Urbsol

Case Study Project: James Street Bus Bridge Access Study

Client: Public Transport Authority/BG&E

Overview

The realignment of the connection to the Wellington Street bus station from Fitzgerald Street will see significant efficiencies for both bus and general traffic movements.

An assessment was to be carried out as to the most efficient way to connect the southern end of the proposed Fitzgerald St bus route with a grade separated bus bridge into Wellington Street Station. Five scenarios were analysed in terms of the performance for buses and general traffic under both current and future demand conditions.

Overview of study area

The Study

As part of Fitzgerald Busway project Public Transport Authority (PTA) plans to increase the frequency of buses per hour from the current 50 to 80.

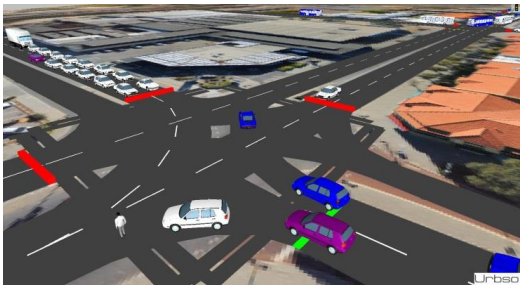
The section of Fitzgerald Street investigated in this study included four signalised intersections in a relatively short and busy stretch of 450 meters. Connections to the bus bridge via Aberdeen St, John St and James St were modelled.

The operation of all traffic signals was simulated using the VISSIM/SCATSIM interface. This provided the opportunity to realistically implement more complex SCATS features like double cycling while maintaining progression along Fitzgerald Street and catering for side street demands. In addition pedestrian phases were fully implemented providing constrained and conservative network testing.

Bus bunching and operation at John Street

Simulation

Simulation provided insight into how very closely spaced signal sites would operate under increased bus frequencies, heavier future traffic flows and different project scenarios.



Pedestrians crossing at signals delaying turning vehicles

VISSIM was chosen as the most suitable tool for this work due to:

- Ability to accurately model vehicle behaviour in congested conditions.
- Flexibility in application of different bus frequencies and dwell times
- Ease of interfacing with SCATSIM for realistic modelling of existing and proposed signal phasing including pedestrian push button calls, walk and clearance times
- Ability to output traffic engineering performance measures for all road user classes
- Very powerful visual presentation.

The result of the assessment pointed to difficulties with on-street bus stops in some scenarios. Based on sub-standard bus performance and increased upstream queues the scenarios with on street stops were eliminated. The choice was to be made between the Aberdeen St and John St options considering both operational and land acquisition criteria.