



Fatal crashes involving
people walking and cycling

28 October 2021

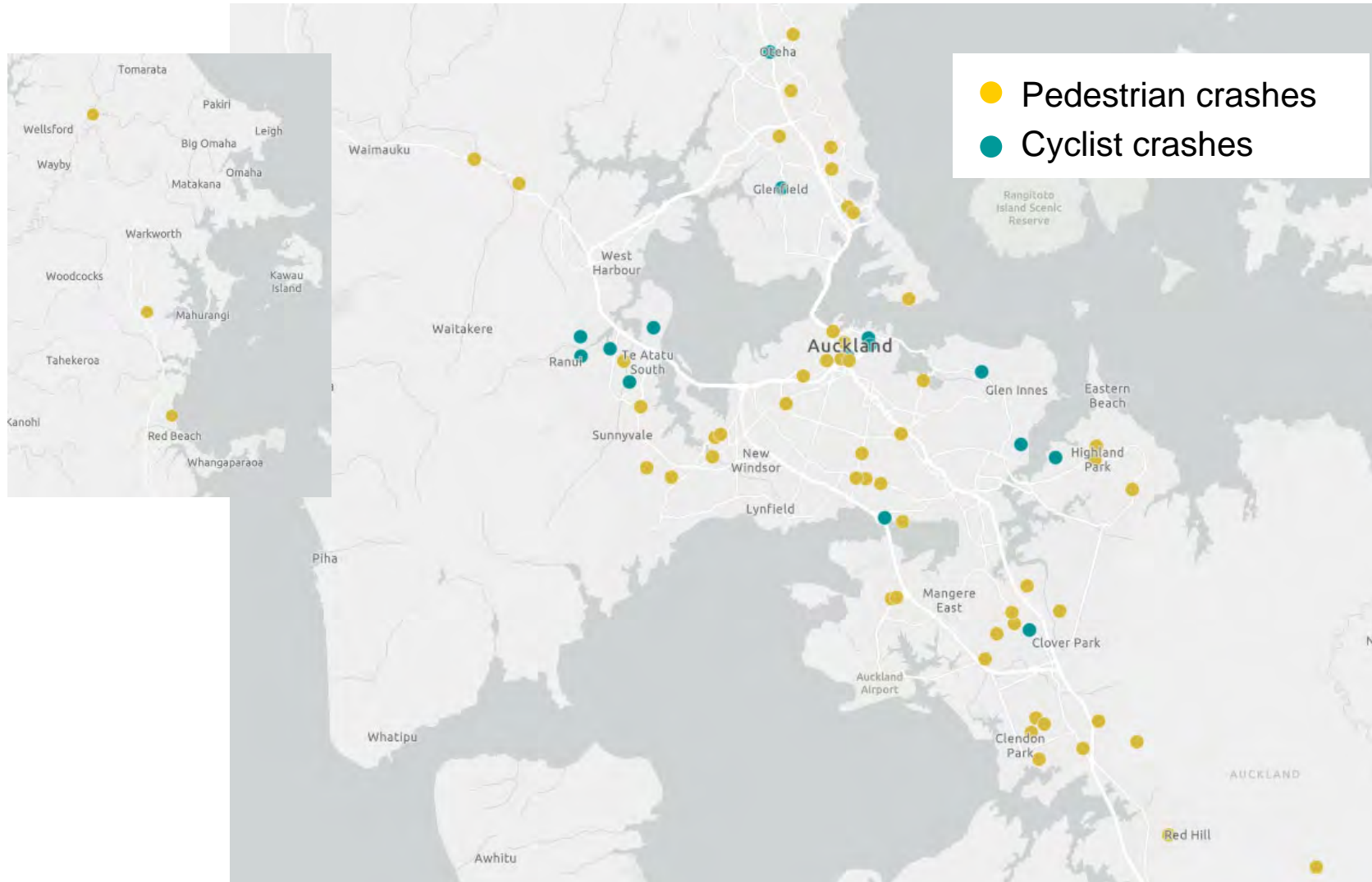
Let's go there 

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2. Vision Zero and a proactive system response
3. Process of fatal crash investigation
4. Applying a system response lens to recent pedestrian fatal crashes (case studies)
5. How we are creating a Safe System



Location of fatal crashes 2014 - 2021



- NZ police reported fatal crashes – extracted quarterly from Waka Kotahi Open Data Portal
- A fatal crash refers to a person or persons who was killed within 30 days of the crash
- Crash data is typically considered in 5 year periods. This map is based on data from the AT Vision Zero maps which presents data since 2014.



Number of Fatalities

Year	Pedestrian fatalities	Cyclist fatalities
2014	8	2
2015	7	2
2016	6	0
2017	9	2
2018	13	2
2019	5	4
2020	9	3
7 year total	57	15
As at June 2021	8	3

- Fatalities on AT roads and State Highways
- Source: AT Road Death spreadsheet



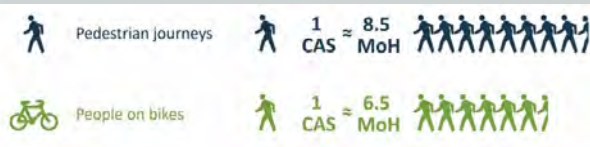
Fatal and Serious Crash Locations

2014 – 2020 Auckland Region

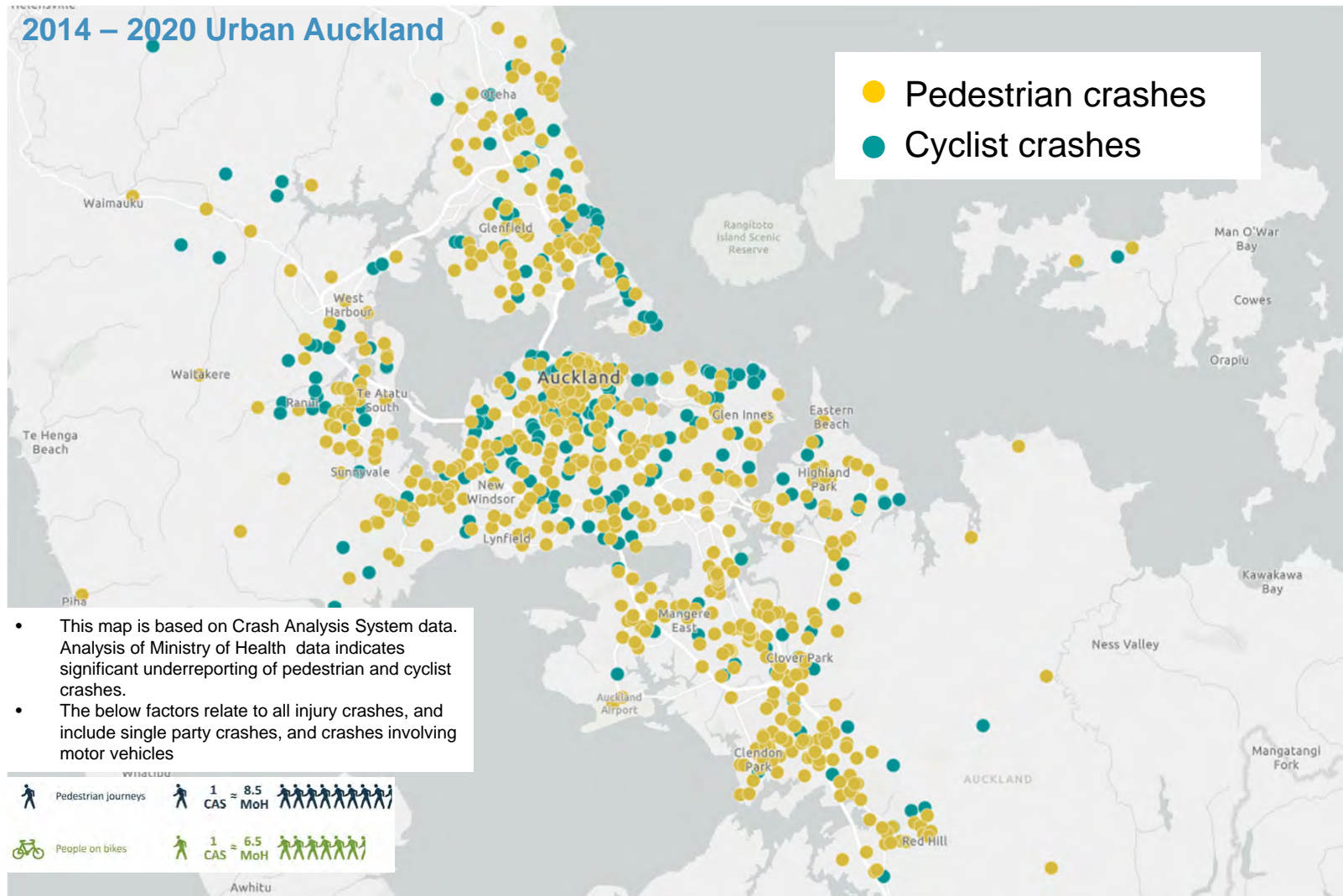
- Pedestrian crashes
- Cyclist crashes

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- This map is based on Crash Analysis System data. Analysis of Ministry of Health data indicates significant underreporting of pedestrian and cyclist crashes.
- The below factors relate to all injury crashes, and include single party crashes, and crashes involving motor vehicles



Fatal and Serious Crash Locations



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Vision Zero and a proactive system response

Traditional approach

Traffic deaths are **INEVITABLE**

PERFECT human behaviour

Prevent **CRASHES**

INDIVIDUAL responsibility

REACTIVE

Invest **BASED ON HISTORICAL DSI** locations

Vision Zero

Traffic deaths are **PREVENTABLE**

Integrate **HUMAN FAILING** in approach

Prevent **FATAL AND SERIOUS INJURY**

SYSTEMS approach

PROACTIVE

Invest **BASED ON RISK**

- Currently, 61% of fatal and serious injury crashes occur at locations where there has been no other injury crash in the past five years*
- Only 24% of fatal and serious injury crashes occur at cluster sites, which are defined as being within a radius of 250m (rural) and 50m (urban) and having two or more high severity crashes or three or more injury crashes in five years.*

Fatal Crash Investigation has an important role identifying issues that may need immediate action. While this is reactive, the AT overall approach to road safety is proactive.

* Road to Zero Action Plan 2020-2022, Ministry of Transport, December 2019



Process of fatal crash investigation

NZ Police Investigation



Process of Fatal Crash Investigation

Auckland Transport Road Safety Engineering

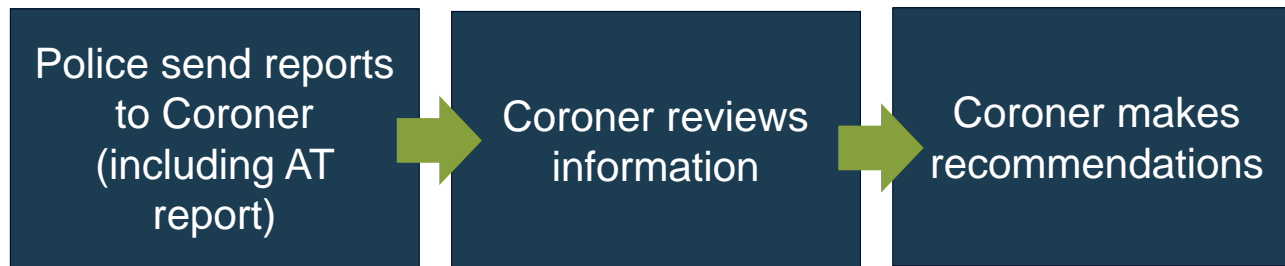


- All fatal crashes reported to Auckland Transport – Road Safety Engineering are recorded in a 'Fatal Crash Report' spreadsheet
- Recommendations are recorded and progress on implementation actively tracked by Road Safety Engineering
- The fatal crash reporting process is currently under review and will potentially be modified so it focuses on both immediate changes and wider system failures.



Process of fatal crash investigation

Coronial Investigation



- Coroner recommendations not necessarily transport related if other factors are involved
– Police investigate these other factors
- Currently can take two years+ before Coroner recommendations are issued.



Process of fatal crash investigation

Auckland Transport fatal crash follow up

- Crashes reported to board via safety business report
- Recommendations tracked and implemented by Road Safety Engineeringz

Recommendations tend to be site specific/reactive

- Currently changes often relate to that site only and immediately surrounding area



Case Study

73-year-old male crossing Clendon Place struck by vehicle turning right – 12 June 2021

Fatal crash investigation underway



Case Study

Clendon Place/Weymouth Road - Identification of systemic risks

These are examples of systemic risks common to these types of intersections. This is not the identification of the most appropriate measures to respond to one specific fatal crash.



This is a common intersection design in Auckland
Urban KiwiRap collective crash risk rating – **Medium High**



Case Study

Thomas Road/Jordan Avenue 46-year-old male crossing Thomas Road struck by vehicle travelling south
9 June 2021

Fatal crash investigation underway



Case Study

Thomas Road/Jordan Avenue Identification of systemic

These are examples of systemic risks common to these types of intersections. This is not the identification of the most appropriate measures to respond to one specific fatal crash.



This is a road with improved cycle facilities in Auckland
Urban KiwiRap collective crash risk rating – **Low**



System Improvements

Programme Business Case

Road Safety PBC: Invest in road safety to achieve at least 60% DSI reduction* in 10 years

Component	Preferred investment** (21/22-27/28)	Output
Speed management	\$193M	1,900 km
High risk intersections	\$120M	60 intersections
High risk corridors	\$68M	Transforms 34 km
Vulnerable road user and TDM	\$35M	Targeted pedestrian, cyclist and motorcyclist infrastructure
Enforcement	\$45M	Additional road policing and safety cameras
Education	\$22M	Additional co-ordinated education and awareness campaigns
Policy	\$8.5M	Co-ordinated policy and regulatory interventions with partners
Other supporting costs	\$113M	Includes land acquisition, design/engineering fees, monitoring, maintenance

- The Walking and Cycling PBCs both have objectives to reduce DSIs on the network.
- The Walking PBC will recommend a programme for walking investment, which will aim to address safety, structural, physical and social barriers for more people to walk more often for their everyday needs.
- The Cycle and Micromobility PBC (currently under review) will recommend a programme for cycle investment over the next 10 years, which will include safe cycle facilities (cycle network development), and complementary initiatives.

*Compared to 2017 DSI, as per RLTP Target



System Improvements

Safe System Assessment Framework

- One of the tools used in preferred option identification. It tests the extent to which project options align with Safe System principles.
- The assessment tests the project options against the existing conditions, helps steer option selection towards safer outcomes
- Work currently underway to embed SSAF in project life cycle, strategic guidance being developed
- Learning module currently under development to educate on how to use SSAF



System Improvements

Social Media/ Communication with Users

- Education conducted in isolation has been found to provide no safety benefits*
- Education campaigns should be integrated with engineering or enforcement
- Auckland Safe Speeds – good example of communication/social media campaign covering awareness of safe speeds in conjunction with the speed limit changes. This campaign has won awards and is viewed as the ‘gold standard’ of how to engage with our communities on a sensitive topic of speed limits



*Turner, B., Job, S. and Mitra, S. (2021). Guide for Road Safety Interventions: Evidence of What Works and What Does Not Work. Washington, DC., USA: World Bank



System Improvements

Safe Speeds

- **Survivable speeds are fundamental to safe walking and cycling outcomes** which has been reaffirmed by the 3rd Global Ministerial Conference on Road Safety 2020 recommendation for 30km/hr speed limits in urban areas
- AT has a successful Safe Speeds programme with further roads approved by the AT board for consultation in June 2021
- A proposed approach to accelerate safe speed limit setting will be presented to the AT Safety Committee in September 2021
- The Speed Management Plan is also in development, which will set our vision and principles around speed management for next decade and sets our 3 year programme



System Improvements

Speed and drink driving deterrence

- **Priority 1 & 2 in the Road Safety BIR 2021 management Response**
- **Auckland trial of an evidence based deterrence model**
 - Effectively manage and deploy resources
 - All Tāmaki Makaurau Transport Safety Governance Group partners to contribute
 - Random breath tests, use of covert mobile camera, behaviour change incentives
- **NZ Police to deliver general deterrence model**
 - Dosage: Intensity of enforcement
 - Unpredictability: perceived randomness of enforcement
 - Network coverage: perceived spread of enforcement



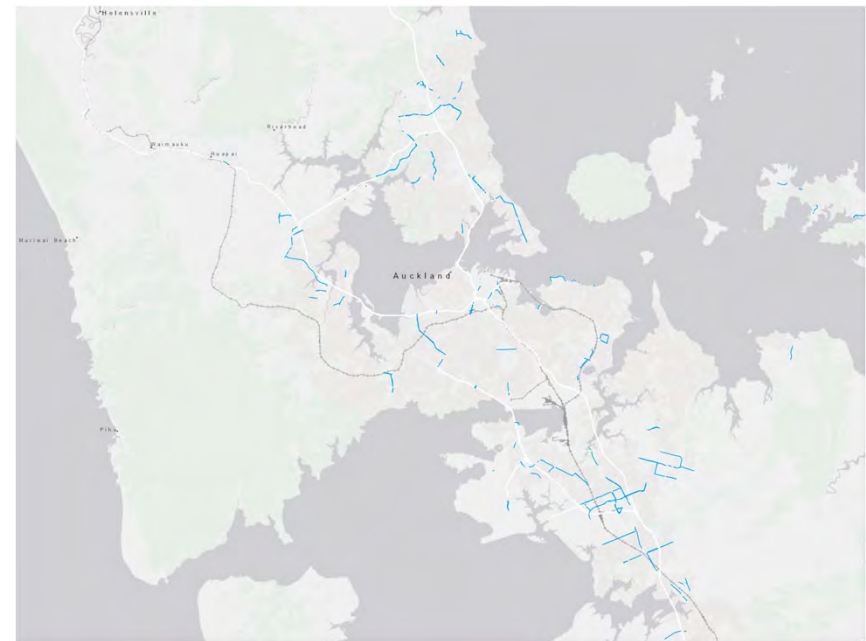
System Improvements

Minor Cycling Improvements Programme 2021/24

- Programme to improve attractiveness and safety of existing facilities to encourage new riders
- Addition of protection/separators to existing cycle lanes
- Year 1 of proposed programme includes around 17km of cycle lanes



Location of Painted Cycle Lanes



Supporting Slides

Vision Zero

Let's go there 

What is Vision Zero?

Four Principles



Ethics

People shouldn't die or be seriously injured in transport journeys.



Responsibility

System designers are ultimately responsible for the safety level in the entire system - systems, design, maintenance and use. **Everyone** needs to show respect, good judgement and follow the rules. If injury still occurs because of lack of knowledge, acceptance or ability, then **system designers** must take further action to prevent people being killed or seriously injured.



People centered

System designers must accept that people make mistakes and people are vulnerable.³



System response

We need to look at the whole system and develop combinations of solutions and all work together to ensure safe outcomes.⁴



How to create a Safe System

People make mistakes

This means we need to build a more forgiving system that protects people from death and serious injury when they crash.

A Safe System is created when system designers design:

- Safe speeds
- Safe infrastructure
- Safe vehicles
- Safe users

A crash that leads to serious injury or death is a system failure, not a road user failure



Survivable speeds central to Vision Zero

speed is a primary factor in crash severity, and the likelihood of a crash occurring

slower speeds = more awareness

as speed increases, drivers must look further ahead for hazards,
and see less of what's in their peripheral vision

View of pedestrian crossing from stopping distance for speed shown



Source: Auckland Transport Urban Streets and Roads Design Guide

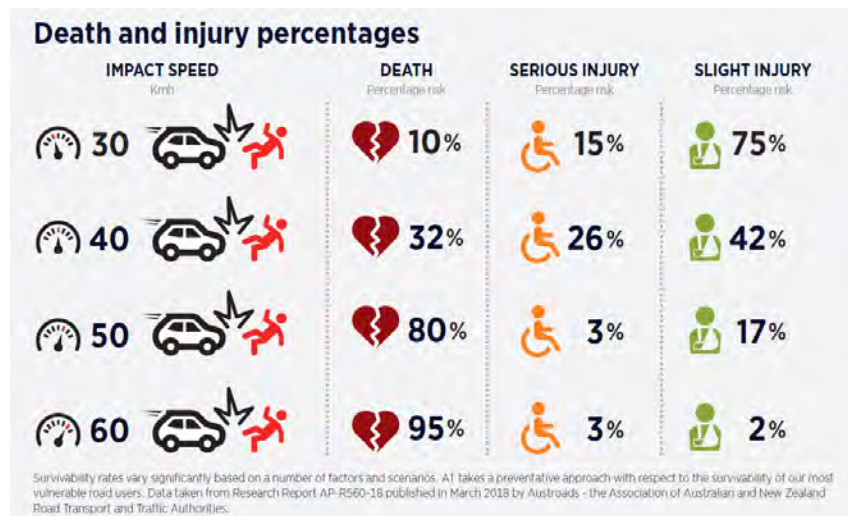
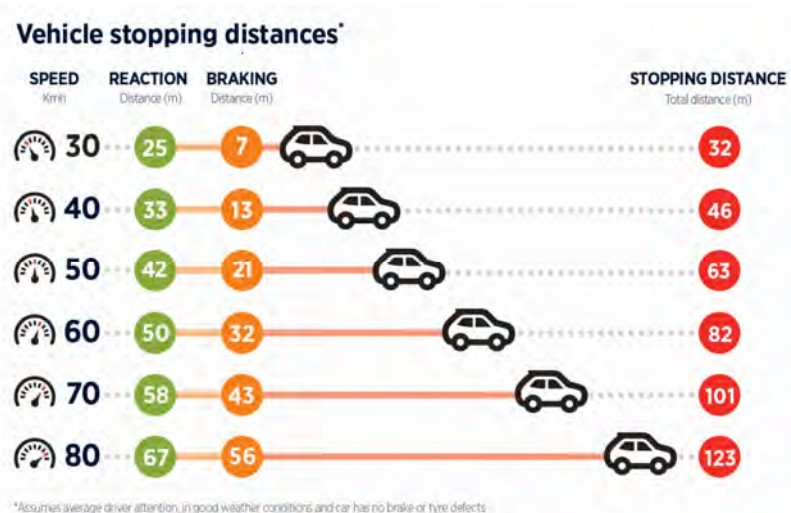


Survivable speeds central to Vision Zero

speed is a primary factor in crash severity, and the likelihood of a crash occurring

**slower speeds =
more able to stop**
as speed increases, the distance
travelled while reacting and
stopping increases

**slower speeds =
less death and injury**
as speed increases, the likelihood
of death or serious injury
increases **significantly**



Source: Auckland Transport Urban Streets and Roads Design Guide



Safe infrastructure/ vehicles/ users

Designing streets to reduce risk

- Raised pedestrian crossings
- Allocating space for vulnerable road users
- Designing for slower speeds (traffic calming/visual cues)

Vehicles that protect road users from injury

- Safety features to protect drivers
- Safety features to protect people outside vehicles when a crash occurs

Users that show respect, good judgement and follow rules

