FUTURE CONNECT 2023

Strategic Networks Report

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1 PURPOSE AND CONTEXT

1.1 Purpose

This report outlines the fundamentals for the Strategic Networks that are used in Future Connect. This report is a small update on the 2021 Strategic Networks Report, reflecting minor changes made to the network classifications for Future Connect 2023.

For more information about Future Connect and to see the main & technical reports visit:
www.at.govt.nz/futureconnect

1.2 Context

Classifying parts of the transport system[1] is a fundamental part of planning and managing the transport network, particularly for roads and streets. Assigning roads to a class or category (based on their function) helps guide decisions about how the transport network is planned, developed, operated and maintained. Classification can also provide guidance and expectations for levels of service.

Roads in Auckland are classified in a number of ways and for a range of purposes. This includes their asset maintenance requirements (via the Asset Management Plan), their place and movement role (via the Roads and Streets Framework (RASF)) or their importance for resilience (via the AT Criticality Framework). **Future Connect classifies roads and streets based on their strategic modal role**, with all roads being classified according to being part of a strategic or supporting network for each mode (noting not all roads are part of either network for all modes). This approach replaces the arterial road classification system outlined in the 2013 AT Code of Practice (Road Classification).

The Strategic/supporting network classification system replaces the previous, general traffic-oriented approach to road classification ('arterial, collector, local') to recognise and reinforce the multi-modal nature of the transport system, and incorporate corridors which are not roads. By using this multi-modal approach, AT is working towards improving access and unlocking better travel choices for Auckland.

This report outlines the different networks, their principles, their definitions, and their hierarchies. It provides the context and rationale behind the Future Connect network plan, and should guide transport strategy and planning across the region – both at a whole-of-network level, and at a micro, individual street level – every road plays a part in the overall network.

Future Connect ultimately provides an integrated and strategically aligned network plan for all modal networks in the first, second and third decades to enable better assessment, planning and investment. It ensures that the most critical links are identified, captured spatially and integrated into a single planning tool to provide a reference point for strategic planning, land use integration and spatial planning, investment planning, investigation and programme development, project development and design, network operations and optimisation, and maintenance/renewals.

[1] The transport system includes roads, streets, rail, maritime transport, walking and cycling routes.

2 DEFINITIONS AND DEVELOPMENT

2.1 Strategic Network definition

The **Auckland Regional Strategic Network** and its routes are defined as:

- **The most critical links** for movement of people, goods and services to be managed as part of an integrated multi-modal network
- Key connections with **important regional activity** and a **high volume of users** linking sub regions and key centres with other parts of New Zealand
- **The backbone** of the transport system providing safe, efficient and reliable movement of people, goods and services across the region
- Providing easy **whole-of-trip** journeys for customers.

Strategic Networks have been established for Public Transport, General Traffic, Freight, Cycle & Micromobility and Walking (as outlined in the multi-layered approach shown in Figure 1). Definitions of the component modal layers are included in Appendix A.

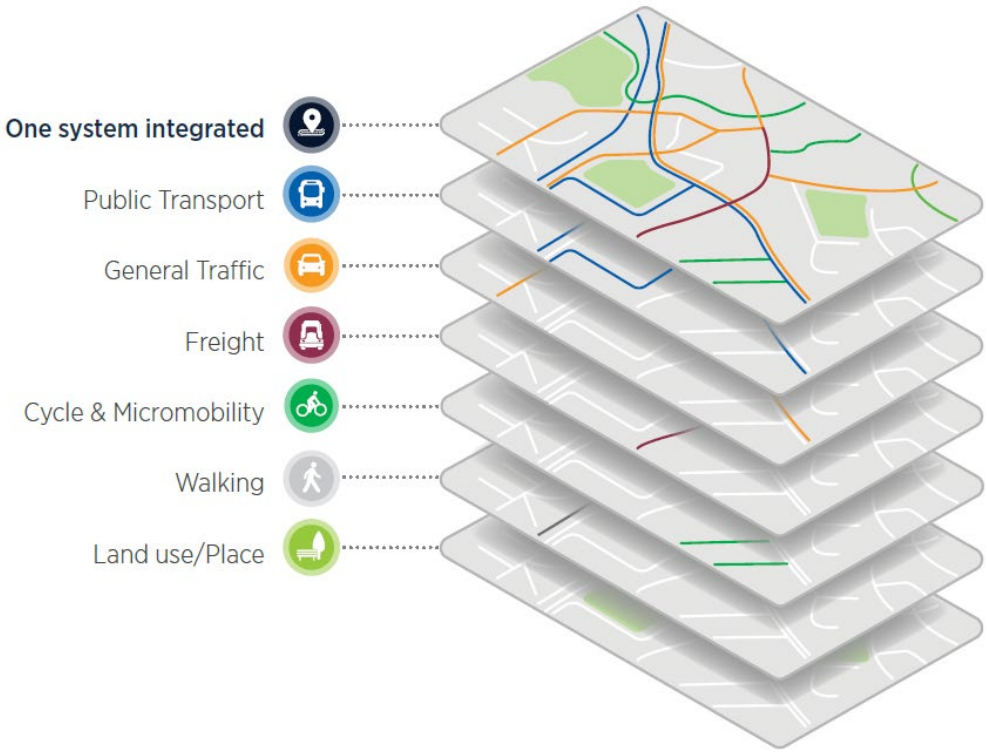


Figure 1: Future Connect's multi-layered planning approach

The Strategic Networks do not necessarily indicate where dedicated infrastructure exists or will be delivered. They are intended to be a planning tool and provide guidance for planning and investment, particularly where modal priority and higher levels of service are envisioned (but may not exist today).

2.1.1 Supporting Networks

Future Connect distinguishes between modal networks that are 'strategic', and those that support the function of the Strategic Networks (the 'Supporting Networks'). Parts of the modal networks that do not form part of the Strategic Network remain important to the overall function of that mode. For example, the General Traffic Supporting Network includes the Secondary Arterials and Collectors, and the Public Transport Supporting Network includes the Connector, Local and Peak Transit Networks.

2.2 Strategic Network development

The Strategic Networks have been developed by integrating mode-specific plans and strategies for both Current and the First Decade periods. The Current Strategic Networks outline the network as it should operate today. The First Decade Strategic Networks (10-year horizon) considers expected land use changes (e.g. greenfield and brownfield growth), and approved or funded infrastructure/services prior to the 2024-2034 RLTP. The next phase of Future Connect will set a 30-year vision for the Auckland's transport system (i.e. Second and Third Decades).

Figure 2 below shows the source of each of the modal networks used for the original (2021) version of Future Connect. For future versions, these are kept up to date through an internal Strategic Network Change Management process.

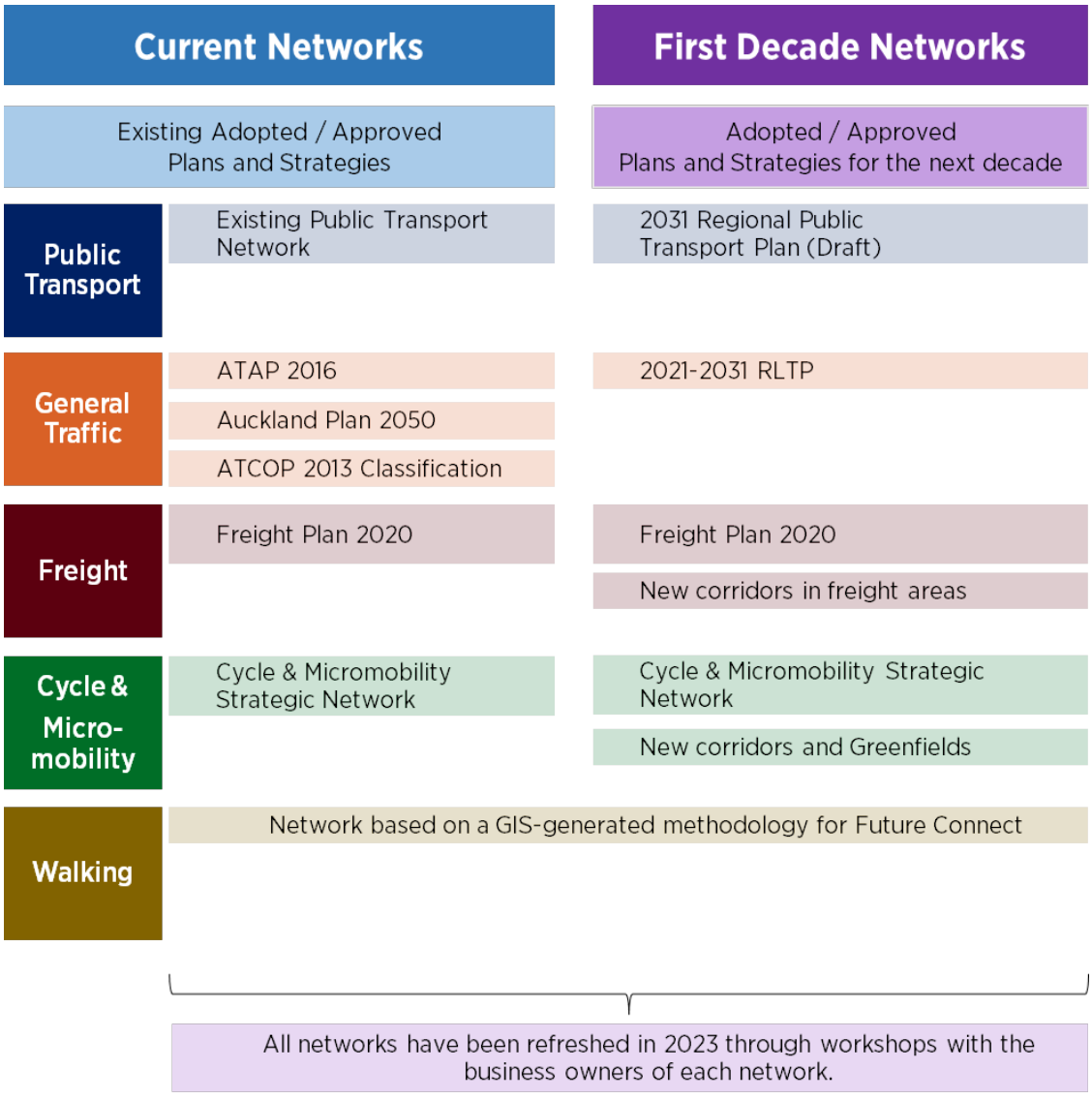


Figure 2: Development of Strategic Networks

2.3 Strategic Hierarchy

Each modal network has different hierarchies to indicate the importance of each link, using principles specific to the operation and management of that mode. Not all levels of these networks have a strategic function (as per the Strategic Network definition above).

In order to provide consistency between each of the modal Strategic Networks, a Strategic Hierarchy has been established to make it easier to compare modal priorities across networks, and more effectively integrate the system. The strategic hierarchy generally consists of:

- **Primary** – Provides for longer distance journeys and typically carries the highest volumes of people and goods. These links also provide the most direct connections and fastest journeys to key places.
- **Secondary** – Provides major connections to the Primary network and key destinations, such as Metropolitan Centres, freight hubs or rapid transit stations. These links also provide direct journeys but may not be as fast as journeys on the Primary network.
- **Tertiary** – Provides for busy connections between important, but more local, destinations, and fill in gaps in the Secondary network.
- **Supporting Networks** – Non-strategic links that play a vital role in providing access to the Strategic Networks and links to local destinations and services.

Figure 3 outlines the hierarchy levels for each mode.

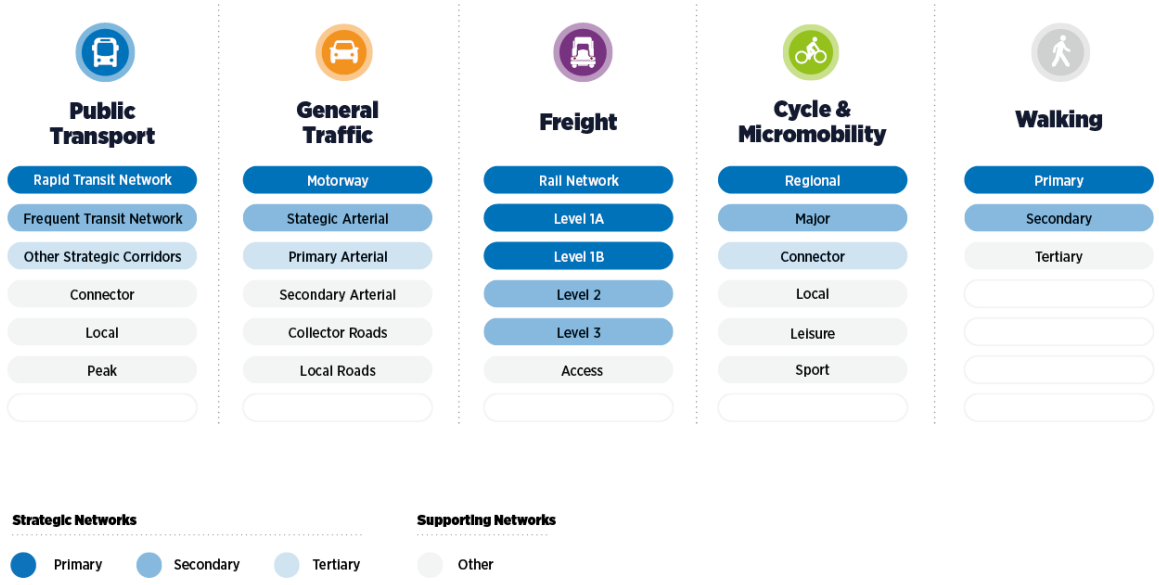


Figure 3: Hierarchy levels

2.4 Strategic Network Principles

Guiding principles were developed for each of the Strategic Networks in order to:

- guide development and changes to the Strategic Networks
- highlight where each of the network components are important.

Principles for all five Strategic Networks can be found in Appendix B.

In addition to the principles for each of the Strategic Networks, the Principles presented in Table 1 were established to guide the overall system view and the continual integration of the five Strategic Networks. These principles (and the RASF) should be referred to when reviewing network overlaps and where there is a potential modal conflict that may not be physically or safely possible to reconcile.

Themes	Integration principles
Manage effects on the environment	• Avoid, remedy or mitigate any adverse effects on the environment • Adapt to a changing climate and respond to the microclimatic factors of each area • Provide a transport system that supports more sustainable modes to enable reductions in emissions.
Safe network	• Provide a safe and secure transport network, free from death and serious injury for all users • Provide a safe and convenient network of routes accessible to people of all ages, abilities and backgrounds • Provide greater attention to modal networks for vulnerable users to avoid conflict, particularly where there is expected to be an increase in the movement function of a corridor and an increase in vulnerable users
Connect nodes	• Provide connection between the common destinations that link people to people, goods, services and opportunities • Support inter-regional connectivity
Connect modes	• Provide for travel options and the ability to connect easily at interchanges, including changing between modes
Provide access	• Provide direct and efficient access to centres and key destinations
Integrate land use and transport	• Enable a compact urban form through land use integration • Support land use with complementary networks resulting in effective movement of people and goods • Enable convenient and direct public transport, walking and cycling access to centres
Modal priority	• When a corridor is part of a strategic network, this must be considered in the modal priority assessment • Use RASF to identify modal priorities and potential conflicts in a corridor
Mode shift	• Provide quality active mode and dedicated public transport routes to enable mode shift away from private car use • Prioritise sustainable modes where needed to provide an improved throughput across the network
Place function as well as movement	• Enable the reflection of place value as well as movement in corridors

Themes	Integration principles
Reliable and resilient	• Create routes that can withstand unexpected events and severe weather conditions • Avoid disruption or minimise it when it occurs by adopting a whole-of-system approach
Make the best of existing networks	• Optimise people throughput to support current and future demand across different periods of the day • Prioritise people throughput as demand for use of the corridor increases • Support access to public transport by active travel modes • While understanding the implications of kerbside functions with the road's surrounding land use functions, limit stationary activities on arterial roads where it inhibits efficient people throughput or conflicts with the objectives of other strategic transport networks

Table 1: Integration Principles for Strategic Networks

2.5 Auckland's 2034 Strategic Transport Network

Over the next decade, Auckland's Strategic Networks will need to adapt and respond to the growth challenge and meet the needs of an evolving region. Ultimately, the Strategic Networks influence where and when significant urban growth can be enabled, especially in future urban areas.

Broadly speaking, changes to the Strategic Networks in the next ten years result from:

- new infrastructure: railway network upgrades, busway upgrades, new roading projects, cycleways and footpaths
- new public transport services or changes to existing services
- reclassification of strategic hierarchy levels on existing network links, to adjust its function and respond to land use changes and new demands. This can result in parts of the networks being tuned up or tuned down from one hierarchy category to another, which could result in a move from Strategic to Supporting Network or vice versa.

Notable changes in the First Decade Strategic Networks are outlined in the technical report.

Further changes to the Strategic Networks (Current and First Decade) will be managed through an internal Change Management process.

Figure 8 shows all the Primary Strategic Networks for the First Decade. To see all of the networks, please visit the Future Connect Mapping Portal at at.govt.nz/FutureConnect.

Strategic Networks

First Decade (2034)

Primary Links only

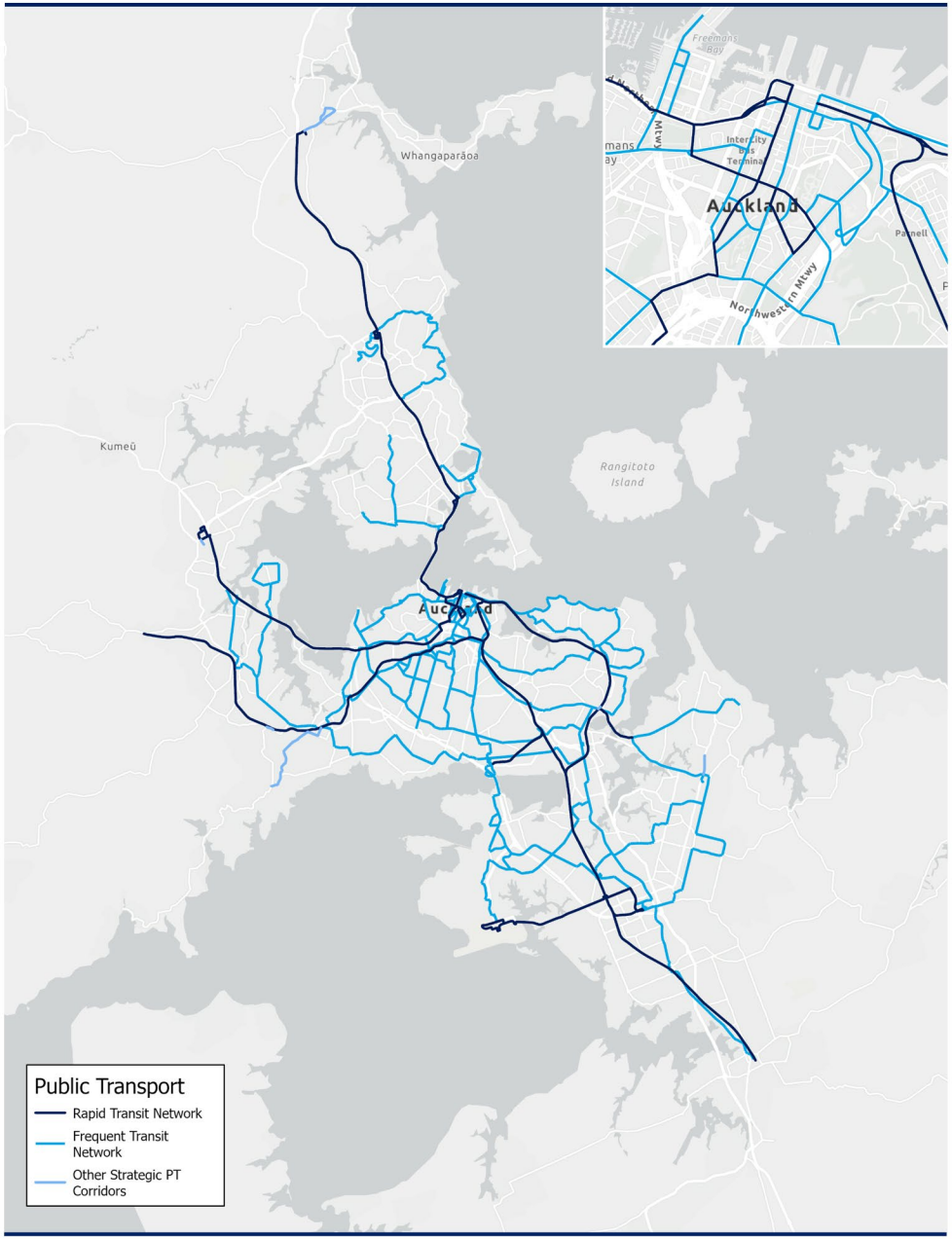
Key

- Public transport
- General traffic
- Freight
- Cycle and micromobility
- Lower order Strategic Network links
- City and metropolitan centres

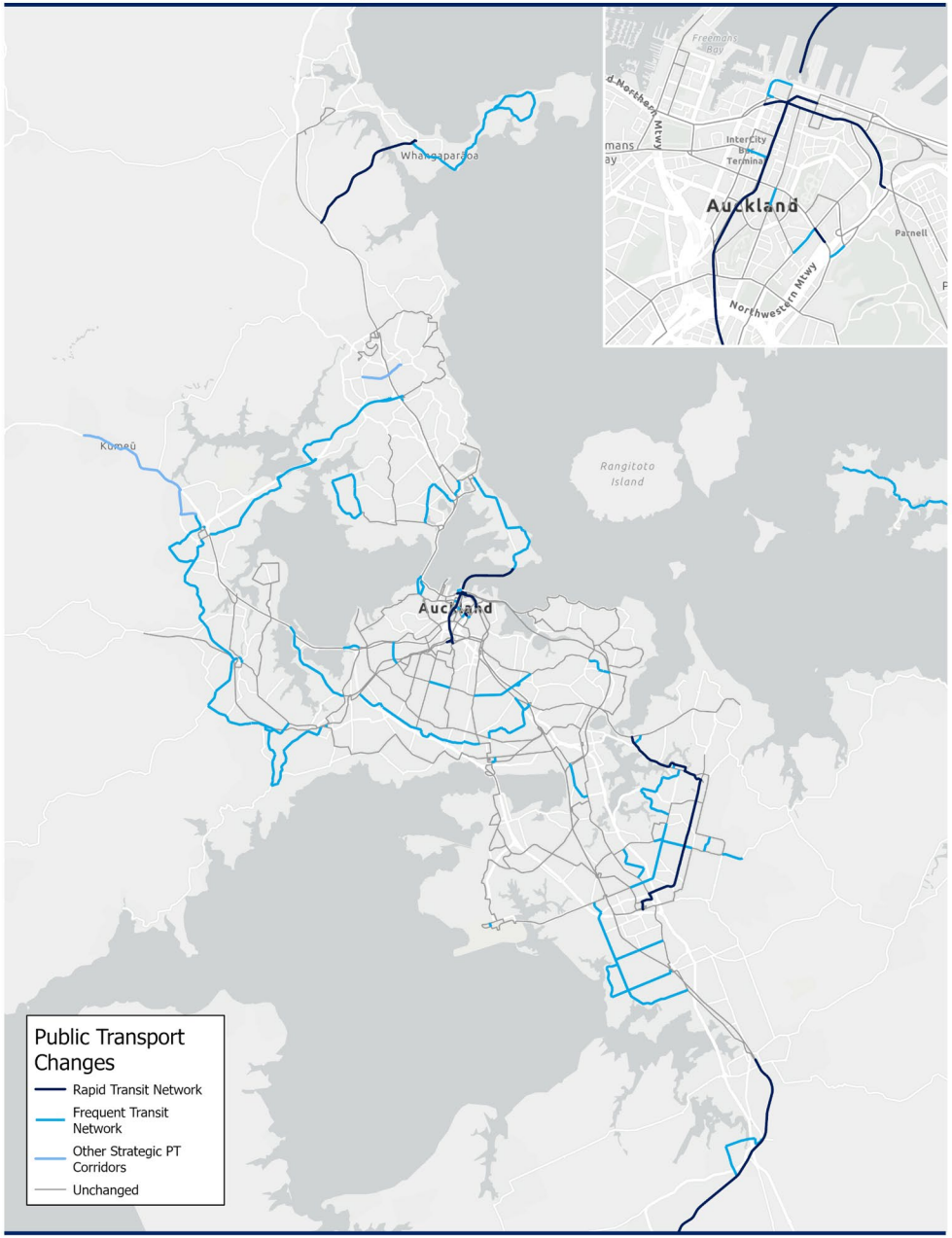
To see the full region and most up to date version, visit **AT.govt.nz/futureconnect**

Public Transport Strategic Networks

Current Network

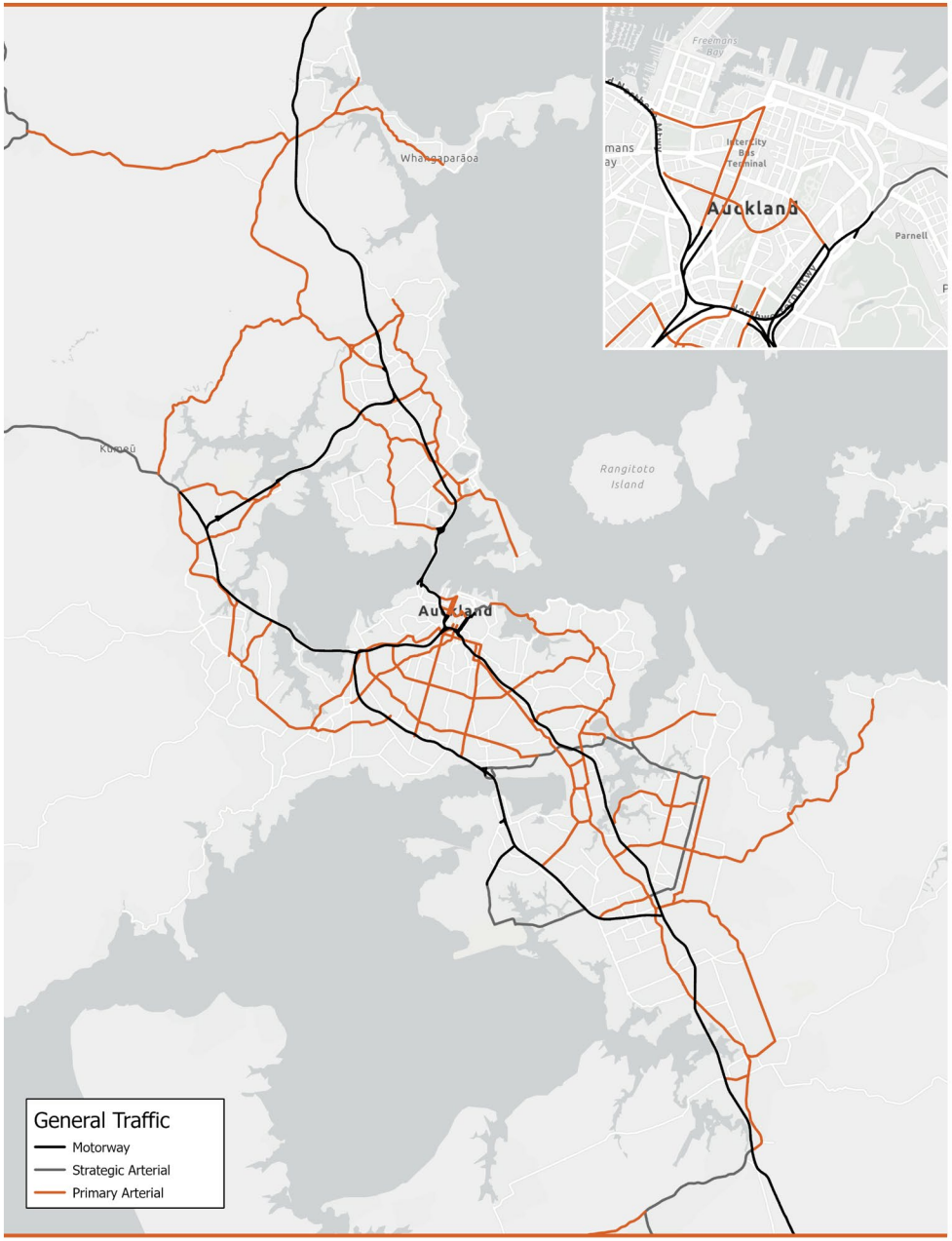


First Decade Network Changes

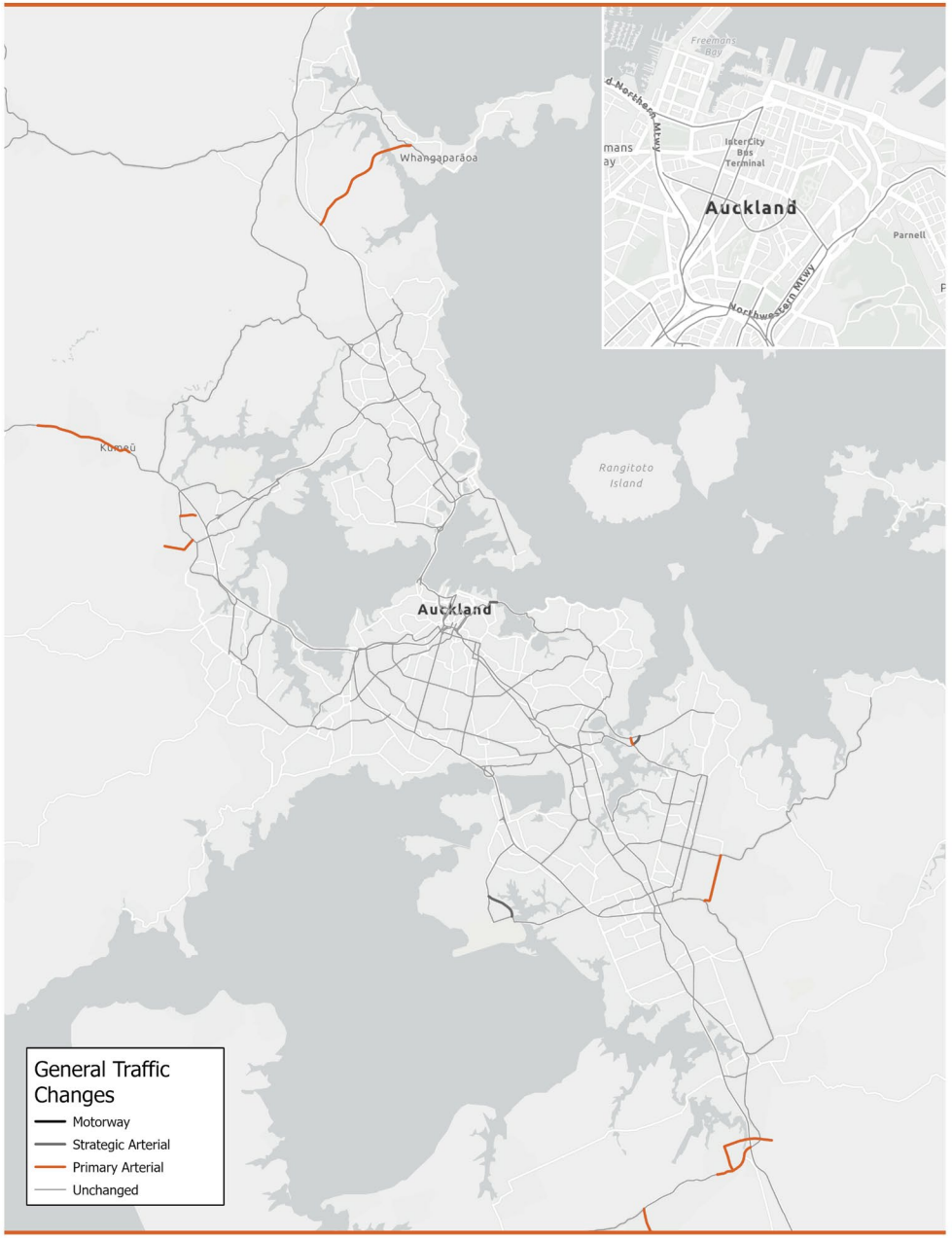


General Traffic Strategic Network

Current Network

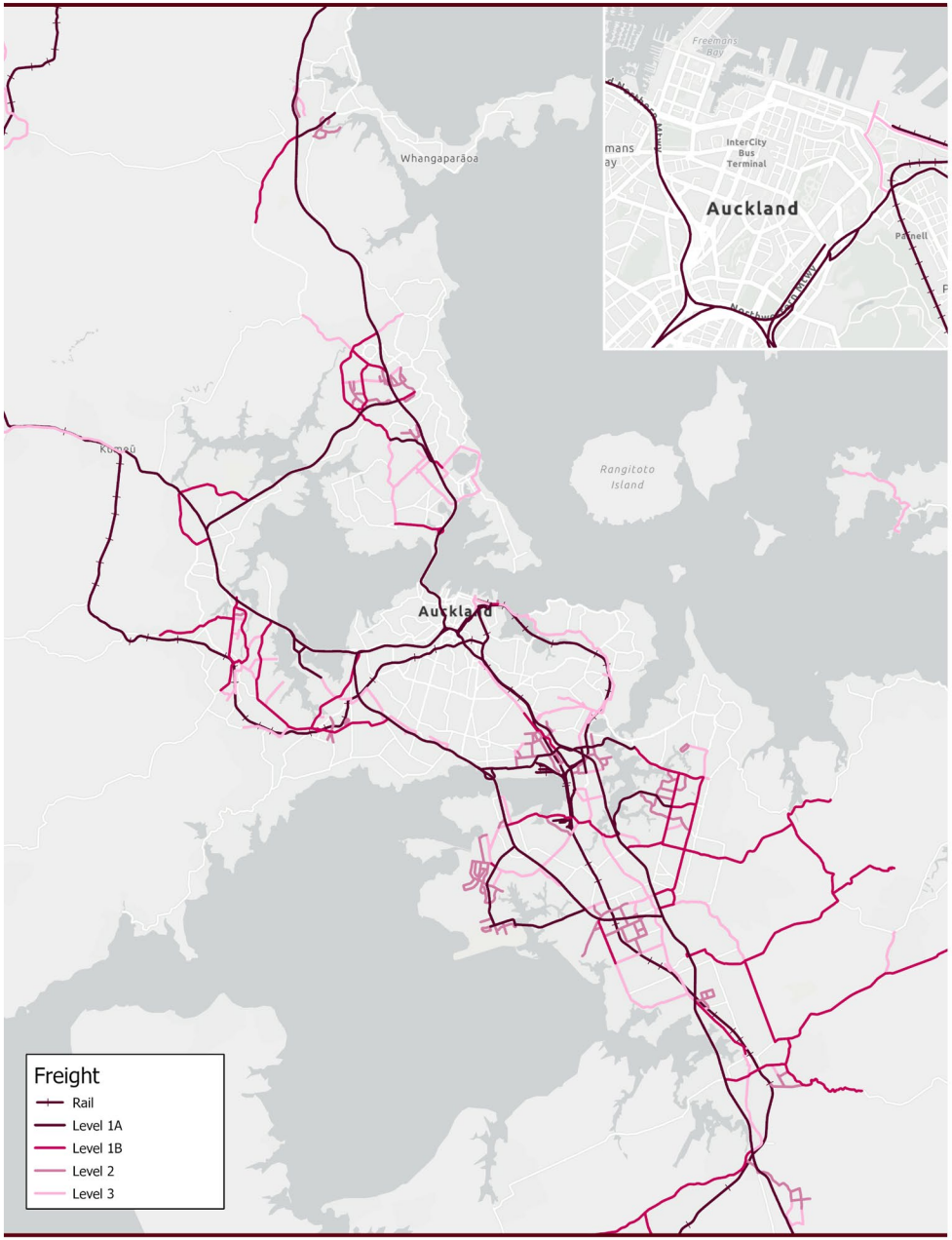


First Decade Network Changes



Freight Strategic Network

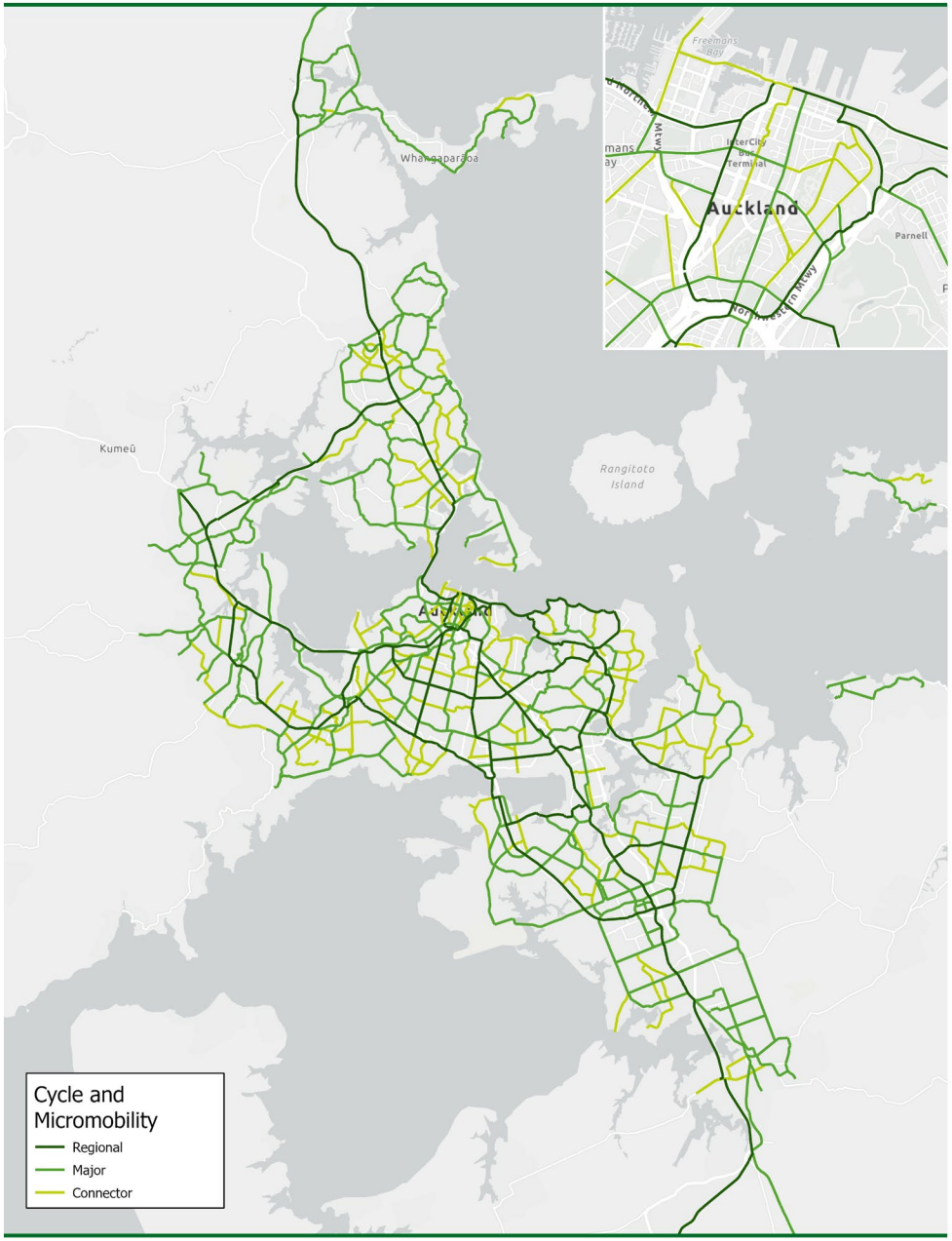
Current Network



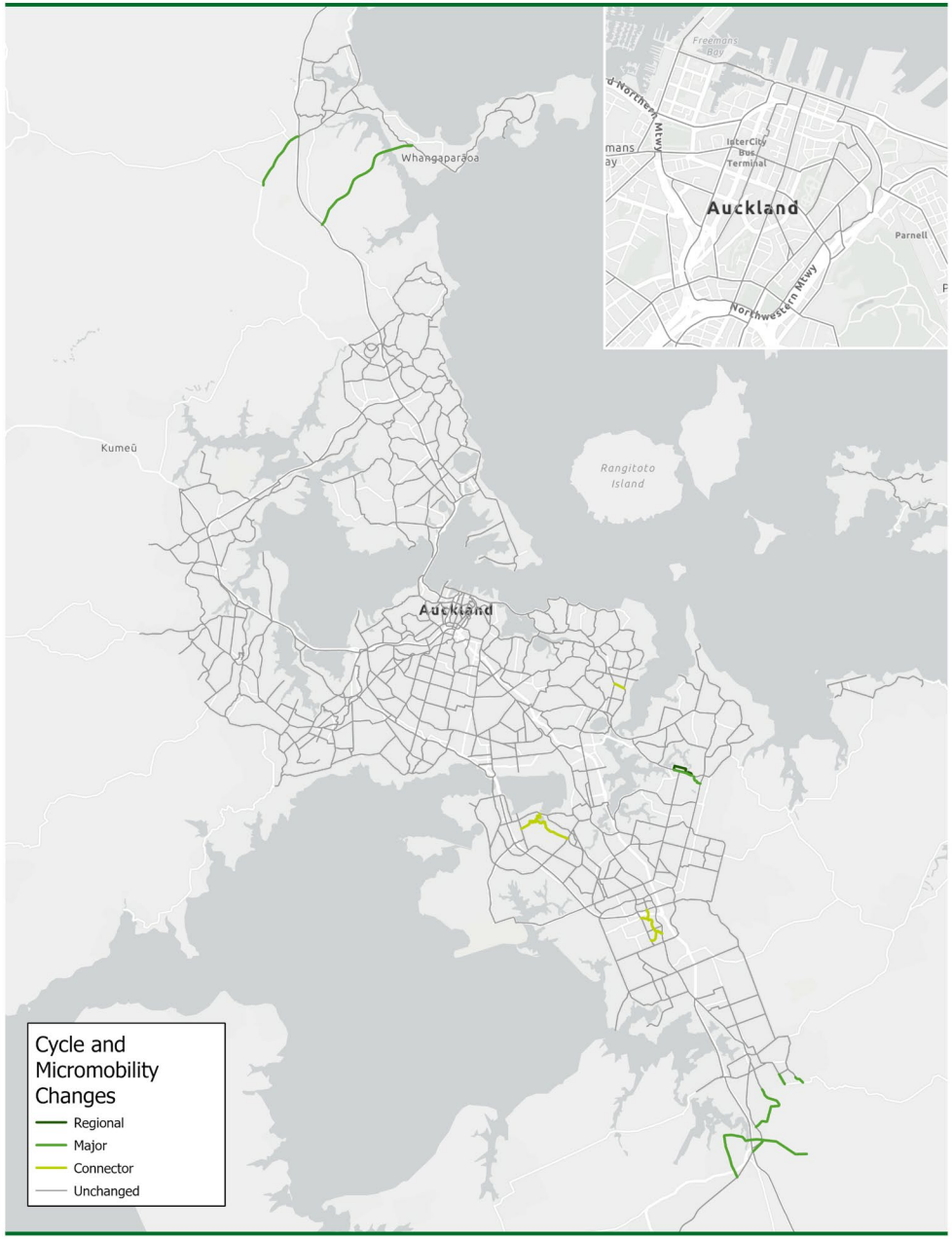
First Decade Network Changes

Cycle and Micromobility Strategic Network

Current Network

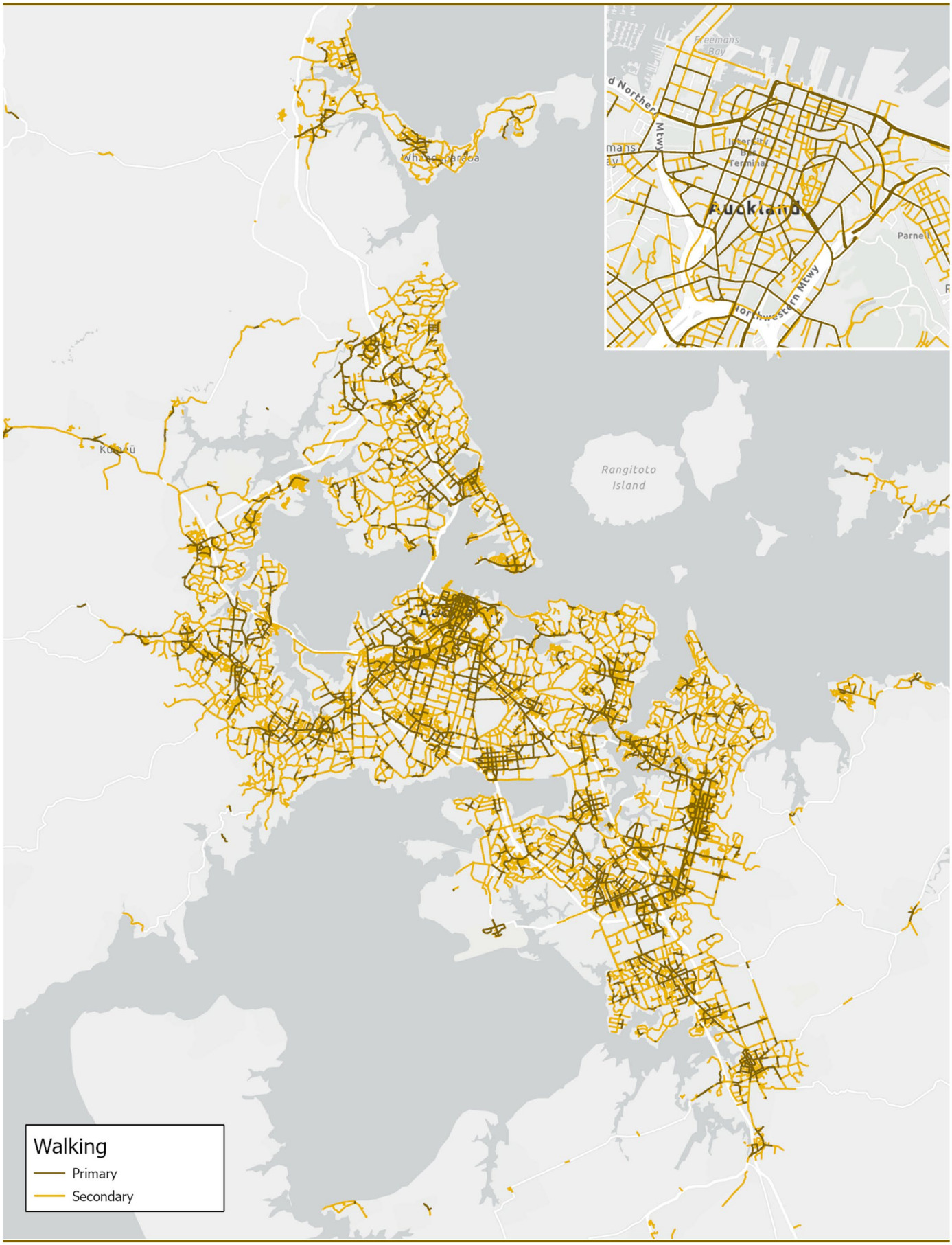


First Decade Network Changes



Walking Strategic Network

Current & First Decade Network



Appendix A: Definitions of modal network layers

Definitions of modal network layers
(Strategic and Supporting Networks)

Public Transport Strategic Network

The 'backbone' of the wider public transport network. It is organised around the rapid and frequent services of the Rapid Transit Network (RTN) and Frequent Transit Network (FTN). The Strategic Network also includes corridors where significant volumes of services converge in order to provide key connections ('Other Strategic Public Transport Corridors').

Strategic Network:

- **Rapid Transit Network (RTN)**
  Services operating at least every 15 minutes, on dedicated rights-of-way removed from the congestion of general traffic lanes
- **Frequent Transit Network**
  Services operating at least every 15 minutes with priority measures, providing strategic connections,
- **Other Strategic Public Transport Corridors**
  Corridors where significant volumes of non-RTN / FTN services converge in order to provide a connection to key public transport hubs

Supporting Network:

- **Connector**
  Services operating at least every half hour, complementing RTN and FTN
- **Local and other**
  Services operating at least every hour, complement RTN and FTN. Other services include school and peak only services

General Traffic Strategic Network

The backbone of the road network, consisting of Motorways, Strategic and Primary Arterials. The network is a vital part of the system, helping provide access to key destinations for people, goods and services.

Strategic Network:

- **Motorway**
  Highest category roads having greatest through movement function providing inter-regional connections
- **Strategic Arterial**
  Roads that predominantly carry through traffic (but many also serve adjacent activities), providing inter- and intra-regional connections
- **Primary Arterial**
  Roads that predominantly carry through traffic (but many also serve adjacent activities), and connect principal sectors of the region (not catered for by strategic routes)

Supporting Network:

- **Secondary Arterials**
  Provide movement within the district between key nodes, and connect major nodes within an area. Serve adjacent key activities
- **Collector Roads**
  Collect and distribute traffic from local roads to arterials within an area (and vice versa). Serve adjacent key activities
- **Local Roads**
  Collect and distribute traffic to / from local properties within an area

Freight Strategic Network

The Freight Strategic Network is made up of roads and rail. The main functions are to link major areas of freight generation and attraction; minimise the impact of freight movement on the community; provide roads and routes capable of accommodating the largest vehicles (within normal legal limits); and offer convenient and reliable travel for freight between key locations.

Strategic Network:

- **Rail Network and Level 1A**

  Transport corridors of the highest strategic value to freight movement, including Railways, the Motorways and most of the State Highways (typically the Waka Kotahi, NZ Transport Agency road network), and Arterials where efficient freight movements must be actively supported to maintain Levels of Service through active planning and design
- **Level 1B**

  Roads of the highest strategic value to freight movement being arterials where efficient freight movements must be actively supported to maintain Levels of Service, where competing modes and land uses require active management
- **Level 2**

  Local freight networks within strategic freight areas where there are no competing land use demands i.e. the land adjacent to these roads are primarily used for industrial / commercial purposes and free from sensitive community or other residential impacts. Planning and design should consider the efficiency of freight movements
- **Level 3**

  Freight networks connecting to / between strategic freight areas where planning and design should consider the efficient movement of freight, noting that land uses adjacent to the road are such that the impacts of freight movement requires active management

Supporting Network:

- **Access**

  Roads within strategic freight areas or industrial zones where access for freight must be maintained to support the adjacent land use. Access roads will generally be those that function as the first/last leg of a journey. Planning and design should support freight movement and access.
- **Other**

  Overdimension, Overweight and Ferry routes

Cycle & Micromobility Strategic Network

A connected, coherent, and legible network made up of the most important routes that link key destinations.

Strategic Network:

- **Regional**

  Mainly intra-regional routes within Auckland, focusing on longer distance trips, with the potential of becoming inter-regional too
- **Major**

  Key spine connections to the Regional routes and key destinations, such as rapid transit stations and urban centres
- **Connector**

  Connections to Major routes and local destinations, such as neighbourhood centres and groups of schools

Supporting Network:

- **Local**

  Routes within neighbourhoods connecting to schools not captured by higher order networks, local activity centres, Maraes, and from neighbourhoods to the network levels above
- **Leisure**

  Mainly local paths, including greenways
- **Sports**

  Mainly rural roads used by sport cyclists

Walking Strategic Network

Made up of the key walking routes of high demand (current and latent) to and between major destinations for short trips (up to two kilometres).

Strategic Network:

- **Primary**
  Provides high quality access to adjacent commercial, retail, school and employment land uses, Public Transport Strategic Network, and carries the highest number of people on the network
- **Secondary**
  Key spines providing access to and between major destinations and may carry considerable numbers of people at certain time periods

Supporting Network:

- **Tertiary**
  High quality access streets within residential streets and surrounding major pedestrian generators

Appendix B: Strategic Network Principles

Public Transport Strategic Network Principles	
Theme	Principle
Safe and accessible services	• Ensure that services provide a safe user experience that is accessible to people with a range of mobility needs
Convenient and attractive	• Make public transport an obvious, preferred and easy choice for medium to long journeys over 15 minutes in length (including the first and last legs of a journey) • Ensure services are as direct as possible between key destinations to enable them to generate high patronage
Services form a network	• Provide a network of services that is simple and easy to understand and is supported by integrated fares and ticketing • Maximise coverage of the urban area to increase access to strategic services, while ensuring routes remain direct • Provide a legible network in which services are allocated to appropriate corridors in a consistent manner • Where services intersect, enable convenient and safe connections for people in order to provide access to a wider range of destinations • Recognise that non-strategic services are an integral part of the wider public transport network, providing greater coverage, supporting strategic services and in some cases sharing common corridors
Reliable and efficient	• Enable services to operate as reliably as possible to maximise their attractiveness and the efficient use of resources • Prioritise strategic corridors to minimise travel times of services using them. Priority may be provided in different ways at different times of the day
Support land use	• Support the place aspects of key destinations including centres by providing convenient and direct access via public transport • Support high density land use within the catchments of stops and stations on the strategic network

General Traffic Strategic Network Principles	
Theme	Principle
Safe corridors	• Provide a safe network free from death and serious injury for all road users
Connectivity	• Support a high connectivity function linking principal sectors of the region (ports, airports, hospitals, significant tourist destinations etc.) • Support predominantly a throughput function with limited access • Support inter-regional connectivity
Support growth and economic productivity	• Support population growth by connecting growth areas with the rest of Auckland • Enable corridors to evolve and ensure the long-term movement of people and goods
Reliable and resilient	• Support journeys that can withstand unexpected events and severe weather conditions • Provide a permeable network of routes to avoid disruption or minimise it when it occurs • Perform a 'lifeline' function as they may be the only corridor available to major destinations
Support built form	• Maximise transport options • Recognise the transport functions over a 24/7 period
Make the best use of existing corridors	• Optimise people throughput to support current and future demand across different periods of the day • Support provision of, and access to public transport and active modes • While understanding the implications of kerbside functions such as parking, access, loading and servicing interaction with the road's surrounding land use functions, limit on-street parking on arterial roads where it inhibits efficient people throughput or conflicts with the objectives of other Strategic Networks

Freight Strategic Network Principles

Theme	Principle
Safe corridors	• Provide a network that moves goods securely • Minimise the impact of freight movement on local neighbourhood streets, centres and the surrounding community
Connected and efficient	• Enable the efficient movement of freight in Auckland to where it needs to go in a timely manner • Prioritise transport access by linking major areas of freight generation and attraction both within Auckland region and to/from locations outside the region
Reliable	• Enable convenient, reliable and relatively timely travel times for freight between key locations • Maintain a priority network of quality routes that are attractive to freight users • Provide a network of routes supporting over dimension/overweight freight movement
Sustainable and resilient	• Support the sustainable movement of freight through a resilient network that does not inhibit innovations and changes in technology

Cycle & Micromobility Strategic Network Principles

Theme	Principle
Safe corridors	• A network that is safe, secure and accessible for people of all ages, abilities and backgrounds
Convenient and attractive	• Make cycling an obvious, preferred, and easy choice for short and medium journeys of up to 30 minutes (approximately 7km) • Comfortable to use for all ages and abilities, and offer a sense of equity and independence
Connected, direct and legible	• Create a connected network to key destinations and where required to support land use • Provide direct routes to and between key destinations following corridors of high demand (current or latent) • Connect to the Public Transport Strategic Network • Create a coherent and legible network • Establish an appropriate network density for cycling, with a finer-grained network in areas of higher demand • Create routes that offer a pleasant and interesting environment • Minimise steep gradients and maximise comfort
Connected to off-road networks	• Connect to complementary off-road cycle networks where they provide access to key destinations

Walking Strategic Network Principles	
Theme	Principle
Safe and comfortable	• Make walking safe, secure and accessible for people of all ages, abilities and backgrounds • Comfortable to use for all ages and abilities, and offer a sense of equity and independence
Convenient and easy to navigate	• Make walking an obvious, preferred and easy choice for short local journeys of up to 20 minutes (approximately 2km) • Provide a walkable network that is connected, permeable and easy to navigate • Prioritise connections within 2km of centres, to key destinations, and where required to support land use, including integrating with the Public Transport Strategic Network
Inviting and interesting	• Improve the movement of people walking where place function is high • Apply the principles and standards of the Transport Design Manual
Connected to off-road networks	• Connect to complementary off-road walking networks

Appendix C: Terms and Conditions

The following important disclaimers apply to information available through Future Connect:

1. Future Connect is a 10-year network plan and system planning tool. The purpose is to provide strategic guidance for network planning and investment. It should not be used for other purposes without further consideration.

2. The Future Connect key outputs (i.e. Strategic Networks, Analysis and Indicative Focus Areas) should always be independently reviewed and interpreted in the context set out in the Future Connect Main Report, and in these disclaimers.

3. While Auckland Transport makes every reasonable effort to provide information of a quality that best meets the purposes of this publication, the information is provided on an 'as-is' basis. Information can become rapidly out-of-date. Some information has also been sourced from external parties, which has only been subjected to limited verification by Auckland Transport. Auckland Transport does not provide any warranty regarding the accuracy and completeness of the information. More information about the data sources can be found in the Future Connect Report.

4. Future Connect identifies the **Strategic Networks** for each mode, which provides the context for further decisions about modal priorities across the transport system. Some Strategic Networks may overlap, and it may not be possible to provide for all the modes' planned level of service within the space available.

5. The Strategic Networks are built on certain assumptions regarding the current and future transport networks. All Strategic Networks are subject to change due to a variety of reasons, including further investigation, engagement, statutory approvals, changes to timing of implementation, and funding of services or project delivery. Strategic Networks are kept up to date in the Future Connect Mapping Portal, although delays to publication may occur.

6. The **Deficiency and Opportunity Mapping** provides a review of the Strategic Networks only, and has been created using a data snapshot of historic and forecast data. However, it does not represent 'live' network information and cannot be used to assess the current (month to month) operation of the network. Deficiency and Opportunity Mapping are updated once every three years, in alignment with the RLTP planning cycle.

7. **Forecast modelling data** is based on assumptions regarding land use change, population / employment change and project delivery that may be subject to change at any time. More information about these assumptions can be found in the Future Connect Main Report.

8. The key outputs of Future Connect have been developed to help guide funding and implementation decisions, but it is not an investment plan – that is the role of the RLTP. The Strategic Networks and the ranking of deficiencies and opportunities are not an indication of solution type, project prioritisation, implementation order, or funding allocation (unless committed).

9. Any map / plan is illustrative only. Whilst due care has been taken, AT gives no warranty as to the accuracy and completeness of information in these maps/plans and accepts no liability for any error, omission or use of the information.

10. The Deficiency Indicators used for the Deficiency and Opportunity Mapping (available as background layers) are derived from data provided by: Sensium, TomTom, Smartrak, Auckland Forecast Centre, Auckland Council, Road Assessment and Maintenance Management (RAMM), Urban KiwiRAP, Open Street Maps, Stats.NZ, and Waka Kotahi.