

A New Direction in Cycle Signals

Presentation to
SNUG 2018 Workshop

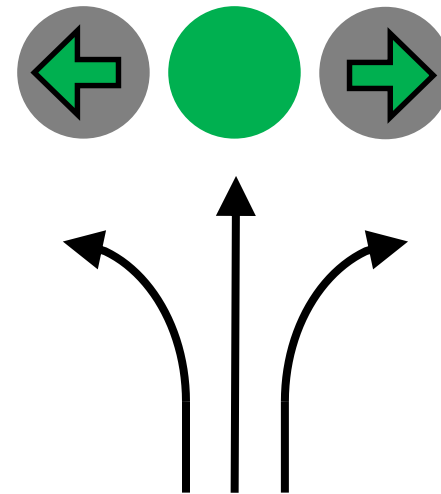
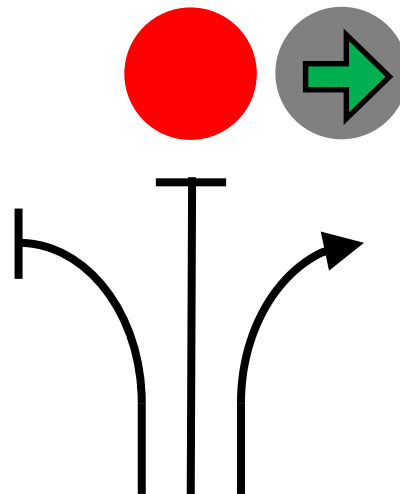
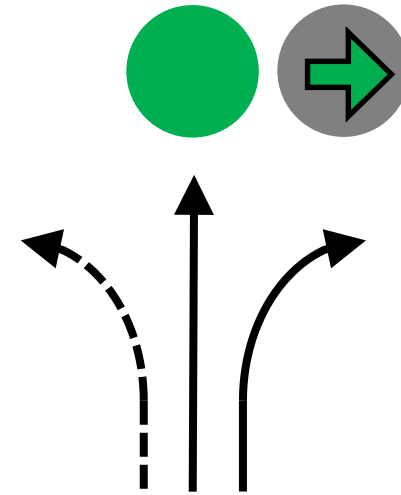
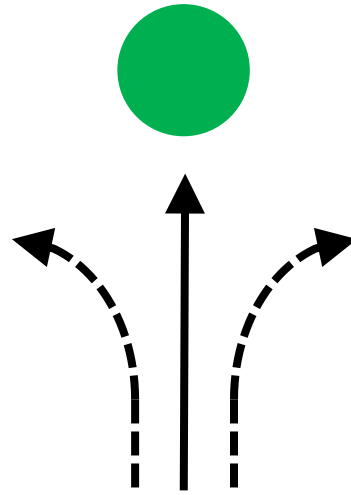
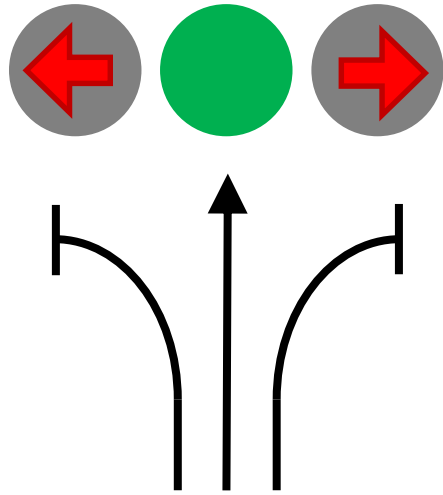
ViaStrada Ltd

Megan Gregory

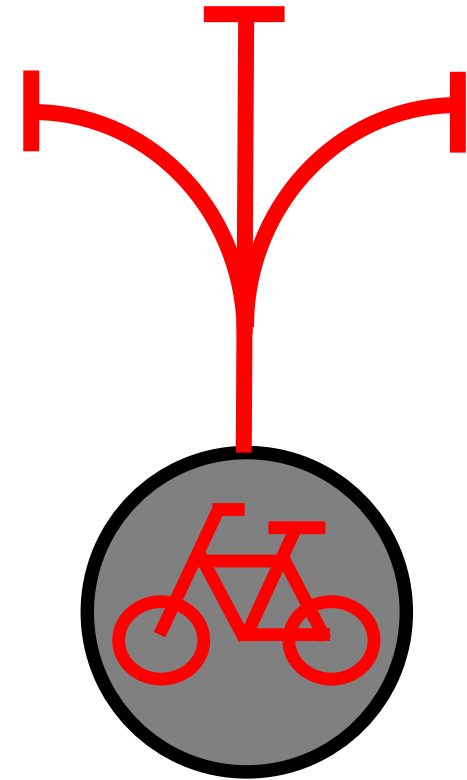
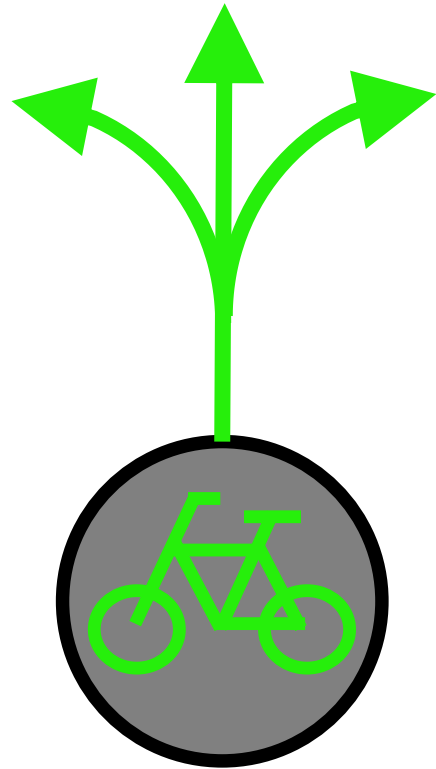
VIASTRADA

TRANSPORT PLANNING AND DESIGN

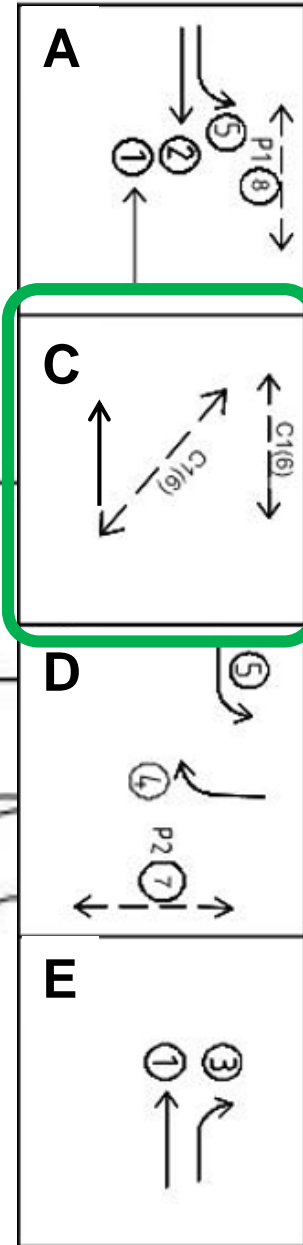
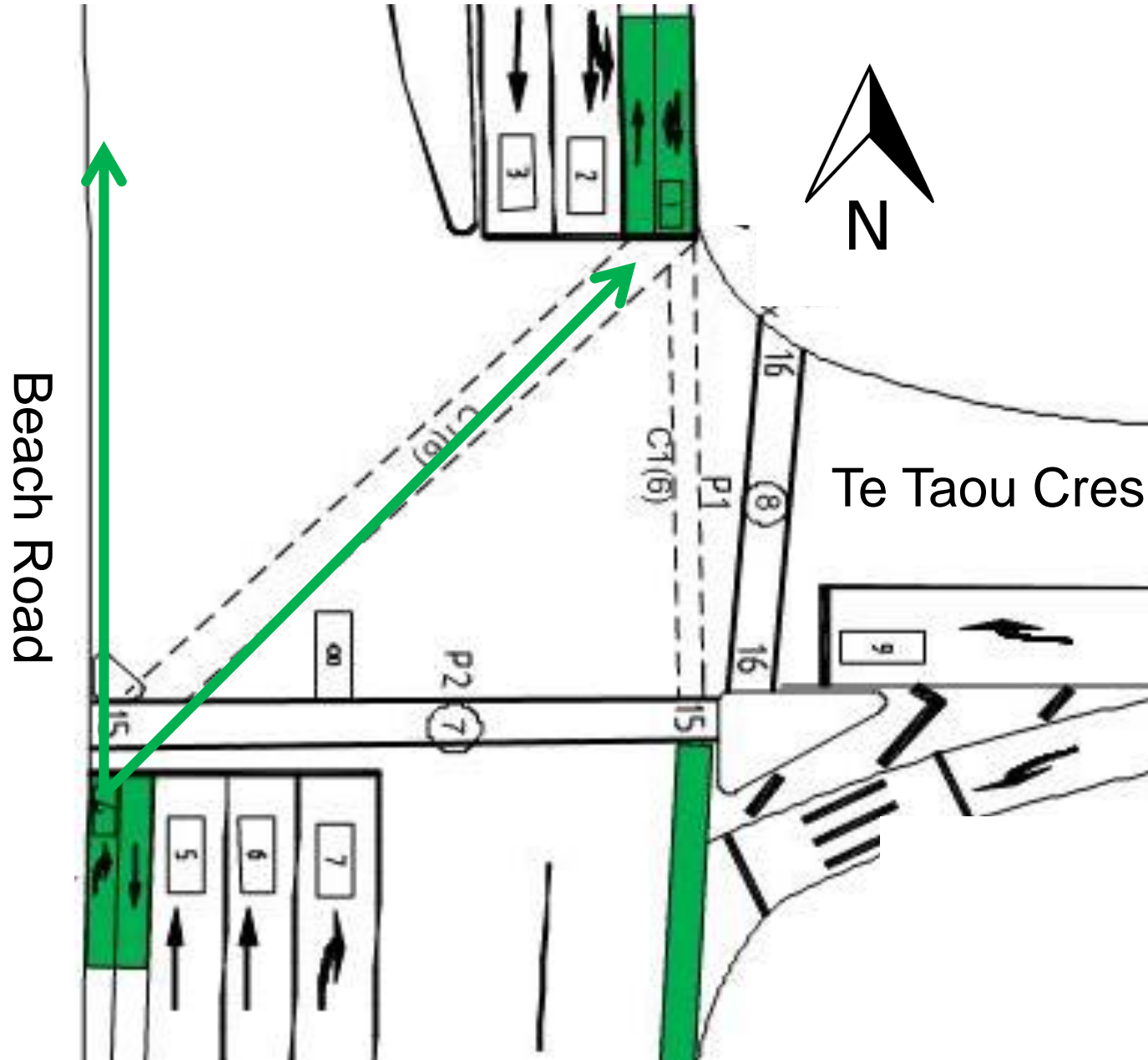
From the general...



... to the cycle-specific



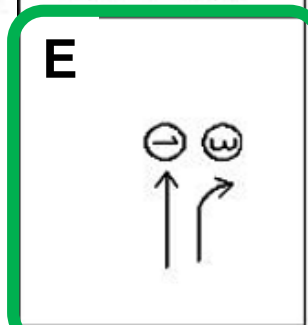
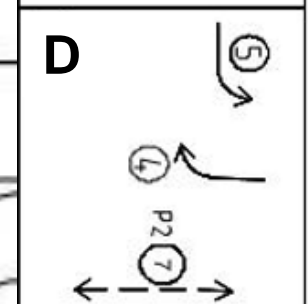
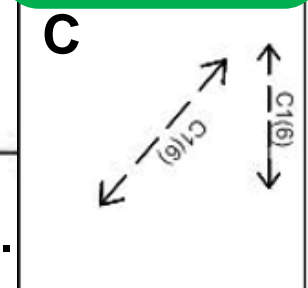
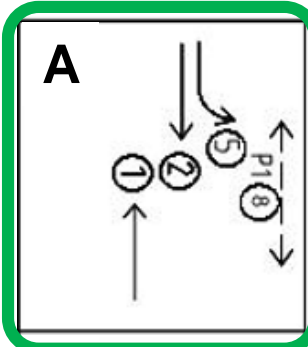
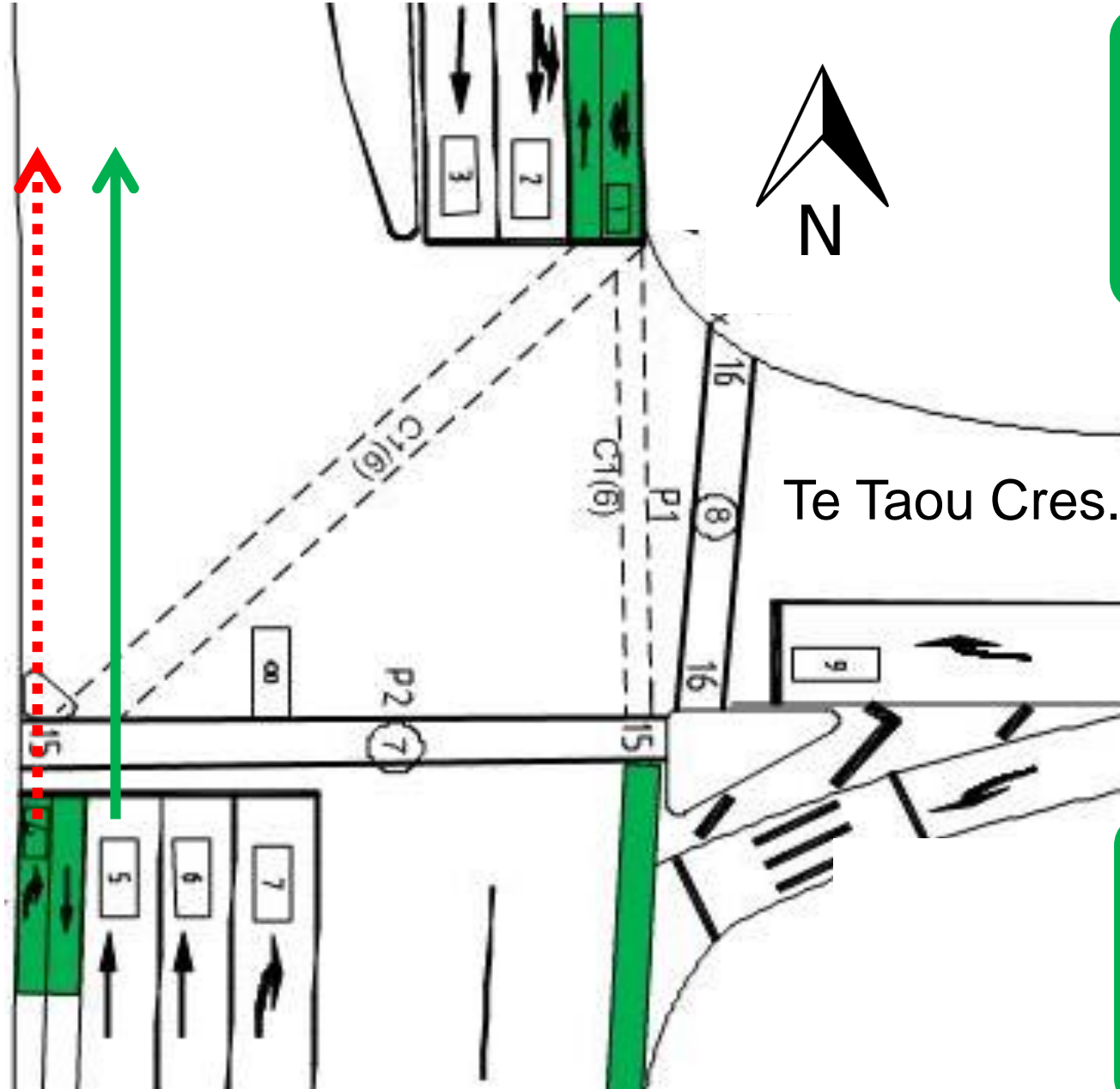
Beach Road / Te Taou Cres., Auckland



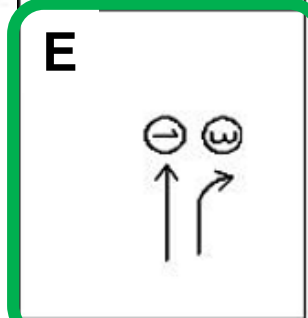
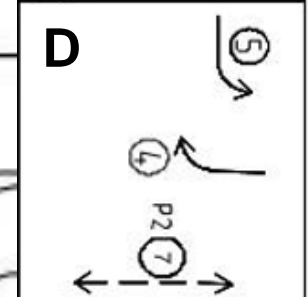
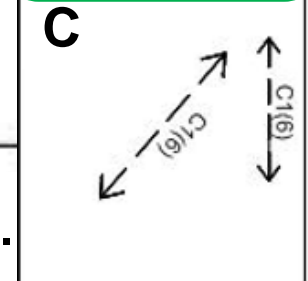
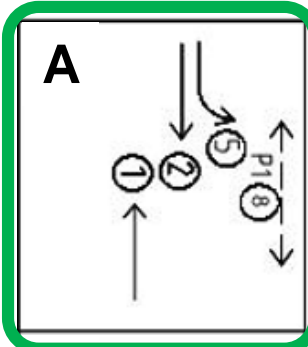
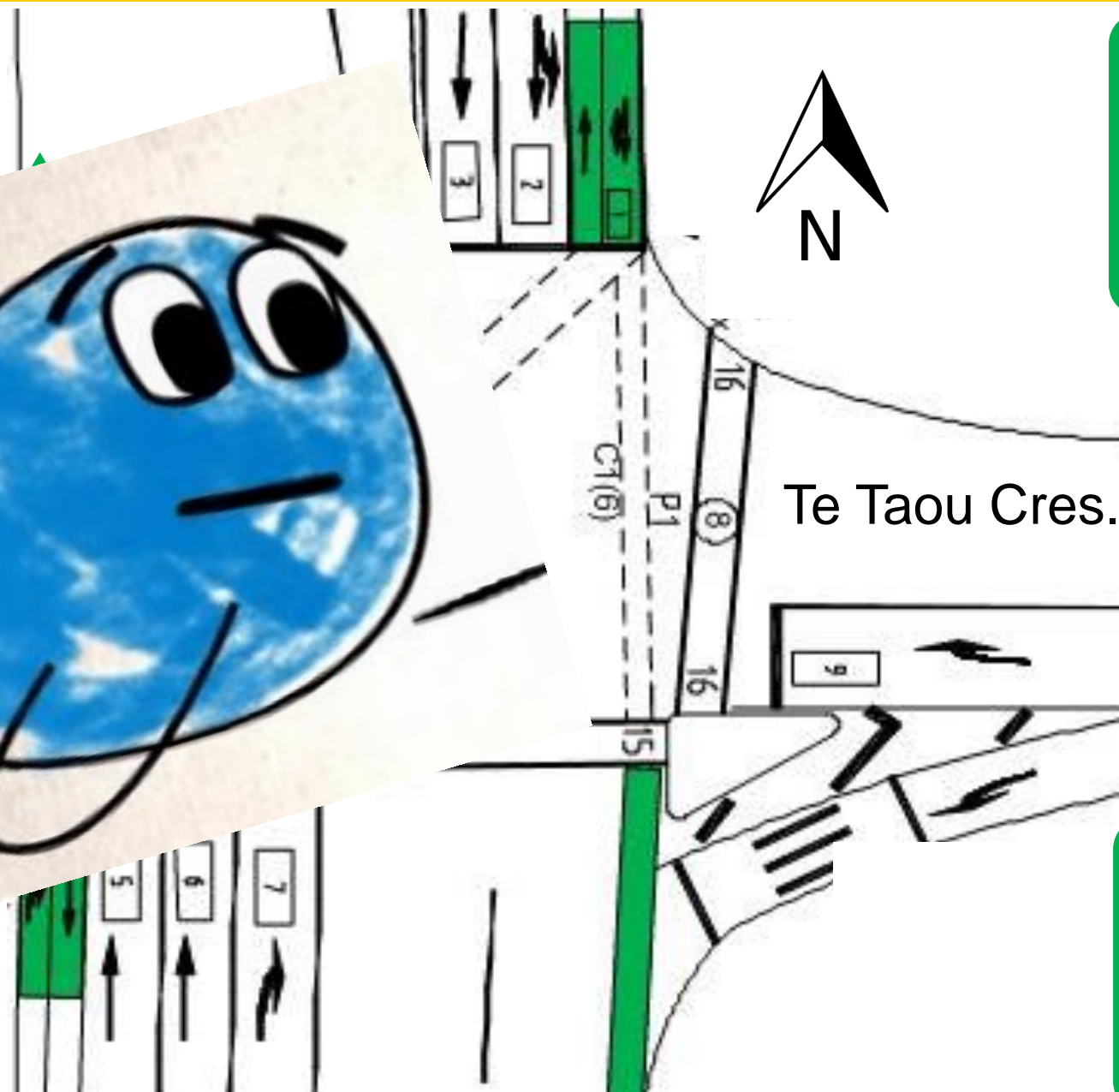
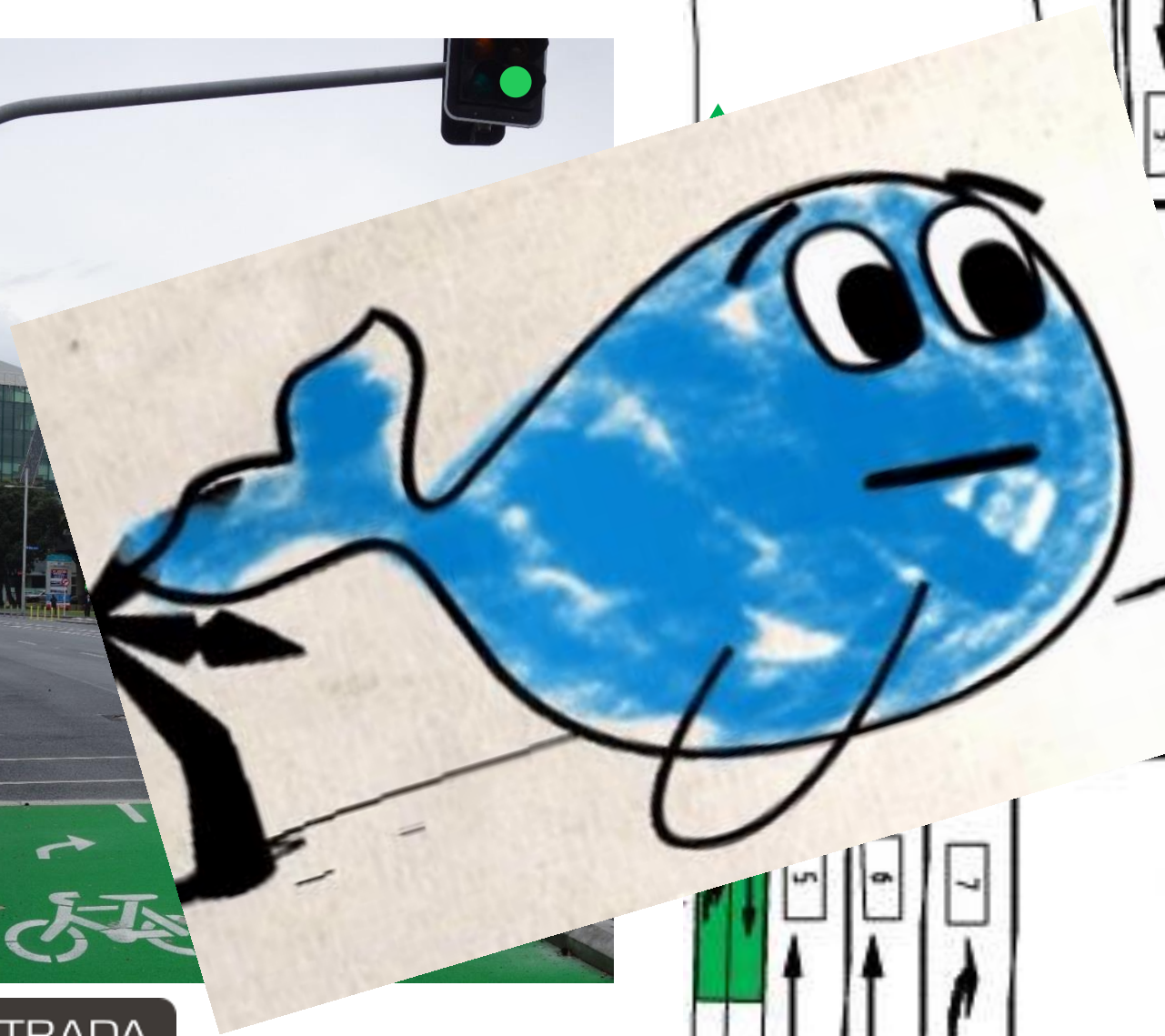
Beach Road / Te Taou Cres., Auckland



Beach Road



Beached as!



What “they” do overseas

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



Device trialled

- Aspects 200 or 300 mm diameter
- Cycle symbols and arrows lines 5 mm or 7.5 mm thick
- LED lanterns
- Diffuser that distributes the light evenly across the aspect
- Coloured lens
- Options for arrow orientation
- Mounted at appropriate heights



LEFT ARROW



STRAIGHT AHEAD
ARROW



RIGHT ARROW



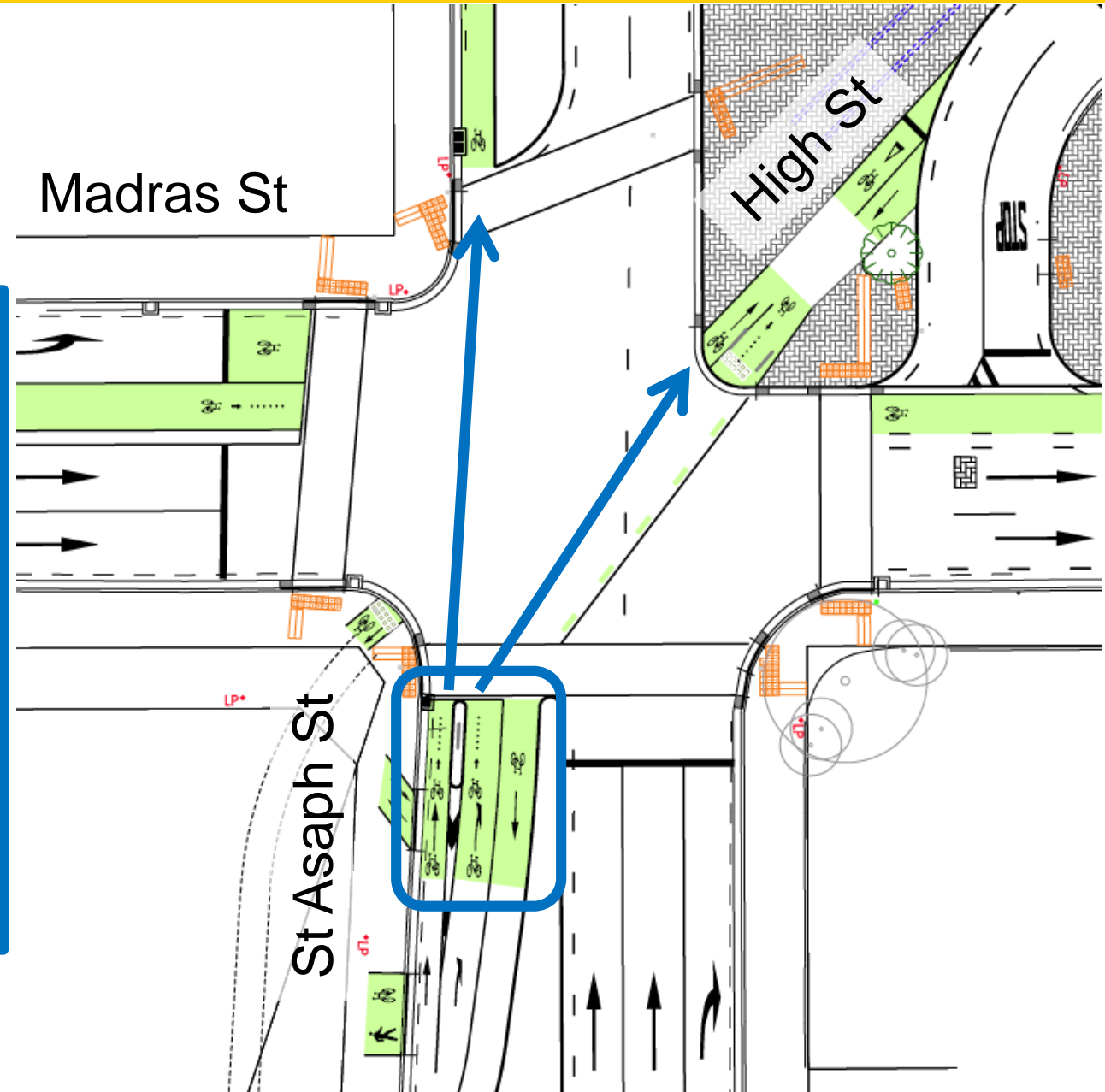
BEAR LEFT
ARROW



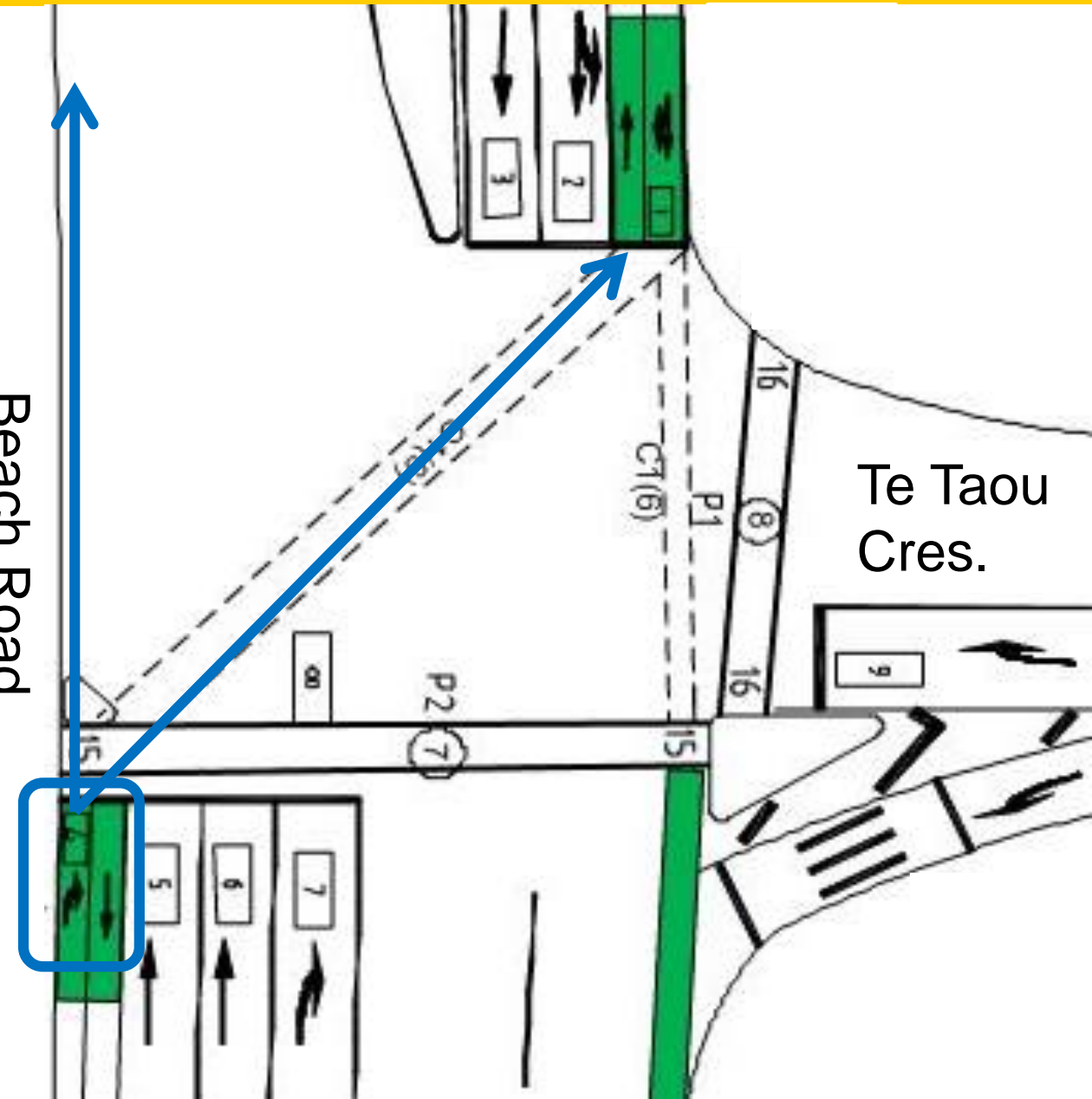
BEAR RIGHT
ARROW



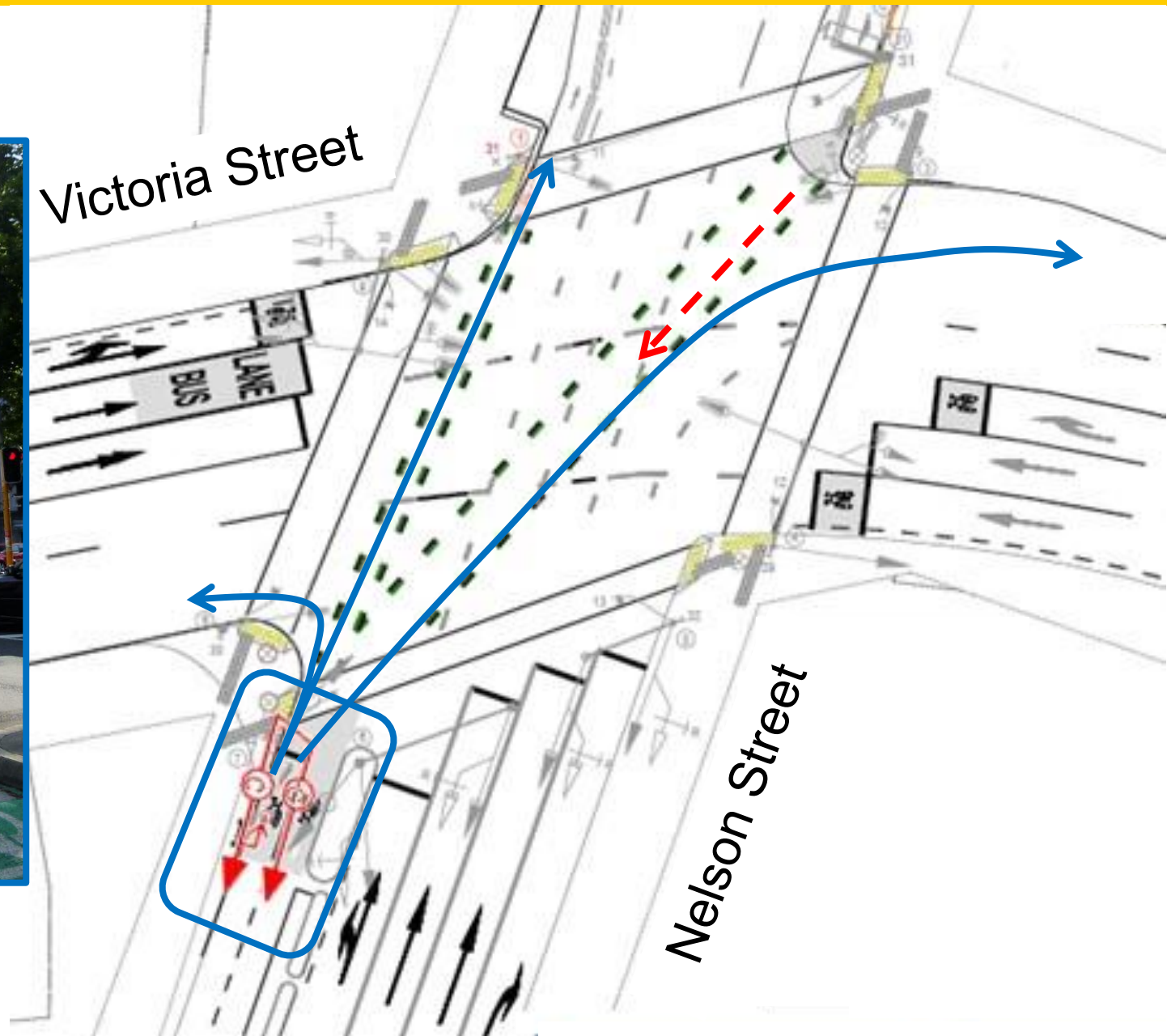
Trial site 1: High / Madras / St Asaph, Christchurch



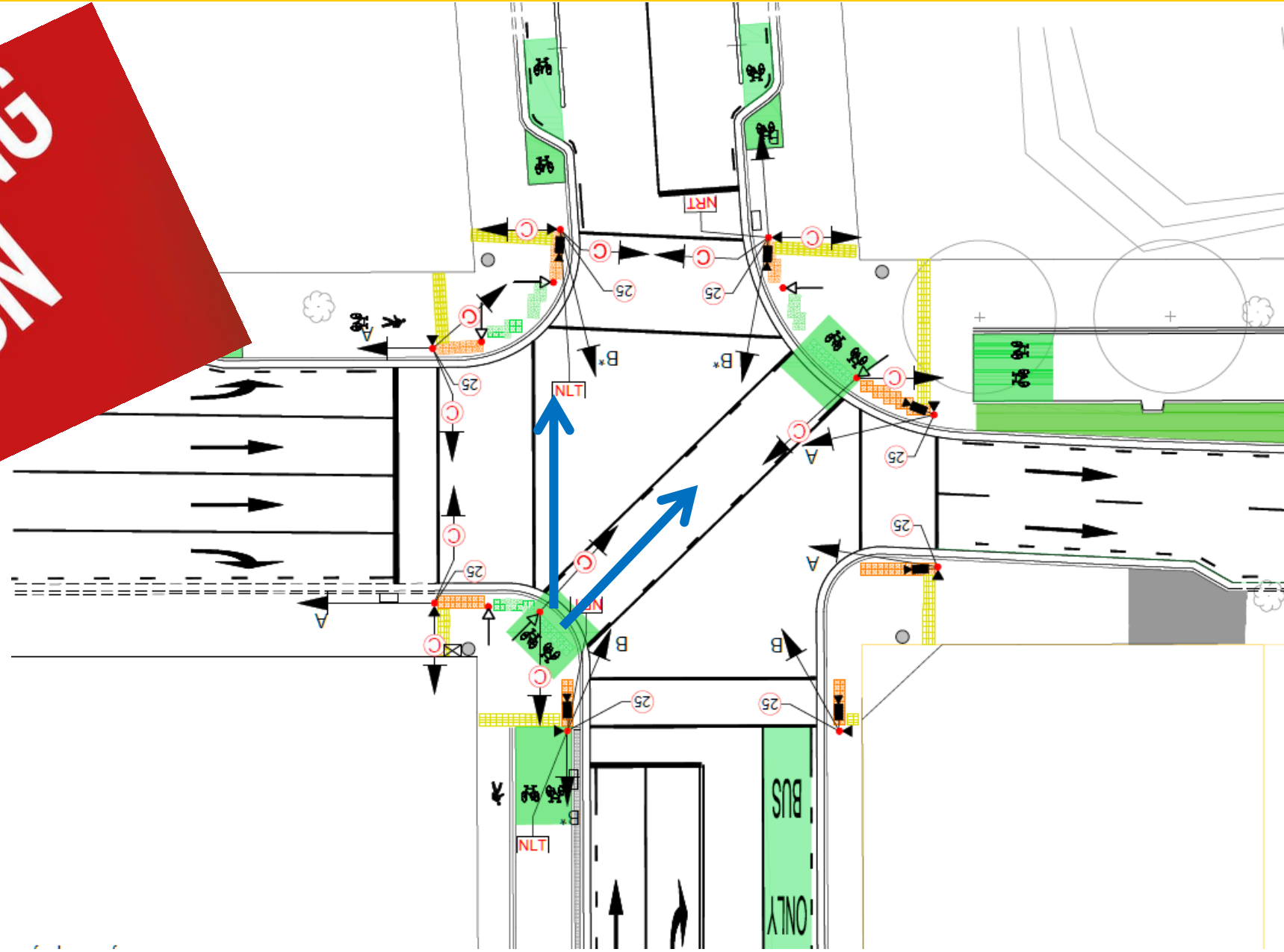
Trial site 2: Beach / Te Taou, Auckland



Trial site 3: Nelson / Victoria, Auckland



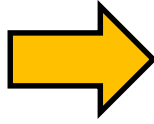
Trial site 4: Antigua / St Asaph, Christchurch



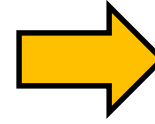
Evaluation stages



Before studies



Hardware testing



Interim evaluations

Evaluating user behaviour – video footage

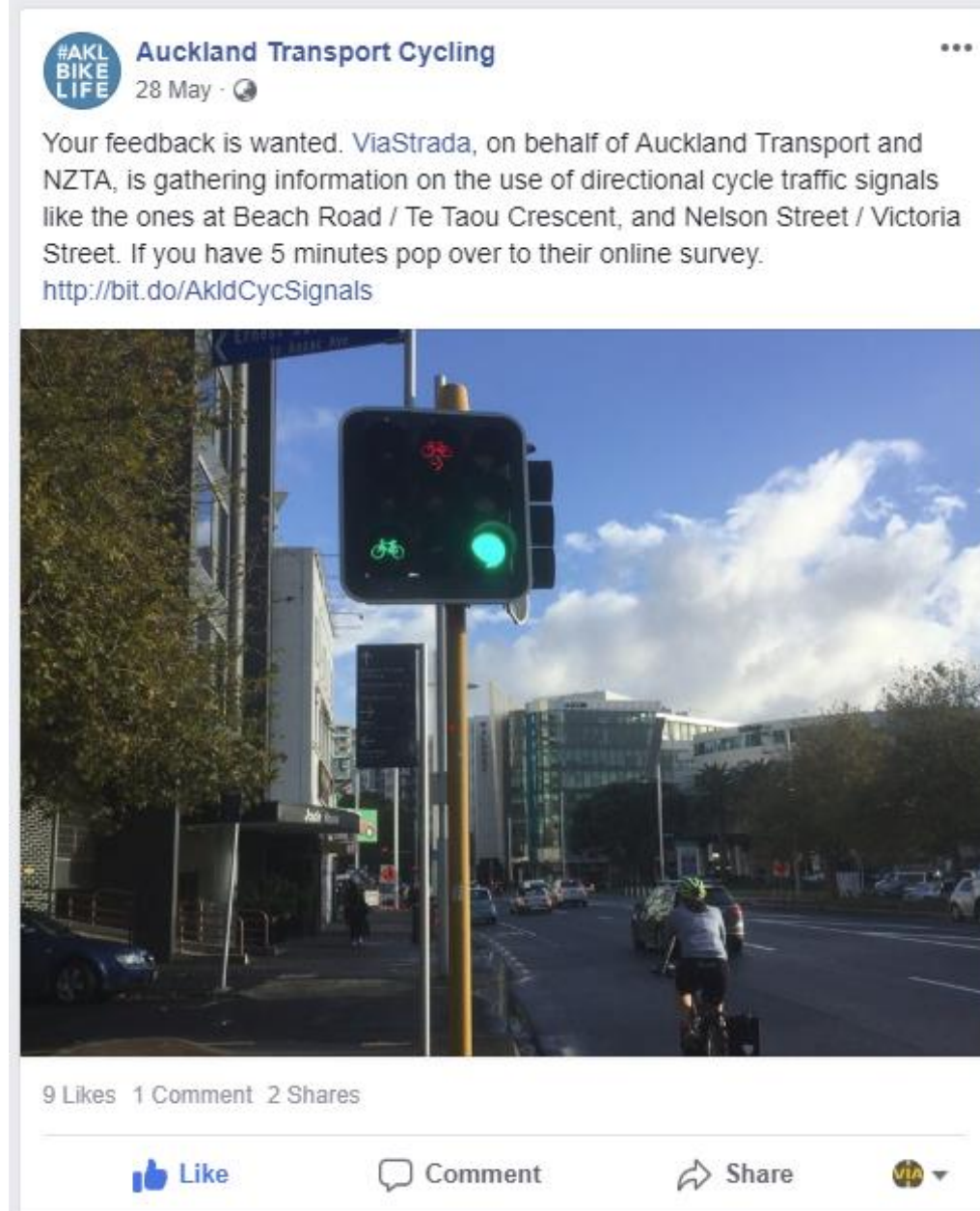
- Cyclist arrival – time, location, state of signal(s)
- Cyclist departure – time, location, state of signal(s)
- Cyclist trajectory through intersection
- Type of non-compliance
- Severity of interaction
- Motorist red light running
- Additional notes



Evaluating user understanding & satisfaction

- User surveys – online and intercept
 - Interpretation of signal displays
 - Familiarity with new signals at site
 - General transport habits
 - Demographics
 - Experience of new cycle signals
 - Opinions of new cycle signals

Only people who'd been to site since installation of directional cycle signals



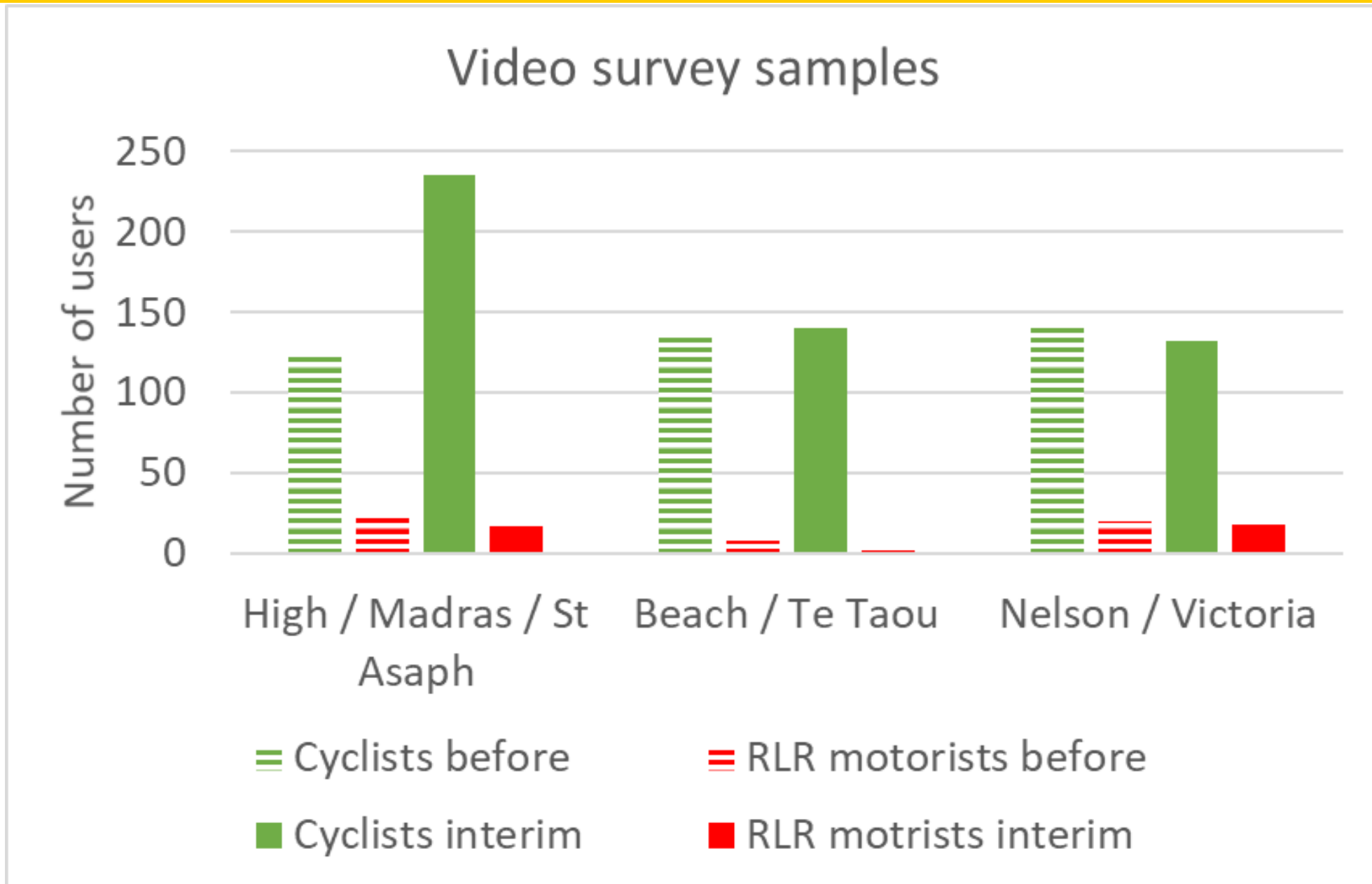
#AKLBIKELIFE Auckland Transport Cycling 28 May · 🌐

Your feedback is wanted. ViaStrada, on behalf of Auckland Transport and NZTA, is gathering information on the use of directional cycle traffic signals like the ones at Beach Road / Te Taou Crescent, and Nelson Street / Victoria Street. If you have 5 minutes pop over to their online survey. <http://bit.do/AklidCycSignals>

9 Likes 1 Comment 2 Shares

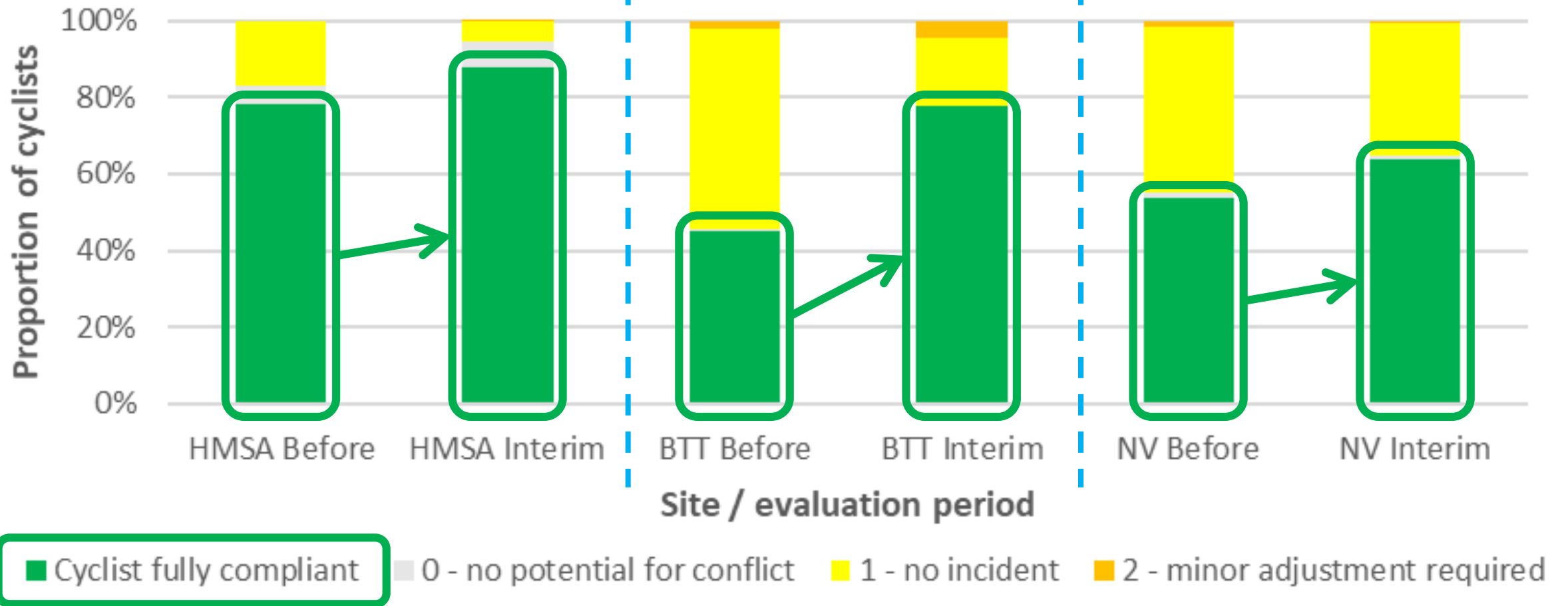
Like Comment Share

User behaviour: analysis sample size



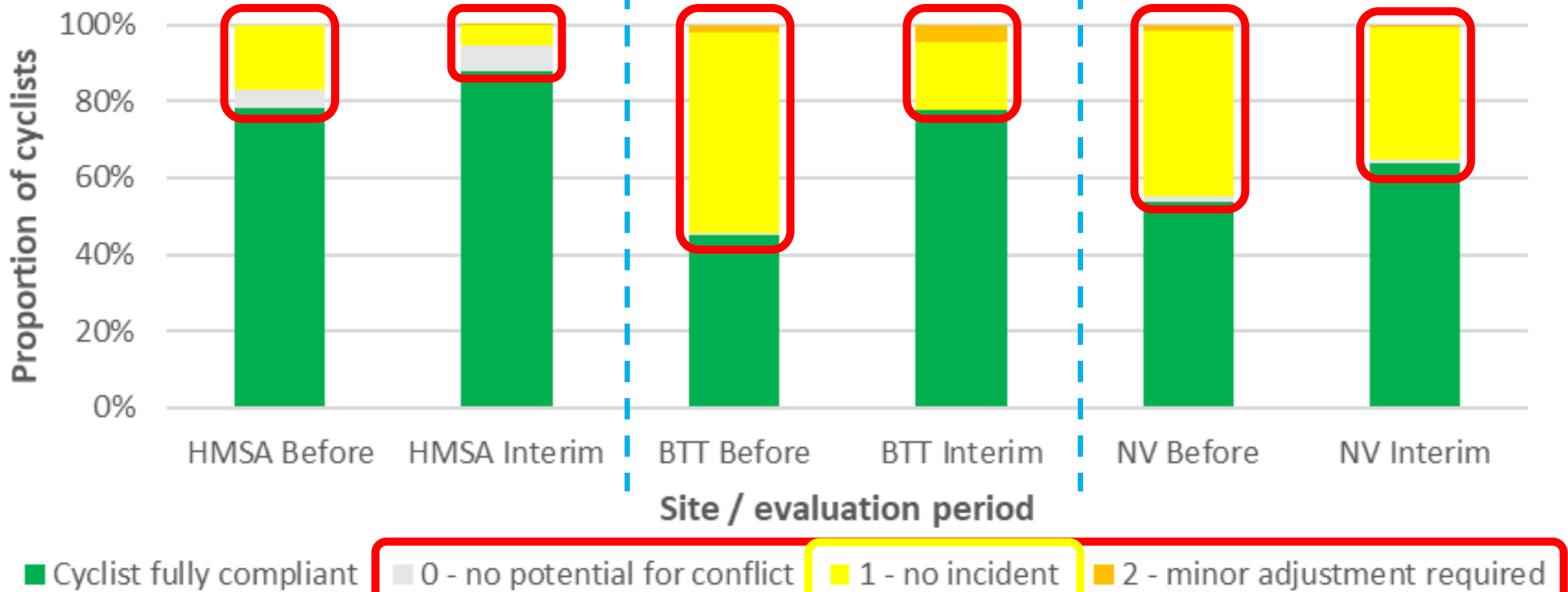
User behaviour: cyclist compliance

Cyclist compliance with traffic signals



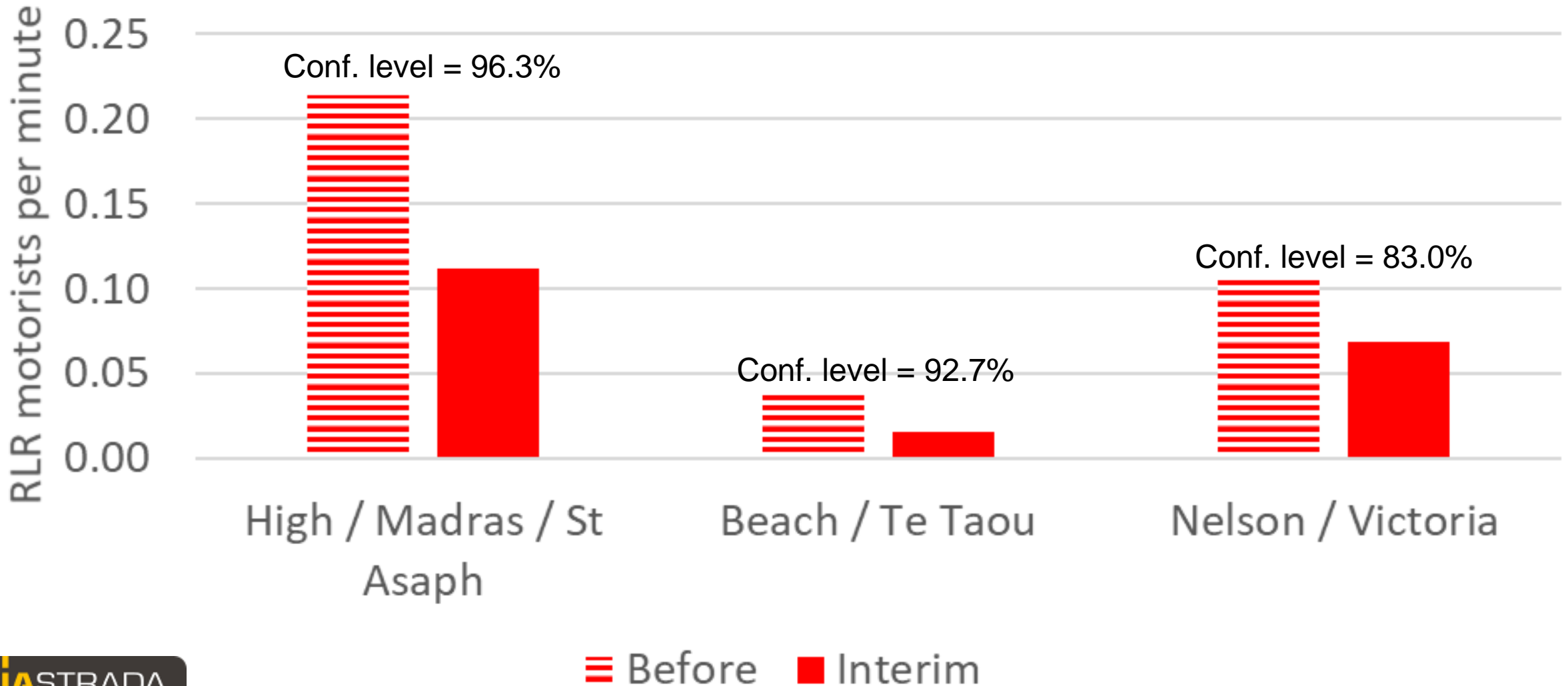
User behaviour: cyclist non-compliance

Cyclist compliance with traffic signals



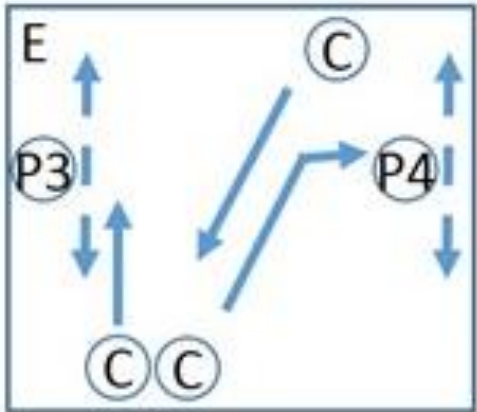
User behaviour: motorist compliance

Red light running motorists per minute



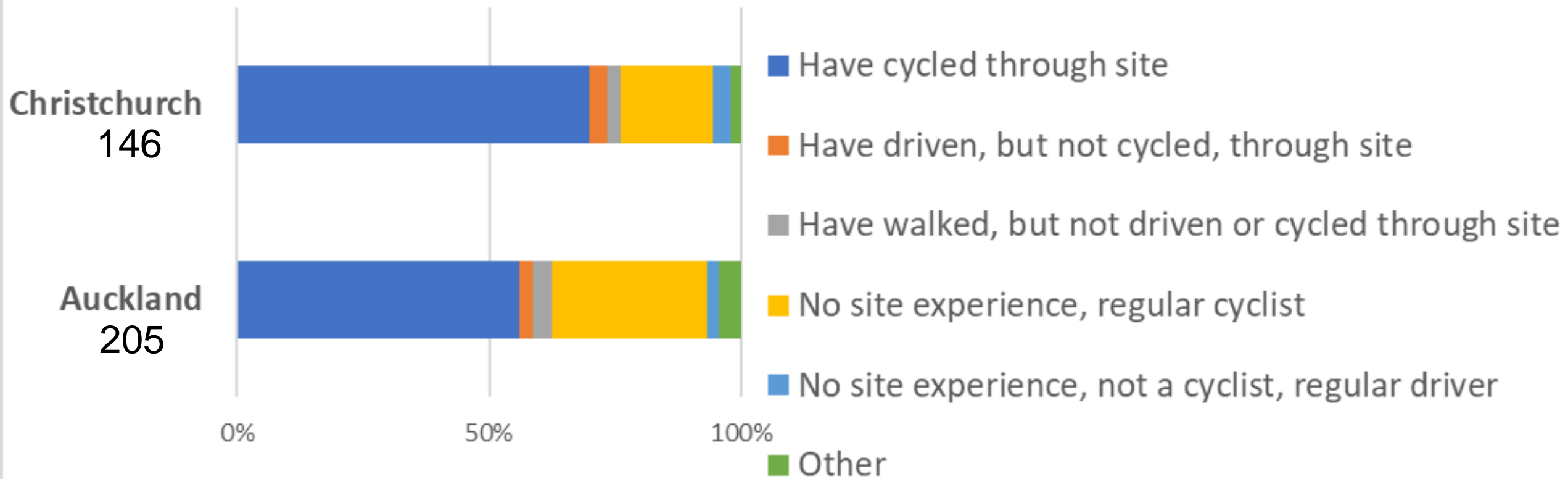
User behaviour: pedestrians

- Biggest problem at Nelson / Victoria – pedestrians crossing across cycleway in diagonal cycle crossing phase
- No instances of pedestrians trying to use diagonal cycle crossings



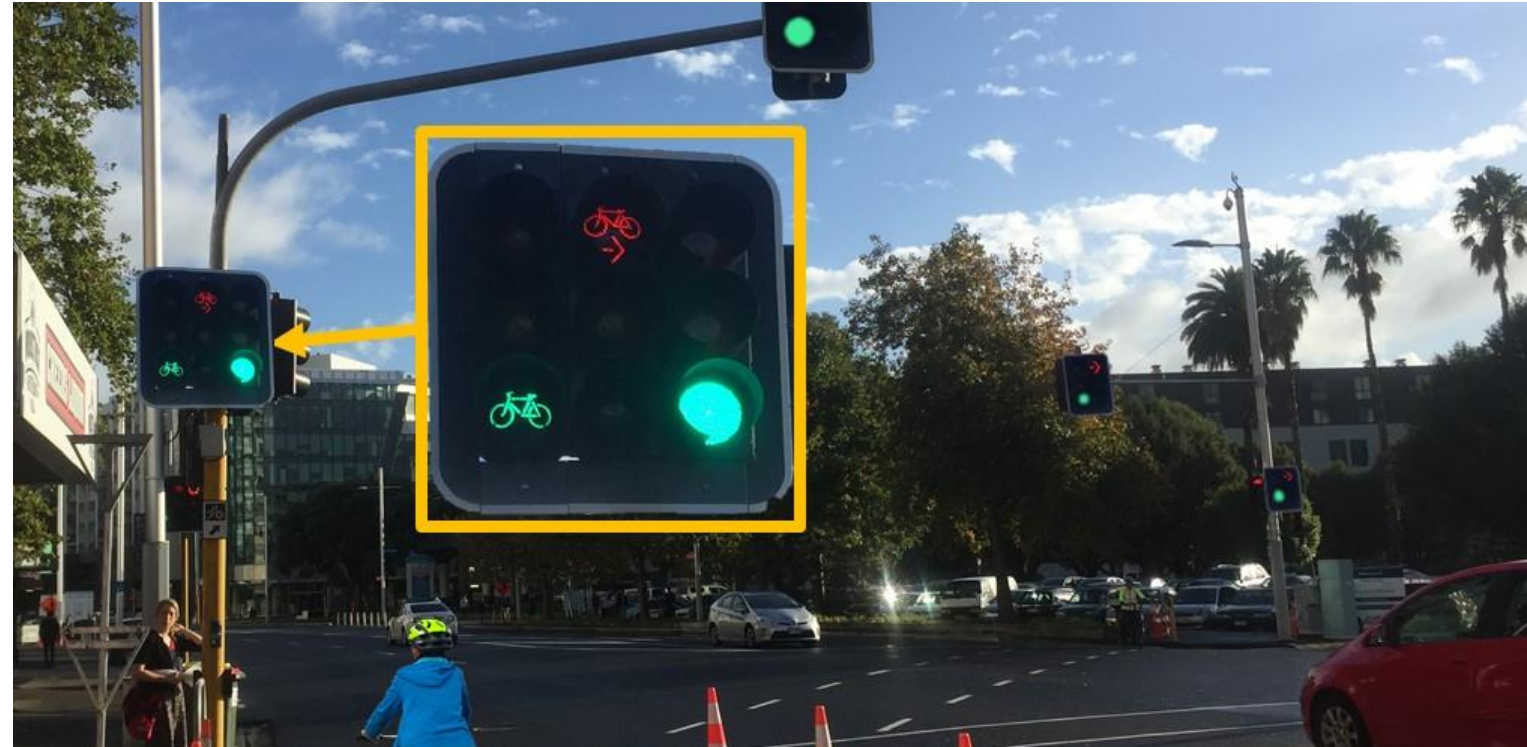
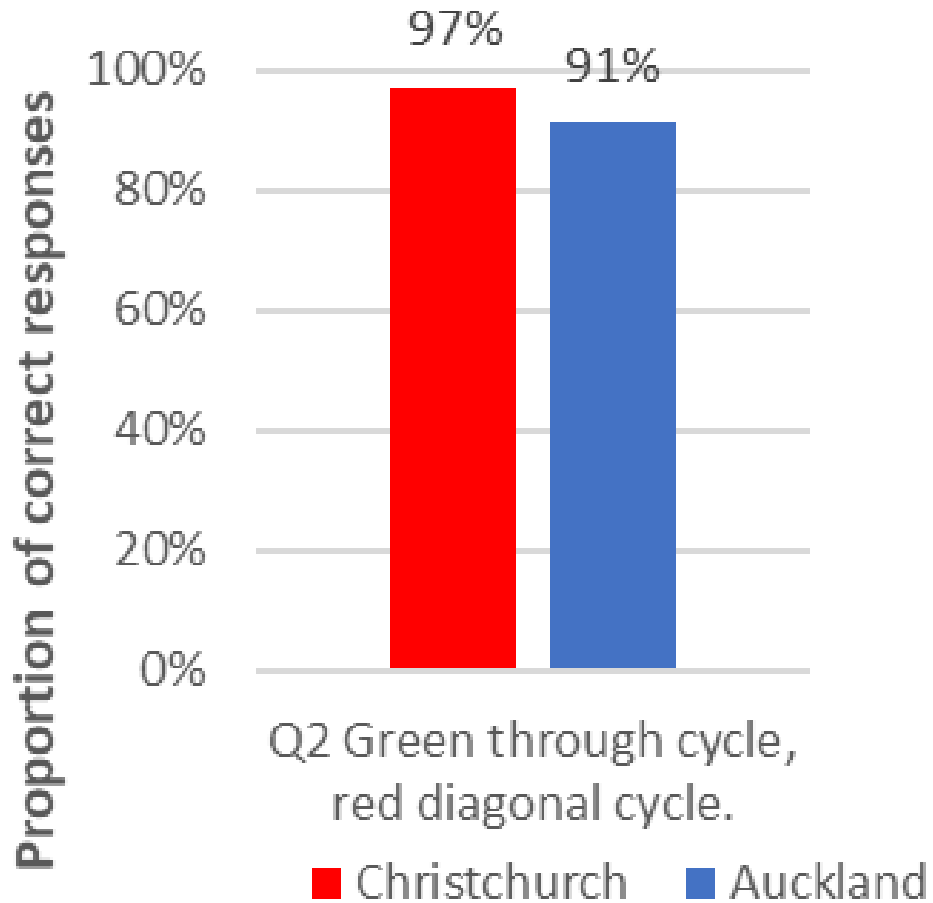
User understanding & satisfaction: sample size

Survey respondent familiarity with sites



User understanding: interpretation

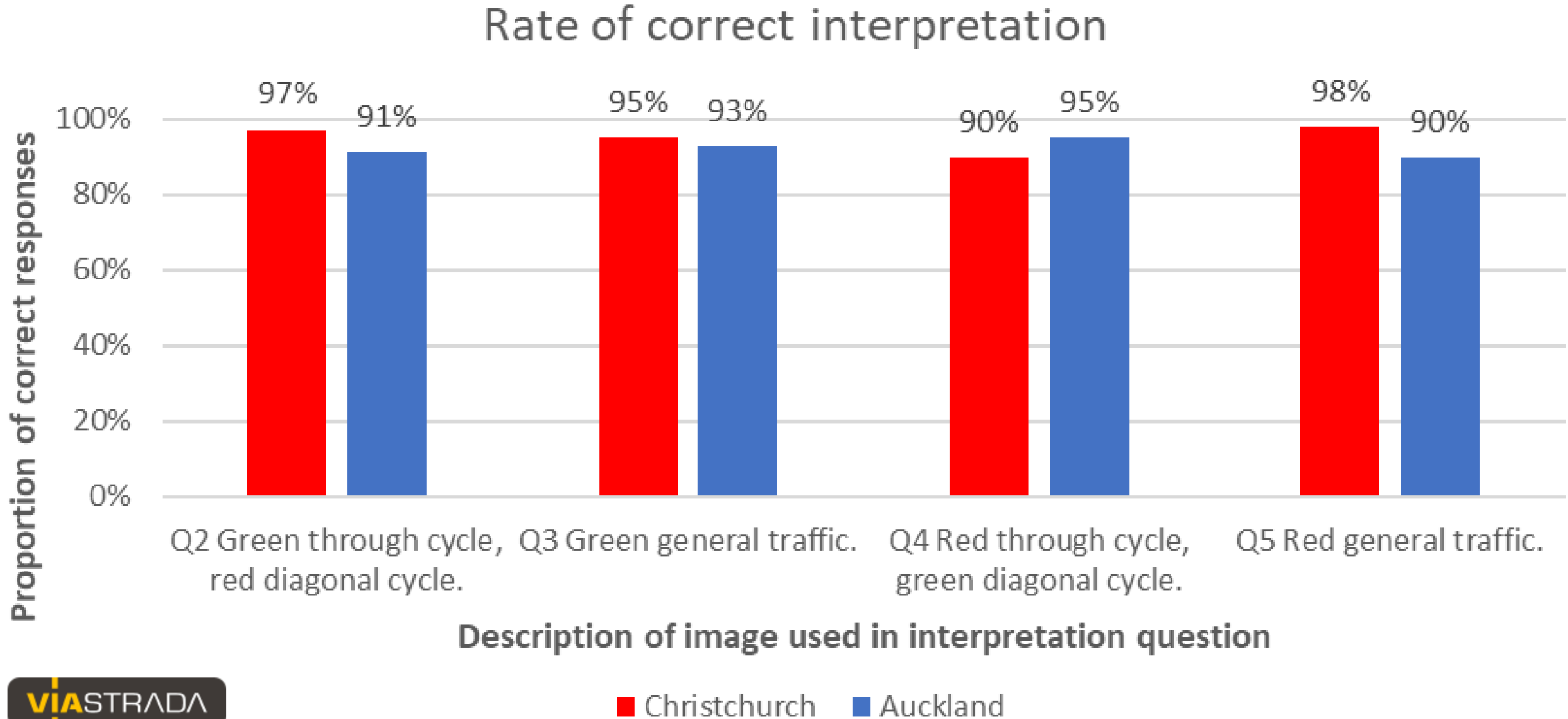
Q2: What can someone biking on the cycleway do in this situation?



Mark only one oval.

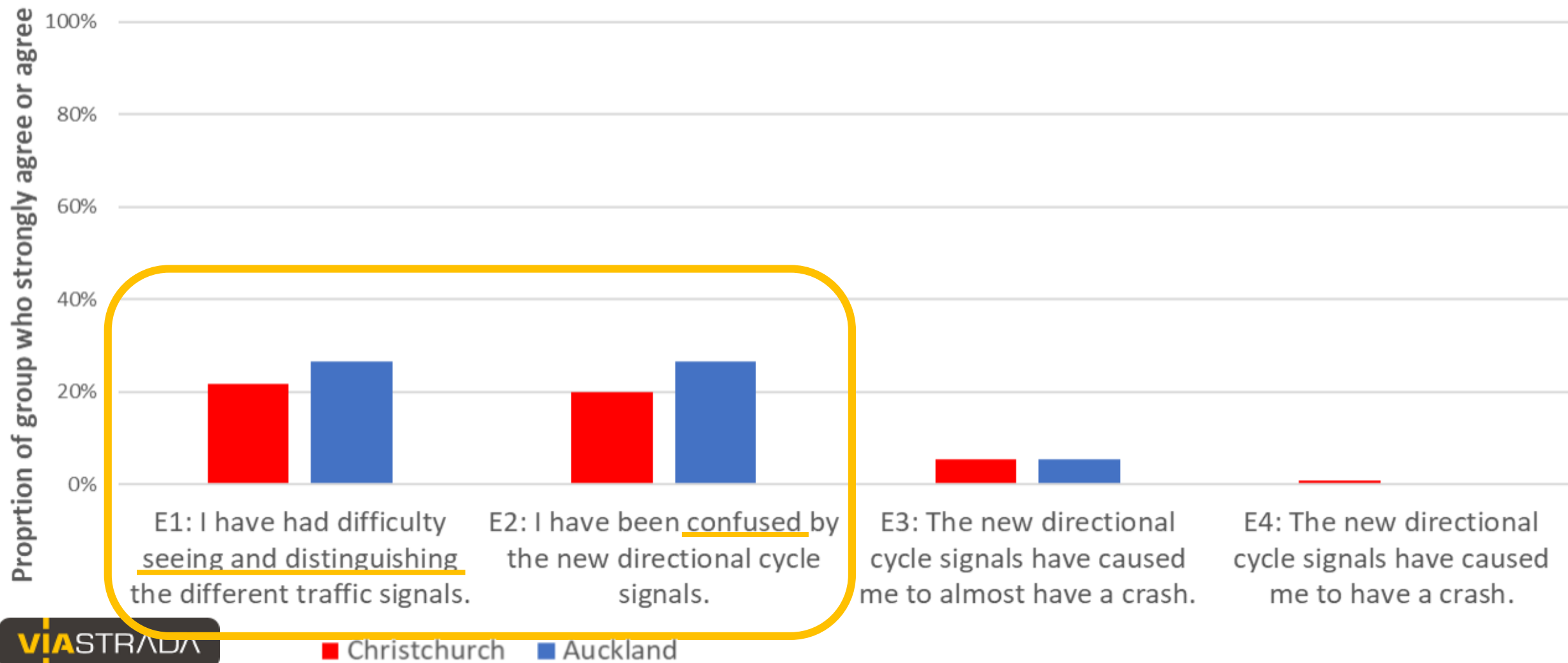
- Cyclists can travel STRAIGHT AHEAD, but not on the diagonal.
- Cyclists can travel STRAIGHT AHEAD, or on the DIAGONAL.
- Cyclists can travel on the DIAGONAL, but not straight ahead.
- Cyclists must WAIT until both sets of cycle signals are green before proceeding through the intersection.
- Unsure

User understanding: interpretation



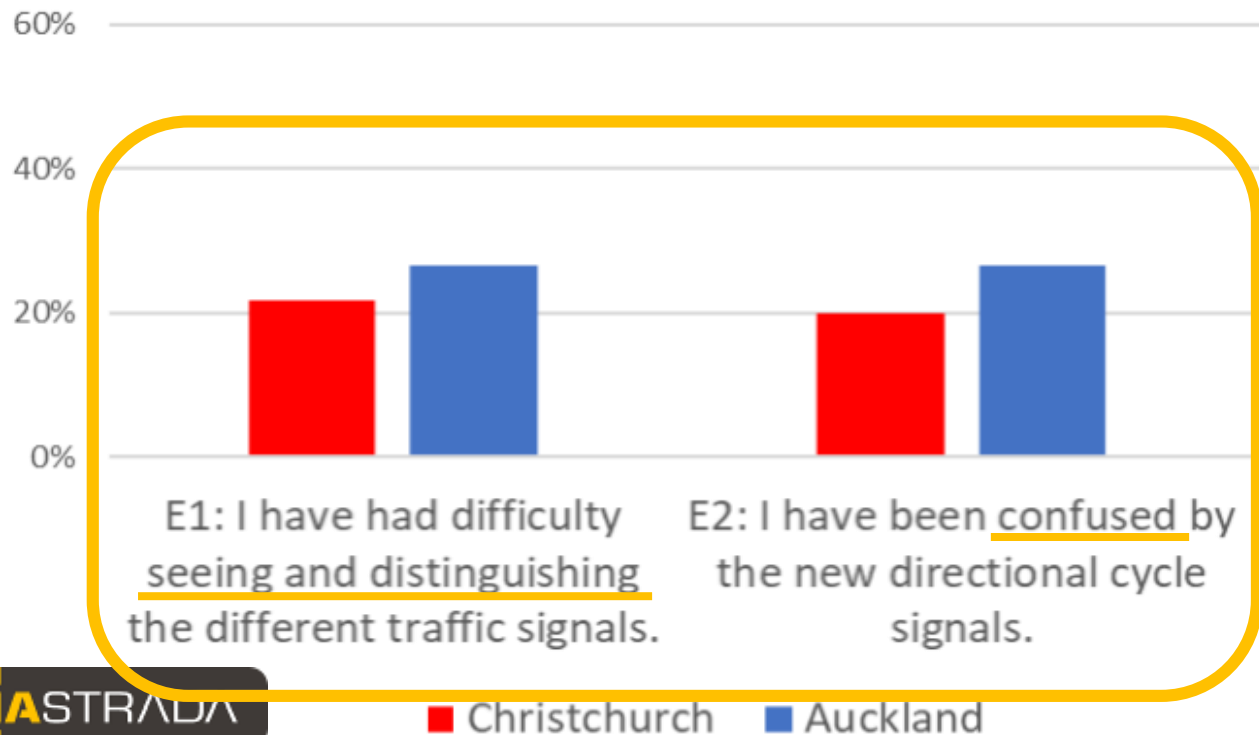
User experience of cycle signals

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



Clarity of signals – explanations

- Initial problem with light-spill – fixed
- Size of far-side signals in Auckland
 - 200mm vs 300mm

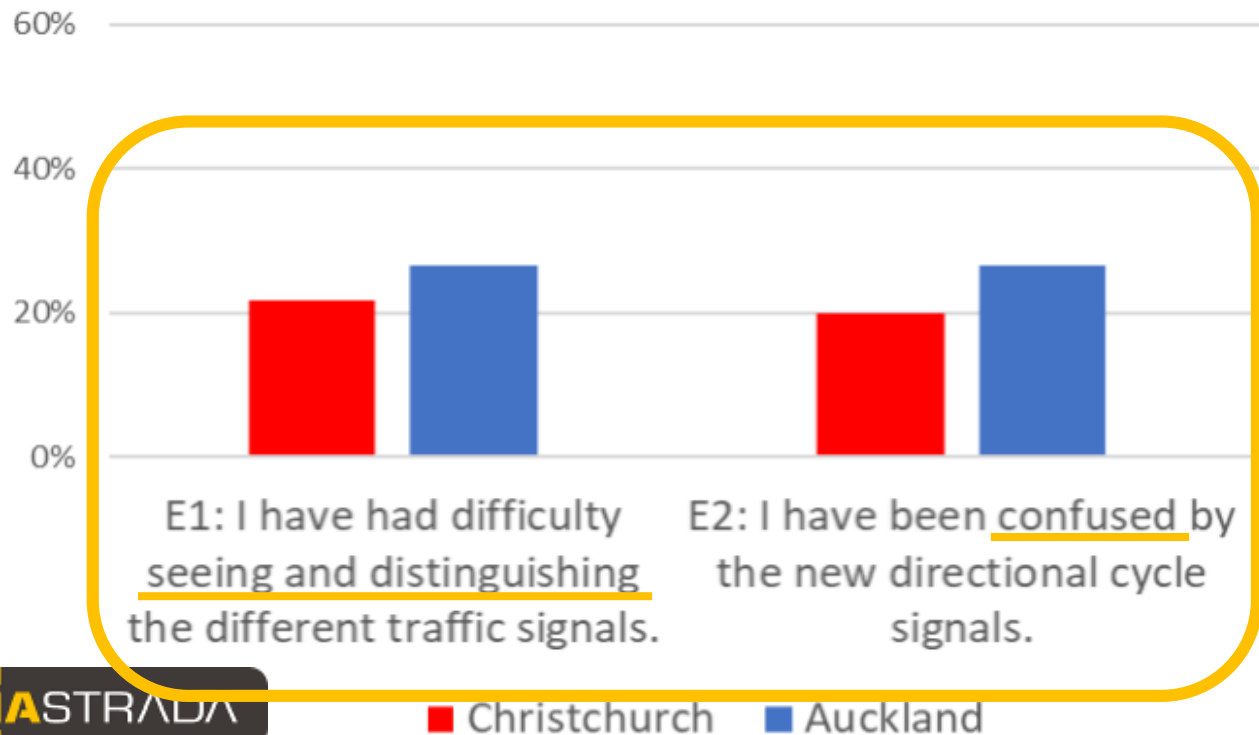


Clarity of signals – size

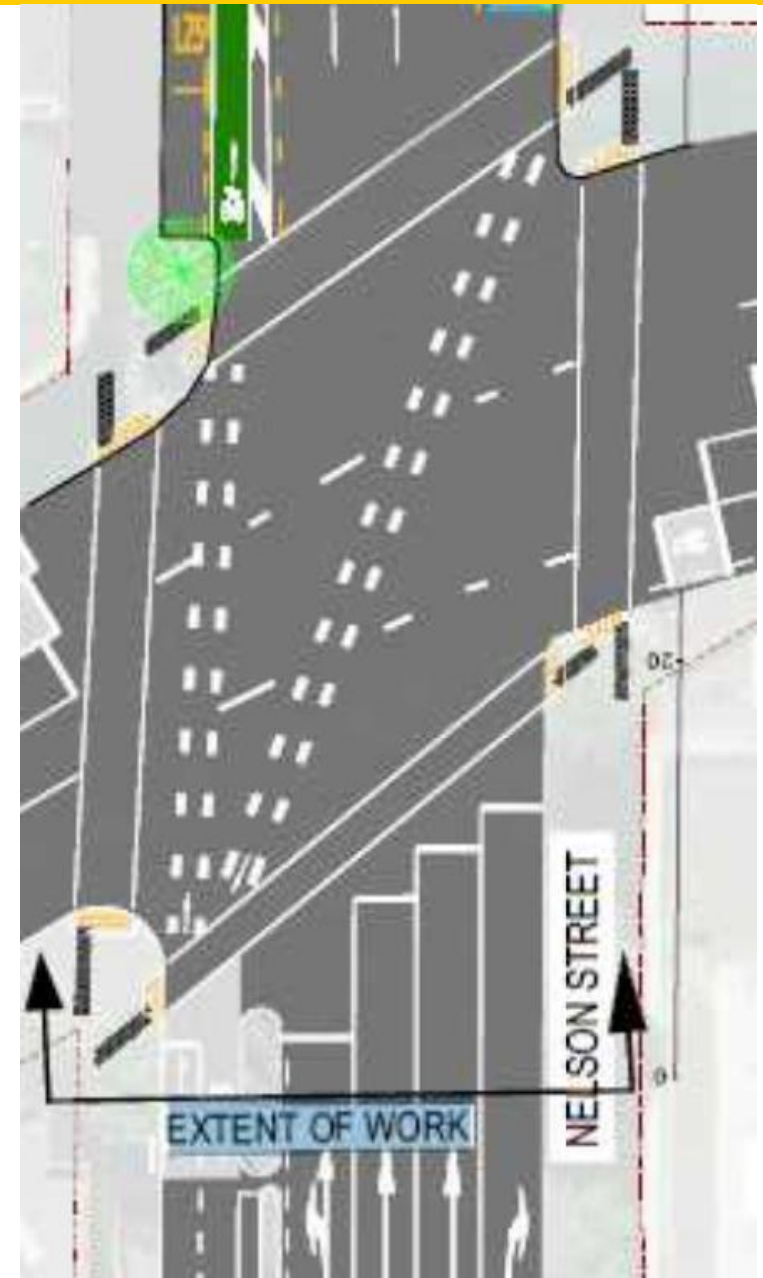
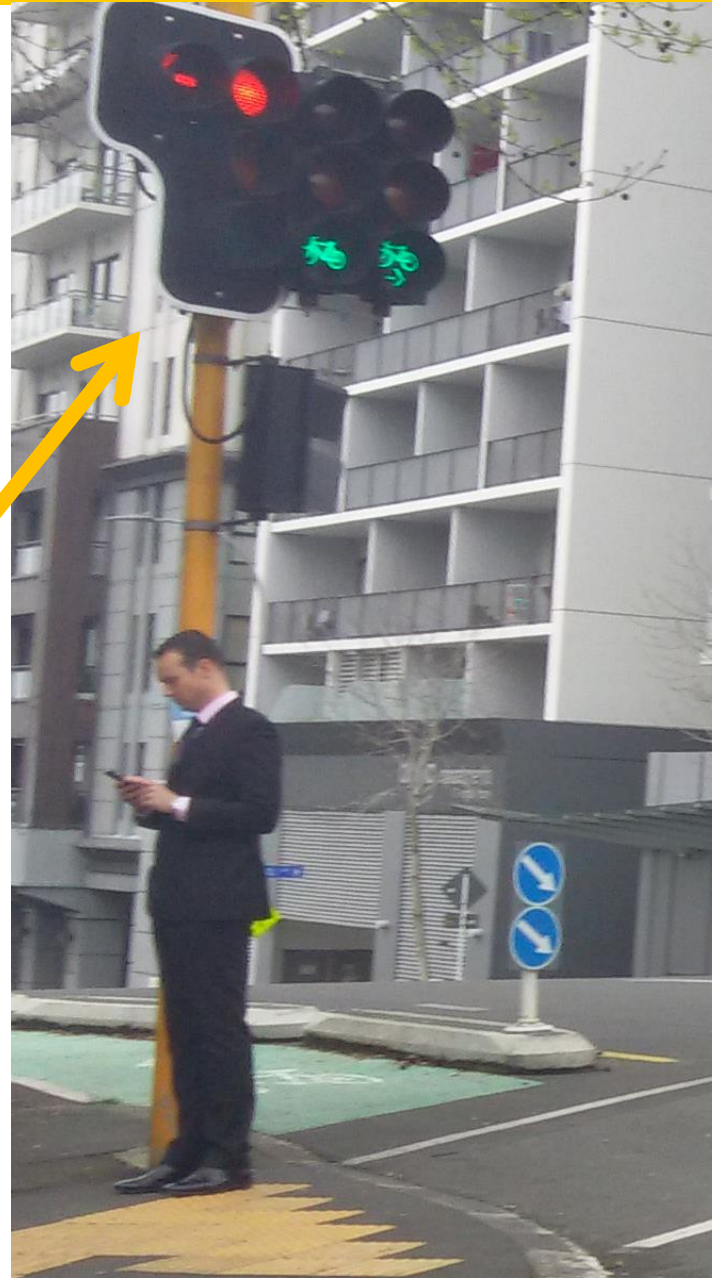


Clarity of signals – explanations

- Initial problem with light-spill – fixed
- Size of far-side signals in Auckland
 - 200mm vs 300mm
- Placement w.r.t. road layout and other signals

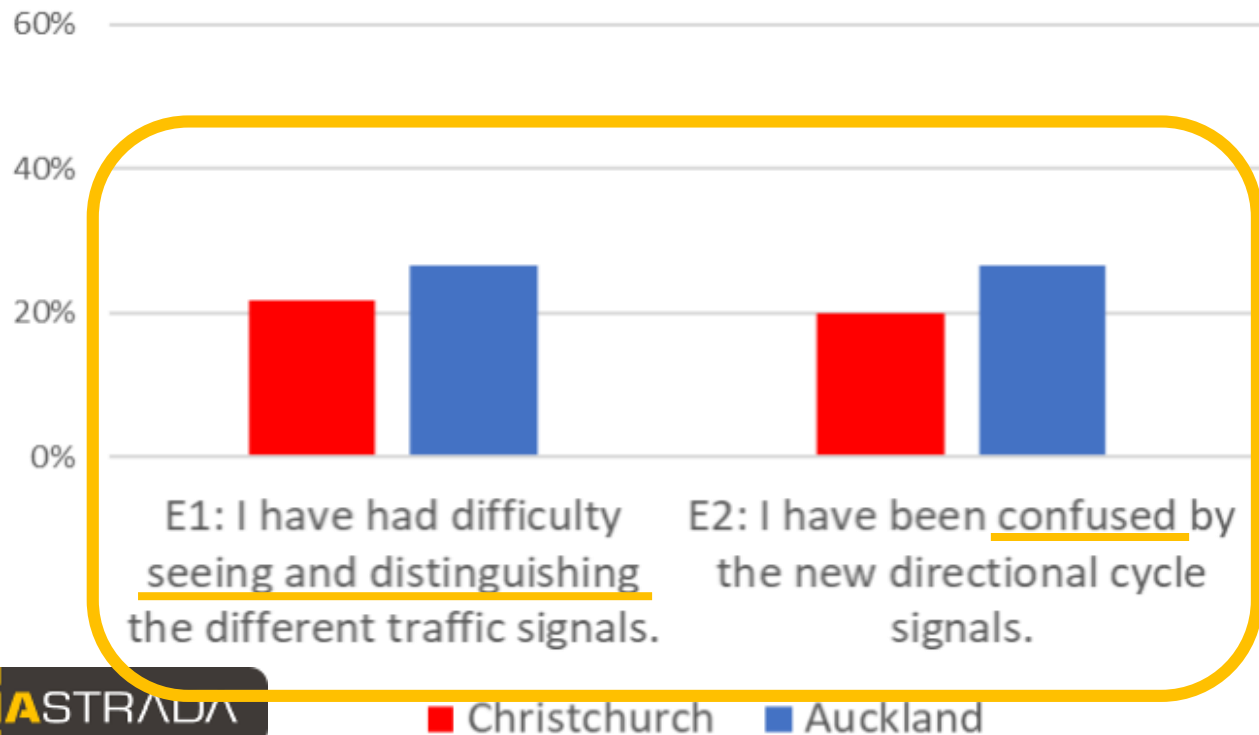


Clarity of signals – placement



Clarity of signals – explanations

- Initial problem with light-spill – fixed
- Size of far-side signals in Auckland
 - 200mm vs 300mm
- Placement w.r.t. road layout and other signals
- “Confused at first but ok now”



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
- Further evaluation 18-24 months after installation

Conclusions

- Overall, directional cycle signals are successful
 - Improved LOS to cyclists
 - Improved compliance
 - Good level of user understanding



Thank you!

Questions and discussions



Megan Gregory

Megan@ViaStrada.nz