

# The Value of Technical Peer Reviews



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# Overview

- Background & Introduction
- Methodology
- 5 Peer Review Examples
  - Original design
  - Peer review changes
- Discussion
- Conclusions

# Introduction

- Auckland City Council has dozens of cycle projects planned or underway
- Few experienced cycle facility designers & they have only limited resources
- Council saw value in using peer review process to increase knowledge sharing
- Opportunity to add value & identify innovative design solutions

# Introduction cont'd

- Council promotes peer review process to design consultants as a way to up-skill staff & help them gain experience
- Not an indictment on their work
- Peer review assists inexperienced designers in future projects & raises quality of cycle projects
- Expected outcome is best practice facilities for Auckland city cyclists

# Introduction cont'd

- Council engaged ViaStrada Ltd to peer review several cycling projects
  - from a range of designers
- ViaStrada identified innovative solutions to difficult problems & improved overall quality
- Collective peer review is more cost-effective than individual peer reviews
- Independent peer review reassures politicians & ratepayers that best project developed
  - important when limited support for cycling projects

# Methodology

- Council gathered several draft cycle scheme plans prior to consultation phase
- ViaStrada was sent plans and undertook a desk-top review
- Reviewer and Council then visited each site
  - All sites were walked and driven through
  - Some sites were also cycled through
  - Road safety engineer and designer present at one site also

# Methodology cont'd

- Peer reviewer produced written report with recommendations for each project
- Scope not limited original design, but also any other changes that would improve overall cycling environment
- Council used report to work with each designer to amend their plans

# Peer review examples

- Upgrade of Signalised T Intersection
- Arterial Road Corridor Improvements
- Upgrade of Signalised X Intersection
- Busy and complicated arterial road
- Cycle Lanes along Arterial Road

# Project 1 – original design

## Upgrade of Signalised T Intersection

- Unpleasant intersection on key cycle route
- Existing design substandard (for all users), poor maintenance, very high no. of heavy vehicles, slip lanes inadequate
- Poor pedestrian provision & no visibility for cyclists
- Original design had slight upgrade with additional cycle lanes in some places
- Designer had difficulty finding sufficient space & managing on- & off-road transition



# Project 1 – peer review changes

- Peer review identified potential new cycle facilities & deficiencies in current signal arrangement
- Recommended several additions to design to greatly increase safety for peds & cyclists
- Example of engineer without cycling design experience & difficult design environment
- Peer review was able to offer an alternative viewpoint
- Project has been changed along the lines of peer review recommendations
- Project due for implementation soon

# Project 1 – peer review changes

INSTALL NEW  
RG.37.1 SIGN



LANE

END

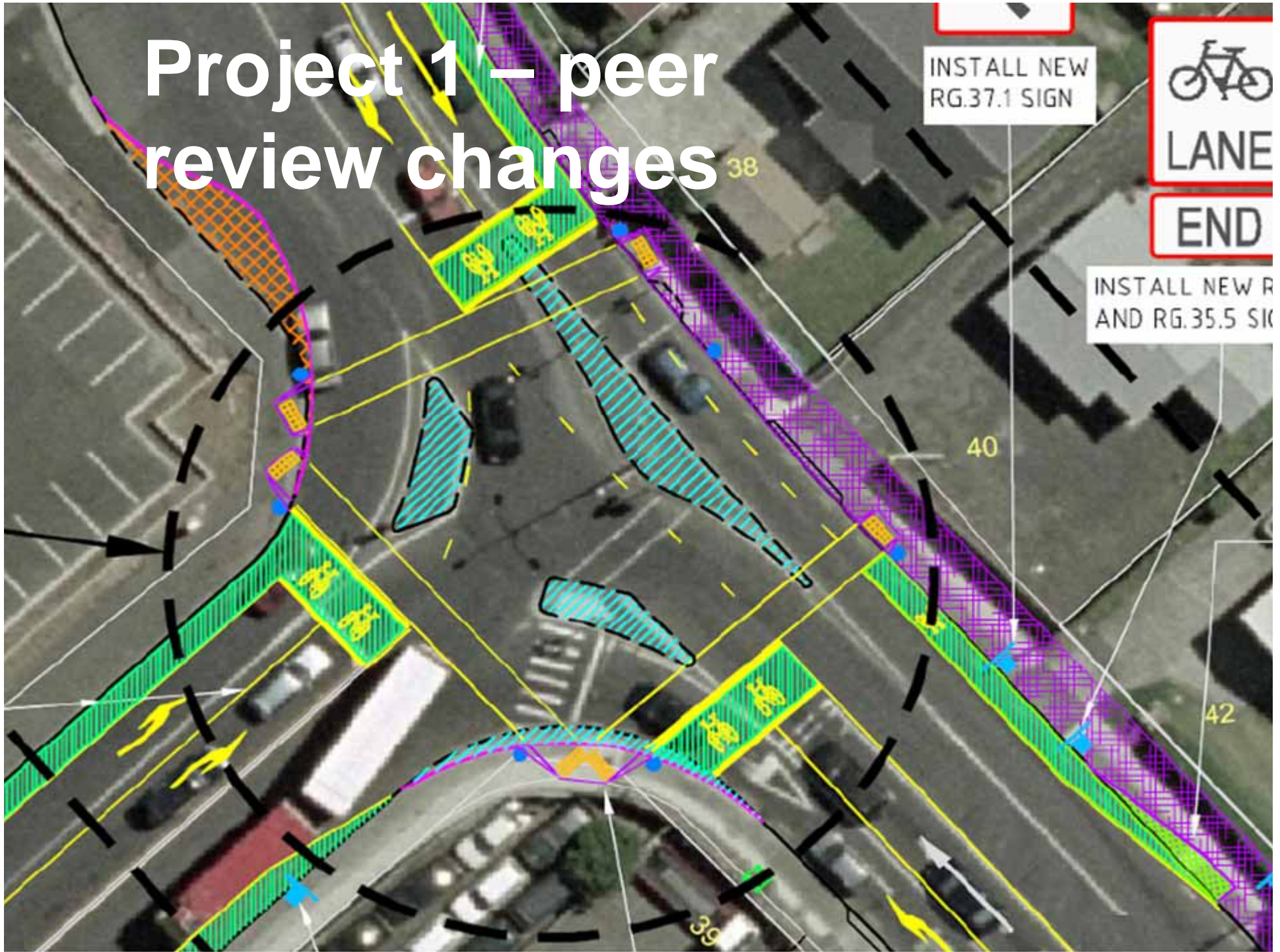
INSTALL NEW R  
AND RG.35.5 SI

38

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39



# Project 2 – original design

## Arterial Road Corridor Improvements

- Arterial road with mainly residential frontages
- Forms core part of cycle network
- On-road cycle lanes on both sides
- Links to key cycleway downstream

# Project 2 – original design



# Project 2 – peer review changes

- Peer review suggested different arrangement at major T intersection
- Suggested numerous changes to position of cycle lanes to improve safety
- Allowed retention of parking upstream
- Example of inexperienced designer not seeing alternative opportunities

# Project 2 – peer review changes



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# Project 3 – original design

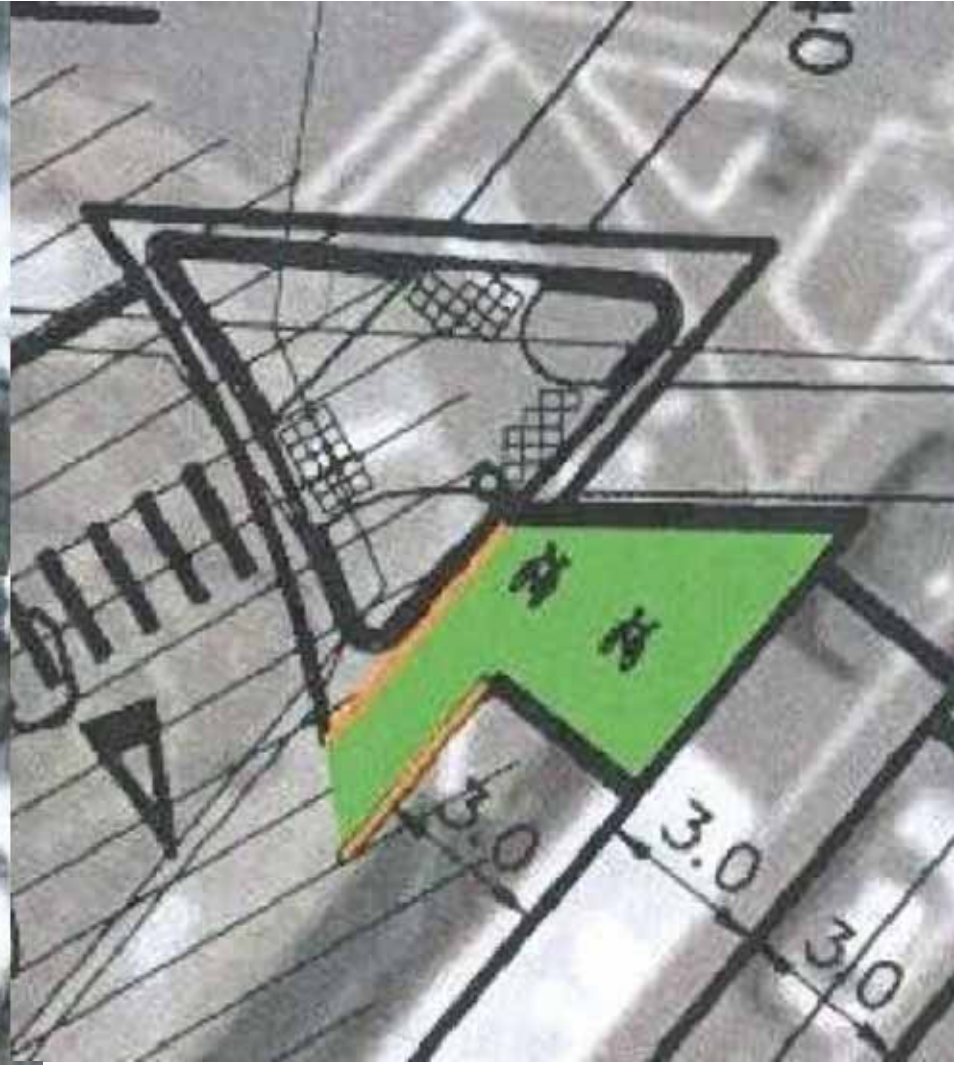
## Upgrade of Signalised X Intersection

- Busy arterial intersection being upgraded for safety & capacity
- Adjoining cycle lane on one arm
- Original scheme plan did little to improve environment for cyclists, with below-standard width lead-in cycle lanes

# Project 3 – peer review changes

- Peer review queried need for capacity increase, suggested alternative arrangement
- Road widening occurring regardless, so reallocation of lane width suggested to achieve guideline-complying cycle lanes
- Example of inexperienced cycle designer & numerous competing interests in complicated env.
- Peer review assisted in supporting need for minimum standards of cycle facilities
- Project currently at detailed design stage

# Project 3 – design changes



Before

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After

# Project 4 – original design

## Busy and complicated arterial road

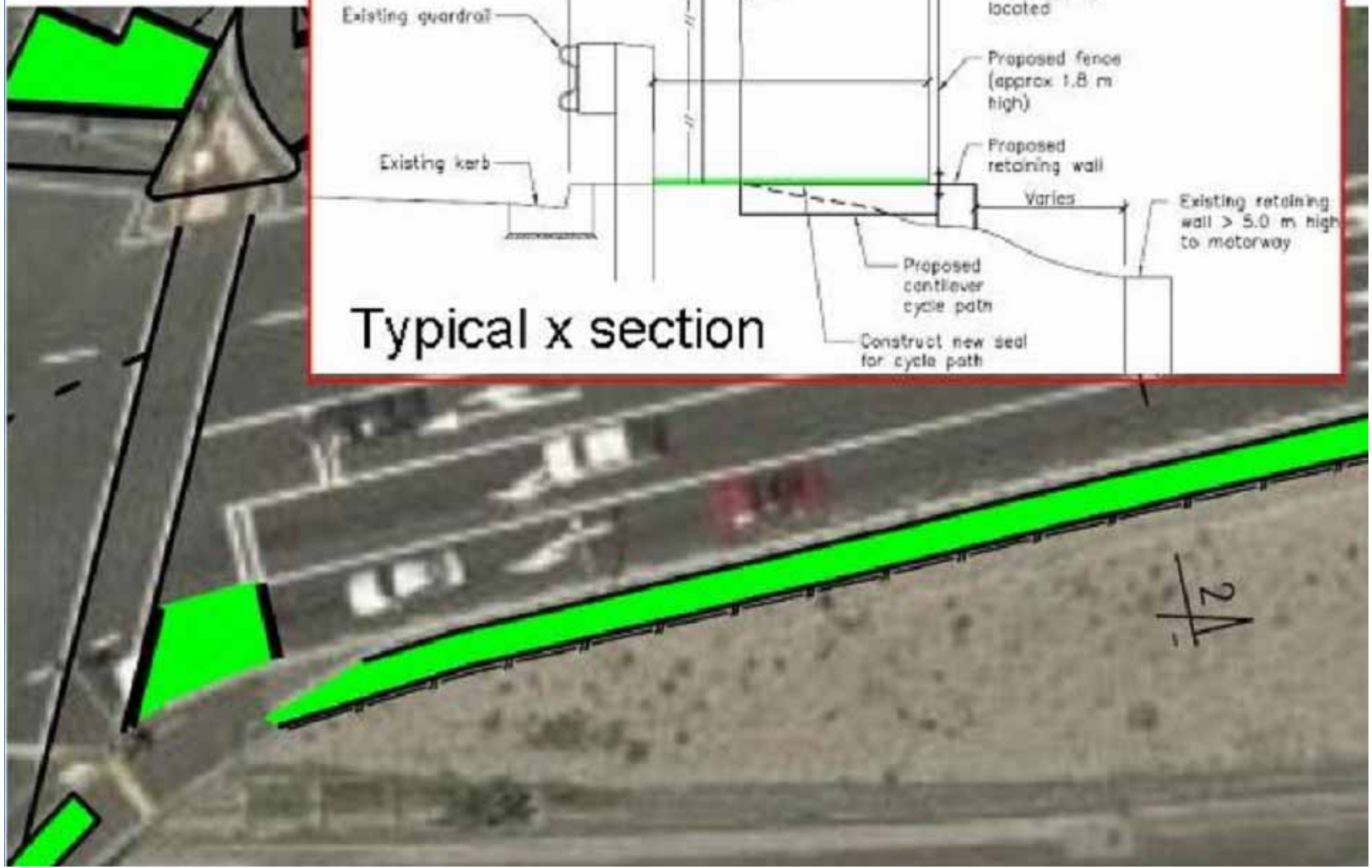
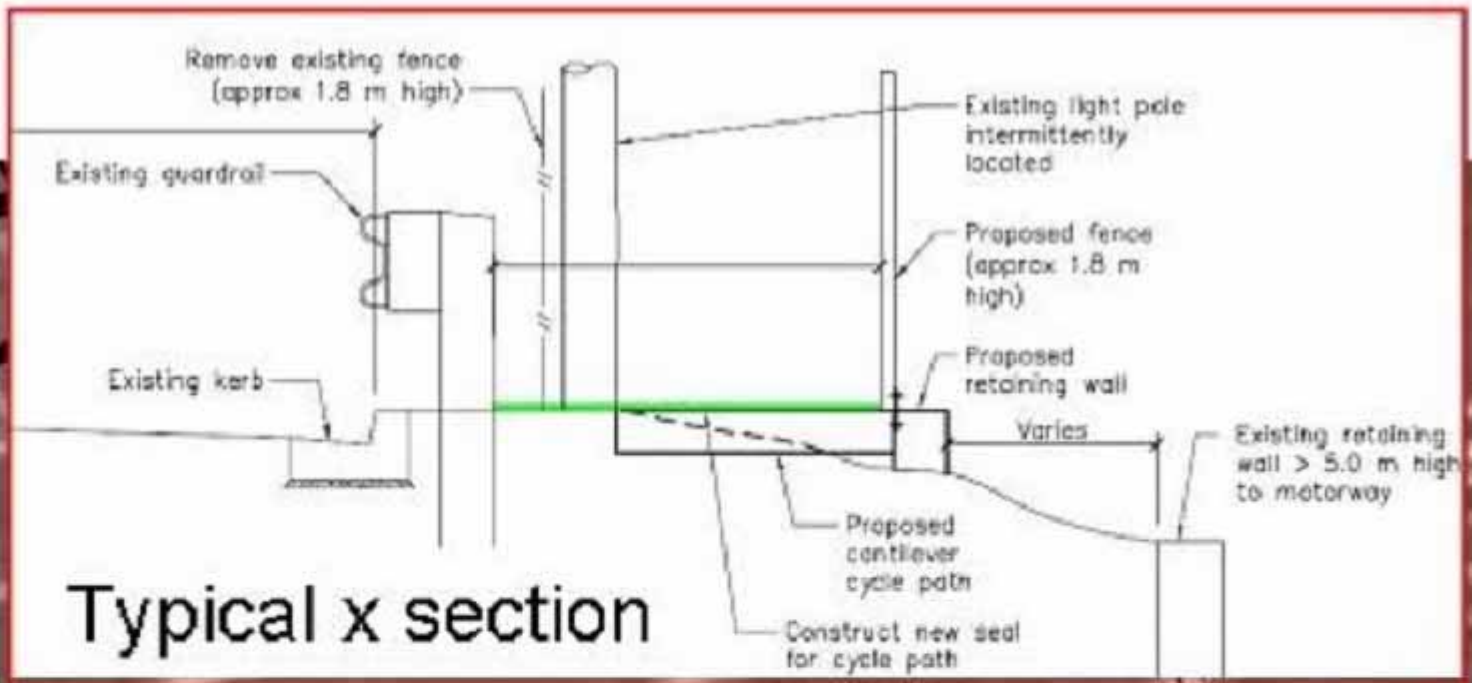
- Key CBD route
- Start of important cycleway route
- Historical ‘motorway-style’ layout is difficult for pedestrians or cyclists
- Original design limited to advanced stop box

# Project 4 – original design



# Project 4 – peer review changes

- Peer review suggested innovative cyclepath on steep uphill section using unused road berm
- Other suggestions improved cycle lane design around high speed flyover & improvements to off-and on-road transitions
- Example a project repeatedly revised already & benefited from peer reviewer's independent assessment of issues
- Project is currently out for consultation



# Project 5 – no changes

## Cycle Lanes along Arterial Road

- Controversial but key cycle lane project (due to parking removal), on busy arterial road
- Peer review suggested minor changes to cyclelane design to meet current marking stds
- Although no major changes recommended, this in itself was useful, as it gave Council confidence in the design
- Project due for implementation later this month

# Discussion

- Peer review process found many deficiencies with original designs
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- Reasons for deficiencies tend to be
  - lack of cycling design experience
  - complex projects beyond designer expertise

# Discussion cont'd

- Similar situation to signalised intersection design
- LTNZ report recommended:
  - *Engineers should make use of all the available relevant guidelines and standards, and*
  - *The most important advice, however, is to engage a competent signal engineer for the peer review of new designs. Note that this is not covered by the road safety audit process...*
- Could replace “signal” with “cycle design”

# Discussion cont'd

- However, road safety audit can't replace peer review if fundamental design principles not applied correctly initially
- Safety audit will not redesign plan, only identify where proposals might fall short in terms of safety
- Cycle design is specialised discipline (like signal design) so safety auditors may not have expertise
- Safety audit not concerned with LOS issues

# Discussion cont'd

- Appropriate guidelines for cycling design are in place
  - Austroads (1999)
  - Transit (2004)
- Documents often not applied fully
- Sharing of experience & getting different types of engineers talking to each other is major part of peer review process

# Discussion cont'd

- May be useful to do similar process with advocate groups if they get involved in design, to 'skill them up' with broader experience
- Could also apply to urban design consultants
- Doesn't replace need for proper safety audit

# Conclusions

- Peer review process across a range of cycling projects achieved positive outcomes for Auckland City Council
- Design consultants also gained from process
- Collective approach made better use of resources
- Auckland City Council would recommend peer review as useful for any council where limited cycling design experience is available

# Questions or comments?

Or contact the authors later

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