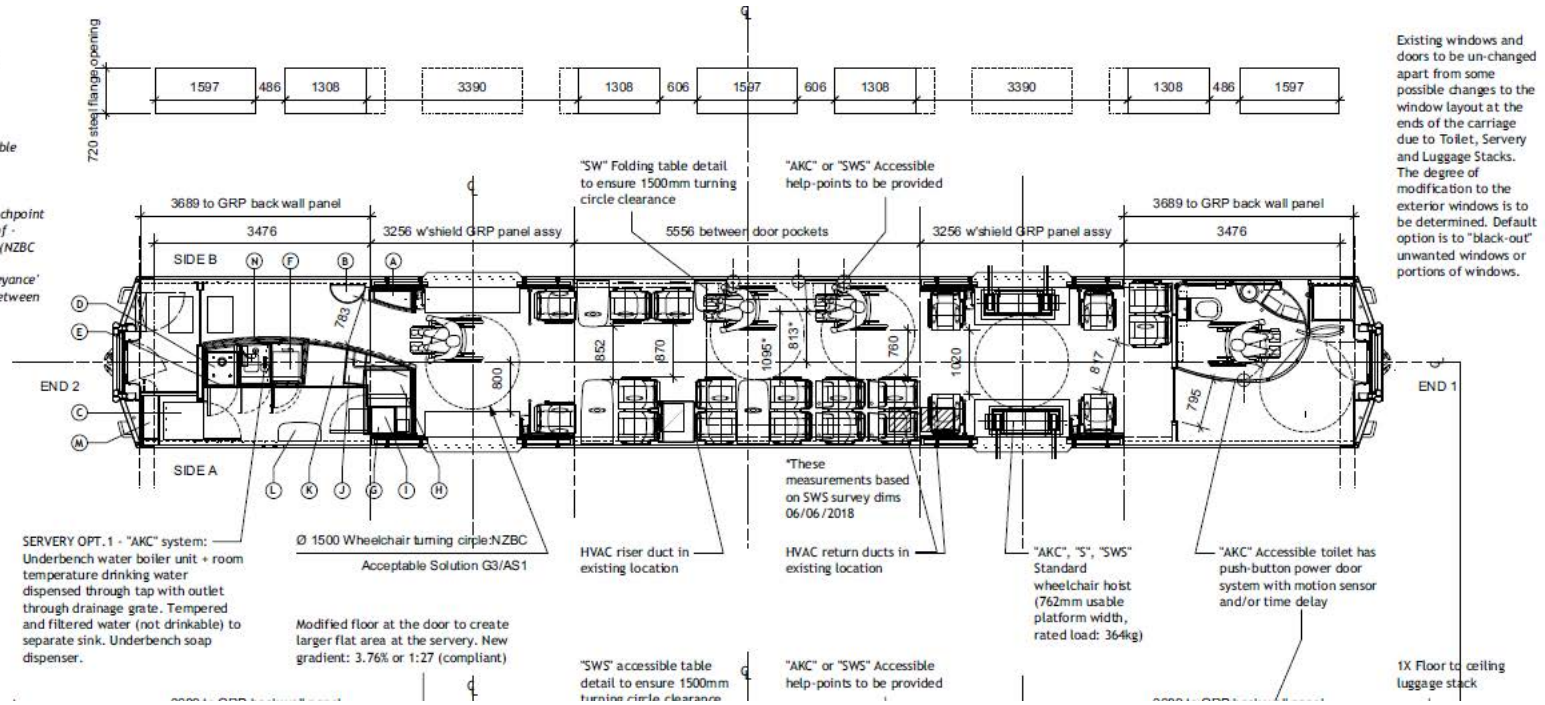
All-seat (50 seats & WC)



All-seat (54 seats)



Café (20 seats + facilities)

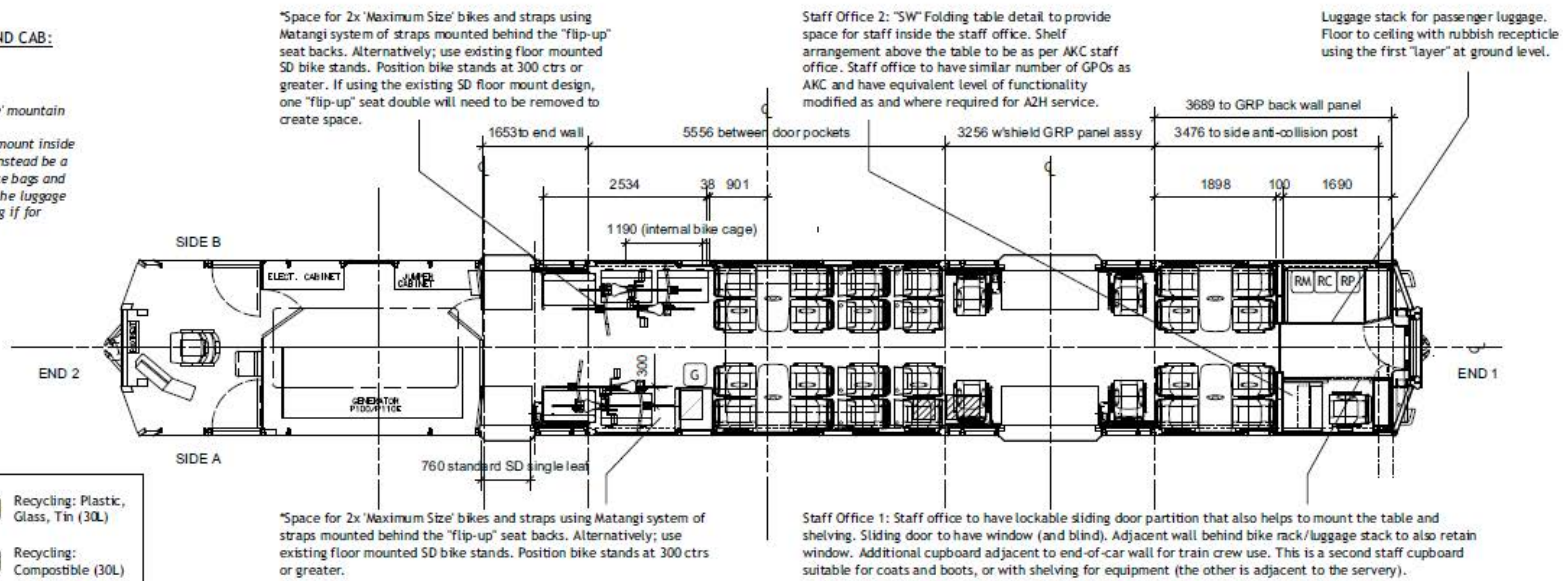


KiwiRail

SD (28 seats + flip-up seats / bikes)

A2H "SD" CARRIAGE
BICYCLES, GENSET, SEATING AND CAB:

28 standard seats
10 "flip-up" seats
Bike straps to suit 4x 'Maximum size' mountain bikes"
1 space for overflow bike (vertical mount inside bike cage). This space may also or instead be a general luggage capacity for oversize bags and suitcases. As with other carriages, the luggage stack would run from floor to ceiling if for luggage only.
1 staff office
Gen-set (existing)
SD cab (existing)



KEY RUBBISH BINS:

- G — General Waste (50L and 30L)
- RP — Recycling: Plastic, Glass, Tin (30L)
- RM — Recycling: Mixed (30L)
- RC — Recycling: Compostible (30L)

KiwiRail

Discussion

- Decision sign-off
- Variants
- Quantity
- Detailed design
- Quantity surveying and production schedule

KiwiRail

Recommendations

- 3 Variants: SD, SA (Café), SA (WC)
- 198 seats per train (+ flip-up seats/bikes & space for 2 wheelchairs)

Type	Seat	Train 1	Train 2	Spare	Total
SD	28	1	1	1	3
SA (Café)	20	1	1	1	3
SA (WCs)	50	3	3	1	7
		5	5		13

KiwiRail

Questions

KiwiRail

Post meeting outcomes

- *Recommendations accepted 3 July 2018*
- *13 carriages, comprising 3 variants as the baseline for production costs and schedule*
- *Additional features to be treated as variations*

Potential variations

- *As at 17 August variations could include:*
  - *operational SD cab/cab strengthening*
  - *refitting ETP to locos & SD if lead vehicle*
  - *replacement of intercar swing doors with concertina doors*
  - *inclusion of HOP card wiring*

KiwiRail

Exterior schemes – August 2018

- *Grey base coat to complement interior*
- *Optional livery – eg KiwiRail corporate scheme*

KiwiRail

Questions

KiwiRail

Appendix I Workshop Full Council

Hamilton to Auckland Start Up Passenger Rail Single Stage Business Case

Waikato Regional Council, 29th of August 2018

Agenda

1. Confirm agenda
2. Single Stage Business Case (SSBC) recap
3. Update on key SSBC issues
4. SSBC progress update
5. Key gaps and potential NZTA funding conditions
6. Decision making timeline

SSBC status / recap

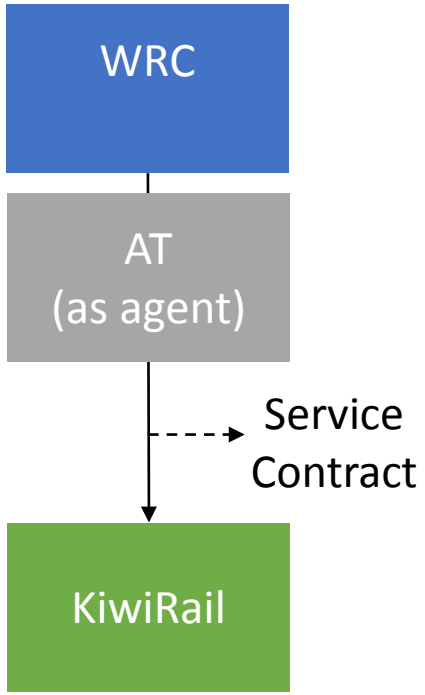
- Draft business case submitted to NZTA and returned with substantial feedback
- Consultant appointed and scope confirmed for addressing NZTA concerns and finalising business case
- Material issues to be resolved identified by Council
- Consultant commenced work 30 July 2018

Key material Issues

1. Contract Management Arrangements
2. Start Up Service
3. Timetable
4. Ticketing Options
5. Rolling Stock Ownership
6. Inter-regional Policy Alignment
7. Depot and Maintenance Facility
8. Stations development and Financial Assistance rates

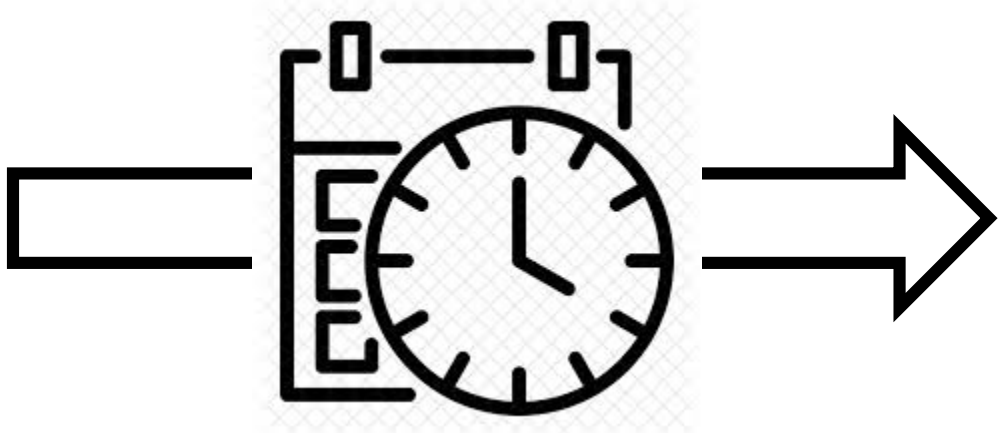
Contract Management Arrangements

- It is WRCs objective to delegate responsibility for day to day contract management to a party with existing relevant experience where possible (i.e. Auckland Transport).
- A number of options have been identified, including Auckland Transport acting as an Agent for WRC under a service agreement with KiwiRail. AT has confirmed its willingness to consider acting in this capacity.
- WRC has circulated a contract arrangement scoping report which has been discussed at a staff level with AT. A draft terms for a potential contract is being completed by AT and the information that is derived from it will be included in the SSBC.



**** The contractual framework will be developed and finalized through the SSBC process and ultimately approved by NZTA. We do not consider this a significant risk to project implementation****

The Start up Service

Phase  **0 – 5 years**

Start-up interregional passenger rail

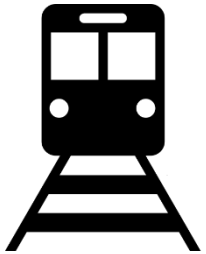
90 minutes

$12.20 (one-way)

50-60 minutes

$6.20 (one-way)

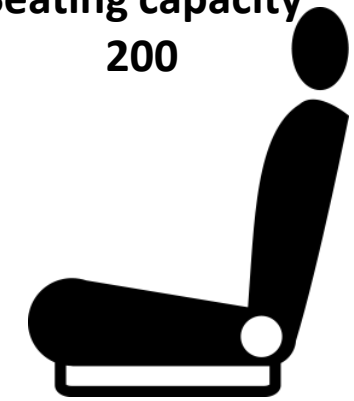
2 return weekday peak services and 1 daily weekend service



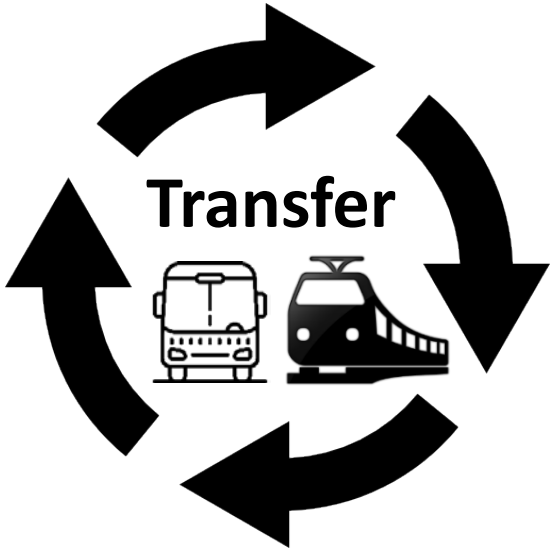
5 carriages

2 hrs and 20/30 mins

Seating capacity 200



Paper/Electric Ticketing System



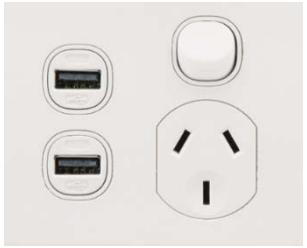
Carriage Variants per Consist

	SR X 3	SRC	SRD
Seating capacity per consist 	50	20	30

Capacity: 200 per service

On-board the start-up service

Vestibule Luggage Racks



USB and power points

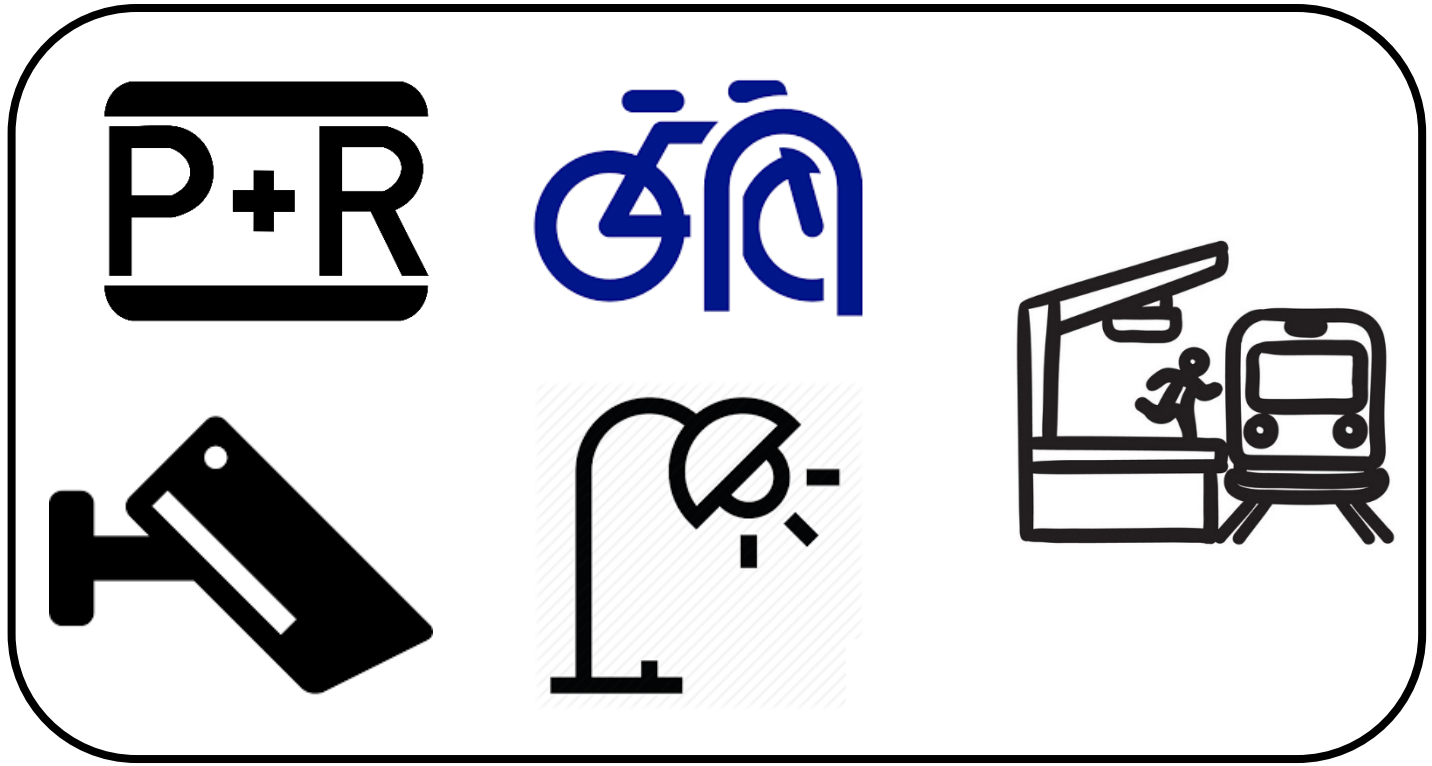
WIFI (potentially OB)

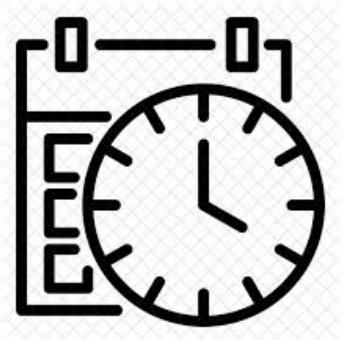
Work friendly environment

Universal Toilets

Servery / Cafeteria

On-Station amenities





Timetabling

- Irrespective of the annual metro timetable changes, the Hamilton to Auckland passenger rail service will always be able to dock/depart from Papakura throughout peak periods (Timetable Committee confirmation received).

- There is a high level of confidence that a satisfactory timetable can be agreed through the industry process and that there is sufficient capacity for services to interchange at Papakura.

Ticketing Options

The 'BUSIT' card - the easy way to pay for bus fares in Hamilton

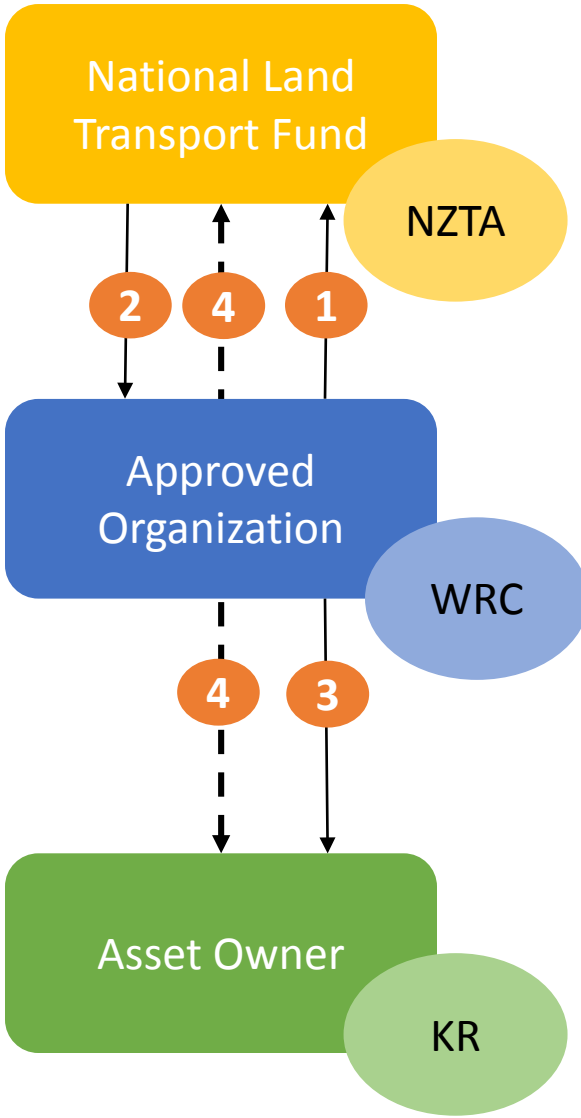
- The three ticketing options are:
  1. Waikato's Replacement Ticketing system (Former Busit card)
  2. AT HOP
  3. Paper Based
     1. WRC advises that using the replacement ticketing system for the rail service is operationally, technically and financial feasible.
     2. AT indicated that both ticketing solutions can be implemented but the on-train is AT's preferred option as it is the most cost effective one.
     3. Paper based is affordable from a capital expenditure perspective but would deliver a lower level of service than the other options.

**** The overall conclusion is that this issue has been significantly resolved and the Council strongly believes that a ticketing system will be installed and operational by the start of the service****

Rolling Stock Ownership

Outlined Ownership Process:

1. Waikato Regional Council will, in due time, apply for the funds to procure the rolling stock from Auckland Transport.
2. NZTA will approve the TIO funding application and release the funding for rolling stock at 100% FAR.
3. Subsequently WRC will transfer the funds to KiwiRail and use the conditional sales agreement that is in place for the purchase of the carriages.
4. This effective transfer of funds will be done subject to a set of conditions and clauses (multiparty agreement between WRC/KR/NZTA) to protect the crown's investment and ensure the availability of these carriages for other subsidized PT services in the future.



- The funded sum will be equivalent to the price of 13 carriages.

Inter-regional policy alignment

According to NZTA 'Inter-regional services must be included in both councils' regional public transport plans (RPTPs) and both councils' regional land transport plans (RLTP), and be consistent with the Land Transport Management Act 2003 (LTMA).'

- Auckland Transport has included the necessary information regarding the project on their RLTP to comply with this requirement.
- They have also made a commitment to include a transport unit on their RPTP once their draft is ready for public consultation.
- WRC's has included the necessary information in the 2018-2028 RLTP and have done the same for the 2018-2028 RPTP.
- A variation will be taken to the RTC on November to include the detailed transport activities on the existing RLTP so HCC and Waikato DC can access funding.

Depot and maintenance facility for rolling stock

- The Single Stage Business Case (SSBC) has identified that the existing Te Rapa workshop will be renovated and upgraded so the carriages can be serviced and maintained.

- KiwiRail has assigned a project manager for the construction of this site. The detailed concept design and lead times will be finalized in parallel with the refurbishment of the carriages, once the funding is confirmed by the agency.

- The cost of this facility will be funded under transitional rail, with a financial assistance rate of up to 100%. Our Council will have to apply for this funding as per existing financial frameworks and then transfer the funds to KiwiRail.

- The ongoing maintenance of the facility will also be funded at 100% FAR under the same activity class.

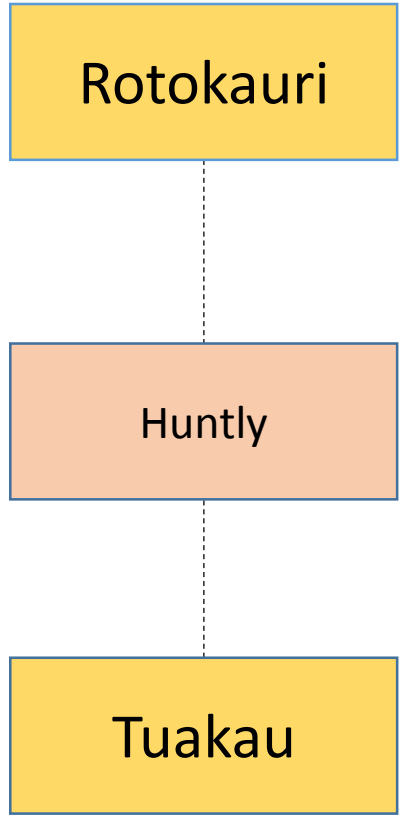
Other Rail amenities

Westfield – Stabling location

TE RAPA – Maintenance Facility

The New Rail Start-up Stations

- Concept and high level station design has been carried out for Rotokauri.
- Below and above track works have been scoped out and costings have been provided for the SSBC (Rotokauri).
- Waikato DC stations (Tuakau and Huntly) have underwent a high level 'optioneering' with different platform options, park and ride locations and pedestrian accessibility.
- Costings, risks and constraints for such options have been identified and will be included in the draft SSBC. A preferred option for each station will be identified and proposed to NZTA for funding.
- The required Level Crossing Safety Impact Assessment has been carried out for both Tuakau and Rotokauri. The agency has not signed those assessments off and as the authorizing rail authority, they are expected to do so prior to the board's meeting of the 5th of October.
- Both stations' 'below track' infrastructure will be funded with a FAR of up to 100%. The 'above track' infrastructure will be funded with a FAR up to 75%.



SSBC Progress update

- The business case process is designed to ensure all key questions are asked and addressed to ensure appropriate investments are made

STRATEGIC CASE

Problem	Benefits	Strategic response	Solution
Strategic case		*Programme business case*	*Single-stage business case, or indicative and detailed business cases*
Is it clear what the problem is that needs to be addressed (both the cause and the effect)? Yes / Maybe / No	Have the benefits that will result from fixing the problem been adequately defined? Yes / Maybe / No	Have a sufficient range of strategic alternatives and options been explored (demand, productivity and supply)? Yes / Maybe / No	Consistent with the strategic alternatives and options, have a reasonable range of project options been analysed? Yes / Maybe / No
Is there evidence to confirm the cause and effect of the problem? Yes / Maybe / No	Are the benefits of high value to the organisation(s) (furthering its (their) objectives)? Yes / Maybe / No	Is it clear what strategic alternatives and options are proposed and the rationale for their selection? Yes / Maybe / No	Is the proposed solution specified clearly and fully (all business changes and any assets)? Yes / Maybe / No
Does the problem need to be assessed *at this time*? Yes / Maybe / No	Will the KPIs that have been specified provide reasonable evidence that the benefits have been delivered? Yes / Maybe / No	Are the proposed alternatives and options the most effective response to the problem (comprehensive and balanced)? Yes / Maybe / No	Is the proposed solution the best way to respond to the problem and deliver the expected benefits? Yes / Maybe / No
Is the problem specific to this investment (or should a broader perspective be taken)? Yes / Maybe / No	Are the KPIs both *measurable* and *totally attributable* to this investment? Yes / Maybe / No	Are the proposed alternatives and options feasible? Yes / Maybe / No	Can the solution really be delivered (costs, risks, timeframes, governance, etc)? Yes / Maybe / No

SINGLE STAGE BUSINESS CASE

NZ Transport Agency issues

BCR

Benefits identification and realisation

Benefits

Capital costs

Commercial case

Contract management

Demand

Fares

Financial and commercial cases

Financial case

Fit for purpose

ILM

Implementation programme: Integration with proposed development

Investment objectives

Investors

KPIs and milestones

Locomotives

Management case

Marketing costs

NZTA BCA requirements

Operational assessment

Operational costs

Option assessment

Options

Passenger demand forecasting

Problem definitions

Purpose

Rail service

Risks

Service integration with AT

Stakeholder involvement

Strategic case

Strategic response

Supergold

Track access

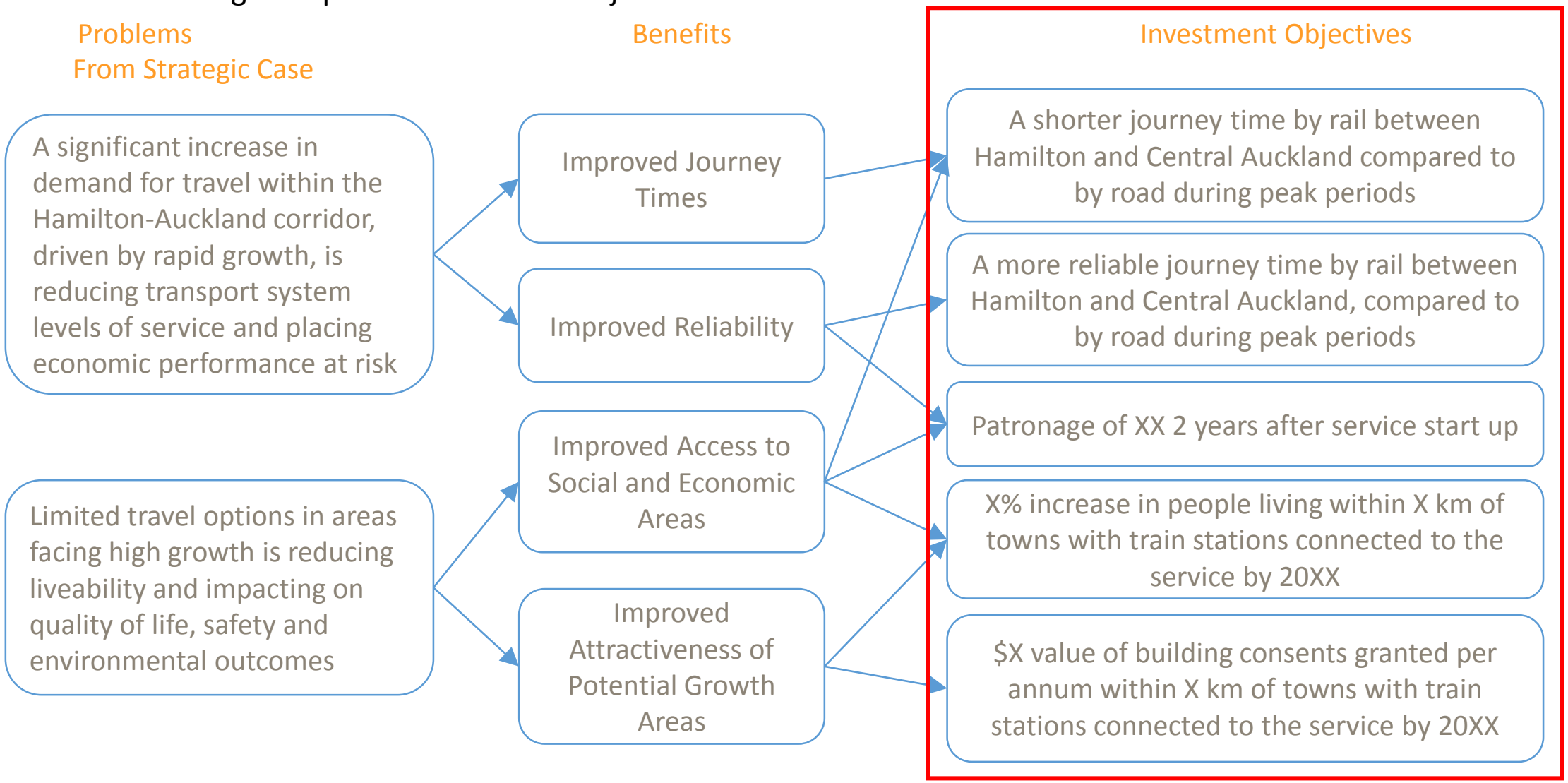
Stations

Wi-fi

Investment objectives

Specific **M**easurable **A**chievable **R**elevant **T**imebound

- Investment Logic Map and Investment Objectives



Levels of Service considerations

- Primary mode:
  - Bus
  - Train
  - Other (car)
- Service type:
  - Connecting service (to Auckland Transport)
  - Through service (to Central Auckland)
- Stops (stations):
  - Kahikatea Drive
  - Ruakura
  - Claudelands
  - Hamilton Central/Hamilton Transport Centre
  - Frankton
  - Rotokauri/The Base
  - Ngaruawahia
  - Taupiri
  - Huntly
  - Te Kauwhata
  - Meremere
  - Pokeno
  - Tuakau
  - Pukekohe
  - Papakura
  - Puhinui
  - Otahuhu
  - Newmarket
  - Auckland Central/The Strand
- Frequency:
  - One peak-direction trip per peak
  - Two peak-direction trips per peak
  - One counter peak-direction trip per peak
  - One interpeak trip in each direction
  - One weekend trip in each direction

Levels of Service considerations

- Vehicle features:
  - Table and/or tray table seating
  - Disabled hoist and capacity
  - Toilets including disabled toilet
  - Air conditioning
  - At-seat power
  - Luggage capacity
  - Bike capacity
  - Servery
  - Wifi
- Stop features:
  - Shelter
  - Seating
  - Passenger information (paper or electronic)
  - Walking and cycling links
  - Local bus stops (where available)
  - Drop-off/taxi
  - Park & ride
- Fares:
  - WRC fare integration
  - AT fare integration
- Ticketing:
  - Paper-based
  - AT Hop
  - New WRC ETS system
- Commercial:
  - Operator-owned vehicles
  - Regional council-owned vehicles
  - Negotiated operating contract
  - Tendered operating contract

Stakeholder key principles

- Key principles agreed with Stakeholders:
    1. Flexibility of option to allow longer term options
    2. Alignment with Corridor partnership objectives
    3. Technical feasibility (for October 2019 start up)
    4. Attractiveness to customers
    5. Consent-ability (for October 2019 start up)
    6. Land constraints (for safe access, parking etc)
    7. Safety
    8. Enables choice and Access (GPS alignment)

Evaluation of options

- Selecting a preferred option

Option	Investment objectives						Assessment criteria									
							Outcomes				Implementability					
	A shorter journey time by public transport between Hamilton Central Auckland compared to by private vehicle during peak periods	A more reliable journey time by public transport between Hamilton Central Auckland compared to by private vehicle during peak periods	Annual patronage of XX 2 years after start up of a new service	X% increase in people living within X km of towns with direct access to a public transport service by 20XX	$X value of building consents granted per annum within X km of towns with access to a new public transport service by 20XX	Score	Flexibility	Corridor	mer appeal	and access Enables	Feasibility	Consents	Property	Safety	Outcome	Implementability
	INVESTMENT OBJECTIVES						KEY PRINCIPLES									
Do minimum (do nothing)	-3	-3	-3	-3	-3	-15	Carried forward for baseline only									
Increased park & ride	0	0	1	0	0	1	Does not achieve investment objectives									
Connecting bus - limited stops peak	-1	-1	1	1	0	0	Does not achieve investment objectives									
Connecting bus - all stops peak	-2	-2	1	1	0	-2	Does not achieve investment objectives									
Connecting train - low frequency peak	1	1	1	1	1	5	2	0	1	1	-1	-1	0	0	4	-2
Connecting train - higher frequency peak	1	1	2	2	1	7	2	1	2	1	-2	-1	0	0	6	-3
Connecting train - low frequency all day	1	1	1	1	1	5	2	1	1	1	-1	-1	0	0	5	-2
Connecting train - higher frequency all day	1	1	2	2	1	7	2	2	2	2	-2	-1	0	0	8	-3
Connecting train - low frequency peak with facilities	1	1	1	1	1	5	2	0	1	1	-1	-1	0	0	4	-2
Connecting train - higher frequency peak with facilities	1	1	2	2	1	7	2	1	2	1	-2	-1	0	0	6	-3
Connecting train - low frequency all day with facilities	1	1	1	1	1	5	2	1	1	1	-1	-1	0	0	5	-2
Connecting train - higher frequency all day with facilities	1	1	2	2	1	7	2	2	2	2	-2	-1	0	0	8	-3
Through train - low frequency peak with facilities	2	2	2	2	2	10	3	1	2	2	-1	-1	0	0	8	-2
Through train - higher frequency peak with facilities	2	2	3	3	2	12	3	2	3	2	-2	-1	0	0	10	-3
Through train - low frequency all day with facilities	2	2	2	2	2	10	3	2	2	2	-1	-1	0	0	9	-2
Through train - higher frequency all day with facilities	2	2	3	3	2	12	3	3	3	3	-2	-1	0	0	12	-3

Stakeholder preferred option

Characteristic	Attribute/intervention	Risk/Constraint/Uncertainty
Primary mode	Train	
Service type	Connecting service (to Auckland Transport)	
Start-up stops	Frankton	Risk: curved and low platform
	Rotokauri/The Base	Risk: Railway station may not be available until after the proposed 1 October 2019 commencement date.
	Huntly	Risk: Railway station may not be available until after the proposed 1 October 2019 commencement date.
	Tuakau	Risk: Railway station is unlikely to be available until after the proposed 1 October 2019 commencement date.
	Papakura	Constraint: Rolling stock cannot be stabled at Papakura and must travel to Westfield for turning and stabling.
Frequency	Two peak-direction trips per peak	Uncertainty: demand analysis
	One weekend trip in each direction	Constraint: Train options subject to availability of onboard crew.

Stakeholder preferred option

Characteristic	Attribute/intervention	Risk/Constraint/Uncertainty
Vehicle features	Table and/or tray table seating	
	Disabled hoist and capacity	
	Toilets including disabled toilet	
	Air conditioning	
	At-seat power	
	Luggage capacity	
	Bike capacity	
	Servery	Uncertainty: A servery could be added to all rail options, but the investment may not be warranted for connecting trips with shorter journeys.
Stop features	Shelter	
	Seating	
	Passenger information (paper or electronic)	
	Walking and cycling links	
	Local bus stops (where available)	
	Drop-off/taxi	
	Park & ride	

Stakeholder preferred option

Characteristic	Attribute/intervention	Risk/Constraint/Uncertainty
Fares	WRC fare integration	
Ticketing	Paper-based	Constraint: It is likely that many passengers will be irregular users of the service and it is unlikely that at-stop ticketing will be provided.
	AT Hop	Constraint: AT Hop will help to mitigate the transfer requirement in Papakura.
Commercial	Operator-owned vehicles	Risk: Operator ownership of rail rolling stock and supporting facilities is a potential cost risk.
	Negotiated operating contract	Risk: Negotiated operating contracts are a potential cost risk.

Possible enhancements

- Service type:
  - Through service (to Central Auckland)
- Start-up stops:
  - Auckland Central/The Strand
- Frequency:
  - One counter peak-direction trip per peak
  - One interpeak trip in each direction

- Discussion:
  - Servery
  - Demand and customer appeal
  - Puhinui and airport linkage (not in start up)
  - Mobius research

Level of Service Principle Options

		Primary mode	Service type	Start-up stops	Frequency	Vehicle features
Year 0	2019	Train	Connecting service, Papakura	2 (3)	1 peak (1 peak, 1 interpeak)	Servery (servery fit for purpose)
Year 1	2020			3 (5)	2 peak, 1 weekend	
Year 2	2021			4 (6)		
Year 3	2022		(Through service, to the Strand)		2 peak, 1 interpeak	
Year 4	2023					
Year 5	2024	Train	Connecting service (Papakura)	4 (6)	2 Peak, 1 weekend (2 peak, 1 interpeak)	Servery (servery fit for purpose)
Year 5	2024	Train	Through service (to the Strand)	6	2 peak, 1 interpeak	Servery

Level of Service Principle Options

		Stop features	Fares	Ticketing	Commercial
Year 0	2019		WRC Fare integration	Paper based, AT Hop	Operator owned, operating contract
Year 1	2020	Fully integrated			
Year 2	2021				
Year 3	2022				
Year 4	2023				
Year 5	2024	Fully integrated	WRC Fare integration	Paper based, AT Hop	Operator owned, operating contract
Year 5	2024	Fully integrated	WRC Fare integration	Paper based, AT Hop	Operator owned, operating contract

Key risks and uncertainties

- Uncertainty:
  - Demand forecast
  - Growth
- Risks:
  - Programme:
    - Stations
    - Full consist not deliverable until late November, limited capacity if demand exceeds forecasts
    - Available rail corridor operating slots to build infrastructure, rail corridor very busy freight corridor
    - Assumption is that rail cars will be purchased 5 October
  - Revenue:
    - Variable FAR based on qualitative assessment of fit for purpose level of service
    - Start up service does not appeal to customers sufficiently to attract sufficient demand to make it a viable service
    - Growth does not occur so demand does not grow
  - Costs:

Potential NZTA conditions

- Stations:
  - Stations will not be completed to DBC level, but for start up service may still progress to pre-implementation
  - NZTA may agree to go directly to pre-implementation, or may require preliminary design to be completed for each station
- Level of service:
  - NZTA need to be convinced the proposal is fit for purpose
  - Key areas of concern:
    - Stations
    - Frequency and scale of service
    - Additional features such as wifi and servery
- Implement ability:
  - Are the timelines achievable
  - Are the revenues and costs realistic; is funding risk mitigated
  - Transition arrangements, patronage triggers for additional services
- Stakeholder engagement:
  - Community engagement around stations
  - If support of key stakeholders is not adequately covered in the business case

Decision making timeline

- Transport Connections Working Group endorsement (14 September):
  - KiwiRail
  - Auckland Transport
  - Hamilton City Council
  - Waikato District Council
  - Waikato Regional Council

- NZ Transport Agency:
  - Updated TIO 31 August
  - Final draft SSBC submitted online 14 August
  - Board Meeting 5 October

Appendix J Stations Review against Principles

Stations

The following station sites were visited as part of the development of this DBC:

- Papakura
- Pukekohe
- Tuakau
- Pokeno (to attempt to find older site)
- Te Kauwhata
- Huntly
- Ngaruawahia
- Rotokauri
- Frankton
- Bryce Street
- Kahiktea Drive (desktop)

Of these five are considered to be part of the requirement for the start up service:

- Papakura
- Tuakau
- Huntly
- Rotokauri
- Frankton

It is noted that there are other locations to the north of the DBC corridor such a Meremere and Mercer, however these have not been identified at any prior point as far as we are aware.

In considering the above sites for the start up we have reviewed each of the proposed station sites based on the Investment 'Principles' determined by stakeholders:

Stakeholder agreed principles	Criteria	Description
Flexibility of option to allow longer term options	Flexibility	• How well does option enable ability to develop future service options. • How well does option allow mode neutral decisions by travellers. • How easy is it to adapt to changing customer demands over time. • This includes integration with other modes of transport including local and inter-regional bus services.
Alignment with Corridor partnership objectives	Corridor	Corridor objectives are: 1. Improving housing affordability and choices. 2. Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor. 3. Improving access to employment, public services and amenities. 4. Creating employment opportunities in the corridor. Interpretation: • Enabling areas that have capacity for growth along the corridor
Technical feasibility (for October 2019 start up)	Feasibility	• How achievable is delivery by start up October 2019
Attractiveness to customers	Customer appeal	• How marketable is the proposed option.

Stakeholder agreed principles	Criteria	Description
Consent-ability (for October 2019 start up)	Consents	• Ability to get consents within timeline for opening of service October 2019.
Land constraints (for safe access, parking etc)	Property	• Sufficient land available to enable facilities to support all modes. • All modes are catered for; walking, cycling, bus transfer, car parking.
Additional criteria not specifically discussed although raised by NZTA	Safety	• Access to and from the station is safe for patrons • Access on an off train is safe for patrons.

These are discussed below in relation to each location.

Papakura

Description	Papakura Station Notes
How well does option enable ability to develop future service options	Good – albeit platforming changes may be required if trains lengthen in the future.
How well does option allow mode neutral decisions by travellers	N/A – not an issue in the context of stations
How easy is it to adapt to changing customer demands over time	The station is modern with good facilities, there are sufficient areas of land around the station under the control of the RCA.
This includes integration with other modes of transport including local and inter-regional bus services	A good range of local bus services are available.
Corridor objectives are: Improving housing affordability and choices Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	This is the terminating station for the service, it is expected that the proposal will have limited impact on local housing growth, in this location the impacts are more likely to be related to existing services into Auckland.
Improving access to employment, public services and amenities.	Papakura is a relatively large settlement with some existing business and industrial areas within walking distance of the stations
Creating employment opportunities in the corridor	N/A areas surrounding the station are already well developed – density might increase but probably related to Auckland.

Description	Papakura Station Notes
Interpretation: Enabling areas that have capacity for growth along the corridor	
How achievable is delivery by start up October 2019	Achievable – however thought required regarding how ticketing options would work at this station to create a smooth flow for passengers – in particular tap on/off on the platform where services may terminate?
How marketable is the proposed option	In relation to marketing reverse flows (ie day trips from Auckland to Waikato), not particularly.
Ability to get consents within timeline for opening of service October 2019	No consents required at this station, train path is agreed by timetabling committee for AM and reassurance of path availability in the PM hours has been given.
Sufficient land available to enable facilities to support all modes	The station is well developed no further works are required.
All modes are catered for; walking, cycling, bus transfer, car parking	See above.
Access to and from the station is safe for patrons	See above.
Access on an off train is safe for patrons	See above.

Conclusion: Station stop is ready for services only outstanding issue relates to ticketing and how passengers will tap on/off station.

Pukekohe

Description	Pukekohe Station Notes
How well does option enable ability to develop future service options	Currently an island platform with tactile paviours etc for around 130m. Station is timber but all accessible via footbridge and lifts. Platform is around 173m in length in total. Given that it is solely an island platform there is no further availability for stopping trains (i.e. in the very long term). However there are large train stabling areas alongside the railway.
How well does option allow mode neutral decisions by travellers	N/A
How easy is it to adapt to changing customer demands over time	The station is modern with good facilities, there are sufficient areas of land around the station under the control of the RCA.
This includes integration with other modes of transport including local and inter-regional bus services	A good range of local bus services are available.

Description	Pukekohe Station Notes
Corridor objectives are: Improving housing affordability and choices Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	Unlikely that the regional service would impact upon this given the levels of development already around the station.
Improving access to employment, public services and amenities.	The station is well located for retail and employment with both town centre and northern retail parks available within a 15 minute walk.
Creating employment opportunities in the corridor	Pukekohe services combined with the regional service will support the development of the settlement. Pukekohe is set to grow by around 14,000 dwellings over the next 30 years[1]
Interpretation: Enabling areas that have capacity for growth along the corridor	Pukekohe already has a passenger service in operation and there are plans foe electrification down to Pukekohe – it is debatable how much a service calling at this station linking to the wider area of the Waikato would assist.
How achievable is delivery by start up October 2019	Pukekohe has not been considered as a stop thus far, whilst the station is modern and accessible the train path for a stop here has not been tested. The platform length may be an issue.
How marketable is the proposed option	In relation to marketing reverse flows (i.e. day trips from Auckland to Waikato), not particularly.
Ability to get consents within timeline for opening of service October 2019	No consents required at this station, train path and operable platform length would need to be established.
Sufficient land available to enable facilities to support all modes	The station is well developed no further works are required. Despite recent works to car parks there is still a great deal of car parking demand on the streets to the east of station.
All modes are catered for; walking, cycling, bus transfer, car parking	See abov
Access to and from the station is safe for patrons	See above – main issue is car parking in verge on station road. There is no footway access to these car parking areas – generally poor overlooking and lighting.
Access on an off train is safe for patrons	See above

Conclusion: No immediate issues with the station Once a half hourly day service is introduced a further service twice per day in each direction is unlikely to make much difference. Main benefit of the long distance rail service is that it may relieve car parking issues associated with people parking and riding from this station.

[1] Auckland Plan 2050 June 2018

Tuakau

Description	Tuakau Station Notes
How well does option enable ability to develop future service options	There is an island platform in position but it is now only around 150mm above rail. In generally poor state of repair, might be possible to use the existing structure as the base for a new platform. Existing platform looks to be around 190m long albeit tapering. Limited space available for passing loops.
How well does option allow mode neutral decisions by travellers	N/A
How easy is it to adapt to changing customer demands over time	Existing station site is derelict, there is limited land available around the site.
This includes integration with other modes of transport including local and inter-regional bus services	Tuakau has a bus service link up to Pukekohe and to Port Waikato.
Corridor objectives are: Improving housing affordability and choices Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	Tuakau has been allocated additional housing growth in the Proposed Local Plan, it is the preferred location for growth in North Waikato due to being less constrained than other locations particularly Pokeno[2]
Improving access to employment, public services and amenities.	The station is less than a 5 minute walk from the Town Centre and a new commercial venture. Well located in relation to growth locations for industrial and residential.
Creating employment opportunities in the corridor	Industrial and office allocations are proposed within a short walk (10 minutes) of the station.
Interpretation: Enabling areas that have capacity for growth along the corridor	Tuakau was chosen as a place for substantial growth as part of Future Proof and this has carried through into the plan. Exact numbers are not contained in the proposed plan by 4-5,000 may be required, this added to the above 14,000 at Pukekohe.
How achievable is delivery by start up October 2019	At Tuakau key delivery issues are: - Access to the re-built platform from the existing crossing (Kiwirail need to be satisfied that risks can be mitigated) - If this cannot be achieved then overbridge or underbridge may be required – land will be available via a stub of Liverpool Street for a potential bridge but would require road stopping up and

[2] See Future Proof report: Planning for Growth (2017) pg 19

Description	Tuakau Station Notes
	changes to access – no immediate land for car parks. Overbridge might be an issue in light of power cables. - Track access will be required platform constructed – site would need to have lighting cables etc brought on to the platform. - Whilst on site it was observed that large drainage channels had been dug through the area – further information on drainage solution might be required.
How marketable is the proposed option	Tuakau is not as well located to SH1 as other sites, however it has a population and existing housing that would help to build patronage. If a regular service is introduced, it would be likely that existing property and sites around Tuakau might get a significant boost. It may also encourage development here rather than Pokeno – this is an aim of the Future Proof Strategy which has identified constraints to Pokeno's growth.
Ability to get consents within timeline for opening of service October 2019	Car parking sites require purchase and consent – current operative Plan has some zoning issues. Largest issue is gaining access to the platform.
Sufficient land available to enable facilities to support all modes	There are places where it may be possible to improve provision the platform can be used to put in bike stores. The existing bus services stop near the existing station. Suitable facilities can be found in the short term (for lower passenger numbers), if Tuakau grows then further investment will be required in overbridges, lifts, car parking facilities and, in particular, ensuring excellent walking and cycling links. Given the proximity of the station to the existing town centre this investment would benefit both locations.
All modes are catered for; walking, cycling, bus transfer, car parking	See above.
Access to and from the station is safe for patrons	See above – main issue is safe access from the existing level crossing.
Access on an off train is safe for patrons	See above.

Conclusion: Key issue is the delivery of the at grade access to the station. Otherwise Tuakua good location with ample on street car parking availability and close proximity to existing Town Centre.

Pokeno

Description	Pokeno Station Notes
How well does option enable ability to develop future service options	Pokeno station is separated from Tuakau station by a very short distance – around 8km – stopping at both stations in advance of electrification might slow the service – albeit the route between the two curves considerably. Suitability of both stations depends upon many other factors and objectives.
How well does option allow mode neutral decisions by travellers	N/A.
How easy is it to adapt to changing customer demands over time	There is no station currently – the nature of the land around Pokeno may lead to a pretty fragmented settlement.

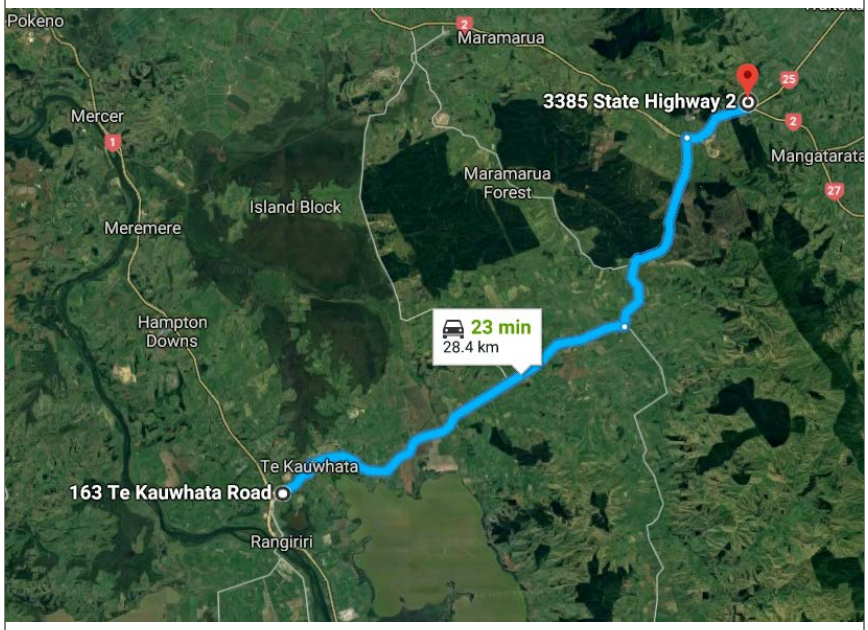
Description	Pokeno Station Notes
This includes integration with other modes of transport including local and inter-regional bus services	Pokeno on existing bus routes that travel north south between Hamilton and Pukekohe.
Corridor objectives are: Improving housing affordability and choices Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	Pokeno is not the favoured location for housing growth long term due to topographical, landscape etc constraints. The street structure that may be needed to deliver a Town Centre station is not in place.
Improving access to employment, public services and amenities.	Pokeno is small and lacks any real services – close proximity to SH1 and crucially SH2 means that it may have scope for Park and Ride in the future but this is also frustrated by more complicated slip road accesses and exits onto SH1. P&R of limited benefit to the residents of Pokeno but with the current highway layout traffic would travel through the town to enter/exit to/from the north (SH2).
Creating employment opportunities in the corridor	Most allocations here are for residential and supporting retail/amenity for residential.
Interpretation: Enabling areas that have capacity for growth along the corridor	2,000 dwellings in the longer term at Pokeno – as discussed above putting rail here might undermine aims to focus growth at Tuakau.
How achievable is delivery by start up October 2019	It is hard to discern where exactly the provision for the station is made in the plan – access to the railway to the rear of the traditional Town Centre is extremely limited. This is a 5 year plus project unless land is available elsewhere.
How marketable is the proposed option	In terms of access to P&R of SH1 and SH2 very marketable – key issue would be additional traffic in a small town.
Ability to get consents within timeline for opening of service October 2019	No work has been done and its not clear where the station would be located.
Sufficient land available to enable facilities to support all modes	Unknown.
All modes are catered for; walking, cycling, bus transfer, car parking	See above.
Access to and from the station is safe for patrons	See above.

Description	Pokeno Station Notes
Access on an off train is safe for patrons	See above.

Pokeno: There are clearly housing market pressures here due to close proximity with SH1 and 2, however the Local Plan allows for limited additional growth with the emphasis at Tuakau and Te Kauwhata. There is no available station site – albeit the local developer has allegedly made provision for something.

Te Kauwhata

Description	Te Kauwhata Station Notes
How well does option enable ability to develop future service options	Island platform in position now with at grade pedestrian crossing – topography immediately around the station relatively flat – ample space for passing loops given that there are three tracks in place.
How well does option allow mode neutral decisions by travellers	N/A.
How easy is it to adapt to changing customer demands over time	Existing station in situ with large reserve and play areas adjacent to the station – large gravelled area that is used as informal parking may be possible to look at formalising to increase car parks. Land ownership may be an issue in the locale.
This includes integration with other modes of transport including local and inter-regional bus services	Te Kauwhata is on the north south bus corridor – limited bus services now but likely to be increase provision of bus and walk/cycle facilities into Town Centre as part of growth. Town Centre within a 2 minute walk. Existing toilets located within a 1 minute walk of existing station.
Corridor objectives are: Improving housing affordability and choices Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	Te Kauwhata zoned for substantial additional residential and "Country Living" with a reasonable amount of industrial development. Looking at in the region of 2000 additional dwellings.
Improving access to employment, public services and amenities.	Te Kauwhata has more of a town centre and is zoned for additional industrial/employment. Its very close proximity the SH1 with an all movements access is a selling point.
Creating employment opportunities in the corridor	See above

Description	Te Kauwhata Station Notes
Interpretation: Enabling areas that have capacity for growth along the corridor	Around 2000, with a high standard of country living.
How achievable is delivery by start up October 2019	This is considered to be one of the more deliverable stations from the perspective of access, car parks, facilities as a lot is in place (for example public toilets, and platform access looks easier) main issue here is whether the track is fit for purpose and who owns land for potential car parking. 
How marketable is the proposed option	In terms of access to P&R off SH1 – good may also provide an option for SH2 - but only if signed off SH2 at Okaeria Road – JT from this junction to Te Kauwhata is around 23 mins and it takes slightly longer to get to Pokeno junction (25 minutes). Clearly status of the Okaeria Road route would need to be considered i.e. – is it safe. 
Ability to get consents within timeline for opening of service October 2019	No work has been done – station lies within rail corridor – issue might be getting car parks in next to reserve.

Description	Te Kauwhata Station Notes
Sufficient land available to enable facilities to support all modes	Cycle storage etc would be possible, some additional work to formalise pedestrian routes.
All modes are catered for; walking, cycling, bus transfer, car parking	See above.
Access to and from the station is safe for patrons	See above.
Access on an off train is safe for patrons	See above.

Conclusion: on the surface Te Kauwhata looks like it may be deliverable however needs further assessment to consider, land ownership at informal parking area, track works and whether alternative route from SH2 is safe.

Huntly

Description	Huntly Station Notes
How well does option enable ability to develop future service options	Lots of land around the area – likely to be space for expansion – depending upon land ownership.
How well does option allow mode neutral decisions by travellers	N/A.
How easy is it to adapt to changing customer demands over time	See above.
This includes integration with other modes of transport including local and inter-regional bus services	Huntly is served by north south buses limited services aside from this.
Corridor objectives are: Improving housing affordability and choices Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	Huntly not a location identified for the delivery of large growth, once we get to this point in the corridor the Auckland housing market 'heat' will be falling away. Additional industrial (heavy and light) proposed. In the settlement but housing growth sub 500.
Improving access to employment, public services and amenities.	Huntly would probably benefit from interpeak and services going south (to Hamilton) rather than north to Auckland. This station might act as a draw for those living to the north of Hamilton or alongside SH1 to the south of Hamilton as a good break point to catch the train. May also improve opportunities for existing residents through access to employment at Tuakau and Pukekohe/Papakura.

Description	Huntly Station Notes
Creating employment opportunities in the corridor	See above.
Interpretation: Enabling areas that have capacity for growth along the corridor	Limited growth planned in this location.
How achievable is delivery by start up October 2019	Lots of land in the area and Waikato DC have control over a suitable area for a car park. Other land ownerships not clear. Recent discussions with KiwiRail suggest existing side platform may result in operational issues.
How marketable is the proposed option	Limited: given future alignment of SH1 – might but a good future station for Raglan residents, accessing via old SH route.
Ability to get consents within timeline for opening of service October 2019	Consents likely to be ok – due to land ownership and zoning.
Sufficient land available to enable facilities to support all modes	Cycle storage etc would be possible, some additional work to formalise pedestrian routes and road accesses.
All modes are catered for; walking, cycling, bus transfer, car parking	See above.
Access to and from the station is safe for patrons	See above.
Access on an off train is safe for patrons	See above.

Conclusion: Huntly looks deliverable to short timescales. Access Road needs consideration early in the process. Huntly has low planned growth but may benefit from this investment once two way services and interpeak services are available to link to Hamilton. Provides the most deliverable Waikato station.

Ngaruawahia

Description	Ngaruawahia Station Notes
How well does option enable ability to develop future service options	Station virtually gone but access is still available via parking bay off main road.
How well does option allow mode neutral decisions by travellers	N/A.
How easy is it to adapt to changing customer demands over time	See above.
This includes integration with other modes of transport including local and inter-regional bus services	Ngaruawahia is served by buses currently.

Description	Ngaruawahia Station Notes
Corridor objectives are: Improving housing affordability and choices Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	Ngaruawahia has a very limited growth expectation in the local plan. As with Huntly the settlement is likely to benefit from services going towards Hamilton rather than Auckland.
Improving access to employment, public services and amenities.	See above.
Creating employment opportunities in the corridor	See above.
Interpretation: Enabling areas that have capacity for growth along the corridor	Limited growth planned in this location.
How achievable is delivery by start up October 2019	Platforms would need to be re-instated and there is little point unless return services are planned.
How marketable is the proposed option	Limited: low growth and current lack of services going back to Hamilton make this station a longer term option.
Ability to get consents within timeline for opening of service October 2019	Not considered previously – could be difficult.
Sufficient land available to enable facilities to support all modes	See above.
All modes are catered for; walking, cycling, bus transfer, car parking	See above.
Access to and from the station is safe for patrons	See above.
Access on an off train is safe for patrons	See above.

Conclusion: The old station platform is just about discernible, but a station here is likely to only return investment if services through the day linking to Hamilton area provided. There is very little growth planned in Ngaruawahia as the town is somewhat landlocked between rivers and hills.

Rotokauri

Description	Rotokauri Station Notes
How well does option enable ability to develop future service options	This is a proposed P&R station located in an industrial area, in the future housing growth may assist in developing this a a more multimodal proposition but at the time of writing likely to service north eastern catchment only.
How well does option allow mode neutral decisions by travellers	N/A.
How easy is it to adapt to changing customer demands over time	This is a new build station – it will be possible to build in some redundancy to improve the station incrementally.
This includes integration with other modes of transport including local and inter-regional bus services	Current option is P&R focussed – start up service is unlikely to require much additional bus access in the short term. Multimodal journeys better catered for at Frankton.
Corridor objectives are: Improving housing affordability and choices Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	Rotokauri station will provide a potential transport anchor for both The Base and the planned housing but not without some radical changes in the design approach to links over the railway. The long term success of this site will rest with potential interpeak return services that link areas to the north, e.g. Huntly, Ngaruawahia to the employment and shopping areas around the site.
Improving access to employment, public services and amenities.	See above.
Creating employment opportunities in the corridor	See above.
Interpretation: Enabling areas that have capacity for growth along the corridor	Lots of planned housing and employment growth here.
How achievable is delivery by start up October 2019	See AECOM reports.
How marketable is the proposed option	In the short term the catchment for this station is limited – may become more popular as part of interpeak offer for business meetings.
Ability to get consents within timeline for opening of service October 2019	There are no consents issues identified at this stage.
Sufficient land available to enable facilities to support all modes	Land is not an issue – though may be more difficult to put in bridge options in the longer term as landing location has been partly developed.

Description	Rotokauri Station Notes
All modes are catered for; walking, cycling, bus transfer, car parking	See above.
Access to and from the station is safe for patrons	See above.
Access on an off train is safe for patrons	See above.

Conclusion: Rotokauri start up station is specifically designed to cater for park and ride demand from north eastern catchments. Land ownership and consenting unlikely to be an issue, track access will be key. In the longer term access over the railway and providing links to growth of housing and employment need to be properly addressed.

Frankton

Description	Frankton Station Notes
How well does option enable ability to develop future service options	The station is well related to existing employment areas and sits within a 10-15 minute walk of the current CBD. The existing station site is large and has capacity for expansion. Platforms and lighting in pl;ace with only minor upgrades required. Key issues in the longer term will relate to access road.
How well does option allow mode neutral decisions by travellers	N/A
How easy is it to adapt to changing customer demands over time	There is a great deal of land around the station and the building itself appears to be in a good state of repair – key issues will relate to rail operations given that it forms a junction with the East Main.
This includes integration with other modes of transport including local and inter-regional bus services	The site is well located for access on foot and by cycle to the CBD and wider areas – interregional bus services are focussed at the transport centre so in the longer term linked bus services may be necessary.
Corridor objectives are: Improving housing affordability and choices Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	This station has the capability to act as a catalyst for the regeneration of Frankton but also as a potential for further high density mixed use development linked to the CBD and Hospital. Arguably a once in a generation opportunity area.
Improving access to employment, public services and amenities.	See above.
Creating employment opportunities in the corridor	See above.

Description	Frankton Station Notes
Interpretation: Enabling areas that have capacity for growth along the corridor	See above.
How achievable is delivery by start up October 2019	Deliverable all main infrastructure in place – only lighting and some additional spur paths required.
How marketable is the proposed option	Lots of housing within a reasonable walk – easy to get to in the early morning.
Ability to get consents within timeline for opening of service October 2019	There are no consents issues identified at this stage.
Sufficient land available to enable facilities to support all modes	Land is not an issue.
All modes are catered for; walking, cycling, bus transfer, car parking	See above.
Access to and from the station is safe for patrons	See above.
Access on an off train is safe for patrons	See above.

Conclusion: Frankton is ideal for short term and potential long term depending upon the future requirements of the wider City and whether Bryce Street is seriously considered. For the start up only minor works required to develop a high quality home station.

Bryce

Description	Bryce Station Notes
How well does option enable ability to develop future service options	The existing underground station has limited capability, there are issues around access, platforms and air quality. There are options to look at an above ground station to the west of Tristram Street around Bryce Street.
How well does option allow mode neutral decisions by travellers	N/A.
How easy is it to adapt to changing customer demands over time	The areas of green space either side of the railway and the road are under the control of the Council – public consultation is underway on amendments to Seddon Park.
This includes integration with other modes of transport including local and inter-regional bus services	The locations are above are within or very edge of CBD, an ideal location for all modes, accepting that Rotokauri is the long term 'car' option.
Corridor objectives are: Improving housing affordability and choices	This station location offers this opportunity a City Centre station has great appeal and could assist in rejuvenating the CBD and increasing office/housing density.

Description	Bryce Station Notes
Enhancing the quality of the natural and built environments and the vitality of Auckland and Hamilton and the communities within the corridor	
Improving access to employment, public services and amenities.	See above.
Creating employment opportunities in the corridor	See above.
Interpretation: Enabling areas that have capacity for growth along the corridor	See above.
How achievable is delivery by start up October 2019	Not achievable – this would be a long term option involving masterplanning.
How marketable is the proposed option	Highly marketable.
Ability to get consents within timeline for opening of service October 2019	Unlikely.
Sufficient land available to enable facilities to support all modes	Land is available but is used for other leisure purposes and groups.
All modes are catered for; walking, cycling, bus transfer, car parking	See above.
Access to and from the station is safe for patrons	See above.
Access on an off train is safe for patrons	See above.

Conclusion: long term opportunity needs to be considered alongside the long term future of Frankton as two stations in such close proximity are likely to be undesirable, also depends upon future of passenger rail on East main.

Kahikatea Drive – not considered in any detail another P&R probably a long term solution.

Appendix K Rail Station HLITA

Stantec

Memo

To:	H2A Project Team	From:	Sarah Loynes, Mannan Sahebi
File:	Stations – Transport Planning Review	Date:	August 22, 2016

INTRODUCTION

The following note provides a high level review of the proposed station locations for the Hamilton to Auckland Rail Service. For each station there is a review of the existing situation in terms of vehicular and pedestrian access and a review of available or suitable works that may be needed to facilitate use of the stations for all modes in the future.

The note starts with Frankton Station and works through to the current proposed finish station, Papakura. It therefore covers these stations and:

- Rotokauri
- Huntly
- Tuakau

FRANKTON RAIL STATION

SITE LOCATION

The existing rail station is located at the cul-de-sac end of Fraser Street. It is situated south of the interchange point between the North Island Main Trunk (N.I.M.T) and the East Coast Main Trunk (E.C.M.T). This is well used freight route and between Auckland, Hamilton and Tauranga. The area west and north of the site is predominantly industrial and residential to the east. The immediate access route to the site is through a residential area. The site is zoned as Industrial and Industrial Amenity Protection Area under the Hamilton City Council (HCC) Operative District Plan (ODP). Figure 1 and Figure 2 show the site location within the surrounding road network and zoning area.

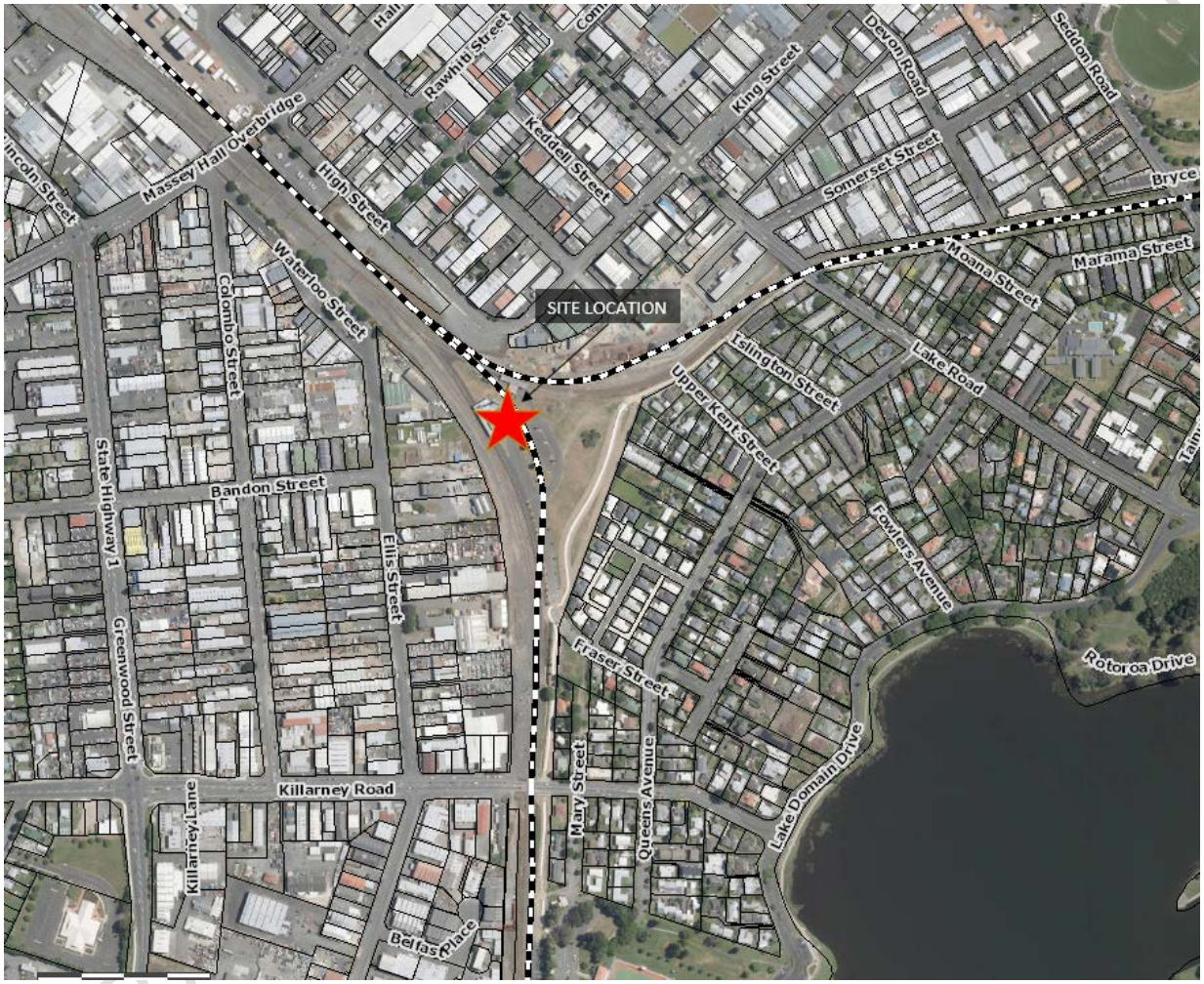


Figure 1: Site location map (source: HCC gisviewer)

Figure 2: Site zoning map (source: HCC gisviewer)

EXISTING ROAD NETWORK

Fraser Street forms the vehicular access into Frankton Station it is approximately 350m long and 12m wide (kerb to kerb). It is a two-way two-lane road with minimal road marking, and no walking or cycling facilities. Pedestrian and cycle access is provided separately and is discussed in more detail below. It is classified as Local Road under HCC ODP. In addition to providing access to the station it also provides access to a number of residential properties, including a more recent development (2013) of 38 residential units on Queens Park Crescent.

Fraser Street connects to Queens Avenue to the south at a priority t-intersection. There is no right turn bay located at this intersection, however there is a short flush median. The existing rail station connects to the wider road network through Queens Avenue which intersects with Killarney Road to the south and Lake Road to the north. Both of these intersections are as 'mini roundabouts' so it is considered likely that they are capable of handling the traffic flows associated with the railway station. The site location in relation to the wider road network is shown in Figure 3.

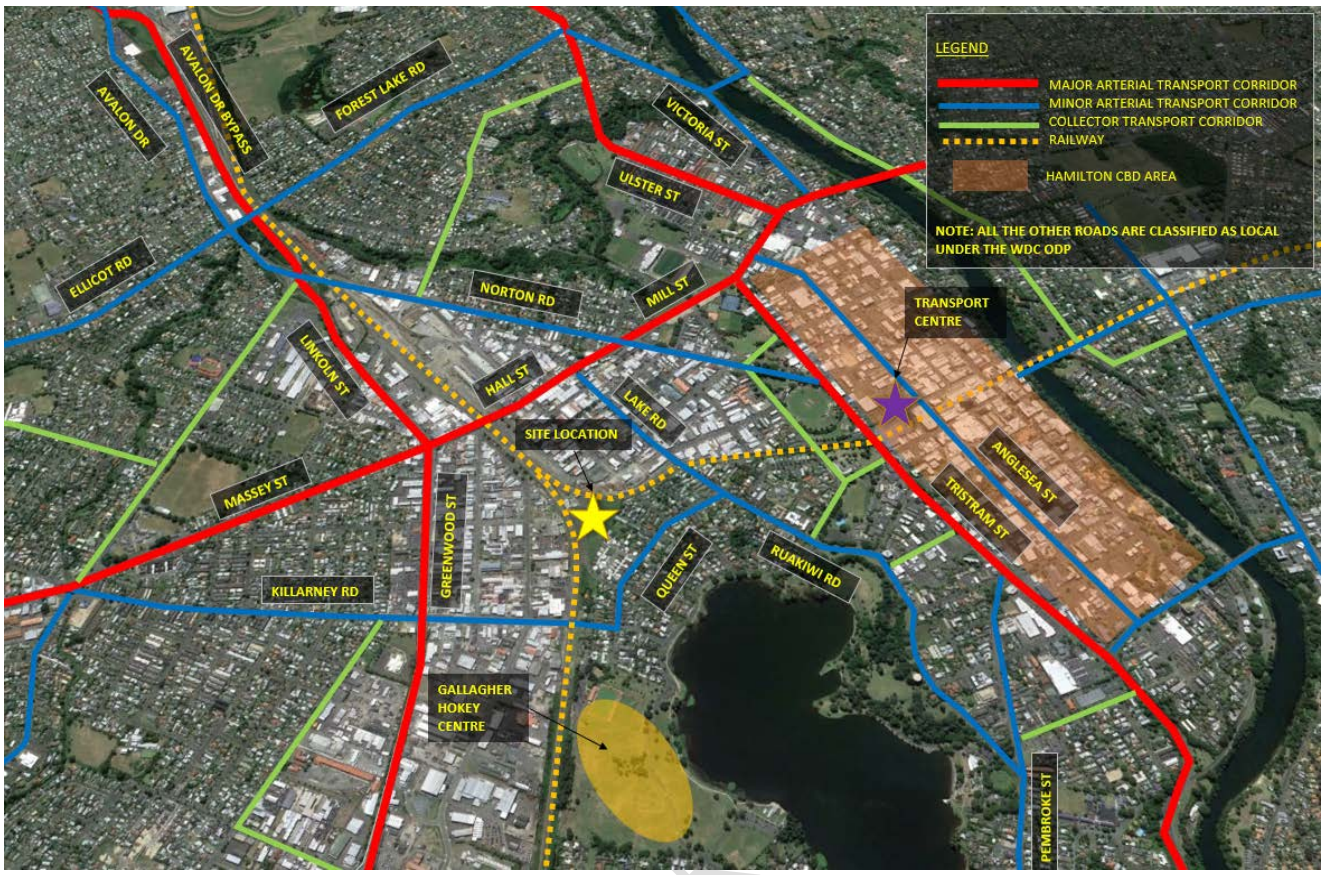


Figure 3: Hamilton's road network (basemap source: Google Earth)

Access to the stations in the mornings, between 6am and 7am should be relatively easy, as this is outside peak traffic hours. Traffic volumes in this area are low at this time and there should be very little congestion on the network. In the evening, when the train arrives in Hamilton between 7pm and 8pm, once again this will be outside the peak traffic hours, so congestion should be minimal.

With the railway stations close proximately to the lake, Inns Common and the hokey fields at various times of the year more pressure will be put on the road network, these could include:

- Balloons Over Waikato (B.O.W)– Morning assentation. Once a year a Ballooning event is in Hamilton for 4 days. One of the shows is a morning assentation from Innes Common for safety reasons lake Domain Drive is usually closed for this event which will put pressure on other sections of the network, it also being the public to the lake area which put pressure on parking area.

- Local and Regional Hockey Games – The Gallagher Hokey Centre is the main centre for Hockey in the Waikato. During Hockey season games are play here most evening and Saturday morning. During bigger games, like finals cars will over spill the car park and park on adjacent roads. It also increases traffic volumes in the area.

PUBLIC TRANSPORT

The closest bus stops to the proposed station are located on Queens Avenue which are about 400m walking distance, one is 60m north of Fraser Street/Queens Avenue intersection (72 Queens Avenue) and another one 60m south of Fraser Street/Queens Avenue intersection (97 Queens Avenue). The bus route that operates at these bus stops is Route 3, which operates between the Hamilton Transport Centre and Hamilton Zoo with 13 connection points with other bus routes and 60 bus stops.

- Bus stop at 72 Queens Avenue: Route 3 from Transport Centre to Hamilton Zoo serves this station from 6:45am to 9:15 pm, every 30 minutes, during weekdays. During weekends and public holidays, it operates from 7:30am to 7:30pm, every 60 minutes.

- Bus stop at opposite 97 Queens Avenue: Route 3 from Hamilton Zoo to Transport Centre serves this station from 8:45am to 4:46pm, every 30 minutes, during weekdays. During weekends and public holidays, it operates from 10:00am to 5:00pm, every 60 minutes.

The Hamilton Transport Centre is located 1.5km/4min driving/15min walking northeast of the station. The public transport connectivity between the Transport Centre and the rail station is relatively poor and as such if the service does become successful there may be a need to attempt to integrate some of the busier routes with the station and to consider running earlier services. However, in the short term – the lack of traffic congestion means that many people are likely to drive and the proximity of the site to existing cycle path means that cycling may be a more relevant investment than bus in the short to medium term.

WALKING AND CYCLING FACILITY

There is well-connected foot/cycle path network within the road corridors in the vicinity of the station as well as a marked on-street cycle path. Hamilton's Western Rail Trail (WRT) is an off-road shared path that crosses Fraser Street. It runs alongside railway and connects to Killarney Road, Kahikatea Drive, and the biking network to the south of the city and Islington Street, Lake Road and Tristram Street within Hamilton's CBD to the north (Figure 4)

Figure 4: Hamilton's cycle path map (source: HCC website)

PARKING

There are approximately 25 angled car parks at the station. However, we have examined whether there is space for additional car parking based on the patronage originally estimated (around 130 users). A check indicates there is sufficient width on the access road for around 80 parks.

IMPLEMENTATION IMPROVEMENTS FOR CONSIDERATION

Pedestrians and Cyclists

There will be a need to ensure that there is access for pedestrians to the station and as such spur paths will be required that provide a direct route. Provide a safe crossing facility mid-block across Queens Avenue. There are a lot of residential properties on the western side of Queens avenue as well as the residential streets or French and Joffre. Providing these properties with a pedestrian refuge would assist them with crossing the road. The existing footpath and cycle path along Queens Avenue should be extended to Fraser Street in the medium term to facilitate greater pedestrian permeability.

Safe and secure bike parking should also be added to the site, this should be located for natural surveillance and – given that the station is likely to be largely unmanned during the daytime consideration should be given to locked storage or a full bike shed.

Public Transport

In terms of public transport, if buses are to be brought into the site then a new bus stop should be installed that is lit and has Real Time Information. This is particularly relevant for when the service moves beyond a simple commuter offer and provides more interpeak or weekend services. In the intervening period it may be necessary to improve signing from the nearest bus stops and Transport Center to Frankton Station. Ensuring that the closest bus stops on Queens Avenue should ideally be upgraded.

Car parking

Designated car parks for buses, taxis, people with disability and motorcycles also should be included in this car park design. These needs to be passed through the RCA to become legal and enforceable.

Crime Prevention Though Environmental Design (C.P.T.E.D) principles should also be assessed during the car park design, including CCTV and lighting will make people feel safer and more likely to use the facilities. More detail regarding the parking improvement e.g. parking capacity, disabled/motorcycle/cycle parking is subjected to more detail investigation.

There is the possibility of parking spilling over into neighboring streets. On-street parking should be assessed, and yellow no stopping lines should be consulted, by-lawed, gazette and installed on street where it is inappropriate for vehicles to park. These would be;

- Within 6m of an intersection
- Within 1m of a driveway
- On a grass berm
- In a cycle lane
- Across a pedestrian facility

ROTOKAURI RAIL STATION

SITE LOCATION

The proposed rail station is to be located alongside Tasman Road, just north of the Chalmers Road/Tasman Road priory t-intersection. The provision of a station in this location was drafted out in the Rotokauri Structure Plan, Figure 3.6.2a and Figure 3.6.2b of HCC ODP defines the rail station location which is shown in Figure 5.

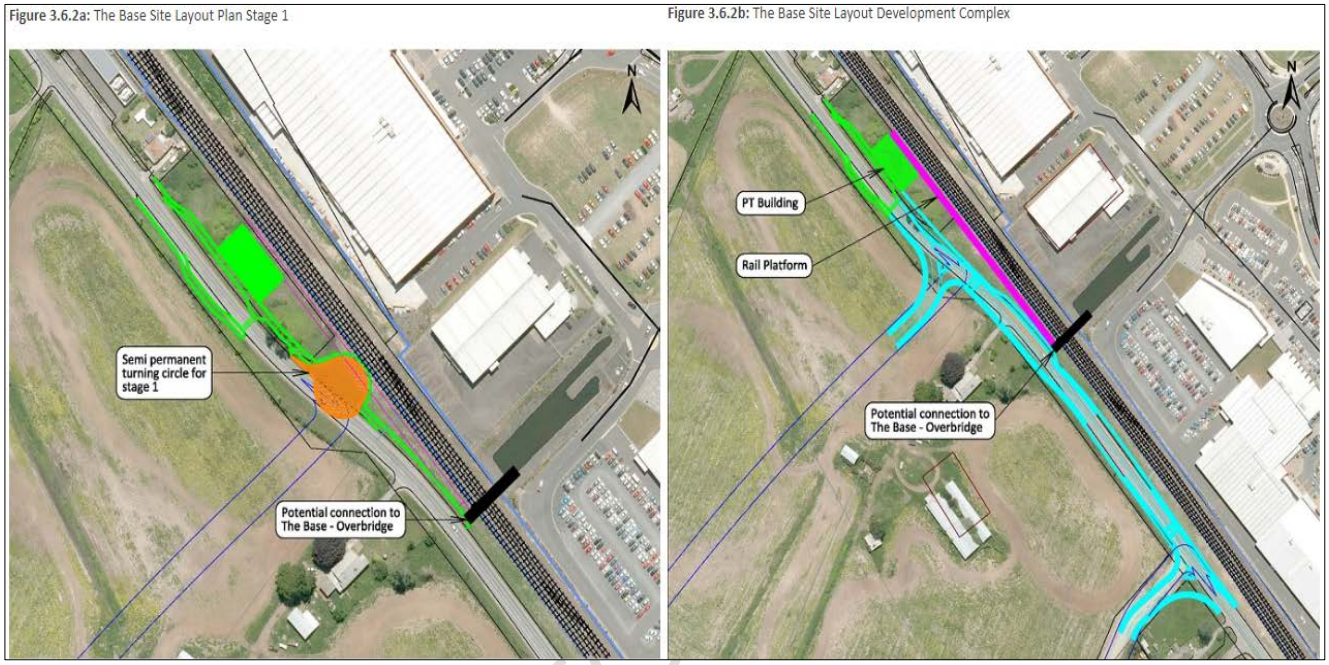


Figure 5: Rotokauri rail station location

Currently the land is greenfield and undeveloped, and the locale is extremely isolated from both The Base and developments being delivered nearby. At the time of the site visits these appeared to be mostly lower density light industrial units. The plans developed and shown below represent a difficult position in which an attractive future public transport interchange might be possible. There are issues of passive surveillance, given the current scale and type of development nearby and the link between the site and The Base would need a lot more consideration to make it attractive, given that the key retail/entertainment location at The Base is located around 500m from this station and that pedestrian routes through the site are convoluted. The proposed 'landing point' of the bridge shown in these Figures (Figure 5), has changed since this aerial photograph was taken.

The site as well as the surrounding land to the south are zoned as Industrial under the HCC ODP. The site location and zoning map is shown in Figure 6.

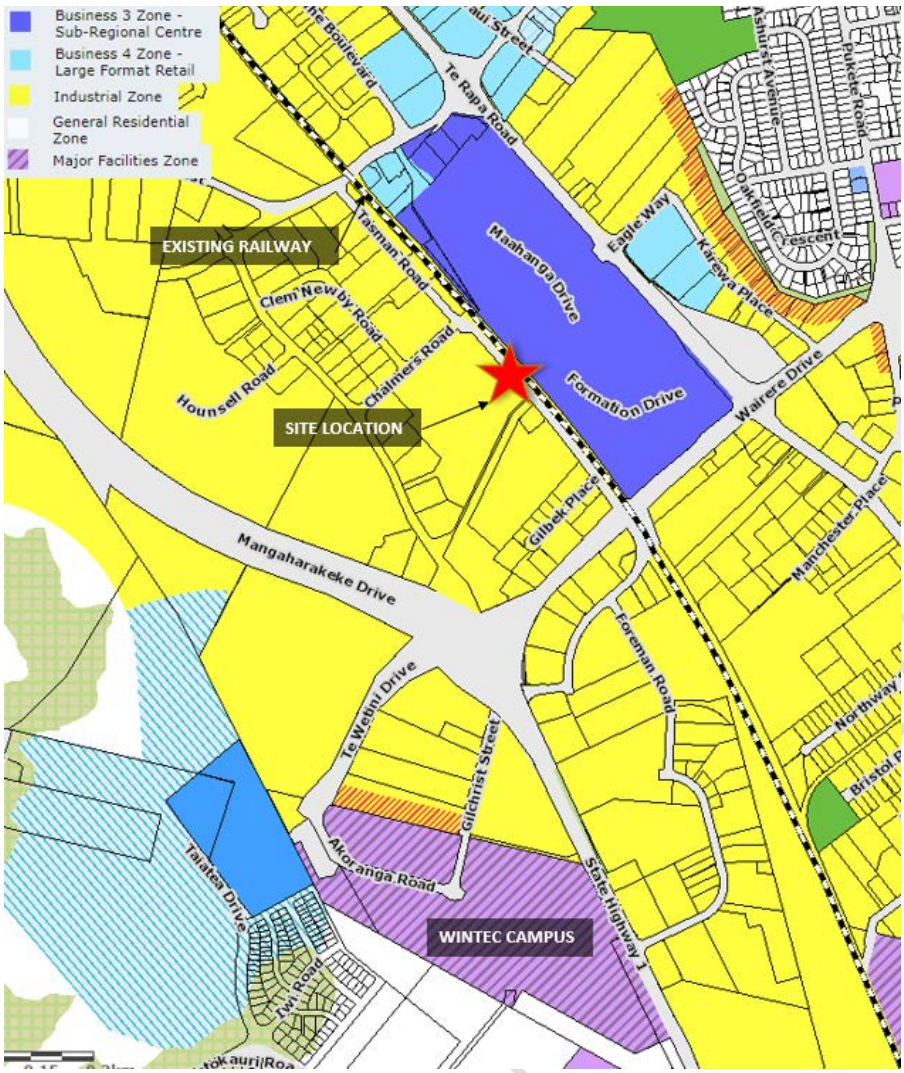


Figure 6: Site zoning map (source: HCC ODP – note: site location based on Structure Plan)

The new site location and car parking arrangements are shown in the extract from the AECOM report dated May 2018. The report states that:

'The favoured rail platform option would be to have a central platform located between the northbound and southbound main lines, with the northbound line moved towards Tasman Road to provide the width for the platform. The cost of this, including a car park for approximately 100 cars is estimated to be in the range of $6.2M to $8.2M. This option requires realignment and reconfiguration of Tasman Road.'

The extract below shows Option 3A.

Proposed Option 3A for start-up service (source: Aecom option report)

ROAD NETWORK

Tasman Road is a two-way two-lane road that runs southeast-northwest, south of the site. It connects to Te Kowhai Road to the north, passes under Wairere Drive to the south; and become a cul-de-sac at its southernmost end. Its connection with Forman Road provides the majority of traffic along the road. Currently it is an isolated road with no frontage development and no pedestrian or cycling infrastructure.

Based on Figure 15-5b of HCC ODP, Tasman Road is classified as a ***Proposed Collector Transport Corridor***. Figure 3.6.2e of the Rotokauri Structure Plan under HCC ODP defines a collector road cross-section within Rotokauri growth cell area to be as shown in Figure 7.

Figure 3.6.2e: Rotokauri Cross-sections - Collector

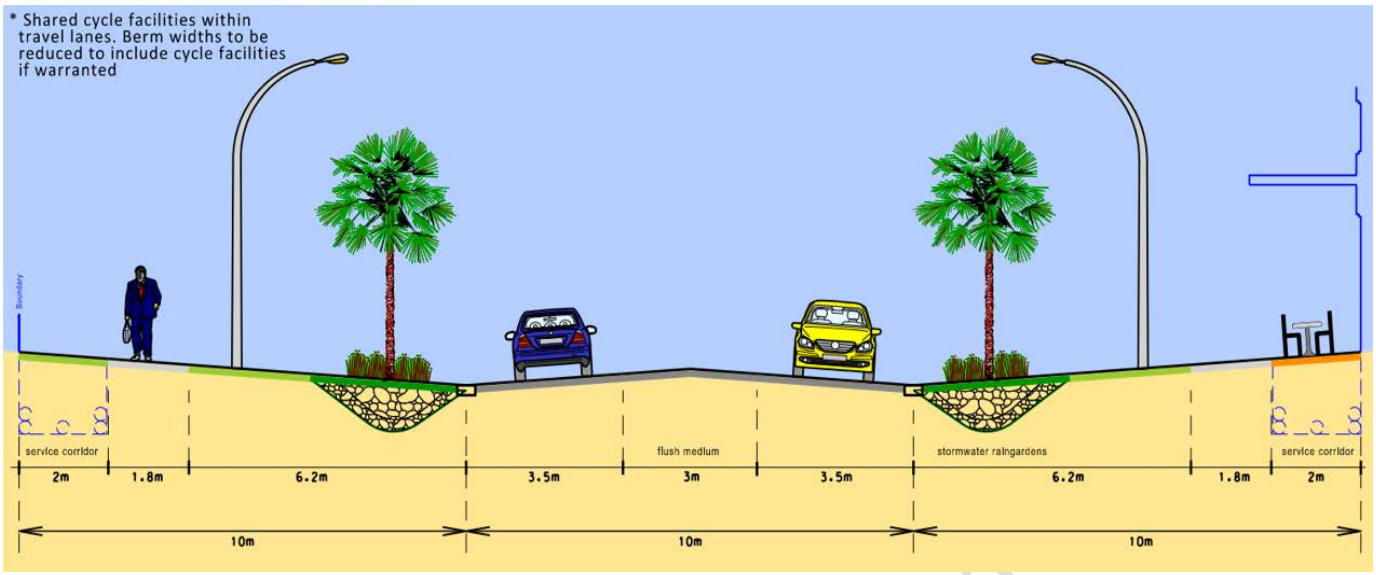


Figure 7: Collector road cross-section within Rotokauri growth cell

The posted speed limit through this section of Tasman Road is 80km/h. This should be reduced to 30km/h-50km/h depending of road use, to provide safe transport for all road users, including pedestrian and cyclists. However, reducing the speed limit without changing the environment will not provide a safe travelling speed, as drivers will continue to drive at 80km/h.

From a wider road network perspective and given the location of the rail station, the majority of the traffic flow generated by the proposed rail station is expected to be through SH1 (Avalon Drive), Wairere Drive and Te Rapa Road, as shown in Figure 8.

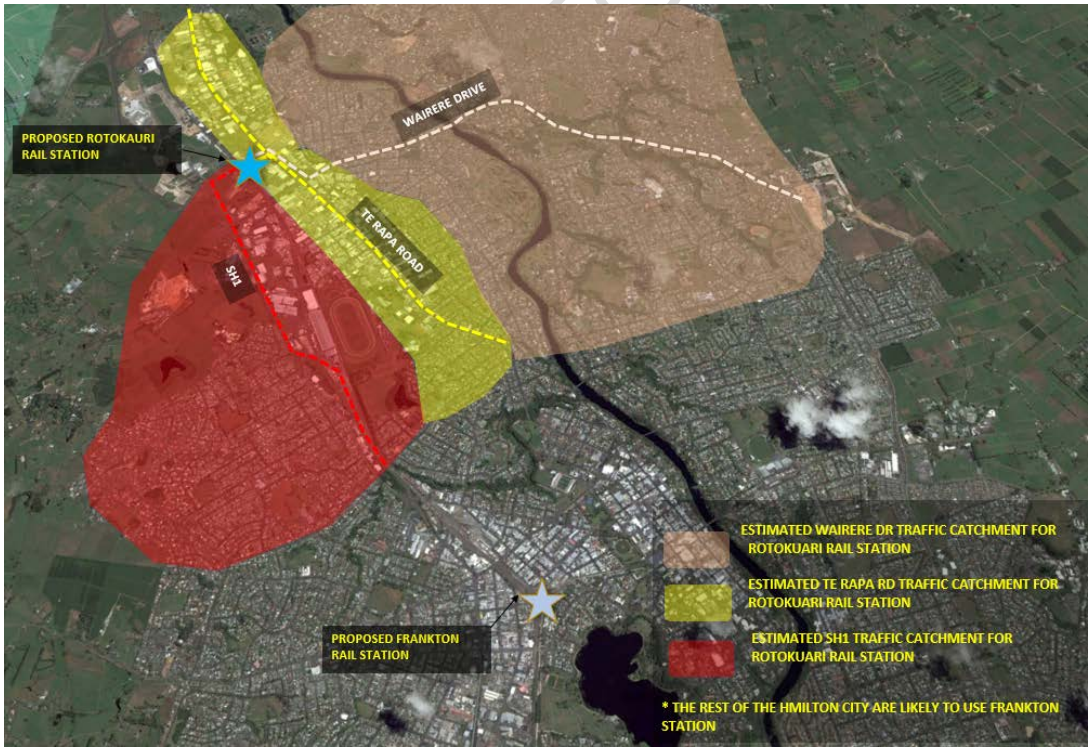


Figure 8: The wider transport network (basemap source: Google Earth)

Potential Trip Generators

It is noted that the area of Rotokauri is still being developed however, The Base shopping centre and Wintec (tertiary education) are trip generators and are very close to the train station. They could be destinations for PT users, and should have adequate walking, cycling and bus connection in the future.

WALKING AND CYCLING FACILITIES

Currently there is no pedestrian or cycle infrastructure on Tasman Road. This situation is unlikely to be remedied in the short term, but is covered in the longer term, as part of the Structure Plan (3.6.2c-Figure 3.6.2g of Rotokauri Structure Plan).

The nearest cycling infrastructure is located to the south off Wairere Drive.

There is a clear issue in the short term of providing forms of pedestrian connectivity, because the majority of existing roads in the vicinity of the site have footpaths except Tasman Road and Te Kowhai Road. All future roads within the area are required to be provided with footpaths as part of the Rotokauri Structure Plan.

Figure 9 shows the cycle path network in the vicinity of the site.

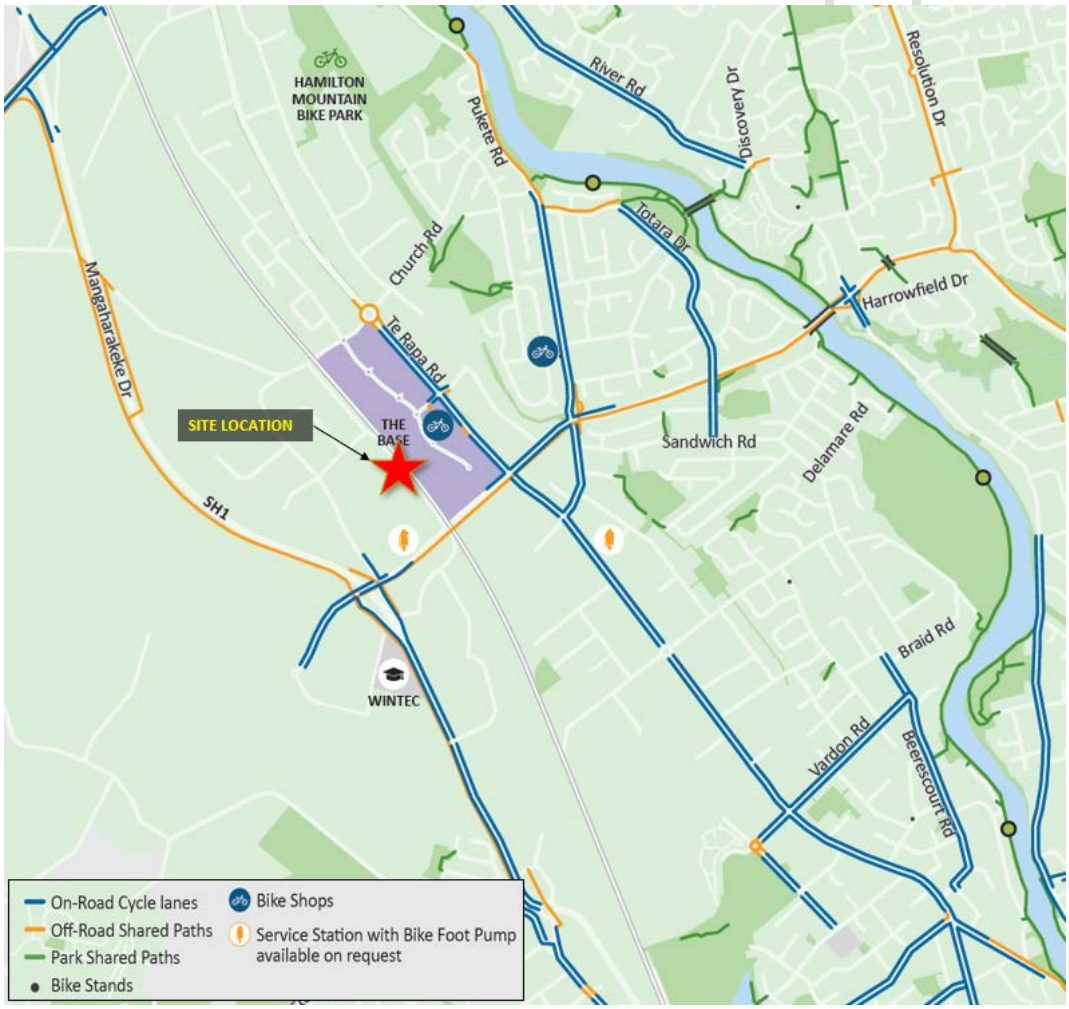


Figure 9: Hamilton cycle path map (source: HCC website)

PUBLIC TRANSPORT

The closest bus stop to the site is situated in The Base which is a transport hub. There is 1km walking distance from The Base transport hub to the proposed site as there is no pedestrian connection between them.

Without the overbridge or additional bus stops on Tasman Road, pedestrians would have to walk up to 1km and cross the level crossing on Te Kowhai Road to access the base which would provide them with a very low level of service and make interchanging between bus and rail undesirable.

The bus routes that stop at The Base are listed below:

- Route 1, Pukete;
- Route 9, Nawton;
- Route O, Orbiter;
- Route 18, Te Rapa;
- Route 21, Northern Connector; and
- Route N, Night Rider.

CARPARK

There is a park and ride facility proposed to be provided adjacent to the rail station. The Aecom option 3A allows for 106 car parks include disabled and parent and baby.

IMPLEMENTATION IMPROVEMENTS FOR CONSIDERATION

Pedestrians and Cyclists

The current AECOM design makes some improvements to Tasman Road to reduce vehicle speeds to make it safer for pedestrians to cross between the car park and the proposed station, however, it is anticipated that further design work may need to be undertaken to fully understand the mix of traffic on the route and speeds through the area before finalizing an option.

In the start-up phase, trains will be leaving this station at around 6 -7 am and as such, in the winter months, the passengers will be arriving in darkness. Noting the relative isolation of the station, and the general lack of passive surveillance nearby it will be extremely important that the road, crossing locations, car park areas and platforms are well lit and have CCTV.

In terms of cycling consideration should be given to how any vertical speed reduction measures can be designed to minimize impacts on cyclists and how access off Wairere Drive can be achieved, in the short term this may simply be through provision of safe points at which to join the carriageway. In keeping with the comments made above around passive surveillance, cycle parks may need to be upgraded to provide greater security (possible cycle lockers of a type similar to those shown in Picture 1).

Picture 1: Example of secure cycle lockers

Public Transport

The current proposals allow for on street bus stops on Tasman Road. This is by far the best solution, but as with other pedestrians arriving via car, care needs to be taken in the design regarding crossing passengers. It is noted that longer term options seem to place the bus stops in the center of a larger car park. Clearly, from the perspective of these users, this is a poor location, requiring the buses and passengers to navigate through a car park, having driven past the rail station to get there. Re-consideration of retaining bus stops on Tasman Road should be part of any longer-term plan in this area.

Car parking

The car park design for the startup service is quite simple and straightforward, as with other stations, Crime Prevention Though Environmental Design (C.P.T.E.D) principles should also be assessed when finalizing the design. The design should also be considered in more detail from the perspective of pedestrians, for example the pedestrian link into the car park only serves the nearest aisle, and consideration should be given to extending this to provide access to the other parking aisles.

Vehicular access

It was noted on the last site visit that there is a topsoil moving company located at the corner of Tasman and Chalmers Road and that there are a large number of dumper trucks going through this junction and Tasman Road. With the potential for additional foot traffic, cyclists and vehicles in the area more monitoring of the road surface for debris may need to be undertaken and the above design may require further alteration to consider the mix of vehicles.

HUNTLY STATION

SITE LOCATION

The proposed location of the rail station in Huntly is at the existing station structure, east of the Waikato River, State Highway 1 (SH1). It is situated between the existing railway line and residential properties from William Street. The only available vehicle access to the station is at the cul-de-sac end of Glasgow Street. The site is zoned as Business under the Waikato District Council (WDC) Operative District Plan 2018 (ODP). Figure 10 shows the site location in the surrounding road network. Photograph 1 shows the existing station infrastructure.

Figure 10: Site location within the surrounding road network (basemap source: WDC ODP)

The existing 'station' consists of a somewhat isolated side platform. Lighting columns pass close to the station and continue through the area.

Photograph 1: Huntly Station viewed from local footbridge

SITE ACCESS

Vehicle Access

Huntly's urban boundary extends east and west of the Waikato River, and the town is split into two main areas – east and west Huntly. There is one bridge available for all modes (vehicles, pedestrians and cyclists) to cross the river, Tainui Bridge. There is a further Bridge over the Waikato River for pedestrians (shown in yellow below). The town is also somewhat severed by the railway and SH1. This creates limited crossing opportunities and as such the main routes to the proposed station will be via Hakanoa Street and William Street.

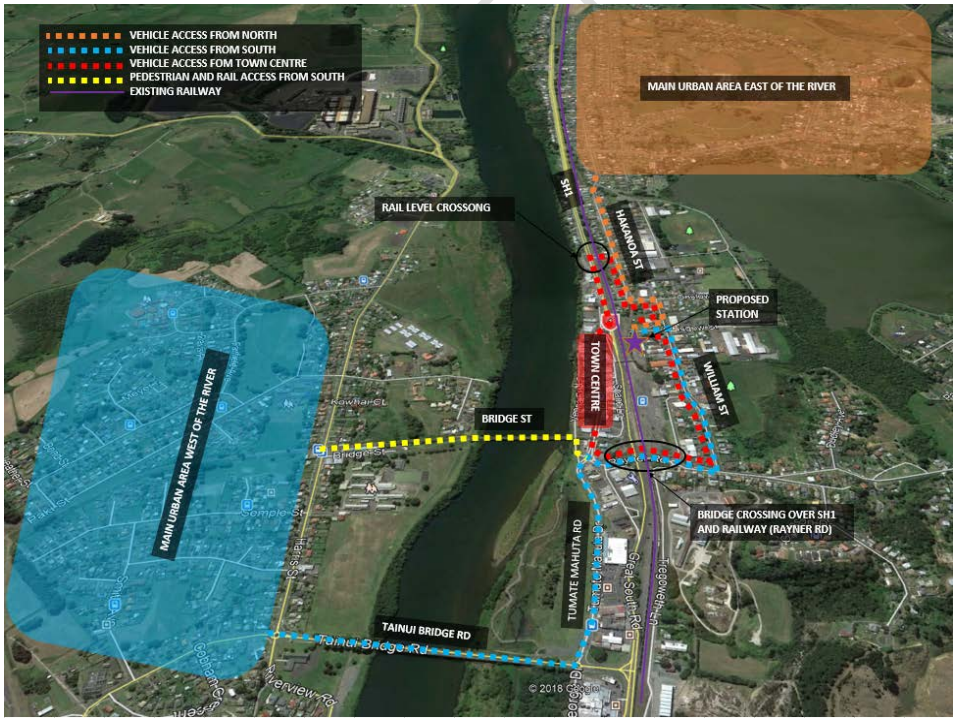


Figure 11: Local access routes to the station (basemapp source: Google Earth)

Similarly, when considering possible access points for vehicles travelling from outside the town the same key routes are likely to be chosen as shown in the figure below (Figure 12).

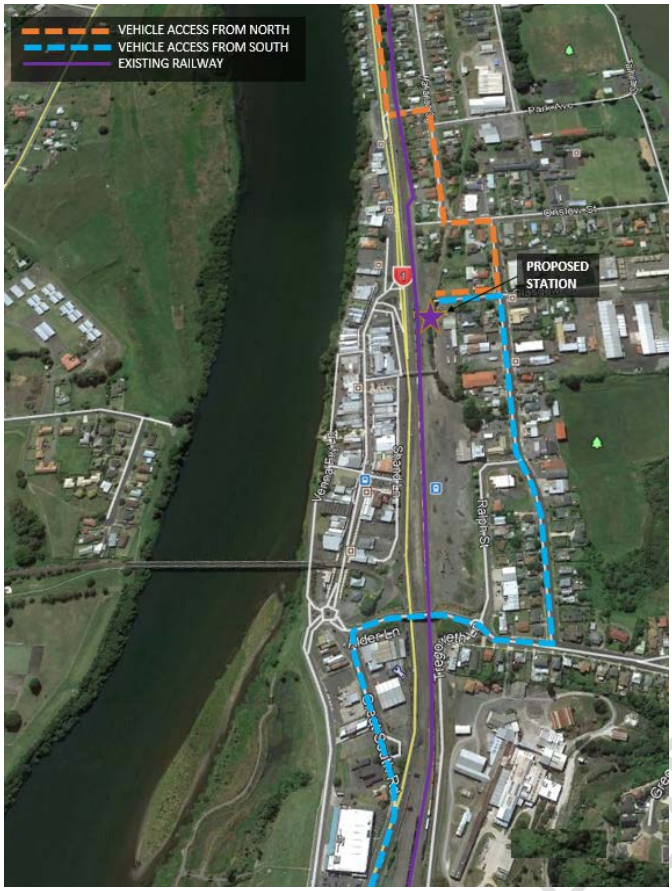


Figure 12: Site access route from outside Huntly (basemap source: Google Earth)

In terms of the ODP the railway designation is clearly shown and the irregularly shaped parcel of land to the east is the area under control of WDC and is proposed for car parking (Figure 13). This land is graveled, well located to the bridge crossing into the town centre. It is not particularly overlooked and is accessed via a driveway located at the end of Glasgow Street next to the Corrections Department Yard.

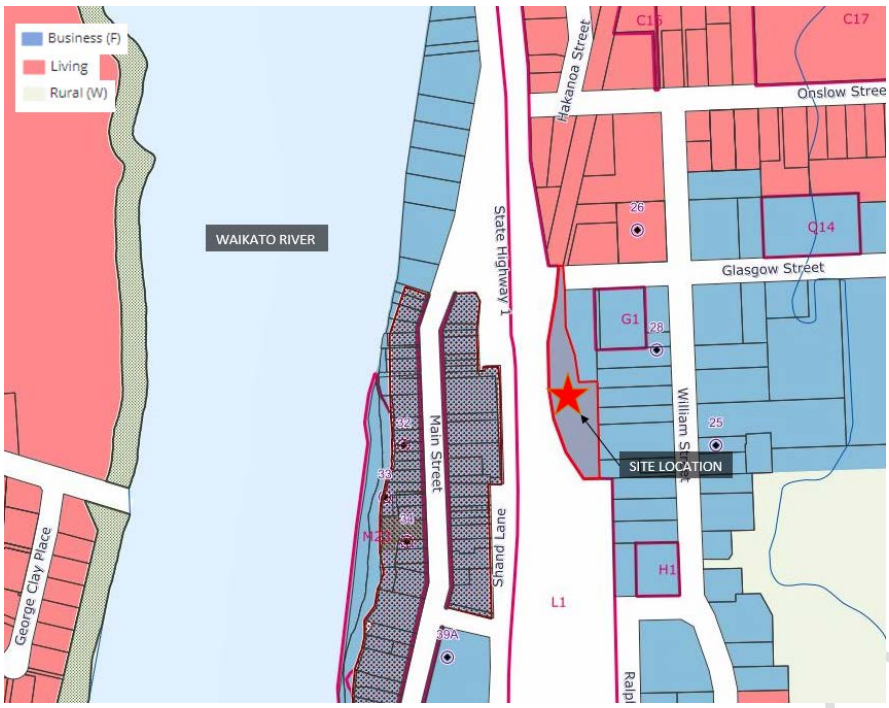


Figure 13: Site location within the surrounding land zoning under the WDC, ODP

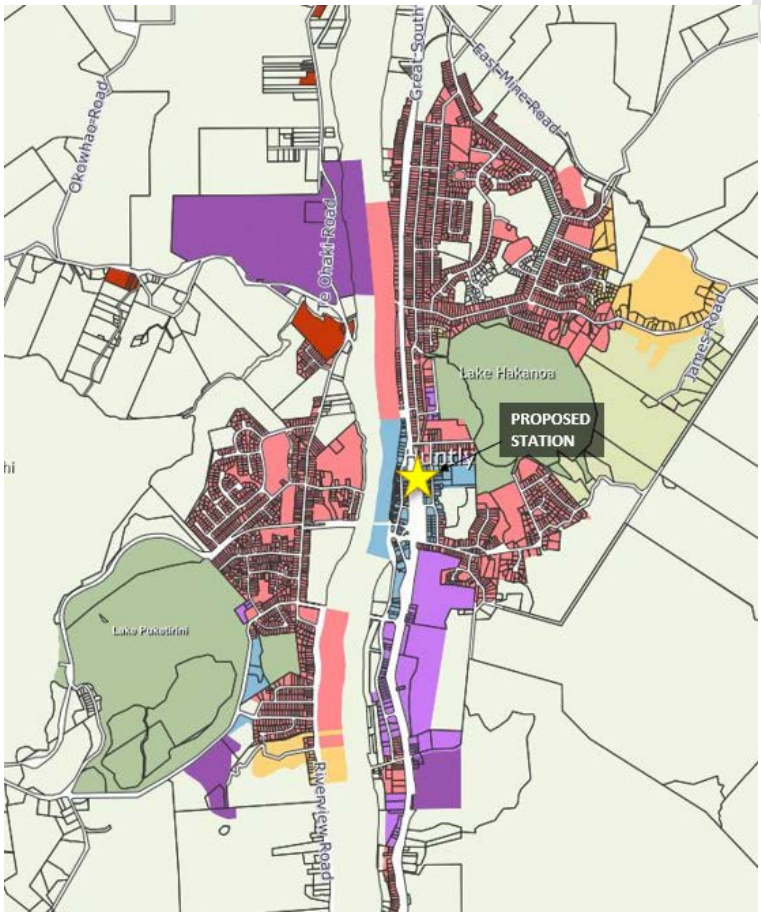


Figure 14: Huntly zoning map under the WDC, ODP

WALKING AND CYCLING PROVISIONS

There are adequate footways along Glasgow Street but the driveway leading to the pedestrian footbridge is graveled and of relatively poor quality. There is a pedestrian over bridge adjacent to the station that connects the station to Huntly town centre west of SH1. The surface of this walkway was adequate although it was noted that at some sections fencing wire (presumably used to support the macadam) was beginning to come through. The bridge provides a good link into the Town Centre. However, it was noted on the site visit that the bridge does direct pedestrians into the accessway for vehicles in what is a quite popular car park.

There is also a formal pedestrian railway crossing on Bell Crossing Street, which has been assessed under the LCSIA and is rated as…...

There is no cycling provision in the area and cyclists are required to share the carriageway with other road users.

Photograph 2: Existing bridge surface

PUBLIC TRANSPORT

The closest bus stop to the station is located on Main Street which is about 260m or a 3-minute walk from the station over the existing pedestrian bridge. There are two main bus services known to access this stop:

- Busit, Route 21: travels between Hamilton and Huntly and runs from 6:15am to 6:10pm during weekdays – except Thursday- on an hourly frequency. On Thursdays it operates from 6:15am to 9:00pm on an hourly frequency. During the weekends and public holidays, it runs from 8:00am to 6:00pm on an hourly frequency.

- Bus transport between urban centres is provided by Intercity (NZ only long distance public transport system) at the same bus stop. The Intercity bus stops approximately 20 times per day, 7 days a week. It connects Huntly to Auckland, Hamilton, Hastings/Napier, Palmerston North and Wellington, as well as the regional centres along specific routes.

These bus stops have relatively good infrastructure, with a verandah on both sides of the road, seating, timetable information and rubbish bins. Installing an accessible bus kerb would improve the amenity at these bus stops. It is understood that the Regional Council are seeking to improve bus services to Huntly in any event and as such the overall level of service at these stops for trips into Hamilton is likely to improve.

PARKING

The investigation in regard to carpark spaces in the vicinity of the site shows:

- There is no public carpark available in the vicinity of the site. Although there are car park spaces within the town centre, they serve parking demand for local businesses, and have various time restrictions on them[1].
- There are on-street spaces available near the site, east of the proposed station. The existing on-street carparks along William Street are road marked. There is sufficient space within the carriageway width on Glasgow Street to provide more on street parking.
- The vacant lot adjacent to the station and pedestrian bridge is understood to be the favoured location of a car park. On the day of the site visit somebody had parked here to drop somebody off to go into the Town Centre. This suggests that a car park here may also be advantageous for this purpose.
- There is a piece of land adjacent to the site which is owned by WDC and is likely to be road reserve or have a drainage easement over the land and is currently a pedestrian access between Onslow Street, Glasgow Street and Park Ave. This piece of land is 16m wide, and 5196m^2 which could provide a double side angle park and ride facility. However, further investigation is needed into this. (Figure 15).

Figure 15: Potential public carpark locations (including area already identified) (basemap source: WDC ADP)

[1] WDC public places bylaw 2016,page 31 - https://wdcsitefinity.blob.core.windows.net/sitefinity-storage/docs/default-source/your-council/plans-policies-and-bylaws/bylaws/public-places-bylaw-2016.pdf?sfvrsn=d48bb8c9_2

IMPLEMENTATION IMPROVEMENTS FOR CONSIDERATION

Pedestrians and Cyclists

Pedestrian links into the site from the surrounding streets and the existing pedestrian bridge require further consideration as part of the detailed design. It is noted that the access used at the end of Glasgow Street was narrow, had a level difference and is in close proximity to a private drive. Thus, it is likely that an improved location will need to be sought. It is noted that there is limited housing in the immediate vicinity of this particular station, with the majority of land being industrial, government or social amenity.

There are no cycle routes in the vicinity, but cycle storage of limited number should be included and positioned close the railway bridge, both lockers and stands could be provided with the stands providing lock spaces for people simply wishing to use the site to access the Town Centre.

Public Transport

In the short term, the proximity of the site to the Town Centre (via the existing bridge) means that there is no real requirement for services calling in at the station. This is also supported by the relatively low number of local services that can be accessed in any event. However way finding to ensure that any persons arriving at the station to use it as a P&R are aware that the Town Centre is only a short walk away would be very useful. This may increase the amount of convenience visits made by those people who park and ride.

Car parking

The full design of the carpark has not yet been undertaken. However, if access is to be made from Glasgow Street then it may need to have a design that allows priority to incoming vehicles as there is limited road width coming into the land off this access. There is an access into the rail designation further south, off Ralph Street that could provide access, but this would also be more expensive. The car park would need to be properly formalized with bays, disabled parks and be laid to asphalt. As with other stations, Crime Prevention Though Environmental Design (C.P.T.E.D) principles should also be assessed when finalizing the design. The design should also be considered in more detail from the perspective of pedestrians and also giving consideration for overspill parking for the Town Centre.

Vehicular access

It is noted that most of the vehicular access points to the site will cross existing level crossing locations. Clearly at start up stage the numbers of users are likely to be relatively small and the time of day that services would operate (very early in the AM peak, 4pm- 5pm in the PM peak) means that traffic impacts would be relatively small, likely to be less than 50 two-way movements in the hour. Given this it is unlikely that the operation of these crossings would change.

TUAKAU RAIL STATION

SITE LOCATION

The existing station island platform is proposed to be the location of the new station platform. These are located where the 'existing railway' text is in the figure below. At the time of writing access to this island platform is being discussed, with a walkway suggested between the tracks starting at the existing George Street level crossing.

The site and the surrounding area is predominantly zoned as Residential with the area around George Street, Liverpool street and St. Stephens Street being zoned as Business under Waikato District Council (WDC) Operative District Plan 2017 (ODP). Figure 16 and Figure 17 show the site location within the surrounding road network and zoning, respectively.

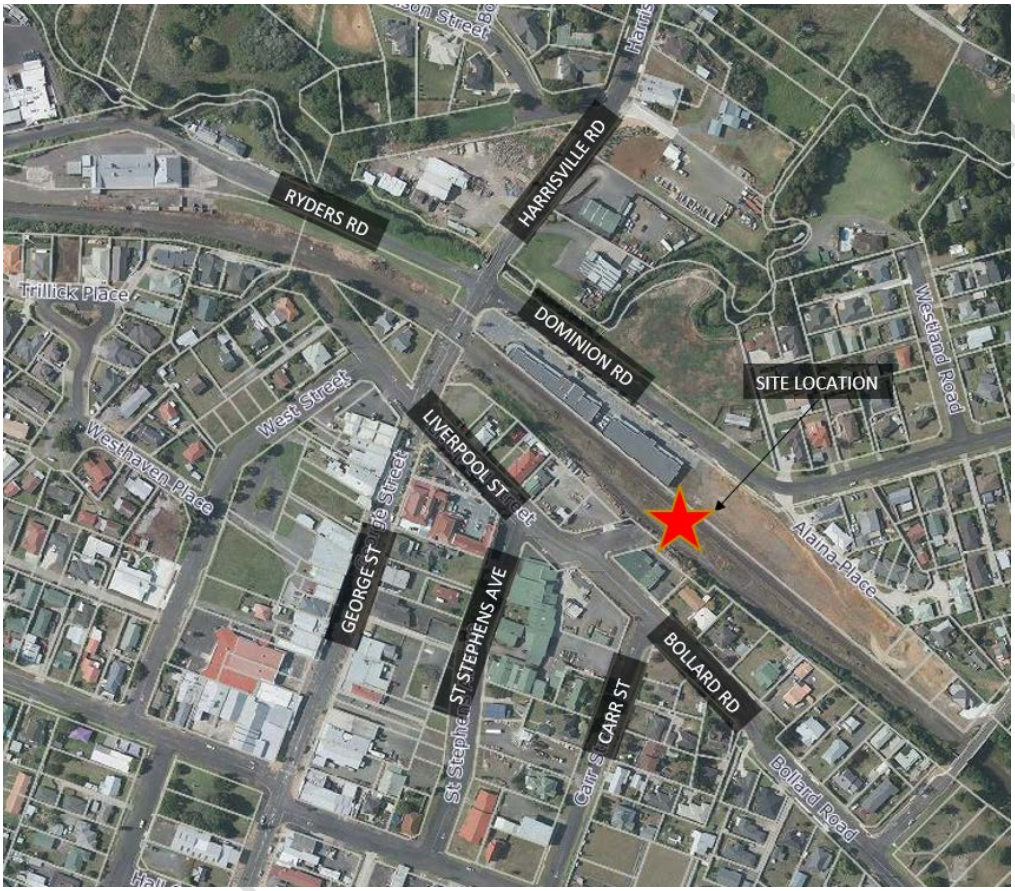


Figure 16: Proposed site location within the surrounding road network (basemap source: WDC ODP)

Figure 17: Site location within the surrounding land zoning under the WDC, ODP

ROAD NETWORK

The proposed location of the rail station in relation to the surrounding road network is shown in Figure 18.

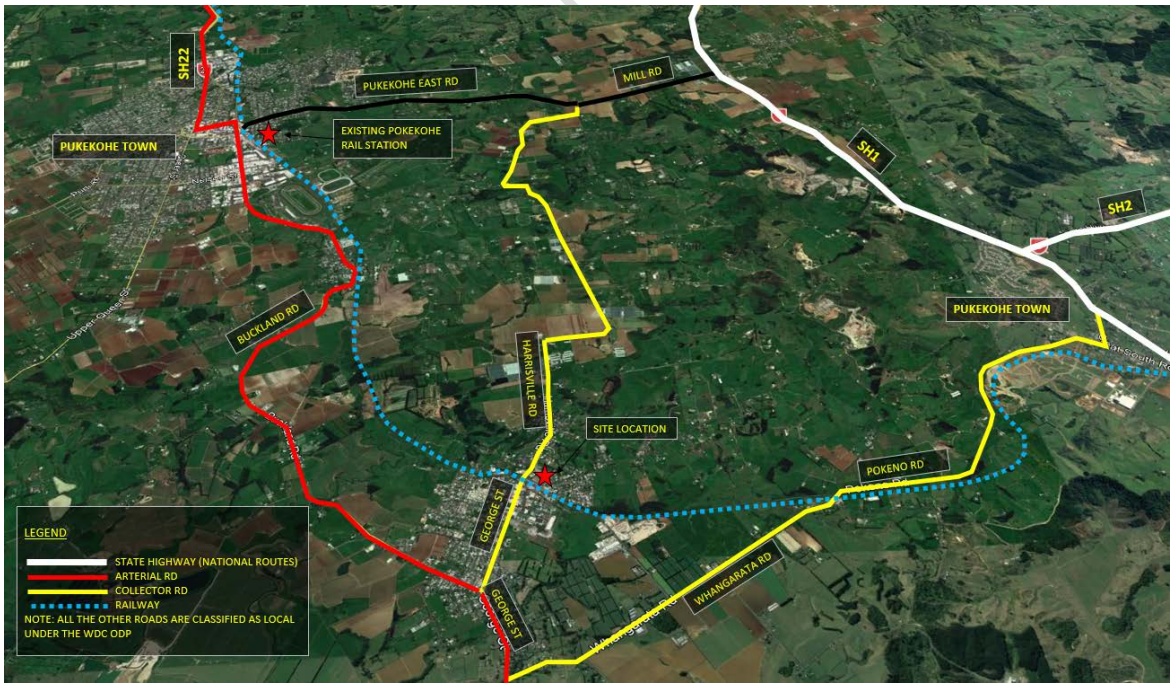


Figure 18: Road network and classification (basemap source: Google Earth)

From a wider road network perspective, the main access to the site from north and south is expected to be via SH1, Pokeno Rd and George Street., The main access to the site from east is likely to be via, SH2, SH1, Pokeno Rd and George Street, respectively.

Tuakau township has primarily been developed south of the Town Centre, therefore, the majority of local vehicular traffic will arrive from the south via George Street. In the early start up phases patronage at this station is predicted to be relatively low and is unlikely to be more than 50 passengers per day and in the short term even less, as such the traffic and parking impacts will be small overall.

WALKING AND CYCLING PROVISION

The existing streets surrounding the station location have pedestrian walkways of a reasonable standard to both sides of the street. The station sits in close proximity to the existing Town Centre (5-minute walk from the George Street level crossing). Waikato District Council have a number of urban design improvements identified in the ODP around the Town Centre which would also improve access to the railway station, for walking and cycling.

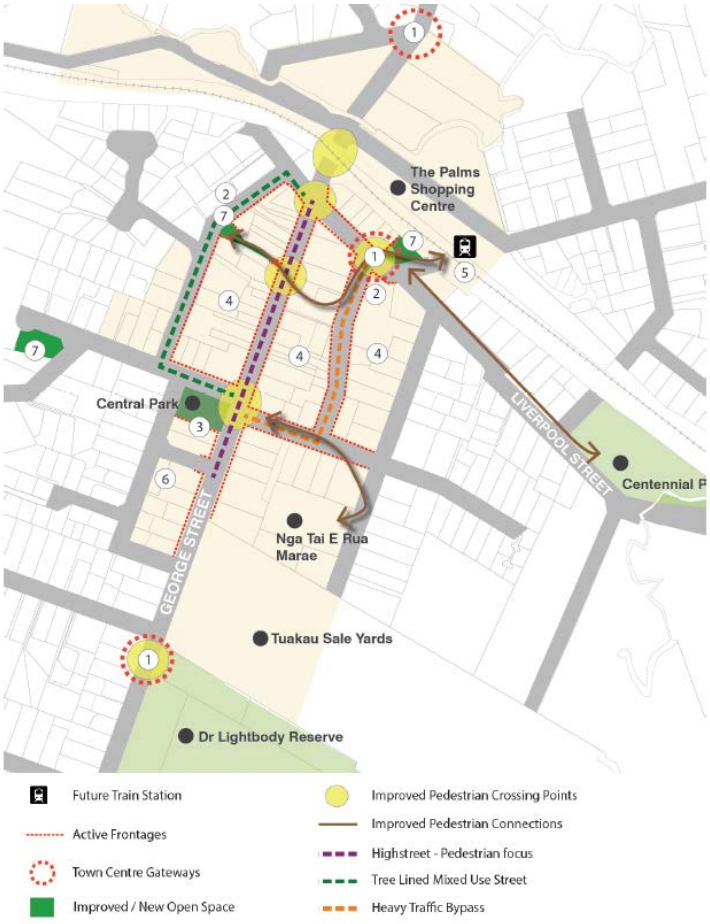


Figure 19: Tuakau Key moves concept diagram [2]

[2] https://wdcsitefinity.blob.core.windows.net/sitefinity-storage/docs/default-source/your-council/plans-policies-and-bylaws/plans/district-plan-review/section-32-reports/business-and-business-town-centre-zones/appendix-16-10---tuakau-town-centre-character-statement.pdf?sfvrsn=332a80c9_2 page 5

There are no specific cycling routes marked on or off street in the vicinity of the site. Given the relatively low traffic volumes in the area it is not unreasonable for cyclists to share with vehicles though consideration might be needed in the future in terms of the Town Centre.

PUBLIC TRANSPORT

A Waikato Regional Council (WRC) bus the number 44 runs through Tuakau, from Hamilton, and onto Pukekohe every second Thursday, with a return journey the same day. The bus does stop in Tuakau though it is understood that there have been a number of delays in delivering bus stop infrastructure in the town. The stop is likely to be located in or near the Town Centre and therefore should be well placed for the rail station.

PARKING

There are a number of areas of car parking around the site that were observed during the site visit. Firstly, there is on street car parking (unmarked) along Liverpool Street and St Stephens Avenue (to the south). There is also an unused but graveled parcel of land (thought to be under the ownership of WDC) located to the south and immediately adjacent to the George Street level crossing.

To the north there is informal car parking located along Dominion Road, and there is a large graveled as yet undeveloped parcel of land adjacent to The Palms Shopping Centre. There is also car parking associated with The Palms Shopping Centre, clearly is the service does become particularly popular then regulation of these parks by the land owner may become necessary.

IMPLEMENTATION IMPROVEMENTS FOR CONSIDERATION

Pedestrians and Cyclists

The critical issue at the time of writing is gaining pedestrian access to the platforms via the level crossing. Currently it is proposed that a new walkway between the rails at the George Street crossing will provide at grade access to the island platform. It is noted that even if this is achieved, it is quite a long distance to the platforms (around 150m). This has implications in terms of car parking. The surrounding streets have relatively good pedestrian walkways and as such minimal; further works are required. The works might include some wayfinding facilities to make best use of the proximity of the station to the Town Centre, ensuring that any Park and Ride users are aware of the local Town Centre location.

There are no cycle routes in the vicinity, but cycle storage of limited number should be included and positioned close to the level crossing location (where new car parks may be constructed) these might also provide a facility for those visiting the Town Centre. If these are located close to George Street and the level crossing these may be stands/covered stands only given the high levels of natural surveillance in this location.

Public Transport

In the short term, the proximity of the site to the Town Centre means that there is no real requirement for any further public transport enhancement. Wayfinding between the Rail Station and the Town Centre and Bus Stops may be useful in the medium term.

Car parking

In the short term, we would recommend considering only a small car park, located on land adjacent to George Street and indicated with a red star in the Figure below. This will be supplemented by on street car parking on Liverpool Street. Given the fairly low numbers anticipated for the start-up service this should be adequate. It has been noted that there has been some work done to identify whether local public car parks could be upgraded to provide suitable facilities. The reality is that these car parks are unlikely to be used if there is informal on street car parking in close proximity available. People will park as close as possible to the access. The figure below illustrates the locations near to the George Street level crossing where on street car parking

would be possible, the proposed site of a small more formal parking area and the existing public car parks. The combination of the first two (on street and small new car park) are likely to adequately fulfill demand for the start up. The remaining sites (existing car parks and vacant land parcels) might provide for future demand. In the case of the Dominion Road land adjacent to The Palms Shopping Centre, whilst this is relatively well located, it is zoned for development and as such has a higher intrinsic land value.

Vehicular access

It is noted that most of the vehicular access points to the site will cross existing level crossing locations. Clearly at start up stage the numbers of users are likely to be relatively small and the time of day that services would operate (very early in the AM peak, 4pm- 5pm in the PM peak) means that traffic impacts would be relatively small, likely to be less than 50 two way movements in the hour. Given this it is unlikely that the operation of these crossings would change.

Figure 20: Carparks in the vicinity of the site (basemap source: WDC ODP)

Overall, it is concluded that there is unlikely to be any issue mitigating the effects of parking demand generated by the first stage of the development within the surrounding road network.

PAPAKURA RAIL STATION

SITE LOCATION

The proposed start up service is initially proposed to terminate at Papakura Rail Station. The existing rail way including railway station is identified as part of the ***Strategic Transport Corridor Zone*** and the park and ride facility associated with the railway is ***Business – Metropolitan Town Centre***- and ***Strategic Transport Corridor Zone*** under the Auckland Unitary Plan (AUP). The land use in the vicinity of the site is a mixture of Residential, Business, Open Space and Special Purpose Zone under the AUP. Figure 21 and Figure 22 show the existing station location and zoning, respectively.

When considering Papakura, we are mostly concerned with the ability of pedestrians and cyclists to access local jobs and amenities to the station. Whilst the business case anticipates a high proportion of passengers will continue onwards into central Auckland, the termination at Papakura also provides greater employment opportunities here too.

Figure 21: Site location (basemap source: AUP Geomaps)

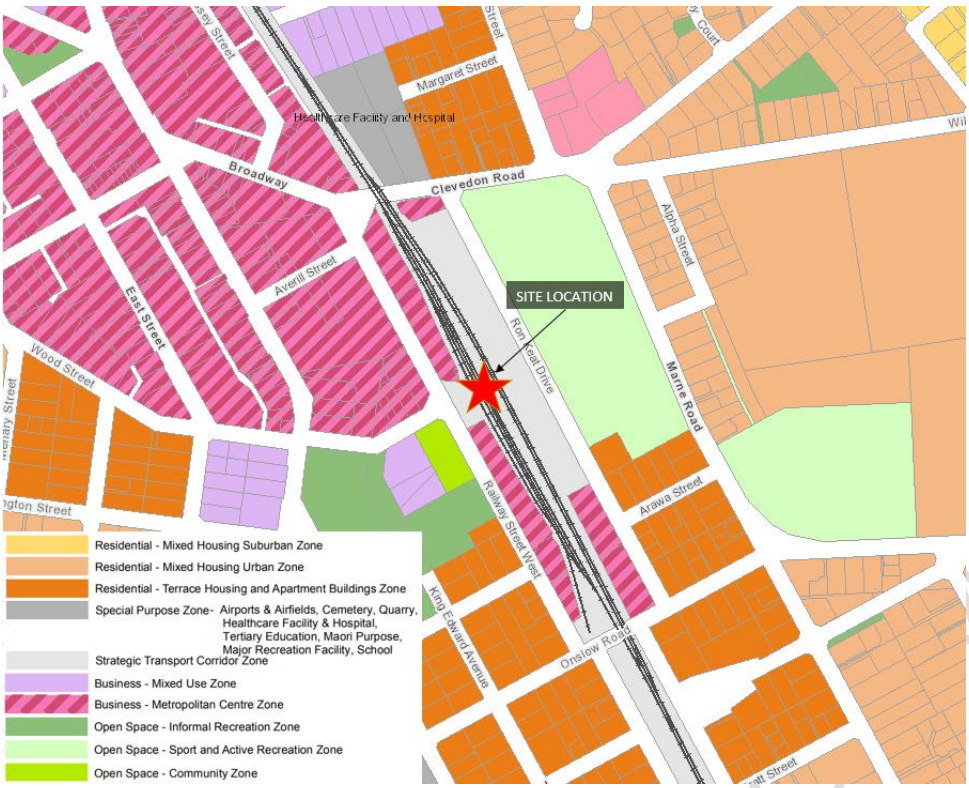


Figure 22: Site zoning map (source: AUP Geomaps)

SITE ACCESS

Railway Street West runs southwest of the station and Ron Keat Drive runs northeast of the station. The main access and the drop-off area is located along Rail Street West.

The existing railway runs south-north through Papakura. The station is located in central Papakura; therefore, travel to and from this station comes from both sides of railway (Figure 23).

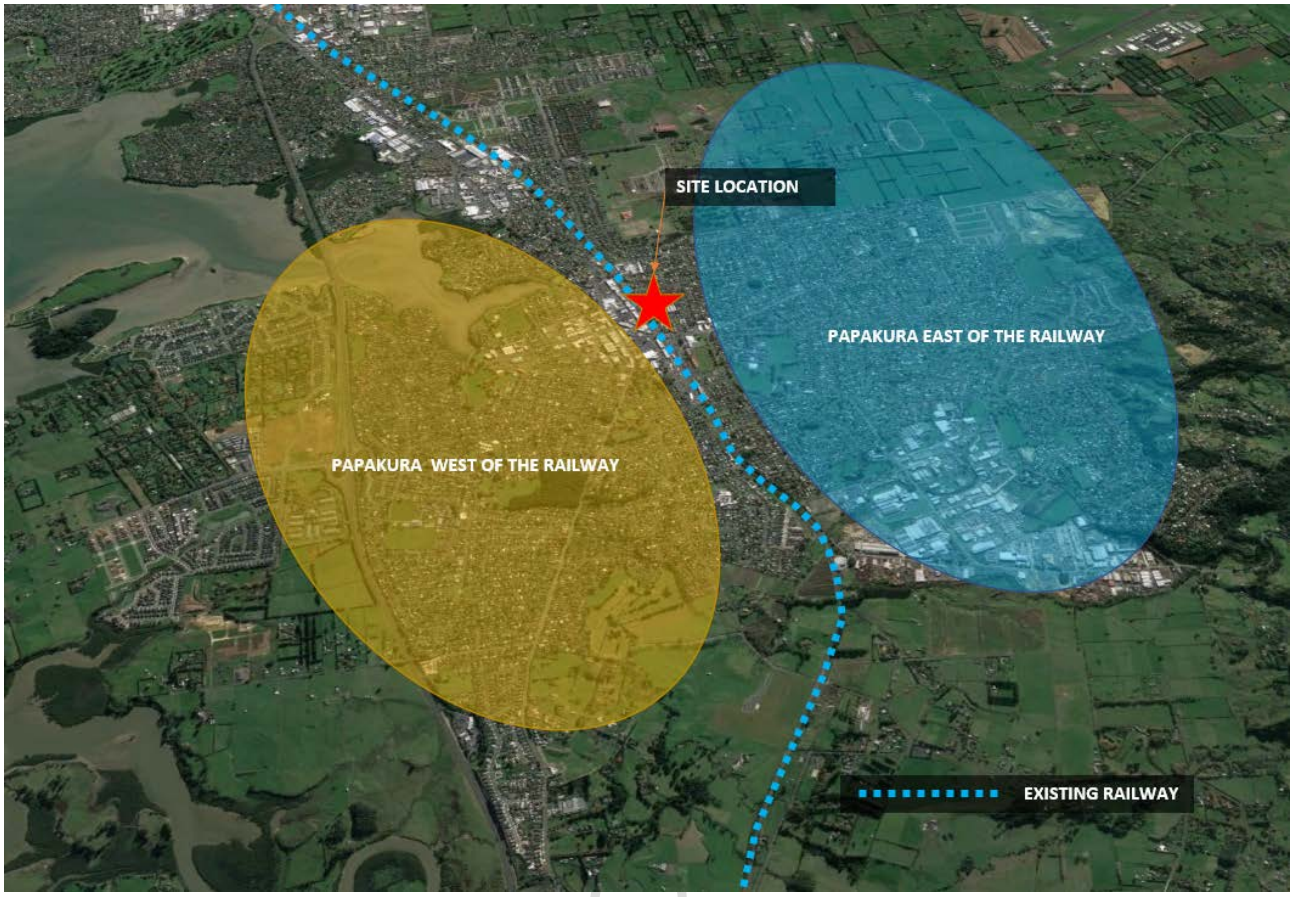


Figure 23: Papakura current township extension (basemap source: Google Earth)

Based on the AUP, the future urban area for Papakura is planned to predominantly extend south, as shown in Figure 24. Considering that, the future traffic demand for the exiting rail station is expected to increase significantly, unless a new rail station is provided further south of the existing one, in the future.

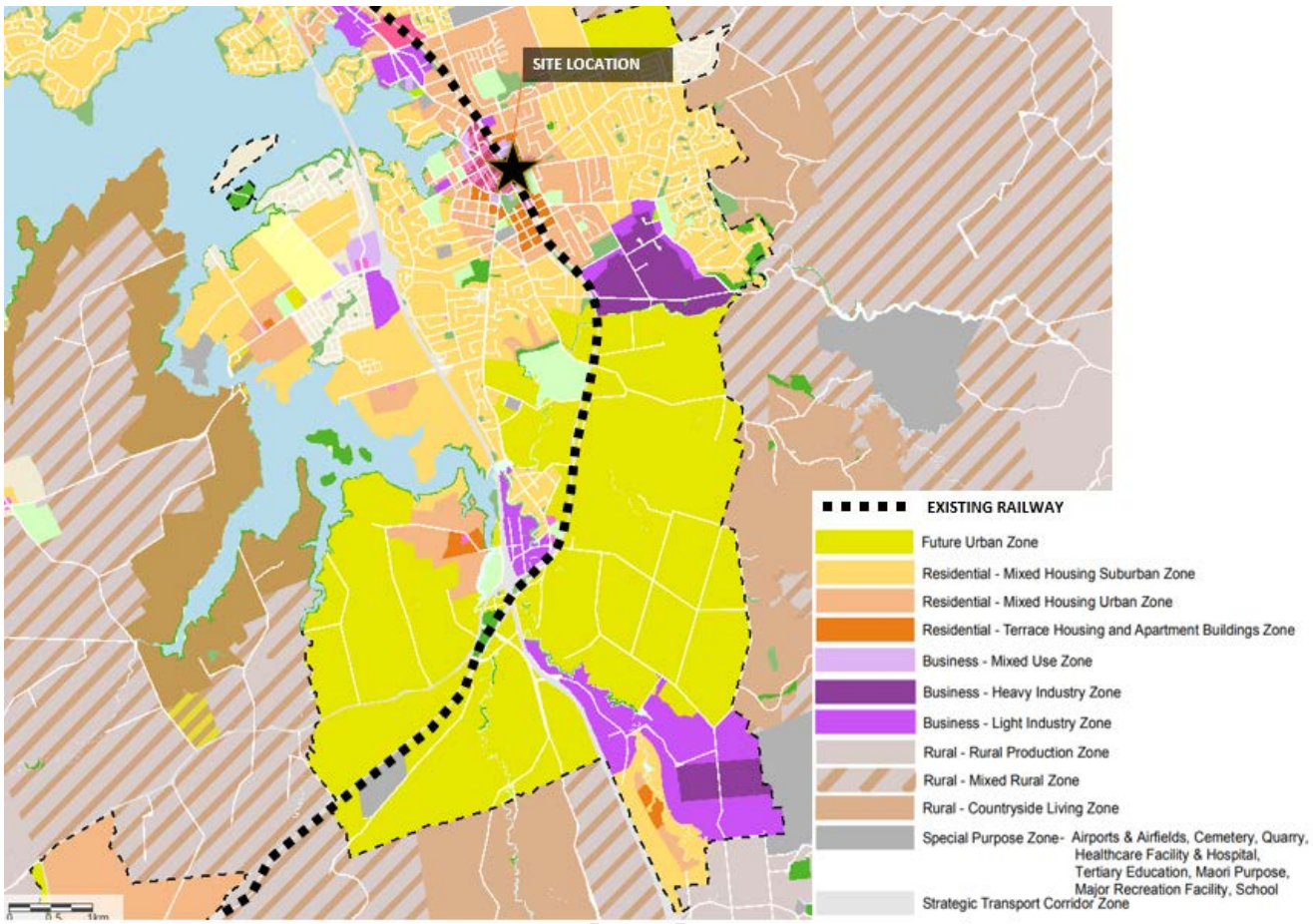


Figure 24: Papakura zoning map (Source: AUP Geomaps)

WALKING AND CYCLING FACILITY

There are footpaths available on all roads in the vicinity of the site. There are three crossing facilities (two raised zebra crossings and one courtesy crossing) along Railway Street West and one raised zebra crossing on Ron Keat Drive. There is also an overbridge pedestrian access to the station from Ron Keat Dive, and a pedestrian signal phase at the intersection of Clevedon Road and Railway Street (Figure 25).

The railway intersects with three roads in the vicinity of the station i.e. Settlement, Onslow and Clevedon Rd (Figure 25). They are all road over bridges and as such provide direct routes for all modes across the railway.

There is no cycle lane provided and cyclists are required to share the existing carriageway with other road users.

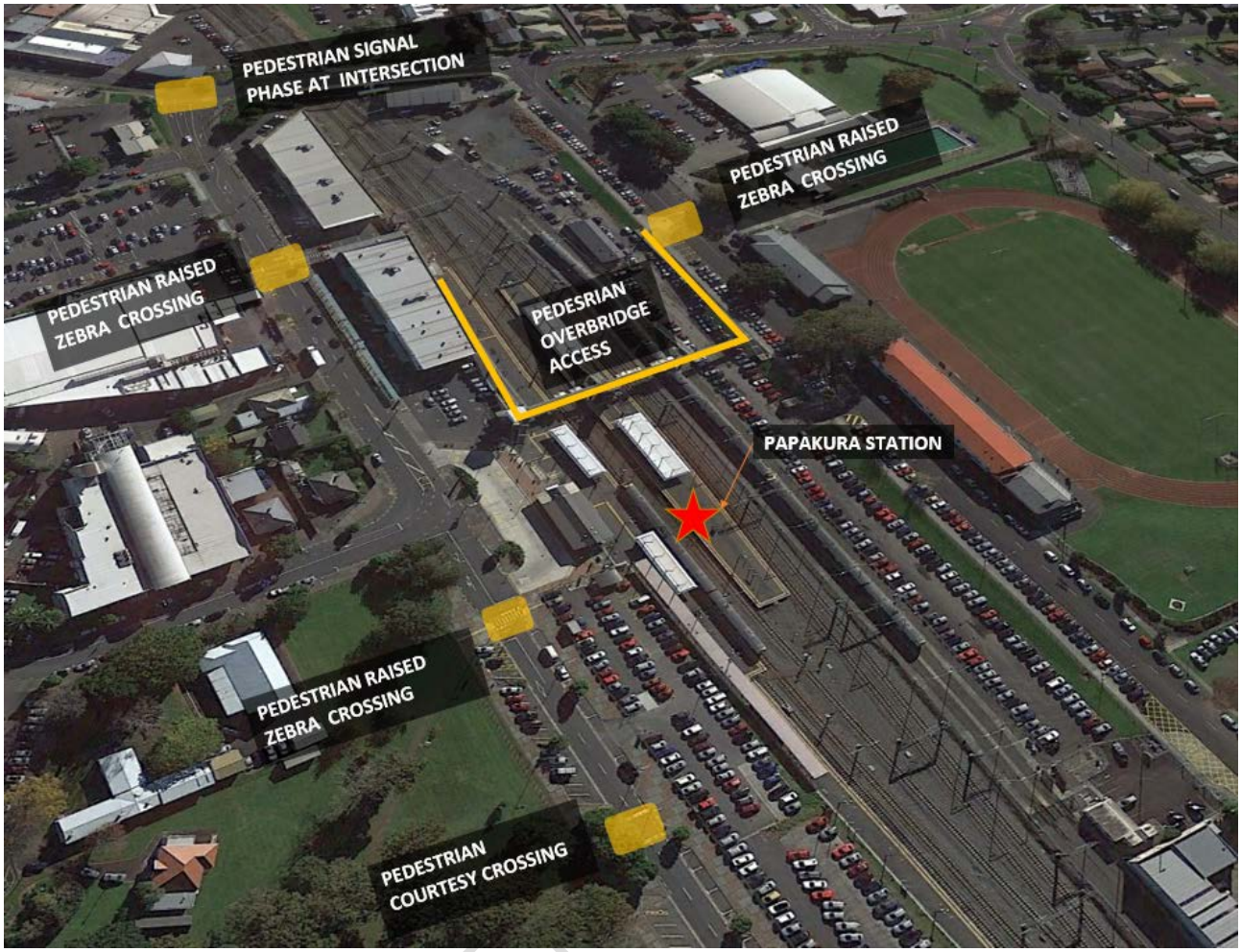


Figure 25: Pedestrian crossing (basemap source: Google Earth)

In terms of these proposals; and the interchange experience, Papakura offers the opportunity to access a range of employment locations within a 10-minute walks and 20-minute cycle of the station, many of these are retail. In terms of changing services within the station, Papakura is full accessible, has toilets and a coffee shop, overall the interchange should provide a relatively pleasant experience for travelers and time delays moving through platforms are likely to be small.

PUBLIC TRANSPORT

Papakura Station has good bus and rail connections. A number of buses travel from the bus stop outside the train station to various parts of Auckland. This bus intersection is within a 2-minute walk of the railway station and include safe crossing facilities between them. The southern line connects Papakura to Pukekohe, in the south and to Britomart in the north, this in the interchange point between these two services.

Services run regularly between 5am and 9.30pm Monday to Friday, with a late-night service on Friday evening. On Saturdays the service runs from 6am to midnight and on Sunday from 6am to 9pm.

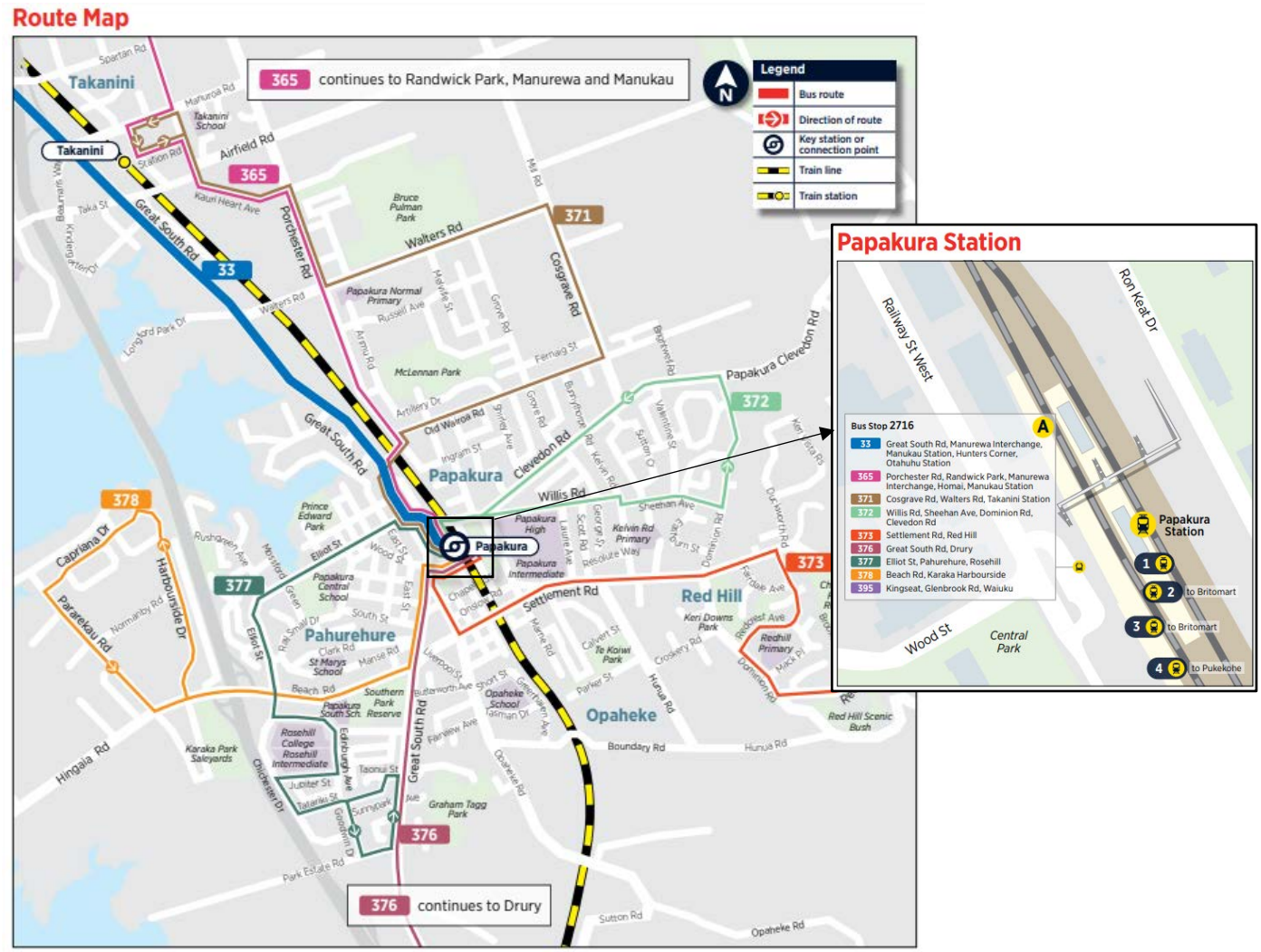


Figure 26: Papakura station with bus and rail services (source: Auckland Transport website)

Appendix L Risk Table

RISK TABLE

Source document / context	Risk / Assumption / Constraint	Theme	Description	Consequence	Mitigation
Station costings: Frankton Station	Risk	Cost	High Range station Costs are not based on a HCC reviewed design. Stantec is interpreting HCC preferences	Cost	Preliminary design
Station costings: Frankton Station	Risk	Funding	HCC have no budget for any improvements at the station.	Cost	
Station costings: Frankton Station	Risk	Cost	Quantities measured from hand sketch on aerial photos	Cost	Preliminary design
Station costings: Frankton Station	Risk	Cost, Delay	No extra parking to be built - Parking demand could exceed available space on existing station road network	Cost & Delay	Review demand
Station costings: Frankton Station	Risk	Cost	Carriage door platform gap acceptability not confirmed,	Platform modification costs	KR to confirm if issue
Station costings: Frankton Station	Risk	Cost	Need for CCTV not confirmed.	cost saving	
Station costings: Frankton Station	Risk	Cost	Functioning of existing lighting not confirmed.	cost saving	KR confirm
Station costings: Frankton Station	Assumption	Level of service	Assumes station will be opened and manned for this service (access to toilets, ticketing)	Lower LoS if not manned	Confirm preferred operation
Station costings: Frankton Station	Risk	Cost	Construction Costs are high due to specialist work and demand from other projects	Cost	programme work to avoid clash with other major works
Station costings: Frankton Station	Risk	Delay	RMA issues with station parking capacity	Delay	Review Plan
Station costings: Frankton Station	Risk	Cost	Contaminated land issues if construction required	Cost	Testing
KiwiRail feedback: Rotokauri Station	Risk	Cost	Safety assessment may require an overbridge rather than permitting a level crossing	Cost	Completed risk assessment Potentially additional funding
Options report: Rotokauri Station	Risk	Cost	Longer platform (long term solution) could elevate associated track slew costs, KR has not yet evaluated.	Cost	KR identify slew alignment and cost impacts
Options report: Rotokauri Station	Risk	Cost, Delay	Longer platform (long term solution) could be limited by Tainui land pinch point to north	Purchase cost & negotiation delays	KR identify slew alignment and impact on boundary
Options report: Rotokauri Station	Risk	Cost	Short side Road for car park access may not be built in time by Developer	Cost	HCC recover cost from Developer

Source document / context	Risk / Assumption / Constraint	Theme	Description	Consequence	Mitigation
Options report: Rotokauri Station	Risk	Delay	Limited access leads to construction platform tolerances error	delays	ensure specialist contractor
Station costings: Huntly Station	Risk	Cost	Platform raising costs based on area equivalents rather than known rates	Costs too high or low	Discuss with AT Experts
Station costings: Huntly Station	Risk	Cost	Preferred platform length assumed to be 150m. Potential for short platform to save costs or long term extended (200m)	Costs too high or low	
Station costings: Huntly Station	Risk	Cost	KR have small allowance ($300k) to revive disused station siding. *KR haven't yet confirmed if it's functional.*	Cost to rectify	KR to undertake check
Station costings: Huntly Station	Risk	Level of service	Parking area behind station is partially occupied by Corrections. WDC to confirm if remainder of site is lease-free.	Lack of suitable alternative parking	WDC to confirm
Station costings: Huntly Station	Risk	Cost	WDC decide nearest toilets across bridge are too far from platform / parking	Cost	WDC to confirm
Station costings: Huntly Station	Risk	Funding	WDC funding contribution not enough	Reduced LOS	WDC to undertake prelim design to firm costs
Station costings: Huntly Station	Risk	Cost	WDC assumes on-train ticketing - no kiosk and no manned platform. Not aligned with WRC.	Cost for kiosk	manning and ticketing policy to be confirmed
Station costings: Huntly Station	Risk	Cost	Construction Costs are high due to specialist work and demand from other projects	Cost	programme work to avoid clash with other major works
Station costings: Huntly Station	Risk	Cost	Utility clashes	Cost of diversion	
Station costings: Huntly Station	Risk	Cost	Platform cannot be raised, must be demolished and rebuilt (offset or foundation issue)	Cost	Specialist structural review
Station costings: Huntly Station	Risk	Cost	Platform or carpark geotechnical issues	Cost	Testing
Station costings: Huntly Station	Risk	Cost	Contaminated land issues	Cost	Testing
Station costings: Tuakau Station	Risk	Cost	Platform Rebuild costs based on area equivalents rather than known rates	Costs too high or low	Discuss with AT Experts
Station costings: Tuakau Station	Risk	Cost	Preferred platform length assumed to be 150m. Potential for short platform to save costs or long term extended (200m)	Costs too high or low	
Station costings: Tuakau Station	Risk	Cost	Large variation in KR costs - unsure whether track slew or bridge required	Cost to rectify	KR to undertake check

Source document / context	Risk / Assumption / Constraint	Theme	Description	Consequence	Mitigation
Station costings: Tuakau Station	Risk	Level of service	Longer platforms will taper at each end. Ends likely to be <10m wide	Below standard. LOS/safety	KR confirm workable due to very low passenger activity
Station costings: Tuakau Station	Risk	Cost	WDC decide nearest toilets in town too far - require toilets to be added	up to $400k for exeloo	
Station costings: Tuakau Station	Risk	Cost	WDC assumes on-train ticketing - no kiosk and no manned platform. Not aligned with WRC.	$20k kiosk needed	manning and ticketing policy to be confirmed
Station costings: Tuakau Station	Risk	Cost	Proposed pedestrian access via crossing proves unworkable, prompting bridge access.	$3M bridge	Provide approved crossing design
Station costings: Tuakau Station	Risk	Community	Option 1 600m2 carpark insufficient, and overspill on street parking disruptive	Parking disruption to neighbours	Build Op2 parking, or other adjacent street verge parking development
Station costings: Tuakau Station	Risk	Cost	Construction Costs are high due to specialist work and demand from other projects	Cost	programme work to avoid clash with other major works
Station costings: Tuakau Station	Risk	Cost	Utility clashes	Cost of diversion	
Station costings: Tuakau Station	Risk	Cost	KiwiRail identify drainage issues	Cost	Review disposal options
Station costings: Tuakau Station	Risk	Cost	Platform or carpark geotechnical issues	Cost	Testing
Station costings: Tuakau Station	Risk	Cost	RMA construction effects on adjacent residents (night works)		
Station costings: Tuakau Station	Risk	Cost	Contaminated land issues	Cost	Testing
Station costings: Tuakau Station	Risk	Delay	Limited access leads to construction platform tolerances error	Delays	ensure specialist contractor
Operational advice to enable Business Case development, KiwiRail risk register: 1.1	Risk	Funding	Insufficient funds to deliver a viable service		Strategic Framework, Business Case drafted. 'Start-up' level of investment put forward. Ongoing refinement of scope and associated

Source document / context	Risk / Assumption / Constraint	Theme	Description	Consequence	Mitigation
					costings. MOT / NZTA support
Operational advice to enable Business Case development, KiwiRail risk register: 1.2	Risk	Level of service	Interim service doesn't meet medium term needs		NZTA Business Case assessment. KiwiRail provided advice to Client on minimum service levels based on existing 'Regional services'
Operational advice to enable Business Case development, KiwiRail risk register: 1.3	Risk	Level of service	On-board facilities insufficient		KiwiRail provided advice to Client on minimum service levels based on existing 'Regional services'. WIFI and Café part of the scope
Operational advice to enable Business Case development, KiwiRail risk register: 1.4	Risk	Level of service	Service not reliable		Relocate spare loco during the day to provide contingency. Maintenance LOS determined
Operational advice to enable Business Case development, KiwiRail risk register: 1.5	Risk	Level of service	Delay information inadequately communicated		Confirm disruption communication responsibility
Operational advice to enable Business Case development, KiwiRail risk register: 1.6	Risk	Level of service	Fares too expensive		
Operational advice to enable Business Case development, KiwiRail risk register: 1.7	Risk	Level of service	Doesn't go far enough into central Auckland		Look at enabling the service to travel further North than Papakura
Operational advice to enable Business Case development, KiwiRail risk register: 1.8	Risk	Level of service	Service too slow		Reduce stop locations. Look at enabling the service to travel further North. Advocate for increased Network spend.

Source document / context	Risk / Assumption / Constraint	Theme	Description	Consequence	Mitigation
Operational advice to enable Business Case development, KiwiRail risk register: 1.9	Risk	Level of service	Poor timetable - unattractive arrival/departure times		Options being looked at. Modelling for Timetable committee
Operational advice to enable Business Case development, KiwiRail risk register: 1.10	Risk	Level of service	Insufficient time gates		Understand the possible number of services that can be run without significantly impacting on the timetable
Operational advice to enable Business Case development, KiwiRail risk register: 1.11	Risk	Level of service	Stopping locations do not maximise value		Stations selected based on corridor needs and ease of activating within start-up period
Operational advice to enable Business Case development, Operational advice to enable Business Case development, KiwiRail risk register: 1.12	Risk	Level of service	Inadequate supporting infrastructure i.e. platforms, overbridges		Start-up infrastructure included in the Business Case. Implementation through the first couple of years.
Operational advice to enable Business Case development, KiwiRail risk register: 1.13	Risk	Level of service	Ticketing		Paper ticketing a cheap immediate option.
Operational advice to enable Business Case development, KiwiRail risk register: 1.14	Risk	Level of service	Insufficient Carriages		
Operational advice to enable Business Case development, KiwiRail risk register: 1.15	Risk	Level of service	Insufficient Loco availability		2 Locos required for service, 1 maintenance spare (however no cover should there be an outage).
Operational advice to enable Business Case development, KiwiRail risk register: 1.16	Risk	Level of service	Platform lengths constrained		~~Start-up infrastructure has short platforms specified. Door control design to allow 'short train' option.~~

Source document / context	Risk / Assumption / Constraint	Theme	Description	Consequence	Mitigation
					Provide longer platforms at stations.
Safe operation, KiwiRail risk register: 2.1	Risk	Resources	Insufficient locomotive engineers: KiwiRail has existing LE shortage, and is projected to be 30 LEs short by Dec 19. Training lead time 2 years		Accelerate recruitment/training. Allocate specific LEs to the make the A2H service possible
Safe operation, KiwiRail risk register: 2.2	Risk	Level of service	Access to new platforms: Short term has pedestrian level crossings being installed. LCSIA assessment required, assume automatic gates will meet requirement		LCSIA assessment required. Sign off LCSIA. Project Manage installation
Safe operation, KiwiRail risk register: 2.3	Risk	Level of service	Safe operation: If train cannot go north of Papakura then SA as lead vehicle will be required		Risk Assessment to be undertaken. Level crossing upgrades required.
Safe operation, KiwiRail risk register: 2.4	Risk	Operations	Safe operation: License to Operate. Specific Safety Case required for the new service		Safety case provided to regulator (NZTA)
Carriage design, modification and commissioning, KiwiRail risk register: 3.1	Risk	Resources	Insufficient carriage modification expertise to meet cost and timeline requirements		Dependant on 4.2
Carriage design, modification and commissioning, KiwiRail risk register: 3.2	Risk	Resources	Insufficient engineering design resource to undertake requirement		Recruit designer and Project Manager
Carriage design, modification and commissioning, KiwiRail risk register: 3.3	Risk	Funding	Design requirement necessitates additional funding		Strong Client decision making
Project management, KiwiRail risk register: 4.1	Risk	Delay	Purchase of carriages from AT: Late Government sign off delays funding and commencement		Briefings to Ministers
Project management, KiwiRail risk register: 4.2	Risk	Delay	Purchase of materials for modification: Late Government sign off delays funding and commencement. Loco refurb have an		Request fund from alternative Government source

Source document / context	Risk / Assumption / Constraint	Theme	Description	Consequence	Mitigation
			immanent timeslot requirement - implication is Dec19 for 2nd service		
Project management, KiwiRail risk register: 4.3	Risk	Delay	Maintenance facilities not set up: New mechanical facilities to be built.		Detailed costings and project plan required. Short term contingency - work can be done at Loco facilities.
Project management, KiwiRail risk register: 4.4	Risk	Delay	Maintenance facilities not set up: Lack of clear 'client' determining scope		MOT nominated client. Governance groups being established, tactical meetings being undertaken
	Risk	Delay	Insufficient time to competitively tender the provision of rolling stock within the implementation timeframe (see constraints), limiting rail options and increasing cost risk	Delay, cost	negotiations should be informed by benchmarking
	Risk	Delay	Insufficient time to competitively tender rail operations within the implementation timeframe, limiting rail options and increasing cost risk	Delay, cost	negotiations should be informed by benchmarking
	Risk	Level of service	A requirement for locomotive overhaul to enable rail options, and the use of the overhauled locomotives on freight services	Maintenance cost	
	Risk	Funding	Limited funding for rail stations within the Waikato District		
	Risk	Cost	Insufficient information on rail option maintenance facility costs		
	Risk	Level of service	Further investigation is required to confirm whether rail services can operate north of Papakura		
	Risk	Level of service	Cannot make all four stations operational by October 2019		Plan a staged transition across all four stations, prioritising block of line etc. to give best chance of start-up October 2019
	Risk	Cost	Operator ownership of rail rolling stock and supporting facilities	Cost	Benchmark costs when negotiating
	Risk	Cost	Negotiated operating contracts are a potential cost risk		Benchmark costs when negotiating

Source document / context	Risk / Assumption / Constraint	Theme	Description	Consequence	Mitigation
NZTA draft business case feedback	Risk	Level of service	Provide a poor service that constrains future rail development update		Provide a fit for purpose service at start up with a planned increase in viable level of service to support growth in demand.
	Risk	Level of service	Stakeholder expectations short vs long term		Engage through workshops. Have clear and agreed goals for the service over time. ITCWG discussions.
	Risk	Safety	Safety (level crossings at stations)		Complete LCSIA level crossing safety impact assessments for each of the crossings
	Risk	Level of service	Timetabling review		Have early discussions with Timetable Committee to establish timetable slots for the service
	Risk	Level of service	If miss slot – how big is delay?		Negotiate train priority Have multiple timeslot options available in timetable review
	Risk	Funding	Reliability of demand model outputs		Peer review, update model as needed, use multiple sources to validate or calibrate inputs.
	Risk	Cost	Servery is not included at start up increasing cost of establishing servery in future, and also increasing cost of delivery now with redesign of one of the carriages.		Demonstrate positive BCR is still achieved with Servery included, include servery to future proof growth and penetration of service to the Strand if demand grows and space becomes available

Source document / context	Risk / Assumption / Constraint	Theme	Description	Consequence	Mitigation
	Risk	Cost	All costs are indicative based on concept or preliminary designs and may change	Cost	Review when more detailed information is available and optimise where possible

Appendix M Station Concept Development Discussion

Meeting Title

H2A Rail Commuter Project – station concepts development /

Date/Time:	August 24, 2018 / 10:00 AM
Place:	Waikato District Council
Next Meeting:	Next Meeting Date
Attendees:	James Watt, Doug Weir (Skype), WDC, WRC
Absentees:	N/A
Distribution:	A Maughan, D Weir

Safety Moment: None

Item: Action:

Tuakau

- Only the existing platform position was discussed (the dairy factory option was not).
- The preferred access point is from the existing ped level crossing similar to the Auckland Morningside access. We noted however Tuakau track separation may be narrower and is further from the platform that Morningside. (File note: track centre to centre measured at 6.9m at Tuakau crossing).
- Doug suggested platforms should be future proofed as they are expensive and difficult to build.
- Jose suggested moving existing crossing south-east along track to a point where it widens out enough.
- Jose mentioned demand is 44 passengers per direction per day.
- Option 1 P&R is a 600m2 WDC owned lat at the corner of Liverpool and George.
- Option 2 P&R is 1000m2 park on St Stephens St, where a toilet is proposed.
- Large bare area on north side of Dominion Rd is not favoured – waterlogged and would need a lot of engineering.
- ATs platform shelter standards are too high – WDC would favor lower standards i.e. bus shelter.
- Tuakau recognized as a difficult site and one that is unlikely to be achievable by next year.
- Layout diagram below.

Huntly

- The existing platform configuration has been assumed by WDC.
- One of WDCs key stations.
- One advantage is that the existing platform is separated from the main lines and thus easier to build.
- Another is that the existing ped overpass resolves ped access (but not disabled).
- Doug raised a side island option, which may be more likely once SH1 is revoked to allow a west side platform (not enough room at present).
- WDC have assumed the existing small gravel parking area would be fixed up for parking plus a bus turning area.
- The corner of the area is occupied by Corrections. It is not clear whether there is a lease on the whole area.
- Jose suggested the cost of raising a platform is around $0.75-$1.5M, sourced from AT.
- The parking would just be basecourse and chipsealed.
- It has a substantial central platform (would need raising), and an existing chicane ped level crossing next to it. There is a gravel carpark immediately west of the crossing.

Rotokauri

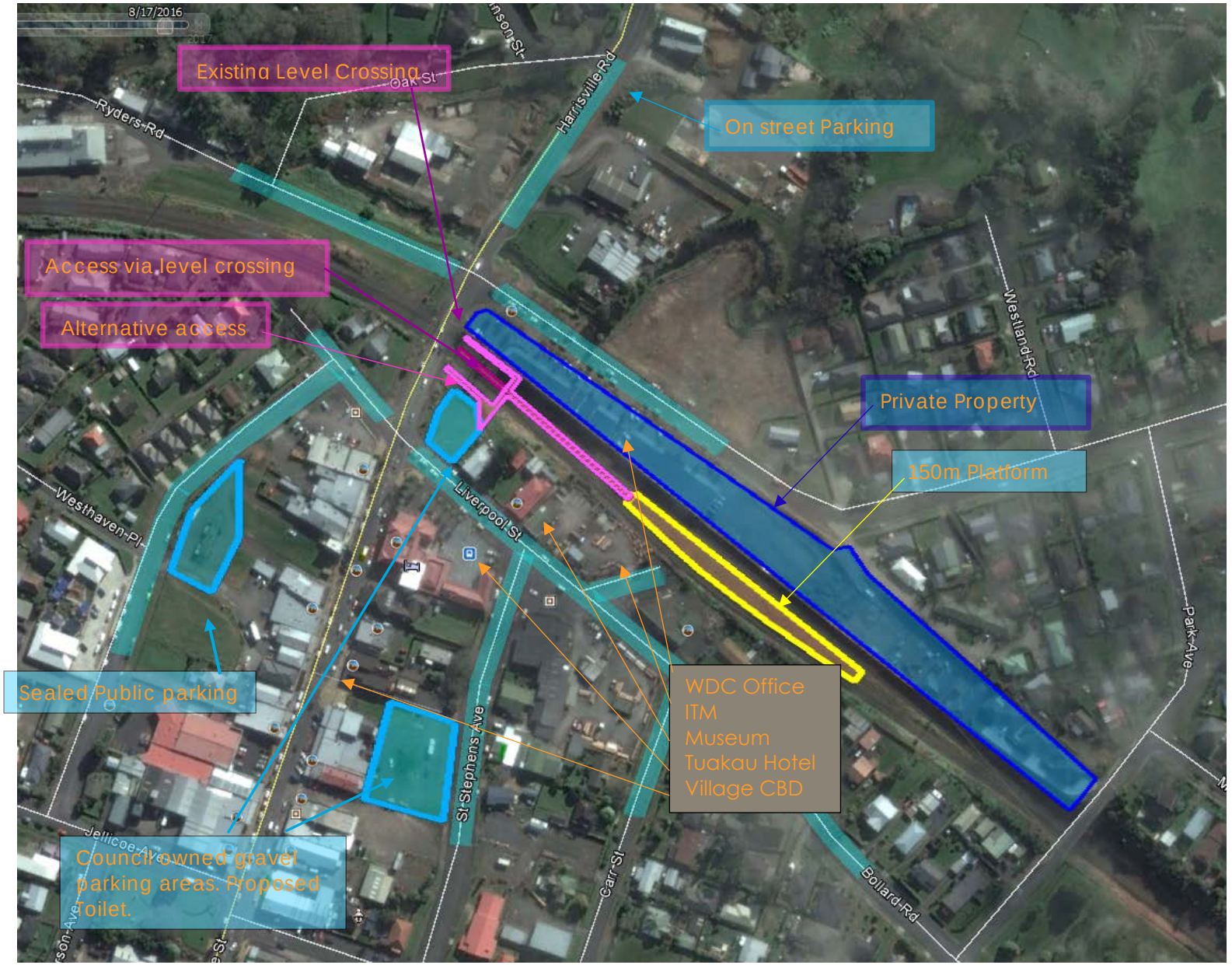
- HCC have committed this project to design.
- Option preferred is a variation of 3A.
- It will have a ped level crossing, which is going thru approval.
- There is a speed issue on Tasman Rd due to 80kph preventing a ped crossing. This is being resolved by posting a different speed and working towards a permanent lower speed limit.
- Long term desire is an overbridge to the base, and also to the edge of Tasman Rd (ie 3 piers).
- Jose suggested extending the bridge over Tasman Rd (i.e. 4 piers).
- 200m platform length, which is longer than allowed in the report option 3A.
- KR needs to check track slew will impact Tainui-owned land pinch point on the north-west quadrant of the site.

Frankton

- It can be re-marked for about 100 spaces as follows:
- The existing station has a wide boulevard type entrance which can accommodate parallel parks both sides (12m wide). It is not marked, so any current parking is casual.
- The existing 25 spaces is shown as a block.
- Around the periphery is space for a further 70-75 spaces, shown as tea.l
- three spaces disabled, shown green.
- Taxi is shown yellow.
- Two buses (14m +14m + 6m swing in at rear) space of 34m is in orange
- If the parking is marked as circulating one way, the carriageways are minimum 9m which is ample for parallel parking on one side. I haven't done parking on the other side for safe visibility reasons.
- Its not perfect; some verges are missing footpaths so Joe Commuter has to walk on the roadway. About half can cross directly onto the platform.
- There is a fair bit of unused Queens Ave parking as well, not shown.
- Normal parking demand is minimal here – there's no nearby business and it sits just outside the CBD and Frankton commuter parking demand area. But it does get parked up for very occasional events at the lake, just to the south east, like "balloons over Waikato".
- The new rail trail shared path is shown pink.
- With this in mind, do you still want to price up an extended park and if so, how big? As you can see there is ample grass area for 400+ cars.

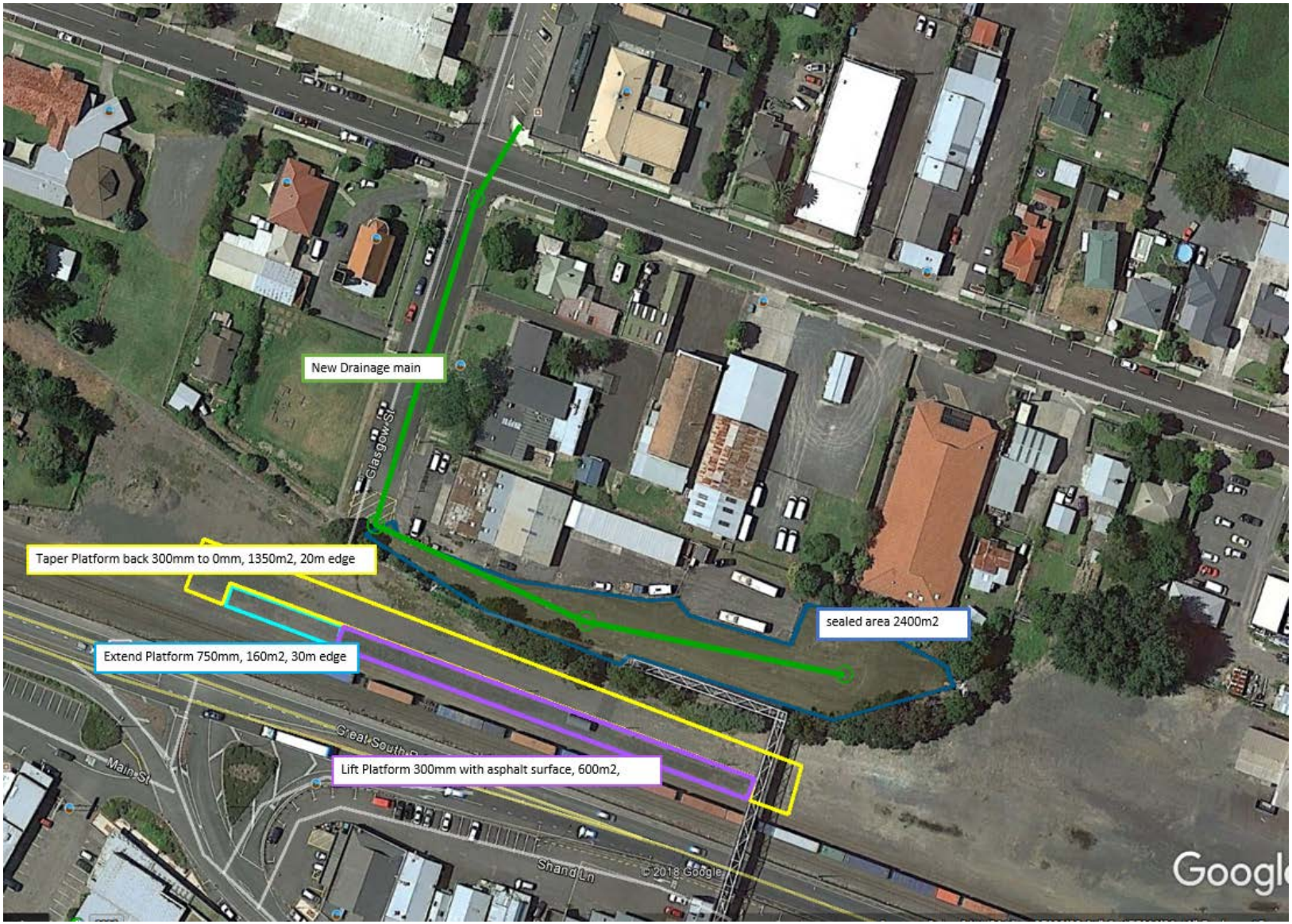
  Not discussed

Tuakau Station



Appendix M Station concept development discussion

Huntly


New Drainage main
Glasgow St
Taper Platform back 300mm to 0mm, 1350m2, 20m edge
sealed area 2400m2
Extend Platform 750mm, 160m2, 30m edge
Main St
Lift Platform 300mm with asphalt surface, 600m2,
Shand Ln
© 2018 Google

Rotokauri

AECOM

PROJECT
Rotokauri Park & Ride

CLIENT
Hamilton City Council

CONSULTANT
AECOM New Zealand Pty Ltd
www.aecom.com

REGISTRATION

FOR INFORMATION ONLY

PROJECT MANAGEMENT INITIALS

NR	-	-
DESIGNER	CHECKED	APPROVED

ISSUE/REVISION

A	11.05.2015	Draft for Discussion
VR	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER
60569159

SHEET TITLE
Rotokauri Park and Ride
Option 3A (104 Car Parks)

SHEET NUMBER
60569159-SKE-CI-0004

Frankton

Appendix M Station concept development discussion

Appendix N Report to TCWG Passenger Rail Specification – 4 July 2018

4 July 2018

Report to Hamilton to Auckland Transport Connections Working Group

1. A meeting was held in Auckland between KiwiRail (David Shepherd, Leon Bennett), Hamilton City Council (Chris Allen) and Waikato Regional Council (Bill McMaster, Jose Gonzalez) on Tuesday 3 July 2018.

2. The purpose of the meeting was primarily around gaining agreement on the design details of the Hamilton to Auckland passenger rail consist (Loco and car/carriages).

3. B McMaster updated the group on the fact that the Strategic Business Case (SBC) has been approved by NZTA and the application for the Detailed BC funding and pre-implementation funding has been lodged into the 2015-18 Regional Land transport Plan and into TIO.

4. It was agreed that KiwiRail needs a point of contact (Project Manager) at WRC to advance operational matters. WRC to discuss resourcing with Mike Garrett.

5. Platform length – it was agreed that the Detailed Business case needs to include 3 options for platform length - an ultimate future length platform (>140m), a probable platform to take 6 car consist (140m) and a shorter platform (60m) – noting the shorter platform will not be very workable.

6. Consist size – Discussion was held on a 6 car consist (incl loco). KR keen not to go beyond a 6 car consist at this stage (ie. a 9 car consist introduces additional design challenges)

7. Carriage refurbishment – Keith from Barnacle Design joined the meeting by teleconference. Leon noted KR is moving quickly to scope and gear up internal resources to get things moving. Planning that by October this year the final design will be completed.

8. Previous projects that are applicable to the design of the Ham-Auckland rail service are Capital Connector, BR consists, Auckland metro SA/SD metro push pull, Wairarapa Connector, SE Class (Wellington Metro) and AK Class - KR long distance tourist class).

9. A2H consist requirements are:
    a. Onboard TM, staff
    b. Vestibules and toilets
    c. New seats and tables and USB power
    d. Disabled hoist and toilet
    e. Servery
    f. Bike rack.
10. Decisions reached were:
    a. Overhead luggage rack – agreed not to install overhead luggage racks – very expense option ($1.7 Mill) and difficult to install. The vestibules at the end of the carriages would suffice for passenger's luggage and light bags can be at the feet of the passengers.
    b. Lighting – use existing carriage lighting systems (supplemented by some extra downlights).
    c. Windows – agreed to keep existing carriage windows as they are (ie. not bigger).
    d. Generator – KiwiRail likely to purchase a new generator for the SD unit.
    e. Door reconfiguration – agreed to keep AT Metro style doors as they are already installed in the carriages – big cost to change metro doors to quarter doors (noise and seating capacity is the trade off by keeping the metro doors however Keith advised that noise should not really be an issue).
    f. Toilets – agreed to have a toilet in each carriage with a disabled toilet to be in the café car. (noted international standard is one toilet per 50 people).

g. Bikes - Agreed to allow for 4 bikes on one SA carriage (noting that bikes cannot be transferred on to AT Metro services at Papakura – cost for bike configuration approx $15k.
h. Decision on consist configuration. It was agreed that the following consist configuration would be used:

Type	Seating	Train 1	Train 2	Spares	Total
SD	28	1	1	1	3
SA(C)	20	1	1	1	3
SA (WCs)	50	3	3	1	7
		5	5	3	13

11. For the above consist size (around 200 seats/train) the capital cost will be $14 Million (13 units). KR noted that if they were to secure the early funding then could still meet the Oct. 2019 start date.

12. Wifi will cost in the order of $30k per carriage to fit equipment and $in excess of 250k per year to operate to deliver an average service– spend relates to the level of service provided. An option of having Wifi at stations along the way was thought a viable alternative to full Wifi on the service.

13. Inter-peak service – noted that it would be possible to do one inter-peak service with each consist ie can have 2 inter-peak services. There will be increased operation cost associated with the inter-peak services. Noted at present WRC local share capped at $1.6Mill. Options are either to go back to WRC Council to lift local share funding or seek additional funding support from NZTA re higher FAR rate than 75%. The interpeak service is to be taken to the Working Group as an option.

14. Timetabling Committee- David is working on the paper for the Timetable Committee with no peak services included in the proposal. A follow up paper will be needed if decide to proceed with inter-peak service.

15. Branding – Agreed that WRC and KR work together on service name and branding noting the colour scheme would need to be compatible with KR standard rail colours and be low maintenance. Susi Marinkovic at WRC is a contact point of branding etc.

16. Locomotive contingency and service level – agreed that the proposal should include one spare loco at this stage. However this is likely to not provide a sufficient level of service given maintenance requirements. KiwiRail will investigate potential to access pool vehicles.

17. Agreed that WRC prepares a report to the Transport Connections Working party on the decisions reached on the detailed design of the consists and cars/carnages. KR needs certainty to the design to enable them to finalise detailed design by Oct 2018.

Note: Post meeting Bob Alkema advised that NZTA can consider the funding for early release of $5.7Million to KiwiRail if WRC activated the application in TIO and accompanied it with a letter outlining the reasons for proceeding in advance of the DBC being completed (and outlining where the process is currently at). A report would be prepared for the NZTA CEO to consider releasing early funding. Bob agreed to travel to Hamilton next week to meet with the parties to work through how the funding release process will work.

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