



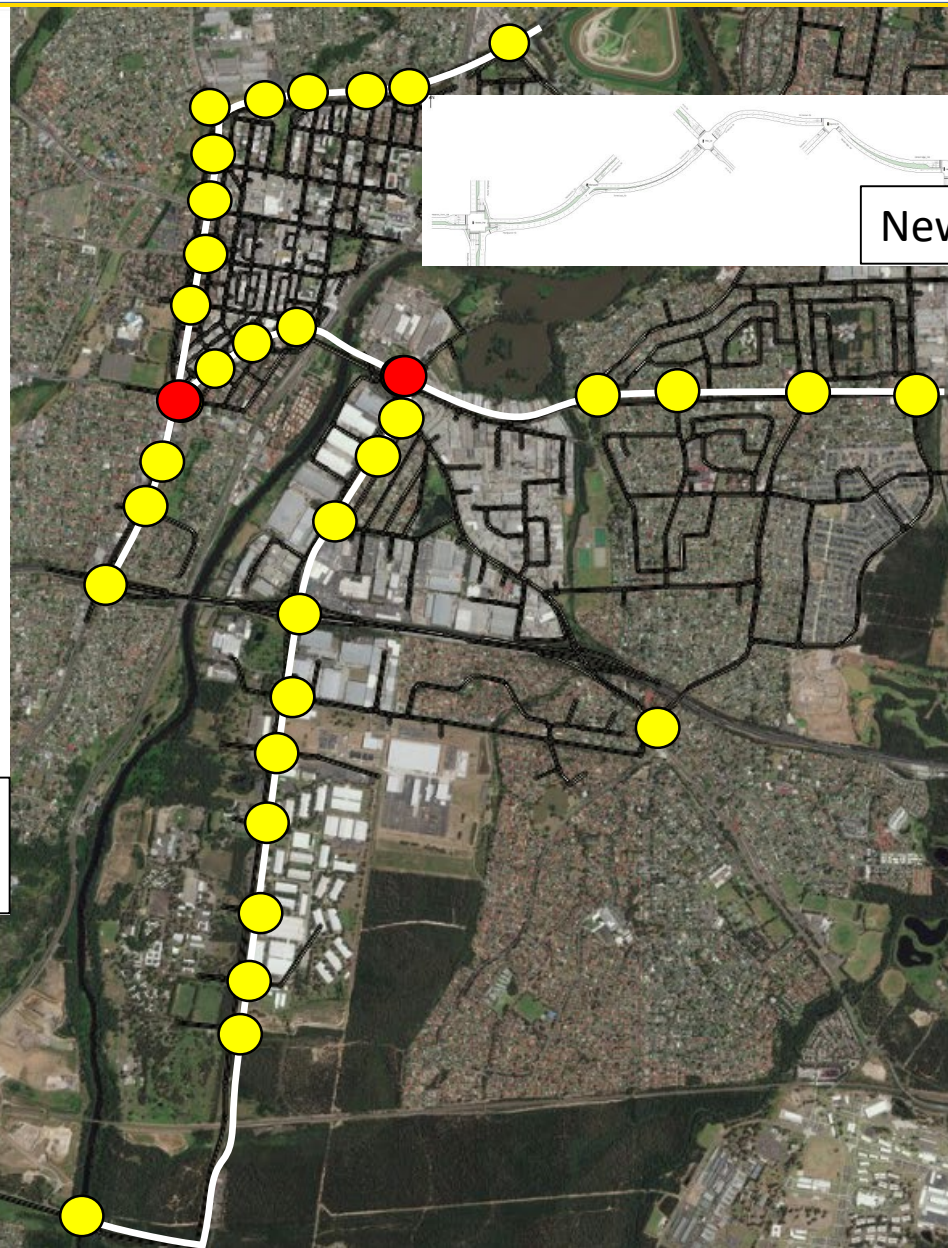
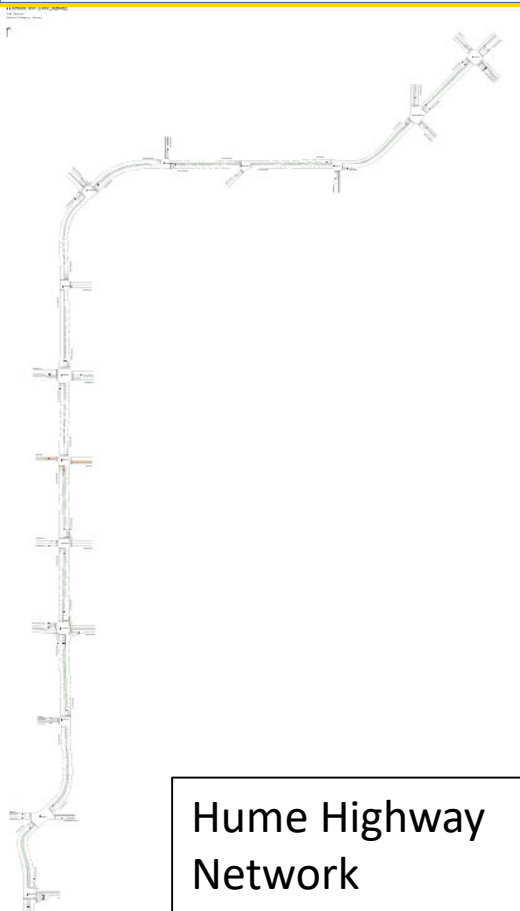
## SIDRA INTERSECTION 8

DESIGN LIFE, FLOW SCALE AND SENSITIVITY ANALYSIS FOR NETWORKS

22 Nov 2019 - Melbourne - SIDRA USER GROUP MEETING

Using SIDRA API for Emme and Dynameq – Practical Example

Matthew van den Bos





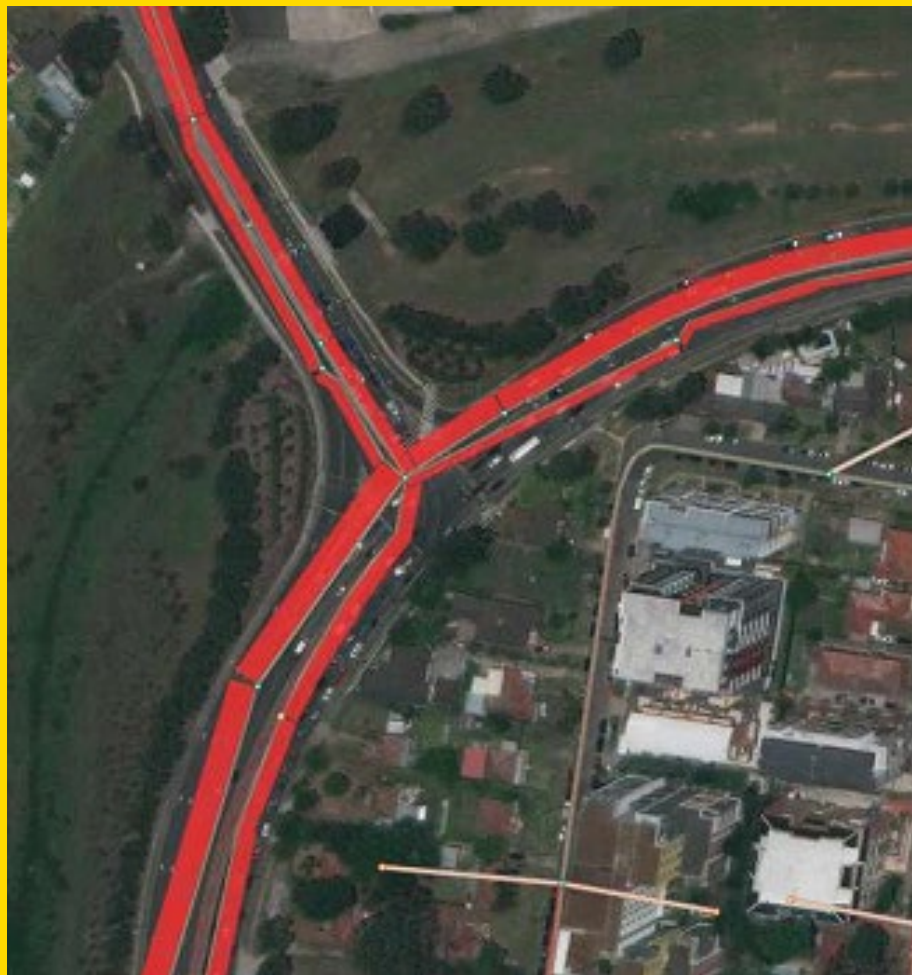


# TRANSPORT MODELLING



Emme

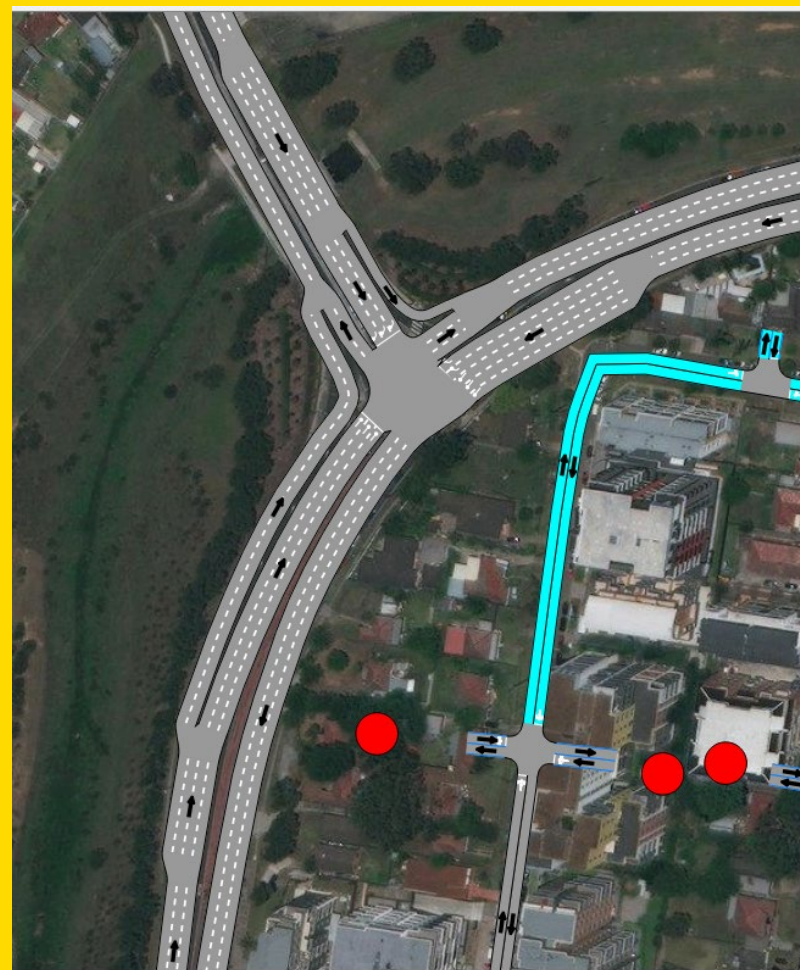
The World's Most Trusted  
Transportation Planning Software

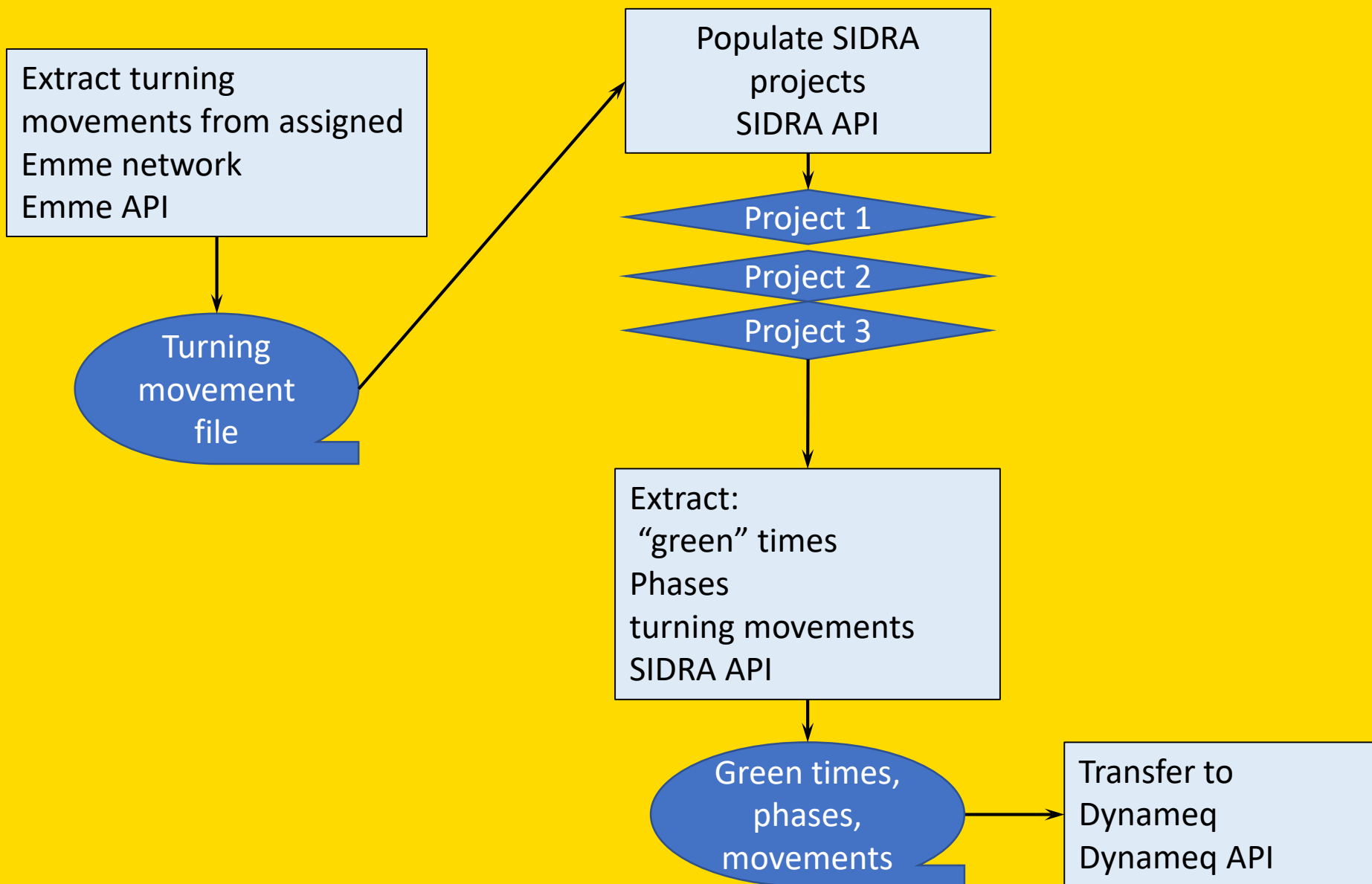


## Background



Dynameq



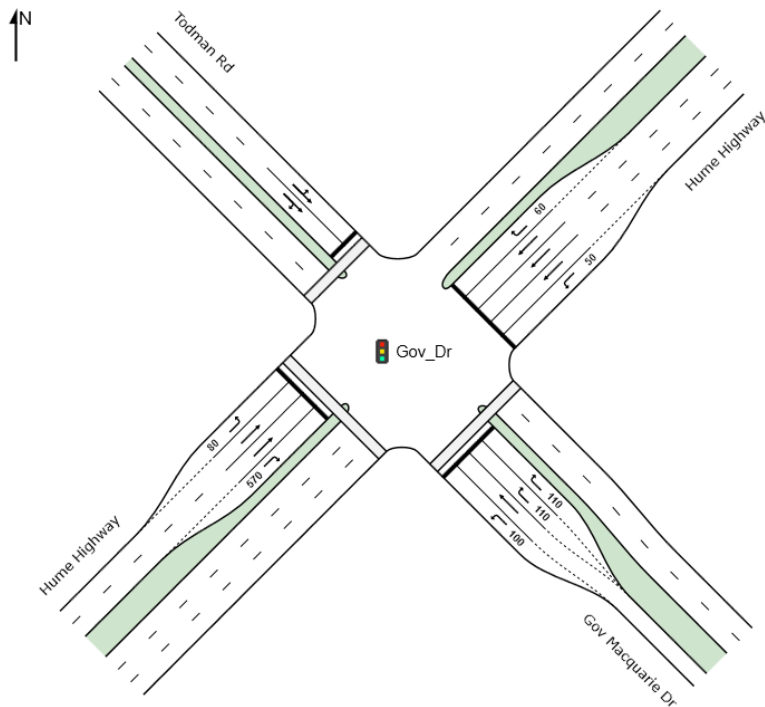




### SITE LAYOUT

Site: Gov\_Dr [Gov\_Macquarie\_Dr]

Governor\_Macquarie\_Dr  
Site Category: (None)  
Signals - Fixed Time Isolated



SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com  
Organisation: TRANSPORT MODELLING | Created: Wednesday, 30 October 2019 11:46:52 AM  
Project: C:\Moorebank\_MICL\_SIDRA\Hume\_Highway.sip8

### Phase Sequence

Direct data entry in the display is enabled.



A “Typical” intersection

A “Typical” intersection with “Typical Phases”



**TRANSPORT**  
MODELLING

**What's behind the screen?**



Emme

The World's Most Trusted  
Transportation Planning Software



Emme Modeller

## SIDRA INTERSECTION 8

[Resources home](#) / [SIDRA INTERSECTION](#) / [SIDRA UTILITIES and API](#)

## SIDRA API Workshop Presentation Material

Modified on: 2019-05-07 21:26:31 +1000

### // About the SIDRA API Workshop held in Melbourne, 26 November 2018

SIDRA SOLUTIONS hosted a half-day workshop to facilitate improved use of the SIDRA Application Programming Interface (API) in Melbourne on 26 November 2018. The workshop included presentations by SIDRA INTERSECTION developers and users on a number of practical SIDRA API program examples. The slide presentation files in PDF format, a transcript of workshop presentations and discussions and the complete set of SIDRA BATCH Python sample program using SIDRA API prepared by SIDRA SOLUTIONS are given below.

A	
11	Click the <b>Open SIDRA INTERSECTION Project File</b> button to browse for the Project file (extension .sip\$).
12	Click the <b>Save SIDRA INTERSECTION Project File</b> button if you wish to save the changes made to the Project file as a result of the use of this Excel application.
13	
14	
15	<b>Site:</b>
16	Select the Site using the drop-down box below.
17	
18	
19	
20	<input type="button" value="Get Volumes"/>
21	Gets volume and related data for the selected Site from the Project database and puts data in the <b>Volume Input</b> sheet.
22	No processing performed. Data in SIDRA INTERSECTION Project file will not be affected.
23	
24	<input type="button" value="Process (No Volume Update)"/>
25	Processes selected Site using volumes contained within the Project. Populates "Output" sheets with Site output.
26	Volumes and related data in the <b>Volume Input</b> sheet will be ignored and data in the SIDRA INTERSECTION Project file will not be affected.
27	
28	<input type="button" value="Update Volumes &amp; Process"/> <input type="button" value="Copy Dynameq turns"/> <input type="button" value="Extract Green times"/>
29	Processes specified Site using volumes from <b>Volume Input</b> sheet. Populates "Output" sheets with Site output.
30	Data in the SIDRA INTERSECTION Project file will be replaced by the volume data and related parameters in the <b>Volume Input</b> sheet when the Project file is saved (any existing Site data will be overwritten).
31	
32	<input type="button" value="Copy Volume Output to Volume Input"/>
33	Copies and pastes vehicle volumes from tables in the <b>Volume Output</b> sheet to those in the <b>Volume Input</b> sheet.
34	
35	<input type="button" value="Clear"/>
36	Closes the SIDRA INTERSECTION Project, clears the "Output" sheets, and sets the values in the <b>Volume Input</b> sheet to defaults and hides the volume input tables.
37	

- ☐ Slice 1
- ☐ Slice 2
- ☐ Slice 3
- ☐ Slice 4
- ☐ Slice 5
- ☒ Slice 6
- ☐ Slice 7
- ☐ Slice 8

Messy – but automated





## What's behind the Screen?

INTERSECTION - Site1

Intersection Properties

Approach Editor

Site Data

Approach Geometry

Approach Data

Signals

Area Type Factor

VOLUMES - Site1

Vehicle Volumes

Volume Factors

Approach Selector

Volume Data Settings for Site

Movement Volumes for Selected Approach (Per 60 Minutes)

From South to Exit:

	W	N	E
Total (veh)	1	1	1
Light Vehicles (%) *	100	100	100
Heavy Vehicles (%)	0	0	0
Input Check	OK	OK	OK

\* LV (%) values

0 - 6

0 - 4

0 - 2

```
1 = 4
R1 = 5
R2 = 6
R3 = 7

class LegDirections(Enum):
    South = 0
    SouthEast = 1
    East = 2
    NorthEast = 3
    North = 4
    NorthWest = 5
    West = 6
    SouthWest = 7

class PySIAP:
    def __init__(self):
        self.siapi = SIAPComPy.ISIAP(w32c.Dispatch("SIDRASolutions.SI.API.SIAP"))
        ##self.siapi = SIAPComPy.SIAP() # *** notice: this would not work ***

    def _GetDirectionName(self, direction):
        if (direction == 0):
            return "South"
        elif (direction == 1):
            return "SouthEast"
        elif (direction == 2):
            return "East"
```

SIDRA API Python code

Same logic applies to the other legs





**TRANSPORT**  
MODELLING

**IN EMME**



```
node_k = turn.k_node
node_k_x = node_k.x
node_k_y = node_k.y
node_k_array = np.array([node_k.x, node_k.y])

ij_array = node_i_array - node_j_array
jk_array = node_k_array - node_j_array

cosine_angle = np.dot(ij_array, jk_array) / (np.linalg.norm(ij_array) * np.linalg.norm(jk_array))
angle = np.arccos(cosine_angle)
```

```
if node_j != last_node_j:
    last_node_j = node_j
```

```
# -- use the i-j-k convention - where J = required node
# approach - south
```

```
if str(node_j) == "9999":
    to_be_printed = False
else:
    dist_kyj = abs(node_i_y - node_j_y)
    dist_kyj_2 = dist_kyj / 2

    dist_kx = abs(node_i_x - node_j_x)
    dist_kx_2 = dist_kx / 2
```

```
##### APPROACH #####
```

```
## Right
if node_i_x > node_j_x:
    right_array = np.array([node_j.x + 1, node_j.y])
    ij_array = right_array - node_j_array
    jk_array = node_i_array - node_j_array
    cosine_angle = np.dot(ij_array, jk_array) / (np.linalg.norm(ij_array) * np.linalg.norm(jk_array))
    angle = np.arccos(cosine_angle)
    angle = np.degrees(angle)

#Bottom Right
if node_i_y < node_j_y:
    if angle >= 67.5:
        approach = 0
    elif angle < 67.5 and angle > 22.5:
        approach = 1
    elif angle <= 22.5:
        approach = 2
# Top Right
else:
    if angle >= 67.5:
        approach = 4
    elif angle < 67.5 and angle > 22.5:
```

The X and Y coordinates of the “from node” relative to the X and Y coordinates of the intersection is used to determine the approach direction (0, 1, 2, 3, 4, 5, 6 or 7)

The same logic is used to determine the departure direction (0, 1, 2, 3, 4, 5, 6, 7)

This project only used “auto” volumes.



**TRANSPORT**  
MODELLING

# EMME OUTPUT



Snippet of output file: name of Site, approach direction, departure direction, light volume

heavy volume – not used in this project

26	Gov_Macquarie_Dr,	3, 7,	239,	2
27	Gov_Macquarie_Dr,	3, 1,	5,	1
28	Gov_Macquarie_Dr,	3, 1,	1,	2
29	Gov_Macquarie_Dr,	1, 5,	11,	1
30	Gov_Macquarie_Dr,	1, 5,	1,	2
31	Gov_Macquarie_Dr,	1, 7,	424,	1
32	Gov_Macquarie_Dr,	1, 7,	51,	2
33	Gov_Macquarie_Dr,	1, 3,	520,	1
34	Gov_Macquarie_Dr,	1, 3,	40,	2
35	Gov_Macquarie_Dr,	7, 5,	41,	1
36	Gov_Macquarie_Dr,	7, 5,	2,	2
37	Gov_Macquarie_Dr,	7, 3,	1477,	1
38	Gov_Macquarie_Dr,	7, 3,	46,	2
39	Gov_Macquarie_Dr,	7, 1,	1288,	1
40	Gov_Macquarie_Dr,	7, 1,	81,	2
41	Rememberance_Av,	7, 4,	34,	1

**Movement Type (Light = 1, Heavy = 2)**

SIDRA site name

From, To direction

Volume

Moorebank MICL

Populate SIDRA projects

This module takes a while to run ... relax ...

Select the appropriate process

☐ Set the turning movements to zero

☒ populate the turning movements

☐ zero set + populate the turning movements

▶ Run

▶ Recent history

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**TRANSPORT**  
MODELLING

**IN SIDRA**

Emme - Modeller

Toolboxes

- Emme Standard Toolbox
- Project Toolbox

- run import dynameq sim stats
- run populate sidra projects
- run sidra green time
- run update dyn green times
- run demand adjustment
- run transfer mfs to dynameq
- run export emme turns
- run all
- run process networks**
- run phase movements
- run process moorebank traffic

Tasks

- Assign auto
- Calibration
- Dynameq
- Emmebank
- Ensembles
- Get mx\_totals
- Land use
- Mfslice
- Mx calcs
- Network Calcs
- Network import
- Other Bank
- Output
- Plot
- File
- select tool

Default tool x run process networks x

2030\_AM\_car\_driver from Subarea from Moorebank Emme  
1021 - MICL 2030 AM heavy

### Moorebank

## Process SIDRA Sites and Networks

This module takes a while to run ... relax ...

**SIDRA Sites and Networks have been processed**

[View in the Logbook](#)

► Run

► Recent history

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**TRANSPORT**  
MODELLING

# **SIDRA OUTPUTS**



### Green Times

Moorebank_MICL_Green_Times.txt						
1	Hume_Highway,	Gov_Macquarie_Dr,	12636,	5,	0,	25
2	Hume_Highway,	Gov_Macquarie_Dr,	12636,	5,	1,	8
3	Hume_Highway,	Gov_Macquarie_Dr,	12636,	5,	2,	16
4	Hume_Highway,	Gov_Macquarie_Dr,	12636,	5,	3,	6
5	Hume_Highway,	Gov_Macquarie_Dr,	12636,	5,	4,	65
6	Hume_Highway,	Remembrance_Av,	13652,	4,	0,	100
7	Hume_Highway,	Remembrance_Av,	13652,	4,	1,	8
8	Hume_Highway,	Remembrance_Av,	13652,	4,	2,	6
9	Hume_Highway,	Remembrance_Av,	13652,	4,	3,	12
10	Hume_Highway,	Bigge_St,	12638,	3,	0,	34
11	Hume_Highway,	Bigge_St,	12638,	3,	1,	25
12	Hume_Highway,	Bigge_St,	12638,	3,	2,	73
13	Hume_Highway,	Macquarie St,	12635,	2,	0,	72

Network name

Site name

Node number

Total number of Phases

Phase number

Green time

### Phase Movements

16	Gov_Macquarie_Dr,	0,	2,	1,	3,	2
17	Gov_Macquarie_Dr,	0,	2,	1,	5,	1
18	Gov_Macquarie_Dr,	0,	2,	1,	5,	2
19	Gov_Macquarie_Dr,	0,	2,	1,	7,	1
20	Gov_Macquarie_Dr,	0,	2,	1,	7,	2
21	Gov_Macquarie_Dr,	0,	3,	5,	1,	1
22	Gov_Macquarie_Dr,	0,	3,	5,	1,	2
23	Gov_Macquarie_Dr,	0,	3,	5,	3,	1
24	Gov_Macquarie_Dr,	0,	3,	5,	3,	2
25	Gov_Macquarie_Dr,	0,	3,	5,	7,	1
26	Gov_Macquarie_Dr,	0,	3,	5,	7,	2
27	Gov_Macquarie_Dr,	0,	4,	1,	7,	1
28	Gov_Macquarie_Dr,	0,	4,	1,	7,	2
29	Gov_Macquarie_Dr,	0,	4,	3,	5,	1
30	Gov_Macquarie_Dr,	0,	4,	3,	5,	2
31	Gov_Macquarie_Dr,	0,	4,	5,	3,	1
32	Gov_Macquarie_Dr,	0,	4,	5,	3,	2
33	Gov_Macquarie_Dr,	0,	4,	7,	1,	1
34	Gov_Macquarie_Dr,	0,	4,	7,	1,	2
35	Remembrance_Av,	3,	0,	3,	1,	1
36	Remembrance_Av,	3,	0,	3,	1,	2
37	Remembrance_Av,	3,	0,	3,	7,	1
38	Remembrance_Av,	3,	0,	3,	7,	2

Site name

Sequence number

Phase number

"To" and "From" Direction

Movement Class





**TRANSPORT**  
MODELLING

**IN DYNAMEQ**



Moorebank\_MICL\_study\_area\_dynameq - Dynameq - PAUL VAN DEN BOS & ASSOCIATES PTY LTD TRANSPORT MODELLING

Project Scenario Network Matrix Subarea **DTA** Results View Tools Window Help

Links Search: Sort by

Project Explorer

- Moorebank\_MICL\_study\_area\_dyna...
- Scenarios
  - net\_2030
    - Control Plans
    - Matrices
    - Subareas
    - Paths
    - DTA
    - Image Groups
    - Shapefile Groups
    - Views
  - Media
  - Export Files

New...  
Open...  
Close  
Edit...  
Show Specification...  
Save As...  
**Run**  
Continue...  
Run Last Iteration...  
Export O-D Path Values...  
Export O-D Path Trajectories...  
Compute Skim Matrices...  
Select Links  
Traversals  
Convergence  
Cpu Times...  
Clear All Results  
Run Multiple DTAs...

Start Page

**Edit DTA Specification**

General

Name: mid\_2030\_am\_test\_mode

Description (optional): Copy of am\_mid\_2030\_scen\_3 created on Sat 5. Oct 08:08:42 2019.

Demand period: 05:30 - 09:30 Show Input Matrix List...

Assignment intervals: 16 15 minutes

End of simulation: 13:30 (+ 1 day) Reset

Assignment Vehicle Types Control Plans Results **Advanced**

Demand and Parameters

☐ Show generalized cost expressions

Class	Matrix	O-D Paths	Percent	Generalized Cost
Default	micl_2030_am_test_m	10	100%	Travel time only - Seconds
b_double	None	-	100%	
semi	None	-	100%	

☐ Run transit vehicles

Stopping Criteria

Maximum number of iterations: 11

☐ Maximum relative gap (%) 10

Performance Settings

Thread pool: 12 Maximum number of threads available is 12.

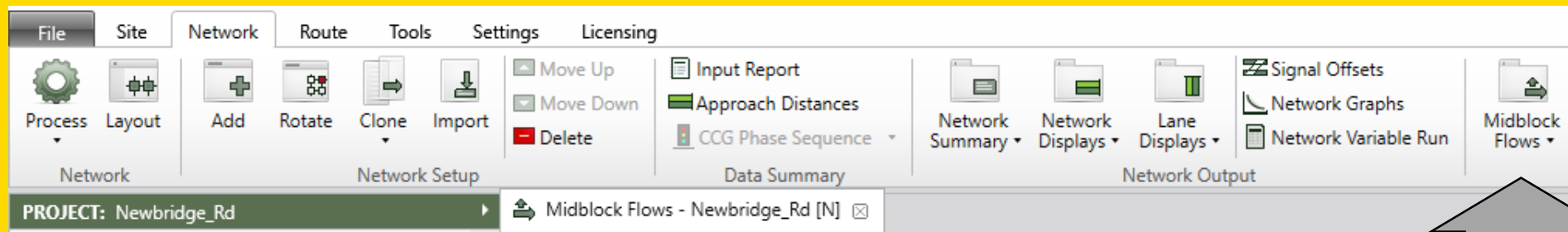
OK Cancel



**CHECK IF IT WORKED**



## Check to see if it worked



### MIDBLOCK INFLOWS & OUTFLOWS FOR NETWORK (DEMAND)

Midblock Inflow (positive) and Outflow (negative) values determined as the difference between upstream and downstream demand flow rates (veh/h)

Network: N101 [Newbridge\_Rd]

New Network  
Network Category: (None)  
Network Cycle Time = 150 seconds (Network Practical Cycle Time)  
Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): Hoxton\_Par [Hoxton\_Park\_Rd]

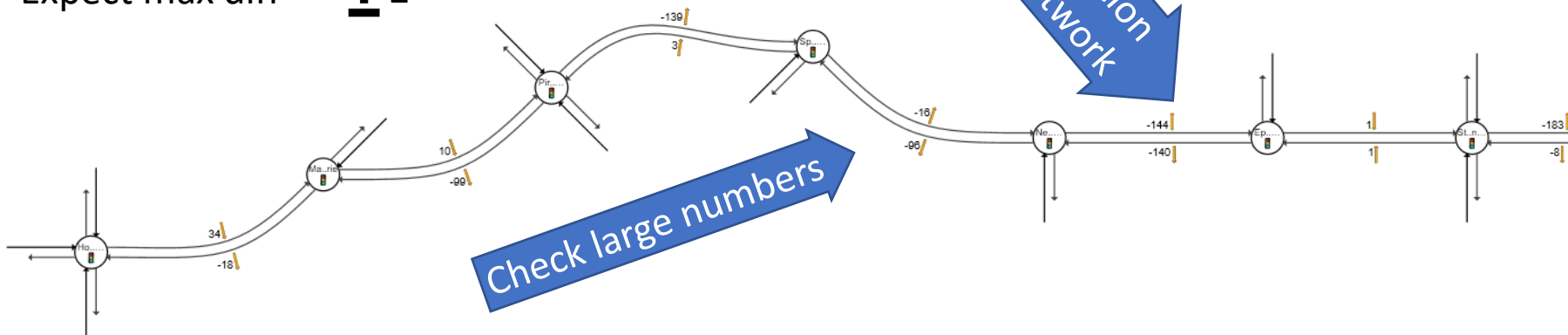
Click the Inflow / Outflow values for details in popup boxes.

Open All Popups

All Movement Classes



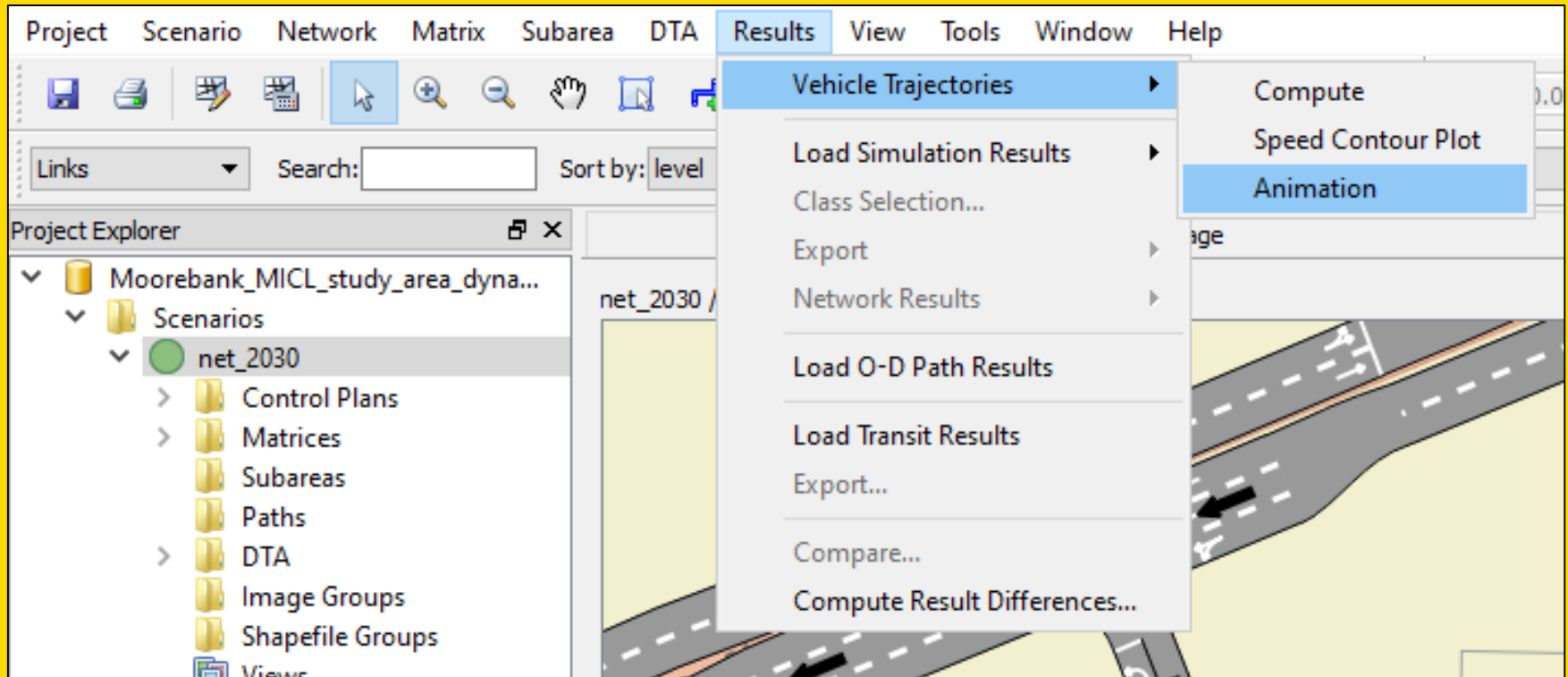
Expect max diff =  $\pm 2$







## Check to see if it worked





**PYTHON CODE ITSELF**



Emme Notebook

```
# Important Notice:
# Install "Python for Window Extensions" pypiwin32 package before running this sample:
# * install through pip: run the command "pip install pypiwin32", or
# * download the package from https://pypi.python.org/pypi/pypiwin32
# The "pip.exe" file is located in the folder "<Python_install_folder>\Scripts", e.g. "C:\Program Files (x86)\Python36-32\Scripts\"
#
# The file "SIAPIComPy.py" is generated by the pypiwin32 package. You can use this
# existing one, or create one by yourself. The instructions to create it are given below.
# 1. Open "Command Prompt"
# 2. Run "<Python_install_folder>\Lib\site-packages\win32com\client\makepy.py"
# 3. Select "SIDRA INTERSECTION 8.0 API (8.0)" in the popup "Select Library" window, click "OK"
# 4. Copy the generated "A073B4B7-AFE5-4EE8-A7D3-6FFEB4FFEB09x0x8x0.py" file to the folder of
#    this script file and rename it to "SIAPIComPy.py".

import win32com.client as w32c
import pythoncom
from enum import Enum
import SIAPIComPy
```

Install  
Instructions

There is also plenty of material online to help install  
all of the required modules to Python



# TRANSPORT MODELLING

## Python Code Itself

```
19 turn_volume_files = ["C:\\Moorebank_MICL_study_area_emme\\Outputs\\Hume_Highway_sidra_turns.txt",
20                     "C:\\Moorebank_MICL_study_area_emme\\Outputs\\Moorebank_Av_sidra_turns.txt",
21                     "C:\\Moorebank_MICL_study_area_emme\\Outputs\\Newbridge_Rd_sidra_turns.txt"]
22
23 sidra_project_files = ["C:\\Moorebank_MICL_SIDRA\\Hume_Highway.sid8",
24                       "C:\\Moorebank_MICL_SIDRA\\Moorebank_Av.sid8",
25                       "C:\\Moorebank_MICL_SIDRA\\Newbridge_Rd.sid8"]
26
27 Hume_Highway_intersection_names = ["Gov_Macquarie_Dr", "Remembrance_Av",
28                                   "Bigge_St", "Macquarie_St",
29                                   "Homepride_Av", "Orange_Grove_Rd",
30                                   "Campbell_St", "Elisabeth_Dr",
31                                   "Moore_St", "Memorial_Av",
32                                   "Horton_Park_Rd", "Rose_St",
33                                   "Reilly_St", "M5_Hume"]
34
35 Hume_Highway_required_intersections = ["12636", "12652",
36                                       "12638", "12635",
37                                       "18800", "11322",
38                                       "24507", "12637",
39                                       "16018", "12642",
40                                       "12640", "16575",
41                                       "12648", "12649"]
42
43 Moorebank_Av_intersection_names = ["Cambridge_Av", "Military_Access_3",
44                                   "Military_Access_2", "Military_Access_1",
45                                   "Main_Access", "DNSDC_Access",
46                                   "Annac_Rd", "M5_Moorebank",
47                                   "Church_St",
48                                   "Industrial_Moore", "Heathcote_Rd",
49                                   "Newbridge_Rd_Moorebank_Av",
50                                   "Heathcote_Rd_Nuwarra_Rd"]
51
52 Moorebank_Av_required_intersections = ["30889", "21927",
53                                       "14288", "23236",
54                                       "24189", "31750",
55                                       "12653", "100097",
56                                       "18039",
57                                       "24505", "12701",
58                                       "12629",
59                                       "12622"]
60
61 Newbridge_Rd_intersection_names = ["Horton_Park_Rd", "Macquarie_St_Terminus_St",
62                                   "Pirie_St", "Speed_St",
63                                   "Newbridge_Rd_Moorebank_Av", "Epsom_Rd",
64                                   "Stockton_Av", "Nuwarra_Rd",
65                                   "Governor_Macquarie_Dr"]
66
67 Newbridge_Rd_required_intersections = ["12640", "100203",
68                                       "16016", "12631",
69                                       "12629", "13925",
70                                       "14847", "12618",
71                                       "13926"]
72
```

Emme output files

SIDRA Project Files

SIDRA Intersection names

SIDRA Emme node numbers

Project 1

Project 2

Project 3

Inputs into the code and possible adjustments

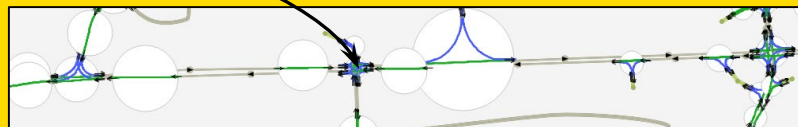




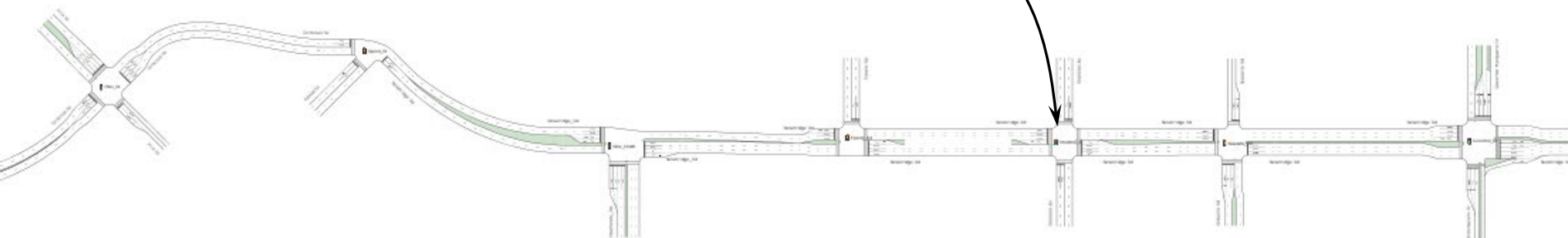
## **4 POSSIBLE AREAS TO CHECK SIDRA**



## 4 Possible Areas to Check



Emme node correctly identified





## 4 Possible Areas to Check

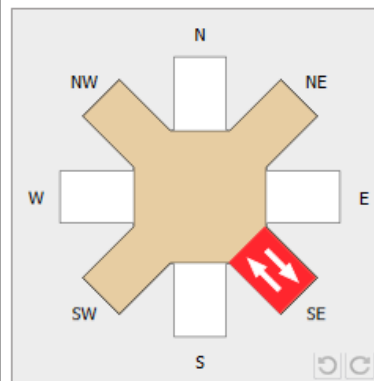
```
Hume_Highway_required_intersections = ["12636", "13652",  
"12638", "12635",  
"18800", "11322",  
"24507", "12637",  
"16018", "12642",  
"12640", "16575",  
"13648", "12649"]
```

```
Hume_Highway_intersection_names = ["Gov Macquarie Dr", "Rememberance_Av",  
"Bigge_St", "Macquarie_St",  
"Homepride_Av", "Orange_Grove_Rd",  
"Campbell_St", "Elizabeth_Dr",  
"Moore_St", "Memorial_Av",  
"Hoxton_Park_Rd", "Rose_St",  
"Reilly_St", "M5_Hume"]
```

INTERSECTION - Gov\_Macquarie\_Dr

Intersection Properties

Approach Editor



Selected Leg: SouthEast

Legend

- Leg exists
- Leg does not exist
- Leg selected (Leg exists)
- Leg selected (Leg does not exist)

Site Data

Site Name: Gov\_Macquarie\_Dr  
Site ID: Gov\_Dr  
Site Category: (None)  
Site Title: Governor\_Macquarie\_Dr

Approach Geometry

Name: Gov Macquarie Dr  
Leg Geometry: Two Way

Changes are not allowed to the Leg included in a Network.

Approach Distance: 230.0 m  
Exit Distance: Program

Approach Data

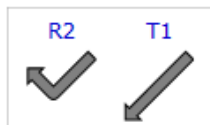
Extra Bunching: Program



## 4 Possible Areas to Check

	R2	L2
Tot	1356	574
LV	1244	540
HV	112	34

	R2	T1
Tot	365	980
LV	333	884
HV	32	96



	L2	T1
Tot	0	2202
LV	0	2112
HV	0	90

	R2	L2
Tot	1356	574
LV	1244	540
HV	112	34

	R2	T1
Tot	365	980
LV	333	884
HV	32	96



	L2	T1
Tot	1338	2202
LV	1223	2112
HV	115	90

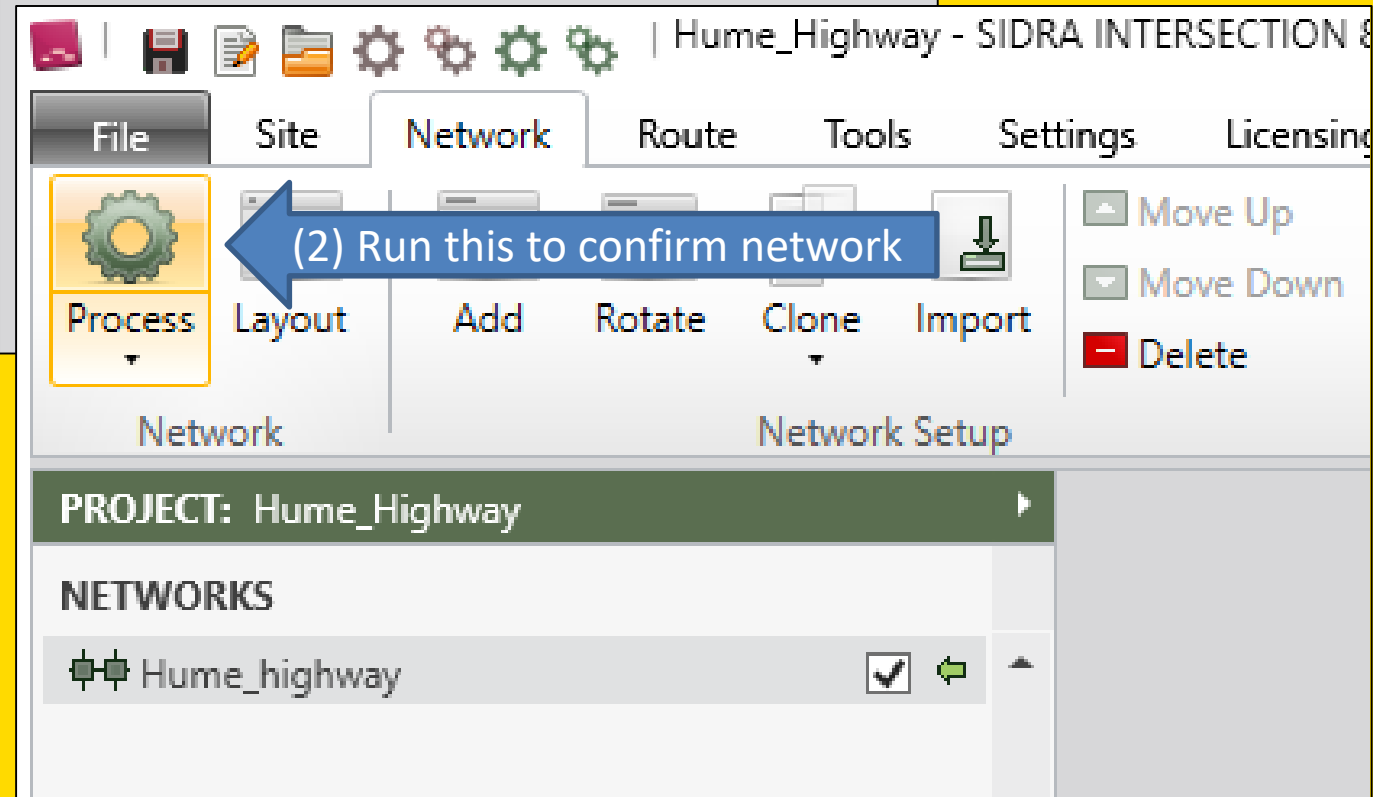
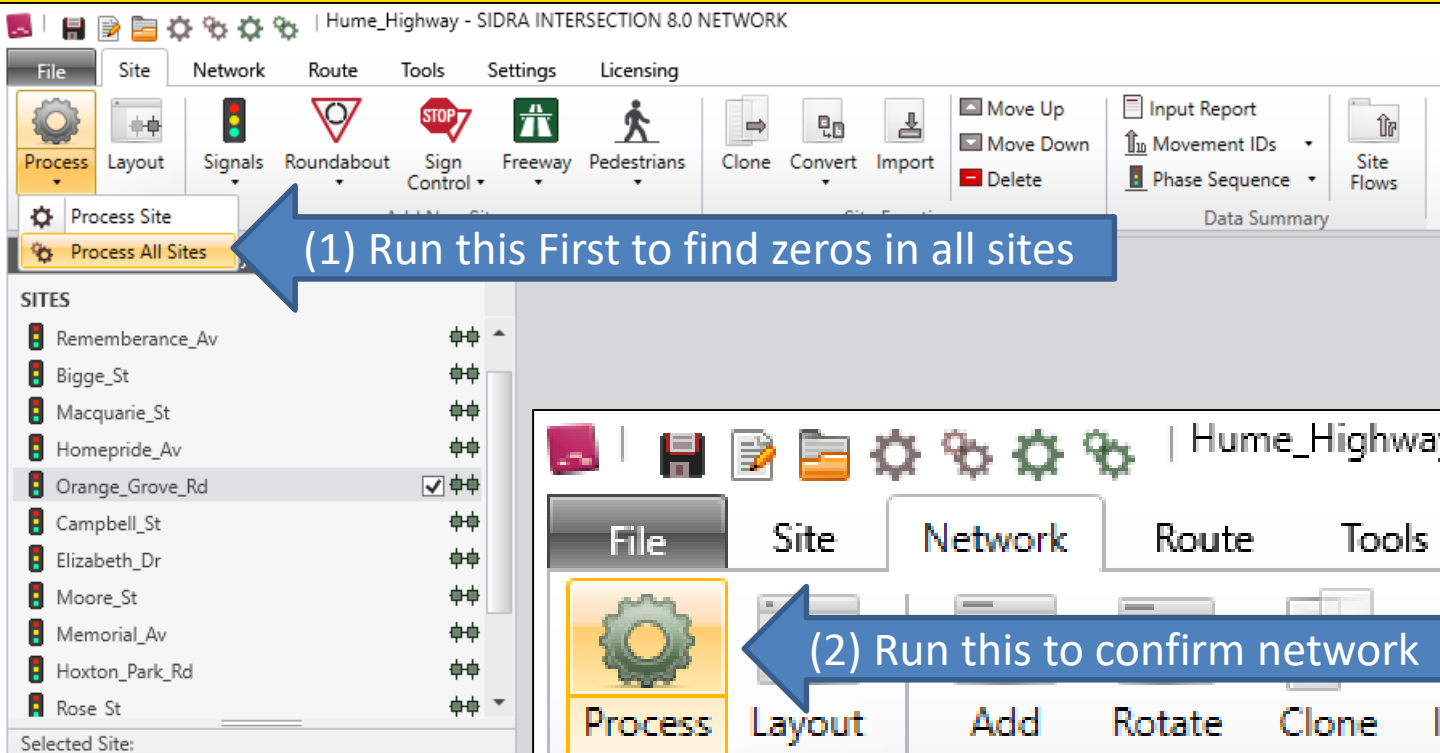
Double Check the 0's

Correct Value





## 4 Possible Areas to Check





## **5 POSSIBLE AREAS TO CHECK DYNAMIQ**





### Sequence Leading Right Turn

#### Phase Data

Phase:	A	B	C
Variable Phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reference Phase	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Phase Time (optional)	0 sec	0 sec	0 sec
Phase Frequency	Program ▾	Program ▾	Program ▾
Yellow Time	4 sec	4 sec	4 sec
All-Red Time	2 sec	2 sec	2 sec
Dummy Movement Data:			
Dummy Movement Exists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minimum Green Time			
Maximum Green Time			

There must always be a phase (and only one phase) checked as the Reference Phase.  
The first phase will be used as the default Reference Phase.

#### Detection Data

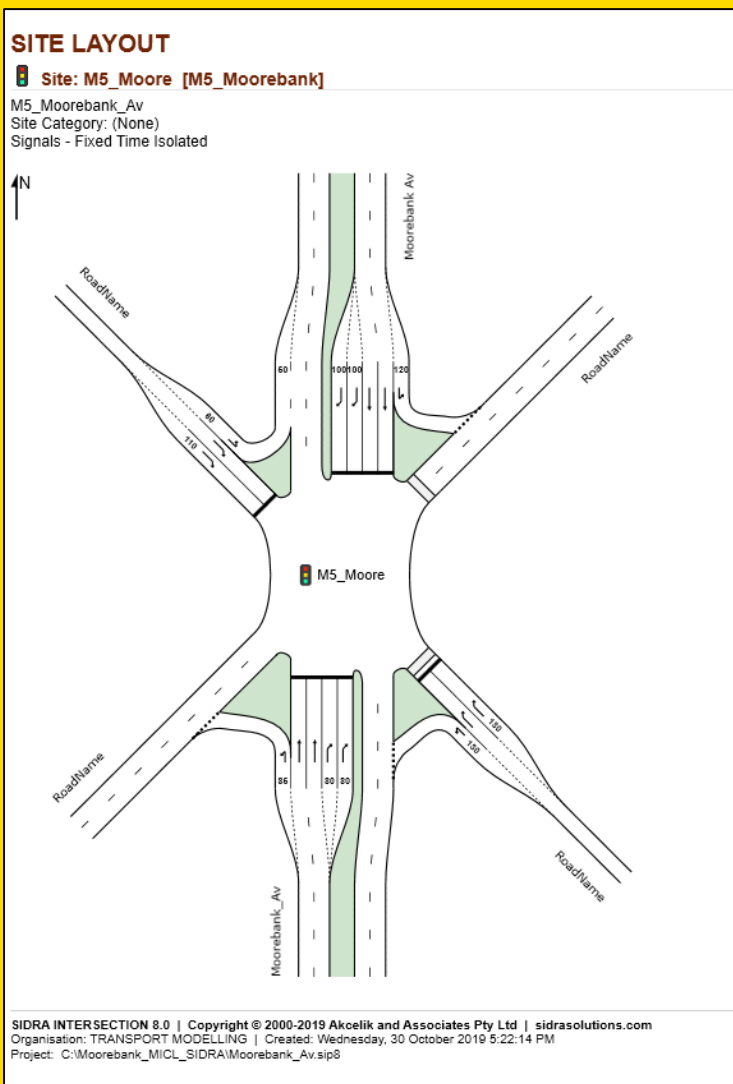
	Major Movement	Minor Movement
Effective Detection Zone Length	<input type="text" value="4.5 m"/>	<input type="text" value="4.5 m"/>

Variable Phases not ticked





## 5 Possible Areas to Check



Moorebank Avenue – M5 Intersection



## 5 Possible Areas to Check

Category  
NB, NE, EB, SW,  
SB, SE, WB, NW

Direction  
L, T, R, U

Node ID 12636

General  
ID: 12636 Type: Intersection Level: 0  
Name:

Control Type  
Control type: Signalized

Capacities/Priorities  
Template: Signalized  
☐ Customize

Permissions Capacities/Alignments Priorities Plans/Phases

Diagram filter  
☒ All movements  
☐ Class group All  
☐ Class Default

Activate Event... Reset Speed

Dir	In	Out	Start Time	Speed (km/h)	Prot Cap (PCU/h/lane)	Follow-up Time (s)	Perm Cap (PCU/h/lane)	Align Change
NW-L	2002	1622	00:00	60.00	2215	2.50	1440	-
SW-T	1157	1622	00:00	70.00	2291	1.80	2000	-
SW-L	1157	6928	00:00	70.00	2291	2.50	1440	-
NW-R	2002	1624	00:00	60.00	2215	2.50	1440	-
<b>NE-T</b>	<b>139</b>	<b>1624</b>	<b>00:00</b>	<b>70.00</b>	<b>2291</b>	<b>1.80</b>	<b>2000</b>	<b>-</b>
NE-R	139	6928	00:00	70.00	2291	2.50	1440	-
SE-L	1155	1624	00:00	50.00	2118	2.50	1440	-
SE-R	1155	1622	00:00	50.00	2118	2.50	1440	-
SE-T	1155	6928	00:00	50.00	2118	1.80	2000	-
SW-R	1157	1156	00:00	70.00	2291	2.50	1440	-
NE-L	139	1156	00:00	70.00	2291	2.50	1440	-
NW-T	2002	1156	00:00	60.00	2215	1.80	2000	-

00:00

NE-L NE-T

NE NE-R

View options  
☒ Prohibited ☒ Car\_Rigid  
☒ All ☒ Car\_only  
☒ Transit

Time Indicator  
00:00 23:59  
00:00 02:00 04:00 06:00 08:00 10:00 12:00 14:00 16:00 18:00 20:00 22:00

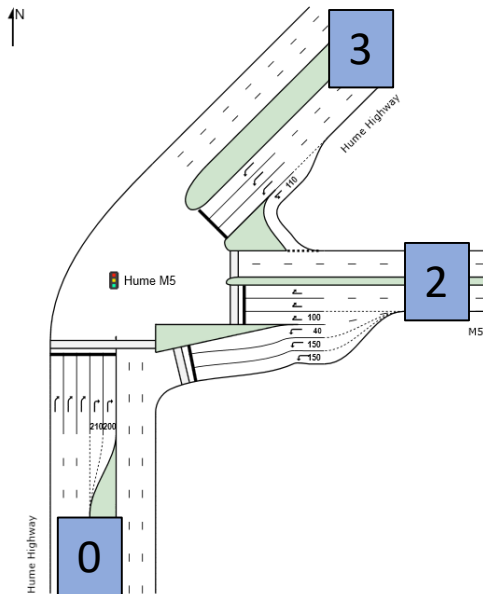


## 5 Possible Areas to Check

### SITE LAYOUT

Site: Hume M5 [Hume Highway - M5]

Hume Highway - M5  
Site Category: (None)  
Signals - Fixed Time Isolated



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Organisation: TRANSPORT MODELLING | Created: Friday, 15 November 2019 11:51:59 AM  
Project: Not Saved

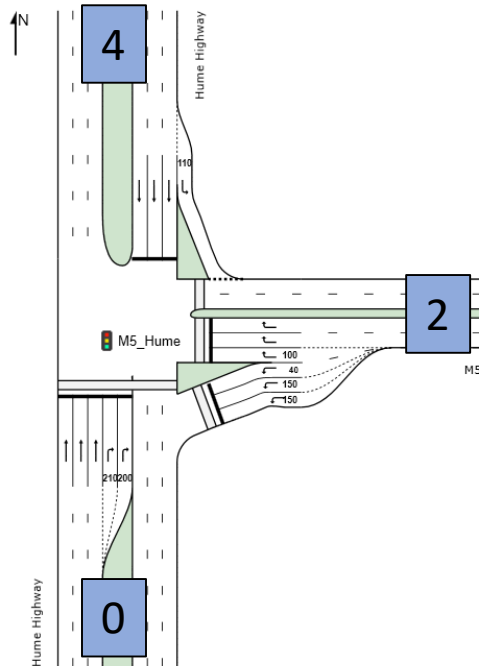
Hume Highway – M5  
Intersections

Hume Highway – M5  
After Adjustment

### SITE LAYOUT

Site: M5\_Hume [M5\_Hume]

M5\_Hume  
Site Category: (None)  
Signals - Fixed Time Isolated

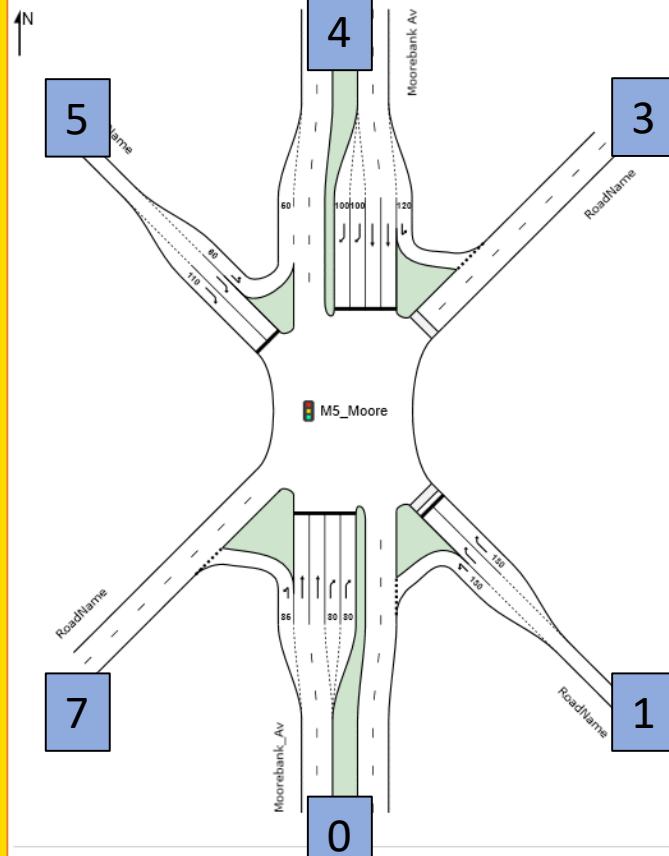


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Organisation: TRANSPORT MODELLING | Created: Friday, 15 November 2019 11:37:05 AM  
Project: C:\Moorebank\_MICL\_SIDRA\Hume\_Highway.sip8

### SITE LAYOUT

Site: M5\_Moore [M5\_Moorebank]

M5\_Moorebank\_Av  
Site Category: (None)  
Signals - Fixed Time Isolated



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Organisation: TRANSPORT MODELLING | Created: Wednesday, 30 October 2019 5:22:14 PM  
Project: C:\Moorebank\_MICL\_SIDRA\Moorebank\_Av.sip8

Moorebank Avenue – M5 Intersection



## 5 Possible Areas to Check

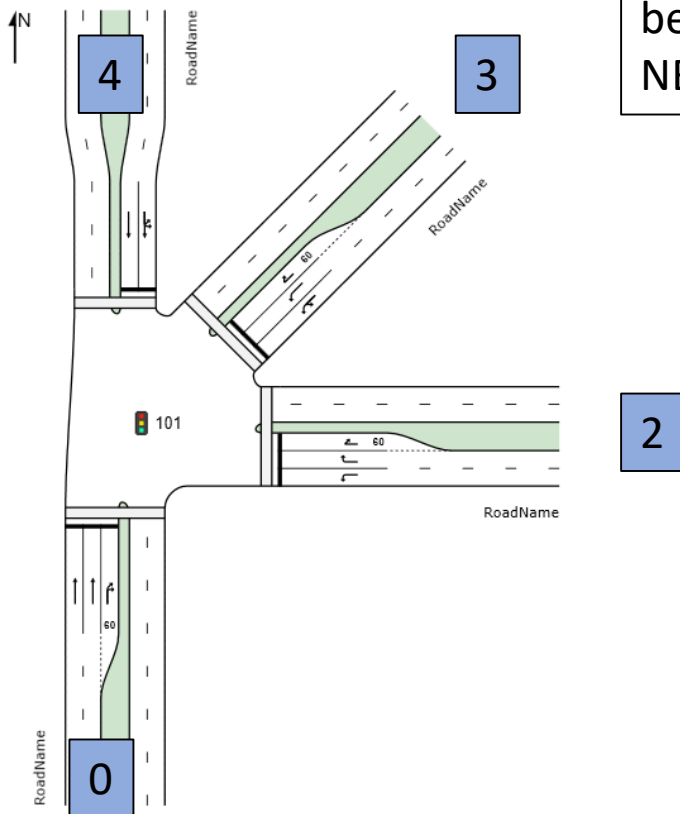
### SITE LAYOUT

Site: 101 [Site1]

New Site

Site Category: (None)

Signals - Fixed Time Isolated



0 - 3 Movement could  
be either NB-T2 or  
NB-R2 in Dynameq

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Organisation: TRANSPORT MODELLING | Created: Wednesday, 30 October 2019 5:28:20 PM  
Project: Not Saved

Illustrative Purpose Intersection

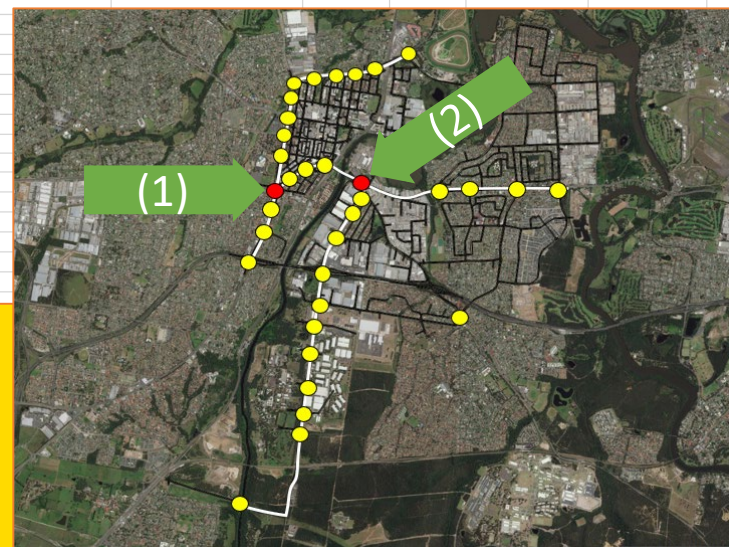


# TRANSPORT MODELLING

## 5 Possible Areas to Check

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1 Moorebank Av										<b>Common Node (2)</b>					
2 Node number	31927	14288	23236	24189	31750	13653	100097	24505	12701	12629					
3 SIDRA Name	Military_Access_3	Military_Access_2	Military_Access_1	Main_Access	DNSDC_Access	Anzac_Rd	M5_MoorebankIndustrial_Moore		Heathcote_Rd	Newbridge_Rd_Moorebank_Av					
4 Site ID	<b>Militarg_3</b>	<b>Militarg_2</b>	<b>Militarg_1</b>	<b>Main_Acc</b>	<b>DNSDC</b>	<b>Anzac_Rd</b>	<b>M5_Moore</b>	<b>Ind_Moore</b>	<b>HeathMoore</b>	<b>New_Heath 1</b>	<b>Heath_Nuva</b>				
5 CCG ID (if applicable)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
6 Offset (sec)	-82	-64	-38	-24	34	41	-58	-124	-106	0	0				
7 Program / User	P	P	P	P	P	P	P	P	P	P	U				
8 Reference Phase	A	A	A	A	A	A	A	A	A	A	A				
9 Route ID	R101	R101	R101	R101	R101	R101	R101	R101	R101	R101	-				
10 Dynameq Times Neg	-28	-10	16	30	88	95	-4	-70	-52	54	54				
11 Dynameq Pos	122	140	16	30	88	95	146	80	98	54	54				
12															
13 Newbridge Rd															
14 Node number	12640	100205	16016	12631	12629	13925	14847	12618	13926						
15 SIDRA Name	Hoxton_Park_Rd	Macquarie_St_Terminus_S	Pirrie_St	Speed_St	Newbridge_Rd_Moorebank_Av	Epsom_Rd	Stockton_Av	Nuwarra_Rd	Governor_Macquarie_Dr						
16 Site ID	<b>Hoxton_Par 1</b>	<b>Macquarie</b>	<b>Pirrie_St</b>	<b>Speed_St</b>	<b>New_Heath</b>	<b>Epsom_H</b>	<b>Stockton_A</b>	<b>Nuwarra_Rd</b>	<b>Governor_M</b>						
17 CCG ID (if applicable)	NA	NA	NA	NA	NA	NA	NA	NA	NA						
18 Offset (sec)	0	134	1	16	54	125	3	45	47						
19 Program / User	P	P	P	P	P	P	P	P	P						
20 Reference Phase	A	A	A	A	A	B	A	A	A						
21 Route ID	R101	R101	R101	R101	R101	R101	R101	R101	R101						
22 Dynameq Times	0	134	1	16	54	125	3	45	47						
23															
24 Hume Highway															
25 Node number	12649	13648	16575	12640	12642	16018	12637	24507	11322	18800	12635	12638	13652	12636	
26 SIDRA Name	M5_Hume	Reilly_St	Rose_St	Hoxton_Park_Rd	Memorial_Av	Moore_St	Elizabeth_Dr	Campbell_St	Orange_Grove_Rd	Homepride_Av	Macquarie_St	Bigge_St	Rememberance_Av	Gov_Macquarie_Dr	
27 Site ID	<b>M5_Hume</b>	<b>Reilly_St</b>	<b>Rose_St</b>	<b>Hoxton_Par 1</b>	<b>Memorial_A</b>	<b>Moore_St</b>	<b>Elizabeth</b>	<b>Campbell_S</b>	<b>Orange_Gro</b>	<b>HomePride</b>	<b>Macquarie</b>	<b>Bigge_St</b>	<b>Remember</b>	<b>Gov_Dr</b>	
28 CCG ID (if applicable)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
29 Offset (sec)	72	-47	-28	0	30	46	63	80	96	121	127	38	13	54	
30 Program / User	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
31 Reference Phase	A	A	A	A	A	B	D	B	A	A	A	A	A	A	
32 Route ID	R101	R101	R101	R101	R101	R101	R101	R101	R101	R101	R101	R101	R101	R101	
33 Dynameq Times	72	-47	-28	0	30	46	63	80	96	121	127	38	13	54	
34															
35 Hoxton Park Rd															
36 Phase	A	B	C	D											
37 Phase Change Time (sec)	108	0	71	84											
38 Green Time (sec)	36	65	7	18											
39 Phase Time (sec)	42	71	13	24											
40 Phase Split	28%	47%	9%	16%											
41															
42															
43 Newbridge Rd Heathcote															
44 Phase	A	C	D												
45 Phase Change Time (sec)	0	33	96												
46 Green Time (sec)	27	57	48												
47 Phase Time (sec)	33	63	54												
48 Phase Split	22%	42%	36%												
49															

Note: All reference phases are the first phase





## 5 Possible Areas to Check

Phase C

Movement Class

☒ All Movement Classes

☐ Light Vehicles (LV)

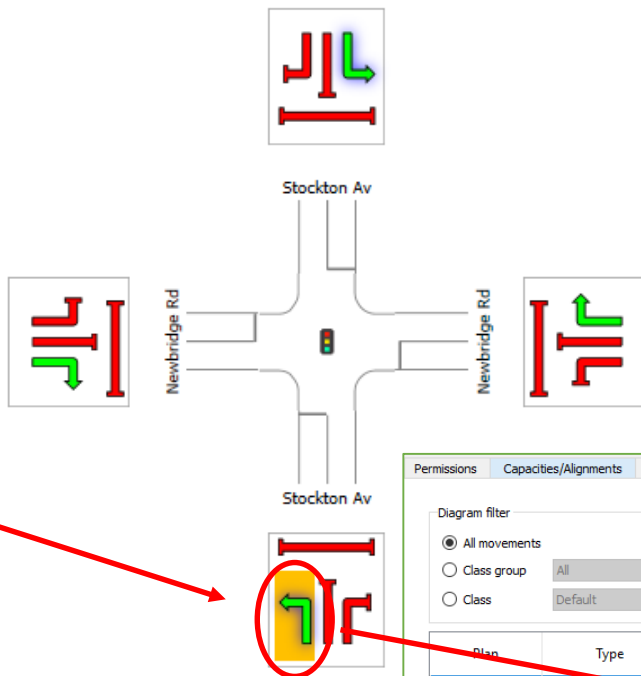
☐ Heavy Vehicles (HV)

Movement Data

☒ Undetected

☐ Phase Transition  
(Apply Intergreen)

Dialog Tips



Permissions Capacities/Alignments Priorities Plans/Phases

Diagram filter

☒ All movements

☐ Class group All

☐ Class Default

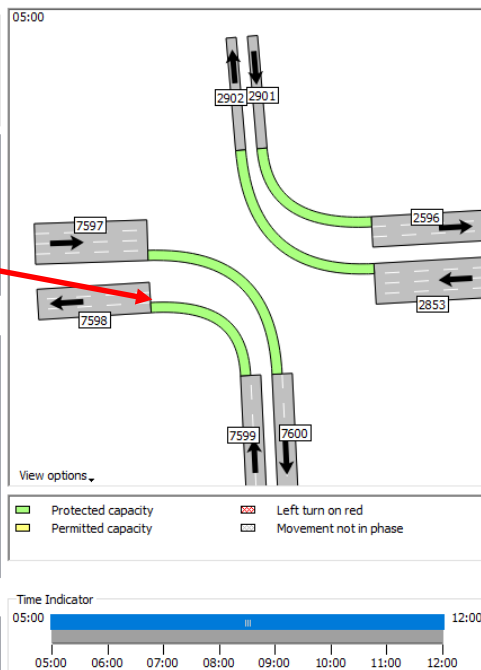
Plan	Type	Start	End	Offset	Sync	Cycle	TSP Mode	TSP Detect	TSP Delay
am_2030	Fixed	05:00	12:00	3.00	1	150.00	None	60	0
pm_2030	Fixed	12:00	23:00	0.00	1	94.00	None	60	0

Phases: Add Delete Copy

	1	2	3
Green	52.00	63.00	17.00
Yellow	4.00	4.00	4.00
All Red	2.00	2.00	2.00

Movement capacity:

Dir	In	Out	Type	Capacity (PCU/h/lane)	Maximum Flow (PCU/h)
-	-	-	-	-	-







**TRANSPORT**  
MODELLING

# SHORTFALLS



File | Site | Network | Route | Tools | Settings | Licensing

Input Comparison | Output Comparison | Project | User Report

PROJECT: Epping\_2019\_2026\_pm\_landuse2

NETWORKS

- PM\_signals\_only
- PM\_1630\_1730

Selected Network: PM\_signals\_only

NETWORK INPUT

- Network Data
- Define CCGs
- Network Timing
- Network Demand & Sensitivity
- Network Routes

SITES IN NETWORK

- Carlingford\_Rd\_Midson\_Rd\_signals\_only
- Carlingford\_Rd\_Ray\_St\_signals\_only
- Carlingford\_Rd\_Beecroft\_Rd\_signals\_only

Network Site

- EMM
- Default Site User Report
- Default Site User Report (3)

Generate this report

No Script to run special reports such as EMM

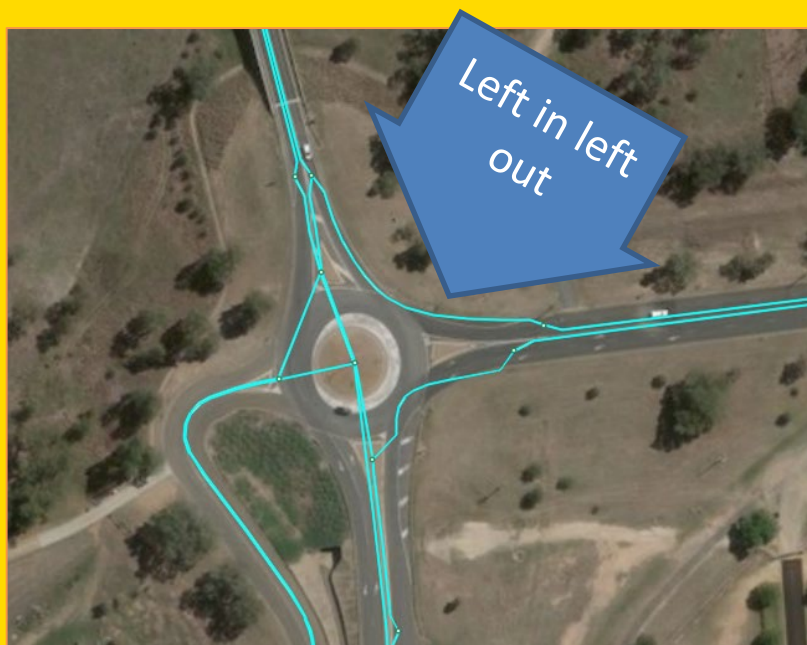
SIDRA Network needs to be built manually, i.e. Lane Geometry

Dynameq Turn IDs need to be careful

Offsets need to manually calculated

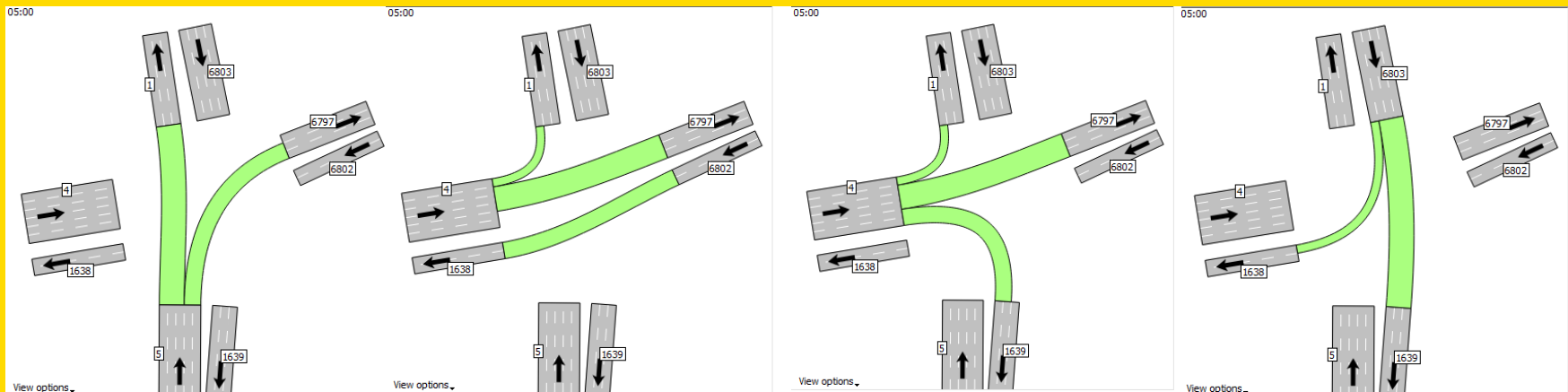
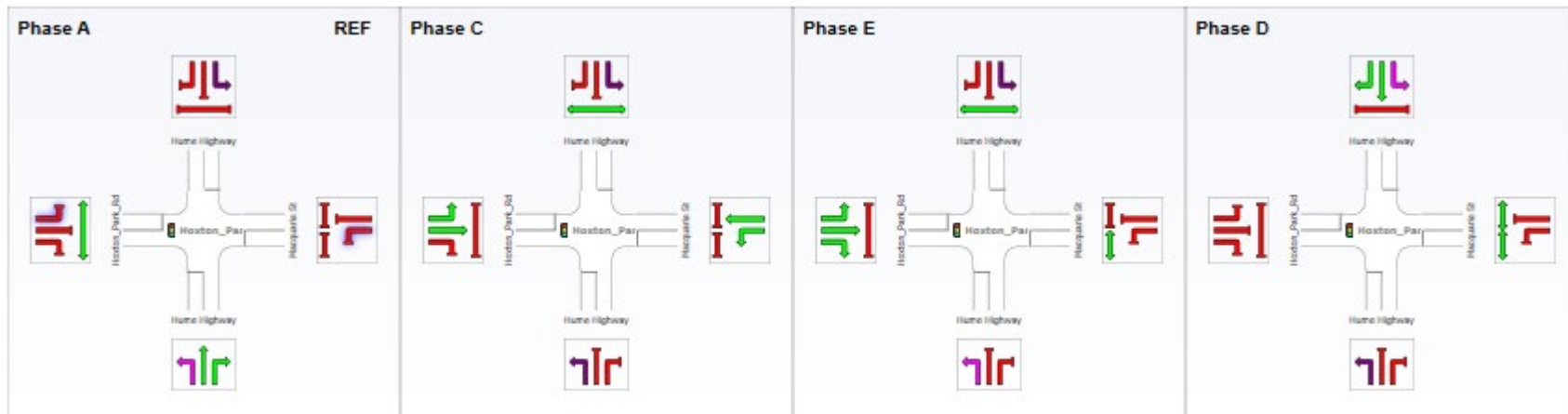


# POSSIBILITIES



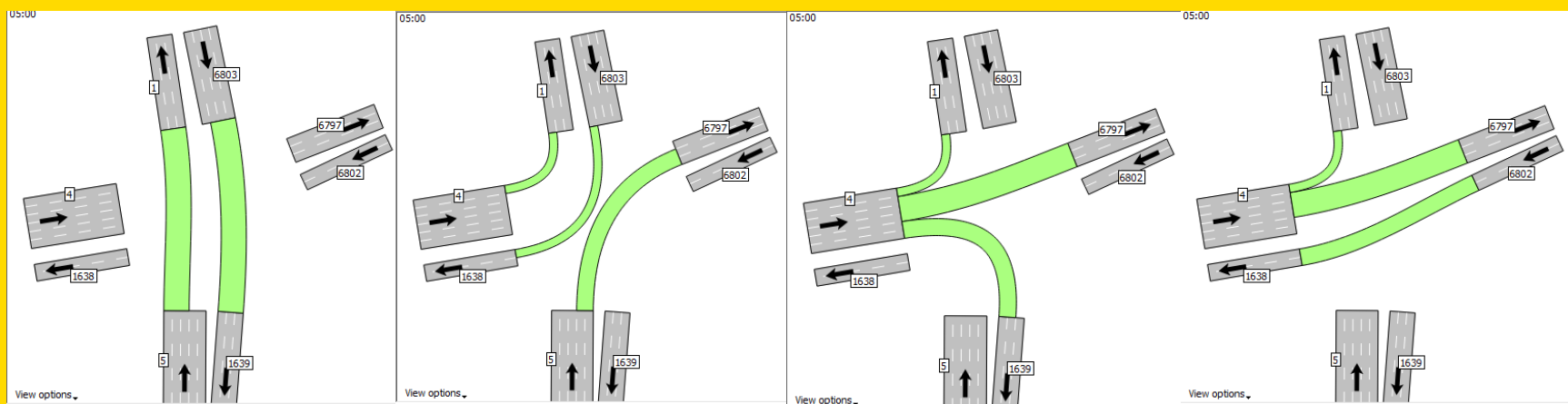
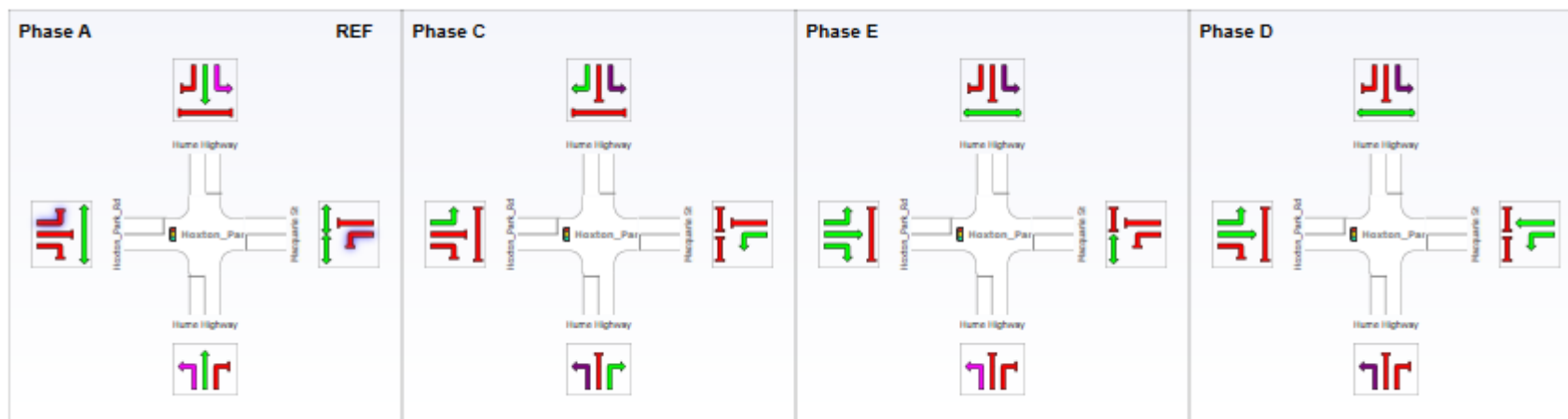


## Old Phases





## New Phases





Mainly, you can recalculate volumes, green times and phases for every site in the network at the push of a button.

Starting with Volumes:

The Moorbank Model has

Approx. 12 movements per intersection  
36 intersections in network

**BIG**

**12 x 36**

All needing to be manually put into SIDRA





Green Times:

The Moorebank Model has

- Approx. 12 movements per intersection
- 36 intersections in 3 networks
- 3 Phases per intersection

**BIG**

12 x 36 x 3

All needing to be manually put into Dynameq



Phase Movements:

The Moorebank Model has

- 12 Movements
- 36 intersections in 3 networks
- 2 Phases
- 4 Movements per phase

**BIG**

12 x 36 x 3 x 4

All needing to be manually put into Dynameq



**Volumes**

$$12 \times 36$$

**Green Times**

$$12 \times 36 \times 3$$

**Phase Movements**

$$12 \times 36 \times 3 \times 4$$



**QUESTIONS ?**



# TRANSPORT MODELLING