

# Striding Ahead

## Modelling Unpredictable Crossing Behaviour



Presenter: Steve Abley  
Model by: Courtney Groundwater  
[www.abley.com](http://www.abley.com)  
Friday 19<sup>th</sup> November 2010

Konnichiwa (Ko-nee-chee-wa) - Good afternoon

It is a privilege to be able to share our work with you today. My name is Steve Abley and I am the Managing Director of Abley Transportation Consultants.



Our entry models the existing situation on Ilam Road which is an urban road adjacent to the University of Canterbury in Christchurch, New Zealand.

Due to the University of Canterbury large numbers of pedestrians walk along and cross Ilam Road. There are a limited number of formal crossings along Ilam Road and students cross randomly at any point which takes them to their destination as quickly as possible regardless of how safe it is to cross. Ilam Rd also has high motor vehicle volumes. Safety and efficiency concerns have lead to the need to redevelop Ilam Rd.

Before and after models have been built to show how Ilam Rd could look to enable politicians and the general public to understand and agree to the proposals.

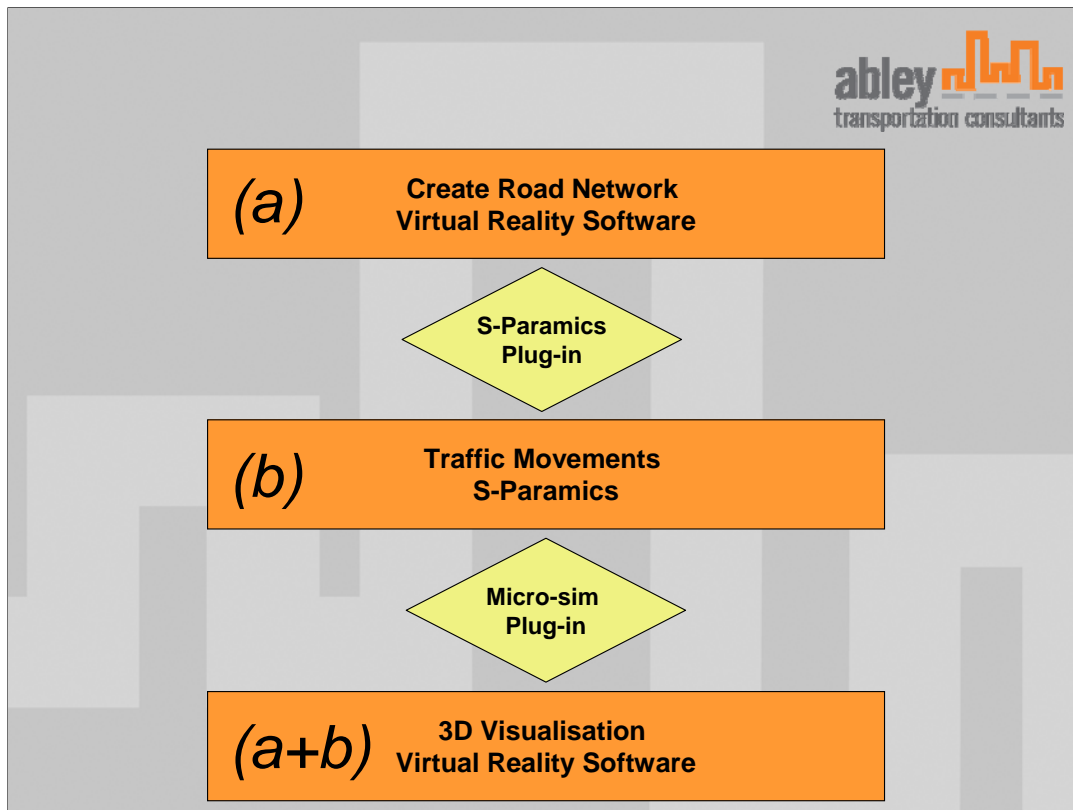


I would like to take a quick moment to tell you about our company in New Zealand. Our Office is only a short 14 hour plane trip from Christchurch, New Zealand to Tokyo.



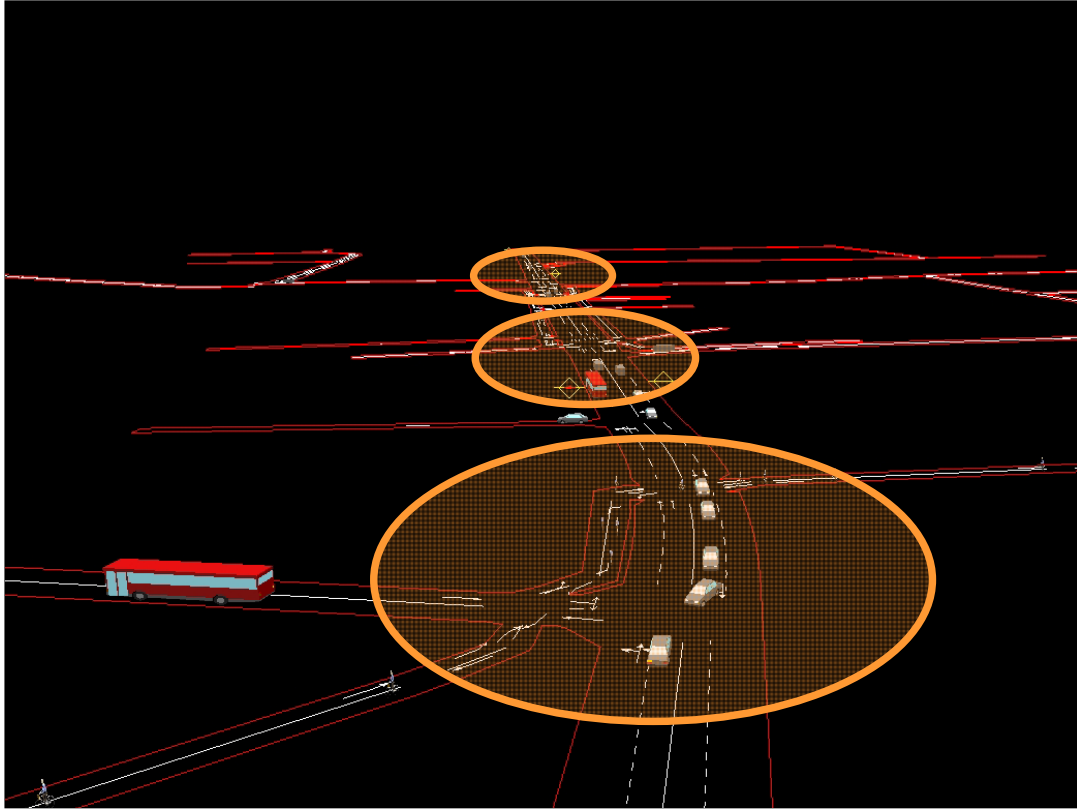
We are a small, specialist, transportation firm of 10 staff, based in Christchurch and have survived the recent 7.1 magnitude earthquake that hit Christchurch 11 weeks ago. This photo was taken three days after the earthquake opposite our offices on Victoria Street. This is our team here standing in front of the Victoria Street clock tower.

In the background you can see some of the damage the earthquake caused. This building has since been demolished.



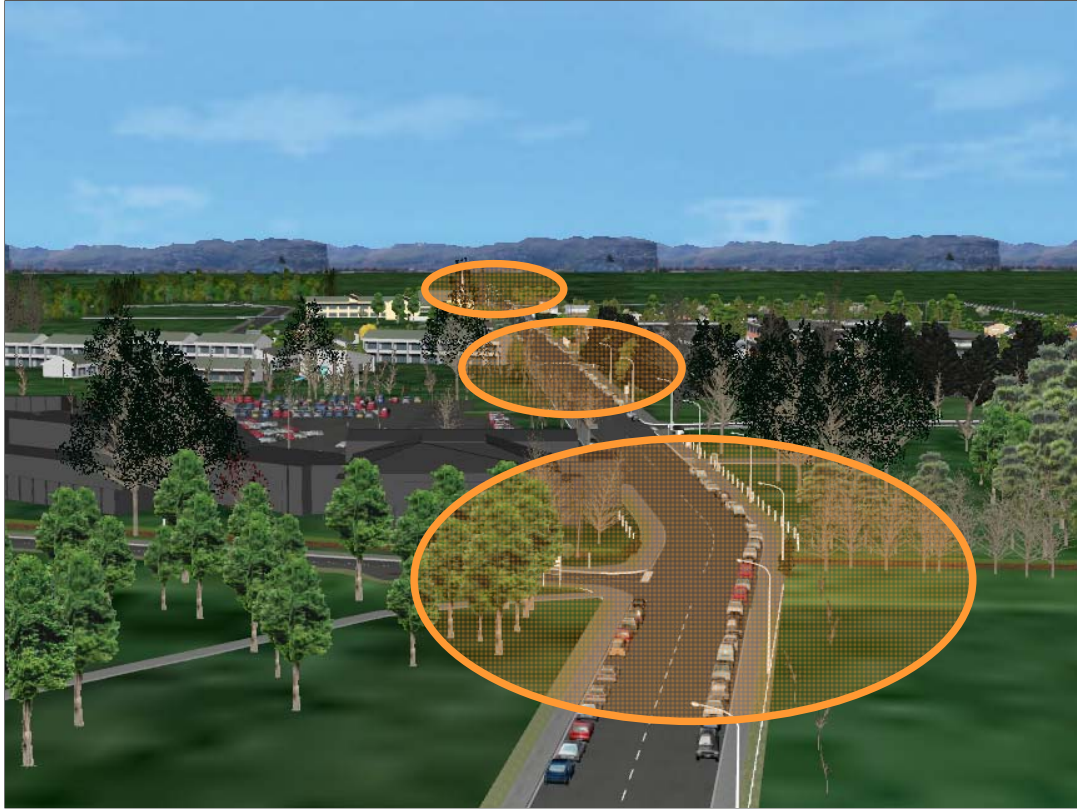
The key feature of our model is the way in which the random road crossing behaviour of pedestrians is represented. This has been achieved through the use of the micro simulation plug in and S-Paramics. S-Paramics is a tool that simulates vehicles to a high degree of precision.

(a) The network was initially created in the virtual reality software and then exported via the S-paramics plug in to S-paramics. (b) Motor vehicle and pedestrian flows along with bus frequencies were input in to S-Paramics. The flows were then run in paramics and vehicle positions in time and space were recorded and exported to a text file. The text file was manipulated in to an xml file using PYTHON. (a+b) The xml file was run using the micro simulation editor/player tool within the Virtual Reality software.



This slide shows 'dummy roads' which were created in Paramics as pedestrian routes, cars on these roads were modelled as pedestrians and changed to pedestrians using the micro-simulation plug in. Paramics was also used to control buses stopping in bus stops and cyclists in cycle lanes, which together adds another level of realism to the model.

The addition of S-Paramics to model the interactions of buses pulling into bus stops to load and unload passengers, as well as people waiting to cross the road, cars waiting for pedestrians to cross where pedestrians have the right of way and cyclists makes this model particularly innovative. You can see some of the complexity of the dummy intersections above, shown inside the circles.



This slide shows the same view but within the model. The mock intersections are cleaned up and are more typical of Ilam Rd but the underlying model now allows for interactions between cars, buses, pedestrians and cyclists.



As I have explained this project intends to solve the conflict between high pedestrian demands and high vehicle flows. Currently Ilam Rd is designed for high traffic flows but little emphasis is given to the high numbers of pedestrians crossing the road.

You can see this here where cars have significant priority and pedestrians are a secondary thought. I will come back to this point soon.



First lets have a closer look at the model (interactive view of model)



We are still working on the future model which will show the proposed solutions to the safety and efficiency concerns.



This is an example of some of the proposed treatments which aim to decrease pedestrian crossing distance and slow vehicle speeds through the construction of a raised median and kerb extensions.

As you can see there is a reduction in the emphasis of the movement function of the car and a rebalancing of the needs of cyclists, pedestrians and buses.

The outcome of this project is that our clients, that is the Christchurch City Council and the University of Canterbury, are excited that they are better able to understand the proposals and explain to decision makers and the public the changes that are about to happen on Ilam Road.

The model is different because it includes for all modes of transport buses, pedestrians, cars and cyclist and they interact.

# Striding Ahead

## Modelling Unpredictable Crossing Behaviour



Presenter: Steve Abley  
Model by: Courtney Groundwater  
[www.abley.com](http://www.abley.com)  
Friday 19<sup>th</sup> November 2010

Thank you for allowing me the opportunity to explain this important project.

Arigatou