



NZ TRANSPORT
WAKA KOTAHI



Tim Hughes

New Zealand Government

NZ policy context

Promoting walking and cycling is government policy

New Zealand Transport Strategy

Getting there on foot by cycle

Road safety to 2010 strategy, - 2020 strategy being prepared

Walking and Cycling Strategic Plans

Funding from Land Transport Fund

Part of every project

International Pedestrian Charter

uNZTS target: almost double active modes by 2040 (17% - 30%).



Getting There - Goals

- Community environments and transport systems that support walking and cycling.
- More people choosing to walk and cycle, more often.
- Improved safety for pedestrians and cyclists.



Local policy context

- Pedestrian strategy
- Cycling strategy
- Road safety strategy
- Parking strategy
- Living streets charter
- Metropolitan transport strategy
- Long term council community plan
- Part of every project



Health

H1. People who live in walkable neighbourhoods walk one hour per week more than those who live in less walkable neighbourhoods. By doing so they meet forty per cent of their physical activity target and halve their risk of being overweight. Developing neighbourhoods where people can walk must be a key component of public policy.

H2. Inactivity is the biggest killer in western societies. Everyone who promotes walking is thus a health professional with a vital message.

Safe increase in use?

Strategies aims to both:

- increase walking
- reduce the road toll

Is this possible?

- Safety in numbers effect?
- Taming traffic
- Better walking facilities
- Perceptions that walking is safe - key to more walking

YES



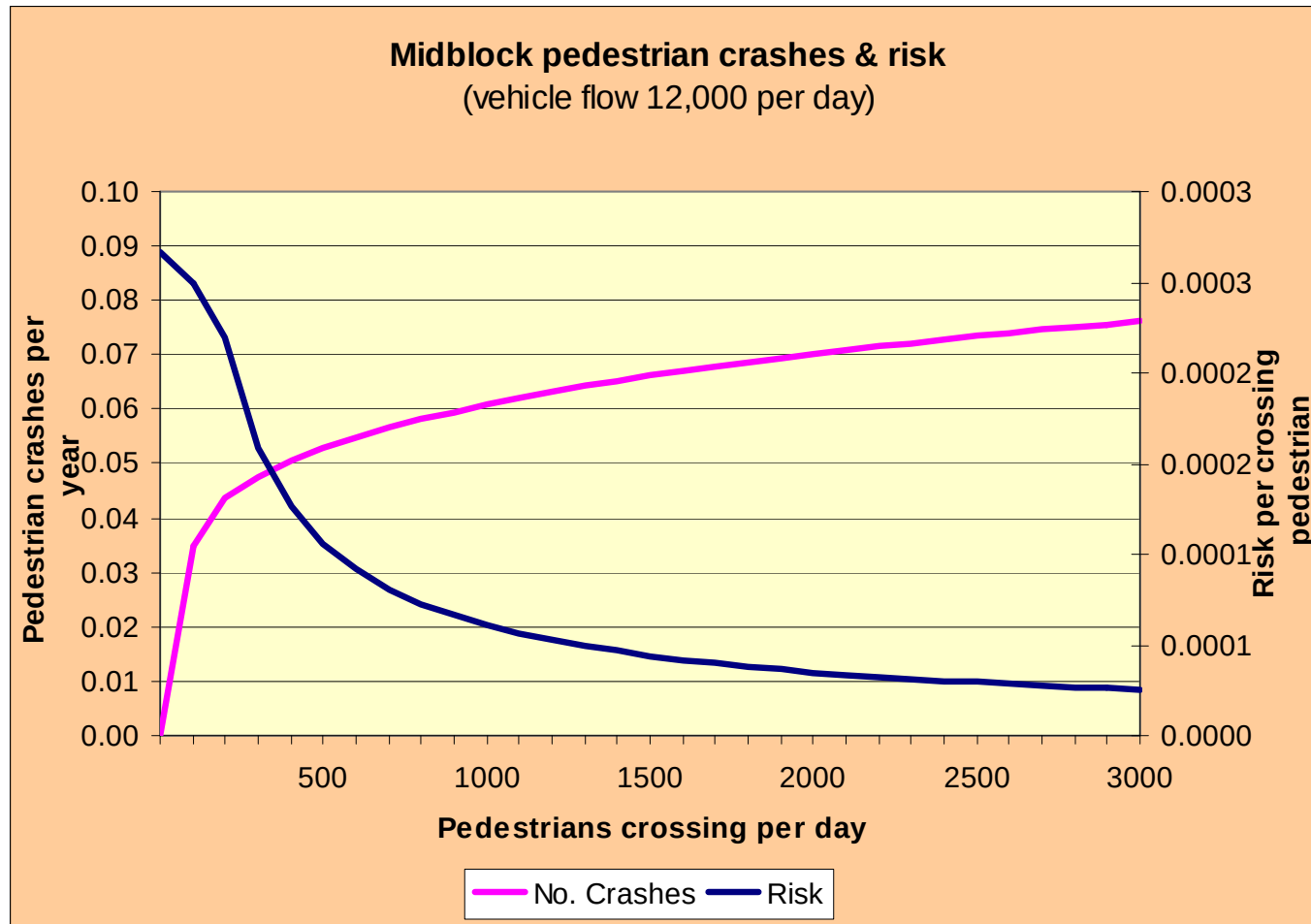
Safety in Numbers

The more pedestrians present,
the lower the risk for each pedestrian

Reasons? Behavioural adjustments by road users

- power relationship: 100% increase in walking/cycling,
32% increase in casualties (Jacobsen)
- NZ data (Turner) suggests the effect may be even more
powerful at low pedestrian numbers (up to one per minute)
- The effect is observed on individual roads and intersections,
between different towns in New Zealand and between countries

Example of Effect – Turner (2005)



Guidance

- *Austroads Guide part 13: Pedestrians*
- *TRAFINZ Guide to pedestrian crossing facilities*
- *RTS 14 providing for vision impaired pedestrians*
- *Pedestrian planning and design guide*
- *Crossing choice calculation spreadsheet*
- *Non-motorised user audit & review*
- *Community street review*



Pedestrian planning and design guide

Pedestrian planning and design guide



Purpose:

- *To improve New Zealand's walking environment*
- *A process for deciding on the types of provision that should be made for walking.*
- *Design advice and standards*

Pedestrian planning and design guide

An encyclopaedia of existing good practice,
pointing out the best from other guides.

Adding to it based on recent research findings

- Planning and policy context
- Principles of pedestrian planning
- Pedestrian planning process
- Design of walking infrastructure
- Monitoring and promotion
- References



Walkable communities

- Connected
- Legible
- Comfortable
- Convenient
- Pleasant
- Safe
- Secure
- Universal
- Accessible



The design pedestrian?

- Capable adults
- Children
- Elderly
- On small recreational wheels
- Mobility impaired;
 - sticks, wheelchairs, frames, scooters
- Vision and hearing impaired

All of the above



Road User Hierarchy

Ranks the importance of road users:

People with mobility impairments

Pedestrians

Cyclists

Public transport users

Powered two-wheelers

Commercial/business

Car-borne shoppers

Car-borne visitors

Car-borne commuters



Increasing Importance



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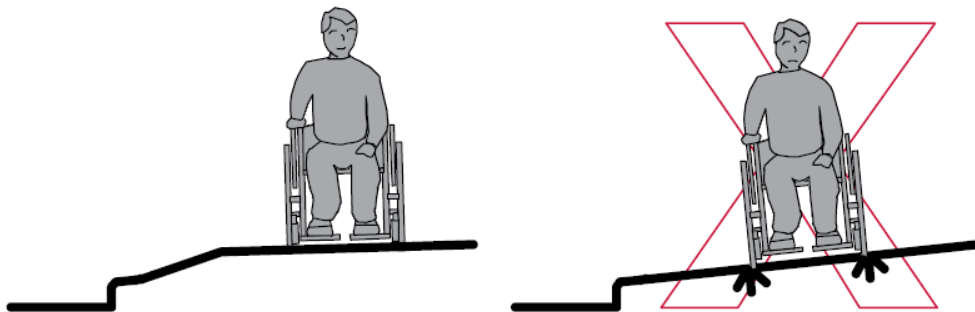
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Footpath standards

Continuous accessible path

Width: - 1.8 m preferred,
1.5 m minimum

Crossfall: - 1% preferred,
2% maximum



Christchurch Hospital Admissions

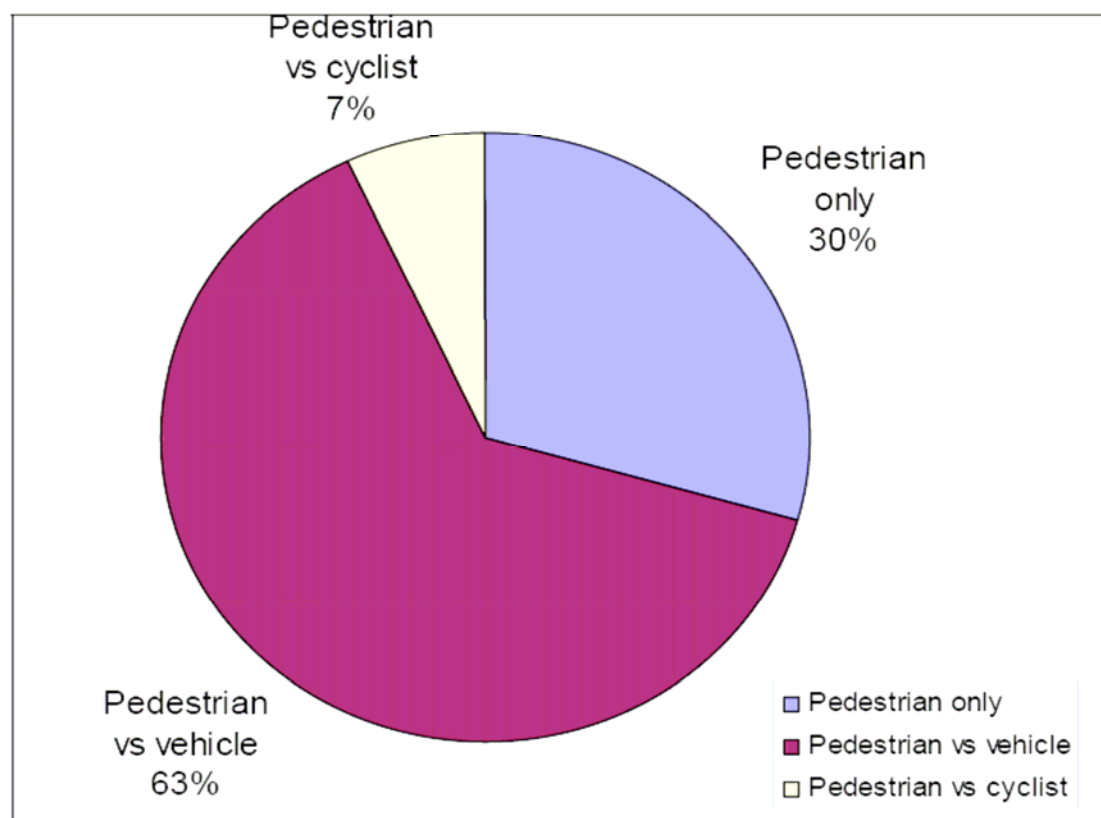


Figure 4.5 Type of accidents involving pedestrians.

Source: Tony Francis

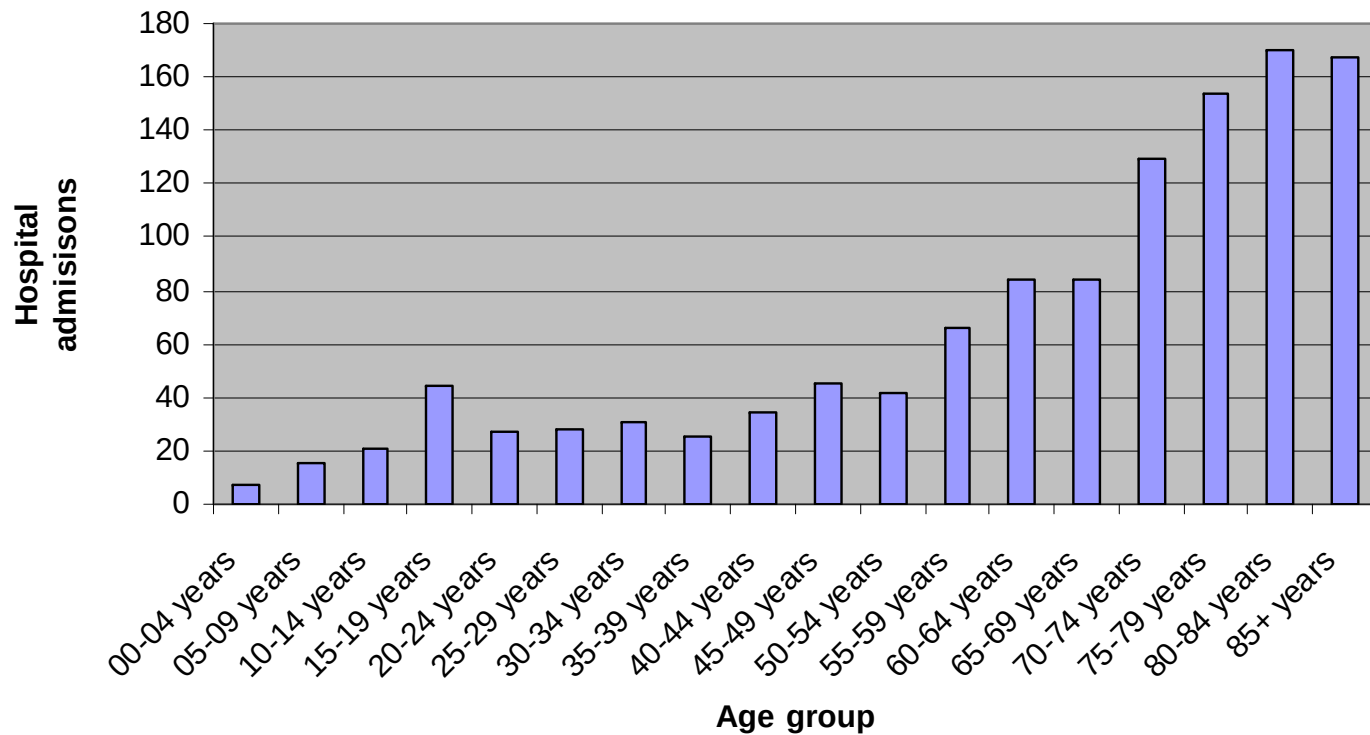


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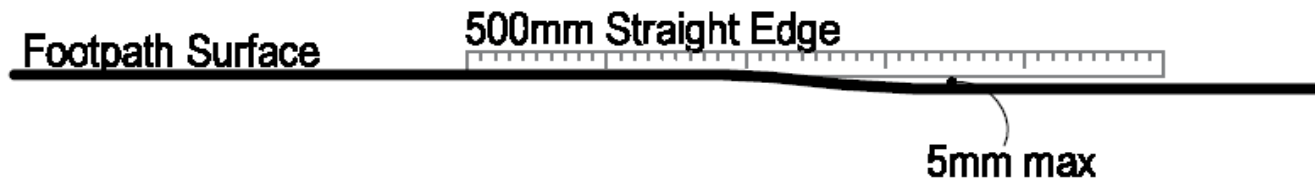
NZ Hospital admissions from falls in road environment, by age

Fall on same level from slipping, tripping and stumbling
2001 - 2003



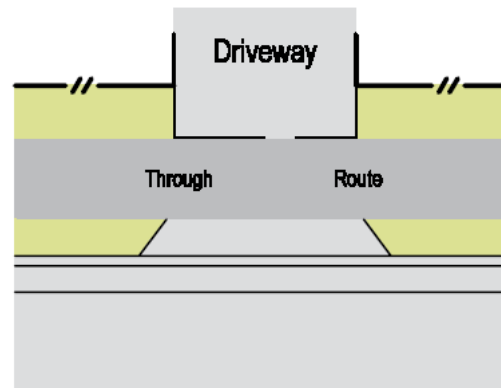
Footpath safety standards

- Slips: - friction specs
e.g. $\text{cof} = 0.4 + (0.125 * \% \text{slope})$
- Trips: - sudden lip, <5mm
- Stumbles: - undulations < 12mm

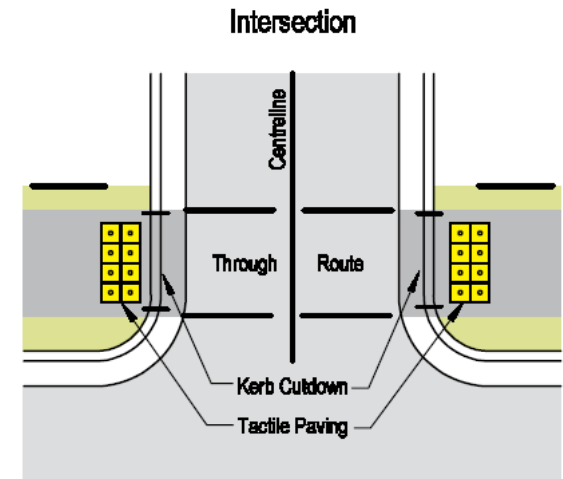


Footpath standards

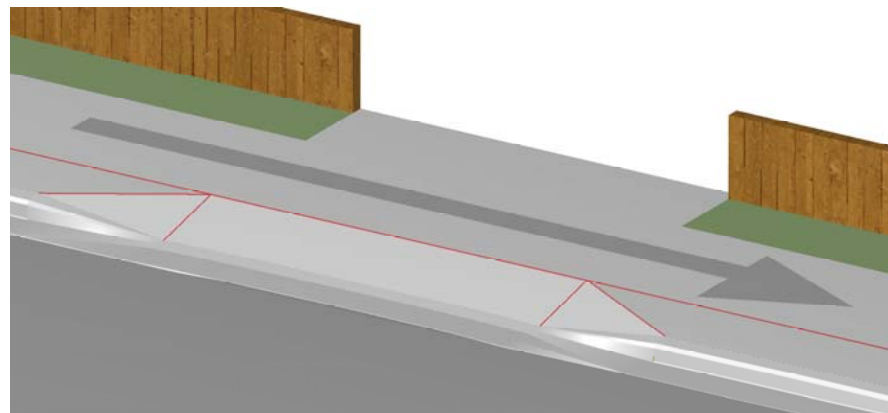
Driveways – cross footpaths
not vice versa



Driveway



Low-volume intersection (high-volume access way)



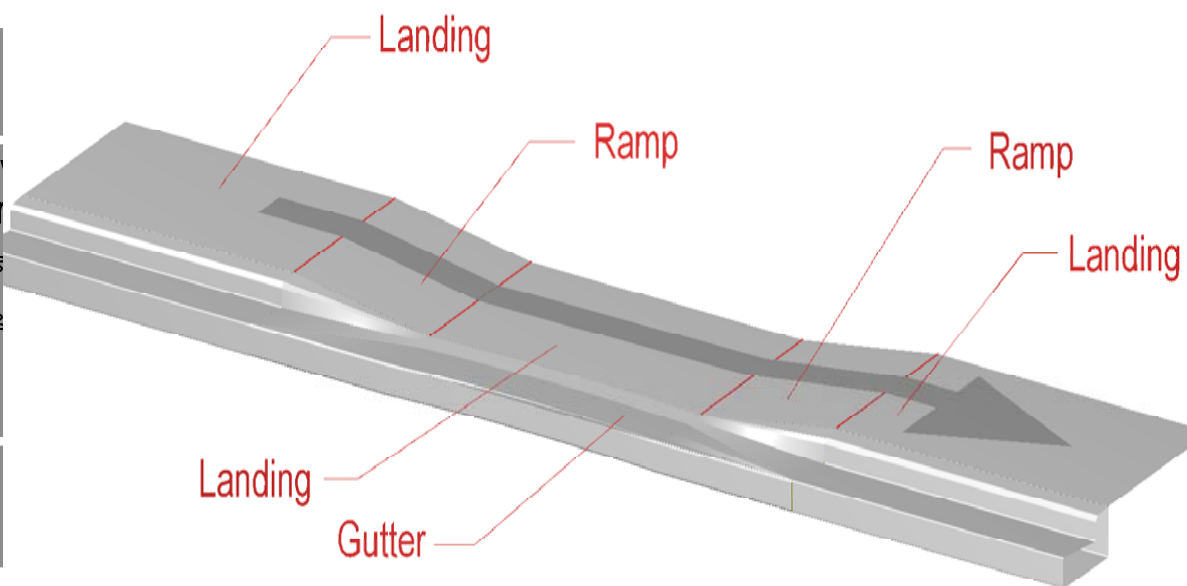
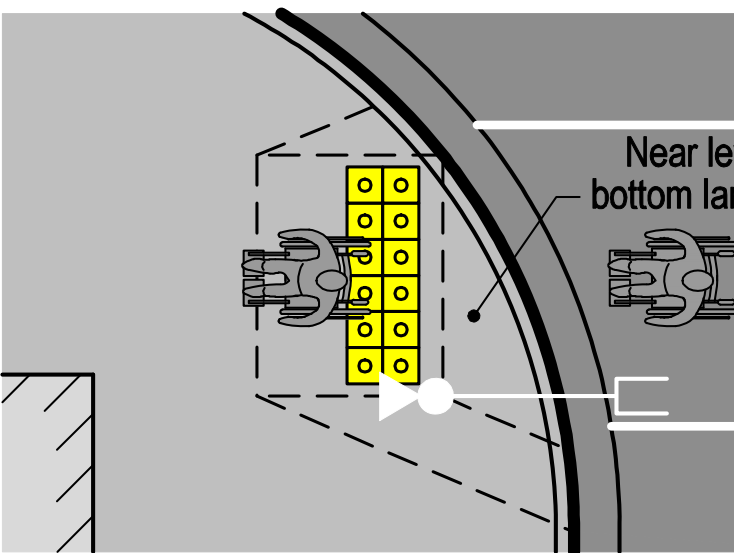
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Footpath standards

Kerb crossings – oriented to pedestrian route

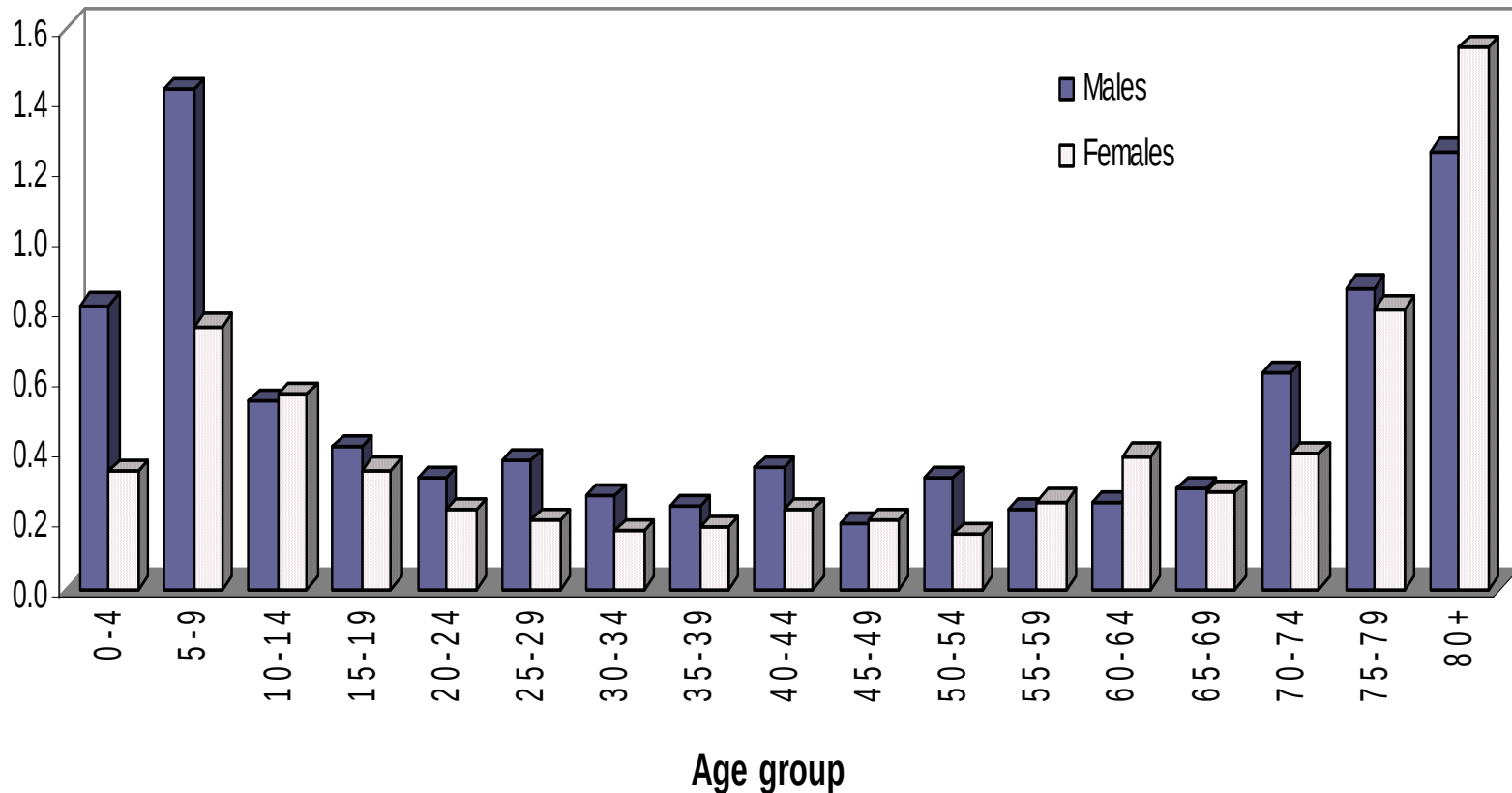
- top and bottom landings,
- gentle slopes 8 % normal max



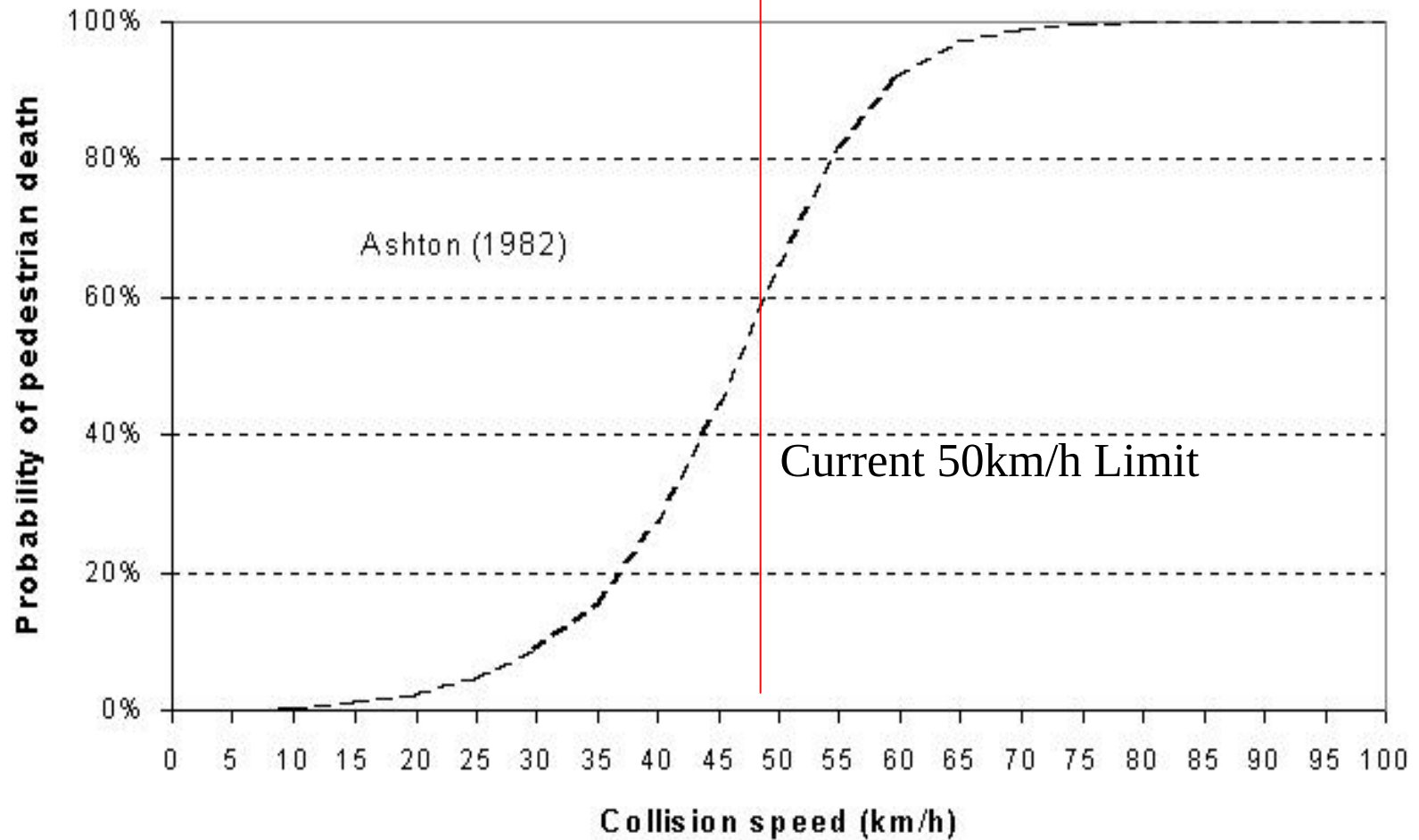
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Pedestrian risk of injury crossing road by age

Pedestrians injured/ million road crossings



What traffic speed?



Providing for pedestrians crossing

Hierarchy of Pedestrian Solutions Consider in this order:

- Reduce traffic volume
- Reduce traffic speed
- Reallocate space (road diet?)
- At-grade crossing facilities
- Grade separation



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Old NZ Warrants approach for priority pedestrian facilities

Pedestrian Operated Signals:

▪ Pedestrians x vehicles	> 200,000	(1 hr)
▪ Vehicle flow	> 500	(1 hr)
▪ Pedestrian flow should be	> 200	(1 hr)

Zebra Pedestrian Crossings:

▪ Pedestrians x vehicles	> 45,000	(1 hr)
▪ Vehicle flow	> 300	(1 hr)
▪ Pedestrian flow should be	> 100	(1 hr)

School Patrol Zebra Crossing Points:

▪ Pedestrians x vehicles	> 5,000	(1/2 hr)
▪ Vehicle flow	> 100	(1/2 hr)
▪ Pedestrian flow should be	> 50	(1/2 hr)

School Patrol (Kea) Crossing Points:

▪ Pedestrians x vehicles	> 3,000	(1/2 hr)
▪ Vehicle flow should be	> 100	(1/2 hr)
▪ Pedestrian flow should be	> 50	(1/2 hr)

A Christchurch study concluded that pedestrian delay is a factor that should also be taken into account when assessing the need for priority pedestrian facilities. At uncontrolled crossing point facilities, adult pedestrians were prepared to accept average delays of 15 second on local and collector roads and 30 seconds on arterial routes.

If delays are greater than this, pedestrians take risks crossing the roadway.



Providing pedestrian crossing facilities

Then consider in this order:

- o Road environment and land use context
- o Physical aids to crossing
- o Appropriate control
- o Design Detail



Road environment and land use context

- **Traffic volume and composition**
 - Gaps in traffic, space needed
- **Speed of traffic**
 - Speed management / traffic calming needed?
 - Platform appropriate?
- **How many traffic lanes in each direction?**
 - Are zebras possible?
- **Road surrounds: CBD, commercial, residential**
 - What will users expect here?
- **Where do they cross and to where?**
 - One place? Spread out? In a hurry?
- **Who wants to cross, how many?**
 - Age, walking purpose, school, impaired, suppressed?

What type of facilities are appropriate here?



Physical crossing aids

Narrow roadway by kerb protrusions

- Safety benefit 36% crash reduction
- Pedestrian delay below 15 seconds up to 600 vehicles per hour (2 way)



Physical crossing aids

Divide crossing into two parts: Central raised islands

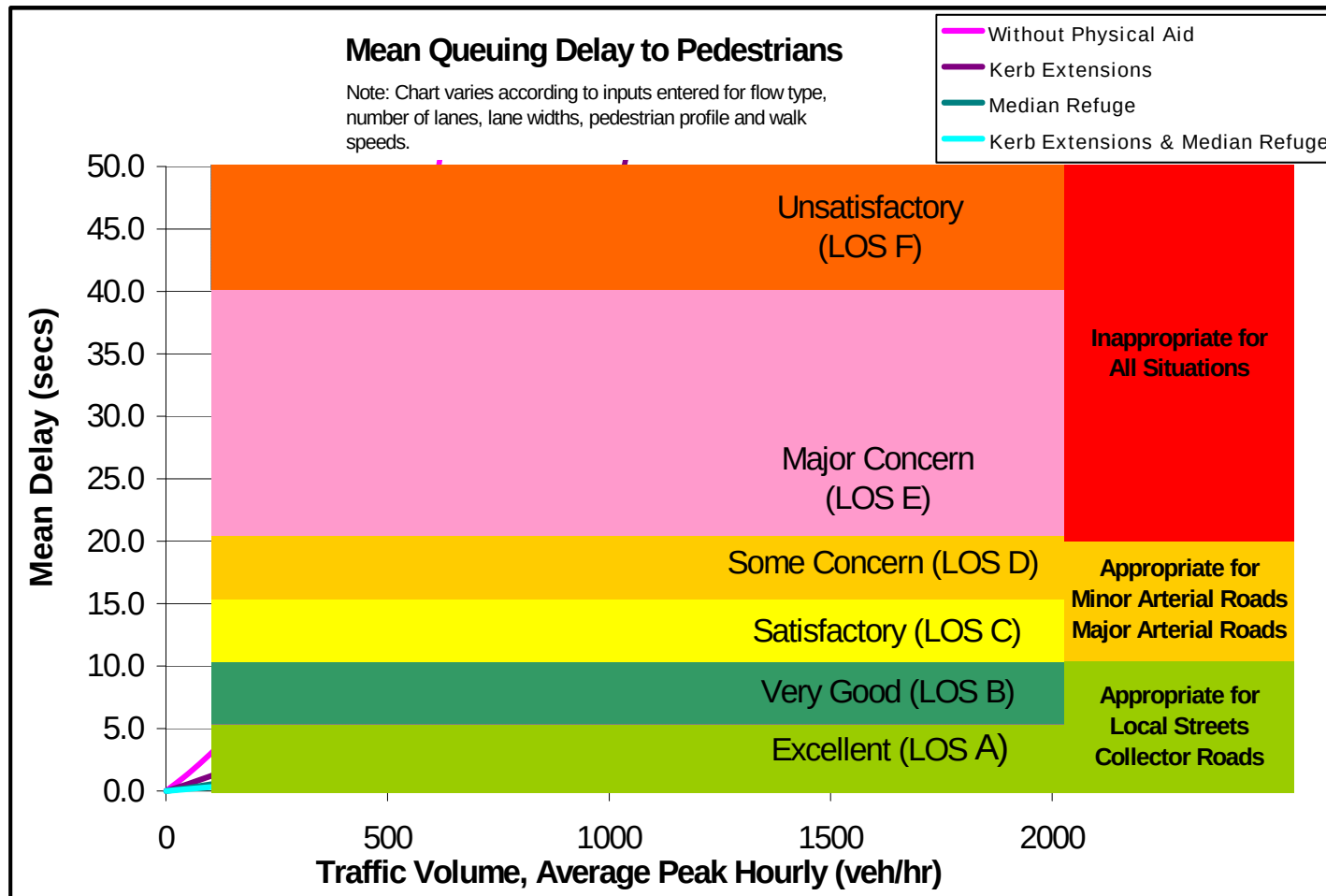
- Crash reduction 18%
- Average pedestrian delay below 15 seconds up to 1800 vehicles per hour (two way)
- Delay reduction - awesome !!!



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Physical crossing aids

- uninterrupted flow



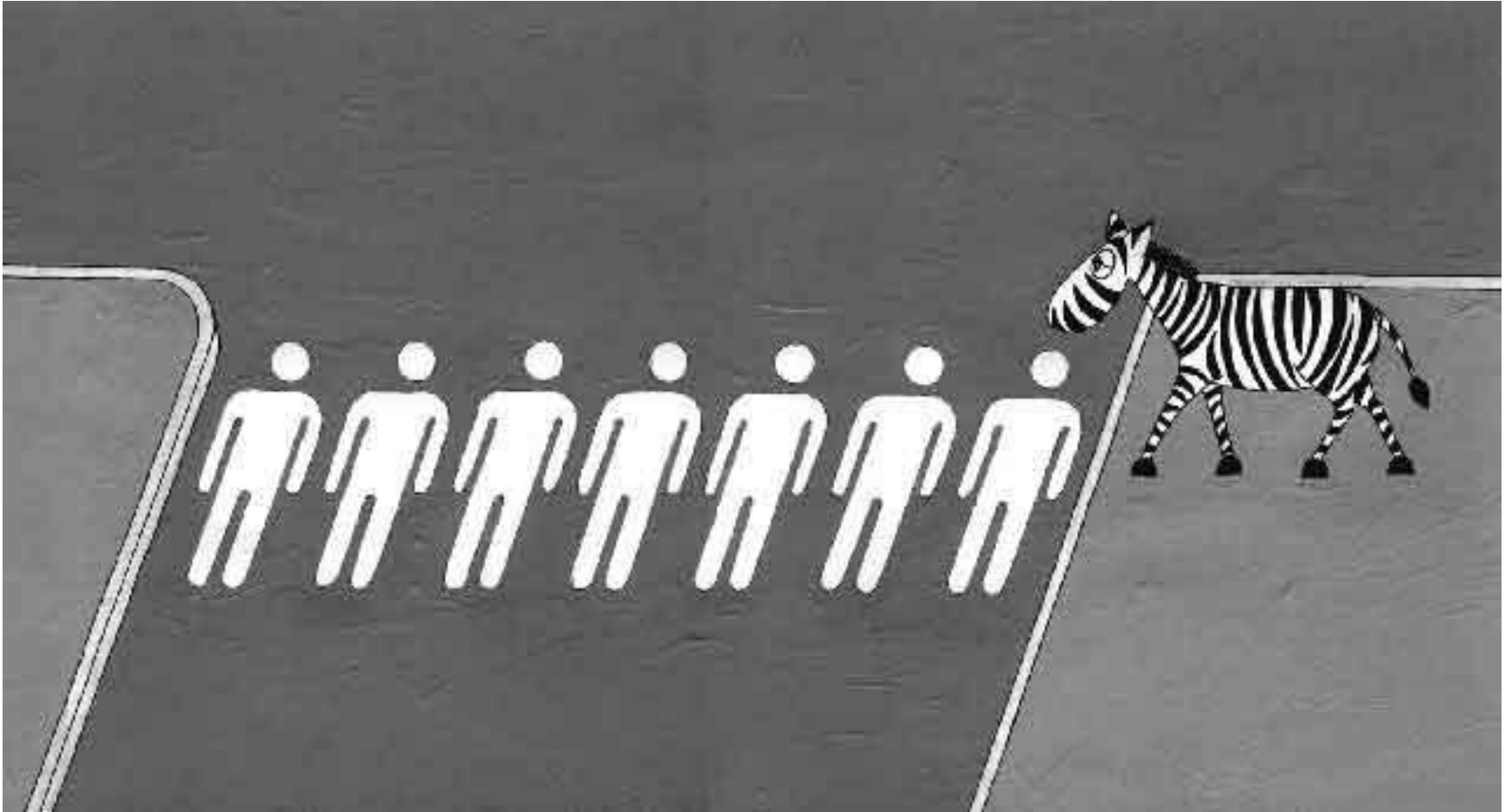
Calculation tool

For all at grade options except signals:

- o Excludes dumb options*
- o Calculates delays to motorists and pedestrians*
- o Estimates typical crash rates and reductions*
- o Summary sheet compares options*
- o Supports decision on best option*



Zebra Crossings



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Zebra Crossings

- *Never use across two lanes of traffic in the same direction.*
- *Consider delay to all users.*
- *There are no safety benefits from zebra installation, often the converse.*
- *So, consider where lots of pedestrians are delayed unacceptably, physical aids are not sufficient, and consider balance of vehicle and pedestrian delay in road user hierarchy.*



Typical safety benefits

Measure	reduction pedestrians	overall
Kerb extensions	36 %	
Raised Median Island	18 %	
Kerb ext + Island	32 %	
Kerb ext at existing zebra	44 %	
Zebra plus Platform	88 %	
Midblock traffic signals	64 %	35 %
Zebra only	- 28 %	- 26 %
School patrols	35 %	



Typical safety benefits

<i>Measure</i>	<i>crash reduction</i>	
	<i>pedestrians</i>	<i>overall</i>
<i>Intersection signals - parallel phase</i>	-8 %	-
<i>Intersection signals - exclusive phase</i>	29 %	22 %
<i>Cycle lanes</i>	30 %	30 %
<i>Roundabouts</i>	48 %	35 %
<i>Flush medians</i>	30 %	19 %

Implications

Better planning concepts and processes for walking infrastructure

*More comprehensive and context sensitive guidance -
choose best option don't just rely on warrants*

Put the right facility in the right place

Design it better

- revise standard drawings

“Every project is a walking project”

Next steps

For Land Transport NZ

- *Training workshops*
- *Benchmarking performance for walking*
- *Research on walkability assessment*
- *Research to measure accessibility*

Suggestions for councils?

- *Adopt or update pedestrian strategies*
- *Adopt national guidance tools*
- *Neighbourhood accessibility plans*
- *Community street reviews*

You are the people that make it happen





The Pedestrian Planning and Design Guide and related tools are on the NZ Transport Agency web site.

Hard copies available for \$30 each.

Order on website.

Same samples on NZTA stand

[*www.nzta.govt.nz*](http://www.nzta.govt.nz)



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Integration:

- More joined up planning of land use and transport.
- Development that minimise future transport demands e.g. by providing a variety of facilities within short distances.
- Providing for a wider choice of transport modes – more use of active modes.
- Safer travel for all



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Funding:

- Making the process easier and more predictable.
- More strategic analysis to get the optimum mix of projects identified early.
- Streamlined funding of integrated packages of projects that work together. e.g a strategic walking and cycling plan.
- Developing different approaches to achieve more value for money.
- Working with partners for better transport solutions.

