

# AT Roads & Streets Framework and the Transport Design Manual

## Recommendation

That the Board:

- i. Note the development of the draft Roads and Streets Framework (RSF) and the draft Transport Design Manual (TDM) to improve strategic guidance on modal priorities for the transport network and the development of place context-sensitive design solutions.
- ii. Note that there has been wide engagement with the Council, mana whenua, NZTA and other key stakeholders on the draft Framework and Manual commencing in October 2016 and continuing until September 2017.
- iii. Approve the final versions of the Roads and Streets Framework and the Transport Design Manual, which will then be tested and embedded (where appropriate) across the business.
- iv. Note that the Roads and Streets Framework and the Transport Design Manual will be brought back to the Board in 12 months for review and update as required.

## Executive summary

1. The scale and pace of growth in Auckland combined with increasing intensification and the development of Auckland's urban areas and Greenfields is placing increased pressure on an already constrained strategic transport network and limited road space to deliver multi-modal transport objectives. The Auckland region is comprised of 70% rural and 30% urban areas, with the majority of people living and working in the urban area. There is the expectation that Auckland's roads and streets need to provide for a wider range of benefits for rural and urban areas, including liveability, sustainability and economic growth whilst providing for efficient and safe movement if Auckland is to meet the Mayor's vision.
2. In response, the draft Roads and Street Framework and Transport Design Manual have been developed as complementary documents. The Framework has been developed to describe and balance the intended strategic and local place and movement functions of roads and streets and the levels of service for the rural and urban users' perspective, which then informs the Transport Design Manual in providing the design and technical specifications for capital improvement projects and operational expenditure. Both documents when applied together will provide guidance to internal staff (e.g. Council family project teams), external parties (e.g. Government agencies, consultants and developers etc.) about AT's requirements for the planning, design, construction and vesting of assets that will be managed by AT.
3. The final Roads and Streets Framework and Transport Design Manual (Section 1) is attached. (Attachment 2).

## Previous deliberations

4. The Customer Focus Committee held on 2 October 2017 proposed that the final versions of the Framework and the Manual be considered at the AT Board's 24 October 2017 meeting, and if approved then adopted and implemented across the business.

## Strategic context

5. The draft Roads and Streets Framework and the Transport Design Manual are based on best practice approaches and being applied in other international cities, such as London, Melbourne, Portland and Stockholm. The Framework and Manual have been developed in response to feedback from the Auckland Transport Code of Practice feedback. This included a lack of strategic direction for roads and streets in Auckland and an identified gap in AT's current documents which have not provided a robust approach to resolve conflicts between different modal priorities and balancing the strategic transport network with the place-making requirements of Auckland's centres and public spaces.
6. Attachment 1 shows how the Framework and Manual align with Auckland's plans and policies, providing a link between the Auckland Plan, strategic networks (including ATAP direction) and the design and delivery of the existing and future road and street network. In addition to new capital projects, the Frameworks also help define the strategic direction for short term operational improvements, which are implemented through network operating plans.
7. Both documents have been developed internally and governed by a technical working group reporting to a Steering Group. These groups included AT, NZTA and Auckland Council staff. Case studies, inter-disciplinary working groups and best practice learnings have been used to apply and refine the approach for the Framework and adapt it for an Auckland rural and urban context. Both documents have been subject to internal consultation and feedback from the Council, mana whenua, NZTA and other key stakeholders, and have been further refined as a result.
8. Eleven case studies contributed to the development of the draft Framework in 2016. In 2017, the draft Framework process was used to guide development of future typologies for the city centre. Current projects where the draft Framework and Manual are contributing include Supporting Growth, Manukau Metro Centre, Otahuhu, Onehunga and Henderson town centres, local streets around the East-West Link, the bus priority programme, the 3-year cycling programme, Dominion Rd Mass Transit and HLC projects underway in Northcote and Mt Roskill.

## Background

9. The Roads and Streets Framework sets out:
  - a. The approach and vision
  - b. The framework process to determine the typology and integrate modal priority for different roads and streets (covering rural and urban areas), and how to apply the tools to support strategic direction and mitigate impacts. Local context and place is established by using all place specific Auckland Council documents, such as structure plans, the Unitary Plan and Local Board Plans. The movement context

will be established by existing data and transport documents such Network Operating Plans, traffic modelling data and Corridor Management Plans

- c. The detailed description of the nine urban and three rural road and street typologies and expected levels of services
- d. Key transport / land use metrics for planning liveable, connected neighbourhoods, particularly in Greenfields
- e. The Annex, describing key functions of roads and street, performance indicators, types of tools, alignment with ATAP/ONRC and modal priority design features.

10. The Transport Design Manual contains three sections:

- a. Design guidance, which includes the design guides, such as the Urban Street & Road Design Guide, Waitakere Ranges Design Guide, Local Paths Design Guide
- b. Detailed technical requirements, such as minimum standards, considerations and drawings required to undertake accurate and detailed designs based on a component approach for facilities.
- c. Detailed specifications for the supply and construction of materials and products.
- d. The existing AT Code of Practice was updated to provide a transitional role until the Transport Design Manual is approved.

11. Please find attached in Attachment 2, the Roads and Streets Framework and Section 1 of the Transport Design Manual. Section 2 and 3 are very detailed technical documents which can be supplied if requested.

## External Consultation/Engagement

12. The Council, mana whenua and key stakeholders have provided a strong level of overall support for the Framework and the Manual. Some of the broad themes emerging from their feedback are presented below:

- a. The Council and wider Council family were pleased that both documents reflect people and place aspirations better, and would enable a cultural shift in how AT would design and deliver transport projects to support these local and regional aspirations. Feedback was that it was good that the framework recognised that road space is limited and that it would provide more certainty to developers and a 'one' AT approach to roads and streets.
- b. Cycling, walking and disability advocates supported the elevation of people / place considerations, better guidance for developers and that the integrated strategic approach clarified place and modal priorities better.
- c. NZTA supports the documents in principle, recognising that it is important to consider place and movement and set clear modal priorities. A continuing dialogue with NZTA and MoT on these documents will be important to ensure Government understands the multi-modal and place-sensitive approach and how it can add value to road function classifications, such as ONRC.

- d. Mana whenua support the inclusion of Te Aranga principles / core Maori values and the focus on local solutions. Better management of storm water quality is a particular focus for mana whenua.
- e. Freight stakeholders support the Framework's ability to help resolve conflicts for road safety, support key freight corridors and consider freight separate from service delivery. Strong support was also given to the view that road space has been looked at.
- f. Civil engineering, planning / design contractors believe both documents will provide more project certainty upfront, strengthen links to Council / Local Board plans, and potentially support developers to improve project time / certainty. They suggested an industry user group to test / improve application of these documents over time.
- g. Emergency services support the evidence-based approach set out in the Framework, and the need to manage modal conflicts near key fire stations is important. Emergency services are already working closely with ATOC on communication for traffic and incident management.


## Next steps

- 13. Following approval by the Board, both documents will be made available on the AT website in the latter part of November 2017
- 14. User guidelines will be developed by the end of the Calendar year
- 15. Training will be rolled out for practitioners, focussing initially on internal AT staff, the Council family and NZPI / IPENZ consultants who do work for developers.

## Attachment

Attachment Number	Description
1	Auckland context for the Framework and Manual
2	Roads and Streets Framework and the Transport Design Manual (Section 1) – attachment saved in the Resource Centre in Boardbooks.

## Document ownership

Submitted by	Liz Halsted <b>Head of Innovation, Digital and Sustainability</b>	  
	Chris Beasley <b>Principal Technical Specialist</b>	
	Andrew Scoggins <b>Chief Engineer</b>	
Recommended by	Cynthia Gillespie <b>Chief Strategy and Development Officer</b>	
	Greg Edmonds <b>Chief Infrastructure Officer</b>	
Approved for submission	David Warburton <b>Chief Executive</b>	

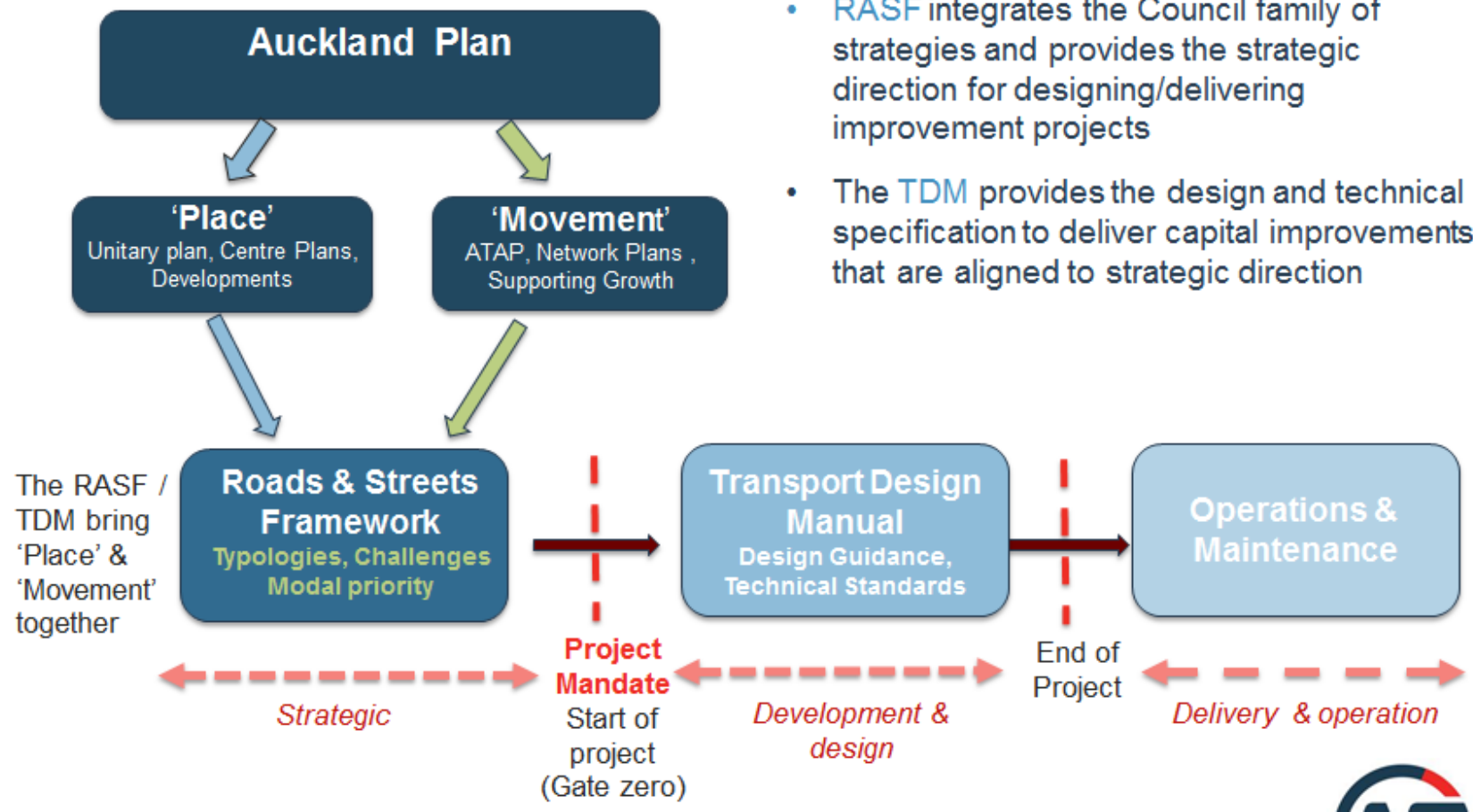
## Glossary

Acronym	Description
NZTA	New Zealand Transport Agency
ATAP	Auckland transport alignment project
ATOC	Auckland Transport Operations Centre
RSF	Roads & Streets Framework
TDM	Transport Design Manual

Attachment 1.

# RASF & TDM – Strategic context

4



- RASF integrates the Council family of strategies and provides the strategic direction for designing/delivering improvement projects
- The TDM provides the design and technical specification to deliver capital improvements that are aligned to strategic direction

# Roads & Streets Framework and the Transport Design Manual

Liz Halsted, *Strategy & Development* & Chris Beasley, *Design Office*  
**AT Board Presentation - October 2017**



# Roads & Streets Framework (RASf) and Transport Design Manual (TDM) - Overview

**People come first.** We have been engaging with key stakeholders, including the Auckland Council family, Local Boards, Manu Whenua, NZTA, Freight Haulage Association. **There has been a strong level of support overall.**

The **RASf** balances and integrates the strategic and local place and movement functions of roads and streets as **we are working to shape our city.**

The **TDM** provides the design and technical specifications to transform conditions for all modes and to **act as catalysts for change.**





# Strategic Themes Alignment

Prioritise rapid, high frequency public transport

**There is a Plan** – both documents enables the priority needs for rapid, high frequency (road and rail) public transport to be sensitively balanced with the needs of the centres and places through which they pass, and provides tools to mitigate the impacts on other modes

Continually transform and elevate customer experience

**People come first** – both documents encourage better context-sensitive design in the development and delivery of capital projects and supports a better experience for customers

Build network optimisation and resilience for predictable travel times

**Leadership** – both documents enable the development of more resilient multi-modal design solutions where necessary and provides clearer guidance on the need for modal priority to support the strategic transport network

Enable quality urban growth to meet demand

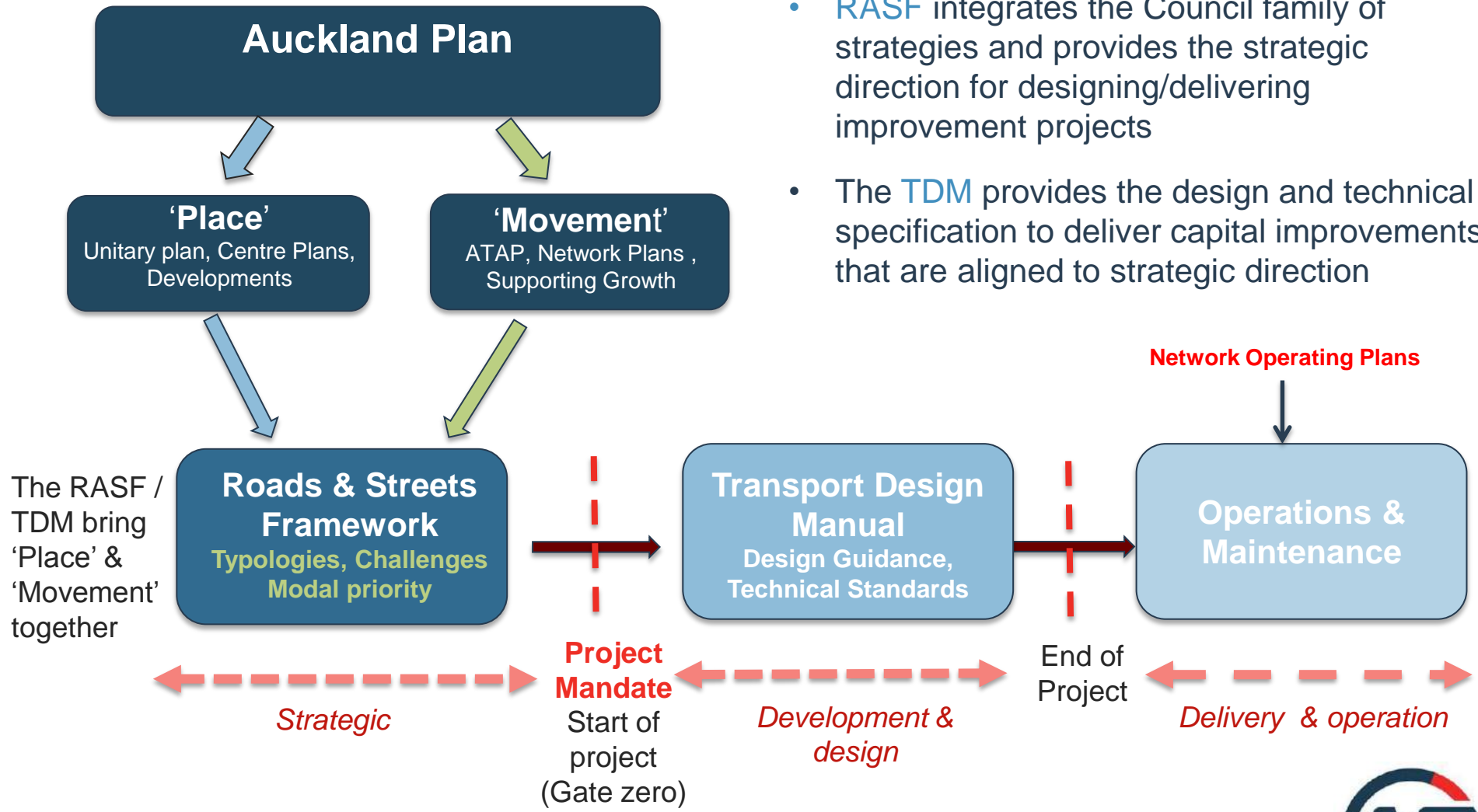
**Shaping the city** – both documents provide guidance for developing connected road and street networks that support better places, and ensure the right mix of modal priority to support transport conditions to achieve this.

Fast-track creative, innovative and efficient transport services

**Catalyst for change** - The Framework's toolbox provides a wide range of local, strategic and innovative tools to address the challenges of the road and street network. The Manual encourages adaptive design solutions and materials to suit different modal priorities and the needs of different town centres

# RASF & TDM – Strategic context

- RASF integrates the Council family of strategies and provides the strategic direction for designing/delivering improvement projects
- The TDM provides the design and technical specification to deliver capital improvements that are aligned to strategic direction



# Auckland direction setting documents shape the typology

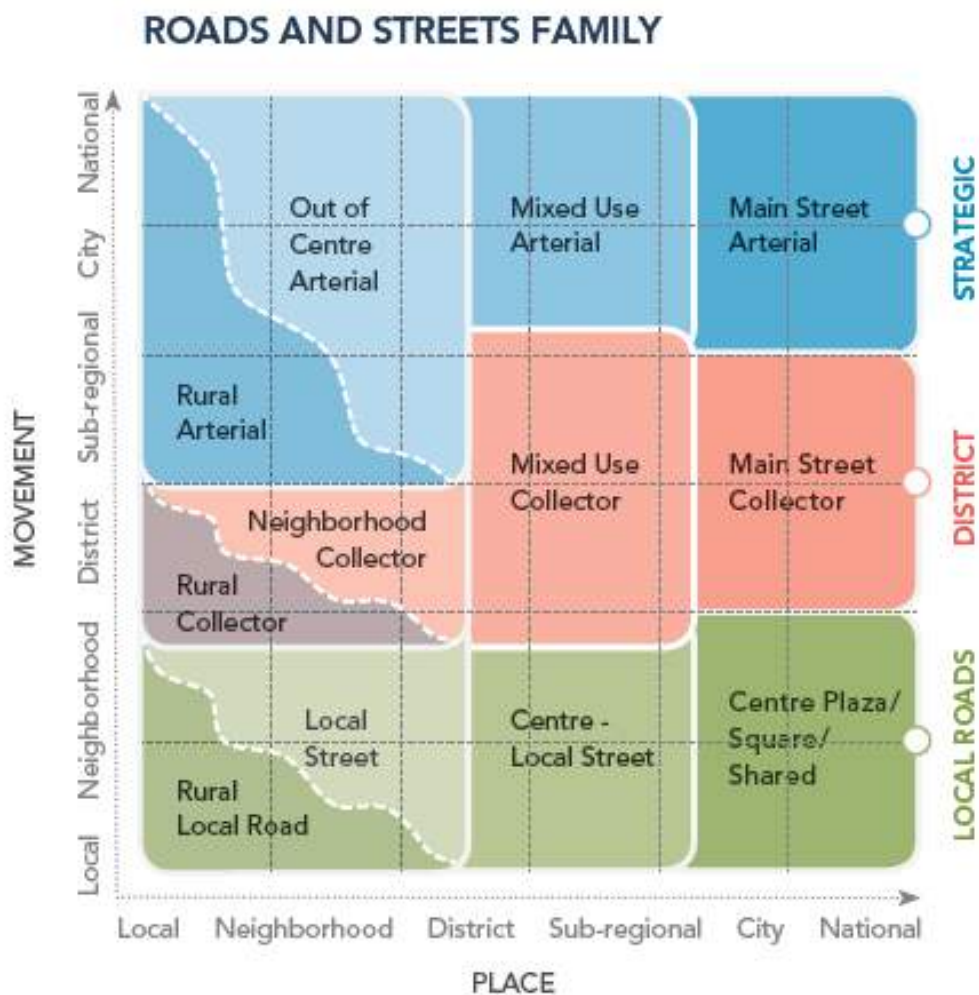
## Determine the 'Place' form & function based on:

1. AC Unitary Plan land use zones / overlays e.g. residential, business, industrial, mixed use, open space etc.
2. AC centre hierarchy e.g. City centre, Metro centre, Town centre, neighbourhood, etc.
3. Centre Plans / Area Plans / Panuku Plans that influence future development
4. Private development proposals e.g. future urban and brownfield / SHA proposals
5. Assess **significance of the place** based on local, neighbourhood, district, sub-regional, or city wide function.

## Determine the 'Movement' form & function based on:

1. Road classification and function (e.g. arterial, connector, local road)
2. Strategic network function as outlined in ATAP and AT network plans (e.g. public transport, freight, cycle, pedestrian, general traffic)
3. Supporting modelling, traffic analysis, network operating plans, safety, speed, etc
4. Assess **strategic significance of modes** based on role in network

# The RASF Typologies - Place and Movement



Applying nine urban and three rural typologies across Auckland based on movement and place will:

- Support common understanding of the needs of 'Place' and how 'Movement' responds
- Balance strategic versus local needs, results in more consistent decisions on network management and design
- Establish modal priority and resolve strategic network / place conflicts
- Provide strategic direction for the design process and subsequent business case development
- Respond to NZTA One Network Road Classification for funding purposes

# The Six RASF Challenges

## Living

Providing welcoming and inclusive places for all which support vital economic and community activities . **People focussed.**



## Unlocking

Improving accessibility and quality of places identified as areas for major growth to deliver the homes, jobs and economic sectors that Auckland needs . **Shaping our City**



## Moving

Helping people, goods and services to get from A to B and enabling efficient and reliable movement by a range of different modes. **Reliable and resilient transport providing integrated transport choices**



## Functioning

Ensuring essential access for deliveries and servicing and upgrading utilities, ensure assets fit for purpose . **Resilient**



## Protecting

Improving safety and reducing severity of accidents, particularly vulnerable road users, and strive to design out crime. **People first.**



## Sustaining

Reducing emissions from the road network, supporting greener, cleaner, quieter streets, strive to improve water quality and encouraging a **healthier more active city**



# The RASF Toolkit



# 1. Assets fit for Purpose

# 2. Integrated and sustainable network management



### Low emission vehicles



### Active streets



### Greener Streets



### Safer streets



### Future flexibility



# 3. Intelligent systems and management

Assets fit for purpose

Integrated & sustainable network management

**Intelligent systems & management**

Changing behaviour, manage demand & parking

Constrain, substitute, relocate & add capacity

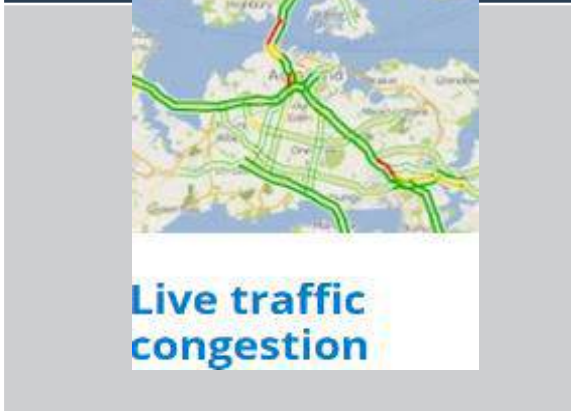
## More efficient people movement



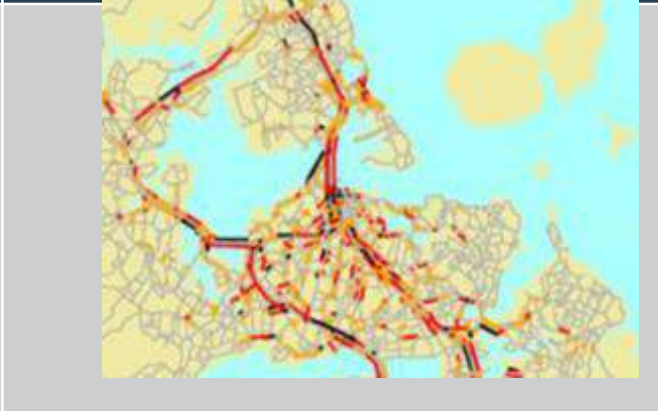
## Real time traffic management



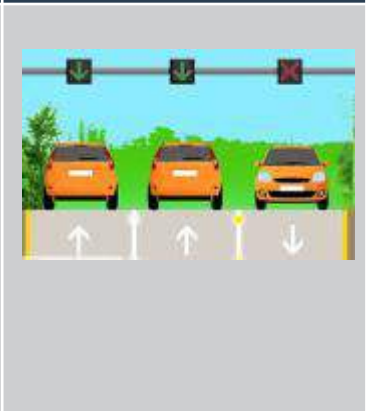
## Incident management



## Congestion hot spot busting



## Flexible lanes & management



## Targeted Enforcement





# 4. Changing behaviour, managing demand and parking<sup>11</sup>



## Re-timing & remodelling deliveries



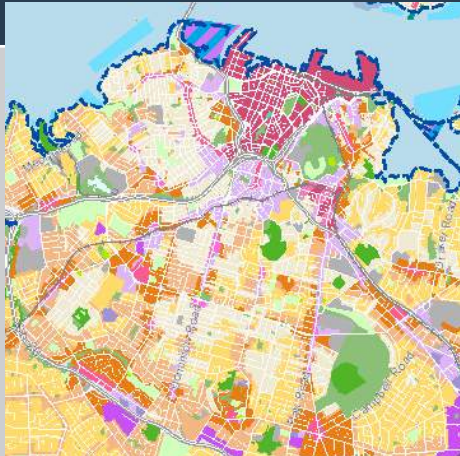
## Next generation travel demand management



## Active network management



## Land use planning



## Rationalise & reallocate parking



# 5. Constrain, substitute, relocate and add capacity

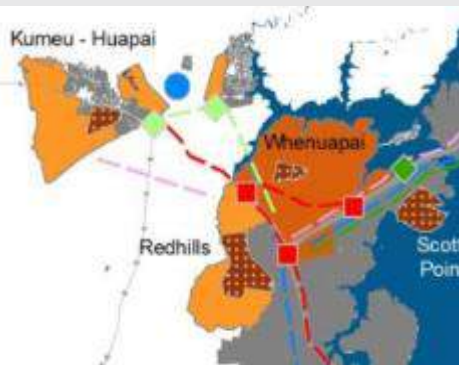


This will include new public spaces, space and infrastructure for walking and cycling, and also re-located capacity for vehicles and targeted capacity improvements in growth areas

**Intersection enhancement**



**Connections to growth areas**



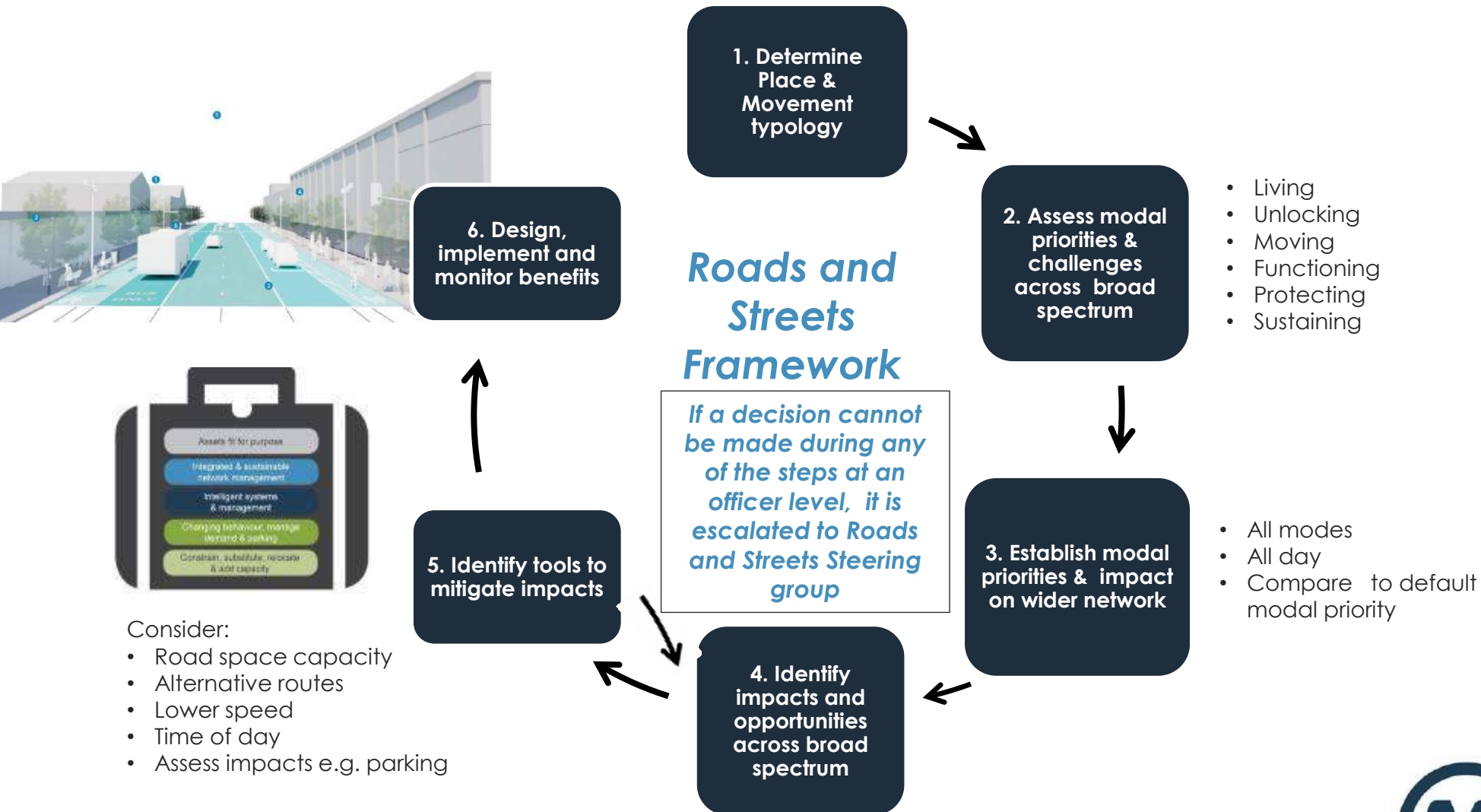
**New public spaces and facilities**



**New and improved separation**



# The RASF Process



# Transport Design Manual

- Customers are users
- Designs the strategic outcomes
- New document structure
- Incorporates ATCoP
- Expanded construction specifications
- Identity & Branding



## Section 1 – Design Guidance



## Section 2 – Code of Practice



## Section 3 – Specifications for Infrastructure Works

# Recommendations

1. Approve the final versions of the [Framework](#) and the [Manual](#), which will then be implemented across the business.

## Next Steps

- Following approval, the both documents will be made available on the AT website by mid-November 2017
- User guidelines will be developed by December 2017 and used for training practitioners, including developers, AT and the wider Council family.

# Appendices

1. Key Stakeholders – Summary Feedback
2. Case study examples
  - Karangahape Road (K-Rd)
  - Manukau Metro Centre
  - Whenuapai Structure Plan
  - Piha Road, Waitakere Ranges

# Key Stakeholders - Feedback Summary

Strong level of support overall. Comments include:

- **Auckland Council / ADO / Panuku / AT internal teams** – reflects people & place aspirations better, enable operational & cultural shift for AT, help determine modal priorities and manage conflicts with place
- **Cycling, walking, disability advocates** – elevation of people / place considerations important, better guidance for developers, clarifies strategy better
- **Government bodies (NZTA, MoT)** – useful that typologies bring together place & movement, help set modal priorities, important to consider alignment with ONRC
- **Mana Whenua** – support inclusion of Te Aranga principles / core Maori values, want local solutions, better management of storm water quality should be a focus
- **Freight / Heavy haulage** – provides ability to resolve conflicts for road safety, support key freight corridors and splitting freight from service delivery
- **Civil engineering, Planning / Design contractors** – provides more project certainty upfront, links to Council/Local Board plans, support developers to improve project time / certainty. Suggest industry user group to test / improve application
- **Emergency services** – support evidence-based approach, manage modal conflicts near key fire station important, work closely with ATOC / Communication for traffic & incident management



# Karangahape Rd

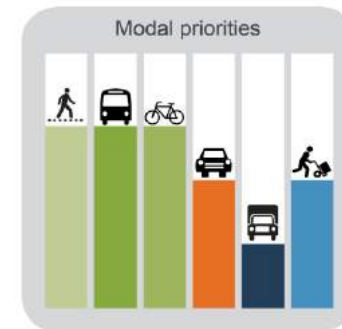
Application to Main Street



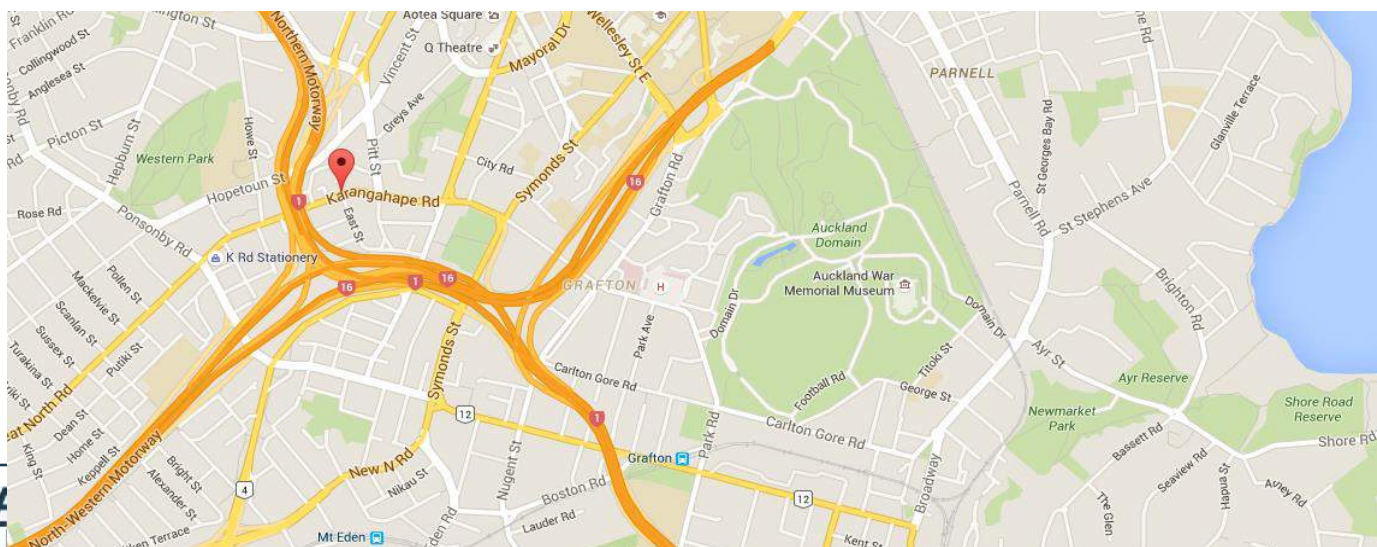
# K-Rd Case Study Summary



## MODAL PRIORITIES



Car travel and service delivery is not prioritised at peak times.

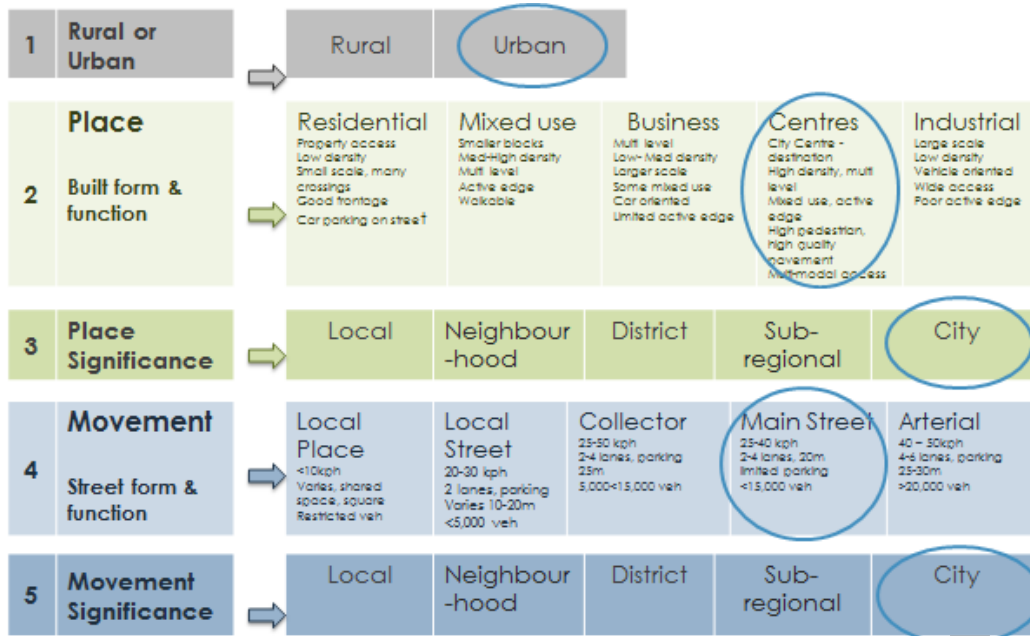


## TYOLOGY

### Main Street Arterial

		Low Place	Medium Place	High Place
Strategic	High Movement	Out-of-Centre Arterial	Mixed Use Arterial	<b>Main Street Arterial</b>
	Medium Movement	Neighbourhood Connector	Mixed Use Connector	Main Street Connector
Local Roads	Low Movement	Local Street	Centre - Local Street	Centre Plaza/ Square/ Shared

# Step 1: Determine the typology





## 2025 Typologies


- Current function is already Main St with high place significance, strategic significance for buses / cycling. Increasing pedestrian activity on the Main St.
- Significant redevelopment potential in vicinity from the future CRL station, which will increase mixed use activity and THAB residential development as indicated in the Unitary Plan
- Therefore, K-Rd should be a higher quality version of **main street arterial**.


## Steps 2-4: Determine modal priority


 **High pedestrian flows** along/across K-Rd, key attractors are retail, night life, and in future **CRL station / redevelopment in back streets** / apartment living.

 **Cycle Connector**, critical link between western suburbs / City Centre / further east via Grafton. No feasible alternative routes for directness.

 **Bus FTN route** connecting western suburbs to City Centre, City / Inner Link & Nite-rider. Future interchange with CRL station, NW Busway link to Pitt St and LRT on Queen. No feasible alternative routes for directness. Some rerouting post CRL possible.

 **Important arterial traffic route**, on-street parking / access to AT off-street carpark on Mercury lane. Alternative routes / reduced lane capacity / parking removal are options. At grade private carpark ripe for redevelopment.

 **Service delivery loading** is available on-street but retiming/relocation are options

 **Freight network** usually via Motorway to Port, but over-dimension/over-size route. Off peak, permit controlled.

- **Safety:** pedestrian crashes are increasing trend, high collective risk (Dsi)

# Step 5-6 : Address the six challenges using the toolbox

## Living



Improving the quality of the urban realm and side streets to support the Main St function and contribute to the Auckland Council vision for K-Rd  
Addressing conflicts between arterial road function and Main St and living functions of the wider K-Rd catchment

## Unlocking



Retaining and enhancing the significant social and economic exchange occurring on K-Rd  
Utilising under-used side streets to support permeability and urban realm

## Moving



Improving active mode and public transport accessibility, safety and capacity on K-Rd prior to the opening of CRL station



Improving journey reliability for the New Bus Network via Great North Rd/Ponsonby Rd and along K-Rd to Symonds St and interchange with the NW busway



Ensuring safe, reliable journeys for cyclists along K-Rd  
Reallocating road space from general traffic/parking to active modes and public transport sustainable modes at peak times and managing impacts

## Functioning



Managing servicing and parking requirements to support retail and future development of the K-Rd catchment  
Using clear road space provision and priority

## Protecting



Reducing the number of collisions/crashes between vehicles and improving pedestrian/cycle safety on K-Rd

## Sustaining



Addressing noise and air quality levels adjacent to K-Rd  
Providing and supporting much improved accessibility for pedestrians and cyclists along K-Rd and links to key attractors in the vicinity

## Short-term measures (0-3yrs):

- Better matching between materials/facilities street-type across range of upcoming projects e.g. seating, pavement appropriate to K-Rd vision (e.g. Tool 1a Innovative asset management)
- Street decluttering/signage removal, street furniture alignment to improve pedestrian movement/lingering to provide for pedestrian flows (e.g. Tool 1b Street improvements)
- Low speed environment (<30kph) to reduce impacts of mode conflicts / lower safety risks and encourage safe mid-block crossing improvement. (e.g. Tool 2b Safe speed environment)
- Prioritise the more efficient / sustainable modes on K-Rd according to modal priority: bus, cycle, pedestrians through priority measures e.g. segregated cycle lanes, bus lanes, wider footpaths in core (e.g. Tool 3a More efficient people movement)
- Better cycle parking on side streets (e.g. Tool 5c New public spaces, pedestrian and cycling facilities)
- Trial road layouts & signals e.g. planters/segregated cycleway/bus lane prior to permanent facility. Align programmes across streetscape projects. Future proof designs that allow for easy upgrades.
- Undertake events allowing informal use of road space with a programme of temporary, traffic free events for the public.
- Trial informal spaces in K-Rd back streets as a lead-in to future development opportunities following CRL station completion
- Optimise traffic signals to balance bus/cycle (e-w)priority with crossings (n-s) and maximise efficiency for all modes and provide pedestrian countdowns (e.g. Tool 2f Better crossings)
- Use on-street space more flexibly and over 24-hours e.g. timed service delivery/curb space in evenings
- Provide real time information on travel conditions and choices covering City Centre upgrade works. (e.g. Tool 4b Next generation travel demand management)
- Investigate detuning or closing the Symonds St on-ramp, phasing with the significant improvement in public transport and active mode accessibility (e.g. Tool 3e Flexible lanes and management)

## Medium-term measures (3-10yrs):

- Investigate side-street pocket parks/oases to support liveability
- Widen footpaths and optimise signals to accommodate increasing numbers of pedestrians, particularly the CRL Station desire lines e.g. Tool 1b street improvements)
- Prioritise K-Rd prioritised as a low emission bus route
- Strengthen segregated cycle facilities and connections to wider cycle network and provide cycle facilities for cyclists (e.g. Tool 5d New and improved separation)
- Address pinch points, e.g. Pitt St, Queen St, Symonds St intersections (e.g. Tool 3d Congestion hot spot busting)
- Progress e-mobility solutions, especially car share/bike share (e.g. Tool 4c Active network management)
- Dynamic visitor parking with car share operators and relocating PnR (e.g. Tool 4e Restrain and reallocate parking)
- Restrict general traffic east-west movement during peaks while promoting motorway circulation, especially to phase with LRT development and undertake traffic management trials to prepare for CRL

## Long-term measures (10+yrs):

- Work with Government and AC to progress investigations into road pricing system, innovative delivery and servicing management and E-mobility and data sharing.
- Smart pricing & active network management

# Step 7: K-Rd recommendations

## Short term (0-3yrs):



Pedestrian improvements - footpaths, signalised crossings, raised entry treatments, public realm incl. side streets



Trial segregated cycle facility along length



Bus reliability – 24 hr bus lanes (west of Pitt St) / peak hour bus lane (east of Pitt St)



Servicing and deliveries to be managed off peak, potentially using micro consolidation

**Protecting** - Low speed environment to support the place function of K-road and reduce risk of accidents

## Other users:



Retain traffic provision – at least 1 lane each way. Reduce /remove parking.



Monitor access for freight: Over-Dimension / Over-Size route out of hours

**Sustaining** - support road closures for events, markets

- Consider wider impacts on City Centre e.g. diverted traffic, parking management, rerouting, retiming of servicing

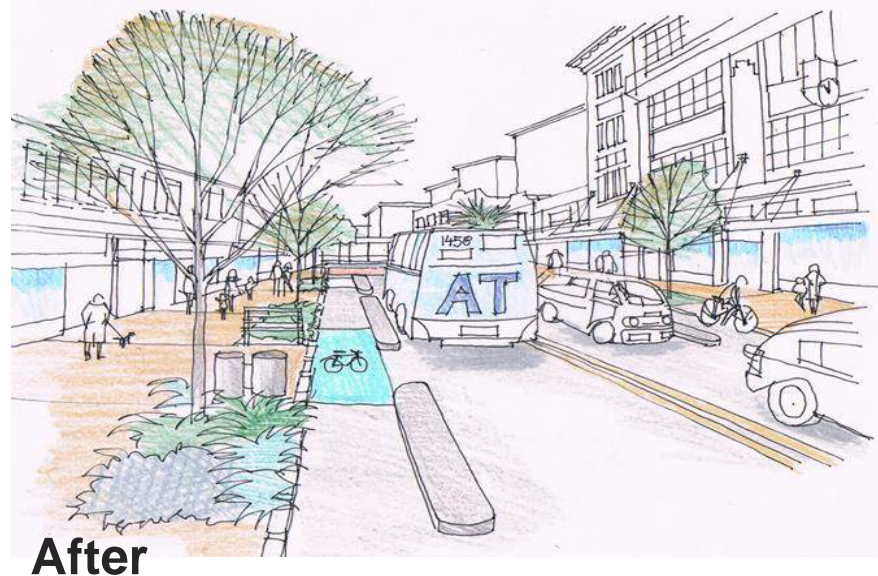
# K-Rd: Outcome of RASF process - Project design mandate

## Short Term option (east of Pitt):

- Low speed zone
- Higher quality pedestrian facilities, improved urban realm, decluttered footpaths
- 24 hr bus lane west of Pitt / peak lane east of Pitt
- Trial segregated cycle lane with moveable planters to trial different layouts e.g. for special events
- Remove / relocate parking as required
- Servicing off peak
- General traffic - 1 lane each way

## Long Term option (east of Pitt)

- Phasing to occur post CRL / LRT
- Low speed zone, better wayfinding e.g. to K'Rd Station
- Footpaths widened for high pedestrian use, urban realm improvements, mid block treatments for ped. crossings
- Permanent segregated cycle lane
- 1 lane each way for mixed traffic, carriageway width reduced,
- Servicing off-peak , consolidated loading zones
- Road looked at over 24 hr period.





# Manukau Metro Centre

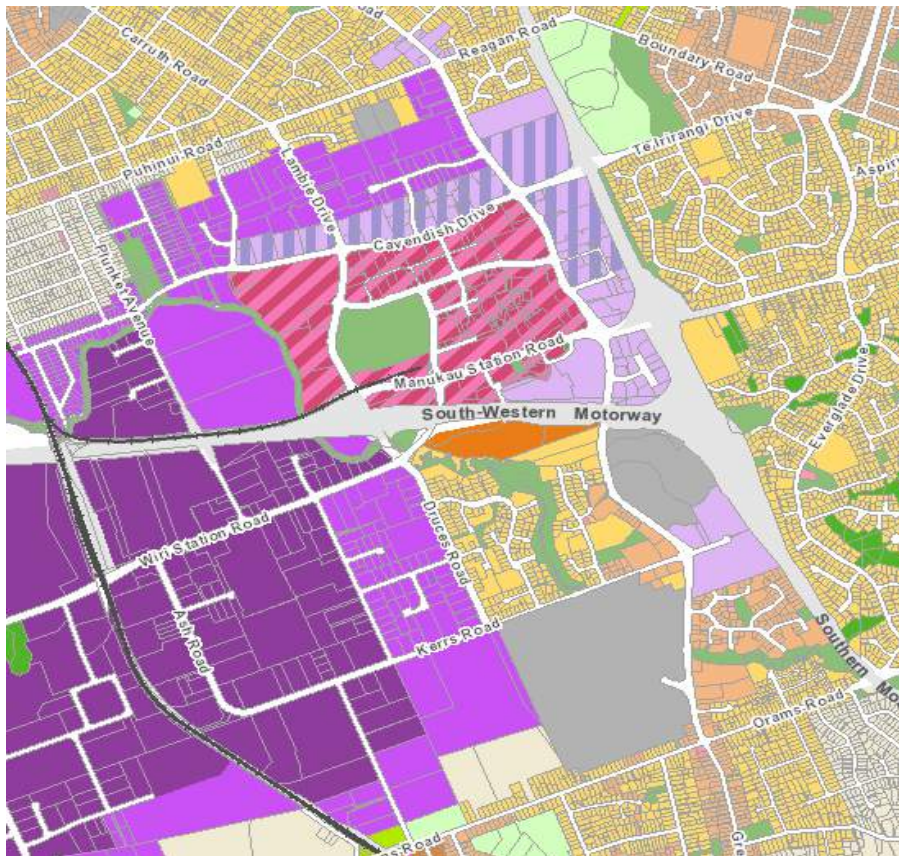
Application to Metro Centre  
Network





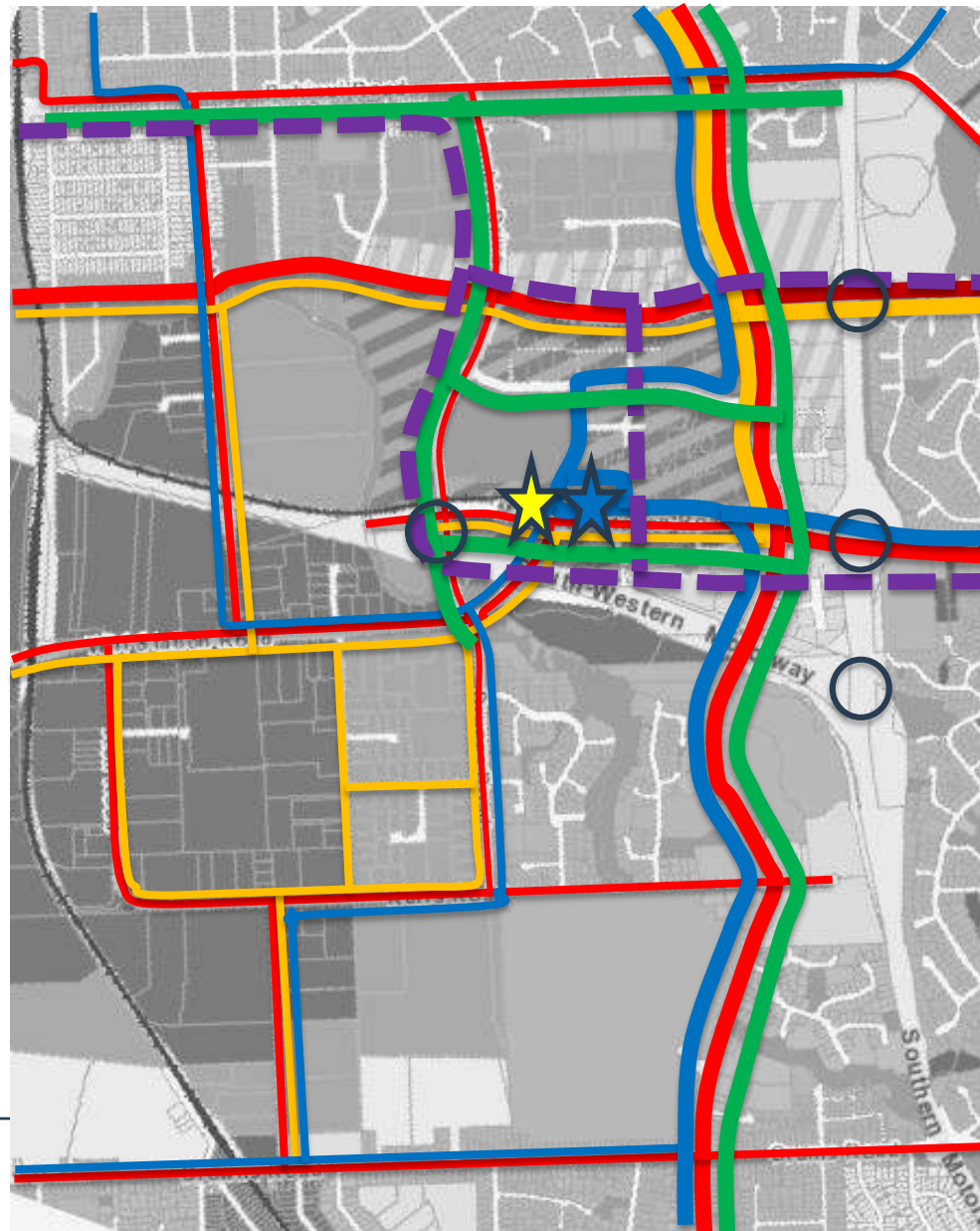
# Place – land use & activities













Vision – Manukau is the metropolitan centre and its surrounds as “the thriving heart and soul for the south”.



- **Metropolitan Centre** – Second only to the city centre in scale and intensity a wide range of activities.
- **General Business and Mixed Use** – light industrial to limited office, large format retail and trade suppliers. The mixed use zone provides medium density residential activity and smaller scale commercial activity
- **Light Industry and Heavy Industry** – industrial activities including manufacturing, production, logistics, storage, transport and distribution.
- **Residential Zones** – generally zoned mixed housing suburban or urban, which provide for small scale intensification. The Terrace Housing and Apartment Building zone is applied to the large site at 20 Barrowcliffe Place.
- **Special Purpose Zones** – Pacific Events Centre and the DHB Superclinic site. The university campuses are given the same underlying zone as their surroundings
- **Relevant overlays** – aircraft noise.
- **Future development** – over one third of the area is controlled by Council and Crown entities

# Movement networks – overview



-  Strategic road
  -  Primary arterial
  -  Secondary arterial
  -  PT - FTN
  -  PT – Connector
  -  Freight– Principal route
  -  Freight– Secondary route
  -  Cycle Expressway
  -  Future Mass Rapid Transit
- 
-  Bus Station
  -  Rail Station
  -  SH Ramps

N.B.  
 State Highways omitted.  
 Over Dimension routes not shown.

# Step 1: Determine the Place / Movement typology – example of Manukau Station Rd

1	Rural or Urban	Rural	Urban			
2	Place Built form & function	Residential <small>Property access Low density Small scale, many crossings Good frontage Car parking on street</small>	Mixed use <small>Smaller blocks Med-High density Multi level Active edge Walkable</small>	Business <small>Multi level Low-Med density Larger scale Some mixed use Car oriented Limited active edge</small>	Centres <small>City Centre - destination High density, multi level Mixed use, active edge High pedestrian, high quality pavement Multimodal access</small>	Industrial <small>Large scale Low density Vehicle oriented Wide access Poor active edge</small>
3	Place Significance	Local	Neighbour-hood	District	Sub-regional	City
4	Movement Street form & function	Local Place <small>&lt;10kph Varies, shared space, square Restricted veh</small>	Local Street <small>20-30 kph 2 lanes, parking Varies 10-20m &lt;5,000 veh</small>	Collector <small>25-50 kph 2-4 lanes, parking 25m 5,000+15,000 veh</small>	Main Street <small>25-40 kph 2-4 lanes, 20m limited parking &lt;15,000 veh</small>	Arterial <small>40 - 50kph 4-6 lanes, parking 25-30m &gt;20,000 veh</small>
5	Movement Significance	Local	Neighbour-hood	District	Sub-regional	City

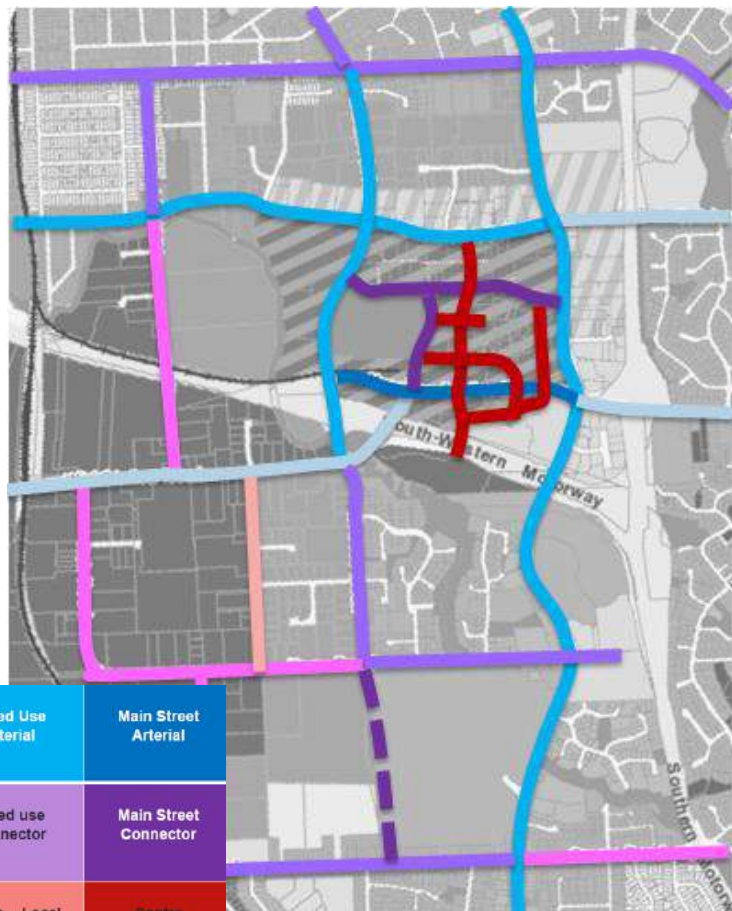


Out-of-Centre Arterial	Mixed Use Arterial	<b>Main Street Arterial</b>
Neighbourhood Connector	Mixed use Connector	Main Street Connector
Local Street	Centre - Local Street	Centre Plaza/Square/Shared

## 2026 Typologies

- Current function is already Main St with high place significance, strategic significance for public transport / cycling. Increasing pedestrian activity on the Main St.
- Significant redevelopment potential in vicinity of the bus / rail station, which will increase mixed use activity and Terrace Housing / Apartment residential development as indicated in the Unitary Plan
- Therefore, Manukau Station Rd should be a higher quality version of **main street arterial**.

# Step 1 contd: Determine typologies for wider Manukau network



- High place value typologies applied in centre to reflect Panuku development aspirations.
- Main St arterial applied to Manukau Station Rd to reflect enhanced Main St function
- Mixed use arterial applied to Great South, Cavendish and Lambie to reflect high movement value and mixed use (residential / commercial).
- Analysis focused on four key corridors – Manukau Station, Great South, Cavendish and Lambie – most have competing land use / transport drivers.

Out-of-Centre Arterial	Mixed Use Arterial	Main Street Arterial
Neighbourhood Connector	Mixed use Connector	Main Street Connector
Local Street	Centre - Local Street	Centre Plaza/Square/Shared

## Step 2-4: Determine modal priorities for different roads



**Bus FTN - very high bus volumes** getting to/from Great South Rd and the Manukau Bus Station. Current LRT thought is further north, so this will remain bus PT focused.



**Walking - increased demand in future as it develops** - Ronwood Ave will also serve this function, Cavendish will be general traffic/freight focused, so Manukau Station Road is a key east-west connector.



**Cycling – trial segregated lanes** on key routes where justified



**Freight - on freight network**, important link SH20-1, but relatively lower priority given that motorway-motorway connection exists.



**General traffic - moderate traffic volumes for road** of this scale, but again the parallel motorway will take most of new demand.



Consider **service & delivery** to support town centre, control access as centre becomes busier.

# Step 5-6: Address the six challenges using the toolbox:

Challenges & Opportunities:	Tools:
<p><b>Living</b></p> <ul style="list-style-type: none"> <li>• Poor public realm in some place, disconnected land uses</li> <li>• Town centre severance from surrounding residential areas</li> </ul> <p><b>Unlocking</b></p> <ul style="list-style-type: none"> <li>• PDA controls virtually some key sites via Council/Crown ownership, and as such has significant leverage over development outcomes.</li> <li>• Significant development potential in Metro Centre zoning</li> <li>• Facilitate development on near-term sites -Section 1 and 6, 31-33 and 50 MSR.</li> </ul> <p><b>Moving</b></p> <ul style="list-style-type: none"> <li>• Some spare capacity &amp; lower volumes, significant reserve width(&gt;30m) is an opportunity to achieve better outcomes for all modes.</li> <li>• Currently planned bus lanes have potential cycle lane conflict – this is a design issue.</li> <li>• NZTA concern re queuing back to SH interchanges .</li> <li>• Redoubt/Mill Road corridor – potential induced demand impact on MSR volumes.</li> <li>• Freight routes in conflict with Place values to be resolved through design</li> </ul> <p><b>Protecting</b></p> <ul style="list-style-type: none"> <li>• Reducing number of collisions/crashes between vehicles and improving pedestrian and cycle safety</li> </ul> <p><b>Sustaining</b></p> <ul style="list-style-type: none"> <li>• Improving noise and air quality levels adjacent to retail / commercial areas</li> <li>• Providing and supporting much improved accessibility for pedestrians and cyclists and key links to attractors in vicinity</li> </ul> <p><b>Functioning</b></p> <ul style="list-style-type: none"> <li>• Managing servicing and parking requirements to support the Metro Centre and future development</li> </ul>	<p><b>Short-term measures (0-3yrs):</b></p> <ul style="list-style-type: none"> <li>• Bus lanes to support Manukau bus station / interchange and new Network routes.</li> <li>• Commence streetscape upgrade, which will provide impetus for improved cycle connections (physical buffer where vehicle volumes high)</li> <li>• Low speed zone in pedestrian oriented areas, especially Main St function of Manukau Station Rd. Declutter existing footpaths</li> <li>• Trial road layouts &amp; signals e.g. planters / segregated cycle lanes where justified, pedestrian priority areas and mid block crossings</li> <li>• Optimise signals to balance bus / pedestrian/ general traffic / freight and maximise efficiency for all modes</li> <li>• Provide real time information on travel conditions, travel choices and parking availability</li> </ul> <p><b>Medium term measures (3-10yrs)</b></p> <ul style="list-style-type: none"> <li>• Continue modal priority improvements as development phasing allows, redevelopment of car parking facilities</li> <li>• Investigate side street pocket parks to support liveability</li> <li>• Widen footpaths and optimise signals to improve accessibility for pedestrians and efficiency for buses</li> <li>• Reoubt Rd – Mill Rd corridor Stage 1. Proactive management of wider network to mitigate expected impacts of traffic growth</li> </ul> <p><b>Long term measures (10+yrs) and/or strategic</b></p> <ul style="list-style-type: none"> <li>• Potential future Rapid Transit linking Botany, Manukau and Airport</li> </ul>



# Step 7: Outcome of RASF process - Project design mandate



## Project mandate design concept for Manukau Station Rd in 2026

Mode	Requirement
Public transport	Bus lane in each direction, bus turning movement provided for in and out of bus station, ability to operate double deckers
Cycling	Protected cycle lane in each direction (i.e. 1.5m + 0.5m physical buffer)
Pedestrians	Generally wider/higher amenity footpaths –3m desirable given place value. Additional crossing points desirable in addition to new crossings being provided via bus lane project. Low speed to support place function of Main St.
Freight / Deliveries	Ability to accommodate freight vehicle geometry/dimensions. Servicing managed off peak to support Main St function
General Traffic	At least one standard width lane (3-3.5m) per direction. Turning lanes and movements to be managed with primary purpose of preventing queue lengths from impinging on motorway interchanges.



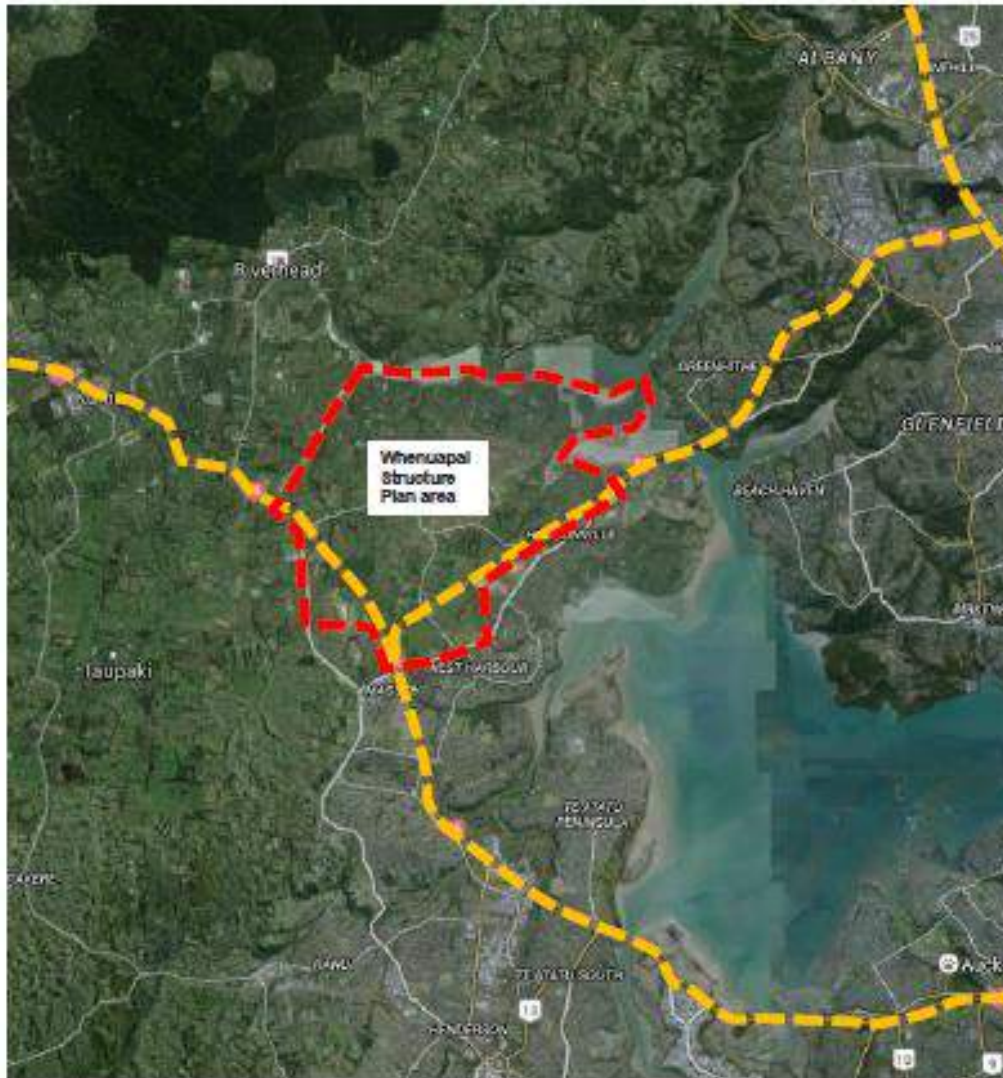
# Whenuapai Structure Plan

## Application to Greenfield Area



# Whenuapai Study area

## Wider Context



The WSP area is marked in red, and is bounded by SH16, SH18 and the Upper Waitemata Harbour.

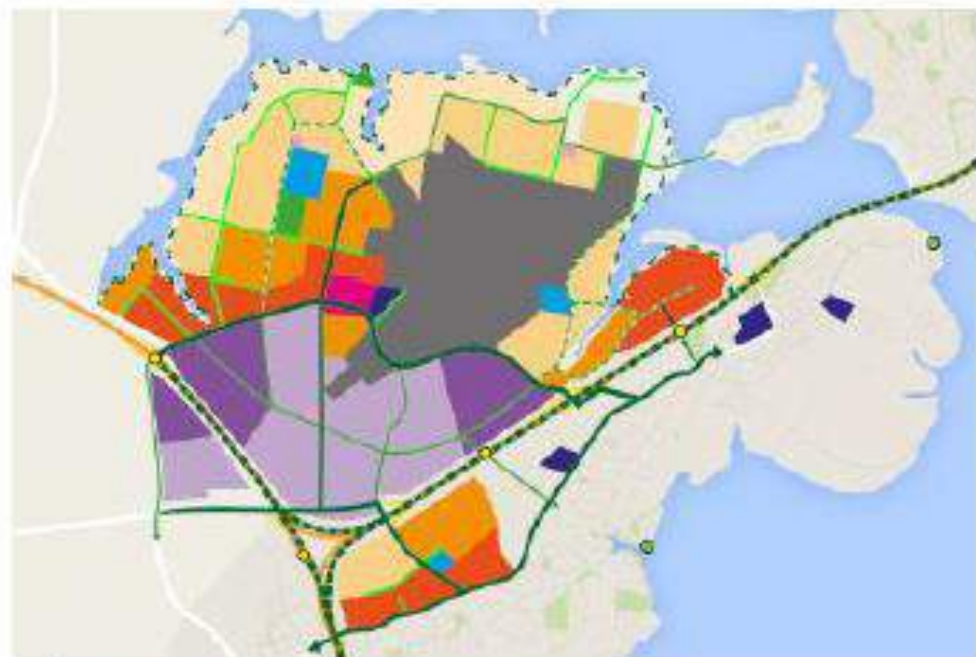
Surrounding development includes Hobsonville and West Harbour to the south of SH18, Westgate Metropolitan Centre to the west of the SH16/18 interchange, and the Redhills FUZ area west of Fred Taylor Drive.

Whenuapai is well connected to the State Highway network (yellow) given its position at the fork of SH16/18. The state highway network gives it direct connections to a range of important destinations including the CBD (21km), Albany (13km) and Kumeu-Huapai (6km).

No rapid transit options currently exist in the north-west of the region.



# Place & Movement context



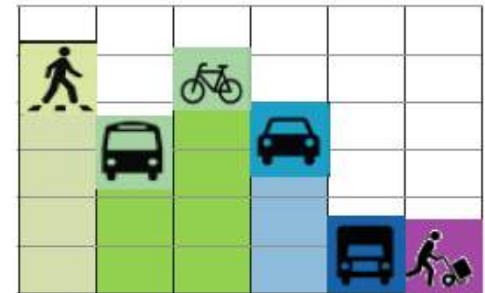
-  Shared Path
-  Protected Cycle Lanes
-  Buffered Cycle Lanes
-  Buffered Cycle Lanes + Shared Path
-  Traffic Calming
-  Indicative Coastal Pathway



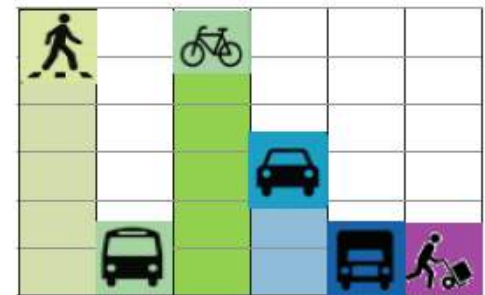
# Step 1. Determine typologies for Whenuapai



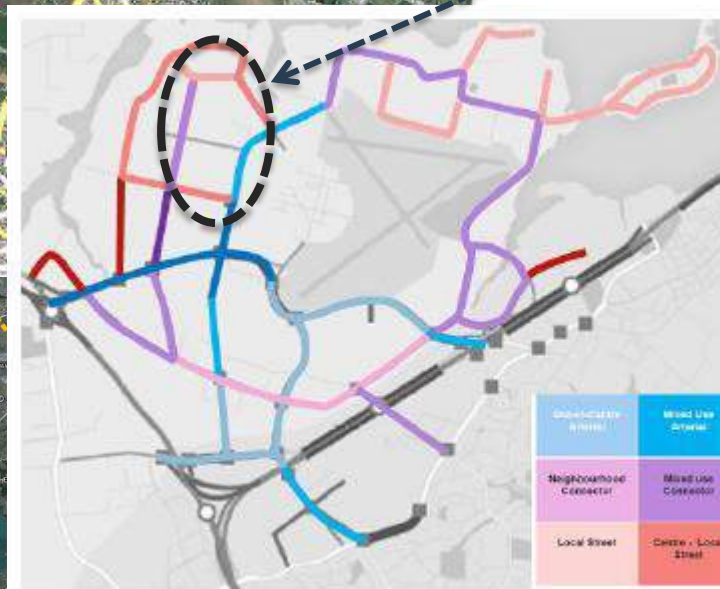
Totara – Riverlea – Dale Block typologies



Mixed use connector (Riverlea)



Local road / local main street – residential areas



Future Typology Map

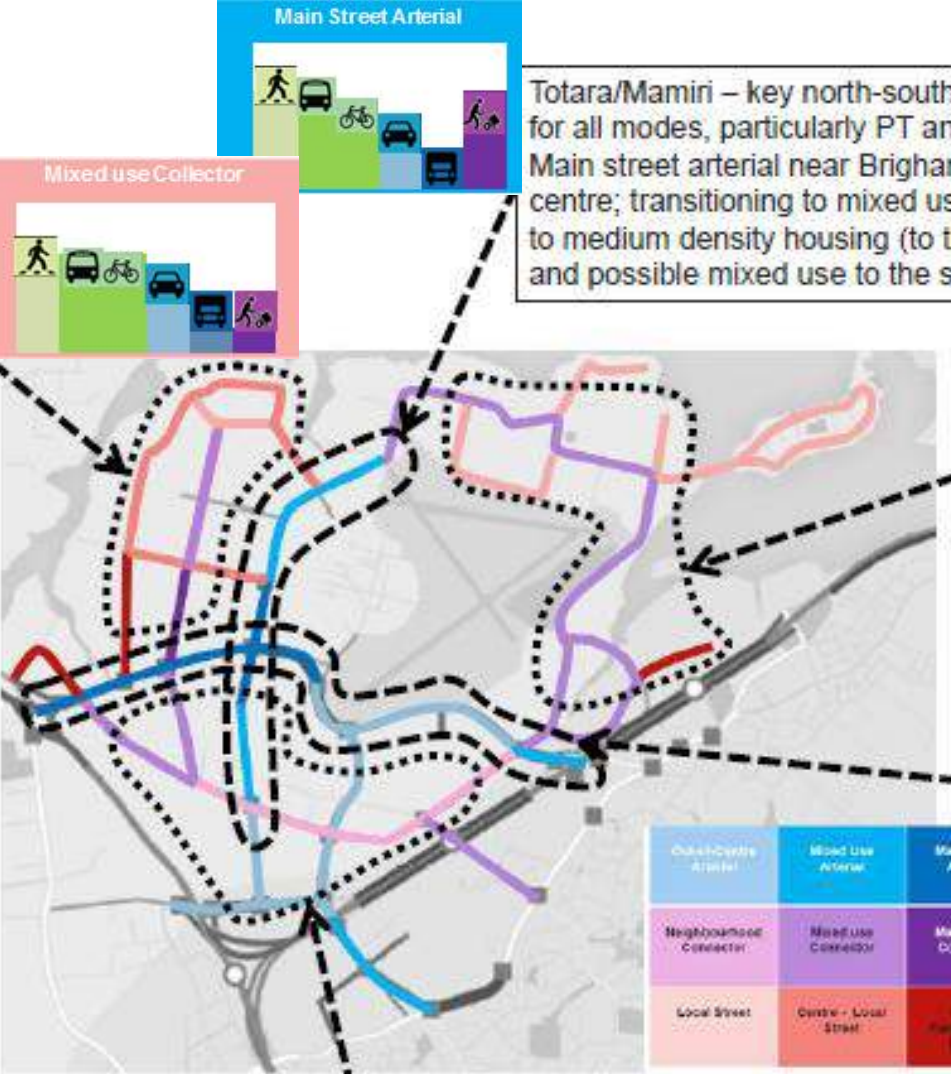


# Steps 2 -4: Determine modal priority

Medium and high place function and relatively low movement function in the north-west to reflect desire to create calmed, ped/cycle friendly streets for the main residential areas, and particularly around the primary school earmarked for Riverlea Road.



Lower place value streets generally applied to the light industrial area. Medium movement value reflects possibility of cycle paths etc.



Totara/Mamiri – key north-south corridor for all modes, particularly PT and cycling. Main street arterial near Brigham Creek / centre; transitioning to mixed use arterial to medium density housing (to the north) and possible mixed use to the south.



Mixed use connector to reflect medium place/movement value for Puriri and Kauri. Other streets serve local access role, so local street typology applied.  
Some high place/low movement around RTN station to signal TOD.



Brigham Creek Road – western portion main street arterial to reflect centre/THAB zoning, and presence of RTN at western end.  
Eastern portion = less place value due to Air Base, so an out-of-centre arterial.

Out-of-Centre Arterial	Mixed Use Arterial	Main Street Arterial
Neighbourhood Collector	Mixed Use Collector	Main Street Collector
Local Street	Centre - Local Street	Centre - Neighbourhood Collector



# Step 5-6: Address the six challenges using the toolbox<sup>39</sup>

Whenuapai Structure Plan

## CHALLENGES

### Living



- Need to improve the quality of the urban realm to support residential intensification and mixed use development.
- Need to provide for suitably low-speed, traffic calmed environments in the residential neighbourhoods and around schools to enable safe walking and cycling.
- Need to address conflicts between arterial road function and adjacent development.

### Unlocking



- Unlocking the whole Whenuapai SPA will support the lifestyles of the 23,000 future residents and 8,600 future workers in the area.
- Need to ensure that the area makes the largest possible contribution to alleviating Auckland's growth pressures.

### Moving



- On Brigham Creek Road, a tension exists between high movement aspirations and future place aspirations.
- The Air Base creates disruption to the operation of Brigham Creek Road.
- There are a limited number of crossings over SH16 and 18
- The network relies on RTNs along SH16 and 18.
- There is difficulty in coordinating new road connections given fragmented land holdings and varying development timeframes.
- Brigham Creek movement role in the long term depends on whether there is a SH16/18 connection - TFUG

### Functioning



- Deliveries and parking – centre environments

### Protecting



- Need to reduce the number of collisions/crashes between vehicles.
- The actual and perceived risk to pedestrians and cyclists needs to be reduced to encourage more trips by these modes.

### Sustaining



- Need to reduce the traffic noise and emissions, particularly in Segment 1.
- Need to provide access to key attractors for sustainable modes along Lincoln Road.

## ADDRESSING THE CHALLENGES – USING THE TOOLBOX

### Short-term measures:

- Four-laning, potentially localised to the centre initially, but ultimately entire corridor. Will require wider reserve (25-30m)
- Better matching materials and facilities (drains, footpaths etc) to place context as urbanisation occurs – beginning with SHA and extending north and south (e.g. Tool 1b Street improvements)
- Extend existing off-road cycle path west (e.g. Tool 5c New public spaces and pedestrian and cycling facilities)
- General calming of speed environment to enhance pedestrian and cycle safety in absence of dedicated facility (e.g. Tool 2b Safe speed environment)

### Medium-Long term measures:

- Urbanisation all the way to western end in line with/possibly leading development; stronger amenity focus over time – street trees, additional crossings in western half to facilitate intensification (e.g. Tool 1b Street improvements)
- Enhanced walking/cycling, particularly segregated cycle ways linking to RTN stations at either end to enhance first/last leg (e.g. Tool 5c New public spaces and pedestrian and cycling facilities)
- Possible deviation of road to the south to avoid runway (e.g. Tool 3e Flexible lanes and management)
- Long term calming/reduced lanes possible if SH16/18 ramps and parallel route to south built; and/or if road pricing is implemented along with RTN (e.g. Tool 2b – Safe speed environment)
- Linking Totara and Mamari Roads and providing north-south link to Northside Drive (e.g. Tool 4c Active network management)
- Bus lanes and segregated cycle lanes both desired in the medium term to provide direct/reliable connection to Westgate – will require widening and careful TDM design treatments (e.g. Tool 4b Next generation travel demand management)
- Stronger amenity focus over time, particularly around centre – street trees, additional crossings etc (e.g. Tool 1c Greener streets)



# Example of neighbourhood network

School and park both have roads on at least two sides to provide access. High place aspiration on school frontage to promote safety for students walking/cycling.

Highest density area = smallest block size (~100x50m). Streets alternate between local street for wider access, and higher place role for rear accesses – strong steer towards facilitating terraced housing.



Slightly larger (~100x100) blocks for the mixed housing suburban area, but higher place value typology applied to internally focused roads to support high amenity medium density outcomes.

Parallel routes provided for Totara Road and other external roads to enable rear access. Enables high amenity, traffic calmed access; and uninterrupted PT and/or cycling priority as necessary.

*N.B. Indicative scenario only.*



# Piha Road, Waitakere Ranges

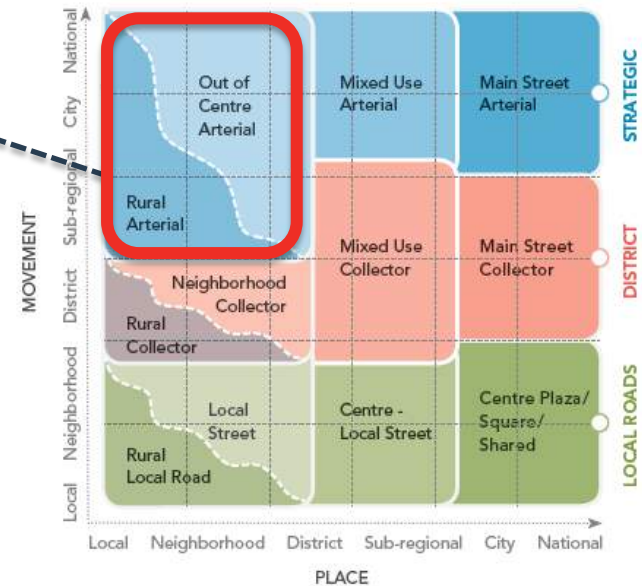
Application to Rural Road in  
Landscape Heritage Area

# Piha Road, Waitakere - Case Study Summary

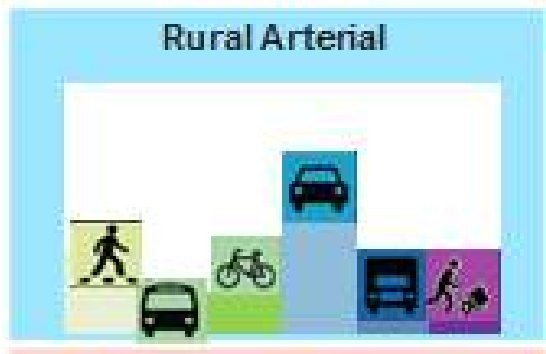


## TYOLOGY Rural Arterial

### ROADS AND STREETS FAMILY



**Place** – route traverses through Heritage landscape area, bush living, Waitakere regional park. National, regional or local level of significance depending on site / feature



Secondary arterial – priority for reliable journeys for general traffic. Pedestrian activity around walking tracks/scenic lookouts, increasing cycling. High risk rural safety issues.



# Step 1. Determine typology for Piha Road

1	Rural or Urban	Rural	Urban			
2	Place Built form & function	Residential Property access Low density Small scale, many crossings Good frontage Car parking on street	Mixed use Smaller blocks Med-High density Multi level Active edge Walkable	Business Multi level Low-Med density Larger scale Some mixed use Car oriented Limited active edge	Open Space Conservation or heritage area High landscape values Recreation	Village Small rural towns Low density Low speed Mix of services / cafes Active edge on market days
3	Place Significance	Local	Neighbourhood	District	Sub-regional	City National
4	Movement Street form & function	Local Place <10kph Varies, shared space, square Restricted veh	Local Street 20-30 kph 2 lanes, parking Varies 10-20m <5,000 veh	Collector 25-50 kph 2-4 lanes, parking 25m 5,000-15,000 veh	Main Street 25-40 kph 2-4 lanes, 20m limited parking <15,000 veh	Arterial 40 - 50kph 4-6 lanes, parking 25-30m >20,000 veh
5	Movement Significance	Local	Neighbourhood	District	Sub-regional	City







## 2025 Typologies

- Current function is arterial road winding through high significance landscape / conservation, heritage area.
- By 2025, the typology will remain the same, but the place and movement functions will be under increasing pressure from demand for recreation, tourism, residential development.

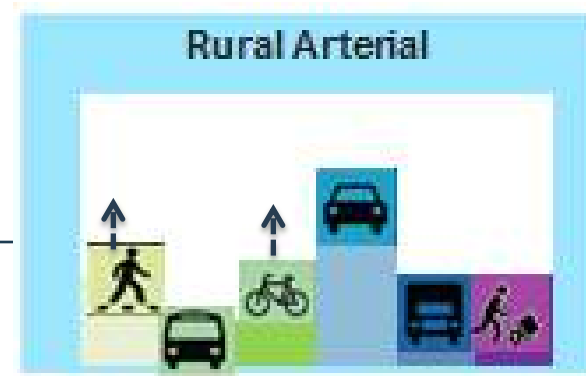
ROADS AND STREETS FAMILY



## Steps 2-4: Determine modal priority

-  Accessible and safe, low speed **pedestrian** environment in villages / scenic lookouts, walking track entrances. Limited services available within walking distance.
-  Safe **cycling** environment
-  Too remote for regular public bus services. Private surf shuttle
-  Piha road is a **secondary arterial**, providing access to west coast beaches - Piha / Karekare villages. Lower speed, 2-lane winding road with limited passing lanes.
-  **Service access** for delivery vans and emergency access.
-  No significant freight but large enough for furniture removal vans.

- **Safety hot spots - 'high risk rural road'**



# Step 5- 6 : Address the six challenges using the toolbox

## Living



Protecting heritage / landscape / cultural values in the face of population and development pressure along the route

Protecting and enhancing the route as the main Gateway for West Coast beaches / Piha / Karekare village

## Unlocking



Potential for enhancing the routes experience with multiple AC organisations and balancing with the aspirations of the local community

Response to targeted growth requires large investment in infrastructure facilities at villages, contained residential development

## Moving



Managing the conflicts between active modes and private transport along route, around visitor centres, walkways entrances, scenic lookouts



Improving journey reliability for the general traffic along the corridor



Ensuring safe, reliable journeys for cyclists

Future reallocating road space between private /public transport and active modes and managing impacts

## Functioning



Managing and servicing the volume of holidays / event traffic when the usually resident population can swell significantly

## Protecting



High risk rural road - reducing the number of collisions/crashes between vehicles and improving pedestrian/cycle safety on this route

## Sustaining



Protect and enhance high heritage / conservation / landscape / natural environment /experience while being resilient to future population increase and seasonal holiday traffic.

• Providing and supporting accessibility for pedestrians and cyclists along Piha Rd and links to key beaches in the vicinity

## Short-term measures (0-3yrs):

- Subject to Waitakere Ranges heritage area / design guidelines
- Better matching between use of local materials/facilities street-type for scenic Piha route(e.g. Tool 1a Innovative asset management)
- Low speed environment (<30kph) to reduce impacts of mode conflicts / lower safety risks and encourage safe crossing improvement around key attractors / walkway entrances, etc. (e.g. Tool 2b Safe speed environment)
- Prioritise active modes on Piha Rd according to modal priority in specific locations, e.g. cycling through priority measures e.g. segregated cycle lanes on uphill sections (e.g. Tool 3a More efficient people movement)
- Trial road layouts e.g. buffers /segregated cycleway prior to permanent facility. Align programmes across projects. Future proof designs that allow for easy upgrades.
- Optimise road management to balance car/bus/cycle (e-w)priority with crossings (n-s) and maximise efficiency for all modes and improve pedestrian priority in villages(e.g. Tool 2f Better crossings)
- Provide real time information on travel conditions and choices for visiting West Coast beaches and attractions. (e.g. Tool 4b Next generation travel demand management)

## Medium-term measures (3-10yrs):

- Subject to Waitakere Ranges heritage area / design guidelines
- Widen footpaths to accommodate increasing numbers of pedestrians, particularly the desire lines around key attractors, Piha village e.g. Tool 1b street improvements)
- Prioritise low emission vehicles and provide charging facilities as uptake of these vehicles increases e.g. bikes and cars
- Strengthen segregated cycle facilities and connections to wider cycle network and provide cycle facilities for cyclists (e.g. Tool 5d New and improved separation)
- Address pinch points, e.g. Piha intersections, stopping areas for attractions (e.g. Tool 3d Congestion hot spot busting)
- Progress e-mobility solutions, especially car share/bike share (e.g. Tool 4c Active network management) as part of Auckland's west coast / Waitakere ranges travel management
- Dynamic visitor parking with car share operators and relocating PnR (e.g. Tool 4e Restrain and reallocate parking)

## Long-term measures (10+yrs):

- Subject to Waitakere Ranges heritage area / design guidelines
- Work with AT / AC to progress investigations into innovative delivery and servicing management and E-mobility and data sharing.
- Active network management

# Step 7: Piha Rd - design concepts

## Short Term option:

Subject to Waitakere Ranges urban design guidelines:

- Introduce low speed zone in villages, around lookouts/walkway entrances to reflect increasing active modes and reduce vehicle / active modes safety conflicts
- Natural calming, narrow entrances, use natural / local materials in design
- Innovation - trial new treatments e.g. segregated uphill cycle lane with moveable buffers to trial different layouts
- Stormwater swales preferred, active pest & weed management in road corridor
- Appropriate level of lighting to prevent spillover effects, etc.



## Long Term option:

Phasing to occur with enhancement of Piha Rd route with increasing development / activities in vicinity:

- In villages, footpaths widened for higher pedestrian use, low speed zone (<30kph), wayfinding to walks, gateway treatments, etc.
- Permanent segregated uphill cycle lanes, along length
- Retain 1 lane each way for mixed traffic, carriageway width reduced to adjust to approved speed environment
- Landscaping / pedestrian scale lights with footpaths around key attractors / villages
- Optimised flow management of Piha Rd combined with:
  - real time travel information, incident reporting, carpark management
  - multi-modal travel choices including park and ride / car share / ebike / mobility as a service / shuttles
  - Congestion management at pinch points,

