

**Canterbury University
Postgrad Transportation
Programme**



**Applied Research in the
Transport Sector**



Dr Glen Koorey
University of Canterbury

RCA's Forum, Wellington, Sep 2011

Postgrad Programme - Recap


- 
- Programme offered since 2002-03
 - In collaboration with University of Auckland
 - Financially supported by NZTA
 - Programme Offerings
 - Doctoral Degree (research): *PhD*
 - Masters Degree (research/courses): *MET*
 - Masters Degree (courses): *MEngSt*
 - Postgrad Cert (courses): *PGCertEng(Trpt)*
 - One-off Certificate of Proficiency (*COP*) papers

An Industry-Driven Programme

- You don't have to have an Eng'nrg degree
 - Or possibly any degree
- You don't have to be in Christchurch
- You don't have to stop work to study
- You don't have to commit to a qualification straight away
 - Or you could change later
- You don't have to do research

Talk to us about your options

Typical Students

- 
1. Full-time graduates from BE/other degree
 - Extending undergrad knowledge before work
 2. International students (overseas degree)
 - Getting trpt qualifications for returning home
 - Getting NZ training before working here
 3. Part-time students from Industry
 - Acquiring additional formal qualifications
 - Gaining CPD from one-off courses

*Over **220 students** to date*

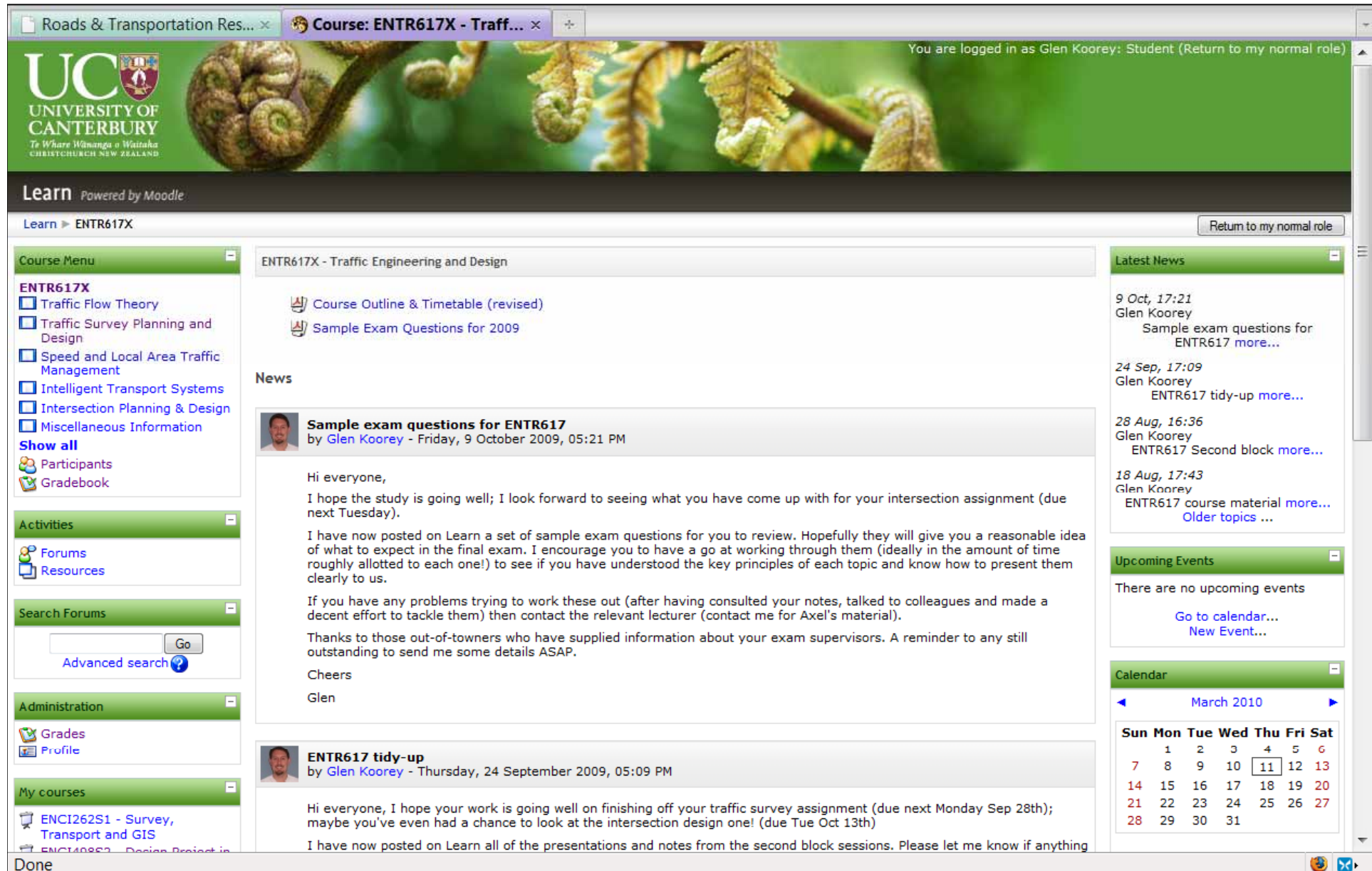
Part-Time Study

- Many full-time transport practitioners enrolling in programme
 - Often graduates with a few years experience
 - Typically take one paper per semester (1/2 yr)
 - Complete qualifications in ~4 years
- Employers typically very supportive
 - Support via fees, travel costs, study resources
 - Students can complete papers while remaining in full-time employment
 - Can do projects/research related to their work

Distance Learning

- All courses are taught in 'block mode'
 - Attending two 3-day lecture blocks
 - Background reading/review away from blocks
 - Work on assignments/projects at home
 - Final examination at home venue
- Additional distance support
 - Online teaching materials (Learn)
 - Feedback via email and web-forums
 - Long-distance library service

Online Teaching Tools



The screenshot shows a Moodle course page for ENTR617X - Traffic Engineering and Design. The page is viewed by a student named Glen Koorey. The interface includes a course menu on the left with links to various topics like Traffic Flow Theory and Speed and Local Area Traffic Management. The main content area features a news post titled 'Sample exam questions for ENTR617' by Glen Koorey, dated Friday, 9 October 2009. The post discusses the final exam and provides sample questions for review. A second news post, 'ENTR617 tidy-up', is also visible, dated Thursday, 24 September 2009. The right sidebar contains sections for Latest News, Upcoming Events, and a Calendar for March 2010.

UC UNIVERSITY OF CANTERBURY Te Whare Wānanga o Waitaha CHRISTCHURCH NEW ZEALAND

You are logged in as Glen Koorey: Student (Return to my normal role)

Learn Powered by Moodle

Learn ▶ ENTR617X Return to my normal role

Course Menu

- ENTR617X
 - Traffic Flow Theory
 - Traffic Survey Planning and Design
 - Speed and Local Area Traffic Management
 - Intelligent Transport Systems
 - Intersection Planning & Design
 - Miscellaneous Information

Show all

- Participants
- Gradebook

Activities

- Forums
- Resources

Search Forums

Go

Advanced search ?

Administration

- Grades
- Profile

My courses

- ENC1262S1 - Survey, Transport and GIS
- ENC1408S2 - Design Project in

ENTR617X - Traffic Engineering and Design

- Course Outline & Timetable (revised)
- Sample Exam Questions for 2009

News

Sample exam questions for ENTR617
by Glen Koorey - Friday, 9 October 2009, 05:21 PM

Hi everyone,

I hope the study is going well; I look forward to seeing what you have come up with for your intersection assignment (due next Tuesday).

I have now posted on Learn a set of sample exam questions for you to review. Hopefully they will give you a reasonable idea of what to expect in the final exam. I encourage you to have a go at working through them (ideally in the amount of time roughly allotted to each one!) to see if you have understood the key principles of each topic and know how to present them clearly to us.

If you have any problems trying to work these out (after having consulted your notes, talked to colleagues and made a decent effort to tackle them) then contact the relevant lecturer (contact me for Axel's material).

Thanks to those out-of-towners who have supplied information about your exam supervisors. A reminder to any still outstanding to send me some details ASAP.

Cheers
Glen

ENTR617 tidy-up
by Glen Koorey - Thursday, 24 September 2009, 05:09 PM

Hi everyone, I hope your work is going well on finishing off your traffic survey assignment (due next Monday Sep 28th); maybe you've even had a chance to look at the intersection design one! (due Tue Oct 13th)

I have now posted on Learn all of the presentations and notes from the second block sessions. Please let me know if anything

Latest News

- 9 Oct, 17:21
Glen Koorey
Sample exam questions for ENTR617 [more...](#)
- 24 Sep, 17:09
Glen Koorey
ENTR617 tidy-up [more...](#)
- 28 Aug, 16:36
Glen Koorey
ENTR617 Second block [more...](#)
- 18 Aug, 17:43
Glen Koorey
ENTR617 course material [more...](#)
[Older topics ...](#)

Upcoming Events

There are no upcoming events

[Go to calendar...](#)
[New Event...](#)

Calendar

March 2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

2012 Courses

(Other courses offered in other years)

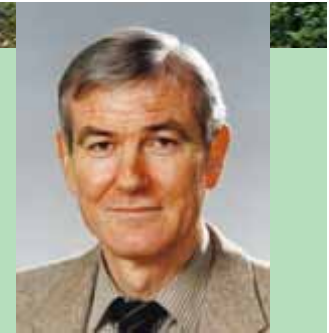
- Semester 1 (Feb-Jun)
 - ENTR401: Fundamentals of Transport Eng
 - ENTR611: Planning and Managing Transport
 - ENTR602: Accident Reduction and Prevention
 - ENTR612: Transport Policy & Demand Mngmt

- Semester 2 (Jul-Oct)
 - ENTR603: Advanced Pavement Design
 - ENTR614: Planning/Design of Sustainable Trpt
 - ENTR615: Transport Network Modelling

Can also do relevant papers elsewhere

Teaching Staff – Canterbury

▪ Prof. Alan Nicholson



▪ Dr Mofreh Saleh



▪ Dr Glen Koorey



▪ Dr Kenneth Kuhn



▪ Dr Nadine Roth



Overseas Visitors



Industry Visitors



Industry Assistance



Fieldwork Studies



Enrolment Requirements

- Standard requirement is BE degree
 - Candidates with other relevant degrees or equivalent qualification are OK
e.g. Geography, Planning, Psychology, etc
- Also appropriate non-degree candidates
e.g. experienced NZCE
- Fees typically ~\$700 (domestic) per course
- Need to make formal application to Dept
 - Applications for 2011 by end of Jan
 - Can start mid-year too (by end of May)

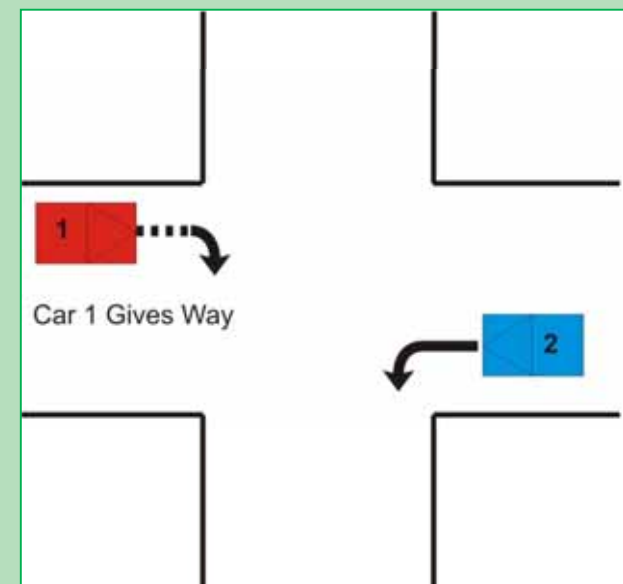
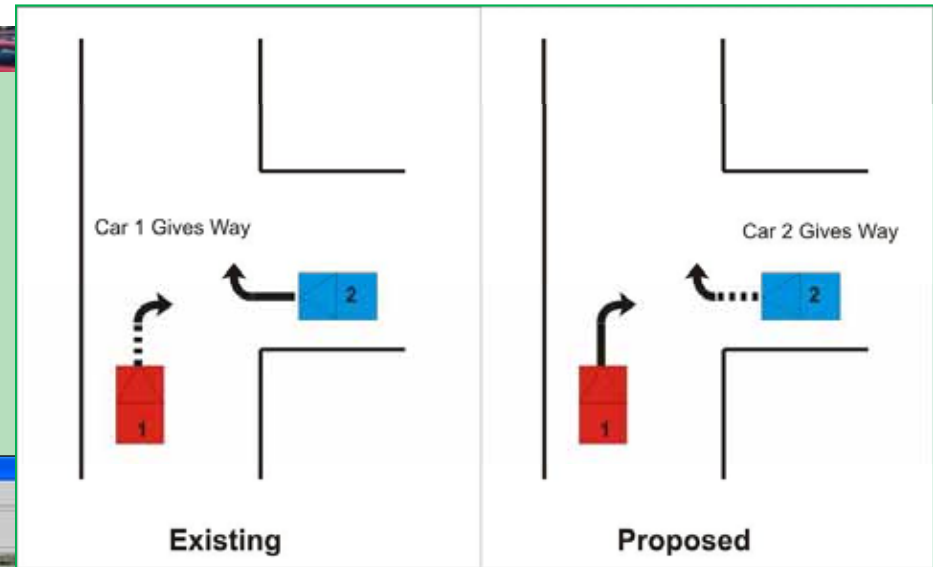
Some Applied Research

- A brief summary of a few projects...
 - Talk to me if you want more information
- We welcome **your** research ideas!
...and technical/resource support

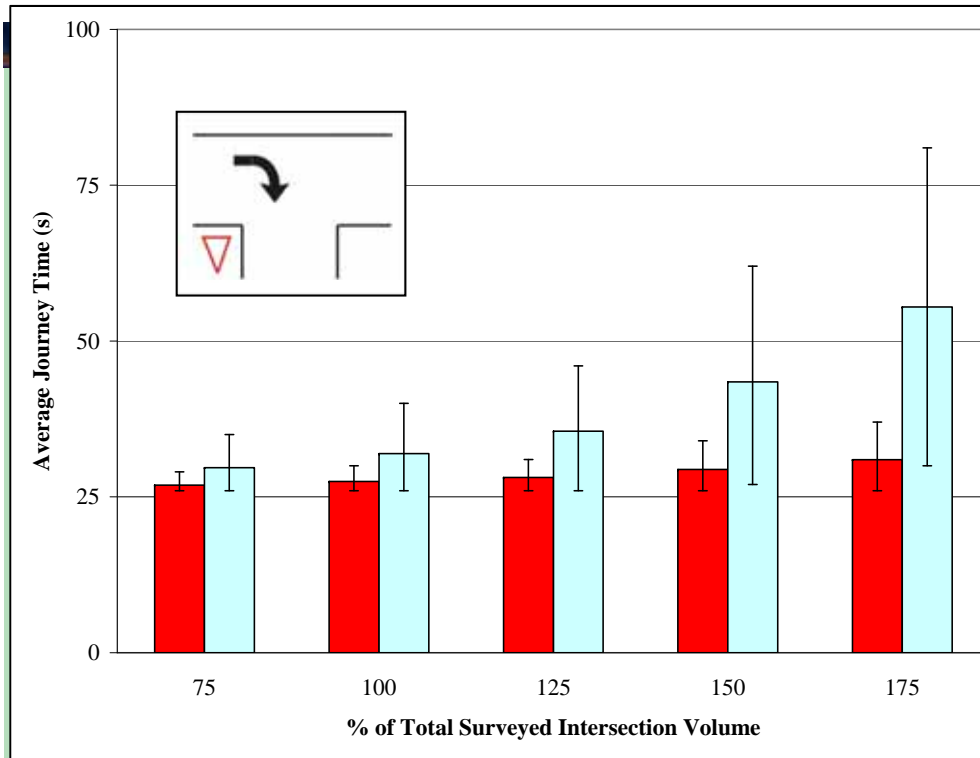
*See Research Handout for more details about
project topics undertaken or offered*

Intersection Performance and the NZ Give Way Rule

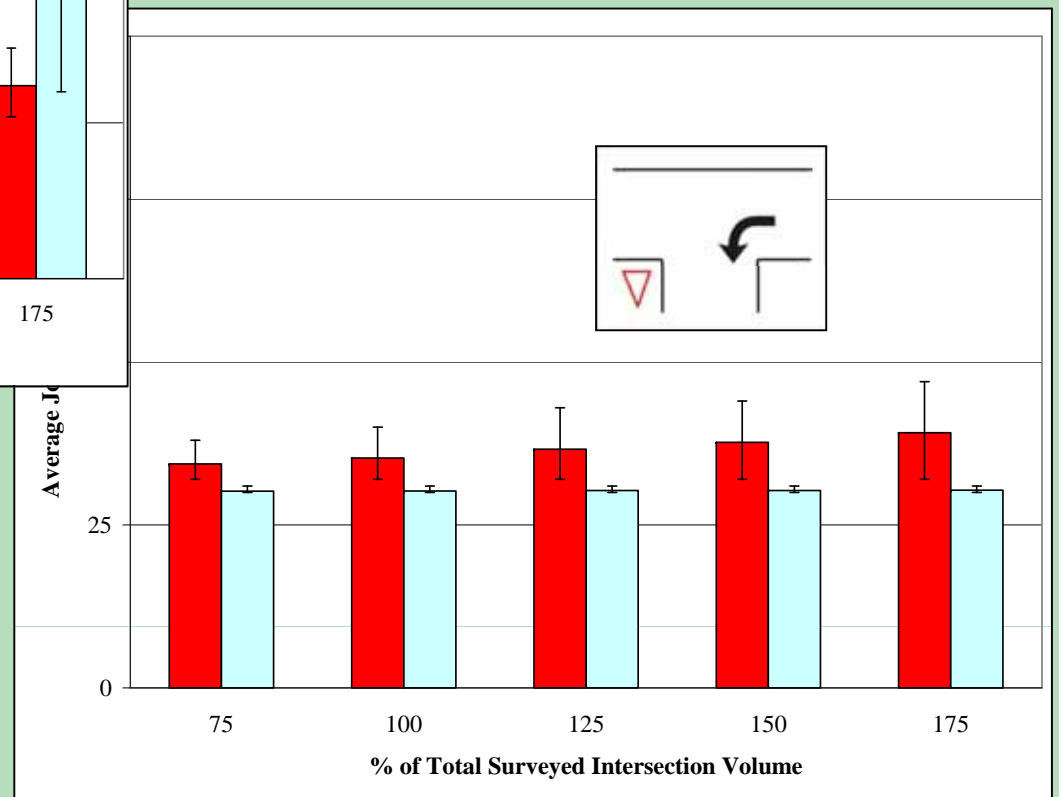
- A. Wilkins (MET 2008)
 - Modelled 10 Sites
 - Also CBD Network



Effect of Changing Give Way Rules Typical Site Results



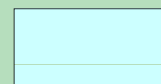
- Journey Times
- Queue Lengths
- Varied Flows



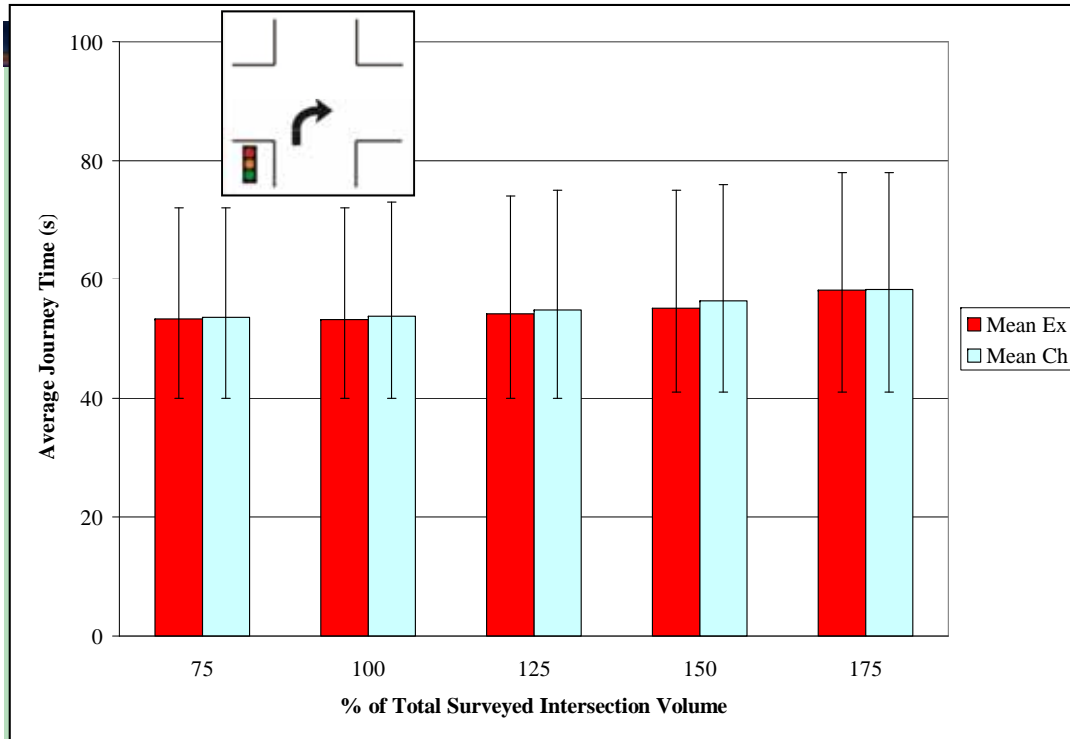
Existing Rule



Changed Rule

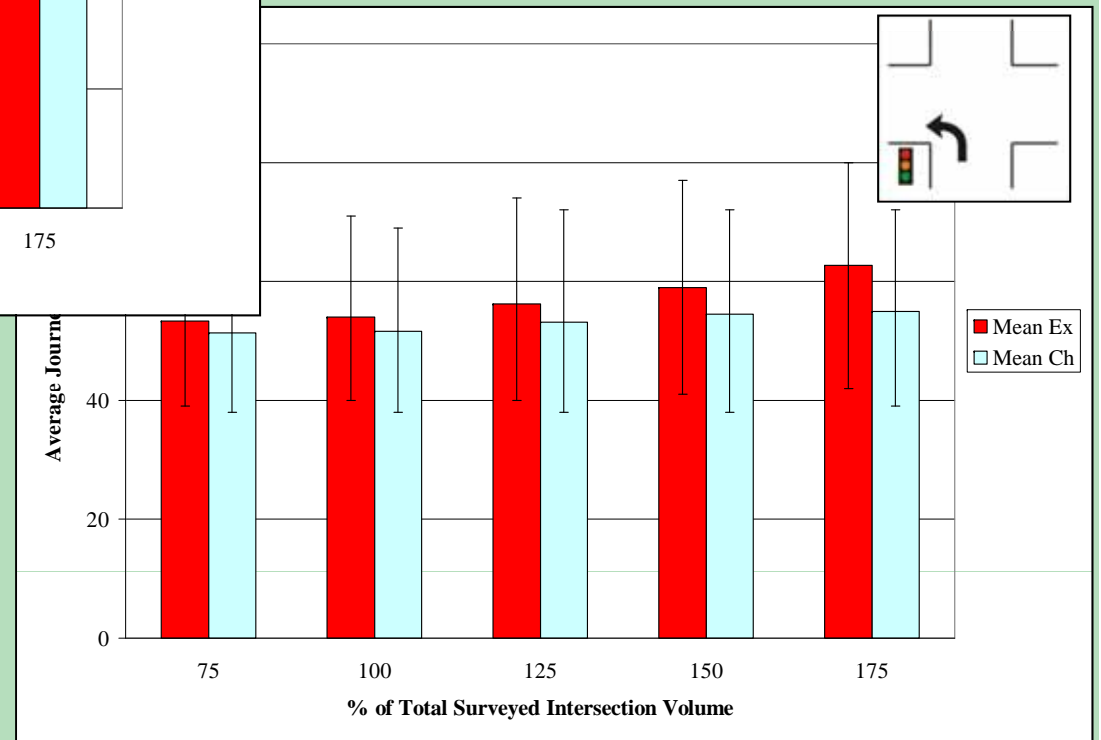


Effect of Changing Give Way Rules Typical Site Results

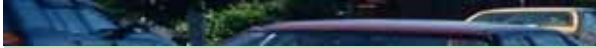


No Clear Trend

- Winners & Losers



Network Model

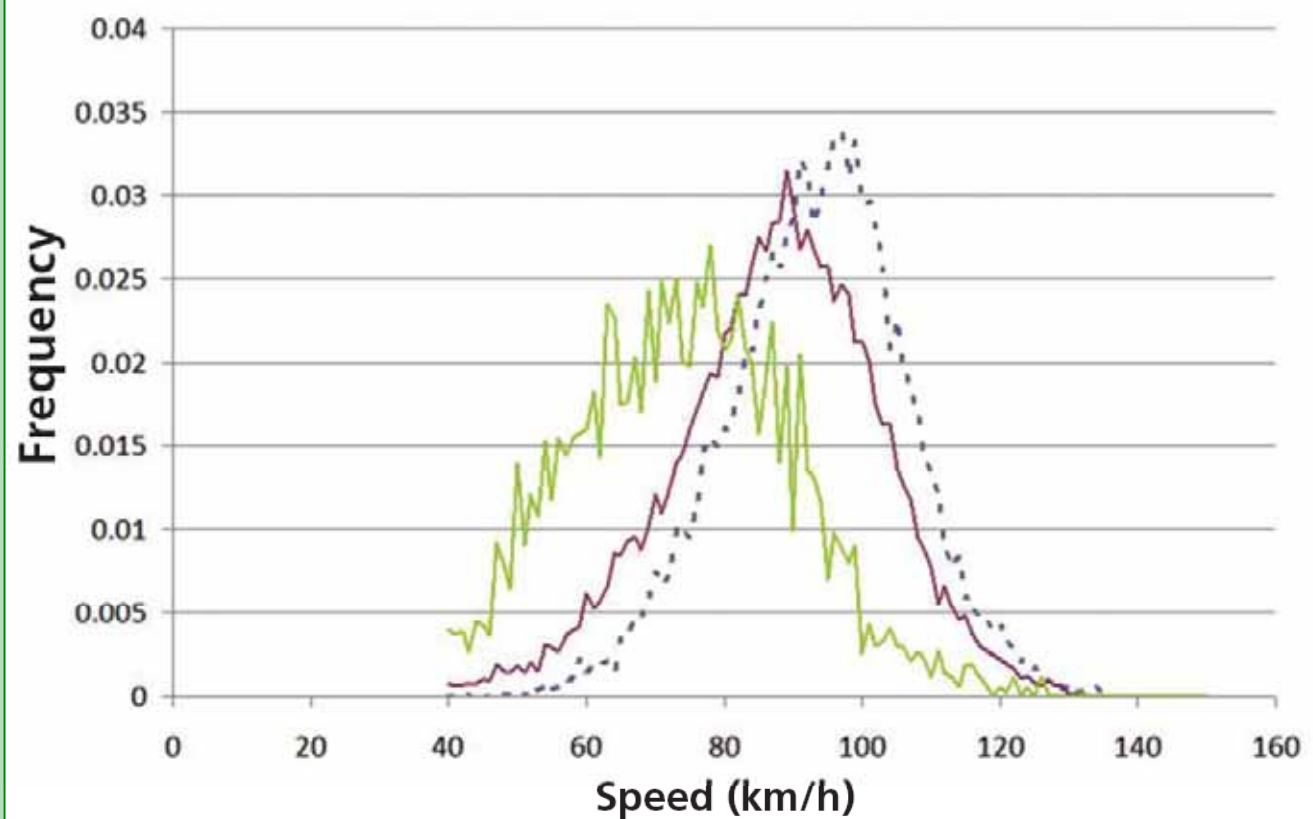
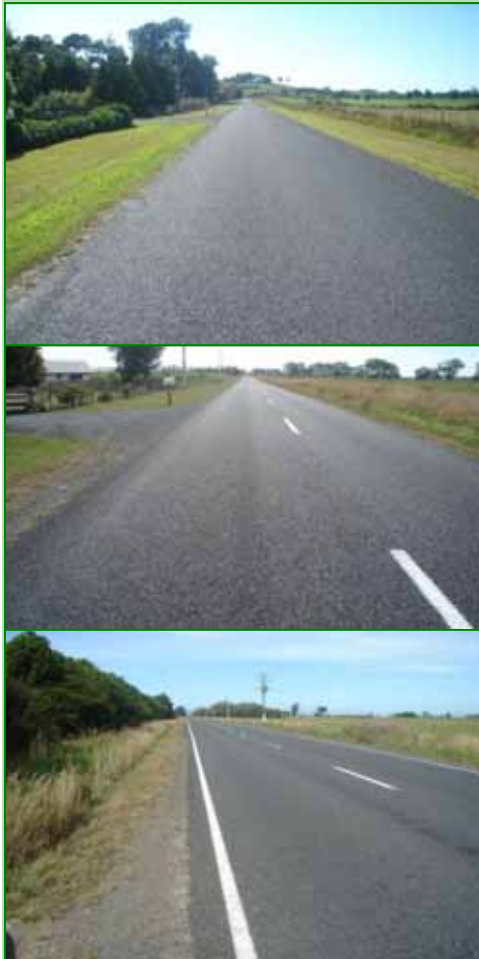


- Traffic changed routes to adjust

	Park Tee	Papanui Rd	Montreal St	Durham St/Cambridge Tee	Oxford Tee	Colombo St	Sherbone St	Manchester St	Madras St	Barbadoes St	Fitzgerald Ave	
	B	W	B	N/C		N/C	N/C	B	N/C	N/C	W	Bealey Ave
			B	N/C		N/C		W	N/C	N/C		Salisbury St
				W								Peterborough St
	N/C		N/C	W		B		W	N/C	N/C	N/C	Kilmore St
			B	B		N/C		W	B	N/C	N/C	Armagh St
Rolleston Ave	B		B	B	B	B		W	N/C	N/C	N/C	Gloucester St
								W	N/C	N/C	N/C	Worcester St
	N/C		N/C	B	N/C	W		W	N/C	N/C	N/C	Hereford St
			N/C	B				W	B	N/C	N/C	Cashel St
N/C Riccarton Ave	N/C	N/C	N/C	B		W		B	B	N/C	N/C	Lichfield St
		B	B	B		B		W	B	N/C	N/C	Tuam St
N/C Hagley Ave		B	N/C	W		W		N/C	N/C	N/C	N/C	St Asaph St
										N/C	N/C	Ferry Rd
B Lincoln Rd		B	N/C	B		N/C		B	N/C	N/C	N/C	Moorhouse Ave
		Antigua St	Montreal St	Durham St		Colombo St		Manchester St	Madras St	Barbadoes St	Fitzgerald Ave	

Effect of Road Markings on Rural Speeds

- B. Burdett (MET 2010)



Edgeline+Centreline

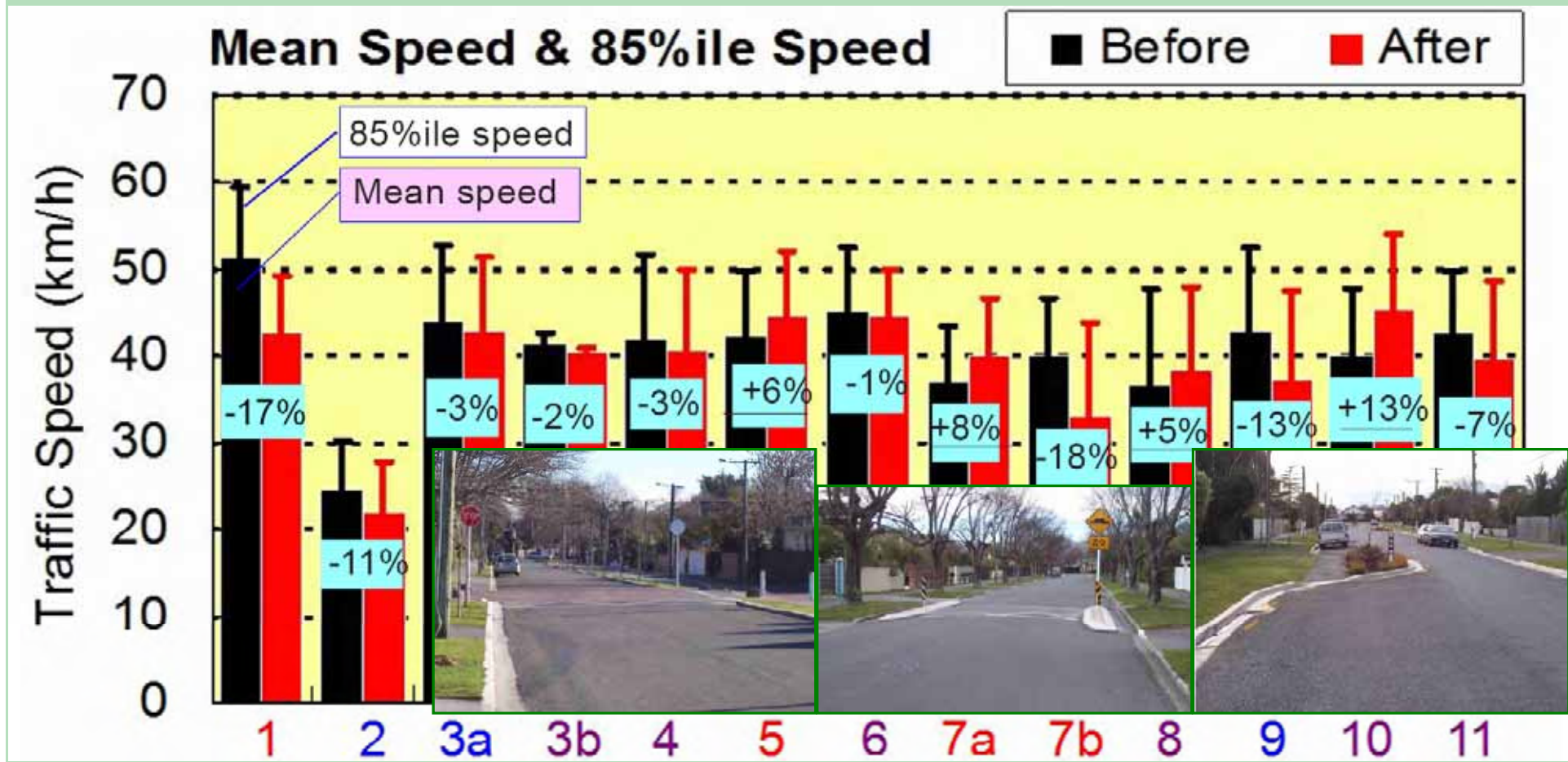
Centreline only

No markings



Effect of Traffic Calming Devices

- J.Mao (MET 2009)

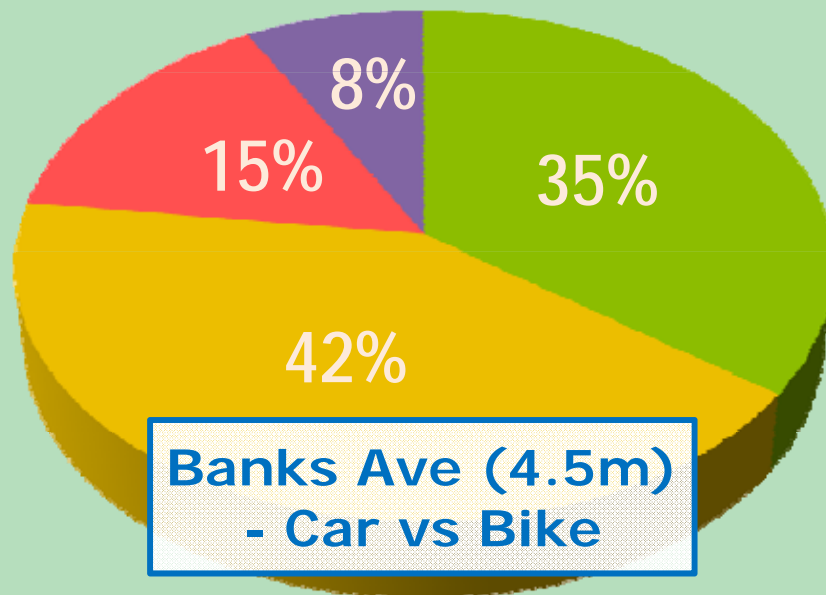


Effectiveness of Two-Way Street Calming Devices

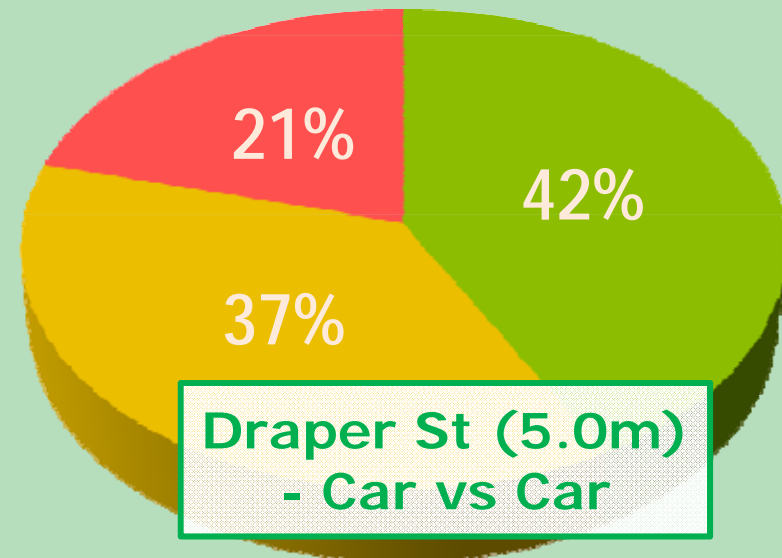


■ C.Chai (MET 2010)

- Cyclist and Car Sharing
- Car Gives Way
- Cyclist Gives Way
- Cyclists on Footpath

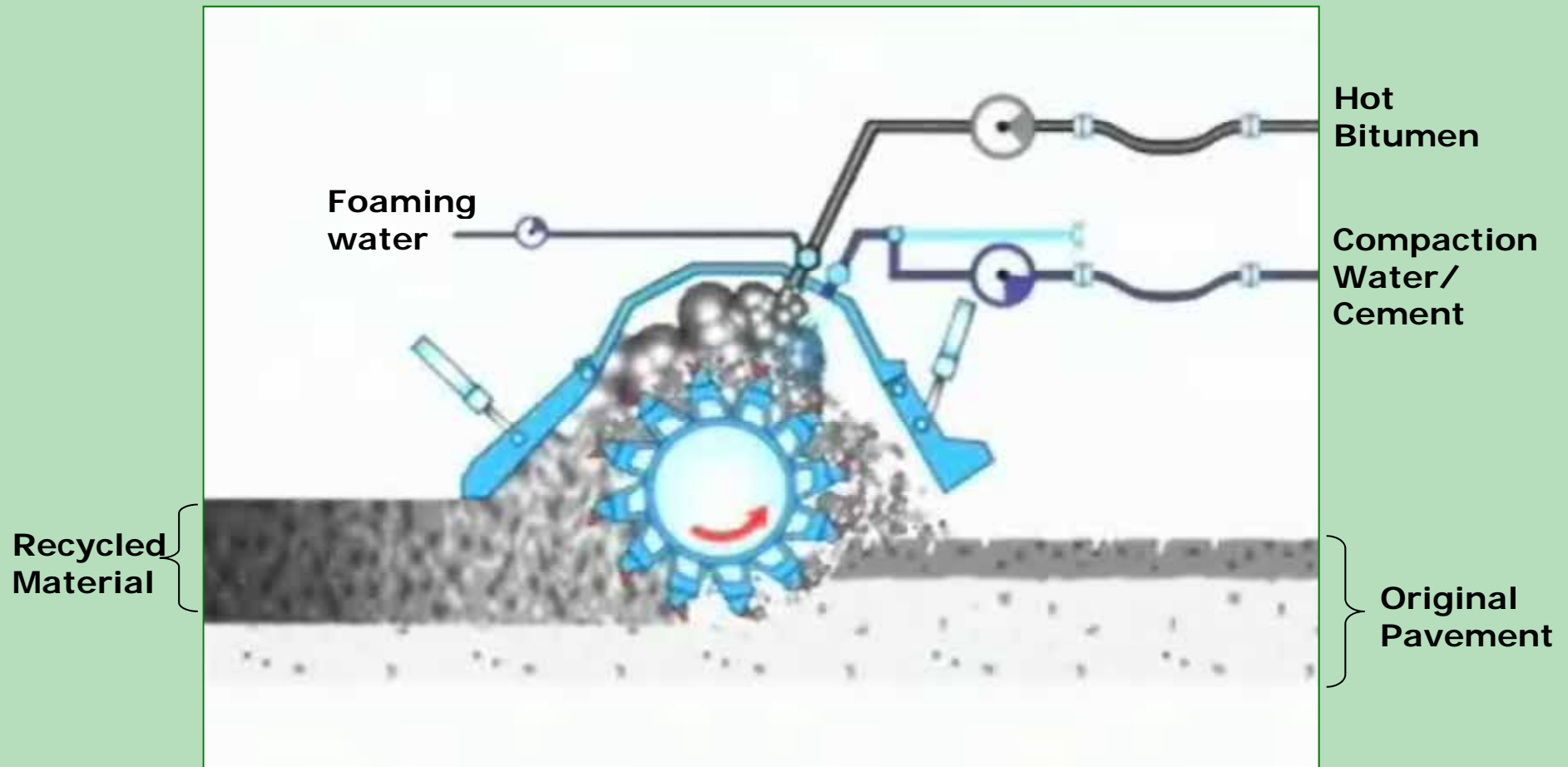


- Uninterrupted
- Slowed down
- Stopped, Gave way



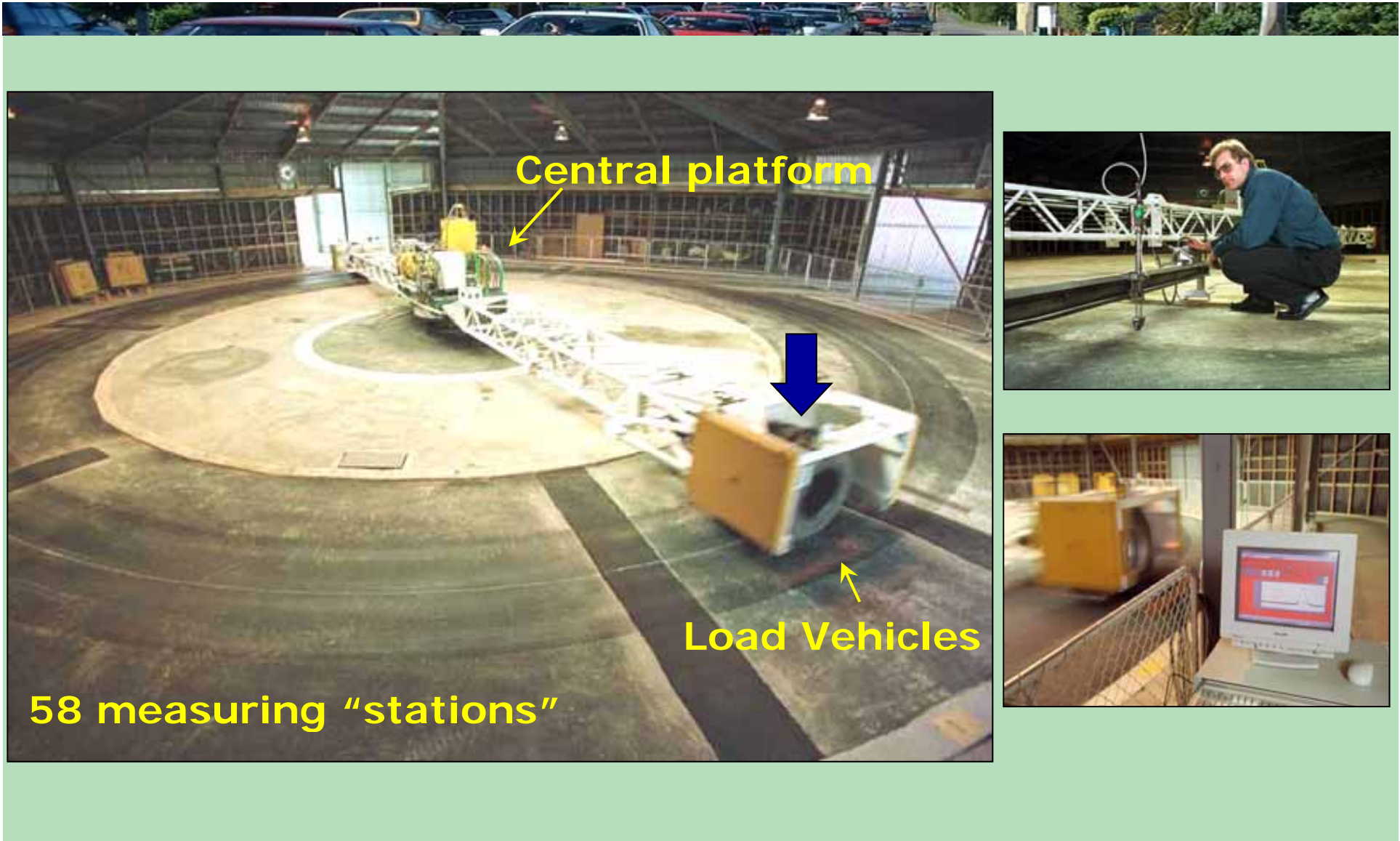
Behaviour of Foam Bitumen Pavements

- A.Gonzalez (PhD 2009)



CAPTIF Testing

Canterbury Accelerated Pavement Testing Indoor Facility



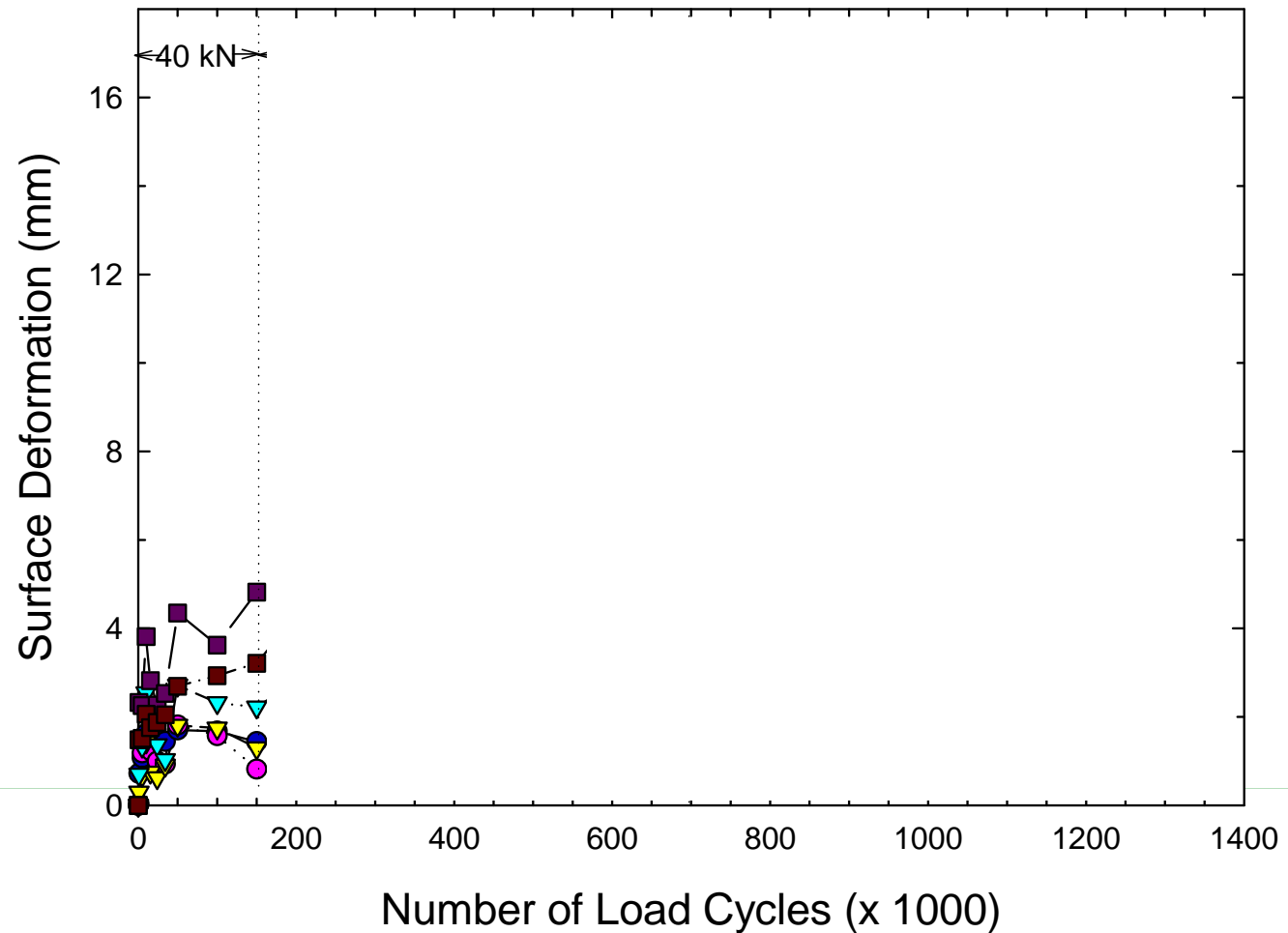
Foam Bitumen Results

– Rutting



80 kN

- 1.2% B 1.0% C
- 1.4% B 1.0% C
- ▼— 2.8% B 1.0% C
- ▼— 0.0% B 1.0% C
- 2.2% B 0.0% C
- Unbound Granular

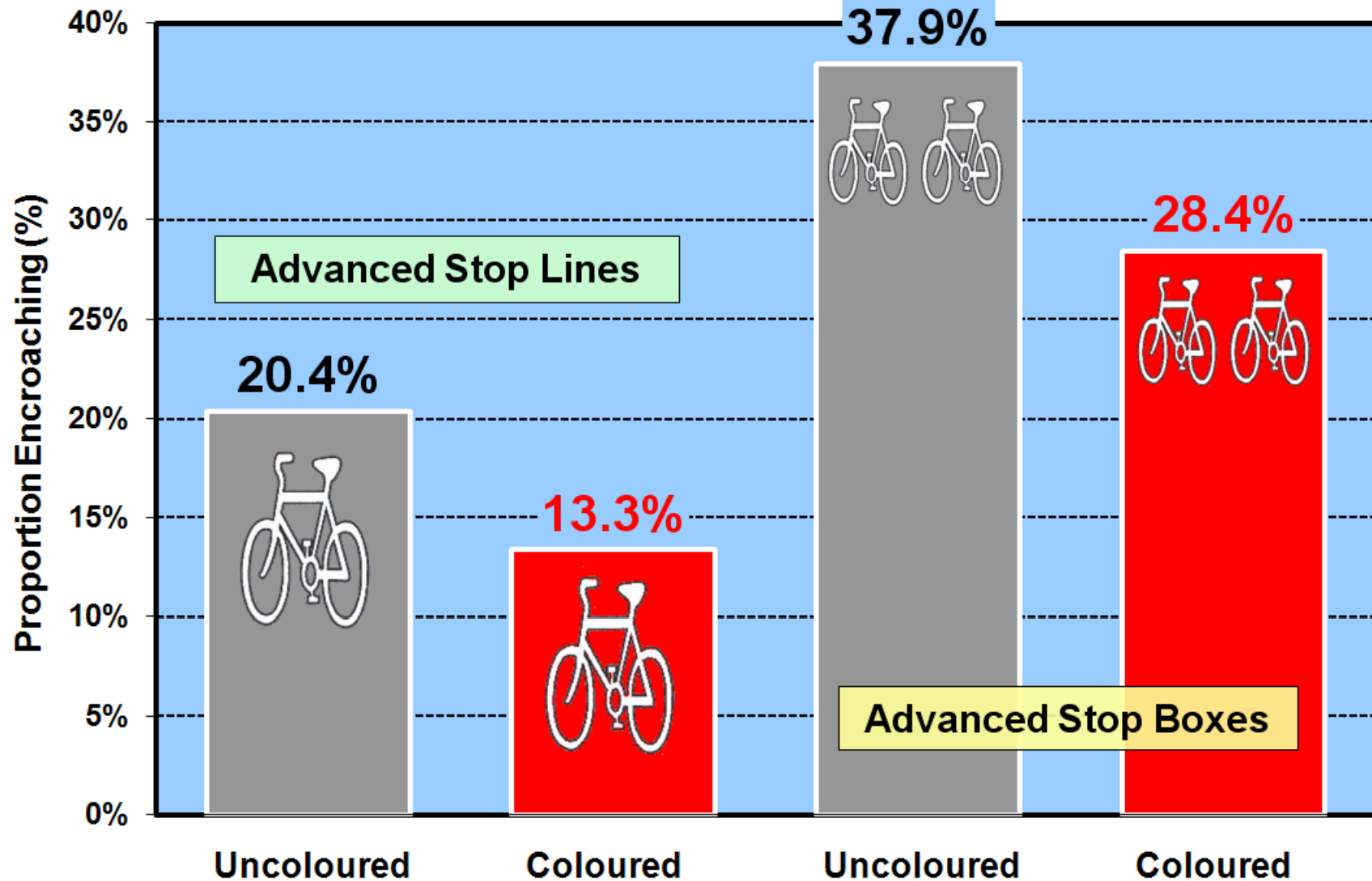


Effect of Colour & Width of Intersect'n Cycle Facilities

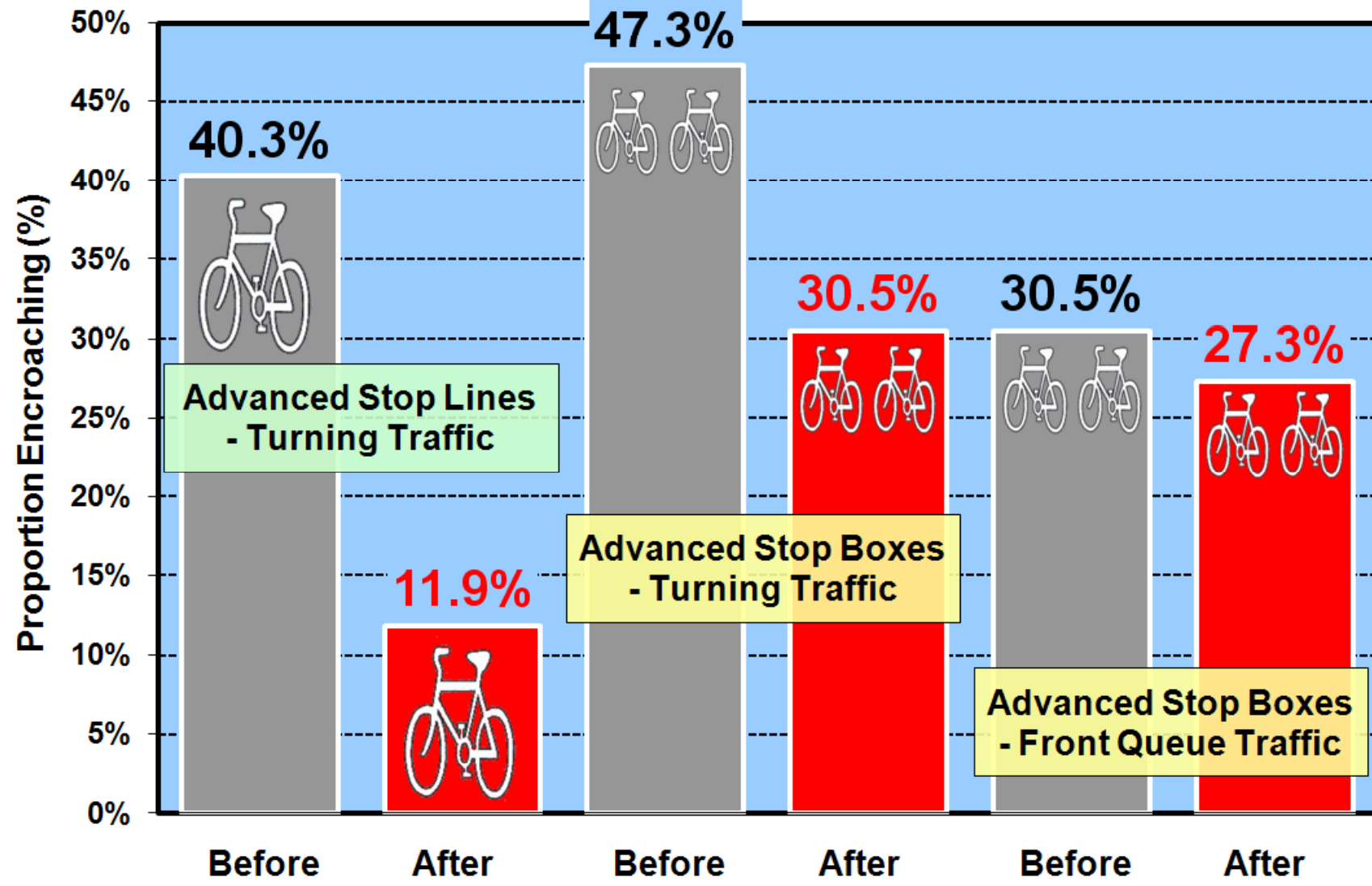
- E.Mangundu (MEngSt 2009)



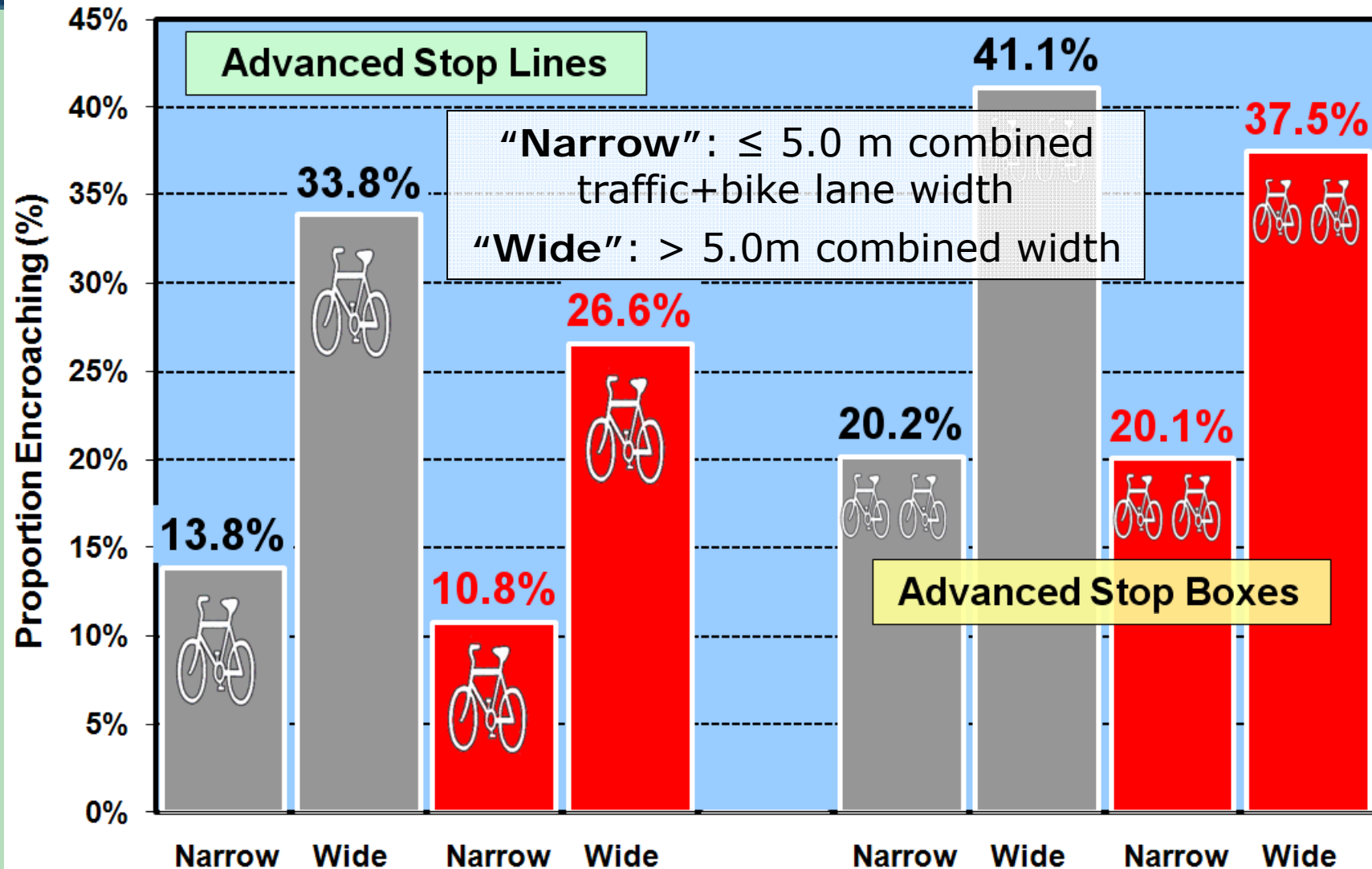
Results: Effect of Bicycle Facility Colour



Results: Colouring of Before/After Sites



Results: Effect of Bicycle Facility Width

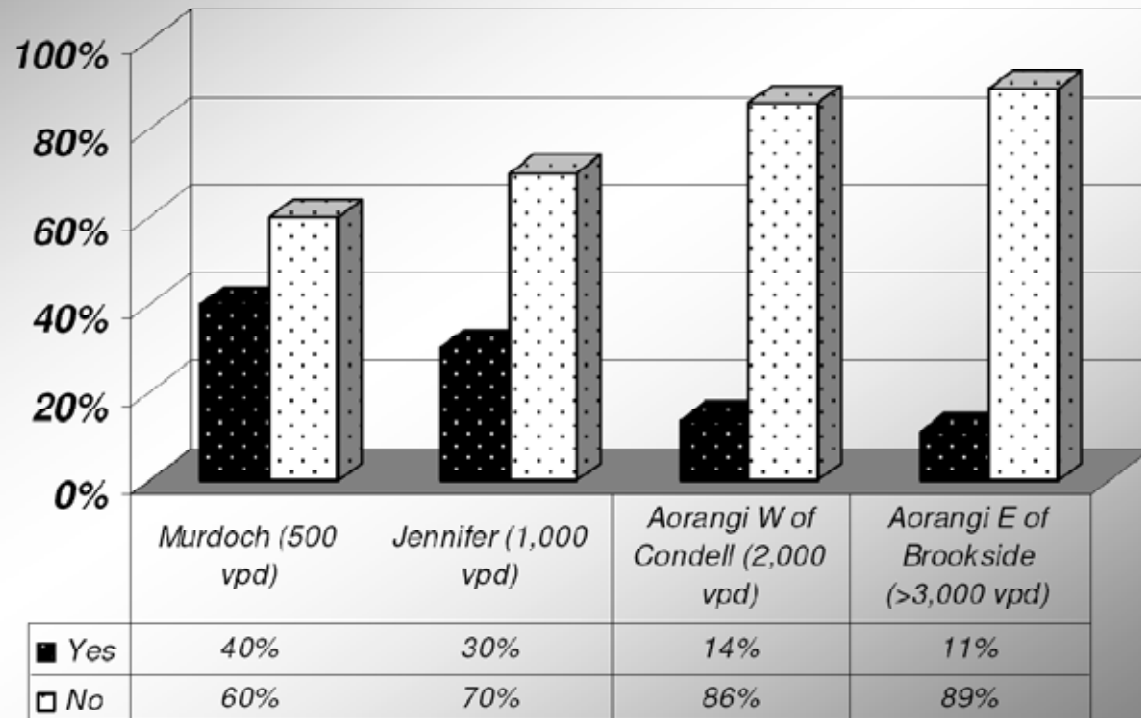


The Environmental Capacity of Local Streets

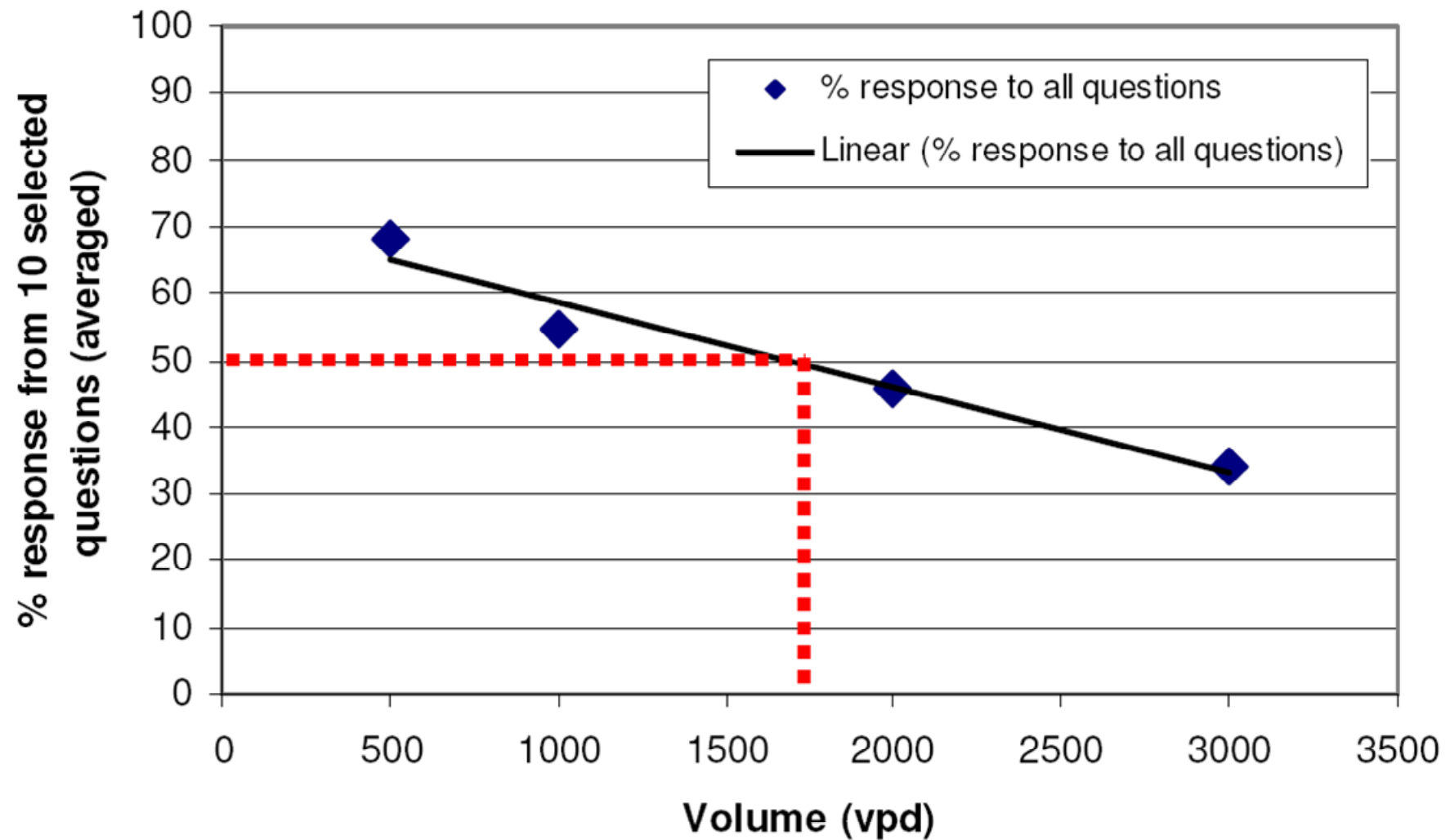
- R.Chesterman (MET 2009)



If you have children (or have had children or were to have children) would you feel comfortable with them playing unsupervised on or near the street?



Environmental Capacity Trendline



Effectiveness of Incident Mngmt on Network Reliability

- S.McMillan (PhD)
 - See Land Transport NZ Research Report #346



Incident Management Research Methodology - Network

- Paramics Model of Nthn M'way & surrounds
 - Link Paramics to SCATS with FUSE software

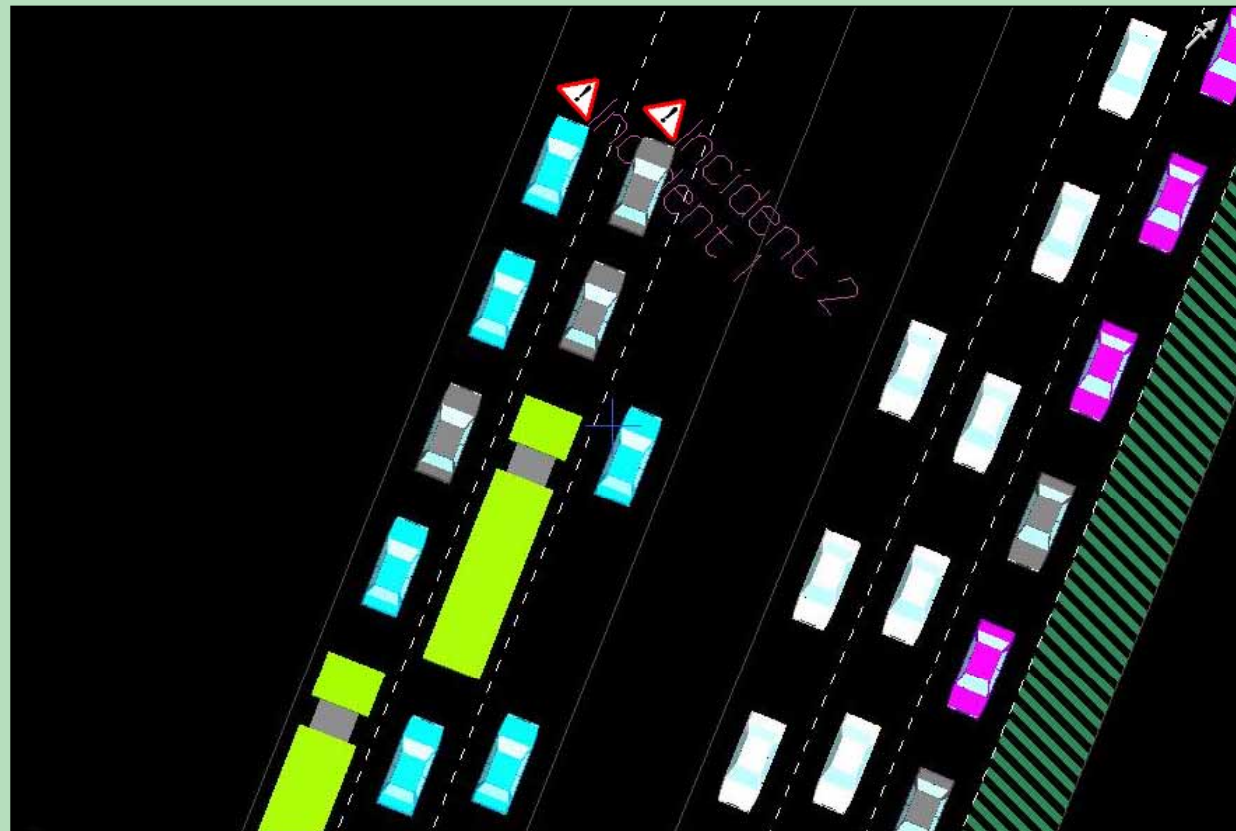
The screenshot displays the Paramics software interface. The main window shows a 3D perspective view of a road network. A floating window titled "(1) 1909 - Northcote Rd, Onramp, Offramp : Takapuna (NSCC) - NSCC" is open, showing detailed traffic light control parameters. The window includes a table for SCATS 6 settings and a 7-phase traffic light diagram.

Find	Monitor	Subsystem	Strategic Monitor	Northcote On/Off Ramps
1909	Alarms ST BD DZ	NSCC Subsystem 14	Degree of saturation 0	SCATS 6
Split plan 3	Masterlink	System plan 3	Married +	Cycle generator 20
Offset plan 4	Offset 0, 0 F	Link plan 4	Link 0, 0 E 1204	Active link 0 E 1204
Special facilities Z3,6		Cycle plan none	Cycle time 100	Required cycle time 82

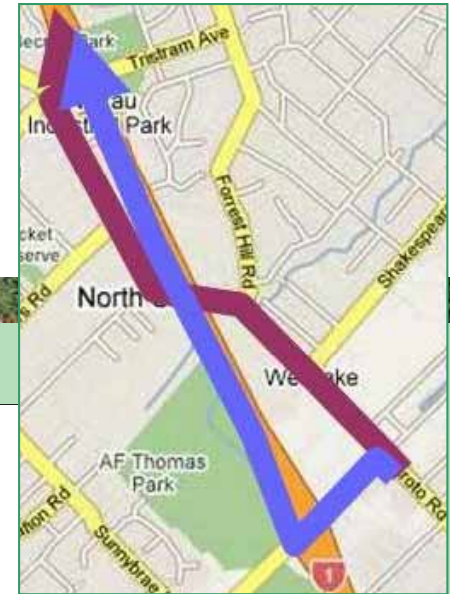
TCS 1909
TAKAPUNA NSCC SS=14
7 PHASES
A, B, C, D, E, F, G
LST

Incident Management Research Methodology - Incident

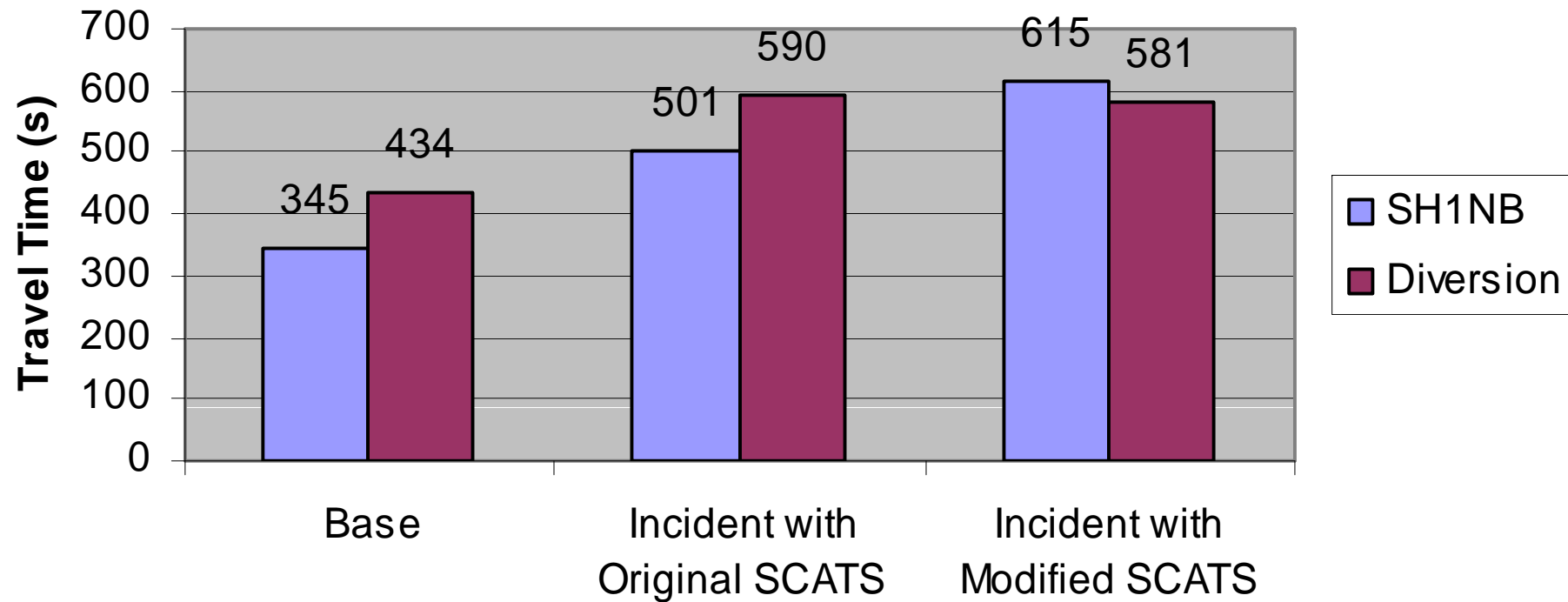
- Incident Modelling
e.g. Create lane closures on motorway



Incident Management Research Modelling Incidents



Taharoto Diversion

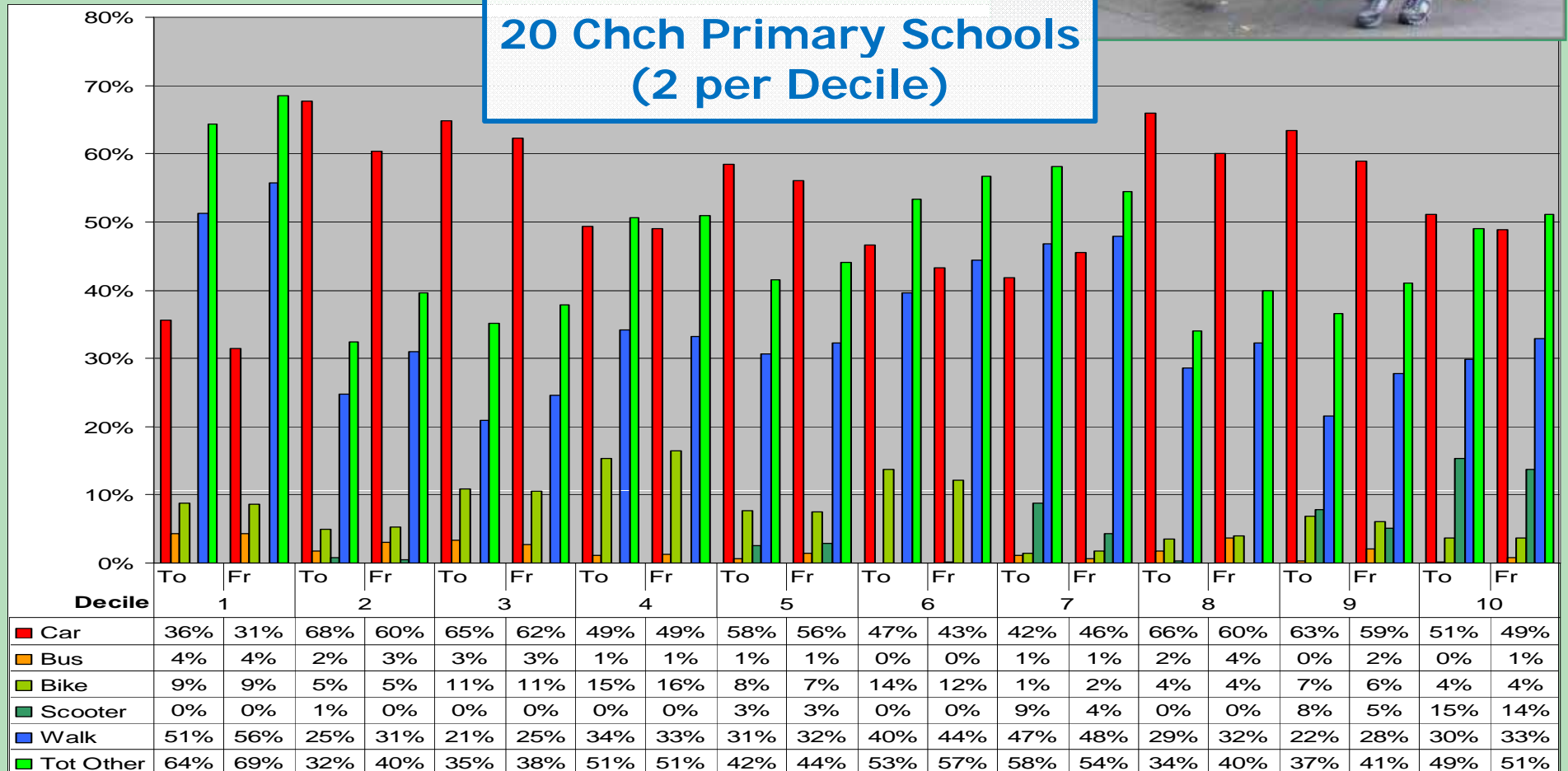


School Travel Behaviour



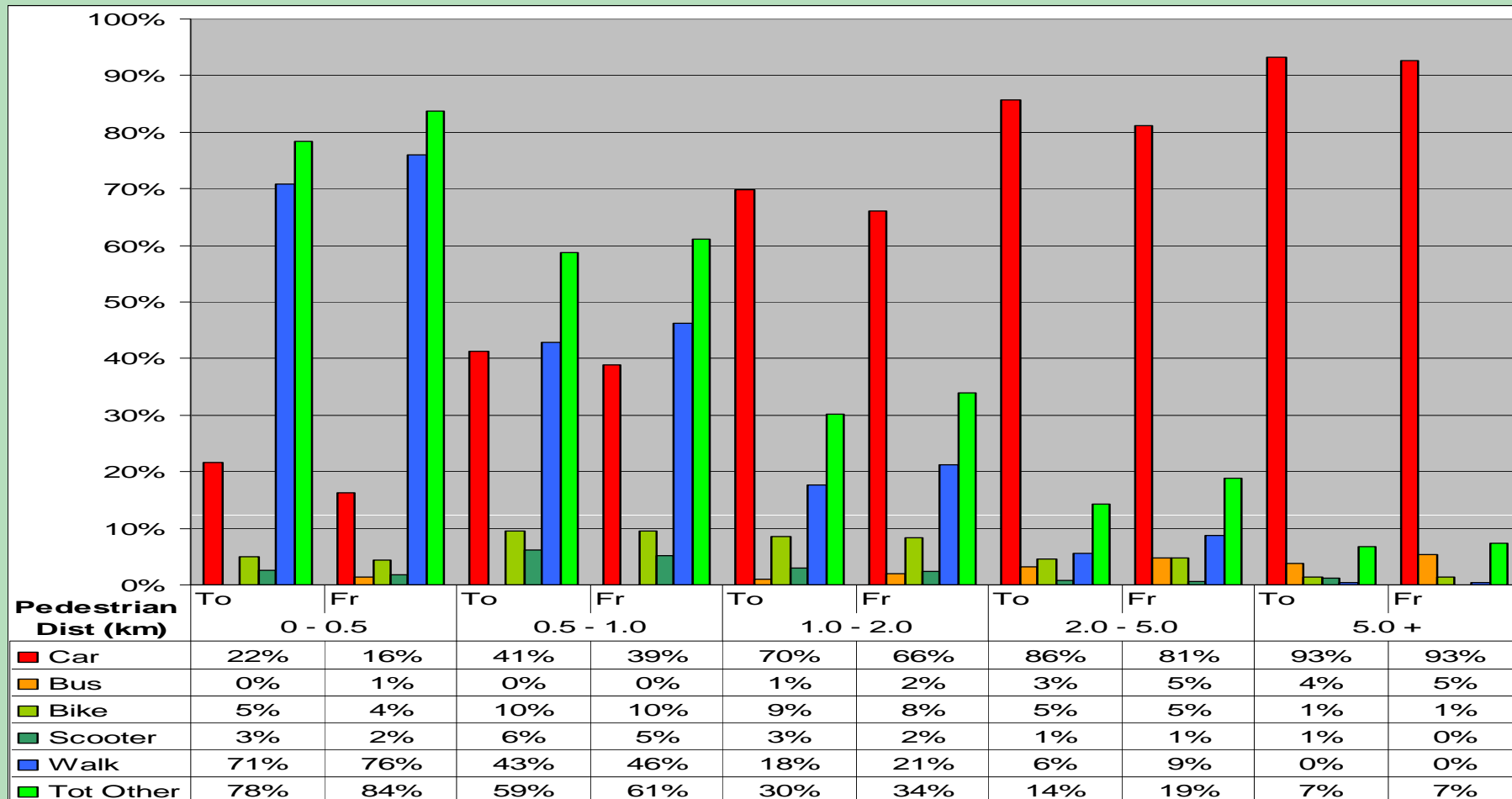
■ B.Rice (MET 2009)

20 Chch Primary Schools
(2 per Decile)



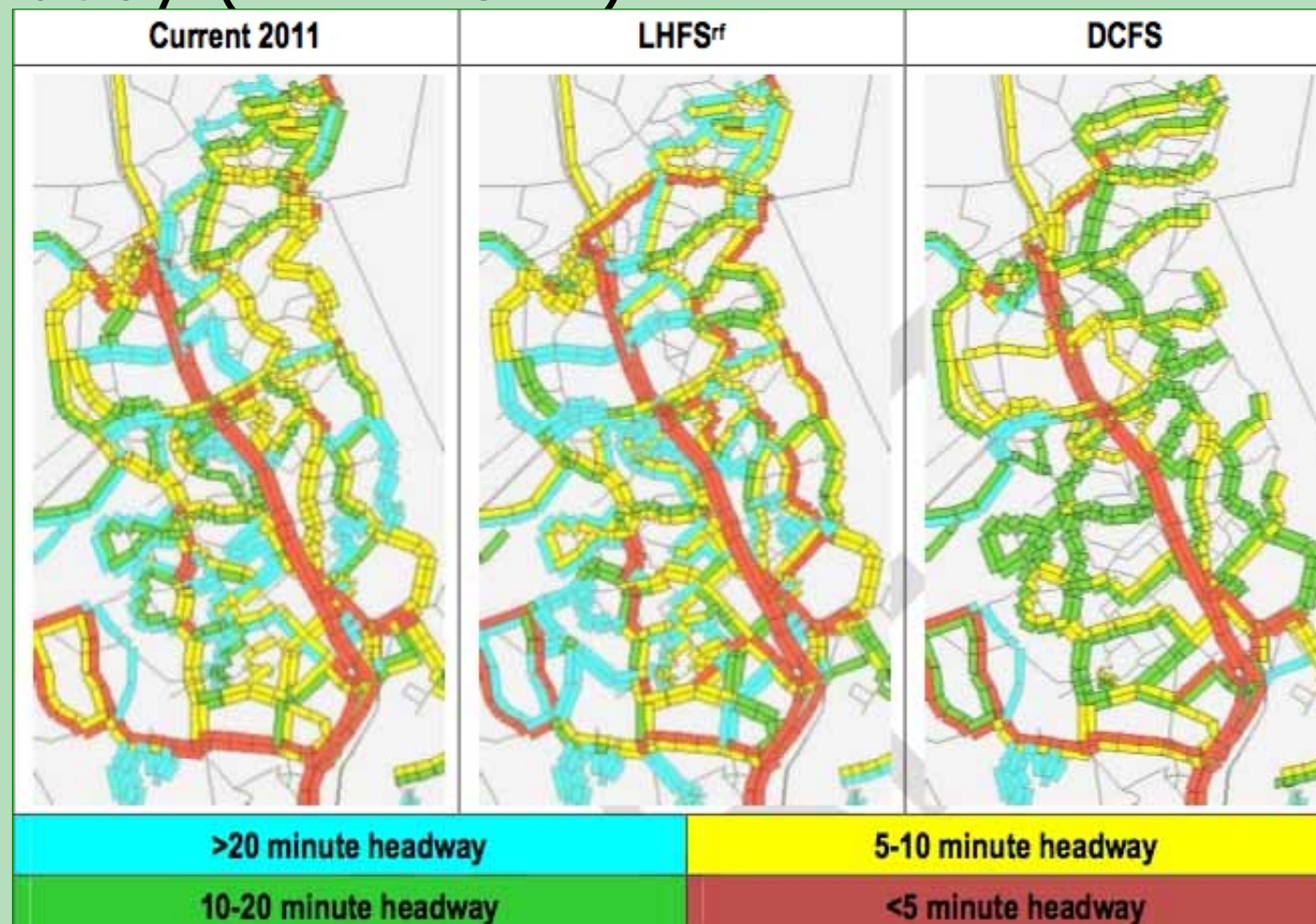
Effect of Pedestrian Travel Distances

- No effect from Trip quality & Major Rd x'ings




Effects of Feeder Bus Services

- S.Lusby (MET 2011)



Other Research Work

- 
- Modelling Bus Dwell Times at Stops
 - Forecast Travel-Time/Crash Benefits vs Actual
 - Driver Behaviour at Low-Visibility Curves
 - Safety Effect of Guardrails, Curve Advis'y Signs
 - Low-Volume Road Maintenance Mgmt Systems
 - Determining Fatigue-related Crashes
 - Effects of Speed Cushions on Traffic
 - Posted vs Warranted vs Actual Speeds
 - Using Recycled Glass in Asphalt Pavements
 - Park & Ride in Urban Areas

Ask me more about any of these...

Further Information

Prof Alan Nicholson, Programme Director

- *Alan.Nicholson@canterbury.ac.nz*

Dr Glen Koorey, Programme Admissions

- *Glen.Koorey@canterbury.ac.nz*

Or visit our website for more info:

www.met.canterbury.ac.nz

See handouts for more details

One Final Plug...

- NZ Walking/Cycling Conference 2012



- 22-24 February 2012, Hastings

www.2walkandcycle.org.nz

Thank You!

- Any Questions?

