

Presentation to IPENZ Transportation Conference
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Staged Pedestrian Crossings

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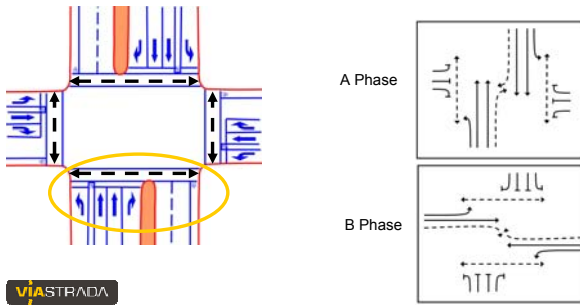
Presentation outline

- Introduction
- Components of staged pedestrian crossings
- Modelling
- Case study
- Discussions
- Conclusions



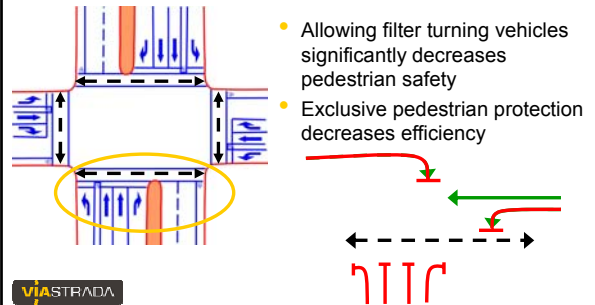
Introduction

- A typical pedestrian crosswalk operation in NZ:



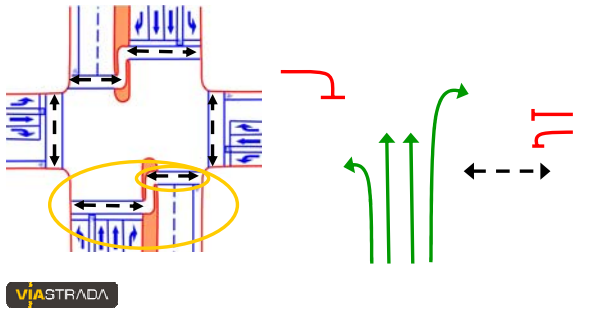
Introduction

- A typical pedestrian crosswalk operation in NZ:



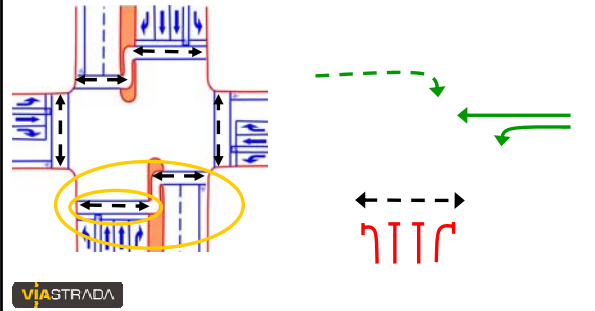
Introduction

- Why not try a staged pedestrian crossing?



Introduction

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Introduction

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Introduction

- Why not try a staged pedestrian crossing?
 - Separates crossing tasks
 - Allows for full (or increased) protection without decreasing motor vehicle efficiency
 - Increases pedestrian walking distances (but may decrease waiting time)

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Components of SPCs

- Refuge island
 - Staggered
 - Stagger ≥ 3 m
 - Lefthand stagger preferred
 - ensures peds walk towards opposing traffic

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Components of SPCs

- Traffic signal phasing
 - Operates as two separate crosswalks
 - Coordination depends on demand at intersection
 - Different phasing possibilities depending on location of pedestrian demand

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Components of SPCs

- Assisting infrastructure
 - Signal aspects
 - Signage
 - Low cover landscaping

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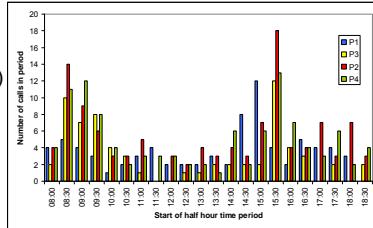
Modelling

- SIDRA not too good at modelling effects of pedestrians based on pedestrian volume data
- Best to model based on late starts to vehicles that occur when crosswalk phase demanded
- This requires demand and delay data

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Modelling

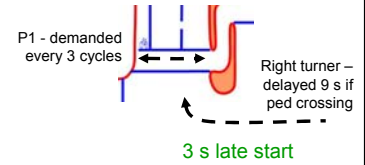
- SCATS data (intersection diagnostic monitor)



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Modelling

- SCATS data (intersection diagnostic monitor)
- Average demand rates
- Late starts when demanded
- Average late starts



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Case study

- Bealey Avenue, Christchurch
 - Manchester Street
 - Colombo Street
 - Durham Street



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Case study

- Applying the modelling method:

	Level of Service		Average delay (s/person)		Spare capacity	
	Base	SPC	Base	SPC	Base	SPC
Manchester	D	C	39.0	34.9	-14%	-10%
Colombo	D	D	49.1	45.7	-19%	-18%
Durham am Durham pm	D	D	51.4	50.4	-10%	-10%
	D	C	35.7	33.4	8%	10%

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Discussions

- Are staged pedestrian crossings unsafe because they require pedestrians to wait in the centre of the road?
 - Phasing should be designed to minimise this occurrence
 - Refuge should be designed to offer actual and perceived safety
 - What about the current situation?

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Discussions

- Is pedestrian split approach operation unsafe?
 - Phasing must be carefully designed
 - Signal hardware and refuge layout must emphasise the two separate crossings

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Discussions

- Is efficiency the “be all and end all”?
 - NZ Transport Strategy 2008 objectives:
 - Environmental sustainability
 - Economic development
 - Safety and personal security
 - Access and mobility
 - Public health
 - Staged pedestrian crossings satisfy all 5 objectives

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Discussions

- Will user-unfamiliarity make SPCs unsafe?
 - Current intersections are vastly inconsistent
 - Current intersections not always self-explanatory
 - Improvement requires change

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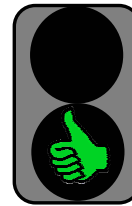
Conclusions

- British experience suggests staged pedestrian crossings will improve safety and quality of pedestrian provision at intersections
- Initial modelling suggests that intersection efficiency can be improved through proper introduction of staged pedestrian crossings
- Further investigations required
- Let's try it!

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Thank you

Questions and discussion



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