# Case Study Project: T1 / T2
Client: Main Roads Western Australia

Overview

The Kewdale Freight Terminal (T1) represents Perth's largest inland container terminal processing 400,000 TEU's per annum. T1 is anticipating significant growth between now and 2031 where annual throughput is expected to reach 1,000,000 TEU's. Accompanying the increase in freight tonnages, 23 hectares of land within the leased area will be developed as a customer precinct.

Alongside the expansion of T1, the Public Transport Authority (PTA) are looking to bring on-line T2 – a neighbouring facility capable to handling a further 400,000 TEU's.
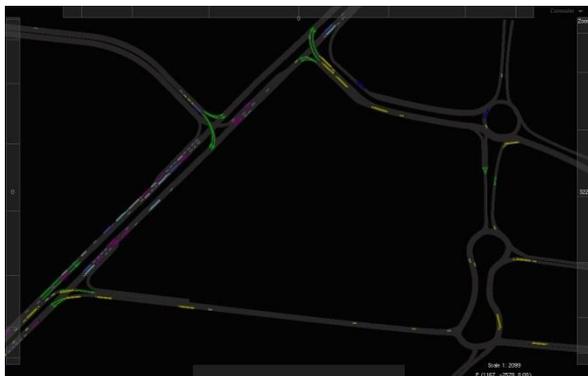
Freight terminal layout

The Study

As part of the work on the *Gateway WA Perth Airport and Freight Access Project* Urbsol were asked to investigate the impact of increased freight tonnages and commuter vehicle numbers through the freight terminals on the local road network.

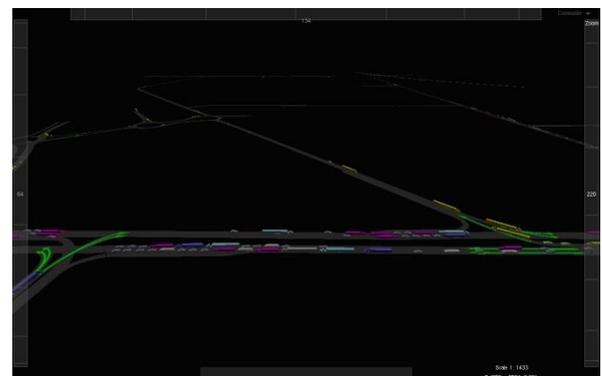Traffic signal proximity - eastern entrance

The traffic analysis was especially complex due to the proximity of 3 signalised intersections in a 340m stretch of already busy road carrying over 20% freight traffic.

Existing freight volumes in the area see in cases 30% commercial vehicles with a large contribution made by class 9 (semi-trailer) vehicle types.

The terminal area itself is expected to increase from about 120 heavy vehicle trips in its peak operating hour to 600 and at the same time light vehicle trips are expected to number nearly 800. Complicating operation is the fact that terminal peak operating times are expected to coincide with the wider network peak periods.

Simulation

Simulation allowed for the analysis of how the signalised intersections could be co-ordinated to minimise delays and reduce the number of stops for all vehicles.

Traffic signal proximity - western entrance

Commuter was chosen as the most suitable tool for this work for a number of reasons:

o Detailed heavy vehicle kinematic modelling

o Spatially aware agent modelling

o Powerful signal actuation rules

o Detailed LoS reporting of intersection performance including number of stops

The work involved the simulation of 4 different user groups (T1 Heavy Vehicles, T2 Heavy Vehicles, T1/2 Light Vehicles and background traffic) for both AM and PM peak hours.