



Evaluating Pedestrian Safety Infrastructure Projects: Are we making a difference?

TAC Webinar Thursday 16 July 2020

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The webinar will cover

Assessing the effectiveness of small-scale infrastructure projects to improve pedestrian safety

- The Safe System applied to pedestrians
- A framework for evaluating pedestrian safety projects
- A Safe System-aligned checklist
- Some examples

TOWARDS  ZERO



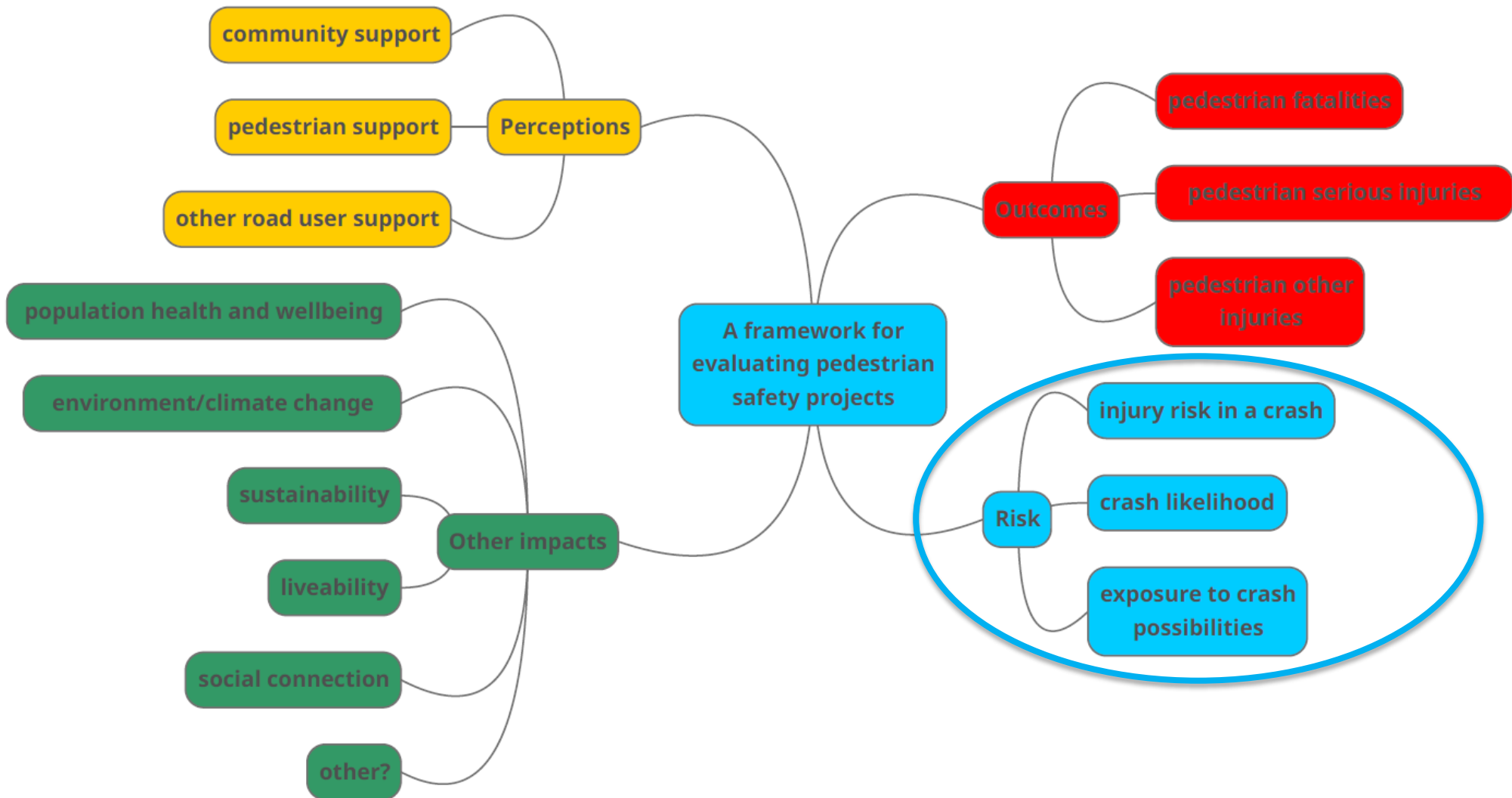
Safe System principles applied to pedestrians

- Safe System - reaffirmed as global best practice*
- Belief in aiming for zero
- Acceptance that humans are imperfect
- Awareness that survivability is low in common crashes at legal speeds
- Understanding
 - the fundamental importance of kinetic energy
 - the value of system-based design
 - the need to focus on systemic risk
- Acceptance of our professional responsibilities
 - to build safe infrastructure
 - to set safe speed limits

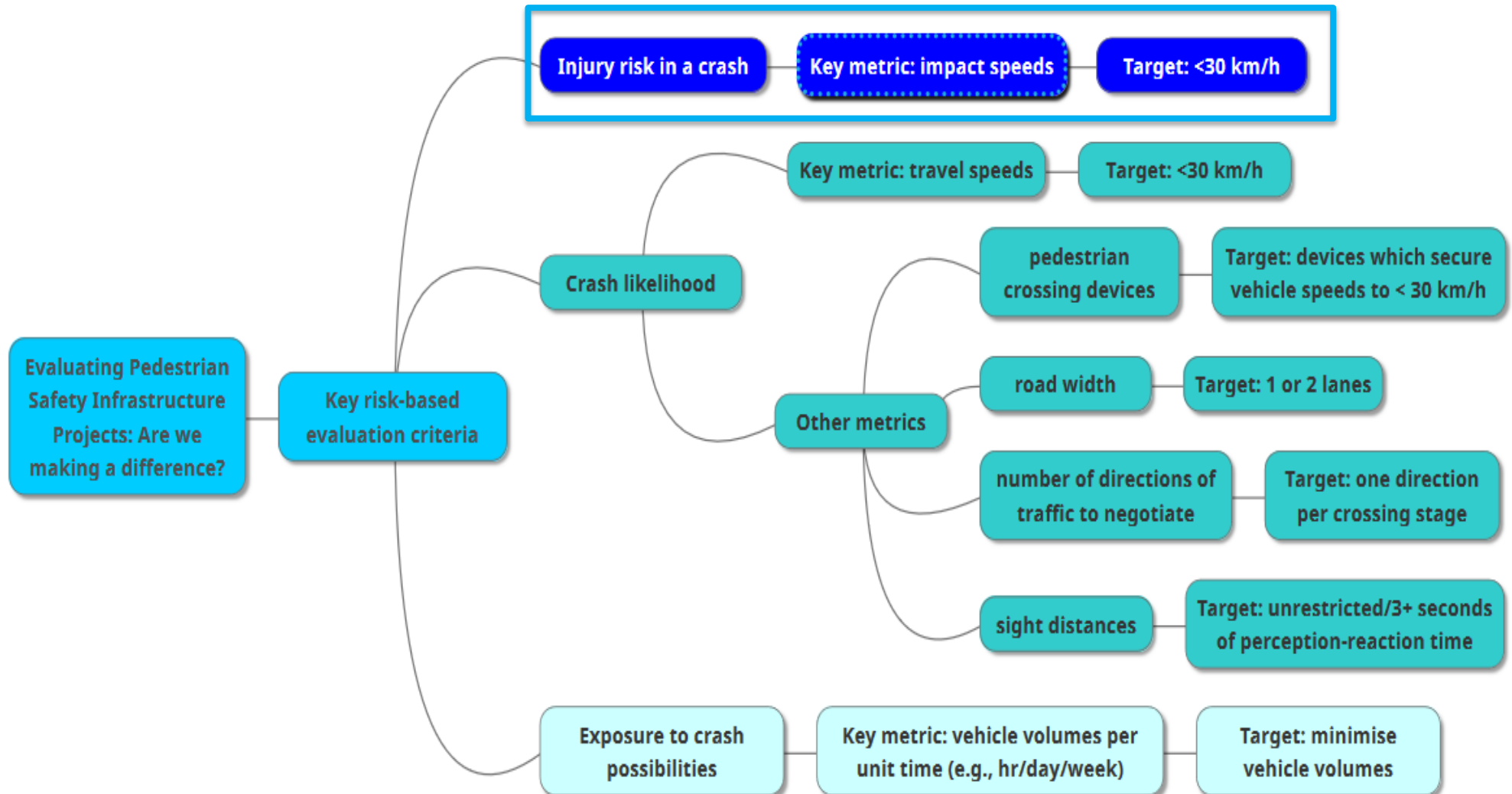


* 3rd Global Ministerial Conference on Road Safety, Stockholm, February 2020

A framework for evaluating pedestrian projects



Overview of risk-based evaluation



Safe System Speeds

Aspirational operating speeds

- 30 km/h – vulnerable road users vs passenger vehicles
- 50 km/h – right angle collision between passenger vehicles
- 70 km/h – head on collision between passenger vehicles
- ≥ 100 km/h – no possible side or frontal impact between vehicles or impacts with vulnerable road users



Image: AEG report to the 3rd Global Ministerial Conference on Road Safety

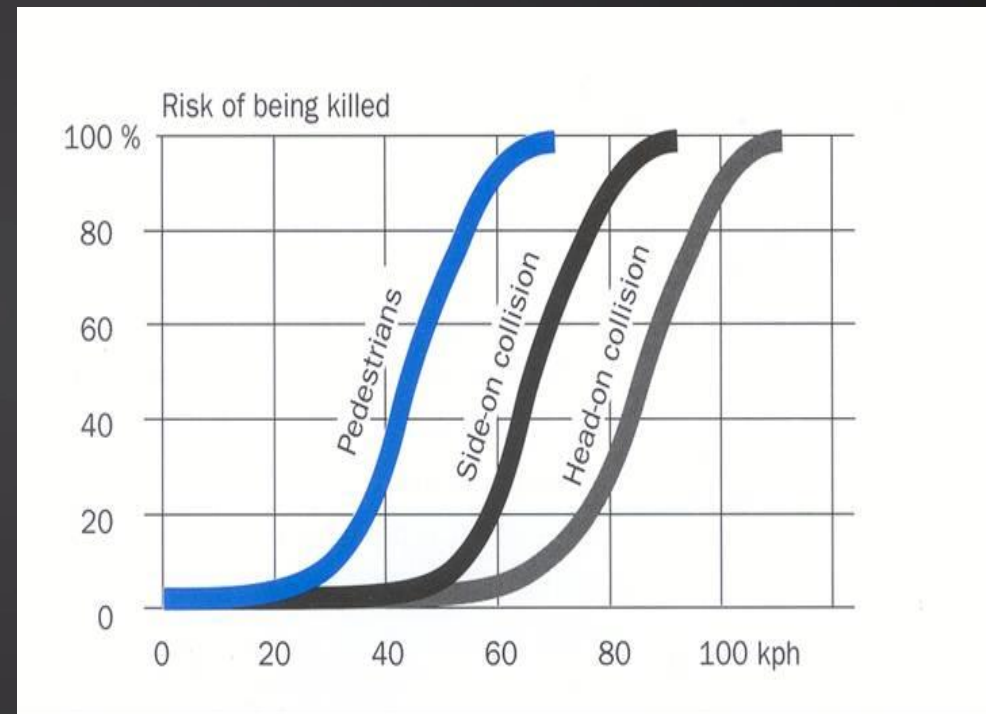
Towards Safe System infrastructure: a compendium of current knowledge

<https://austroads.com.au/publications/road-safety/ap-r560-18>

Pedestrian fatality risk and impact speed (1)

Multiple studies of pedestrian fatal injury risk, as a function of impact speed

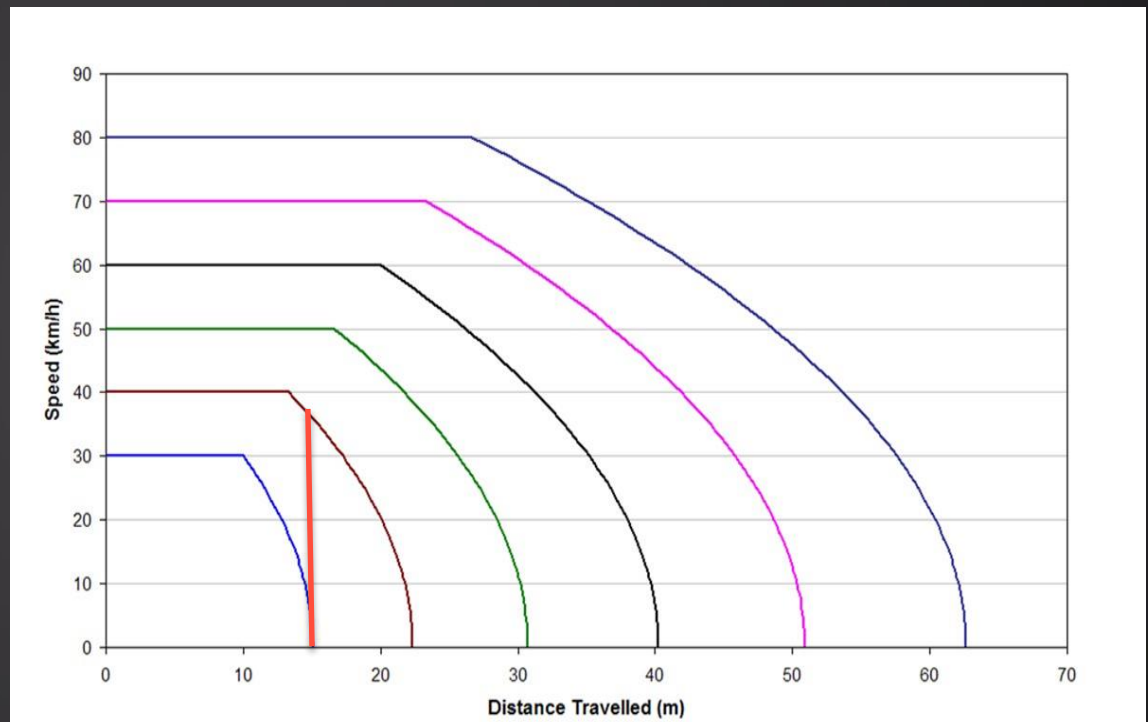
- have found varying results
- suffer from a range of scientific/methodological problems
- are not unanimously accepted



Pedestrian crash and injury risk and speed (2)

However, we know that higher travel speeds mean

- Greater information processing loads on drivers
- Less likely that drivers will give way to pedestrians
- Disproportionately longer stopping distances
- Higher impact speeds
- More severe injuries

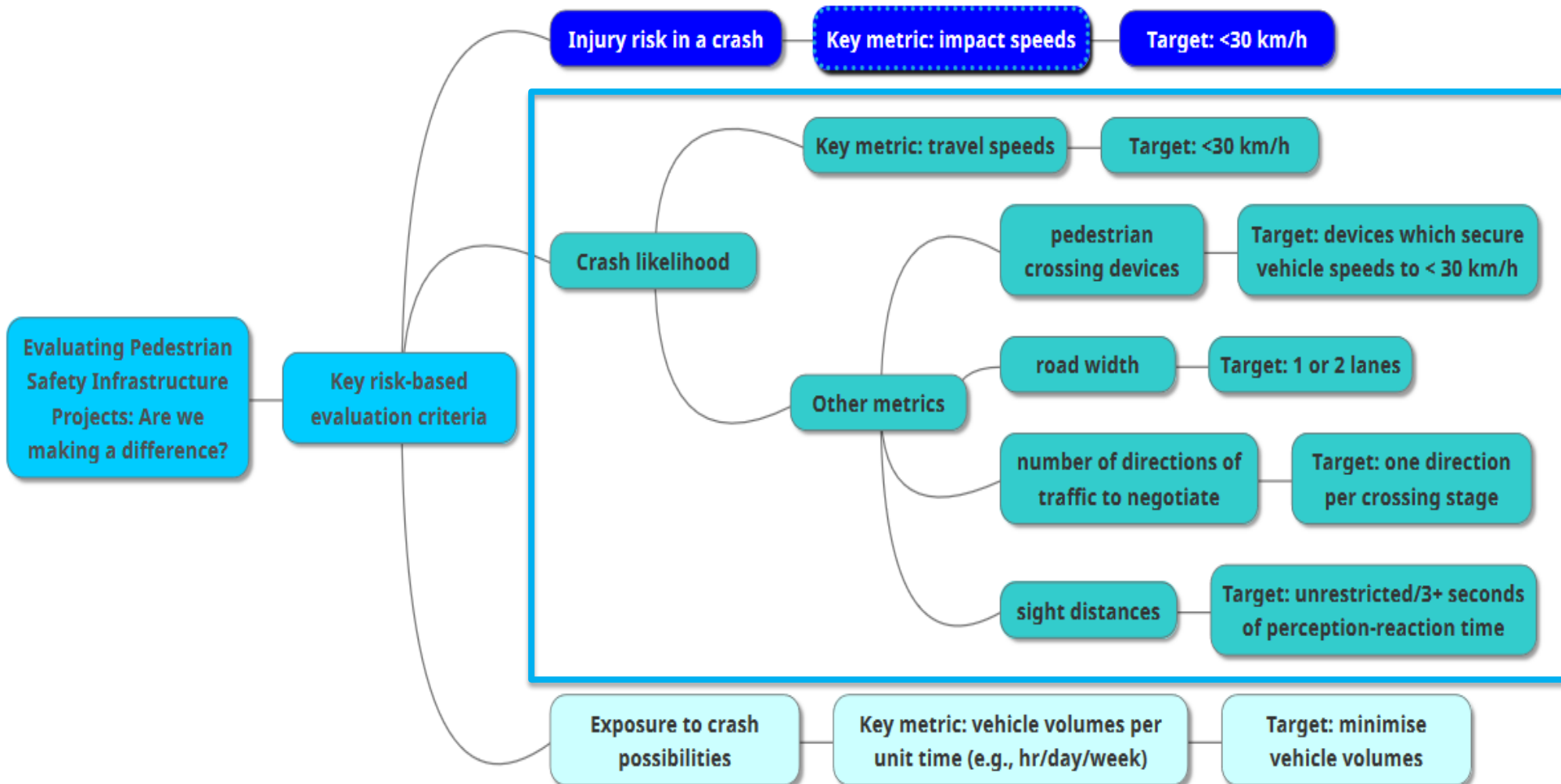


Pedestrian fatality risk and impact speed (3)

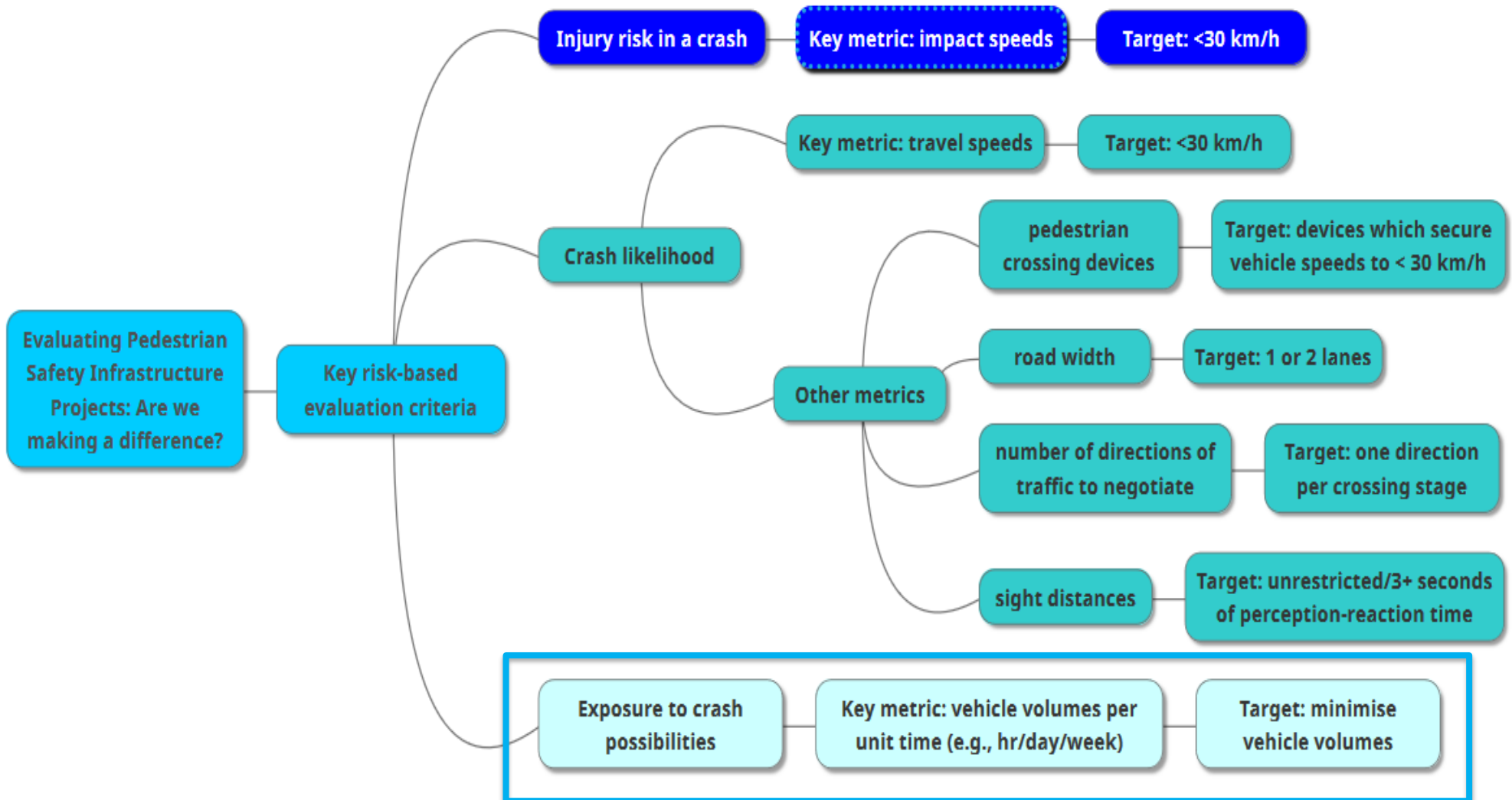
We also know that

- An 'average' pedestrian struck at 30 km/h is likely to be severely injured, possibly even killed
- Increasing impact speed above ~30 km/h increases crash risk and rapidly increases injury risk
- Older, mobility-impaired and child pedestrians are at even greater risk
- Larger vehicles (e.g., trucks, buses and trams) further elevate injury risks
- Pedestrians being struck at 30 km/h is unacceptable
- The travel speed is often the impact speed
- Adopting boundary condition speeds helps in the practical translation of Safe System principles into real-world practice

Overview of risk-based evaluation



Overview of risk-based evaluation



A Safe System-aligned checklist for assessment

Which boxes can we check?



- **Have we secured speeds to 30 km/h or lower?**
- Have we provided a device to help pedestrians cross safely?
- Have we simplified the task of choosing a safe gap?
- Have we broken the crossing into separate stages?
- Have we minimised the width of road to be crossed?
- Have we provided adequate sight-lines/stopping distances?
- **Have we minimised vehicle numbers (/day)?**

Using the assessment criteria – 40 km/h shopping street



Using the assessment criteria – side street intersecting 40 km/h shopping street



Some examples for discussion

- Webinar participants to assess designs against the check list of risk criteria and share thoughts
- Can email questions or comments, if preferred, after the webinar (askus@tac.vic.gov.au)

A Safe System-aligned checklist for assessment

Which boxes can we check?

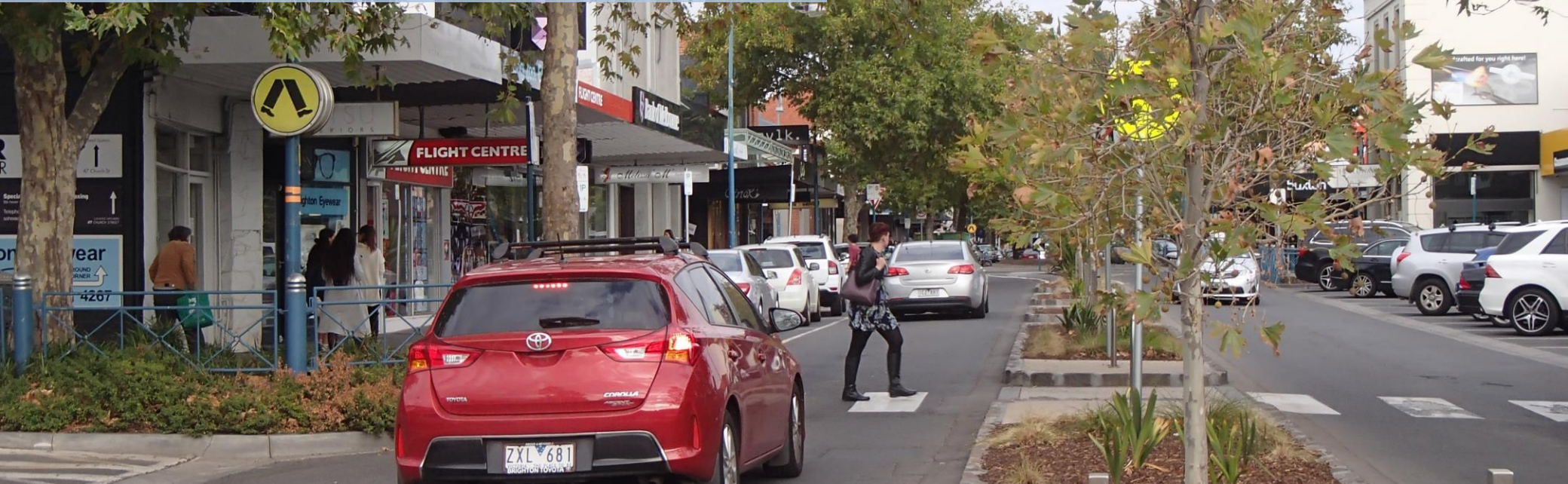


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Kerb outstands, median and zebra (40 km/h)

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Local street intersecting with 40 km/h shopping street

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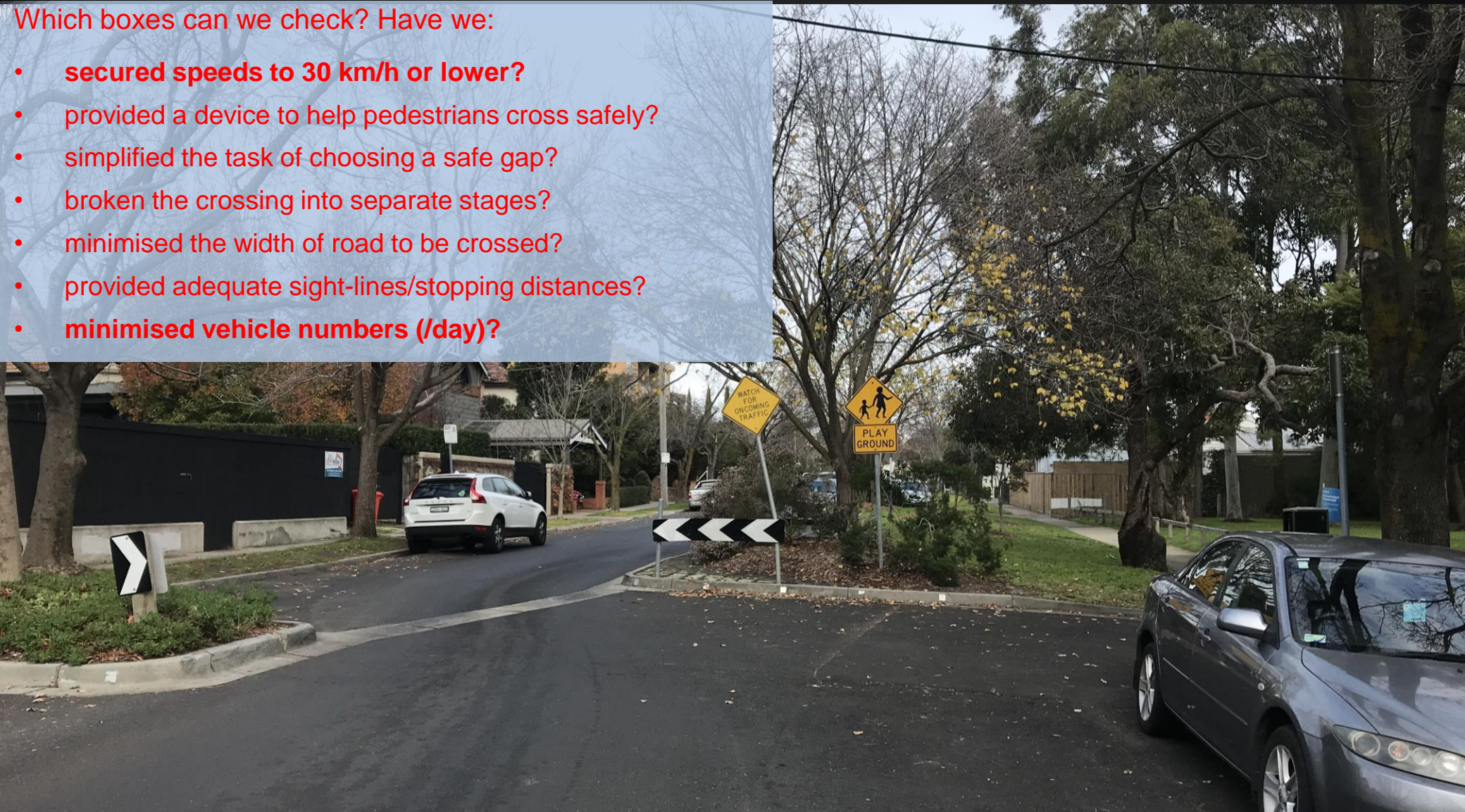
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Local street traffic calming (50 km/h default)

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Roundabout with wombat crossings

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Using the assessment criteria – 40 km/h shopping street

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Pedestrian refuge in 40 km/h speed limit

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Roundabout in 40 km/h speed limit

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Wombat crossing in 40 km/h school zone

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Threshold treatment and shared zone

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Shared zone

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Raised signalised intersection

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Threshold treatment - 50 km/h default speed limit

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- **minimised vehicle numbers (/day)?**



Wrap up

- Safe System remains global best practice
- A systematic framework for evaluation
 - outcomes
 - risk
 - perceptions
 - other impacts
- Today – a focus on risk
 - injury severity given a crash
 - crash likelihood
 - exposure to vehicles
- The critical importance of
 - walking to society
 - vehicle speeds to safety
 - innovation to progress
- How to use the evaluation criteria

