Te Ara Whakawhiti
Tere o Tāmaki Makaurau
Auckland Rapid Transit Pathway

Version 2 | March 2025

Contents

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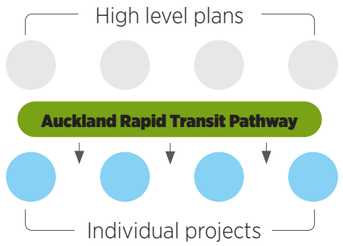
Preparation of the document has been supported by

1. Introduction

1.1 Purpose of this pathway

The Auckland Rapid Transit Pathway (ARTP) sets out a technical basis for how Auckland's rapid transit system could develop over the next 30+ years. It provides a link 'upwards' to various high-level transport, infrastructure and land-use plans for the region, as well as 'downwards', to the design and development of individual projects.



The ARTP is not a formal decision-making document. Instead, it provides a consolidated 'network view' supported by technical evidence from existing plans, strategies and business cases. It helps support informed and aligned decisions about Auckland's rapid transit network.

Cities evolve and change over time, and major transport infrastructure like rapid transit can take decades to plan, design and deliver. This makes it critical for the ARTP to find the right balance between providing long-term direction about the future of the network, while retaining sufficient flexibility to change over time.

To do this, the ARTP sets out:

- The role of rapid transit in Auckland's wider transport system, as well as planning principles and objectives to guide its successful development over time.
- Where and when rapid transit corridors are most needed.
- Guidance, where possible, on most appropriate mode for different corridors.
- How the network build-out could be staged over time, both at a corridor and regional level.
- Key next steps.

1.2 Keeping this pathway current

Rapid transit future planning is an ever-evolving process. Priorities, funding availability and technology all change over time, while the timing, location and extent of population and employment growth is also uncertain. As these key changes occur, and as more detailed project work on corridors progresses, it will be important for this document to be updated so it remains current.

Auckland Transport published the first version of the ARTP in late 2023. This version is an update that reflects:

- Outputs and findings from recent technical work on several major rapid transit corridors.
- A greater emphasis on managing uncertainty, affordability and deliverability, so progress can be made even when all the details for the entire future network have not yet been confirmed.
- Additional detail about how rapid transit corridors can be delivered over time, including through interim improvements and staged delivery.

This version of the ARTP is jointly owned by Auckland Transport and the NZ Transport Agency – Waka Kotahi. Staff from KiwiRail, Auckland Council and the Ministry of Transport have supported its development. It is expected to be used as a technical input/starting point for the development of a jointly agreed Auckland integrated transport plan.

2. Rapid transit in Auckland

2.1 What is rapid transit?

Rapid transit is defined at a high level in the National Policy Statement on Urban Development (NPS-UD) as:

A quick, frequent, reliable and high-capacity public transport service that operates on a permanent route (road or rail) that is largely separated from other traffic.

This Pathway elaborates on the above definition to emphasise the role of rapid transit as the core of Auckland's wider public transport network and its importance in shaping the region's growth and urban development.

The Auckland Rapid Transit Pathway's definition of rapid transit is:

Rapid transit provides fast, frequent, and reliable high-capacity access along dedicated strategic corridors that are largely separated from other modes and unaffected by congestion. Rapid transit is the backbone of Auckland's public transport network and is critical to supporting and shaping its growth and urban form.

While this definition helps identify what is (and is not) rapid transit, it is important to not take an 'all-or-nothing' approach in developing a rapid transit network. Different service and infrastructure variations can be appropriate solutions along all or parts of a corridor. More detail about this is in **section 3.6.**

Key characteristics of rapid transit are relatively universal across different cities worldwide.

Characteristic	Explanation
Integrated with other public transport	Rapid transit forms part of the frequent public transport network, within a wider overall network of public transport services. Rapid transit stations are supported by good walking, cycling, micro-mobility, connecting bus services, transfer and station facilities, wayfinding and parking to facilitate access across to and from stations.
Provides fast, frequent, reliable and high-capacity service	A dedicated corridor, high service frequencies, and large vehicles enables rapid transit to provide a high capacity, highly attractive service that is competitive with private vehicles.
Easy and intuitive to use	Rapid transit provides a high-quality customer experience that is simple to understand, especially or new or infrequent passengers.
Dedicated corridor to ensure reliability and resilience	Rapid transit needs to operate reliably, regardless of other factors affecting the transport network's performance. To achieve this reliability and resilience, rapid transit usually operates in corridors that are physically separated from their modes.
Tailored to the particular needs of both the corridor and network	The mode, distance between stations, and scale of infrastructure should be tailored to the likely scale of demand and characteristics of a corridor, while still effectively integrating with the wider network.
Shapes and supports urban form	The speed and reliability of rapid transit makes areas near stations more attractive places to live, work and visit, supporting higher density and mixed-use development.

A variety of different modes and technologies can deliver rapid transit service, including buses, light rail vehicles, metro vehicles, trains and ferries. More detail is provided in **Section 3.4.**

2.2 The need for rapid transitin Auckland

Auckland's geography, with its narrow isthmus, volcanic landforms and harbours, as well as its urban form, make it challenging to efficiently move large numbers of people. Geographical features create natural pinch points, concentrating many trips onto a few corridors (like the Auckland Harbour Bridge or the State Highway 16 causeway). This creates congestion and makes the transport network vulnerable to widespread impact from disruption.

Forecast growth has the potential to make these challenges worse. Auckland's population has doubled over the last four decades to around 1.7 million and could reach around 2.3 million by 2050. This growth is forecast to generate an extra 400,000 peak time trips and 2 million more daily trips across all modes.

The Auckland motorway network is relatively mature and has limited scope for further expansion within the urban area. This makes it particularly important for rapid transit, with its high-capacity, throughput and efficient footprint, to play a major role in meeting growing demand and shaping the region's urban form.

If Auckland's rapid transit network does not continue to develop, forecasting suggests growing travel demand will have severe impacts on the performance of the region's transport system:

- People will spend 15% more time travelling if they take the car to work. Aucklanders will spend 46% more time in severe congestion on the motorways, and 15% on local roads. This will have a disproportionate impact on longer commutes: A morning car trip from Pukekohe to the City Centre will increase in time by about 47%, and a trip from the City Centre to Auckland Airport by about 39%.
- Access to the airport and certain metro centres is forecast to deteriorate significantly, making it difficult for these areas to attract labour. For example: the number of households living within a 30-minute drive from the airport would halve, access from Manukau would drop by 36% and from Albany by 23%.
- Since the rapid transit network is not affected by this congestion, forecasting suggests many people will shift modes, to a point that the public transport system itself will also start to experience significant pressures. Many bus routes, especially in the isthmus, will experience demands exceeding capacity by more than 50%, leading to long waits and overcrowding. Many of these corridors cannot operationally accommodate higher bus frequencies.
- Crowded and congested morning peaks causes behaviour change that leads to further deterioration of network performance in the interpeak. This will have a significant impact on economic activity, as off-peak congestion heavily impacts freight and business travel. The time people and goods are stuck in traffic is likely increase by more than twofold.

This deterioration in the performance of Auckland's transport system would have profound impacts on economic productivity and quality of life at a local, regional and national level. Reduced access to jobs, education and other important destinations, slower and less reliable freight movement, little support for desired growth and urban form outcomes, and poorer travel choice – this is a future that Auckland must avoid.

2.3 Network objectives and implementation principles

Network objectives and implementation principles have been developed, to help guide the development of Auckland's rapid transit network, so it can fulfil its necessary roles in supporting the region's success.

These have shaped the development of the ARTP and should also be used in helping to shape the development of projects at a more detailed level.

For each network objective, a series of measures is identified. These measures can be used in more detailed planning work, to assess if the network objectives are being achieved. These measures align with those used in many transport planning documents in Auckland.

Network objectives

Providing space-efficient access to opportunities	The public transport network's backbone	Supporting growth and shaping a quality compact urban form
1. Increase access to opportunities, especially to major and growing employment areas 2.Increase people throughput on Auckland's most critical corridors. 3.Increase the share of travel unaffected by congestion.	4. Enable an integrated, efficient and effective public transport system. 5. Increase public transport's mode share, especially for medium to long journeys.	6. Focus most growth in centres, nodes and areas identified as joint priorities for investment in the Auckland future development strategy. 7. Support high-quality, integrated urban communities.

Implementation principles

- Deliver whole-of-life affordability and cost-effectiveness across the rapid transit network.
- Staged delivery that provides effective and timely benefits.
- Develop the network in way that is flexible and adaptable to changes in demand and future decision-making.

2.3.1 Network objectives

1. Increase access to opportunities, especially to major and growing employment areas

Increasing the number of people who can easily and reliably access major and growing employment centres is important for Auckland's economic productivity and overall prosperity. The evolution of Auckland's economy towards service-sector employment means future job growth is likely to be focused in a number of key centres. Enabling safe and efficient access to these centres enables workers to realistically consider a wider range of job opportunities, and employers to draw on a wider variety of potential employees.

Rapid transit's capacity, speed and reliability means it has a unique role to play in significantly increasing the number of people who can access these centres – especially from outer parts of Auckland, areas that currently have relatively poor access, and/or those with higher levels of deprivation. The impact of deprivation can be exacerbated by poor access, and the development of the rapid transit network should consider how access to opportunities for deprived communities can be improved.

Rapid transit's extremely high 'space efficiency' (i.e. number of people moved compared to the amount of space required to move them) is the only way significantly more people can access major centres while also enabling these centres to become more people-focused, high-quality places. This opens the door for further development of these centres as retail and hospitality destinations, which can further increase ridership.

Measures:

- Number of people within 45 min PT travel time of key centres
- Total number of jobs people can access within 45 mins by PT
- Mode share of trips to key centres

2. Increase people throughput on Auckland's most critical corridors

Auckland's geography, urban form and community identity splits the city into several sub-regions, linked by only a few transport connections. Trips are funnelled into these links, creating bottlenecks at key locations that result in congestion, poor travel reliability and much lower levels of access for many parts of Auckland, especially outside the isthmus.

Ongoing population and employment growth are placing increased pressure on Auckland and its most critical transport corridors. Adding road capacity to these corridors is often extremely costly, infeasible, and can have unacceptable environmental, urban form, or community impacts.

Rapid transit's ability to move large numbers of people along narrow corridors means it is uniquely suited to significantly increasing the throughput of people in these most essential parts of Auckland's transport system.

Measures:

- People-moving capacity along key corridors
- Average passenger kilometres per service kilometre
- Person movement per hour along key corridors

3. Increase the share of travel unaffected by congestion

Congestion leads to delays and highly variable travel times that add cost and undermine quality of life. Reducing the impact of congestion on people's lives is a key component of improving accessibility and overall wellbeing.

Because it operates on dedicated corridors, rapid transit can still provide a fast and highly reliable travel option, even when other parts of the transport network are under strain and highly congested. As a growing share of people use rapid transit, the impact of congestion on Auckland will reduce as more people are unaffected by it in their travel. When more people travel on rapid transit, road network capacity is freed up for trips unable to be taken by public transport, such as deliveries or emergency services.

Measures:

- Per capita annual delay from congestion
- Share of travel on rapid transit compared to other modes
- Service reliability and punctuality (passenger weighted)

4. Increase public transport's mode share, especially for medium to long journeys

The combination of rapid population growth, few opportunities to add road capacity within existing urban areas, and the need to reduce emissions makes it critical to dramatically increase the share of travel by public transport, walking and cycling (mode shift). Reducing Aucklanders' reliance on the private vehicle is an essential part of enabling easy, safe and sustainable access to opportunities.

If population growth simply translates into increased vehicle travel, then the result will be more congestion, poorer access to opportunities, higher emissions, a less healthy and safe population, and overall, a poorer quality city for residents, businesses and visitors.

Rapid transit has a critical role to play in supporting mode shift, particularly for medium and longer journeys, thereby helping to reduce transport emissions. The speed, reliability and service quality of rapid transit makes it strongly suited to achieving mode shift, especially compared to other forms of public transport.

High quality design, including universal access to stations that feels safe for all passengers throughout the day and night, is key to encouraging more people to use these services.

Measures:

- Share of travel by public transport (overall, on key corridors, to key locations)
- Vehicle kilometres travelled (total and per capita)
- Public transport ridership (total and per capita)

5. Enable an integrated, efficient and effective public transport network

As the core of the public transport network, rapid transit needs to be properly integrated with other public transport services, to ensure it can successfully perform this role. This means network design, fare payment systems and the design of interchange points all need to make transfers between services as easy and seamless as possible.

As the rapid transit network expands, it should increasingly carry a greater share of all public transport trips. A greater portion of these trips will involve transfers from other services. Passenger journeys on rapid transit will, on average, be for longer distances than those of on other services, reflecting rapid transit's role in carrying medium to long distance trips.

Measures:

- Share of total journeys with a rapid transit element
- Average transfer time between services at key interchanges
- Safe and universal access to stations

6. Focus most housing and employment growth in centres, nodes, and areas identified as joint priorities for investment in the Auckland Future Development Strategy

The Auckland Plan 2050, the Auckland Future Development Strategy 2023-2053, and the Auckland Unitary Plan are based on a quality compact approach to growth. This approach focusses most growth within the existing urban area and enables the greatest amount of change to occur in and around centres, nodes and areas as joint central and local government priorities for investment. Accommodating a significant proportion of Auckland's future growth in these locations is important for protecting rural areas from urban encroachment, managing infrastructure costs, supporting liveability, wellbeing and economic productivity, and reducing environmental impacts. Rapid transit is a key enabler of this approach.

Areas with rapid transit have better access to opportunities, making them more attractive places to live. This attractiveness catalyses urban development, including higher density development around stations. Rapid transit is particularly important in supporting high intensity employment areas, such as the City Centre and the Airport, by enabling larger 'pools' of employees who can travel to the centre of employment in a reasonable amount of time and with a high level of reliability.

By providing a high-quality travel choice, less space is needed for private vehicles and their storage. This means land can be more productively used for housing, offices, parks, community facilities and more. For employment centres in particular, rapid transit's spatial efficiency allows for higher job densities, supporting higher productivity through agglomeration.

Measures:

- Proportion of new dwellings within walking and cycling distance of rapid transit
- Proportion of commercial development within walking and cycling distance of rapid transit
- Proportion of metropolitan and town centres within walking distance of rapid transit
- Proportion of major public facilities and destinations (e.g. universities, stadiums, hospitals, large shopping centres) within walking distance of rapid transit

7. Support high quality integrated urban communities

For Auckland to be an attractive place for people to live, work,play and visit, it's crucial to accommodate the city's growth in a way that fosters high-quality, integrated communities. This means a variety of uses and housing types, and easy walkable access to travel choices, services and other opportunities.

Rapid transit needs to support, and not detract from, the creation of high-quality integrated communities. To do this effectively, consideration needs to be given to the location, design and accessibility to stations. Stations should be a focal point for development that supports investment in rapid transit. This is a focus of the National Policy Statement on Urban Development (NPS-UD), which requires that councils enable building heights of at least six storeys within a walkable catchment of existing and planned rapid transit stations and stops.

Higher intensity mixed use development, community facilities, public spaces and walking and cycling connections should be comprehensively planned and integrated with rapid transit. This is to create well-functioning quality compact urban environments that support safe, resilient and accessible neighbourhoods and communities.

Careful design also needs to ensure rapid transit corridors avoid or minimise potential negative impacts on communities, including through severance or noise and visual impacts. The type and scale of infrastructure that is appropriate may vary depending on the context of the surrounding environment.

Measures:

- Resident satisfaction surveys
- Proportion of people walking and cycling to stations

2.3.2 Implementation principles

Rapid transit projects are among the most significant and complex types of transport investments. Their scale and complexity mean implementation will need to be carefully staged over time to be efficient, effective, deliverable and affordable. The below principles relate specifically to how the network should be planned, phased and implemented over time.

These three principles have shaped the 'phased approach' discussed in the next chapter, as well as direction about how each corridor is expected to be developed over time – which is discussed in **section 5.**

Principle	Direction to decision-making
Deliver whole-of-life affordability and cost-effectiveness across the rapid transit network	• Network design and staging needs to consider affordability within wider transport funding requirements. • Whole-of-life costs (such as service efficiency, maintenance and operational costs of expensive items such as bridges, tunnels and underground stations) need to be specifically considered, and not just the initial construction costs.
Stage delivery in a way that provides effective and timely benefits	• Focus first on corridors that address significant existing deficiencies. • Focus first on parts of corridors that will deliver the greatest value for money and further build the case for additional investment in a way that is most beneficial for the overall network. • Consider interim improvements to build ridership and deliver early benefits for relatively low cost. For example, building busway stations and utilising bus lanes or motorway bus shoulders, ahead of building a complete busway.
Develop the network in way that is flexible and adaptable to changes in demand and future decision-making	• Plan and design corridors in a way that can evolve and develop over time (for example, through 'mode neutral' corridor designations where appropriate). • Focus investment first on corridors that are more certain in their need and timing, and deliver value in a variety of different futures. Some corridors are expected to be required but key determining factors are, as yet, uncertain.

3. Developing the ARTP

3.1 Introduction

The ARTP network is based on the original Rapid Transit Network proposed by the Auckland Plan, pictured to the right.

The ARTP adds further analysis and data to provide a more nuanced network view.

Development of the ARTP covered the following matters:

- Building on previous work to identify which corridors are likely to make up Auckland's future rapid transit network.
- Considering how implementation of the future rapid transit network is likely to be phased over time, with a particular focus on identifying which initiatives should be phased first.
- Identifying potential mode (vehicle and corridor type) for each corridor, as well corridors needing further studies before a mode can be suggested.
- Considering how to manage the significant levels of uncertainty associated with planning a long-term network.
- Considering how a corridor could be incrementally delivered over time.

This section discusses these issues, and how they helped guide development of the ARTP.

3.2 Identifying rapid transit corridors

The previous chapter outlines rapid transit's particular role in Auckland's wider transport system, the major benefits it should deliver, as well as its significant investment needs. The scale and complexity of delivering rapid transit means it should only be provided when necessary.

Rapid transit networks have been identified in Auckland transport plans for many decades. These plans have been largely consistent about where rapid transit corridors are likely to be required in the future.

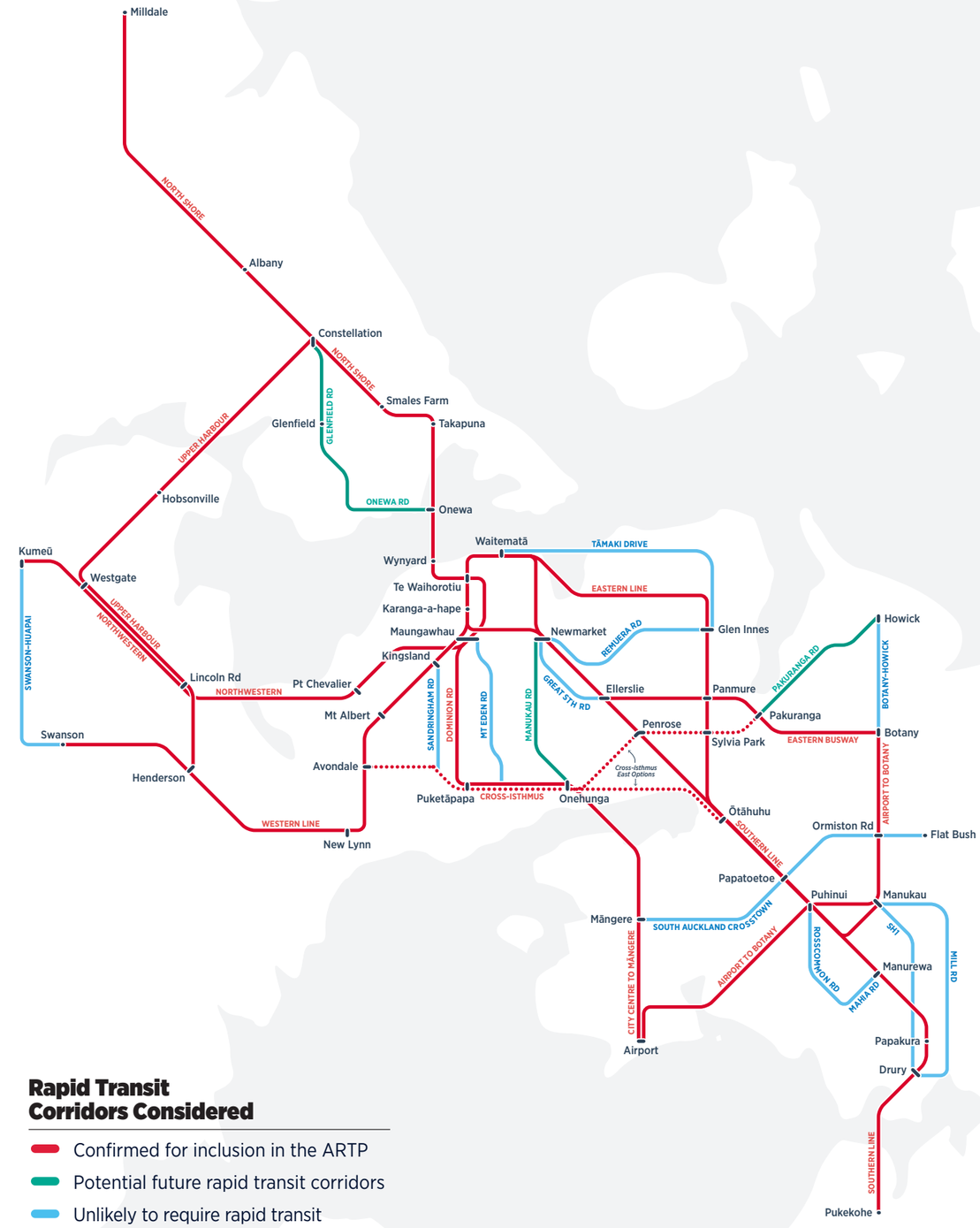
Transport modelling and analysis of previous work confirmed the following focus areas for new or improved rapid transit corridors:

- Expanding the rapid transit network to serve large parts of Auckland that currently have relatively poor access to opportunities via public transport:
    - Northwest Auckland
    - The wider Māngere area
    - Southeast Auckland
    - Future urban areas
- Increasing public transport capacity, especially on the rail network, to the city centre, in the central isthmus, and to Auckland Airport.

Potential rapid transit corridors were sorted into three categories:

Status	Corridors
Confirmed for inclusion in the ARTP	• Existing heavy rail network (Swanson to Pukekohe) • North Shore (City Centre to Hibiscus Coast) • City Centre to Māngere (corridor alignment to be determined by further work) • Northwest (City Centre to Kumeū-Huapai) • Eastern Busway (Ellerslie-Botany) • Airport to Botany • Upper Harbour • Crosstown / Avondale-Southdown rail corridor
Inclusion plausible	• An additional North Shore rapid transit corridor, with a to be confirmed alignment and possibly connected to a new future harbour crossing.
Potential future rapid transit corridors	• Pakuranga Road • Manukau Road • Onewa Road and Glenfield Road (except if an entirely new corridor is delivered on the north shore)
Unlikely to require rapid transit for the foreseeable future	• Sandringham Road or Dominion Road (depending on which corridor CC2M will follow) • Mt Eden Road • Tāmaki Drive • Remuera Road • Great South Road • State Highway One (Manukau to Drury) • Mill Road • Southern Auckland Crosstown Māngere to Ōtara and Flatbush) • Manurewa (Roscommon and Mahia Roads) • Airport to Botany northern extension (to Howick or Highland Park)

Corridors identified as being unlikely to need rapid transit for the foreseeable future are still likely to need other public transport improvements over time, such as bus priority, enhanced service levels, and better customer facilities.



3.3 A phased approach to developing Auckland's rapid transit network

A strong focus of the ARTP is how development of Auckland's rapid transit network will be phased over time, to ensure efficient and effective progress in the short-term, while longer-term parts of the network remain uncertain.

This 'phased approach' has:

- A primary focus of progressing initiatives that have greater urgency, certainty and confidence, while undertaking investigation and planning elsewhere to generate certainty about what comes next.
- A core vision of a long-term network that is still flexible to change over time.
- A greater focus on making incremental change over time. It can take a long time to deliver a corridor, and if existing needs can be addressed sooner, that should be pursued. More about this in **section 3.6.**

The phases do not have a specific duration, as the speed at which phases are completed is dependent on funding, delivery progress, and the scale and timing of future growth[1].

Key factors guiding phasing decisions are:

- **Severity of existing issues:** It is important to focus first where the need is greatest, including where there is poor access to opportunities, overcrowding, poor service quality, low PT mode share and high car reliance.
- **Alignment between decision-makers:** The scale of required investment and long implementation timeframes make enduring agreement between political decision-makers, funding providers and key stakeholders critical for rapid transit projects to progress to delivery. Where this is yet to confirmed, the initial focus is likely to be on further design and planning work, re-evaluating the scope or timing of the project, and/or prioritising delivery of lower-cost interim improvements.
- **Alignment with the Future Development Strategy:** The timing of projects is aligned with staging and timing of priority areas identified in Auckland Council's Future Development Strategy.
- **Practical deliverability considerations:** What needs to be delivered at the same time, what can be delivered separately, and can we operate public transport services on a mix of infrastructure in the meantime.

The table to the right describes the three phases identified in the ARTP (beyond projects already under construction).

[1] In the case of rail corridor development, rapid transit is not the only use or requirement that can drive investment timing.

Phase	Description
Under construction	Improvements that have funding confirmed and are under construction
1 – Initial focus	Auckland's immediate priorities. Initiatives where there is an urgent need and a high level of certainty, or where we can make interim improvements now.
2 – Medium-term priorities	Initiatives required after 'Phase 1' projects have been progressed. Work in Phase 1 should focus on confirming project details and undertaking necessary planning/design work for this phase.
3 – Emerging long-term network	Longer-term corridors where significant unanswered questions around route, mode and timing may still exist or growth is expected to occur well into the future. Planning/design work should focus on providing greater certainty to help with network integration.

3.4 Identifying mode

The choice of mode (vehicle technology and corridor type)is an important decision that significantly impacts on corridor design, capacity, cost, passenger experience, urban development outcomes and network integration.

The ARTP does not make the final decision about mode for a project, which should occur through a robust business-case conducted for that specific corridor. However, because the choice of mode for one corridor affects other rapid transit corridors, a 'network view' is valuable, especially for phase one initiatives. This network view should act as the starting point for more detailed, project-specific, analysis. Any change from what is identified in the ARTP needs to consider wider network implications.

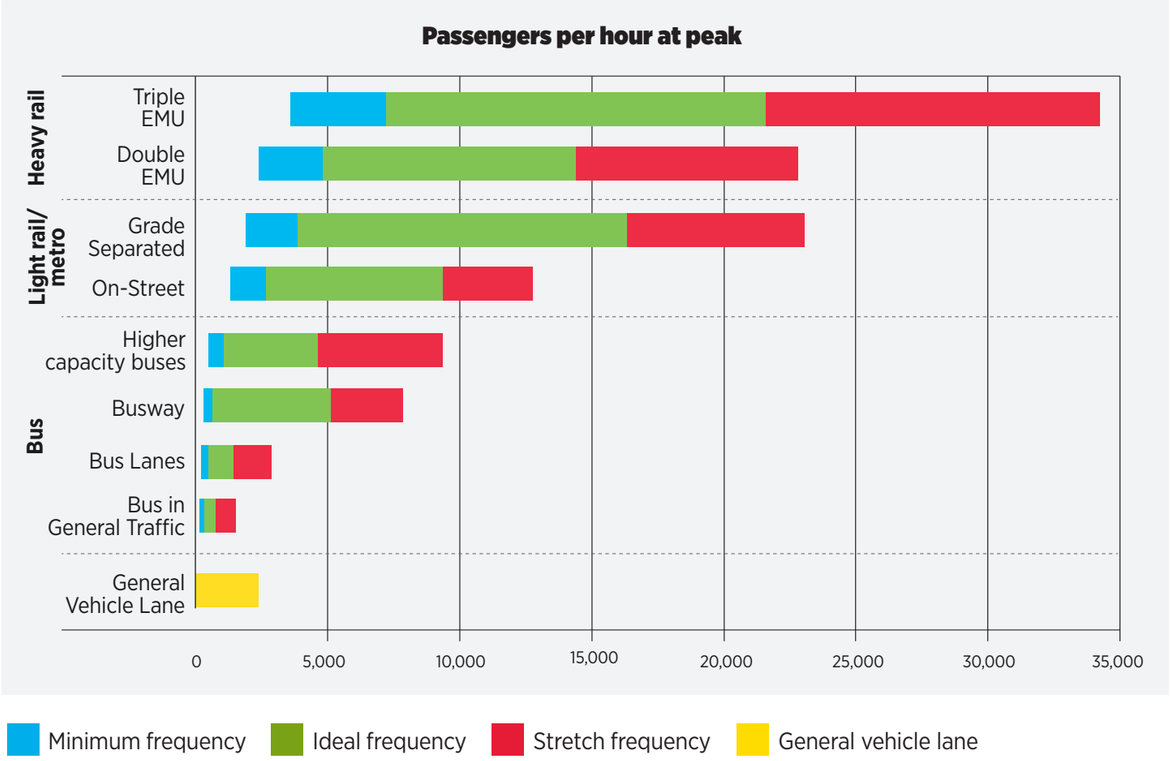
While all rapid transit corridors provide frequent and high-capacity services, rapid transit modes use vehicles of different sizes and can operate at different frequencies. With higher capacity modes generally requiring more investment, the most appropriate mode should generally be matched to the expected corridor demand, while also considering:

- Possible future growth in that demand
- Aspirations for urban outcomes
- Interconnectivity to the rest of the network
- The need to provide a level of service that is attractive to customers
- Geographical constraints, existing infrastructure, and other engineering requirements
- Cost, delivery flexibility, and value for money

These figures are meant as an indication, as the capacity of a specific rapid transit system can vary based on local circumstances.

The figure highlights that at some levels of demand there is flexibility. A need can be met with either moderately sized vehicles at a higher frequency, or larger vehicles at a more moderate frequency. In these cases, detailed analysis is required to understand the maximum frequency a corridor can reliably and efficiently accommodate. This needs to include any bottlenecks along the route, including stations, turn-around facilities and depots.

A summary of the potential capacity of these modes is shown in the diagramto the right.



Heavy rail/train

Heavy Rail is a form of rapid transit, given most railways are dedicated corridors with high levels of priority. Not all train services are rapid transit; some are too infrequent to be considered as such. Auckland's current trains carry 750-1,100 passengers per vehicle (varying by length). Auckland's rail system requires drivers but there is potential for future automation.

Metro

Metro is a medium-to-high-capacity rail system, always operating in a dedicated right-of-way (with no on-street running). Capacity can range between that of light and heavy rail. It has an exclusive corridor and can be driverless, which reduces operating costs and enables higher operating frequencies. Sydney now has a metro system, with various lines under construction. Metro capacities can vary significantly with design, but usually are around 400 to 600 passengers per train.

Light rail/tram

Light rail is a medium-capacity rail system, with the ability to operate both on-and off-street (but always with priority). Light rail vehicles are modern trams that operate at higher capacity than Auckland's historic trams. When operating frequently and with priority along their corridor and at intersections they are a form of rapid transit. Systems throughout Australia and Europe are recently built examples of this mode. Light rail vehicles generally carry around 200 to 400 passengers per vehicle, but this can vary with design.

Bus rapid transit busway

Buses running frequently with high levels of priority can be a form of interim rapid transit. Busier corridors require high levels of priority to separate them from other traffic, building up to dedicated busway corridors. Dedicated busways are a form of rapid transit. These corridors use conventional or double-decker buses, which can carry up to 100 passengers.

High capacity bus

Vehicles with higher capacity can increase the productivity of existing bus corridors. Higher capacity buses (often bi-articulated) are larger than regular buses and are designed with features such as extra doors and level boarding, to maximise capacity and reduce dwell times. Generally, these vehicles can carry up to 180 passengers, but technology continues to improve. The Brisbane 'metro' is an example of a high-capacity rapid bus system.

Ferry

Ferries can generally operate with high levels of priority. Ferries can offer a direct and reliable travel option that can be attractive where land-based routes are significantly longer. Journeys are often point-to-point only. Ferry frequency can be affected by level of activity in a water body. Geographic features, including channel depth, coastal topography and tides, also influence the viability of ferries as a mode. High frequencies and a core role in the overall public transport network are key conditions for ferries to be considered rapid transit. The SeaBus service in Vancouver is an example of a rapid transit ferry service.

3.5 Managing uncertainty

Throughout the rollout of the plan, there will be changes that will require us to adjust course and update the plan. The phased approach, that focuses most detail on immediate priorities, where certainty is high, helps to manage this issue.

Various kinds of uncertainty need to be considered:

- **Uncertainty about timing and location of growth.** Planning regulations aimed at rapidly enabling growth across most of the urban area have made it difficult to predict when, where and how Auckland will grow.
- **Uncertainty about the impacts of new technology.** Transport technology continues to develop and change. Future advancements may create new forms of rapid transit, provide opportunities to improve quality or efficiency, or may result in changes of demand that impacts on planning decisions.
- **Uncertainty around travel behaviour.** The COVID-19 pandemic illustrates how travel patterns can change dramatically hrough increased working and shopping from home. However, cities and their centres have played a major role in society for thousands of years, and this is unlikely to suddenly, or substantially change.
- **Uncertainty around funding availability to progress rapid transit.** Funding availability impacts the pace of progress and the attractiveness of lower-cost, interim improvements.
- **Uncertainty about market capacity to deliver.** Rapid transit projects require highly specialised skillsets to plan, design and deliver. A clear pipeline of work is helpful to retaining skilled workers and specialised machinery to efficiently deliver projects.

Fortunately, there are ways to manage this uncertainty and enable progress:

- **Sensitivity testing.** Testing options against a variety of scenarios can help us make better decisions about mode or timing. This applies to corridors in their entirety, but also their staging. Some parts of a corridor are focused on existing deficiencies, while the extremities are influenced by growth.
- **Not being overly prescriptive.** Outlining a rapid transit pathway that provides sufficient flexibility for many detailed decisions (e.g. mode confirmation, alignment, staging etc.) to be made at a project level, while still aligning with the high-level network plan set out in the pathway.
- **Making incremental progress over time.** Interim solutions and progressive implementation of a corridor are valid approaches to planning. Most rapid transit corridors around the world are built out in stages.
- **Consider other drivers.** There may be a variety of factors driving the need for rapid transit improvements, such as the need to relieve conflicts on the rail network between passenger and freight trains.

3.6 Incrementally delivering rapid transit improvements along a corridor

Rapid transit networks and corridors around the world are typically developed in stages and been extended over time as growth occurs and funding becomes available. Auckland is no exception to this:

- The rail network has been progressively enhanced over the past 25 years through a series of investments, including Britomart station, double-tracking of the western line, station upgrades, electrification and – next – completion of the City Rail Link.
- The Northern Busway was built in stages and continues to include a mix of fully separated rapid transit, motorway lanes on the harbour bridge, shoulder-running bus lanes, and city streets.
- The Eastern Busway is being delivered in stages.
- The "WX1" service to the northwest is using bus shoulder lanes, as well as interim customer facilities and interchanges – ahead of delivering a busway on this corridor (which itself will likely be delivered in stages).

This 'incremental approach', where a corridor is delivered progressively over time rather than all at once, will continue.

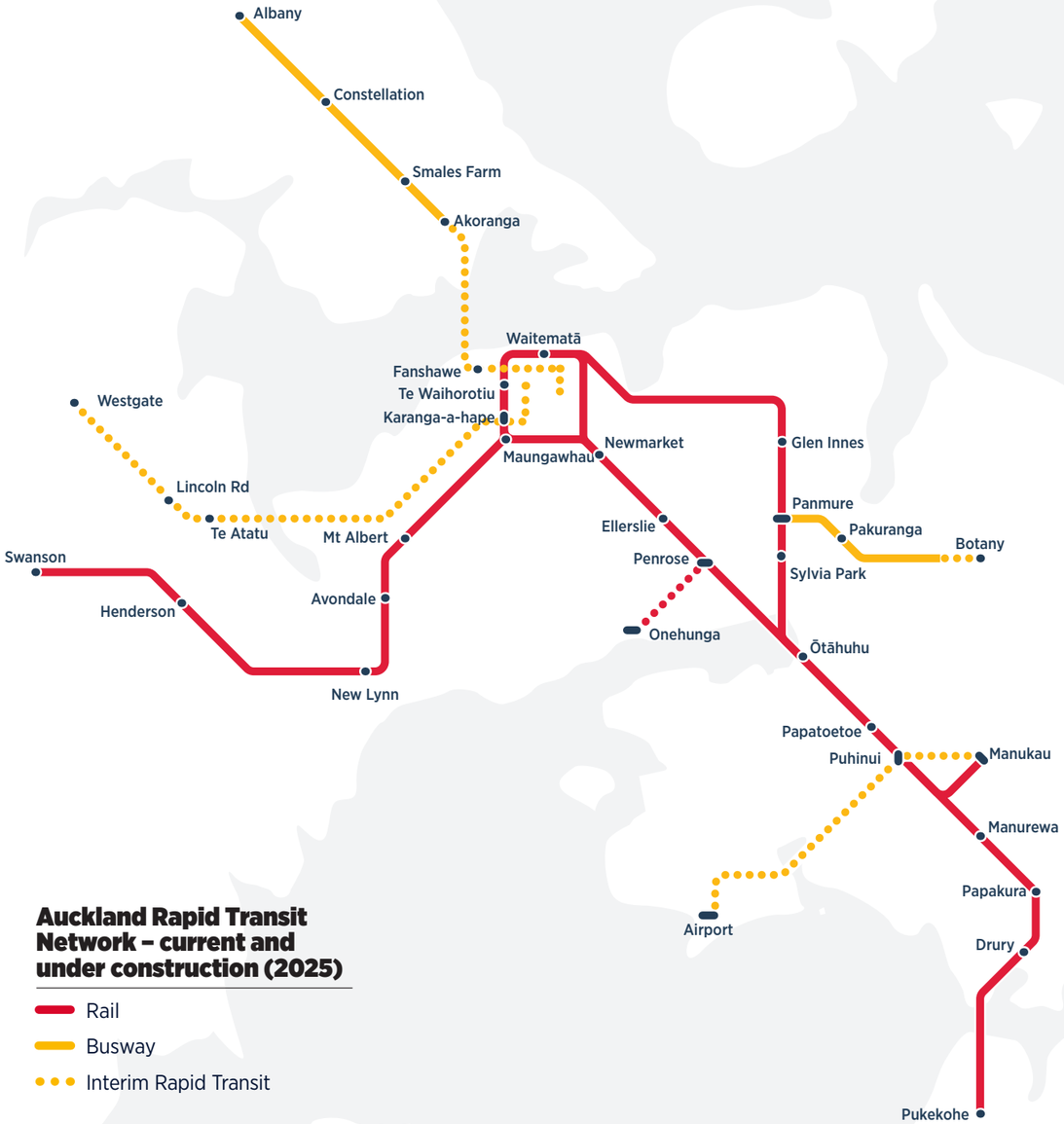
The different characteristics of each rapid transit corridor means there will not be a 'one size fits all' way to deliver each corridor over time. Careful planning and design will be required to ensure an efficient and effective approach is taken, which integrates well with the longer term, minimises stranded assets, and considers the level of disruption to existing users when further incremental improvements occur.

Nevertheless, an 'incremental approach' to delivering a corridor could look like:

1. Service and small-scale priority and customer facility improvements that help realise benefits early, create an appetite for change, and generate data that can inform further investment decisions.
2. Further service and infrastructure improvements, such as permanent stations and/or early sections of partially of fully separated infrastructure
3. Completion, or further extension, of dedicated corridors.
4. Ongoing infrastructure and service improvements to enhance performance and corridor capacity. This could include initiatives such as wider corridors (for more tracks or lanes), larger stations, higher-capacity vehicles, and removing 'pinch points' that emerge over time and constrain corridor capacity.

To unlock the benefits of incremental growth, proper planning needs to be conducted so that phases logically build on one another and don't lock down a specific trajectory too early on in a process.

Interim services, both existing and future, play an integral part of this pathway and have been included in the phasing maps provided on the following pages.



4. Our Rapid Transit Pathway

4.1 Current improvements

Auckland's current rapid transit network includes the electrified heavy rail network between Swanson and Pukekohe, and the Northern and Eastern busways. In addition to this, there are also some interim rapid transit services like the WX1 along the Northwest motorway. Several extensions and improvements to this network are under construction, including the City Rail Link and rapid transit to Pukekohe, and extension of the Eastern Busway towards Botany.

The current network, including interim services and improvements under construction, is shown on the map.

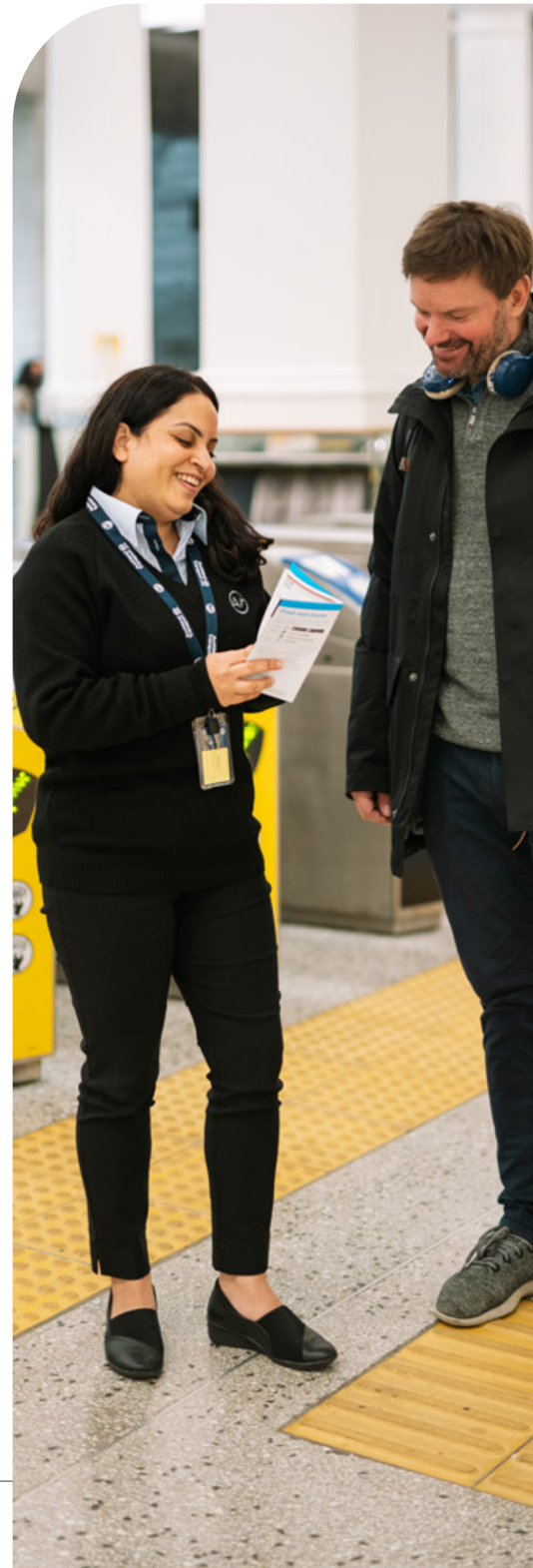
4.2 Phase one – initial focus

Phase one focuses on initiatives that deliver benefits for communities facing some of the greatest existing deficiencies, and where there is more confidence and alignment between partners and stakeholders about the best solution. Major initiatives seek to:

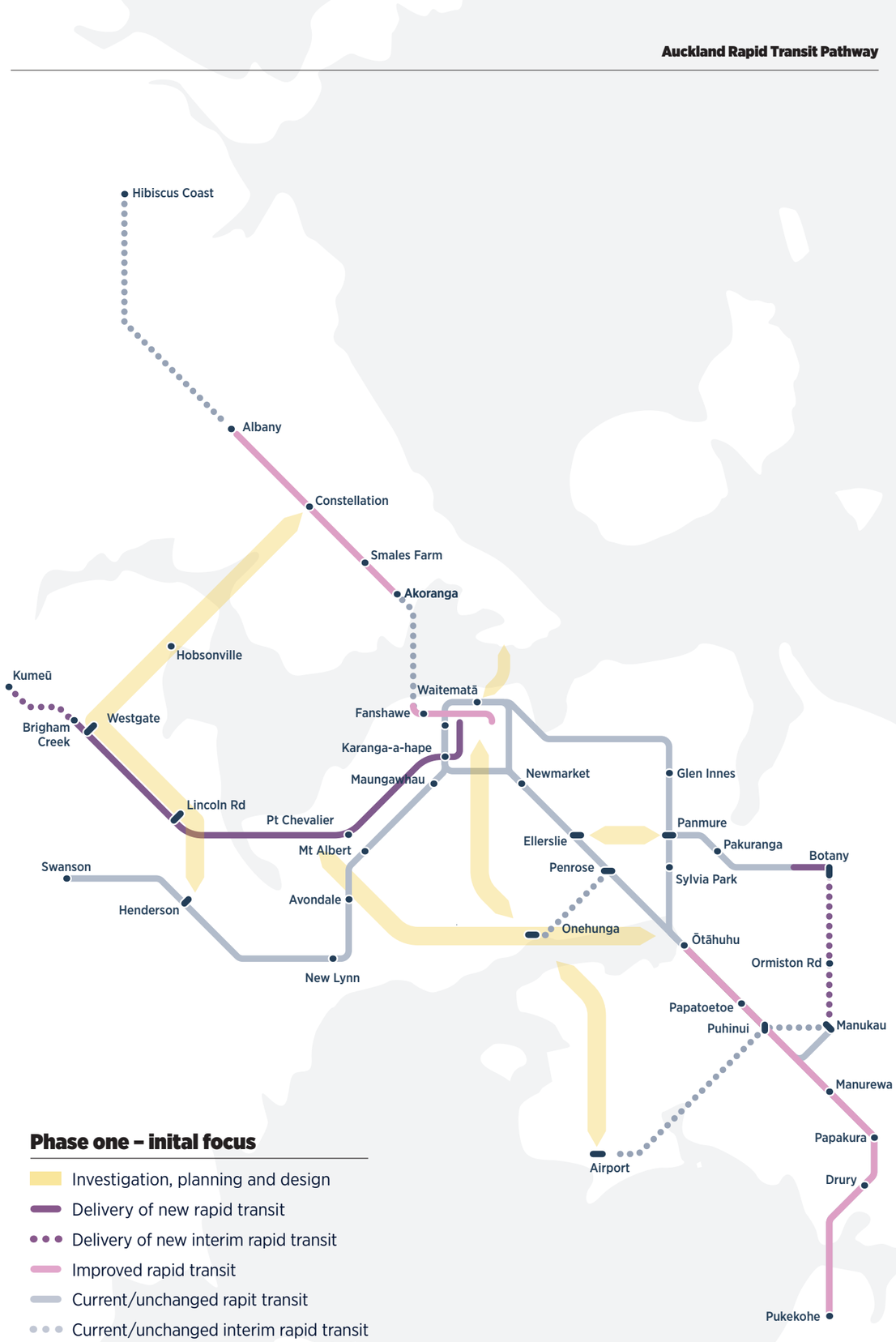
- Make the most of existing networks, especially through upgrading the rail network and the Northern Busway, as well as fully completing the Eastern Busway.
- Address one of the most significant gaps in the rapid transit network, by progressing the Northwest Busway.

There is also a strong focus in this phase on:

- Undertaking planning work on several longer-term corridors, to increase certainty and protect future routes.
- Making interim improvements (informed by these investigations) to provide incremental customer benefits ahead of longer-term corridor implementation.



Investigation, planning and design work	**Preparing for phase 1 projects:** • Complete design, planning approval and property acquisition for all phase one projects.
	Preparing for later phases: • Develop designs for Upper Harbour corridor and protect future route. • Confirm approach to City Centre to Māngere corridor (sequencing, route, mode) and undertake route protection where necessary. • Continue to protect Avondale-Southdown corridor by extending lapse date of rail designation. • Investigate wider Crosstown/Avondale-Southdown corridor timing, integration and sequencing. • Investigate the City Centre to Devonport corridor rapid transit status and hierarchy in ferry tiering system.
Delivery	**New rapid transit** • Northwest busway (phased, delivery may continue into second phase). • Eastern Busway (Phase 4 – Botany station).
	Interim rapid transit • Targeted bus improvements in City Centre to Māngere corridor (especially in city centre, Māngere and in the central isthmus). • Airport to Botany service improvements and early phases • Interim bus improvements between Albany and Silverdale/ Whangaparāoa and in theUpper Harbour corridor.
	Improved rapid transit • Northern busway upgrades (station and city centre improvements) • Commence implementation of four tracking of the southern rail corridor Westfield-Pukekohe (extending into phase 2) • Initial level crossing removals (Takaanini)



4.3 Phase Two – medium term priorities

Phase two focuses on the second highest network priorities. Phase 2 will likely also see the completionof some projects started in the previous phase, as these will be delivered in stages.

Key phase two initiatives are:

- Completion of the Northwest busway. Depending on the timing of growth, this could include its extension towards Huapai.
- Further upgrades to the Northern busway, in particular completion of its cross-harbour section as part of Waitematā Harbour Connections project
- First stage of the City Centre to Māngere corridor, between the city centre and the southern isthmus
- Phased implementation of Airport to Botany
- Continued implementation of rail programme, with a focus on:
  - Completion of four-tracking the southern rail corridor Westfield-Pukekohe
  - Continue level crossing removals
  - Ongoing station improvements as required
- Interim improvements and/or early stages of the Upper Harbour
- Commence delivery of Avondale-Southdown rail corridor and possible interim crosstown services.

The start of phase two will depend on several factors:

- How quickly phase one progresses. While those projects are still under development, affordability and delivery capacity are likely to limit delivery of further rapid transit projects.
- How phase one planning and investigation work progresses, and the extent to which there is certainty, confidence and agreement between stakeholders about the next projects.
- How successful interim improvements have been in building ridership.

4.4 Phase Three – emerging long-term network

Phase three includes initiatives that are not needed until later, often because they have the greatest levels of uncertainty. Typically, these have been identified in high-level long-term plans (such as the Auckland Plan 2050, Future Development Strategy or long-term business cases) but have significant remaining uncertainty about their timing, route or mode. In some cases, there are significant dependencies between these initiatives and future growth plans (e.g. aligning with the urbanisation of future growth areas).

Key phase three initiatives are:

- Completion of the City Centre to Māngere, Upper Harbour and Airport to Botany corridors
- Possible delivery of an additional North Shore rapid transit corridor, following an alignment that is to be determined by future investigation work
- Extension of the North Shore corridor to the Hibiscus Coast
- Extension of the Eastern Busway from Panmure to Ellerslie
- Completion of the Avondale-Southdown rail link, level crossing removals and wider rail programme

The combination of the three phases is shown in the following high-level map, which sets the overall long-term rapid transit network for Auckland. This map is broadly consistent with numerous previous long-term transport plans over recent decades, identifying a well-connected network of rapid transit corridors linking the main parts of the region, especially metropolitan centres, with each other and with the City Centre. The network extends into key growth areas to the north, northwest and south to provide these emerging parts of Auckland with high quality travel options.

The main parts of this network are:

- An upgraded heavy rail network, expanded to include City Rail Link and the Avondale to Southdown line, enabling all-stopping and express passenger services within Auckland, as well as much higher volumes of inter-regional freight and passenger-rail movements.
- A network of bus rapid transit corridors that have been developed incrementally, providing benefits when and where they are needed.
- Two future corridors (City Centre to Māngere and a possible second North Shore corridor) which need to be investigated further to confirm mode, alignment, timing, and integration with the wider network.

5. The corridors in detail

5.1 Overview

This section provides a brief overview of different parts of the rapid transit network, setting out why they are needed and how they are expected to develop over time. For each corridor there is information on its strategic role, as well as the likely mode, connections, and phasing of delivery.

Corridors outlined in detail are:

The heavy rail network

Northwest

City Centre to Māngere

North Shore

Eastern Busway

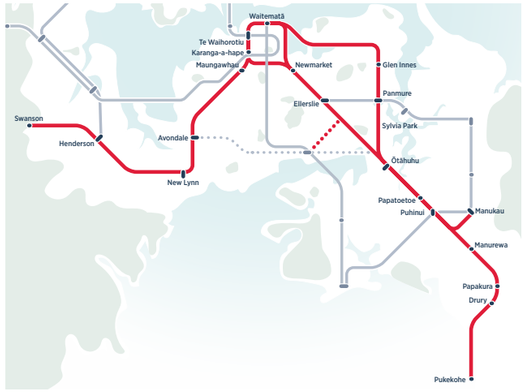
Airport to Botany

Upper Harbour

Crosstown / Avondale-Southdown

Emerging long-term corridors

5.2 Heavy rail network



Description and strategic role

Heavy rail forms most of the existing rapid transit network and will continue to play a core role in the future. Ridership has grown strongly over the past 25 years, due to improvements that include Waitematā/Britomart station, double-tracking of the western line, network-wide station upgrades, the introduction of electric trains, and improved connectivity to buses. Prior to the impacts of COVID-19, trains carried 22 million passengers in 2019.

For large parts of east, south and west Auckland, the rail network is the primary public transport connection to other parts of Auckland and the city centre, with local bus connections helping to expand the catchment of the rail network.

The presence of a rail station in many centres across Auckland creates a significant opportunity to support their redevelopment to higher densities and a wider mix of uses. Metropolitan centres like New Lynn, Newmarket and Manukau are playing a growing role as destinations for people using the rail network, which is expected to increase over time as these centres develop and evolve. The rail network also passes through rural land in the south that has been identified for urbanisation, creating a significant opportunity for quality urban outcomes through the integration of rapid transit and urban development.

These land-use patterns mean the passenger rail network must cater for both long-distance trips between outer suburbs and the city centre, as well as local trips over shorter distances. Over time, the potential growing inter-regional passenger function, means the rail network will need to improve its ability to provide for faster (express and inter-regional) services alongside 'all-stopping' services.

Because freight and passenger trains share the same track across almost all of Auckland's rail network, this growing passenger demand competes with the critical role the network plays in the national freight system. Furthermore, a lack of network resilience means planned and unplanned disruptions have a major impact on the movement of both people and goods. New tracks, the removal of road/rail level crossings, and greater network resilience are required over time, to improve reliability and capacity for freight and passenger services.

Mode and Sequencing

Major expansions to Auckland's heavy rail network through the addition of new lines and corridors are challenging where corridors are not already secured. Therefore, the future role of the heavy rail network is largely focused on improving services to its current catchments. The exception to this is the planned Avondale-Southdown line, which has an existing designation and is on land mostly owned by KiwiRail. This line is discussed further in **section 5.9.**

A major rebuild of the rail network is currently underway to replace aged infrastructure and ensure the rest of the network is ready to realise the benefits of City Rail Link when it opens. Further investment in the rail network will build on this, guided by the following strategic goals:

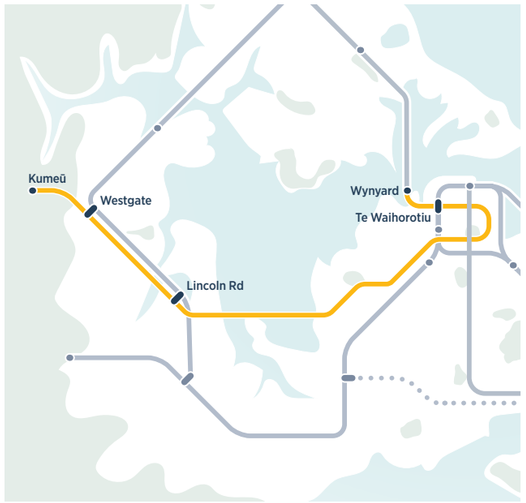
- Increasing the passenger rail network's speed and capacity to support mode shift and increased access to opportunities, through enabling and supporting higher train frequencies, express train services and higher-capacity/longer trains.
- Enabling growth, improved reliability and resilience of passenger and freight services, by maintenance, power and signalling upgrades, as well as progressively separating these functions via new track infrastructure on the southern and Avondale-Southdown rail corridors.
- Improving safety and customer experience, through ongoing station and access improvements, removing road/rail level crossings, and preventing unwanted access to the rail network.

Details of infrastructure improvements necessary to achieve these goals is outlined in the Auckland Rail Programme Business Case. Importantly, the rail network functions as a network rather than a series of corridors. Unlocking capacity on one part of the network may be dependent on investment in another rail corridor.

Ongoing upgrades are required to the rail network across all phases. Implementation happens through a series of 'steps' that progressively enable higher quality services.

Funded / under construction	Phase one	Phase two	Phase three
City Rail Link and associated network upgrades (including trains and stabling)	Progressive removal of level crossings from southern and western rail corridors (30-year programme) Station upgrades aligned with increasing demand		
New Southern line stations	Additional trains and stabling	Further trains and infrastructure for future 9-car operation	
Wiri to Quay Park improvements including a third rail line between Wiri and Westfield	Planning, route protection and early works for 4-tracking Westfield to Pukekohe	Complete 4-tracking Westfield to Pukekohe (incl. grade separation of Westfield Junction)	Complete full 30-year rail programme, adapting where future demand and drivers may have changed

5.3 Northwest



Description and strategic role

This corridor connects Kumeū, Westgate, Te Atatū, Point Chevalier and the city centre, running next to State Highway 16 for most of its length.

This part of Auckland is currently not well served by rapid transit and has little other dedicated public transport infrastructure to support reliable services. This means that northwest Auckland has relatively low public transport mode share, poor access to employment, and a very high reliance on private vehicles that often experience severe congestion. Relatively low levels of employment in the northwest mean its residents face very significant access challenges, compared to most other parts of Auckland.

The Auckland Unitary Plan has enabled significant growth in this corridor, including intensification in the existing urban area and urban expansion in identified future urban areas of Red Hills, Whenuapai and Kumeū. Providing these developments with good travel options early in their development supports higher density housing and provides residents with reliable mode choice and the ability to avoid congested roads.

Interim infrastructure improvements have extended bus shoulder lanes on the Northwest Motorway and provided transfer facilities at Lincoln Road, Te Atatū and Westgate. The new Western Express service running on these facilities has generated significant ridership growth, but does not provide the speed, capacity, reliability or quality expected from a rapid transit solution.

Rapid transit will support the ongoing development of Westgate as a metropolitan centre and key employment node, as well as the intensification of other centres along the corridor. Land use changes will contribute to fully realising the benefits of this investment and shaping a more sustainable urban form for Auckland.

Mode and sequencing

Recent business case work has identified a busway as the most efficient and effective mode for this corridor, which is likely to be delivered in stages over time. The severe existing transport access and choice deficiencies faced by the northwest, alongside rapid growth and a highly congested motorway corridor, make this a high priority corridor for implementation in phase one of this pathway.

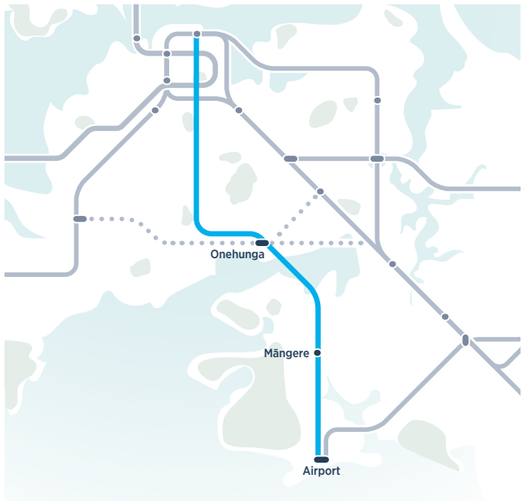
Given its scale, route protection, property acquisition and construction will take some time. It may also be necessary to stage implementation of the busway for affordability deliverability reasons. In the meantime, we should continue to make improvements to the interim busway, especially where these are low-cost, deliver immediate benefits, or will deliver parts of the long-term solution earlier. For example, we could decide to complete some stations and make city centre bus efficiency improvements.

Delivery of this corridor would result in a second busway accessing the city centre. There are opportunities to improve service quality and operational efficiency by 'through-routing's ome services using the two busways – especially in the longer-term when growing bus volumes will place pressure on city centre streets.

Improvements in this corridor should be sequenced over time as follows:

Funded / under construction	Phase one	Phase two	Phase three
	Interim bus improvements building upon the success of the WX service Planning, route protection and property acquisition for busway Introduction of a new busway (to be delivered in stages)	Completion of full busway (including to Huapai)	Potential use of higher-capacity vehicles in conjunction with Northern busway

5.4 City Centre to Māngere (CC2M)



Description and strategic role

This corridor links the City Centre and Auckland Airport via Mt Roskill, Onehunga and Māngere. It has three broad components, which could be progressed relatively separately from each other: City Centre to Mt Roskill, Mt Roskill to Onehunga (interfaces with the 'Crosstown' corridor), and Onehunga to Airport. The corridor has been identified in many plans over the past decade, due to the need to address the following issues:

- Bus congestion issues in the city centre and isthmus.
- Enabling and supporting growth in the Auckland isthmus and Māngere.
- Improving Māngere's access to employment and education.
- Improving access to Auckland Airport and surrounding business areas.
- Improving quality compact urban form by unlocking new growth opportunities

The bus services operating in the central isthmus are some of the busiest in New Zealand. Many of these services already face capacity issues (e.g. overcrowding and delays), that will only get worse as the city grows. If left unresolved, capacity constraints in the city centre and on key approaches will negatively impact Auckland's economic productivity and liveability. Significant technical work over the past decade has highlighted that these issues cannot be resolved by simply adding more buses, as the city centre has a limit on the number of buses it can practically accommodate. A step change is needed.

Improvements along the CC2M corridor will increase access to growing employment areas, including Auckland's Airport precinct, the wider Onehunga area, and the city centre. Without this major increase in capacity, the road network will be overwhelmed and not be able to function effectively, limiting access to and productivity of these employment areas.

The corridor provides an opportunity to accommodate significant growth and significantly shape Auckland's urban form. Improved access along this corridor, combined with its significant development and regeneration potential, creates a rare opportunity to tackle Auckland's housing challenges in a way that is well aligned with achieving quality compact outcomes.

Mode and sequencing

Although several entities completed a lot of work on his corridor over the past decade, a way forward is yet to be confirmed. The city centre Bus Plan's proposed bus capacity improvements, combined with reduced demands due to post-COVID ridership, means major investment in this corridor is not needed until phase two of the ARTP.

Limits on city centre bus volumes are a key driver of mode choice for the corridor. Because the city centre's bus capacity will mostly be used up by the Northwest and Northern Busway, the CC2M corridor will likely need to be progressed via a rail-based mode.

During phase one, there remains a need to implement interim improvements; especially to improve public transport access in Māngere and to improve bus travel times and reliability on the isthmus. These improvements could be in the form of additional or extended bus services, new bus priority measures, or other interventions to improve accessibility in these areas.

Phase one is also when we would need to confirm design details, integration with other rapid transit corridors (e.g. Crosstown / Avondale-Southdown), and sequencing. Focusing on the section between the city centre and the southern isthmus first addresses the most urgent capacity issues, while allowing more time to confirm the timing, form and route of onward extensions.

Improvements in this corridor should be sequenced over time as follows:

Funded / under construction	Phase one	Phase two	Phase three
	Interim bus-based improvements. Confirm corridor approach	Part one: City Centre to southern isthmus	Part two: southern isthmus to Airport

5.5 North Shore

The Northern Busway's location adjacent to the motorway, bypassing Takapuna and only serving the northeast edge of Albany, has to-date limited its impact on urban form and attractiveness for trips other than those to and from the city centre. Enhancing connectivity for a wider variety of trips, especially access to Takapuna and Albany as the North Shore's two primary centres, is a key long-term goal.

The corridor should also further drive intensification supported by transport choice and quality urban outcomes. Albany and Takapuna metropolitan centres, Smales Farm and future urban areas like Dairy Flat all benefit from this corridor providing access to employment.

Description and strategic role

This corridor links the Hibiscus Coast, North Shore, and the city centre. The Northern Busway currently extends along part of this corridor, between Akoranga and Albany.

As the primary north-south public transport corridor for the wider North Shore and growing Hibiscus Coast area, the North Shore corridor has significant strategic importance in providing fast, reliable and high-capacity travel. This significance will only increase as the population of its catchment increases through intensification of key locations like Takapuna and Albany, as well as the urbanisation of the Dairy Flat future urban area.

At least 12,000 people per hour in the citybound direction are expected to use the corridor in the 2050s, among the highest forecast demand of any rapid transit corridor in Auckland.

Mode and sequencing

There is a strong interdependency with the Waitematā Harbour Connections project and decisions on form, staging and timing of that project. Work on the Waitematā Harbour Connections project has shown that upgrading the Northern Busway to light rail would deliver relatively little additional capacity, as well as being difficult and disruptive to construct. Instead, enhancements to the existing Northern Busway (e.g. station capacity upgrades, city centre bus improvements and through-routing to the northwest, as well as extending a dedicated busway across the harbour) can be staged over time and should be prioritised to secure sufficient passenger-carrying capacity for some time.

Even with these improvements the busway is expected to run out of capacity in around 30 years' time. Recent technical work suggests that delivering a second rapid transit corridor is a better solution to the busway's capacity issues, rather than upgrading the busway to a higher-capacity mode. Further work is needed to confirm the route, mode and timing of this second corridor.

North of Albany, the route for a rapid transit corridor through the heart of the Dairy Flat growth area has been secured as part of wider transport planning work. It's unlikely this corridor will be needed for some time, meaning that interim bus priority improvements along the Northern Motorway should be considered in the shorter-term.

Improvements in this corridor should be sequenced over time as follows:

Funded / under construction	Phase one	Phase two	Phase three
	Northern Busway enhancements (city centre and station upgrades)	Completion of full busway enhancements, including across harbour. Through-running to Northwest busway	Potential for use of higher-capacity vehicles. Confirmation of the timing, form and alignment of the second North Shore corridor

5.6 Eastern Busway

Description and strategic role

The Eastern Busway extends Auckland's rapid transit network into the wider east Auckland area. The first stage of the busway from Panmure to Pakuranga opened in late 2021, with the next phase towards Botany now under construction. In the longer-term, the busway will be extended west from Panmure towards Ellerslie, to connect with the southern railway line.

A lack of reliable and fast services contributes to east Auckland having very low public transport mode share, relative to the wider region[2]. The busway will be used by multiple bus routes, with a key role being to connect people to Panmure station, where a transfer to the train provides a high-quality connection to the city centre and other destinations.

Much of east Auckland (especially areas east of the Tāmaki River) developed with a low-density and car-based urban form, contributing to low levels of public transport use. Combined with limited local employment opportunities, the area's car dependency has resulted in significant congestion on Pakuranga Road and Ti Rakau Drive at peak times and overall lower levels of access to employment opportunities.

The corridor will help to support changes to the area's urban form, by enabling improvements to public transport that will support more medium and high-density development, as enabled under the Auckland Unitary Plan. Botany is zoned as a metropolitan centre that can support significant commercial and residential development. Pakuranga town centre can also support a mix of uses at higher densities.

Mode and sequencing

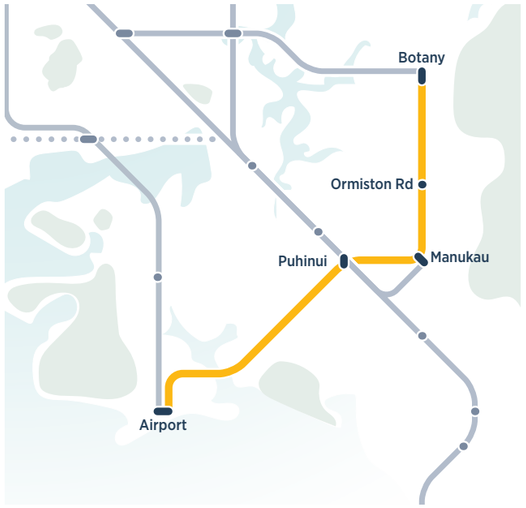
This corridor is being built as an urban busway and will be served by high-frequency bus rapid transit services. Forecast demand is within the bounds of this mode, and the busway's ability to be used by routes from multiple corridors (and enable them to connect directly with the rail network) is a key reason this mode was chosen.

Building on already completed sections, further improvements in this corridor should be sequenced over time as follows:

Funded / under construction	Phase one	Phase two	Phase three
Pakuranga to Botany busway implementation (excluding Botany station)	Completion of Botany station Interim bus priority improvements between Ellerslie and Panmure		Extension from Panmure to Ellerslie

[2] Howick local board had 6% PT mode share for travel to work, compared to the regional average of 11% at the 2018 census. The average of the local boards of the Auckland isthmus is higher still, at 15%.

5.7 Airport to Botany Bus Rapid Transit



Description and strategic role

This is a planned bus rapid transit corridor connecting Botany, Manukau, Puhinui Station (for connections to the Eastern and Southern lines and inter-regional services) with Auckland Airport.

Suburbs along this corridor are highly reliant on private vehicles and the area's existing rapid transit connections focus on trips towards the city centre. Local bus connections, especially between Manukau and Botany, have limited priority and, as a result, are relatively slow and unreliable. The bus rapid transit corridor will improve connections between these centres, offering competitive travel times with private cars. It will also support a broader reorganisation of the local bus network, with connections between local and rapid services offering improved travel choices

There is significant potential for intensification along the corridor, especially in Manukau and Botany metropolitan centres. Improved public transport access to these centres will support their growth and success into the future. Rapid transit will also support intensification of the more suburban sections of the corridor, particularly along Te Irirangi Drive.

Rapid transit will also support employment growth in the airport precinct. Poor transport choices currently limit development potential at the airport, as potential employees are put off by the limited and unreliable transport options. Intensification of uses at the airport will support increased employment in the wider South Auckland area.

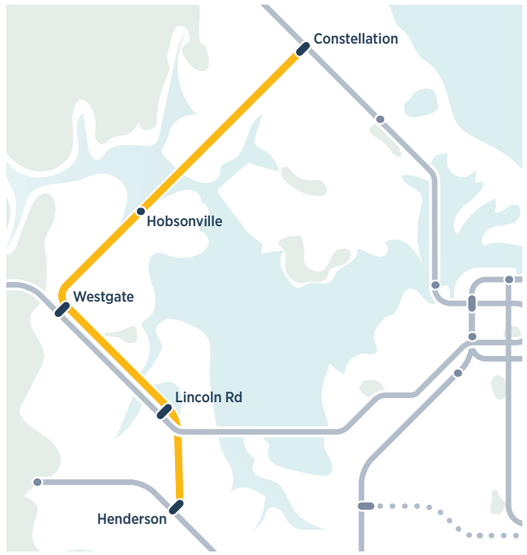
Mode and sequencing

Bus rapid transit is the preferred mode for the corridor due to demand. Initial bus improvements (A2B Stage 1) have been implemented between Manukau and Auckland Airport via Puhinui Station and along State Highway 20B, Puhinui Road and Lambie Drive.

Further improvements in this corridor should be sequenced over time as outlined in the following table.

Funded / under construction	Phase one	Phase two	Phase three
	Stage 2 Interim bus improvements to be operational by FY30. Extend AirportLink bus service from Manukau to Botany supported with some priority within existing road and interim rapid transit stations	Airport to Botany Stage 3	Airport to Botany Stage 4

5.8 Upper Harbour



Description and strategic role

This corridor links north and west Auckland, connecting the Western Line at Henderson, the Northwest corridor between Lincoln and Westgate, and the Northern Busway at Constellation station. The corridor is expected to broadly follow Lincoln Road, State Highway 16 and State Highway 18, with further design details to be refined as investigation work progresses.

The corridor's key task is to provide a high-quality and direct public transport option for trips between the North Shore and West Auckland. Existing bus services performing this task are relatively indirect, slow, infrequent and unreliable. This means public transport is generally not seen as an attractive option (particularly outside of peak times).

Northwest Auckland is growing quickly, through new developments at Hobsonville, Whenuapai and Red Hills. The Upper Harbour corridor will also improve access to two 'nodes' identified in the Auckland Plan 2050, Westgate and Albany, as well as the metropolitan centre of Henderson.

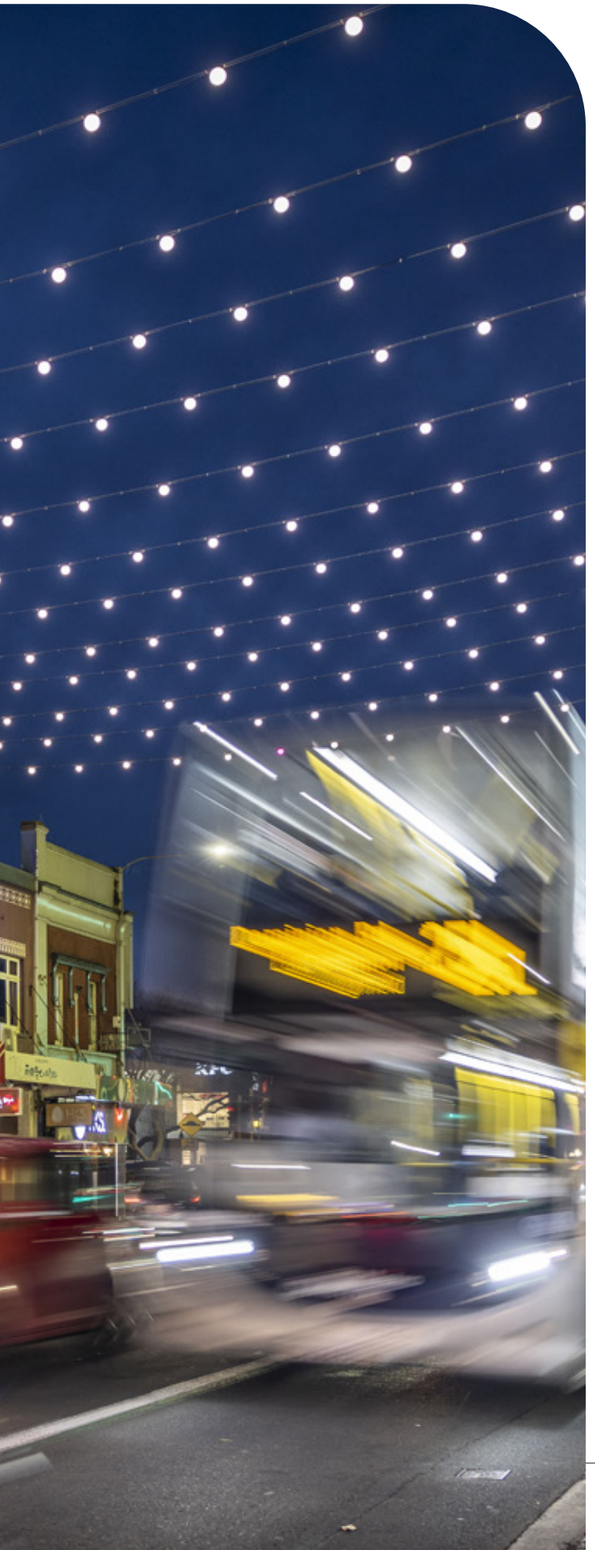
High quality transport links in northwest Auckland are particularly important because West Auckland has a shortage of jobs compared to its residential population, while major employment opportunities exist on the North Shore. This results in significant commuter flows out of the area, including to the North Shore, which will increase congestion on the existing network until quality alternatives are provided. As well as providing employment access for people living in the northwest, it is also important for this corridor to encourage more jobs into the northwest (by improving the area's accessibility) and therefore reduce pressure on key transport links to other parts of Auckland.

Mode and sequencing

Bus rapid transit is expected to be the preferred mode for the corridor. Forecast demand is relatively low (compared to other corridors) and well within the capacity of this mode. The route will share the busway corridor between Westgate and Lincoln Road, meaning that the station infrastructure in that section needs to be designed with sufficient capacity.

Improvements in this corridor should be sequenced over time as follows:

Funded / under construction	Phase one	Phase two	Phase three
	Planning and design work for corridor, as well as potential for targeted interim bus improvements Partial delivery as part of Northwest Busway between Lincoln and Westgate stations	Corridor implementation (potentially staged for constructability)	



5.9 Crosstown / Avondale-Southdown

Description and strategic role

This future corridor extends across the southern part of the isthmus. It has the potential to connect several radial rapid transit corridors, ease pressure on the inner parts of those corridors, and enable fast and direct public transport between residential areas in west Auckland and large employment areas in the south-east of the isthmus. This will improve travel choice, network resilience, and make the wider rapid transit network useful for a much greater range of trips.

The corridor interacts with several other parts of the current or future rapid transit network, including the Mount Roskill to Onehunga section of the City Centre to Māngere corridor, all lines on the rail network, and possible future corridors.

The southern isthmus has significant growth and redevelopment potential, much of which is already underway.

Mode and sequencing

A key opportunity in this corridor is the Avondale-Southdown rail corridor, which is owned by KiwiRail and has an existing heavy rail designation that would help facilitate the delivery of a heavy rail connection. There may be potential for another mode to share part of the Avondale-Southdown corridor, but this would require purchase of additional land.

The Rail Programme Business Case confirmed the long-planned rail link between the Western Line near Avondale and the Southern and Eastern Lines at Westfield Junction will be needed within the next 15-25 years. Once complete, the rail link enables more frequent passenger services across the rail network by removing freight services from the busy inner sections of the western and southern rail corridors. This will also improve rail network reliability and resilience for both passenger and freight services.

The rail link would also provide a new cross-isthmus rapid transit connection. The Avondale-Southdown line is expected to have sufficient capacity for up to eight passenger trains per hour, while still meeting freight demands which means it would be an effective rapid transit solution for the Crosstown corridor.

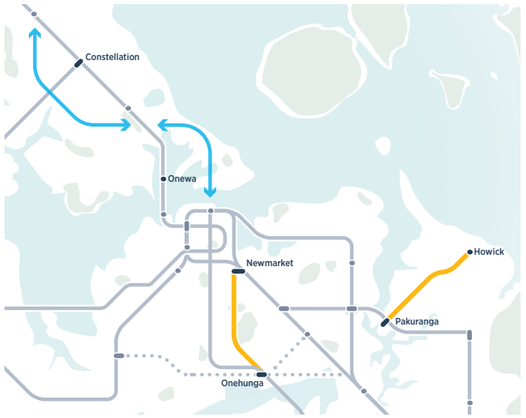
More work needs to be done to understand how the Avondale-Southdown Line would integrate with the wider rapid transit network and still meet the needs of the national rail freight network. Further rapid transit planning work should focus on:

- Confirming integration with other rapid transit corridors, and the wider public transport network, including the need for earlier interim interventions
- Investigating the demand for (and affordability of) a widened corridor, so that another mode could use it as well.
- Wider rail network-led planning activities to collaboratively develop the design for a passenger rail service in the corridor. This includes confirming interchange locations, service patterns and other design details.

Timing will be influenced by both rapid transit and wider rail network considerations. Improvements in this corridor should be sequenced over time as follows:

Funded / under construction	Phase one	Phase two	Phase three
	Planning and route protection for Avondale-Southdown rail corridor Investigation of wider network connectivity / integration, station catchments and early interventions	Commence delivery of heavy rail infrastructure along Avondale-Southdown corridor Potential interim improvements to crosstown PT services	Complete delivery of heavy rail infrastructure along Avondale-Southdown rail corridor Wider transport connections to rail corridor implemented

5.10 Emerging long-term corridors



As discussed in section 3.2 three corridors were identified that could form part of the long-term rapid transit network, but are beyond the timeframes of this pathway. Continued improvements to existing bus services on these corridors should be made, with future planning work considering their potential rapid transit role in more detail.

1. Additional North Shore rapid transit corridor

The original ARTP included Onewa Road/Glenfield Road as a corridor that could benefit from rapid transit investment. This is a key bus corridor for the lower North Shore, serving both the Glenfield Road and Birkenhead areas. Onewa Road has transit lanes carrying more people than the regular traffic lanes do at peak times. These lanes are fit for purpose in the short to medium term, and as such this corridor was not considered for inclusion in the pathway. Recent work on the Waitematā Harbour Connections project identified a long-term need for a second North Shore rapid transit corridor. More work is needed to understand if this corridor would be part of Phase 3, and needs to be considered alongside investigations into an additional harbour crossing.

2. Manukau Road

This corridor serves a range of destinations, including the Newmarket metropolitan centre, Greenlane Clinical Centre, Epsom, Royal Oak, and Onehunga. Land use change in these areas may increase demand to a level where the existing bus services on the corridor will not be able to cope. In the short to medium term there will be improvements to bus services, but there is the potential for rapid transit in the longer term.

This corridor could potentially connect with the City Centre to Māngere corridor at Onehunga to provide a direct connection towards Auckland Airport and ease pressure on inner parts of that corridor. If built as the same mode, there is potential for connections between the corridors. At the northern end, significant further planning would be required to determine how best to integrate this corridor with the wider rapid transit network in the city centre.

3. Pakuranga Road

The first stage of the Eastern Busway runs along the southern end of Pakuranga Road. While the rest of the busway will then travel along Ti Rakau Drive, future demand on Pakuranga Road may justify a branch of the busway continuing towards Highland Park and Howick. The need for full rapid transit is likely to be driven by land use change generating a need for a higher-quality system.

The best time to undertake further work on this corridor will be after the Eastern Busway has been fully implemented.

6. Accessing rapid transit

6.1 Introduction

Implementing this pathway over time will considerably expand the reach, capacity and attractiveness of Auckland's rapid transit network. Upgrades to rapid transit corridors need to be complemented by ongoing improvements to how people access rapid transit stations, whether this access is by walking, cycling, feeder buses, park and ride, or other modes. Land-use integration is also a critical part of improving access to public transport, by enabling and encouraging more people to live, work and visit locations that are easily accessible by the rapid transit network.

6.2 Improving station access

Stations provide customers the means of access rapid transit services, which generally make up the main leg of their journey. To ensure stations enable a seamless transition between that main leg, and first and last legs of the customer's journey they should:

- Have universal walking access, bike and micro-mobility facilities, well-designed connections to local buses and suitable car drop-off and pick-up points.
- A quality customer experience, making the rapid transit network convenient, accessible and attractive.
- Be well integrated with their local areas, creating thriving and sustainable neighbourhoods.

There are different types of stations that serve different strategic functions, based on their role in the network and their location. How customers access their station will vary depending on its context. All stations need to cater for a range of accessibility needs.

In recent years Auckland Transport has assessed current rapid transit stations and ferry terminals to understand how people access these stations, and expected land use changes around these locations. This work helped identify where transport investments could be prioritised to best improve the experience of people accessing the rapid transit network.

The 2024 First and Final Leg (FFL) business case identified a programme of investments to enhance walking, cycling, micro-mobility, and connecting bus facilities at the most deficient stations, alongside improvements in wayfinding, cycle parking, and general access across all stations. Further system-wide initiatives to improve rapid transit station access will also help people better understand their travel options.

6.3 Public transport network integration

For rapid transit to effectively perform its role as the 'core' of the wider public transport network, strong integration with other services is critical.

This requires:

- Designing wider bus services to feed people into rapid transit, rather than inefficiently duplicate rapid transit services.
- Ensuring service frequencies (on both rapid transit services and feeder buses) are sufficiently high that wait times are minimised.
- Making the transfer process safe, easy, convenient, and intuitive.

Well-designed interchange facilities, such as those delivered in Ōtāhuhu, Panmure and New Lynn over the past 10-15 years, have significantly expanded the reach of the rapid transit network and enabled a more efficient overall public transport network.

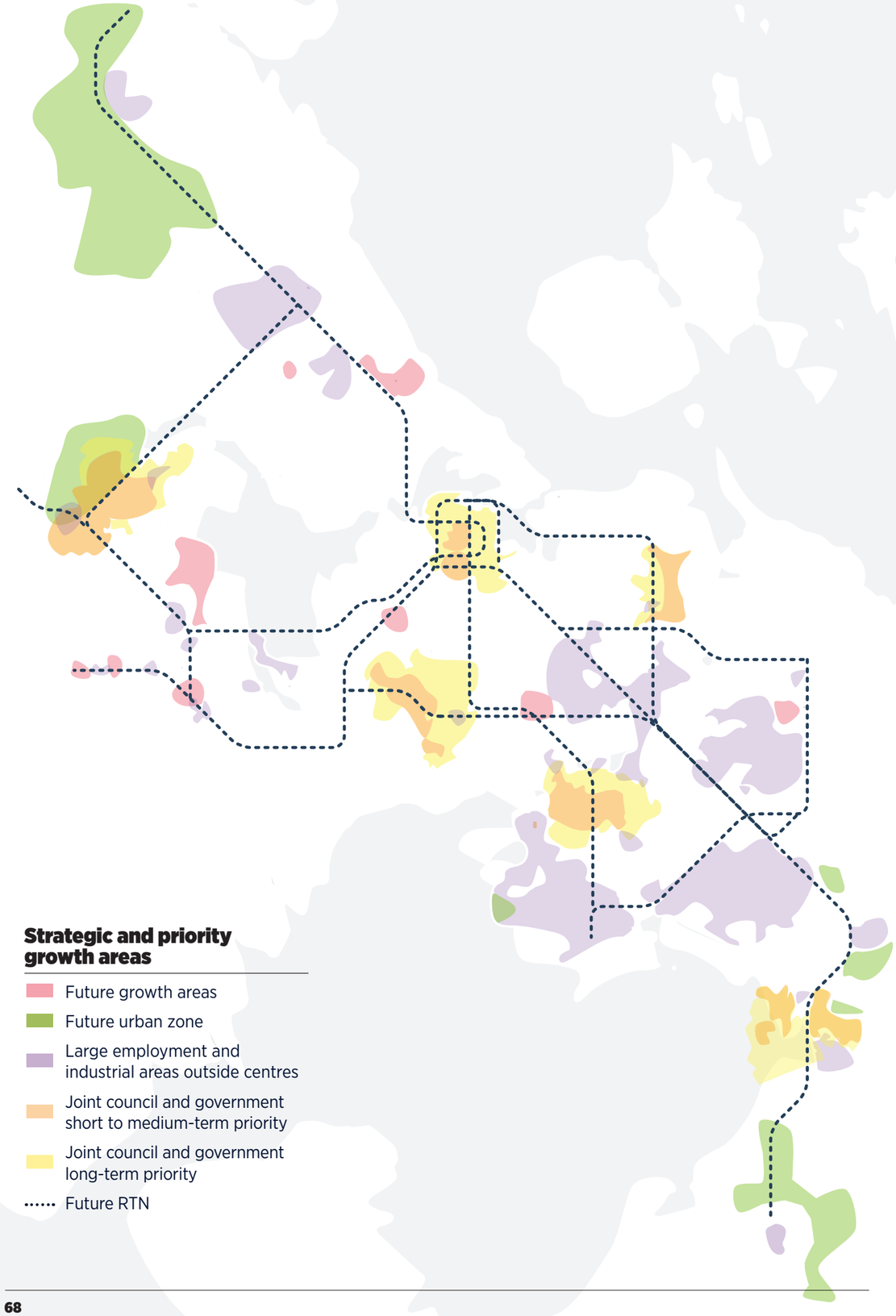
Improvements to interchange facilities will continue to be required to make the transfer from the feeder bus system as easy and seamless as possible for people. It is important to make the transfer:

- Obvious, with clear desire/sight lines and good wayfinding.
- As short and simple as practically possible
- Universally accessible, including reliable step-free options.
- In an environment that is safe, with good shelter.

It will sometimes be necessary to terminate the feeder bus services at the rapid transit station. It is important to cater for buses (and drivers), to facilitate the good customer experience when transferring. This requires:

- Sufficient bus stops for the number of services arriving / departing from the station.
- Separate layover location for buses, which is close to the bus stops and provides sufficient facilities for driver needs.
- Electric bus charging facilities where needed.

A well-designed terminus facility for passenger and buses enables a more efficient/cost effective bus operations. Careful design will be required to make sure the facility works well with the urban realm at the station.



6.4 Land use integration

More intensive urban development is already enabled and encouraged around most of Auckland's rapid transit stations, through higher-density zoning in the Auckland Unitary Plan, and the identification of joint priority areas in the Auckland Plan 2050 Future Development Strategy. In recent years around 13% of all new dwellings consented have been located within the one kilometre walking catchment of the rapid transit network.

The National Policy Statement on Urban Development (NPS-UD) requires the Auckland Unitary Plan to enable further intensification in the walkable catchments of existing and planned rapid transit stations and stops.

To realise the benefits of investing in rapid transit, potential additional steps that could be taken to further encourage quality development in locations near rapid transit include:

- Financial incentives to encourage development close to rapid transit.
- Encouraging public urban development agencies (such as Eke Panuku and Kāinga Ora) to focus their efforts on areas close to rapid transit.
- Taking steps to remove other barriers to growth (including non-transport infrastructure constraints) in areas close to rapid transit.

7. Implementing the pathway

7.1 Roles and responsibilities of agencies

The planning, funding and delivery of rapid transit in Auckland requires effort by multiple agencies within central and local government. These are complex initiatives that often do not neatly fit into traditional divisions of responsibility across agencies, leading to project-by-project solutions for recent rapid transit projects like City Rail Link (which has been established as a separate entity, jointly funded by the Crown and Auckland Council).

Looking ahead, a clearer and more consistent approach to the planning, funding and delivery of rapid transit would make implementing Auckland's rapid transit more efficient. Rapid transit projects are often extremely complex and significant, requiring deep expertise across a wide range of technical issues.

In the meantime, current arrangements will need to continue for existing projects. Strong alignment and collaboration across the different organisations that play a role in rapid transit planning and delivery will continue to be essential.

7.2 Roles of mana whenua

The iwi mana whenua of Tāmaki Makaurau, as partners with the Crown under Te Tiriti o Waitangi/The Treaty of Waitangi, have an important role to play in the development of the rapid transit network. Central and Local Government agencies work with mana whenua on the development of individual corridors of the network, to ensure that their views and expertise are included in the corridor's planning and design.

Mana whenua recognise the benefits rapid transit has in providing improved access to opportunities for communities, including hāpori Māori. They support improving access for Māori, including those who are not mana whenua in Tāmaki Makaurau, as well as for Pasifika communities. Mana whenua also support a social procurement approach to the development of the rapid transit network, which should include Māori and Pasifika businesses.

In addition, as noted above, mana whenua have their own commercial aspirations, and support the development of the rapid transit network in a way that supports these aspirations.

This may include providing rapid transit access to their land which they are seeking to redevelop.

The ARTP's development included engagement with mana whenua, and their input is reflected in this section, as well as other parts of this pathway. Mana whenua see their role on rapid transit projects as:

- Being kaitiaki for the environment – advocating for positive environmental outcomes as part of projects. This includes ensuring infrastructure is designed and constructed in an appropriate way and includes aspects that benefit the environment (such as improvements to water quality as part of stormwater treatment systems).
- Having deep knowledge of their local rohe – ensuring that infrastructure and services are delivered in a way that is conscious of, and respects, the history and culture of the area and its people.

To perform these roles, mana whenua expect to be represented in projects at both:

- A governance level, to enable them be part of decision-making processes and steer the direction of the project.
- A technical level, to understand and contribute to the details of the project's development.

As part of their involvement in projects, mana whenua may choose to gift names for infrastructure which reflect the history of the local area, and which contribute to a unique Māori identity for Tāmaki Makaurau. Mana whenua also encourage this to be achieved through the incorporation of Māori design principles. The design of Puhinui, Manukau and Ōtāhuhu stations are examples of where this has been done successfully.

7.3 Next steps

Some level of planning and design work is underway for most of the corridors identified in this Pathway. A key focus over the next few years is to complete this work to a level that corridors can be legally protected through statutory planning processes.

In some cases, it may be decades before these rapid transit corridors are fully implemented. However, route protection is an important tool to minimise future property acquisition costs and provide a level of certainty to the community about future intentions.

The table below outlines recommended next steps for each of the corridors. Funding for these next steps will need to be confirmed through normal processes.

Corridor	Lead Delivery Agency	Recommended next steps (2025-27)

Rail network	KiwiRail (rail network infrastructure)
	Auckland Transport (level crossings, trains and station buildings)
		• Successful opening of City Rail Link and integration with wider rail network
		• Complete projects under construction
		• Further planning and design work, particularly for:
		  • Southern line four-tracking (Westfield to Pukekohe)
		  • Initial level crossing removals
		  • Extend lapse date of rail designation for Avondale-Southdown corridor

Northwest	NZ Transport Agency	• Confirm project design and staging. • Progress route protection and property acquisition • Make further interim improvements to WX1 infrastructure, and services (by AT)
North Shore	NZ Transport Agency (busway) Auckland Transport (stations & local roads)	• Confirm long-term rapid transit solution(s) as part of Waitematā Harbour Connections project • Commence design and implementation of busway station upgrades and city centre improvements
City Centre to Māngere	Auckland Transport	• Investigate and progress interim improvements, and monitor corridor performance
Eastern Busway	Auckland Transport	• Complete stage 2 & 3 of Eastern Busway • Confirm design and funding for stage 4
Airport to Botany	Auckland Transport	• Confirm designation • Initiate A2B Stage 2 • Inform future planning for Stage 3 and 4 (staging and funding)
Upper Harbour	NZ Transport Agency & Auckland Transport	• Progress planning and design work to enable corridor protection
Crosstown / Avondale-Southdown	KiwiRail (for Avondale-Southdown) Auckland Transport (wider PT integration)	• Extend lapse date of rail designation for Avondale-Southdown corridor • Progress strategic planning to understand corridor integration opportunities and requirements

Te Ara Whakawhiti
Tere o Tāmaki Makaurau
Auckland Rapid Transit Pathway