VIASTRADA

TRANSPORT PLANNING AND DESIGN

Austroads Pedestrian Safety Data Research Yields Useful Findings for Health Researchers

John Lieswyn

AUSTROADS PROJECT: SAG6371 Keeping People Safe When Walking

WORKSTREAM: Stream 2 Better Guidance

RESEARCH: Defining the minimum data requirements for pedestrian safety

Transport and Health Symposium | Auckland | 10 June 2025

The literature shows a strong link between walking activity levels and public health.

Until recently there has been a paucity of data on how much walking occurs, or how good the pedestrian environment is – and to what degree the environment is a barrier to physical activity.

Research shows emerging new technologies like WiFi probes, AI, and GIS network analysis techniques can address these problems.

Typical measure: walkability assessments

Physical environment

Contents lists available at ScienceDirect

Journal of Transport & Health

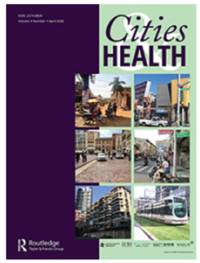
journal homepage: www.elsevier.com/locate/jth

Combining walkability assessments at different scales in measuring spatial inequalities in access to railway stations

Gabriele D'Orso [a,*], Muhammad Yasir [a], Marco Migliore [a,b]

- road density, intersection density, Ped-shed ratio
- practicability, safety, and pleasantness

Typical measure: self-reported travel or activity surveys



Cities & Health

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rcah20

A comparison of the health and environmental impacts of increasing urban density against increasing propensity to walk and cycle in Nashville, USA

Sohail Ahmad , Anna Goodman , Felix Creutzig , James Woodcock & Marko Tainio

Exposure

ELSEVIER

Public Health

Volume 206, May 2022, Pages 15-19

Original Research

Legalisation of e-scooters in the UK: the injury rate and pattern is similar to those of bicycles in an inner city metropolitan area

D.M.S. Bodansky [a c], M.W. Gach [a c], M. Grant [a], M. Solari [a], N. Nebhani [a], H. Crouch-Smith [a], M. Campbell [b], J. Banks [a], G. Cheung [a]

ELSEVIER

Contents lists available at ScienceDirect

Journal of Transport & Health

journal homepage: www.elsevier.com/locate/jth

Risk versus fun: Perspectives of children and their parents on active school commuting in regional Australia and strategies on promotion

Ho Yeung Lam *, Sisitha Jayasinghe, Andrew P. Hills, Kiran D.K. Ahuja

ELSEVIER

Journal of Transport & Health

Volume 22, September 2021, 101130

Health implications of age and gender injury patterns of non-vehicle pedestrian trauma

J.E. Rod [a b], Mark King [a b], Teresa Senserrick [a b], Oscar Oviedo-Trespalacios [a b]

Research methods

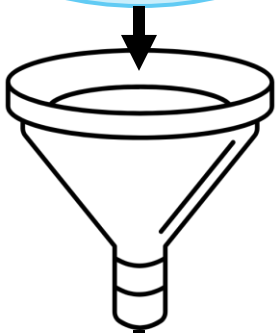
Literature review

Report 2:
Literature review

Report 3:
Data recommendations

STREAM 1
(Alavi et al 2025)

68 *references: pedestrian safety (general)*



9 *references: pedestrian safety data (theoretical)*

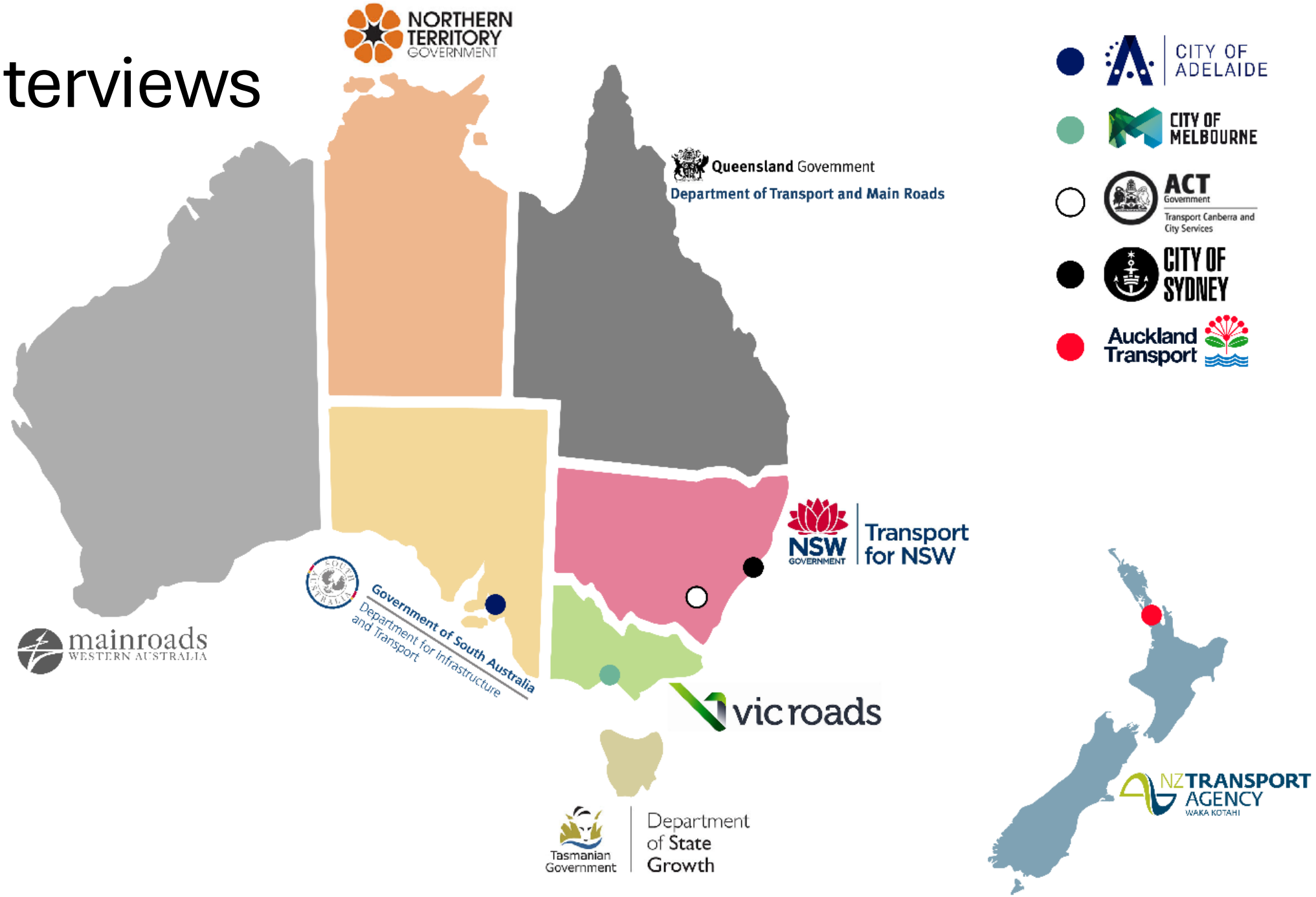
1 *practical application (not in reference list)*

STREAM 2:
Minimum pedestrian data requirements

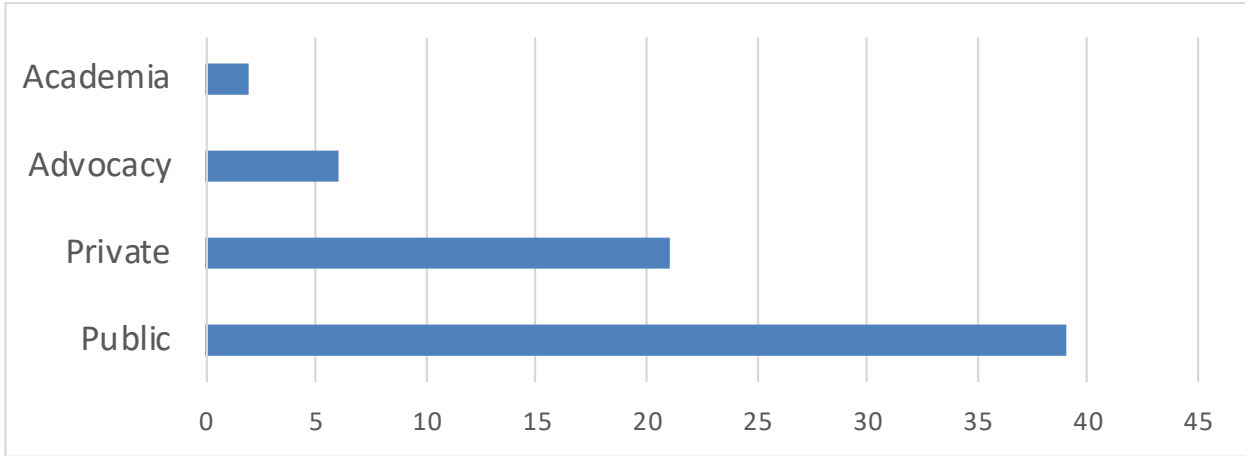
Expanded theoretical pedestrian safety literature review: **53** references

Expanded practical applications literature review: **15** references

Interviews


NORTHERN TERRITORY GOVERNMENT
Queensland Government
Department of Transport and Main Roads
CITY OF ADELAIDE
CITY OF MELBOURNE
ACT Government
Transport Canberra and City Services
CITY OF SYDNEY
Auckland Transport
NSW GOVERNMENT
Transport for NSW
mainroads
WESTERN AUSTRALIA
Government of South Australia
Department for Infrastructure and Transport
vicroads
Tasmanian Government
Department of State Growth
NZ TRANSPORT AGENCY
WAKA KOTAHI

Survey


Academia
Advocacy
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Paths
Experiences
Benefits
Knowledge
Desire lines
Demographics
Community views
Behaviours
Near misses
Longitudinal data
LOS
Volumes
Falls
Models
Latent demand
Perceptions
Crossings
Speeds

Selected findings

Data framework categories

Exposure

Human

Injuries or crashes

Physical environment

Vehicle and technology

Use level	Strategic policy	Tactical	Intervention at local project / engineering
	Vision, objectives, policies and targets. E.g population data is a metric for exposure.	*Intervention type region or area-wide. E.g., specific travel data to assess risk factors.*	*Project planning & design. E.g., pedestrian crossing data to identify priority locations or design details.*

Simplified Pedestrian Data Framework

Category				Most relevant factors/attributes
Human	Behaviour			• Behavioural factors (e.g. risky behaviour, distraction) • Safety awareness and education enforcement (e.g., speed limits, red light cameras) • Road user perception and attitudes towards road safety
Human	Health and wellbeing			• Health and wellness indicators (e.g. obesity rates, physical activity) * • Cognitive and physical capabilities (e.g. vision, reaction time)
Human	Socioeconomic			• Population (numbers, density, mix) * • Demographics (e.g. age, gender, ethnicity and indigenous status, language) * • Employment and income level * • Education level and access to information
Vehicle and technology				• Vehicle fleet composition, age, and type • Vehicle regulation and vehicle safety technology penetration and standardisation • Technology (e.g. Advanced Driver Assistance Systems)
Physical environment	Urban planning			• Density of roads and street connectivity * • Motorisation level and availability of public transport *
Physical environment	Land use			• Land use mix and density * • Space and capacity of land uses * • Proximity to destinations and trip generators *
Physical environment	Road transport systems	Roads and streets		• Road hierarchy and functional classification * • Road geometry (e.g. intersections, roundabouts) • Geometric design variables (e.g. lane width, curvature) • Posted and travelling speed (including probe speed data) • Facilities for pedestrians and bicycles (along / crossing roads) * • Emergency medical services and response time • Intervention effectiveness (Crash Modification Factors)
Physical environment	Road transport systems	Public transport		• Public transport supply, e.g., stops & routes • Public transport access and safety *
Physical environment	Environment			• Light & atmospheric conditions

Category		Most relevant factors/attributes
Injuries or Crashes	Injury severity	• Mechanism and severity of injury (e.g., ICD code, AIS and MAIS levels)
Injuries or Crashes	Human factors	• Drug/alcohol use • Distraction and inattention • Fatigue and physical capability
Injuries or Crashes	Vehicle factors	• Vehicle type, weight, and age • Crashworthiness and pedestrian harmfulness • Design and technology
Injuries or Crashes	Physical environment	• Public requests or complaints regarding pedestrian infrastructure • Road geometry and design (e.g., curvature, superelevation) • Traffic control devices and systems (e.g., signals, signs) • Impact speed and severity • Temporal and atmospheric conditions (e.g., rain, fog)
Injuries or Crashes	Socioeconomic	• Road user characteristics (e.g., age, gender)
Injuries or Crashes	Crash	• Crash location and type (DCA/CAS codes, for example) * • Crash causation and contributing factors (e.g. speeding, driving under influence) • Impact speed • Anecdotal stories of crash victims or families
Injuries or Crashes	Near-miss	• Near miss data / conflict studies from video analytics
Injuries or Crashes	Post-crash	• Emergency medical services and response time • Medical care
Exposure	Micro	• Pedestrian volume and mix (along/across streets & paths) • Traffic volumes and mix
Exposure	Macro	• Trips (duration and distance from travel demand surveys & network count programmes) • Population-based measures (e.g., exposure rate, mode share) *

** indicates data sets that may have good geospatial location information*

Example: OS-Connect

Physical environment

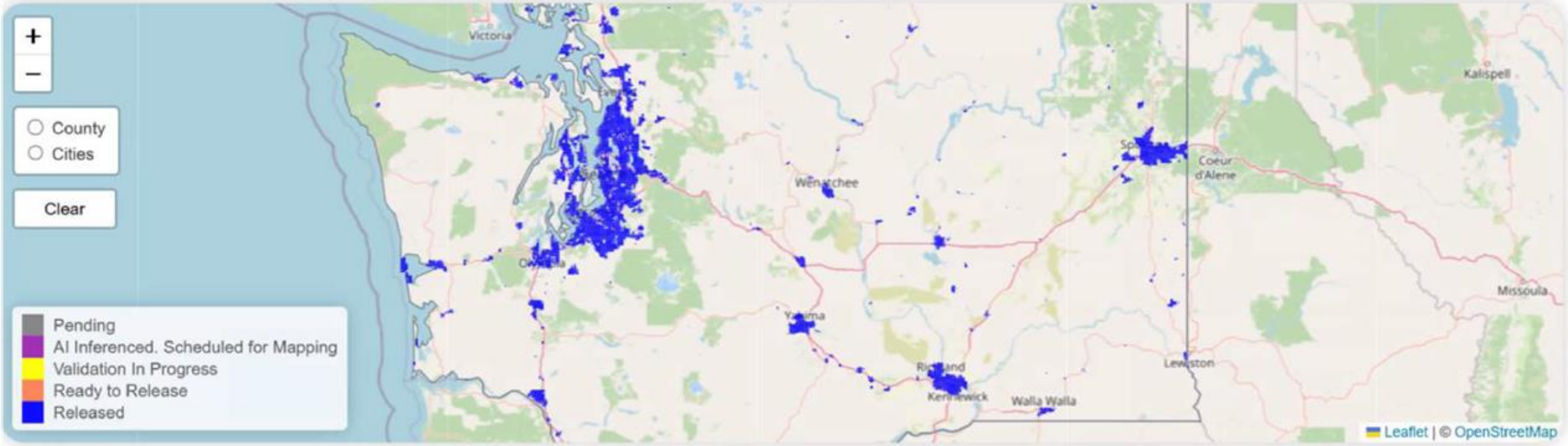
Washington Proviso Sidewalk Data Collection Report

Stats Generated at: 05 Mar 2025

Status	Percentage	Area (km2)	Sidewalk Count	Kerb Count	Crossing Count	Kerb Crossing Ratio	Sidewalk Length (Km)	Crossings Length (Km)
Released to UW	99.78	7362.08	534655	746543	532671	1.303	38983.94	6695.24
Pending	0.22	16.1	0	0	0	0.0	0.0	0.0
Ready to Release	0.0	0.0	0	0	0	nan	0.0	0.0
AI Inference Done. Scheduled for Mapping	0.0	0.0	0	0	0	nan	0.0	0.0
Validation In Progress	0.0	0.0	0	0	0	nan	0.0	0.0

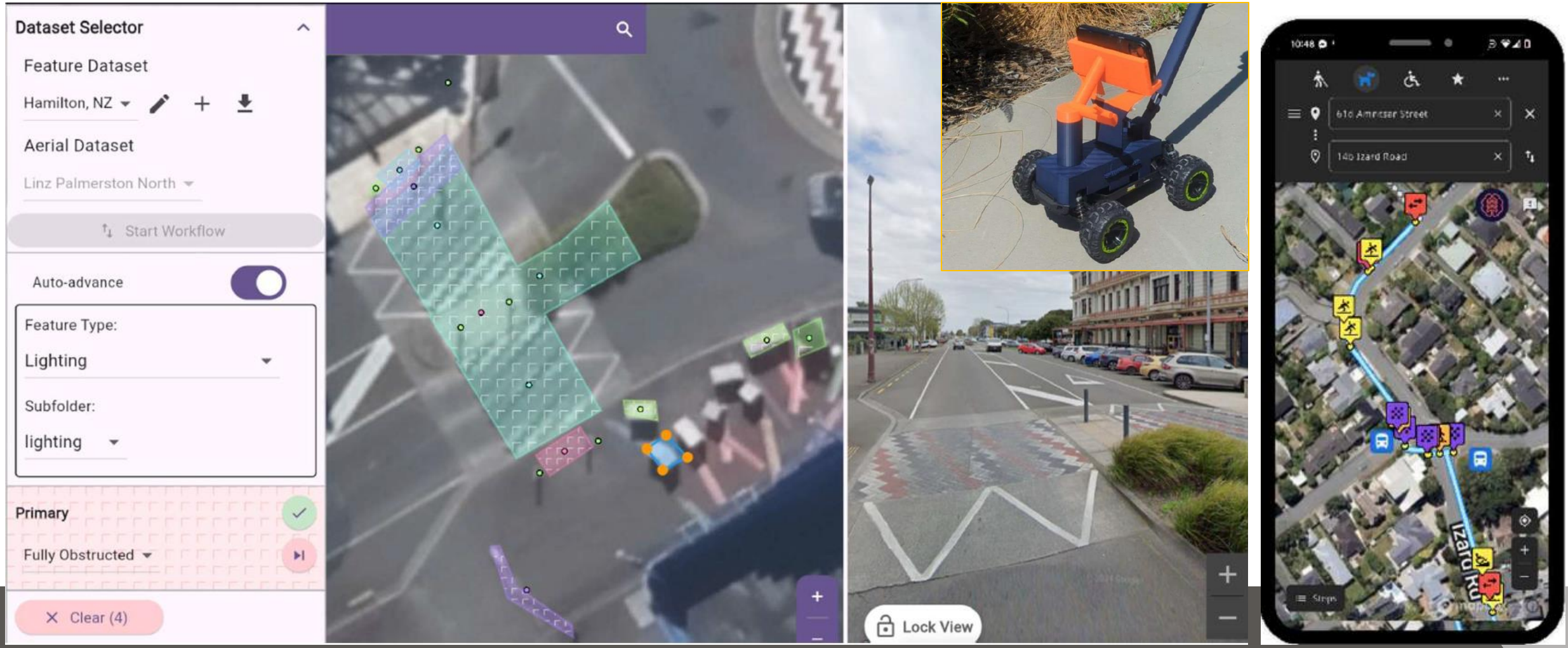
Transit Stops Coverage

Total	Released	Mapped	Pending	Percentage Mapped
22079	20288	1785	6	99.97



Example: Smart Access

Physical environment



Example: Madina Urban Network Analysis toolset

Physical environment

ELSEVIER

Journal of Transport Geography

Volume 123, February 2025, 104130

Madina Python package: Scalable urban network analysis for modeling pedestrian and bicycle trips in cities

Andres Sevtsuk, Abdulaziz Alhassan

Example: Network PLOS modelling

Physical environment

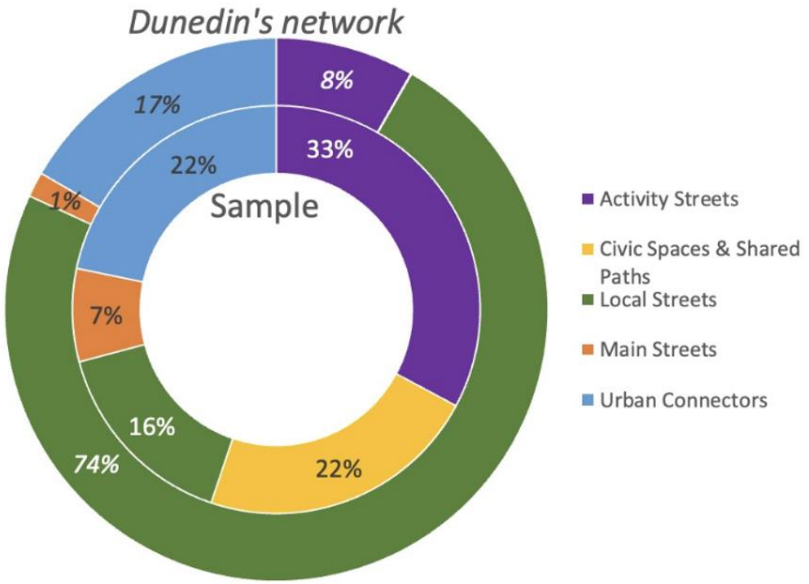


Figure 2-12: Weighting the sample to match the network

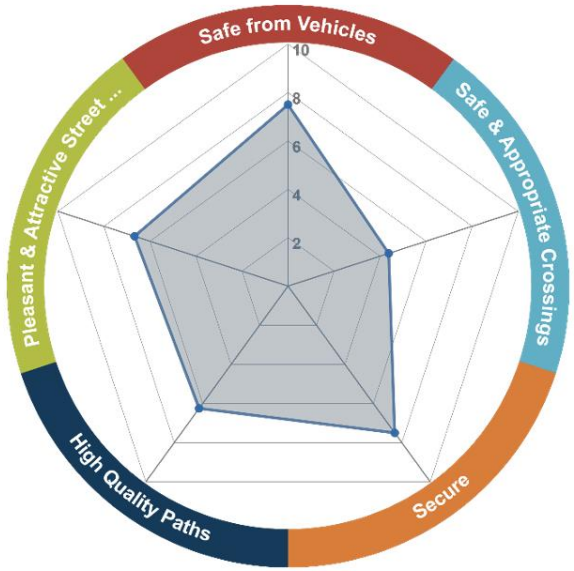
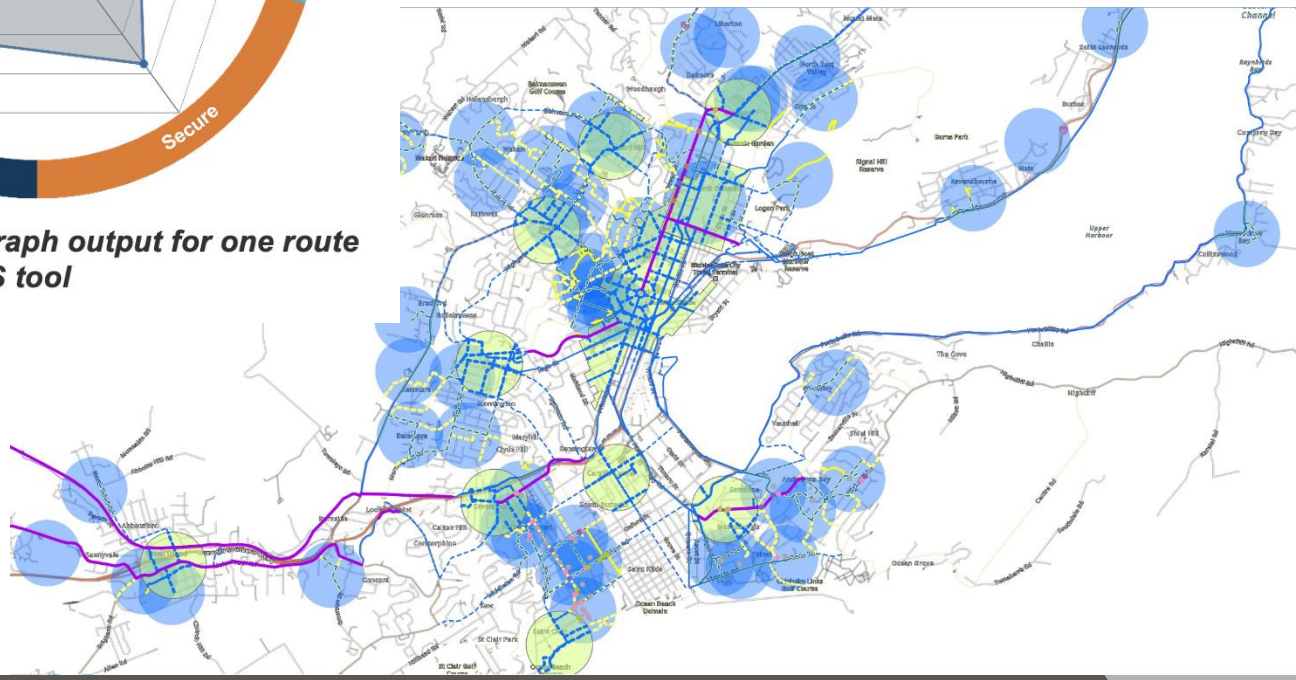


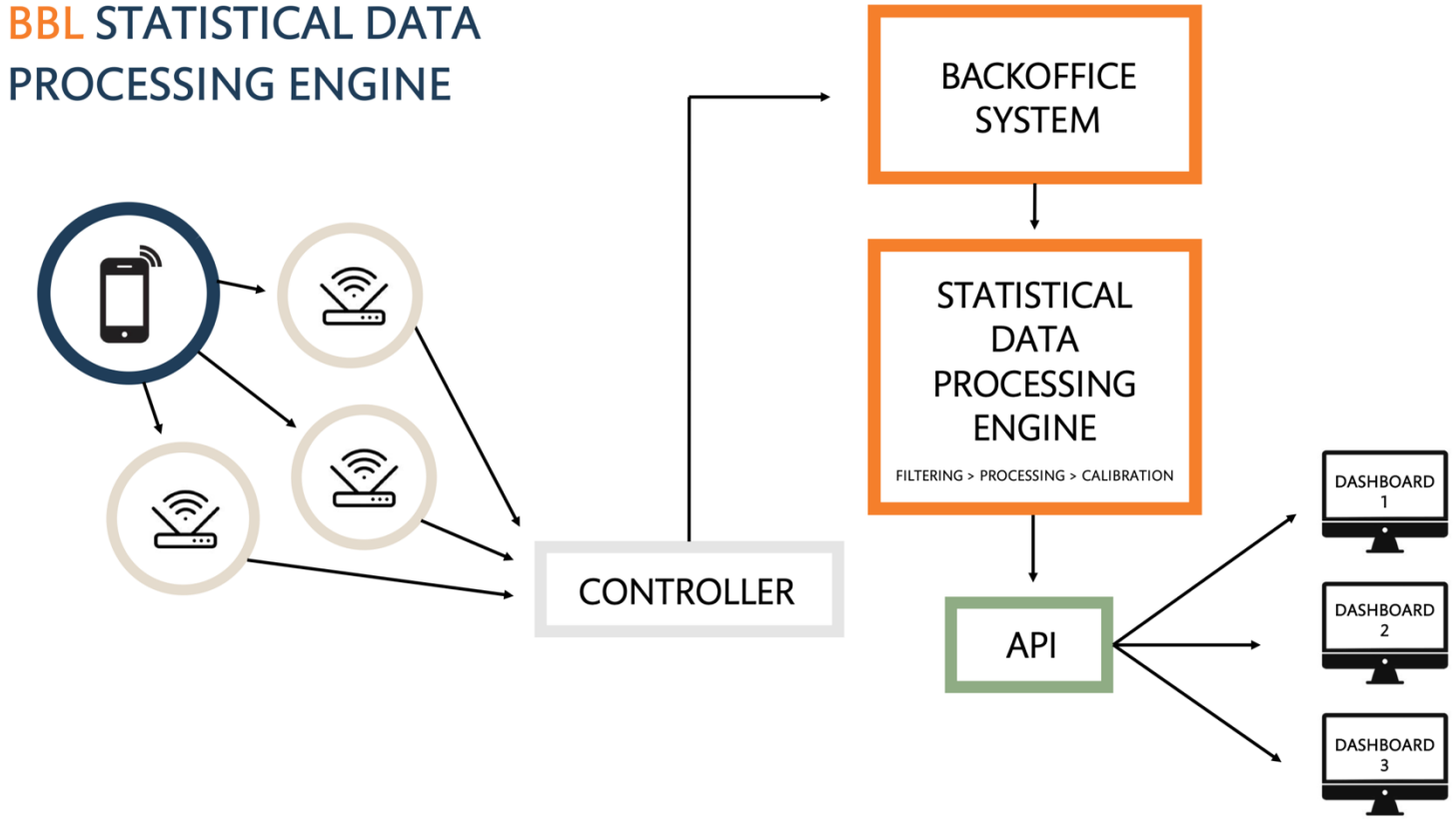
Figure 2-13: A spider graph output for one route audited using the PLOS tool



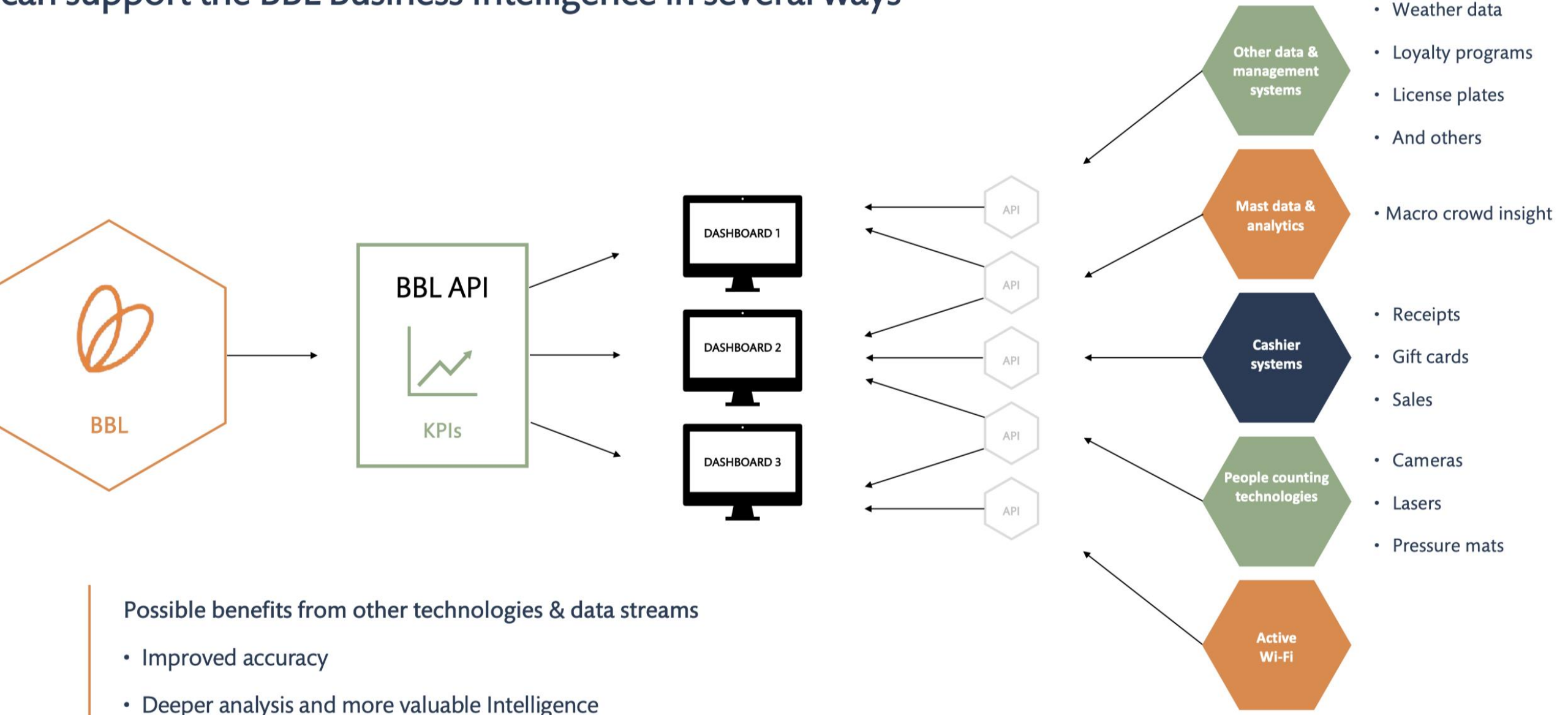
Example: WiFi detection

Exposure

- counts by mode
- # people on specific paths
- hot and cold zones
- dwell time



can support the BBL Business Intelligence in several ways



Other technologies and data streams

Possible benefits from other technologies & data streams

- Improved accuracy
- Deeper analysis and more valuable Intelligence
- Continuous calibration / Machine learning

Working with what we have

Resilience for the Future

Whakamahinga ki ngā mea kei a tātou:
He manawaroa mō ngā rā anamata

Transportation Conference 2026

8 – 11 March 2026
Tākina Convention Centre
Te Whanganui-a-Tara Wellington

TRANSPORTATION GROUP NEW ZEALAND

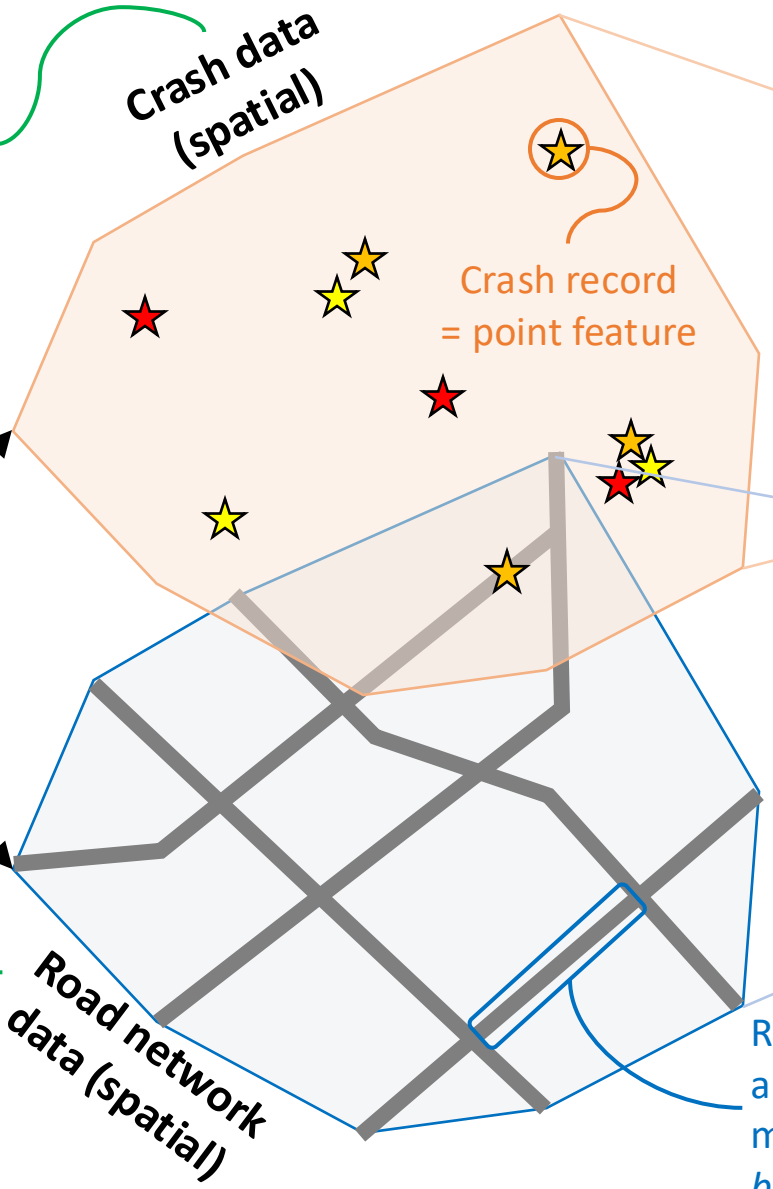
Trafinz
NZ Traffic Institute

Research direction (if time)

Terminology

Database

Some datasets represent **events**, not real-world objects *(e.g. crashes)*



Datasets (i.e. spatial data **layers** from different sources)

Entities are real-world objects *(e.g. roads)*

Table *columns*: **Attributes** of the dataset are **Fields** in database terminology

ID	Severity	User 1	User 2
1	Minor	Ped	Car
2	Serious	Ped	Bike
…	…	…	…

Value

Each *row*: **Record** or **Feature**

ID	Length	Type	Traffic vol.
1	500	Arterial	7000
2	230	Local	3000
…	…	…	…

Road segment = line **feature** – a representation of an entity – must be unique *(e.g. one line between two points)*

Field attributes are characteristics or properties such as **data type** *(text, integer, date, etc)* or **categories** *(a list of values such as arterial, local)*

Determining min. data required: Criteria

Score	Availability	Quantity	Database format	Data Quality	Importance in addressing ped'n safety	Collection Difficulty/Cost
1	**Very low** - proprietary or restricted	**Very low** - Single location or aggregated to entire country	**Very low** - unable to be used in analysis	**Very low** - not relevant, some inaccuracies	**Very low** - little to no influence on ped'n safety investment & decisions	**Very high** - high financial or resource intensive cost to collect the data
2	**Low** - behind paywall or licensed	**Low** - neighbourhood or pilot studies	**Low** - needs conversion to be used in any analysis	**Low** - slightly relevant, possible inaccuracies	**Low** - some influence on ped'n safety investment & decisions	**High** – some financial or resource intensive cost to collect the data
3	**Acceptable** - some work required to access it	**Acceptable** - local area	**Acceptable** - can be used in analysis, no location information	**Acceptable** - relevant and accurate	**Moderate** - a fair amount of influence on ped'n safety investment & decisions	**Medium** - moderate financial or resource intensive cost to collect the data
4	**Medium** - public access	**Medium** - region or state	**Medium** - can be used in analysis, some location information	**Medium** - reliable, relevant and accurate	**High** - strong influence on ped'n safety investment & decisions	**Low** - minor financial or resource intensive cost to collect the data
5	**High** - public access and download	**High** – national	**High** - allows easy analysis (geospatial or similar)	**High** - detailed, reliable, relevant and accurate	**Very high** - very strong influence on ped'n safety investment & decisions	**Very low** - Data is gathered by existing sources

Data Framework tool: Databases

Ref	Name	Owner/ organisation	Country	Year started (if applicabl	Year last updated	Quantity	Availability	Database format	Quality	Access link URL	Data category (Factor Level 1)	Attributes (validated)	Database topic (main, aka "attributes")	Mode types	Notes
DB-01	Speed Data - Auckland Transport	Auckland Transport	New Zealand	N/A	2024	Medium - region or state	High - public access and download	High - allows easy analysis (geospatial or similar)	Medium - reliable, relevant and accurate	AT GIS Data	Physical environment	Physical environment - Road transport systems - posted and travelling speed (including probe speed data)	Speed limits	All modes	
DB-02	Geometric Design Variables - Victoria Department of Transport	Victoria Department of Transport	Australia	2015	2019	Medium - region or state	High - public access and download	High - allows easy analysis (geospatial or similar)	Medium - reliable, relevant and accurate	Department of Transport and Planning	Physical environment	Physical environment - Road transport systems - geometric design variables (e.g., lane width, curvature)	Asset info	All modes	
DB-03	Speed Data - Victoria Department of Transport	Victoria Department of Transport	Australia	2014	2024	Medium - region or state	High - public access and download	High - allows easy analysis (geospatial or similar)	Medium - reliable, relevant and accurate	Data Vic	Physical environment	Physical environment - Road transport systems - posted and travelling speed (including probe speed data)	Speed limits	All modes	
DB-04	Crash Data - NSW	Transport for NSW	Australia	2018	2022	Medium - region or state	High - public access and download	High - allows easy analysis (geospatial or similar)	Medium - reliable, relevant and accurate	NSW Government data	Injuries or crashes	Injuries or crashes - Multiple factors - Multiple attributes	Crash records	All modes	Public-facing dataset appears to b available to practitioners.
DB-05	Train Station Entries and Exits Data - NSW	Transport for NSW	Australia	2018	2024	Medium - region or state	High - public access and download	Medium - can be used in analysis, some location information	High - detailed, reliable, relevant and accurate	Open data	Physical environment	Exposure - Macro - trips (duration and distance from travel demand surveys and network count programmes)	Train and metro station entries and exits	Train/ metro	
DB-06	Crash Analysis System (CAS) - NZTA	New Zealand Transport Agency, Waka Kotahi	New Zealand	1990	2023	High - national	Low - behind paywall or licensed	High - allows easy analysis (geospatial or similar)	Medium - reliable, relevant and accurate	CAS NZTA	Injuries or crashes	Injuries or crashes - Multiple factors - Multiple attributes	Crash records	All modes	
DB-07	Pedestrian Counts - ACT Government Open Data Portal	ACT Government Open Data Portal	Australia	2015	2021	Medium - region or state	High - public access and download	High - allows easy analysis (geospatial or similar)	High - detailed, reliable, relevant and accurate	ACT open data	Exposure: veh or ped volumes	Exposure - Multiple factors - Multiple attributes	Traffic count	Pedestrians and cyclists	
DB-08	NZ Census: Difficulty walking, income, main means of travel	Stats NZ	New Zealand	N/A	2018	High - national	High - public access and download	High - allows easy analysis (geospatial or similar)	High - detailed, reliable, relevant and accurate	Stats NZ - 2018 census	Human	Human - Multiple factors - Multiple attributes	Demographic data	All modes	From census data, includes demo
DB-09	Road User Perception and Attitudes - Waka Kotahi	New Zealand Transport Agency, Waka Kotahi	New Zealand	N/A	2021	Medium - region or state	High - public access and download	Medium - can be used in analysis, some location information	High - detailed, reliable, relevant and accurate	Report - Waka Kotahi	Physical environment	Human - Travel behaviour - road user perception and attitudes towards road safety	Perceptions of safety	All modes	Report analysing data not source c
DB-10	AU Census: Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD)	Australian Bureau of Statistics	Australia	Unknown	2016	High - national	High - public access and download	Medium - can be used in analysis, some location information	Medium - reliable, relevant and accurate	Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA) 2016	Human	Human - Socioeconomic - socioeconomic attributes (education level, income level, deprivation index)	Socio-economic deprivation	All modes	Fairly old (2016) and archived. Cur
DB-11	AU Motor Vehicle Type by State	Australian Bureau of Statistics	Australia	2020	2021	High - national	Medium - public access	Medium - can be used in analysis, some location information	Medium - reliable, relevant and accurate	Australian Bureau of Statistics - Motor Vehicles	Vehicle and technology	Vehicle and technology - - vehicle fleet composition, age, and type (fleet level)	Records of vehicle types, safety ratings, fuel type and more	All vehicular modes	This is the final release of the ABS M and Transport Research Economic replacement product using data fr System (NEVDIS). For further inform
DB-12	Unitary Plan Base Zone - Auckland Council	Auckland Council	New Zealand	N/A	2024	Medium - region or state	High - public access and download	High - allows easy analysis (geospatial or similar)	High - detailed, reliable, relevant and accurate	Auckland Council GeoMaps	Physical environment	Physical environment - Land use - land use mix and density	Land use zones	All modes	
DB-13	NZ Census: Population density	Stats NZ	New Zealand	2014	2014	High - national	High - public access and download	High - allows easy analysis (geospatial or similar)	High - detailed, reliable, relevant and accurate	Koordinates-DataFromStatsNZ	Physical environment	Human - Socioeconomic - population (numbers, density, mix) and projections	Population density	All modes	Also includes vehicle ownership by
DB-14	AU Census: Health and disability	Australian Bureau of Statistics	Australia		2021	High - national	High - public access and download	High - allows easy analysis (geospatial or similar)	High - detailed, reliable, relevant and accurate	Australian Bureau of Statistics - Interactive maps	Human	Human - Multiple factors - Multiple attributes	Health and wellness data (including COVID-	All modes	
DB-15	Bicyclist and pedestrian count	Washington State Department of Transport	United States	2017	2024	Medium - region or state	High - public access and download	High - allows easy analysis (geospatial or similar)	Medium - reliable, relevant and accurate	WSDOT-PedCycleCounts	Exposure: veh or ped volumes	Exposure - Micro - vehicle and pedestrian volume and mix (e.g., crossing counts)	Pedestrian and cyclist counts	Pedestrians and cyclists	This document provides guidance
DB-16	Land Cover Map (Land Use)	UK Centre for Ecology & Hydrology	United Kingdom	1990	2023	High - national	High - public access and download	High - allows easy analysis (geospatial or similar)	High - detailed, reliable, relevant and accurate	UK CEH - Environmental Information Data Centre	Physical environment	Physical environment - Land use - land use mix and density	Land cover	All modes	
DB-17	Crash data - Ottawa	Open Ottawa	Canada	2013	2024	Acceptable - local area	High - public access and download	High - allows easy analysis (geospatial or similar)	Low - relevant	Open Ottawa - 2024 crash records	Injuries or crashes	Injuries or crashes - Multiple factors - Multiple attributes	Crash records	All modes	Other years data sets from here
DB-18	Transportation volumes	Open Ottawa	Canada	2015	2023	Acceptable - local area	High - public access and download	High - allows easy analysis (geospatial or similar)	Medium - reliable, relevant and accurate	Open Ottawa - Transportation volumes	Exposure: veh or ped volumes	Exposure - Micro - vehicle and pedestrian volume and mix (e.g., crossing counts)	Traffic volumes	All modes	Mid block and intersection traffic v
DB-19	NZ Census: Travel to work and school mode	Stats NZ	New Zealand	2013	2023	High - national	High - public access and download	Medium - can be used in analysis, some location	High - detailed, reliable, relevant and accurate	Stats NZ - All Data	Human	Human - Multiple factors - Multiple attributes	Population demographics, location,	All modes	Updated info to be released early C

Data Framework tool: Factors/Attributes

UID	Factor Level 1 / Category	Factor Level 2	Factor Level 3 (if applicable)	Attributes	Availability	Quantity	Database format	Data Quality	Importance	Collection Difficulty/Cost	Assessment (fill all in to give accurate score)	Recommendations	Targeted Assessment	Recommendations	Not relevant / not minimum: examples of datasets	Acceptable: examples of datasets	Good: examples of datasets	Ideal: examples of
	From modified Haddon Matrix, combined with Injury Causation Chain			*some will be population or fleet level datasets, others will be location, incident or cross tabulations with other factors (e.g. crashes)*	*How accessible data is to practitioners & public, incl. whether data is openly available or requires specific access permissions*	*Extent of data coverage, whether it encompasses local, regional, or national scope and captures a wide range of relevant variables*	*How data is presented, with focus on usability & compatibility of the data for analysis purposes. Geospatial formats facilitate easier integration & analysis*	*Depth and reliability of the info provided, considering the accuracy, currency, and relevance of the data to ped'n safety concerns*	*Dataset or KPI / measure effectiveness in reducing DSIs*	*Level of financial or resource-intensive cost to collect the data*	*Overall score (1-5)*		*Overall score (1-5)*		*This column is preserved for now in order to move dataset examples if it is determined that it isn't really influential or relevant enough to the ped traffic safety needs*	*These data sets provide relatively limited information for the particular factor of interest, often only for a few locations or with just a few relevant measures*	*These data sets provide reasonably useful information for the particular factor of interest, probably covering either some parts of the area being investigated and/or providing at least some relevant measures*	*These data sets provide co high-quality information 'o particular factor of interest covering a full area and all r measures*
H1	Human	Socioeconomic		population (numbers, density, mix) and projections	High - public access and download	High - national	High - allows easy analysis (geospatial or similar)	High - detailed, reliable, relevant and accurate	High - strong influence on ped'n safety investment & decisions	Very low - Data is gathered by existing sources	4.8	Use	4.7	Use		AU: Census (DB29), NZ: Census (DB8)		
H2	Human	Socioeconomic		demographics (e.g., age, gender, ethnicity and indigenous status, language)	High - public access and download	High - national	High - allows easy analysis (geospatial or similar)	High - detailed, reliable, relevant and accurate	Moderate - a fair amount of influence on ped'n safety investment &	Very low - Data is gathered by existing sources	4.7	Use	4.3	Use			AU: Census (DB29), NZ: Census (DB8)	
H3	Human	Socioeconomic		socioeconomic attributes (education level, income level, deprivation index)	High - public access and download	High - national	High - allows easy analysis (geospatial or similar)	High - detailed, reliable, relevant and accurate	Moderate - a fair amount of influence on ped'n safety investment &	Very low - Data is gathered by existing sources	4.7	Use	4.3	Use			AU: Census SEIFA / IRSAD deprivation (DB10), NZ: Deprivation Index (DB83)	
H4	Human	Socioeconomic		social capital and community engagement	Medium - public access	Medium - region or state	Medium - can be used in analysis, some location information	Medium - reliable, relevant and accurate	Low - some influence on ped'n safety investment & decisions	Very low - Data is gathered by existing sources	3.8	Consider	3.7	Consider			AU: General Social Survey GSS (DB94)	
H5	Human	Health and wellbeing		health and wellness indicators (e.g., obesity rates, physical activity)	High - public access and download	High - national	High - allows easy analysis (geospatial or similar)	Medium - reliable, relevant and accurate	Low - some influence on ped'n safety investment & decisions	Very low - Data is gathered by existing sources	4.3	Use	3.7	Consider			AU: Census Health & Disability (DB14)	
H6	Human	Health and wellbeing		cognitive and physical capabilities (e.g., vision, reaction time)	High - public access and download	High - national	Acceptable - can be used in analysis, no location information	Medium - reliable, relevant and accurate	Low - some influence on ped'n safety investment & decisions	Very low - Data is gathered by existing sources	4.0	Consider	3.7	Consider		AU: Census Health & Disability (DB14), NZ: Census (DB8)		
H7	Human	Travel behaviour		safety awareness and education enforcement (e.g., speed limits, red light cameras)	Medium - public access	Medium - region or state	Acceptable - can be used in analysis, no location information	Acceptable - relevant and accurate	Moderate - a fair amount of influence on ped'n safety investment &	Low - minor financial or resource intensive cost to collect the data	3.5	Consider	3.3	Consider			AU: Digital Atua of Australia - median heavy vehicle speed limits (DB61)	AU: Locations of speed a cameras - Queensland (
H8	Human	Travel behaviour		road user perception and attitudes towards road safety	High - public access and download	Medium - region or state	Acceptable - can be used in analysis, no location information	Acceptable - relevant and accurate	High - strong influence on ped'n safety investment & decisions	Low - minor financial or resource intensive cost to collect the data	3.8	Consider	3.7	Consider		NZ: Road User Perception and Attitudes - Waka Kotahi - focusing on vehicular modes (DB9)	AU: ESRA survey data for all modes, including pedestrians - but only aggregated to national scale (DB92)	AU: Customer satisfactio modes (NSW) (DB72)
H9	Human	Travel behaviour		behavioural factors (e.g., risky behaviour, distraction)	High - public access and download	Very low - Single location or aggregated to entire country	Acceptable - can be used in analysis, no location information	Acceptable - relevant and accurate	Moderate - a fair amount of influence on ped'n safety investment & decisions	Medium - moderate financial or resource intensive cost to collect the data	3.0	Don't use	3.0	Don't use			AU: ESRA survey data for all modes, including pedestrians - but only aggregated to national scale (DB92)	
V1	Vehicle and technology			vehicle fleet composition, age, and type (fleet level)	Acceptable - some work required to access it	High - national	Medium - can be used in analysis, some location information	Medium - reliable, relevant and accurate	Low - some influence on ped'n safety investment & decisions	Low - minor financial or resource intensive cost to collect the data.	3.0	Don't use	2.0	Don't use		AU: Registration data from NEVDIS (DB84) matched to ANCAP (DB82), NZ Motor vehicle registrations (DB38)		
V2	Vehicle and technology			vehicle regulation and vehicle safety technology penetration and standardisation	Acceptable - some work required to access it	High - national	Acceptable - can be used in analysis, no location information	Medium - reliable, relevant and accurate	Low - some influence on ped'n safety investment & decisions	Low - minor financial or resource intensive cost to collect the data.	2.8	Don't use	2.0	Don't use		Rightcar vehicle safety ratings (DB81)	AU: Registration data from NEVDIS (DB84) matched to AU: ANCAP (DB82)	
V3	Vehicle and technology			vehicle technology (e.g., Advanced Driver Assistance Systems)	Acceptable - some work required to access it	High - national	Acceptable - can be used in analysis, no location information	Medium - reliable, relevant and accurate	Moderate - a fair amount of influence on ped'n safety investment &	Low - minor financial or resource intensive cost to collect the data.	3.0	Don't use	2.3	Don't use			AU: Registration data from NEVDIS (DB84) matched to AU: ANCAP (DB82)	
P1	Physical environment	Urban planning		density of roads and street connectivity	High - public access and download	High - national	High - allows easy analysis (geospatial or similar)	Medium - reliable, relevant and accurate	Very low - little to no influence on ped'n safety investment & decisions	Low - minor financial or resource intensive cost to collect the data	4.0	Consider	3.0	Don't use		International: Open Street Map (DB36)		
P2	Physical environment	Urban planning		motorisation level and availability of public transport	Medium - public access	High - national	High - allows easy analysis (geospatial or similar)	Acceptable - relevant and accurate	Moderate - a fair amount of influence on ped'n safety investment & decisions	Low - minor financial or resource intensive cost to collect the data	4.0	Consider	3.3	Consider		International: Open Street Map (DB36) AU: Census vehicle ownership data SEIFA (DB14)	AU: Locations of public transport stops - railways (DB64) International: bus stops Open street map (DB36) or International: GTFS (DB85)	NZ: Public transport patr datasets (DB86) paired v ThinkProject bus stop inf (formerly RAMM, DB57;

Data Framework tool: Top Datasets

Based on the **3** most relevant criteria:

- Population *(numbers, density, mix)*
- Posted and travelling speed *(including probe speed data)*
- Mechanism and severity of injury *(e.g. ICD code, AIS and MAIS levels)*
- Demographics *(age, gender, ethnicity and indigenous status, language)*
- Socioeconomic attributes *(education level, income level, deprivation index)*
- Road hierarchy and functional classification
- Traffic volumes and mix
- Drug/alcohol use in crashes
- Facilities for pedestrians (geospatially mapped) - crossing roads
- Crash location and type *(DCA/CAS codes)*
- Road user characteristics *(age, gender, ethnicity)*

Conclusions – minimum data

Recommended minimum pedestrian safety data:

- **Population** data (numbers, demographics)
- **Crash** data (location, type, severity, users, factors)
- **Road & Traffic** data (classification, volumes, speeds)
- **Pedestrian** facility data (crossings, paths)

Various ways to collect these data sources

- Further guidance will be outlined in Practitioner Guide

Use of pedestrian safety data

Useful to distinguish between measures that record:

- **Monitoring** of progress towards better pedestrian safety
  e.g. no. of pedestrian casualties (+ associated descriptive info)
- **Implementation** of better pedestrian safety environments
  e.g. % of low-speed streets, no. of raised pedestrian crossings

*Monitoring on an ongoing basis provides important understanding of how well a jurisdiction is meeting its pedestrian safety objectives, **but** you need changes in other measures to produce that safer pedestrian environment*

Thank you!

Any questions or feedback?