

Technical Note

To	Auckland Transport & Waka Kotahi	From	20Connect & A2B Project Team
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Subject	Southwest Gateway Staging Technical Note		

1 Introduction

This Technical Note describes the strategic purpose and methodology of staging the delivery of the Southwest Gateway Programme (SWGP).

The Short-Term Airport Access Improvements (STAAI), 20Connect and Airport to Botany (A2B) Single Stage Business Cases (SSBC) identified significant transport issues in south and east Auckland. These problems are not only future forecasts – accessibility and demand issues are affecting Aucklanders now and will continue to be exacerbated if action is not taken in the near term.

Part of this problem is being addressed by the STAAI SSBC, however additional benefits have been identified (i.e. developing public transport demand with minimised infrastructure impacts, optimising capital expenditure in constrained funding environments etc. – see Section 3) through provision of a staged approach to the delivery access and urban regeneration benefits of the 20Connect and A2B preferred options to further influence behaviour change towards a balanced mode share. This immediate problem / opportunity, coupled with constrained Government funding envelopes, led to the development of this Southwest Gateway Programme Staging (SWGP) Methodology.

Section 1.1 describes the 20Connect and A2B study areas in the context of the wider SWGP, leading into the body of the document as illustrated in.

The staging strategy presents indicative timeframes for the implementation of the programme; however, it is anticipated that timeframes may change and therefore funding gateways have been identified for each element of the programme. These are anticipated to be monitored and are ultimately expected to supersede the indicative implementation dates.



Figure 1-1: Document structure

1.1 Context – SWGP Study Area

The SWGP study area encompasses the broad swathe of southern and eastern Auckland from the airport and surrounds in the south-west to Botany in the east, as shown in Figure 1-2.



Figure 1-2: SWGP initiatives¹

The four programme partners, Te Ākitai Waiohū, Waka Kotahi New Zealand Transport Agency (Waka Kotahi), Auckland Transport (AT), and Auckland Airport are working together to deliver the proposed interventions under SWGP. This staging strategy looks to align delivery of SWGP elements over time for the three road controlling authorities (RCA), Waka Kotahi, AT and Auckland Airport. While the wider programme has a focus on the southwest and the airport, the public transport element - A2B - also addresses passenger needs between these areas and the east and south of Auckland.

The SWGP was developed as part of the earlier Airport Access Supplementary Programme Business Case (SPBC) and comprises the following projects:

- 20Connect – State Highway (SH) 20, 20A and 20B projects in the southwest largely connecting to the Airport (in green above)
- Airport to Botany Rapid Transit (A2B) (see in blue above)
- Auckland Airport Precinct Improvements (AAPI) (in yellow above).

The recommended SWG option is shown in Figure 1-3. Both A2B and 20Connect have early stages that are now being progressed to construction that will include an enhanced interchange on the main rail line at Puhinui with priority for bus services to the airport.

¹ Sourced from: <https://www.nzta.govt.nz/assets/projects/southwest-gateway/Southwest-Gateway-programme-overview-poster.pdf>



Figure 1-3: A2B and 20Connect recommended options

2 Purpose of the Staging Methodology

The intention of the proposed Staging Methodology is to demonstrate the potential approach to and strategic benefits of staging, and why this provides an opportunity to influence travel behaviour while matching expenditure and capacity with demand. The Staging Methodology does not intend to prescribe the exact delivery method for the SWGP, and recognises that specific stages and delivery methods may change depending on various interactions with other projects (e.g. City Centre to Mangere Light Rail, Auckland Manukau Eastern Transport Initiative etc.), capital and operating budgets, etc.

The Staging Methodology also highlights the need for early activity in the pre-implementation phase of the programme to meet a 2035 A2B implementation date, in line with the SWGP Consenting Strategy approach.

However, each stage has been considered and assessed by various stakeholders and experts including Auckland Transport (AT), Waka Kotahi New Zealand Transport Agency (Waka Kotahi), MRCagney and EY, to propose a likely and realistic staging outcome.

3 Strategic Alignment

As mentioned above, the 20Connect and A2B preferred options aim to influence behaviour change towards a more balanced mode share environment (particularly increases in public transport and active mode use) for transportation. A2B interventions provide enabling public and active transport infrastructure, while 20Connect interventions are focussed on future road demand (as well as enabling infrastructure for A2B). Staged delivery of these interventions has several strategic benefits, including:

- Allows existing problems to be addressed and benefits to be realised in the shorter-term with less costly interventions (compared to a full-investment non-staged approach which is less attractive under current funding constraints);

- Provision of public transport upgrades prior to roading upgrades further promotes positive mode shift, encouraging uptake of public transport and active modes before adding further road capacity;
- Allows for more informed decision making at each stage, assessing the effectiveness of interventions and better targeting future interventions under the programme (e.g. potential to further offset road improvements should A2B provide greater than modelled behaviour change); and
- The above point provides the opportunity to increase value for money outcomes by targeting investment for greatest benefit, while also spreading the quantum of funding requirements over a longer period.

In addition to the above, a staged approach provides further alignment to government strategies and priorities, some of which are highlighted in the following section (Section 3.1). For further information on the strategic alignment of the preferred option, refer to the respective 20Connect and A2B SSBCs.

3.1 Government Priorities

The Auckland Transport Alignment Project (ATAP, 2018)² identifies the A2B and supporting 20Connect upgrades as a key link between southern and eastern Auckland, as well as providing a key connection to the rail network at Puhinui. Similarly, the ATAP suggests staging the A2B project to be the preferred implementation method, and that Horizon 1 interventions are an immediate priority while an extension through to Botany is a future priority. Similarly, the ATAP Better Travel Choices Plan (December 2019)³ highlights *“phasing delivery of the Airport to Botany rapid transit corridor through early delivery of the Puhinui interchange, rapid transit like services and dedicated bus lanes”* as a key opportunity to be explored over the next five years.

The Government Policy Statement (GPS)⁴ on Land Transport is clear in its prioritisation of accessibility, safety, environment and value for money. Provision of low-capital high economic return short to medium term solutions is in direct alignment with the goals of the GPS and its supporting plans – particularly in transport demand management (TDM) interventions and the overarching drive to influence behaviour away from private vehicle transportation. Throughout the following sections, references are made to the strategic benefits aligned to each of the proposed horizons.

Prioritisation of non-infrastructure and infrastructure elements of the SWGP Projects from a staging perspective also aligns with the National Land Transport Fund (NLTF) intervention hierarchy as described in Figure 3-1.

² Auckland Council. 2018. *Auckland Transport Alignment Project*. Auckland: New Zealand Transport Agency

³ <https://www.transport.govt.nz/assets/Import/Uploads/Land/Documents/19-422-ATAP-Better-Travel-Choices-mode-shift-plan-Dec-2019-FINAL.pdf>

⁴ See: <https://www.nzta.govt.nz/planning-and-investment/national-land-transport-programme/government-policy-statement-on-land-transport/>



Figure 3-1: A2B and 20Connect alignment to the NLTF intervention hierarchy

This alignment is particularly strong where a staging approach allows for a targeted demand management focus, before maximising value for money in making informed transport infrastructure decisions in the future.

4 Staging Methodology

The following sections describe the five staging horizons of the SWGP:

- **Horizon 1** – Short Term Improvements & ‘AirportLink’ Service
- **Horizon 2** – Medium term solution⁵
- **Horizon 3** – Targeted infrastructure upgrades
- **Horizon 4** – Full Airport to Botany Rapid Transit service and infrastructure
- **Horizon 5** – SWGP ultimate solution

Each horizon is characterised by:

- The strategic and practical purpose of the horizon,
- The specific elements to be delivered in the horizon (i.e. infrastructure, service), and
- Details on the A2B RTN service characteristics, overall capital costs, operating costs and risks for the Horizon.
- Funding gateways (investment management approach) that outline both practical delivery dependencies and operational requirements that should be achieved prior to implementation of each element of the project.

⁵ For more information, refer to the Medium-Term Report (Appendix Q of the A2B Rapid Transit and 20Connect SSBC – SWGP)

Figure 4-1 illustrates a dashboard summary of the SWGP staged delivery approach.

The staging approach can be characterised as follows:

- Aligned with the mode-shift strategy – prioritising public transport and providing an opportunity for mode shift ahead of major additional highway investment.
- Connecting with related infrastructure investments, particularly Auckland Airport and Eastern Busway
- Supporting transit-oriented development at Manukau
- Allowing investment to be aligned with growth in demand to optimise the investment profile, while leading demand and growing public transport mode share.

While time horizons have been assumed in this strategy to inform economic analysis and financial planning, funding gateways and associated measures have been included. It is assumed that these funding gateways will be used to determine the actual scope and timing of each stage of the investment at gateway reviews.

Southwest Gateway | Airport to Botany Summary | Workflow & Delivery

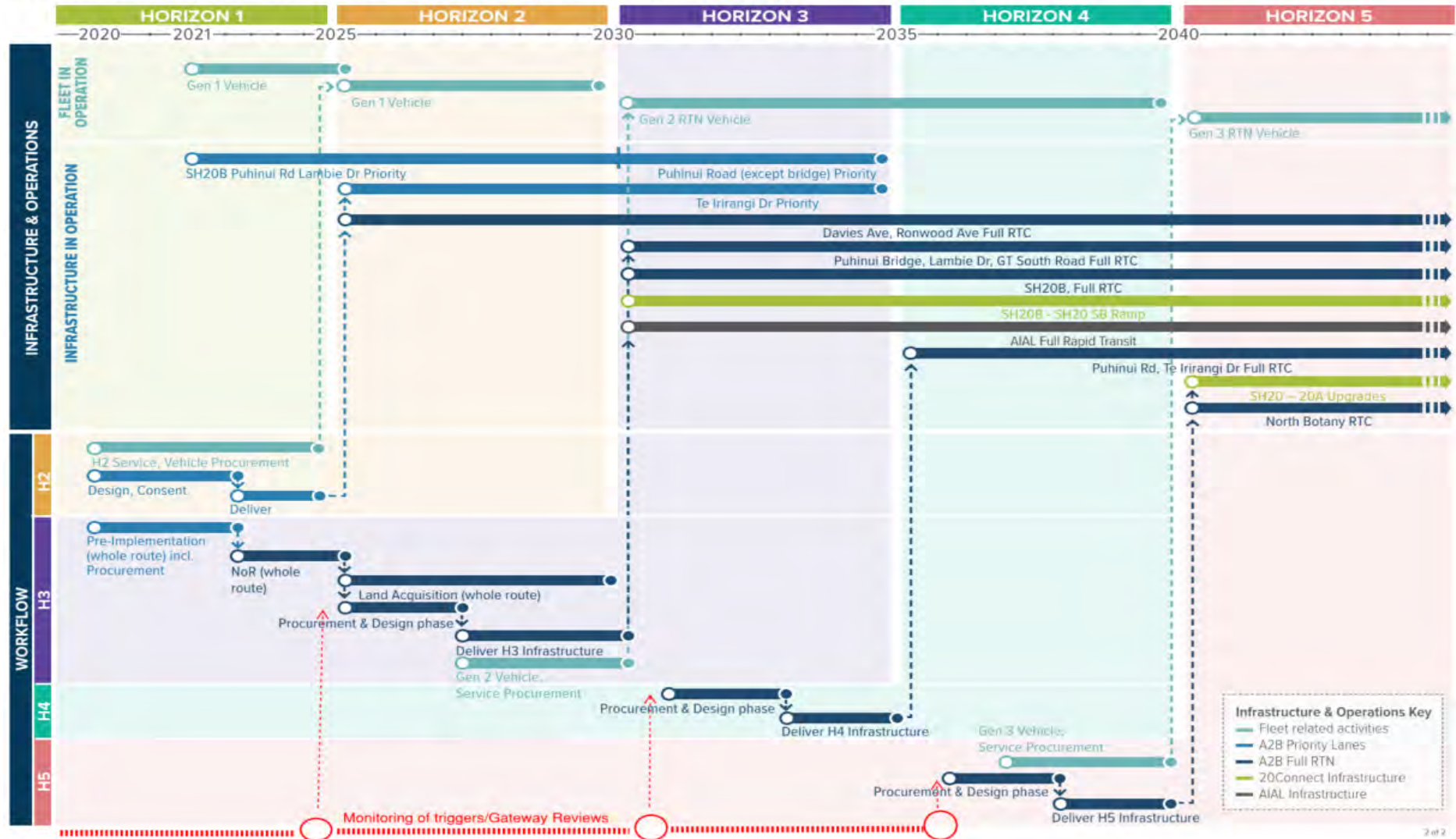


Figure 4-1: SWGP staging dashboard

4.1 Horizon 1: Short Term Improvements & 'AirportLink' Service

Horizon 1 depicts the proposed “Early Deliverables 2020/2021” service from the Airport to Manukau, which:

- Provides relief for immediate problems identified on the Airport to Manukau route, with provision of the “AirportLink” style service implemented;
- Ties in the local bus network to the critical existing rapid transit network connection at Puhinui; and
- Prioritisation of the Airport to Manukau section of the A2B alignment, as this area and connection will have the highest demand in the short term (and therefore potential accessibility and value for money benefit) - allows later horizons to expand from this connection and gain efficiencies from any lessons learnt.
- Includes route protection activities, which are critical to meeting the 2035 A2B project delivery timeline. This is in line with the project’s current position in ATAP decade 2 (2028-38). In order to deliver by this date a number of pre-implementation activities, including consenting, property acquisition, engagement and reference design to support these processes needs to commence in 2021 due to the long lead in times to complete these phases and close out appeals and objections prior to a 4-5 year construction phase commencing. Further detail on the approach to consenting and the importance of pre-implementation activities can be found in the SWGP Consenting Strategy and A2B SSBC Management and Commercial Case.

For more information on the interventions proposed in Horizon 1, refer to the STAAI Business Case and the AT A2B website⁶. Horizon 1 interventions are summarised here (Table 4-1) for reference only.

Table 4-1: Horizon 1 summary

Component	Details
Time Horizon	2021
Description	Provision of improvements along SH20B through to Manukau Station as part of the STAAI SSBC, as well as a new "AirportLink" bus service between the Airport and Manukau.
Purpose	This stage provides immediate benefit through the provision of a faster, more reliable public transport connection from the Airport to Manukau and to heavy rail at Puhinui Station at relatively low capital cost.
A2B: Mode	- Electric bus, with luggage rack and "AirportLink" branding - Single deck, standard bus length
A2B: Frequency	10 minutes in the peak commuting periods - At least every 15 minutes at other times (including weekends)
A2B: Span	04:30 – 01:30 (including on weekends)
Key Activities	- Pre-implementation activities, including route protection. - Design and development of infrastructure. - Procurement of services for Horizon 2.
Capital Cost	██████
Operating Cost	████████████████████

⁶ Website: <https://at.govt.nz/AtoB>

Component	Details
Complexity / Risk / Constraints / Opportunities	- In this horizon, and all subsequent horizons, a key determinant of timing of infrastructure upgrades is: - Pre-implementation and property acquisition lead times (as mentioned above, route protection is key to delivering A2B by 2305). - Opportunity for the four programme partners to work together in relation to a review of the multi modal capacity of the Pūkaki Creek Bridge.

Table 4-2: Horizon 1: RCA infrastructure & service elements

	Infrastructure / Service / Intervention	Reasoning for inclusion in this Horizon
A2B	- AirportLink Service, Airport to Manukau - Upgraded Puhinui Station Interchange, walking and cycling infrastructure - Intermittent bus lanes between the Airport passenger terminal and Manukau Station. - Mangere cycling scheme.	As discussed in Table 4-1. Note the service runs via Bridge St which requires interaction with local traffic with limited / no bus priority. This is alleviated in Horizon 3 with the bridge over Puhinui station.
20Connect	Various STAAI improvements along SH20B (bus shoulder lanes, new signalised intersections and shared use paths).	These upgrades support the above A2B service provision (as well as promote active modes) and are therefore included in this horizon to ensure shorter term benefits are realised.
Auckland Airport	- Coordination of delivery of the STAAI project. - Key partner in pre-implementation discussions for the SWGP.	As above.

Southwest Gateway Programme Preferred Option Horizon 1 (2021)

Provision of service and short term upgrades

- Bus lanes Airport to Manukau
- New interchange at Puhinui
- New bus service, Airport to Manukau

A2B Service

Mode: Electric Bus

Frequency: Peak: 10 min
Off-peak: 15 min

Span: 4:30am — 1:30am

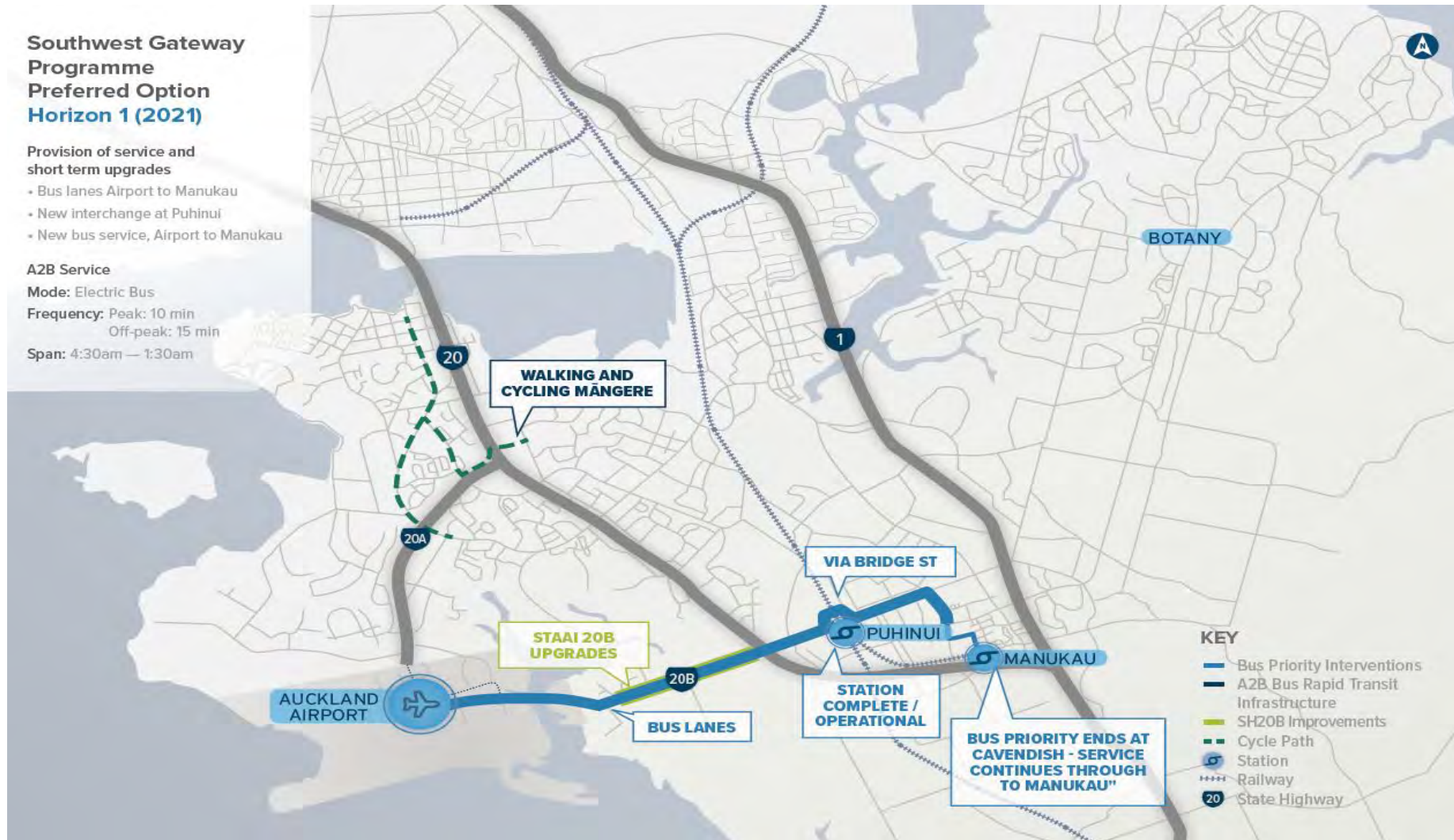


Figure 4-2: Horizon 1

4.2 Horizon 2: Medium Term Solution⁷

The Medium-Term Solution aims to implement a low capital public transport service through to Botany, including interim stations and some initial upgrades near Manukau. Extending the service connection through to Botany:

- Provides a less-capital intensive approach (than the long term proposed grade separated bus rapid transit – see Horizon 4) to promoting a shift in modal tendencies towards public transport in a traditionally private vehicle dominant population;
- Provides opportunities for efficiencies and optimisation in local service connections in the near term, before Horizon 3 and 4 A2B Preferred Option implementation;
- Provides the opportunity to test demand and reliability across the corridor and prioritise investment to where it is needed most; and
- At a regional network level - connects the Eastern Busway (under construction) to key destinations and catchments south of Botany (including Manukau and the airport) which creates another direct link across Auckland's proposed future Rapid Transit Network (as well as efficiencies in linking with services from Southern Auckland) and provides access to a high quality frequent public transport service for a wide cross section of Auckland's population.

Providing this service in Horizon 2 rather than Horizon 1 is predominantly due to:

- The immediate need and well tested feasibility of a service from the Airport to Manukau in the Horizon 1 timeframe; and
- The dependency on completion of an interim Botany station as part of the Eastern Busway to effectively implement and terminate the extended service at Botany – short term benefits can be realised in Horizon 1 without dependency on completion of Botany upgrades.

An opportunity exists to add the full RTN provision of Horizon 3 to Horizon 2 in the section through Manukau. There is significant Government and private sector investment planned in Manukau in the next five years and early delivery of the A2B infrastructure could deliver benefits such as:

- Improved access
- Improved urban realm
- An opportunity to “dig once” minimising disruption

Table 4-3 summarises the key components of Horizon 2.

Table 4-3: Horizon 2 summary

Component	Details
Time Horizon	2025
Description	The service led solution – extension of current service through to Botany, tying in with completion of Botany Station.
Purpose	Expand access to East Auckland, connecting more people to the Airport, Manukau, Botany and the Eastern Busway, without the capital expenditure associated with the full speed and reliability benefits of the final rapid transit corridor.
A2B: Mode	■ Single deck, articulated BRT electric bus (capacity = 100) ■ Luggage rack, bikes on buses, onboard announcements, current location updates.
A2B: Frequency	■ 5-10 in the peak commuting periods (depending on demands) ■ 10 minutes throughout the daytime (around 06:00-11:59, including on weekends) ■ At least every 15 minutes at other times

⁷ This Horizon will be categorised by the Medium-Term Report (Appendix Q of the A2B Rapid Transit and 20Connect SSBC – SWGP)

Component	Details
A2B: Span	04:30 – 01:00 (including on weekends)
Key Activities	- Design and delivery of infrastructure. - Procurement of next generation vehicle for Horizon 3.
Capital Cost	
Operating Cost	
Complexity / Risk / Constraints / Opportunities	- Assumed timely completion of STAAI interventions. - Assumes interim Botany Station complete - Risk – maintaining service levels of H1 service, and public perception if this service becomes more than just an “AirportLink”. - Interim Botany Station, which is the terminus for both the A2B Rapid Transit line and AMETI Eastern Busway is to be consented and delivered as part of AT’s AMETI project. Airport to Botany is dependent on the ability to stop, layover and turn around at Botany, as well as a high-quality transfer between the Eastern Busway, A2B and local bus services. - This Horizon is required as soon as it can practically be implemented to address an existing access deficiency.⁸

Table 4-4: Horizon 2: RCA infrastructure & service elements

	Infrastructure / Service / Intervention	Reasoning for inclusion in this Horizon
A2B	- Service from the airport to Botany, and a station at Botany constructed – either a temporary station or utilising part of the station delivered by Eastern Busway. - Priority lanes provided between Manukau and Botany. - Stations are kerbside and of high quality and include shelters, seats, branding, real-time boards, bike parking. - Initial station access: primary access routes are improved with at least continuous lighting and footpaths, and universally accessible crossings across arterial roads to facilitate station access. - Signal priority at intersections. - Likely timeframe for local bus network changes to facilitate access to the Airport to Botany service. - Proposed changes to the local bus network at Botany / East Auckland would commence service as a result of Botany Station opening.	- A2B service extended through to Botany as described in Table 4-3, including stations, station access improvements and intersection priority to address access deficiencies and generate ridership with a reliable, faster service than currently operates. - Botany Station be designed, consented and delivered by the Auckland Manukau Eastern Transport Initiative (AMETI) project. The A2B medium-term service in Horizon 2 will connect to AMETI Eastern Busway, benefiting from providing an interchange for customers.
20Connect	No 20Connect interventions in this Horizon.	-
Auckland Airport	No airport interventions in this Horizon.	-

⁸ As outlined by the investment management approach in the Management Case of the A2B Rapid Transit and 20Connect SSBC - SWGP



Figure 4-3: Horizon 2

4.3 Horizon 3: Targeted infrastructure upgrades

Horizon 3 provides increased benefit and targeted practical investment prior to completion of the full A2B and 20Connect preferred options. These targeted upgrades:

- Present opportunities to respond to demands generated in Horizon 2 without prematurely expending the capital required for the complete (preferred) A2B solution;
- Align investment with Auckland Airport across both 20Connect and A2B projects;
- Enable land development and employment land south of SH20B;
- Unlock benefits for high priority modes including public transport as well as active modes and high value freight.
- Proposed government investment in Manukau presents an opportunity to simultaneously design integrated transport solutions in the area, to maximise accessibility and further promote behaviour change; and
- Resilience, travel time benefits and overall customer journey and perception improvements are possible by upgrading the Puhinui interchange in this Horizon (including creating a better interchange hub between bus / rail than the Horizon 1-2 route via Bridge Street) – noting also that compared to adjacent RTN corridor upgrades, property constraints are significantly lower, so upgrading this portion of the route prior to the rest of Puhinui Road (Horizon 4) is practical.

Provision of these targeted upgrades in Horizon 3 rather than Horizon 2 / 4 is predominantly due to:

- The projected need to upgrade SH20B and the eastern access to the airport within this timeframe and to align timing of implementation between Waka Kotahi and Auckland Airport works within their RCA areas;
- Alignment with Government and private-led land use development (particularly around Manukau); and
- Low property constraints (only a small number of properties are required) vs high benefits of upgrading the Puhinui Interchange.

Table 4-5: Horizon 3 summary

Component	Details
Time Horizon	2030
Description	<i>Targeted infrastructure construction for A2B at pinch points and locations fast-tracked due to other developments. SH20B upgrades for vehicle access to the airport. Auckland Airport providing infrastructure construction and internal network improvements within the airport RCA area.</i>
Purpose	<i>Beginning of implementation of the final options along key areas of the corridor. Aiming to minimise construction impact on existing traffic and prioritise pinch points as demand increases over time.</i>
A2B: Mode	■ Single or double-articulated electric buses (18-24m length) ■ Luggage rack, bikes on buses, onboard announcements, current location updates.
A2B: Frequency	■ 5 minutes in the peak commuting periods (depending on demands) ■ 10 minutes throughout the daytime (around 06:00-11:59, including on weekends) ■ At least every 15 minutes at other times
A2B: Span	04:30am – 01:30am (including on weekends)
Key Activities	■ Design and development of infrastructure.
Capital Cost	
Operating Cost	

Component	Details
Complexity / Risk / Constraints / Opportunities	■ Dependent on property acquisition lead times. ■ First major infrastructure upgrades – close management of construction traffic and business interruptions required ■ Auckland Airport consenting and delivery of infrastructure within the airport RCA area. ■ Waka Kotahi's provision / funding approval for the A2B corridor to be provided along SH20B and the replacement of the SH20B/SH20 interchange, to provide increased capacity to move people along the state highway by providing improved rapid transit public transport access to Auckland Airport. ■ Interface with LRT and the City Centre to Māngere project alignment and terminus within the Auckland Airport precinct. ■ The Bridge Street bridge replacement near Puhinui Station will either overlap with KiwiRail's Fourth Main project or the extension of rail platforms to accommodate 9-car trains (currently unfunded). Bridge will allow traffic and cyclist movement on Puhinui Rd

Table 4-6: Horizon 3: RCA infrastructure & service elements

	Infrastructure / Service / Intervention	Reasoning for inclusion in this Horizon
A2B	■ A2B bridge over rail lines at Puhinui and direct customer transfer between buses and trains. ■ Infrastructure completed between intersection of Puhinui Road/Lambie Drive and intersection of Great South Road/Te Irirangi Drive. ■ Rapid transit infrastructure for A2B between the Airport and SH20/SH20B interchange, with repurposing of existing bus lanes on SH20B for vehicle lanes. ■ Motorway ramps, southbound from SH20B to SH20. ■ Walking and cycling infrastructure. ■ Further station access improvements on primary and secondary access routes. ■ Completion of Botany Station	■ Further targeted A2B upgrades in Manukau to align with council and central government (Kāinga Ora) developments in the area, increasing airport activity and to promote uptake of public transport in these key activity nodes. ■ Bridge over Puhinui supports the above by providing greater bus priority on the key Airport to Manukau route (removes the need to interface with local traffic on Bridge street and provides more seamless integration with heavy rail). ■ A2B Rapid Transit Corridor along SH20B in alignment with 20Connect upgrades. ■ Targeted walking & cycling and station access improvements to support the above.
20Connect	■ SH20B widened to four lanes (online at-grade) to align with infrastructure with the Auckland Airport RCA area ■ SH20B/SH20 interchange ramp connection – south facing.	■ 20B upgrades improve access to developments in areas north and south of SH20B and enable A2B infrastructure ■ South-facing ramp enables a direct connection for general traffic, and for the A2B corridor to pass underneath.
Auckland Airport	■ Coordinated delivery of infrastructure within the Auckland Airport RCA area	■ The four programme partners are working together in relation to a review of the multi-modal capacity of Pūkaki Creek Bridge.

Horizon 3 is a suite of targeted upgrades. The factors affecting timing for Horizon 3 are in part practical considerations which include alignment with key related transport investments and in part a response to expected degradation in network performance⁹. The investment management approach defines some elements of Horizon 3 required to support land use investment.

⁹ As outlined by the investment management approach in the Management Case of the A2B Rapid Transit and 20Connect SSBC - SWGP

Southwest Gateway Programme Preferred Option Horizon 3 (2030)

Description

- 20Connect 20B upgrades
- Corridor developed further around Manukau
- New bridge across rail at Puhinui, diverted from Bridge Street

A2B Service

Mode: Electric Bus

Frequency: Peak: 5 min
Off-peak: 10–15 min

Span: 4:30am — 1:30am

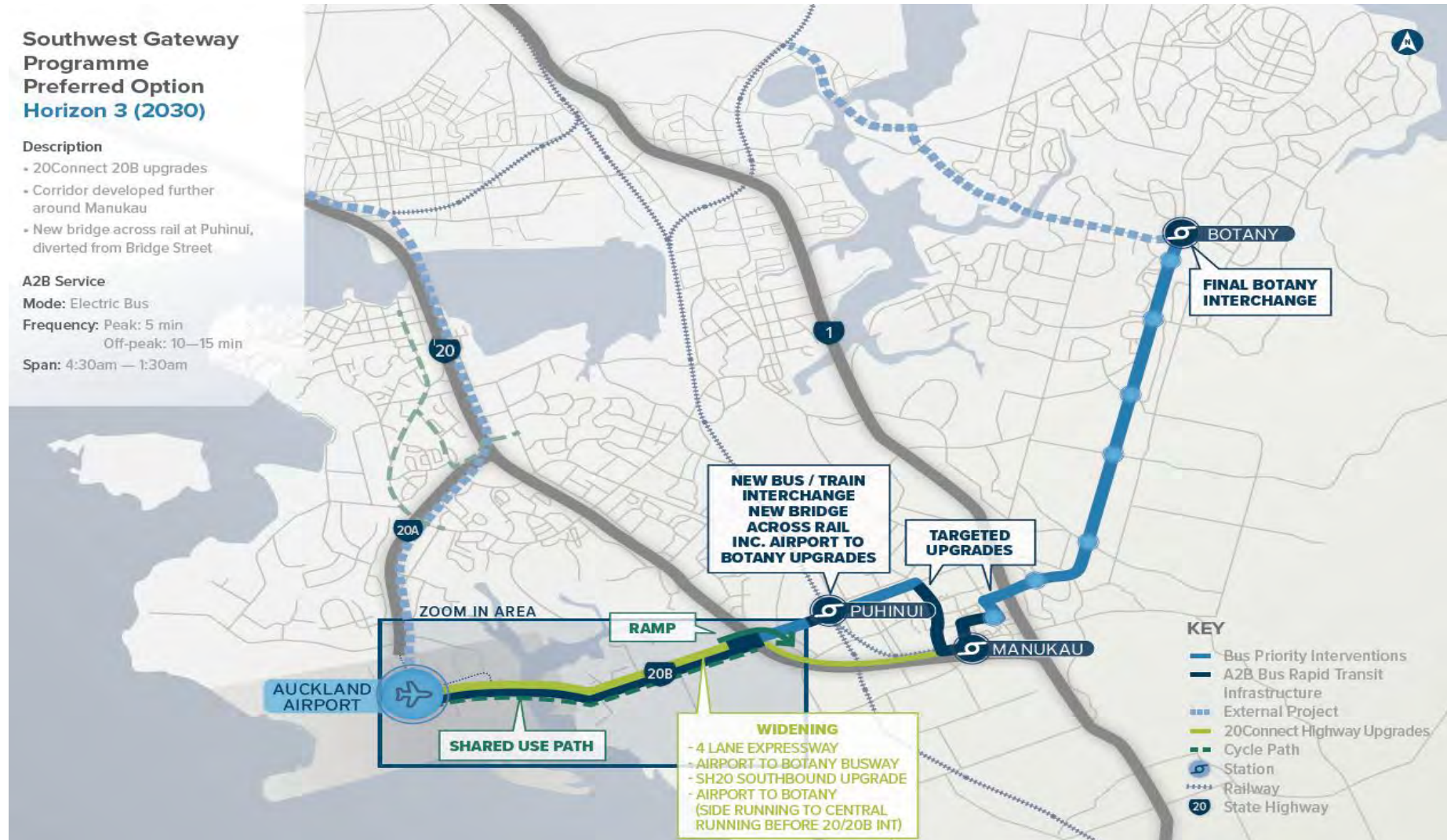


Figure 4-4: Horizon 3

4.4 Horizon 4: Full Airport to Botany Rapid Transit service and infrastructure

Horizon 4 represents the “full” delivery of the rapid transit level of service from Botany to the airport. The outcomes for this Horizon are:

- Timing of investment informed by real (measured) demand along the corridor and wider network, simultaneously integrating into a more mature wider Auckland rapid transit network;
- Provision of the full A2B Preferred Option prior to the remaining 20Connect upgrades further promotes positive mode shift towards public transport, and allows the network to respond to the provision of the new RTN route before adding further road capacity;
- Combining the above demand, as well as the potential demand serviced by a mature operation of the City Centre to Mangere (CC2M) project, adds further option value for the Government to optimise the timing of investment in 20Connect – promoting behaviour change and (potentially) generating increased value for money outcomes;
- Some of the benefits gained in earlier Horizons through local bus connections are improved as uptake of the RTN service increases, local services operations are optimised and station accessibility improvements are implemented and refined; and
- Provision of complete A2B Preferred Option infrastructure also removes constraints on bus lengths, level boarding, off board ticketing etc that exist with the interim infrastructure present in Horizon 1-3.

Table 4-7 summarises the key components of Horizon 4.

Table 4-7 - Horizon 4 summary

Component	Details
Time Horizon	2035
Description	Completion of infrastructure and services for full A2B corridor. Some 20Connect upgrades yet to be implemented (Horizon 5).
Purpose	Provision of the complete A2B preferred option – fulfilling the investment objectives of the A2B business case.
A2B: Mode	■ Single or double-articulated electric buses (18-24m length) ■ Luggage rack, bikes on buses, onboard announcements, current location updates.
A2B: Frequency	■ 4 minutes in the peak commuting periods (depending on demands) ■ 10 minutes throughout the daytime (around 06:00-11:59, including on weekends) ■ At least every 15 minutes at other times
A2B: Span	04:30 – 01:30 (including on weekends)
Key Activities	■ Design and delivery of infrastructure. ■ Procurement of next generation vehicles for Horizon 5.
Capital Cost	
Operating Cost	

Component	Details
Complexity / Risk / Constraints / Opportunities	■ Dependent on acquisition of funding, success of earlier stages, as well as modelling assumptions (i.e. a move to LRT may be necessary, which has been future proofed but not assessed as preferred option). ■ Urban regeneration projects in Manukau City Centre and land use intensification led by Kāinga Ora and Panuku are dependent on increased travel choice to employment hubs in Auckland's south and east and mode shift in their development plans. ■ Confirming the timing and scope of AT's Connected Communities' projects in Manukau Centre / Great South Road which overlap the Airport to Botany corridor and associated local bus network changes.

Table 4-8 - Horizon 4: RCA infrastructure & service elements

	Infrastructure / Service / Intervention	Reasoning for inclusion in this Horizon
A2B	■ Completion of A2B infrastructure along the full project corridor. ■ Completion of final A2B station designs for stations along Te Irirangi Drive. ■ Upgraded bridge over SH1. ■ Full station access improvements implemented.	■ By Horizon 4, remaining A2B infrastructure and interventions should be complete.
20Connect	■ No upgrades in this Horizon.	■ All A2B supporting infrastructure is staged to be delivered before the final 20Connect option is implemented. This will help drive behaviour change towards public transport use, before SH20 and SH20A upgrades are implemented.
Auckland Airport	■ Continued engagement as part of the SWGP governance structure.	■ As above.

With a frequent, prioritised service operating between Botany and the Airport with sections of “full” RTN level of priority delivered in Horizon 3, the factors affecting the decision to proceed with Horizon 4 are related to the need established in the SSBC to lift the level of service to a be faster to compete with the private car, generating mode shift and increasing the capacity to cater for demands and allow for growth while retaining a highly reliable operation.¹⁰

¹⁰ As outlined by the investment management approach in the Management Case of the A2B Rapid Transit and 20Connect SSBC - SWGP

Southwest Gateway Programme Preferred Option Horizon 4 (2035)

Airport to Botany Preferred Option Implemented

- Final corridor around Puhinui, and between Manukau and Botany
- New stations to accommodate final corridor between Manukau and Botany, and station access improvements completed

A2B Service

Mode: Double Articulated E-Bus

Frequency: Peak: 3 min
Off-peak: 10–15 min

Span: 4:30am — 1:30am



Figure 4-5: Horizon 4

4.5 Horizon 5: SWGP ultimate solution

Horizon 5 depicts the complete proposed Southwest Gateway Programme Preferred Option (excluding Auckland Airport scope of works). In this Horizon:

- The demand impacts of an integrated rapid transit network are tested in Horizon 4, and the proposed remaining 20Connect upgrades are implemented to provide for forecast demand – including wider freight and Western Ring Route demand;
- By this Horizon, further operational efficiencies would be realised in the service delivery of A2B and connections with local services;
- Increasing heavy vehicle movements from employment areas accessing the Western Ring Route are removed from local streets providing improved urban amenity and safety.
- By staging the implementation of the programme from Horizon 1-4, the ultimate solution is more likely to be invested in to maximise value for money outcomes – which also includes refined assessment into a potential extension through Botany.

Table 4-9 summarises the characteristics of Horizon 5.

Table 4-9: Horizon 5 summary

Component	Details
Time Horizon	2040
Description	The final preferred solution for the Southwest Gateway Programme, including all proposed A2B and 20Connect infrastructure and services.
Purpose	Fulfilling the investment objectives of the joint SSBC.
Infrastructure	Previous Horizon's infrastructure, plus: ■ Completion of SH20/20A upgrades ■ Possible extension of service through Botany
Service: Mode	■ Same as Horizon 4
Service: Frequency	■ 4 minutes in the peak commuting periods (depending on demands) ■ 10 minutes throughout the daytime (around 06:00-11:59, including on weekends) ■ At least every 15 minutes at other times
Service: Span	04:30 – 01:30 (including on weekends)
Key Activities	■ Design and deliver remaining SWGP infrastructure.
Capital Cost	
Operating Cost	
Complexity / Risk / Opportunities	■ Management of disruptions between future City Centre to Mangere and A2B project to ensure minimal impact on operating benefits.

The factors affecting the decision to proceed with Horizon 5 are related to the needs established in the SSBC to reduce the volume of freight using the local road network, increase the capacity of SH20, and safeguard the long-term role of the Western Ring Route.¹¹

¹¹ As outlined by the investment management approach in the Management Case of the A2B Rapid Transit and 20Connect SSBC - SWGP

Table 4-10: Horizon 5: RCA infrastructure & service elements

	Infrastructure / Service / Intervention	Reasoning for inclusion in this Horizon
A2B	Possible service extension beyond Botany	
20Connect	- Completion of SH20/20A upgrades: - SH20 widened to six lanes between SH20A and SH20B interchanges. - SH20 widened to eight lanes between Mangere Bridge and SH20A. - SH20A to SH20 interchange ramp connection – south facing.	Per Table 4-9, to complete the implementation of the SWGP.
Auckland Airport	No additional interventions.	



Figure 4-6: Horizon 5

Approvals:

	Name	Title	Signature	Date
Authored by:		Senior Consultant		29/07/2020
Reviewed by:		Principal		23/03/2021