

# Dent St Traffic Trials 2007



# Background

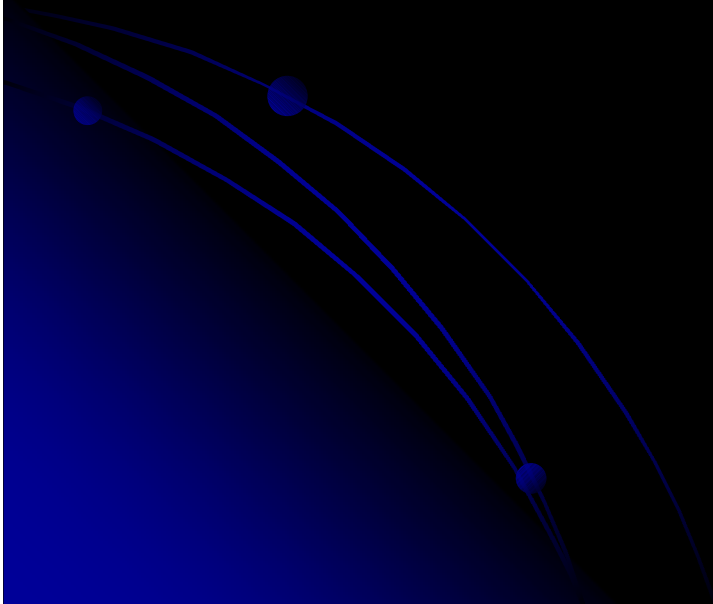
- In 2005 a construction project was completed to rationalise the roading network in the Whangarei Town Basin area
- This project reduced the number of signalised intersections from 6 to 4 and removed the one way system which had been in place since 1972 and had reached capacity.

# Old Town Basin Layout



# Old Layout description

- | One way street system
- | 6 signalised intersections
- | Delays in moving traffic through system
- | Capacity issues due to growth in the CBD



# Current Town Basin Layout



# Current Layout Description

- ┆ Intersections reduced to 4.
- ┆ Two signalised pedestrian crossings
- ┆ One way street system removed - James and John Sts now 2 way
- ┆ Congestion still is a feature as a result of growth/trip attraction and lack of route choice which masks any gains made.

# Dent St traffic trial background

- By late 2006 negative public perception of the scheme had reached the stage where Management requested a study to look at improvements.
- Issues included queuing on Lower Dent St, delays and congestion in the lower CBD.

# Dent St Trial Traffic background

- Some of the issues highlighted relate to network issues and growth.
- The study considered whether changes to cycle length, phase splits and coordination would reduce travel times and alleviate queuing during the evening peak period

# Trial Initiation

- | The trial programme came from a desire to have a rational study that had a scientific basis rather than a “try it and see” approach that Management initially requested.
- | To facilitate this Urban Traffic Design assisted us with the design of the trial/peer review, and;
- | Baseplus provided the modelling and reporting services together with QA of any intersection software specifically written for the trial.

# First Steps

- | A decision was taken early on to use PARAMICS/SCATSIM based corridor modelling. Advantages are:
  - | Rapid Option Testing
  - | No risks to the public
  - | Good reporting
  - | Interactions between intersections can be examined together with SCATS inputs

# Initial Data Requirements

- ┆ Intersection turning counts to develop the origin-destination matrices
- ┆ Queue length surveys to calibrate the base model
- ┆ SCATS system files
- ┆ Intersection software files (“personalities”)
- ┆ Aerial photos and GIS information

# Options

- | Ten Options were tested in the model

- | Base model

to duplicate current network conditions – used to establish calibration

- | Option 1:

SCATS data alterations a,b,c

- | Option 2:

- Four phase split approach phasing Dent/Hatea with modified lanes merging Dent St northbound

- | Option 3:

Reversing the DO at Dent/Hatea

# Options continued

- | Option 4a:

As 2a with modified lane arrangement

- | Option 5c:

no exits from James and John Sts

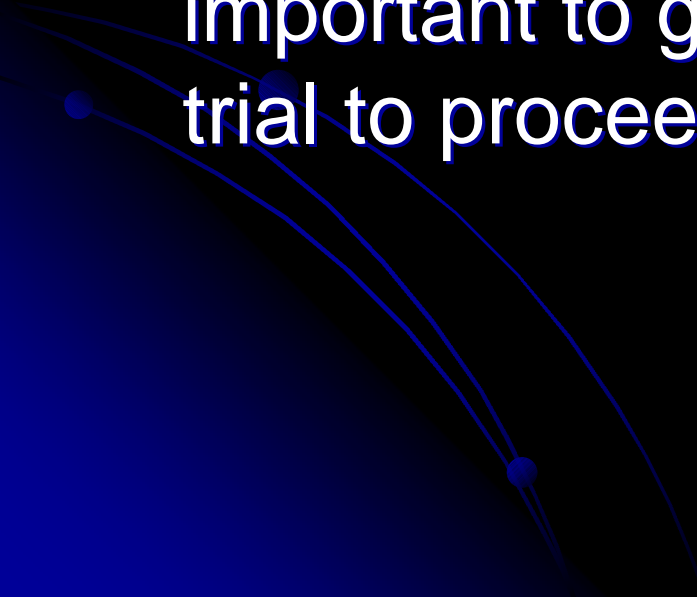
- | Option 4aa:

As 4a with a single right turn lane southbound into  
Walton St

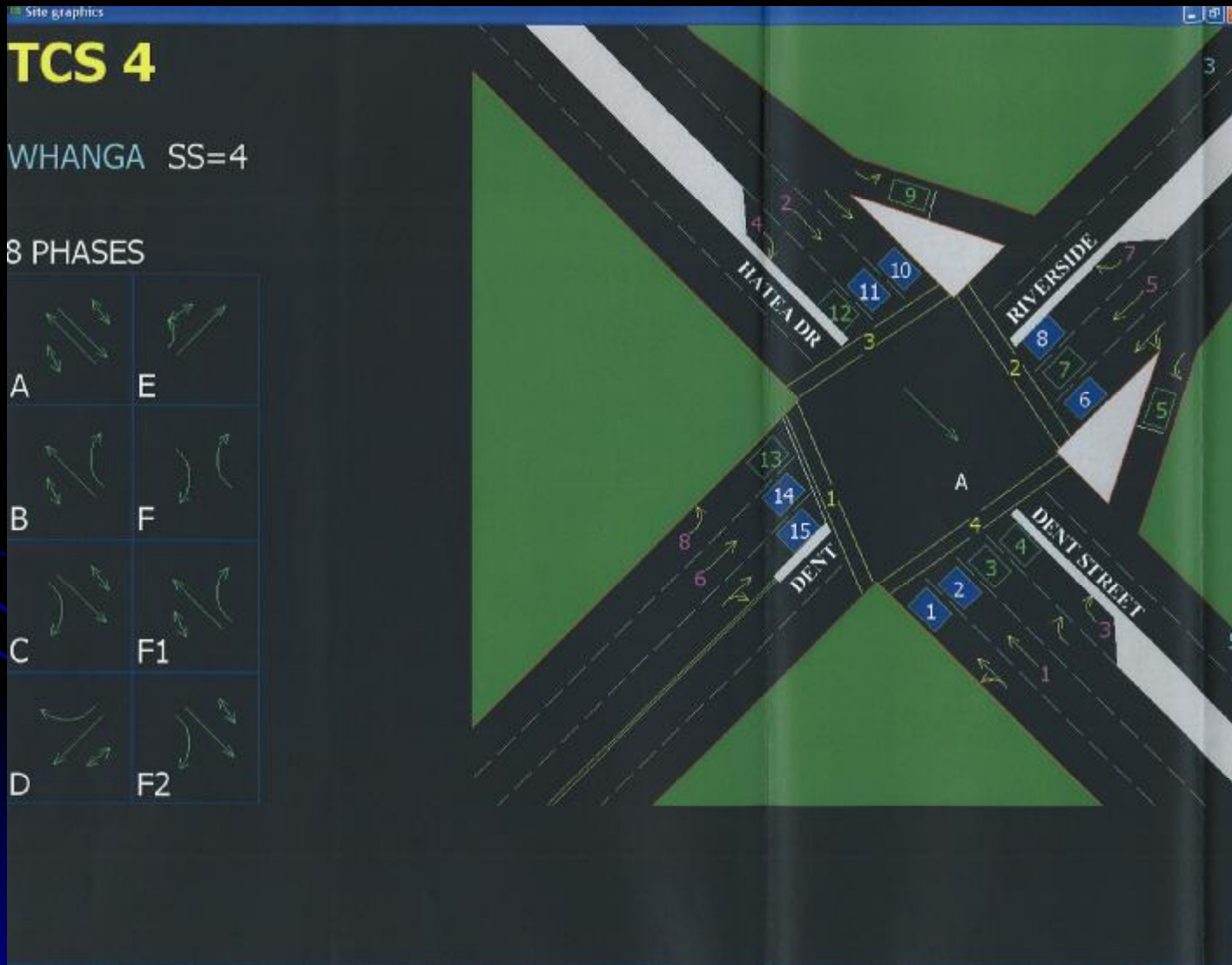
- | 4a and 4aa\_2LT:

As 4a and 4aa except the lanes in the left turn  
from Riverside Dr to Dent St increase to 2 and  
this is signalised.

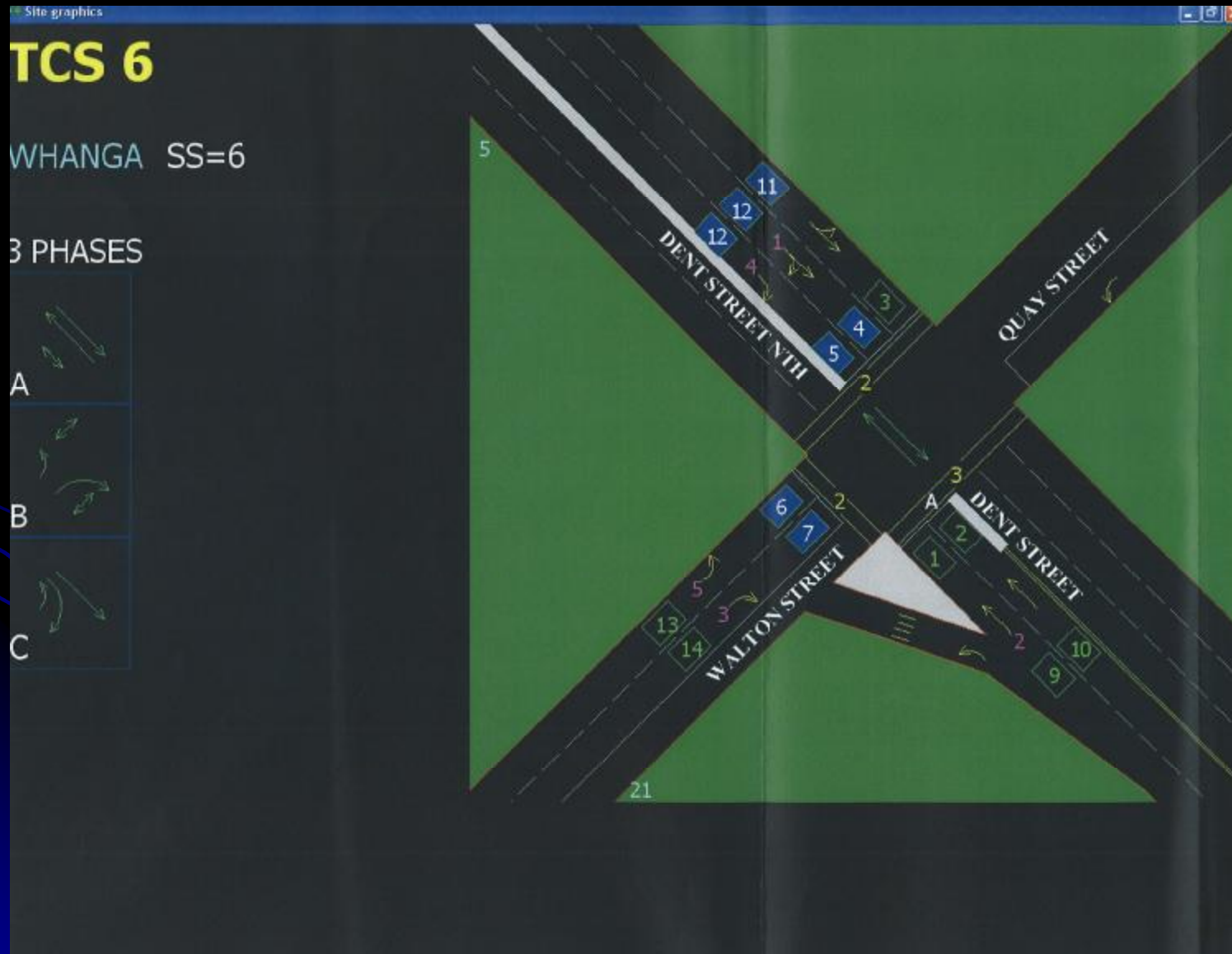
# Pre-implementation preparation

- A series of briefings with Management and Elected Members was held.
  - This discussion and explanation was important to gain “buy-in” for the on-street trial to proceed and satisfy any concerns.
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# Original Phasing Dent/Hatea



# Original Phasing Walton/Dent



# Risk Management for On-Street Trial

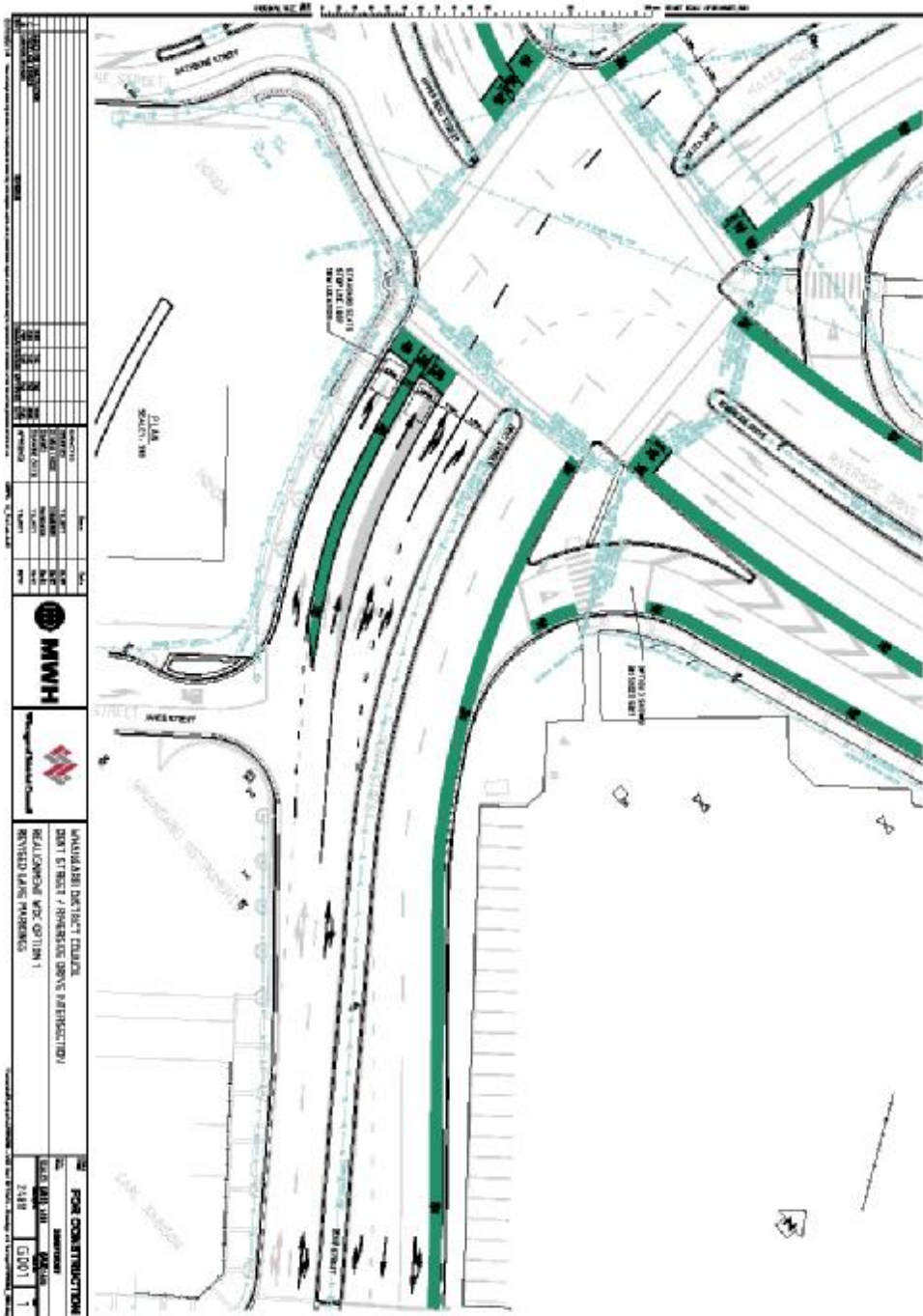
- Much risk already removed by modelling programme.
- Implementation on a Sunday to minimise travel disruption.
- Planning to roll-back Dent/Hatea intersection to the previous software if major issues occur.

# Safety, QA and other matters

- As the design for the preferred option involved alterations to the intersection layout, especially at Dent/Hatea a safety audit was commissioned.
- This mainly revealed concerns around cycling which will be addressed if and when the trial works become permanent.

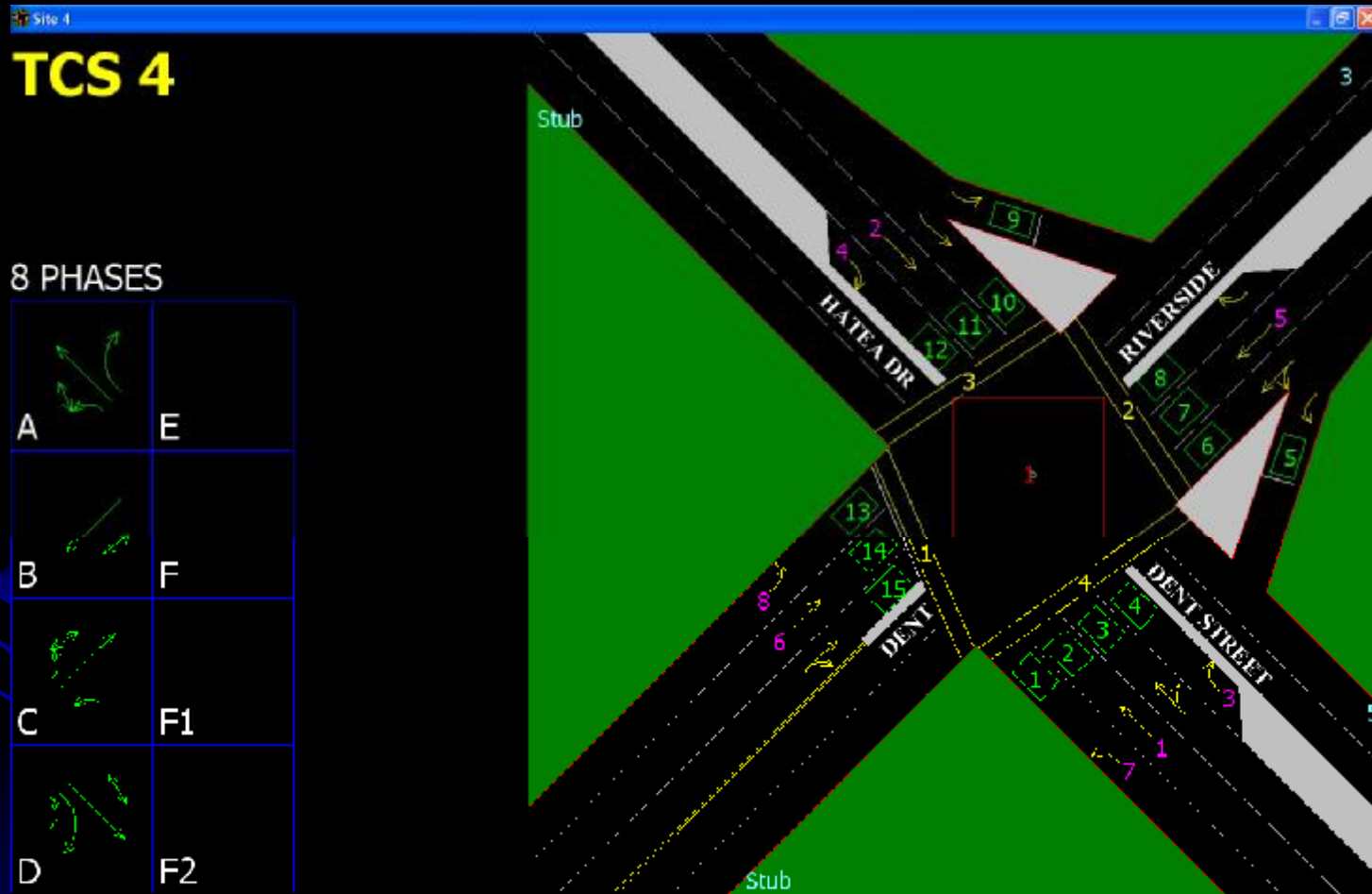
# On-street trial implementation

- We elected to test the 4aa Option on-street. Its features:
- 4 phase split approach at Dent/Hatea
- Thru-left lane converted to left only and thru lane converted to thru-right
- Thru-right lane at Walton/Dent converted to thru only with revised logic.



- | Layout tested at Dent/Hatea intersection.
- | Cycle lane was moved to position shown but stop boxes not installed for trial so that existing loops remained intact for reversion if required

# Trial Phasing Dent/Hatea





# Trial Phasing Walton/Dent



# On-street trial implementation cont

- The other option which proved promising was the addition of a signalised double left turn sliplane at Dent/Hatea. This has not been taken further at this stage.
- These two options were also modelled in the am peak period to confirm that problems would not occur.

# Results

- Complete results are yet to become available
- Subjectively the option tested on street has improved the corridor's throughput and reduced the queue lengths during the evening peak period
- This was confirmed by feedback from the staff conducting the intersection counts.

# Thank You!

## Questions/Discussion?

