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 – original design
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
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
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Project 4 – peer review changes
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 cycle lane 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

• 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)
• 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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