

## Case Study Project: Perth Stadium Egress Operation

Client: Public Transport Authority of Western Australia

### Overview

The Perth Stadium (PS) will represent a major activity point in the landscape of Perth being home to many major sporting events including the AFL, Rugby, Soccer and Cricket. With initial capacity of 60,000 seats, it is clear that one of the major challenges will be ensuring an efficient and safe access, to and from the venue.

To help meet this challenge, an integrated public transport approach has been proposed that includes rail, bus and pedestrian solutions. Understanding the capacity and operational constraints of real life systems is key in determining optimal operating conditions.

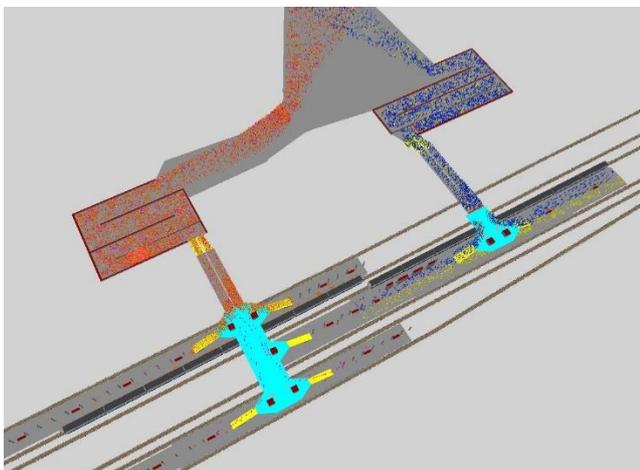
### The Study

Urbsol was engaged by the Public Transport Authority (PTA) to assist with the analysis of various design elements of the precinct with a focus on the movement of people to, from and around the stadium.

Three of the key egress components that formed part of this study were:

1. The Perth Stadium Station
2. Nelson Avenue Special Events Bus Stands, including the pedestrian footbridge
3. The East Perth Station, including Graham Farmer Freeway Pedestrian Bridge

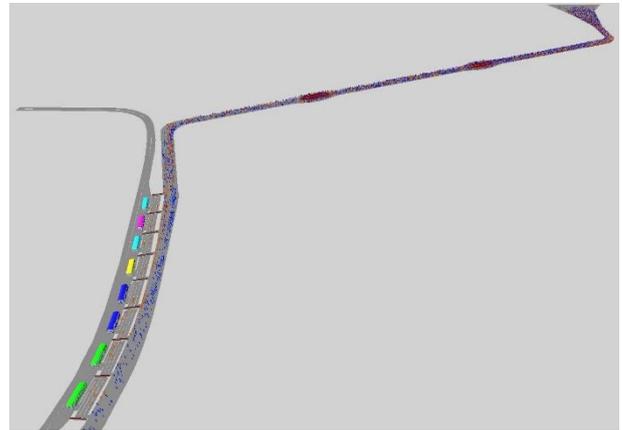
This project involved the use of a number of tools with a focus on detailed crowd simulation models to help understand how each of the egress components would function, required management overlays during event operation and possible refinements to the reference design to improve predicted conditions for patrons.



Perth Stadium Station model snapshot

### Simulation

To understand likely operating conditions, Urbsol used VISWALK to model a variety of egress scenarios for each of the study areas.



Nelson Avenue special events bus stands model snapshot

Performance metrics used to assess options included:

- Predicted travel and egress times
- Pedestrian densities and levels of service
- Public transport waiting times

VISWALK was chosen as the most suitable tool for this project for a number of reasons:

- Tried and tested pedestrian simulation engine
- Integration between pedestrian and vehicle modelling
- Ability to replicate pedestrian bottleneck theory including layer formation
- Robust data collection and extraction

The analysis helped understand where critical bottlenecks were likely to form and how modifications to the reference design and planned management overlays were likely to affect performance.

In addition to a simulation based approach to the work, use was also made of static modelling techniques and data visualisation engines to communicate model outcomes.