
STOPS and GOES:
THE NEXT GENERATION
Megan Gregory & Axel Downard-Wilke
SNUG workshop | September 2026
VIASTRADA
TRANSPORT PLANNING AND DESIGN



COSI

COLLECTIVE OF SIGNALS INNOVATORS

The OG *Stops and goes* (a quiz)

- Which group identified a need for consistency for traffic signals across the country? – SNUG!
- Audit methodology, commissioned by…?
  – Transfund (which soon became Land Transport NZ)
- Who is this project manager? – Ian Appleton
- How many NZ signalised intersections audited? – 123
- This guy – Axel Wilke – analysed the audits and documented the common trends and key learnings

SNUG
Signals New Zealand User Group

transfund NEW ZEALAND

Land Transport NZ
Ikiiki Whenua Aotearoa

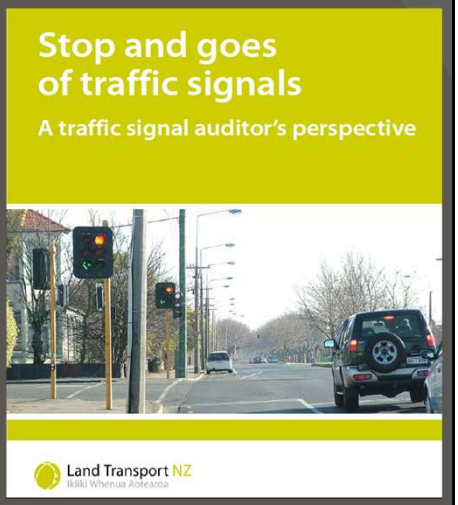




Transfund: transport funding agency (1996-2004). Cf LTSA (1996-2004): safety and regulatory agency. The two merged in 2004 to become LTNZ, which merged with Transit NZ (state highway management) to become NZTA.
SNUG logo from 2014 (couldn't find anything before that)

The OG *Stops and goes* – coverage

- Crash review
  - Right-turn-against & red light running prominent
- Intersection and lane layout
  - Opposed RT lanes, captive turn lanes, slip lanes
- Signal post and display location
  - Conspicuity, sufficient displays
- Phasing and operational issues
  - Arrow operation and logic
- Pedestrian issues
  - Phasing and push button locations
- Cyclist issues
  - Provisions



Stops and goes: the next generation

- SNUG recognised that things have changed
- Commissioned ViaStrada for some updates
  - Now based on professional experience rather than audits
- Proposed to focus on:
  - Crash search / patterns refinement
  - Cyclist and pedestrian best practice
  - Bus priority
  - Checklist for future traffic signal review / audit
- Survey of SNUG committee
  - confirmed the focus areas
  - added a few extra bits to address in other sections

SNUG
SIGNALS NZ USER GROUP



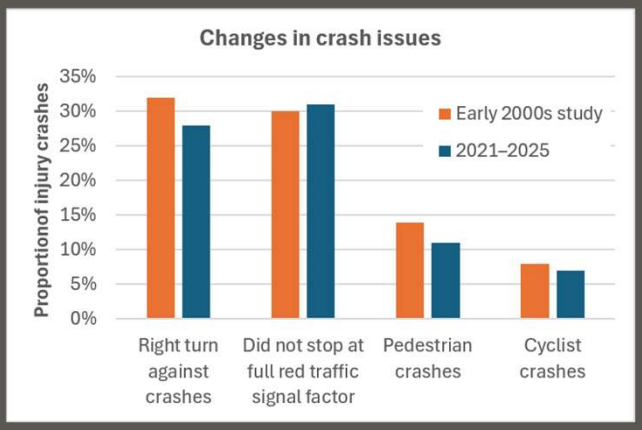
In the last 20 years, a few things have changed (and not just Axel's hair and waist lines)
Said we'll work our way through the list as far as the budget allows. Turns out we're not very good at stopping part-way, so ViaStrada also made a substantial "industry contribution"

What's changed?



Crashes at traffic signals

- Main injury crash type and factor remain the same
- Crashes involving pedestrians & cyclists have decreased in proportion

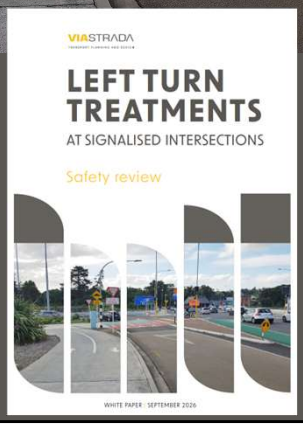


The main injury crash type is still right turn against crashes, and the main factor is still “did not stop at full red traffic signal”.
Crashes involving pedestrians and cyclists have decreased in proportion – sign of improved practice?

Slip lanes

- Well-designed slip lanes
  - high entry angle,
  - raised safety platform crossing,
  - signalisation where appropriate
- can improve pedestrian safety
  - by separating conflict points (and managing speeds)
- and can reduce pedestrian delay
  - by providing a priority crossing across the slip lane and reducing the overall intersection cycle time
- See O'Brien (2019)
  - and Gregory *et al.* (2026)





Some small but mighty tweaks to the content on slip lanes.

Phasing and operational issues

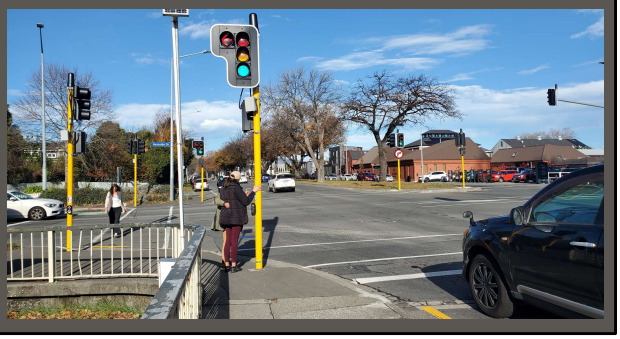
- More detail on use of arrow signals and protected phases
- New sub-section on filter turning
  - Including details previously included in the crash analysis section



Pedestrian issues and provision

- Recommended levels of protection
- Signals to use for pedestrians & their protection
- Detecting & calling pedestrian movements
- Updates re best practice for tactiles and push button placement (ref RTS 14)





Cyclist issues and provision

- Signals for cyclists


General traffic signals


Standard cycle signals


Directional cycle signals



Bus signals


2-aspect cycle signals

*On-road cycle lanes **may** have a single green aspect cycle signal, whereas separated cycleways **must** have green, yellow, and red cycle aspects (except in the anticipated specific cases where two-aspect cycle signals might apply).*

Types of signals that can be used for cyclists
The new Golden Rule of cycle signals:

Cyclist issues and provision

- Signals for cyclists
- Intersection layouts

} When / where / how to use them

  - Whether / where conflict occurs

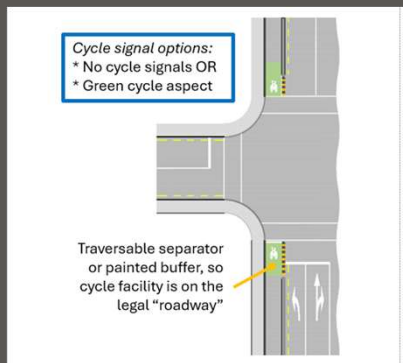


Figure 8-6: Separated cycleway layout to support filter turning

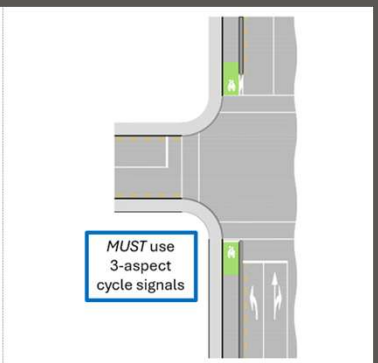


Figure 8-7: Separated cycleway layout to be operated with full protection

Important to understand how the signals, phasing, and intersection layout work together.

Layout and signals supporting filter turning

2nd looks very similar – key difference is physical separation all the way to the cycle limit line – so 3-aspect cycle signals required.

Cyclist issues and provision

- Signals for cyclists
- Intersection layouts

  When / where / how to use them

  - Whether / where conflict occurs
- Intersection waiting facilities
  - Advanced Stop Lines, Advanced Stop Boxes, hook turns
- Managing cycle trajectories through intersections
- Cyclist phasing and detection at intersections



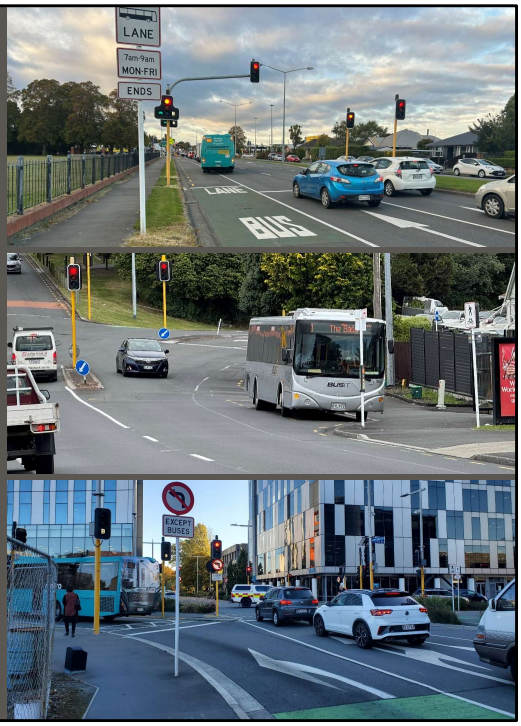




Managing cycle trajectories – really managing trajectories of drivers who could conflict with cyclists.

Bus priority

- Forms of bus priority
  - Head starts / queue jumps
  - Active signal priority
  - Bus gates (modal filters)
- Integrating provisions for buses and cyclists



Whole new section.
Forms of bus priority – the minimum and optional design elements.
Head starts – helping the bus get ahead of traffic at an intersection or signalised midblock location.
Active signal priority – detect buses and extend, truncate, or reallocate green time in favour of the bus movement.
Bus gates – short sections of road restricted to buses and other permitted users.
Integrating buses & cyclists – need to consider how bus priority results in interactions with cyclists approaching, travelling through, or departing an intersection.

Checklist for traffic signal review

- A prompt regarding the key elements of the document
- Not a one-stop-shop
  - Because the *Stops and goes* doesn't cover everything included in Austroads, TCD Manual, local standards etc

Section / item	Y/N	Notes
Crashes and context (Section 3)		
Has the crash history been analysed to check for any trends in crash types or contributing factors?	✓	3 right-turn-against crashes in 5 years!
Intersection and lane layout (Section 4)		
Opposed right-turn lanes (Section 4.1)		
Are opposed right-turn lanes aligned and suitably narrow?	✗	Offset RT lanes
Do right-turners have sufficient forward visibility?	✗	Due to above
Where alignment cannot be achieved, is this mitigated by appropriate phasing?	~	Filter then lag RT
Captive turn lanes (Section 4.2)		
Are captive turn lanes avoided where possible?	✓	

What hasn’t changed?

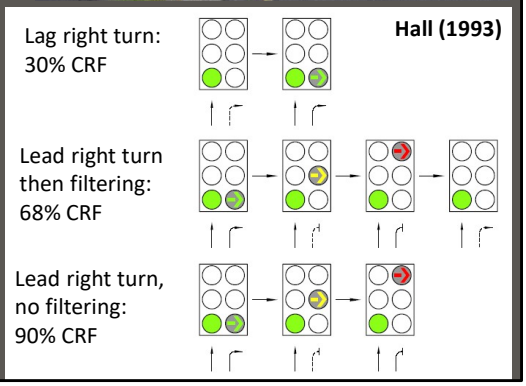


Details we chose to keep

- Issues that no longer occur, but we don't want to resurface, e.g.
  - No signals visible on approach
  - Simultaneous walk and green left turn arrow
- Crash reductions from Hall (1993)







Hall (1993) – British study. We figured it would be too time-consuming and that the results would likely be similar, so focussed resources elsewhere.

Things we'd like to have updated

- Photos!
  - Poor examples to help others learn









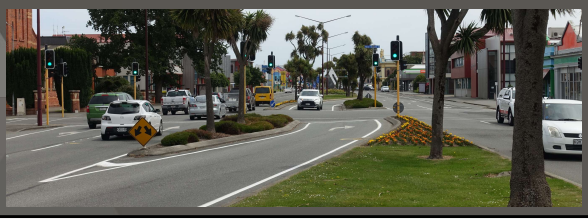
We did send out a few requests to the SNUG committee, but perhaps should have asked the wider group.
It might not be easy nominating a bad example from your patch, but it does help people learn.

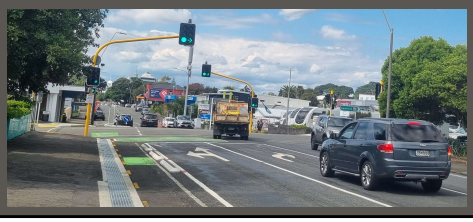
Things we'd like to have updated

- Photos!
  - Poor examples to help others learn
  - Good examples to show how it's done





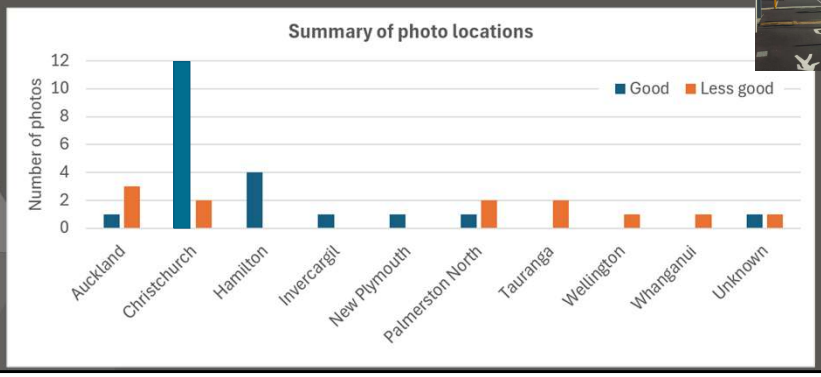




Remember there's a lot of good examples too!
Have some great ones from around the country, including some particular stunners from Hamilton.

Things we'd like to have updated

- Photos!
  - Poor examples to help others learn
  - Good examples to show how it's done
  - A better cross-section of NZ





We don't name locations, but, despite our best efforts, the document is very Christchurch-heavy:
Could potentially release a further update if we happen to get a bunch of new photos in the near future.

Conclusions

- Great to see how far we've come as an industry in 20 years!
- Are we collaborating enough as an industry?
  - Let's use the SNUG forum more and share photos / examples.
- Thanks SNUG for letting us work further on this important document!
- Let's not leave it another 20 years until the next update?



1) things that aren't a problem any more, suggests the first guide (and other documents) were successful
2) Collaboration – had some really useful discussions & sharing, could continue this less formally in SNUG forum etc

Find out more



https://snug.org.nz/specifications/

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