




TRAFINZ Conference
Jul 2004, Napier

Cycling and Walking Safety from a National Perspective *- New Thinking Needed*



by Glen Koorey

Transportation Lecturer
University of Canterbury

UC 
**UNIVERSITY OF
CANTERBURY**
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Presentation Outline



- NZ Context of Walking / Cycling Safety
 - Current Relative Use and Risk
 - Problems with Existing Approaches



- New Approaches
 - Road Danger Reduction
 - Safety in Numbers
 - Hierarchy of Treatments
- Conclusions and Actions



New Zealand Context



- Pedestrians and cyclists involved in **18%** of reported injury crashes

- Unreported numbers considerably higher
- Motor vehs involved in only 20-25% of injuries?



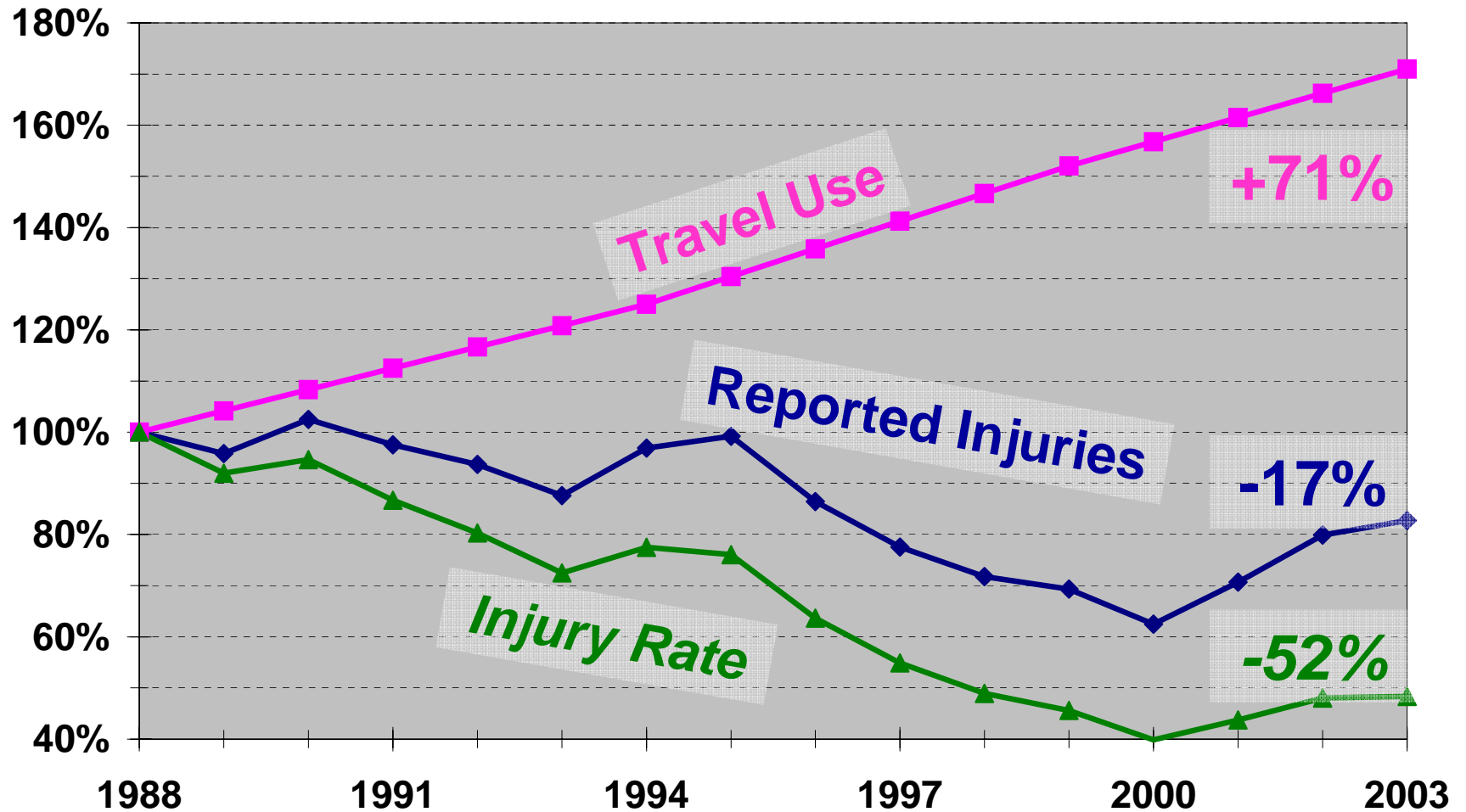
- New Zealand crash numbers have dropped significantly in the past 15 years

- Breath Testing, Speed Cameras, Driver Licensing

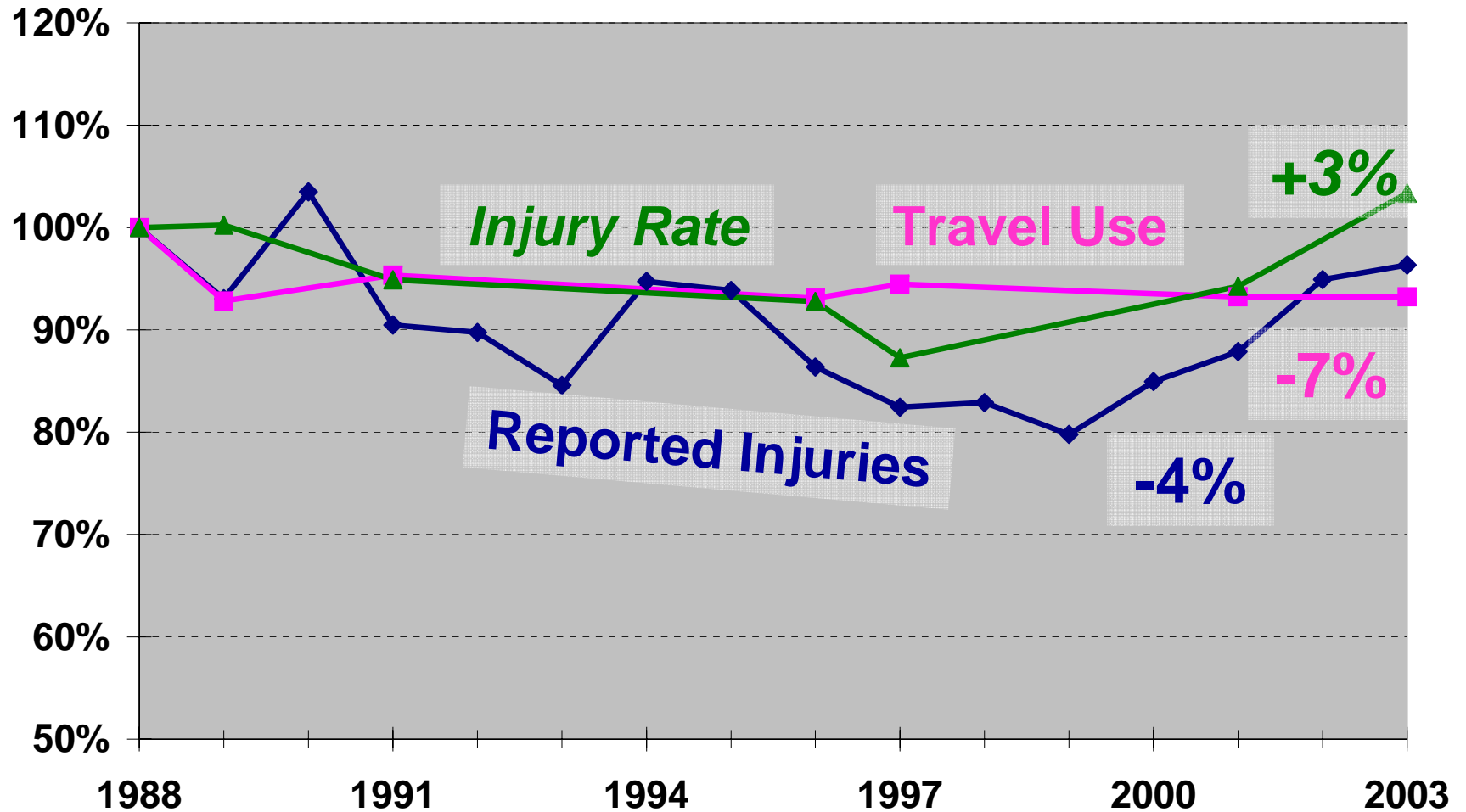


Has walking / cycling safety also improved?

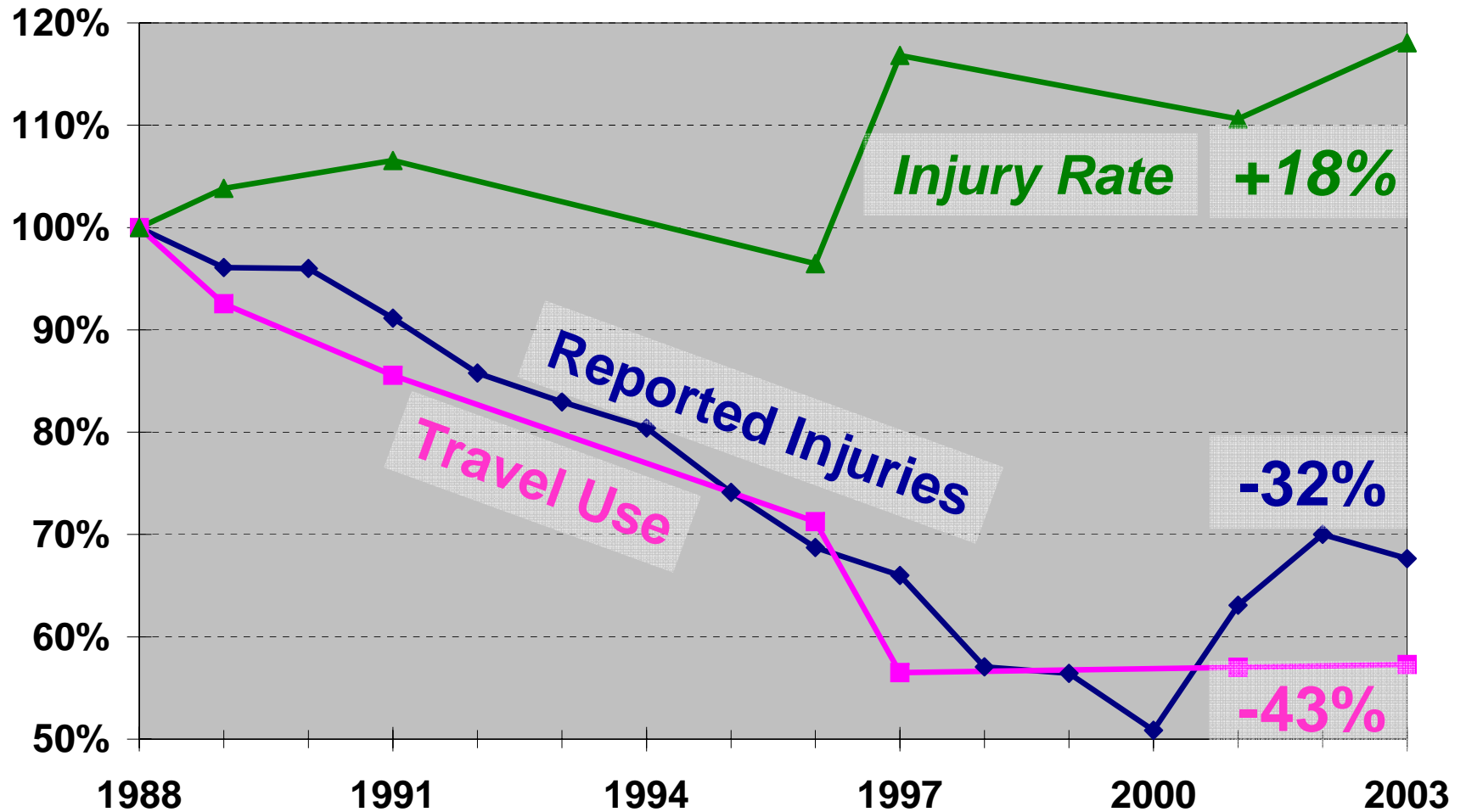
Motor-Vehicle-only Crashes



Pedestrian Crashes



Cyclist Crashes



Implications of Historic Data



- Walking / cycling have ***not*** seen the same relative safety benefits from the past 15 years
- Walking / cycling usage has been declining, partly as a result of perceived safety issues



Are we doing something wrong?



Problems with Existing Approaches



- Low reporting rate for walking / cycling crashes
 - Walking / cycling problems are underestimated
 - Walking / cycling not prioritised/funded
- Emphasis on dealing with the "victim"
 - Segregation / facilities for pedestrians / cyclists
 - Education / enforcement of pedestrians / cyclists
- Perceived danger of walking / cycling
 - Reluctance to encourage walking / cycling without providing specific facilities for them

Road Danger Reduction



- Developed in the UK
 - Road Danger Reduction Forum
 - www.rdrf.org



- Seeks to:

*Identify the **source** of danger and control that, rather than treat the **effects** of that danger*



RDR Hierarchy

(3) Road Danger Reduction



(2) Crash/Casualty Reduction



(1) Injury/Severity Reduction

- Improvements at the top lead to improvements at the bottom
 - But not *vice versa*



(1) Injury / Severity Reduction



e.g.

- Helmets and Seatbelts
- Guardrails
- Break-away / frangible poles
- "Pedestrian-friendly" Car Bonnets



- Reduces the severity but not the ***incidence*** of crashes
- Doesn't influence road user behaviour
 - May even increase risk-taking



(2) Crash / Casualty Reduction



e.g.

- Blackspot Treatments
- Cyclist / Driver Training
- Anti-lock Brakes
- Reflective clothing and lights



- Relies on reported data
 - Bias against walking/cycling
- No crashes = No problem?
 - May mean too dangerous to use



(3) Road Danger Reduction

e.g.

- Traffic speed calming
- Reduction / diversion of motor traffic
- Change in road-user priority on streets
- Education / enforcement of dangerous behaviour
- Addresses actual concerns of people
 - Not solely data-driven
- Perceived improvement in safety increases walking / cycling use



The Perils of More Walking/Cycling



- Isn't it *dangerous* to encourage more walking and cycling?
 - Motor vehicles have an apparently better crash rate than walking / cycling
 - Risky to get more people walking / cycling when no specific facilities have been provided for them
- Focus on Facilities before any Promotion?



"Safety in Numbers"



- With low numbers of pedestrians / cyclists:
 - Drivers do not expect to see pedestrians/cyclists
 - Rare events are dangerous



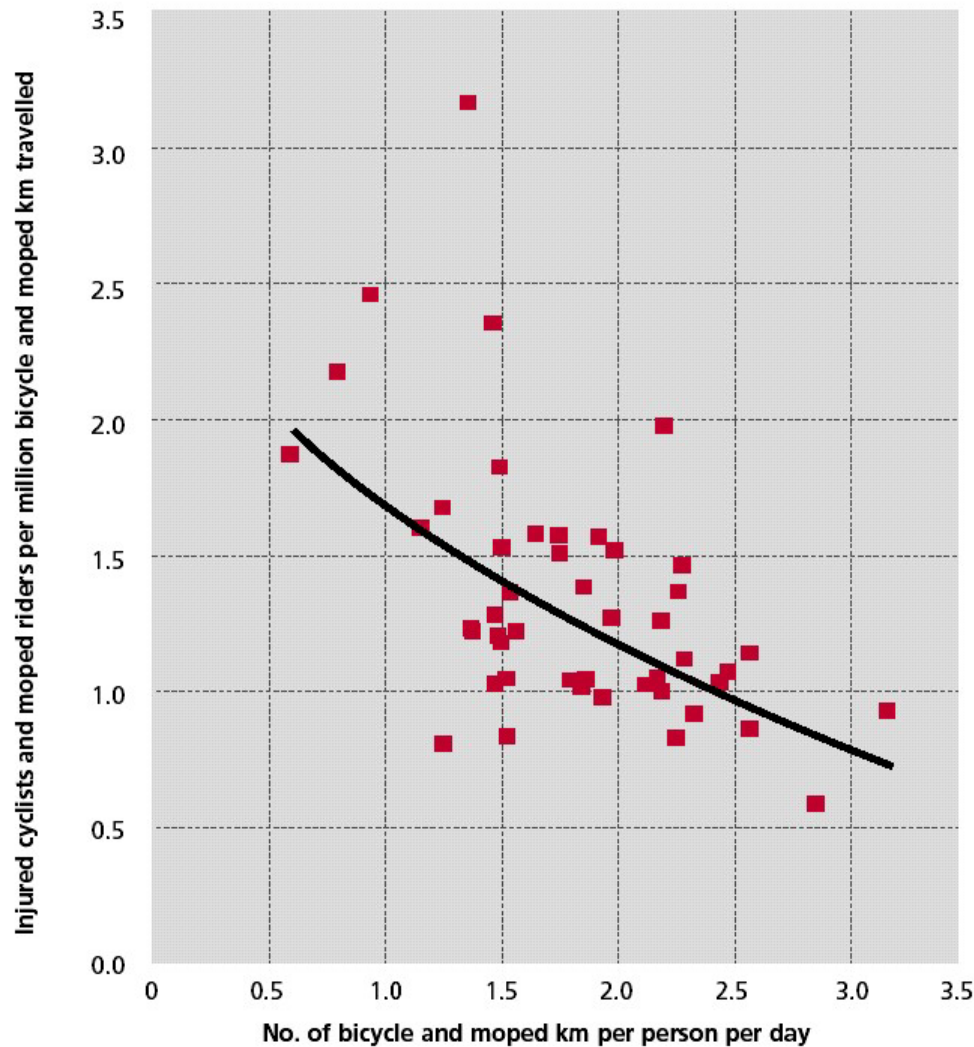
- Increasing numbers produce a "critical mass"
 - Drivers more likely to look out for ped'ns / cyclists
 - Drivers more likely to also be ped'ns / cyclists too
 - Fewer drivers (more walking / cycling)



A "virtuous cycle"

Overseas Evidence

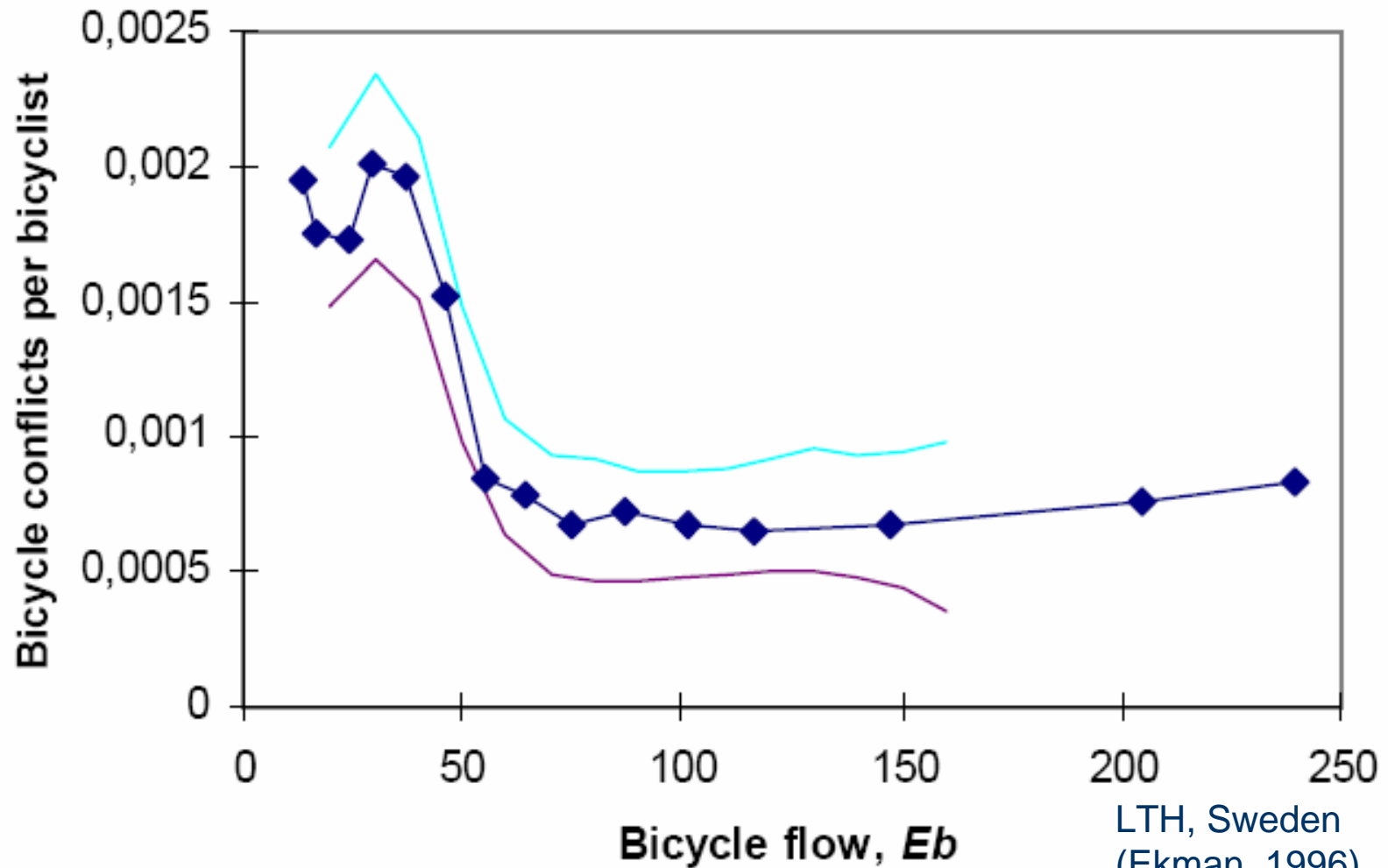
Cyclists safety in 47 Danish towns ⁵²



DUMAS, Denmark
(Jensen, 1998)

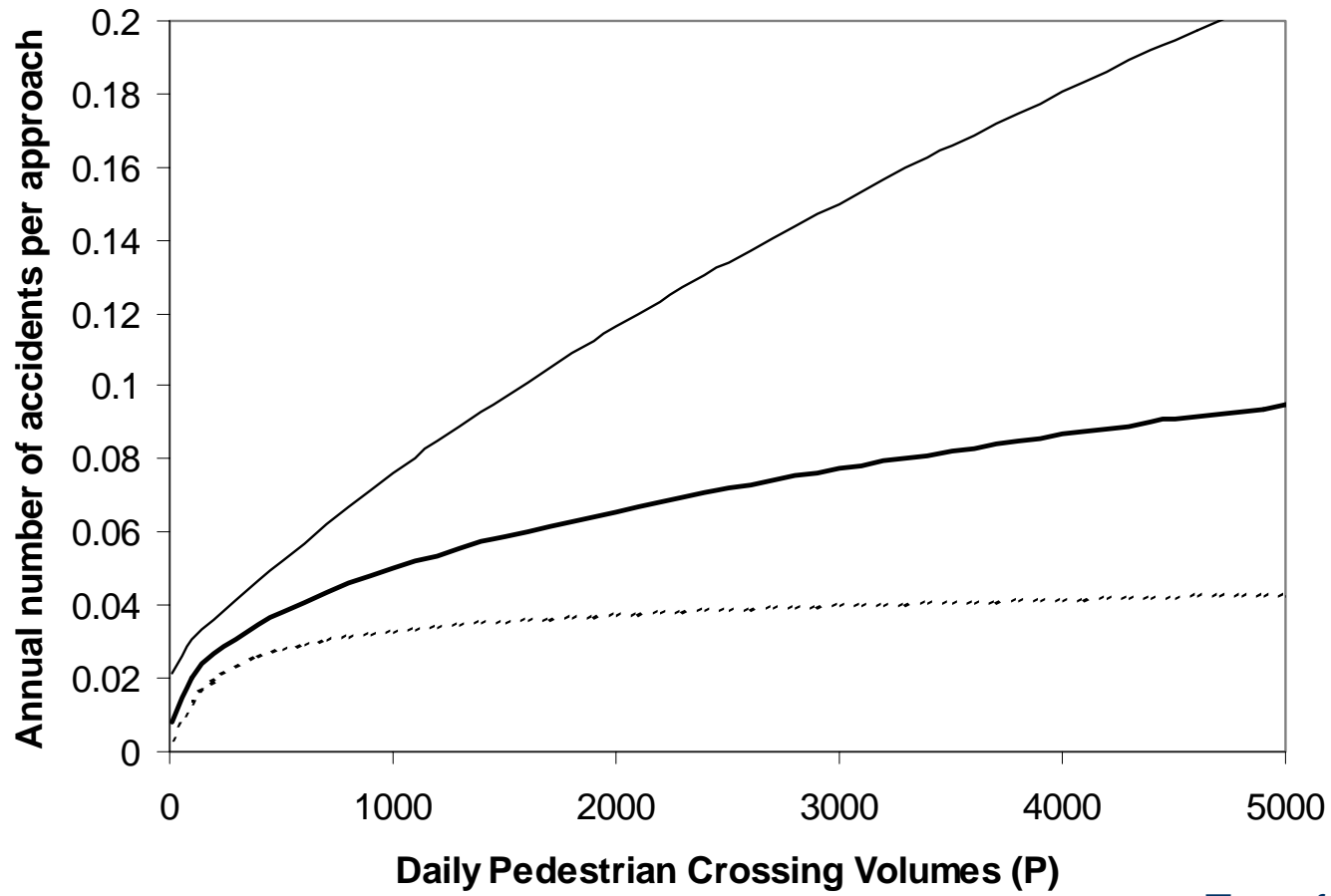


Overseas Evidence cont'd



LTH, Sweden
(Ekman, 1996)

Local Evidence



..... Lower CI — Mean — Upper CI

Transfund Research
(Beca Carter, 2004)

Safety in Numbers - Implications



- It is ***not*** dangerous to encourage more walking and cycling
 - Increasing walking / cycling use results in a less-than-proportionate increase (if any) in crashes
- Providing better walking / cycling conditions at the same time can produce:
 - ***Reduced*** crashes
 - More people choosing to walk / cycle



Travel behaviour programmes very important

Providing Specific Facilities



- Often a (mis)perception that
"Providing for Cyclists and Pedestrians"
equals



"Providing Cycle and Pedestrian Facilities"



- Many other **generic** treatments are often far more effective



- IHT (UK): *"5-Step Hierarchy of Treatments"*



(1) Reduce Traffic Volumes



- Local area traffic management schemes
e.g. One-way streets/entrances, Road closures
- Treatments to allow cyclists to avoid these
e.g. Cycle bypasses, Contra-flow lanes, Off-road links
- Very under-used in NZ
 - Should apply on area-wide (neighbourhood) basis
 - Can encourage ped'ns/cyclists back into central city



Jul 2

(2) Reduce Traffic Speeds



- Traffic calming measures
 - Narrowings, Traffic islands, Platforms
 - Deflection along wide streets & at roundabouts
- 30km/h "home zones"
 - Benefits of 30 km/h (20 mph) zones proven
 - UK study found ave. accident frequency fell by about **60%**
- 40 km/h School Zones



ce – Jul 2004, I



(3) Traffic Management



- Intersection Treatments
 - Waiting space at intersections & crossings
 - Kerb extensions, central islands
 - Crossing facilities and delays
- Remove small "pinch points"
 - Narrow bridges, Lack of kerb ramps
 - Pathway barrier rails
 - Drainage / utility covers



(4) Reallocation of Space



- Look at **whole** road carriageway / corridor
 - Target under-used/over-sized traffic & parking lanes
 - Shared-use spaces? (e.g. bus/bike lanes)
 - Convert to pedestrian / "slow" streets



(5) Specific Cycle / Ped'n Facilities

- If above approaches are not able to produce a viable solution, **then** specific facilities may be required
 - Underpasses / overbridges
 - Cycle lanes
 - Shared paths



Hierarchy of Treatments - Summary



- Addresses why people ***don't*** walk or cycle
 - What do they mean by "*Because it's not safe*" ?
 - Usually not because of lack of ped'n / cycle facilities
- Traditional "facility" solutions are ***last*** choice
- Not always possible to apply those at the top
 - But we need to at least think about the options



*Illustrates the need for better walking / cycling to
be an integral part of **all** council policies*

Conclusions and Actions



- Make walking / cycling safety a priority
 - Don't just rely on crash data



- Focus on traffic management / calming
 - Provides a better outcome for **all** street users



- The Devil is in the detail...
 - Audit what you've got & what needs doing



- Promotion is just as important as Facilities
 - Travel behaviour programmes are a must

Talk to the Experts!



- Cycling Advocates Network (CAN)
 - www.can.org.nz



- Living Streets Aotearoa (LSA)
 - www.livingstreets.org.nz



- Land Transport Safety Authority
 - Safer Routes
 - Pedestrian and Cyclist Safety Framework
 - Planning & Design Guides



Also many excellent overseas websites

Cycling & Walking Safety from a National
Perspective - New Thinking Needed

Thank You!

