



The Changing Signals Faces of Transport Cycling in New Zealand

2019 Engineering NZ Transportation Group Conference

ViaStrada Ltd

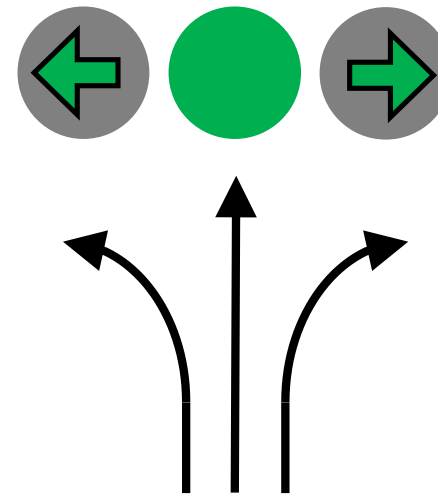
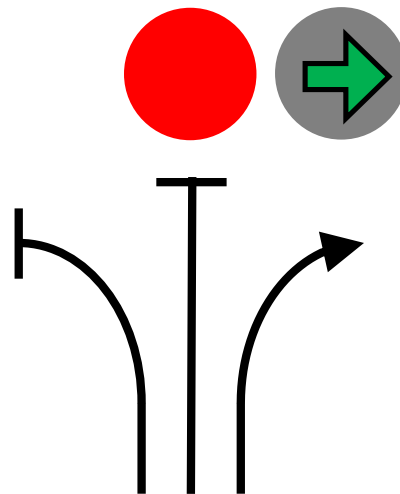
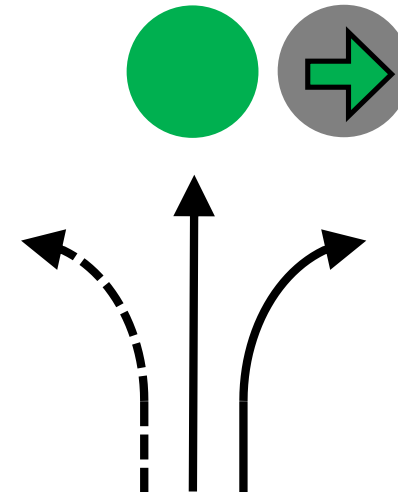
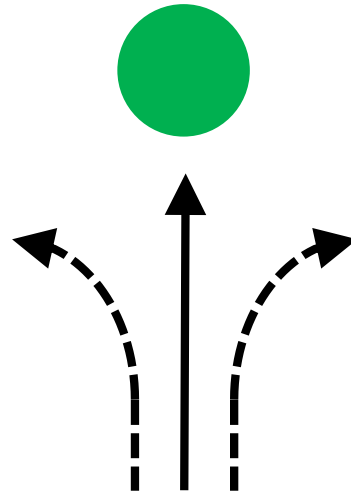
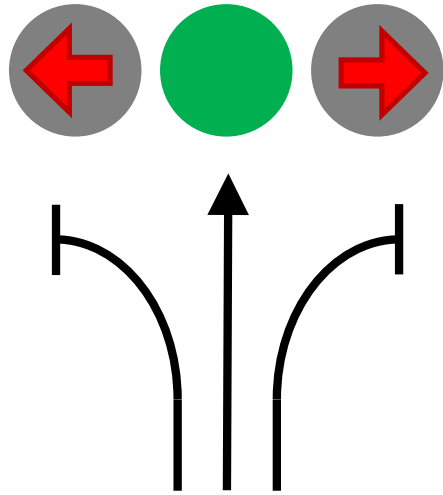
Axel Wilke (presenter)

co-authors: Megan Gregory, Steve Dejong (CCC)

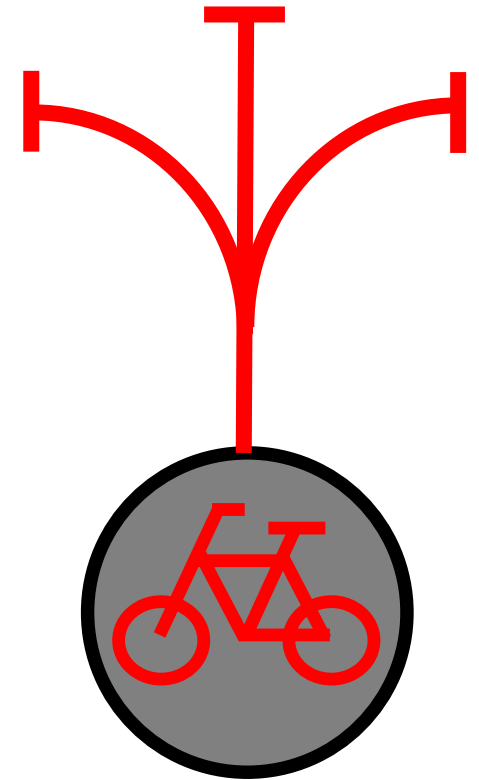
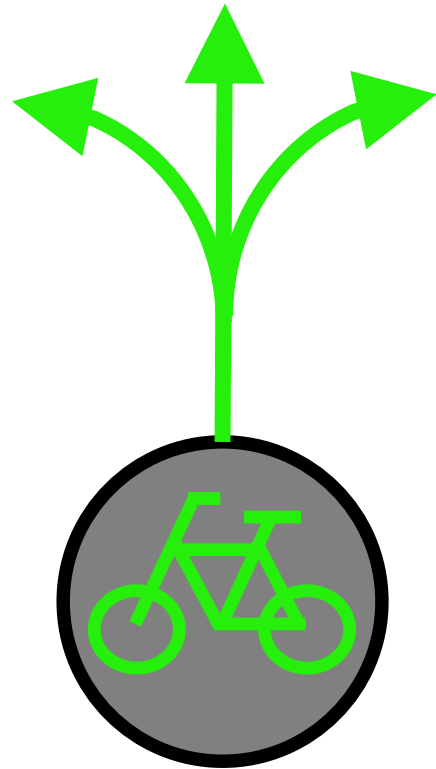
VIASTRADA

TRANSPORT PLANNING AND DESIGN

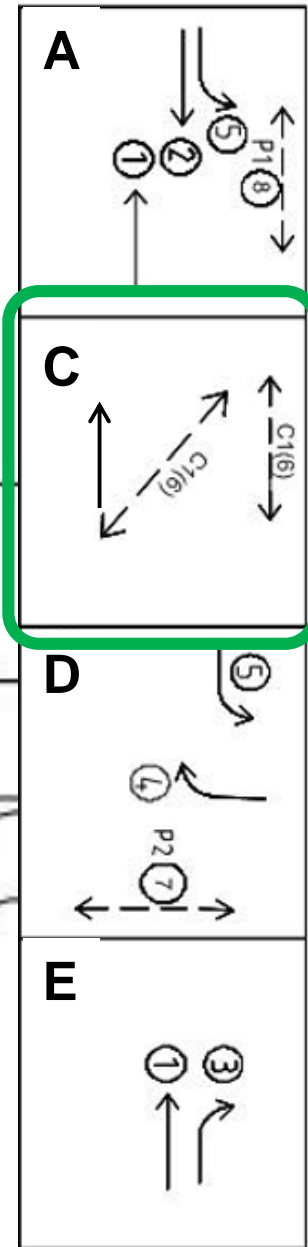
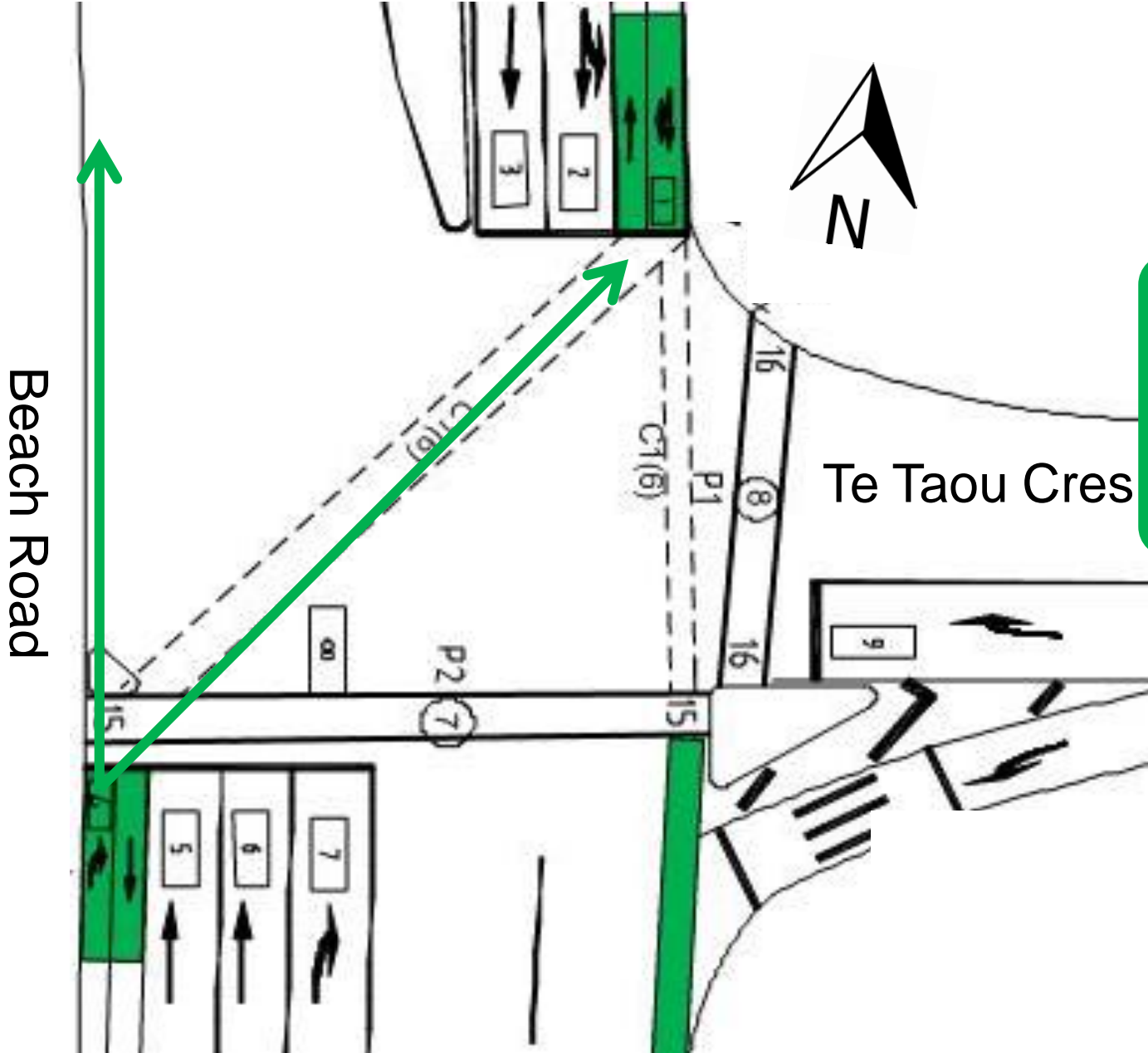
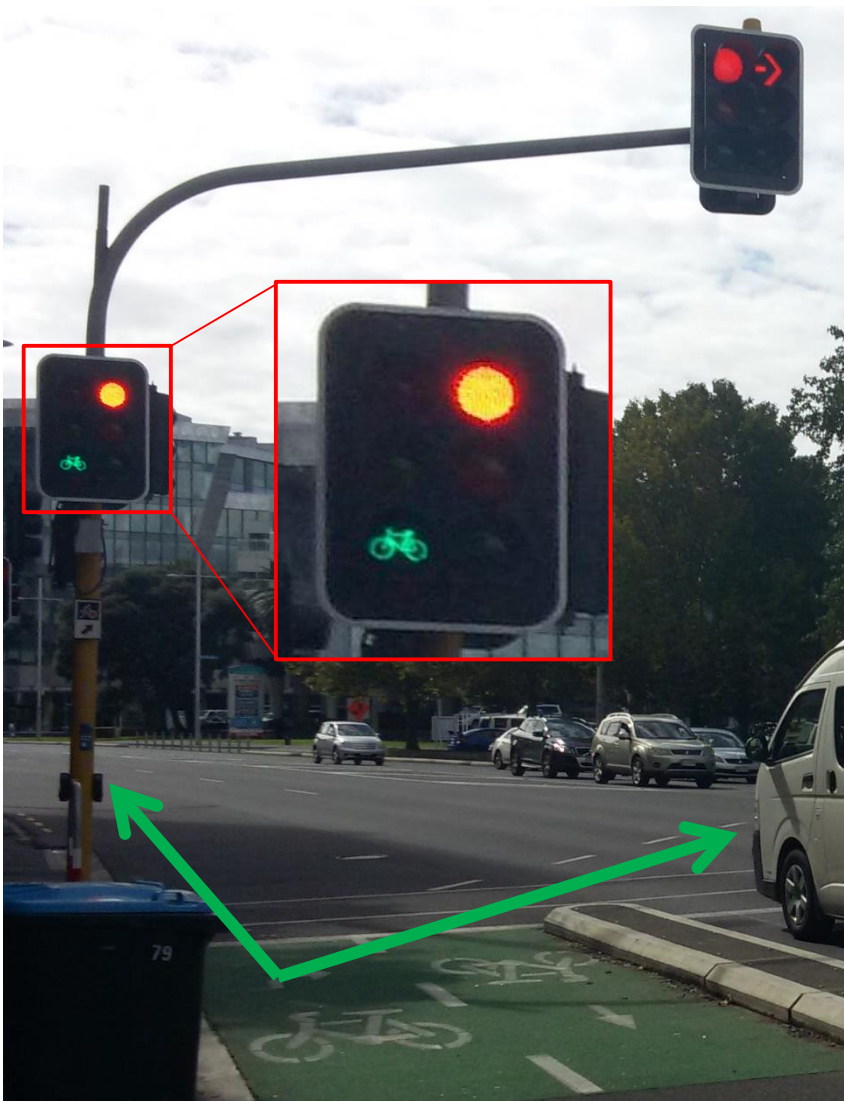
From the general...



... to the cycle-specific



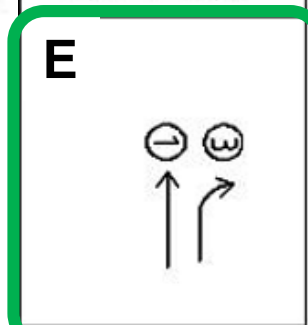
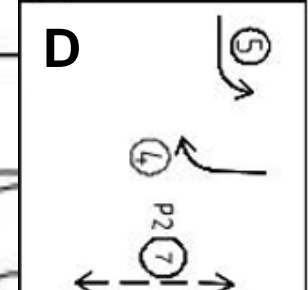
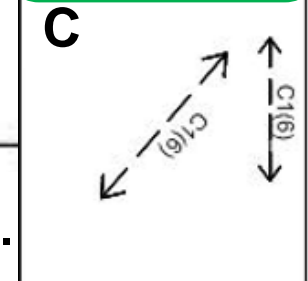
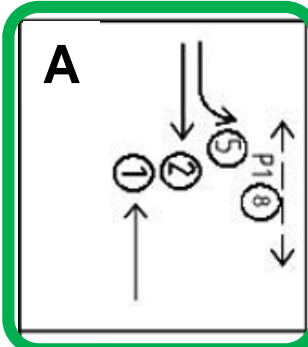
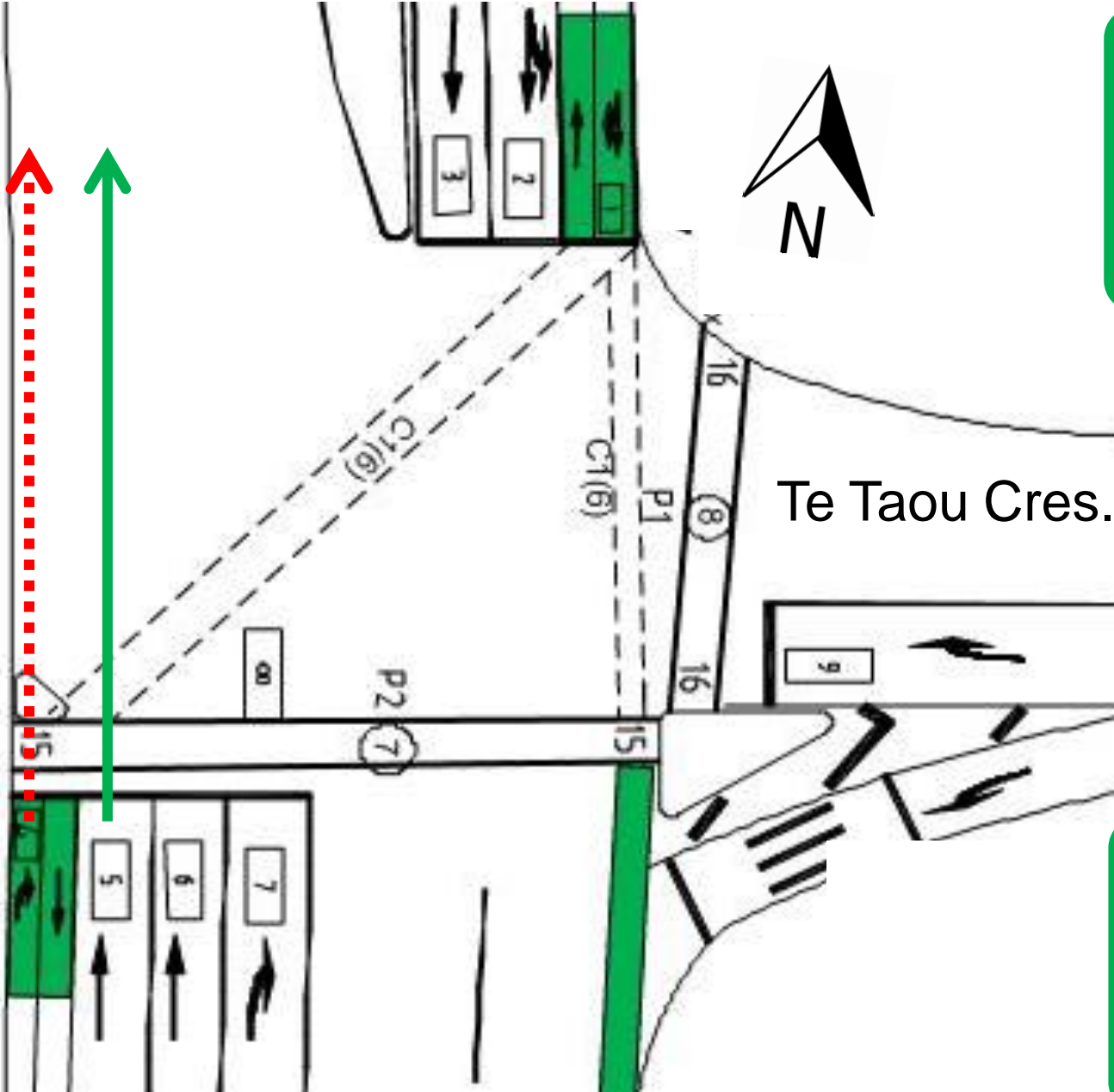
Beach Road / Te Taou Cres, Auckland



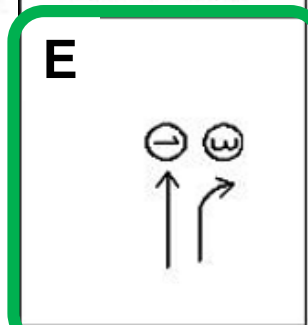
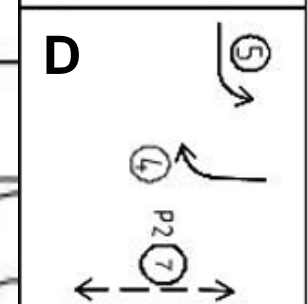
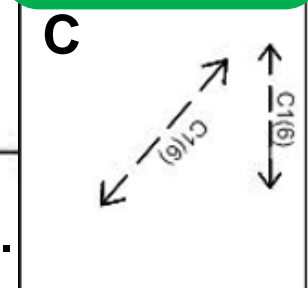
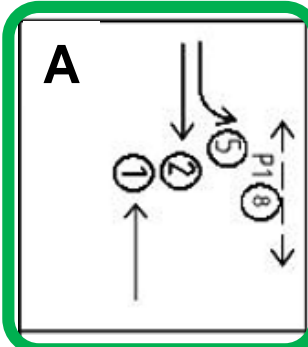
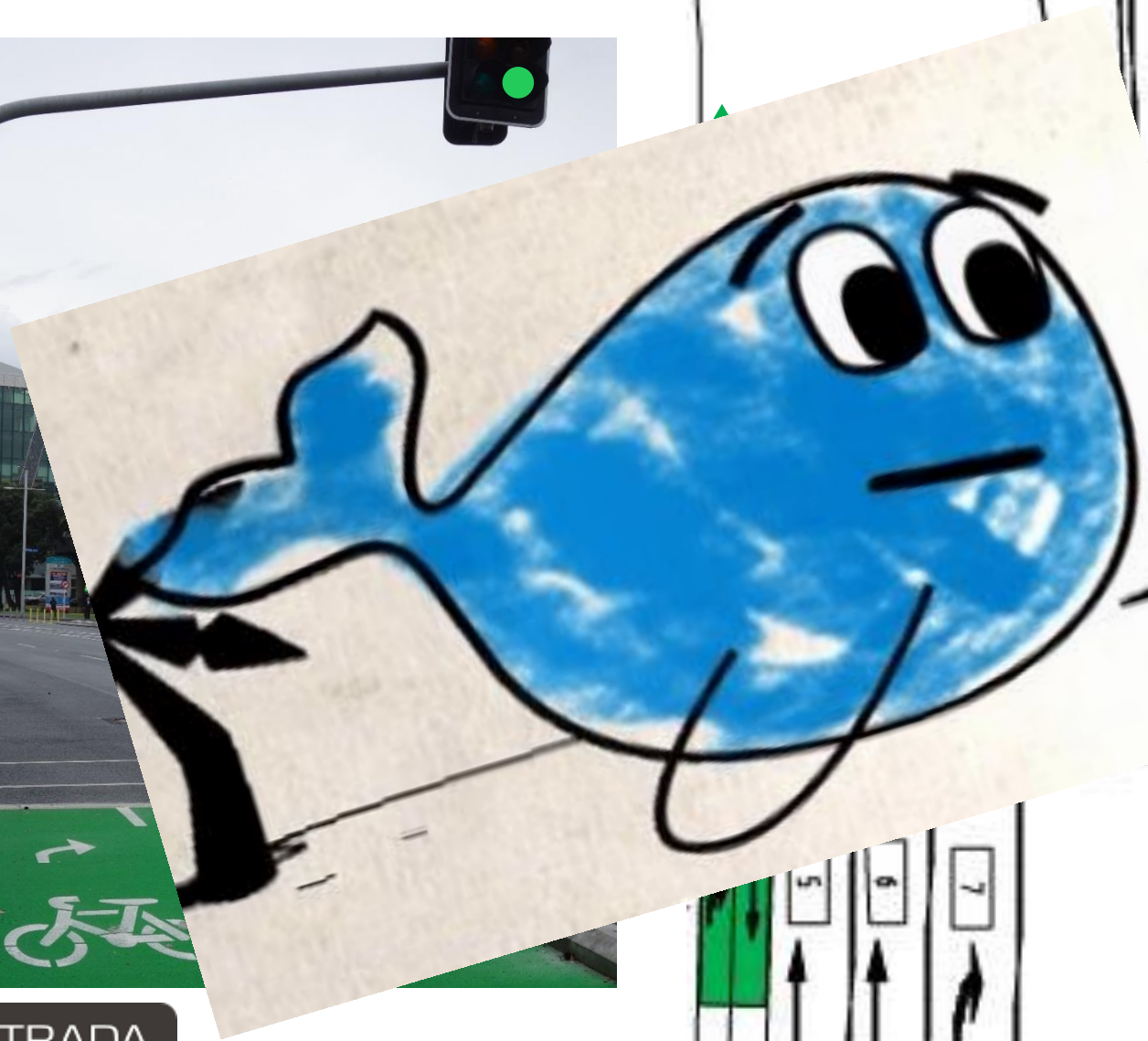
Beach Road / Te Taou Cres, Auckland



Beach Road



Beached as!



What “they” do overseas

- Operate cycle movements like they operate other traffic
 - Different styles



Device trialled

- Aspects 200 mm and 300 mm diameter
- Cycle symbols and arrows lines 5 mm or 7.5 mm thick
- LED lanterns
- Coloured lens
- Options for arrow orientation



LEFT ARROW



STRAIGHT AHEAD
ARROW



RIGHT ARROW



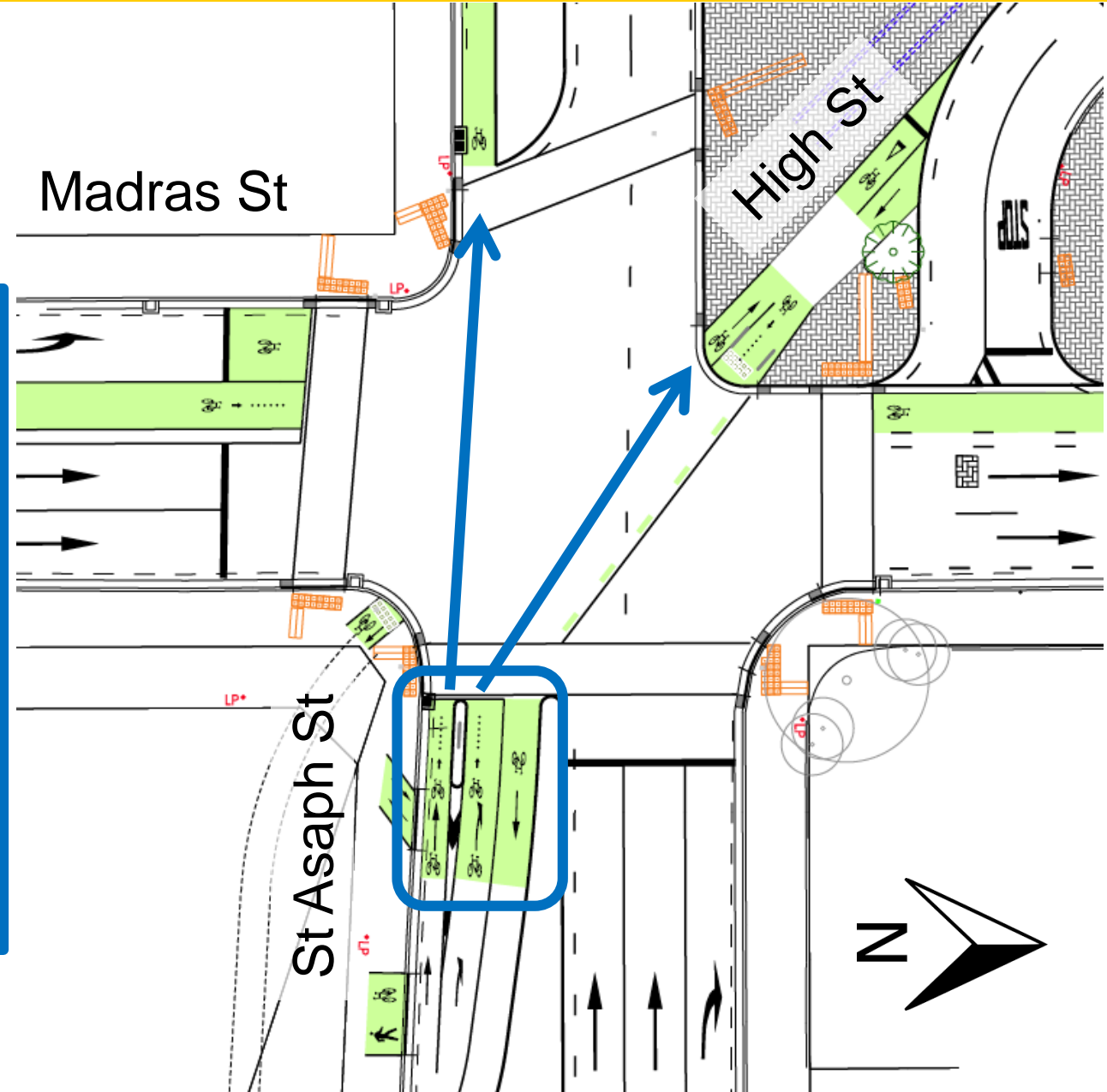
BEAR LEFT
ARROW



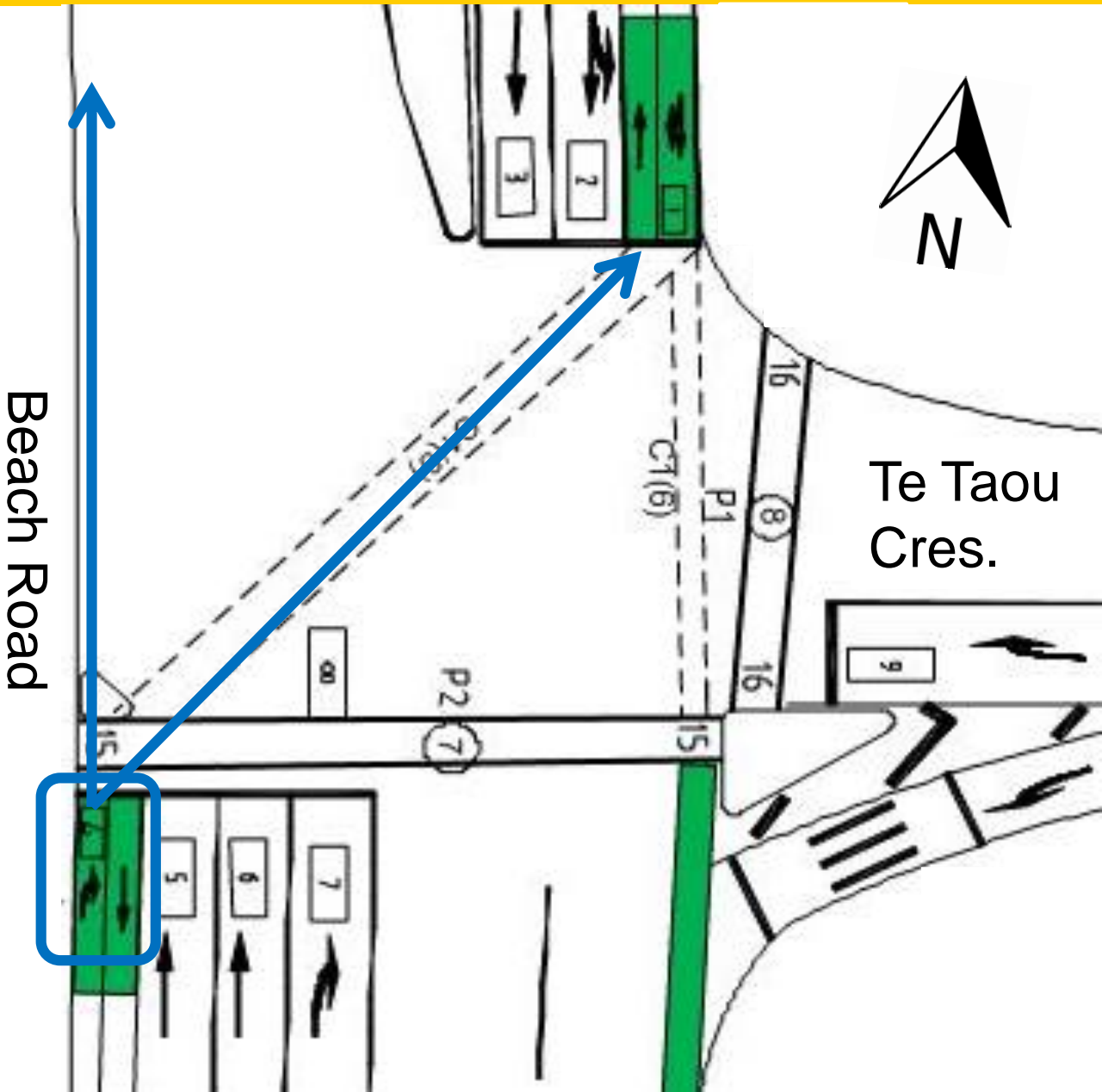
BEAR RIGHT
ARROW



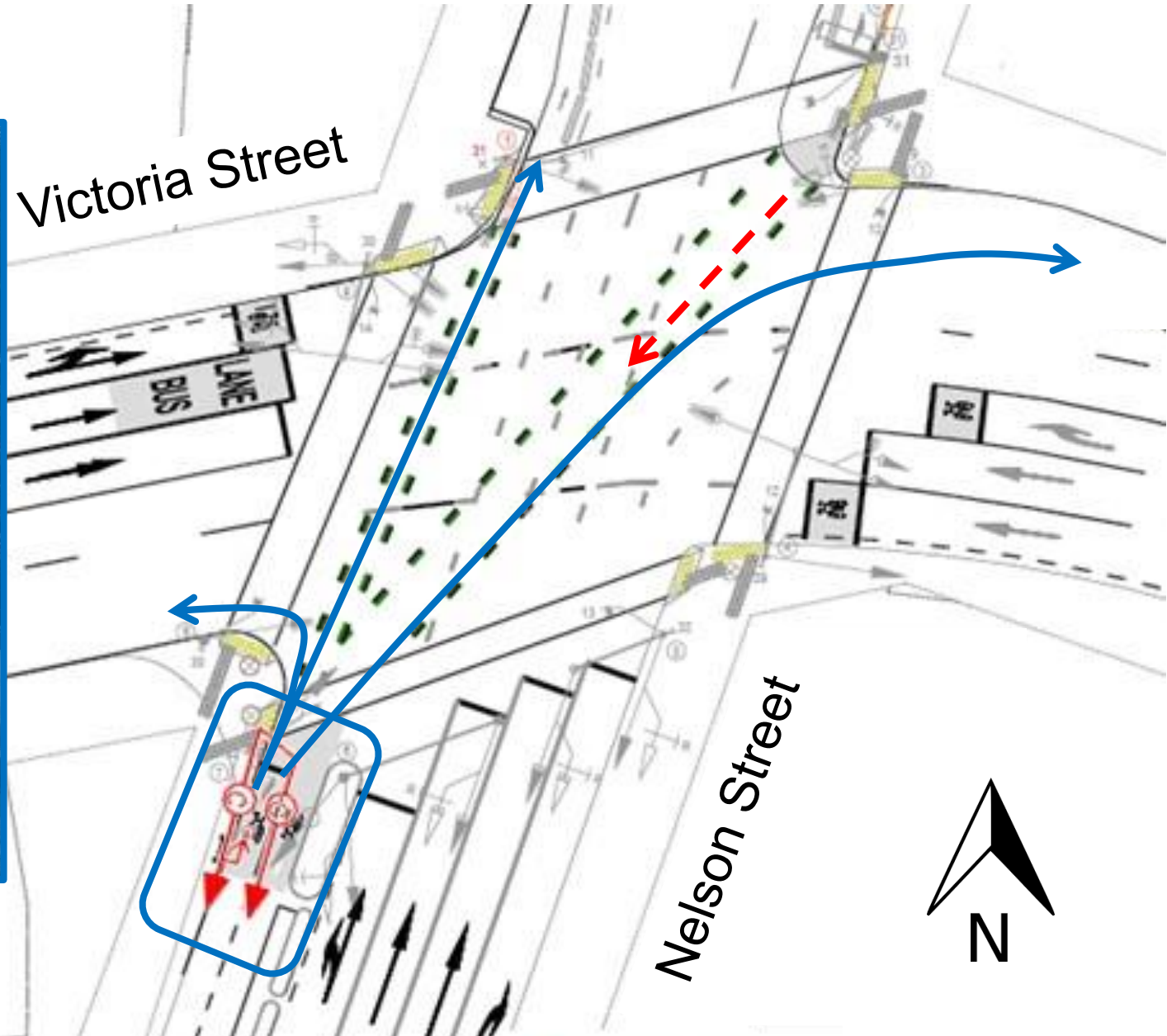
Trial site 1: High / Madras / St Asaph, Christchurch



Trial site 2: Beach / Te Taou, Auckland

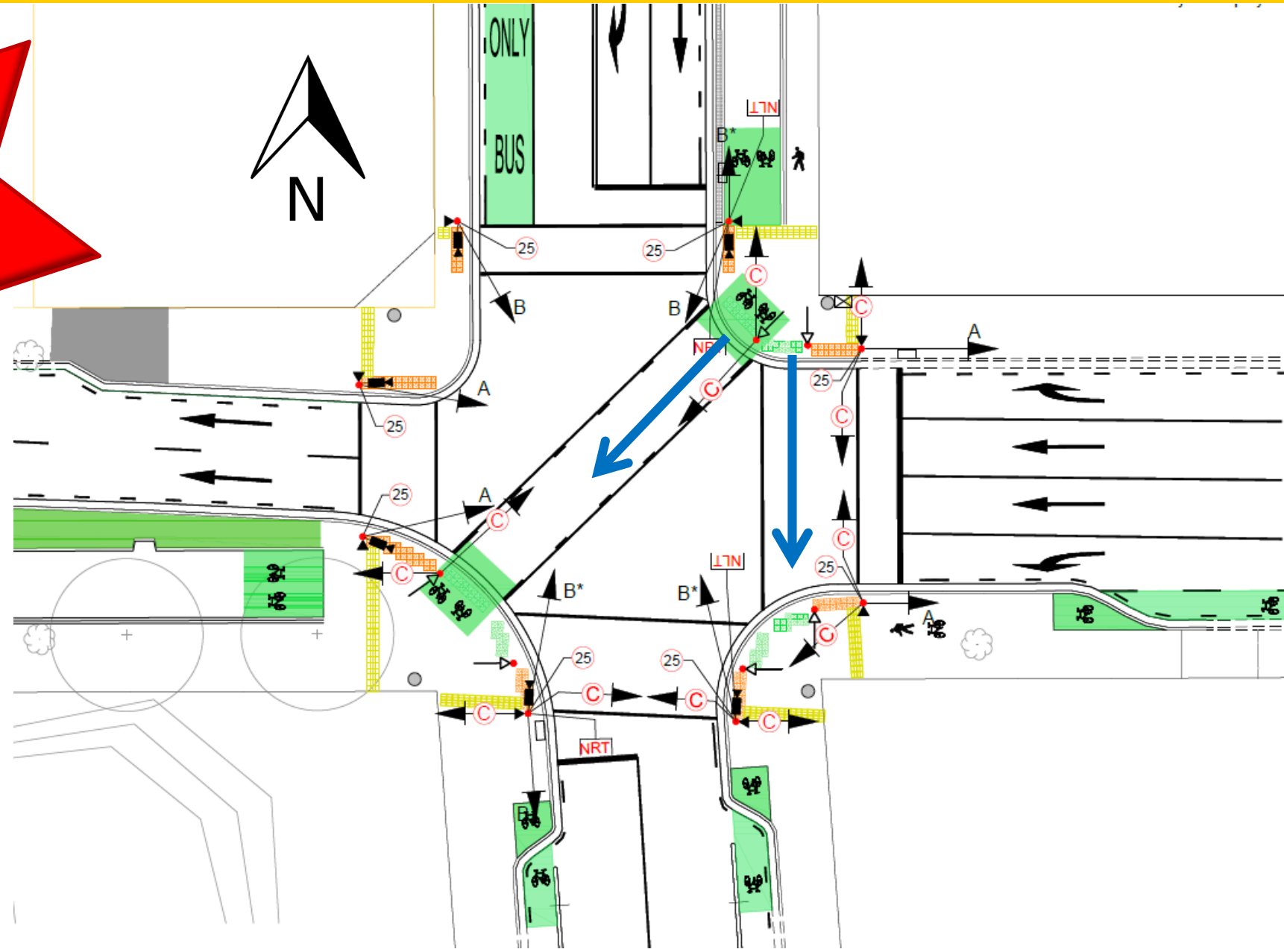


Trial site 3: Nelson / Victoria, Auckland



Trial site 4: Antigua / St Asaph, Christchurch

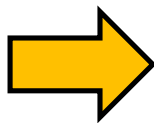
**NEW
ARRIVAL**



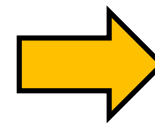
Evaluation stages



Before studies



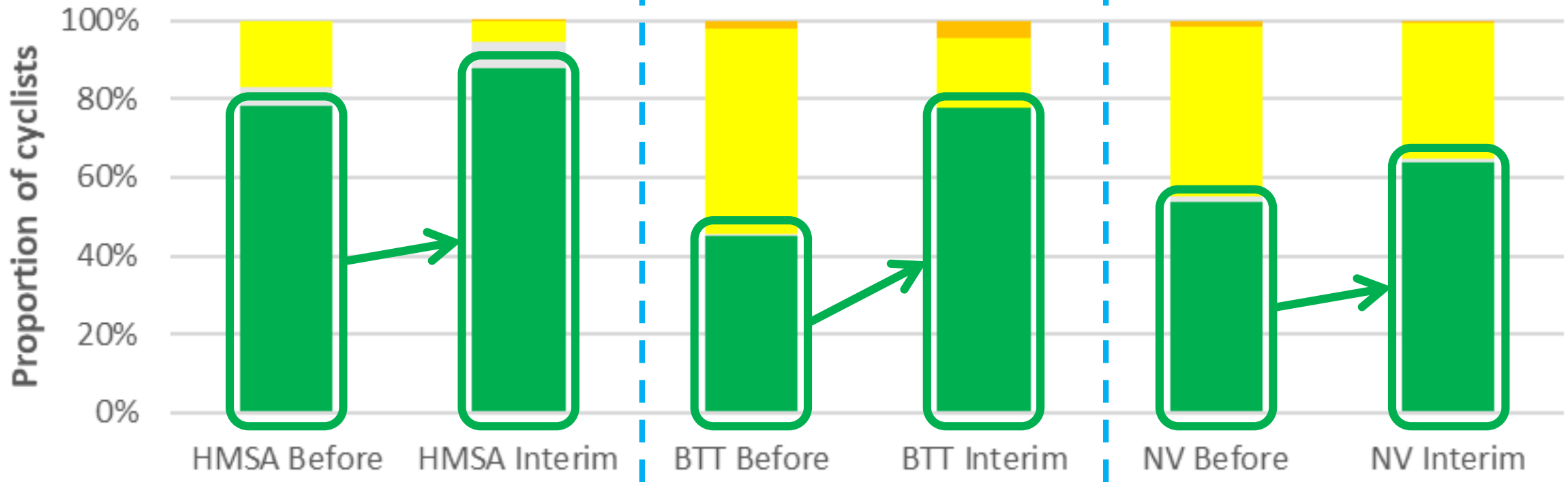
Hardware testing



Interim evaluations

User behaviour: cyclist compliance

Cyclist compliance with traffic signals



Cyclist fully compliant with signals

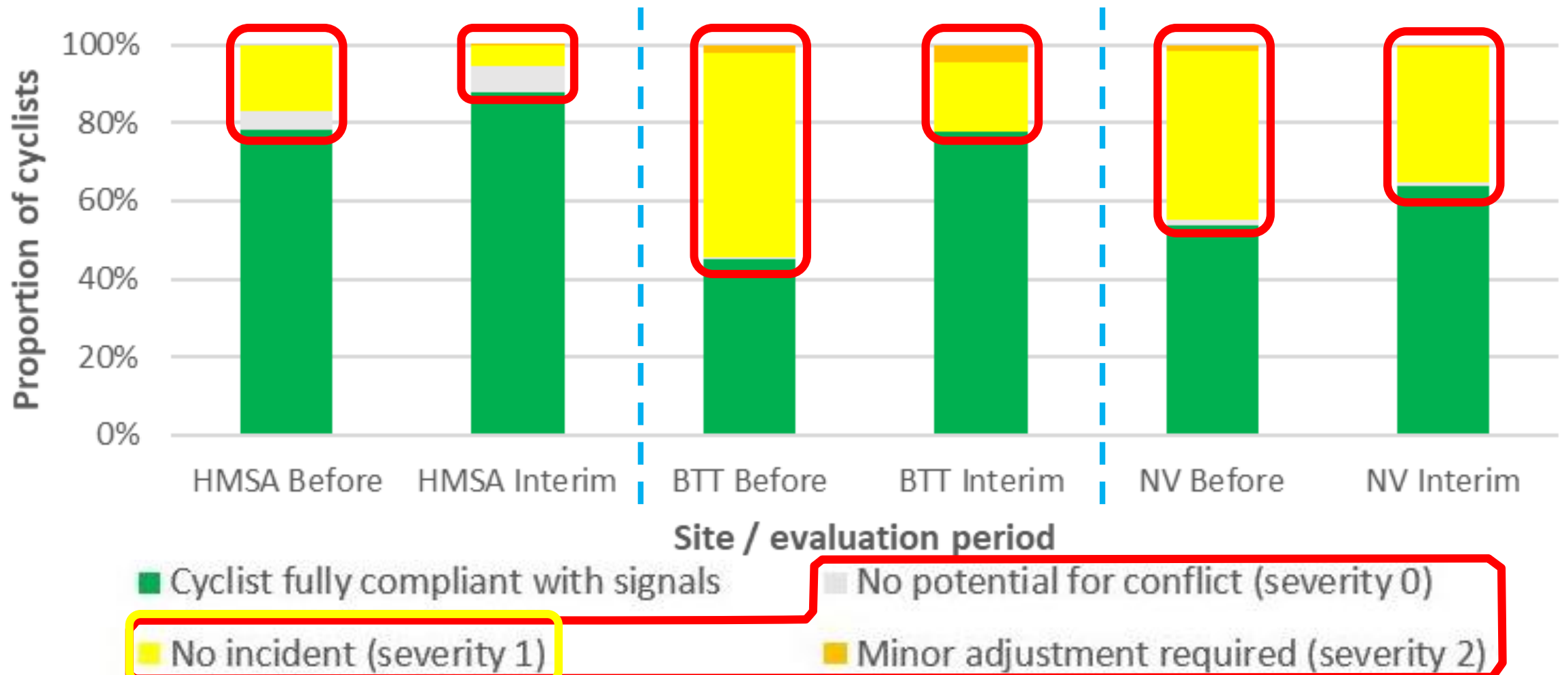
No incident (severity 1)

No potential for conflict (severity 0)

Minor adjustment required (severity 2)

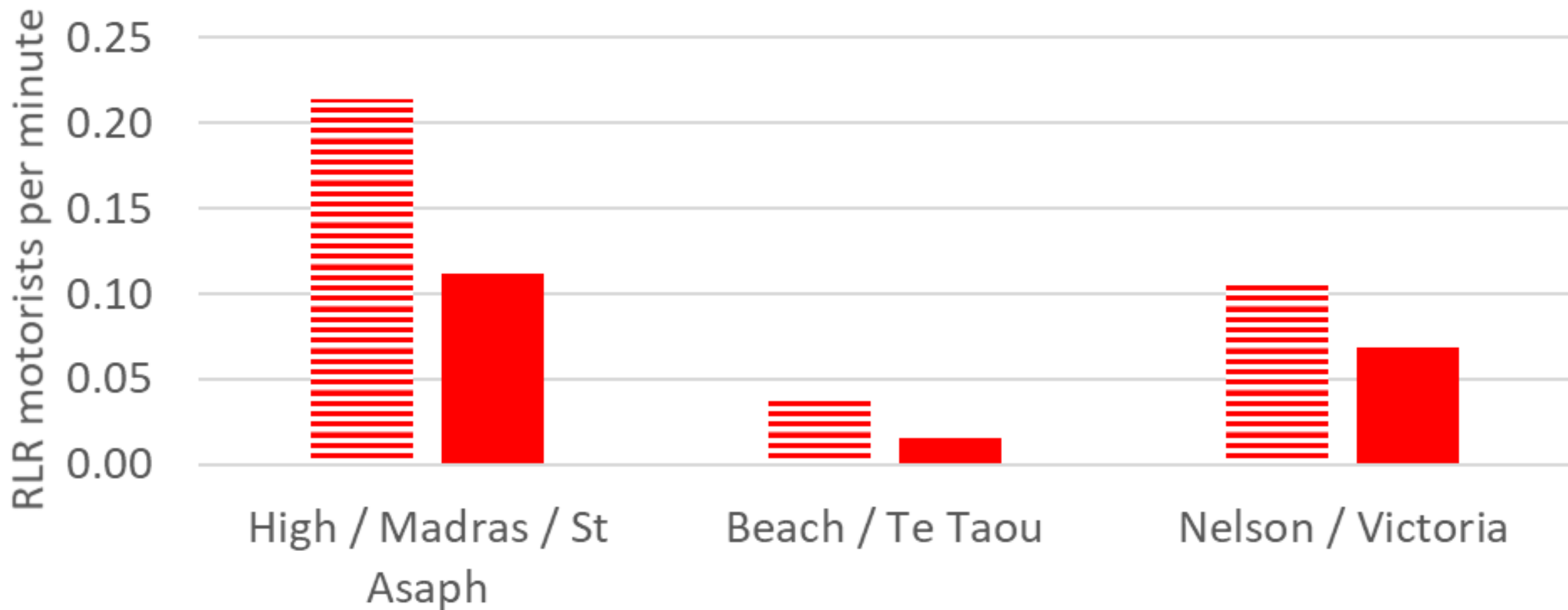
User behaviour: cyclist non-compliance

Cyclist compliance with traffic signals



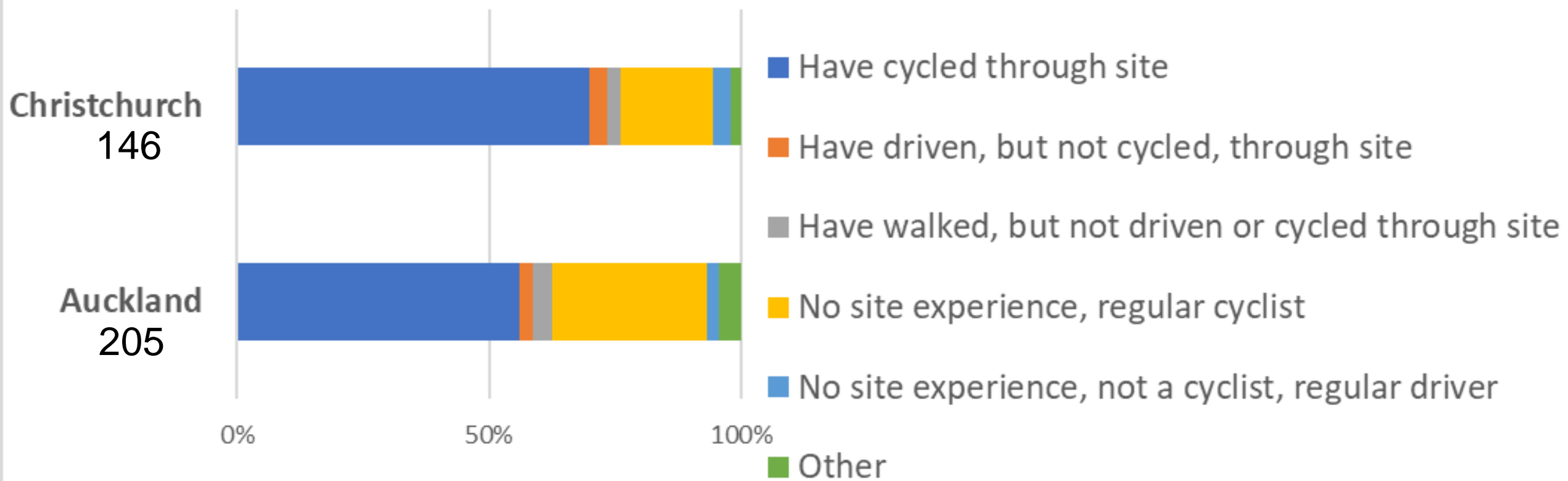
User behaviour: motorist compliance

Red light running motorists per minute



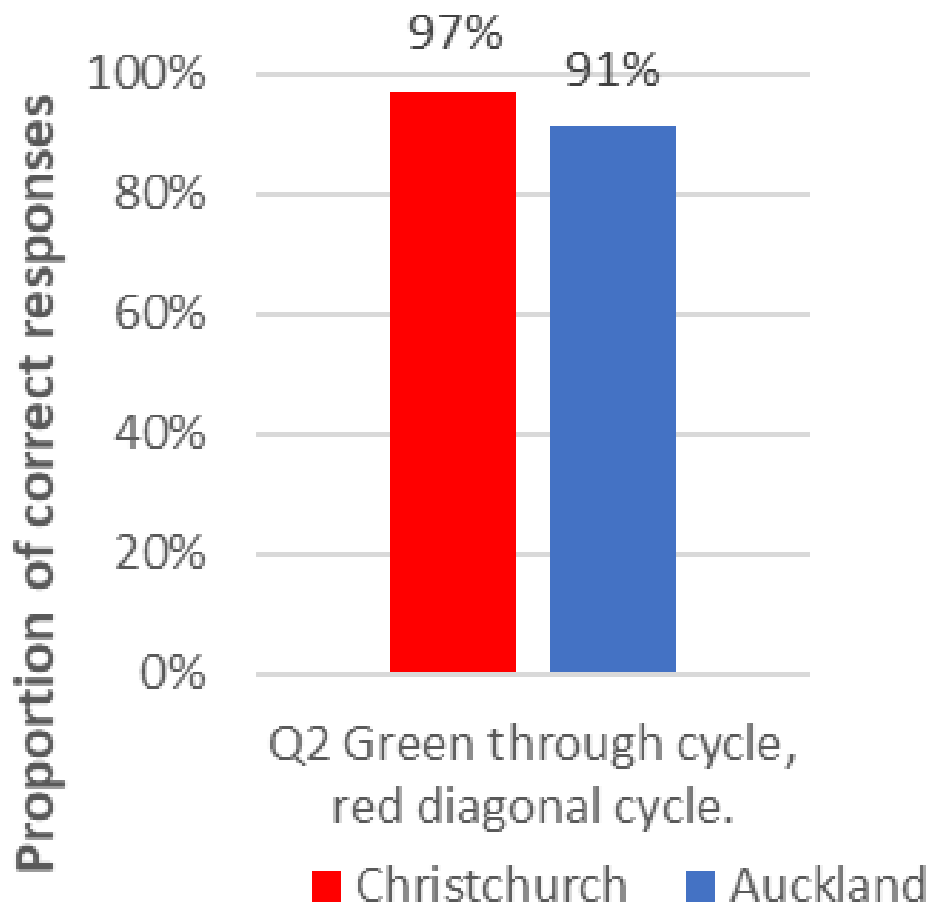
User understanding & satisfaction: sample size

Survey respondent familiarity with sites



User understanding: interpretation

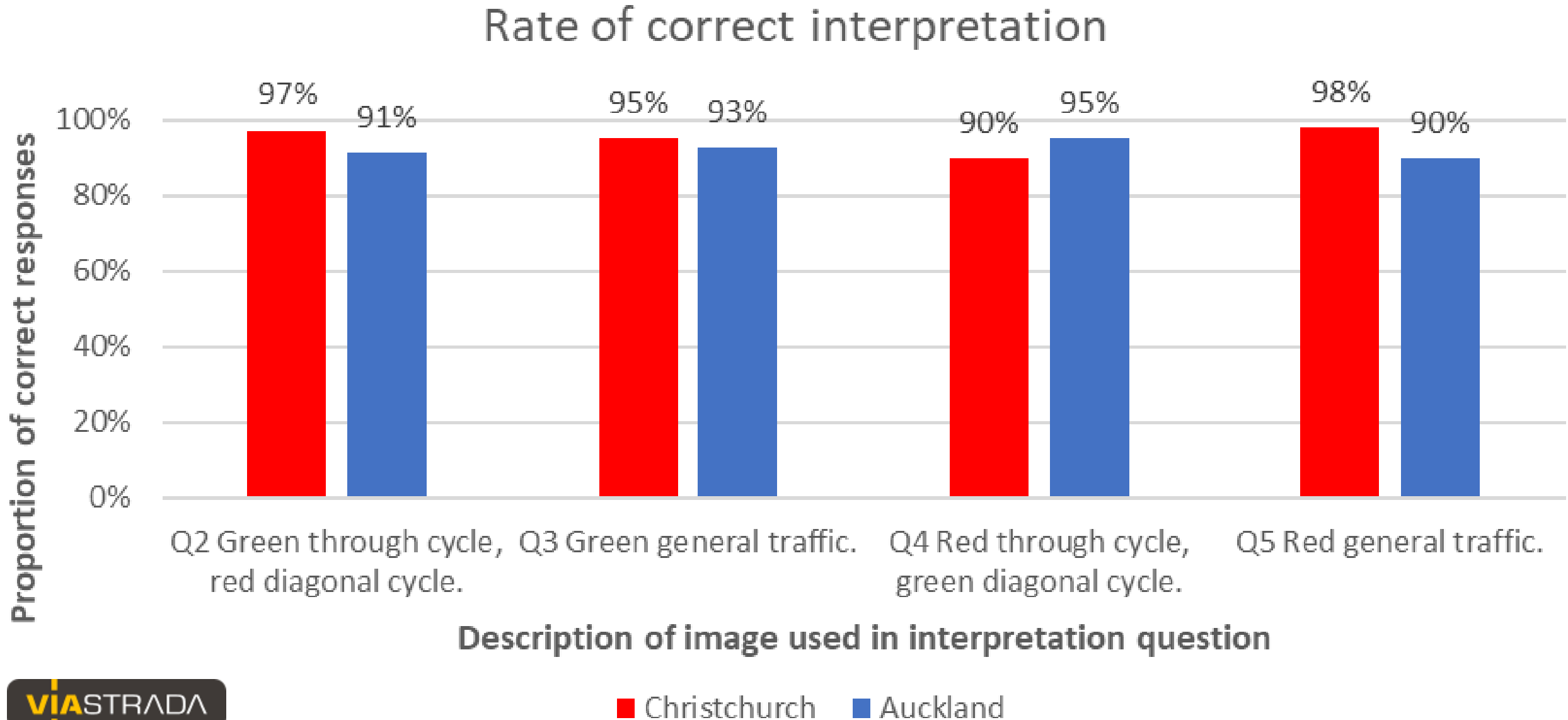
Q2: What can someone biking on the cycleway do in this situation?



Mark only one oval.

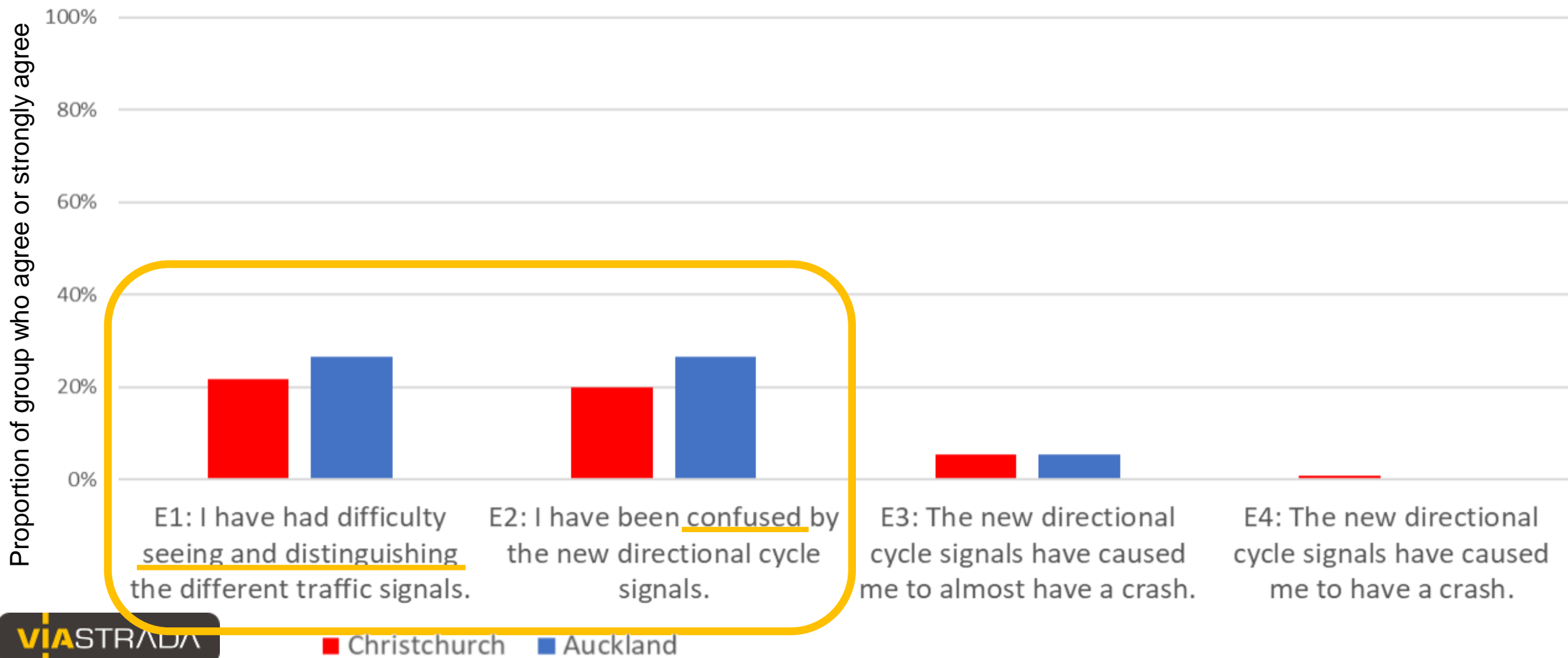
- Cyclists can travel STRAIGHT AHEAD, but not on the diagonal.
- Cyclists can travel STRAIGHT AHEAD, or on the DIAGONAL.
- Cyclists can travel on the DIAGONAL, but not straight ahead.
- Cyclists must WAIT until both sets of cycle signals are green before proceeding through the intersection.
- Unsure

User understanding: interpretation



User experience of cycle signals

Experiences of site with directional cycle signals
proportion of users who agree or strongly agree with statement



Recommendations

- Continue the use of the directional cycle signals at trial sites
- Investigate methods of reducing light-spill – done
- Separate approach lanes for separate cycle movements
- Use 300 mm far-side aspects at larger intersections
- Develop guidance on placement of signals – proposed
 - Mount cycle signals at lower heights than general traffic signals
 - Separate cycle signals from general traffic signals
 - Ideally, separate signal columns for different cycle movements

Conclusions

- Directional cycle signals are successful
 - Improved LOS to cyclists
 - Improved cyclists compliance
 - Improved driver compliance
 - Good level of user understanding



Thank you!



Axel Wilke

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