Unit 5: Network Operations Planning

Module 5-3

Road Space Allocation and Road Use Priority

Traffic Management Training Module

Austroads

Today's presenter

David M. Levinson
Professor of Transport
University of Sydney

E: david.levinson@sydney.edu.au

Airport

Road User Priority Map

Which trip purposes (which end-opportunities) are prioritised in a design for roads?

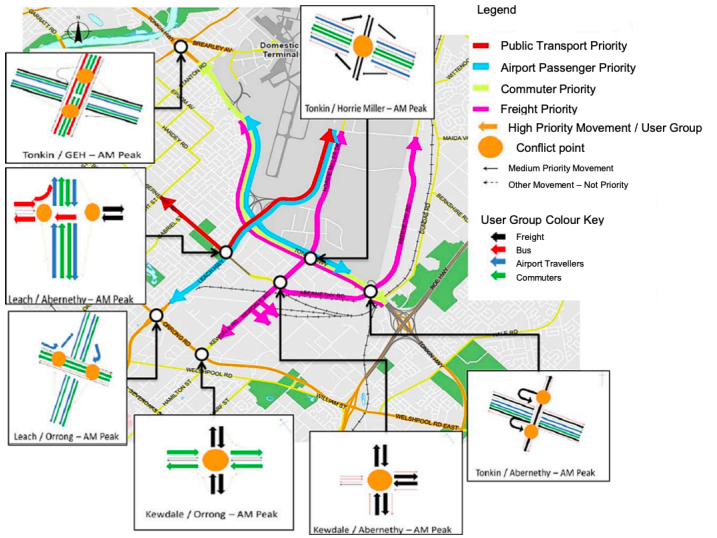
Which modes are particular routes prioritised in designs on roads?

The examples shows some routes are for public transport, some for freight, some for taxis, some for pedestrians,

Similarly some for airport passengers, others for through traffic (cars)

This can be done for a local area (e.g. the airport) or the metropolitan region.

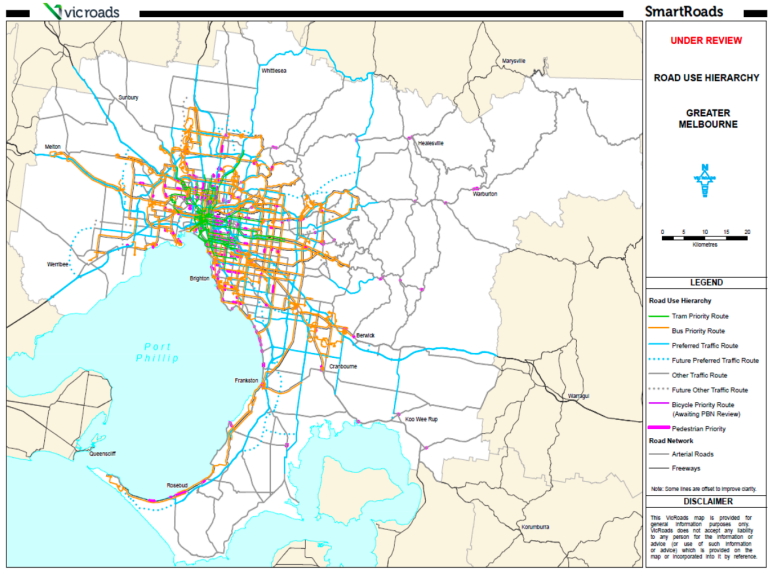
Figure 4.4: Road user priority map showing AM peak priority



Source: Gateway Vision (2012a and 2012b).

Metropolis

Figure 4.5: Metropolitan road use priority map



Source: VicRoads (2008).

Road User Hierarchy

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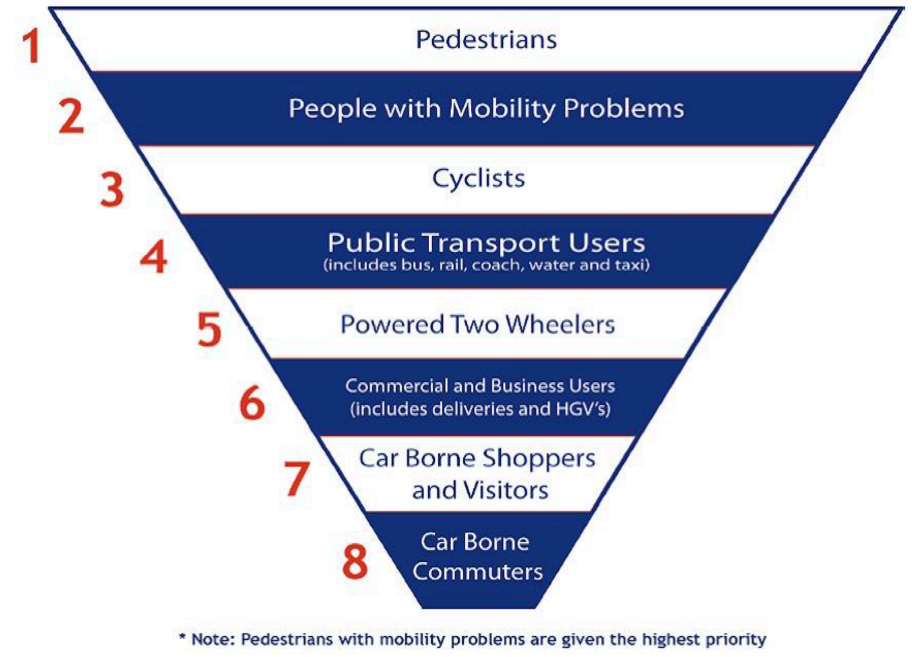
New Zealand College of Public Health Medicine Policy Statement on transport says

"The NZCPHM supports transport user hierarchy approaches for the development and funding of better transport and urban systems. Transport users' hierarchies prioritise active transport first, then public transport, followed by business and freight, and finally the use of private vehicles for personal transport"



Source: City of York

https://www.nzcphm.org.nz/media/124042/2018_11_20_nzcphm_transport_policy_statement_final.pdf

This is consistent with general Australia Guidance

Consider pedestrians first (and private vehicles last) for several reasons:

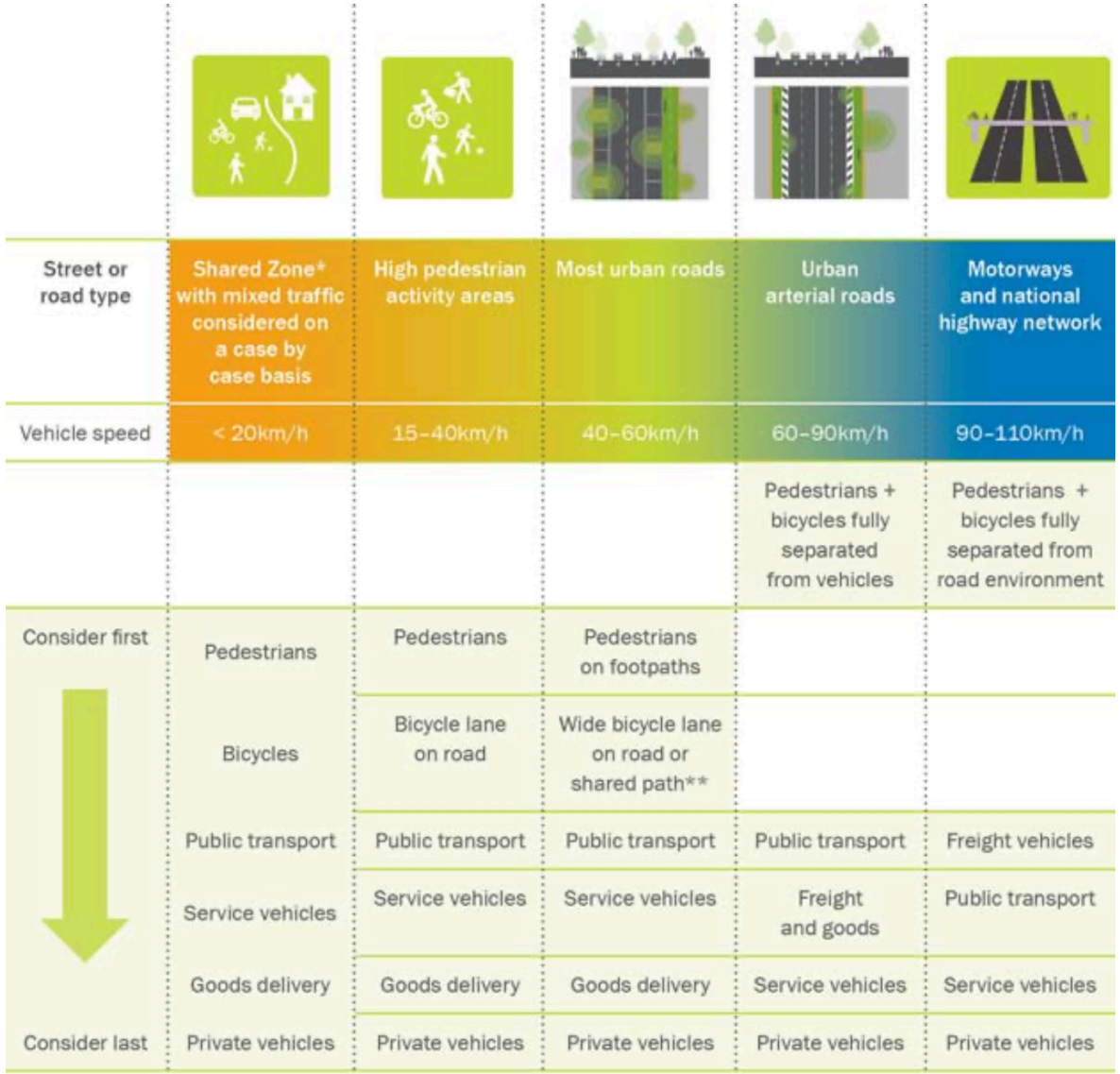
Equity: Pedestrians are the most vulnerable user. A pedestrian crashing into a car will not damage the car or its occupants in the same way that a car crashing into a pedestrian will.

Efficiency: Pedestrians require less infrastructure

Environment: Pedestrians impose much lower social costs on society.

Health: People should be encouraged to walk by public policy.

Figure 6.6 Potential urban road user hierarchy



Street or road type	Shared Zone* with mixed traffic considered on a case by case basis	High pedestrian activity areas	Most urban roads	Urban arterial roads	Motorways and national highway network
Vehicle speed	< 20km/h	15–40km/h	40–60km/h	60–90km/h	90–110km/h
				Pedestrians + bicycles fully separated from vehicles	Pedestrians + bicycles fully separated from road environment
Consider first	Pedestrians	Pedestrians	Pedestrians on footpaths		
	Bicycles	Bicycle lane on road	Wide bicycle lane on road or shared path**		
	Public transport	Public transport	Public transport	Public transport	Freight vehicles
	Service vehicles	Service vehicles	Service vehicles	Freight and goods	Public transport
	Goods delivery	Goods delivery	Goods delivery	Service vehicles	Service vehicles
Consider last	Private vehicles	Private vehicles	Private vehicles	Private vehicles	Private vehicles

Source: Compiled from multiple sources including Austroads 2010, *Infrastructure / Speed Limit Relationship in Relation to Road Safety Outcomes* and Austroads 2009, *Guide to Traffic Management: Part 4: Network Management.*

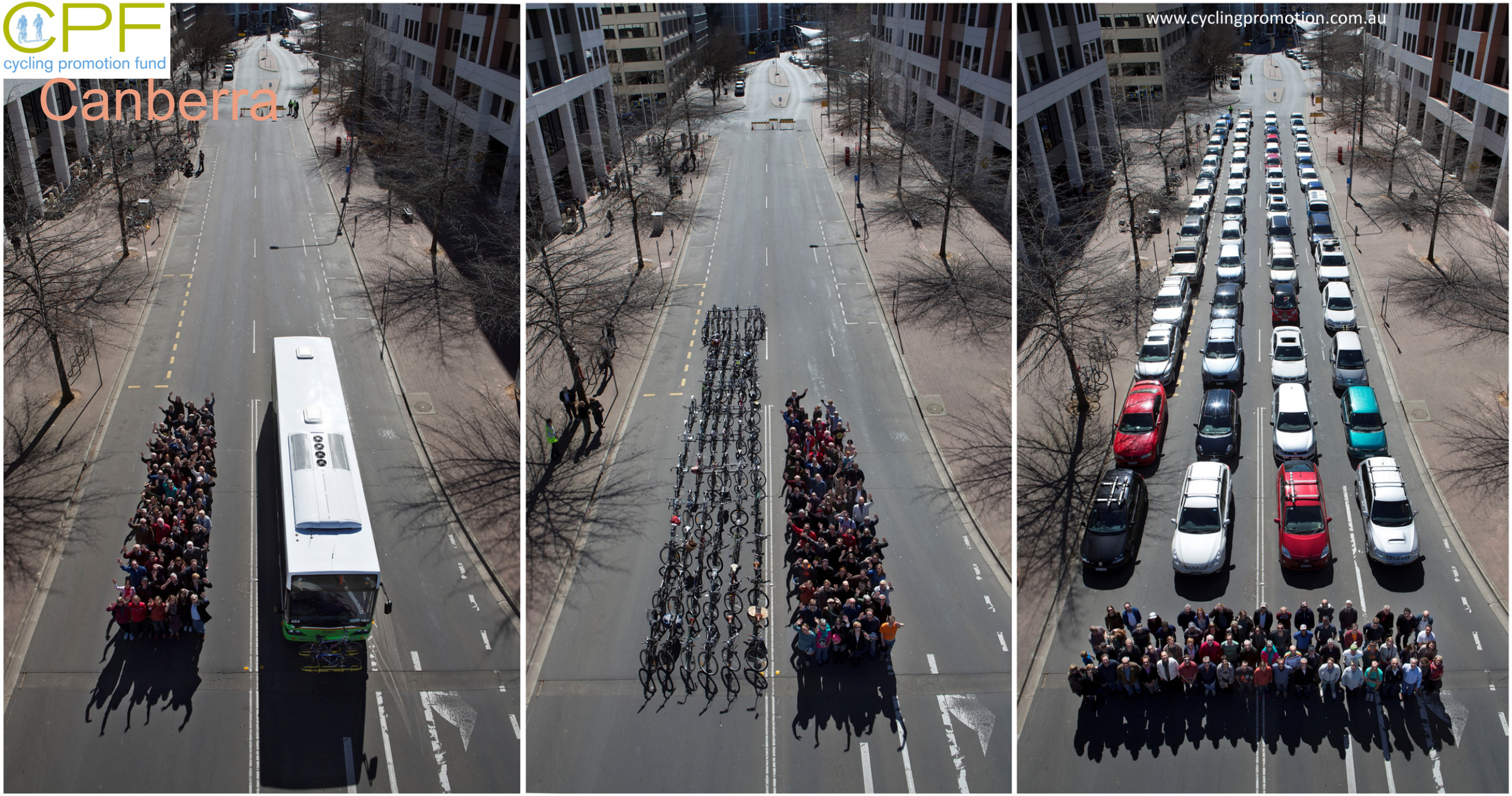
Figure 6.6 Infrastructure Australia: Walking, Riding, and Access to Public Transport (October 2012)

Münster: Street Space for 60 people

Source: City of Münster

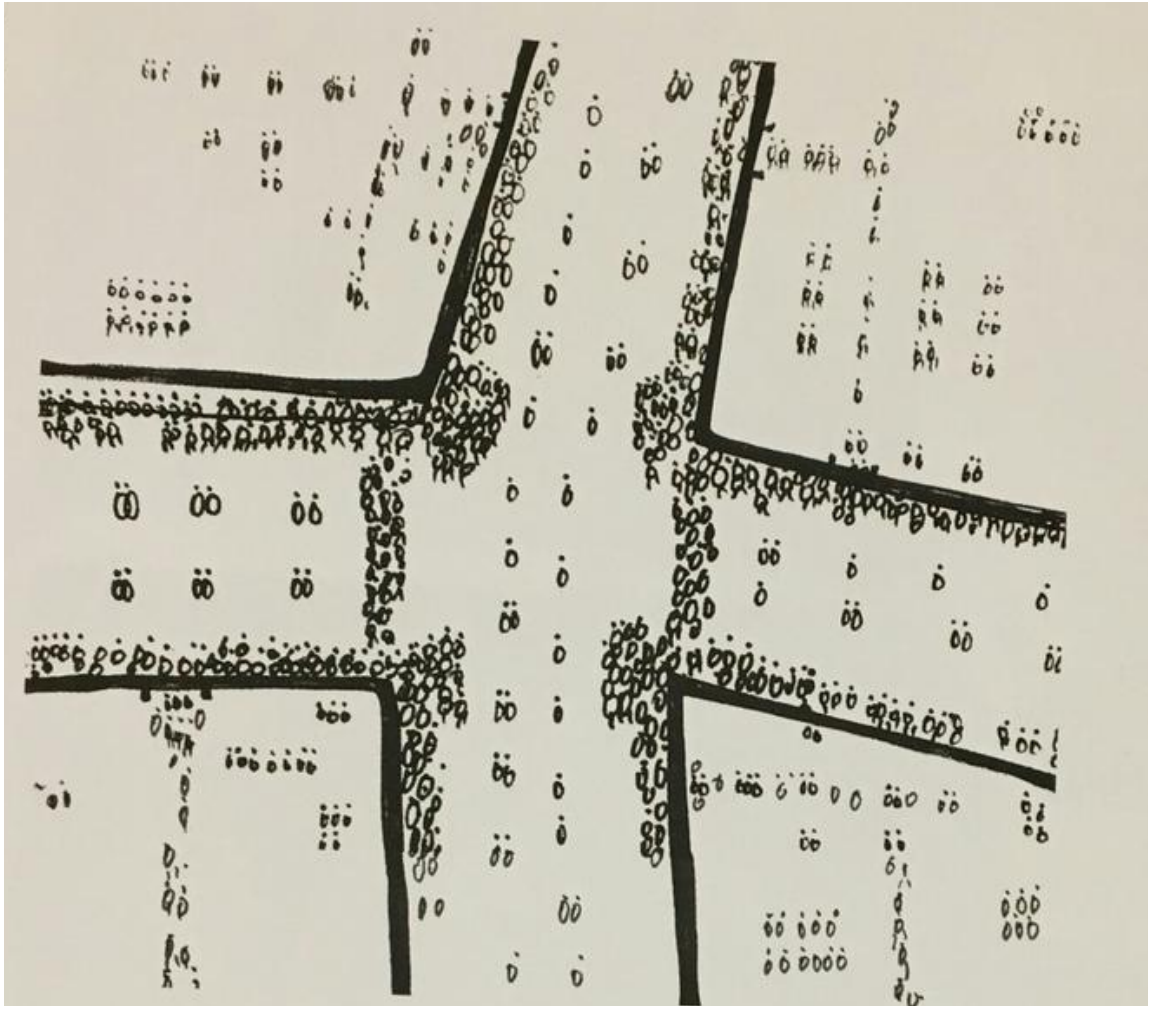
CPF
cycling promotion fund

Canberra

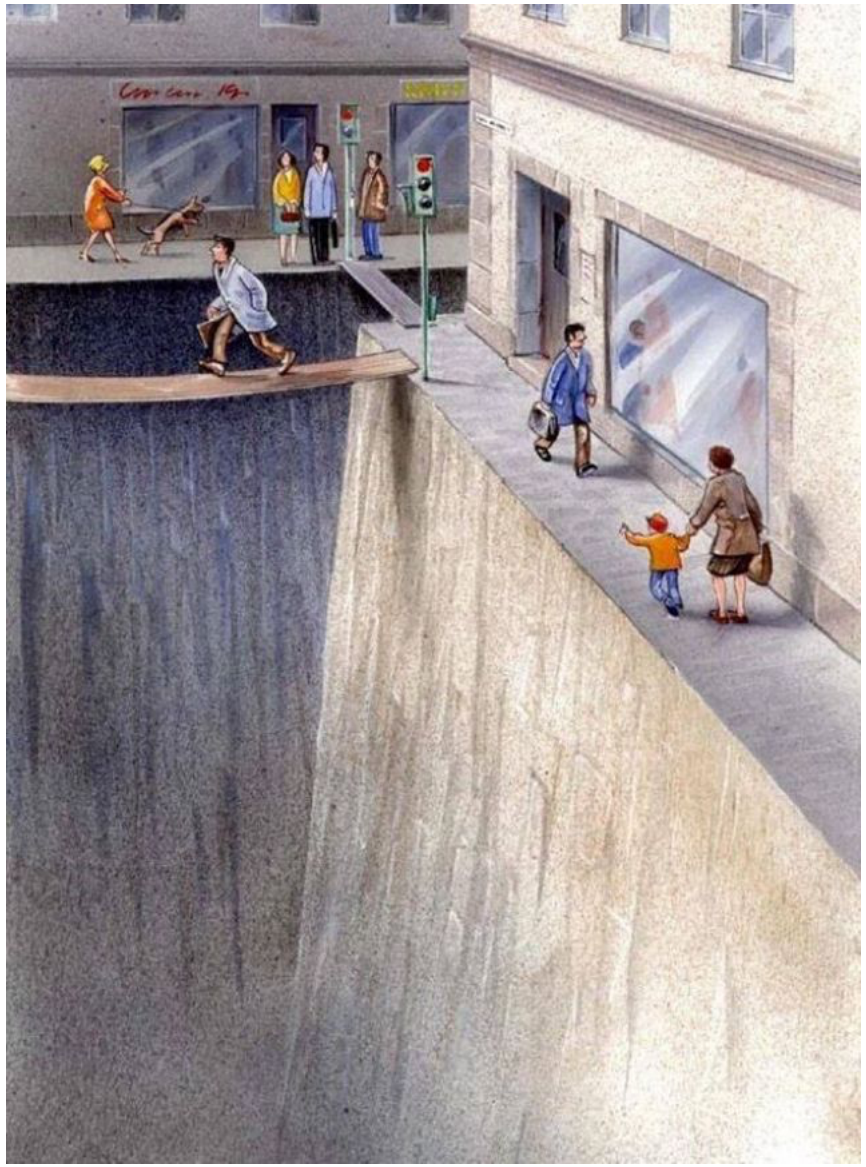


Source: Cycling Promotion Fund, Canberra

Source: TV Ad for Saturn Cars



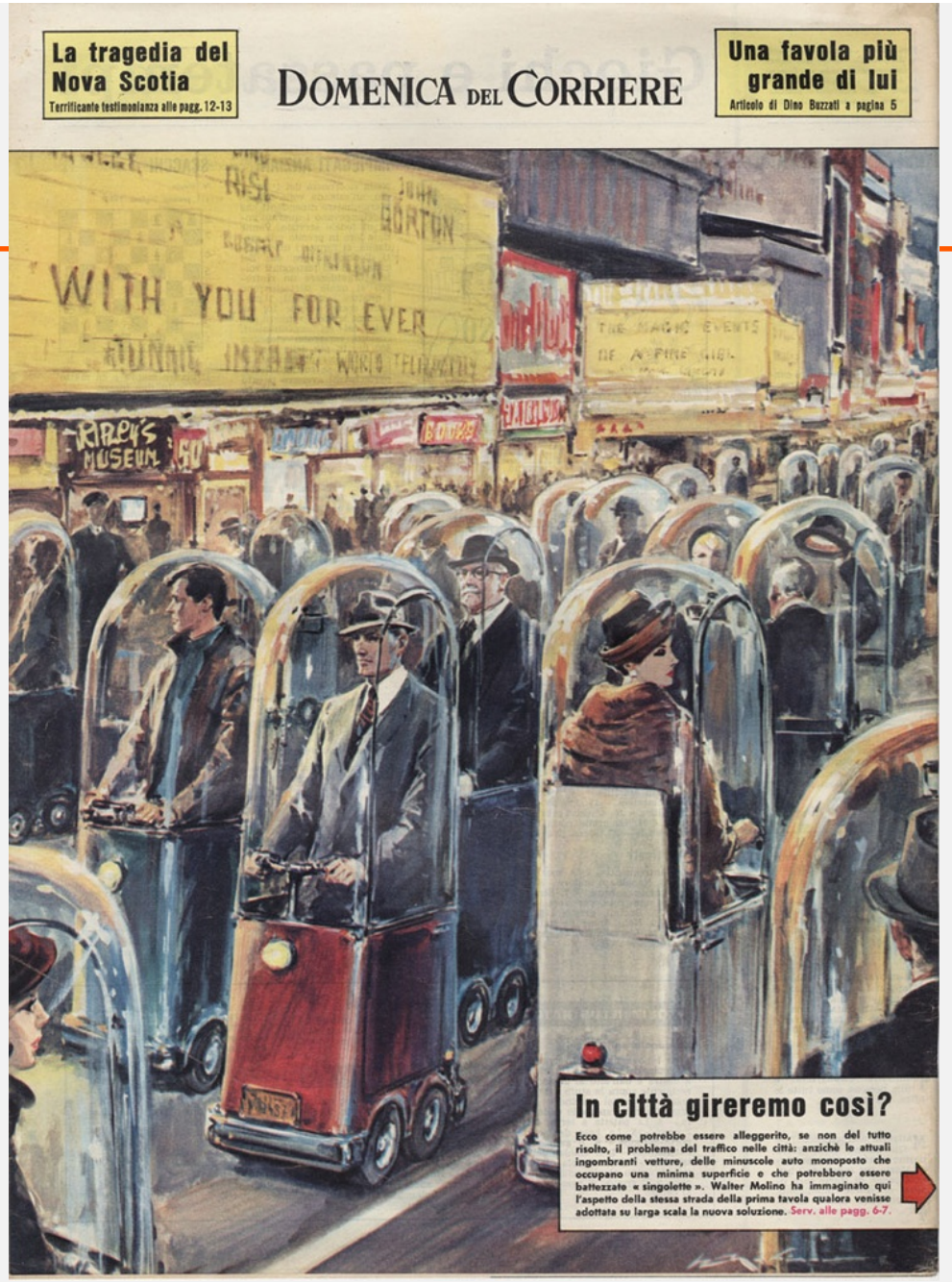
Source: Terry Farrell, Sketch



Source: Swedish Roads Authority, by: Karl Jilg

Source: Todorovic

Our Covid Future?



Source: Domenica del Corriere

Lane management plan

A lane management plan identifies how road space is divided between various user groups.

Some users, e.g. buses, high-occupancy vehicles might be allocated lanes because they carry more passengers.

Some lanes may switch direction by time-of-day to accomodate the tidal flows of traffic.

Some lanes may be allocated to car storage when the demands for movement are not high.

Some lanes may be allocated to bicyclists and other micromobility users to improve system safety and encourage use of less environmentally damaging modes.

Figure 4.7: Lane management plan for a region

Source: VicRoads (2008).

First Path

- **Walking**
- *User powered vehicles (scooters skateboards bikes)*
- *Low speed robotic delivery*

Source: Jesse Vermeulen Unsplash

Source: David Levinson

Source: David Levinson

Source: Starship Robotics

Second Path: The Road

Animal powered vehicles,

Motor vehicles

Bikes?

Source: David Levinson

Third Path

Bikes, Scooters, Skateboard, etc.

Electric Bikes, Electric Scooters, Hoverboards, etc.

Source: David Levinson

Source: David Levinson

Fourth Path

Buses

High occupancy vehicles

Source: David Levinson

Source: David Levinson

Signal Operation Plan

Who gets priority on which streets, and at intersections?

If the objective is moving people, rather than vehicles, the modes with the greatest flux (persons per hour per meter of road width) should get priority.

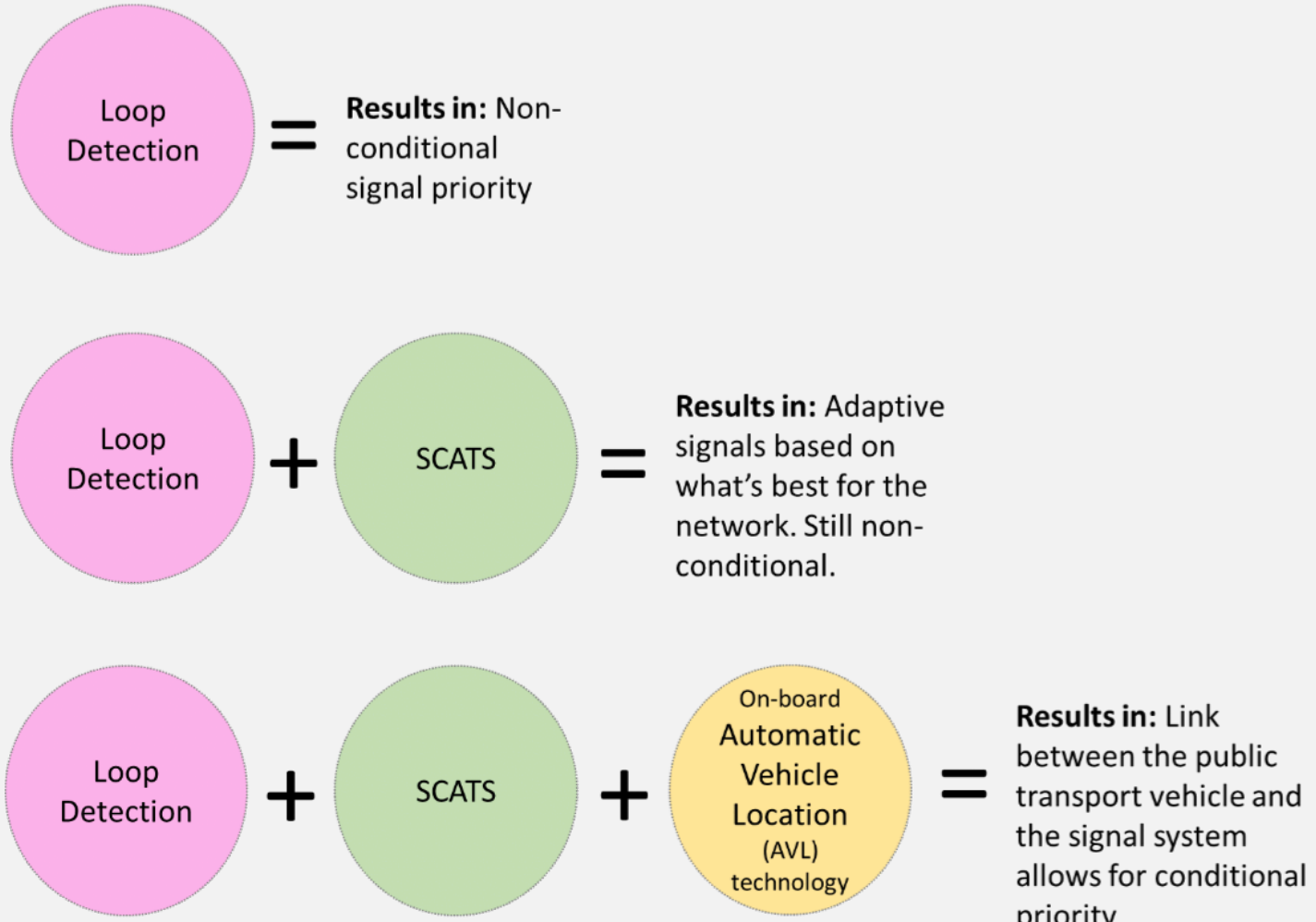
This differs from much conventional practice which treats all vehicles equally, and doesn't count the number of pedestrians, bicyclists, or bus passengers.

But also remember, you get what you design for. You cannot estimate the demand for a bridge by counting the number of swimmers. If the environment is hostile to public transport or bicycling, you will have fewer people using those modes.

Figure 4.6: Signal operation plan for a region

Source: VicRoads (2008).

Using SCATS and AVL to Improve on Loops



- But what about pedestrians?

Source: Austroads AP-R550-17 Prioritising On-Road Public Transport. Figure 3.3

~~Parking~~ Car Storage Management Plan

Storing cars is important, cars cannot be in motion 24/7/365. Storing cars on scarce road space less so.

A ~~parking~~ car storage management plan identifies when and where it is appropriate to use public roads for car storage.

Clearways identify road sections where car storage is prohibited at certain times of the day, when they interfere with the movement of people.

Figure 4.8: Parking management plan for a region

Source: VicRoads (2008).

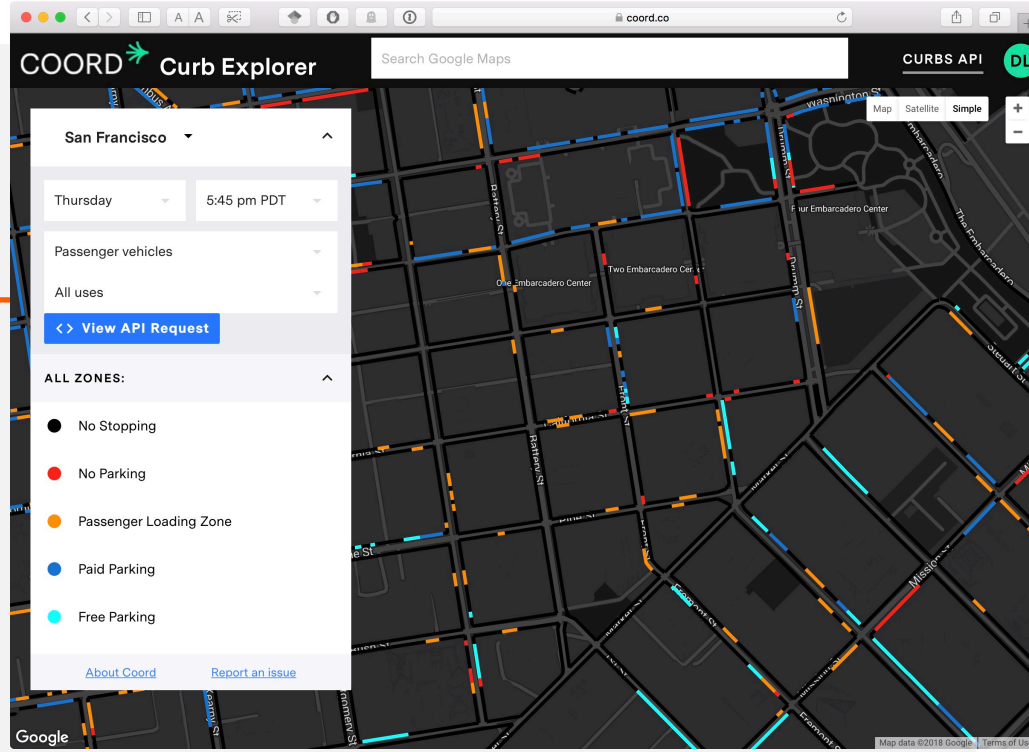
Kerb Management Plan

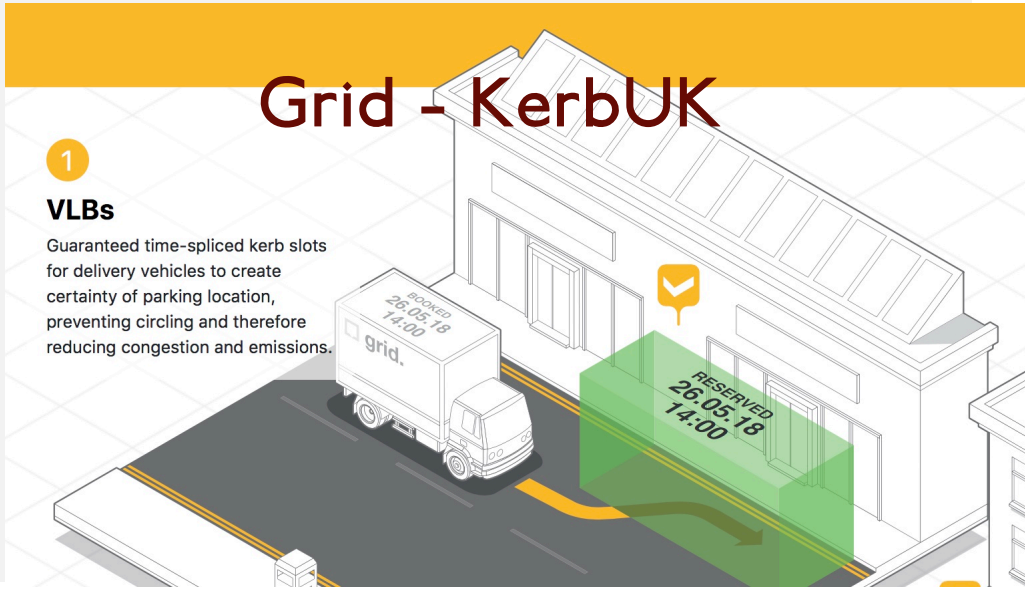
The Kerb - Once a nondescript piece of concrete, now the edge (both physically and metaphorically) of the sharing economy: taxis, Ubers, autonomous mobility services.

Who manages kerbspace?

How is it regulated?

Is it even mapped?





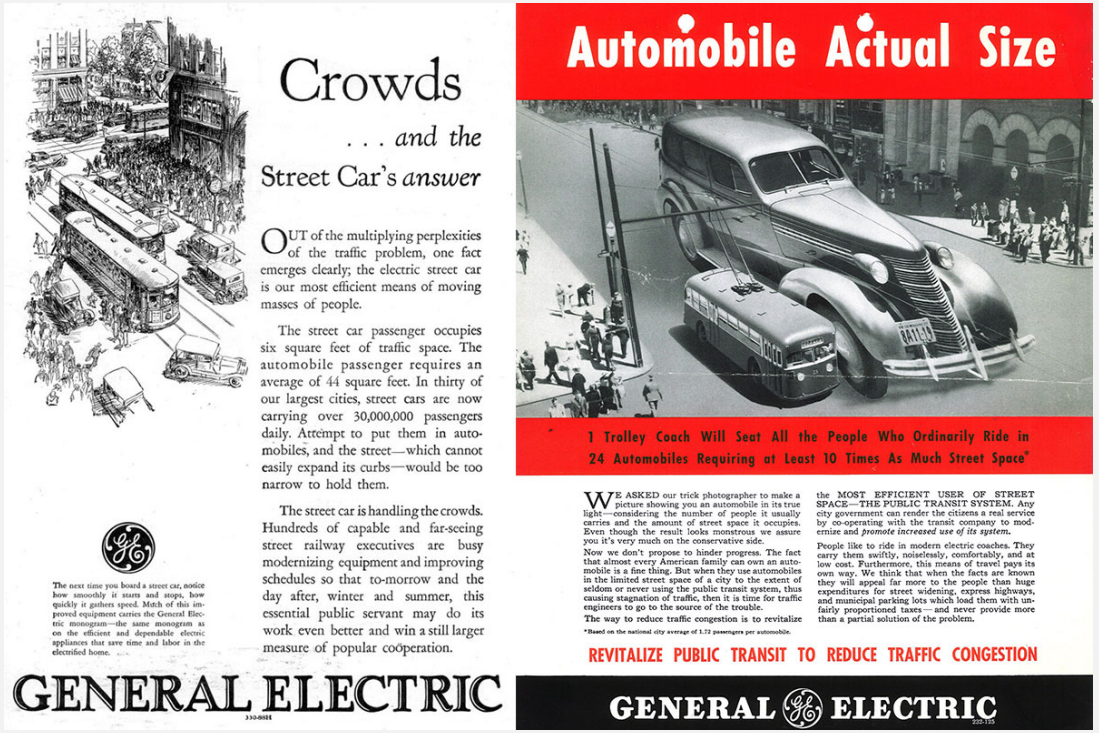
Conclusions

The management of road space is embedded in the values of how we want communities to function.

We should not simply allocate space based on current use, as that makes it harder to change behaviour.

It should instead be allocated based on how we want communities to work. If we want more people riding bikes, more space should be given to bicyclists.

If people need a 2m physical distance, more footpath space needs to be allocated, rather than telling people they cannot safely walk.



Source: Oatman-Stanford (2014)

Questions

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Question 1

- Rank the road users in order of priority in a road user plan from most important to least important?

    A. Motorists

    B. Public Transport Users

    C. Bicyclists

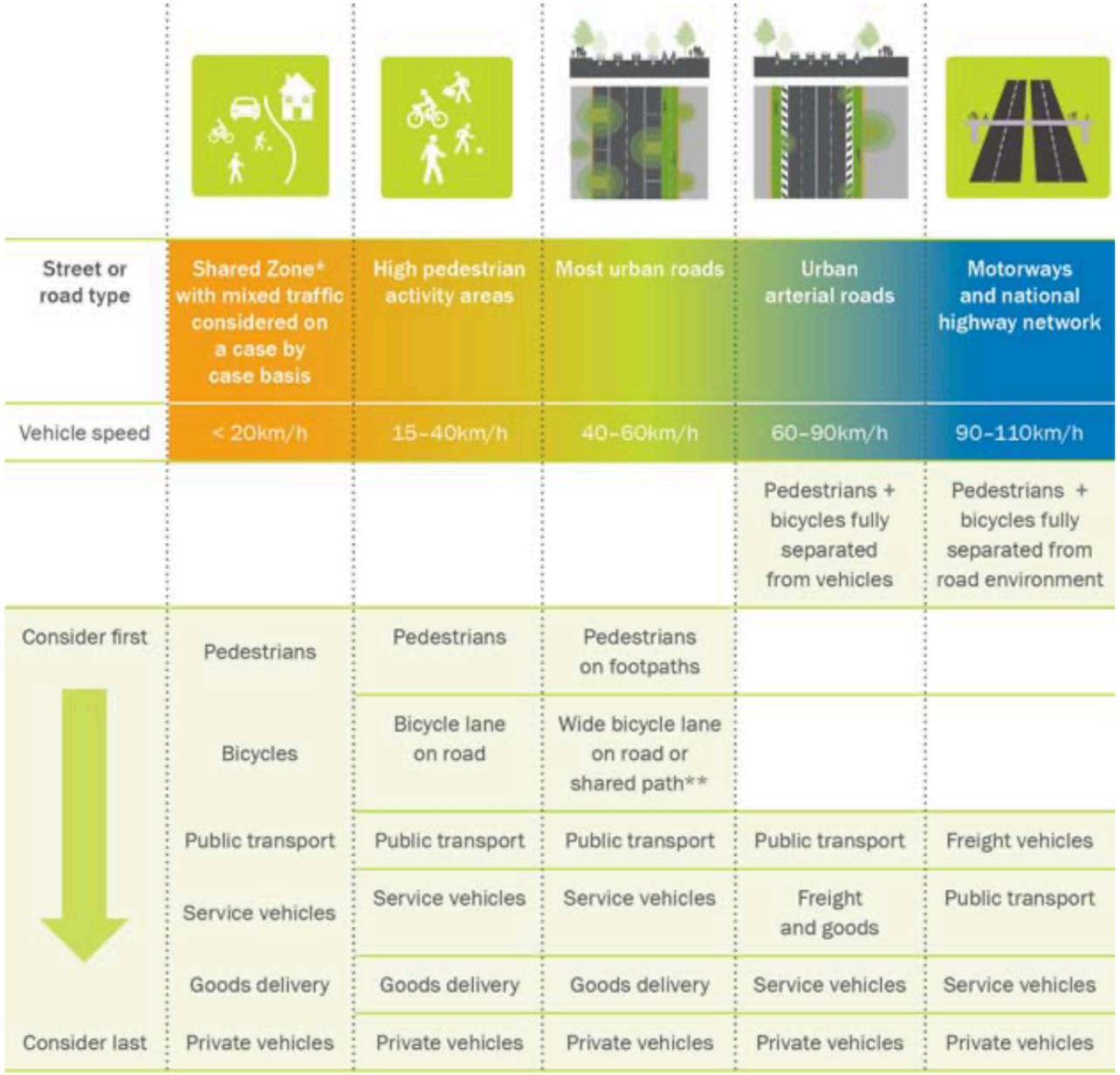
    D. Pedestrians

    E. People Storing Vehicles

Answer 1

- Which road users should be prioritised in a road user plan from most important to least important?
    1. Pedestrians
    2. Bicyclists
    3. Public Transport Users
    4. Motorists
    5. ~~People Storing Vehicles~~

Figure 6.6 Potential urban road user hierarchy



Source: Compiled from multiple sources including Austroads 2010, *Infrastructure / Speed Limit Relationship in Relation to Road Safety Outcomes* and Austroads 2009, *Guide to Traffic Management: Part 4: Network Management.*

Question 2

- Which of the following plans (select more than one) would need to be reconsidered when pedestrianising a shopping street?

    A. Road User Priority Map

    B. Lane Management Plan

    C. Signal Operations Plan

    D. Car Storage Management Plan

    E. Kerb Management Plan

Answer 2

- Which of the following plans (select more than one) would need to be reconsidered when pedestrianising a shopping street?

A. Road User Priority Map

B. Lane Management Plan

C. Signal Operations Plan

D. Car Storage Management Plan

E. Kerb Management Plan

All of them

Question 3

- What term refers to the measure of the number of persons per hour per meter of road width?

    A. Flow

    B. Flux

    C. Density

    D. Volume

    E. Occupancy

    F. Speed

Answer 3

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- What term refers to the measure of the number of persons per hour per meter of road width?

  A. ~~Flow~~

  B. Flux

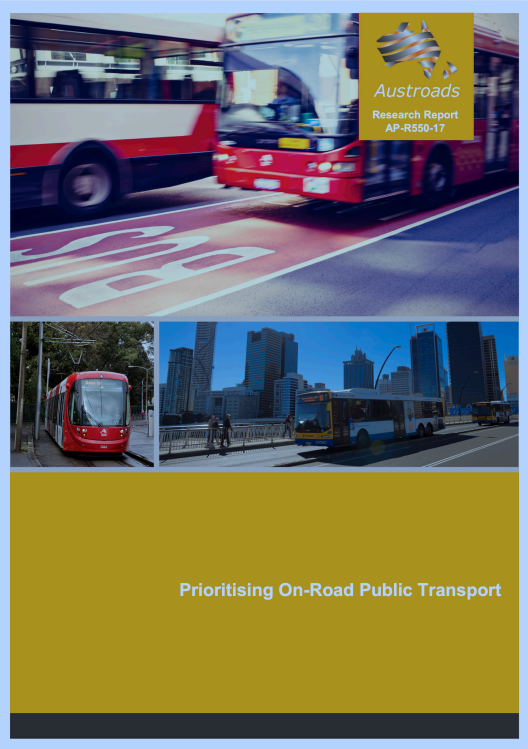
  C. ~~Density~~

  D. ~~Volume~~

  E. ~~Occupancy~~

  F. ~~Speed~~

Austroads report



Some of the information from this presentation is conveyed in the Austroads Report: Prioritising On-Road Public Transport.

This report can be downloaded from Austroads Website:

https://austroads.com.au/publications/network/ap-r550-17