

Cycling Safety on Rural Roads

Case study of Audio-Tactile Line-Markings

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What are Cyclists doing on Rural Roads?

- Cycle tourists travelling around the country from centre to centre
- Recreational cyclists making day-trips to popular places out of town
- Recreational sport cyclists undertaking training rides/runs
- Commuter cyclists between neighbouring towns



Typical Crash Patterns

Rural cycle crashes 2013-22

(From NZTA Crash Analysis System, for 80+ km/h roads)

- ~60 injuries/year in NZ, incl. ~4-5 fatalities
- <10% of all cycling Injuries are on Rural Roads
 - BUT about **half** of all cycling Fatalities are Rural
- Most common rural injury/fatal crash types:

• Overtaking	28%	
• Intersections	23%	
• Rear-end/obstruction	21%	
• Head-on/lost-control on curves	19%	

Cyclist dies after crash on SH1 in Marlborough

4:08 pm on 2 February 2026

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The road was closed between Lake Grassmere and Taimate (file photo). Photo: RNZ

One person has died after a crash between a bike and a car on State Highway 1 in Marlborough on Monday morning.

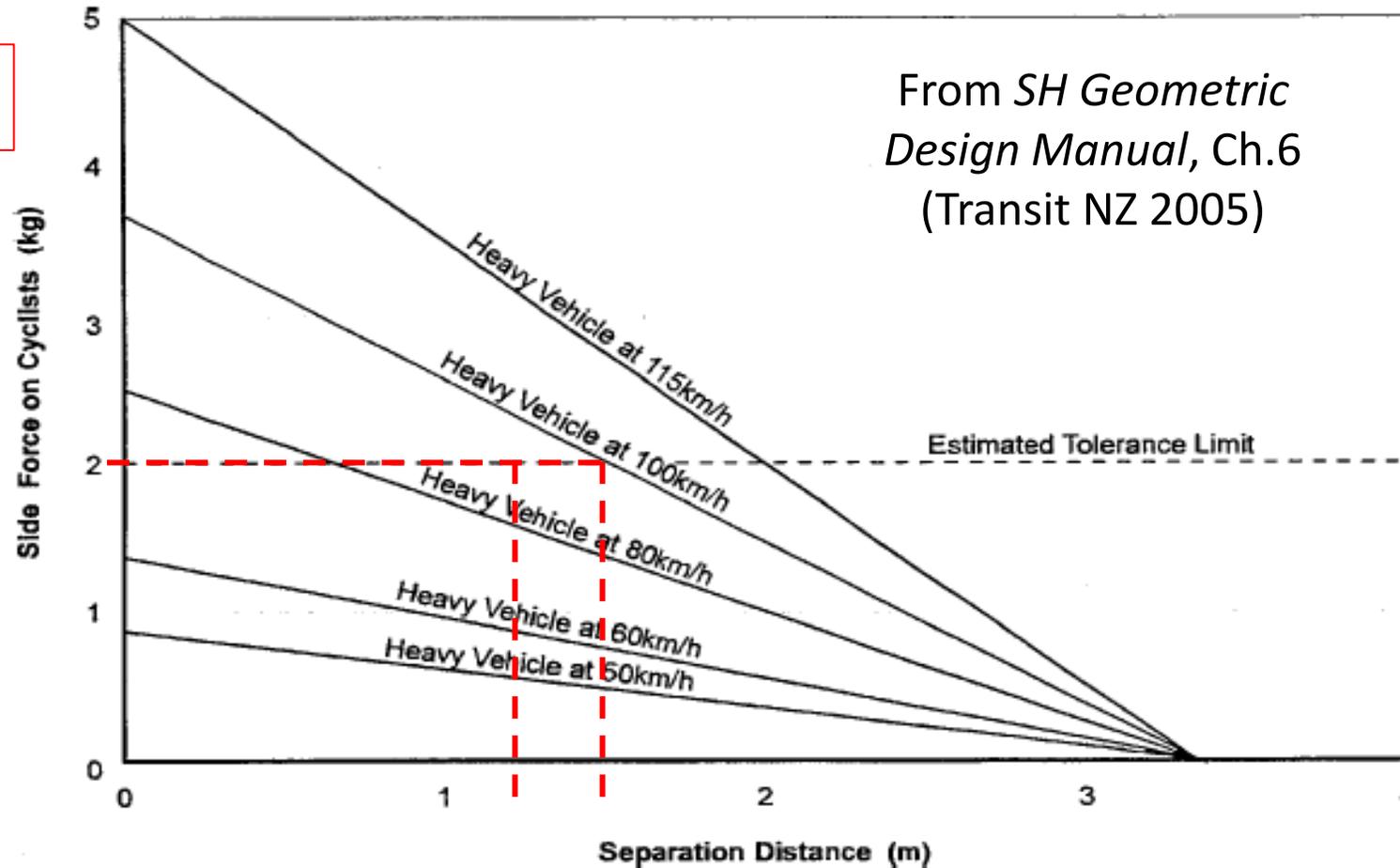
Police say the cyclist died at the scene.

Another person has moderate injuries

The road has since reopened between Lake Grassmere and Taimate.

The circumstances of the crash are being investigated.

Effect of high-speed Heavy Vehicles on Cyclists



Truck driver 'within arm's reach' of cyclists

NZ Herald
7 Jul, 2014 01:03 PM 3 mins to read

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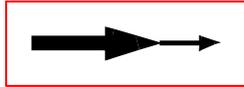


Jane Farrelly (left) died while she was cycling with her husband, Ian, and friends near Taupo in March. Photo / Sarah Ivey

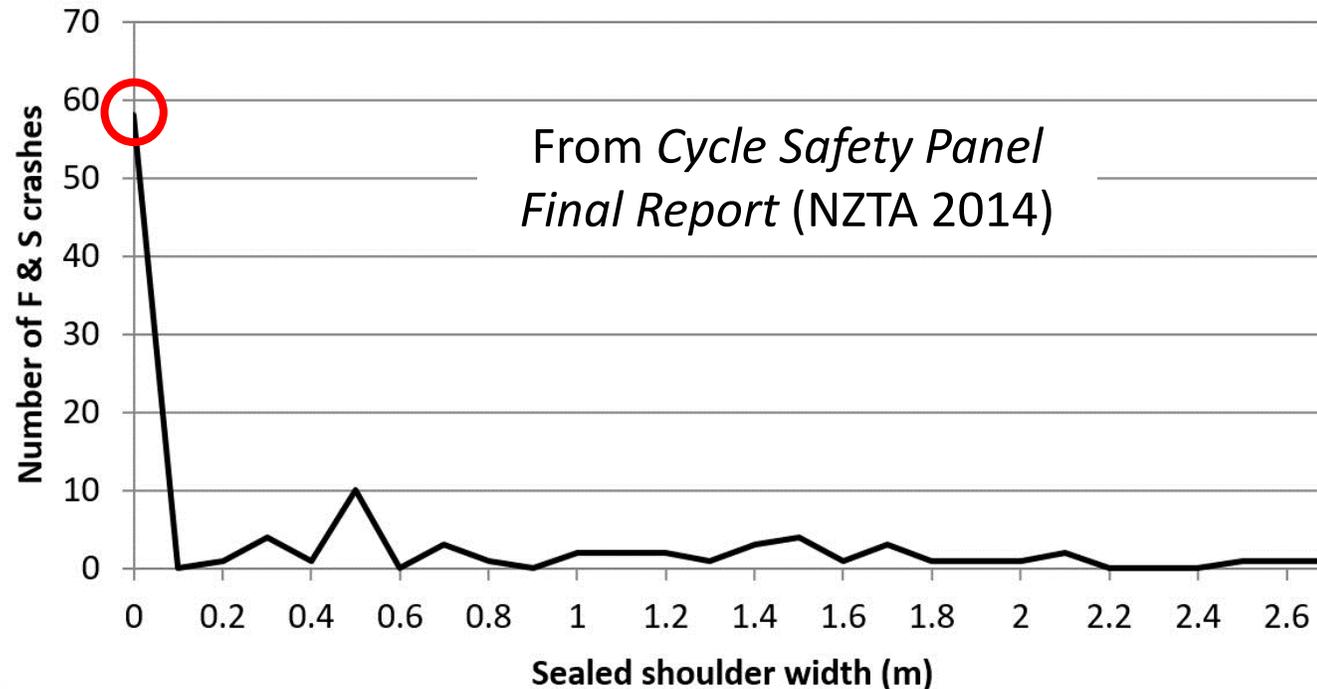
A truck driver was "within arm's reach" of a group of cyclists seconds before his vehicle fatally collided with one of them, an inquest has heard.

Jane Farrelly, a 50-year-old mother of two, died while on a group ride with her husband, Ian,

Effect of Shoulder Width on Cycle Safety



Same direction rural fatal and serious cyclist crashes by shoulder width
2003–2012



Road rules: NZTA proposes minimum passing gap



NZ Transport Agency Waka Kotahi is proposing a new minimum passing distance for drivers when passing cyclists or other vulnerable road users. Photo / Thinkstock

New Zealand drivers may soon be legally required to give cyclists and other vulnerable road users more space when overtaking, under a proposed rule change released for public consultation by NZ Transport Agency Waka Kotahi.

The proposal sets a minimum 1m passing gap when travelling at 60km/h or below, and 1.5m when travelling over 60km/h.

"Currently, there's no minimum distance specified in the rule," NZ Transport Agency Waka Kotahi (NZTA) said in a post on its Facebook page.

"This is unsafe, and it's led to an inconsistent understanding of what's a safe passing distance."

As part of NZTA's proposal, failure to meet the minimum passing distance would carry an infringement fine of \$300 and a maximum court-ordered fine of \$1500.

The passing-gap requirement is one of five rule changes NZTA is consulting on.



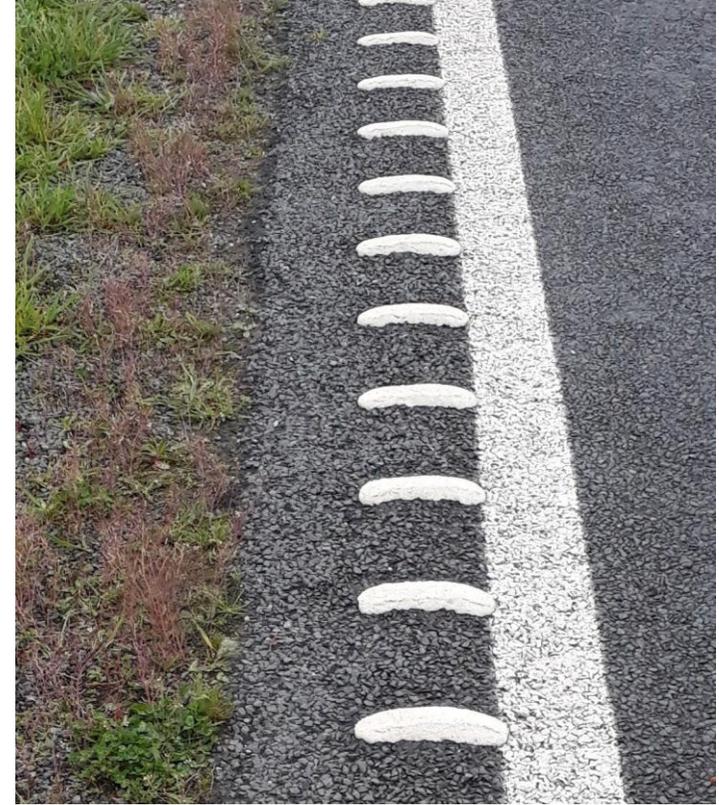
NZTA “Safety Boost” Programme (2018)

- Targeted \$22.5 million programme of work to add a range of low-cost safety improvements to make 30 regional state highways safer
 - Focused on low-volume hwys in Northland, Taranaki, Manawatu-Wanganui, Canterbury, Otago and Southland
- Key upgrades:
 - “Rumble strips” (audio-tactile line-markings)
 - Warning signs of risks ahead e.g. sharp curves
 - Safety barriers targeting high risk locations
 - Rural Intersection Activated Warning Signs



Audio-tactile line-markings (ATLMs) *aka “Rumble strips”*

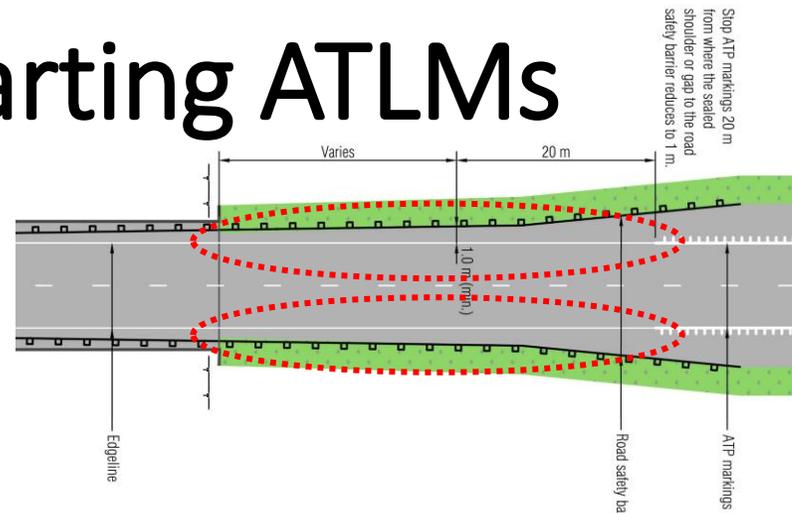
- Help prevent drivers from straying off the road
 - Can reduce run-off road crashes by up to 20-40%
- Safety Boost programme proposed many kms
- However, what is the effect on people **cycling** there?
 - Potential to increase risk if they have to cross them?



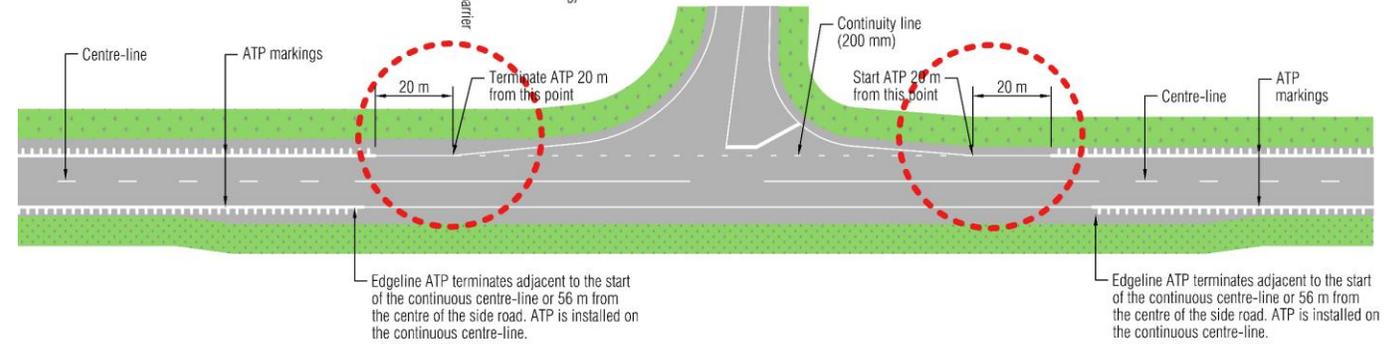
NZTA commissioned ViaStrada as part of a wider team to review the corridors and identify areas where installing (or not) ATLMs would increase the safety risk for cyclists on these routes

Stopping and starting ATLMs

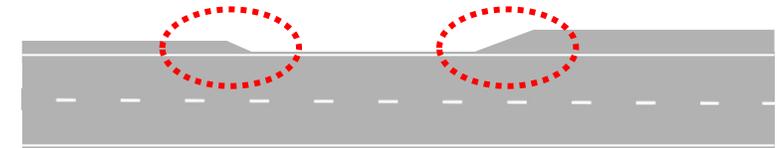
- Approaching bridges



- Approaching intersections

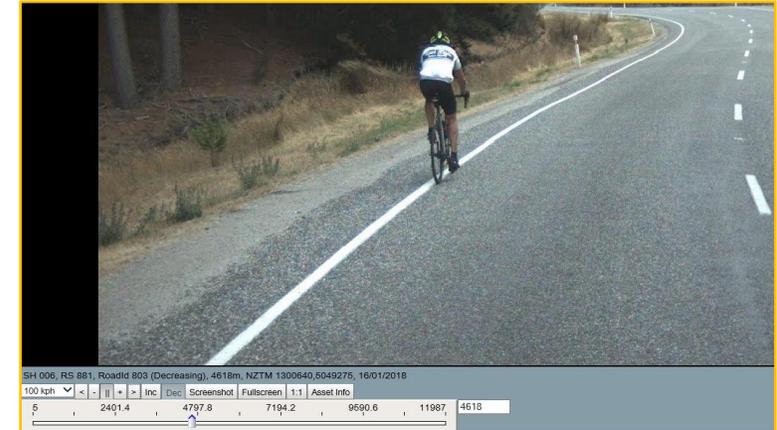


- *What about when shoulder widths change?*



Reviewing shoulder widths

- Reviewed several sections of low-volume highways in southern South Island
- Used NZTA's "RoadRunner" road view system
 - Virtually "drive" through video recordings
- Identified potential ATLM start/stop locations
 - Where shoulders narrow/widen
 - Crest curves with limited sight distance
 - Horizontal curves with limited sight distance
 - Steep downhill / uphill sections



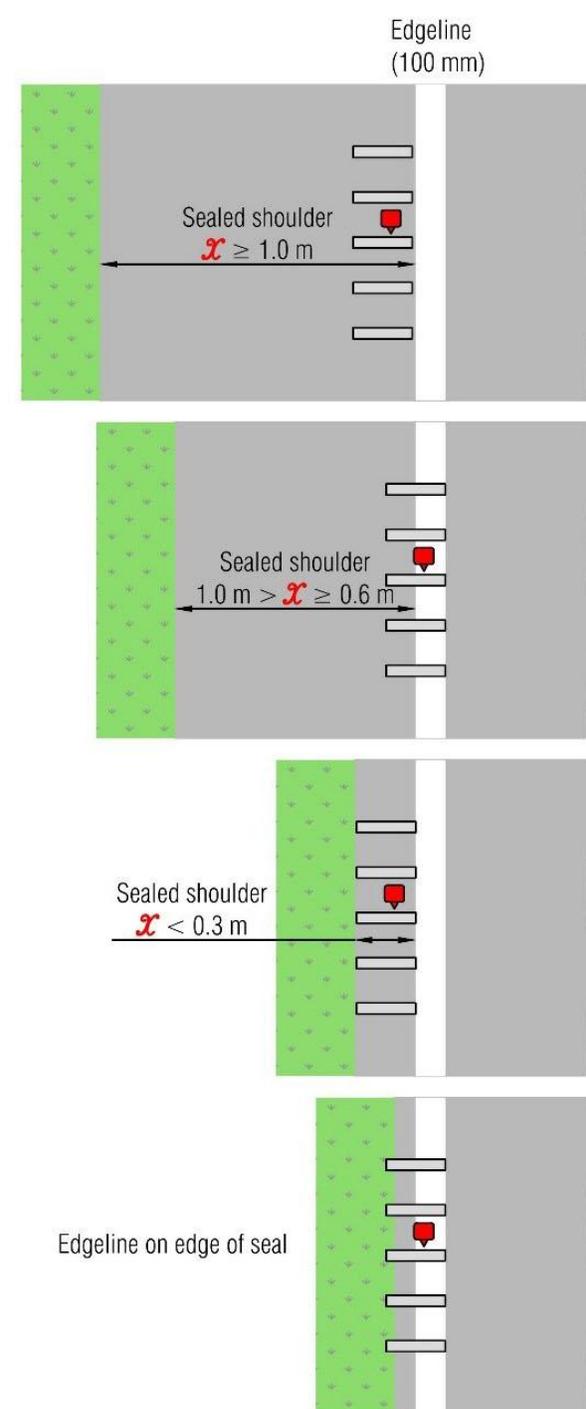
Field testing the ATLM policy in practice...

- Central Otago field trip, Apr 2018
 - Test riding different bikes on installed ATLMs
 - Drive-overs to confirm likely ATLM placements
 - Considering different options for ATLM policy



Proposed new layout options for installation of ATLMs

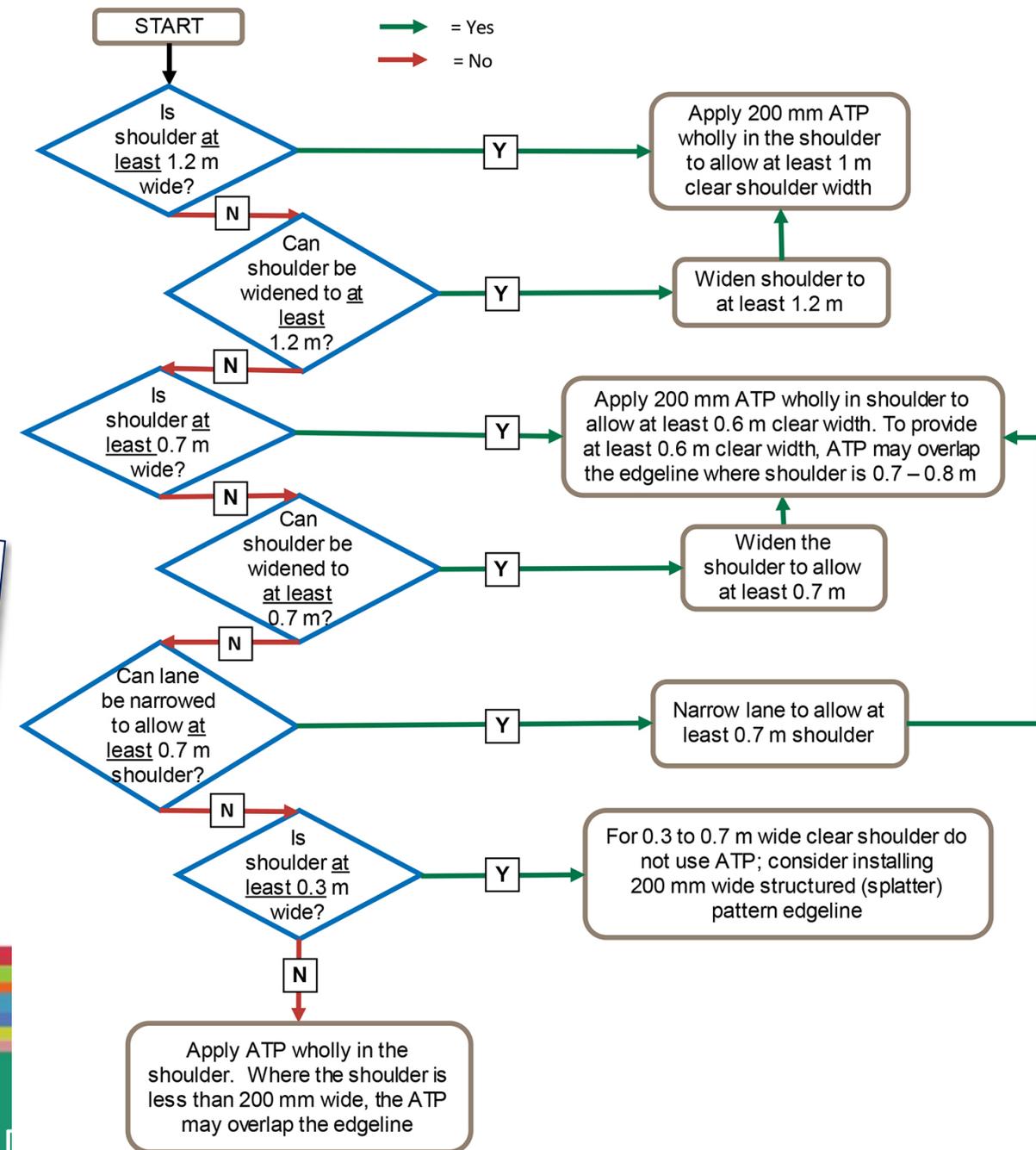
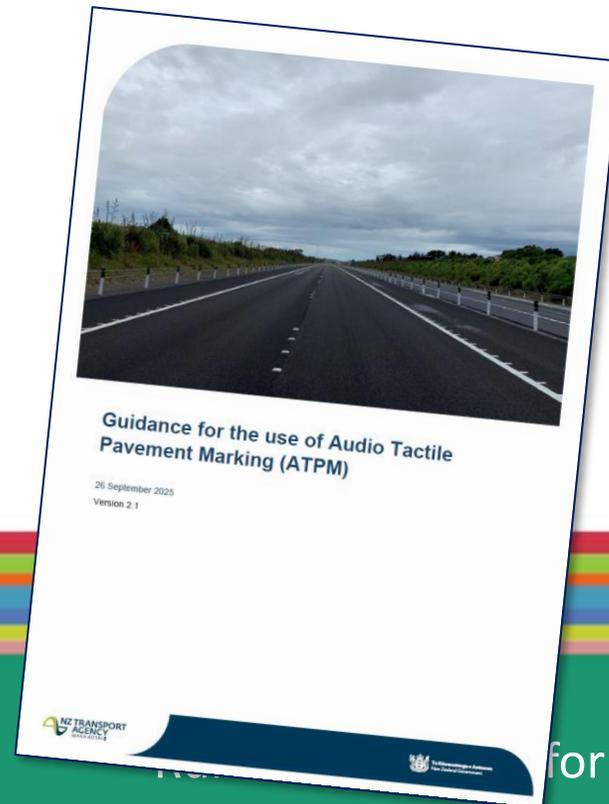
- Lateral placement of ATLMs depends on different shoulder widths present
 - Generally OK to apply for $\geq 0.6\text{m}$ shoulder
 - Consider options for $0.3\text{-}0.6\text{m}$ based on sight distance
 - On-road cycling likely for $0\text{-}0.3\text{m}$ shoulder
 - Consider **20m gaps** when shoulder widths change
 - Allows cyclists to switch over edge-line
 - Especially for downhill sections with high cycling speeds
- Lower speed limits also another good safety option...*



New NZTA policy for ATLMs and Cyclists

Updated NZTA guidance, Sep 2025

- Potential options to widen shoulder widths if need be



Some takeaway thoughts...

- Cycling in rural areas has significant risks
 - Especially in areas with **limited shoulder space**
- Audio-tactile line-markings (ATLMs) can reduce run-off road crashes for motorists
 - But need to be careful about how cyclists interact with them
- NZTA has slowly evolved some best practice guidance for ATLM placement, esp. on cycling routes
 - But sometimes **wider shoulders** can be the better option...
 - ...or introduce **lower speed limits** on narrow, winding hwy



Thank you!

***Please enter any questions
you have in the Q & A***