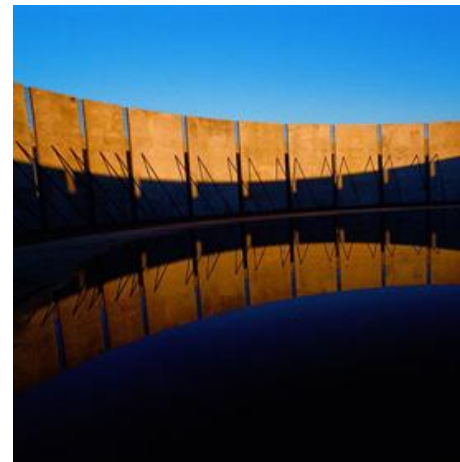
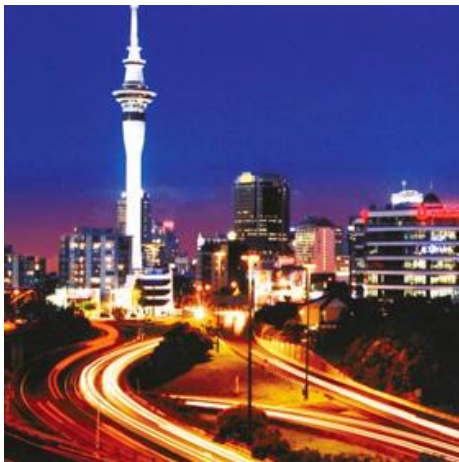


Pedestrian Delay Research

Shane Turner, Chris Vallyon, Steve Hodgson, Shane Binder



Introduction and Context

- A study on delays for pedestrians at signalised crossings
- Focus on CBDs
- Focus on pedestrian peak times (12-2pm)
- LTNZ / NZTA funded

- ~2,400,000,000 crossings per year in NZ
- Everyone is a pedestrian at some point.

Traditional Approach to transportation



CBD Environments



CBD Environments



Research components

- Literature review
- 14 intersections surveyed – traffic counts, traffic queues, SCATS info, pedestrian counts, pedestrian delays, O-D surveys
- 811 pedestrian interviews
- 1,465 wait time pedestrian observations
- Microsimulation modelling: aSIDRA, S-Paramics
Aimsun

Findings – Literature

- Direct link between delay and frustration
- Direct link between delay and ignoring signals
- Therefore: direct link between delay and road safety

Complexities of research

- Identifying pedestrian delay
- Identifying 'average' walk speeds
- Modelling pedestrian behaviour / model limitations

Lake Road (North Shore City)

Albert/Customs Street (Auckland)

Manchester Street (Christchurch)

Colombo/ Heresford (Christchurch)

Findings – Observations

- Recommended wait time: 25-30 seconds (literature)
- Average Delay – Auckland – 53 seconds
- Average Delay – Wellington – 45 seconds
- Average Delay – Christchurch – 25 seconds
- Combined Average – 41 seconds
(1,465 observations)

Ped attitudes - perceived wait times

City	Reasonable	Perceived	Difference	Difference %
Auckland	96	123	27	28%
Wellington	67	76	9	13%
Christchurch	44	50	6	14%
Combined	69	83	14	20%

- 75% of Auckland respondents felt more priority should be given to pedestrians.

Findings – Per person optimisation

- Intersections optimised to include pedestrians as well as cars
- Significant improvement to pedestrian delay
- Optimisation also reduced car delay at some locations

City	Location	Delay reduction from optimisation	Optimisation + other measures
North Shore City	Lake Road / The Strand	26%	40%
Auckland City	Albert / Custom Street	31%	38%
Wellington City	<u>Jerojis</u> Street / Queens Warf	45%	32%
Wellington City	<u>Taranaki</u> / Courtney Place	30%	N/A

Pedestrian priority

- Most pedestrian trips are short duration (less than 10 minutes)
- Each minute of delay can therefore add +10% time
- Therefore, very variable trip lengths

- Perhaps pedestrian priority more useful than pedestrian green waves?

Lessons learned

- Every intersection is different
- If creating a pedestrian green-wave – better to underestimate speed than overestimate
- Trade off of safety vs delay
- Increasing cycle times can sometimes decrease average delay for both cars and peds
- Decreasing phase times can reduce ‘green wastage’ and decrease delays

Lessons learned

- Every intersection is different
- Regular optimisation of signals
- Optimisation to include pedestrians, particularly in high pedestrian density areas and times
- Consideration of separate SCATS phases during pedestrian peaks – e.g. 12-2pm

Questions?

