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 available & they have only limited resources
- Council saw value in using a 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 and raises the 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 design problems & improved the overall design quality
- Collective peer review is more cost-effective than individual peer reviews
- Independent peer reviewer reassures politicians & ratepayers that the best project is being developed
  - important when limited support for cycling projects

Methodology

- Council gathered several draft cycle scheme plans prior to consultation phase
- ViaStrada was sent the 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, documenting findings & recommendations for each project
- Scope not limited comments on 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

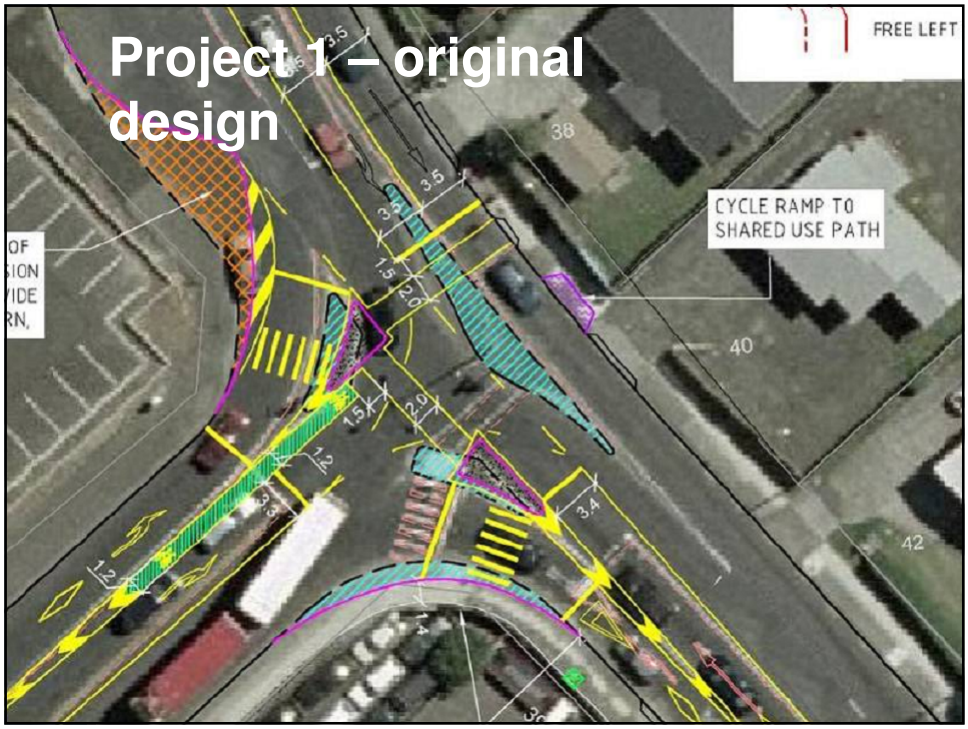
Peer review examples

- 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

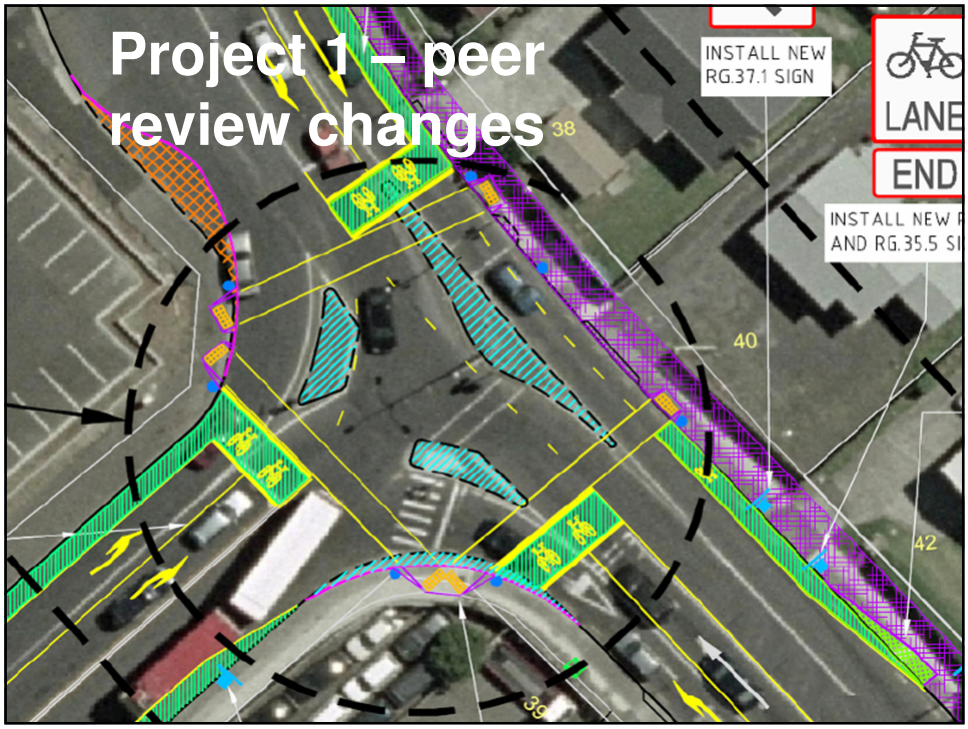
Upgrade of Signalised T Intersection

- On key cycle route but extremely difficult to negotiate
- Existing design substandard (for all users), deferred maintenance evident, very high proportion of heavy vehicles & no visibility for cyclists
- Slip lanes inadequate & pedestrian provision is poor
- Original design was slight upgrade with additional cycle lanes in some places
- Designer had difficulty finding sufficient space & managing transition between on- & off-road cycle facilities



Project 1 – peer review changes

- Peer review identified numerous omissions of potential cycle facilities & deficiencies in current signal arrangement
- Recommended several additions to the design to greatly increase safety for peds & cyclists
- Example of engineer without cycling design experience designing in a difficult 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

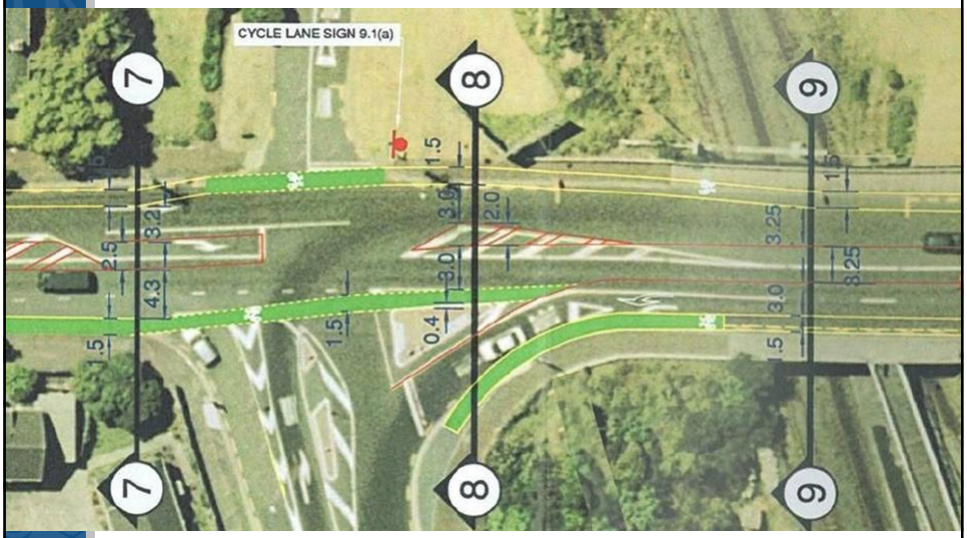


Project 2 – original design

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

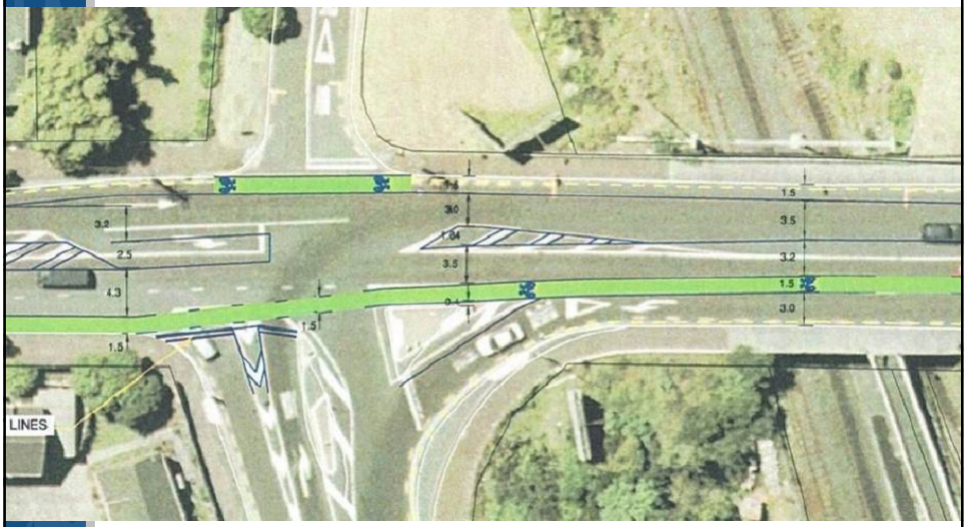
Project 2 – original design



Project 2 – peer review changes

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

Project 2 – peer review changes



Project 3 – original design

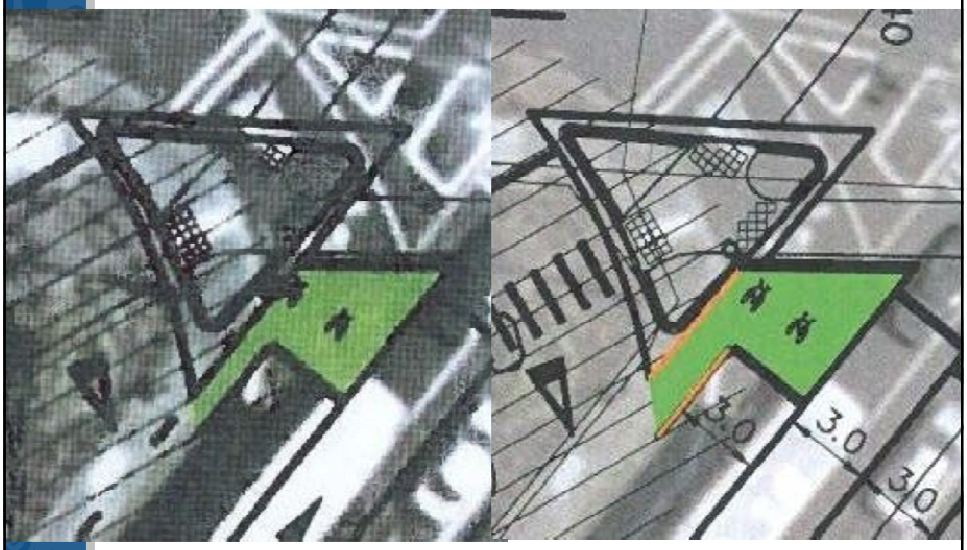
Upgrade of Signalised X Intersection

- Busy arterial intersection being upgraded for safety & capacity
- Adjoining cycle lane on one arm but no other cycle provision
- Original scheme plan did little to improve the environment for cyclists, with below-standard width cycle lanes

Project 3 – peer review changes

- Peer review suggested reconsideration of capacity increase & suggested alternative arrangement
- As road widening was occurring regardless, a reallocation of lane width was suggested to achieve guideline-complying cycle lanes
- Example of inexperienced cycle designer competing with numerous other interests in a complicated intersection project
- Peer review assisted in supporting need for minimum standards of cycle facilities
- Project is currently at detailed design stage

Project 3 – design changes



Before

After

Project 4 – original design

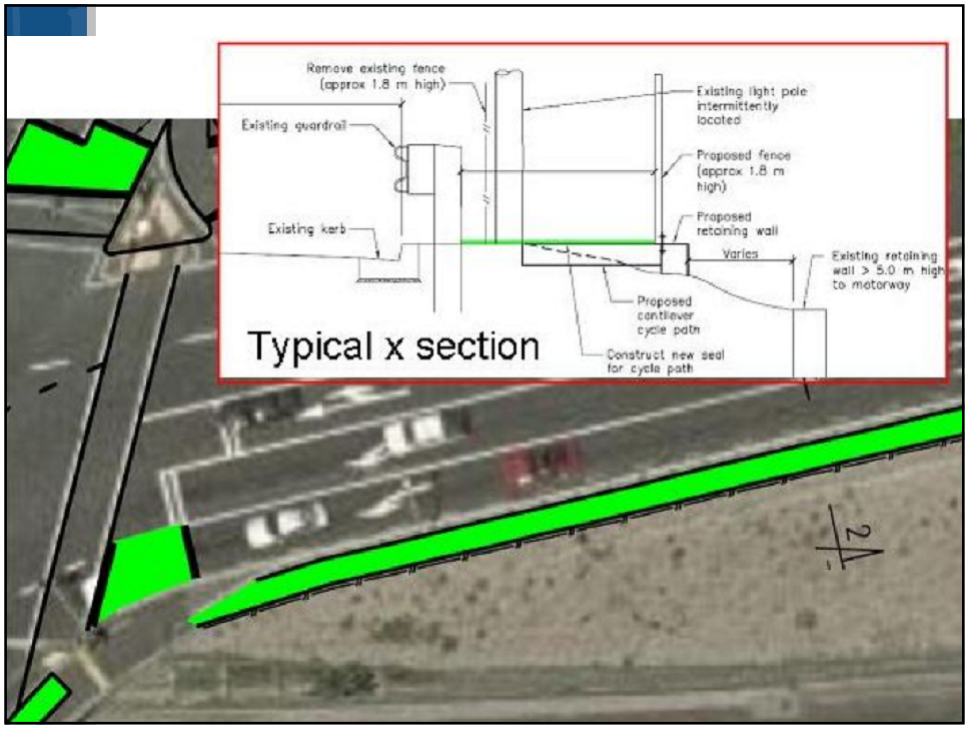
Busy and complicated arterial road

- Key CBD route, start of important cycleway
- Historical ‘motorway-style’ layout makes it difficult to provide for pedestrians or cyclists
- Original design limited to advanced stop box

Project 4 – original design

Project 4 – peer review changes

- Peer review suggested innovative solution to develop cycle path on a steep uphill section by utilising unused road berm
- Other suggestions improved cycle lane design around high speed flyover & improvements to transitions between off-and on-road parts of the cycle network
- Example of a project that has been through several design revisions already & benefited from peer reviewer's independent assessment of the issues
- Project is currently out for consultation



Project 5 – no changes

Cycle Lanes along Arterial Road

- Controversial cycle lane project (due to parking removal), on busy arterial road & core part of regional cycle network
- Peer review suggested minor changes to cycle lane design to better meet current marking standards
- Although no major changes were recommended, this in itself was useful, as it gave Council confidence in the design
- Project is due for implementation later this month

Discussion

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

Discussion **cont'd**

- Similar situation to design of signalised intersections, where much in-house experience has been lost
- LTNZ report on this 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 the word "signal" with "cycle design"

Discussion cont'd

- However, a road safety audit cannot replace a peer review if the fundamental design principles are not applied correctly initially
- Safety audit will not redesign a plan, but merely point out where proposals might fall short in terms of safety
- Cycle design is a specialised discipline (like signal design) so safety auditors may not have expertise
- Also, safety audit is not concerned with LOS issues

Discussion cont'd

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

Discussion cont'd

- May be useful to have a similar process with advocate groups if they become 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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