



Waka Kotahi research summary

November 2022

# Safety interventions and their contribution to mode shift

‘We have made high speeds safer for drivers of cars, and that has been the focus. But we were not doing this for other modes. If I step out of my door, I should be safe.’ – Interviewee

New Zealand’s transport strategic direction is to improve whole-of-journey safety. It also encourages mode shift away from private vehicles towards more sustainable modes of travel.

Safety interventions result in safer journeys and:

- reduce harm from road crashes
- reduce harm from slips, trips and falls
- reduce threats to personal security.

As expected, research shows that safety interventions improve road safety. However, we don’t know what effect they have on transport mode shift. This research examines that gap, and includes:

- a literature review
- examination of monitoring indicators
- expert interviews
- New Zealand case studies.

## Literature review

The researchers' New Zealand and international literature review includes examples of successful and unsuccessful safety interventions to support mode shift. They found that infrastructure and complete package interventions have the greatest contribution to mode shift. These are grouped in three areas of safer journeys:

1. Crash safety interventions
  - a. Infrastructure that separates modes, especially physical separation of cyclists and motorised vehicles
  - b. Managing speed through lowering speed zones and traffic calming infrastructure
2. Personal security interventions
  - a. Real-time public transport information
  - b. Artificial lighting
3. Slips, trips and falls interventions; for example, the effect of pavement improvements on mode choice.

A combination of personal security, crash safety and smoother path interventions showed more people walking, cycling and taking public transport. When this was applied to complete routes, area-wide treatments or cities, and was combined with safety education, it showed the strongest increase in walking and cycling, especially for trips with an educational purpose.

To achieve mode shift, safety interventions mustn't be done in isolation. They should be part of a Safe System approach that considers the needs and limitations of the users and whole-of-journey safety.

## Expert interviews

Interviews with seven experts included recommendations such as filling gaps in disjointed networks and providing complete routes to schools, public transport, local neighbourhood attractions and shops.

## Case studies

The case studies captured successful New Zealand examples. They:

- show the benefits of the intervention, how this was measured and the learnings
- are based on interventions mentioned in interviews and the literature review that would likely lead to mode shift
- include changes in the urban cycleways programme, innovating streets programme and safer speed changes
- mostly focus on cycle separation as well as traffic calming at major locations.

Lessons from the case studies:

- It's important to collect robust and thorough data before and after an intervention is installed. This is to assess the intervention's effectiveness and support business cases for future interventions.
- A location's treatment and intervention should reflect the existing road users' characteristics. The same intervention may be more or less successful in different areas, depending on other factors (eg schools, proximity to local shops).
- Trials are valuable because they allow improvements to be made post-implementation, where they can be included in the permanent upgrade.
- Ongoing maintenance costs should be included in budgeting.

## Recommendations

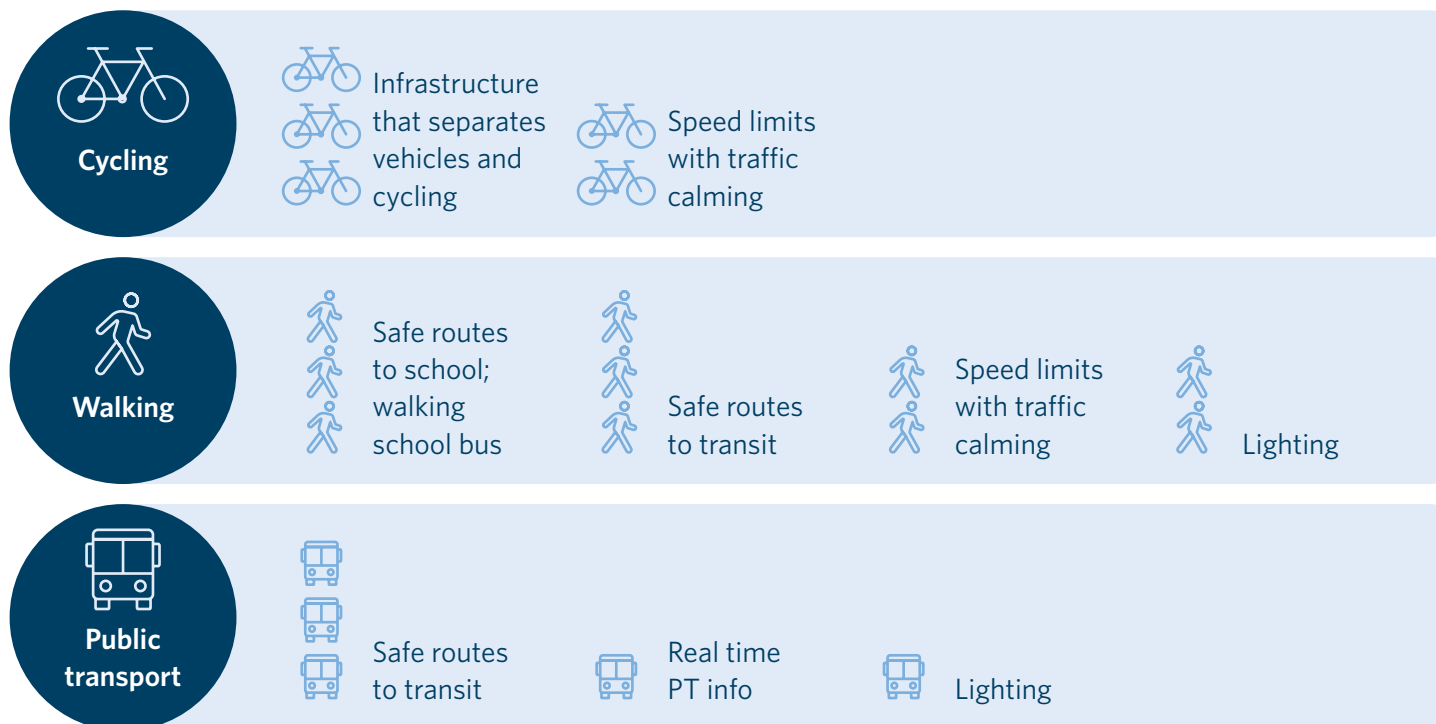
The researchers recommend the following key strategy and policy actions:

1. Future transport strategies for New Zealand, including road safety strategies, should address a wider range of harms (eg road safety; slips, trips and falls; and personal security). The action steps and funding framework should be updated accordingly.
2. Future transport strategies for New Zealand should use a funding approach that includes whole-of-journey safety (crashes, falls and personal security). This includes:
  - a. integrated or complete funding opportunities for a 'Safe Routes' approach (especially for schools and important public transport hubs, including real-time information)
  - b. walking and micromobility (single party injury) interventions (including traffic calming and addressing lighting)
  - c. interventions that also work for mode shift on the safety intervention list, to deliver Road to Zero (eg cycle and vehicle separation)
  - d. linking street and corridor infrastructure rollout with educational initiatives (eg bikes in schools, walking school buses or individualised travel planning).

They recommend the safety interventions in Figure 1 be implemented to support mode shift (while accounting for context).

3. As criteria for accessing funds, future transport strategies for New Zealand should include minimum requirements for monitoring affected modes.
4. Funding documents and national and regional monitoring frameworks should include explicit links to evaluation guidance (to promote its greater use).

Figure 1: Intervention effectiveness by mode and mode shift impact



Recommendations on improving decisions based on monitoring:

1. Increasing walking and cycling count data (especially around the CBD, town centres, public transport hubs and lower speed locations).
2. Improving access to monitoring equipment and analytic capability, especially around camera-based data. This provides a rich picture of both safety and mode shift.
3. Consistent monitoring of specific perceived safety indicators, split into road safety; slips, trips and falls; and personal security. Consistent monitoring of avoidance during night and day (to understand who is not using an area because they believe it is unsafe).
4. Continuing to provide more case studies showing the benefits of broader monitoring, and examples of what good looks like, to encourage better monitoring.
5. Continuing to focus on transport safety data integration on integrating, sharing and providing training resources to encourage improved data use. At the least, a safety incident's geospatial location and confirmation is needed regarding the street, transport path or public transport hub.
  - a. Provide a mechanism to report safety data to the police, including slips, trips and falls and personal security incidents (ie assaults and verbal abuse) on public transport.
  - b. Integrate public transport safety data and hospital data on transport into the Crash Analysis System or similar, including defining a geospatial zone around public transport routes or hubs.



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