

Making a congested offset signalised T intersection work

Presented to: SNUG Workshop 2006
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Client: Christchurch City Council
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Clyde Road

12,000 veh/day

Riccarton Road

27,000 veh/day

5,000 veh/day

Wharenui Road

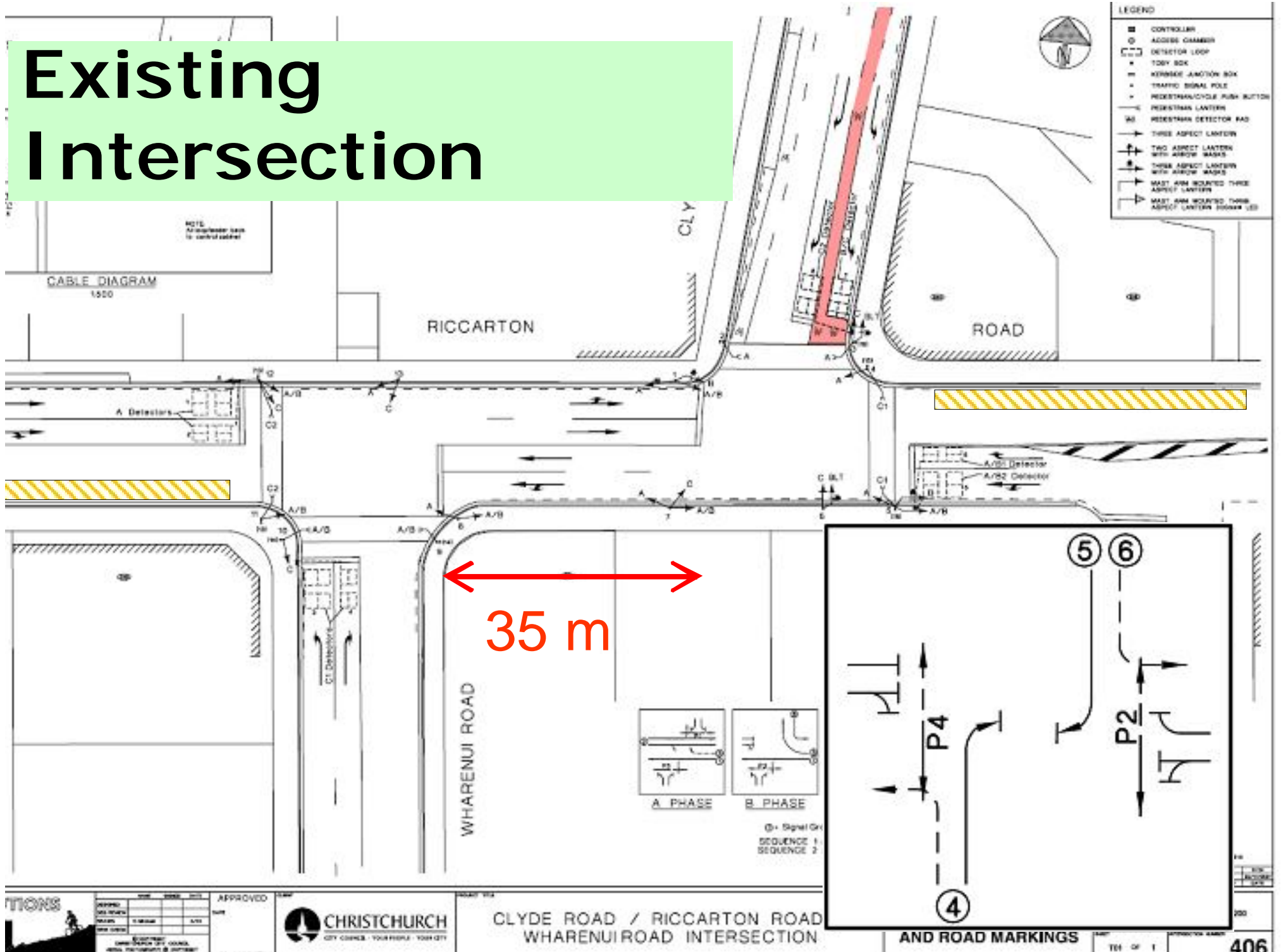
Problem Definition



- 🚶 Congested offset T intersection
- 🚶 Queue space between intersections fills up
- 🚶 Significant queues on side streets
- 🚶 Double lane approaches and substandard departure lane
- 🚶 Poor provisions for cyclists along Riccarton Road





Existing Intersection



Mid Block Capacity Exceeded

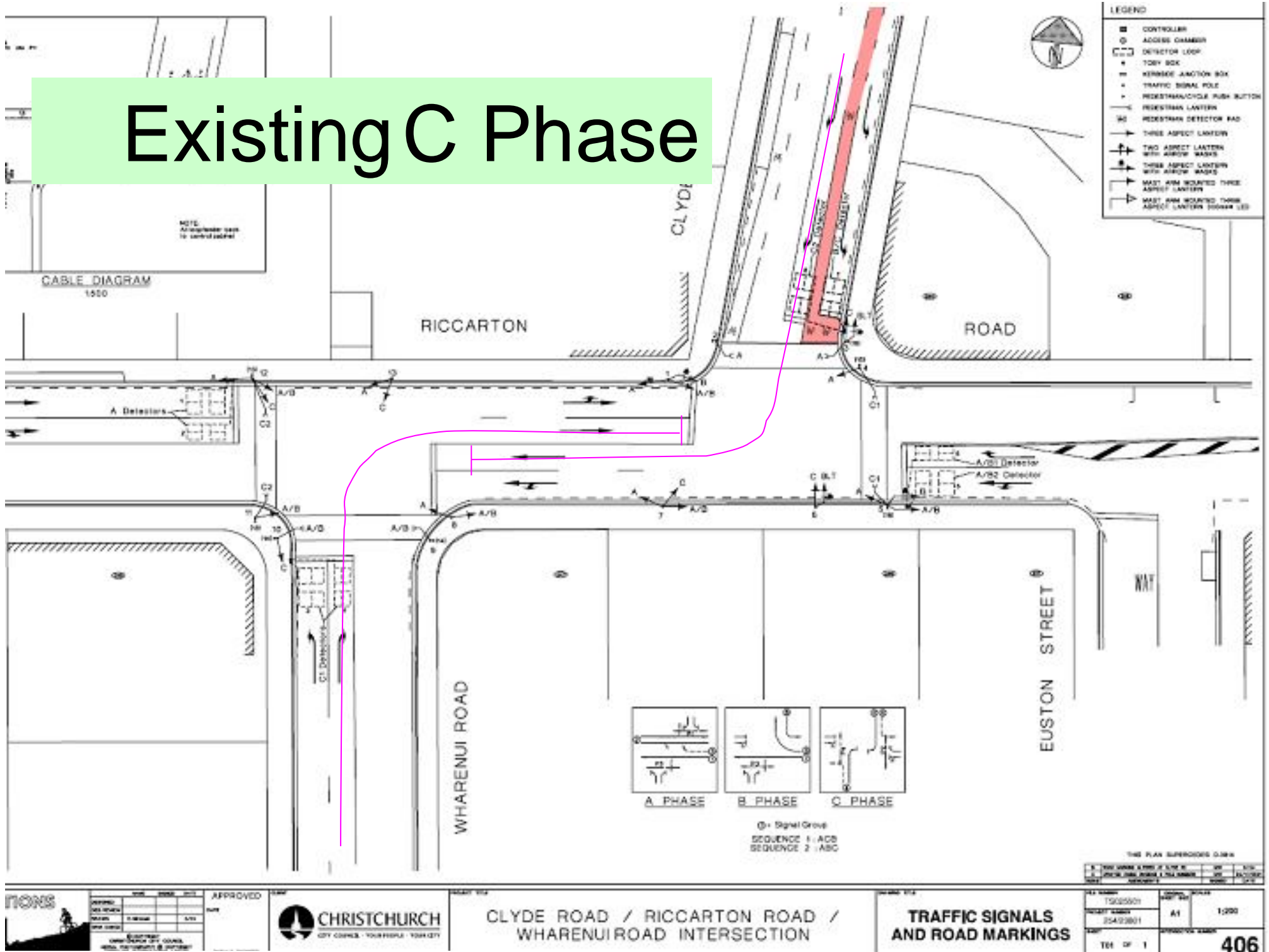


 Not all side street traffic can enter mid block

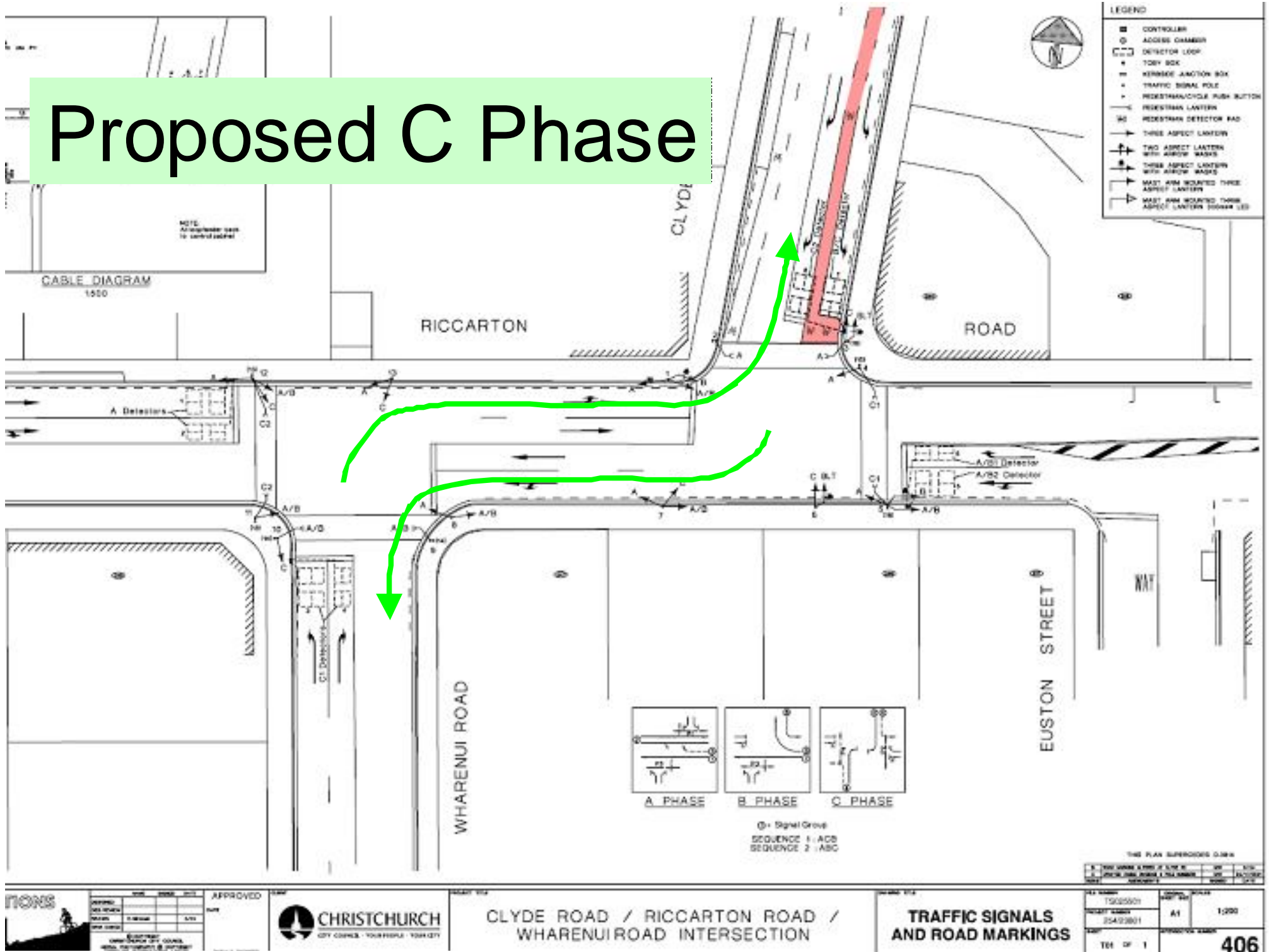
 Queues then blocking through movement



Existing C Phase






Proposed C Phase

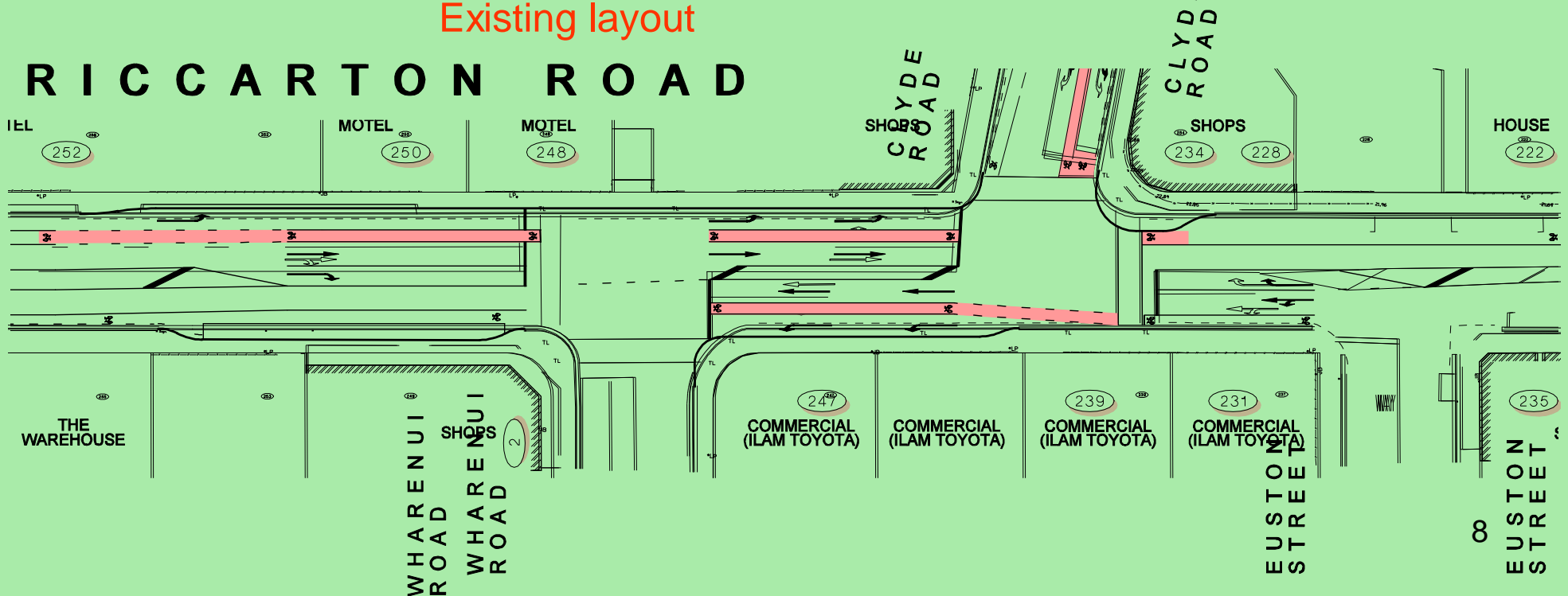


Proposed Layout



-  Add exclusive left turn lanes
 -  i.e. reduce through lanes from 2 to 1
-  Separate through cyclists and left turners

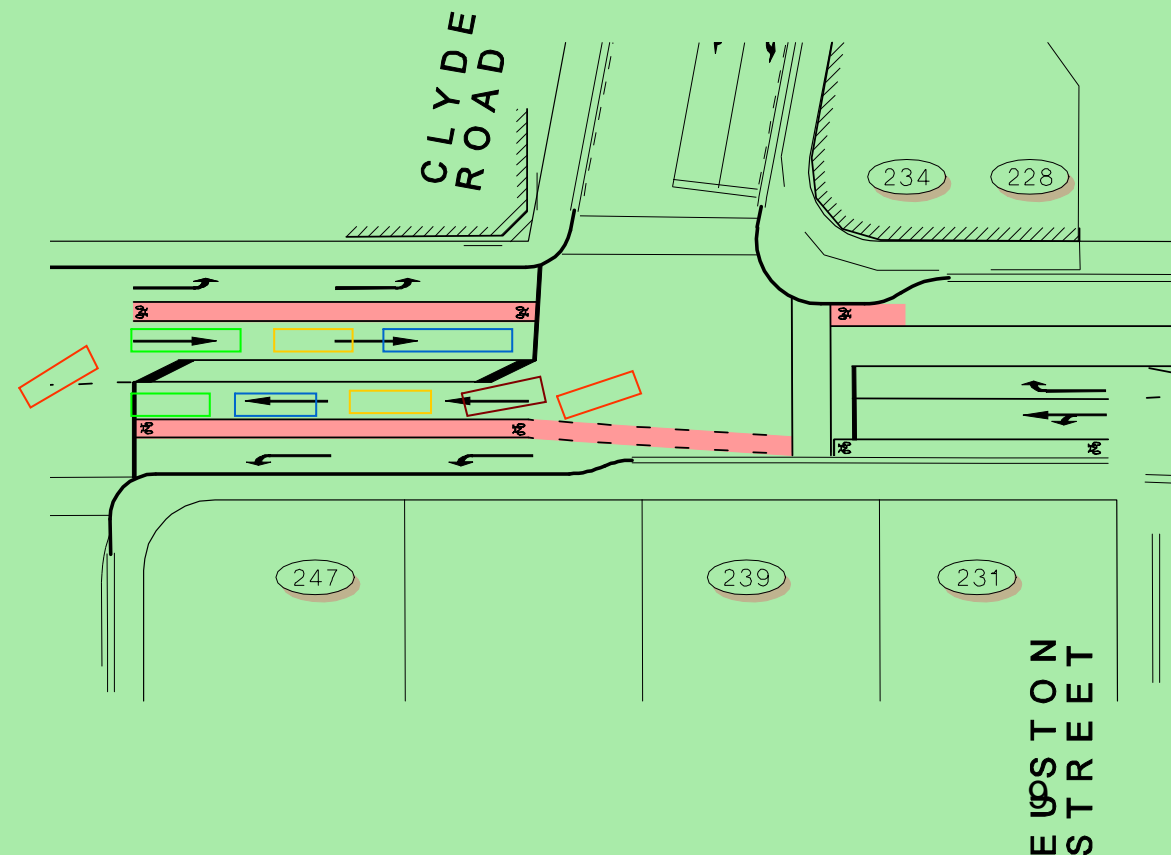
Existing layout



SIDRA Modelling Problems







- ❑ Can model one T intersection at a time only
- ❑ Cannot assess queuing on departure side
- ❑ Through traffic stops at red light
- ❑ Side street traffic fills up mid block through lane
- ❑ Eventually left turners are blocked by through traffic
- ❑ Or through traffic blocked






Use Microsimulation



 Microsimulation (e.g. Paramics) allows to:

-  Simulate more than one intersection
-  Model the interaction of adjacent intersections
-  View visual output

 SCATS and Paramics

-  FUSE interface connects Paramics and WinTraff
-  Hence, SCATS controls the intersection operation
-  Simulated operation should match actual operation

Paramics Movie








Comparing Existing and Option



*This video clip won't
work in the PDF version
of this presentation*

Microsimulation Outcomes



-  Confirmation that mid block capacity is not exceeded
-  Overall intersection efficiency improvement
 -  am peak 27% travel time improvement
 -  pm peak 35% travel time improvement
-  Improvement for Riccarton Road travel times

Recommendations



- 🚶 Use modelling software appropriate for the task
 - 🚶 Don't use what you've got when it's not appropriate
 - 🚶 Engage others when required
- 🚶 Be aware of the limitations of different software packages
 - 🚶 Avoid a 'black box' approach

Thank you



 Any questions?

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