

Case Study Project: GERI Verification Study

Client: Main Roads Western Australia

Overview

The Great Eastern Highway / Roe Highway interchange (GERI) forms a vital role in the Perth Road network.

In 2009 Urbsol prepared a first principles economic analysis used to secure funding for this important project. The technique involved measuring and monetising improvements in key metrics including VKT, VHT and Accidents using macroscopic and microscopic modelling tools.

As part of the project Urbsol developed a series of microsimulation traffic models to compare a number of design alternatives for post opening date traffic conditions and to evaluate the options and measure the improvements.

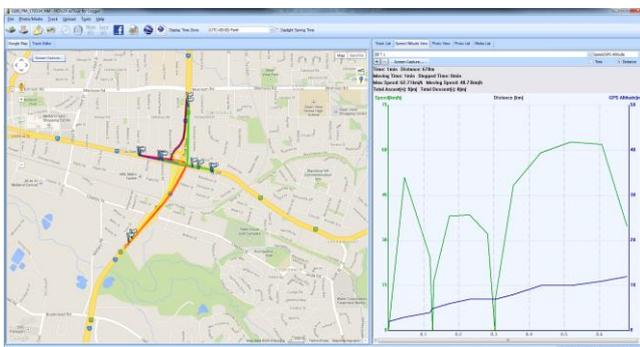
The Study

It has been over a year since this key infrastructure was opened to traffic and Urbsol was re-engaged by Main Roads to validate the forecasted results against key observation metrics:

- o Traffic volumes
- o Travel times
- o Accidents

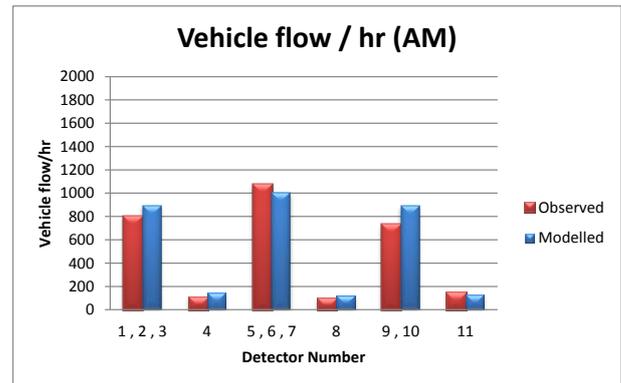
This involved working with a range of existing data sources including:

- o Pneumatic tube (classified) surveys
- o 1 months' worth of SCATS count data
- o GPS travel time surveys
- o Accident histories



GPS log output example

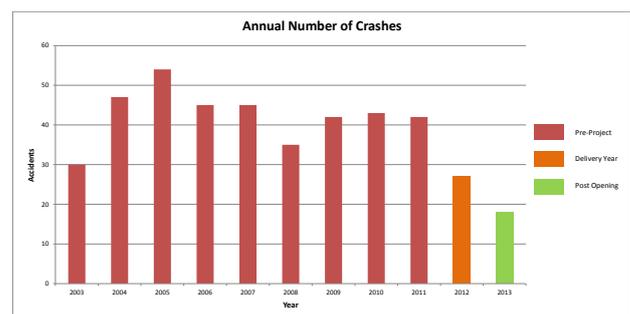
Urbsol collected a range of data and undertook numerous floating car travel time surveys using GPS technology over a series of typical weekdays to understand how the infrastructure was currently operating.



AM peak turning volume validation

Results

Analysis of the modelled against actual data indicated the model predicted traffic volumes well at both the mid-block and turning volume level. At an overall level an R² of 0.97 was achieved and more than 88% of sites had a GEH of 5 or less and no site had a GEH above 7.



Accident history

The predicted travel times through the interchange were well aligned with observation with the worst movement out by less than 45 seconds – at an overall level the difference was shown to be less than 1.5% in the AM peak and under 1% in the PM peak.

Accident histories were considered from 2003 through to 2013 to help understand how the infrastructure was supporting the State's vision of Towards Zero. It was shown that annual accidents post opening were nearly 60% lower than the average of the 9 years prior to opening and about 67% less than the worst of those years despite significant increases in population, registered vehicles and kilometres of travel over that period.

The validation process confirmed the use of appropriate tools capable of producing estimates well aligned to observation and the delivery of a key piece of infrastructure performing to expectation.