Pedestrian and Bicycle Information Center

Global Benchmarking Webinar Series:
Improving Pedestrian Safety on Urban Arterials (Part 2)

The Movement and Place Framework

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Andrew McGill Auckland Transportation

Housekeeping

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Improving Pedestrian Safety on Urban Arterials

Part 1   Sept 5, 2023

Introduction and Overview of Study Findings

Part 2   Oct 2, 2023

The Movement and Place Framework

Part 3   Oct 23, 2023

Safe System Approach to Road Safety Audits

Part 4   Nov 7, 2023

Speed Management Policies and Practices

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in coordination with:

Pedestrian and Bicycle
Information Center

NACTO

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

AASHTO

Pedestrian Fatality Trends 2010 – 2021

71% increase since 2010

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Data Source: ITF and FARS
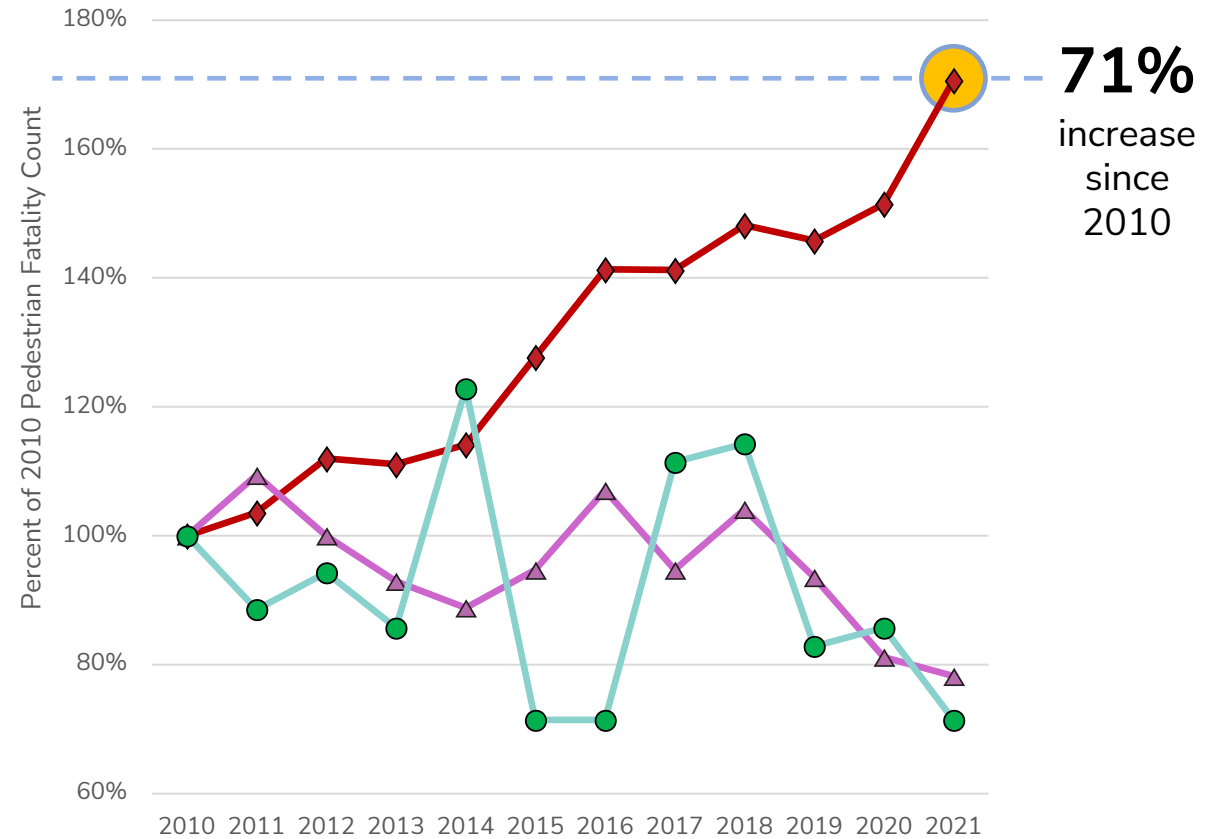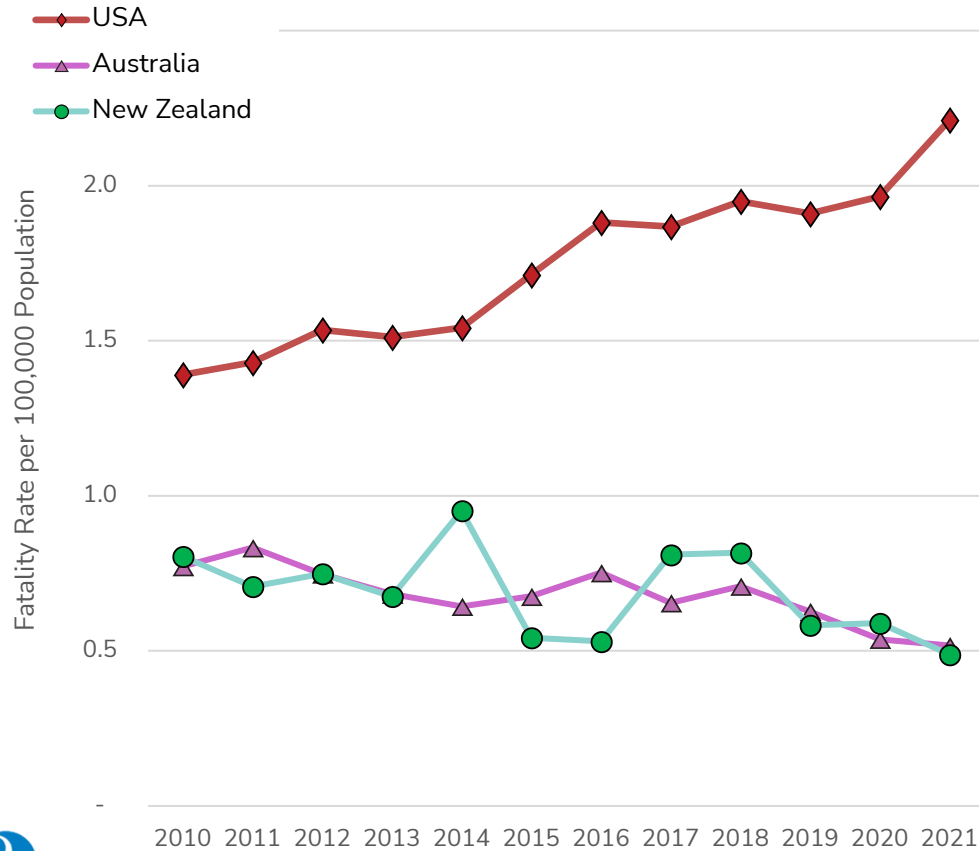
The Problem with Stroads

52%
of all fatal crashes

60%
of fatal pedestrian crashes

occurred on
principal & minor arterials
in 2021

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Source: FHWA

How do we know where to build what?

Streets

Roads

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

From the Report...

Movement and Place helps practitioners take an objective and proactive approach to the ongoing evolution of the transportation network.

Planning with the Movement and Place framework establishes a defensible logic for each project and project management team that subsequently sets out to transform the network, one segment or corridor at a time, as contributing to the implementation of a larger strategic plan at a network-scale.

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs
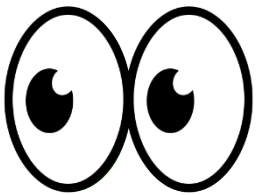
Core Principles of Movement & Place

1. Establish a common basis for decision making
2. Consider the role and capabilities of different modes
3. Coordinate the transformation of land use and transportation

"The complex requirements of building a safe and connected multimodal network can only be met at the network scale, linking land use and transportation decision making to achieve broad equity, climate, public health, and economic opportunity goals."

— *FHWA Global Benchmarking Report*

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Movement & Place as Change Agent
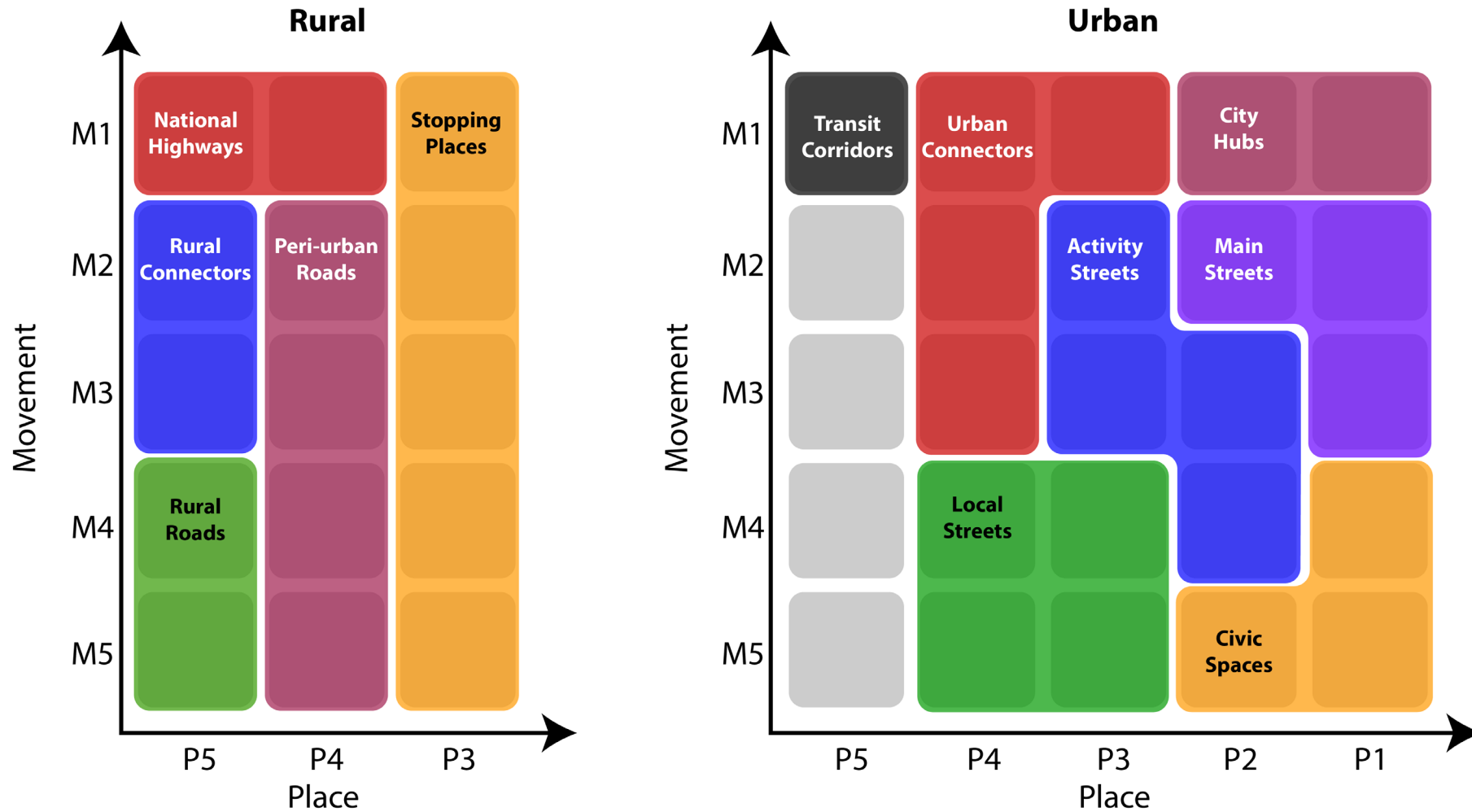

Putting people, place and movement at the heart of planning and investment

Consider the role roads and streets play as **Places (destinations in their own right)** as well as movement corridors

Consider the **current performance** and **future view of the corridor**

Classify **modal networks** for multi-modal network planning, including 'off-road' routes

Shift the emphasis to the overall **movement of people and goods,** rather than vehicles

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Source: Waka Kotahi NZTa

Movement & Place Framework
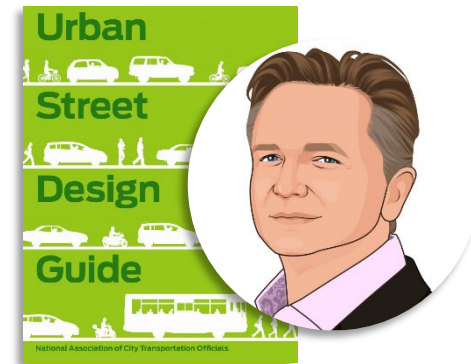

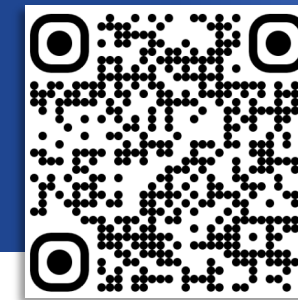Source: Waka Kotahi NZTa

This isn't new...

PBIC Webinar #1 Q&A:

"Jonah, a Link and Place framework was published in in 2007.
It was used in ITE-CNU guides, Toronto, and others.
What explains the rest of the USA not using it?" – Michael King

Link & Place
A guide to street planning and design

This guide introduces a new paradigm for planning and designing urban streets, based on the dual principles of link and place street functions.

As a link, a street is designed for users to pass through it as quickly as possible... to minimize travel time.

As a place, the street is a destination... where people are encouraged to spend time.

The guide presents an integrated approach to street planning, creating a street plan that defines the intended role of each street with the characteristics of the whole street network, to guide the design of individual streets, in accordance with their role in the street plan.

The greatest design challenges lie on the traditional high streets, which combine a high link status with a high place status.

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Context Sensitive Design

Sources: ITE-CNU (EPA | FHWA); Duany Plater-Zyberk and Company; FDOT; Kittelson & Associates

Florida DOT Context Classification

- The context classification of a roadway informs decisions made during FDOT's <u>various project development phases</u>, so that state roadways are planned, designed, constructed, and maintained to support safe and comfortable travel for their anticipated users.

- It is important that the users and their respective needs are understood early in the life of a project:
  - During the planning phase and prior to the development of the design scope of services, for resurfacing, restoration and rehabilitation (RRR), traffic operations, safety, and other projects.

- Context classification is required to identify the appropriate design criteria in the FDOT Design Manual.
  - The context classification and users inform key design elements, such as the design speeds, lane widths, and types of pedestrian, bicycle, transit, and freight facilities to be included in the design concept.

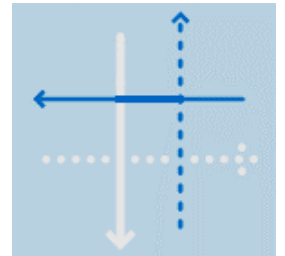# CNU: Sustainable Street Network Principles

All streets are safe and walkable
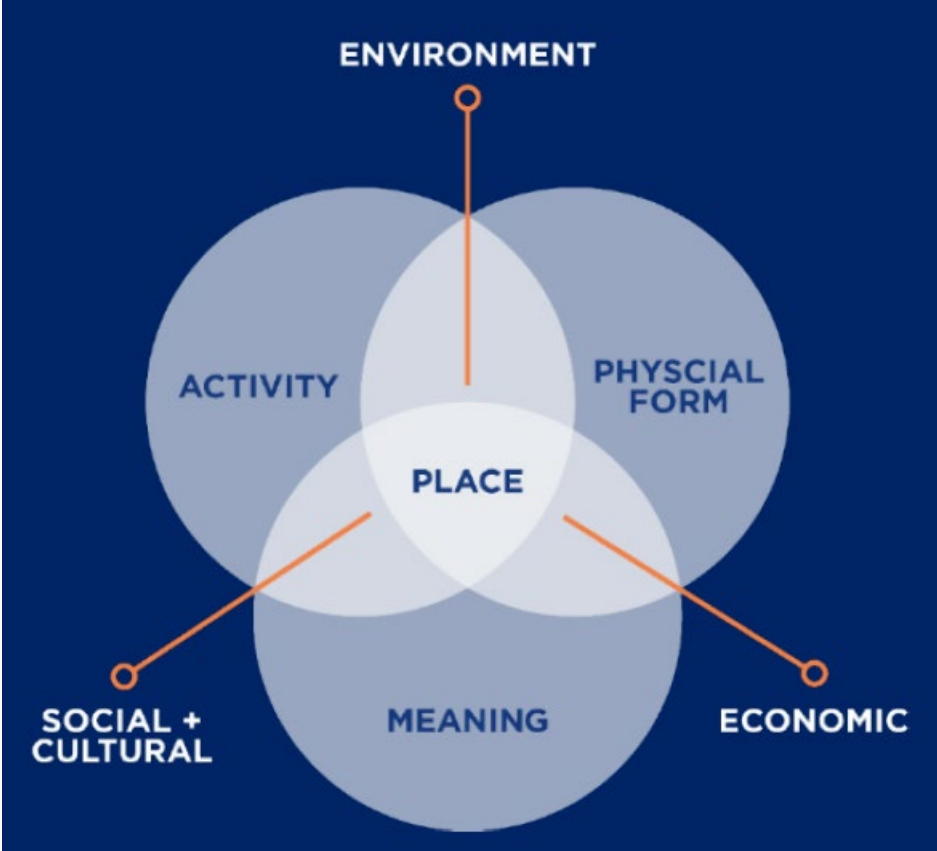
Desirable places where different modal networks overlap

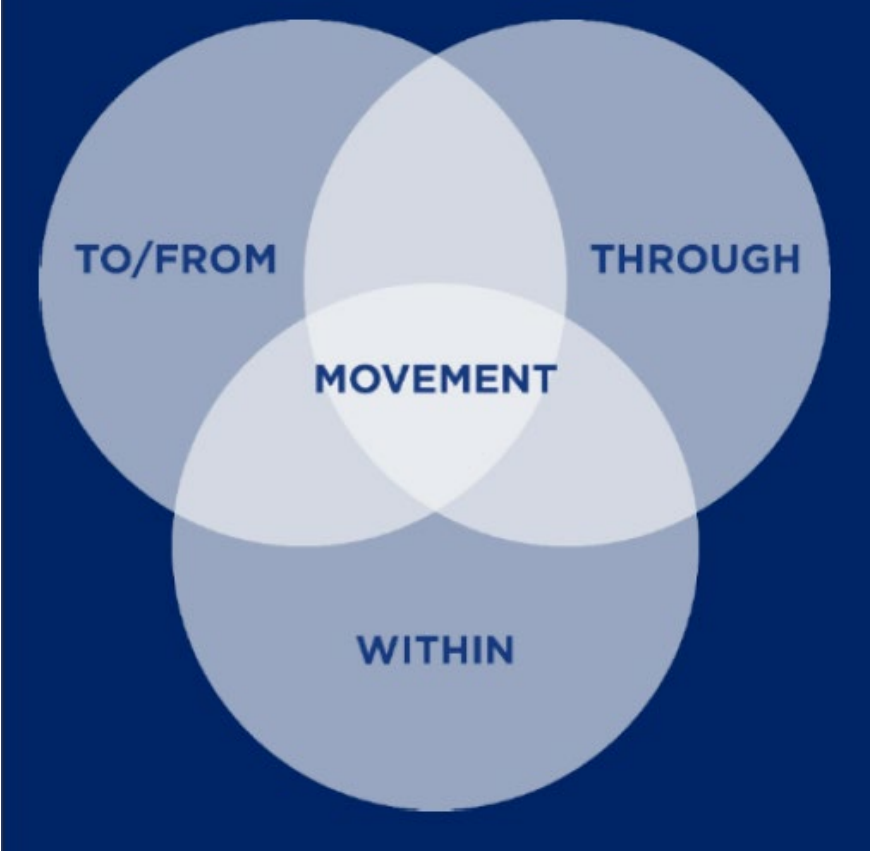A web of streets and modes to maximize connectivity

Varied array of street types, modal emphases, and roles

Understanding Movement and Place

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Movement Characteristics

Within   To/From   Through   To/From   Within

Place Characteristics

Activities
Economics

Physical Form
Environment
Social/Cultural and Meaning

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Source: Austroads | Transport for New South Wales

How Movement & Place can work for U.S.

Policy

What outcomes do we want to achieve?

Planning

How should our system grow and change?

Programming

What changes should we make to the overall network?

Design & Engineering

What changes should we make to individual segments?

Operations & Evaluation

How are we performing compared to our goals?

Measurable Goals

LRTP / MTP

STIP / TIP

Design Standards

Performance Management
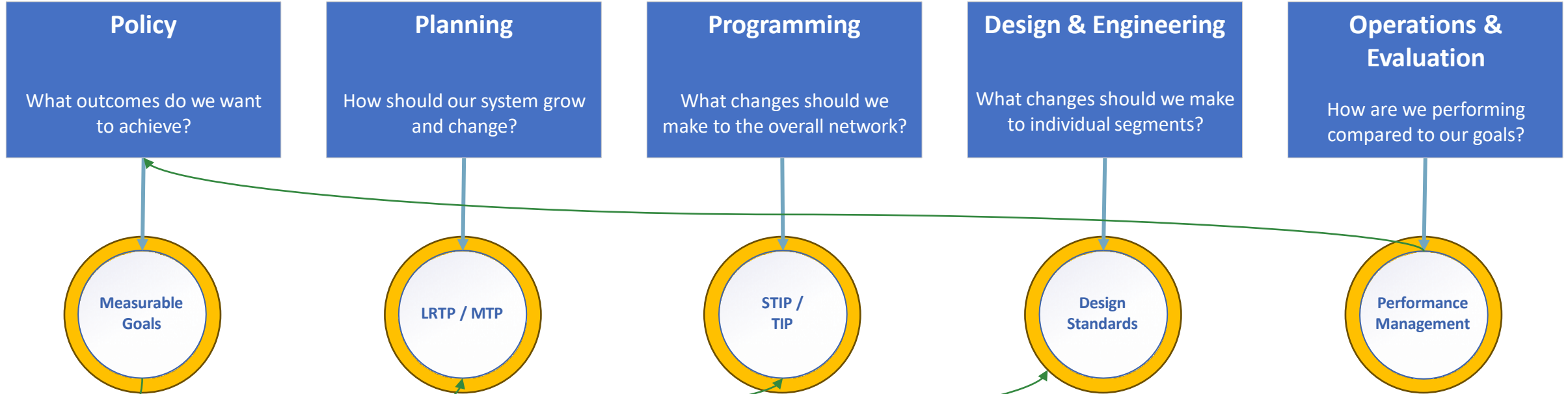
Movement & Place

Linking land use and transportation through context classification

23 USC § 134

23 USC § 135

23 CFR § 450

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs
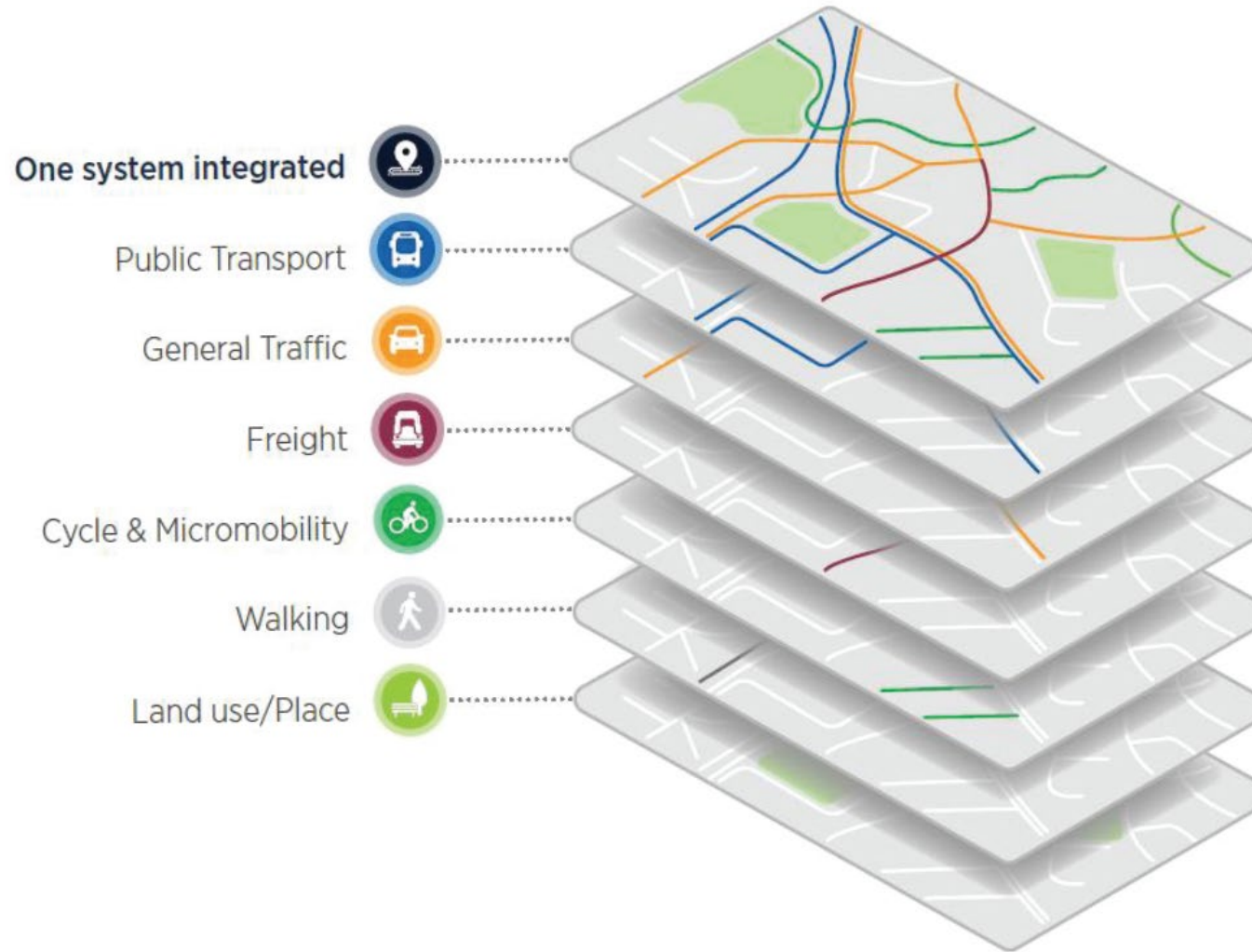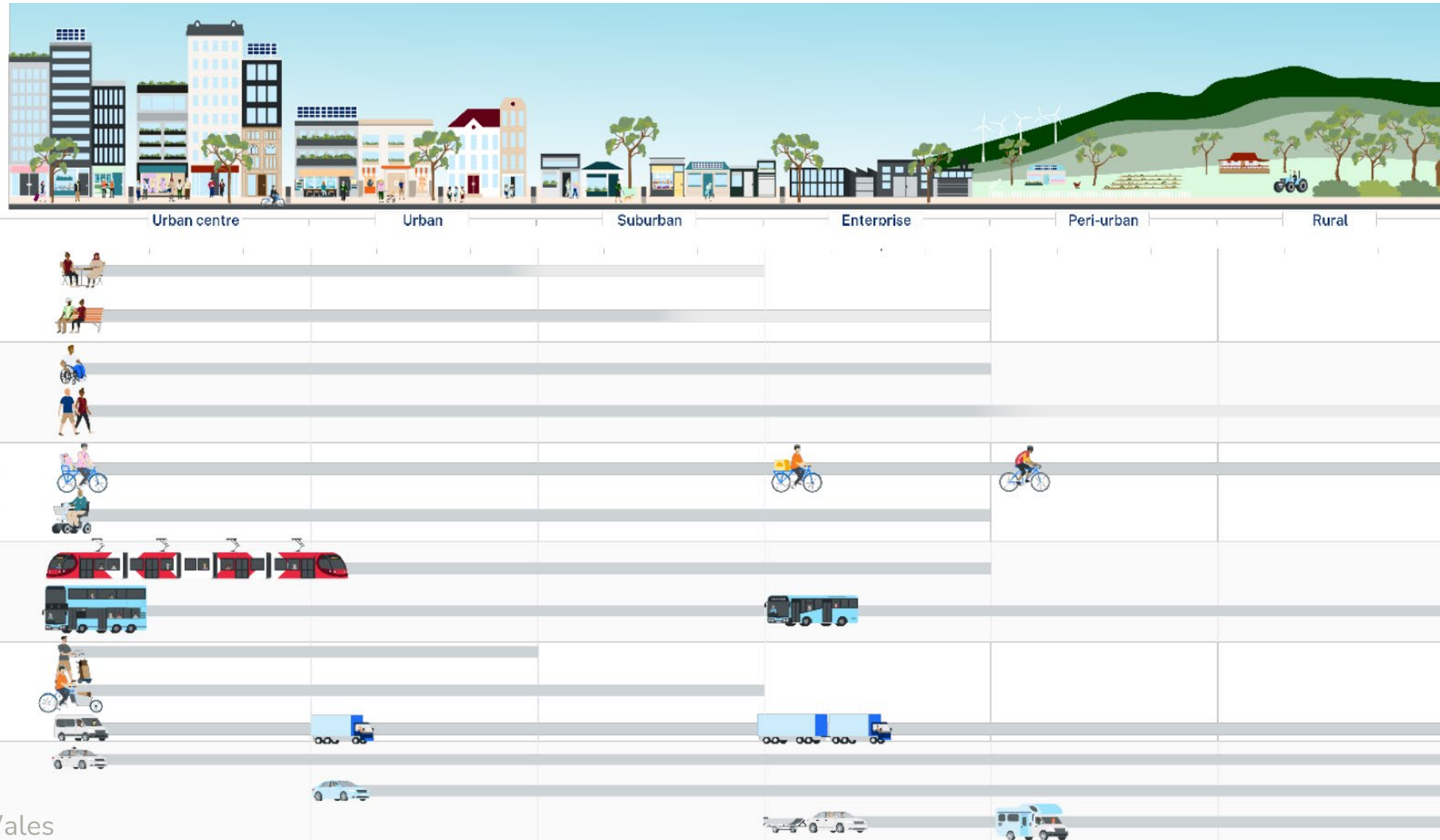
NSW Movement and Place Framework
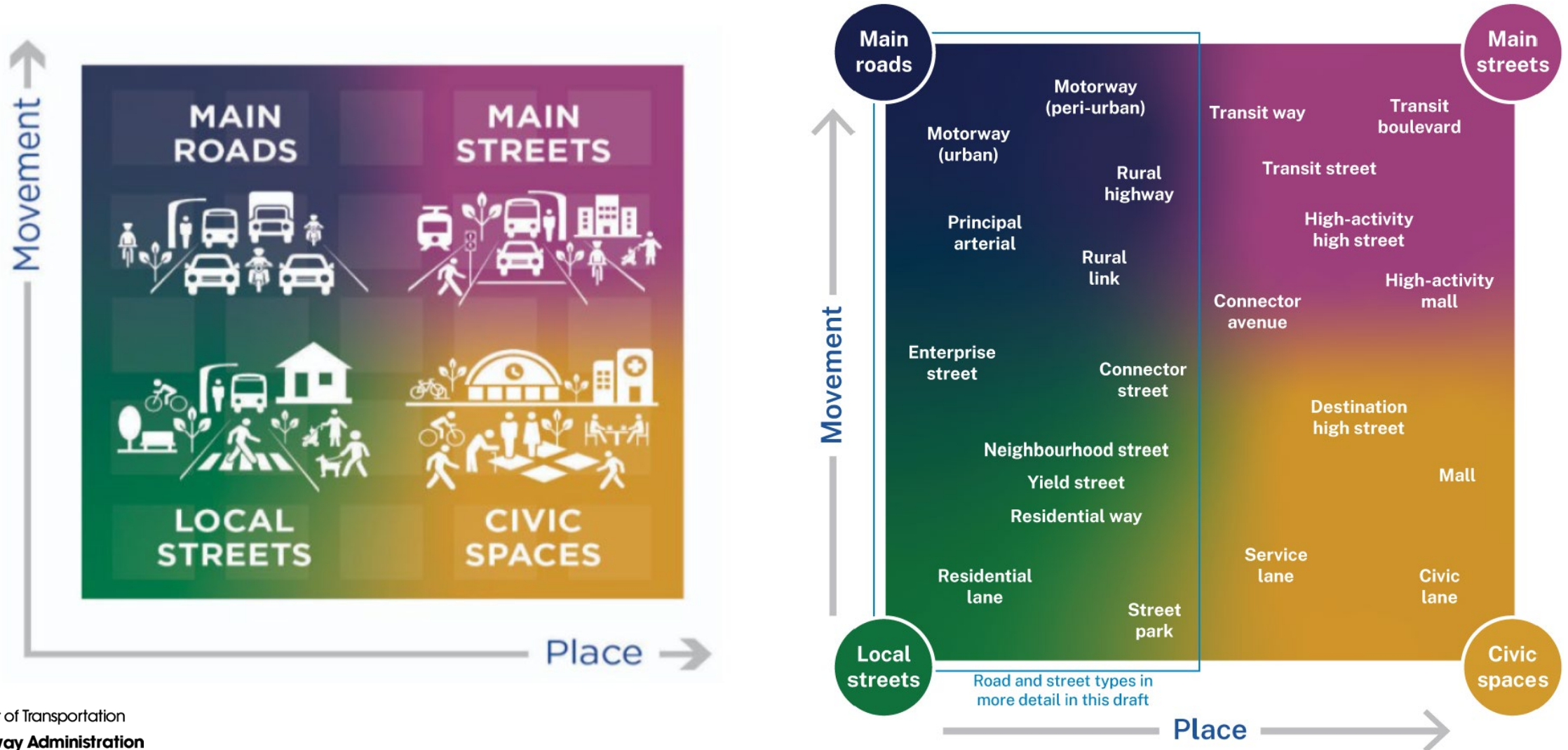
Modal Prioritization at Network Scale

One system integrated
Public Transport
General Traffic
Freight
Cycle & Micromobility
Walking
Land use/Place

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Matching Modal Format to Context

Source: Austroads | New South Wales
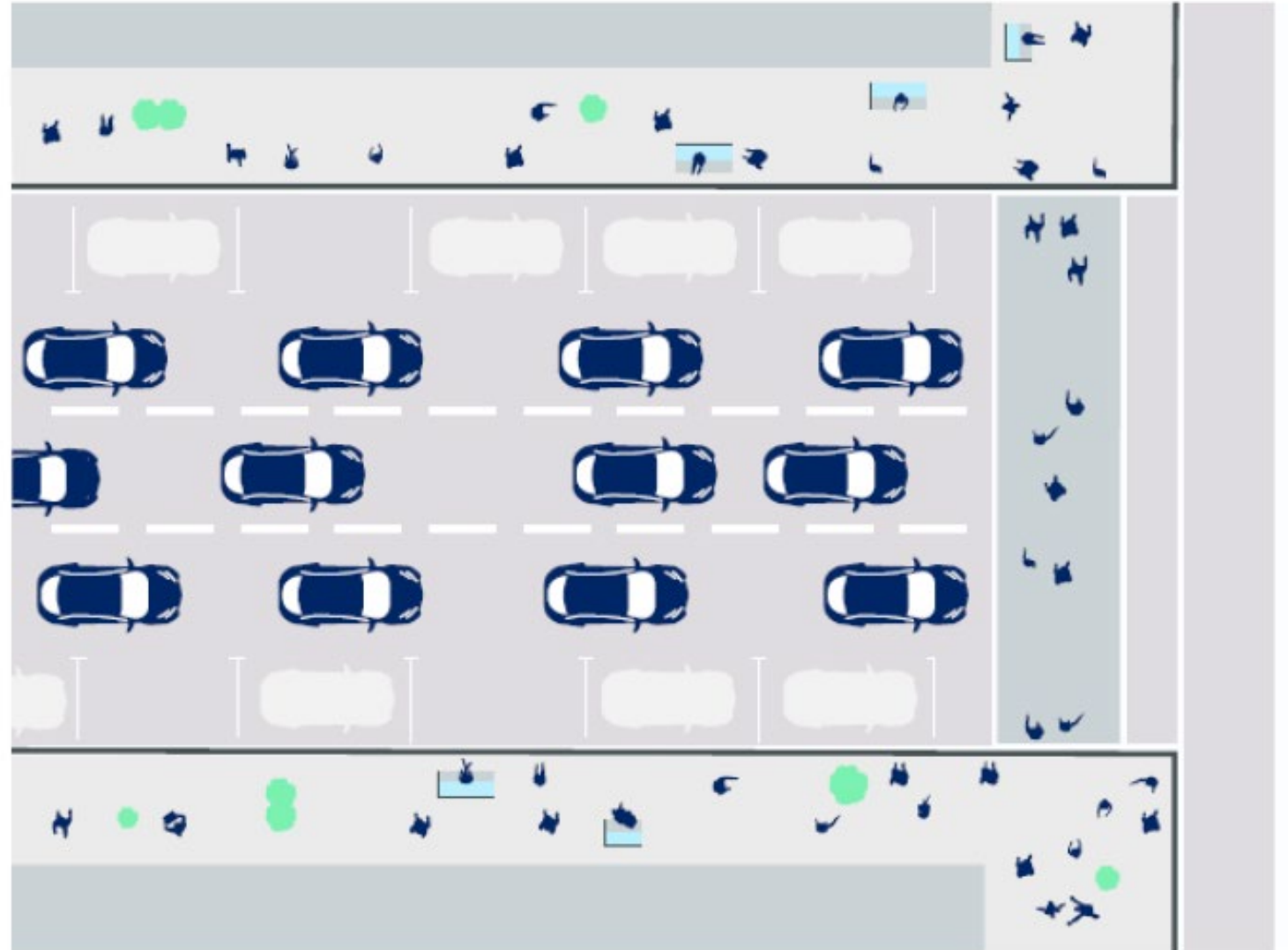
Moving Vehicles...

Hourly capacity of a car-oriented street

🚶 4500 × 2 = 9000 people

🚗 1100 × 3 = 3300 people

🚗 0 × 2 = 0 people

Total people capacity per hour **12,300**

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Source: Transport for New South Wales

Hourly capacity of multimodal street

🚶 8000 x 2 = 16,000 people

🚗 1100 x 1 = 1100 people

🚙 0 x 1 = 0 people

🚲 1000 x 1 = 1000 people

🚌 6000 x 1 = 6000 people

Total people capacity per hour **24,100**

U.S. Department of Transportation
Federal Highway Administration
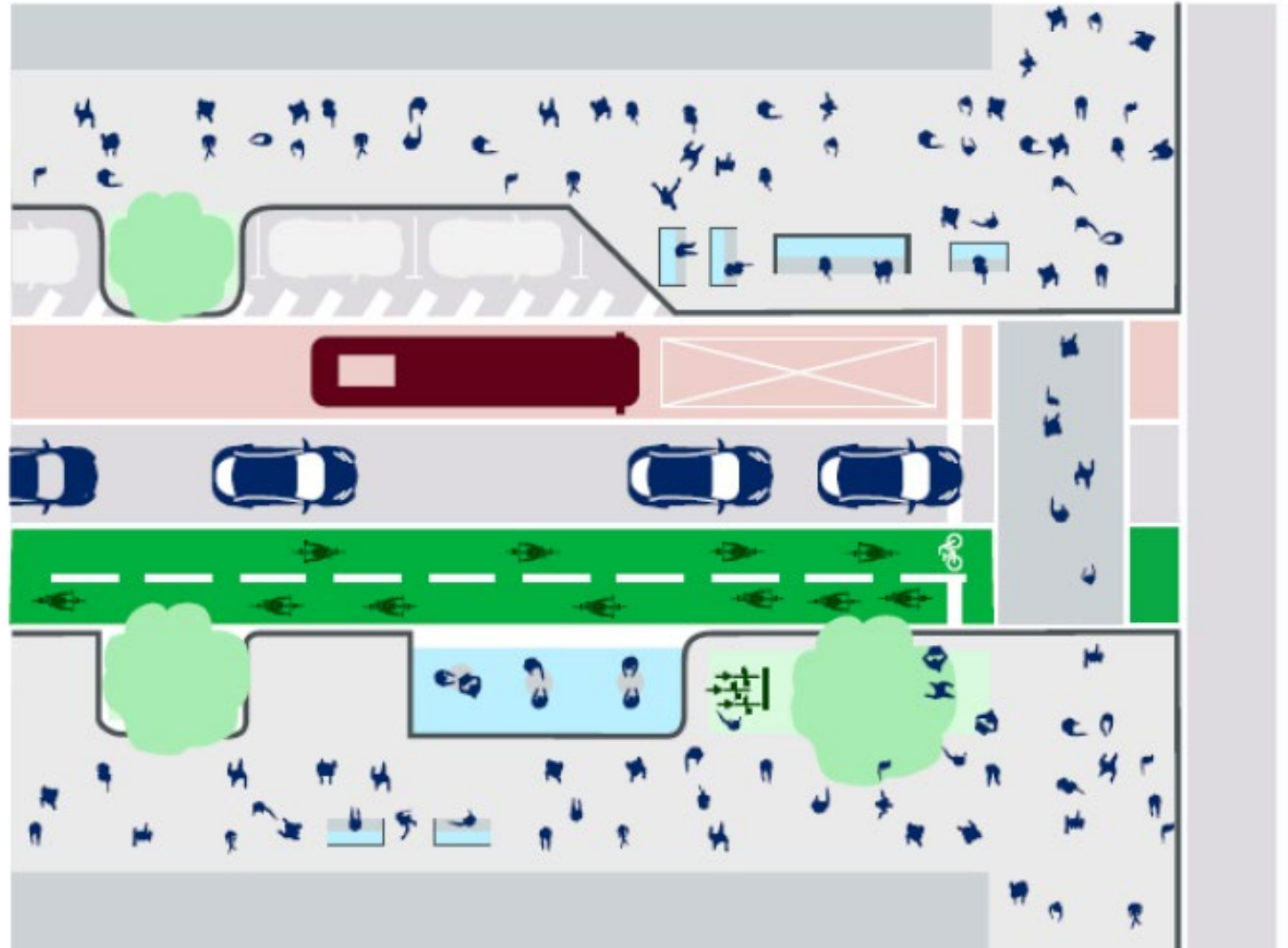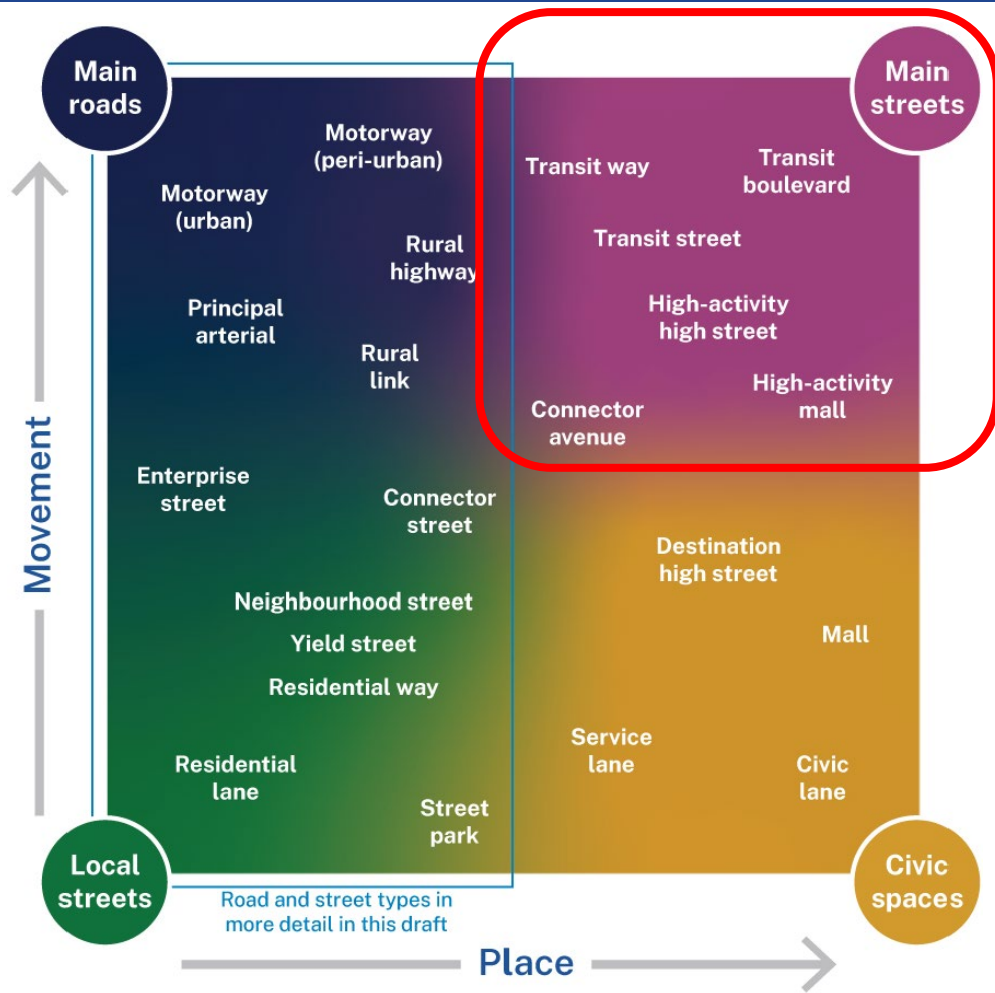**Office of International Programs**

Source: Transport for New South Wales

Linking Classification to Design Standards

Main streets						
	Transit way	**Transit boulevarde**	**Transit street**	**Arterial high street**	**High-activity mall**	**Connector avenue**
General						
Place contexts	Urban and Suburban	Urban Centre, Urban and Suburban	Urban Centre, Urban and Suburban	Urban Centre, Urban and Suburban	Urban Centre, Urban and Suburban	Urban Centre, Urban and Suburban
Land uses	Various urban land uses	Mixed uses	Medium to high density mixed uses	Mixed uses	Medium to high density mixed uses	Mixed uses
Built form frontages	Set back secondary frontages	Active retail frontages or other frontages set back	Active retail frontages or other frontages set back	Active retail frontages	Active retail frontages	Active retail frontages or other frontages set back
Access to properties	Option for direct pedestrian access to frontages, primary direct access to properties from adjacent streets	Direct pedestrian access to frontages with vehicle access to rear of properties	Direct pedestrian access to frontages with vehicle access to rear of properties	Direct pedestrian access to frontages with vehicle access to rear of properties	Direct pedestrian access to frontages with vehicle access to rear of properties	Direct
Posted speed (km/h)	60-90	60-70	30–40	40-50	30-50	40-60
Design speed (km/h)	60-100	60-80				
Active transport						
Level of active transport seperation from motor vehicles	Separated	Separated	Separated	Separated	Separated	Separated
Environment						
Tree canopy cover target[2]	Apply local council tree canopy targets	Apply local council tree canopy targets	Apply local council tree canopy targets	Apply local council tree canopy targets	Apply local council tree canopy targets	Apply local council tree canopy targets
Intersections						
Intersection type	At grade or separated	At grade	At grade	At grade	At grade	At grade
Kerb extensions at intersections and crossings	Where appropriate	Where appropriate	Required	Required	Required	Required
Continuous footpaths/ threshold paint on low volume side streets[3]	Use with caution	Use with caution	Use with caution	Required	Required	Required
Vehicles						
Buses	Yes	Yes	Yes	Yes	Where appropriate	Yes
Can check vehicle swept path cross the centreline at intersections?	No	No	Yes	No	Yes	No
Parallel car parking lane	n/a	Permitted	Use with caution	Use with caution	n/a	Permitted
Sight distance[4]	Greater than 50m	Greater than 50m	–	45	–	–

U.S. Department of Transportation
Federal Highway Administration

Office of International Programs

Source: Transport for New South Wales

Matching Speed to Context

Street types · · · · · · · ·

Road types · · · · · · · ·

Default speed limits

Built-up areas

All other roads

10　30　40　50　60　　　　100　110

Shared zones　Local traffic areas and school zones

Motorways

Other notable speed limits

Design speed matches posted speed

Design speed matches context

Design speed is 10km/h higher than posted speed
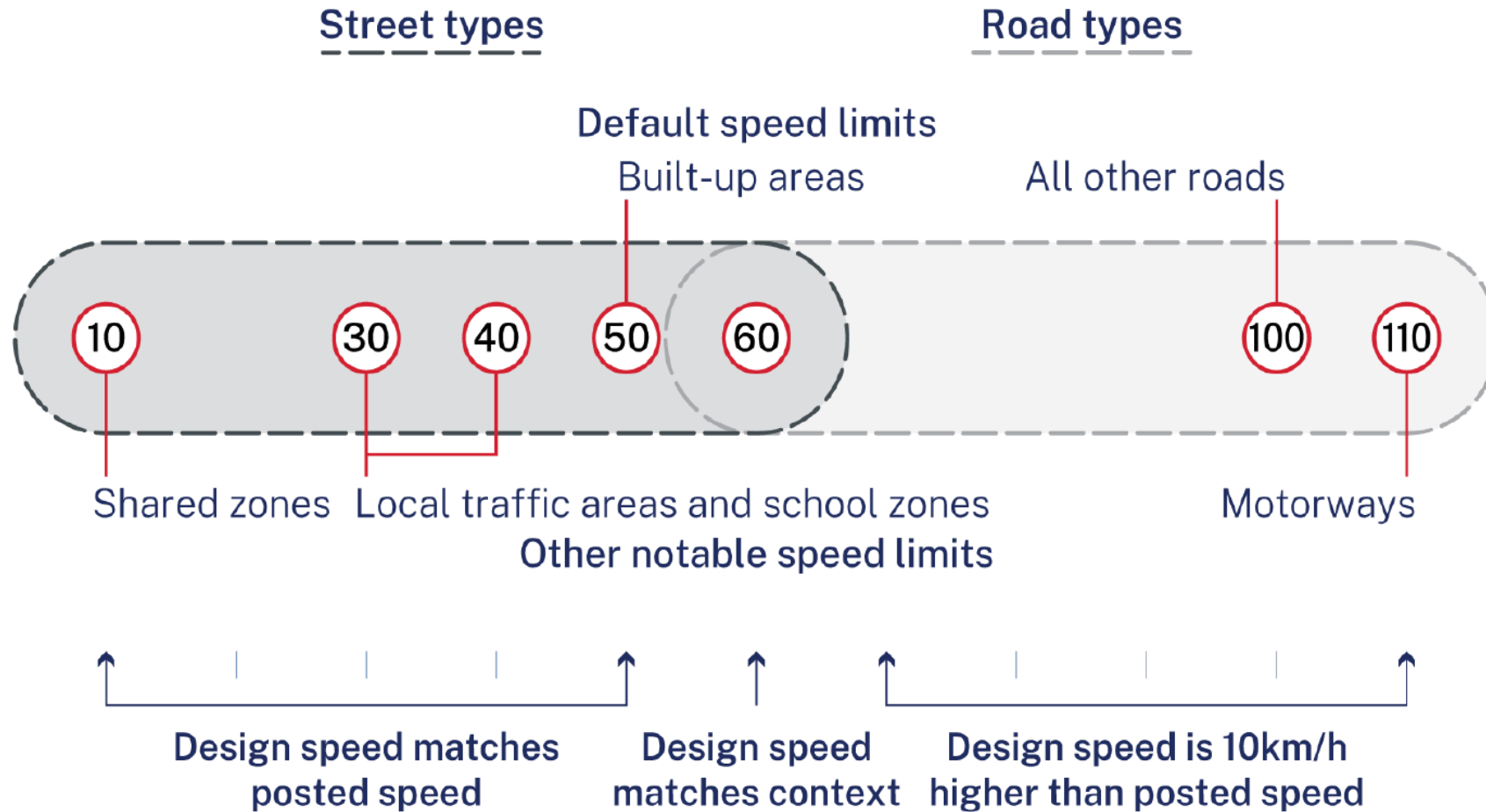
Each corridor may do many different jobs

Context 1
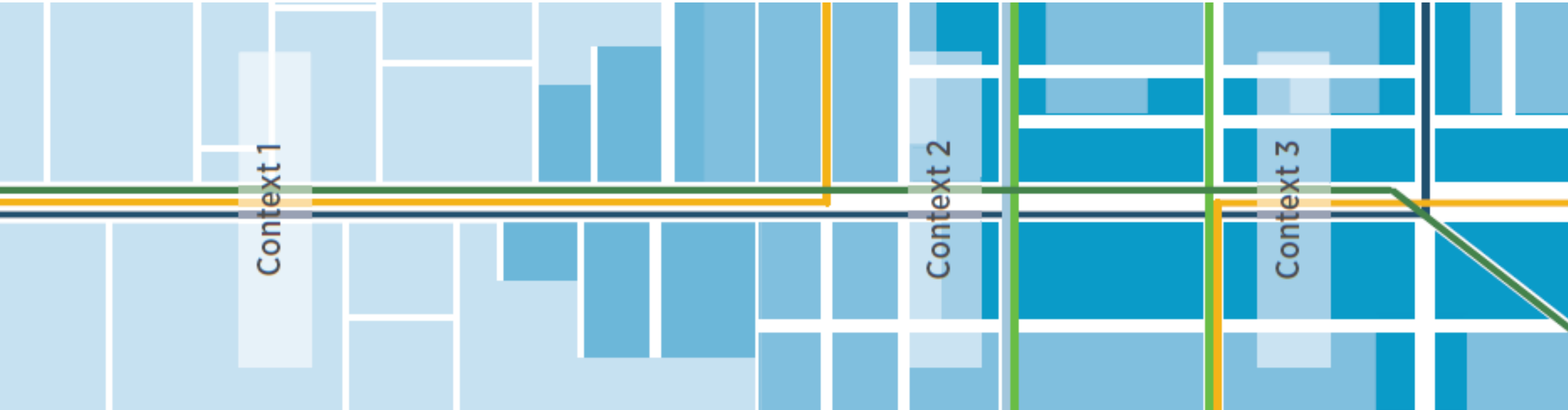
Context 2

Context 3

"Understanding how corridors change along their length in response to context is fundamental to the practice of street design."

Source: Auckland Transport

MacQuarie Street, Parramatta, NSW
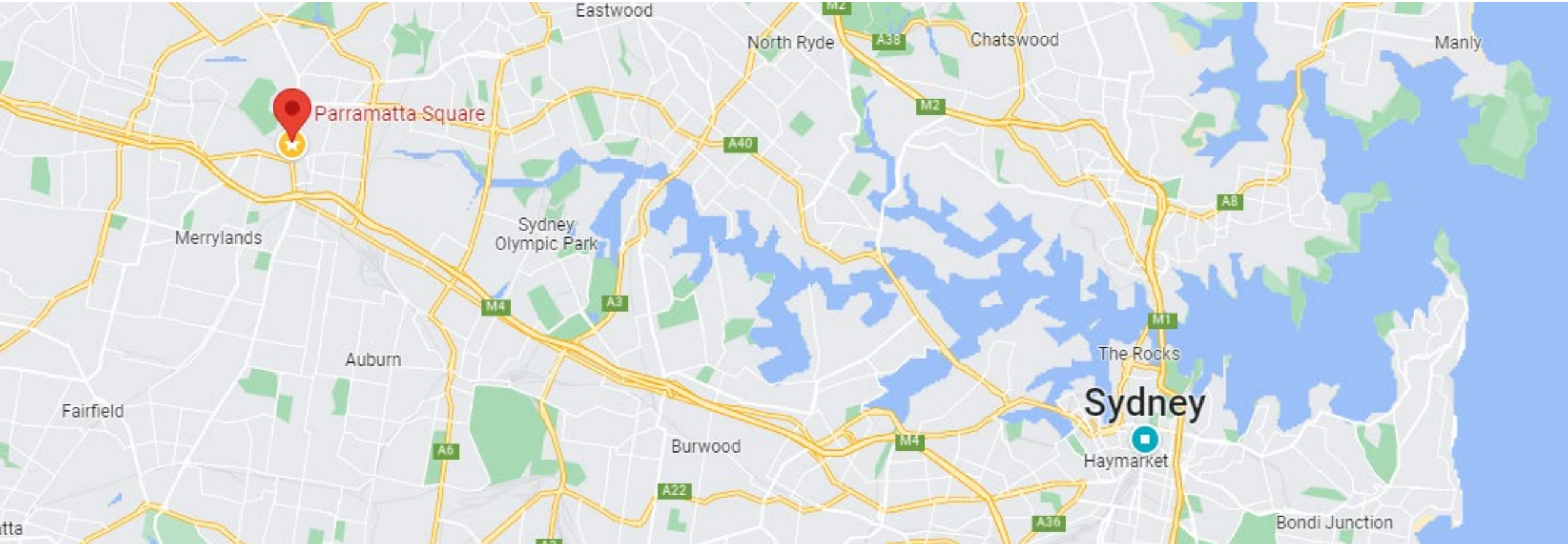
3 Lanes + parking @ 60km/h

3 lanes + parking @ 60km/h

Source: Google Streetview

3 lanes – 2 must divert left

Source: Google Streetview

1 lane – edge island neck down @ 40km/h

Source: FHWA, Google Streetview
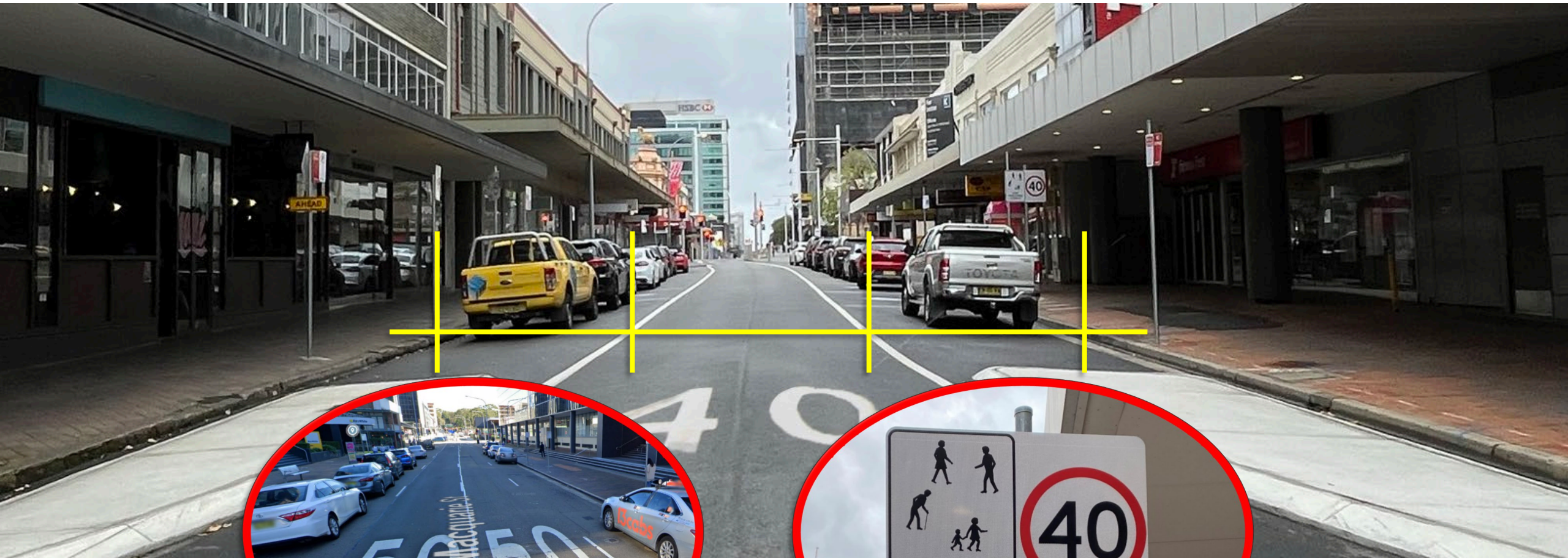
Continued traffic diversion with L/R turn lanes

RED LIGHT
SPEED
CAMERA
AHEAD

40

AHEAD

Repeated edge island treatments
(looking in reverse)

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

Source: FHWA

Church Street Light Rail Corridor

Source: FHWA

Church Street Light Rail Corridor

Source: FHWA

Public Engagement

Public Engagement

Public Engagement

Presentation for US Global Benchmarking practice webinar

Auckland's transport planning lifecycle

Our strategic transport planning framework at a high level

Unique situation in NZ – single transport entity responsible for almost all aspects of transport

Auckland Plan 2050
Primacy plan for Auckland region

Various council plans and strategies

Guides funding priorities

Govt. Policy Statement on Land Transport
Central Government transport strategic priorities

Auckland Transport Alignment Project
Council & Government agreement on transport priorities

Assesses investment options and develops preferred

Long Term Plan
Auckland Council budget

Guides funding priorities

Outlines future network and needs

Future Connect
The Auckland Transport integrated network plan

Details local funding share

Regional Land Transport Plan
Auckland's transport investment plan

National Land Transport Programme
National transport investment plan

Identifies Auckland programme

Guides

Roads and Streets Framework
The movement, place and modal priority framework

Guides

The Network Operating Plan
Process for operation of the network day-to-day

Guides

Funds projects / programmes for improvements

Determines projects or programmes to progress through

The business case, design (via Transport Design Manual) and delivery process

Network planning stream

Investment planning stream

Our strategic transport planning framework at a high level

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The business case, design (via Transport Design Manual) and delivery process

Network planning stream

Investment planning stream

In a simplified version....

Future Connect > Roads and Streets Framework > Transport Design Manual > Network Operating Plan

1 Future Connect

Future
Connect
2023

Main Report

First, Future Connect

The Network Plan

Our **big picture view of the region's transport system**:

- Our **strategic networks** for each mode of transport (both now and in 10-years' time)

- **Analysis** of the networks to identify issues and opportunities

- Recommended **Focus Areas** for investigation and investment over the coming decade

- (and a lot of supporting contextual data)

In short – tells us what is important on each road and what we need to do about it!

AT.govt.nz/FutureConnect

Our Strategic Networks

The most important routes for the movement of people and goods

cycling

walking

PT

general traffic

freight

Bringing them together
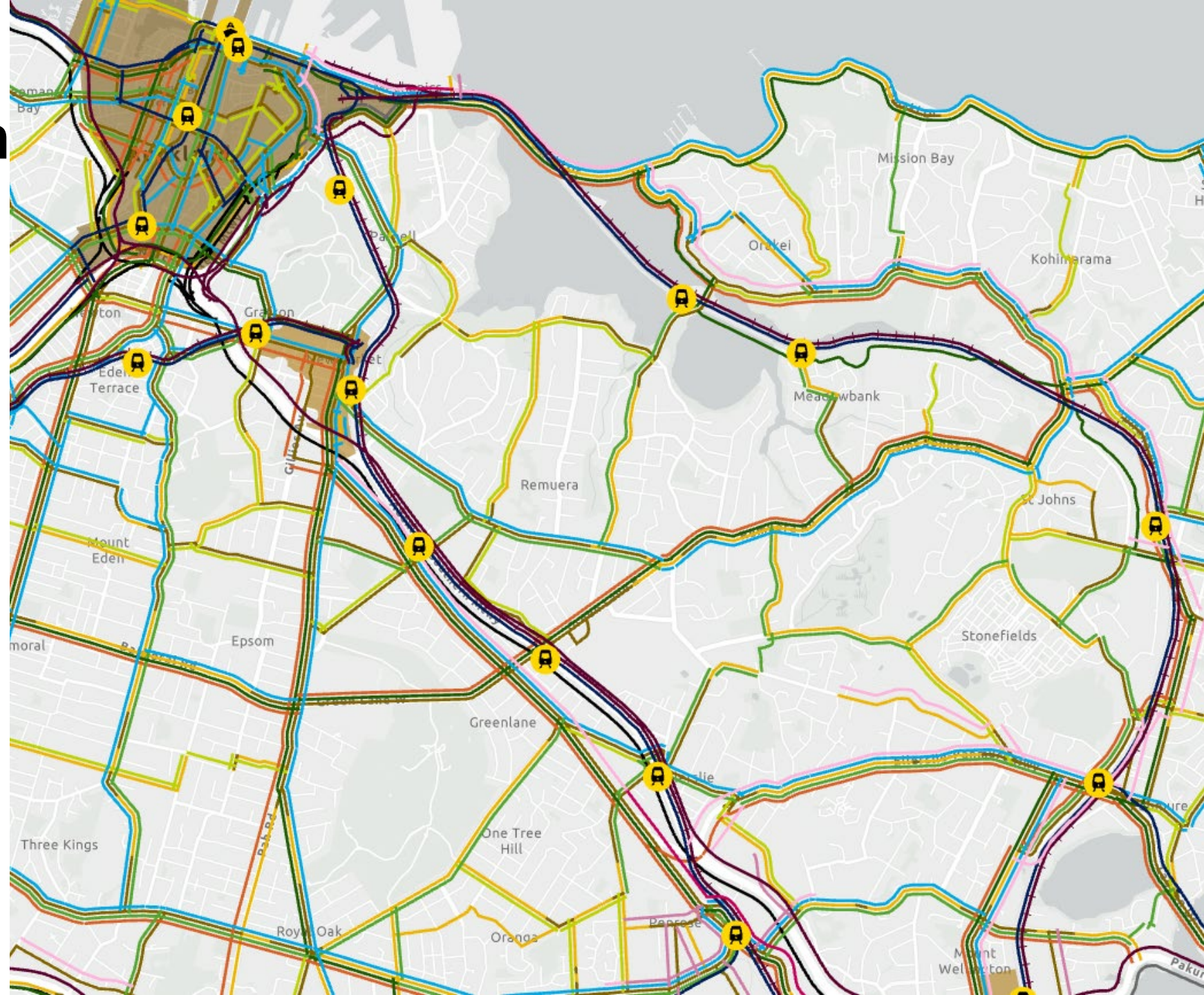
The system analysis

High level summary of data considered for each mode and problem

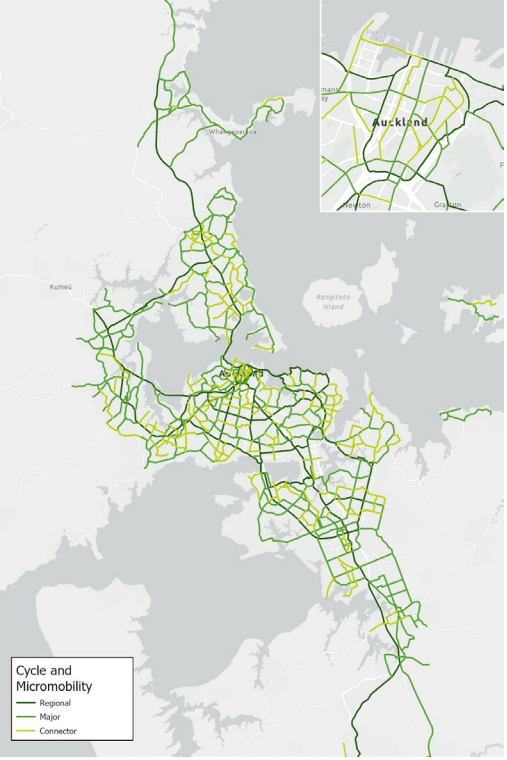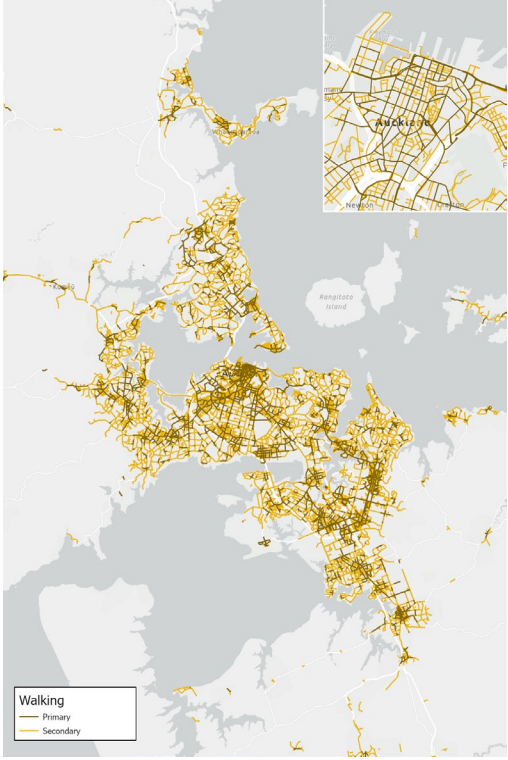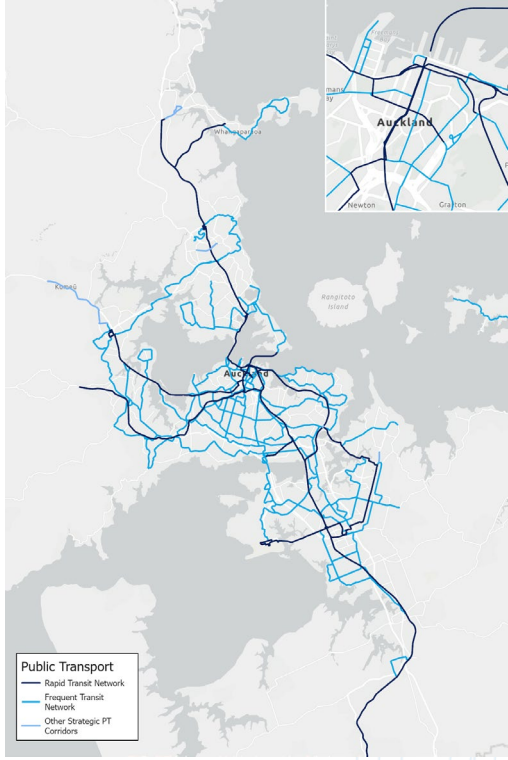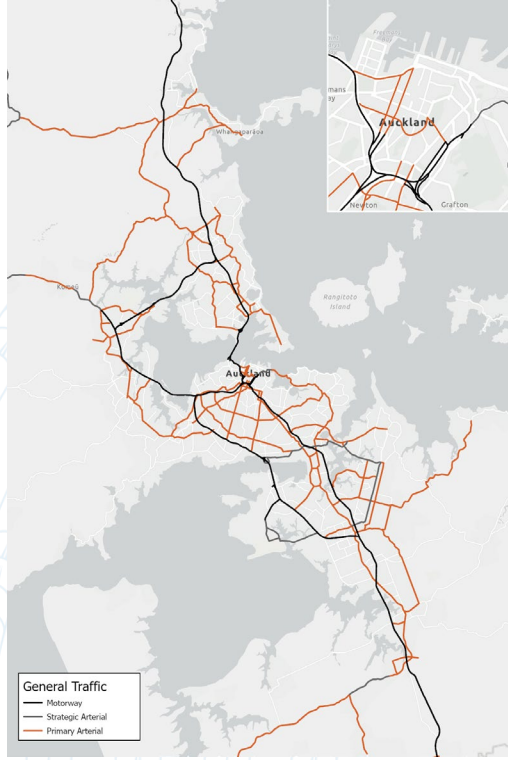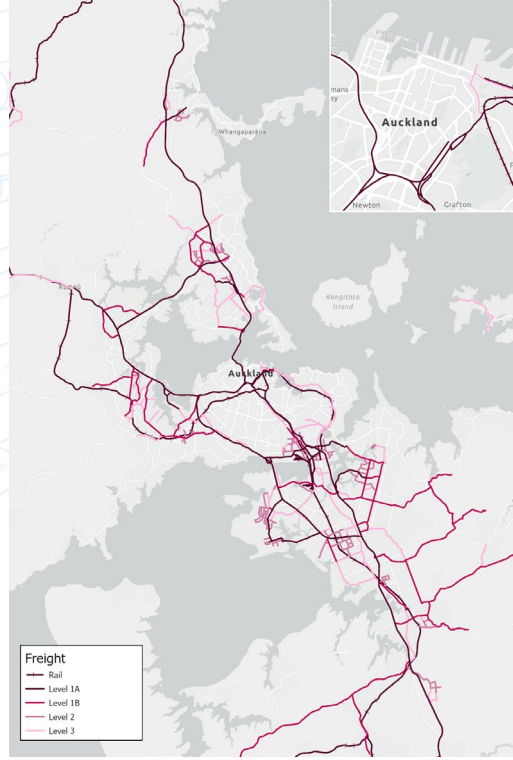| Public Transport	Walking	Cycling
Deficiencies • AM and PM Speed Level of Service • AM and PM Reliability Level of Service • Patronage/Capacity Ratio changes (forecast) **Opportunity** • Routes identified for service improvements in the RPTP	**Deficiencies** • Footpath width compared to TDM Standard • Distance between priority crossings on busy roads **Opportunity** • Footpaths inside intervention areas identified in the Walking Programme Business Case	**Deficiencies** • Unsafe or no facilities **Opportunity** • Routes without facilities in the catchment of centres, schools, RTN Stations • Routes without facilities connecting to built/committed facilities

General Traffic	Freight	Environment
Deficiencies • AM and PM Speed and Productivity Level of Service • AM and PM Reliability Level of Service • AM and PM volume/Capacity Ratio changes (forecast)	**Deficiencies** • AM and Interpeak Speed Level of Service • AM Volume/Capacity Ratio Changes (forecast) **Opportunity** • Routes with significant forecast freight volumes	**Deficiencies** • Untreated Stormwater Runoff • Coastal Erosion and flooding risk **Opportunity** • High place value areas with high heat vulnerability and few street trees.

• **Deficiencies:** where our customers or the environment experience outcomes that fall short of AT's strategic objectives, either now or in the future.

• **Opportunities**: where proactive improvement initiatives would likely achieve the highest impacts on customer experience, environment, or other strategic outcomes.

Safety
Deficiencies • Urban KiwiRAP Collective Risk • Urban KiwiRAP Active Road User Risk

A new element – transport equity

We are focusing on outcomes that are influenced by where people are living
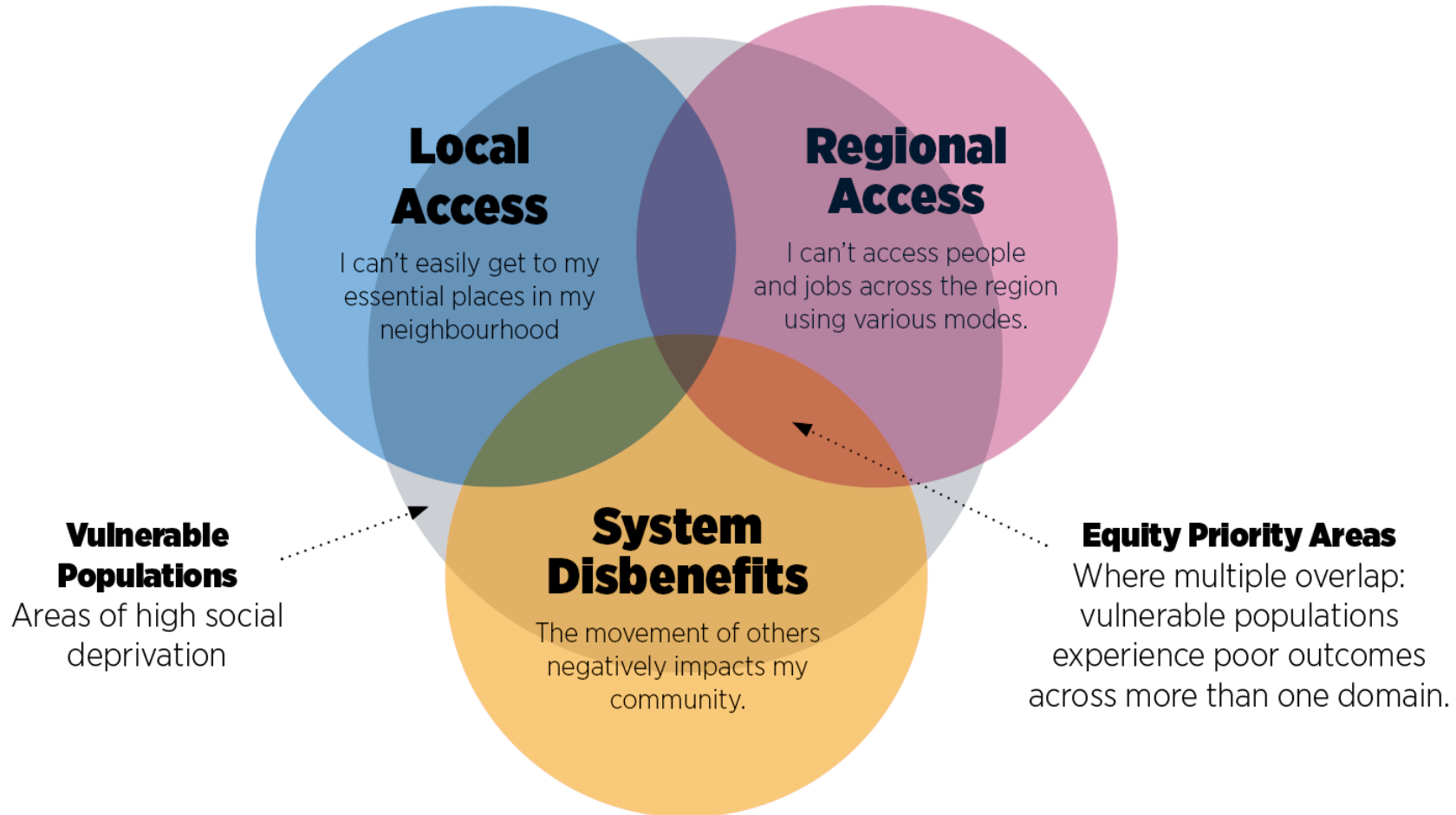
Future Connect Focus Areas

Bringing it all together, and informing our investment

- **Deficient Movement Patterns**
  - Key regional commuting flows reliant on congested motorways with little alternative options.

- **Multimodal Streets with Space and Safety Constraints**
  - Local Roads with significant land use interactions that are relied upon for many modes.

- **Major Destinations with complex transport interconnections**
  - Key hubs around the city where people work and study, and key transport networks interchange

- **Transport Deprivation Priority Areas**
  - Areas experiencing poor outcomes across two or three equity domains

Auckland's Transport Focus Areas

Key

Deficient Regional Movement Patterns
- High Deficiencies
- Moderate Deficiencies

Multimodal streets with space and safety constraints
- Urban Streets
- Industrial roads
- Urbanising roads

Major destinations with complex transport interconnections
- High Deficiencies
- Moderate Deficiencies

Transport Deprivation Priority Areas
- Poor outcomes across three equity domains
- Poor outcomes across two equity domains
- Strategic networks

2 Roads and Streets Framework

Roads and Streets Framework
VERSION 2
MAY 2020

RASF – the movement and Place framework for Auckland

Where we set our Movement level, Place level and relative modal priorities for each road

INFORMATION GATHERING   1

Place	Movement
Land use zoning	Road Hierarchy
Centre hierarchy	PT Network
Area Plans	Cycle Network
Structure Plans	Freight Network
Trip generators	Traffic Counts

TYPOLOGY ASSESSMENT FOR EXISTING AND FUTURE   2

Existing		Future	
What is the catchment?	What is the level of strategic importance?	What is the catchment?	What is the level of strategic importance?
P1 P2 P3	M1 M2 M3	P1 P2 P3	M1 M2 M3
PXMX		PXMX	

MODAL PRIORITY ASSESSMENT   3

Observed	What are the modal priorities for this road or street based on time and space allocation?
Optimal	What is the role of the road or street within the existing modal networks?
Future	What is the role of the road or street with future modal networks?

PREPARE RASF MANDATE   4

APPLICATION OF RASF AND TDM   5

For design development, business case or network operational planning

RASF – the movement and Place framework for Auckland

Where we set our Movement level, Place level and relative modal priorities for each road

Place is about:

- To what extent is this road/street (and its adjacent land use) a destination? i.e. how many people, and by how much of the region, travel here?

- For automated assessment we use land use zoning as a proxy. So high level places are hospitals, stadiums, ports, train stations etc.

- Lower-level places are houses / suburbia.

We assess the Place value as it is now, and then look ahead 10 years to see if it changes… so if a new hospital is being built there then the Place value will increase.

INFORMATION GATHERING		1
Place	**Movement**	
Land use zoning	Road Hierarchy	
Centre hierarchy	PT Network	
Area Plans	Cycle Network	
Structure Plans	Freight Network	
Trip generators	Traffic Counts	

TYPOLOGY ASSESSMENT FOR EXISTING AND FUTURE		2
Existing	**Future**	
What is the catchment? / What is the level of strategic importance?	What is the catchment? / What is the level of strategic importance?	
P1 P2 P3 / M1 M2 M3	P1 P2 P3 / M1 M2 M3	
PXMX	PXMX	

P1 – places only small number of local people go to

P2 – places a moderate number of people/goods travel do, from a sub-regional level

P3 – places large numbers of people/goods travel to, from all over the region

RASF – the movement and Place framework for Auckland

Where we set our Movement level, Place level and relative modal priorities for each road

Movement is about:

- To what extent is this road/street important for the movement of people / goods? i.e. is it an important link in the network for any mode?

- We use the Future Connect strategic networks for this – with the hierarchy guiding the level.

- If it is a high level in the hierarchy for even one mode, then it is high overall. A pedestrian mall in the centre of the City is high movement, a highway is high movement, a busway is high movement.

We assess the Movement value as it is now, and then look ahead 10 years to see if it changes… if there are changes to the strategic networks in that time then it will change the Movement value.

INFORMATION GATHERING		1
Place	**Movement**	
Land use zoning	Road Hierarchy	
Centre hierarchy	PT Network	
Area Plans	Cycle Network	
Structure Plans	Freight Network	
Trip generators	Traffic Counts	

TYPOLOGY ASSESSMENT FOR EXISTING AND FUTURE			2
Existing		**Future**	
What is the catchment?	What is the level of strategic importance?	What is the catchment?	What is the level of strategic importance?
P1 P2 P3	M1 M2 M3	P1 P2 P3	M1 M2 M3
PXMX		PXMX	

M1 – only local travel, nothing strategic

M2 – some lower level strategic travel occurring, including by multiple modes

M3 – corridors where important regional movement is occurring, across any mode
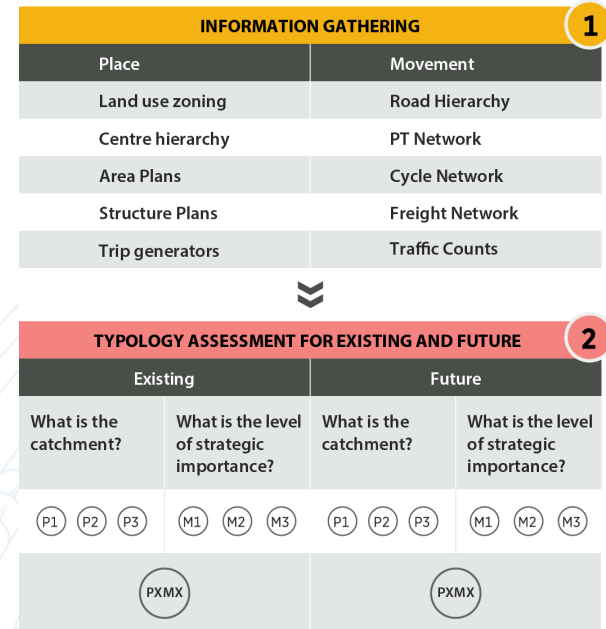
RASF – the movement and Place framework for Auckland

Where we set our Movement level, Place level and relative modal priorities for each road

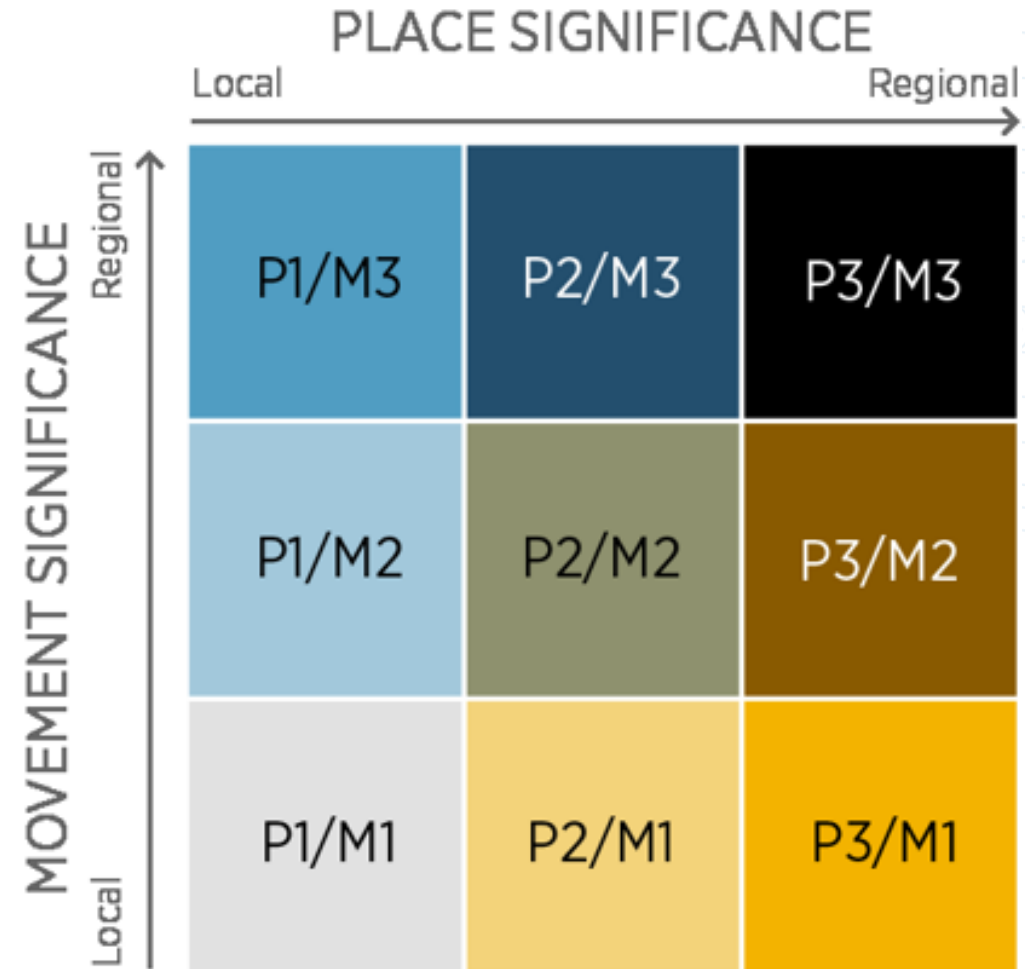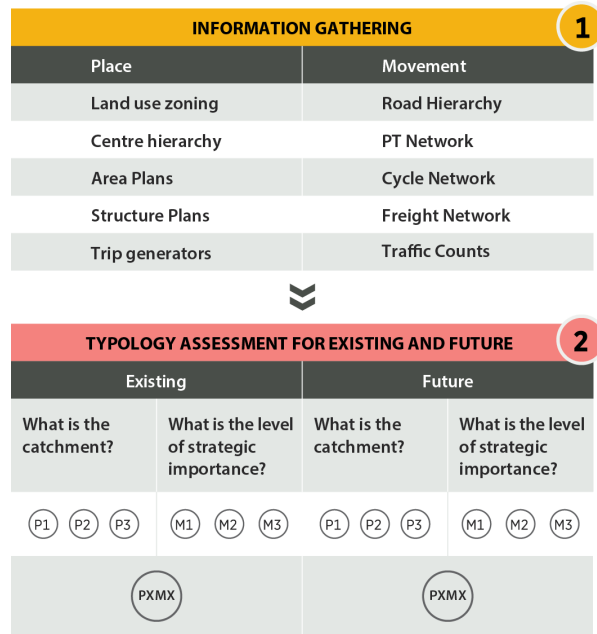Then you bring it together and determine a Movement AND Place value (current and future)

INFORMATION GATHERING	1
Place	**Movement**
Land use zoning	Road Hierarchy
Centre hierarchy	PT Network
Area Plans	Cycle Network
Structure Plans	Freight Network
Trip generators	Traffic Counts

TYPOLOGY ASSESSMENT FOR EXISTING AND FUTURE			2
Existing		**Future**	
What is the catchment?	What is the level of strategic importance?	What is the catchment?	What is the level of strategic importance?
P1 P2 P3	M1 M2 M3	P1 P2 P3	M1 M2 M3
PXMX		PXMX	

PLACE SIGNIFICANCE

Local → Regional

MOVEMENT SIGNIFICANCE (Local → Regional)

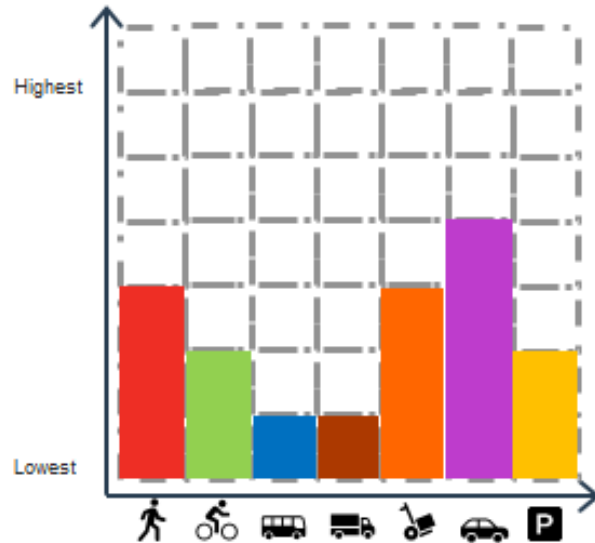|		
P1/M3	P2/M3	P3/M3
P1/M2	P2/M2	P3/M2
P1/M1	P2/M1	P3/M1

RASF – the movement and Place framework for Auckland

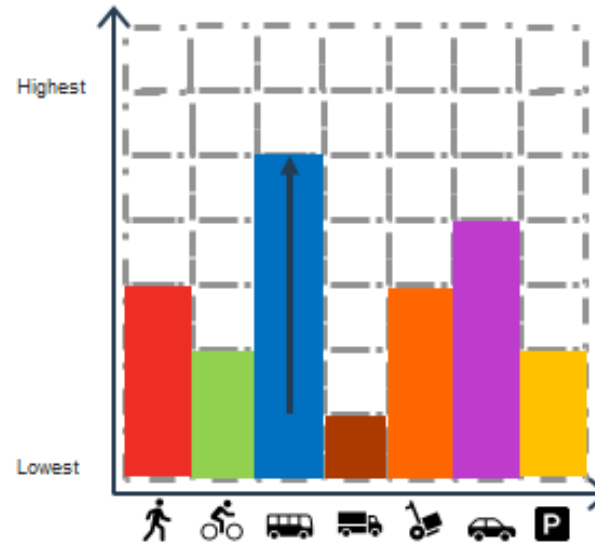**Where we set our Movement level, Place level and relative modal priorities for each road**

MODAL PRIORITY ASSESSMENT		3
Observed	What are the modal priorities for this road or street based on time and space allocation?	
Optimal	What is the role of the road or street within the existing modal networks?	
Future	What is the role of the road or street with future modal networks?	

RASF – the movement and Place framework for Auckland

Where we set our Movement level, Place level and relative modal priorities for each road

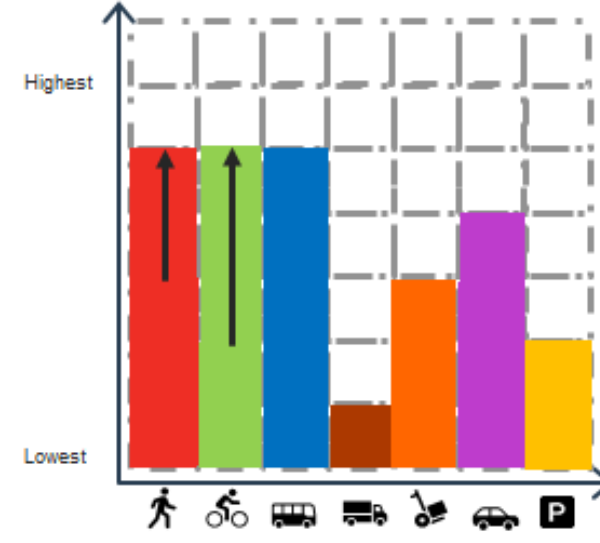|	
0	No access for this mode; explicitly prohibited
1	Legal access but no provision for mode/activity (usually active modes)
2	There is provision but unsafe or severely deficient
3	Basic but safe facilities provided, but deficient in some aspects
4	Basic standards are met, provision is continuous and safe
5	Provision is well considered, exceeding basic standards in places
6	Excellent consideration of mode, standards applied to high degree
7	Minimal conflict with other modes, like grade separation

Observed (out the window)

Optimal (magic wand ideal)

Future (optimal + time)

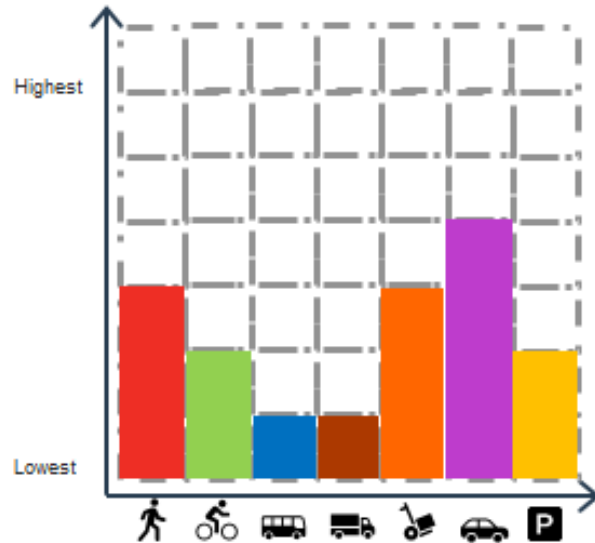# RASF – the movement and Place framework for Auckland

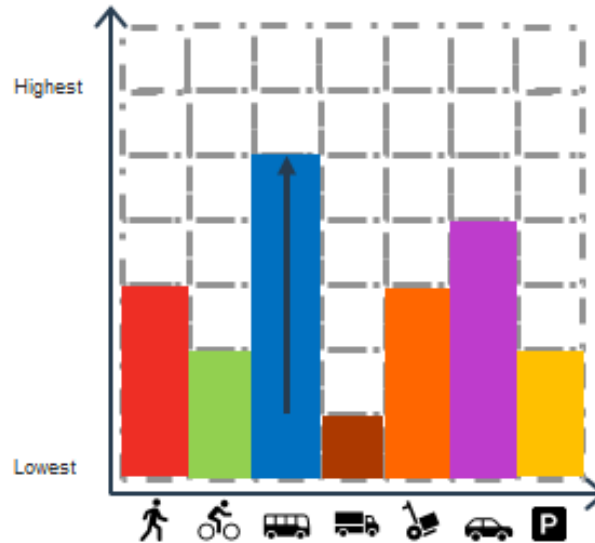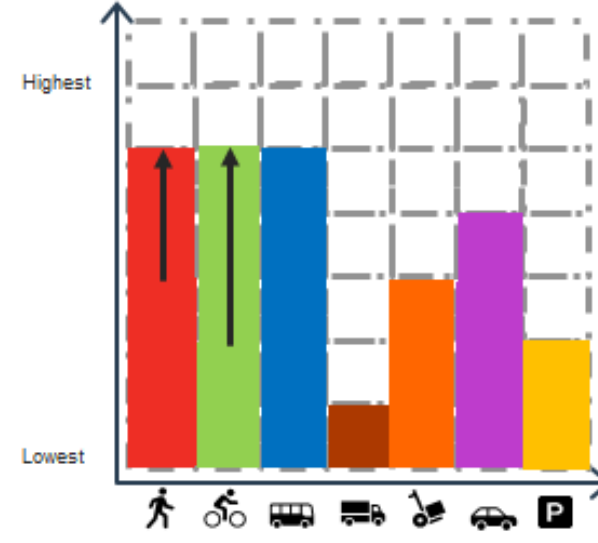**Where we set our Movement level, Place level and relative modal priorities for each road**

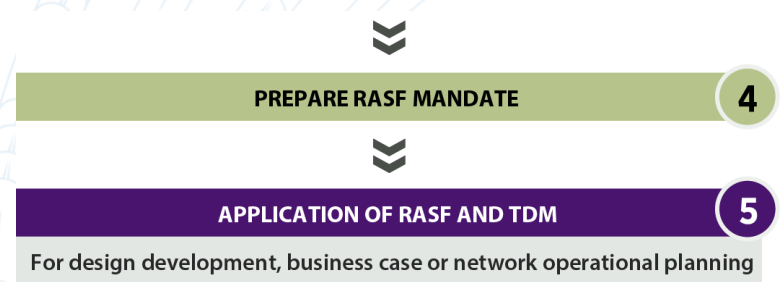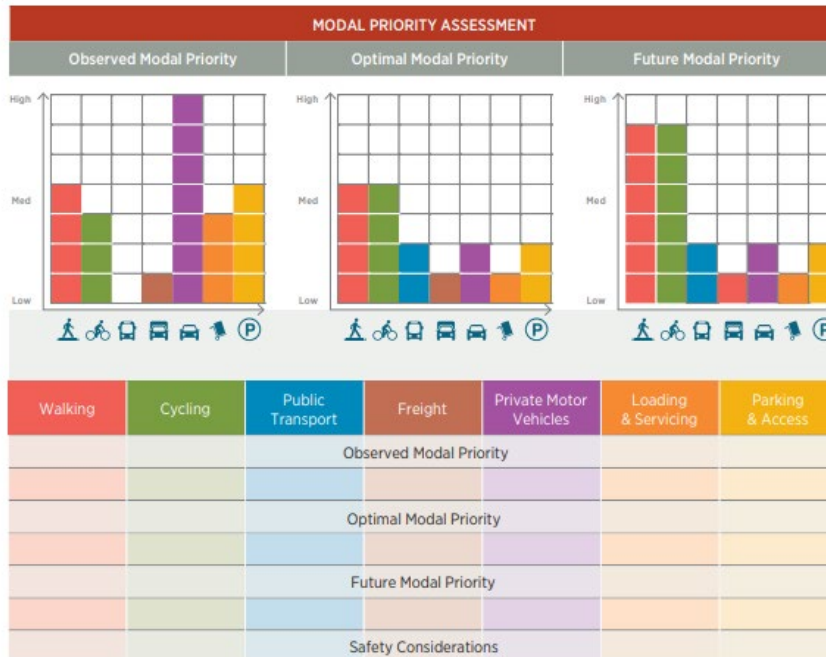|	
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6	Excellent consideration of mode, standards applied to high degree
7	Minimal conflict with other modes, like grade separation

Modal example…

Walking

Theme	Considerations
Facility type	Are there facilities? Are they on both sides of the road; or at least where the land-use requires it? Is the path direct?
Crossings and conflict points	Are there enough crossings along and across the road and at key locations (bus stops and major destinations)? If so, are they suitable (consider priority, distance, speed of road? Do intersections provide pedestrian crossings at each leg?
Dimensions	At least 1.8 metres wide, or 2.4 metres near major trip generators?
Degree of separation	Is there horizontal/vertical separation from moving traffic on high speed roads, and pedestrians at key pedestrian destinations?
Continuity	Is there a continuous and direct footpath? Are there obstacles on the path, such as utility boxes/poles?
Accessibility	Are there tactile pavers, or crossfalls/driveways/other obstacles that would be hazardous for people with a accessibility needs?
Safety (non-traffic)	Is there the footpath sufficiently lit, is there passive and active surveillance, so people feel safe?

RASF – the movement and Place framework for Auckland

Where we set our Movement level, Place level and relative modal priorities for each road

RASF – the movement and Place framework for Auckland

Where we set our Movement level, Place level and relative modal priorities for each road

3 Network Operating Plan

Application of the Auckland Network Operating Plan

Version 1 | August 2022

Turning strategy into reality

Our central approach to translating guidance provided by Future Connect and Roads and Streets Framework into on-the-network changes in the short term

Across five areas:

Operations performance monitoring

Network optimisation

Network fit assessments

Network operation

Temporary traffic management assessment

Turning strategy into reality

Our central approach to translating guidance provided by Future Connect and Roads and Streets Framework into on-the-network changes in the short term

Across five areas:

Operations performance monitoring

Turning strategy into reality

Our central approach to translating guidance provided by Future Connect and Roads and Streets Framework into on-the-network changes in the short term

Across five areas:

Network operation

Turning strategy into reality

Our central approach to translating guidance provided by Future Connect and Roads and Streets Framework into on-the-network changes in the short term

Across five areas:

Principles

- Promote walking in high pedestrian areas
- Promote cycle links to activity centres and designated routes
- Promote high priority on designated bus routes
- Promote the designated freight network
- Promote preferred traffic routes
- Specify requirements by time of day
- Promotes safe outcomes
- Support 'places' and activity centres
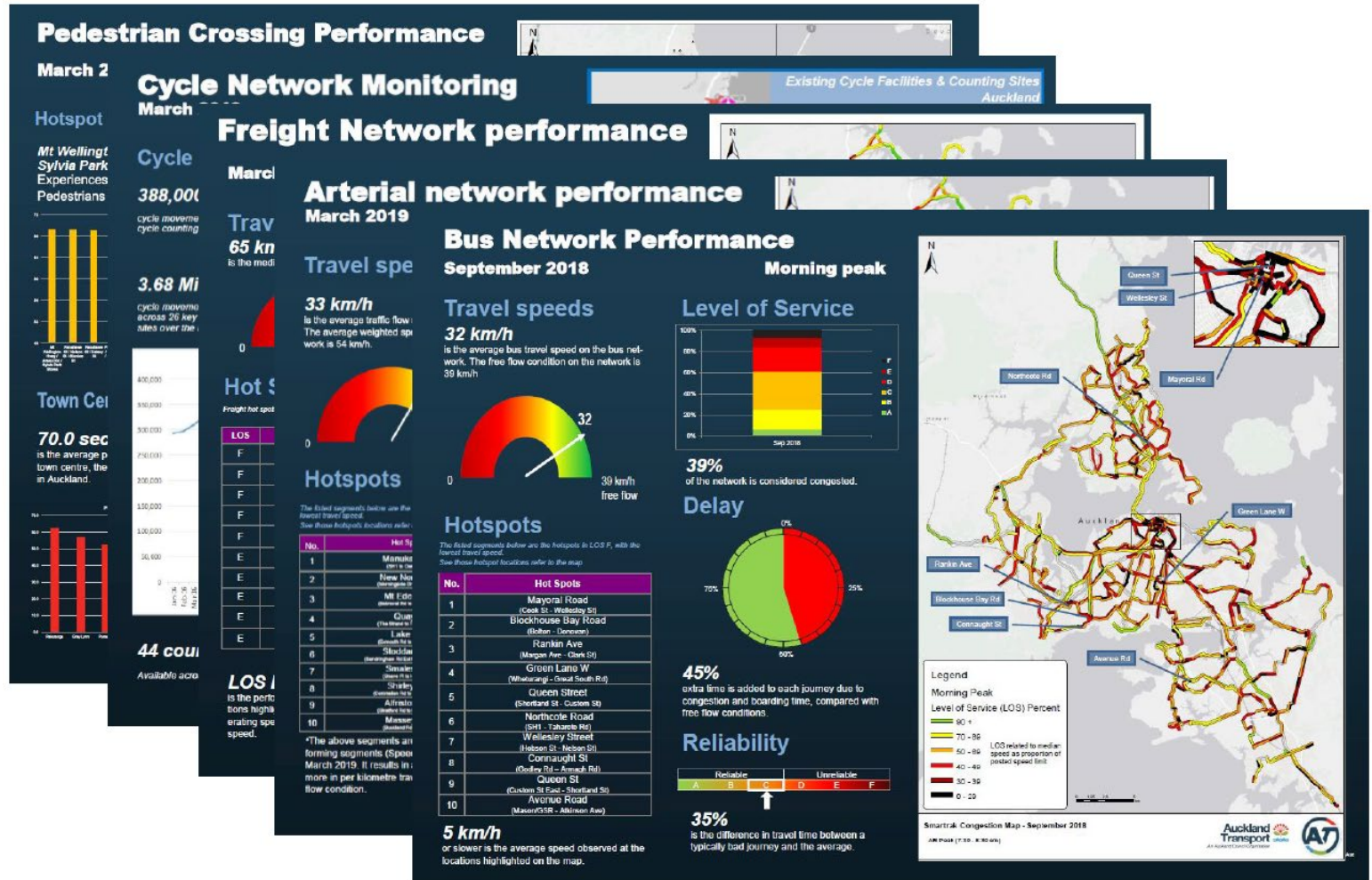
Network optimisation

Turning strategy into reality

Our central approach to translating guidance provided by Future Connect and Roads and Streets Framework into on-the-network changes in the short term

Across five areas:

User Experience

ACTIVE MODE		MOVEMENT/ THROUGHPUT FOCUSED MODE	
🚶	Walking	🚌	Bus / PT
🚴	Cycling	🚗	General traffic
		🚗	Freight

MEASURES	MEASURES
Physical facility Imposed delays	Journey time Journey time reliability

Network optimisation

USER / MODE		ASPIRATIONAL USER EXPERIENCE OR LOS	
🚶	Pedestrians	B/C	At high pedestrian demand locations and times
		C/D	At all other locations
🚴	Cycling	B	Within activity areas with cycle network connections
		B/C	On the strategic cycle network
🚌	Public Transport	B	On dedicated bus ways
		B/C	On frequent service network routes
		C/D	On remaining bus network
🚗	General traffic	C/D	On the strategic general traffic network during the commuting peaks
🚗	Freight	C/D	On key freight networks during the commuting peaks
		B	On key freight networks during the interpeak

Turning strategy into reality

Our central approach to translating guidance provided by Future Connect and Roads and Streets Framework into on-the-network changes in the short term

Across five areas:

Network optimisation

| LOS | Public Transport | |
	Travel Speed OR Delay	Travel Time Reliability
A	Average Travel Speed greater than 90% of Posted Speed Limit OR No delay	85th percentile journey time/ median journey time ≤ 1.1
B	Average Travel Speed greater than 70% of Posted Speed Limit OR Minimal delay	85th percentile journey time/ median journey time ≤ 1.3
C	Average Travel Speed greater than 50% of Posted Speed Limit OR Some midblock delay Stop at most intersections and clear next cycle No side friction	85th percentile journey time/ median journey time ≤ 1.5
D	Average Travel Speed greater than 40% of Posted Speed Limit OR Some midblock delay Stop at most intersections and clear next cycle Noticeable side friction	85th percentile journey time/ median journey time ≤ 1.7
E	Average Travel Speed greater than 30% of Posted Speed Limit OR Large midblock delay Stop at each intersection and take ≥2 cycles to go through Significant side friction	85th percentile journey time/ median journey time ≤ 2.0
F	Average Travel Speed less than 30% of Posted Speed Limit OR Significant midblock delay Significant delay at intersection	85th percentile journey time/ median journey time >2.0

Delay can be used when no travel speed information is available OR to supplement assessment of travel speed

Side friction: parking, bus stops, side roads, lack of enforcement

Midblock delay: pedestrian crossings

LOS can also be influnced by Quality of Service and should be considered.

Turning strategy into reality

Our central approach to translating guidance provided by Future Connect and Roads and Streets Framework into on-the-network changes in the short term

Across five areas:

Temporary traffic management assessment

Turning strategy into reality

Our central approach to translating guidance provided by Future Connect and Roads and Streets Framework into on-the-network changes in the short term
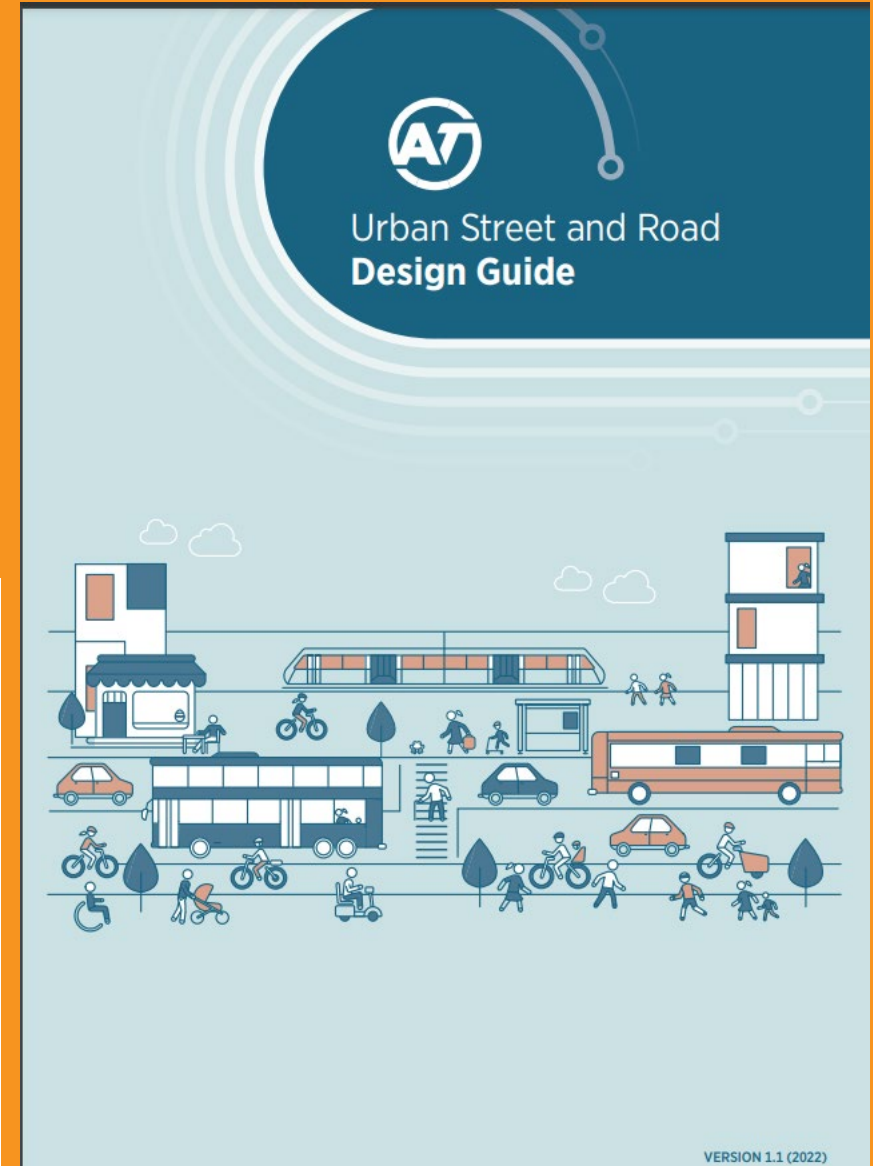
Across five areas:

ANOP assessment tool

Network fit assessments

4 Transport Design Manual

Our design guide – where we outline our expectations for transport system design

Principles-based, instructs how to design roads and streets to meet strategic modal priorities as outlined in earlier documents

System design: Movement through places

System design requires the designer to understand the components of a system and how they interact to result in an outcome.

Conventionally, design has focused on places and the constraints of vehicles operating within them. This does not lead designers to consider the whole human system, which is what this guide seeks to address.

The designer should think of the choices people can make – how they will use a place, where and when they will travel and how long their journey will be. This should determine what constraints to set on how various vehicles may be directed within the place, and how the place should be laid out to provide for people's actions.

PEOPLE
looking, deciding & acting

VEHICLES
to carry out their actions

PLACES
that they act within

People vary, and their actions depend on what they want to do, where they want to go. Design must consider the full range of people and behaviour that can be expected.

Vehicles are chosen by People – train, bus truck, car, bike, scooter, wheelchair. We include shoes as "vehicles", for people on foot – slips, trips and surface water are important design considerations.

Places provide opportunities and constraints for what People may do, and how their chosen vehicle may operate.

ENVIRONMENT

For any one of the people, the environment includes all the other people, their vehicles and the place that they share. How they see and understand the environment affects how they decide to act.

SAFE ACTIONS COME FROM A WELL-BALANCED SYSTEM

People have enough time to observe, decide and act

Their vehicles can respond to their actions

The place can guide their actions

Guiding principles

DESIGN FOR PEOPLE

People are the basic design unit for cities and liveable streets. Designing for people requires the understanding of how fast people move, how far they can see, and how they feel in different environments. In addition to transport considerations, designing for people takes into consideration the spatial scale, activities and interesting things that make places safe, attractive and lively.

DESIGN FOR SAFETY

The safety of all street users, especially the most vulnerable users (children, the elderly, and disabled) and modes (pedestrians and cyclists) should be paramount in any street design. The safety of streets can be dramatically improved through appropriate geometric design, facility design and transport operations. Safe System Assessment Framework must be used in design.

DESIGN FOR CONTEXT

For several decades, streets had been defined by their functional classification, which relates primarily to car flow. Today, streets are expected to reflect and support adjacent land uses. Well-designed streets promote appropriate speeds, modes and footpath activities. This context-sensitive approach considers and enhances the existing built, natural and heritage elements, seeking to reveal and celebrate a place's identity.

STREETS INFLUENCE OUR HEALTH

Aucklanders suffer from a deficit of physical activity, which plays a part in growing levels of chronic disease and obesity. Street designs can help people make healthy decisions by supporting walking, cycling and public transport. Street and neighbourhood design play a role in how people move around safely, in their exercise and activity levels, and personal well-being.

STREETS AS ECOSYSTEMS

Street design, including street trees and other green infrastructure, can improve water quality and improve watershed health. Green infrastructure can retain and reduce stormwater, which extends the life of the aging sewer system and makes it operate more efficiently. Green infrastructure brings nature into the city, which can improve both mental and physical health, increase amenity, improve air quality, conserve energy, and enhance habitat in urban areas that are increasingly intensified.

TE ARANGA PRINCIPLES

Te Aranga Māori Design Principles are founded on intrinsic Māori cultural values. They have arisen from a widely held desire by Māori to enhance their presence, visibility and participation in the design of the physical realm.
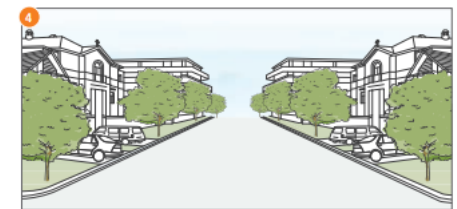
Centre streets

Green streets, rain gardens

Swale street

Green alley

Thank you

AT.govt.nz/FutureConnect

andrew.mcgill@at.govt.nz

One Network Framework

www.nzta.govt.nz/onf

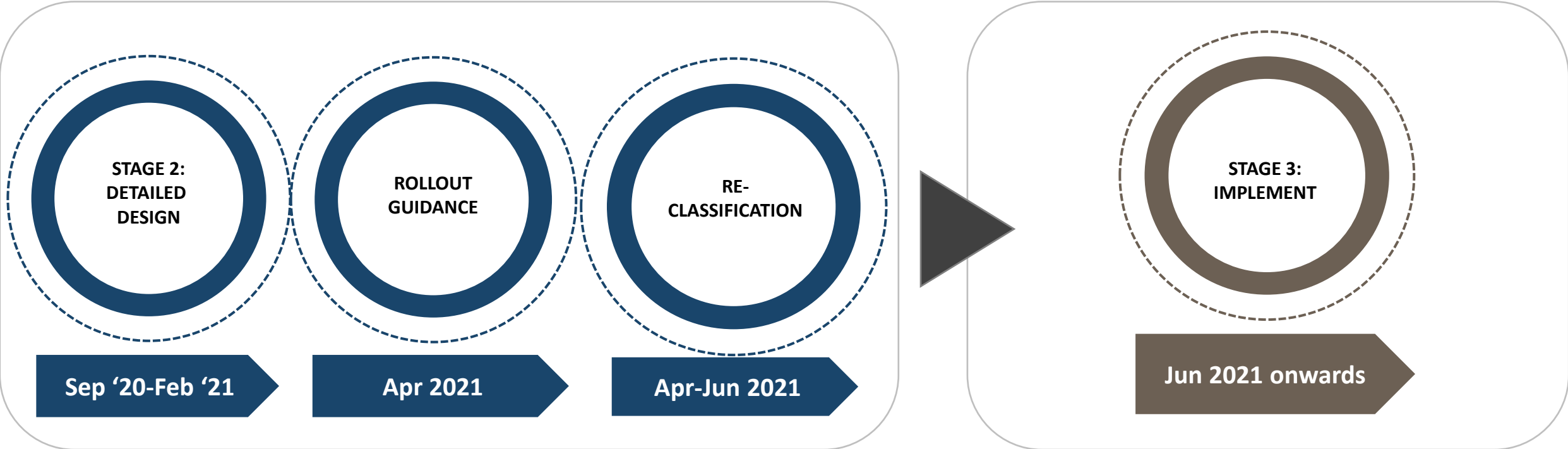WAKA KOTAHI
NZ TRANSPORT
AGENCY

One Network
Framework

Te Kāwanatanga o Aotearoa
New Zealand Government

How we've been doing it

The One Network Road Classification (ONRC) was based on the volume of vehicles on the network
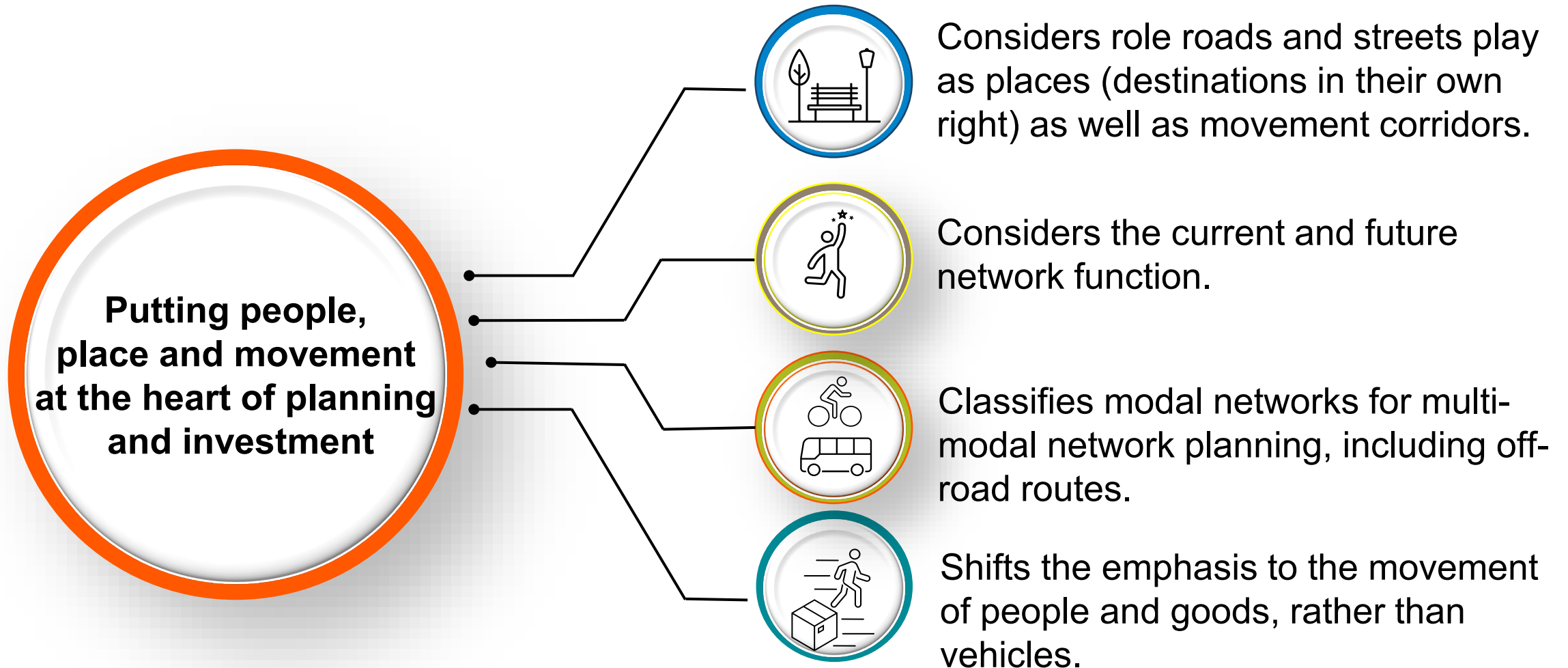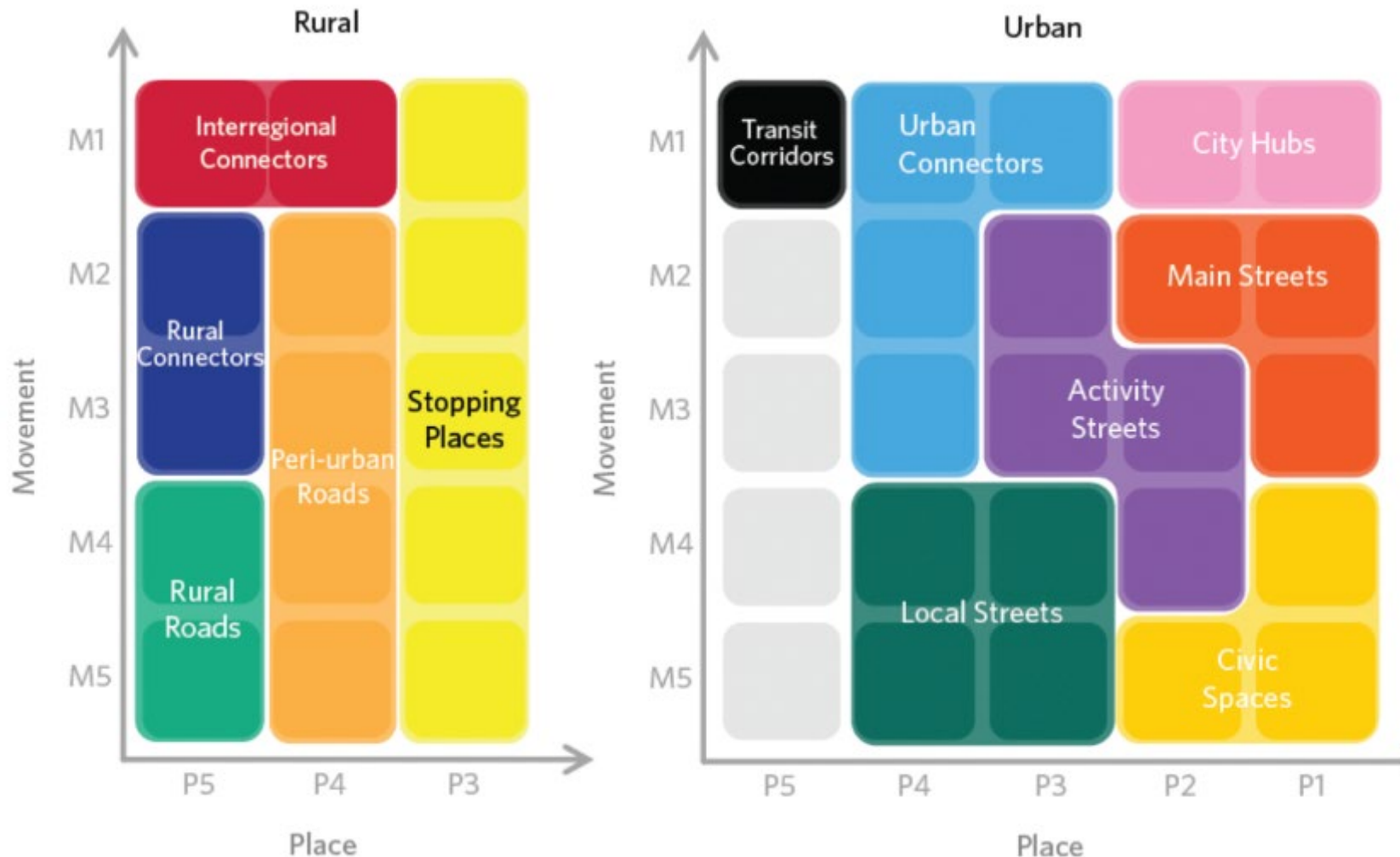

ACCESS

SECONDARY COLLECTOR

REGIONAL

PRIMARY COLLECTOR

ARTERIAL

NATIONAL

WAKA KOTAHI

Timeframes

STAGE 2: DETAILED DESIGN — Sep '20-Feb '21

ROLLOUT GUIDANCE — Apr 2021

RE-CLASSIFICATION — Apr-Jun 2021

STAGE 3: IMPLEMENT — Jun 2021 onwards

WAKA KOTAHI

How the ONF changes things

A shift in focus to people, place and movement

Putting people, place and movement at the heart of planning and investment

Considers role roads and streets play as places (destinations in their own right) as well as movement corridors.

Considers the current and future network function.

Classifies modal networks for multi-modal network planning, including off-road routes.

Shifts the emphasis to the movement of people and goods, rather than vehicles.

WAKA KOTAHI

Integration of movement and place

The ONF Street Classifications

Defining Place

- The extent to which the land use along the side of a road or street is a destination that people want to visit or spend time in.

- Relate to the on-street activity generated by adjacent land-use and its need for access.

- Be informed by adjacent land-use, and the density of activity occurring off-street.

Megamaps

Urban

- Commercial Big Box/Industrial
- Commercial Strip Shopping
- Urban Residential
- Controlled Access
- Rural Town

Rural

- No Access
- Rural Residential
- Remote Rural
- Urban Fringe

Defining Movement

The movement of people and goods along road and streets by any mode

- AADT

- ONRC classifications

Could also use:

  - Pedestrian counts

  - Cycling counts

  - Freight vehicle weights

  - Public Transport schedules

WAKA KOTAHI

Functions change along a corridor
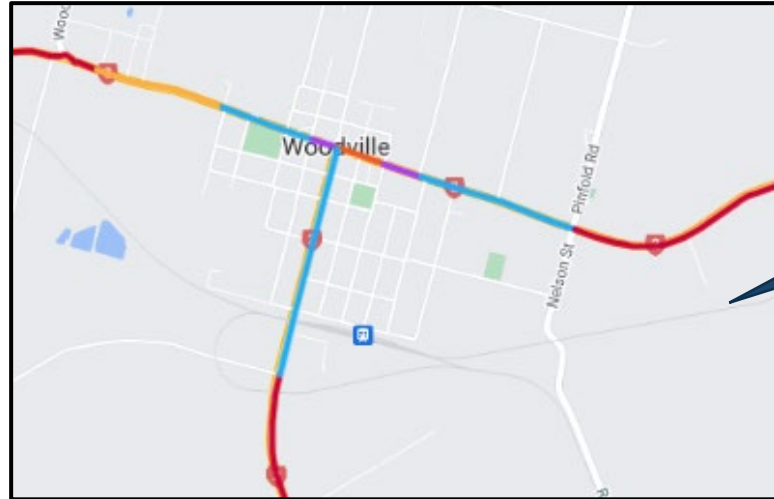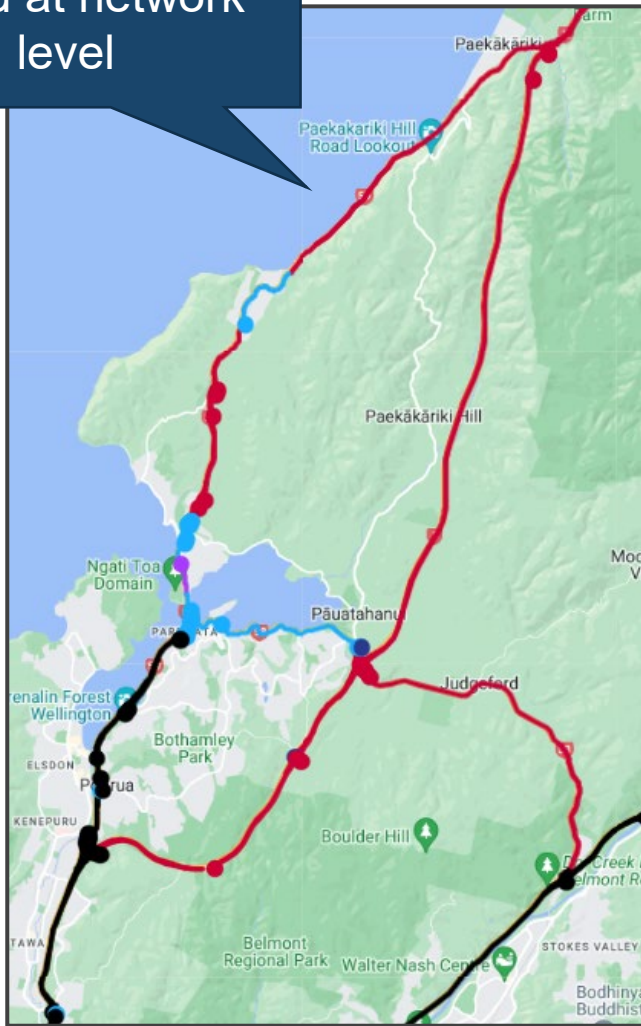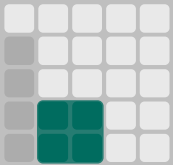
ONF on a Map

Used at network level
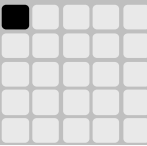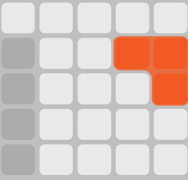
Demonstrates changes in functions traveling along a corridor
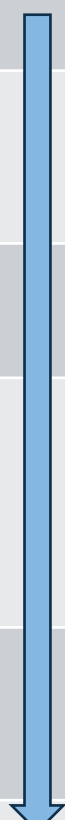
Detailed street information

ONF Walking #604
BLENHEIM RD 3 SOUTH
2206 - 2711 m
Movement Ran...   M2
Place Ranking   P4
Street Family   Urban
Street Category   Urban Connectors
Freight   F3
General Traffic   GT3
Walking   W2 - Walking Secondary
Cycling   C2 - Cycling Secondary
Public Transport   PT4 - PT Secondary

WAKA KOTAHI

Using ONF to determine Levels of Service – DRAFT

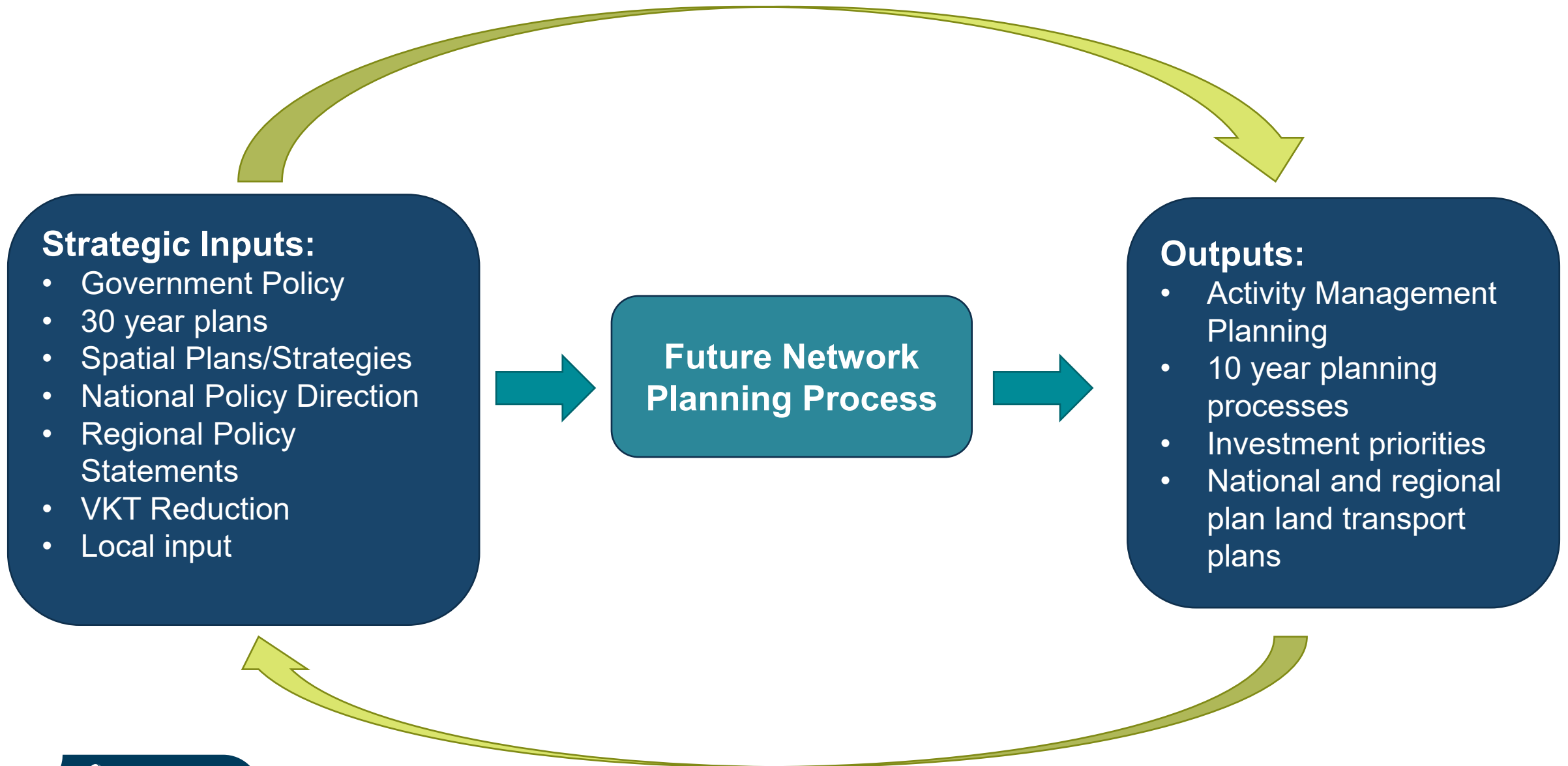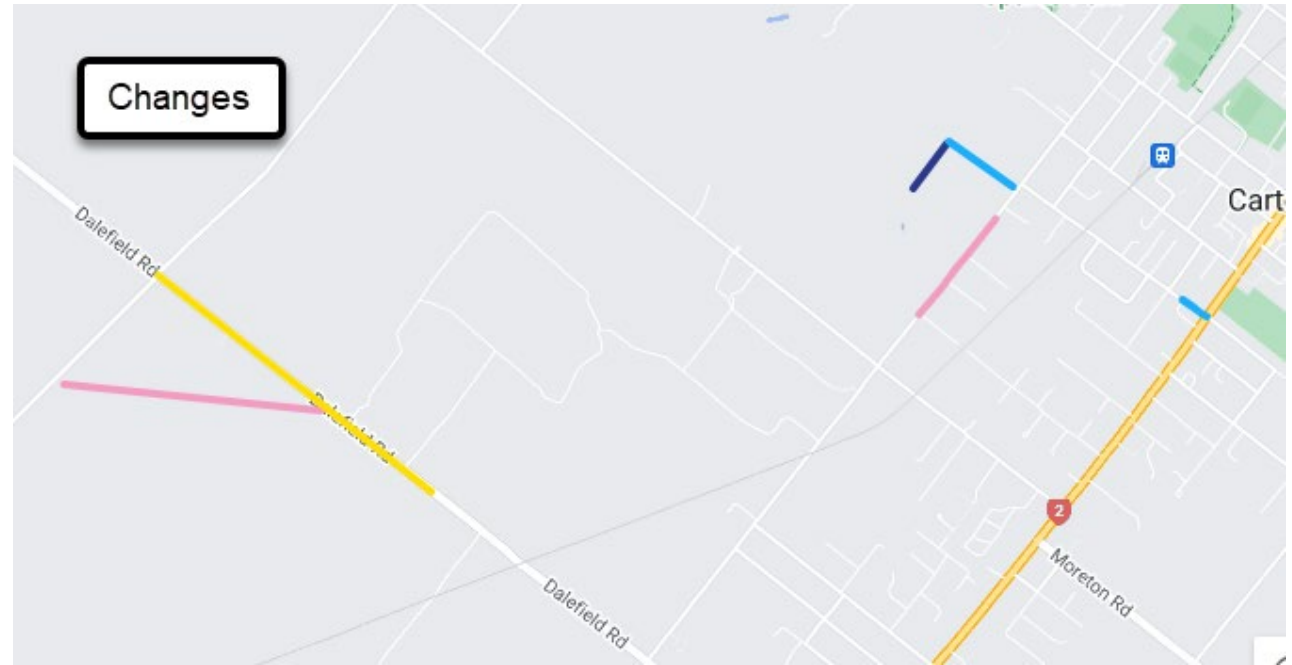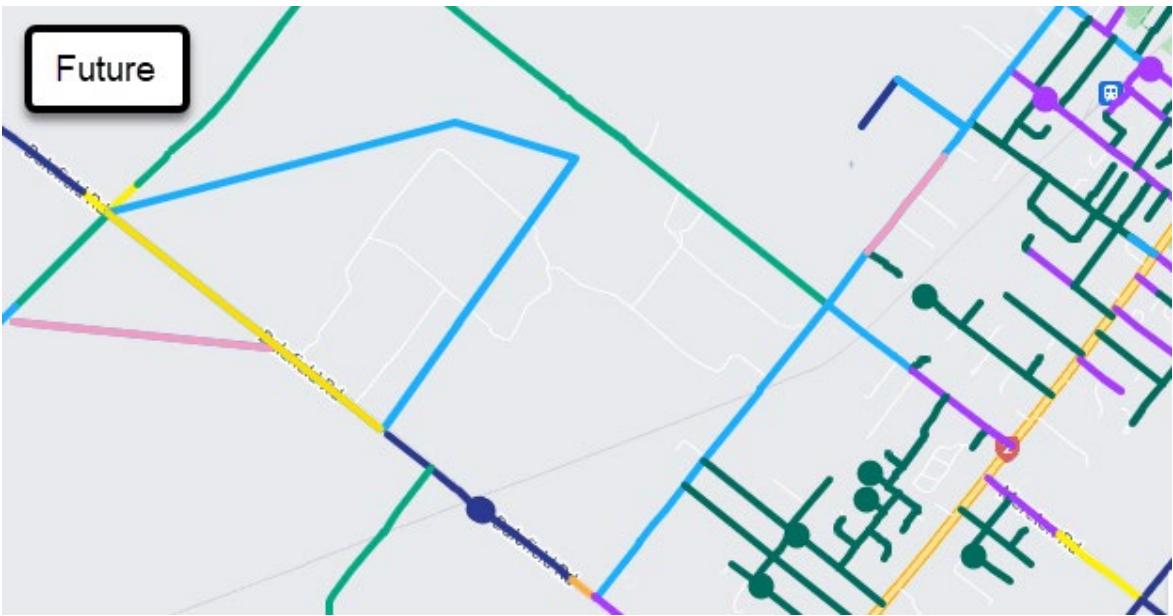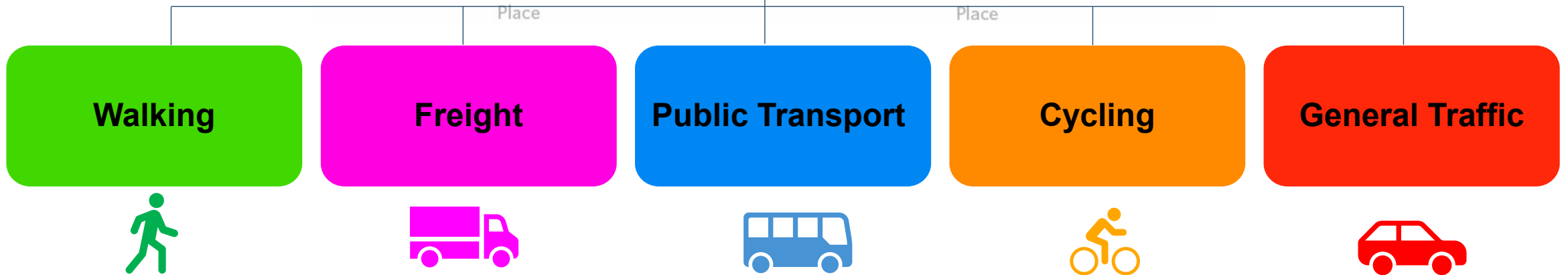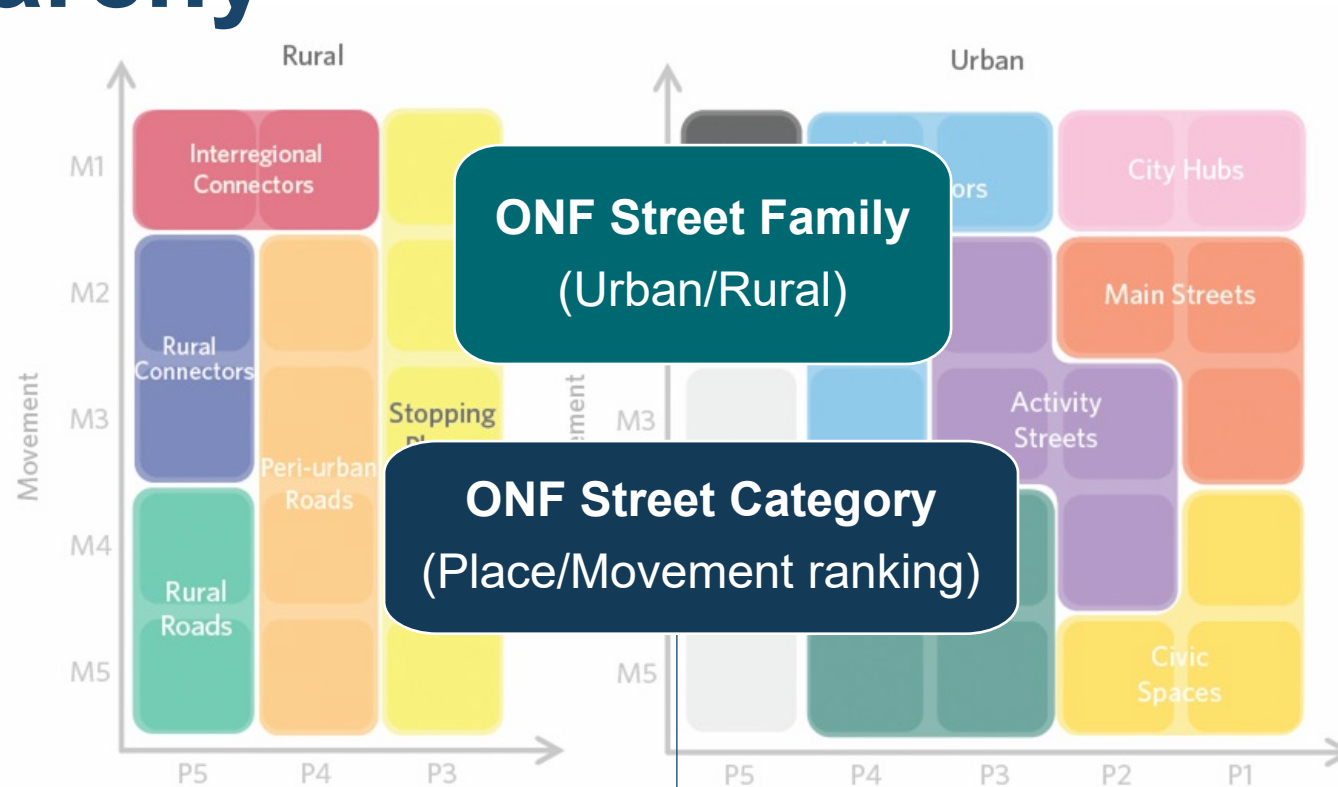| ONF Category	Mode	What's important for people that use this ONF category?	What is the desired Level of Service?	Whats the action from an activity/lever perspective? (examples)
Local Street	Walking	Footpaths are safe for all users	Safe space for pedestrians, streetlighting provides security	Place making initiatives
	Cycling	Footpaths and carriageways are safe for cyclists	Safe space for cyclists, streetlighting provides security	Cycling infrastructure
	Public Transport	Local access is available only	Maintain localised PT services	Only prioritise local access and coverage, or
	Freight	Access for courier light vehicles.	Heavy vehicles discouraged	
	General Traffic	Local use only	Accessibility is important, efficiency is not	Traffic calming initiative
Transit Corridor	Public Transport	PT services are frequent and reliable	PT given priority on rapid transit routes	Bus lane is required
	Freight	Efficient movement of Freight	High volume, higher speed reliable travel	Freight
	General Traffic	Travel is frequent and reliable	Roads are smooth and there is no congestion	
Inter Regional Connector	Public Transport	Efficient and reliable journey times	PT de-prioritised but can rely on predictable journey times	
	Freight	Freight moves efficiently	Freight is a priority	Freight lane or increased pavement cost
	General Traffic	Travel is frequent and reliable	Fast, safe and reliable long distance journeys	High road maint costs/emphasis
Main Street	Walking	Safe for all users	Reliable travel, access to services	
	Cycling	Its safe and reliable to cycle in these spaces	Reliable travel, access to services	Separated cycleway
	Public Transport	There is a choice of PT available to me	PT a priority for access to services	
	Freight	Goods delivery to businesses	Freight use for pickup/delivery of goods	
	General Traffic	Travel is reliable	Reduced speeds through these routes to create a safe space for active modes	

WAKA KOTAHI

Network Performance LoS - DRAFT

Performance	Level of Service	Public Transport	Walking	Cycling	General Traffic	Freight
Best	A	No route delay, always runs to timetable	Opportunities to cross within 25m. Minimal crossing delay	High degree of separation, minimal delay	No delay no variability	No delay no variability
	B	Minimal route delay and slight manoeuvring restrictions	Opportunities to cross within 50m. Average crossing delay is 30 sec	Well separated at mid block with some conflict at intersections	Minimal intersection delay	Minimal intersection delay
	C	Stops at every set of signals, within 5 min of timetable	Crossing within 100m. Average crossing delay is 45 sec	On-road bicycle lane	Stop at every set of signals	Stop at every set of signals
	D	Always joining the back of an existing queue at an intersection and take 2 signal cycles to clear	Crossing within 200m. Average crossing delay is 60 sec	On-road bicycle lane but no lane approaching major intersections	Always joining the back of an existing queue at an intersection and take 2 signals cycles to clear	Always joining the back of an existing queue at an intersection and take 2 signals cycles to clear
	E	Takes at least 3 signal cycles to clear intersection	Crossing within 400m. Average crossing delay is less than 90 sec	Bicycles share traffic lanes	take 3 signals cycles to clear intersection	take 3 signals cycles to clear intersection
Worst	F	Very low speeds, backups from downstream or right turning traffic ahead and significantly impacts traffic flow	Crossing opportunities are more than 400m from demand. Average crossing delay is more than 90 sec	No special bicycle facility	Very low speeds, backups from downstream significantly impacts traffic flow	Very low speeds, backups from downstream significantly impacts traffic flow

WAKA KOTAHI

Future Network Planning Process – overview

Strategic Inputs:
- Government Policy
- 30 year plans
- Spatial Plans/Strategies
- National Policy Direction
- Regional Policy Statements
- VKT Reduction
- Local input

Future Network Planning Process

Outputs:
- Activity Management Planning
- 10 year planning processes
- Investment priorities
- National and regional plan land transport plans

WAKA KOTAHI

ONF Hierarchy

Walking

Uses 4 levels of classification

| Class	Strategic Significance
W1 - Primary	The primary strategic walking network provides the backbone and is the most intensely used pedestrian network
W2 - Secondary	The secondary strategic walking network joins local roads to the primary strategic walking routes. They also support key local walking trips.
W3 - Supporting	The supporting network is the remaining part of the recognised walking network that typically links to W2.
WS - Special	These routes typically occur in the rural context and provide for recreation or tourism and so provide a reduced transport function. Includes rural parts of Te Araroa, DoC tracks.

Freight
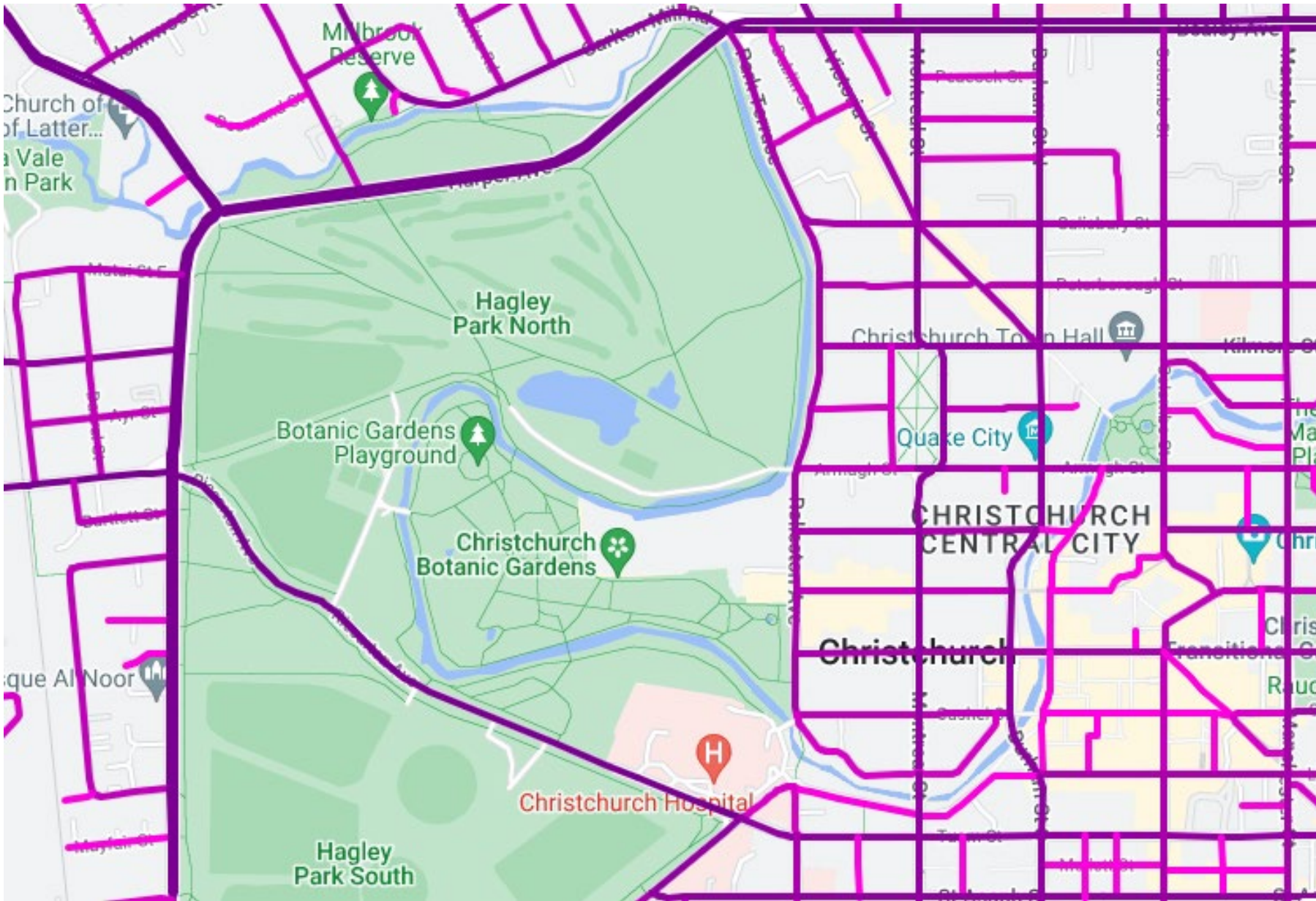
Public Transport
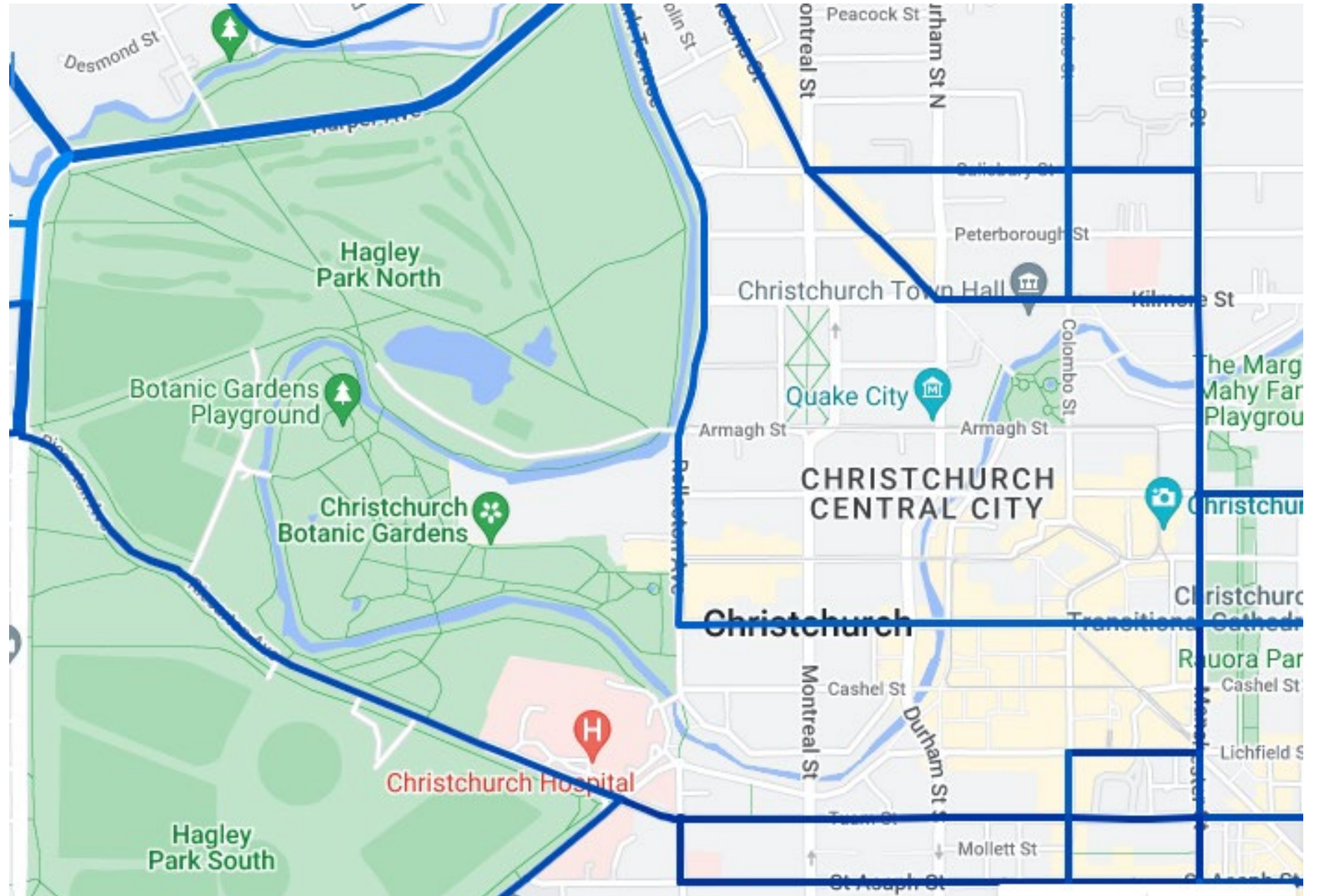
Walking

Includes Off-road

Speed Management Guide

ONF categories and speed limit ranges
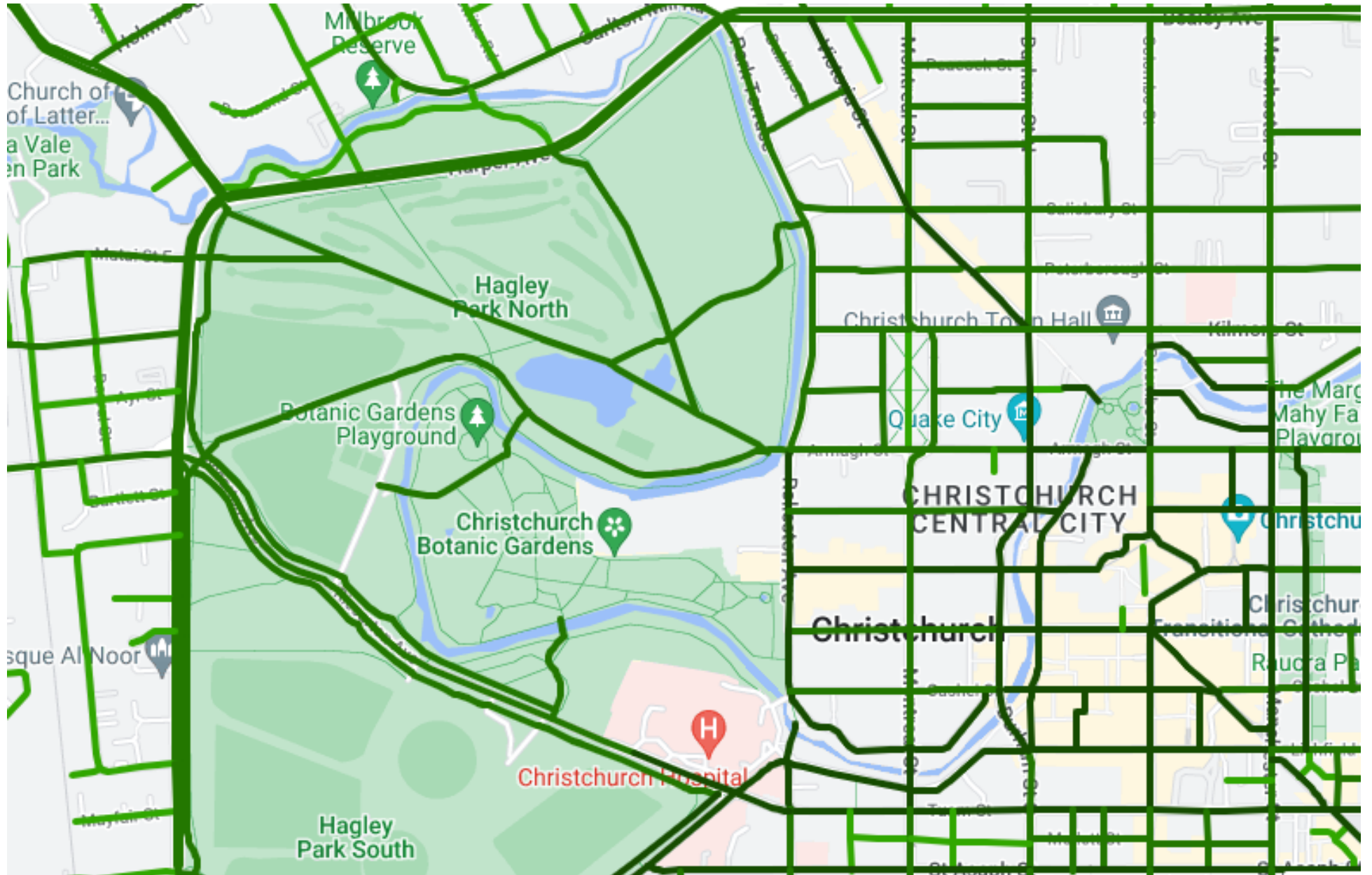
Implementation Goal Areas & Upcoming Webinars

Goal 1: Opportunities to integrate Movement & Place
- Context Classification @ State/Metro Planning (LRTP/MTP)
- AASHTO Green Book 8
- FHWA Resources

Goal 2: Opportunities to integrate RSA "transportation lifecycle process"
- State/Metro Process Integration
- AASHTO Safety Summit – Mid-October

Goal 3: Opportunities to integrate Speed Management
- FHWA / NCHRP Resources (USLIMITS 2, etc.)
- Speed Limit Setting Guidance
- Camera-based Enforcement

Movement & Place

Linking land use and transportation through context classification

Monday, October 2
2:30pm to 4:00pm ET

Road Safety Audit Process

Integrating safety auditing into all stages of the transportation lifecycle

Monday, October 23
2:30pm to 4:00pm ET

Speed Management

Policies and practices that achieve safe and appropriate vehicle speed limits and behavior

Tuesday, November 7
2:30pm to 4:00pm ET

U.S. Department of Transportation
Federal Highway Administration
Office of International Programs

pedbikeinfo
Pedestrian and Bicycle Information Center

TRB 103rd
ANNUAL MEETING
January 7–11, 2024 • Washington, D.C.

Sunday Workshop – Jan 7, 2024

U.S. DOT Funding Opportunities

FUNDING SAFETY FOR ALL.

FHWA encourages implementation of projects and programs that improve safety, equity, and accessibility for all road users. Take the first step toward exploring federal funding opportunities for your Complete Streets Network.

Federal Transit Administration Grant Programs

National Highway Performance Program

Surface Transportation Block Grant Program

Bridge Replacement and Rehabilitation Program

Highway Safety Improvement Program

Congestion Mitigation and Air Quality Improvement Program

Bridge Investment Program

Transportation Alternatives

Carbon Reduction Program

Tribal Transportation Program

Metropolitan Planning Funds

PROTECT

Railway-Highway Crossing Program

Statewide Planning and Research

Recreational Trails Program

Bridge Formula Program

Railroad Rehabilitation & Improvement Financing

TIFIA Program

Federal Lands and Tribal Transportation Programs

Tribal Transportation Program Safety Fund

ATTAIN

RAISE Discretionary Grants

INFRA Grants

Safe Streets and Roads for All Grants

Transit Oriented Development

Reconnecting Communities Pilot Program

Areas of Persistent Poverty Program

National Scenic Byways Program

Active Transportation Infrastructure Investment Program

https://highways.dot.gov/complete-streets/make-complete-streets-default-approach

Q&A

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Discussion

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