

Appendix A SIDRA Output, Existing

Figure B-9-1 Existing Bridge Street/ Macquarie Street – SIDRA Layout

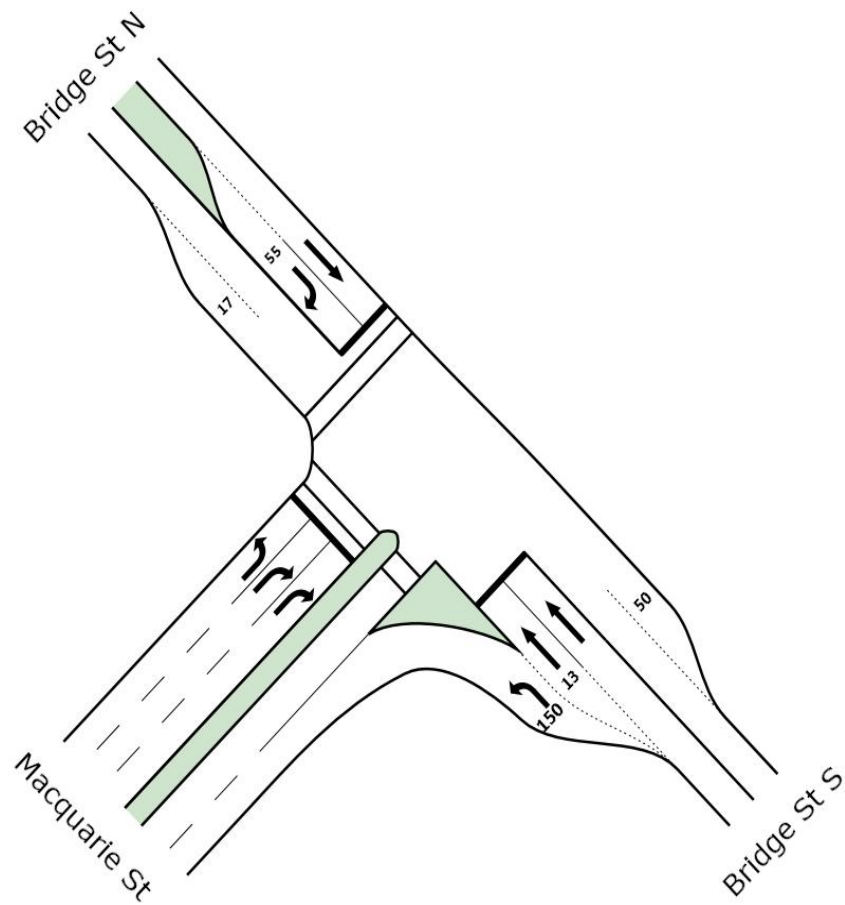


Figure B-9-2 2011 AM Peak SIDRA Summary - Bridge Street/ Macquarie Street

MOVEMENT SUMMARY

Site: Bridge Street / Macquarie Street AM Peak

Bridge Street / Macquarie Street AM Peak

Signals - Fixed Time Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	441	10.0	0.249	7.8	X	X	X	X	0.60	49.7
22	T	203	10.0	0.448	35.2	LOS C	8.3	62.8	0.90	0.74	29.2
Approach		644	10.0	0.448	16.4	LOS B	8.3	62.8	0.28	0.64	40.8
North West: Bridge St N											
28	T	563	10.0	0.498	10.6	LOS A	14.6	111.3	0.58	0.52	44.5
29	R	321	10.0	0.689	27.3	LOS B	7.6	57.7	0.95	0.84	34.4
Approach		884	10.0	0.689	16.7	LOS B	14.6	111.3	0.72	0.64	40.2
South West: Macquarie St											
30	L	181	10.0	0.168	16.2	LOS B	3.5	26.6	0.43	0.74	41.7
32	R	399	10.0	0.706	45.2	LOS D	13.8	104.7	0.94	0.84	26.8
Approach		580	10.0	0.706	36.2	LOS C	13.8	104.7	0.78	0.81	30.2
All Vehicles		2108	10.0	0.706	22.0	LOS B	14.6	111.3	0.60	0.69	37.0

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P13	Across NW approach	53	41.4	LOS E	0.1	0.1	0.91	0.91
P15	Across SW approach	53	44.2	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		106	42.8	LOS E			0.93	0.93

Figure B-9-3 2011 AM Peak SIDRA Summary - Bridge Street/ Macquarie Street

MOVEMENT SUMMARY

Site: Bridge Street / Macquarie
Street PM Peak

Bridge Street / Macquarie Street AM Peak
Signals - Fixed Time Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	399	10.0	0.226	7.8	X	X	X	X	0.60	49.8
22	T	542	10.0	0.742	28.5	LOS B	22.4	170.2	0.91	0.82	32.0
Approach		941	10.0	0.742	19.7	LOS B	22.4	170.2	0.53	0.72	37.8
North West: Bridge St N											
28	T	275	10.0	0.247	9.0	LOS A	5.9	45.1	0.48	0.41	46.3
29	R	178	10.0	0.734	53.4	LOS D	8.6	65.7	0.98	0.87	24.4
Approach		453	10.0	0.734	26.5	LOS B	8.6	65.7	0.67	0.59	34.2
South West: Macquarie St											
30	L	401	10.0	0.487	26.8	LOS B	13.1	99.3	0.72	0.82	34.7
32	R	441	10.0	0.751	45.8	LOS D	15.7	119.2	0.94	0.86	26.7
Approach		842	10.0	0.751	36.7	LOS C	15.7	119.2	0.84	0.84	29.9
All Vehicles		2236	10.0	0.751	27.5	LOS B	22.4	170.2	0.67	0.74	33.8

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P13	Across NW approach	53	40.5	LOS E	0.1	0.1	0.90	0.90
P15	Across SW approach	53	31.2	LOS D	0.1	0.1	0.79	0.79
All Pedestrians		106	35.9	LOS D			0.85	0.85

Figure A-9-4 Existing Bridge Street/ George Street – SIDRA Layout

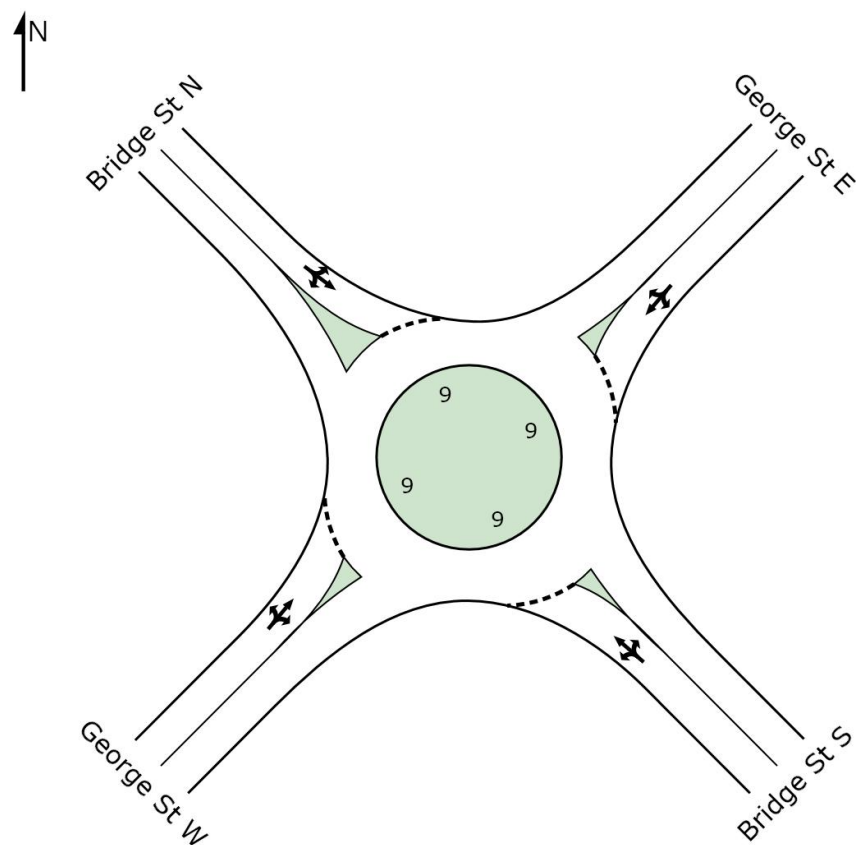


Figure A-9-5 2011 AM Peak SIDRA Summary - Bridge Street/ George Street

MOVEMENT SUMMARY

Site: Bridge Street / George Street, Windsor AM Peak

Bridge Street / George Street, Windsor AM Peak Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	59	5.1	0.431	8.8	LOS A	2.8	22.9	0.37	0.69	47.5
22	T	349	22.6	0.432	9.1	LOS A	2.8	22.9	0.37	0.63	48.5
23	R	3	0.0	0.429	11.6	LOS A	2.8	22.9	0.37	0.82	44.9
Approach		411	20.0	0.432	9.0	LOS A	2.8	22.9	0.37	0.64	48.3
North East: George St E											
24	L	2	0.0	0.028	16.7	LOS B	0.2	1.5	0.87	0.77	36.9
25	T	8	0.0	0.028	15.0	LOS B	0.2	1.5	0.87	0.75	36.5
26	R	2	0.0	0.028	20.0	LOS B	0.2	1.5	0.87	0.80	35.7
Approach		12	0.0	0.028	16.1	LOS B	0.2	1.5	0.87	0.76	36.4
North West: Bridge St N											
27	L	4	0.0	0.800	7.3	LOS A	13.5	98.9	0.39	0.53	47.7
28	T	910	6.3	0.742	7.4	LOS A	13.5	98.9	0.39	0.48	48.3
29	R	209	1.9	0.744	10.4	LOS A	13.5	98.9	0.39	0.67	45.5
Approach		1123	5.4	0.742	8.0	LOS A	13.5	98.9	0.39	0.52	47.8
South West: George St W											
30	L	59	0.0	0.097	9.0	LOS A	0.8	5.4	0.54	0.64	32.4
31	T	2	0.0	0.095	7.2	LOS A	0.8	5.4	0.54	0.56	30.6
32	R	29	6.9	0.097	12.3	LOS A	0.8	5.4	0.54	0.71	30.0
Approach		90	2.2	0.097	10.0	LOS A	0.8	5.4	0.54	0.66	31.5
All Vehicles		1636	8.9	0.742	8.4	LOS A	13.5	98.9	0.39	0.56	47.3

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

Figure A-9-6 2011 PM Peak SIDRA Summary - Bridge Street/ George Street

MOVEMENT SUMMARY

Site: Bridge Street / George Street, Windsor PM Peak

Bridge Street / George Street, Windsor AM Peak Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	14	7.1	0.778	16.2	LOS B	10.6	78.3	0.77	1.05	41.0
22	T	643	5.9	0.797	16.0	LOS B	10.6	78.3	0.77	1.02	41.8
23	R	2	0.0	0.667	18.9	LOS B	10.6	78.3	0.77	1.10	39.3
Approach		659	5.9	0.797	16.0	LOS B	10.6	78.3	0.77	1.03	41.7
North East: George St E											
24	L	25	4.0	0.455	10.5	LOS A	3.6	27.2	0.68	0.81	40.9
25	T	32	0.0	0.457	8.7	LOS A	3.6	27.2	0.68	0.76	40.6
26	R	323	10.5	0.455	13.9	LOS A	3.6	27.2	0.68	0.87	39.1
Approach		380	9.2	0.455	13.3	LOS A	3.6	27.2	0.68	0.86	39.3
North West: Bridge St N											
27	L	6	0.0	0.333	7.1	LOS A	3.4	24.6	0.26	0.57	48.1
28	T	293	7.5	0.334	7.2	LOS A	3.4	24.6	0.26	0.51	49.0
29	R	159	1.3	0.335	10.3	LOS A	3.4	24.6	0.26	0.72	45.5
Approach		458	5.2	0.335	8.3	LOS A	3.4	24.6	0.26	0.58	47.7
South West: George St W											
30	L	251	4.8	0.602	24.4	LOS B	7.7	55.9	1.00	1.19	19.5
31	T	12	0.0	0.600	22.5	LOS B	7.7	55.9	1.00	1.19	17.8
32	R	34	0.0	0.607	27.4	LOS B	7.7	55.9	1.00	1.19	19.2
Approach		297	4.0	0.602	24.6	LOS B	7.7	55.9	1.00	1.19	19.4
All Vehicles		1794	6.1	0.797	14.9	LOS B	10.6	78.3	0.66	0.90	39.7

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

Figure A-9-7 Freemans Reach Road/ Wilberforce Road/ Bridge Street – SIDRA Layout

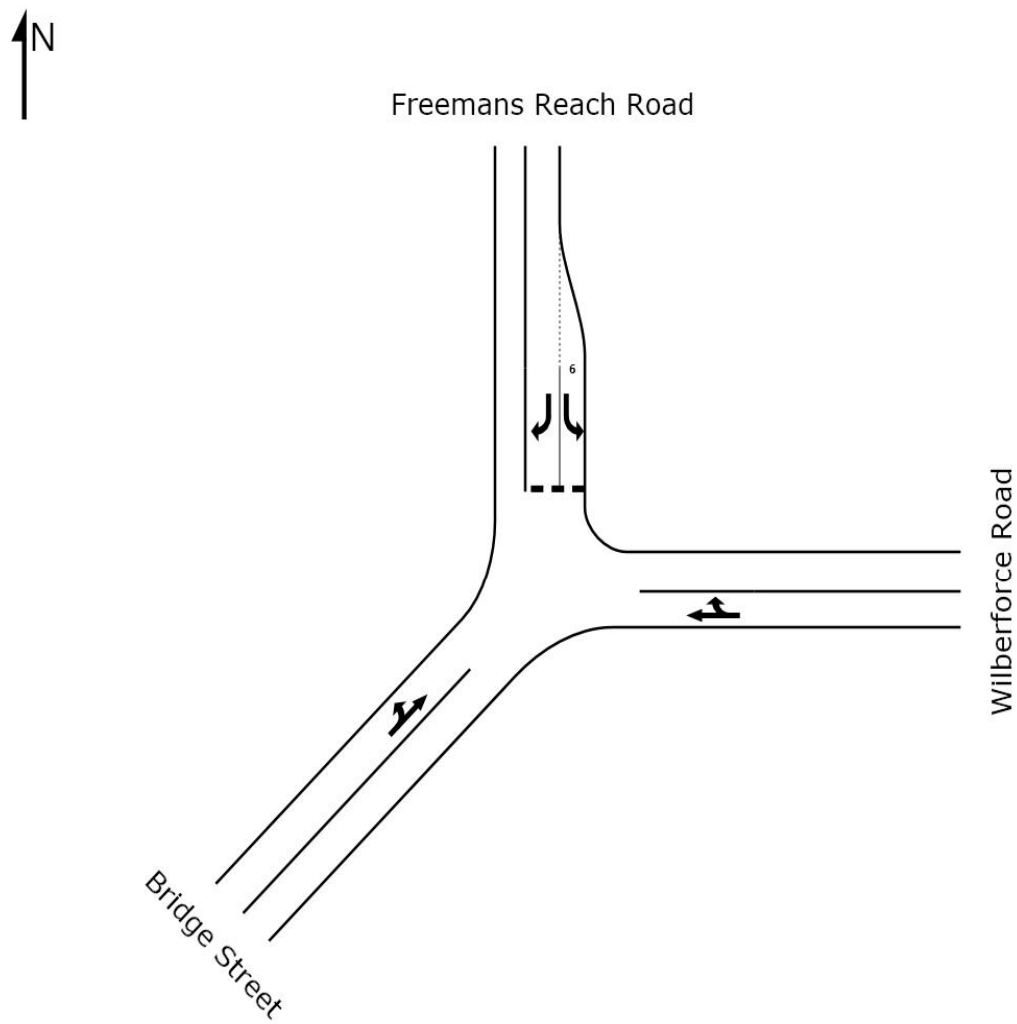


Figure A-9-8 2011 AM Peak SIDRA Summary - Freeman's Reach Road/ Wilberforce Road/ Bridge Street

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans
Reach Road, Wilberforce - AM
Peak

Wilberforce Road / Freemans Reach Road, Glossodia
AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Wilberforce Road											
5	T	840	6.2	0.449	12.5	LOS A	6.5	47.6	0.76	0.17	44.8
6	R	1	0.0	0.449	12.3	LOS A	6.5	47.6	0.76	0.94	44.7
Approach		841	6.2	0.449	12.5	NA	6.5	47.6	0.76	0.17	44.8
North: Freemans Reach Road											
7	L	1	100.0	0.013	22.2	LOS B	0.0	0.2	0.63	0.69	39.0
9	R	391	4.3	1.857	1580.5	LOS F	232.4	1687.7	1.00	11.15	1.3
Approach		392	4.6	1.857	1576.6	LOS F	232.4	1687.7	1.00	11.12	1.3
South West: Bridge Street											
30	L	138	17.4	0.243	8.8	LOS A	0.0	0.0	0.00	0.69	49.0
31	T	274	20.4	0.243	8.7	LOS A	0.0	0.0	0.00	0.66	49.3
Approach		412	19.4	0.243	8.7	NA	0.0	0.0	0.00	0.67	49.2
All Vehicles		1645	9.1	1.857	384.3	NA	232.4	1687.7	0.63	2.90	5.1

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Figure A-9-9 2011 AM Peak SIDRA Summary - Freemans Reach Road/ Wilberforce Road/ Bridge Street

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans
Reach Road, Wilberforce - PM
Peak

Wilberforce Road / Freemans Reach Road, Glossodia
PM Peak
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Wilberforce Road											
5	T	354	6.2	0.204	33.0	LOS C	6.3	46.3	1.00	0.00	31.4
6	R	3	0.0	0.204	32.8	LOS C	6.3	46.3	1.00	1.03	31.4
Approach		357	6.2	0.204	33.0	NA	6.3	46.3	1.00	0.01	31.4
North: Freemans Reach Road											
7	L	1	0.0	0.007	21.5	LOS B	0.0	0.1	0.83	0.81	37.6
9	R	176	1.7	1.070	225.4	LOS F	22.9	162.8	1.00	2.80	8.3
Approach		177	1.7	1.070	224.3	LOS F	22.9	162.8	1.00	2.78	8.3
South West: Bridge Street											
30	L	613	3.6	0.710	8.2	LOS A	0.0	0.0	0.00	0.69	49.0
31	T	701	5.0	0.710	8.0	LOS A	0.0	0.0	0.00	0.66	49.3
Approach		1314	4.3	0.710	8.1	NA	0.0	0.0	0.00	0.67	49.2
All Vehicles		1848	4.4	1.070	33.6	NA	22.9	162.8	0.29	0.75	31.1

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Appendix B SIDRA Output, Option Testing

Figure B-9-10 Wilberforce Rd/ Freemans Reach Road-2021 AM Peak - Existing T Intersection

MOVEMENT SUMMARY

Site: Existing Wilberforce Road /
Freemans Reach Road AM Peak

Wilberforce Road / Freemans Reach Road, Glossodia
AM Peak
Existing
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Wilberforce Road											
5	T	934	6.2	0.499	13.7	LOS A	8.6	63.2	0.86	0.10	43.6
6	R	1	0.0	0.499	13.6	LOS A	8.6	63.2	0.86	1.06	43.5
Approach		935	6.2	0.499	13.7	NA	8.6	63.2	0.86	0.10	43.6
North: Freemans Reach Road											
7	L	1	100.0	0.015	24.5	LOS B	0.0	0.2	0.67	0.72	37.6
9	R	435	4.4	2.463	2673.0	LOS F	330.7	2401.2	1.00	12.22	0.8
Approach		436	4.6	2.463	2666.9	LOS F	330.7	2401.2	1.00	12.20	0.8
South West: Bridge Street											
30	L	153	17.6	0.270	8.8	LOS A	0.0	0.0	0.00	0.69	49.0
31	T	305	20.3	0.270	8.7	LOS A	0.0	0.0	0.00	0.66	49.3
Approach		458	19.4	0.270	8.7	NA	0.0	0.0	0.00	0.67	49.2
All Vehicles		1829	9.1	2.463	645.0	NA	330.7	2401.2	0.68	3.13	3.2

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Friday, 25 May 2012 1:58:52 PM

SIDRA INTERSECTION 5.1.5.2006

Project: D:\NBIF\WindsorBridge_SIDRA\2021 AM and PM_NR.sip

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Figure B-9-11 Wilberforce Rd/ Freemans Reach Road-2021 PM Peak - Existing T Intersection

MOVEMENT SUMMARY

**Site: Existing Wilberforce Road /
Freemans Reach Road PM Peak**

Wilberforce Road / Freemans Reach Road, Glossodia
PM Peak
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Wilberforce Road											
5	T	393	6.1	0.236	54.5	LOS D	11.2	82.8	1.00	0.00	23.9
6	R	3	0.0	0.236	54.3	LOS D	11.2	82.8	1.00	1.05	23.9
Approach		396	6.1	0.236	54.5	NA	11.2	82.8	1.00	0.01	23.9
North: Freemans Reach Road											
7	L	1	0.0	0.009	27.6	LOS B	0.0	0.1	0.88	0.88	34.1
9	R	196	1.5	1.661	1253.1	LOS F	103.2	731.9	1.00	6.34	1.7
Approach		197	1.5	1.661	1246.9	LOS F	103.2	731.9	1.00	6.31	1.7
South West: Bridge Street											
30	L	681	3.5	0.788	8.2	LOS A	0.0	0.0	0.00	0.69	49.0
31	T	779	5.0	0.788	8.1	LOS A	0.0	0.0	0.00	0.66	49.3
Approach		1460	4.3	0.788	8.1	NA	0.0	0.0	0.00	0.67	49.2
All Vehicles		2053	4.4	1.661	135.9	NA	103.2	731.9	0.29	1.08	12.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Friday, 25 May 2012 1:59:15 PM
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Figure B-9-12 Wilberforce Rd/ Freemans Reach Road-2021 AM Peak – 3 legged Roundabout (Option1)

MOVEMENT SUMMARY

Site: Wilberforce Rd / Freemans Reach Rd AM roundabout 1

Wilberforce Rd / Freemans Reach Rd AM roundabout 1
Option 1
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	153	17.6	0.309	7.3	LOS A	2.4	20.0	0.02	0.52	50.4
3	R	305	20.3	0.309	10.6	LOS A	2.4	20.0	0.02	0.76	47.1
Approach		458	19.4	0.309	9.5	LOS A	2.4	20.0	0.02	0.68	48.1
North East: Wilberforce Rd											
24	L	934	6.2	1.067	156.0	LOS F	106.8	787.7	1.00	4.21	11.3
26	R	1	0.0	1.067	159.9	LOS F	106.8	787.7	1.00	4.22	11.4
Approach		935	6.2	1.067	156.0	LOS F	106.8	787.7	1.00	4.21	11.3
North West: Freemans Reach Rd											
27	L	1	100.0	0.448	13.6	LOS A	2.9	21.1	0.61	0.80	44.1
29	R	435	4.4	0.448	12.9	LOS A	2.9	21.1	0.61	0.78	44.5
Approach		436	4.6	0.448	12.9	LOS A	2.9	21.1	0.61	0.78	44.5
All Vehicles		1829	9.1	1.067	85.2	LOS F	106.8	787.7	0.66	2.51	18.0

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

Processed: Friday, 25 May 2012 1:59:52 PM
SIDRA INTERSECTION 5.1.5.2006
Project: D:\NBIF\WindsorBridge_SIDRA\2021 AM and PM_NR.sip
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Figure B-9-13 Wilberforce Rd/ Freemans Reach Road-2021 PM Peak – 3 legged Roundabout (Option1)

MOVEMENT SUMMARY

Site: Wilberforce Rd / Freemans Reach Rd PM roundabout 1

Wilberforce Rd / Freemans Reach Rd PM roundabout 1
Option1
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	681	3.5	0.864	6.9	LOS A	26.8	194.6	0.14	0.49	49.6
3	R	779	5.0	0.864	10.2	LOS A	26.8	194.6	0.14	0.70	46.8
Approach		1460	4.3	0.864	8.7	LOS A	26.8	194.6	0.14	0.60	48.1
North East: Wilberforce Rd											
24	L	393	6.1	0.365	8.3	LOS A	2.6	18.9	0.51	0.62	47.8
26	R	3	0.0	0.365	12.1	LOS A	2.6	18.9	0.51	0.78	45.8
Approach		396	6.1	0.365	8.3	LOS A	2.6	18.9	0.51	0.62	47.7
North West: Freemans Reach Rd											
27	L	1	0.0	0.289	13.6	LOS A	1.8	12.5	0.77	0.86	43.2
29	R	196	1.5	0.289	16.0	LOS B	1.8	12.5	0.77	0.89	41.8
Approach		197	1.5	0.289	16.0	LOS B	1.8	12.5	0.77	0.89	41.8
All Vehicles		2053	4.4	0.864	9.3	LOS A	26.8	194.6	0.27	0.63	47.3

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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Figure B-9-14 Wilberforce Rd/ Freemans Reach Road-2021 AM Peak – 4 legged single lane Roundabout (which includes Macquarie Park Access) (Option2)

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans
Reach Road SKM AM roundabout
2

Wilberforce Road / Freemans Reach Road SKM AM roundabout 2
2021 - Option2
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	4	0.0	0.304	4.5	LOS A	2.2	17.6	0.06	0.39	51.7
2	T	153	17.6	0.304	4.5	LOS A	2.2	17.6	0.06	0.31	53.3
3	R	305	20.3	0.304	11.6	LOS A	2.2	17.6	0.06	0.75	46.5
Approach		462	19.3	0.304	9.2	LOS A	2.2	17.6	0.06	0.60	48.5
East: Wilberforce Rd											
4	L	934	6.2	0.935	27.8	LOS B	28.5	210.2	1.00	1.47	34.1
5	T	2	0.0	0.935	25.1	LOS B	28.5	210.2	1.00	1.47	32.8
6	R	1	0.0	0.935	33.3	LOS C	28.5	210.2	1.00	1.47	33.0
Approach		937	6.2	0.935	27.8	LOS B	28.5	210.2	1.00	1.47	34.1
North: Freemans Reach Rd											
7	L	1	100.0	0.394	9.9	LOS A	2.5	18.3	0.58	0.59	47.1
8	T	435	4.4	0.394	6.4	LOS A	2.5	18.3	0.58	0.58	49.3
9	R	2	0.0	0.394	11.0	LOS A	2.5	18.3	0.58	0.95	46.0
Approach		438	4.6	0.394	6.4	LOS A	2.5	18.3	0.58	0.59	49.2
West: Macquarie Park											
10	L	2	0.0	0.008	5.1	LOS A	0.0	0.3	0.53	0.46	33.3
11	T	2	0.0	0.008	3.7	LOS A	0.0	0.3	0.53	0.38	34.0
12	R	4	0.0	0.008	10.9	LOS A	0.0	0.3	0.53	0.67	31.0
Approach		8	0.0	0.008	7.7	LOS A	0.0	0.3	0.53	0.54	32.1
All Vehicles		1845	9.1	0.935	18.0	LOS B	28.5	210.2	0.66	1.04	40.1

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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Figure B-9-15 Wilberforce Rd/ Freemans Reach Road-2021 PM Peak – 4 legged, single lane Roundabout (which includes Macquarie Park Access) (Option2)

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans Reach Road SKM PM roundabout
2

Wilberforce Road / Freemans Reach Road SKM PM roundabout 2
2021 - Option2
Roundabout

Movement Performance - Vehicles											
Mov. ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	4	0.0	0.835	4.6	LOS A	20.0	145.5	0.18	0.38	50.8
2	T	681	3.5	0.835	4.3	LOS A	20.0	145.5	0.18	0.31	52.1
3	R	779	5.0	0.835	11.4	LOS A	20.0	145.5	0.18	0.73	46.3
Approach		1464	4.3	0.835	8.1	LOS A	20.0	145.5	0.18	0.53	48.8
East: Wilberforce Rd											
4	L	393	6.1	0.327	6.8	LOS A	2.3	16.7	0.48	0.56	48.8
5	T	2	0.0	0.327	4.1	LOS A	2.3	16.7	0.48	0.43	48.9
6	R	3	0.0	0.327	12.3	LOS A	2.3	16.7	0.48	0.76	45.9
Approach		398	6.0	0.327	6.8	LOS A	2.3	16.7	0.48	0.56	48.8
North: Freemans Reach Rd											
7	L	1	0.0	0.250	10.6	LOS A	1.6	11.3	0.76	0.81	47.4
8	T	196	1.5	0.250	9.2	LOS A	1.6	11.3	0.76	0.76	47.9
9	R	2	0.0	0.250	13.8	LOS A	1.6	11.3	0.76	0.96	43.9
Approach		199	1.5	0.250	9.3	LOS A	1.6	11.3	0.76	0.77	47.9
West: Macquarie Park											
10	L	2	0.0	0.027	26.3	LOS B	0.2	1.3	1.00	0.79	17.4
11	T	2	0.0	0.027	24.8	LOS B	0.2	1.3	1.00	0.79	17.6
12	R	4	0.0	0.027	32.1	LOS C	0.2	1.3	1.00	0.79	18.1
Approach		8	0.0	0.027	28.8	LOS C	0.2	1.3	1.00	0.79	17.9
All Vehicles		2069	4.3	0.835	8.0	LOS A	20.0	145.5	0.29	0.56	48.6

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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Figure B-9-16 Wilberforce Rd/ Freemans Reach Road-2021 AM Peak – 4 legged, partial double lane Roundabout (which includes Macquarie Park Access) (Option3)

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans Reach Road AM roundabout 3

Wilberforce Road / Freemans Reach Road AM roundabout 3
2021 Option3
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	4	0.0	0.307	5.7	LOS A	2.1	17.0	0.06	0.49	50.3
2	T	153	17.6	0.307	6.3	LOS A	2.1	17.0	0.06	0.44	51.2
3	R	305	20.3	0.307	11.5	LOS A	2.1	17.0	0.06	0.74	46.3
Approach		462	19.3	0.307	9.8	LOS A	2.1	17.0	0.06	0.64	47.8
East: Wilberforce Rd											
4	L	934	6.2	0.481	9.8	LOS A	3.3	24.4	0.67	0.78	46.8
5	T	2	0.0	0.481	7.6	LOS A	3.3	24.1	0.68	0.72	45.9
6	R	1	0.0	0.481	13.9	LOS A	3.3	24.1	0.68	0.85	44.3
Approach		937	6.2	0.481	9.8	LOS A	3.3	24.4	0.67	0.78	46.8
North: Freemans Reach Rd											
7	L	1	100.0	0.408	11.7	LOS A	2.6	19.0	0.59	0.70	45.9
8	T	435	4.4	0.408	8.4	LOS A	2.6	19.0	0.59	0.67	47.9
9	R	2	0.0	0.408	11.5	LOS A	2.6	19.0	0.59	0.85	44.9
Approach		438	4.6	0.408	8.4	LOS A	2.6	19.0	0.59	0.67	47.8
West: Macquarie Park											
10	L	2	0.0	0.008	6.4	LOS A	0.0	0.3	0.53	0.52	32.1
11	T	2	0.0	0.008	5.7	LOS A	0.0	0.3	0.53	0.47	32.4
12	R	4	0.0	0.008	11.0	LOS A	0.0	0.3	0.53	0.67	29.6
Approach		8	0.0	0.008	8.5	LOS A	0.0	0.3	0.53	0.58	30.8
All Vehicles		1845	9.1	0.481	9.5	LOS A	3.3	24.4	0.50	0.72	47.3

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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Figure B-9-17 Wilberforce Rd/ Freemans Reach Road-2021 PM Peak – 4 legged, partial double lane Roundabout (which includes Macquarie Park Access) (Option3)

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans Reach Road PM roundabout 3

Wilberforce Road / Freemans Reach Road PM roundabout 3
2021 - Option3
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	4	0.0	0.844	5.8	LOS A	20.9	151.9	0.18	0.46	49.5
2	T	681	3.5	0.844	6.1	LOS A	20.9	151.9	0.18	0.42	50.2
3	R	779	5.0	0.844	11.3	LOS A	20.9	151.9	0.18	0.70	46.1
Approach		1464	4.3	0.844	8.9	LOS A	20.9	151.9	0.18	0.57	47.9
East: Wilberforce Rd											
4	L	393	6.1	0.170	8.0	LOS A	0.9	6.5	0.37	0.60	48.3
5	T	2	0.0	0.170	5.6	LOS A	0.9	6.4	0.37	0.48	48.3
6	R	3	0.0	0.170	11.9	LOS A	0.9	6.4	0.37	0.72	45.5
Approach		398	6.0	0.170	8.0	LOS A	0.9	6.5	0.37	0.60	48.3
North: Freemans Reach Rd											
7	L	1	0.0	0.261	11.9	LOS A	1.7	11.7	0.76	0.83	45.7
8	T	196	1.5	0.261	11.3	LOS A	1.7	11.7	0.76	0.81	45.9
9	R	2	0.0	0.261	14.5	LOS A	1.7	11.7	0.76	0.91	42.5
Approach		199	1.5	0.261	11.3	LOS A	1.7	11.7	0.76	0.81	45.8
West: Macquarie Park											
10	L	2	0.0	0.028	28.2	LOS B	0.2	1.4	0.99	0.80	16.5
11	T	2	0.0	0.028	27.4	LOS B	0.2	1.4	0.99	0.80	16.8
12	R	4	0.0	0.028	32.7	LOS C	0.2	1.4	0.99	0.80	16.8
Approach		8	0.0	0.028	30.3	LOS C	0.2	1.4	0.99	0.80	16.8
All Vehicles		2069	4.3	0.844	9.0	LOS A	20.9	151.9	0.28	0.60	47.6

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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**Figure B-9-18 Wilberforce Rd/ Freemans Reach Road-2021 AM Peak – 3 legged signals
(Option4)**

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans
Reach Road AM signals 2

Wilberforce Road / Freemans Reach Road AM signals 2
2021 - Option4
Signals - Actuated Cycle Time = 44 seconds

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Wilberforce Road											
5	T	934	6.2	0.577	10.9	LOS A	7.8	57.7	0.79	0.68	43.6
6	R	1	0.0	0.002	18.1	LOS B	0.0	0.1	0.64	0.63	40.0
Approach		935	6.2	0.577	10.9	LOS A	7.8	57.7	0.79	0.68	43.5
North: Freemans Reach Road											
7	L	1	100.0	0.410	25.6	LOS B	3.9	28.6	0.83	0.80	37.6
9	R	435	4.4	0.410	22.0	LOS B	3.9	28.6	0.83	0.79	37.3
Approach		436	4.6	0.410	22.0	LOS B	3.9	28.6	0.83	0.79	37.4
South West: Bridge St											
30	L	153	17.6	0.287	12.5	LOS A	2.2	17.6	0.58	0.81	45.9
31	T	305	20.3	0.287	7.8	LOS A	3.1	25.1	0.64	0.53	46.2
Approach		458	19.4	0.287	9.4	LOS A	3.1	25.1	0.62	0.62	46.1
All Vehicles		1829	9.1	0.577	13.2	LOS A	7.8	57.7	0.76	0.69	42.5

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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 per ped
P3	Across E approach	53	19.4	LOS B	0.1	0.1	0.88	0.88
P5	Across N approach	53	16.4	LOS B	0.1	0.1	0.86	0.86
All Pedestrians		106	17.9	LOS B			0.87	0.87

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.

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**Figure B-9-19 Wilberforce Rd/ Freemans Reach Road-2021 PM Peak – 3 legged signals
(Option4)**

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans
Reach Road PM signals 2

Wilberforce Road / Freemans Reach Road PM signals 2
2021 - Option4

Signals - Actuated Cycle Time = 44 seconds

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Wilberforce Road											
5	T	393	6.1	0.200	6.3	LOS A	2.3	16.8	0.55	0.45	48.9
6	R	3	0.0	0.014	21.8	LOS B	0.0	0.3	0.73	0.66	37.5
Approach		396	6.1	0.200	6.5	LOS A	2.3	16.8	0.55	0.45	48.7
North: Freemans Reach Road											
7	L	1	0.0	0.262	25.5	LOS B	1.9	13.3	0.86	0.77	35.4
9	R	196	1.5	0.262	24.7	LOS B	1.9	13.3	0.86	0.76	35.6
Approach		197	1.5	0.262	24.7	LOS B	1.9	13.3	0.86	0.76	35.6
South West: Bridge St											
30	L	681	3.5	0.669	10.8	LOS A	6.4	46.5	0.65	0.82	46.6
31	T	779	5.0	0.669	7.9	LOS A	10.7	77.9	0.75	0.65	45.7
Approach		1460	4.3	0.669	9.3	LOS A	10.7	77.9	0.70	0.73	46.1
All Vehicles		2053	4.4	0.669	10.2	LOS A	10.7	77.9	0.69	0.68	45.3

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	Across E approach	53	21.3	LOS C	0.1	0.1	0.89	0.89
P5	Across N approach	53	16.4	LOS B	0.1	0.1	0.86	0.86
All Pedestrians		106	18.9	LOS B			0.88	0.88

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.

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**Figure B-9-20 Wilberforce Rd/ Freemans Reach Road-2021 AM Peak – 4 legged, signals
(which includes Macquarie Park Access) (Option5)**

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans
Reach Road AM signals 1

Wilberforce Road / Freemans Reach Road AM signals 1
2021 - Option 5
Signals - Actuated Cycle Time = 67 seconds

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	4	0.0	0.429	33.9	LOS C	4.6	37.3	0.89	0.84	31.2
2	T	153	17.6	0.429	26.7	LOS B	4.6	37.3	0.89	0.72	32.9
3	R	305	20.3	0.450	35.8	LOS C	4.6	37.4	0.90	0.80	30.5
Approach		462	19.3	0.450	32.7	LOS C	4.6	37.4	0.89	0.77	31.2
East: Wilberforce Rd											
4	L	934	6.2	0.525	7.8	X	X	X	X	0.60	49.7
5	T	2	0.0	0.010	29.2	LOS C	0.1	0.6	0.84	0.58	30.9
6	R	1	0.0	0.010	34.4	LOS C	0.1	0.6	0.84	0.67	31.6
Approach		937	6.2	0.525	7.9	LOS A	0.1	0.6	0.00	0.60	49.6
North: Freemans Reach Rd											
7	L	1	100.0	0.643	31.5	LOS C	12.1	88.1	0.87	0.93	38.1
8	T	435	4.4	0.643	20.5	LOS B	12.1	88.1	0.87	0.75	36.4
9	R	2	0.0	0.005	22.5	LOS B	0.0	0.3	0.64	0.64	35.4
Approach		438	4.6	0.643	20.5	LOS B	12.1	88.1	0.87	0.75	36.4
West: Macquarie Park											
10	L	2	0.0	0.016	26.5	LOS B	0.2	1.4	0.75	0.66	17.4
11	T	2	0.0	0.016	20.7	LOS B	0.2	1.4	0.75	0.51	17.7
12	R	4	0.0	0.016	26.5	LOS B	0.2	1.4	0.75	0.66	17.5
Approach		8	0.0	0.016	25.0	LOS B	0.2	1.4	0.75	0.62	17.5
All Vehicles		1845	9.1	0.643	17.2	LOS B	12.1	88.1	0.43	0.68	40.2

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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 per ped
P1	Across S approach	53	31.7	LOS D	0.1	0.1	0.92	0.92
P7	Across W approach	53	27.8	LOS C	0.1	0.1	0.91	0.91
All Pedestrians		106	29.8	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.

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SIDRA INTERSECTION 5.1.5.2006
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INTERSECTION

**Figure B-9-21 Wilberforce Rd/ Freemans Reach Road-2021 PM Peak – 4 legged, signals
(which includes Macquarie Park Access) (Option5)**

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans
Reach Road PM signals 1

Wilberforce Road / Freemans Reach Road PM signals 1
2021 - Option5
Signals - Actuated Cycle Time = 87 seconds

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	4	0.0	0.845	33.3	LOS C	26.8	193.2	0.95	0.92	31.6
2	T	681	3.5	0.845	26.1	LOS B	26.8	193.2	0.95	0.87	33.1
3	R	779	5.0	0.644	29.0	LOS C	12.2	88.9	0.77	0.82	33.4
Approach		1464	4.3	0.845	27.6	LOS B	26.8	193.2	0.85	0.84	33.3
East: Wilberforce Rd											
4	L	393	6.1	0.221	7.7	X	X	X	X	0.60	49.8
5	T	2	0.0	0.020	38.3	LOS C	0.2	1.3	0.86	0.60	26.7
6	R	3	0.0	0.020	43.5	LOS D	0.2	1.3	0.86	0.67	27.7
Approach		398	6.0	0.221	8.1	LOS A	0.2	1.3	0.01	0.60	49.3
North: Freemans Reach Rd											
7	L	1	0.0	0.467	42.0	LOS C	7.4	52.7	0.89	0.85	29.3
8	T	196	1.5	0.467	33.8	LOS C	7.4	52.7	0.89	0.74	29.8
9	R	2	0.0	0.008	36.6	LOS C	0.1	0.5	0.78	0.63	28.3
Approach		199	1.5	0.467	33.8	LOS C	7.4	52.7	0.89	0.74	29.7
West: Macquarie Park											
10	L	2	0.0	0.020	35.2	LOS C	0.3	1.9	0.79	0.67	14.4
11	T	2	0.0	0.020	29.5	LOS C	0.3	1.9	0.79	0.54	14.6
12	R	4	0.0	0.020	35.2	LOS C	0.3	1.9	0.79	0.66	14.5
Approach		8	0.0	0.020	33.8	LOS C	0.3	1.9	0.79	0.63	14.5
All Vehicles		2069	4.3	0.845	24.5	LOS B	26.8	193.2	0.69	0.78	35.0

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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 per ped
P1	Across S approach	53	40.7	LOS E	0.1	0.1	0.94	0.94
P7	Across W approach	53	37.7	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		106	39.2	LOS D			0.93	0.93

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.

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Figure B-9-22 Wilberforce Rd/ Freemans Reach Road-2026 AM Peak – 4 legged, double lane Roundabout (which includes Macquarie Park Access) (Option6)

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans Reach Road SKM/Emme AM two lane

Wilberforce Road / Freemans Reach Road SKM/Emme AM two lane Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	4	0.0	0.211	5.2	LOS A	1.7	13.5	0.05	0.49	51.0
2	T	194	17.4	0.213	5.0	LOS A	1.7	13.5	0.05	0.37	52.7
3	R	375	20.4	0.213	11.7	LOS A	1.7	13.5	0.20	0.64	45.8
Approach		573	19.3	0.213	9.4	LOS A	1.7	13.5	0.15	0.55	47.9
East: Wilberforce Rd											
4	L	1008	6.2	0.754	10.6	LOS A	9.5	69.8	0.77	0.92	46.5
5	T	2	0.0	0.667	8.5	LOS A	9.5	69.8	0.81	0.91	45.7
6	R	1	0.0	1.000 ³	16.1	LOS B	9.5	69.8	0.81	1.01	43.1
Approach		1011	6.2	0.754	10.7	LOS A	9.5	69.8	0.77	0.92	46.5
North: Freemans Reach Rd											
7	L	1	100.0	0.167	10.3	LOS A	0.8	5.7	0.47	0.63	47.4
8	T	504	4.4	0.321	6.4	LOS A	1.9	13.6	0.47	0.57	49.5
9	R	2	0.0	0.333	10.2	LOS A	1.9	13.6	0.48	0.94	46.2
Approach		507	4.5	0.321	6.4	LOS A	1.9	13.6	0.47	0.57	49.5
West: Macquarie Park											
10	L	2	0.0	0.009	4.8	LOS A	0.0	0.3	0.46	0.49	33.8
11	T	2	0.0	0.009	3.9	LOS A	0.0	0.3	0.46	0.43	34.4
12	R	4	0.0	0.009	10.5	LOS A	0.0	0.3	0.46	0.72	31.3
Approach		8	0.0	0.009	7.4	LOS A	0.0	0.3	0.46	0.59	32.5
All Vehicles		2099	9.3	0.754	9.3	LOS A	9.5	69.8	0.53	0.73	47.6

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

³ x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

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Figure B-9-23 Wilberforce Rd/ Freemans Reach Road-2026 PM Peak – 4 legged, double lane Roundabout (which includes Macquarie Park Access) (Option6)

MOVEMENT SUMMARY

Site: Wilberforce Road / Freemans Reach Road SKM/Emme PM two lane

Wilberforce Road / Freemans Reach Road SKM/Emme PM two lane Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bridge St											
1	L	4	0.0	0.500	5.2	LOS A	5.4	39.2	0.08	0.52	50.9
2	T	771	3.6	0.513	4.8	LOS A	5.4	39.2	0.08	0.39	52.5
3	R	831	5.0	0.513	11.6	LOS A	5.4	39.2	0.64	0.41	44.0
Approach		1606	4.3	0.513	8.3	LOS A	5.4	39.2	0.37	0.40	47.6
East: Wilberforce Rd											
4	L	447	6.2	0.293	7.0	LOS A	2.0	14.9	0.42	0.58	48.9
5	T	2	0.0	0.286	4.4	LOS A	2.0	14.9	0.42	0.44	49.1
6	R	3	0.0	0.300	12.0	LOS A	2.0	14.9	0.42	0.76	45.8
Approach		452	6.1	0.294	7.0	LOS A	2.0	14.9	0.42	0.58	48.9
North: Freemans Reach Rd											
7	L	1	0.0	0.100	9.5	LOS A	0.5	3.8	0.64	0.79	48.3
8	T	229	1.7	0.195	7.6	LOS A	1.3	9.1	0.66	0.67	48.2
9	R	2	0.0	0.200	11.3	LOS A	1.3	9.1	0.66	0.95	45.6
Approach		232	1.7	0.195	7.6	LOS A	1.3	9.1	0.66	0.68	48.2
West: Macquarie Park											
10	L	2	0.0	0.015	7.9	LOS A	0.1	0.6	0.71	0.69	30.6
11	T	2	0.0	0.015	7.0	LOS A	0.1	0.6	0.71	0.65	31.3
12	R	4	0.0	0.015	13.6	LOS A	0.1	0.6	0.71	0.81	28.5
Approach		8	0.0	0.015	10.5	LOS A	0.1	0.6	0.71	0.74	29.5
All Vehicles		2298	4.4	0.513	8.0	LOS A	5.4	39.2	0.41	0.46	47.9

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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**Figure B-9-24 Bridge Street/ George Street –Design Life Aanalysis (DLA) AM Peak–
Existing Intersection**

MOVEMENT SUMMARY

**Site: Existing Bridge Street /
George Street AM Peak**

Bridge Street / George Street, Windsor AM Peak

Existing Layout

DLA

Roundabout

Design Life Analysis (Worst Movement Level of Service Target): Results for 20 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	77	4.8	0.785	12.1	LOS A	9.3	74.7	0.64	0.81	44.4
22	T	659	18.5	0.785	12.2	LOS A	9.3	74.7	0.64	0.80	45.3
23	R	4	0.0	0.785	14.9	LOS B	9.3	74.7	0.64	0.89	42.3
Approach		740	16.9	0.785	12.2	LOS A	9.3	74.7	0.64	0.80	45.2
North East: George St E											
24	L	2	0.0	0.142	36.2	LOS C	0.8	5.5	0.96	0.99	27.7
25	T	10	0.0	0.142	34.5	LOS C	0.8	5.5	0.96	0.98	27.1
26	R	2	0.0	0.142	39.5	LOS C	0.8	5.5	0.96	0.99	27.2
Approach		15	0.0	0.142	35.6	LOS C	0.8	5.5	0.96	0.98	27.2
North West: Bridge St N											
27	L	5	0.0	1.019	50.9	LOS D	144.2	1053.9	1.00	0.63	24.2
28	T	1272	5.9	1.019	51.0	LOS D	144.2	1053.9	1.00	0.63	24.9
29	R	265	1.9	1.019	54.1	LOS D	144.2	1053.9	1.00	0.63	23.9
Approach		1542	5.2	1.019	51.5	LOS D	144.2	1053.9	1.00	0.63	24.7
South West: George St W											
30	L	73	0.0	0.176	12.0	LOS A	1.3	9.5	0.82	0.77	28.6
31	T	2	0.0	0.176	10.3	LOS A	1.3	9.5	0.82	0.75	26.8
32	R	39	6.5	0.176	15.3	LOS B	1.3	9.5	0.82	0.80	27.0
Approach		115	2.2	0.176	13.1	LOS A	1.3	9.5	0.82	0.78	27.9
All Vehicles		2411	8.6	1.019	37.5	LOS C	144.2	1053.9	0.88	0.69	28.9

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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**Figure B-9-25 Bridge Street/ George Street –Design Life Aanalysis (DLA) AM Peak–
Existing Intersection**

MOVEMENT SUMMARY

Site: Existing Bridge Street /
George Street PM Peak

Bridge Street / George Street, Windsor PM Peak
Existing Layout
DLA
Roundabout
Design Life Analysis (Worst Movement Level of Service Target): Results for 5 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	16	6.7	0.941	30.8	LOS C	20.8	152.5	0.93	1.52	31.8
22	T	728	5.6	0.941	30.5	LOS C	20.8	152.5	0.93	1.51	32.6
23	R	2	0.0	0.941	33.5	LOS C	20.8	152.5	0.93	1.53	31.0
Approach		745	5.6	0.941	30.5	LOS C	20.8	152.5	0.93	1.51	32.6
North East: George St E											
24	L	27	3.8	0.533	12.0	LOS A	4.1	30.8	0.76	0.90	39.8
25	T	34	0.0	0.533	10.2	LOS A	4.1	30.8	0.76	0.86	39.4
26	R	377	9.5	0.533	15.3	LOS B	4.1	30.8	0.76	0.94	38.2
Approach		438	8.4	0.533	14.7	LOS B	4.1	30.8	0.76	0.93	38.3
North West: Bridge St N											
27	L	6	0.0	0.372	7.2	LOS A	3.2	23.2	0.28	0.57	48.0
28	T	342	7.0	0.372	7.3	LOS A	3.2	23.2	0.28	0.51	48.9
29	R	170	1.2	0.372	10.3	LOS A	3.2	23.2	0.28	0.72	45.5
Approach		518	5.0	0.372	8.2	LOS A	3.2	23.2	0.28	0.58	47.7
South West: George St W											
30	L	278	4.6	0.833	55.2	LOS D	13.2	95.5	1.00	1.59	10.8
31	T	13	0.0	0.833	53.3	LOS D	13.2	95.5	1.00	1.59	9.6
32	R	36	0.0	0.833	58.2	LOS E	13.2	95.5	1.00	1.59	11.1
Approach		326	3.9	0.833	55.5	LOS D	13.2	95.5	1.00	1.59	10.7
All Vehicles		2028	5.8	0.941	25.4	LOS B	20.8	152.5	0.74	1.16	32.6

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

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**Figure B-9-26 Bridge Street/ George Street –Design Life Aanalysis (DLA) AM Peak–
Signals with dedicated right turn slip lanes along Bridge Street approaches
(Option1)**

MOVEMENT SUMMARY

Site: Bridge Street / George Street
AM signals_withRT

Bridge Street / George Street AM signals

Right Turn onto Bridge Street South

DLA

Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)

Design Life Analysis (Final Year): Results for 27 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	83	4.8	0.938	31.2	LOS C	53.3	428.2	0.79	1.04	33.0
22	T	766	18.5	0.938	23.6	LOS B	53.3	428.2	0.79	0.81	34.5
23	R	4	0.0	0.054	83.3	LOS F	0.3	2.0	0.96	0.64	17.4
Approach		854	17.0	0.938	24.7	LOS B	53.3	428.2	0.80	0.84	34.2
North East: George St E											
24	L	3	0.0	0.085	68.9	LOS E	1.0	7.1	0.87	0.71	19.8
25	T	11	0.0	0.085	61.7	LOS E	1.0	7.1	0.87	0.62	19.4
26	R	3	0.0	0.085	69.0	LOS E	1.0	7.1	0.87	0.72	19.8
Approach		16	0.0	0.085	64.1	LOS E	1.0	7.1	0.87	0.65	19.5
North West: Bridge St N											
27	L	5	0.0	0.992	46.5	LOS D	119.3	877.4	0.96	1.13	26.9
28	T	1400	5.9	0.992	39.1	LOS C	119.3	877.4	0.96	1.07	27.7
29	R	286	1.9	0.939	51.9	LOS D	13.8	97.9	0.87	0.97	23.8
Approach		1692	5.2	0.992	41.3	LOS C	119.3	877.4	0.94	1.06	27.0
South West: George St W											
30	L	79	0.0	0.166	27.9	LOS B	3.8	27.3	0.46	0.72	18.0
31	T	3	0.0	0.166	20.7	LOS B	3.8	27.3	0.46	0.37	17.6
32	R	42	6.5	0.166	28.2	LOS B	3.8	27.3	0.46	0.73	17.9
Approach		124	2.2	0.166	27.9	LOS B	3.8	27.3	0.46	0.72	17.9
All Vehicles		2685	8.8	0.992	35.5	LOS C	119.3	877.4	0.87	0.97	28.7

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	18	69.1	LOS F	0.1	0.1	0.96	0.96
P11	Across NE approach	18	20.3	LOS C	0.0	0.0	0.52	0.52
P13	Across NW approach	18	69.1	LOS F	0.1	0.1	0.96	0.96
P15	Across SW approach	18	20.3	LOS C	0.0	0.0	0.52	0.52
All Pedestrians		72	44.7	LOS E			0.74	0.74

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.

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Figure B-9-27 Bridge Street/ George Street – DLA PM Peak– Signals with dedicated right turn slip lanes along Bridge Street approaches (Option1)

MOVEMENT SUMMARY

Site: Bridge Street / George Street
PM signals_withRT

Bridge Street / George Street PM signals

Right Turn onto Bridge Street South

DLA

Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)

Design Life Analysis (Final Year): Results for 10 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	17	6.7	0.965	52.1	LOS D	65.4	479.8	0.99	1.07	25.2
22	T	777	5.6	0.965	44.5	LOS D	65.4	479.8	0.99	1.06	25.8
23	R	2	0.0	0.007	17.5	LOS B	0.0	0.3	0.26	0.67	39.2
Approach		796	5.6	0.965	44.6	LOS D	65.4	479.8	0.99	1.06	25.8
North East: George St E											
24	L	29	3.8	0.968	65.9	LOS E	42.6	319.5	0.99	1.06	20.1
25	T	36	0.0	0.968	58.6	LOS E	42.6	319.5	0.99	1.06	19.5
26	R	398	9.5	0.968	66.2	LOS E	42.6	319.5	0.99	1.06	20.1
Approach		463	8.4	0.968	65.6	LOS E	42.6	319.5	0.99	1.06	20.0
North West: Bridge St N											
27	L	7	0.0	0.462	23.1	LOS B	11.3	83.8	0.45	1.04	36.9
28	T	370	7.0	0.462	15.6	LOS B	11.3	83.8	0.45	0.39	40.7
29	R	180	1.2	0.775	74.7	LOS F	12.7	89.8	0.99	1.02	18.8
Approach		557	5.0	0.775	34.8	LOS C	12.7	89.8	0.62	0.60	29.9
South West: George St W											
30	L	293	4.6	0.370	18.6	LOS B	7.7	55.7	0.33	0.72	23.2
31	T	13	0.0	0.370	11.3	LOS A	7.7	55.7	0.33	0.29	24.5
32	R	38	0.0	0.370	18.6	LOS B	7.7	55.7	0.33	0.73	23.1
Approach		345	3.9	0.370	18.3	LOS B	7.7	55.7	0.33	0.70	23.2
All Vehicles		2160	5.8	0.968	42.4	LOS C	65.4	479.8	0.79	0.89	24.9

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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 per ped
P9	Across SE approach	13	36.8	LOS D	0.0	0.0	0.70	0.70
P11	Across NE approach	13	27.0	LOS C	0.0	0.0	0.60	0.60
P13	Across NW approach	13	36.8	LOS D	0.0	0.0	0.70	0.70
P15	Across SW approach	13	27.0	LOS C	0.0	0.0	0.60	0.60
All Pedestrians		52	31.9	LOS D			0.65	0.65

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.

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SIDRA INTERSECTION 5.1.5.2006

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Figure B-9-28 Bridge Street/ George Street – DLA AM Peak– Signals with right turn ban onto George Street west (Option2)

MOVEMENT SUMMARY

Site: Bridge Street / George Street
AM signals_NoRT

Bridge Street / George Street AM signals
Right Turn ban onto Bridge Street South
DLA
Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)
Design Life Analysis (Final Year): Results for 50 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	107	4.8	0.960	24.3	LOS B	69.7	560.8	0.62	1.07	36.6
22	T	1258	18.5	0.960	16.7	LOS B	69.7	560.8	0.62	0.65	39.3
23	R	5	0.0	0.093	22.3	LOS B	0.2	1.2	0.43	0.71	36.1
Approach		1370	17.3	0.960	17.3	LOS B	69.7	560.8	0.62	0.69	39.1
North East: George St E											
24	L	3	0.0	0.125	67.3	LOS E	1.3	9.0	0.86	0.73	20.1
25	T	14	0.0	0.125	60.2	LOS E	1.3	9.0	0.86	0.62	19.7
26	R	3	0.0	0.125	67.4	LOS E	1.3	9.0	0.86	0.74	20.1
Approach		21	0.0	0.125	62.6	LOS E	1.3	9.0	0.86	0.66	19.8
North West: Bridge St N											
27	L	7	0.0	0.869	10.0	LOS A	27.2	199.0	0.31	1.11	47.5
28	T	2342	5.2	0.869	5.0	LOS A	27.2	199.0	0.50	0.48	50.4
Approach		2348	5.2	0.869	5.1	LOS A	27.2	199.0	0.50	0.48	50.4
South West: George St W											
30	L	102	0.0	0.854	77.7	LOS F	12.1	86.3	1.00	0.89	8.2
31	T	3	0.0	0.854	70.5	LOS F	12.1	86.3	1.00	0.89	7.2
32	R	54	6.5	0.854	78.0	LOS F	12.1	86.3	1.00	0.89	8.2
Approach		159	2.2	0.854	77.7	LOS F	12.1	86.3	1.00	0.89	8.2
All Vehicles		3899	9.3	0.960	12.6	LOS A	69.7	560.8	0.57	0.57	42.5

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

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 per ped
P9	Across SE approach	28	69.1	LOS F	0.1	0.1	0.96	0.96
P11	Across NE approach	28	3.9	LOS A	0.0	0.0	0.23	0.23
P13	Across NW approach	28	66.3	LOS F	0.1	0.1	0.94	0.94
P15	Across SW approach	28	3.9	LOS A	0.0	0.0	0.23	0.23
All Pedestrians		112	35.8	LOS D			0.59	0.59

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.

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SIDRA INTERSECTION 5.1.5.2006
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Figure B-9-29 Bridge Street/ George Street – DLA PM Peak– Signals with right turn ban onto George Street west (Option2)

MOVEMENT SUMMARY

Site: Bridge Street / George Street
PM signals_NoRT

Bridge Street / George Street PM signals

Right Turn ban onto Bridge Street South

DLA

Signals - Fixed Time Cycle Time = 120 seconds (Practical Cycle Time)

Design Life Analysis (Final Year): Results for 17 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	18	6.7	0.902	22.8	LOS B	37.2	273.1	0.70	1.05	38.0
22	T	852	5.6	0.902	15.2	LOS B	37.2	273.1	0.70	0.70	40.3
23	R	2	0.0	0.007	26.6	LOS B	0.1	0.5	0.74	0.63	33.5
Approach		873	5.6	0.902	15.4	LOS B	37.2	273.1	0.70	0.71	40.3
North East: George St E											
24	L	31	3.8	0.932	35.3	LOS C	25.9	194.5	0.66	0.94	28.0
25	T	39	0.0	0.932	28.1	LOS B	25.9	194.5	0.66	0.72	28.1
26	R	430	9.5	0.932	35.6	LOS C	25.9	194.5	0.66	0.94	28.0
Approach		500	8.4	0.932	35.0	LOS C	25.9	194.5	0.66	0.93	28.0
North West: Bridge St N											
27	L	7	0.0	0.895	53.9	LOS D	23.4	170.4	1.00	0.98	24.6
28	T	627	5.0	0.895	46.3	LOS D	23.4	170.4	0.94	0.93	25.4
Approach		634	5.0	0.895	46.4	LOS D	23.4	170.4	0.94	0.93	25.4
South West: George St W											
30	L	317	4.6	0.556	24.7	LOS B	11.8	85.6	0.58	0.78	19.6
31	T	14	0.0	0.556	17.4	LOS B	11.8	85.6	0.58	0.51	19.0
32	R	41	0.0	0.556	24.6	LOS B	11.8	85.6	0.58	0.79	19.5
Approach		372	3.9	0.556	24.4	LOS B	11.8	85.6	0.58	0.77	19.5
All Vehicles		2379	5.8	0.932	29.2	LOS C	37.2	273.1	0.74	0.82	30.0

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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 per ped
P9	Across SE approach	15	29.4	LOS C	0.0	0.0	0.70	0.70
P11	Across NE approach	15	40.0	LOS E	0.0	0.0	0.82	0.82
P13	Across NW approach	15	27.3	LOS C	0.0	0.0	0.68	0.68
P15	Across SW approach	15	39.2	LOS D	0.0	0.0	0.81	0.81
All Pedestrians		60	34.0	LOS D			0.75	0.75

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.

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SIDRA INTERSECTION 5.1.5.2006

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INTERSECTION

Figure B-9-30 Bridge Street/ George Street – DLA PM Peak– Signals with shared through and right turn slip lane onto George Street west (Option3)

MOVEMENT SUMMARY

Site: Bridge Street / George Street
AM signals_PermittedRT

Bridge Street / George Street AM signals
Shared Right Turn and Thru lane

DLA

Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)

Design Life Analysis (Final Year): Results for 35 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	91	4.8	0.968	35.1	LOS C	61.6	495.2	0.68	1.11	30.8
22	T	910	18.5	0.968	27.6	LOS B	61.6	495.2	0.68	0.76	32.7
23	R	4	0.0	0.083	90.0	LOS F	0.3	2.3	1.00	0.62	16.5
Approach		1006	17.1	0.968	28.5	LOS C	61.6	495.2	0.68	0.79	32.4
North East: George St E											
24	L	3	0.0	0.090	66.5	LOS E	1.1	7.5	0.85	0.72	20.3
25	T	12	0.0	0.090	59.3	LOS E	1.1	7.5	0.85	0.61	19.8
26	R	3	0.0	0.090	66.6	LOS E	1.1	7.5	0.85	0.73	20.2
Approach		18	0.0	0.090	61.7	LOS E	1.1	7.5	0.85	0.65	20.0
North West: Bridge St N											
27	L	6	0.0	1.016	73.3	LOS F	165.1	1213.9	1.00	1.25	20.0
28	T	1562	5.9	1.016	65.6	LOS E	165.1	1213.9	1.00	1.25	20.7
29	R	312	1.9	1.000 ³	40.8	LOS C	13.7	97.9	0.69	0.95	27.3
Approach		1881	5.2	1.016	61.5	LOS E	165.1	1213.9	0.95	1.20	21.5
South West: George St W											
30	L	87	0.0	0.234	37.2	LOS C	5.5	39.4	0.60	0.75	14.7
31	T	3	0.0	0.234	30.0	LOS C	5.5	39.4	0.60	0.49	13.8
32	R	45	6.5	0.234	37.4	LOS C	5.5	39.4	0.60	0.75	14.7
Approach		135	2.2	0.234	37.1	LOS C	5.5	39.4	0.60	0.74	14.7
All Vehicles		3039	9.0	1.016	49.5	LOS D	165.1	1213.9	0.84	1.04	24.1

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

³ x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

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 per ped
P9	Across SE approach	21	69.1	LOS F	0.1	0.1	0.96	0.96
P11	Across NE approach	21	15.0	LOS B	0.0	0.0	0.45	0.45
P13	Across NW approach	21	66.3	LOS F	0.1	0.1	0.94	0.94
P15	Across SW approach	21	15.0	LOS B	0.0	0.0	0.45	0.45
All Pedestrians		84	41.3	LOS E			0.70	0.70

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.

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SIDRA INTERSECTION 5.1.5.2006

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Figure B-9-31 Bridge Street/ George Street – DLA PM Peak– Signals with shared through and right turn slip lane onto George Street west (Option3)

MOVEMENT SUMMARY

Site: Bridge Street / George Street
PM signals_sharedThru&RT

Bridge Street / George Street PM signals

Shared thru and Right Turn lane

DLA

Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)

Design Life Analysis (Final Year): Results for 14 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	17	6.7	0.972	53.4	LOS D	71.0	520.8	1.00	1.09	24.8
22	T	819	5.6	0.972	45.8	LOS D	71.0	520.8	1.00	1.09	25.4
23	R	2	0.0	0.010	31.4	LOS C	0.1	0.6	0.56	0.66	31.1
Approach		839	5.6	0.972	45.9	LOS D	71.0	520.8	1.00	1.09	25.4
North East: George St E											
24	L	30	3.8	0.980	69.7	LOS E	46.9	352.3	0.98	1.10	19.4
25	T	37	0.0	0.980	62.4	LOS E	46.9	352.3	0.98	1.08	18.8
26	R	416	9.5	0.980	69.9	LOS E	46.9	352.3	0.98	1.10	19.4
Approach		484	8.4	0.980	69.3	LOS E	46.9	352.3	0.98	1.10	19.4
North West: Bridge St N											
27	L	7	0.0	0.376	9.8	LOS A	2.5	18.3	0.09	1.14	46.5
28	T	395	7.0	0.376	2.4	LOS A	2.5	18.3	0.09	0.08	55.8
29	R	188	1.2	0.966	79.2	LOS F	12.5	88.1	1.00	1.04	18.1
Approach		590	5.1	0.966	26.9	LOS B	12.5	88.1	0.38	0.40	34.0
South West: George St W											
30	L	307	4.6	0.587	34.2	LOS C	16.4	118.8	0.67	0.80	15.7
31	T	14	0.0	0.587	26.8	LOS B	16.4	118.8	0.67	0.59	14.7
32	R	40	0.0	0.587	34.1	LOS C	16.4	118.8	0.67	0.81	15.6
Approach		360	3.9	0.587	33.9	LOS C	16.4	118.8	0.67	0.79	15.7
All Vehicles		2273	5.8	0.980	44.1	LOS D	71.0	520.8	0.78	0.86	24.4

Level of Service (LOS) Method: Delay (RTA NSW).

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 used.

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 per ped
P9	Across SE approach	14	38.9	LOS D	0.0	0.0	0.72	0.72
P11	Across NE approach	14	16.3	LOS B	0.0	0.0	0.47	0.47
P13	Across NW approach	14	36.8	LOS D	0.0	0.0	0.70	0.70
P15	Across SW approach	14	25.2	LOS C	0.0	0.0	0.58	0.58
All Pedestrians		56	29.3	LOS C			0.62	0.62

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.

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Figure B-9-32 Bridge Street/ George Street – DLA AM Peak – Signals with shared through and right turn slip lane onto George Street West; right turn closed from Bridge St South to George St East (Option 4)

MOVEMENT SUMMARY

Site: Bridge Street / George Street
AM signals_withRT - Option4

Bridge Street / George Street AM signals
Right Turn onto Bridge Street South
DLA (OPTION 4)
Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)
Design Life Analysis (Final Year): Results for 33 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	89	4.8	0.125	13.9	LOS A	1.1	7.8	0.18	0.67	42.3
22	T	872	18.5	0.978	44.4	LOS D	75.1	608.5	0.97	1.09	25.9
Approach		961	17.2	0.978	41.6	LOS C	75.1	608.5	0.90	1.05	26.8
North East: George St E											
24	L	3	0.0	0.107	70.8	LOS F	1.1	7.7	0.89	0.72	19.5
25	T	11	0.0	0.107	63.6	LOS E	1.1	7.7	0.89	0.63	19.0
26	R	3	0.0	0.107	70.9	LOS F	1.1	7.7	0.89	0.72	19.5
Approach		17	0.0	0.107	66.1	LOS E	1.1	7.7	0.89	0.66	19.2
North West: Bridge St N											
27	L	6	0.0	0.997	48.6	LOS D	142.1	1043.8	1.00	1.13	26.2
28	T	1557	5.9	0.997	41.1	LOS C	142.1	1043.8	1.00	1.13	26.9
29	R	269	1.9	1.000 ³	55.7	LOS D	13.8	97.9	0.99	0.84	22.8
Approach		1831	5.2	1.000	43.3	LOS D	142.1	1043.8	1.00	1.08	26.2
South West: George St W											
30	L	85	0.0	0.200	31.5	LOS C	4.6	33.1	0.52	0.73	16.5
31	T	3	0.0	0.200	24.4	LOS B	4.6	33.1	0.52	0.42	15.9
32	R	44	6.5	0.200	31.8	LOS C	4.6	33.1	0.52	0.74	16.5
Approach		132	2.2	0.200	31.5	LOS C	4.6	33.1	0.52	0.73	16.5
All Vehicles		2942	9.0	1.000	42.3	LOS C	142.1	1043.8	0.94	1.05	26.1

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P9	Across SE approach	20	69.1	LOS F	0.1	0.1	0.96	0.96
P11	Across NE approach	20	20.8	LOS C	0.0	0.0	0.53	0.53
P13	Across NW approach	20	69.1	LOS F	0.1	0.1	0.96	0.96
P15	Across SW approach	20	20.8	LOS C	0.0	0.0	0.53	0.53
All Pedestrians		80	45.0	LOS E			0.74	0.74

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.

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Figure B-9-33 Bridge Street/ George Street – DLA PM Peak – Signals with shared through and right turn slip lane onto George Street West; right turn closed from Bridge St South to George St East (Option 4)

MOVEMENT SUMMARY

Site: Bridge Street / George Street
PM signals_withRT - Option4

Bridge Street / George Street PM signals
Right Turn onto Bridge Street South
DLA - OPTION 4
Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn w/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Bridge St S											
21	L	17	6.7	0.035	20.7	LOS B	0.3	2.6	0.30	0.67	37.2
22	T	777	5.6	0.958	42.1	LOS C	62.0	454.9	0.98	1.04	26.6
Approach		794	5.6	0.958	41.6	LOS C	62.0	454.9	0.97	1.03	26.8
North East: George St E											
24	L	29	3.8	0.959	58.8	LOS E	40.2	301.4	0.95	1.04	21.5
25	T	36	0.0	0.959	51.5	LOS D	40.2	301.4	0.95	1.00	20.9
26	R	398	9.5	0.959	59.0	LOS E	40.2	301.4	0.95	1.04	21.5
Approach		463	8.4	0.959	58.4	LOS E	40.2	301.4	0.95	1.03	21.5
North West: Bridge St N											
27	L	7	0.0	0.469	23.9	LOS B	11.8	87.1	0.46	1.03	36.5
28	T	370	7.0	0.469	16.4	LOS B	11.8	87.1	0.46	1.03	40.0
29	R	180	1.2	0.892	82.8	LOS F	13.7	97.2	1.00	1.08	17.5
Approach		557	5.0	0.892	37.9	LOS C	13.7	97.2	0.64	0.63	28.6
South West: George St W											
30	L	293	4.6	0.365	17.3	LOS B	7.0	50.4	0.30	0.71	24.2
31	T	13	0.0	0.365	10.0	LOS A	7.0	50.4	0.30	0.26	26.1
32	R	38	0.0	0.365	17.2	LOS B	7.0	50.4	0.30	0.73	24.1
Approach		345	3.9	0.365	17.0	LOS B	7.0	50.4	0.30	0.70	24.2
All Vehicles		2158	5.8	0.959	40.3	LOS C	62.0	454.9	0.77	0.87	25.6

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

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 per ped
P9	Across SE approach	13	34.0	LOS D	0.0	0.0	0.67	0.67
P11	Across NE approach	13	27.6	LOS C	0.0	0.0	0.61	0.61
P13	Across NW approach	13	34.0	LOS D	0.0	0.0	0.67	0.67
P15	Across SW approach	13	27.6	LOS C	0.0	0.0	0.61	0.61
All Pedestrians		52	30.8	LOS D			0.64	0.64

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.

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