



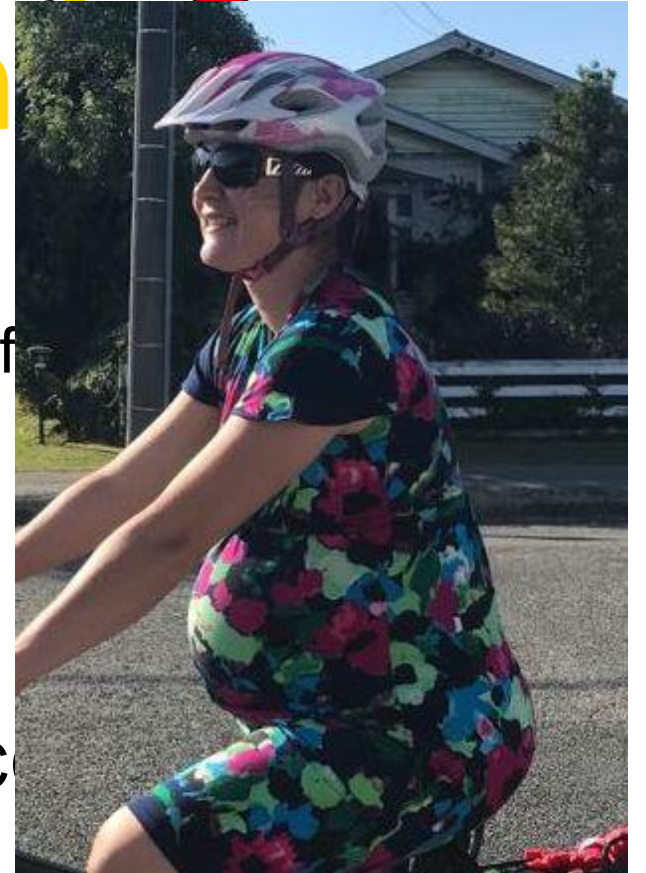
# The Changing Signals Faces of Transport Cycling in New Zealand

2019 Engineering NZ Transportation Group Conf

**ViaStrada Ltd**

Axel Wilke (presenter)

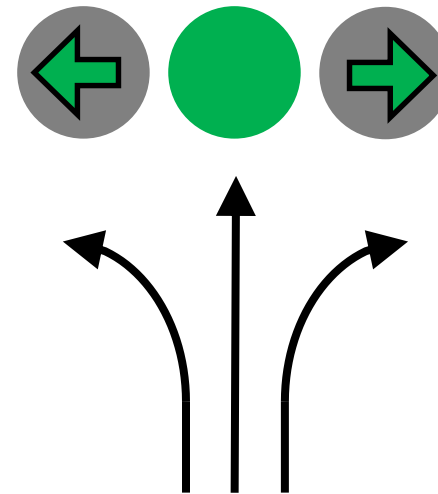
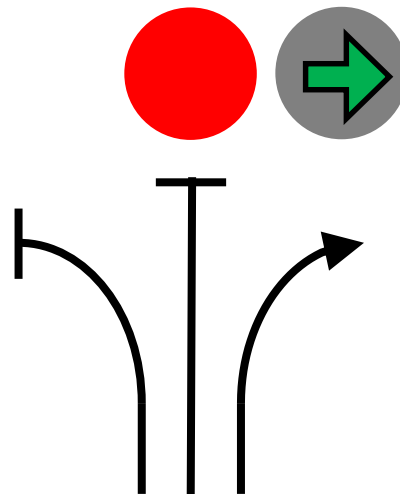
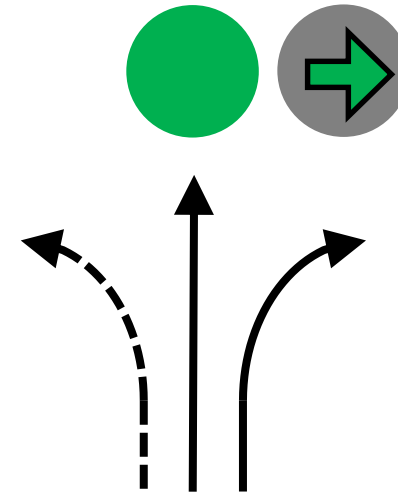
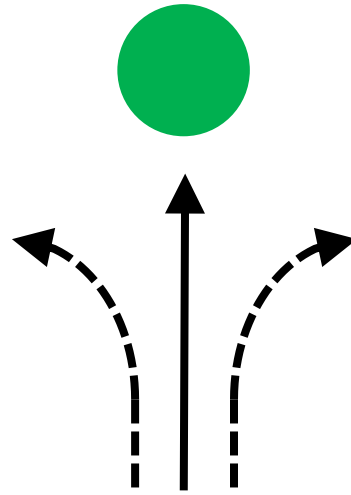
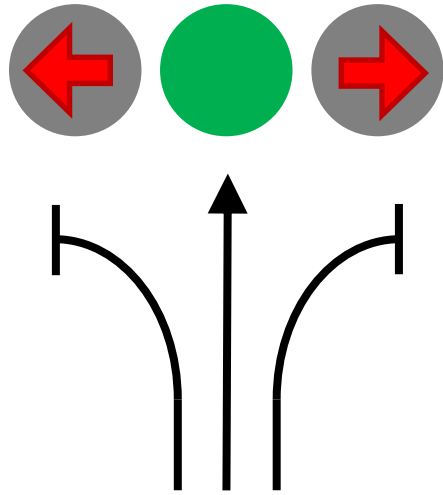
co-authors: Megan Gregory, Steve Dejong (C



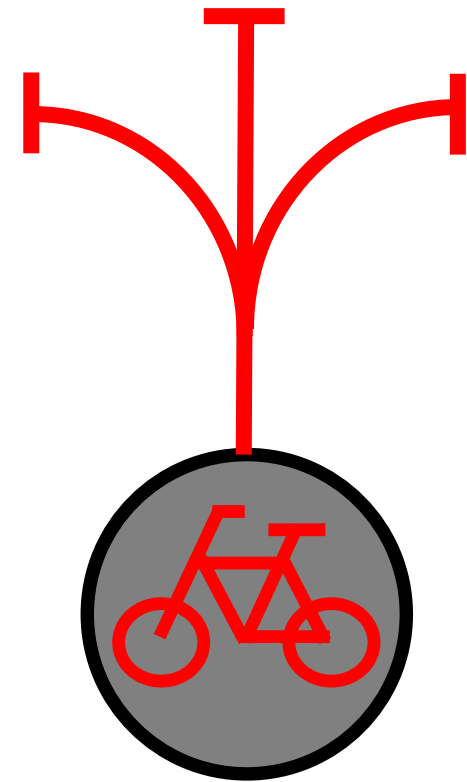
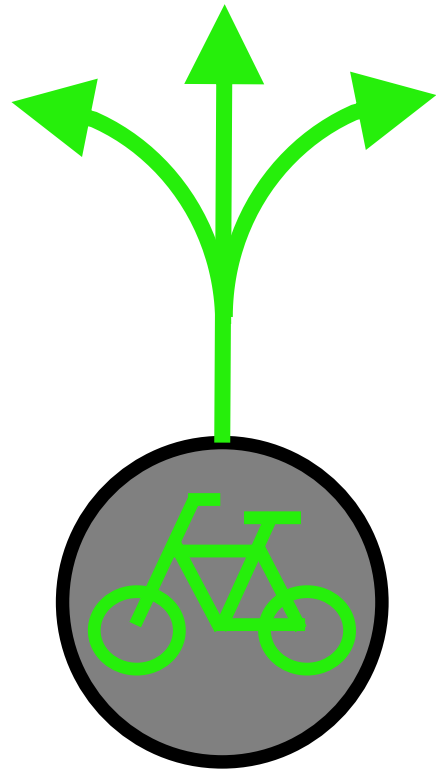
**VIASTRADA**

TRANSPORT PLANNING AND DESIGN

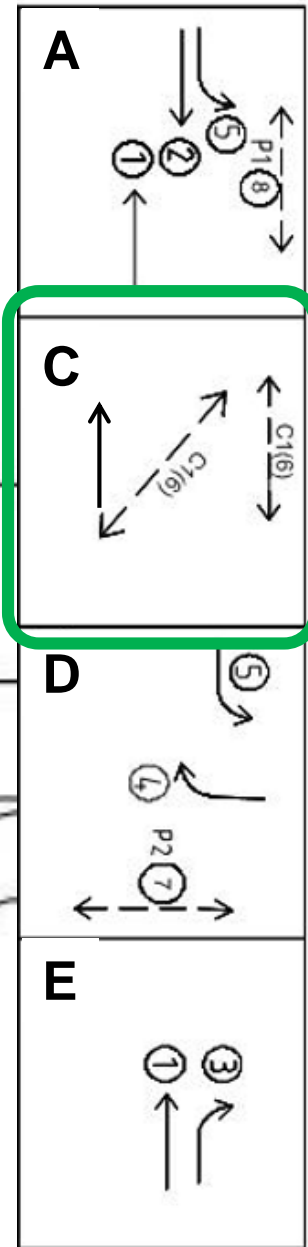
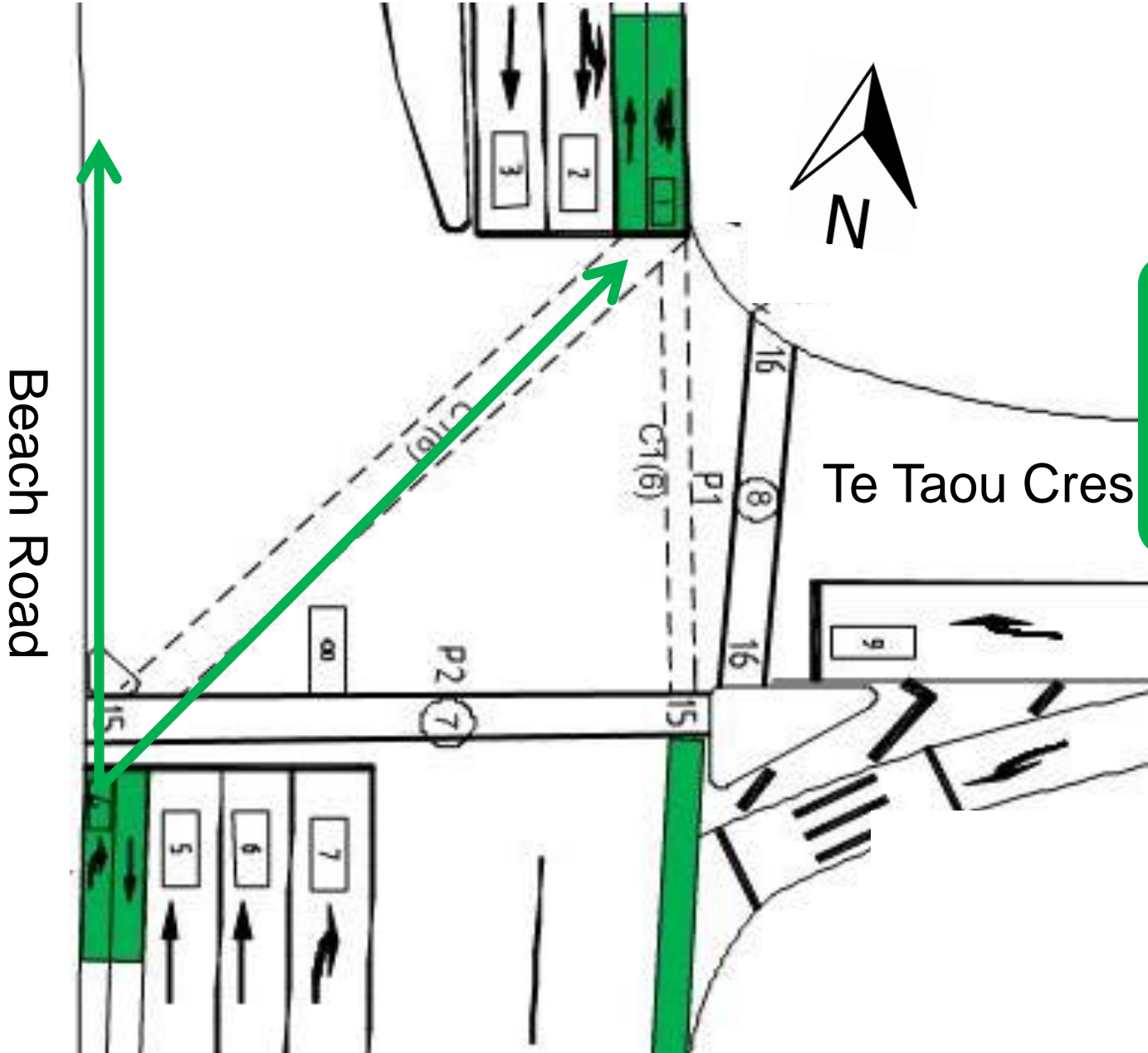
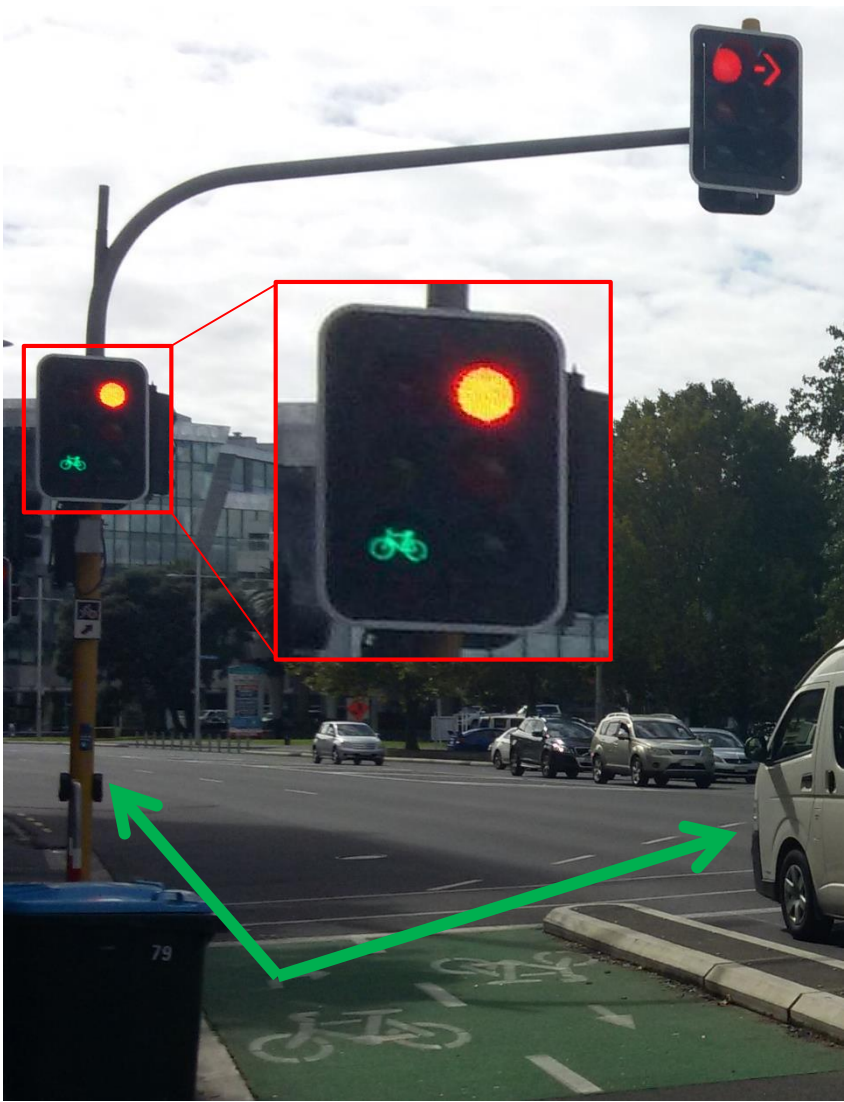
# From the general...



# ... to the cycle-specific



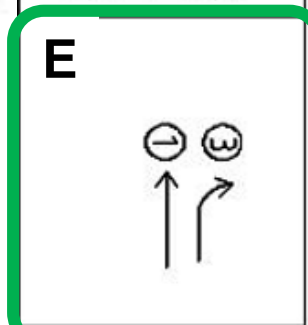
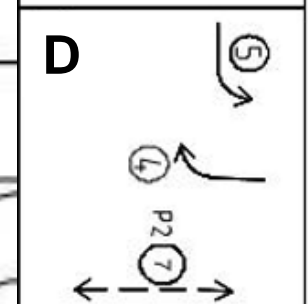
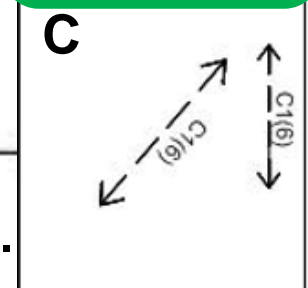
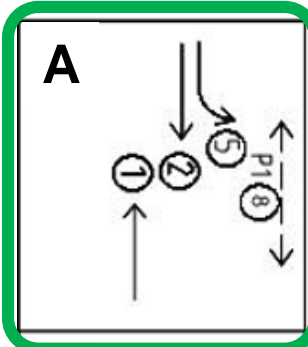
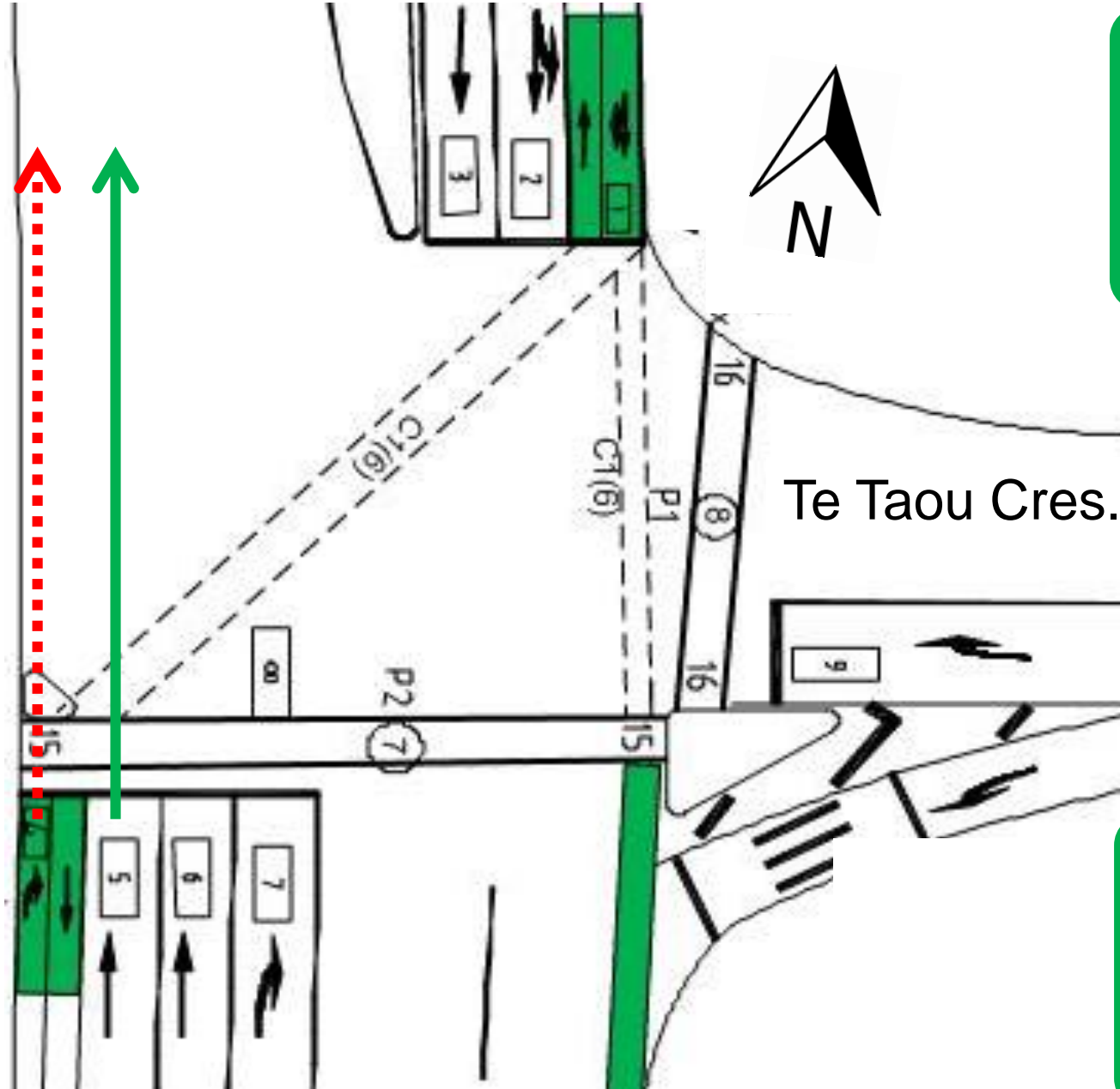
# Beach Road / Te Taou Cres, Auckland



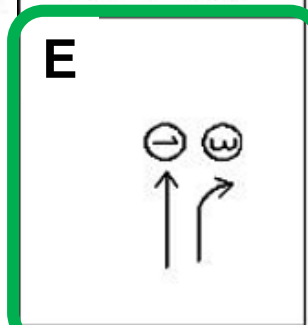
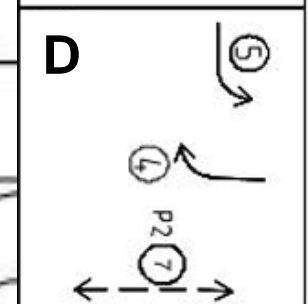
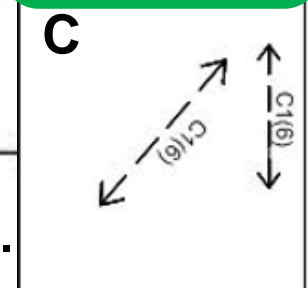
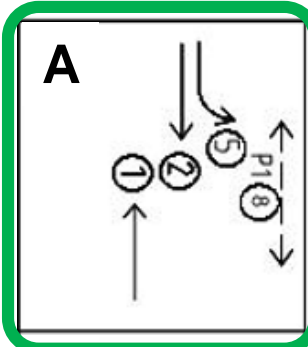
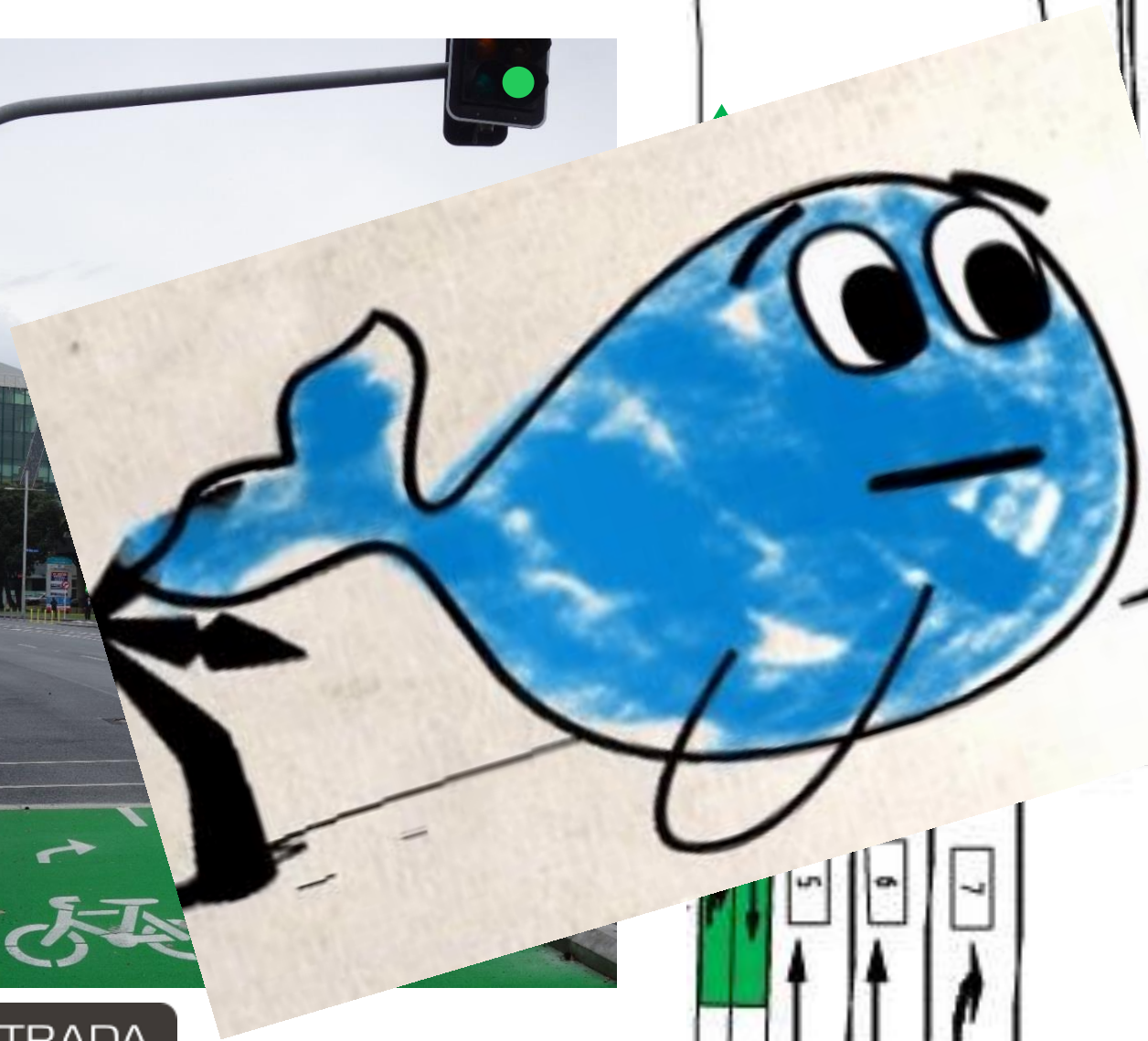
# Beach Road / Te Taou Cres, Auckland



Beach Road

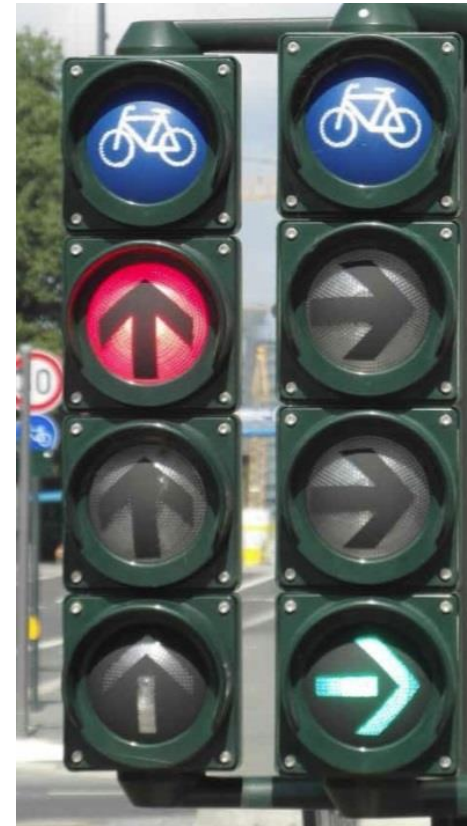


# Beached as!



# 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

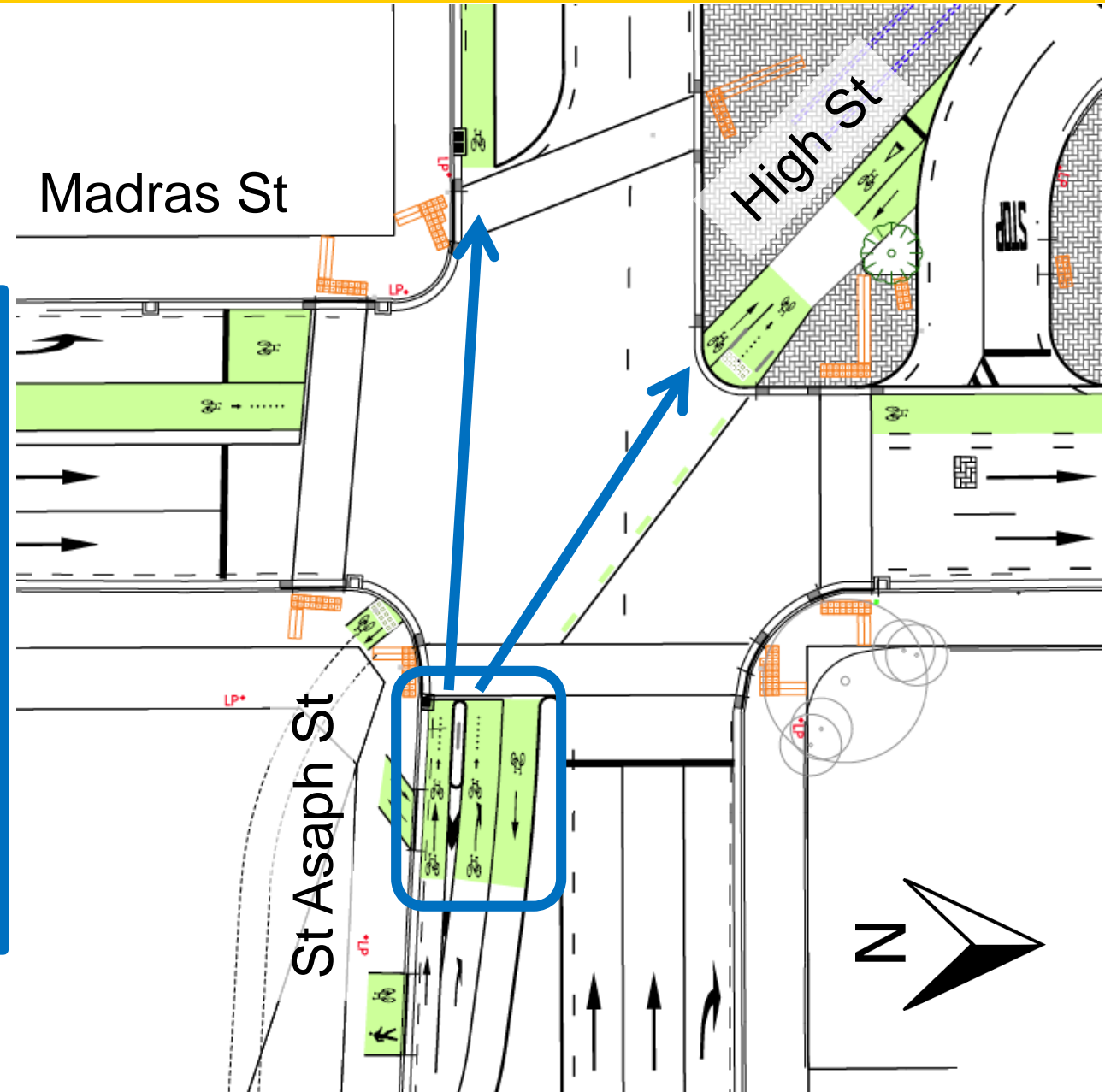


BEAR RIGHT  
ARROW

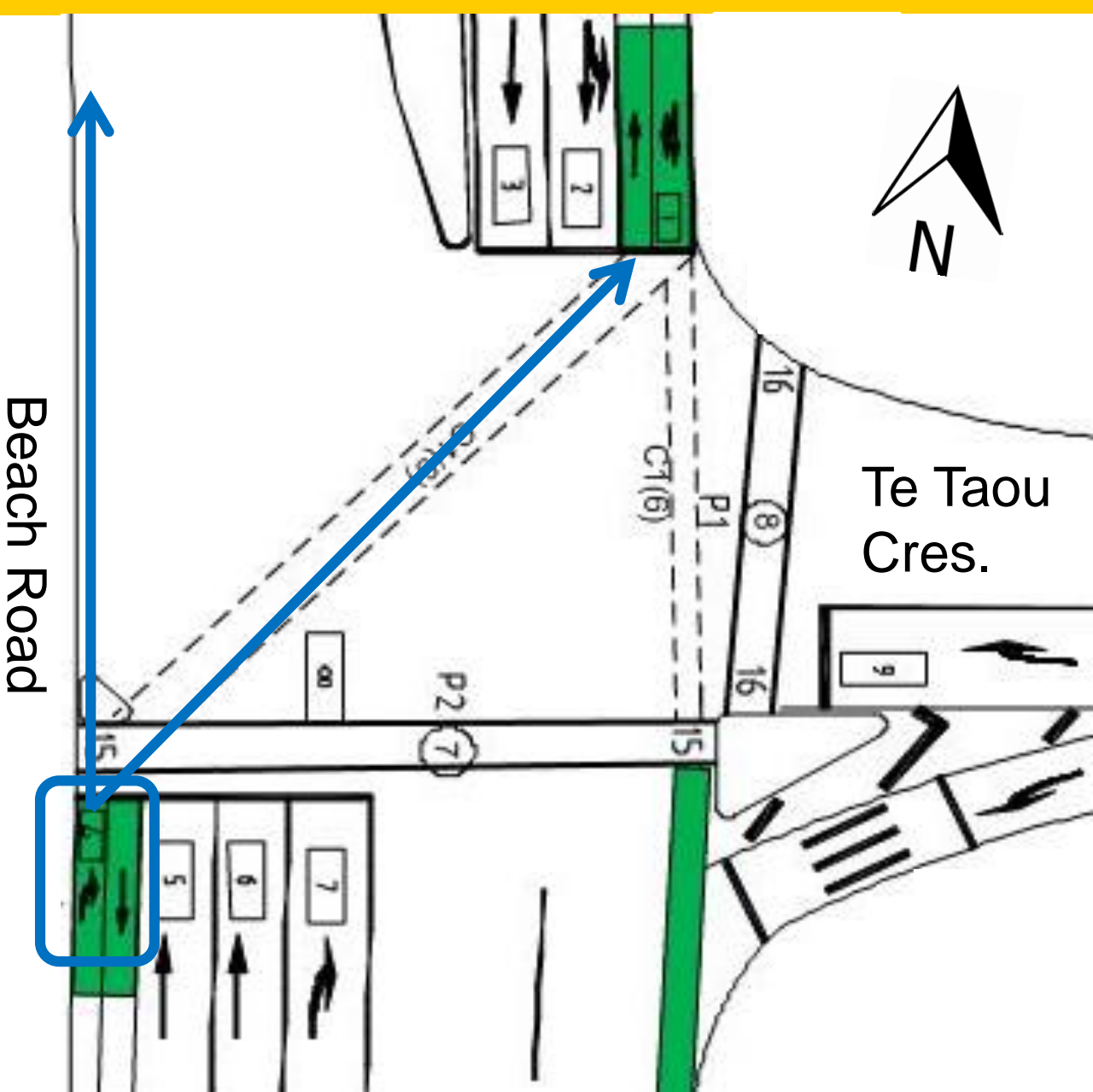




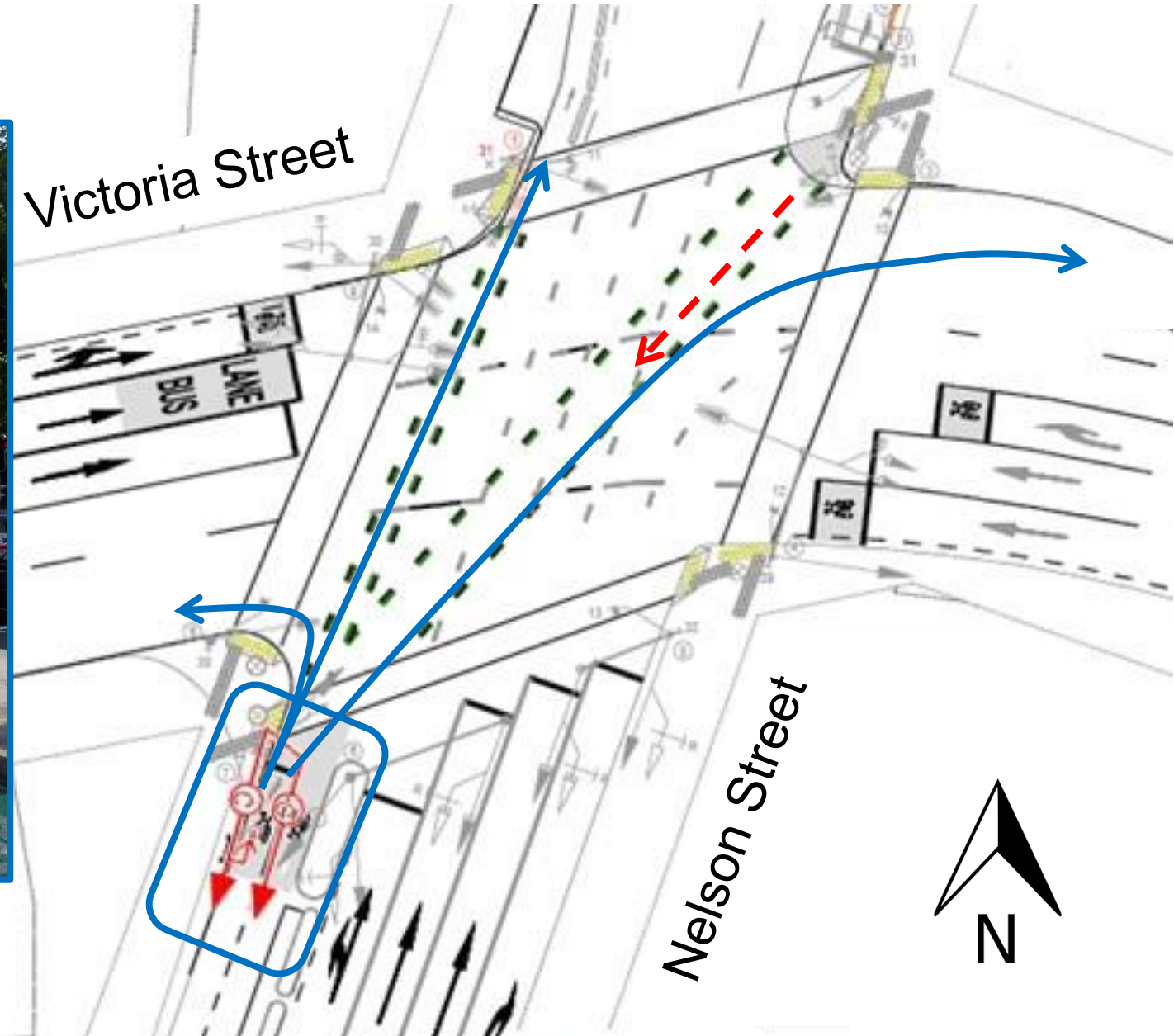
# Trial site 1: High / Madras / St Asaph, Christchurch



# Trial site 2: Beach / Te Taou, Auckland

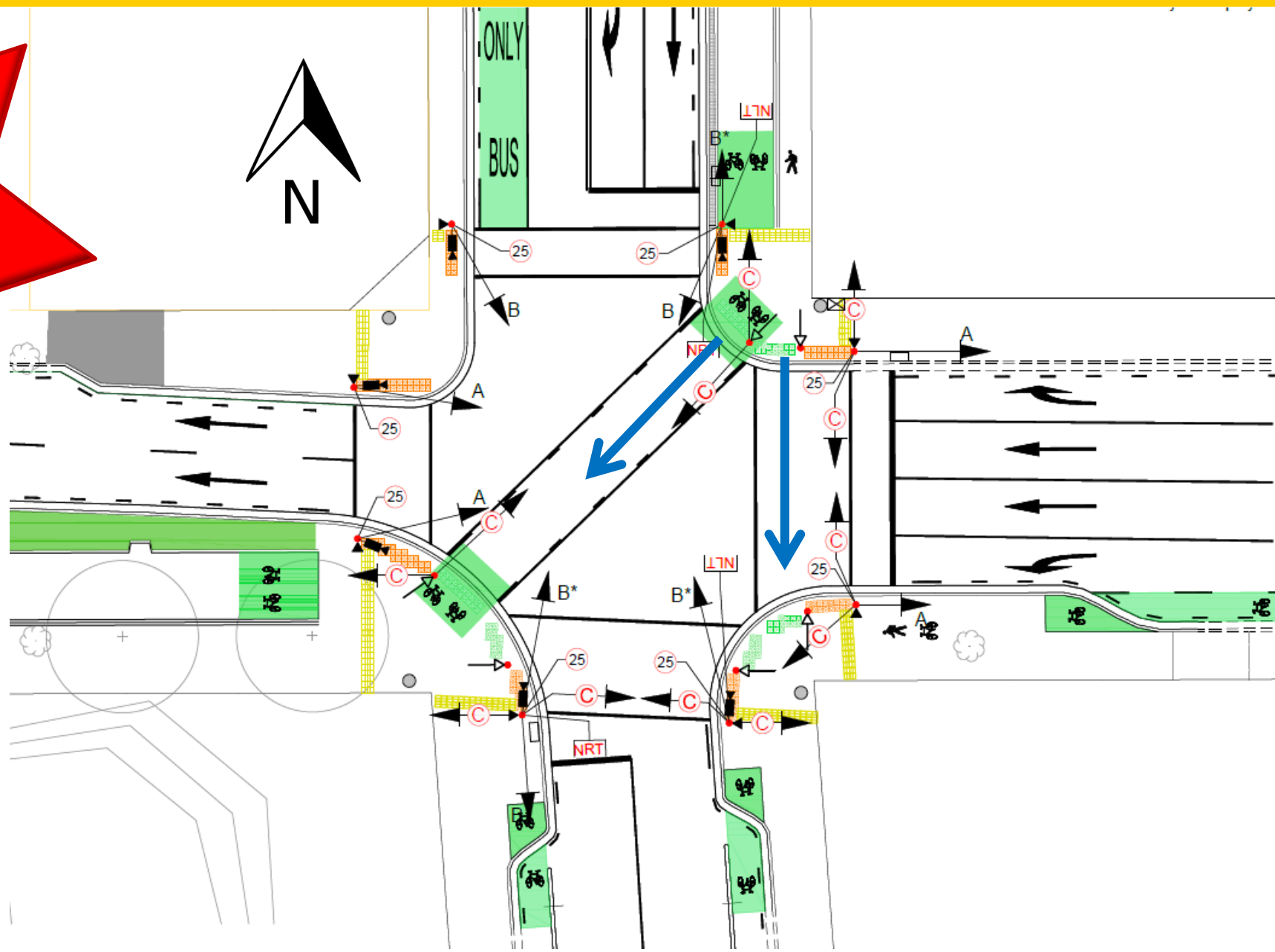


# Trial site 3: Nelson / Victoria, Auckland



# Trial site 4: Antigua / St Asaph, Christchurch

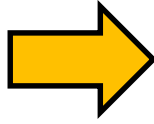
**NEW  
ARRIVAL**



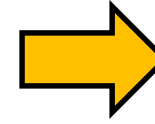
# Evaluation stages



Before studies



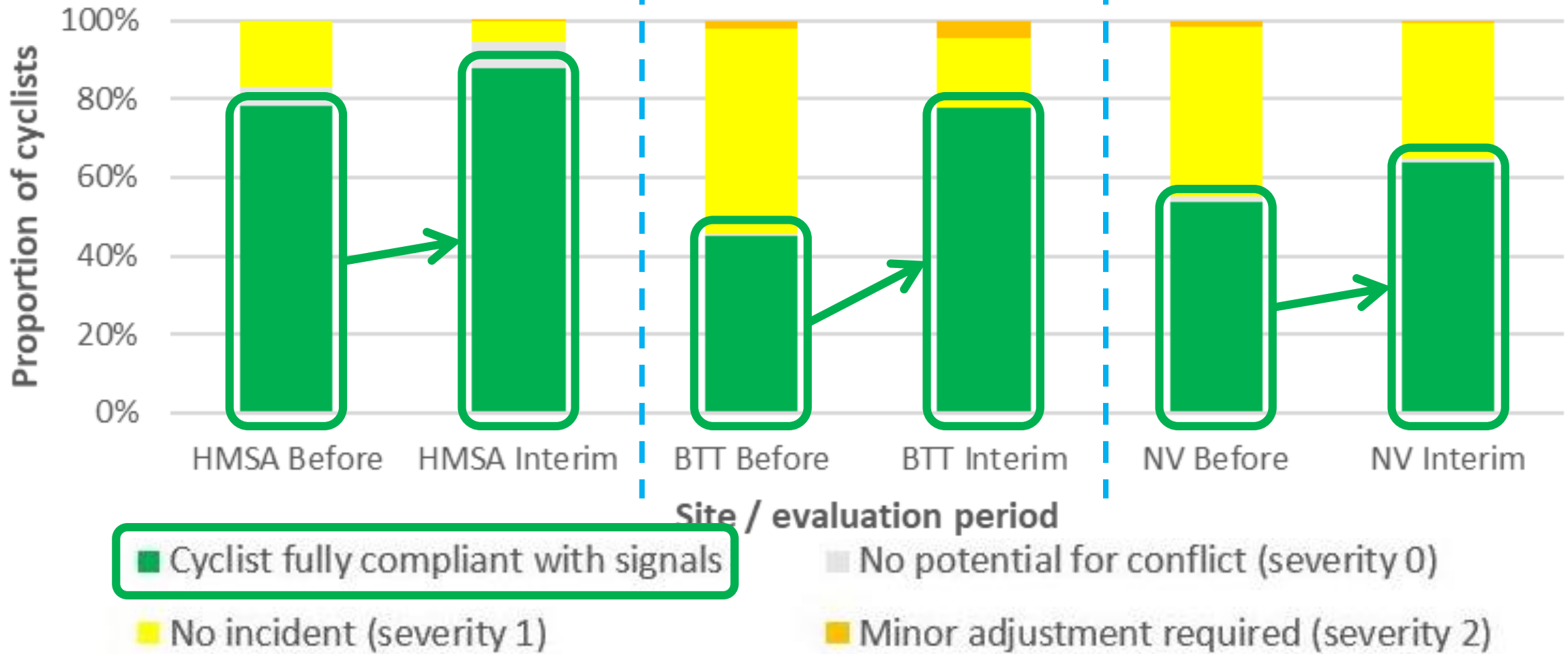
Hardware testing



Interim evaluations

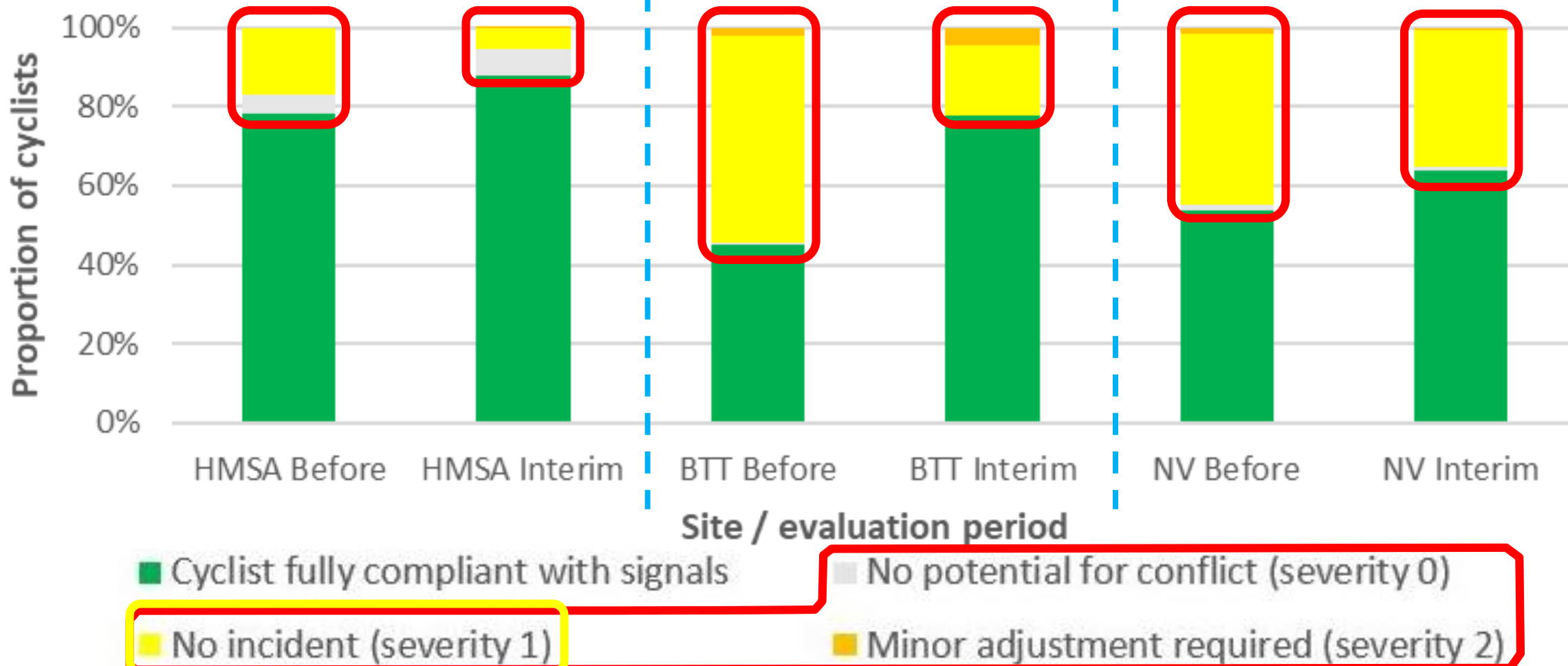
# User behaviour: cyclist compliance

## Cyclist compliance with traffic signals



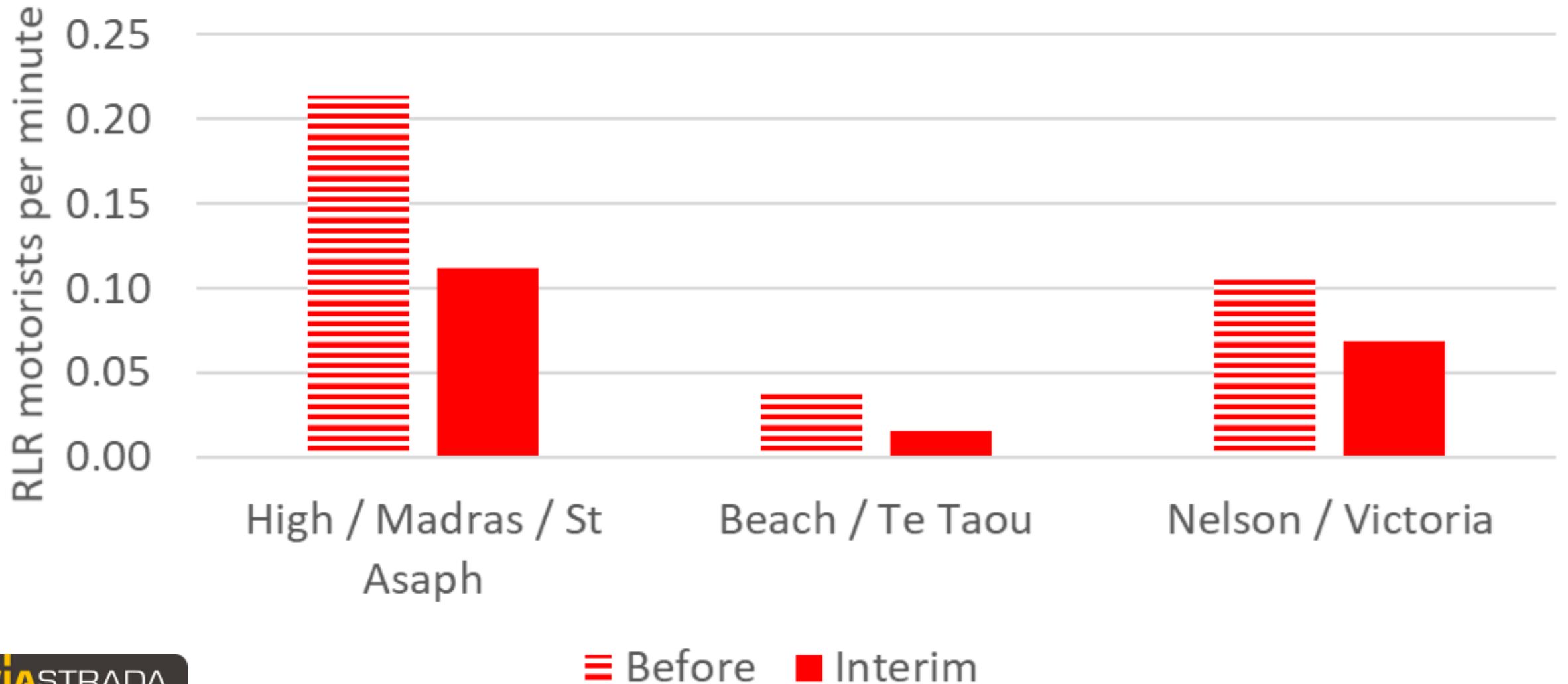
# User behaviour: cyclist non-compliance

Cyclist compliance with traffic signals



# User behaviour: motorist compliance

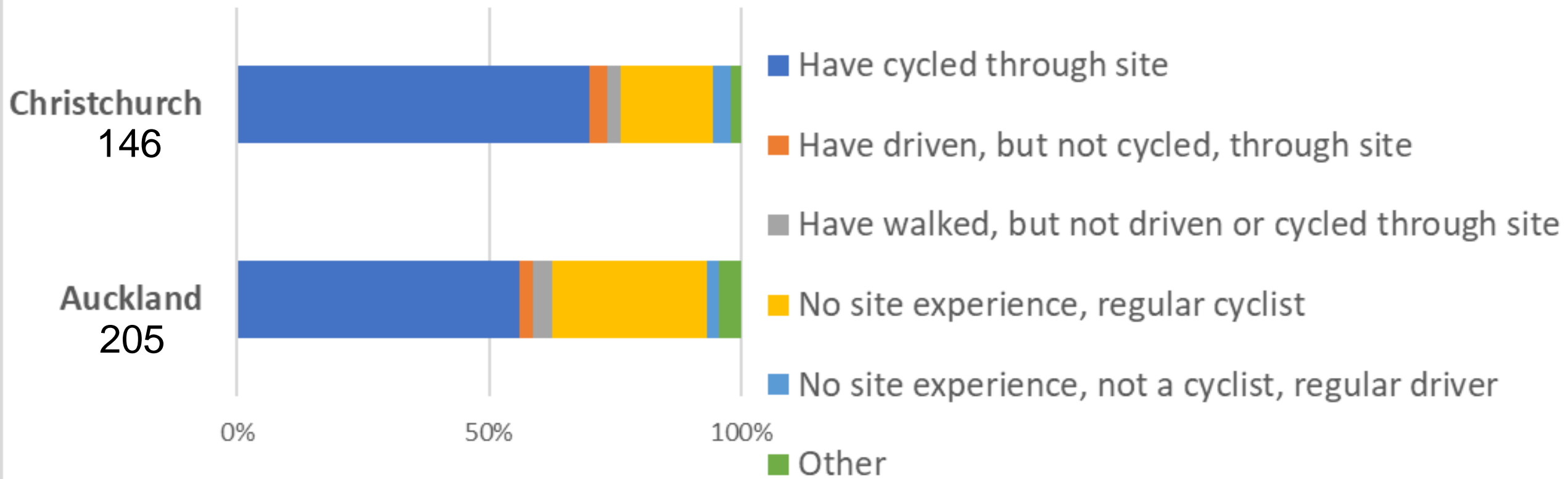
Red light running motorists per minute





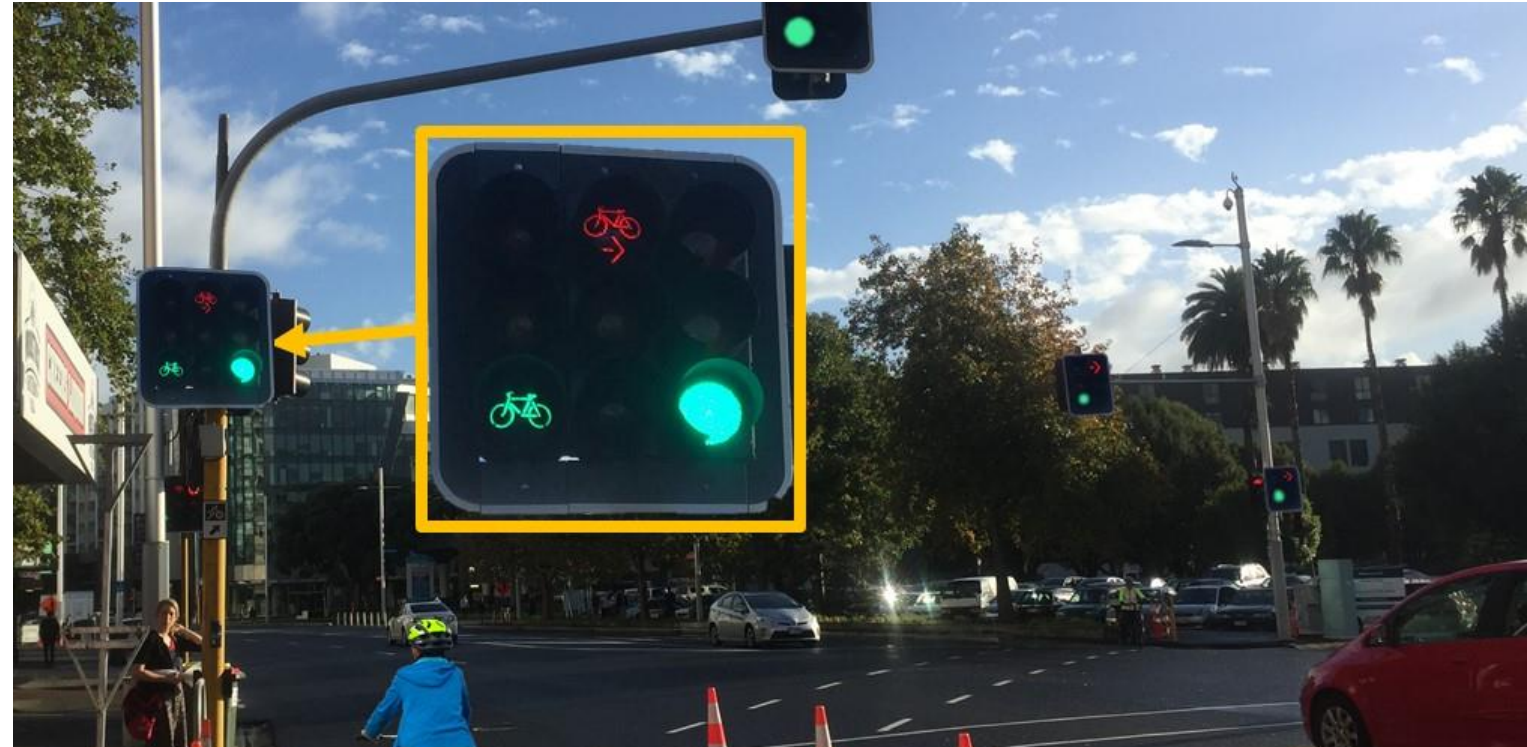
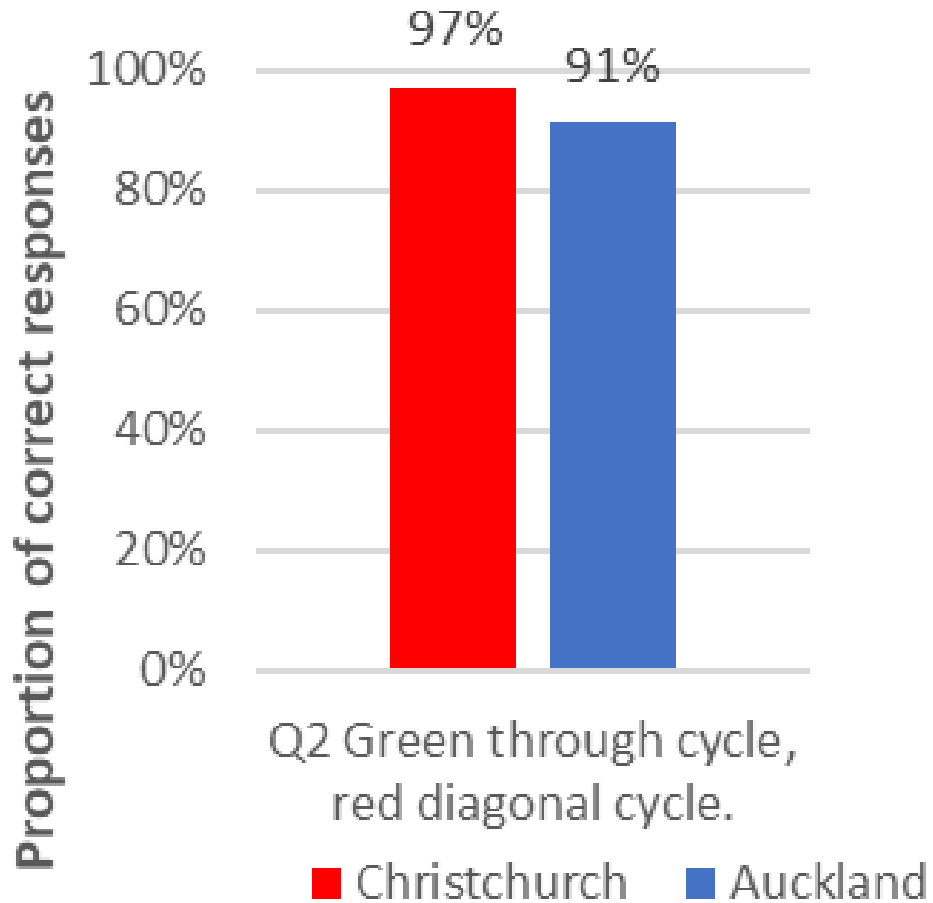
# User understanding & satisfaction: sample size

Survey respondent familiarity with sites



# User understanding: interpretation

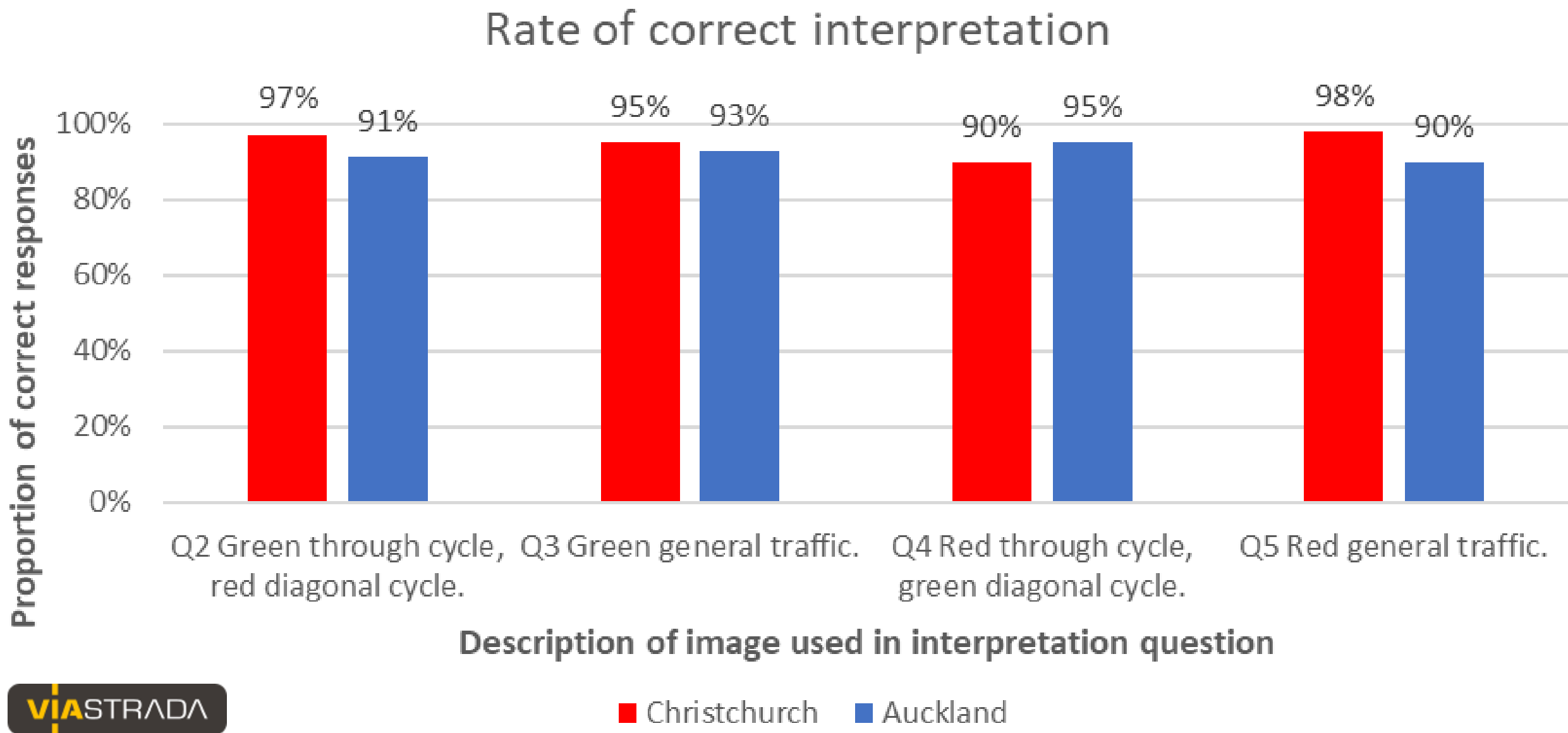
Q2: What can someone biking on the cycleway do in this situation?



Mark only one oval.

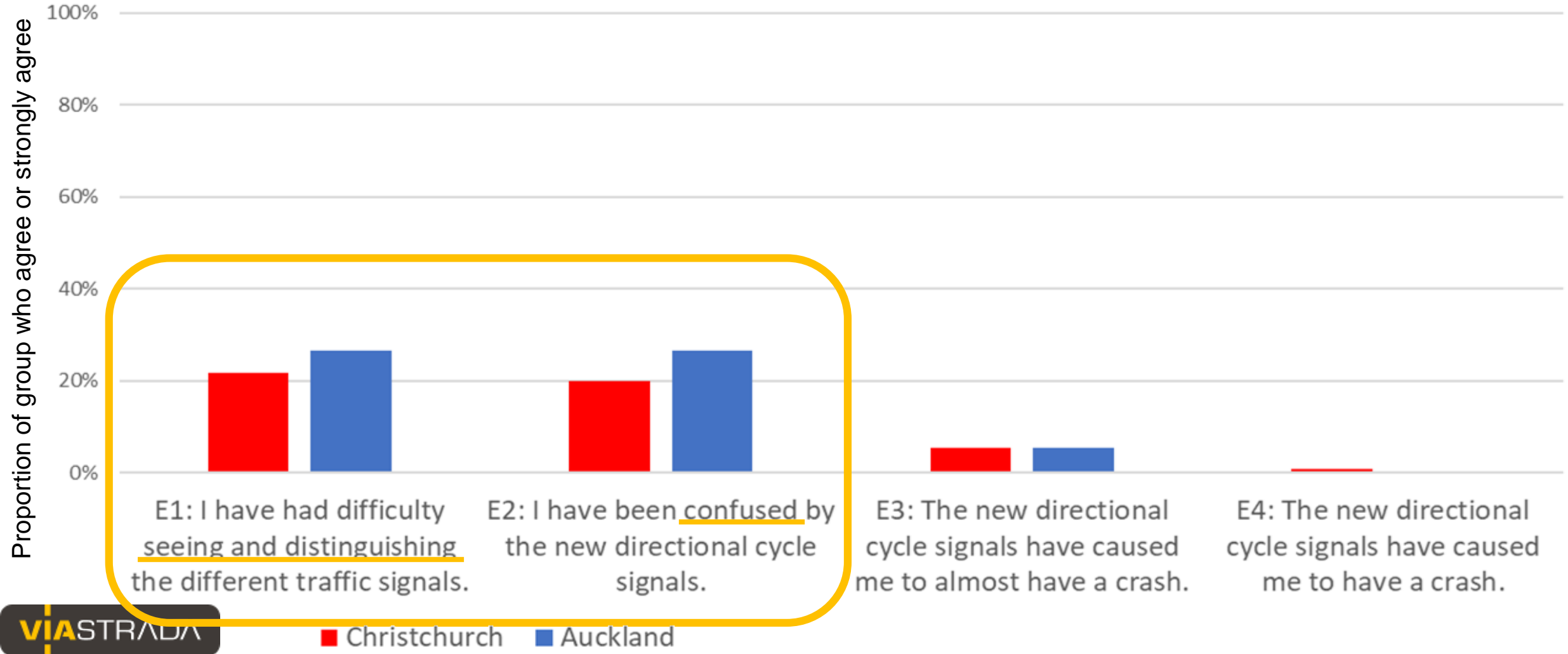
- Cyclists can travel STRAIGHT AHEAD, but not on the diagonal.
- Cyclists can travel STRAIGHT AHEAD, or on the DIAGONAL.
- Cyclists can travel on the DIAGONAL, but not straight ahead.
- Cyclists must WAIT until both sets of cycle signals are green before proceeding through the intersection.
- Unsure

# 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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