

One-way or the other?

Jeanette Ward
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Co-authors
Prof Alan Nicholson
Dr Glen Koorey

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Masters Project - Motivation

“A decision making framework for assessing the merits of One-way and Two-way streets”



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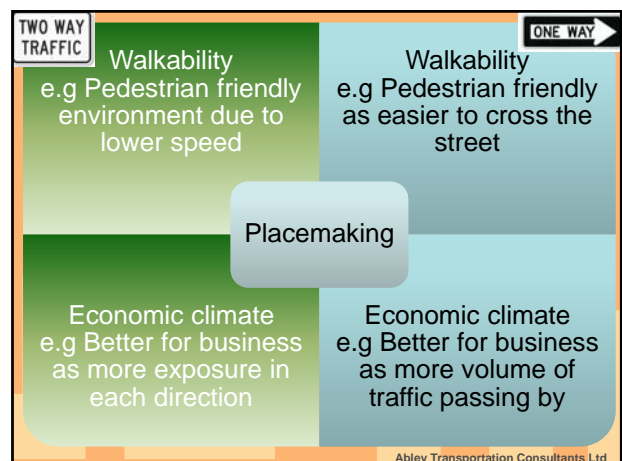
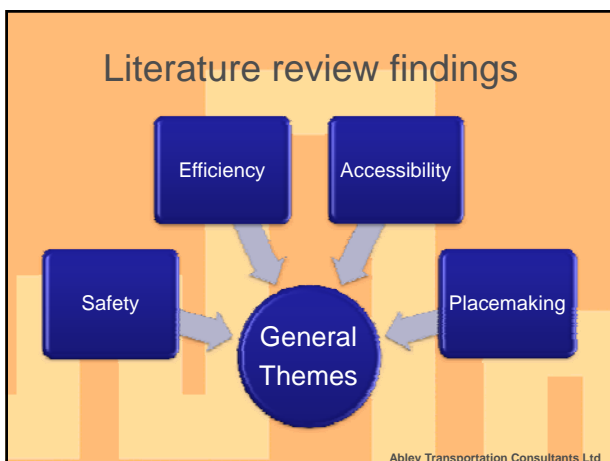
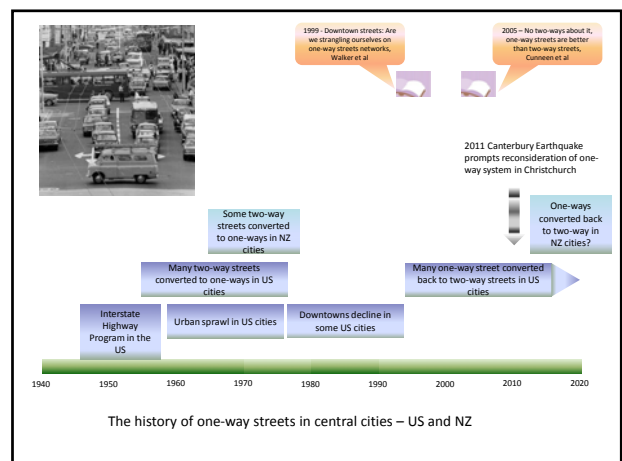
Research components

- Literature review
- Industry interviews
- Develop preliminary framework
- Test it on a Case Study - Dunedin
- Finalise the framework

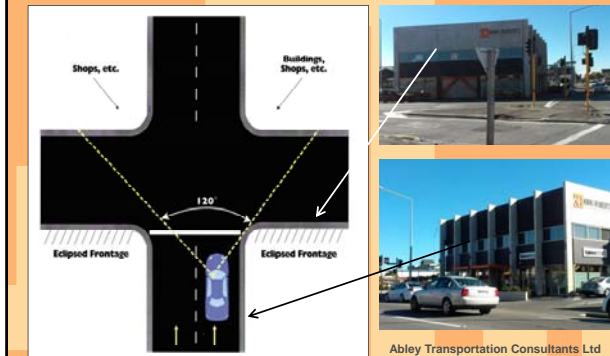





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Placemaking - exposure



Industry interviews

- 5 transport planners/engineers
- 5 planner/urban designers/architects

"High volume one-way streets have a 'bad reputation' as they are generally of poor design" (Urban designer)

"One-way streets better support the efficient operation of at-grade public transport exchanges due to the less complicated access and exit arrangements" (Transport planner)

"Two-way streets create a noisier environment with lower air quality due to the stop/start nature of the traffic" (Transport planner)

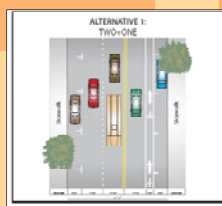
"One-way streets are noisier due to the speed and volume of the passing platoons." (Urban Designer)

"Lower speeds create a sense of heightened activity" (Landscape Architect)

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Literature - Framework

- Mostly from the US
- Some like this →



ALTERNATIVE ANALYSIS MATRIX			
	Alternative 1 2x1	Alternative 2 Two Way 2 Lane	Alternative 3 One Way 2 Lane
Traffic Operations	⬇	⬇	⬇
Pedestrian Access	⬆	⬆	⬆
Bicycle Access	⬆	⬆	⬆
Insight	⬆	⬆	⬆
Transit	⬆	⬆	⬆
Parking	⬇	⬇	⬇
Economic Impact	⬆	⬆	⬆
Comparison to No Build	⬆	⬆	⬆
	↑↑↑	↑↑	↑↑
	No build		

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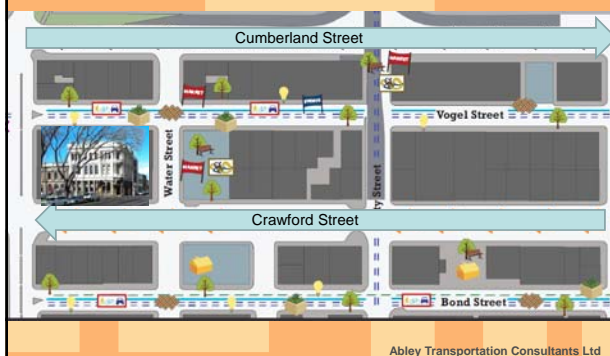
My framework

- Multi-criteria analysis (MCA)
- Four groups (the themes) and 14 criteria
- Each criteria scored and then weighted

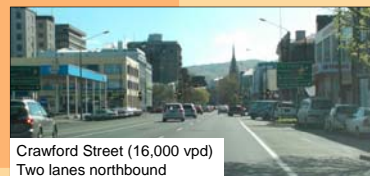
Group	Criteria	Group	Criteria
Safety	Pedestrian safety	Access-ability	Network connectivity
	Cyclist safety		Property access
	Driver safety		Emergency services
	Motor vehicle LOS	Placemaking	Economic growth
Efficiency	Public transport (or future PT)		Supports other projects
	Bicycle route directness		Pedestrian environment
	On-street parking		
	Wider transport network		

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Testing the framework



Testing the framework



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The workshop

- The options

- ☐ Option 1 - One-way as per existing
- ☐ Option 2 – One-way with streetscape improvements
- ☐ Option 3 – Two-way with solid medians
- ☐ Option 4 – Two-way with central angle parking



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The scoring

- DCC and NZTA staff;

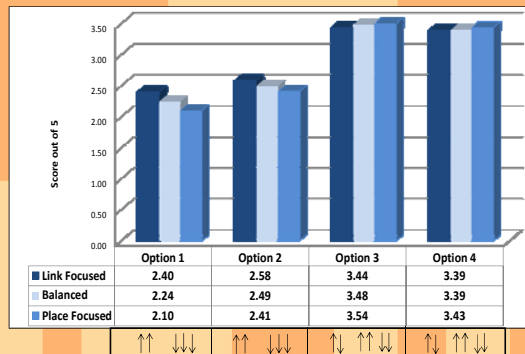
- Transport Planners
- Urban designer
- Heritage planner
- Traffic engineers

Criteria	Scoring basis	Max
Impact on pedestrian safety	1 Negative impact	5
	2 No change	
	3 Low + impact	
	4 Medium + impact	
	5 High + impact	



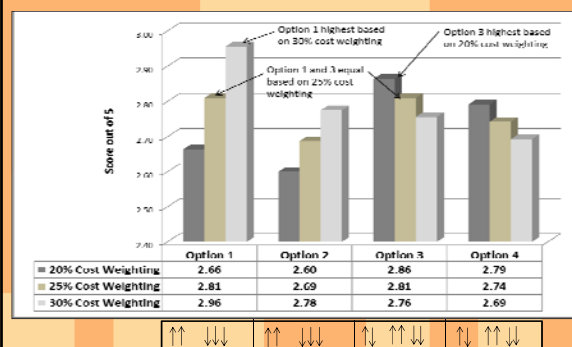
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The results without cost



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The results with Implementation \$



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Conclusions

- So, one-way or the other? – It depends!
- Requires consideration of a number of aspects, these were found to be related to four themes;
 - Safety
 - Efficiency
 - Accessibility
 - Placemaking

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Conclusions

- US conversions were possible as there are expressways close to the central city.
- No clear link between the direction of traffic flow and improving investment.....
- However a number of the advantages of two-way streets are recognised as ingredients that could contribute to creating a 'sense of place'.

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Conclusions

- The assessment framework was tested on a local case study and found to be useful to participants for considering the options in a more focused manner.



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Recommendations

- Test the framework on further conversion projects.
- Develop a method for also considering economic growth of the area.
- Need to understand better the preferences of pedestrians and emergency services..

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