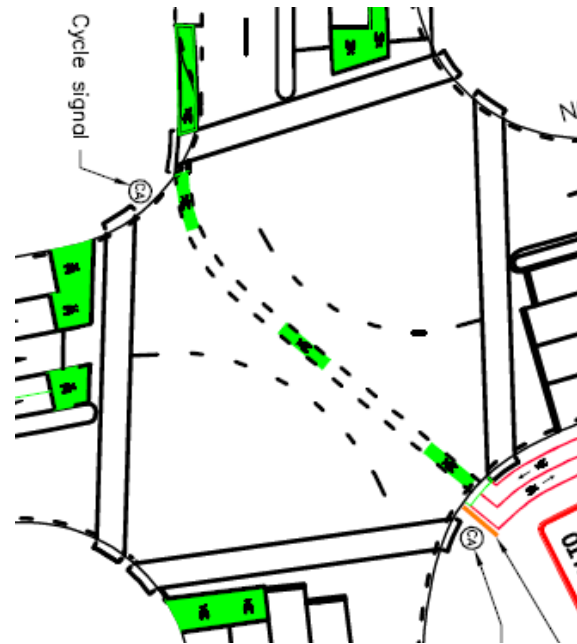


Diagonal cycle crossing for signalised intersection



Axel Wilke – ViaStrada

Matthew Hinton – Maunsell

Daniel Newcombe – Auckland City Council

MAUNSELL | AECOM



Auckland City

Introduction

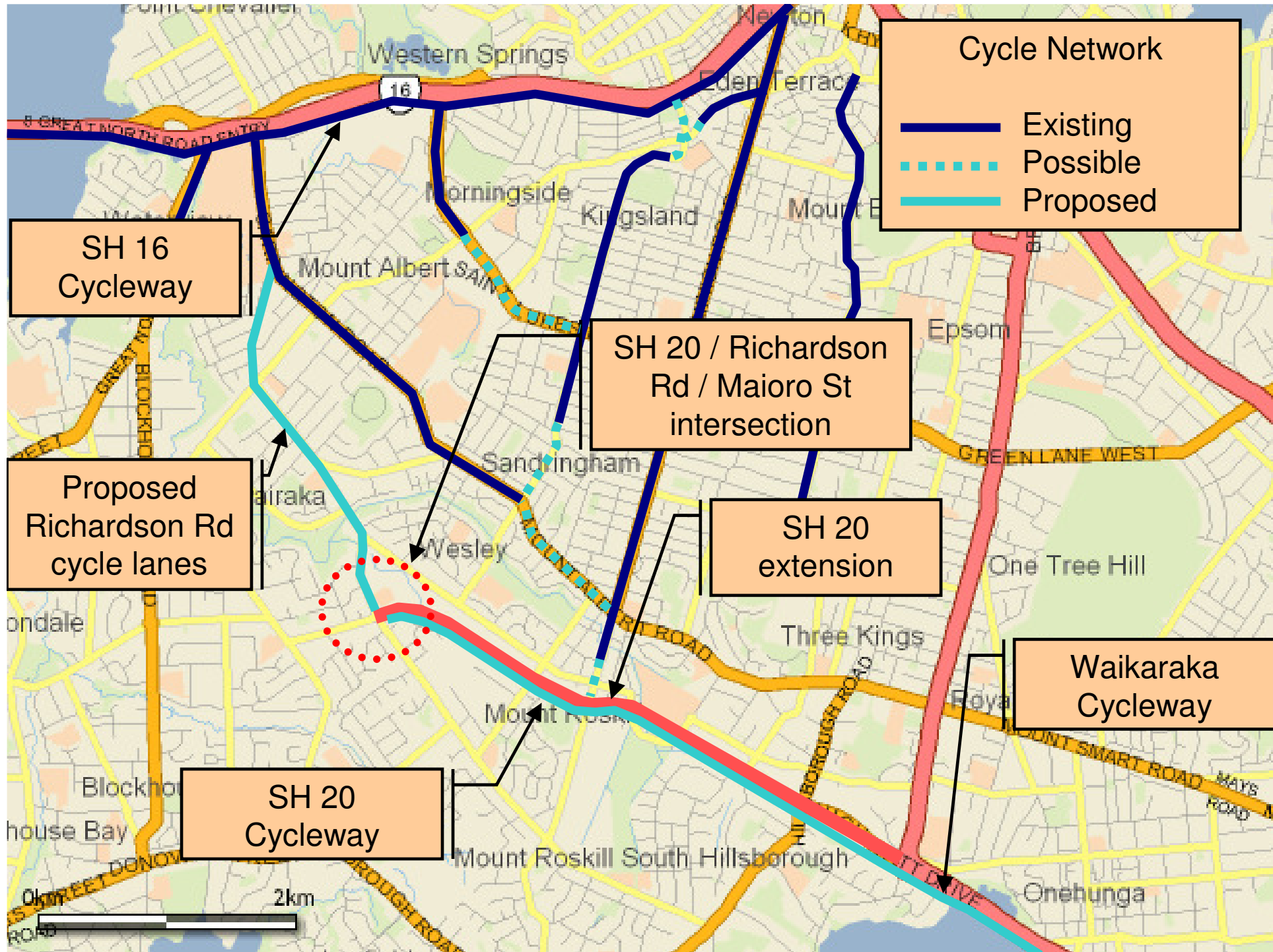
- New intersection at end of SH20
- New cycleway also ends here
- Difficult for cyclists to reach other side
- Numerous options to fix this
- Auckland City Council engaged Maunsell and ViaStrada to investigate:
 - innovative diagonal crossing solution

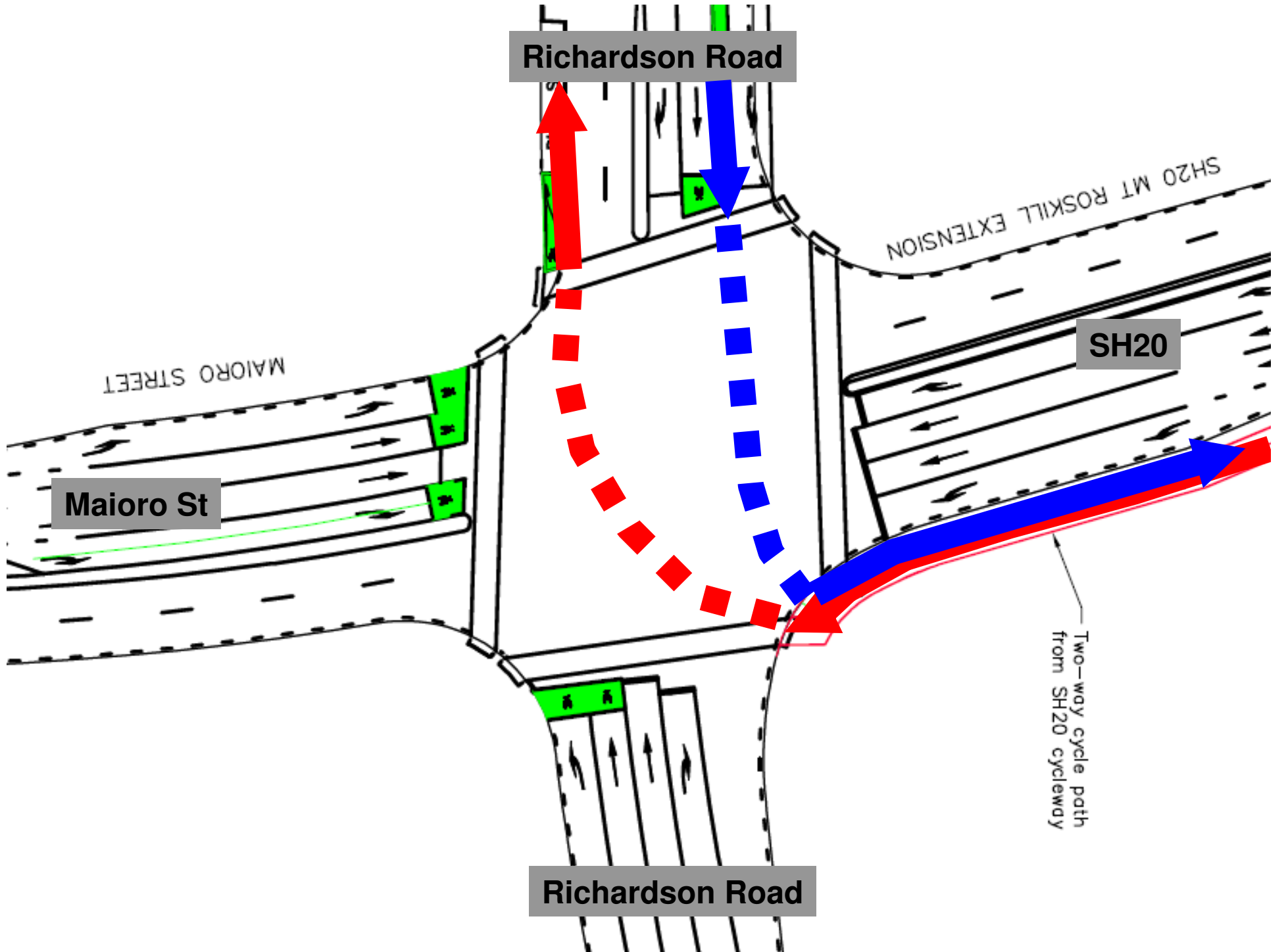
Disclaimer

- Concept only
- No audits or approvals undertaken yet
- For discussion purposes only

Context

- SH20 motorway will end at new Maioro St/Richardson Rd intersection
- Substantial new cycleway adjacent to motorway will end at this intersection
- Objective is to allow cycleway cyclists onto road at the intersection and onwards to nearby cycle lanes in a safe and efficient manner





Options

- Finish cycleway somewhere else
- Use pedestrian crossings
- Cycle hook turn (2 options)
- Diagonal crossing
- Others?

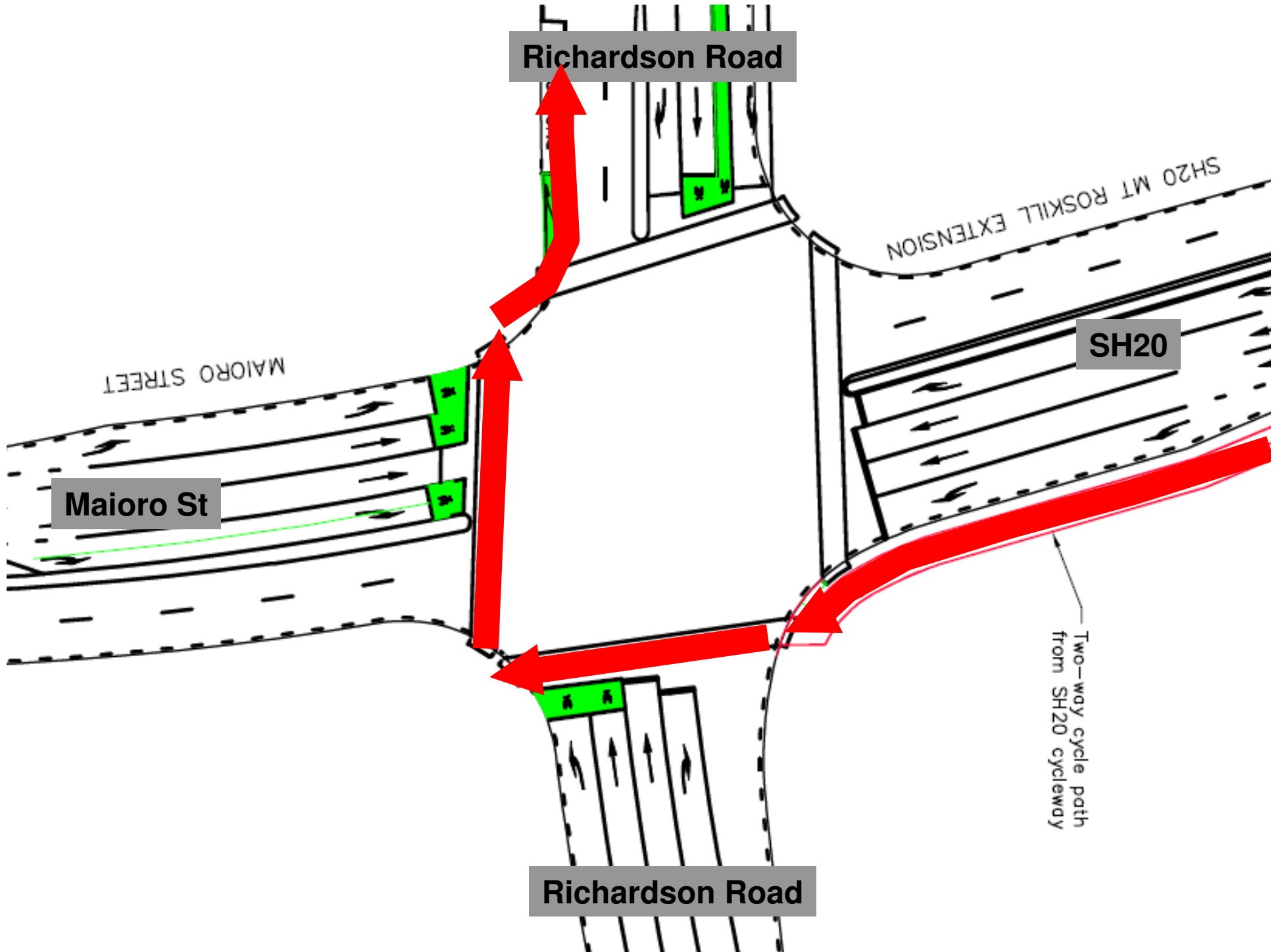
Finish cycleway elsewhere

- Could divert cycleway from SH20 & create new crossing away from this intersection
- Ability to divert from SH20 limited by street layout and surrounding properties
- Diversion would be less direct and require new intersection on Richardson Rd
- New intersection may present new delays and have similar cycle crossing issues
- Preference to keep cycleway with SH20



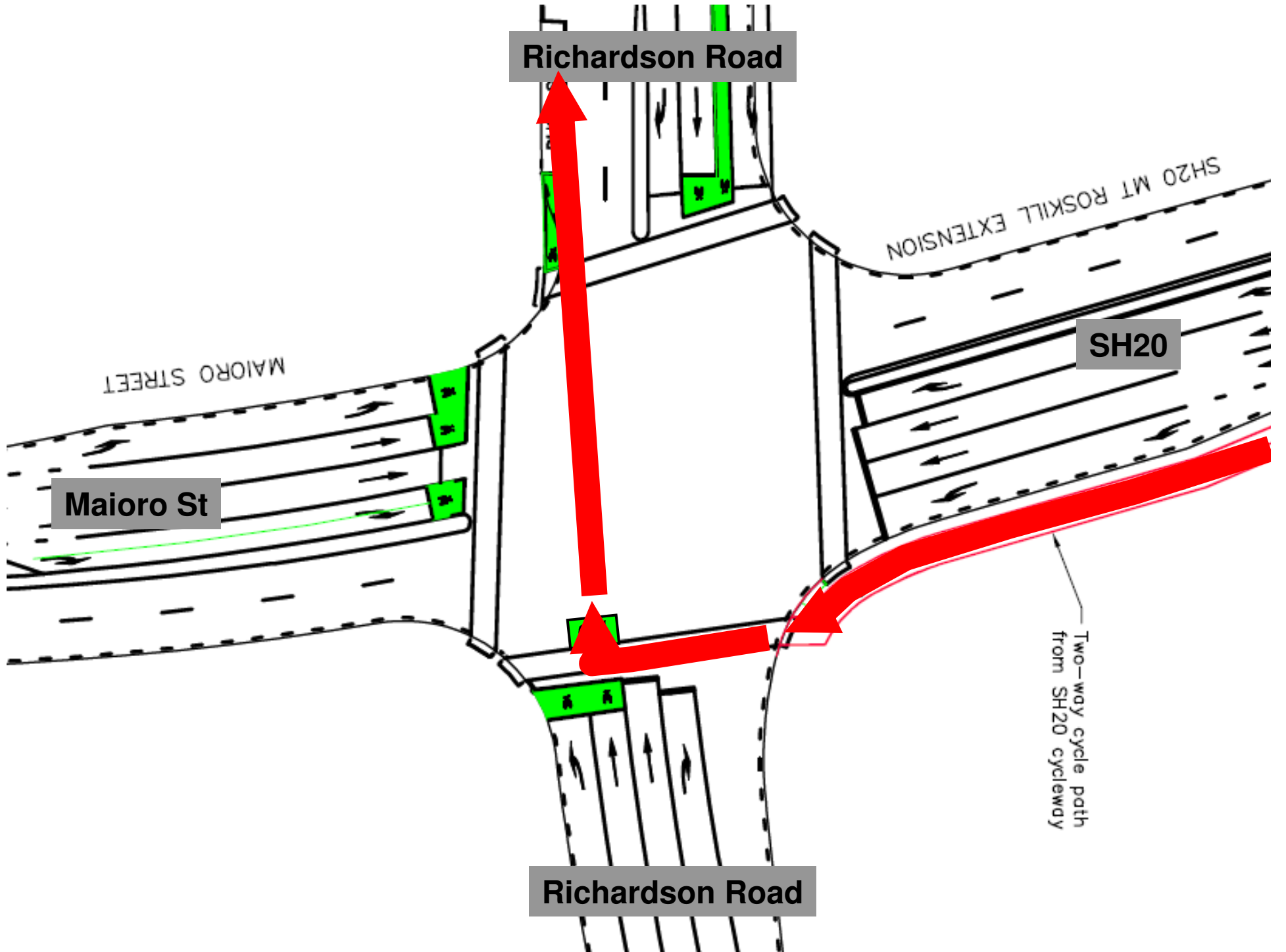
Use pedestrian crossings

- Legal issue of cyclists using ped facility and right-of-way with motorists
- Long cyclist crossing time from needing to wait for 2 separate ped phases
- Would be a 'break' in cycle facilities
- May encourage illegal or non-standard cycle movements by cyclists looking for quicker/better alternatives



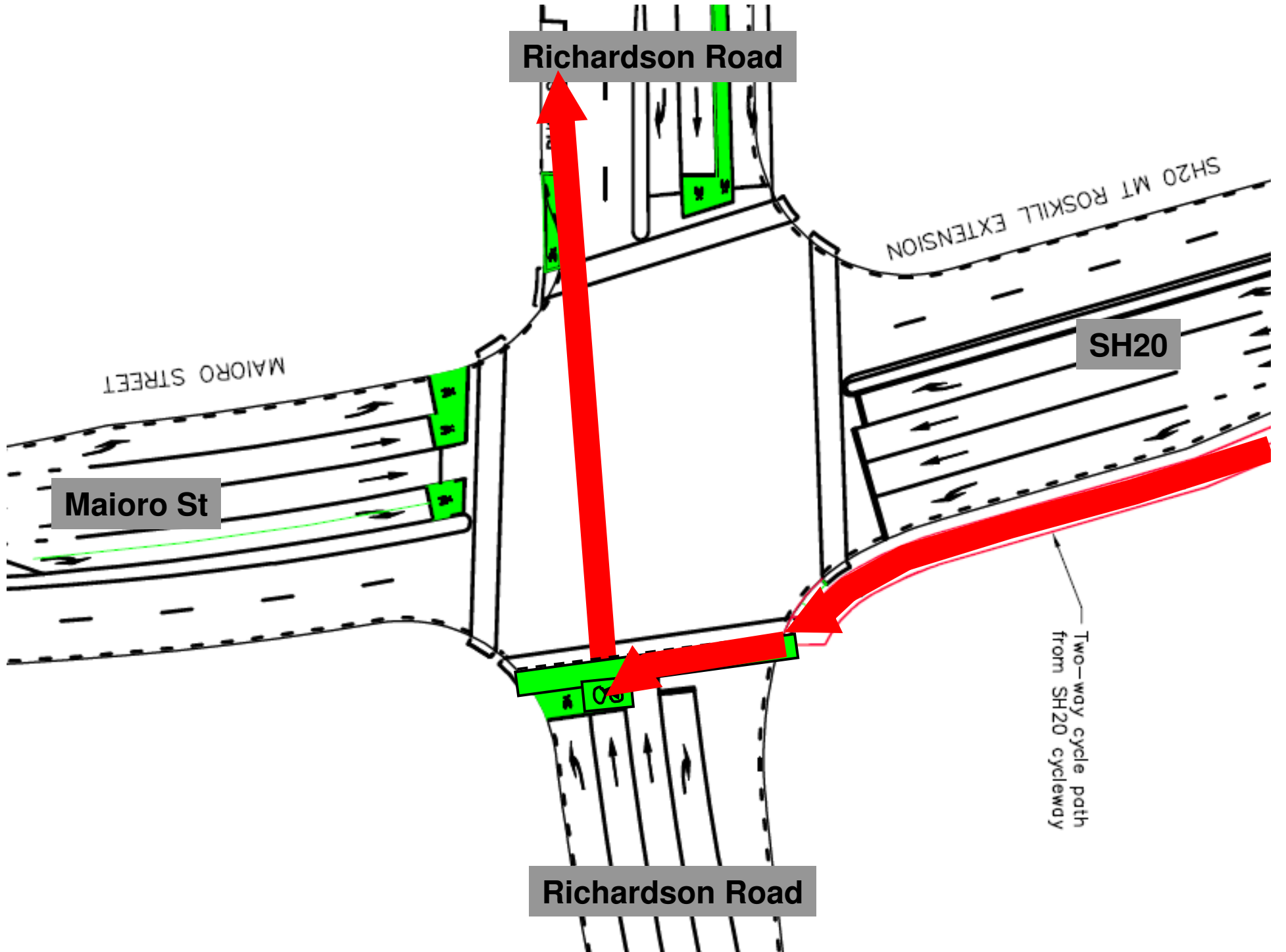
Cycle hook turn (Option 1)

- Cyclists use ped phase to reach new 'hook turn' box to wait for green phase
- Requires cyclists to cross on ped phase
- Requires cyclists to wait on exposed position within intersection
- Potential conflict with left-turning vehicles into Maioro St



Cycle hook turn (Option 2)

- Cyclists use new cyclist phase to reach shifted 'hook turn' box to wait for green phase
- Requires cyclists to make odd movement to reach box and face in correct direction
- Still potential conflict with left-turning vehicles into Maioro St



Diagonal crossing

- Large intersection with opposed right turns
- 6-7m gap between swept paths
- Potential for cyclists to cross diagonally during opposed right turns, without change to standard phasing
- Would remove need to have 2-stage movement

Richardson Road

BUS STOP

SH20 MT ROSKILL EXTENSION

SH20

MAIORO STREET

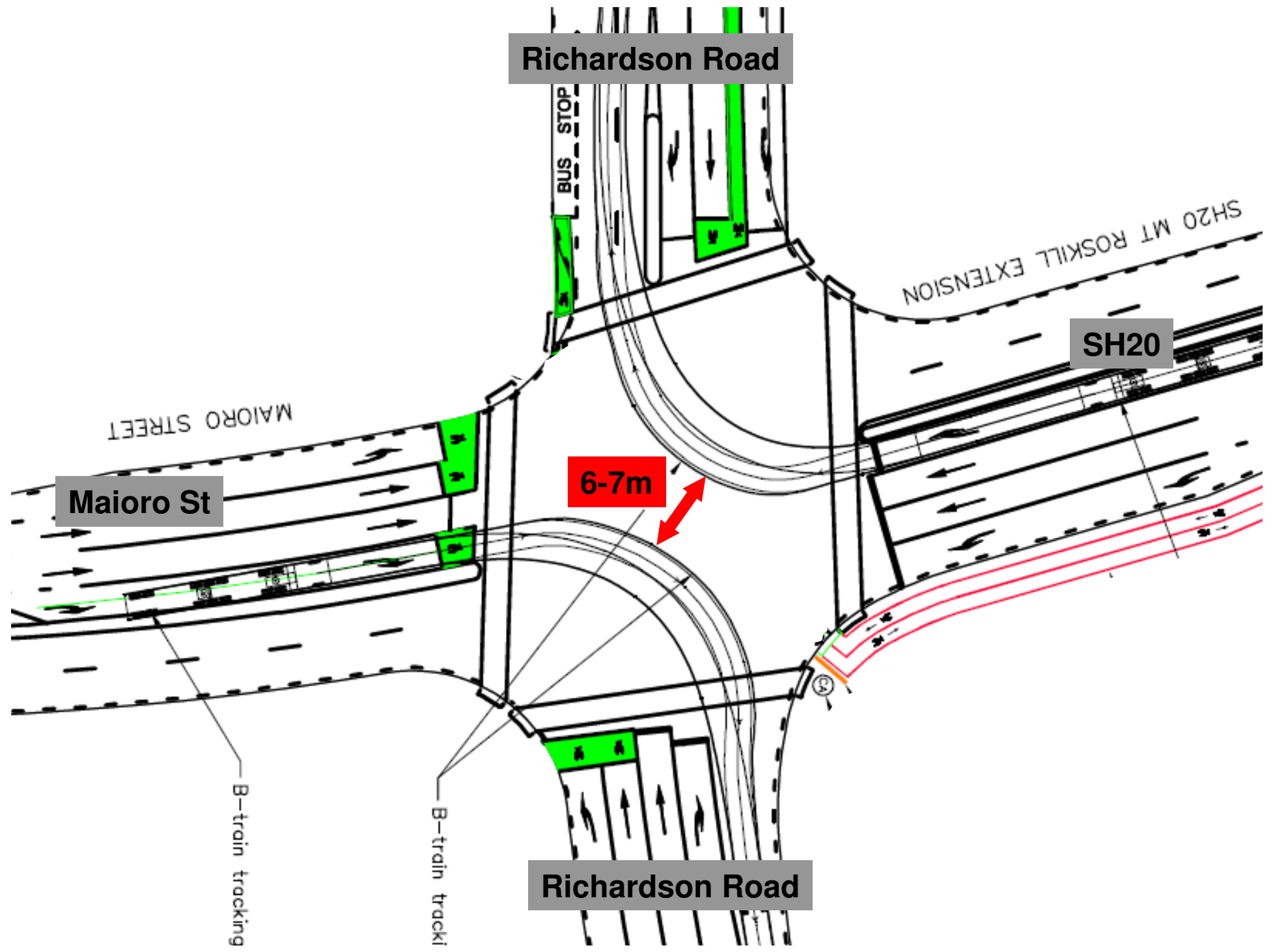
Maioro St

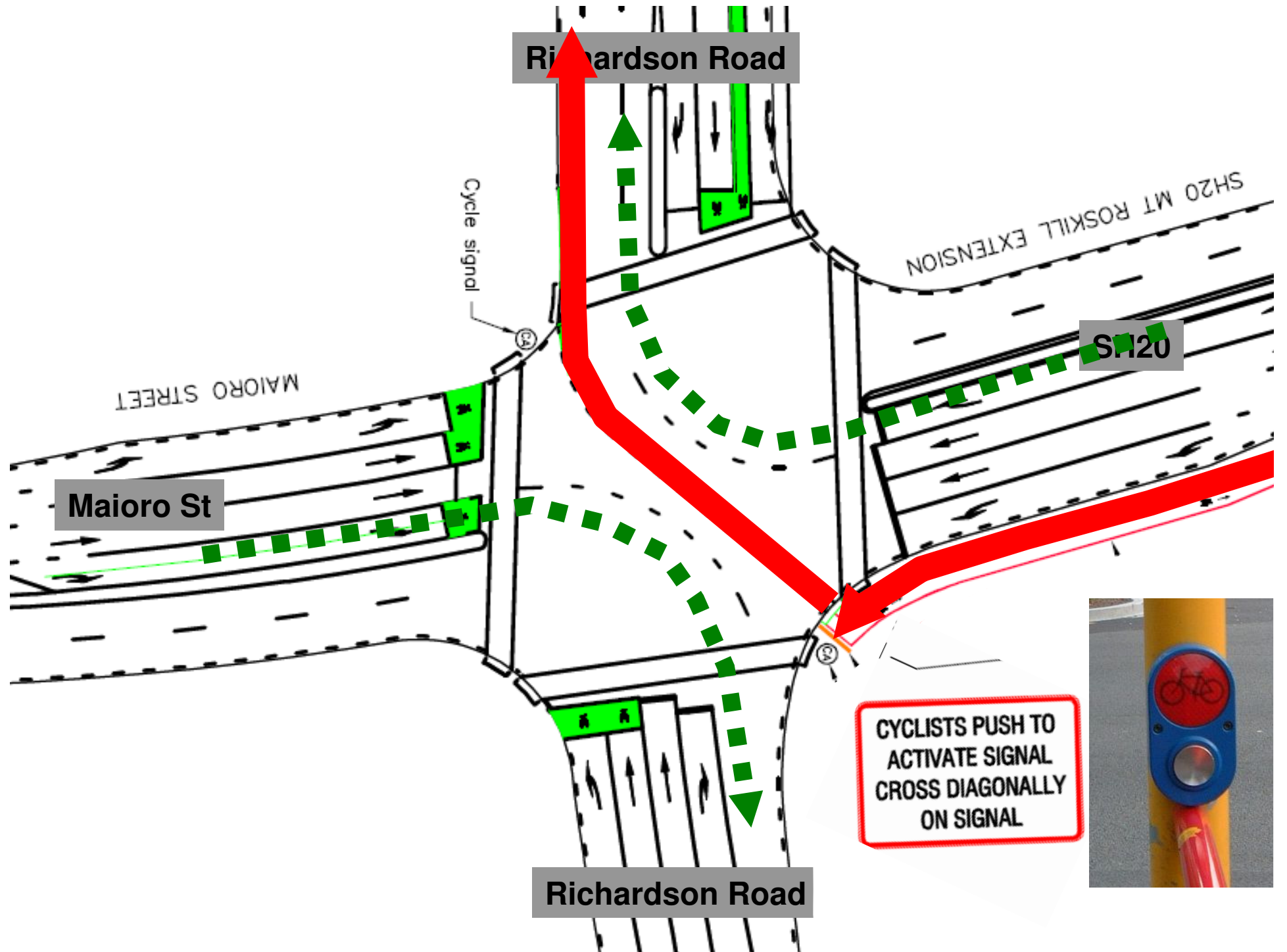
6-7m

B-train tracking

B-train tracki

Richardson Road





Features for safety

- Continuity lines for right-turning traffic to direct them away from cyclists
- Diagonal cycle lane marked with continuity lines, cycle symbol and green surfacing
- Information sign advising cyclists how to use facility (and an alternative option)
- 'Early start' and audible signal, to get cyclists onto crossing quickly

Issues

- Described in CROW manual (2007) but not implemented anywhere
- Very unusual situation but similar movement to cyclists making right turn
- Right turn phase needs to be long enough for cyclists to cross
- Central area likely to accumulate debris
- Would limit future double right turn

Potential benefits

- 30% reduction in average cyclist waiting time compared to using ped phases and being able to cross in one movement
- Ability to cycle across, not walk across with peds, therefore more likely to be used than various ped phase options
- No changes to intersection layout required
- No disadvantage to motorists

Next steps

- Discussion with LTNZ, Transit NZ and other stakeholders over potential for diagonal cycle crossing
- Further design and safety auditing needed
- Looking for feedback on concept and any issues

Questions or comments?

