

University of Canterbury Transportation Programme



Transport Research You Can Use



*Caleb Giblett
ITE Aust/NZ
2011 Best
Transport
Student Award*

Dr Glen Koorey
University of Canterbury
RCAs Forum, Wellington, Nov 2012

Postgrad Transport Programme - Recap



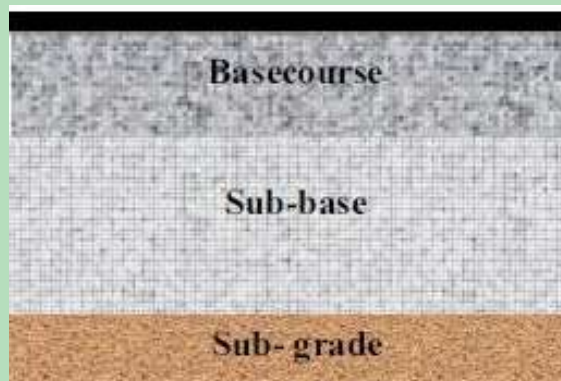
- Programme Offerings
 - Masters Degree (research+courses): *MET*
 - Masters Degree (courses): *MEngSt*
 - Postgrad Cert (courses): *PGCertEng(Trpt)*
 - One-off Certificate of Proficiency courses: *COP*
- Ideal for Working Practitioners
 - Study Part-Time (Block Courses)
 - Study from Anywhere in NZ
 - Continuing Professional Development Options

www.met.canterbury.ac.nz

Risk-Based Evaluation of Pavement Constr'n Options

- C.Giblett (BE 2011)
 - Improve Standard Pavement Design Spreadsh't
- Use a Probabilistic Approach (@RISK)
 - Model Chances of Early Pavement Failure

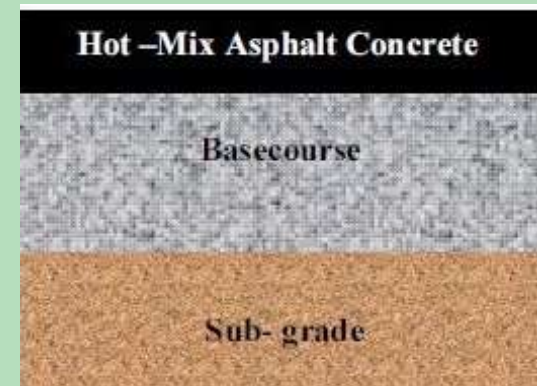
Base Option



Asphalt Surfacing over Granular Basecourse

OR

Alternative Option



Full Depth Structural Asphalt

Application: Christchurch Quake Pavement Repairs

- @RISK Model Validated against Spreadsh't
 - Tested standard Pavement Failure Scenarios
 - 0-3% difference in Predicted Costs
- Chch: Model chance of further Liquefaction
 - Base Option less Expensive upfront
 - Alternative Option normally more Reliable

Option	Without Liquefaction Risk	With Liquefaction Risk
Base	\$2.4 million	\$2.5 million
Alternative (Full Depth Asphalt)	\$3.4 million	\$3.9 million

Cycle Lane Separator Trials



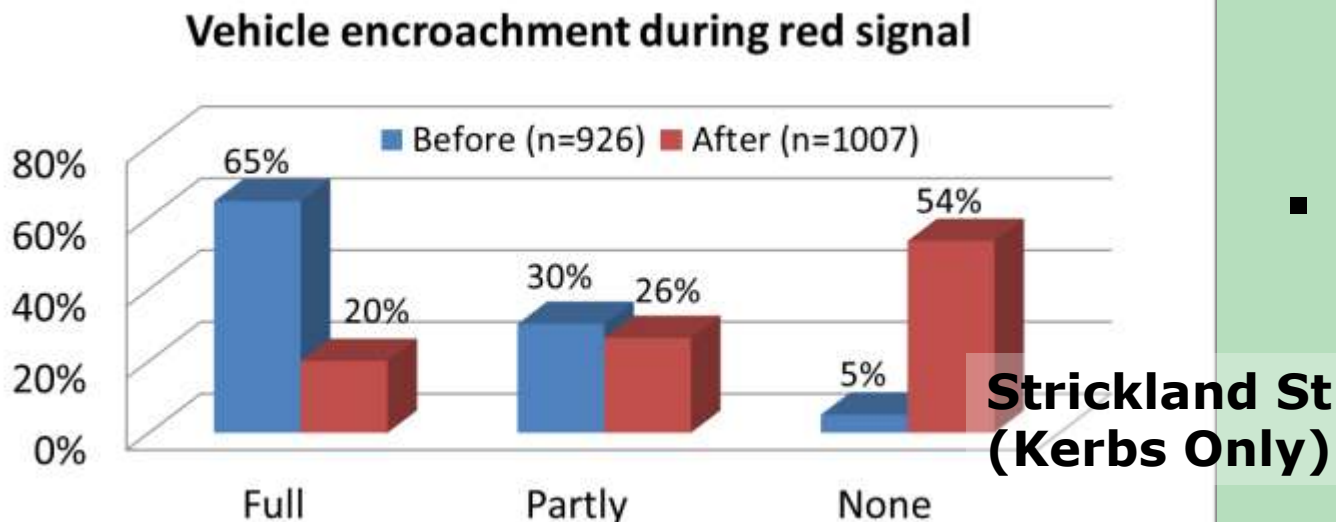
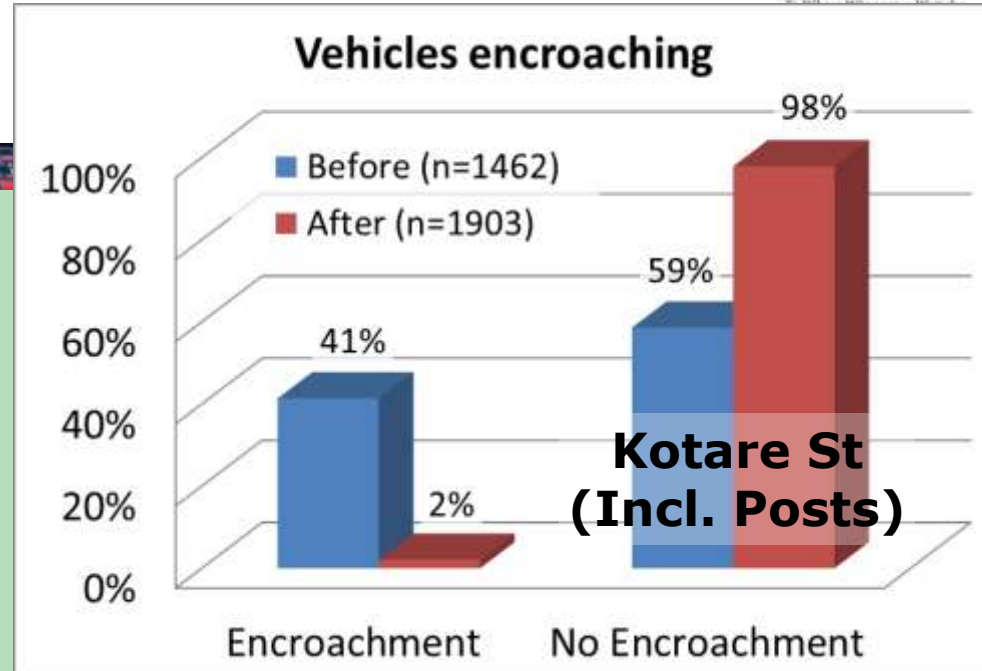
- J.Aussendorf (2012)
 - Trialled raised separators
 - Installed posts later
- Two Sites Studied
 - Inside of a tight curve
 - Approach to signals
- Video Observations of Motorist Behaviour
 - Before & After
 - Also Road User Surveys



Cycle Lane Separators

- Results

- Significant Effect on Motorist Compliance
 - Some Vertical Posts Helped

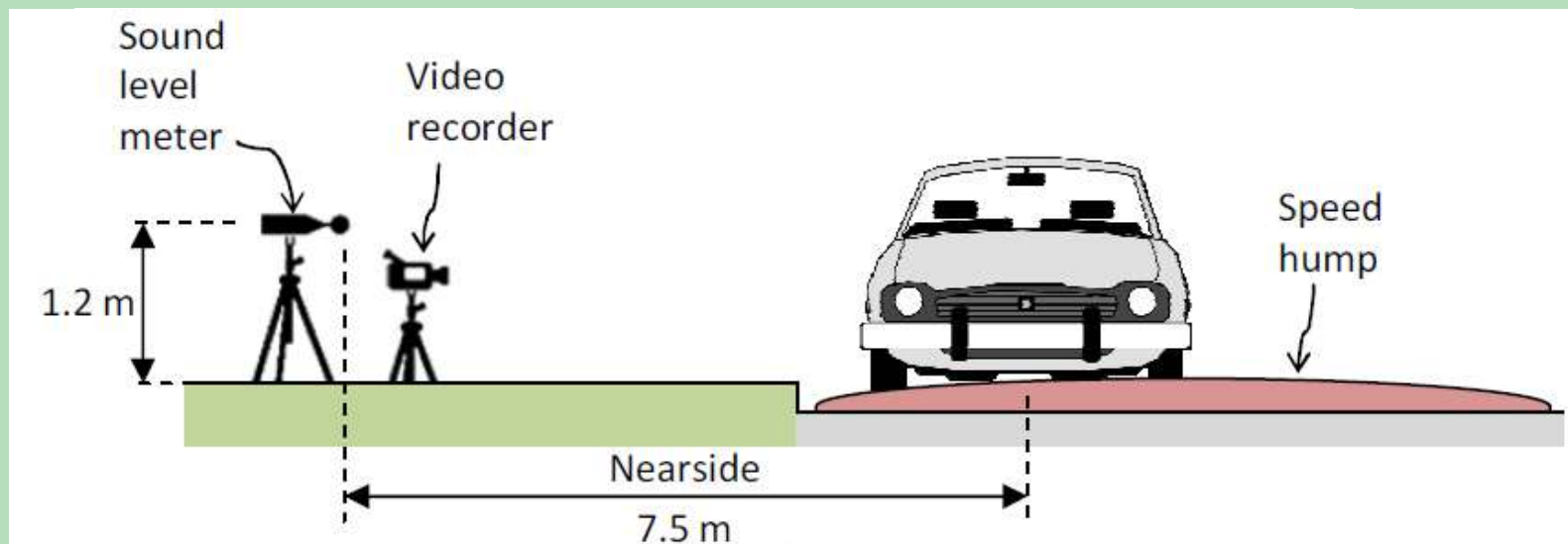


- Cyclists Very Supportive

Impacts of Neighbourhood Traffic Management

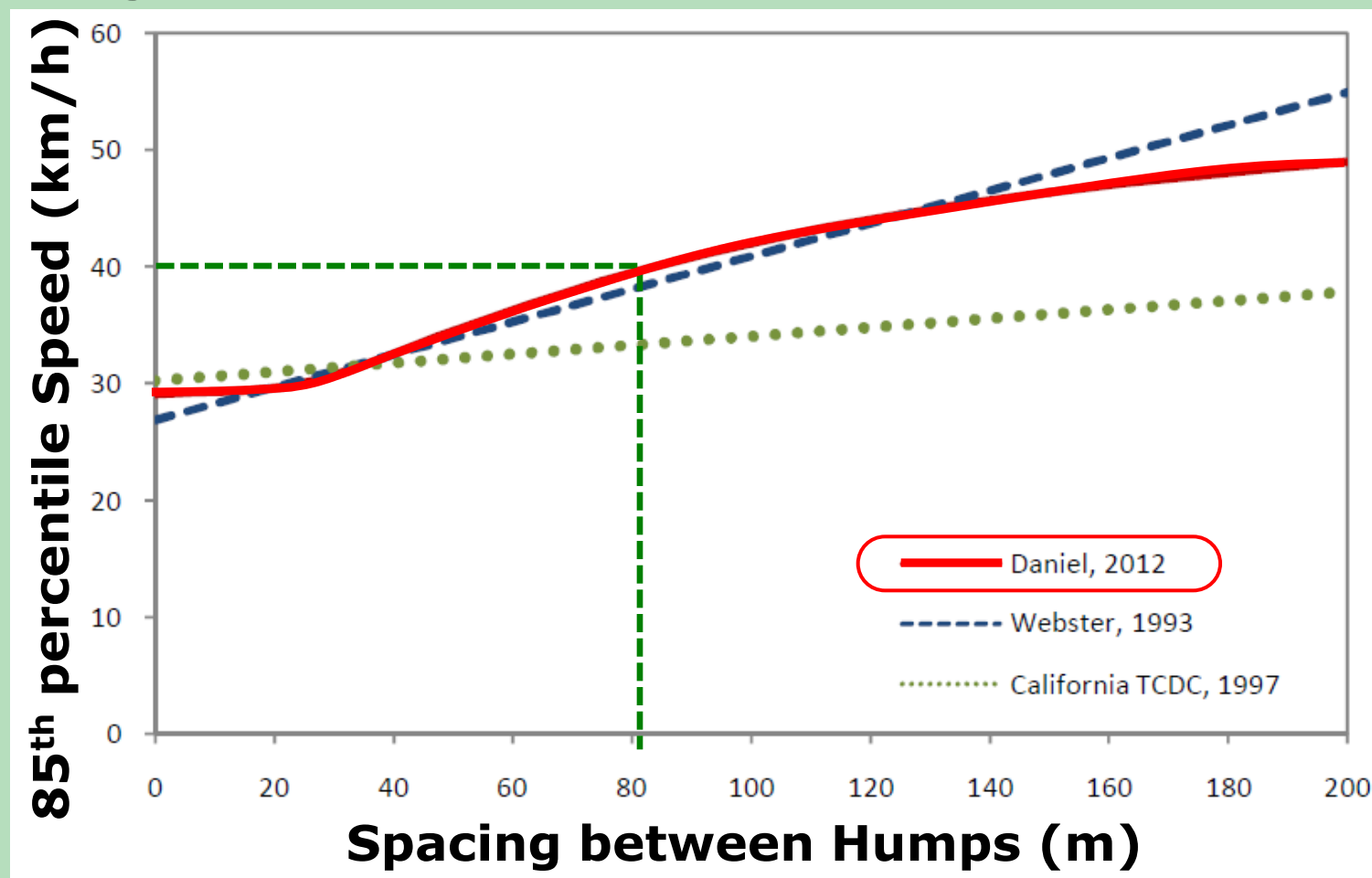


- B.Daniel (PhD 2012)
- Investigated Various Calming Devices
 - Humps, Speed Tables, Chicanes, Narrowings
 - Looked at Vehicle Speeds, Noise, Crashes
 - Developed Predictive Models



Spacing of Traffic Calming Devices

- Design for Desired Maximum Street Speed

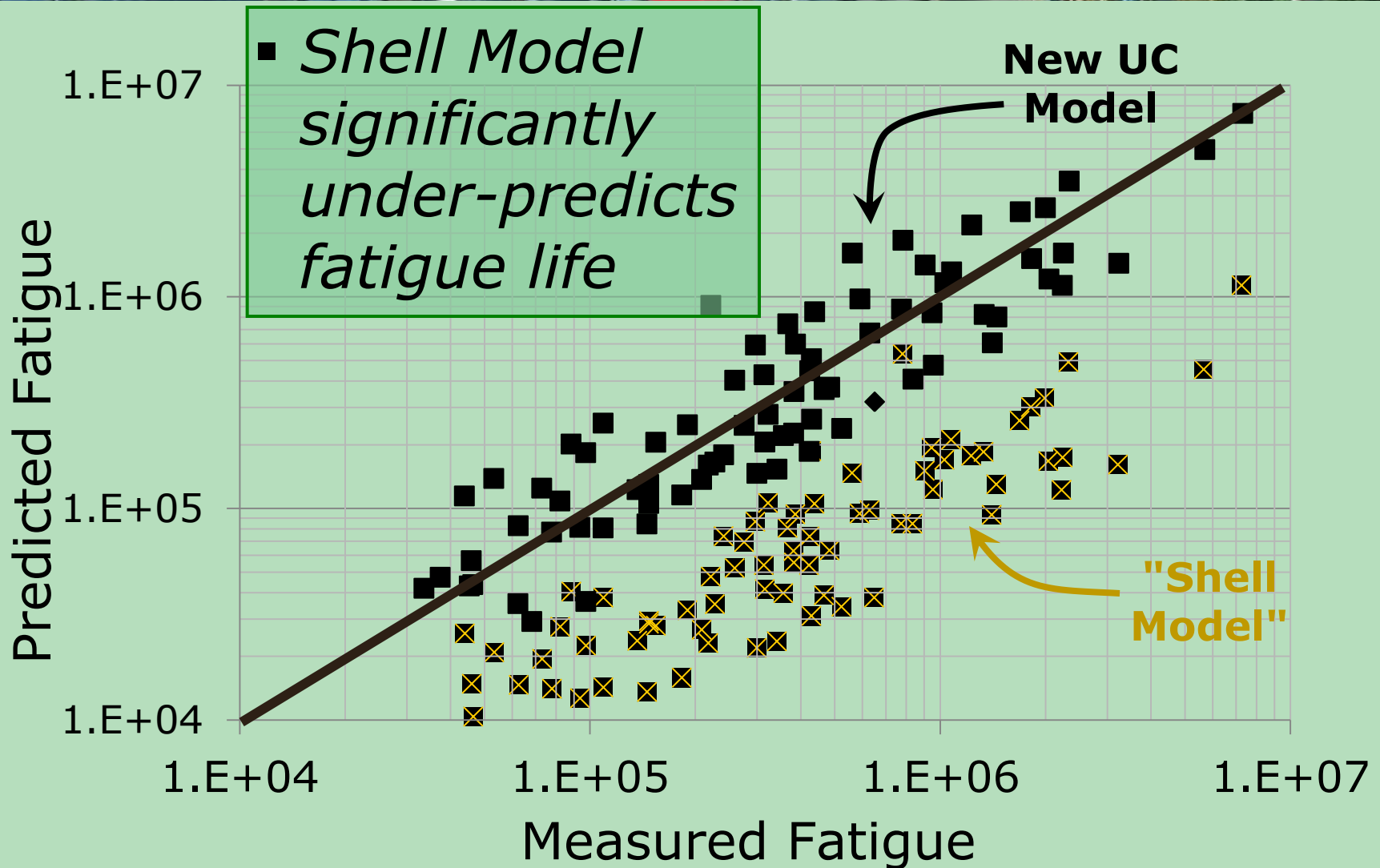


Modelling Asphalt Pavement Fatigue

- A.Stubbs (ME 2011), K.Haora (BE 2011)
 - Research aimed at improving our design procedures and better modelling our materials
 - Identify savings in required asphalt thickness
- Can easily use **30%** thinner asphalt
 - Save >\$100,000/lane-km



Comparison of Pavement Fatigue Models



Delays at Pedestrian Crossing Points

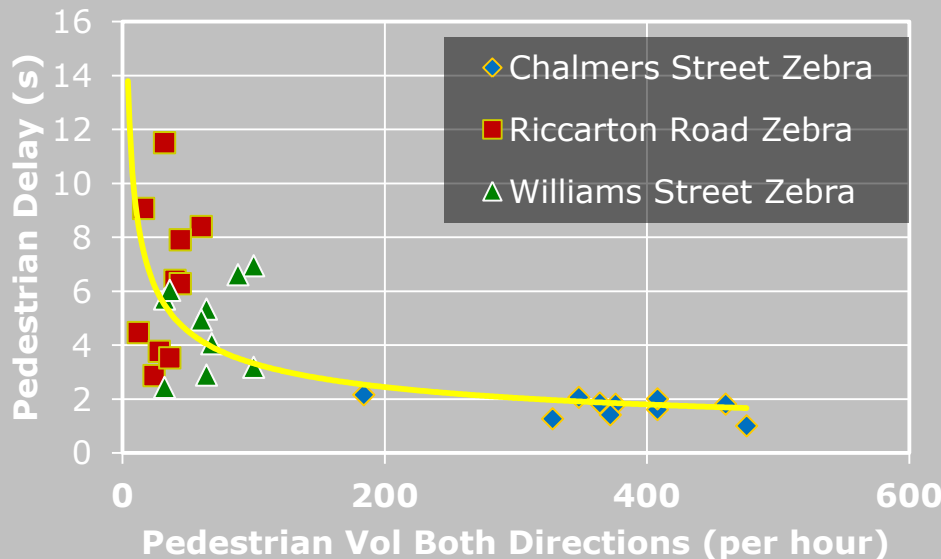
- M.Topp & U.Padcham (BE 2012)
 - Improve NZTA pedestrian delay model
- Surveyed pedestrian crossings
 - Zebra crossings
 - Mid-block signals



Delays at Pedestrian Crossing Points - Results

- Zebra crossing delays are not zero
 - Influenced by Traffic and Ped'n volumes
- Mid-block signals harder to model
 - Traffic Volumes affect optimal Phasing Times

Ped'n Delay vs Ped'n Volume

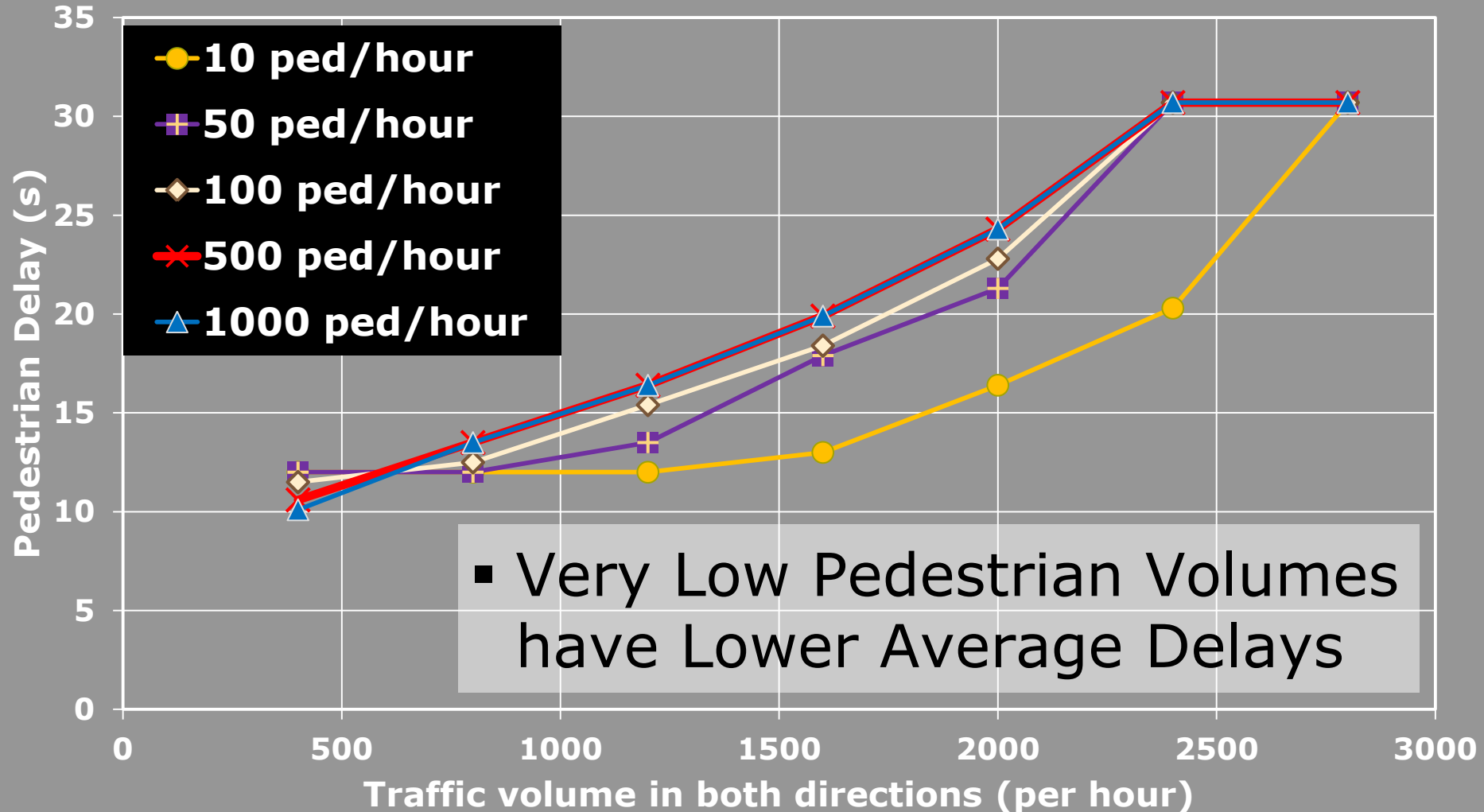


Ped'n Delay vs Traffic Volume




Mid-block Signalised Crossing – SIDRA Model

SIDRA: Pedestrian Delay versus Traffic Volume



Other Research Work

Recently Completed or In Progress

- 
- Assessing One-Way vs Two-Way Streets
 - Bus Bunching & Bus Travel Time Variability
 - Mode-Change Model for NZ Freight Transport
 - Effect of Cycle Lanes on Cycle Numbers/Crashes
 - Speed Limits & Road Environments vs Speed
 - Pedestrian Characteristics at Traffic Signals
 - Design Standards along Fixed PT Corridors
 - Environmental Capacity of Local Streets
 - Risk of Cycling relative to Other Transp't Modes
 - Calibration of Trip Distribution Models

Ask me more about any of these...

How You Can Help Us

- We welcome **your** research ideas!
...and technical/resource support
- For More 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

Thank You!

- Any Questions?

