Port Expansion Project EIS

Appendix Q7

Intersection 4: Boundary Street / Saunders Street SIDRA Summaries

AECOM BMT WBM

MOVEMENT SUMMARY

Site: 2014 AM peak WOD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2014 Without Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 85 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	206	3.6	0.559	26.2	LOS C	7.3	52.8	0.70	0.78	34.9
2	T	815	2.8	0.786	34.6	LOS C	18.1	130.1	0.99	0.93	29.3
3	R	43	7.3	0.208	46.3	LOS D	2.5	18.7	0.94	0.74	26.5
Approach		1064	3.2	0.786	33.5	LOS C	18.1	130.1	0.93	0.89	30.1
East: Boundary Street (East)											
4	L	83	7.6	0.131	10.7	LOS B	1.3	9.9	0.34	0.66	46.6
5	T	176	7.8	0.183	26.7	LOS C	4.1	30.3	0.82	0.64	33.1
6	R	65	1.6	0.504	52.4	LOS D	4.0	28.4	1.00	0.75	24.6
Approach		324	6.5	0.504	27.7	LOS C	4.1	30.3	0.73	0.67	33.3
North: Saunders Street (North)											
7	L	59	3.6	0.539	37.3	LOS D	11.4	83.9	0.91	0.85	30.9
8	T	486	6.1	0.539	29.0	LOS C	11.5	84.8	0.91	0.76	31.6
9	R	159	9.9	0.779	52.8	LOS D	8.9	67.3	1.00	0.92	24.6
Approach		704	6.7	0.779	35.1	LOS D	11.5	84.8	0.93	0.81	29.6
West: Boundary Street (West)											
10	L	443	5.0	0.581	13.5	LOS B	9.3	67.7	0.53	0.74	43.8
11	T	300	7.0	0.438	28.2	LOS C	9.2	68.0	0.86	0.71	32.3
12	R	86	6.1	0.687	54.3	LOS D	5.3	39.0	1.00	0.83	24.1
Approach		829	5.8	0.687	23.1	LOS C	9.3	68.0	0.70	0.74	36.1
All Vehicles		2922	5.2	0.786	30.3	LOS C	18.1	130.1	0.84	0.80	31.8

Level of Service (Aver. Int. Delay): LOS C. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS D. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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 per ped
P1	Across S approach	53	36.7	LOS D	0.1	0.1	0.93	0.93
P3	Across E approach	53	33.1	LOS D	0.1	0.1	0.88	0.88
P5	Across N approach	53	34.0	LOS D	0.1	0.1	0.89	0.89
P7	Across W approach	53	33.1	LOS D	0.1	0.1	0.88	0.88
All Pedestrians		212	34.2				0.90	0.90

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS D. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

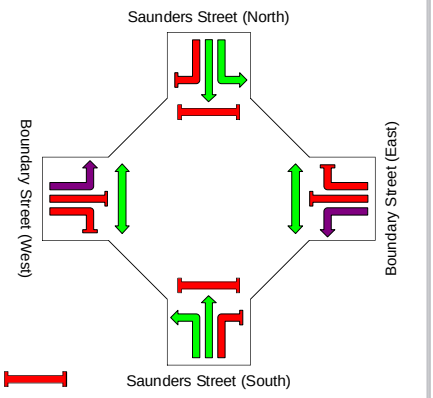
Boundary Street / Saunders Street
2014 Without Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 85 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

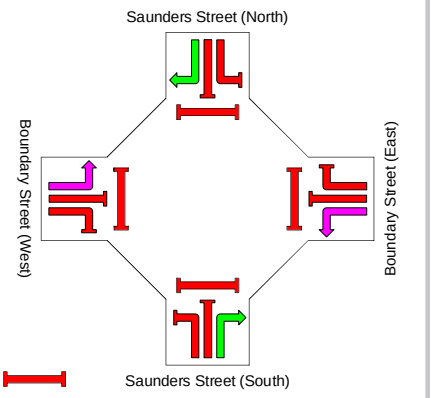
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	23	10	22	6
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	29	16	28	12
Phase Split	34 %	19 %	33 %	14 %

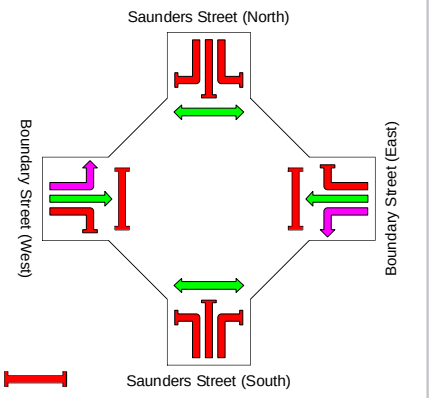
Phase A



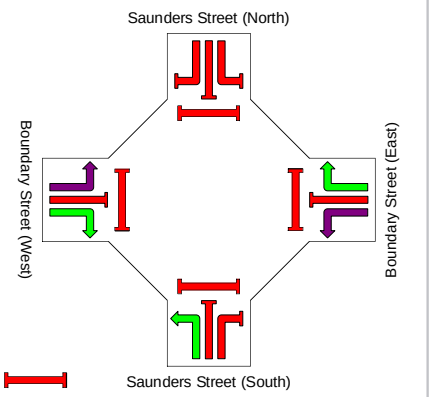
Phase B

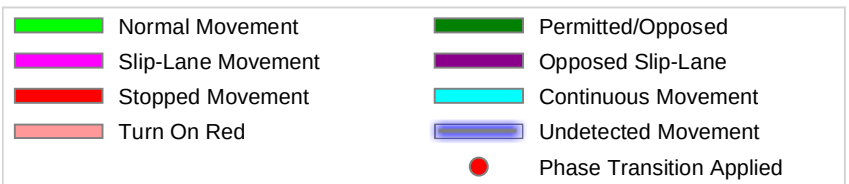


Phase C



Phase D





MOVEMENT SUMMARY

Site: 2014 AM peak WD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2014 With Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 85 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	206	3.6	0.559	26.2	LOS C	7.3	52.8	0.70	0.78	34.9
2	T	815	2.8	0.786	34.6	LOS C	18.1	130.1	0.99	0.93	29.3
3	R	43	7.3	0.208	46.3	LOS D	2.5	18.7	0.94	0.74	26.5
Approach		1064	3.2	0.786	33.5	LOS C	18.1	130.1	0.93	0.89	30.1
East: Boundary Street (East)											
4	L	83	7.6	0.131	10.7	LOS B	1.3	9.9	0.34	0.66	46.6
5	T	187	7.3	0.194	26.7	LOS C	4.3	32.1	0.82	0.65	33.1
6	R	65	1.6	0.504	52.4	LOS D	4.0	28.4	1.00	0.75	24.6
Approach		336	6.3	0.504	27.8	LOS C	4.3	32.1	0.74	0.67	33.3
North: Saunders Street (North)											
7	L	59	3.6	0.539	37.3	LOS D	11.4	83.9	0.91	0.85	30.9
8	T	486	6.1	0.539	29.0	LOS C	11.5	84.8	0.91	0.76	31.6
9	R	159	9.9	0.779	52.8	LOS D	8.9	67.3	1.00	0.92	24.6
Approach		704	6.7	0.779	35.1	LOS D	11.5	84.8	0.93	0.81	29.6
West: Boundary Street (West)											
10	L	443	5.0	0.581	13.5	LOS B	9.3	67.7	0.53	0.74	43.8
11	T	428	4.9	0.617	29.5	LOS C	12.8	93.5	0.91	0.76	31.6
12	R	86	6.1	0.687	54.3	LOS D	5.3	39.0	1.00	0.83	24.1
Approach		958	5.1	0.687	24.4	LOS C	12.8	93.5	0.74	0.76	35.2
All Vehicles		3062	4.9	0.786	30.4	LOS C	18.1	130.1	0.85	0.81	31.8

Level of Service (Aver. Int. Delay): LOS C. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS D. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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 per ped
P1	Across S approach	53	36.7	LOS D	0.1	0.1	0.93	0.93
P3	Across E approach	53	33.1	LOS D	0.1	0.1	0.88	0.88
P5	Across N approach	53	34.0	LOS D	0.1	0.1	0.89	0.89
P7	Across W approach	53	33.1	LOS D	0.1	0.1	0.88	0.88
All Pedestrians		212	34.2				0.90	0.90

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS D. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

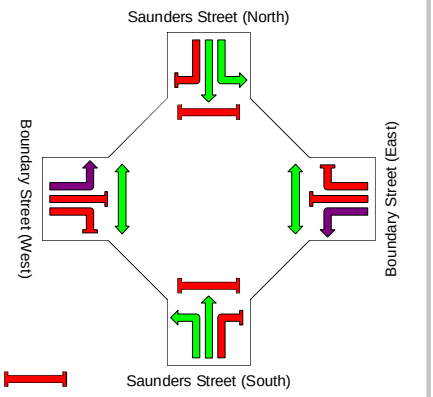
Boundary Street / Saunders Street
2014 With Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 85 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

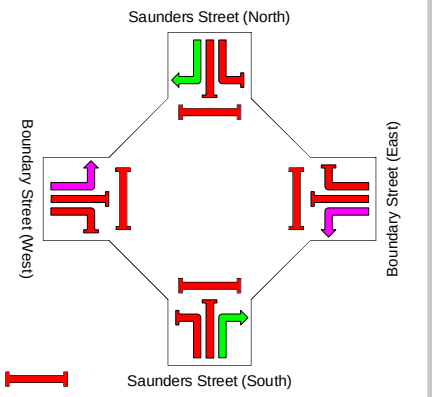
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	23	10	22	6
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	29	16	28	12
Phase Split	34 %	19 %	33 %	14 %

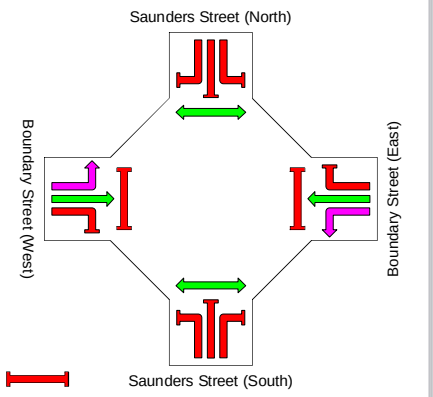
Phase A



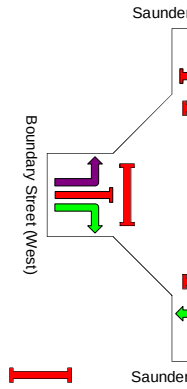
Phase B

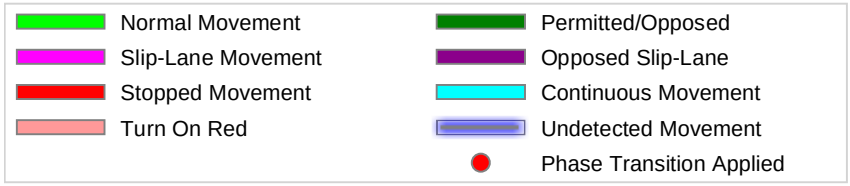


Phase C



Phase D





MOVEMENT SUMMARY

Site: 2014 PM peak WOD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2014 Without Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 135 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	160	6.6	0.519	24.8	LOS C	6.8	50.3	0.54	0.75	35.7
2	T	491	6.7	0.341	31.2	LOS C	12.9	95.1	0.75	0.64	31.1
3	R	34	9.4	0.119	60.4	LOS E	2.8	21.2	0.89	0.73	22.7
Approach		684	6.8	0.519	31.2	LOS C	12.9	95.1	0.71	0.67	31.4
East: Boundary Street (East)											
4	L	120	7.9	0.421	25.5	LOS C	5.5	41.1	0.59	0.72	35.5
5	T	271	8.2	0.448	55.7	LOS E	9.9	73.9	0.95	0.77	22.9
6	R	61	3.4	0.303	69.1	LOS E	5.2	37.4	0.96	0.76	20.7
Approach		452	7.5	0.448	49.5	LOS D	9.9	73.9	0.86	0.75	24.9
North: Saunders Street (North)											
7	L	82	2.6	1.045	134.4	LOS F	82.3	592.0	1.00	1.40	13.0
8	T	1440	3.4	1.047	126.3	LOS F	82.3	592.0	1.00	1.38	13.1
9	R	161	6.3	1.000[3]	65.1	LOS E	11.6	85.6	0.97	0.80	21.6
Approach		1683	3.9	1.047	120.8	LOS F	82.3	592.0	1.00	1.33	13.6
West: Boundary Street (West)											
10	L	281	10.9	0.389	10.4	LOS B	5.2	39.7	0.28	0.67	46.9
11	T	336	9.4	0.792	60.6	LOS E	17.1	127.6	0.98	0.86	21.5
12	R	169	3.4	1.000[3]	73.6	LOS E	12.9	92.9	1.00	0.81	19.9
Approach		786	8.0	1.000	45.4	LOS D	17.1	127.6	0.73	0.78	26.2
All Vehicles		3605	5.8	1.047	78.4	LOS E	82.3	592.0	0.87	1.01	18.6

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	34.1	LOS D	0.1	0.1	0.71	0.71
P5	Across N approach	53	58.8	LOS E	0.2	0.2	0.93	0.93
P7	Across W approach	53	34.1	LOS D	0.1	0.1	0.71	0.71
All Pedestrians		212	47.2				0.83	0.83

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

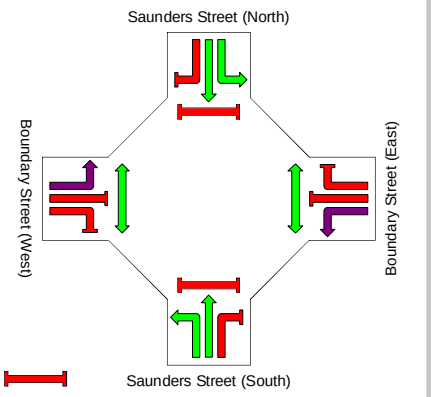
Boundary Street / Saunders Street
2014 Without Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

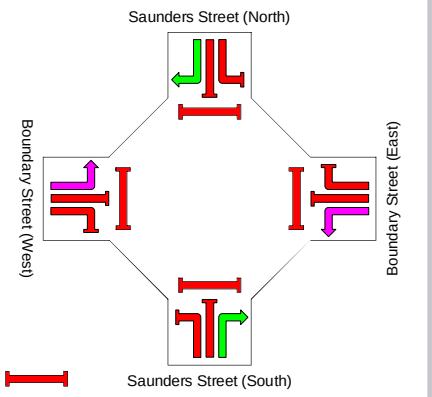
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	52	22	22	15
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	58	28	28	21
Phase Split	43 %	21 %	21 %	16 %

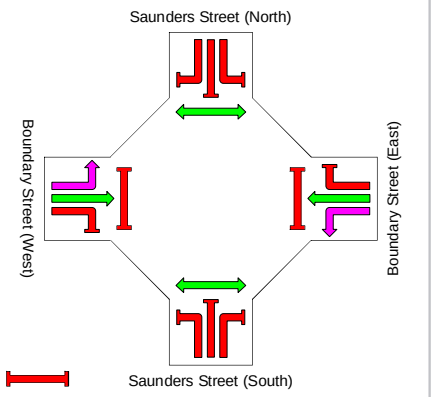
Phase A



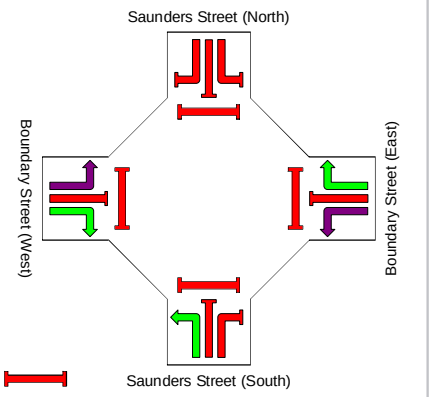
Phase B

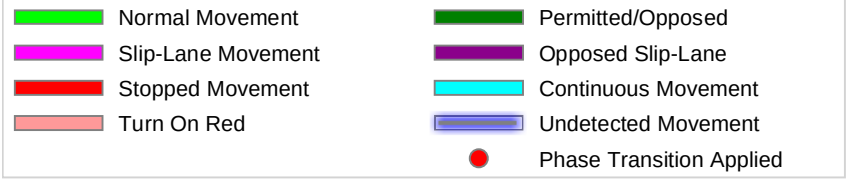


Phase C



Phase D





Saunders Street - Signals (2017-27).sip
8000907, AECOM, ENTERPRISE

MOVEMENT SUMMARY

Site: 2014 PM peak WD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2014 With Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 135 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	160	6.6	0.519	24.8	LOS C	6.8	50.3	0.54	0.75	35.7
2	T	491	6.7	0.341	31.2	LOS C	12.9	95.1	0.75	0.64	31.1
3	R	34	9.4	0.119	60.4	LOS E	2.8	21.2	0.89	0.73	22.7
Approach		684	6.8	0.519	31.2	LOS C	12.9	95.1	0.71	0.67	31.4
East: Boundary Street (East)											
4	L	120	7.9	0.421	25.5	LOS C	5.5	41.1	0.59	0.72	35.5
5	T	399	5.5	0.650	57.9	LOS E	14.0	102.6	0.99	0.82	22.3
6	R	61	3.4	0.303	69.1	LOS E	5.2	37.4	0.96	0.76	20.7
Approach		580	5.8	0.650	52.4	LOS D	14.0	102.6	0.90	0.79	24.0
North: Saunders Street (North)											
7	L	82	2.6	1.045	134.4	LOS F	82.3	592.0	1.00	1.40	13.0
8	T	1440	3.4	1.047	126.3	LOS F	82.3	592.0	1.00	1.38	13.1
9	R	161	6.3	1.000[3]	65.1	LOS E	11.6	85.6	0.97	0.80	21.6
Approach		1683	3.9	1.047	120.8	LOS F	82.3	592.0	1.00	1.33	13.6
West: Boundary Street (West)											
10	L	281	10.9	0.389	10.4	LOS B	5.2	39.7	0.28	0.67	46.9
11	T	347	9.0	0.818	61.7	LOS E	17.9	133.2	0.98	0.88	21.3
12	R	169	3.4	1.000[3]	73.6	LOS E	12.9	92.9	1.00	0.81	19.9
Approach		798	7.9	1.000	46.2	LOS D	17.9	133.2	0.74	0.79	25.9
All Vehicles		3745	5.6	1.047	77.9	LOS E	82.3	592.0	0.87	1.01	18.7

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	34.1	LOS D	0.1	0.1	0.71	0.71
P5	Across N approach	53	58.8	LOS E	0.2	0.2	0.93	0.93
P7	Across W approach	53	34.1	LOS D	0.1	0.1	0.71	0.71
All Pedestrians		212	47.2				0.83	0.83

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual pedestrian movements: Delay (HCM).

MOVEMENT SUMMARY

Site: 2014 PM peak WD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2014 With Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 135 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	160	6.6	0.519	24.8	LOS C	6.8	50.3	0.54	0.75	35.7
2	T	491	6.7	0.341	31.2	LOS C	12.9	95.1	0.75	0.64	31.1
3	R	34	9.4	0.119	60.4	LOS E	2.8	21.2	0.89	0.73	22.7
Approach		684	6.8	0.519	31.2	LOS C	12.9	95.1	0.71	0.67	31.4
East: Boundary Street (East)											
4	L	120	7.9	0.421	25.5	LOS C	5.5	41.1	0.59	0.72	35.5
5	T	399	5.5	0.650	57.9	LOS E	14.0	102.6	0.99	0.82	22.3
6	R	61	3.4	0.303	69.1	LOS E	5.2	37.4	0.96	0.76	20.7
Approach		580	5.8	0.650	52.4	LOS D	14.0	102.6	0.90	0.79	24.0
North: Saunders Street (North)											
7	L	82	2.6	1.045	134.4	LOS F	82.3	592.0	1.00	1.40	13.0
8	T	1440	3.4	1.047	126.3	LOS F	82.3	592.0	1.00	1.38	13.1
9	R	161	6.3	1.000[3]	65.1	LOS E	11.6	85.6	0.97	0.80	21.6
Approach		1683	3.9	1.047	120.8	LOS F	82.3	592.0	1.00	1.33	13.6
West: Boundary Street (West)											
10	L	281	10.9	0.389	10.4	LOS B	5.2	39.7	0.28	0.67	46.9
11	T	347	9.0	0.818	61.7	LOS E	17.9	133.2	0.98	0.88	21.3
12	R	169	3.4	1.000[3]	73.6	LOS E	12.9	92.9	1.00	0.81	19.9
Approach		798	7.9	1.000	46.2	LOS D	17.9	133.2	0.74	0.79	25.9
All Vehicles		3745	5.6	1.047	77.9	LOS E	82.3	592.0	0.87	1.01	18.7

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	34.1	LOS D	0.1	0.1	0.71	0.71
P5	Across N approach	53	58.8	LOS E	0.2	0.2	0.93	0.93
P7	Across W approach	53	34.1	LOS D	0.1	0.1	0.71	0.71
All Pedestrians		212	47.2				0.83	0.83

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual pedestrian movements: Delay (HCM).

MOVEMENT SUMMARY

Site: 2035 AM peak WOD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2035 Without Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 90 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	205	3.1	0.571	26.5	LOS C	7.5	53.9	0.69	0.78	34.7
2	T	1077	2.9	0.974	68.5	LOS E	34.8	250.0	1.00	1.30	20.1
3	R	63	6.7	0.267	47.3	LOS D	3.7	27.4	0.94	0.76	26.2
Approach		1345	3.1	0.974	61.1	LOS E	34.8	250.0	0.95	1.19	21.8
East: Boundary Street (East)											
4	L	101	7.3	0.189	12.6	LOS B	2.2	16.0	0.41	0.68	44.7
5	T	223	8.0	0.246	29.8	LOS C	5.4	40.6	0.84	0.67	31.6
6	R	117	2.7	0.962	76.2	LOS E	8.5	60.5	1.00	1.11	19.4
Approach		441	6.4	0.962	38.1	LOS D	8.5	60.5	0.79	0.79	28.8
North: Saunders Street (North)											
7	L	104	3.0	0.727	40.8	LOS D	17.3	126.3	0.96	0.90	29.4
8	T	680	6.0	0.727	32.6	LOS C	17.4	128.0	0.96	0.86	30.0
9	R	231	10.0	1.000[3]	52.5	LOS D	12.3	93.6	1.00	0.83	24.7
Approach		1016	6.6	1.000	37.9	LOS D	17.4	128.0	0.97	0.85	28.5
West: Boundary Street (West)											
10	L	554	5.5	0.880	27.4	LOS C	18.9	138.3	0.74	0.87	34.5
11	T	378	7.2	0.584	32.0	LOS C	12.1	90.1	0.91	0.75	30.5
12	R	88	6.0	0.745	58.2	LOS E	5.7	42.3	1.00	0.86	23.2
Approach		1020	6.2	0.880	31.7	LOS C	18.9	138.3	0.82	0.82	31.6
All Vehicles		3822	5.3	1.000	44.5	LOS D	34.8	250.0	0.90	0.96	26.4

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS E. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	39.2	LOS D	0.1	0.1	0.93	0.93
P3	Across E approach	53	32.9	LOS D	0.1	0.1	0.86	0.86
P5	Across N approach	53	36.5	LOS D	0.1	0.1	0.90	0.90
P7	Across W approach	53	32.9	LOS D	0.1	0.1	0.86	0.86
All Pedestrians		212	35.4				0.89	0.89

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS D. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

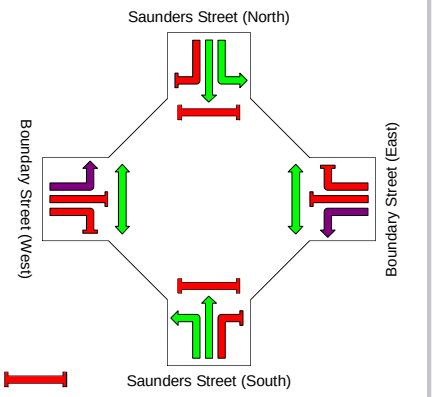
Boundary Street / Saunders Street
2035 Without Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 90 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

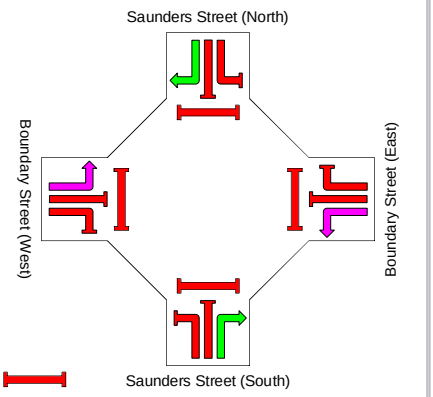
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	26	12	22	6
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	32	18	28	12
Phase Split	36 %	20 %	31 %	13 %

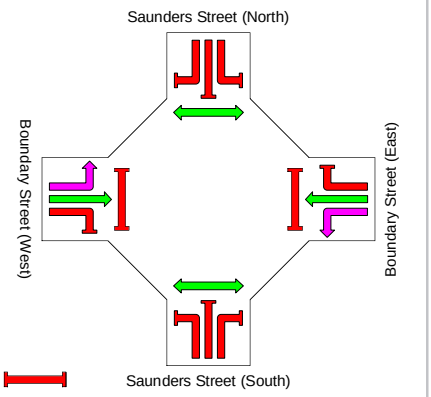
Phase A



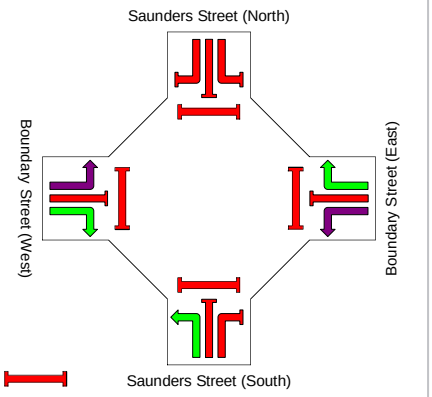
Phase B

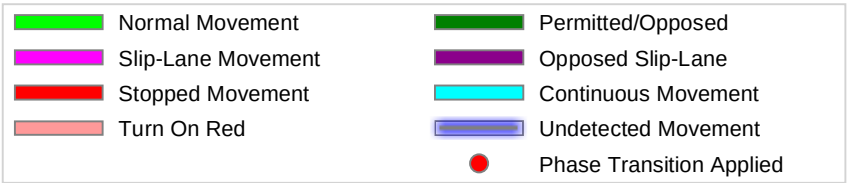


Phase C



Phase D





MOVEMENT SUMMARY

Site: 2035 AM peak WD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2035 With Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 90 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	205	3.1	0.571	26.5	LOS C	7.5	53.9	0.69	0.78	34.7
2	T	1077	2.9	0.974	68.5	LOS E	34.8	250.0	1.00	1.30	20.1
3	R	63	6.7	0.267	47.3	LOS D	3.7	27.4	0.94	0.76	26.2
Approach		1345	3.1	0.974	61.1	LOS E	34.8	250.0	0.95	1.19	21.8
East: Boundary Street (East)											
4	L	101	7.3	0.189	12.6	LOS B	2.2	16.0	0.41	0.68	44.7
5	T	246	12.0	0.278	30.1	LOS C	6.0	46.0	0.85	0.69	31.4
6	R	117	2.7	0.962	76.2	LOS E	8.5	60.5	1.00	1.11	19.4
Approach		464	8.6	0.962	37.9	LOS D	8.5	60.5	0.79	0.79	28.8
North: Saunders Street (North)											
7	L	104	3.0	0.727	40.8	LOS D	17.3	126.3	0.96	0.90	29.4
8	T	680	6.0	0.727	32.6	LOS C	17.4	128.0	0.96	0.86	30.0
9	R	231	10.0	1.000[3]	52.5	LOS D	12.3	93.6	1.00	0.83	24.7
Approach		1016	6.6	1.000	37.9	LOS D	17.4	128.0	0.97	0.85	28.5
West: Boundary Street (West)											
10	L	554	5.5	0.880	27.4	LOS C	18.9	138.3	0.74	0.87	34.5
11	T	552	7.1	0.852	39.4	LOS D	19.7	146.6	0.96	0.92	27.6
12	R	88	6.0	0.745	58.2	LOS E	5.7	42.3	1.00	0.86	23.2
Approach		1194	6.3	0.880	35.2	LOS D	19.7	146.6	0.86	0.89	30.0
All Vehicles		4019	5.6	1.000	44.9	LOS D	34.8	250.0	0.91	0.97	26.2

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS E. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	39.2	LOS D	0.1	0.1	0.93	0.93
P3	Across E approach	53	32.9	LOS D	0.1	0.1	0.86	0.86
P5	Across N approach	53	36.5	LOS D	0.1	0.1	0.90	0.90
P7	Across W approach	53	32.9	LOS D	0.1	0.1	0.86	0.86
All Pedestrians		212	35.4				0.89	0.89

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS D. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

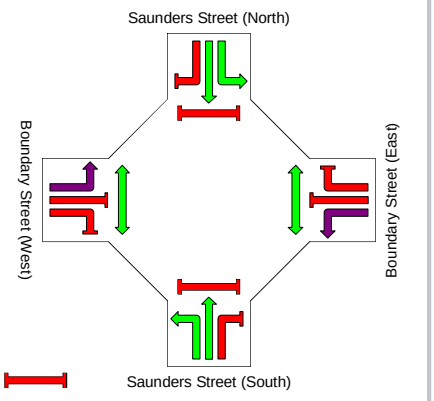
Boundary Street / Saunders Street
2035 With Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 90 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

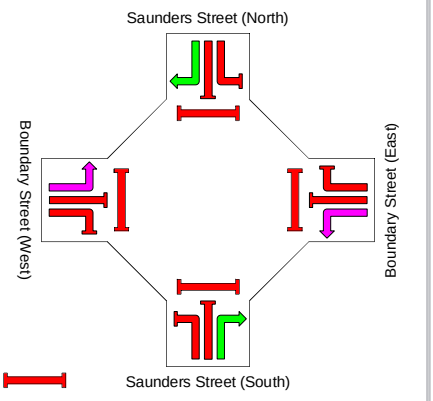
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	26	12	22	6
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	32	18	28	12
Phase Split	36 %	20 %	31 %	13 %

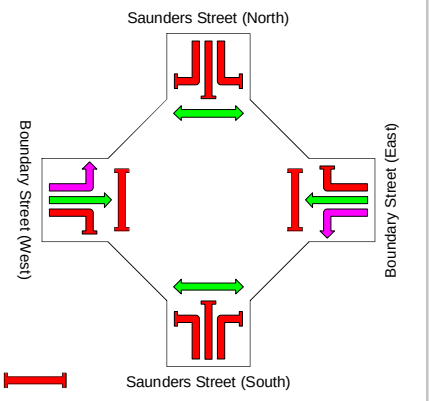
Phase A



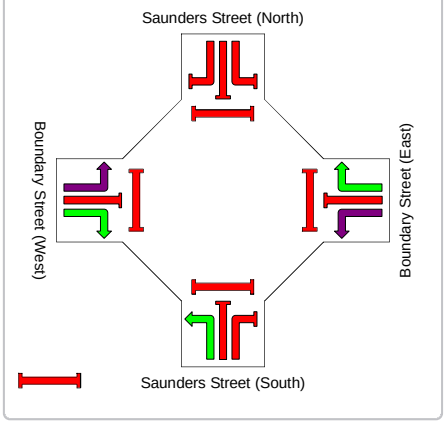
Phase B

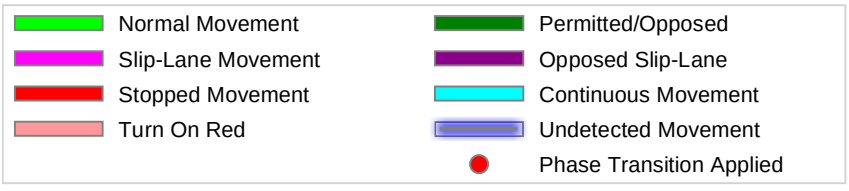


Phase C



Phase D





development_construction + stage d ops)\4 Boundary Street - Saunders Street - Signals (2017-27).sip
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MOVEMENT SUMMARY

Site: 2035 PM peak WOD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2035 Without Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	158	6.0	0.440	19.1	LOS B	5.8	42.4	0.42	0.73	39.4
2	T	700	6.8	0.348	20.1	LOS C	15.2	112.3	0.61	0.53	37.2
3	R	47	8.9	0.328	78.1	LOS E	4.6	34.4	0.98	0.75	19.1
Approach		905	6.7	0.440	22.9	LOS C	15.2	112.3	0.60	0.58	35.8
East: Boundary Street (East)											
4	L	144	7.3	0.644	37.1	LOS D	8.4	62.4	0.72	0.77	30.0
5	T	381	7.8	0.677	64.0	LOS E	14.5	108.1	1.00	0.83	21.0
6	R	121	3.4	1.073	170.6	LOS F	15.0	108.0	1.00	1.20	10.5
Approach		646	6.8	1.073	77.9	LOS E	15.0	108.1	0.94	0.89	18.8
North: Saunders Street (North)											
7	L	147	2.9	1.087	156.3	LOS F	137.4	989.4	1.00	1.47	11.5
8	T	2045	3.4	1.085	148.3	LOS F	137.4	989.4	1.00	1.44	11.5
9	R	147	6.4	1.000[3]	83.1	LOS F	12.5	92.2	1.00	0.80	18.3
Approach		2339	4.1	1.085	144.7	LOS F	137.4	989.4	1.00	1.40	11.8
West: Boundary Street (West)											
10	L	364	11.8	0.689	13.3	LOS B	10.2	78.8	0.41	0.72	44.2
11	T	527	9.6	1.065	118.9	LOS F	33.8	246.6	1.00	1.15	13.6
12	R	115	3.2	1.017	132.3	LOS F	12.8	92.0	1.00	1.13	13.0
Approach		1005	8.4	1.065	82.2	LOS F	33.8	246.6	0.79	0.99	18.1
All Vehicles		4896	5.8	1.085	100.5	LOS F	137.4	989.4	0.87	1.10	15.6

Level of Service (Aver. Int. Delay): LOS F. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	66.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	22.1	LOS C	0.1	0.1	0.55	0.55
P5	Across N approach	53	63.8	LOS F	0.2	0.2	0.94	0.94
P7	Across W approach	53	22.1	LOS C	0.1	0.1	0.55	0.55
All Pedestrians		212	43.6				0.75	0.75

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

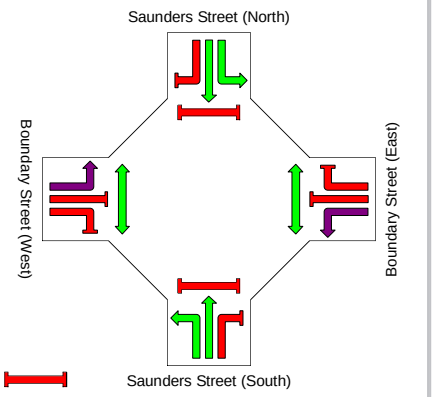
Boundary Street / Saunders Street
2035 Without Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

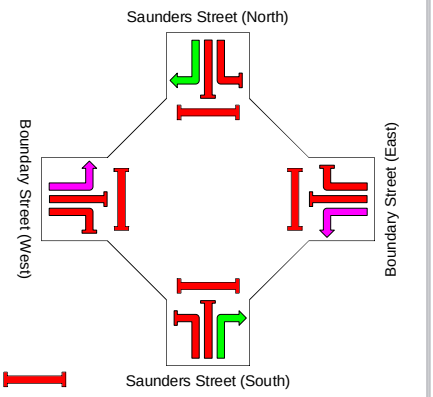
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	78	12	22	9
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	84	18	28	15
Phase Split	58 %	12 %	19 %	10 %

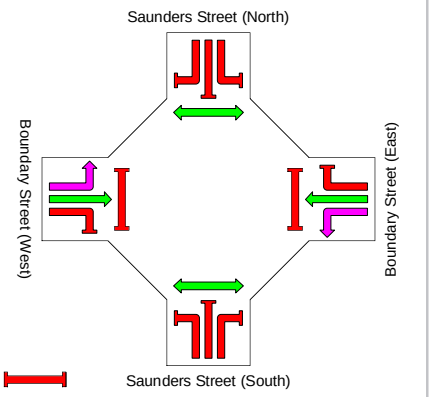
Phase A



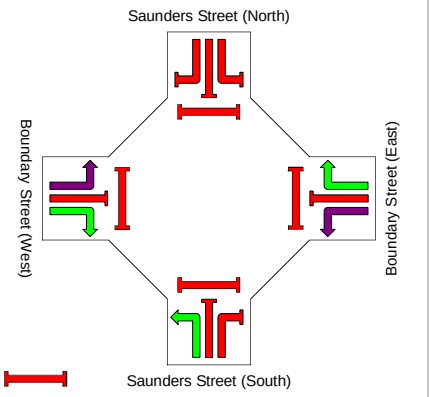
Phase B

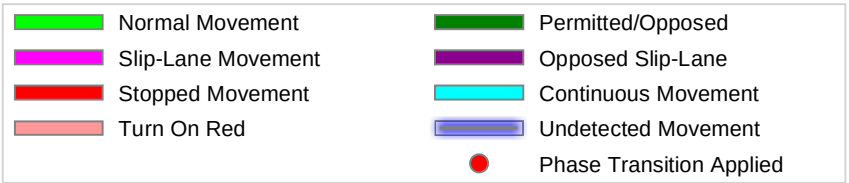


Phase C



Phase D





MOVEMENT SUMMARY

Site: 2035 PM peak WD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2035 With Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	158	6.0	0.440	19.1	LOS B	5.8	42.4	0.42	0.73	39.4
2	T	700	6.8	0.348	20.1	LOS C	15.2	112.3	0.61	0.53	37.2
3	R	47	8.9	0.328	78.1	LOS E	4.6	34.4	0.98	0.75	19.1
Approach		905	6.7	0.440	22.9	LOS C	15.2	112.3	0.60	0.58	35.8
East: Boundary Street (East)											
4	L	144	7.3	0.644	37.1	LOS D	8.4	62.4	0.72	0.77	30.0
5	T	554	7.4	0.982	91.8	LOS F	26.2	195.4	1.00	1.07	16.6
6	R	121	3.4	1.073	170.6	LOS F	15.0	108.0	1.00	1.20	10.5
Approach		819	6.8	1.073	93.8	LOS F	26.2	195.4	0.95	1.04	16.5
North: Saunders Street (North)											
7	L	147	2.9	1.087	156.3	LOS F	137.4	989.4	1.00	1.47	11.5
8	T	2045	3.4	1.085	148.3	LOS F	137.4	989.4	1.00	1.44	11.5
9	R	147	6.4	1.000[3]	83.1	LOS F	12.5	92.2	1.00	0.80	18.3
Approach		2339	4.1	1.085	144.7	LOS F	137.4	989.4	1.00	1.40	11.8
West: Boundary Street (West)											
10	L	364	11.8	0.689	13.3	LOS B	10.2	78.8	0.41	0.72	44.2
11	T	550	12.4	1.065	124.3	LOS F	33.6	246.6	1.00	1.21	13.2
12	R	115	3.2	1.017	132.3	LOS F	12.8	92.0	1.00	1.13	13.0
Approach		1028	9.3	1.065	85.9	LOS F	33.6	246.6	0.79	1.03	17.5
All Vehicles		5092	6.0	1.085	103.0	LOS F	137.4	989.4	0.88	1.12	15.4

Level of Service (Aver. Int. Delay): LOS F. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	66.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	22.1	LOS C	0.1	0.1	0.55	0.55
P5	Across N approach	53	63.8	LOS F	0.2	0.2	0.94	0.94
P7	Across W approach	53	22.1	LOS C	0.1	0.1	0.55	0.55
All Pedestrians		212	43.6				0.75	0.75

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

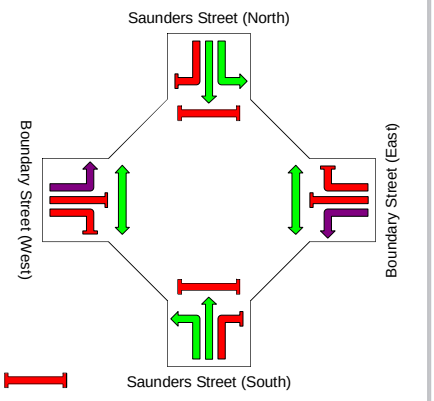
Boundary Street / Saunders Street
2035 With Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

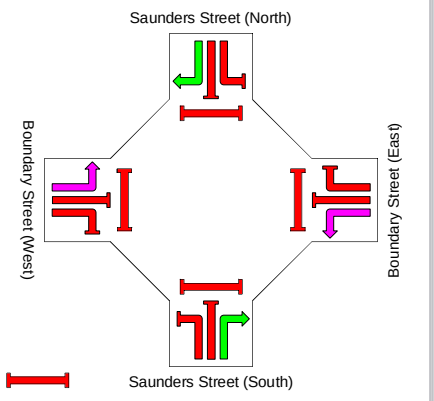
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	78	12	22	9
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	84	18	28	15
Phase Split	58 %	12 %	19 %	10 %

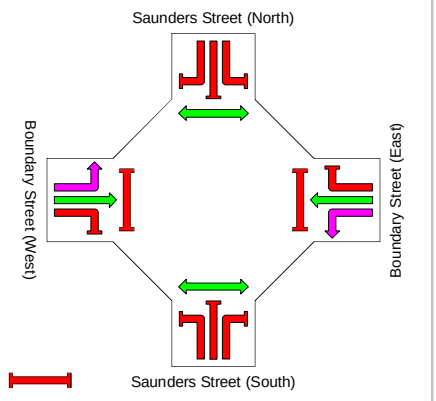
Phase A



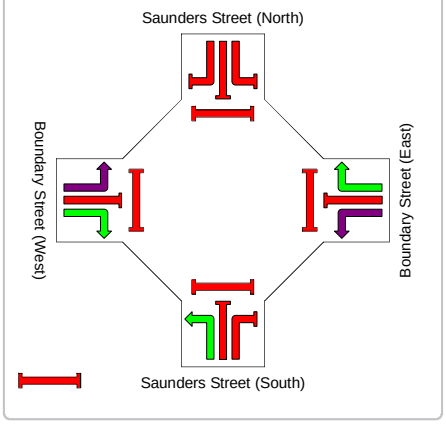
Phase B

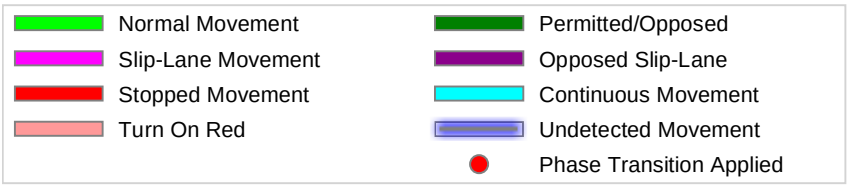


Phase C



Phase D





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MOVEMENT SUMMARY

Site: 2036 AM peak WOD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2036 (Opening Year) Without Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 90 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	206	3.1	0.573	26.5	LOS C	7.5	54.2	0.69	0.78	34.7
2	T	1080	2.9	0.977	69.7	LOS E	35.3	253.0	1.00	1.31	19.9
3	R	63	6.7	0.267	47.3	LOS D	3.7	27.4	0.94	0.76	26.2
Approach		1349	3.1	0.977	62.1	LOS E	35.3	253.0	0.95	1.20	21.6
East: Boundary Street (East)											
4	L	103	7.1	0.193	12.6	LOS B	2.2	16.3	0.41	0.68	44.7
5	T	226	7.9	0.250	29.8	LOS C	5.5	41.1	0.85	0.68	31.5
6	R	119	2.7	0.979	81.8	LOS F	8.9	63.6	1.00	1.14	18.5
Approach		448	6.3	0.979	39.6	LOS D	8.9	63.6	0.79	0.80	28.2
North: Saunders Street (North)											
7	L	105	3.0	0.739	41.3	LOS D	17.7	129.3	0.96	0.90	29.2
8	T	692	6.1	0.739	33.0	LOS C	17.8	131.0	0.96	0.87	29.8
9	R	231	9.9	1.000[3]	52.5	LOS D	12.3	93.6	1.00	0.83	24.7
Approach		1028	6.7	1.000	38.2	LOS D	17.8	131.0	0.97	0.86	28.4
West: Boundary Street (West)											
10	L	561	5.6	0.897	26.9	LOS C	18.9	138.3	0.75	0.86	34.8
11	T	381	7.2	0.589	32.0	LOS C	12.2	90.8	0.91	0.75	30.5
12	R	89	5.9	0.753	58.4	LOS E	5.8	42.8	1.00	0.87	23.1
Approach		1032	6.2	0.897	31.5	LOS C	18.9	138.3	0.83	0.82	31.8
All Vehicles		3858	5.3	1.000	44.9	LOS D	35.3	253.0	0.90	0.96	26.2

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	39.2	LOS D	0.1	0.1	0.93	0.93
P3	Across E approach	53	32.9	LOS D	0.1	0.1	0.86	0.86
P5	Across N approach	53	36.5	LOS D	0.1	0.1	0.90	0.90
P7	Across W approach	53	32.9	LOS D	0.1	0.1	0.86	0.86
All Pedestrians		212	35.4				0.89	0.89

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS D. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

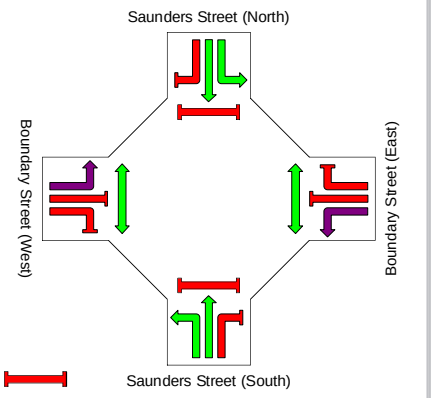
Boundary Street / Saunders Street
2036 (Opening Year) Without Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 90 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

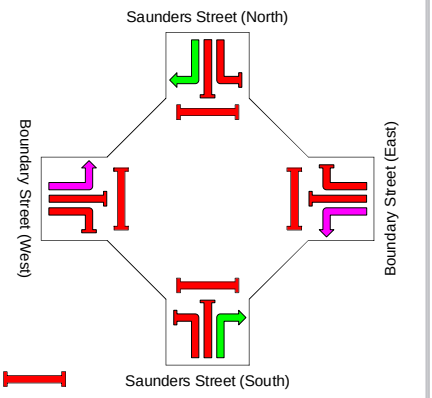
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	26	12	22	6
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	32	18	28	12
Phase Split	36 %	20 %	31 %	13 %

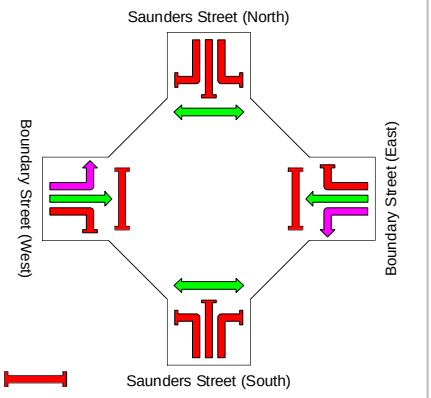
Phase A



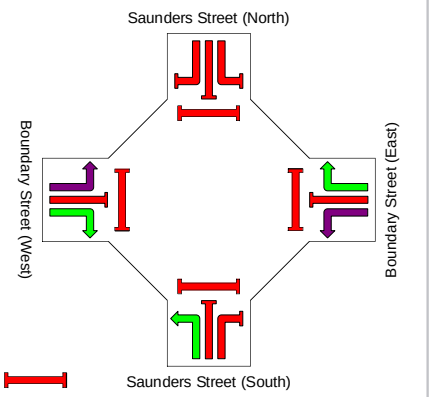
Phase B

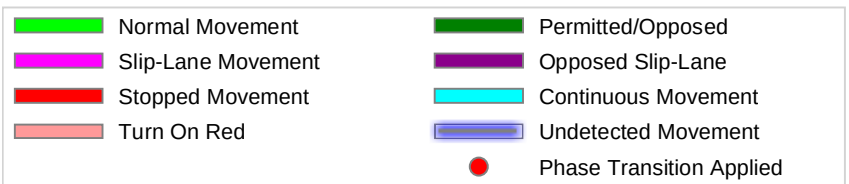


Phase C



Phase D





MOVEMENT SUMMARY

Site: 2036 AM peak WD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2036 (Opening Year) With Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 90 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	206	3.1	0.573	26.5	LOS C	7.5	54.2	0.69	0.78	34.7
2	T	1080	2.9	0.977	69.7	LOS E	35.3	253.0	1.00	1.31	19.9
3	R	63	6.7	0.267	47.3	LOS D	3.7	27.4	0.94	0.76	26.2
Approach		1349	3.1	0.977	62.1	LOS E	35.3	253.0	0.95	1.20	21.6
East: Boundary Street (East)											
4	L	103	7.1	0.193	12.6	LOS B	2.2	16.3	0.41	0.68	44.7
5	T	240	13.2	0.273	30.1	LOS C	5.8	45.3	0.85	0.68	31.4
6	R	119	2.7	0.979	81.8	LOS F	8.9	63.6	1.00	1.14	18.5
Approach		462	9.1	0.979	39.5	LOS D	8.9	63.6	0.79	0.80	28.2
North: Saunders Street (North)											
7	L	105	3.0	0.739	41.3	LOS D	17.7	129.3	0.96	0.90	29.2
8	T	692	6.1	0.739	33.0	LOS C	17.8	131.0	0.96	0.87	29.8
9	R	231	9.9	1.000[3]	52.5	LOS D	12.3	93.6	1.00	0.83	24.7
Approach		1028	6.7	1.000	38.2	LOS D	17.8	131.0	0.97	0.86	28.4
West: Boundary Street (West)											
10	L	561	5.6	0.897	26.9	LOS C	18.9	138.3	0.75	0.86	34.8
11	T	480	8.6	0.748	34.7	LOS C	15.9	119.5	0.95	0.84	29.3
12	R	89	5.9	0.753	58.4	LOS E	5.8	42.8	1.00	0.87	23.1
Approach		1131	6.9	0.897	32.7	LOS C	18.9	138.3	0.85	0.85	31.1
All Vehicles		3971	5.8	1.000	44.9	LOS D	35.3	253.0	0.91	0.97	26.2

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	39.2	LOS D	0.1	0.1	0.93	0.93
P3	Across E approach	53	32.9	LOS D	0.1	0.1	0.86	0.86
P5	Across N approach	53	36.5	LOS D	0.1	0.1	0.90	0.90
P7	Across W approach	53	32.9	LOS D	0.1	0.1	0.86	0.86
All Pedestrians		212	35.4				0.89	0.89

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS D. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

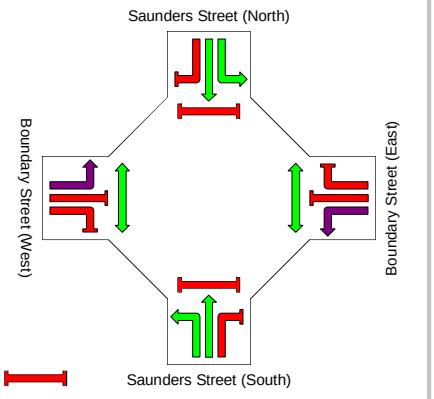
Boundary Street / Saunders Street
2036 (Opening Year) With Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 90 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

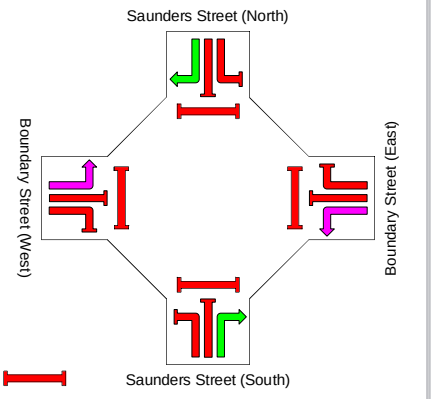
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	26	12	22	6
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	32	18	28	12
Phase Split	36 %	20 %	31 %	13 %

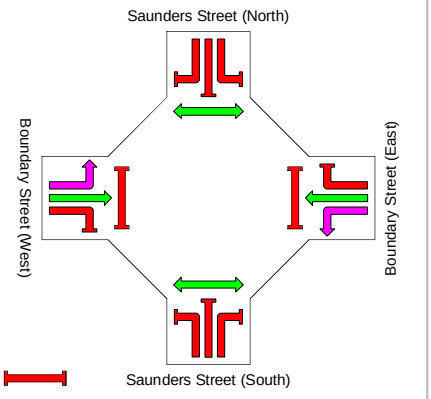
Phase A



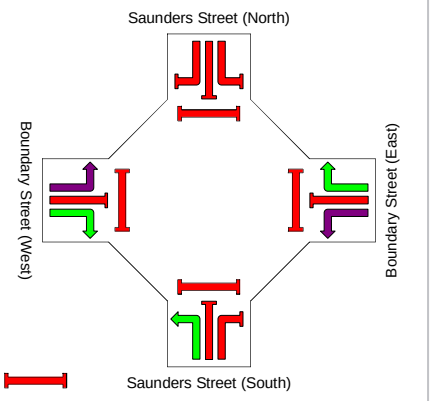
Phase B

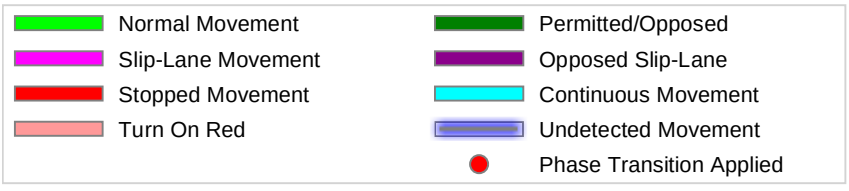


Phase C



Phase D





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MOVEMENT SUMMARY

Site: 2036 PM peak WOD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2036 (Opening Year) Without Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	160	5.9	0.445	19.1	LOS B	5.8	42.9	0.42	0.73	39.4
2	T	708	6.7	0.352	20.1	LOS C	15.3	113.6	0.61	0.54	37.2
3	R	47	8.9	0.328	78.1	LOS E	4.6	34.4	0.98	0.75	19.1
Approach		916	6.7	0.446	22.9	LOS C	15.3	113.6	0.60	0.58	35.8
East: Boundary Street (East)											
4	L	146	7.2	0.654	37.5	LOS D	8.5	63.5	0.72	0.77	29.8
5	T	387	7.7	0.688	64.3	LOS E	14.7	109.9	1.00	0.84	20.9
6	R	121	3.4	1.075	170.4	LOS F	15.0	108.0	1.00	1.20	10.6
Approach		655	6.8	1.075	77.9	LOS E	15.0	109.9	0.94	0.89	18.8
North: Saunders Street (North)											
7	L	148	2.8	1.099	167.4	LOS F	143.5	1033.6	1.00	1.51	10.9
8	T	2070	3.4	1.098	159.4	LOS F	143.5	1033.6	1.00	1.49	10.9
9	R	147	6.5	1.000[3]	83.1	LOS F	12.5	92.3	1.00	0.80	18.3
Approach		2365	4.1	1.099	155.2	LOS F	143.5	1033.6	1.00	1.45	11.2
West: Boundary Street (West)											
10	L	368	11.7	0.699	13.4	LOS B	10.4	80.1	0.42	0.72	44.2
11	T	535	9.5	1.066	119.6	LOS F	33.7	246.6	1.00	1.16	13.5
12	R	114	3.5	1.016	132.2	LOS F	12.8	92.0	1.00	1.13	13.0
Approach		1018	8.4	1.066	82.6	LOS F	33.7	246.6	0.79	1.00	18.0
All Vehicles		4954	5.8	1.099	105.6	LOS F	143.5	1033.6	0.87	1.12	15.1

Level of Service (Aver. Int. Delay): LOS F. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	66.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	22.1	LOS C	0.1	0.1	0.55	0.55
P5	Across N approach	53	63.8	LOS F	0.2	0.2	0.94	0.94
P7	Across W approach	53	22.1	LOS C	0.1	0.1	0.55	0.55
All Pedestrians		212	43.6				0.75	0.75

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

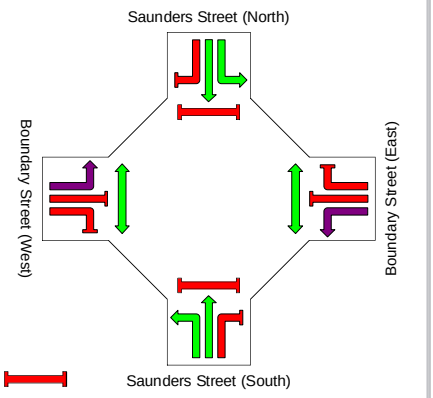
Boundary Street / Saunders Street
2036 (Opening Year) Without Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

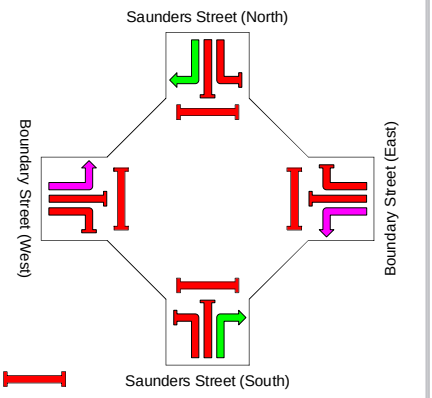
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	78	12	22	9
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	84	18	28	15
Phase Split	58 %	12 %	19 %	10 %

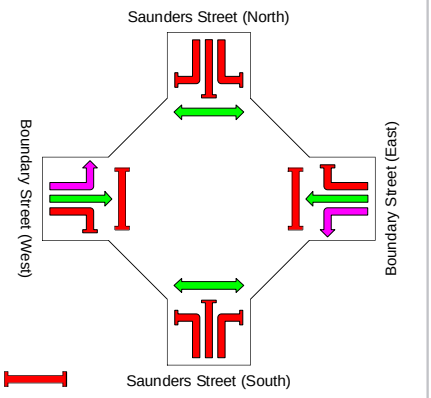
Phase A



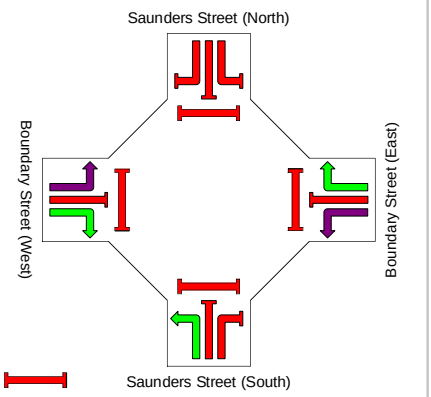
Phase B

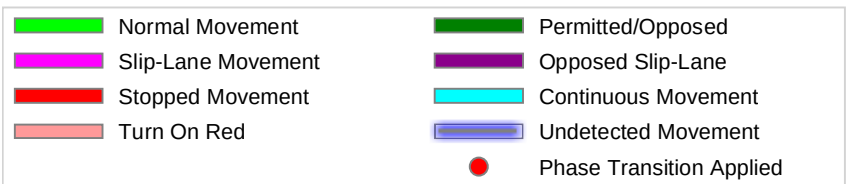


Phase C



Phase D





MOVEMENT SUMMARY

Site: 2036 PM peak WD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2036 (Opening Year) With Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	160	5.9	0.445	19.1	LOS B	5.8	42.9	0.42	0.73	39.4
2	T	708	6.7	0.352	20.1	LOS C	15.3	113.6	0.61	0.54	37.2
3	R	47	8.9	0.328	78.1	LOS E	4.6	34.4	0.98	0.75	19.1
Approach		916	6.7	0.446	22.9	LOS C	15.3	113.6	0.60	0.58	35.8
East: Boundary Street (East)											
4	L	146	7.2	0.654	37.5	LOS D	8.5	63.5	0.72	0.77	29.8
5	T	486	8.9	0.870	75.0	LOS E	19.7	148.7	1.00	0.99	19.0
6	R	121	3.4	1.075	170.4	LOS F	15.0	108.0	1.00	1.20	10.6
Approach		754	7.7	1.075	83.0	LOS F	19.7	148.7	0.95	0.98	18.0
North: Saunders Street (North)											
7	L	148	2.8	1.099	167.4	LOS F	143.5	1033.6	1.00	1.51	10.9
8	T	2070	3.4	1.098	159.4	LOS F	143.5	1033.6	1.00	1.49	10.9
9	R	147	6.5	1.000[3]	83.1	LOS F	12.5	92.3	1.00	0.80	18.3
Approach		2365	4.1	1.099	155.2	LOS F	143.5	1033.6	1.00	1.45	11.2
West: Boundary Street (West)											
10	L	368	11.7	0.699	13.4	LOS B	10.4	80.1	0.42	0.72	44.2
11	T	549	13.2	1.065	125.0	LOS F	33.5	246.7	1.00	1.21	13.1
12	R	114	3.5	1.016	132.2	LOS F	12.8	92.0	1.00	1.13	13.0
Approach		1032	9.6	1.065	85.9	LOS F	33.5	246.7	0.79	1.03	17.5
All Vehicles		5066	6.2	1.099	106.4	LOS F	143.5	1033.6	0.88	1.13	15.0

Level of Service (Aver. Int. Delay): LOS F. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	66.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	22.1	LOS C	0.1	0.1	0.55	0.55
P5	Across N approach	53	63.8	LOS F	0.2	0.2	0.94	0.94
P7	Across W approach	53	22.1	LOS C	0.1	0.1	0.55	0.55
All Pedestrians		212	43.6				0.75	0.75

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

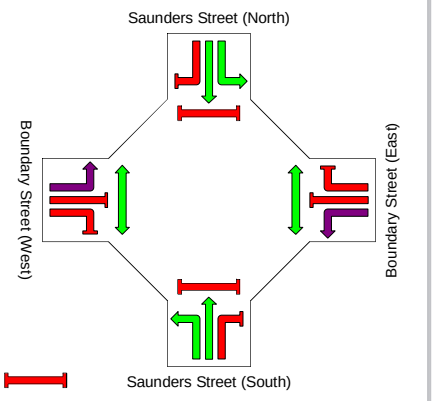
Boundary Street / Saunders Street
2036 (Opening Year) With Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

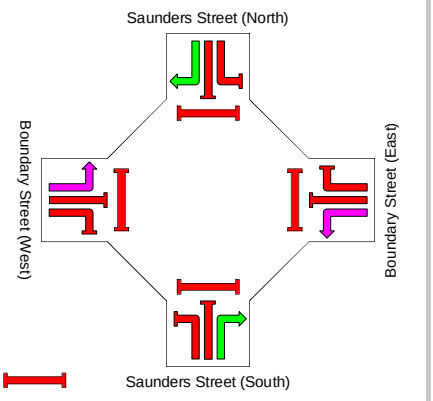
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	78	12	22	9
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	84	18	28	15
Phase Split	58 %	12 %	19 %	10 %

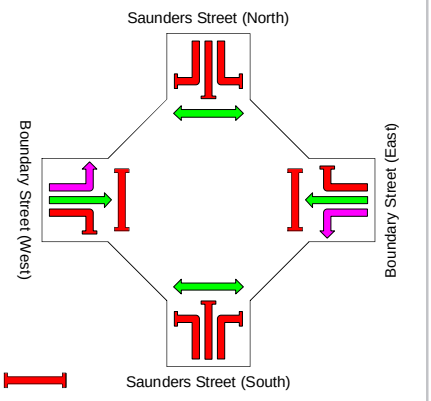
Phase A



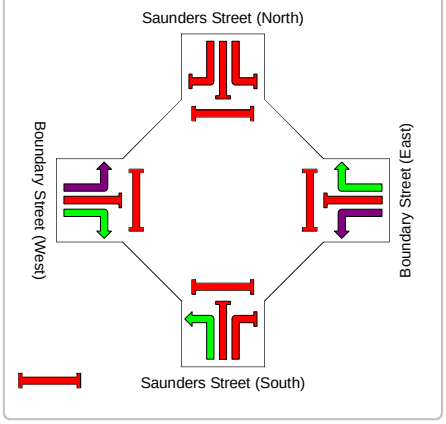
Phase B

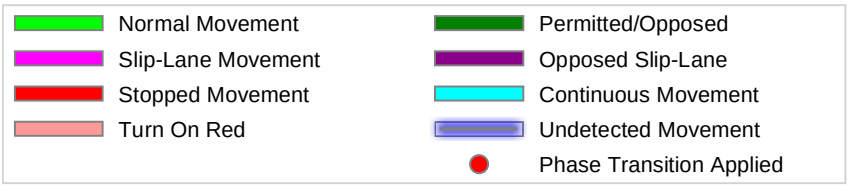


Phase C



Phase D





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MOVEMENT SUMMARY

Site: 2046 AM peak WOD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2046 (Opening Year + 10 years) Without Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 100 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	214	3.4	0.630	27.4	LOS C	8.3	59.7	0.67	0.78	34.3
2	T	1117	2.9	0.973	71.8	LOS E	38.9	278.9	1.00	1.27	19.5
3	R	64	6.6	0.226	48.5	LOS D	4.0	29.4	0.91	0.76	25.8
Approach		1395	3.2	0.973	63.9	LOS E	38.9	278.9	0.95	1.17	21.2
East: Boundary Street (East)											
4	L	120	7.9	0.253	13.9	LOS B	3.0	22.3	0.44	0.69	43.6
5	T	260	7.7	0.318	35.7	LOS D	7.0	52.3	0.88	0.71	29.0
6	R	138	2.3	0.943	77.1	LOS E	10.1	72.4	1.00	1.08	19.2
Approach		518	6.3	0.943	41.7	LOS D	10.1	72.4	0.81	0.81	27.5
North: Saunders Street (North)											
7	L	119	3.5	0.869	53.6	LOS D	26.6	195.1	1.00	1.02	25.1
8	T	850	6.2	0.870	45.3	LOS D	26.6	196.5	1.00	1.03	25.4
9	R	201	10.2	1.000[3]	52.7	LOS D	11.3	86.1	1.00	0.82	24.6
Approach		1169	6.8	1.000	47.4	LOS D	26.6	196.5	1.00	0.99	25.2
West: Boundary Street (West)											
10	L	573	5.8	1.000[3]	22.4	LOS C	18.9	138.7	0.77	0.81	37.3
11	T	478	7.3	0.826	43.2	LOS D	18.6	138.0	0.97	0.90	26.2
12	R	102	6.2	0.717	61.3	LOS E	6.9	51.1	1.00	0.85	22.4
Approach		1153	6.4	1.000	34.5	LOS C	18.9	138.7	0.87	0.85	30.2
All Vehicles		4235	5.4	1.000	48.6	LOS D	38.9	278.9	0.92	0.99	25.0

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS E. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	44.2	LOS E	0.1	0.1	0.94	0.94
P3	Across E approach	53	34.4	LOS D	0.1	0.1	0.83	0.83
P5	Across N approach	53	41.4	LOS E	0.1	0.1	0.91	0.91
P7	Across W approach	53	34.4	LOS D	0.1	0.1	0.83	0.83
All Pedestrians		212	38.6				0.88	0.88

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS E. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

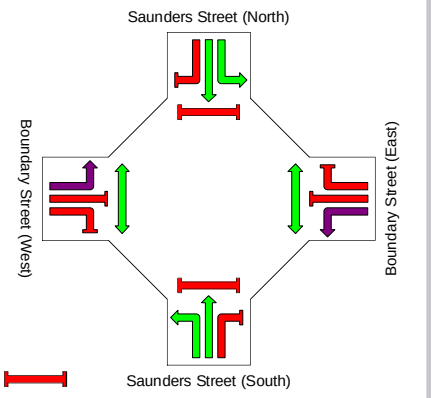
Boundary Street / Saunders Street
2046 (Opening Year + 10 years) Without Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 100 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

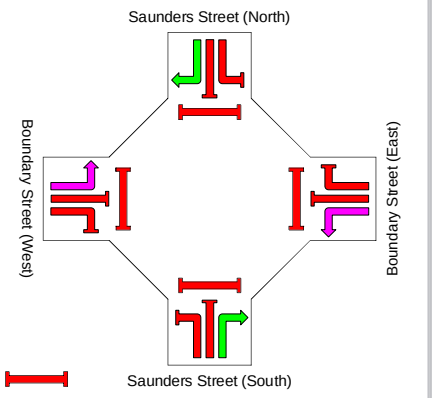
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	30	16	22	8
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	36	22	28	14
Phase Split	36 %	22 %	28 %	14 %

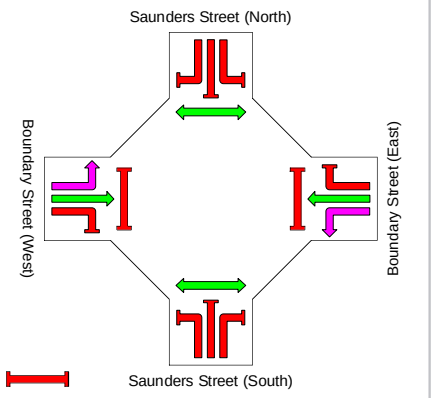
Phase A



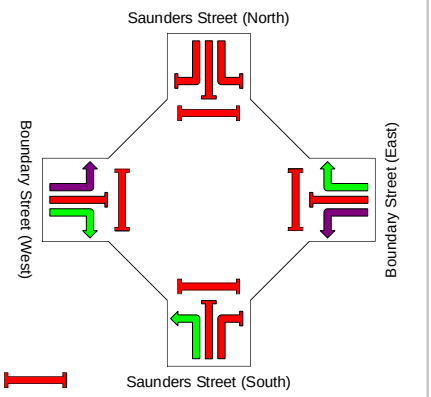
Phase B

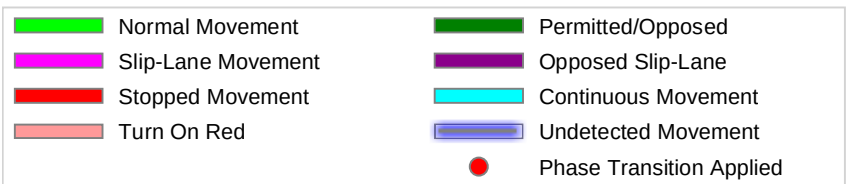


Phase C



Phase D





MOVEMENT SUMMARY

Site: 2046 AM peak WD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2046 (Opening Year + 10 years) With Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 105 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	214	3.4	0.656	29.1	LOS C	8.8	63.3	0.68	0.79	33.3
2	T	1117	2.9	0.958	67.2	LOS E	38.5	276.3	1.00	1.22	20.4
3	R	64	6.6	0.224	50.2	LOS D	4.1	30.5	0.91	0.76	25.3
Approach		1395	3.2	0.957	60.6	LOS E	38.5	276.3	0.95	1.13	21.9
East: Boundary Street (East)											
4	L	120	7.9	0.259	14.0	LOS B	3.1	22.9	0.43	0.69	43.5
5	T	284	11.9	0.343	36.9	LOS D	7.8	60.4	0.88	0.72	28.6
6	R	138	2.3	0.991	95.7	LOS F	11.5	81.8	1.00	1.16	16.5
Approach		542	8.5	0.990	46.8	LOS D	11.5	81.8	0.81	0.82	25.8
North: Saunders Street (North)											
7	L	119	3.5	0.862	53.8	LOS D	27.3	200.4	1.00	1.00	25.1
8	T	854	6.2	0.861	45.5	LOS D	27.3	201.8	1.00	1.01	25.3
9	R	193	10.3	1.000[3]	54.4	LOS D	11.3	86.1	1.00	0.82	24.2
Approach		1166	6.9	1.000	47.8	LOS D	27.3	201.8	1.00	0.98	25.1
West: Boundary Street (West)											
10	L	558	5.8	1.000[3]	22.4	LOS C	18.9	138.7	0.75	0.81	37.3
11	T	590	8.4	0.987	70.6	LOS E	31.5	236.4	0.97	1.13	19.7
12	R	102	6.2	0.753	65.0	LOS E	7.3	53.7	1.00	0.87	21.6
Approach		1251	6.9	1.000	48.6	LOS D	31.5	236.4	0.87	0.97	25.2
All Vehicles		4354	5.9	1.000	52.0	LOS D	38.5	276.3	0.92	1.00	24.1

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	44.8	LOS E	0.1	0.1	0.92	0.92
P3	Across E approach	53	35.2	LOS D	0.1	0.1	0.82	0.82
P5	Across N approach	53	42.1	LOS E	0.1	0.1	0.90	0.90
P7	Across W approach	53	35.2	LOS D	0.1	0.1	0.82	0.82
All Pedestrians		212	39.3				0.86	0.86

Level of Service (Aver. Int. Delay): LOS D. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS E. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

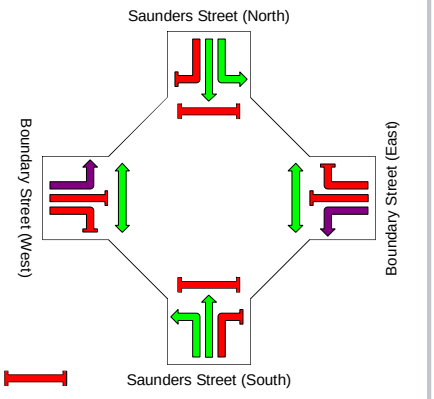
Boundary Street / Saunders Street
2046 (Opening Year + 10 years) With Development
AM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 105 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

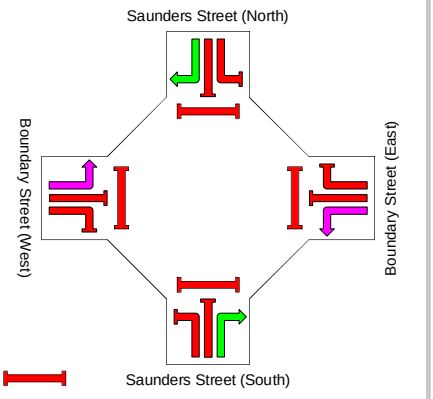
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	32	17	24	8
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	38	23	30	14
Phase Split	36 %	22 %	29 %	13 %

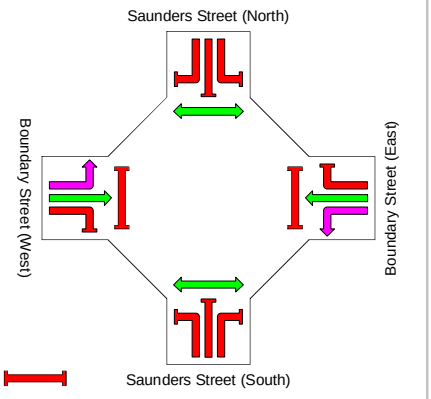
Phase A



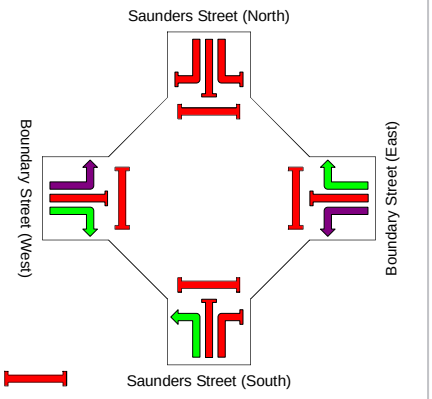
Phase B

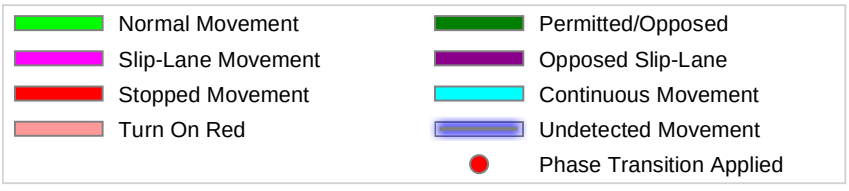


Phase C



Phase D





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MOVEMENT SUMMARY

Site: 2046 PM peak WOD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2046 (Opening Year + 10 years) Without Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	180	5.8	0.485	19.0	LOS B	6.3	46.3	0.44	0.74	39.5
2	T	801	6.8	0.384	18.9	LOS B	16.8	124.6	0.60	0.53	38.0
3	R	55	9.6	0.457	81.4	LOS F	5.3	40.3	1.00	0.75	18.6
Approach		1036	6.8	0.486	22.3	LOS C	16.8	124.6	0.60	0.58	36.2
East: Boundary Street (East)											
4	L	173	6.7	0.786	48.6	LOS D	11.4	84.0	0.75	0.86	25.9
5	T	478	7.4	0.848	72.6	LOS E	19.1	142.2	1.00	0.96	19.3
6	R	111	3.5	1.106	198.3	LOS F	14.9	107.8	1.00	1.25	9.3
Approach		761	6.5	1.106	85.4	LOS F	19.1	142.2	0.94	0.98	17.6
North: Saunders Street (North)											
7	L	167	3.1	1.213	262.9	LOS F	204.1	1471.9	1.00	1.87	7.4
8	T	2366	3.6	1.211	254.9	LOS F	204.1	1471.9	1.00	1.82	7.4
9	R	122	6.7	1.000[3]	97.4	LOS F	11.6	85.6	1.00	0.90	16.4
Approach		2656	4.2	1.211	248.1	LOS F	204.1	1471.9	1.00	1.78	7.6
West: Boundary Street (West)											
10	L	414	12.0	0.836	28.9	LOS C	17.7	136.4	0.49	0.81	33.8
11	T	619	9.8	1.167	200.8	LOS F	46.1	349.8	1.00	1.46	9.0
12	R	105	3.4	1.053	156.4	LOS F	12.8	92.6	1.00	1.17	11.4
Approach		1138	8.5	1.167	134.2	LOS F	46.1	349.8	0.81	1.20	12.6
All Vehicles		5591	5.9	1.211	160.9	LOS F	204.1	1471.9	0.88	1.33	10.9

Level of Service (Aver. Int. Delay): LOS F. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual vehicle movements: Delay (HCM).
Approach LOS values are based on average delay for all vehicle movements.

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	66.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	20.4	LOS C	0.1	0.1	0.53	0.53
P5	Across N approach	53	63.8	LOS F	0.2	0.2	0.94	0.94
P7	Across W approach	53	20.4	LOS C	0.1	0.1	0.53	0.53
All Pedestrians		212	42.8				0.74	0.74

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
Level of Service (Worst Movement): LOS F. LOS Method for individual pedestrian movements: Delay (HCM).

PHASING SUMMARY

Site: 2046 PM peak WOD (Amended Layout & Optimised Signals)

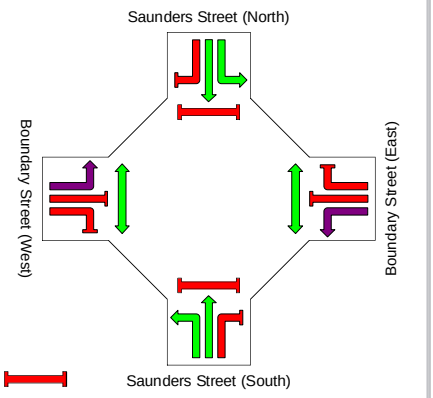
Boundary Street / Saunders Street
2046 (Opening Year + 10 years) Without Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

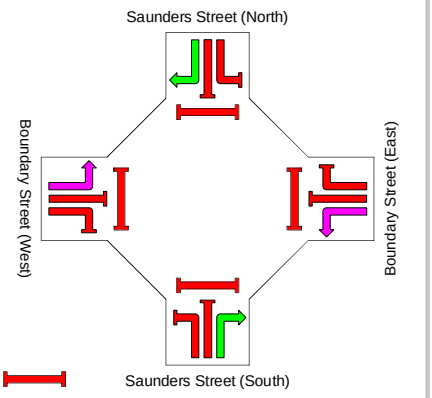
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	81	10	22	8
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	87	16	28	14
Phase Split	60 %	11 %	19 %	10 %

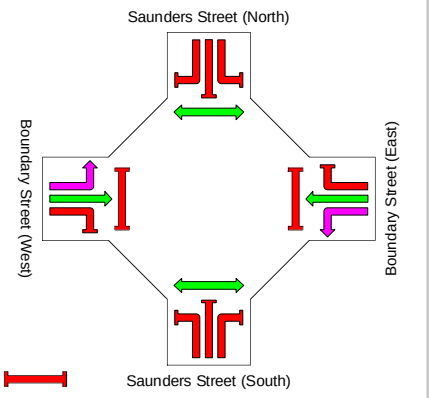
Phase A



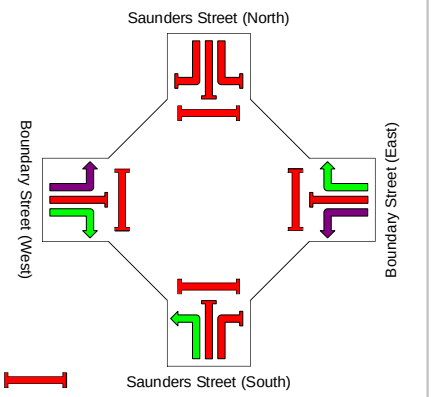
Phase B

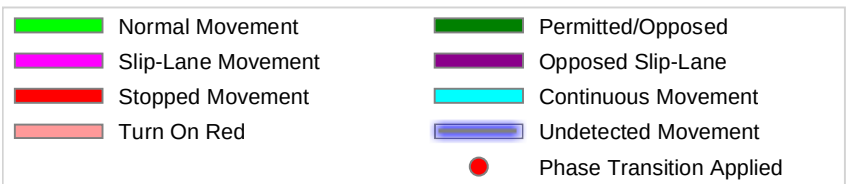


Phase C



Phase D





MOVEMENT SUMMARY

Site: 2046 PM peak WD (Amended Layout & Optimised Signals)

Boundary Street / Saunders Street
2046 (Opening Year + 10 years) With Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Saunders Street (South)											
1	L	180	5.8	0.478	18.6	LOS B	6.2	45.5	0.43	0.74	39.8
2	T	801	6.8	0.379	18.3	LOS B	16.6	122.9	0.59	0.53	38.4
3	R	55	9.6	0.507	83.0	LOS F	5.4	40.8	1.00	0.75	18.4
Approach		1036	6.8	0.507	21.8	LOS C	16.6	122.9	0.59	0.57	36.5
East: Boundary Street (East)											
4	L	173	6.7	0.797	50.7	LOS D	11.6	86.0	0.76	0.87	25.3
5	T	577	8.6	1.061	116.9	LOS F	33.8	253.7	1.00	1.16	13.9
6	R	111	3.5	1.106	198.3	LOS F	14.9	107.8	1.00	1.25	9.3
Approach		860	7.3	1.106	114.1	LOS F	33.8	253.7	0.95	1.12	14.3
North: Saunders Street (North)											
7	L	167	3.1	1.203	254.8	LOS F	202.3	1459.0	1.00	1.84	7.6
8	T	2378	3.6	1.202	246.8	LOS F	202.3	1459.0	1.00	1.79	7.6
9	R	110	6.7	1.000[3]	115.5	LOS F	11.6	85.6	1.00	1.04	14.4
Approach		2656	4.2	1.202	241.8	LOS F	202.3	1459.0	1.00	1.77	7.7
West: Boundary Street (West)											
10	L	414	12.0	0.842	29.9	LOS C	18.0	139.3	0.50	0.81	33.2
11	T	632	12.9	1.238	234.5	LOS F	54.2	421.0	1.00	1.56	7.9
12	R	105	3.4	1.053	156.4	LOS F	12.8	92.6	1.00	1.17	11.4
Approach		1151	9.5	1.238	153.8	LOS F	54.2	421.0	0.82	1.25	11.4
All Vehicles		5702	6.2	1.238	164.8	LOS F	202.3	1459.0	0.88	1.35	10.7

Level of Service (Aver. Int. Delay): LOS F. Based on average delay for all vehicle movements. LOS Method: Delay (HCM).
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Approach LOS values are based on average delay for all vehicle movements.

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All Pedestrians		212	42.6				0.74	0.74

Level of Service (Aver. Int. Delay): LOS E. Based on average delay for all pedestrian movements. LOS Method: Delay (HCM).
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PHASING SUMMARY

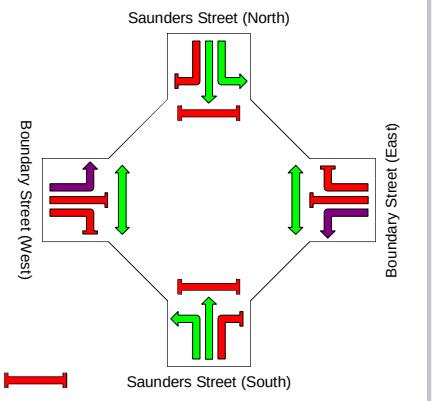
Boundary Street / Saunders Street
2046 (Opening Year + 10 years) With Development
PM peak
Existing Intersection Layout
(Optimised Signal Cycle Time)
Signals - Fixed Time Cycle Time = 145 seconds

Cycle Time Option: **Optimum Cycle Time (Minimum Delay)**
Phase times determined by the program
Sequence: Four-phase
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

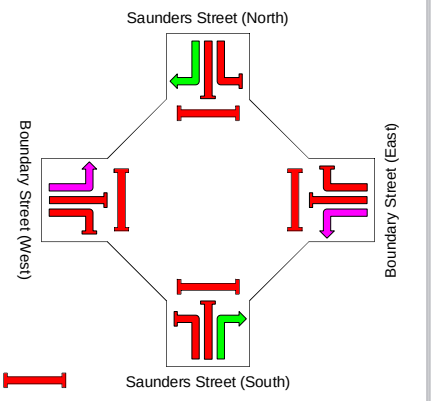
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	82	9	22	8
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	88	15	28	14
Phase Split	61 %	10 %	19 %	10 %

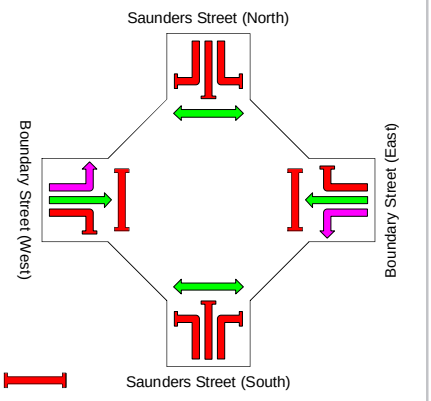
Phase A



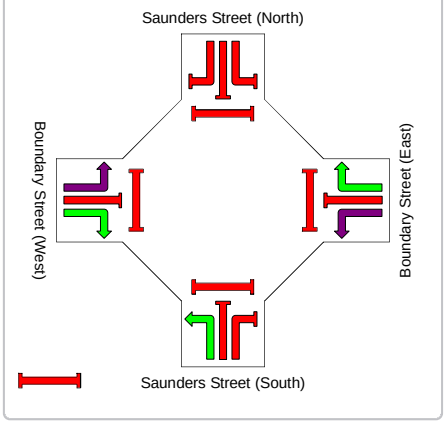
Phase B

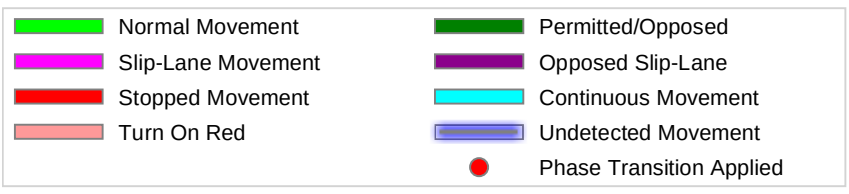


Phase C



Phase D





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