



Accessibility auditing

By John Lieswyn
March 2025



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Pedestrian network guidance

This guidance provides best practice for planning, designing and creating walkable communities throughout New Zealand.



[Walking in New Zealand →](#)



[Planning →](#)

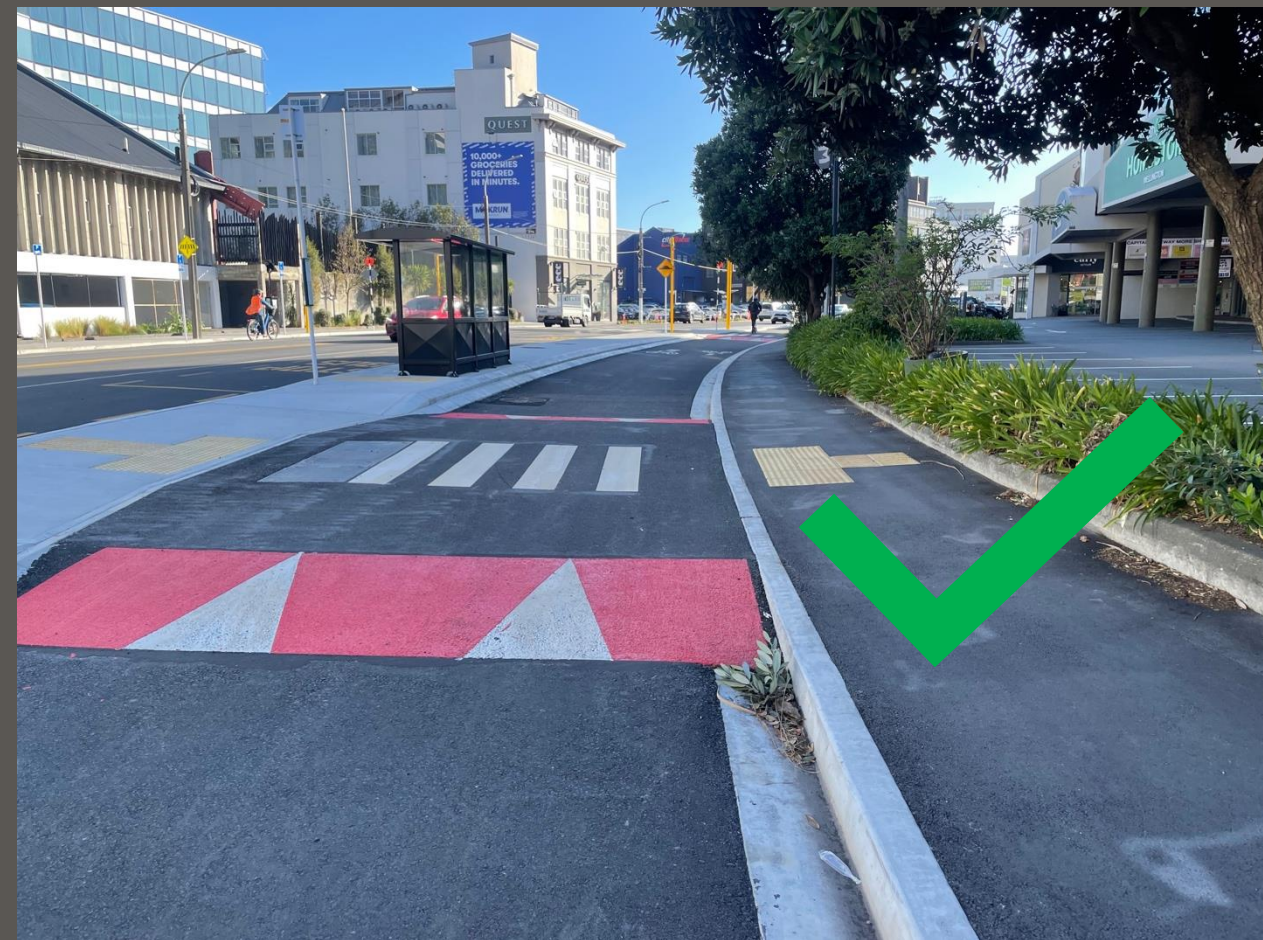


[Design →](#)

Evolving best practice

red doesn't go here

either side of crossing



Public transport design guidance

This is draft guidance for designing high-quality, people-focused public transport throughout New Zealand.

Bus stop

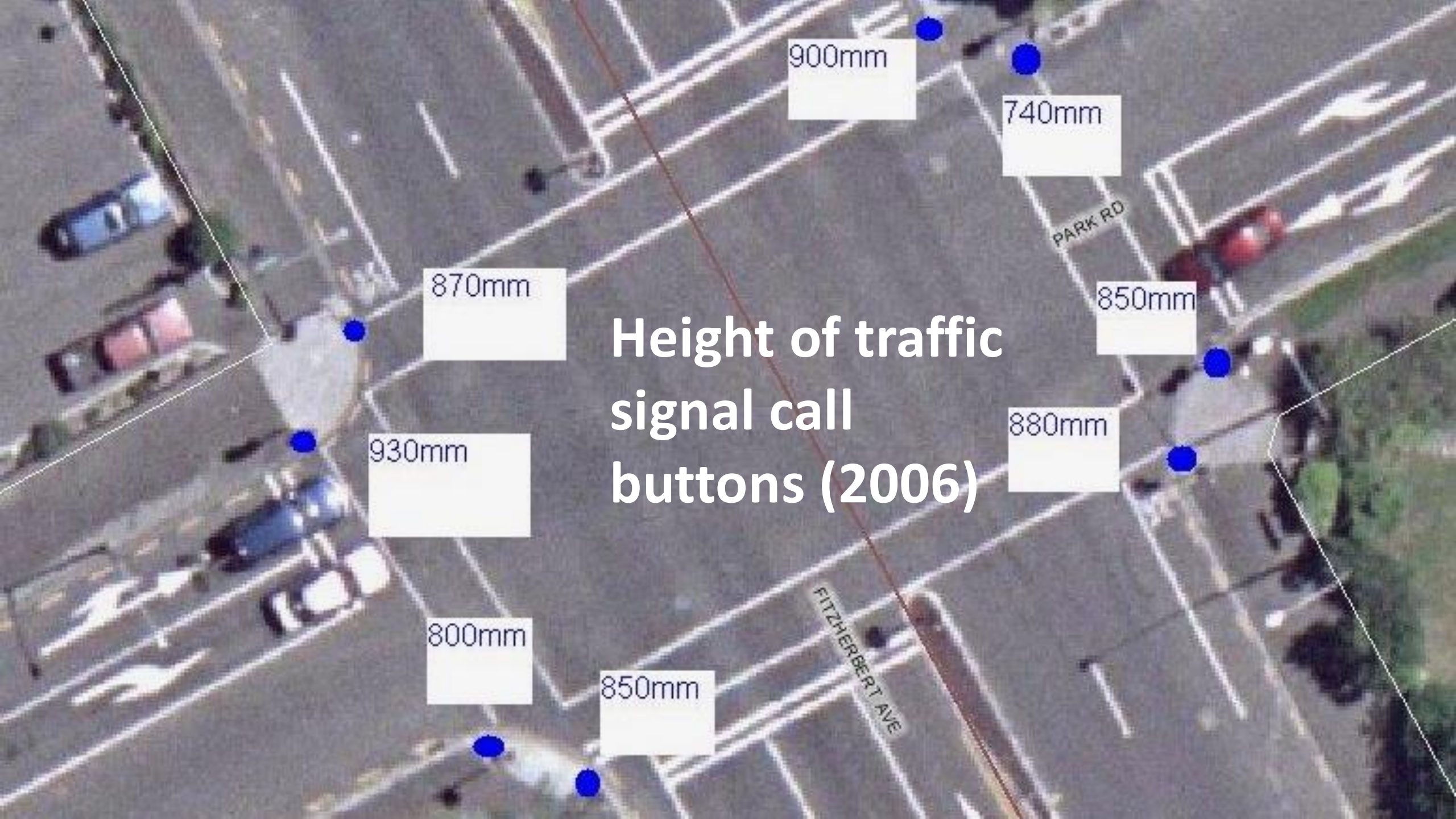
[Public transport design guidance](#)[Overview](#)[Bus dimensions and tracking](#)[Corridor clearance](#)[More](#) 

This is draft guidance, and [we welcome your feedback](#)

Note: The Government Policy Statement on land transport 2024-2027 (GPS) sets an expectation that the NLTF will not be used in the funding of in-lane bus stops under certain activity classes.



**We've been working on
accessibility
improvements in Palmy
since 2006**



900mm

740mm

870mm

850mm

Height of traffic
signal call
buttons (2006)

930mm

880mm

800mm

850mm

PARK RD

FITZHERBERT AVE





I don't have lived experience, but with an elderly father I am very aware of the deficiencies of our streets.

**That led me to
invite one of
the foremost
experts in
universal access
to spread her
knowledge
across the motu**

Annual walkabout and end-of-year drinks



In 2016 we visited the South Frame, in 2017 the East Frame, in 2019 we're looking at the central city – what we've finished and what's coming – from Victoria Street to Cathedral Square and Hereford Street.



**Join us on a walking tour of the central city with renowned
universal access and design specialist
Elise Copeland, Auckland Council**

Elise led the development of the [Universal Design Hub](#) and [Universal Design Tool](#).
She is the deputy lead advisor on Auckland's [Disability Advisory Panel](#).

How to assess the street network



1st

Know the range of needs

[Home](#) › [Design guidance](#) › Universal design

Te Ao Tangata

Universal design

‘Universal design’ means designing for inclusivity and independence. It caters for human diversity as well as life stages and scenarios, such as pregnancy, childhood, injury, disability and old age. Universal design is good design. It makes using our homes, places of work and recreation spaces easier, safer, healthier and friendlier for everyone.



The eight goals of universal design

✓ **Body fit**

✓ **Understanding**

✓ **Comfort**

✓ **Wellness**

✓ **Cultural appropriateness**

✓ **Social integration**

✓ **Awareness**

✓ **Personalisation**



14 personas to keep in mind

✓ **Delivery person**

✓ **Older people**

✓ **Tourists**

✓ **Ambulance officers**

✓ **People with hearing impairment**

✓ **Wheels**

✓ **People who are Neurodivergent**

✓ **People using crutches**

✓ **Adults with young children**

✓ **People with luggage**

✓ **People who are blind or have low vision**

✓ **People using a wheelchair**

✓ **People with a pushchair**

✓ **Pregnant people**

2nd

Pick the right tool(s)



1. **Community voices**

2. CSRs

3. Trained surveyors + App

4. AI, LiDAR

Welcome to
Whakatāne







2nd

Pick the right tool(s)



1. Community voices

2. CSRs

3. Trained surveyors + App

4. AI, LiDAR

Guide to undertaking community street reviews

Published June 2010

COMMUNITY STREET REVIEW

03 of 05

Road Crossing

Step one:

Your name: _____

Participant number: _____

Date: _____

Section number: _____

Step two:

What is your opinion of the Road Crossing? (tick box)

		Very Bad	Bad	Slightly Bad	Neutral	Slightly Good	Good	Very Good
		☹			😊			☺
Overall								
Walkable	"I feel this Road Crossing is walking friendly"	☐	☐	☐	☐	☐	☐	☐
Characteristics								
Safe from traffic	"I feel safe from vehicle danger"	☐	☐	☐	☐	☐	☐	☐
Safe from falling	"I feel safe from trips, slips, and falls"	☐	☐	☐	☐	☐	☐	☐
Delay	"I crossed without having to wait for lights, traffic or others"	☐	☐	☐	☐	☐	☐	☐
Direct	"I did not have to detour to use this crossing"	☐	☐	☐	☐	☐	☐	☐
Obstacle free	"I was easily able to enter the crossing and crossed unhindered by physical features"	☐	☐	☐	☐	☐	☐	☐

Step three:

What problems did you identify? (write comment)

2nd

Pick the right tool(s)



1. Community voices

2. CSRs

3. Trained surveyors + App

4. AI, LiDAR

SMART ACCESS APP

- Designed by disabled people
- Data about 38 environmental features (EF) relating to universal design in public spaces.
- Includes data for non-disabled people such as Cycle Lanes, Playgrounds, Rubbish Bins, and Toilets.



Data collection with FieldMaps app

- Simple interface
- Preloaded and locked fields, depending on previous answers
- No expertise required, just some basic training
- Students audited 800+ stops in 2 weeks
- Data goes straight to the cloud
- Photos so that data can be checked and updated later, or to provide further context

3:15 5G 83%

× Collect ✓

Dunedin Bus Stop Audit
45.893513°S 170.498609°E

TAKE PHOTO ATTACH

Road markings *

Is there a bus box? *

☐ Yes

☐ No

Paved clear area *

Hardstand / clear paved area *

☐ No defects

☐ Minor defects

☐ Major defects

☐ No hardstand

Is there a clear paved area directly adjacent to the bus stop kerb?

2nd

Pick the right tool(s)



1. Community voices
2. CSRs
3. Trained surveyors + App
4. **AI, LiDAR**

ALISE: AI + aerial imagery

- Presence and width of footpaths, crossings



ROADVIEWER

Vehicle or bicycle mounted LiDAR scanner

The screenshot displays the ANDITI ROADVIEWER web application. The main view is a 3D LiDAR point cloud of a bus stop area, with a road in the foreground and trees in the background. A search bar at the top right contains the ID '310700'. Below it, a table lists the bus stop details:

BUS STOP	NAME	ACTION
310700	Anzac Ave at Kinsellas Road	

Below the table, it indicates 'Rows per page: 10' and '1-1 of 1'. To the right of the main view, a detailed checklist for '310700 Anzac Ave at Kinsellas Road' is shown, with a location of '27.2323° S, 153.032° E'. The checklist includes the following items:

- Accessible: ☒
- Boarding Point > 1200mm: ☒
- Hardstand Compliant: ☒
- Hardstand (parallel): 8.03m ☒
- Hardstand (perpendicular): 3.12m ☒
- Slope (parallel): -1.266° ☒
- Slope (perpendicular): 0.797° ☒
- Sign Present: ☒
- Timetable Present: ☒
- Shelter Present: ☒
- Seat Present: ☒
- Bin Present: ☒
- Curb Present: ☒
- Curb Height: 0.179m ☒

The overall status is 'TGSi Compliant'. At the bottom left, a progress bar shows 'Loading... 99%'. At the bottom right, there is a 'Panoramas' button and a chat icon. The ANDITI logo is visible in the top left corner of the interface.



310700

Anzac Ave at Kinsellas Road

Location: 27.2323° S, 153.032° E

Accessible	✓	Sign Present	✓
Boarding Point > 1200mm	✓	Timetable Present	✓
Hardstand Compliant	✓	Shelter Present	✓
Hardstand (parallel)	8.03m	Seat Present	✓
Hardstand (perpendicular)	3.12m	Bin Present	✓
Slope (parallel)	-1.266°	Curb Present	✓
Slope (perpendicular)	0.797°	Curb Height:	0.179m

- Line markings
- Edge of pavement
- Median location
- Kerb
- Safety barriers by type
- Poles
- Trees
- Streetlights
- Sign post location
- Traffic lights
- Rumble strips
- Arrow markings
- Hatching
- Pedestrian crossings
- Manholes



3rd Using the data (2 examples)

Bus stop guidance

- Great resource, offering a nationally consistent base for all PT planning and design
- Bus stop section offers great guidance on bus stops
- How can we use it with existing stops?
- What about a whole network of stops?



Bus dimensions for design →

Critical dimensions and performance characteristics of buses which typically operate in New Zealand.



Corridor clearance →

Clearance requirements to support safe public transport operation in our transport corridors.



Bus layover and driver facilities →

Guidance related to planning, design, implementation and monitoring for bus layovers and driver facilities.



Getting to and from public transport →

First and last mile connections are critical to a viable and enjoyable public transport journey experience.



Bus stop →

Guidance for the planning, design and integration of bus stops including the physical stop and associated infrastructure.



Public transport priority and optimisation →

Tools to support more efficient and reliable public transport services. Includes bus lanes, signal priority, service design interventions and more.



Battery electric bus charging infrastructure →

Key operational and infrastructure considerations to support battery electric bus charging.



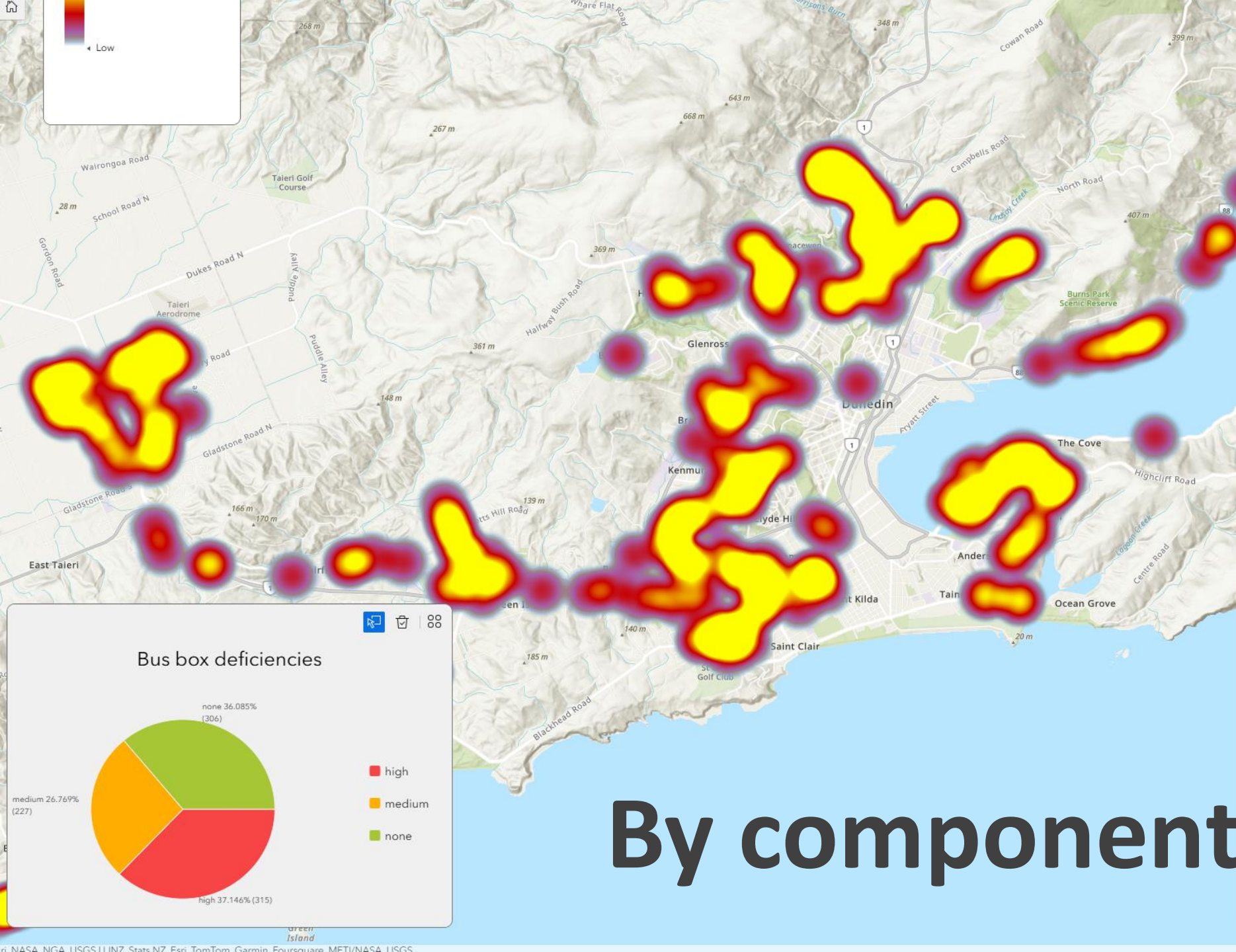
Interchanges and stations →

Guidance for the planning, design and implementation of public transport interchanges.

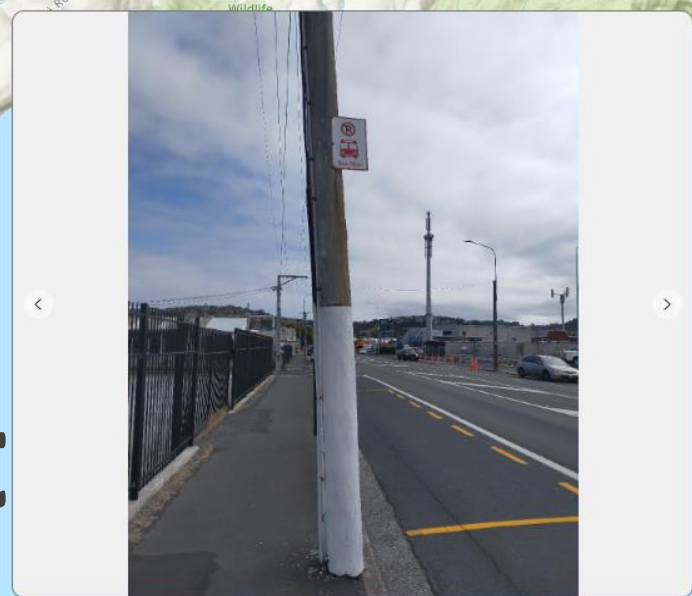
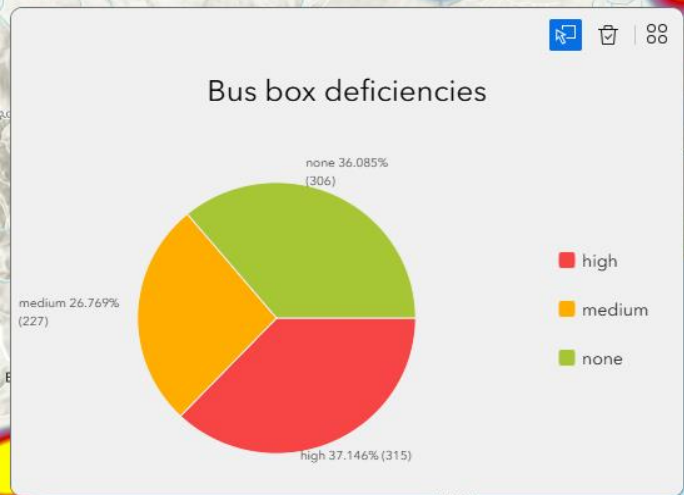


Training & capability →

View a range of public transport related webinars, training courses and other resources.

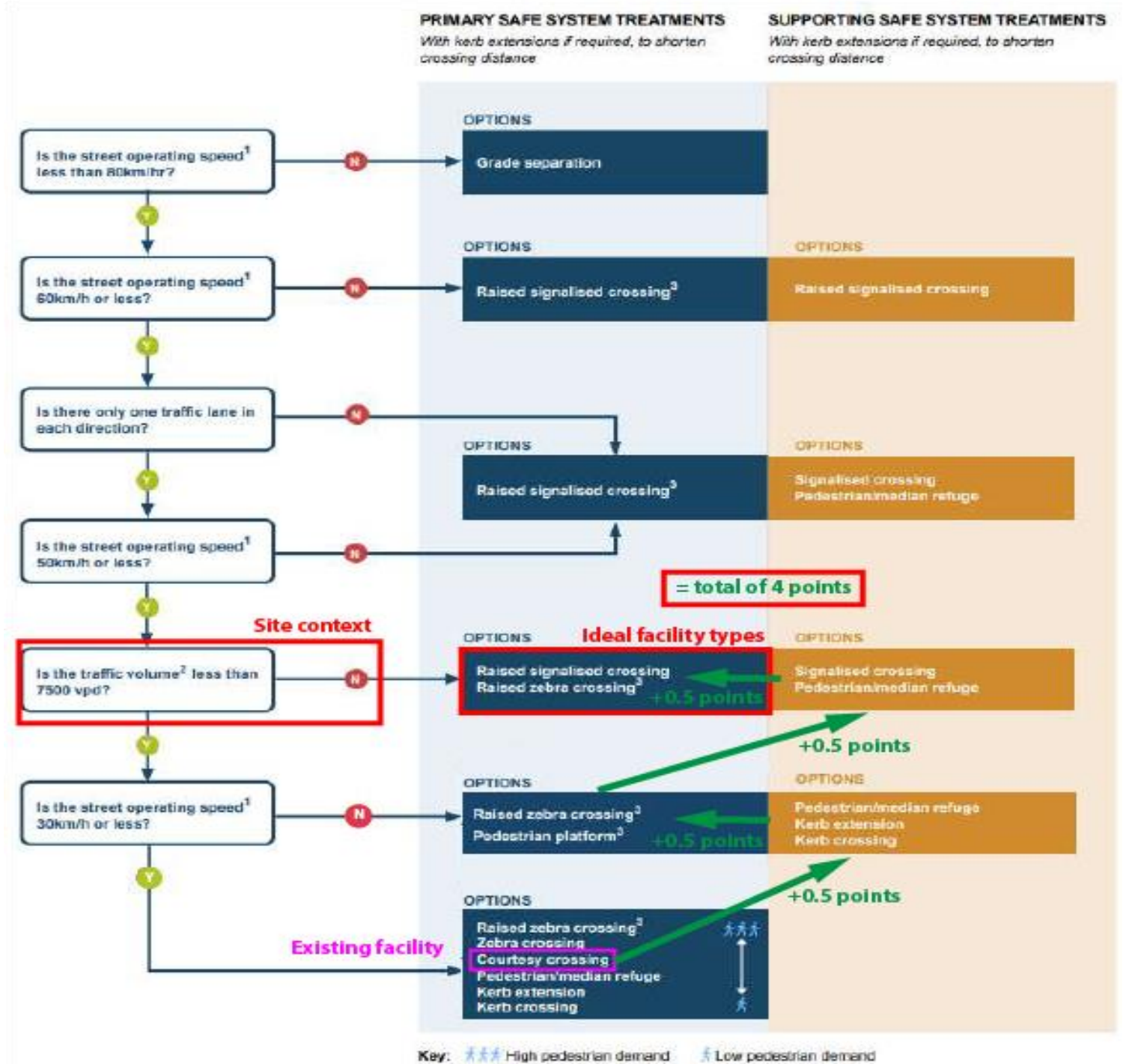


Bus box info	
stop_id	59001060
stop_name	Hillside Rd, 319
stop_classification	Standard+
Bus box road marking	13.20
Bus box presence	Yes
Driveway in bus box	Middle
bus_box_req	Essential
bus_box_comp	Quality Issue
bus_box_def	medium



By component

Pedestrian crossing guidance



Exposure risk

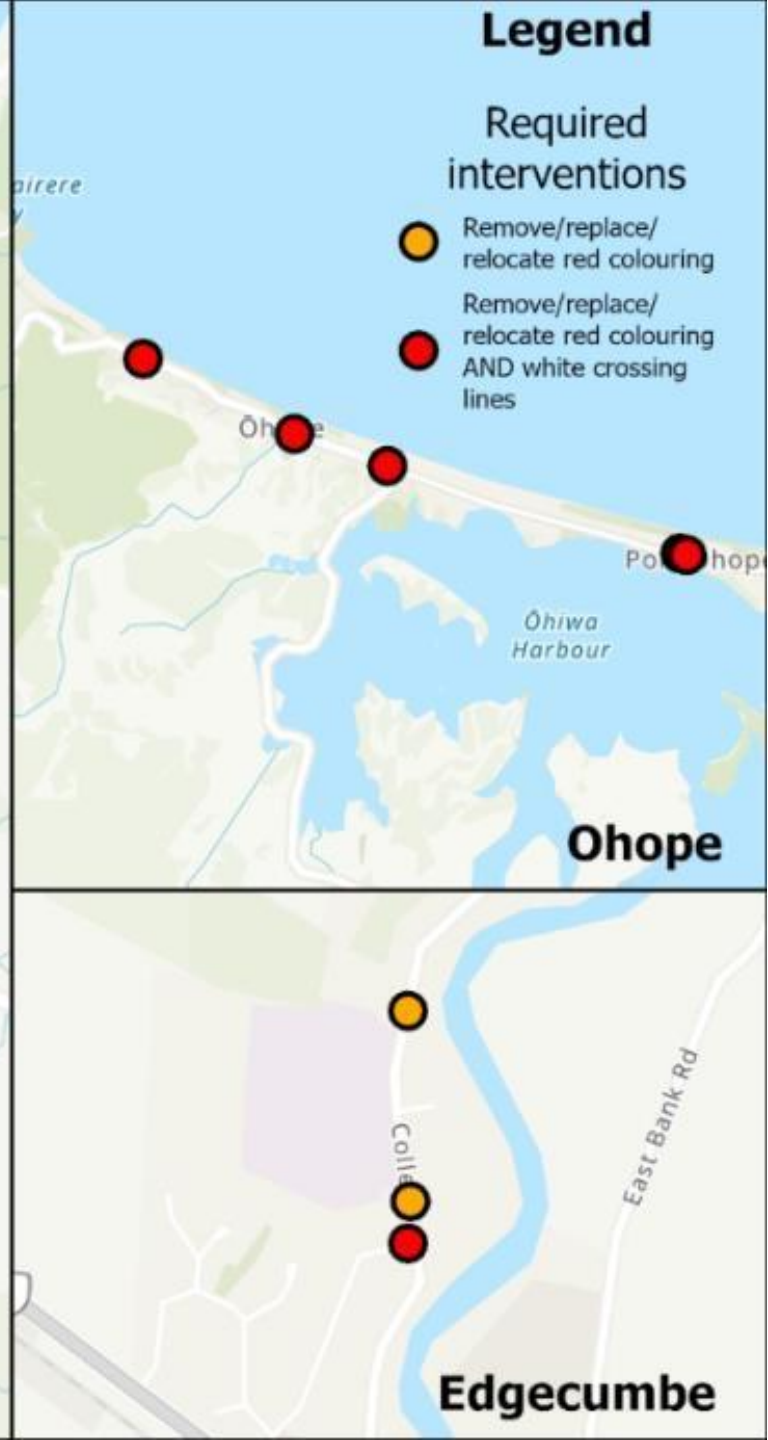
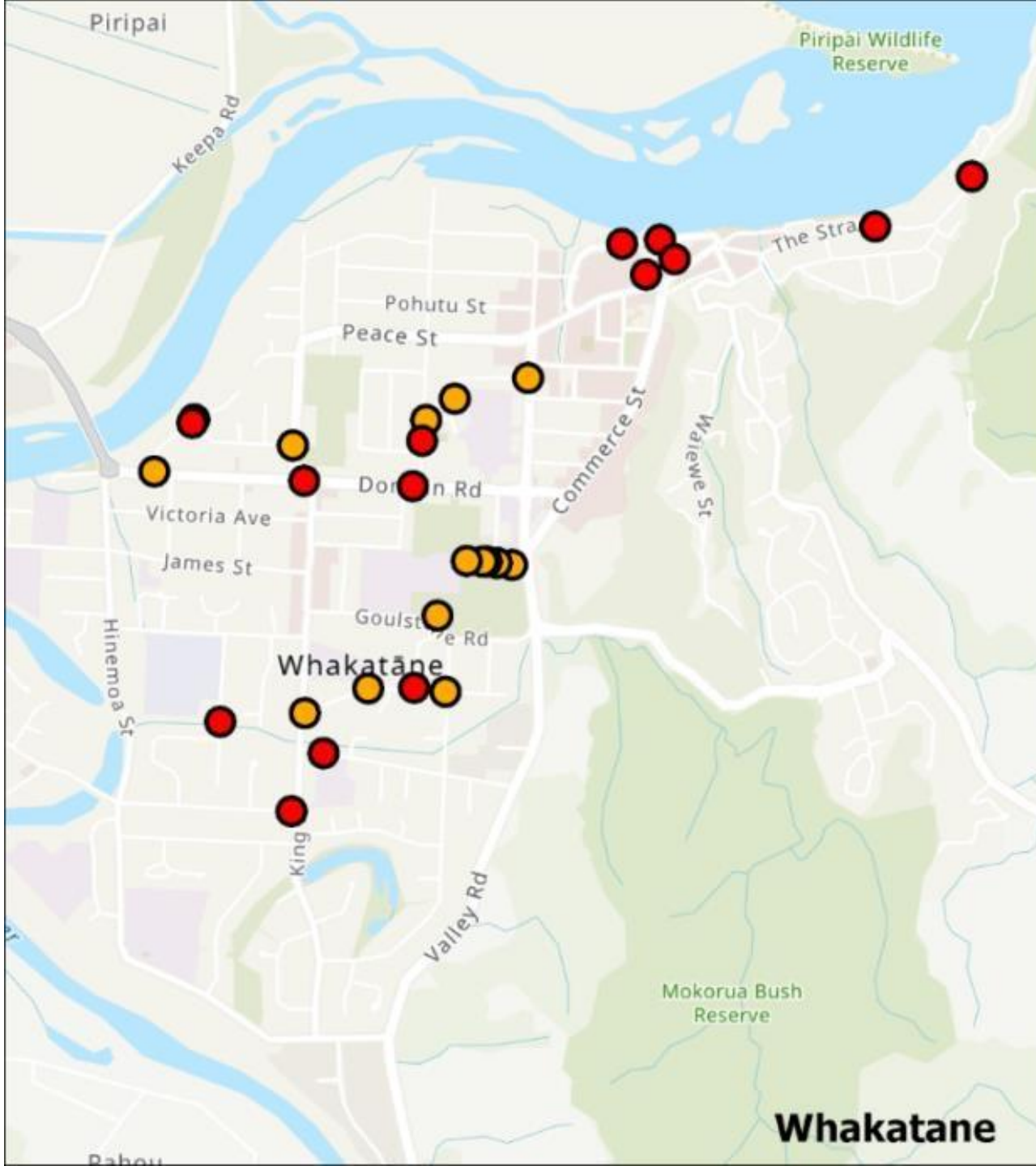
Exposure risk
+ demand

Deficiency
score 0-4

Recommended type
of crossing

Location		Evaluation						Alignment with the PNG			
Crossing location	ONF category	Vehicle volumes	School proximity score	Number of steps from PNG	ONF rating - proxy for ped demand	Priority score	Priority rank	Primary Safe System (Line 1)	Primary Safe System (Line 2)	Secondary Safe System (Line 1 or Primary Line 3)	Secondary Safe System (Line 2 or Primary Line 4)
Pohutukawa Avenue near Bluett Rd	Activity Streets	8,126	0	-3.0	2	85.1	1	Raised signalised	Raised zebra	Signalised	Median refuge
74 Alexander Ave near King St	Activity Streets	2,528	2	-2.0	2	78.3	2	Raised zebra	Pedestrian platform	Median refuge	Kerb extensions
Landing Road near King St	Urban Connectors	15,780	0	-3.0	1	70.0	3	Raised signalised	Raised zebra	Signalised	Median refuge
64 Domain Road near McGarvey Rd	Urban Connectors	14,621	0	-3.0	1	69.3	4	Raised signalised	Raised zebra	Signalised	Median refuge
Kakahoroa Drive	Activity Streets	4,088	0	-2.0	2	69.3	5	Raised zebra	Pedestrian platform	Median refuge	Kerb extensions
Kakahoroa Dr	Activity Streets	4,088	0	-2.0	2	69.3	5	Raised zebra	Pedestrian platform	Median refuge	Kerb extensions
95 Muriwai Drive	Activity Streets	3,440	0	-2.0	2	68.8	7	Raised zebra	Pedestrian platform	Median refuge	Kerb extensions

Location		Treatment options (to align with PNG)					
Crossing location	rank	Remove white crossing border lines	Remove/replace surface/relocate red colour	Install yellow no-stopping lines to improve intervisibility	Upgrade or install kerb extensions	Upgrade or install median refuge	Install R traffic spe the cont cr
Pohutukawa Avenue near Bluett Rd	1	Required	Required	Recommended	Optional	Optional	Recommen
74 Alexander Ave near King St	2	Required	Required	Recommended	Recommended	Optional	Recommen
Landing Road near King St	3	Required	Required	N/A	Optional	Optional	Recommen
64 Domain Road near McGarvey Rd	4	Required	Required	Recommended	N/A	Optional	Recommen
Kakahoroa Drive	5	Required	Required	N/A	Optional	Optional	Recommen
Kakahoroa Dr	5	Required	Required	N/A	N/A	Optional	Recommen
95 Muriwai Drive	7	Required	Required	Recommended	Optional	Optional	Recommen
63 Pohutukawa Avenue	8	Required	Required	N/A	Optional	Optional	Recommen
Muriwai Dr	9	Required	Required	Recommended	Optional	Optional	Optional
3 Bridge St near King St	10	Required	Required	Recommended	N/A	Optional	Recommen
Rata Ave near College Rd	11	Required	Required	Recommended	Optional	Optional	Recommen
Harbour Road near Charles St	12	Required	Required	Optional	Optional	Optional	Recommen
Harbour Road near Moana Street	12	Required	Required	N/A	Optional	Optional	Recommen
Harbour Road near Charles St	12	Required	Required	Optional	Optional	Optional	Recommen
Garaway Street near Kirk Street	15	Required	Required	Recommended	N/A	Optional	Recommen
McGarvey Road near Tui Street	16	Required	Required	Optional	N/A	Optional	Recommen
Crete St near Salonika St	17	Required	Required	Recommended	Optional	Optional	Recommen
28 Hikurangi St near Pouwhare St	18	Required	Required	N/A	N/A	Optional	Recommen
104 College Rd	19	N/A	Required	N/A	N/A	Optional	N/A
88 College Rd	20	N/A	Required	N/A	N/A	Optional	N/A



End goals



- 1. all streets are accessible**
- 2. start fixing things**
- 3. navigation tools until then**

ccessmap

SEATTLE, WA

TASKS

A

Bayview Kinnear Park

×

B

Vine Street

↑↓

Cane

Street avoidance factor (1 = avoid streets, 0 = use streets): 1

Maximum uphill steepness: 14%

Maximum downhill steepness: 14%

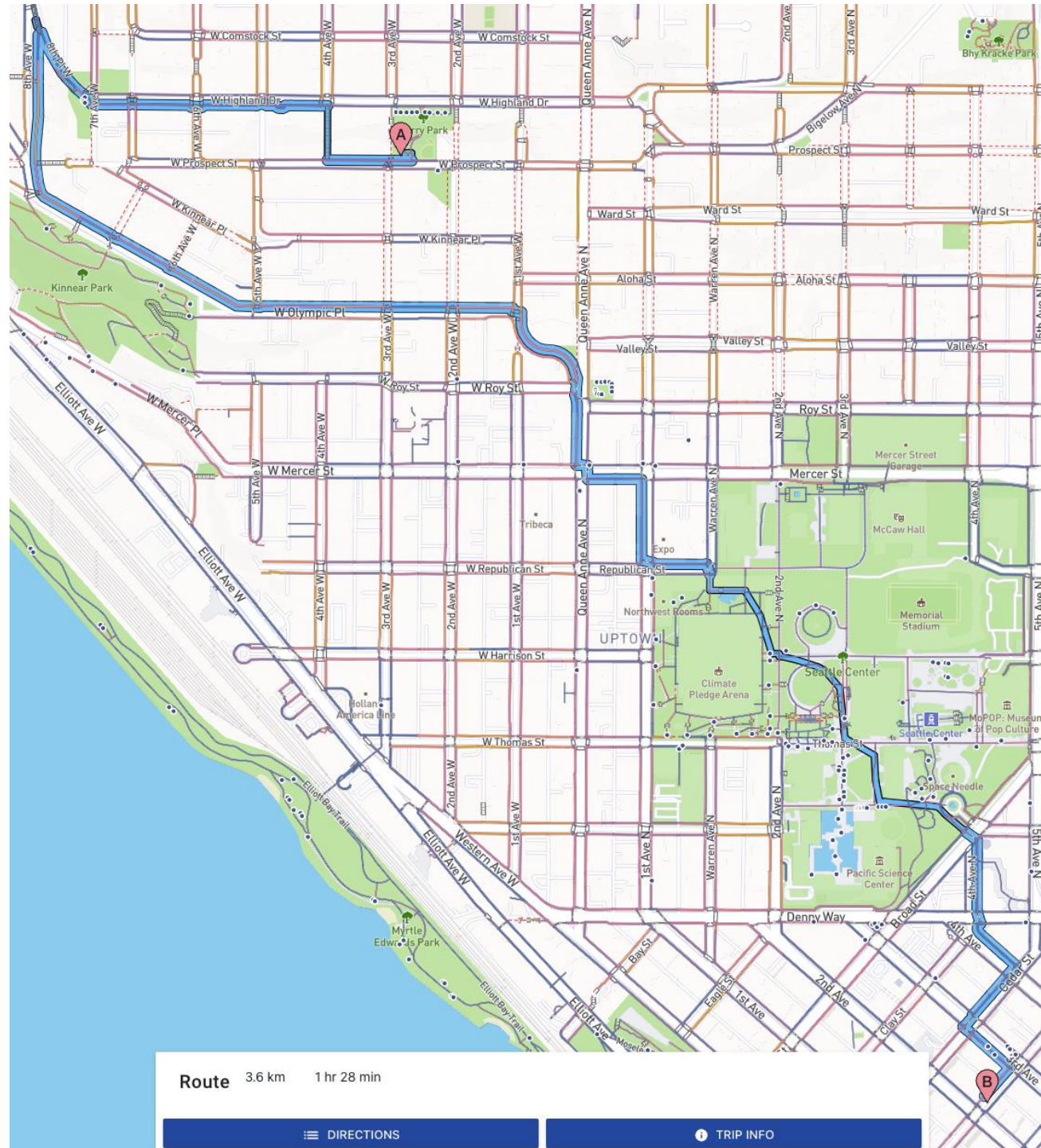
Avoid barriers:

Avoid raised curbs and stairs

Avoid noise:

Avoid sidewalks and crossings adjacent to primary streets

Landmarks Distance (maximum landmark distance in meters to be included in directions): 10



Route

3.6 km

1 hr 28 min

DIRECTIONS

TRIP INFO

Key points

- Don't wait for the latest tech or cheaper prices - start now
 - but ensure the data collected will be usable with emerging technologies
- Think about how we will use the data
 - that will drive the selection of the tool and the data specification
- Once we collect it, use it
 - a network analysis helps select the right engineering options and develop a funding request budget

Patai | Questions

Ngā Mihi | Thank you

VIASTRADA

TRANSPORT PLANNING AND DESIGN