Colston Budd Rogers & Kafes Pty Ltd
as Trustee for C & B Unit Trust
ABN 27 623 918 759

Our Ref: TR/11146/jj

31 July, 2019

Transport Planning
Traffic Studies
Parking Studies

Qantas Airways Limited
B Wing, Level 1, 10 Bourke Road,
Mascot NSW 2020 Australia

Attention: Charlie Westgarth
Email: charlie.westgarth@qantas.com.au

Dear Sir,

RE: QANTAS FLIGHT TRAINING CENTRE (SSD 10154)
RESPONSE TO TRAFFIC MATTERS RAISED IN SUBMISSIONS

1. As requested we have reviewed the traffic matters raised in submissions to SSD 10154. These are summarised below:

TfNSW

- *the SSD to consider the impacts of the proposed Sydney Gateway project in the layout and design of the proposed development;*
- *provide electronic SIDRA files;*
- *clarification of the inclusion of a right turn movement into King Street (west) at the intersection with O'Riordan Street in the trip distribution figures of the traffic report;*
- *provision of SIDRA outputs to verify that queuing from right turn bays at the intersections at Qantas Drive/Lancaster Road and O'Riordan Street/King Street will not overflow into adjacent through lanes; and*
- *further information to demonstrate that any queuing from the proposed boom gates at the King Street accesses can be accommodated on site;*
- *that the proposed development provide appropriate bicycle parking and end of trip facilities; and*
- *that any approval include conditions that require preparation of a Travel Demand Management Strategy/Work Place Travel Plan and Construction Pedestrian and Traffic Management Plan (both in consultation with the Sydney Coordination Office within TfNSW).*

Suite 1801/Tower A, Zenith Centre, 821 Pacific Highway, Chatswood NSW 2067
P.O. Box 5186 West Chatswood NSW 1515 Tel: (02) 9411 2411 Fax: (02) 9411 2422
Directors - Geoff Budd - Stan Kafes - Tim Rogers - Joshua Hollis ACN 002 334 296
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DPE

- *further information on how the loss of existing parking will be managed during construction; and*
- *provision of a plan showing new and existing internal service roads that are consistent with the commentary provided the traffic report.*

Bayside Council

- *provision of a cumulative traffic assessment with other approved or proposed developments in the area;*
- *that the proposed development provide appropriate bicycle parking and end of trip facilities;*
- *provision of a Travel Demand Management Strategy/Work Place Travel Plan to encourage travel by modes other than private car; and*
- *improvements to the internal and external pedestrian and cycleway network.*

Public Submissions

- *impact of the SSD on the operation of King Street and in particular the intersection of King Street and O'Riordan Street; and*
- *that the proposed development provide appropriate bicycle parking and end of trip facilities.*

2. Our response to the traffic matters raised in submissions to the SSD is set below.

Response to Matters raised by TfNSW

Sydney Gateway Project

3. A State Significant Infrastructure Application (SSIA) has recently been submitted for the Sydney Gateway Project. A Concept Design Project Overview sets out the main elements of the project which includes road network improvements along Qantas Drive (including removal of the traffic signals at the intersection with Lancaster Road) and improved access to/from the domestic terminals at Sydney Airport. The next stage of the project is to prepare an EIS that will include a detailed traffic assessment of the proposed changes to the road network. This traffic assessment should take into account the SSD for the relocation of the flight training centre.

Electronic SIDRA files

4. Electronic SIDRA files were emailed to RMS on 26 July 2019.

Right Turn into King Street

5. The Trip distribution set out in the traffic report is based on the Airport North Precinct Plan road network improvements works (currently under construction) being completed. These works include provision of a right turn from O'Riordan Street into King Street (west). The figure of 50 vehicles is a redistribution of existing flows following provision of this right turn.

Queuing in Right Turn Bays

6. The SIDRA analysis shows that with the SSD, the right turn bays for the right turns from Qantas Drive into Lancaster Road and from O'Riordan Street into King Street (west) can accommodate the volume of right turning traffic. The 95% queue into Lancaster Road was found to be 66 metres with the right turn bay 80 metres long. The 95% queue in King Street (west) was found to be 20 metres with the right turn bay 60 metres long. SIDRA movement summaries are attached.

Queuing at Boom Gates

7. Based on a lane capacity of 300 vehicles per hour, the King Street entry (with 2 entry lanes at peak times) has capacity for 600 vehicles per hour. Projected entry flows are some 250 vehicles per hour. Based on the above, the 95% queue would be 4 vehicles with queuing within the site for at least 10 vehicles. Thus queues would not extend back out of the site.

Bicycle Parking and End of Trip Facilities

8. The SSD will provide additional bicycle parking within the ground floor of the new multi deck car park with appropriate end of trip facilities to support the additional bicycle parking.

Travel Demand Management Strategy/Work Place Travel Plan

9. A condition of consent for the SSD that requires the preparation of a Travel Demand Management Strategy/Work Place Travel Plan in consultation with the Sydney Coordination Office within TfNSW is appropriate.

Construction Pedestrian and Traffic Management Plan

10. A condition of consent for the SSD that requires the preparation of a Construction Pedestrian and Traffic Management Plan in consultation with the Sydney Coordination Office within TfNSW is appropriate.

<u>Response to Matters Raised by DPE</u>

Car Parking During Construction

11. The construction of the Flight Training Centre and new multi-deck car park will result in the loss of some 800 parking spaces within the King Street North and Tri-Gen car parks within Qantas Corporate Campus. These will be replaced within the new multi deck car park when it is completed. To accommodate parking lost during construction, Qantas is investigating options to lease temporary parking in nearby sites such as the Travelodge, AMP and Blue Emu car parks. Preliminary discussions have indicated that the 800 spaces could be accommodated across these three sites.

Plan of New and Existing Internal Roads

12. Figure 5 in the traffic report shows access to and within the site via new and existing access roads. A copy of Figure 5 is attached.

Bayside Council

Cumulative Traffic Assessment

13. Bayside Council has requested a cumulative traffic assessment of the impact of traffic generated by the SSD and other approved or proposed developments on the intersections of King Street/O'Riordan Street and Kent Road/Coward Street. In an email dated 23 July 2019, Council has identified the following developments as relevant to be assessed in the cumulative traffic assessment:

- hotel/commercial building at 342 King Street and 5-11 Ewan Street;
- draft planning proposal to amend maximum FSR from 3:1 to 5.5:1 at 215-235 O'Riordan Street and 1-5 Ewan Street;
- commercial development (11,967m^2) at 1-5 Chalmers Crescent;
- commercial development (34,313m^2) at 7-7, 14-18 and 19-21 Chalmers Crescent; and
- Dnata catering facility SSD at 263 Coward Street.

14. Traffic generated by the draft planning proposal and Dnata SSD are not relevant to the Flight Centre SSD as no development applications have been lodged for these project and hence there is no certainty that the projects will proceed. Rather it will be the responsibility of these projects to undertake a cumulative assessment of their traffic along with other relevant developments.

15. With respect to the other developments, traffic generated by hotel/commercial development in King Street has been sourced from the traffic report that accompanied the DA (estimated at some 90 to 130 vehicles per hour (two way) through the O'Riordan Street/King Street intersection in the weekday AM

and PM peak hours). RMS Guidelines have been used to estimate traffic generated by the two sites in Chalmers Crescent. Using RMS rates, the two sites would generate some 960 to 1,290 vehicles (two way) through the Kent Road/Coward Street intersection, in the weekday AM and PM peak hours.

16. By way of comparison the Flight Training Centre SSD would generate some 60 vehicles per hour (two way) through the intersection of Kent Road/Coward Street and some 100 to 150 vehicles per hour (two way) through the intersection of King Street/O'Riordan Street in the weekday AM and PM peak hours.

17. This additional traffic has been assigned through the intersections of King Street/O'Riordan Street and Kent Road/Coward Street and the intersections have been reanalysed using SIDRA with and without traffic from the Flight Training Centre SSD, and with the Airport North Precinct Plan road network improvements. The results are summarised below in Table 1.

Table 1	**SIDRA Analysis of Cumulative Traffic Effects**							
	O'Riordan Street/King Street				Coward Street/Kent Road			
Scenario	Ave Delay (s)		LOS		Ave Delay (s)		LOS	
	AM	PM	AM	PM	AM	PM	AM	PM
Base	22	27	B	B	32	34	C	C
Base + SSD	23	27	B	B	32	35	C	C
Base + Other Dev	23	26	B	B	77	41	F	C
Base + Other Dev + SSD	26	31	B	B/C	79	43	F	D

18. The analysis found that:

- with SSD traffic added to base flows, both intersections would operate at satisfactory levels of service following the RMS upgrades in the AM/PM peak periods;
- with other development and SSD traffic added to base flows, the intersection of O'Riordan Street/King Street would continue to operate at a satisfactory level of service following the RMS upgrades in the AM/PM peak periods; and
- with other development traffic added to base flows, the intersection of Coward Street/Kent Road would reach capacity in the AM peak period. In the PM peak periods the intersection would operate at a satisfactory level of service.

19. Thus the cumulative traffic assessment has found that the intersection King Street/O'Riordan Street can accommodate traffic from both the hotel/commercial development and SSD. However, the traffic generated by

the two commercial developments in Chalmers Crescent result in the intersection of Coward Street/Kent Road reaching capacity in the AM peak period. Traffic from the SSD through this intersection is minor (some 5%) compared to traffic generated by the proposed commercial developments.

Bicycle Parking and End of Trip Facilities

20. The SSD will provide additional bicycle parking within the ground floor of the new multi deck car park with appropriate end of trip facilities to support the additional bicycle parking. Council has suggested that bicycle parking be provided at rate of 1 space per 10 parking spaces. With 1,200 new car parking spaces in the multi deck car park (800 are replacement spaces), 120 bicycle spaces would be required. It is proposed to provide 120 bicycle spaces with the majority within the ground level of the car park. End of trip (EOT) facilities will be provided within the existing EOT facilities located in Building D and new facilities within the new car park.

Travel Demand Management Strategy/Work Place Travel Plan

21. As suggested by TfNSW, a condition of consent for the SSD that requires the preparation of a Travel Demand Management Strategy/Work Place Travel Plan in consultation with the Sydney Coordination Office within TfNSW is appropriate.

Improvements to the Internal and External Pedestrian and Cycleway Network

22. As part of the SSD, improvements will be made to the internal pedestrian and cycleway network within the King Street North and Trigen car park areas through the construction of new roads and footpaths around the flight training centre and multi-deck car park. A new footpath will be constructed along the King Street frontage.

<u>Public Submissions</u>

I*mpact of the SSD on the Operation of King Street*

23. As part of Airport North Precinct Plan upgrades, the intersection of King Street/O'Riordan Street is being upgraded to provide 3 lanes in each direction plus a right turn bay into King Street (west). These upgrades provide additional capacity. The SSD traffic assessment takes into these improvements and when SSD traffic is added to King Street there was no change in the level of service at the intersection of O'Riordan Street/King Street, This is consistent with the minor increase in traffic flows on road network as part of SSD.

Bicycle Parking and End of Trip Facilities

24. See response to TfNSW and Bayside Council on this matter.

25. We trust the above provides the information you require. Finally, if you should have any queries, please do not hesitate to contact us.

Yours faithfully,
COLSTON BUDD ROGERS & KAFES PTY LTD

T. Rogers
Director

ATTACHMENT A

SIDRA MOVEMENT SUMMARIES

MOVEMENT SUMMARY

Site: 101 [AM EX+D - Qantas Drive - Lancastrian Drive]

Network: N101 [AM EX+Dev - Jetbase]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancastrian Drive														
1	L2	35	2.0	35	2.0	0.019	3.2	LOS A	0.0	0.0	0.00	0.46	0.00	47.4
3	R2	46	2.0	46	2.0	0.293	38.0	LOS C	1.0	6.9	0.97	0.73	0.97	27.2
Approach		81	2.0	81	2.0	0.293	23.0	LOS B	1.0	6.9	0.55	0.61	0.55	33.4
East: Qantas Drive														
4	L2	192	2.0	192	2.0	0.179	12.7	LOS A	1.8	13.2	0.49	0.70	0.49	42.5
5	T1	1340	5.0	1340	5.0	0.889	32.3	LOS C	17.3	126.6	0.98	1.09	1.27	39.2
Approach		1532	4.6	1532	4.6	0.889	29.9	LOS C	17.3	126.6	0.92	1.04	1.17	39.4
West: Qantas Drive														
11	T1	2155	5.0	2155	5.0	0.825	9.4	LOS A	17.8	130.2	0.66	0.66	0.72	52.0
12	R2	384	2.0	384	2.0	0.864	42.0	LOS C	9.3	66.4	1.00	1.00	1.33	25.5
Approach		2539	4.5	2539	4.5	0.864	14.3	LOS A	17.8	130.2	0.71	0.71	0.82	47.9
All Vehicles		4152	4.5	4152	4.5	0.889	20.2	LOS B	17.8	130.2	0.78	0.83	0.94	44.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P21	East Stage 1	53	29.3	LOS C	0.1	0.1	0.92	0.92
P22	East Stage 2	53	29.3	LOS C	0.1	0.1	0.92	0.92
All Pedestrians		105	29.3	LOS C			0.92	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [AM EX+D - Qantas Drive - Lancastrian Drive]

Network: N101 [AM EX+Dev - Jetbase]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

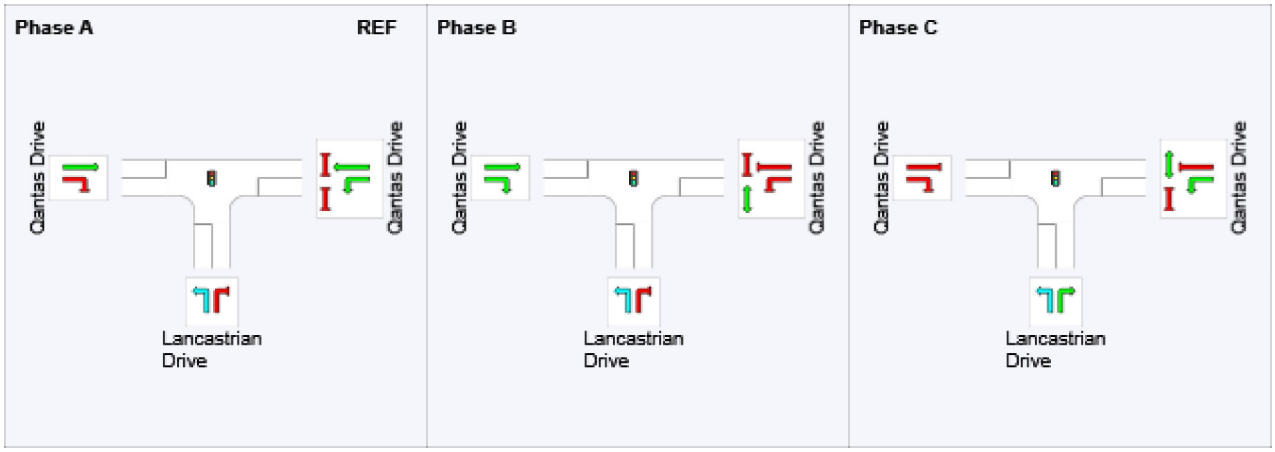
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

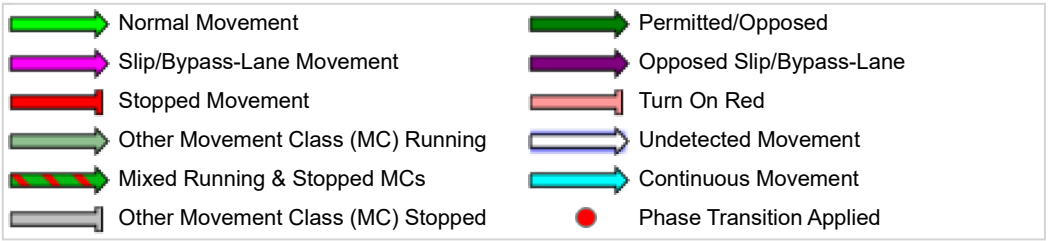
Phase	A	B	C
Phase Change Time (sec)	0	35	58
Green Time (sec)	29	17	6
Phase Time (sec)	35	23	12
Phase Split	50%	33%	17%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



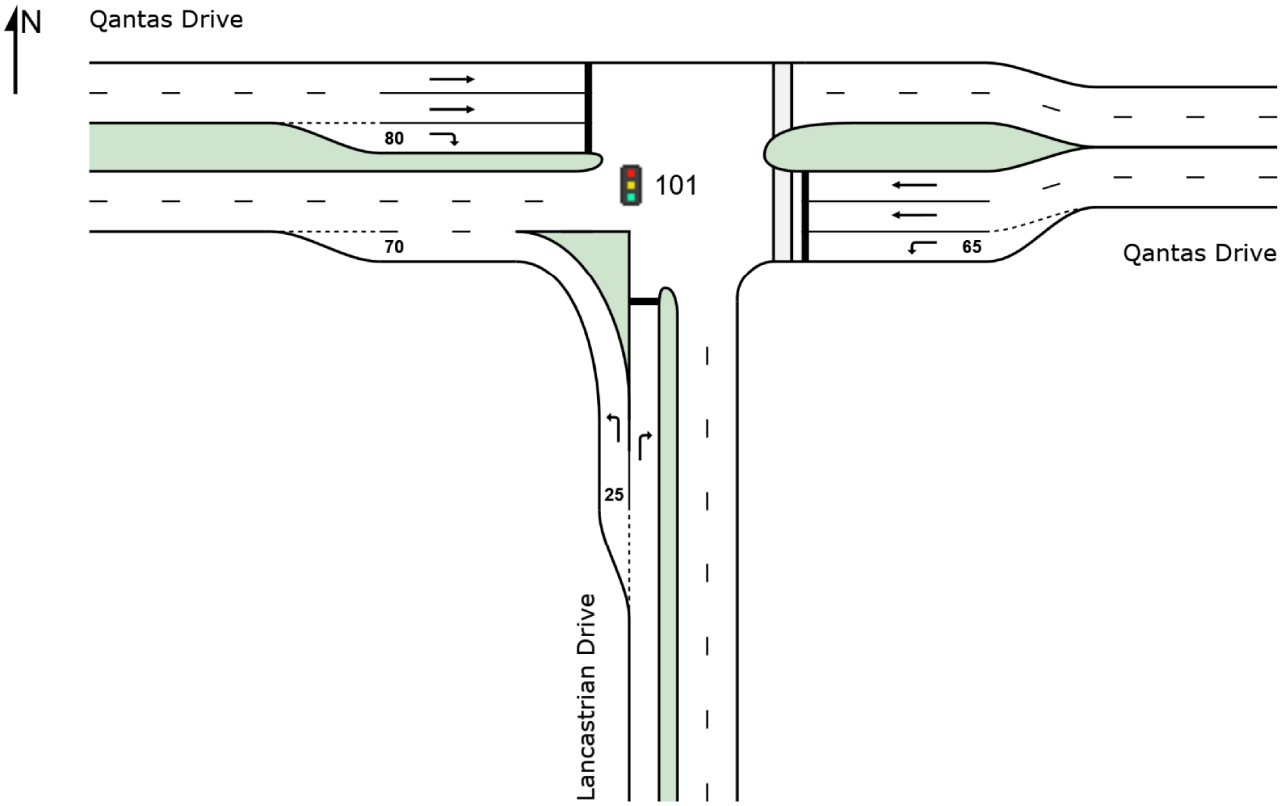
REF: Reference Phase
VAR: Variable Phase



SITE LAYOUT

Site: 101 [AM EX+D - Qantas Drive - Lancastrian Drive]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 101 [AM EX+D - Lancastrian Drive - Catering Access - Airside - Security]

Network: N101 [AM EX+Dev - Jetbase]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles

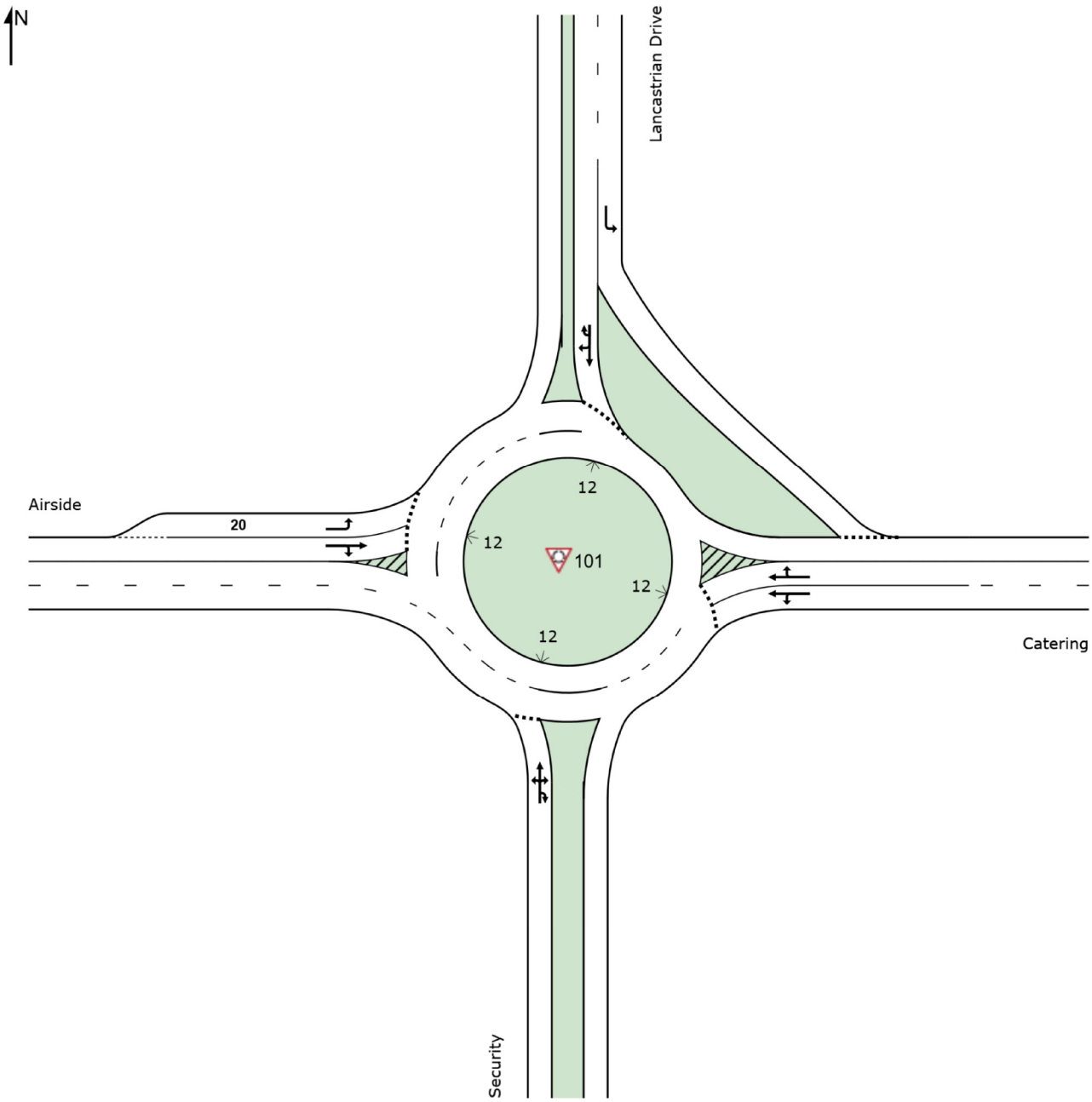
Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Security														
1	L2	1	2.0	1	2.0	0.029	2.8	LOS A	0.0	0.3	0.24	0.54	0.24	37.6
2	T1	5	2.0	5	2.0	0.029	2.5	LOS A	0.0	0.3	0.24	0.54	0.24	35.5
3	R2	15	2.0	15	2.0	0.029	6.0	LOS A	0.0	0.3	0.24	0.54	0.24	38.3
3u	U	10	0.0	10	0.0	0.029	7.4	LOS A	0.0	0.3	0.24	0.54	0.24	38.9
Approach		31	1.4	31	1.4	0.029	5.8	LOS A	0.0	0.3	0.24	0.54	0.24	38.2
East: Catering														
4	L2	20	2.0	20	2.0	0.043	3.0	LOS A	0.1	0.7	0.19	0.32	0.19	38.7
5	T1	40	2.0	40	2.0	0.043	2.3	LOS A	0.1	0.7	0.19	0.33	0.19	39.4
6	R2	61	2.0	61	2.0	0.043	5.7	LOS A	0.1	0.7	0.18	0.53	0.18	35.5
Approach		121	2.0	121	2.0	0.043	4.2	LOS A	0.1	0.7	0.18	0.43	0.18	37.8
North: Lancastrian Drive														
7	L2	526	2.0	526	2.0	0.349	2.2	LOS A	0.7	4.7	0.10	0.43	0.10	39.0
8	T1	20	2.0	20	2.0	0.036	2.6	LOS A	0.0	0.3	0.10	0.54	0.10	38.9
9	R2	25	2.0	25	2.0	0.036	5.8	LOS A	0.0	0.3	0.10	0.54	0.10	39.0
9u	U	1	2.0	1	2.0	0.036	7.4	LOS A	0.0	0.3	0.10	0.54	0.10	25.7
Approach		572	2.0	572	2.0	0.349	2.4	LOS A	0.7	4.7	0.10	0.44	0.10	39.0
West: Airside														
10	L2	15	2.0	15	2.0	0.014	3.2	LOS A	0.0	0.2	0.20	0.41	0.20	37.2
11	T1	20	2.0	20	2.0	0.024	2.3	LOS A	0.0	0.3	0.19	0.40	0.19	39.1
12	R2	10	2.0	10	2.0	0.024	5.8	LOS A	0.0	0.3	0.19	0.40	0.19	39.2
Approach		45	2.0	45	2.0	0.024	3.4	LOS A	0.0	0.3	0.19	0.40	0.19	38.7
All Vehicles		769	2.0	769	2.0	0.349	2.9	LOS A	0.7	4.7	0.12	0.44	0.12	38.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [AM EX+D - Lancastrian Drive - Catering Access - Airside - Security]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

Site: 104 [AM EX - O'Riordan St - King St + dev]

Network: N101 [AM EX + dev]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: O'Riordan Street														
1	L2	98	2.0	98	2.0	0.726	7.8	LOS A	3.4	24.9	0.18	0.23	0.18	54.1
2	T1	1705	5.0	1705	5.0	0.726	19.2	LOS B	15.5	113.3	0.69	0.64	0.69	25.3
3	R2	100	2.0	100	2.0	0.683	57.8	LOS E	3.2	22.6	1.00	0.82	1.10	24.6
Approach		1903	4.7	1903	4.7	0.726	20.6	LOS B	15.5	113.3	0.68	0.63	0.69	27.1
East: King Street														
4	L2	45	2.0	45	2.0	0.065	25.5	LOS B	0.8	6.0	0.66	0.68	0.66	29.6
5	T1	119	2.0	119	2.0	0.239	33.1	LOS C	2.9	20.5	0.85	0.68	0.85	37.1
6	R2	175	2.0	175	2.0	0.728	49.4	LOS D	5.4	38.2	0.99	0.90	1.12	21.6
Approach		339	2.0	339	2.0	0.728	40.5	LOS C	5.4	38.2	0.90	0.79	0.97	28.5
North: O'Riordan Street														
7	L2	90	2.0	90	2.0	0.098	10.8	LOS A	0.5	3.9	0.22	0.62	0.22	42.2
8	T1	1155	5.0	1155	5.0	0.644	19.1	LOS B	12.3	89.4	0.76	0.68	0.76	22.9
9	R2	93	2.0	93	2.0	0.632	57.0	LOS E	2.8	20.2	1.00	0.79	1.04	25.0
Approach		1338	4.6	1338	4.6	0.644	21.2	LOS B	12.3	89.4	0.74	0.68	0.74	25.3
West: King Street														
10	L2	44	2.0	44	2.0	0.063	25.5	LOS B	0.8	5.9	0.66	0.68	0.66	29.6
11	T1	26	2.0	26	2.0	0.297	36.8	LOS C	2.3	16.5	0.88	0.74	0.88	34.6
12	R2	62	5.0	62	5.0	0.297	41.4	LOS C	2.3	16.5	0.88	0.74	0.88	24.2
Approach		132	3.4	132	3.4	0.297	35.2	LOS C	2.3	16.5	0.81	0.72	0.81	28.5
All Vehicles		3712	4.4	3712	4.4	0.728	23.2	LOS B	15.5	113.3	0.73	0.67	0.74	26.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		158	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 104 [AM EX - O'Riordan St - King St + dev]

Network: N101 [AM EX + dev]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

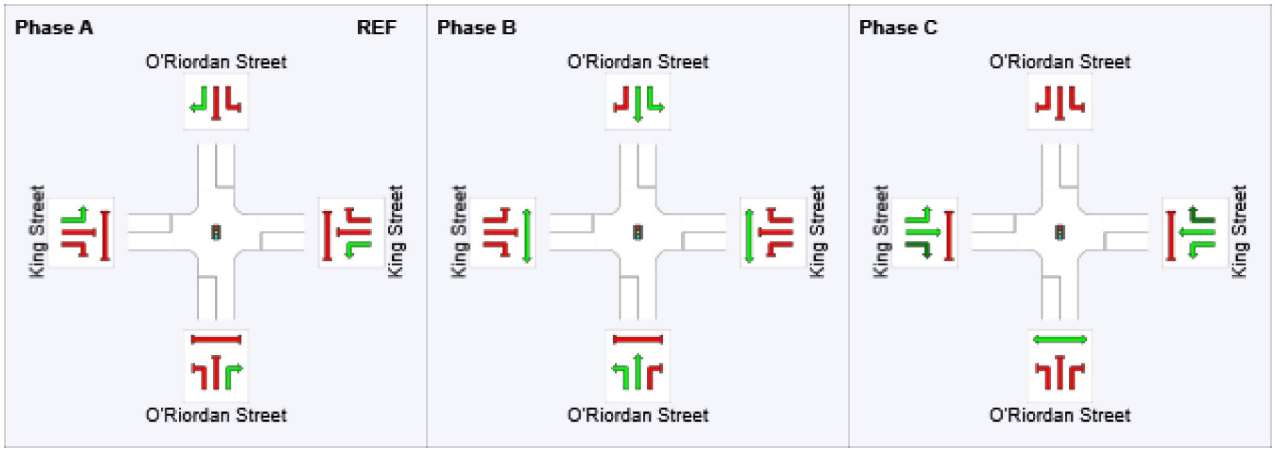
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	14	70
Green Time (sec)	8	50	24
Phase Time (sec)	14	56	30
Phase Split	14%	56%	30%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



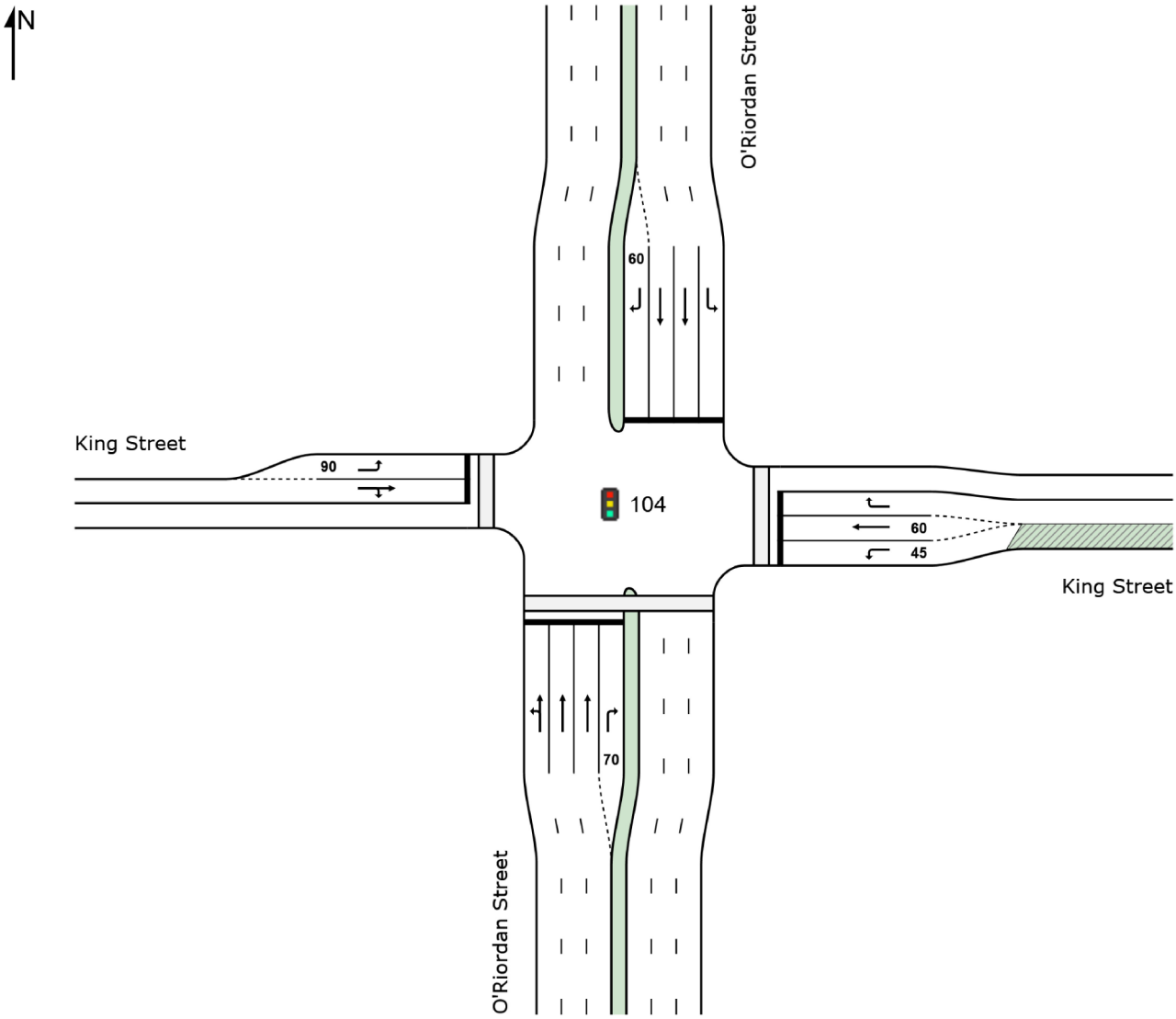
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

SITE LAYOUT

Site: 104 [AM EX - O'Riordan St - King St + dev]

New Site
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 101 [PM EX+D - Qantas Drive - Lancastrian Drive]

Network: N101 [PM EX+Dev - Jetbase]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Lancastrian Drive														
1	L2	355	2.0	355	2.0	0.194	3.2	LOS A	0.0	0.0	0.00	0.46	0.00	47.4
3	R2	64	2.0	64	2.0	0.408	38.5	LOS C	1.4	9.8	0.99	0.75	0.99	27.0
Approach		419	2.0	419	2.0	0.408	8.6	LOS A	1.4	9.8	0.15	0.50	0.15	42.6
East: Qantas Drive														
4	L2	37	2.0	37	2.0	0.027	8.1	LOS A	0.2	1.4	0.27	0.63	0.27	47.6
5	T1	1885	5.0	1885	5.0	0.881	24.1	LOS B	21.9	159.5	0.93	1.01	1.12	43.0
Approach		1922	4.9	1922	4.9	0.881	23.8	LOS B	21.9	159.5	0.91	1.00	1.11	43.0
West: Qantas Drive														
11	T1	1405	5.0	1405	5.0	0.501	3.9	LOS A	6.0	43.7	0.44	0.40	0.44	56.4
12	R2	55	2.0	55	2.0	0.350	40.6	LOS C	1.2	8.3	0.98	0.74	0.98	26.0
Approach		1460	4.9	1460	4.9	0.501	5.3	LOS A	6.0	43.7	0.46	0.41	0.46	55.1
All Vehicles		3801	4.6	3801	4.6	0.881	15.0	LOS B	21.9	159.5	0.66	0.72	0.75	47.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P21	East Stage 1	53	29.3	LOS C	0.1	0.1	0.92	0.92
P22	East Stage 2	53	29.3	LOS C	0.1	0.1	0.92	0.92
All Pedestrians		105	29.3	LOS C			0.92	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [PM EX+D - Qantas Drive - Lancastrian Drive]

Network: N101 [PM EX+Dev - Jetbase]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

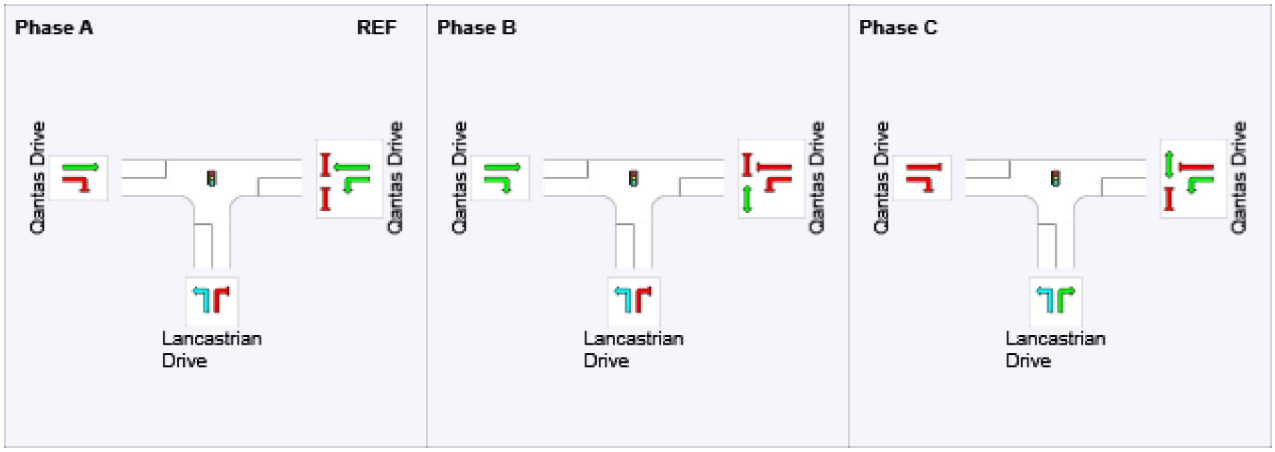
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	46	58
Green Time (sec)	40	6	6
Phase Time (sec)	46	12	12
Phase Split	66%	17%	17%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



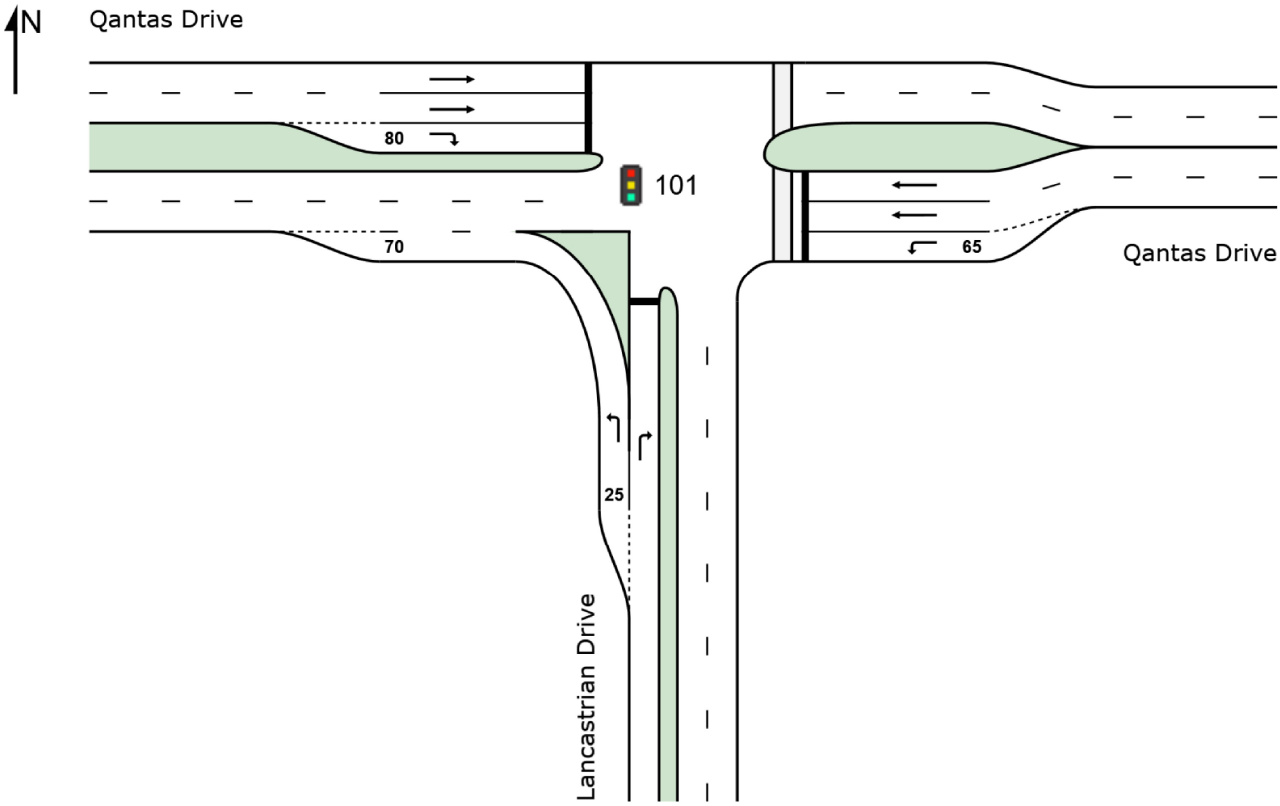
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

SITE LAYOUT

Site: 101 [PM EX+D - Qantas Drive - Lancastrian Drive]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 101 [PM EX+D - Lancastrian Drive - Catering Access - Airside - Security]

Network: N101 [PM EX+Dev - Jetbase]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles

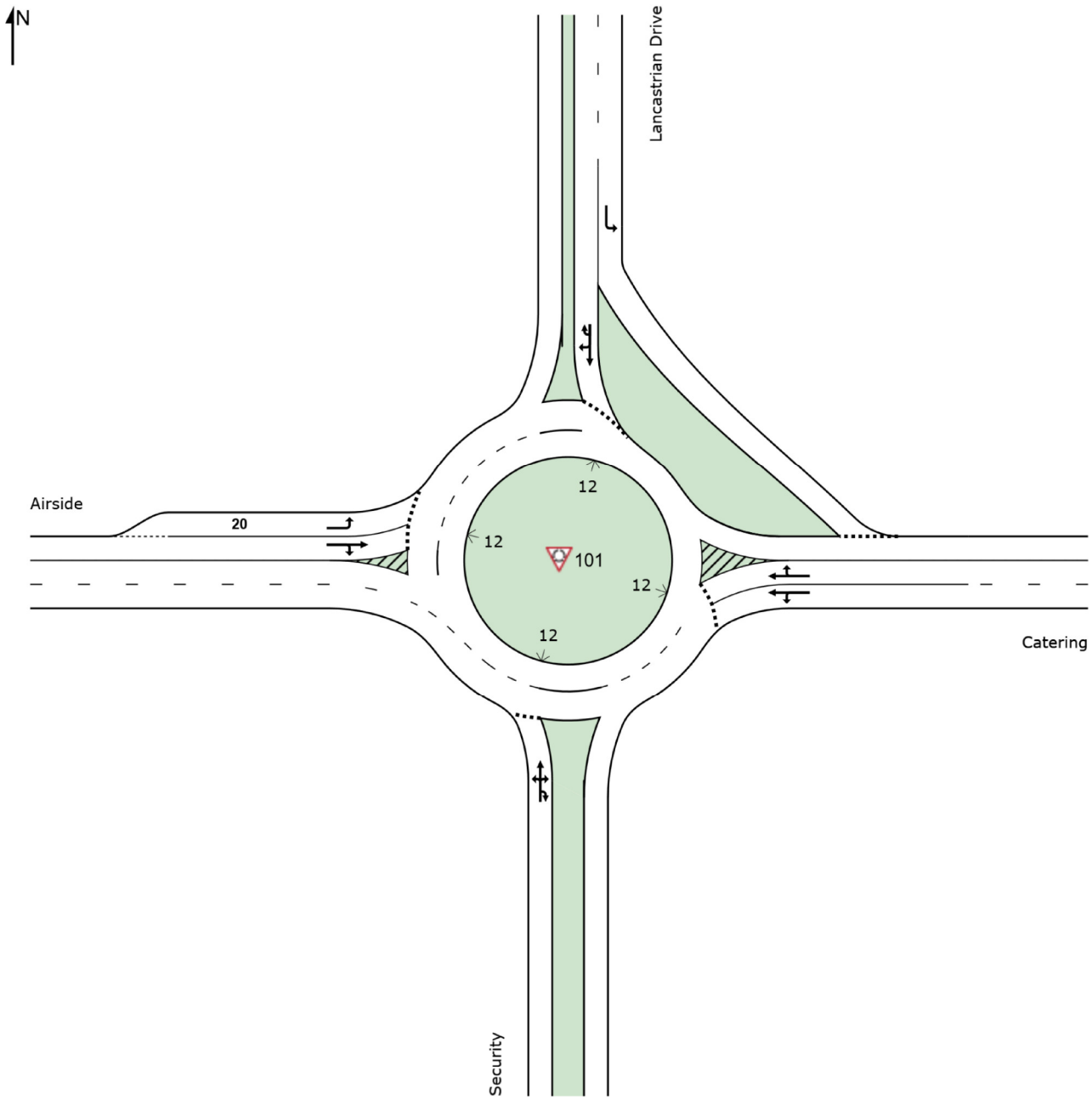
Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Security														
1	L2	5	2.0	5	2.0	0.048	4.1	LOS A	0.1	0.5	0.44	0.51	0.44	38.1
2	T1	30	2.0	30	2.0	0.048	3.9	LOS A	0.1	0.5	0.44	0.51	0.44	36.3
3	R2	5	2.0	5	2.0	0.048	7.4	LOS A	0.1	0.5	0.44	0.51	0.44	38.9
3u	U	1	0.0	1	0.0	0.048	8.7	LOS A	0.1	0.5	0.44	0.51	0.44	39.4
Approach		41	2.0	41	2.0	0.048	4.5	LOS A	0.1	0.5	0.44	0.51	0.44	37.2
East: Catering														
4	L2	10	2.0	10	2.0	0.030	3.0	LOS A	0.1	0.4	0.16	0.32	0.16	38.7
5	T1	20	2.0	20	2.0	0.030	2.3	LOS A	0.1	0.4	0.16	0.32	0.16	39.5
6	R2	379	2.0	379	2.0	0.234	5.7	LOS A	0.6	4.4	0.16	0.54	0.16	35.5
Approach		409	2.0	409	2.0	0.234	5.4	LOS A	0.6	4.4	0.16	0.52	0.16	36.0
North: Lancastrian Drive														
7	L2	57	2.0	57	2.0	0.041	2.1	LOS A	0.1	0.4	0.06	0.42	0.06	39.1
8	T1	10	2.0	10	2.0	0.026	2.5	LOS A	0.0	0.3	0.08	0.60	0.08	38.3
9	R2	10	2.0	10	2.0	0.026	5.7	LOS A	0.0	0.3	0.08	0.60	0.08	38.4
9u	U	15	2.0	15	2.0	0.026	7.3	LOS A	0.0	0.3	0.08	0.60	0.08	24.4
Approach		92	2.0	92	2.0	0.041	3.4	LOS A	0.1	0.4	0.07	0.49	0.07	38.3
West: Airside														
10	L2	10	2.0	10	2.0	0.012	4.8	LOS A	0.0	0.1	0.46	0.51	0.46	36.2
11	T1	15	2.0	15	2.0	0.020	3.6	LOS A	0.0	0.2	0.44	0.48	0.44	38.7
12	R2	5	2.0	5	2.0	0.020	7.1	LOS A	0.0	0.2	0.44	0.48	0.44	38.8
Approach		30	2.0	30	2.0	0.020	4.6	LOS A	0.0	0.2	0.45	0.49	0.45	38.2
All Vehicles		572	2.0	572	2.0	0.234	5.0	LOS A	0.6	4.4	0.18	0.51	0.18	36.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [PM EX+D - Lancastrian Drive - Catering Access - Airside - Security]

Existing Weekday Morning Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

Site: 104 [PM EX - O'Riordan St - King St + Dev]

Network: N101 [PM EX + Dev]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: O'Riordan Street														
1	L2	58	2.0	58	2.0	0.837	9.5	LOS A	4.3	31.0	0.12	0.18	0.16	52.7
2	T1	1640	5.0	1640	5.0	0.837	31.3	LOS C	18.2	132.8	0.62	0.64	0.70	18.6
3	R2	70	2.0	70	2.0	0.765	74.4	LOS F	2.7	19.5	1.00	0.81	1.14	21.3
Approach		1768	4.8	1768	4.8	0.837	32.3	LOS C	18.2	132.8	0.61	0.63	0.70	20.1
East: King Street														
4	L2	180	2.0	180	2.0	0.241	29.4	LOS C	4.2	29.8	0.70	0.74	0.70	27.9
5	T1	15	2.0	15	2.0	0.025	30.5	LOS C	0.4	2.6	0.72	0.52	0.72	38.1
6	R2	155	2.0	155	2.0	0.855	69.3	LOS E	6.6	46.8	1.00	1.04	1.37	17.5
Approach		350	2.0	350	2.0	0.855	47.1	LOS D	6.6	46.8	0.83	0.86	1.00	22.7
North: O'Riordan Street														
7	L2	100	2.0	100	2.0	0.111	8.8	LOS A	0.4	2.7	0.11	0.60	0.11	43.7
8	T1	1535	5.0	1535	5.0	0.850	25.7	LOS B	24.2	176.8	0.85	0.81	0.89	18.9
9	R2	60	2.0	60	2.0	0.655	71.1	LOS F	2.3	16.2	1.00	0.77	1.07	22.0
Approach		1695	4.7	1695	4.7	0.850	26.3	LOS B	24.2	176.8	0.81	0.80	0.85	21.2
West: King Street														
10	L2	118	2.0	118	2.0	0.158	28.4	LOS B	2.6	18.8	0.67	0.72	0.67	28.3
11	T1	78	2.0	78	2.0	0.466	40.2	LOS C	5.4	38.7	0.89	0.77	0.89	33.8
12	R2	98	5.0	98	5.0	0.466	44.8	LOS D	5.4	38.7	0.89	0.77	0.89	23.4
Approach		294	3.0	294	3.0	0.466	37.0	LOS C	5.4	38.7	0.80	0.75	0.80	28.7
All Vehicles		4107	4.4	4107	4.4	0.855	31.4	LOS C	24.2	176.8	0.73	0.73	0.80	21.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		158	54.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 104 [PM EX - O'Riordan St - King St + Dev]

Network: N101 [PM EX + Dev]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

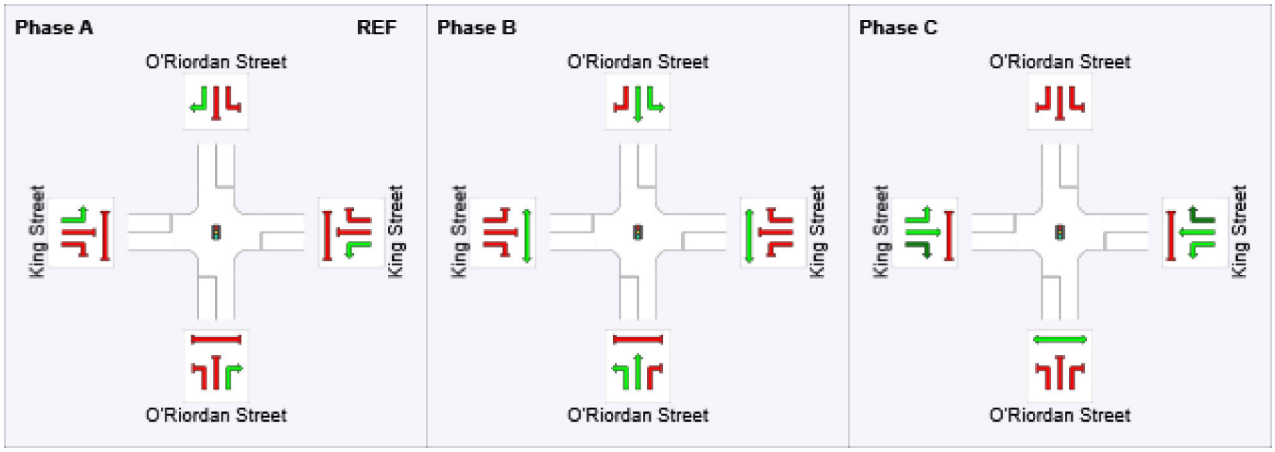
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Split Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	12	77
Green Time (sec)	6	59	37
Phase Time (sec)	12	65	43
Phase Split	10%	54%	36%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



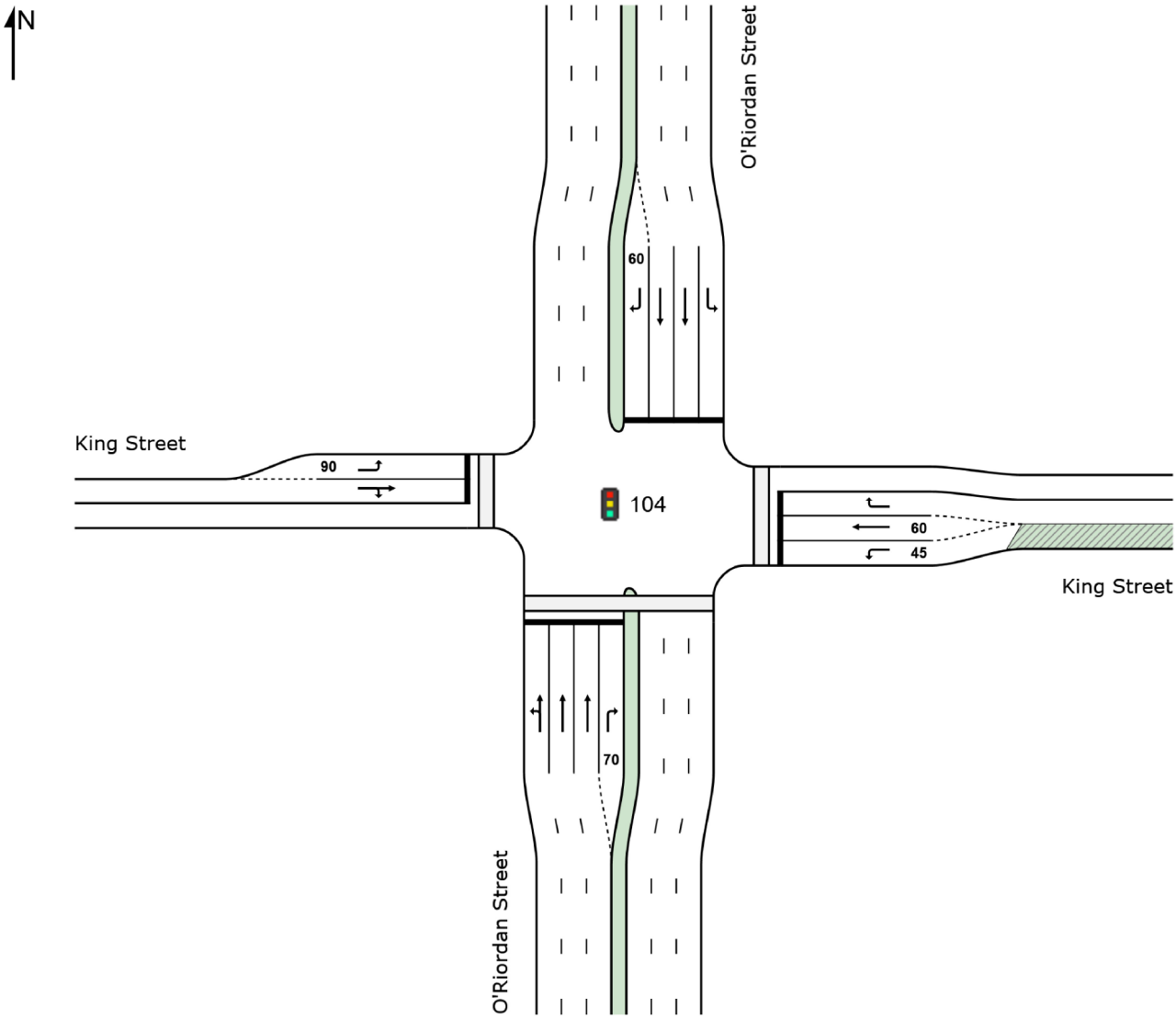
REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

SITE LAYOUT

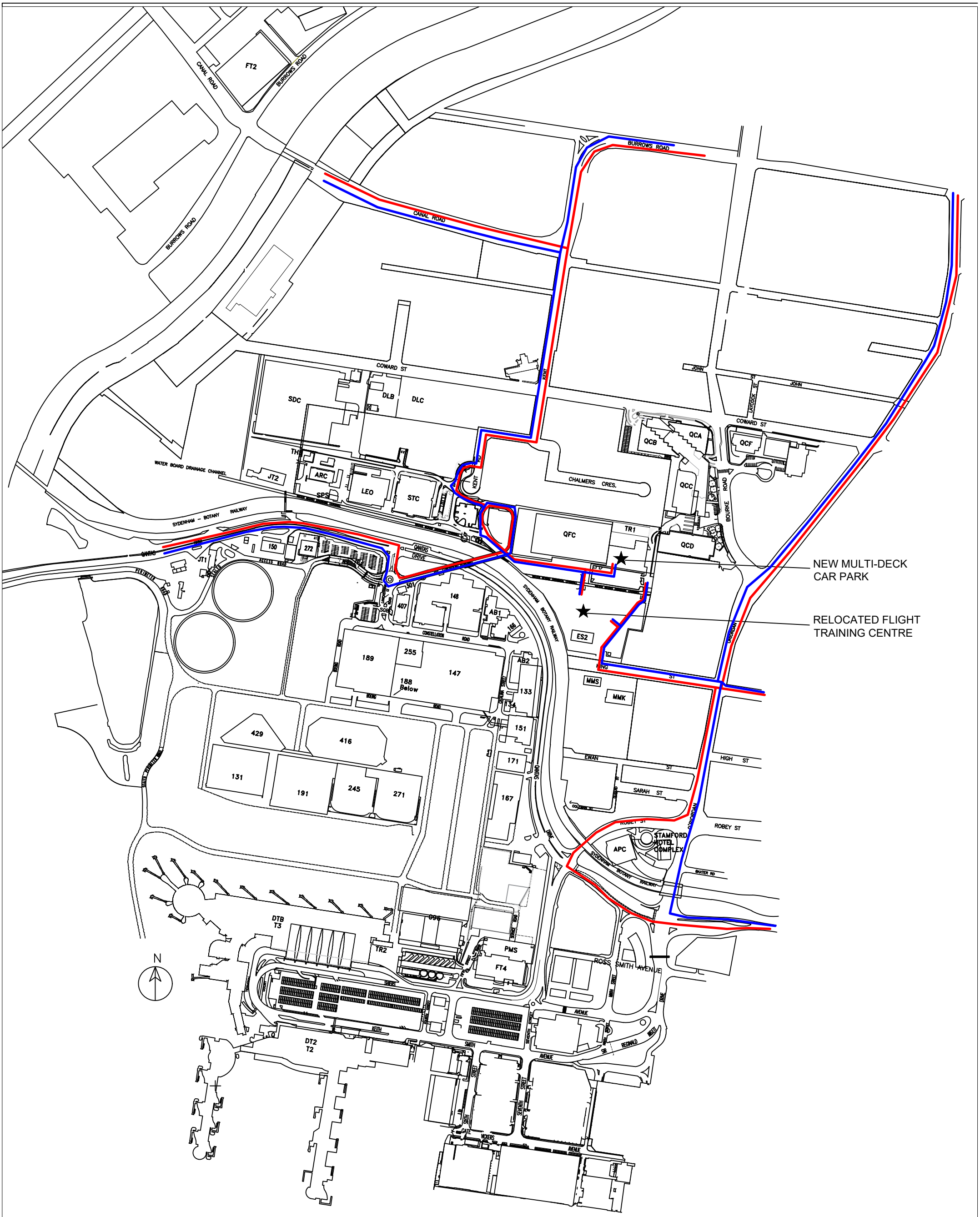
Site: 104 [PM EX - O'Riordan St - King St + Dev]

New Site
Site Category: (None)
Signals - Fixed Time Isolated



ATTACHMENT B

FIGURE 5 FROM TRAFFIC REPORT



NOTE:
SKETCH PLAN ONLY. PROPERTY BOUNDARIES, UTILITIES, KERBLINES & DIMENSIONS ARE SUBJECT TO SURVEY AND FINAL DESIGN. TRAFFIC MEASURES PROPOSED IN THIS PLAN ARE CONCEPT ONLY AND ARE SUBJECT TO FINAL DESIGN BY CIVIL ENGINEERS.

Arrival Routes
Departure Routes

MAJOR ARRIVAL AND DEPARTURE ROUTES TO NEW MULTI-DECK CAR PARK AND RELOCATED FLIGHT TRAINING FACILITY

DRAWN BY CBRK Pty Ltd_mc Ref: 11146 28 MAY 2019

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