

Incident Modelling with Paramics and FUSE

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Outline

Research Objective

Background

Methodology

Conclusions

Further Work

Acknowledgements

Questions

Research Objective

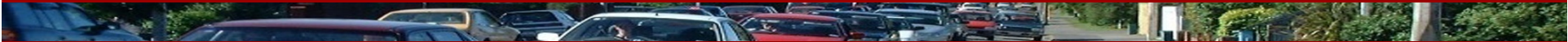
- NZTA Research Project
 - The Effectiveness of Incident Management on Network Reliability
 - Stage 1 report - published
 - Stage 2 research - ongoing

Background

- Incident Management
 - Incident detection
 - Motorway/Arterial network
- ITS
 - SCATS
 - VMS
- Network Reliability



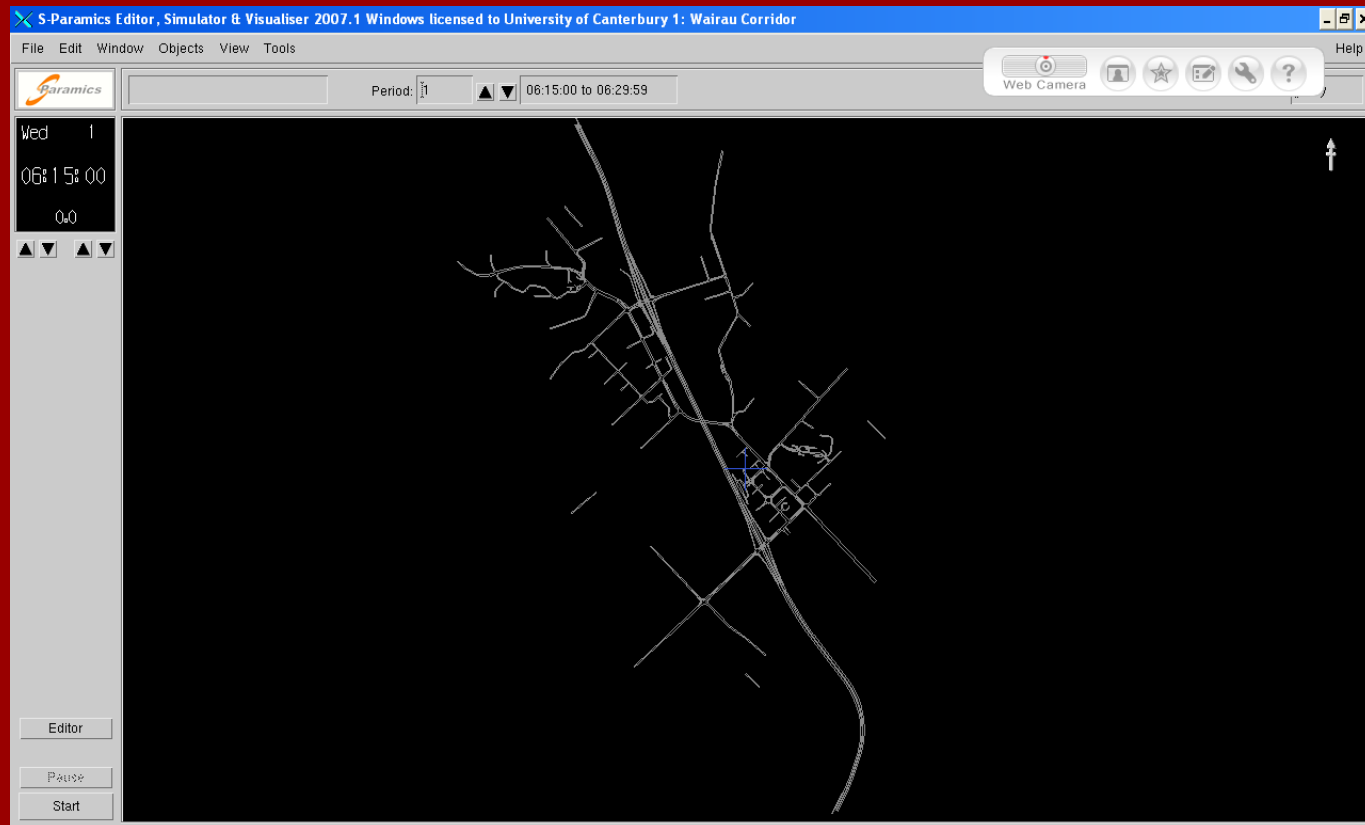
Background



- Microsimulation Modelling
 - Test bed for incidents
- Link to SCATS with FUSE

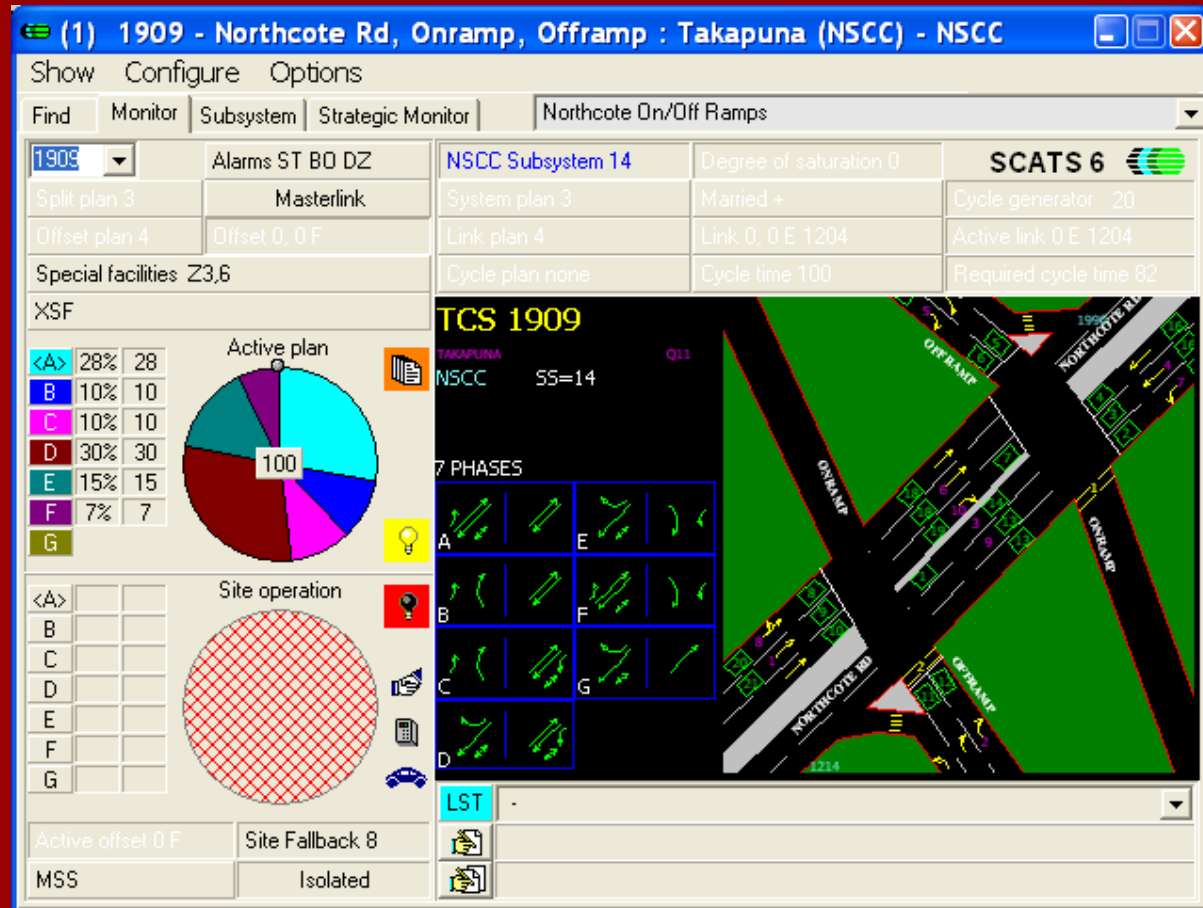
Methodology

■ Wairau Model



Methodology

- Link to SCATS with FUSE

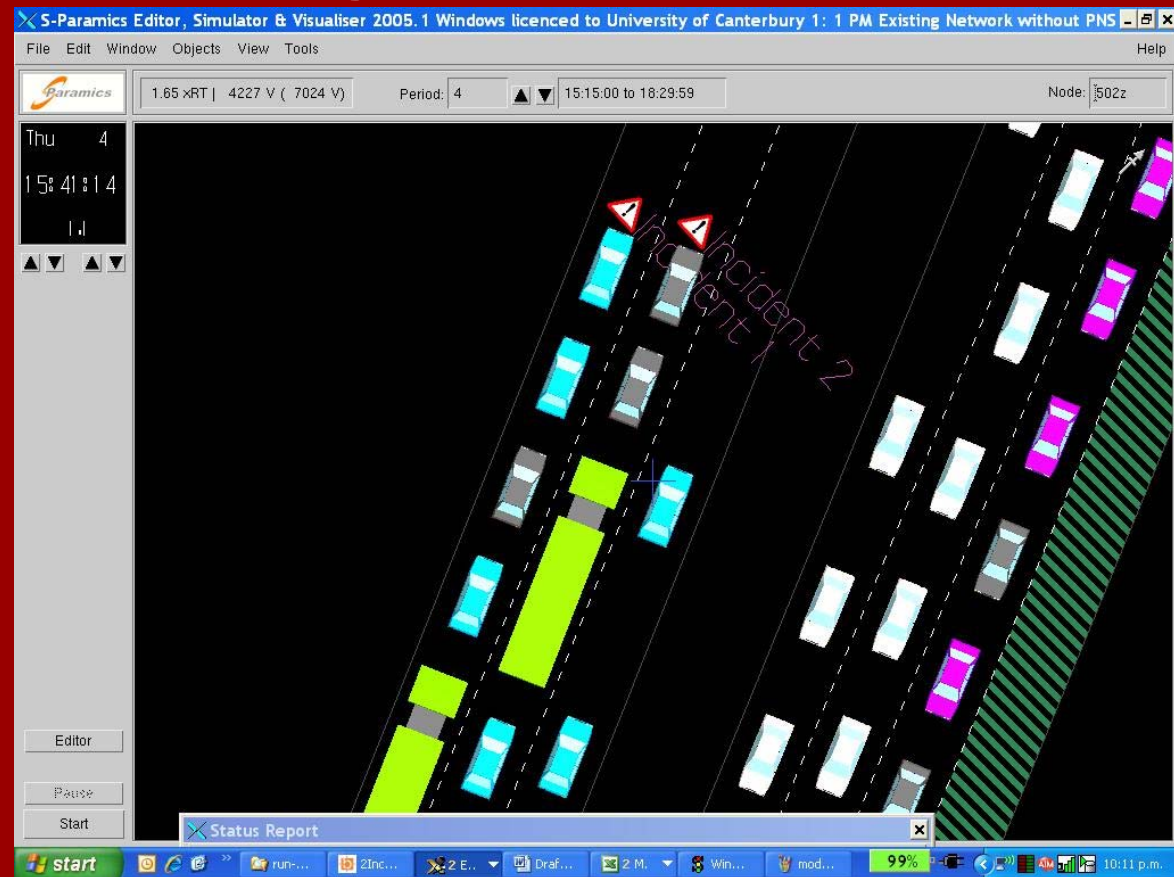


The screenshot displays the SCATS 6 traffic control software interface for the Takapuna (NSCC) - NSCC intersection. The window title is "(1) 1909 - Northcote Rd, Onramp, Offramp : Takapuna (NSCC) - NSCC". The interface includes a menu bar (Show, Configure, Options), a toolbar (Find, Monitor, Subsystem, Strategic Monitor), and a dropdown menu (Northcote On/Off Ramps). The main display area is divided into several sections:

- Control Parameters:** A table of parameters for the intersection, including "Alarms ST BO 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", and "Required cycle time 82".
- Active Plan:** A pie chart showing the distribution of traffic phases. The active plan is 100. The phases and their percentages are: A (28%), B (10%), C (10%), D (30%), E (15%), F (7%), and G (7%).
- Site Operation:** A grid of 7 phases (A-G) with arrows indicating traffic flow directions.
- Map:** A map of the intersection showing Northcote Rd, Onramp, and Offramp, with various traffic signals and lane markings.
- Other Controls:** "Active offset 0 F", "Site Fallback 8", "MSS", and "Isolated" buttons.

Methodology

■ Incident Modelling

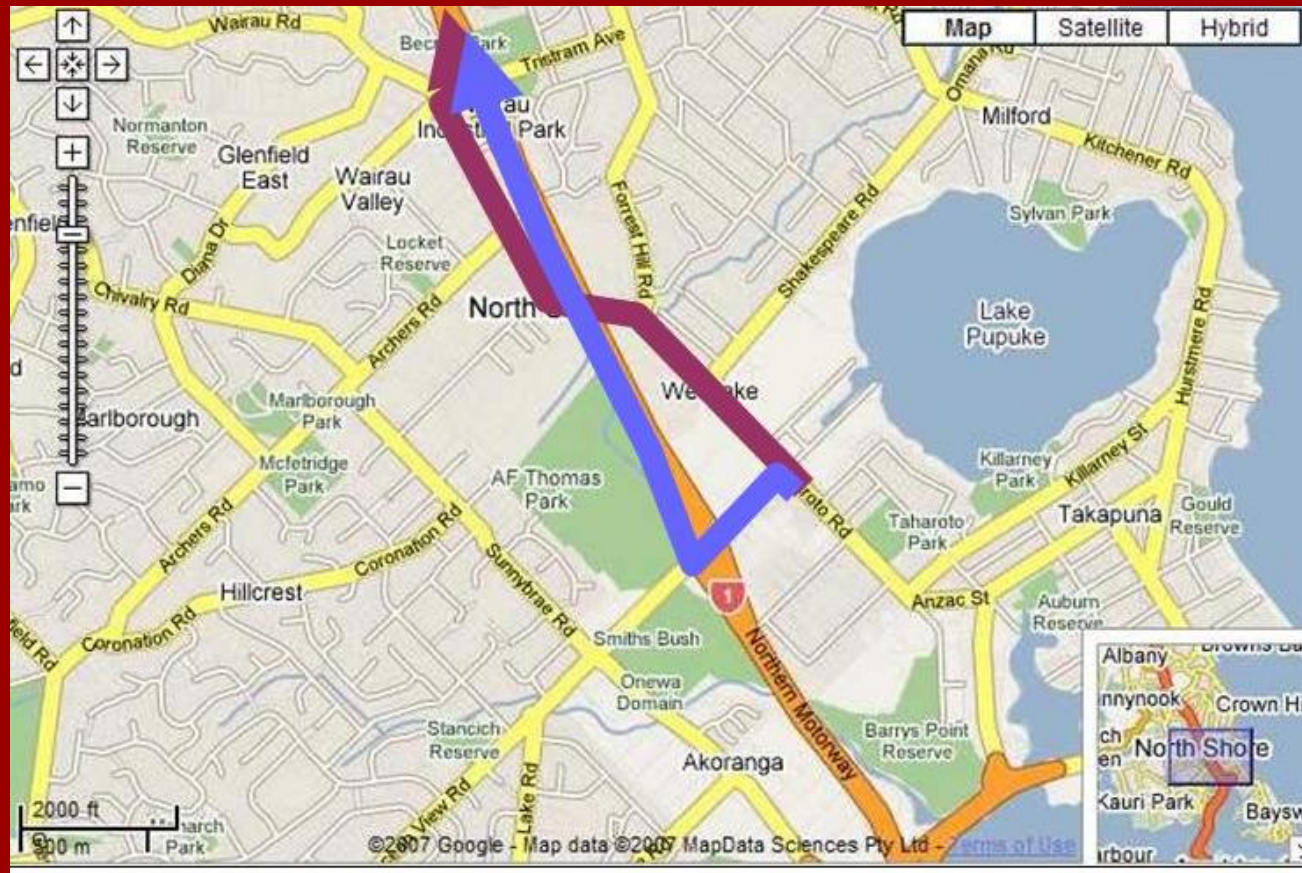


Methodology

- Scenarios
 - Base
 - Incident on Motorway
 - SCATS "as is"
 - Modified SCATS

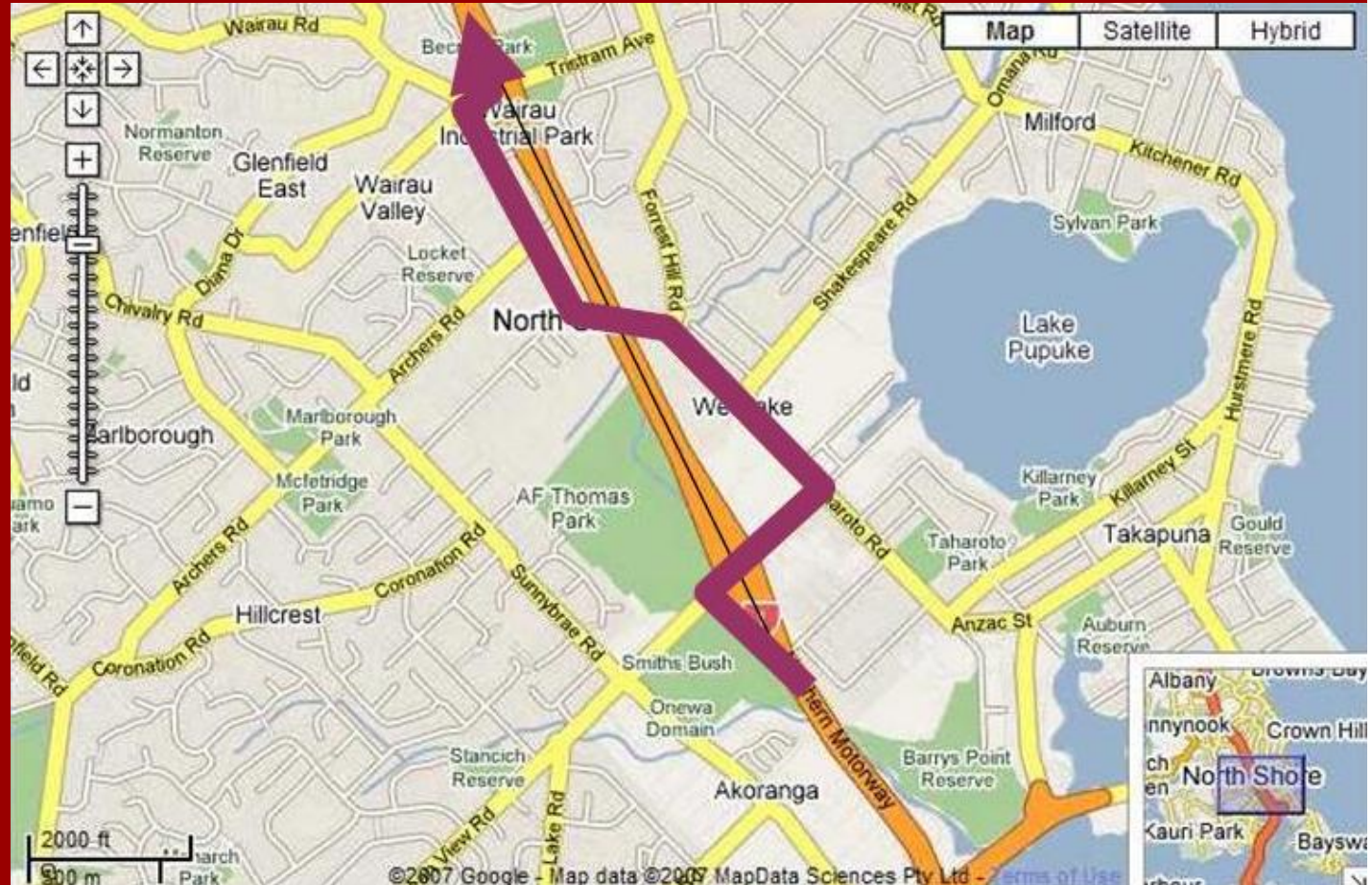
Methodology

- Taharoto diversion



Methodology

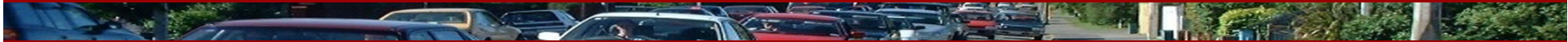
- Northcote diversion



Conclusions

- SCATS "as is"
 - Adapts, but not quickly
 - Priority not given to diversion route
- SCATS operator intervention
 - Small improvement over SCATS "as is"

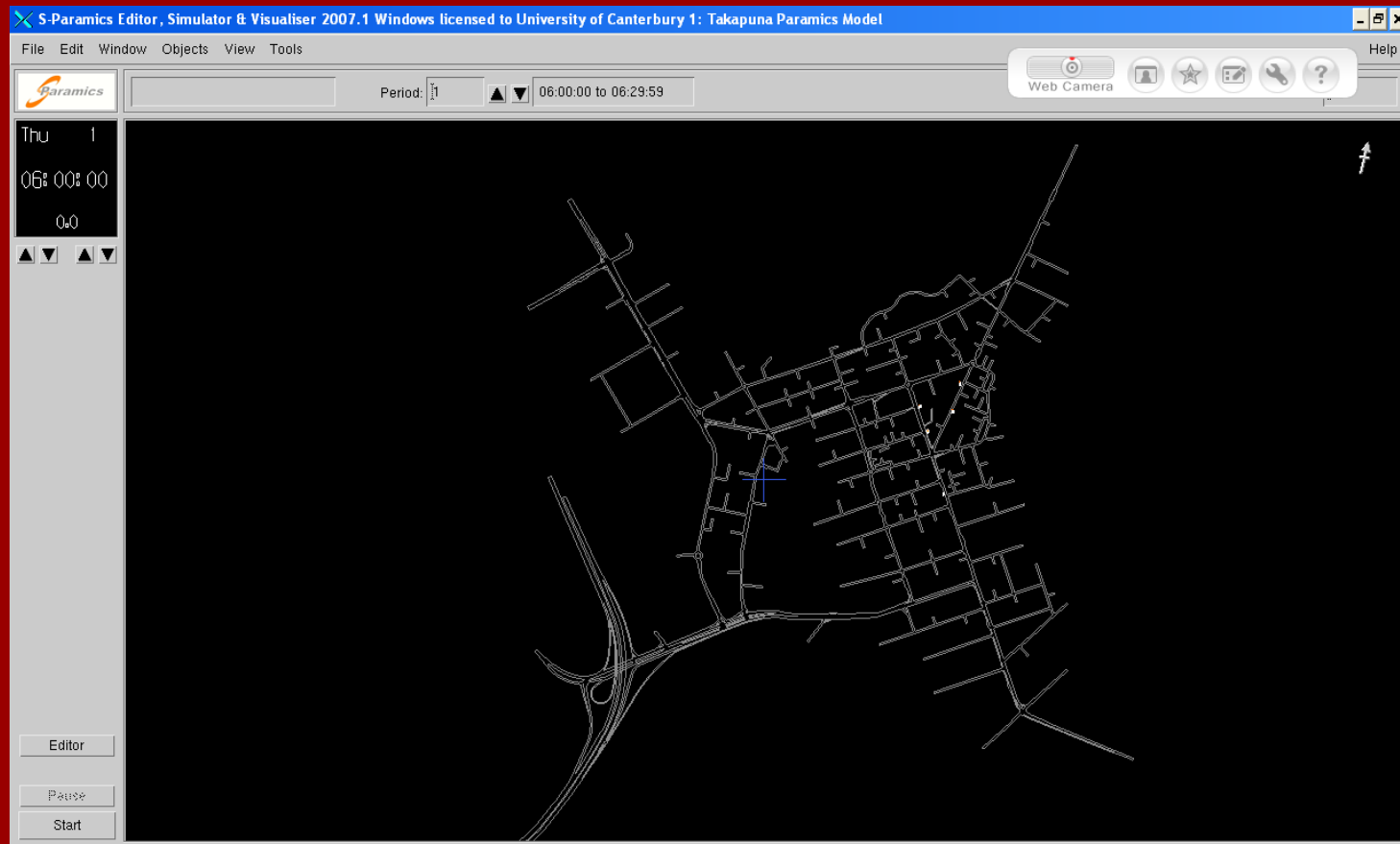
Conclusions



- Diversions routes can be optimised with SCATS
- Spare capacity on arterial network will affect effectiveness of diversion

Further Work

Takapuna model



Further Work

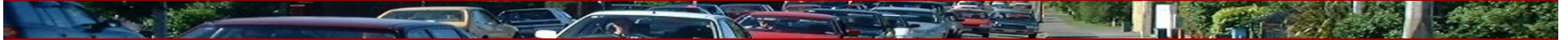
- Stage 2
 - Expand Model
 - Data collection
 - Additional Incident Scenarios
 - Additional ITS Treatments
 - Incident Calibration
 - Incident Detection

Further Work

- Beyond NZTA research project
 - Generic network
 - Network reliability performance measures

Acknowledgements

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- Industry Steering Group
- Others



Questions Suggestions