08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	440	1155	0.000	0	0.0	0.000	A
2	1134	54	1999	0.567	1137	1.4	4.535	A
3	298	526	1405	0.212	299	0.3	3.999	A
4	221	220	2183	0.101	221	0.2	2.563	A

Do Minimum - OPERATION - BASE + COMMITTED, 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Demand Sets	D4 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM	Demand Set 4: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D8 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	5.71	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	OPERATION - BASE + COMMITTED, 2022	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1	100.000
2		✓	543	100.000
3		✓	963	100.000
4		✓	737	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	1	0	0
	2	0	0	291	252
	3	0	801	1	161
	4	0	611	126	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	17	38
	3	0	5	0	45
	4	0	11	21	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.00	0.00	0.0	A
2	0.31	3.38	0.6	A
3	0.68	7.85	2.3	A
4	0.48	4.63	1.0	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1154	744	0.000	0	0.0	0.000	A
2	409	95	1970	0.207	407	0.3	2.896	A
3	725	189	1621	0.447	721	0.9	4.389	A
4	555	601	1898	0.292	553	0.5	3.008	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1381	612	0.000	0	0.0	0.000	A
2	488	114	1957	0.249	488	0.4	3.083	A
3	866	226	1597	0.542	864	1.3	5.394	A
4	663	720	1810	0.366	662	0.6	3.529	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1690	435	0.000	0	0.0	0.000	A
2	598	140	1940	0.308	597	0.6	3.374	A
3	1060	277	1565	0.678	1056	2.3	7.738	A
4	811	880	1690	0.480	810	1.0	4.599	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1694	432	0.000	0	0.0	0.000	A
2	598	140	1939	0.308	598	0.6	3.377	A
3	1060	277	1564	0.678	1060	2.3	7.854	A
4	811	883	1688	0.481	811	1.0	4.626	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1388	608	0.000	0	0.0	0.000	A
2	488	114	1957	0.249	489	0.4	3.086	A
3	866	227	1597	0.542	870	1.3	5.476	A
4	663	724	1806	0.367	664	0.7	3.555	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1161	740	0.000	0	0.0	0.000	A
2	409	96	1970	0.208	409	0.3	2.903	A
3	725	190	1620	0.447	727	0.9	4.441	A
4	555	605	1895	0.293	556	0.5	3.029	A

Do Minimum - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Demand Sets	D4 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM	Demand Set 4: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D8 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	12.29	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022	AM	ONE HOUR	06:45	08:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1	100.000
2		✓	1580	100.000
3		✓	396	100.000
4		✓	359	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	1	0	0
	2	0	2	809	769
	3	1	289	0	106
	4	0	287	72	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	5	16
	3	0	24	0	20
	4	0	51	39	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.00	0.00	0.0	A
2	0.88	16.00	7.4	C
3	0.36	5.79	0.7	A
4	0.19	3.12	0.3	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	488	1128	0.000	0	0.0	0.000	A
2	1190	54	1999	0.595	1183	1.6	4.819	A
3	298	577	1372	0.217	297	0.3	4.106	A
4	270	219	2184	0.124	269	0.2	2.789	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	584	1072	0.000	0	0.0	0.000	A
2	1420	65	1992	0.713	1416	2.7	6.831	A
3	356	691	1300	0.274	356	0.5	4.682	A
4	323	262	2152	0.150	323	0.3	2.920	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	715	997	0.000	0	0.0	0.000	A
2	1740	79	1982	0.878	1722	7.0	14.396	B
3	436	840	1204	0.362	435	0.7	5.743	A
4	395	321	2108	0.188	395	0.3	3.119	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	716	996	0.000	0	0.0	0.000	A
2	1740	79	1982	0.878	1738	7.4	16.003	C
3	436	848	1199	0.364	436	0.7	5.794	A
4	395	321	2107	0.188	395	0.3	3.120	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	585	1071	0.000	0	0.0	0.000	A
2	1420	65	1992	0.713	1439	2.8	7.395	A
3	356	702	1293	0.275	357	0.5	4.732	A
4	323	263	2151	0.150	323	0.3	2.925	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	490	1126	0.000	0	0.0	0.000	A
2	1190	54	1999	0.595	1194	1.6	4.953	A
3	298	583	1369	0.218	299	0.3	4.133	A
4	270	220	2183	0.124	270	0.2	2.793	A

Do Minimum - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Demand Sets	D4 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM	Demand Set 4: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D8 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	5.91	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1	100.000
2		✓	569	100.000
3		✓	963	100.000
4		✓	765	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	1	0	0
	2	0	0	291	278
	3	0	801	1	161
	4	0	639	126	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	17	42
	3	0	5	0	45
	4	0	13	21	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.00	0.00	0.0	A
2	0.32	3.51	0.6	A
3	0.69	8.15	2.4	A
4	0.50	4.86	1.1	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1175	732	0.000	0	0.0	0.000	A
2	428	95	1970	0.217	427	0.4	2.983	A
3	725	209	1608	0.451	721	0.9	4.449	A
4	576	601	1899	0.303	574	0.5	3.101	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1407	598	0.000	0	0.0	0.000	A
2	512	114	1957	0.261	511	0.5	3.186	A
3	866	250	1582	0.547	864	1.3	5.504	A
4	688	720	1810	0.380	687	0.7	3.661	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1720	417	0.000	0	0.0	0.000	A
2	626	140	1940	0.323	626	0.6	3.505	A
3	1060	306	1546	0.686	1056	2.3	8.018	A
4	842	880	1690	0.498	841	1.1	4.831	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1725	414	0.000	0	0.0	0.000	A
2	626	140	1939	0.323	626	0.6	3.509	A
3	1060	306	1546	0.686	1060	2.4	8.149	A
4	842	883	1688	0.499	842	1.1	4.865	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1414	594	0.000	0	0.0	0.000	A
2	512	114	1957	0.261	512	0.5	3.192	A
3	866	250	1582	0.547	870	1.3	5.596	A
4	688	724	1806	0.381	689	0.7	3.687	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1182	727	0.000	0	0.0	0.000	A
2	428	96	1970	0.217	429	0.4	2.989	A
3	725	209	1608	0.451	727	0.9	4.505	A
4	576	605	1895	0.304	577	0.5	3.120	A

Do Minimum - OPERATION - BASE + COMMITTED, 2028, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Demand Sets	D4 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM	Demand Set 4: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D8 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	14.93	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	OPERATION - BASE + COMMITTED, 2028	AM	ONE HOUR	06:45	08:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	22	100.000
2		✓	1621	100.000
3		✓	427	100.000
4		✓	313	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	15	5	2
	2	21	2	860	738
	3	5	310	0	112
	4	3	234	76	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	50	67	100
	2	24	0	5	12
	3	25	24	0	20
	4	50	40	39	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.02	5.72	0.0	A
2	0.90	19.72	9.3	C
3	0.39	6.02	0.8	A
4	0.17	2.92	0.3	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	17	467	1140	0.015	16	0.0	5.038	A
2	1220	62	1993	0.612	1214	1.7	4.957	A
3	321	571	1376	0.234	320	0.4	4.183	A
4	236	253	2158	0.109	235	0.2	2.617	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	20	559	1087	0.018	20	0.0	5.304	A
2	1457	75	1985	0.734	1452	2.9	7.255	A
3	384	684	1304	0.294	383	0.5	4.802	A
4	281	303	2121	0.133	281	0.2	2.736	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	24	684	1015	0.024	24	0.0	5.714	A
2	1785	91	1973	0.905	1762	8.6	16.903	C
3	470	829	1211	0.388	469	0.8	5.956	A
4	345	371	2070	0.166	344	0.3	2.916	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	24	685	1014	0.024	24	0.0	5.717	A
2	1785	91	1973	0.905	1782	9.3	19.718	C
3	470	839	1205	0.390	470	0.8	6.021	A
4	345	372	2070	0.167	345	0.3	2.918	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	20	560	1086	0.018	20	0.0	5.311	A
2	1457	75	1985	0.734	1482	3.1	8.111	A
3	384	698	1295	0.296	385	0.5	4.865	A
4	281	305	2120	0.133	282	0.2	2.738	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	17	469	1138	0.015	17	0.0	5.046	A
2	1220	63	1993	0.612	1226	1.7	5.114	A
3	321	577	1373	0.234	322	0.4	4.214	A
4	236	255	2157	0.109	236	0.2	2.622	A

Do Minimum - OPERATION - BASE + COMMITTED, 2028, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Demand Sets	D4 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM	Demand Set 4: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D8 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	7.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	OPERATION - BASE + COMMITTED, 2028	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	35	100.000
2		✓	607	100.000
3		✓	1027	100.000
4		✓	784	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	28	4	3	0
	2	25	0	315	267
	3	3	852	1	171
	4	2	648	134	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	22	33	50
	2	56	0	17	39
	3	50	5	0	45
	4	100	11	20	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.10	11.29	0.1	B
2	0.35	3.69	0.7	A
3	0.75	10.25	3.2	B
4	0.54	5.50	1.3	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	26	1225	702	0.038	26	0.0	5.555	A
2	457	124	1950	0.234	455	0.4	3.060	A
3	773	240	1588	0.487	769	1.0	4.816	A
4	590	681	1839	0.321	588	0.5	3.234	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	31	1467	563	0.056	31	0.1	7.067	A
2	546	149	1933	0.282	545	0.5	3.298	A
3	923	287	1558	0.593	921	1.6	6.205	A
4	705	815	1738	0.405	704	0.8	3.915	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	39	1793	375	0.103	38	0.1	11.148	B
2	668	182	1910	0.350	668	0.7	3.683	A
3	1131	352	1517	0.746	1125	3.1	9.958	A
4	863	996	1603	0.538	861	1.3	5.444	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	39	1800	371	0.104	39	0.1	11.294	B
2	668	183	1909	0.350	668	0.7	3.687	A
3	1131	352	1516	0.746	1130	3.2	10.254	B
4	863	1001	1600	0.540	863	1.3	5.502	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	31	1477	557	0.056	32	0.1	7.153	A
2	546	150	1932	0.282	546	0.5	3.303	A
3	923	288	1557	0.593	929	1.6	6.372	A
4	705	822	1733	0.407	707	0.8	3.958	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	26	1234	697	0.038	26	0.0	5.601	A
2	457	125	1950	0.234	457	0.4	3.070	A
3	773	241	1588	0.487	775	1.1	4.896	A
4	590	686	1835	0.322	591	0.5	3.261	A

Do Minimum - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Demand Sets	D4 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM	Demand Set 4: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D8 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	22.17	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028	AM	ONE HOUR	06:45	08:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	22	100.000
2		✓	1695	100.000
3		✓	427	100.000
4		✓	379	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	15	5	2
	2	21	2	860	812
	3	5	310	0	112
	4	3	300	76	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	50	67	100
	2	24	0	5	16
	3	25	24	0	19
	4	50	50	39	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.02	5.97	0.0	A
2	0.95	30.58	14.9	D
3	0.41	6.45	0.8	A
4	0.20	3.22	0.4	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	17	516	1111	0.015	16	0.0	5.169	A
2	1276	62	1993	0.640	1268	1.9	5.415	A
3	321	626	1341	0.240	320	0.4	4.318	A
4	285	253	2158	0.132	284	0.2	2.835	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	20	618	1053	0.019	20	0.0	5.479	A
2	1524	75	1985	0.768	1517	3.5	8.373	A
3	384	749	1262	0.304	383	0.5	5.020	A
4	341	303	2121	0.161	340	0.3	2.985	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	24	756	973	0.025	24	0.0	5.966	A
2	1866	91	1973	0.946	1829	12.8	23.131	C
3	470	903	1164	0.404	469	0.8	6.345	A
4	417	371	2070	0.202	417	0.4	3.214	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	24	757	972	0.025	24	0.0	5.970	A
2	1866	91	1973	0.946	1858	14.9	30.585	D
3	470	917	1155	0.407	470	0.8	6.450	A
4	417	372	2070	0.202	417	0.4	3.216	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	20	620	1051	0.019	20	0.0	5.487	A
2	1524	75	1985	0.768	1568	3.8	10.460	B
3	384	774	1246	0.308	385	0.6	5.135	A
4	341	305	2119	0.161	341	0.3	2.991	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	17	519	1110	0.015	17	0.0	5.179	A
2	1276	63	1993	0.640	1283	2.0	5.645	A
3	321	634	1336	0.241	322	0.4	4.358	A
4	285	255	2157	0.132	286	0.2	2.840	A

Do Minimum - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Demand Sets	D4 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM	Demand Set 4: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D8 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	7.43	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	35	100.000
2		✓	633	100.000
3		✓	1027	100.000
4		✓	812	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	28	4	3	0
	2	25	0	315	293
	3	3	852	1	171
	4	2	676	134	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	22	33	50
	2	56	0	17	43
	3	50	5	0	45
	4	100	13	20	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.11	11.93	0.1	B
2	0.36	3.83	0.7	A
3	0.75	10.76	3.3	B
4	0.56	5.83	1.4	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	26	1246	690	0.038	26	0.0	5.656	A
2	477	124	1950	0.244	475	0.4	3.149	A
3	773	260	1576	0.491	769	1.0	4.889	A
4	611	681	1839	0.332	609	0.6	3.338	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	31	1492	549	0.057	31	0.1	7.265	A
2	569	149	1933	0.294	569	0.5	3.407	A
3	923	311	1543	0.598	921	1.6	6.352	A
4	730	815	1738	0.420	729	0.8	4.070	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	39	1823	358	0.108	38	0.1	11.754	B
2	697	182	1910	0.365	696	0.7	3.828	A
3	1131	380	1498	0.755	1124	3.2	10.416	B
4	894	995	1604	0.558	892	1.4	5.755	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	39	1831	353	0.109	39	0.1	11.931	B
2	697	183	1909	0.365	697	0.7	3.833	A
3	1131	381	1498	0.755	1130	3.3	10.762	B
4	894	1001	1600	0.559	894	1.4	5.827	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	31	1503	542	0.058	32	0.1	7.362	A
2	569	150	1932	0.294	570	0.5	3.415	A
3	923	312	1542	0.599	930	1.7	6.541	A
4	730	823	1732	0.421	732	0.8	4.121	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	26	1255	685	0.038	26	0.0	5.703	A
2	477	125	1950	0.244	477	0.4	3.160	A
3	773	261	1575	0.491	776	1.1	4.976	A
4	611	686	1834	0.333	612	0.6	3.369	A

Do Minimum - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Demand Sets	D4 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM	Demand Set 4: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D8 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	5.48	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026	AM	ONE HOUR	06:45	08:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	22	100.000
2		✓	1279	100.000
3		✓	508	100.000
4		✓	214	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	15	5	2
	2	21	2	698	558
	3	5	354	0	149
	4	3	129	82	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.02	3.51	0.0	A
2	0.72	6.42	2.5	A
3	0.42	4.66	0.7	A
4	0.12	2.00	0.1	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	17	426	1163	0.014	17	0.0	3.138	A
2	963	67	1990	0.484	959	0.9	3.478	A
3	382	437	1462	0.262	381	0.4	3.325	A
4	161	287	2133	0.076	161	0.1	1.824	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	20	509	1115	0.018	20	0.0	3.285	A
2	1150	80	1981	0.580	1148	1.4	4.313	A
3	457	523	1407	0.325	456	0.5	3.784	A
4	192	343	2091	0.092	192	0.1	1.894	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	24	623	1049	0.023	24	0.0	3.511	A
2	1408	98	1969	0.715	1404	2.5	6.325	A
3	559	640	1332	0.420	558	0.7	4.645	A
4	236	420	2034	0.116	235	0.1	2.001	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	24	624	1049	0.023	24	0.0	3.512	A
2	1408	98	1969	0.715	1408	2.5	6.418	A
3	559	642	1331	0.420	559	0.7	4.664	A
4	236	421	2033	0.116	236	0.1	2.002	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	20	511	1114	0.018	20	0.0	3.290	A
2	1150	80	1981	0.580	1154	1.4	4.375	A
3	457	526	1405	0.325	458	0.5	3.802	A
4	192	344	2090	0.092	192	0.1	1.895	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	17	427	1162	0.014	17	0.0	3.143	A
2	963	67	1990	0.484	965	0.9	3.516	A
3	382	440	1460	0.262	383	0.4	3.344	A
4	161	288	2132	0.076	161	0.1	1.828	A

Do Minimum - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Demand Sets	D4 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2022, PM	Demand Set 4: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D8 - OPERATION - BASE + COMMITTED + DEVELOPMENT, 2028, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	4.72	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT, 2026	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	35	100.000
2		✓	491	100.000
3		✓	977	100.000
4		✓	411	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	28	4	3	0
	2	25	0	368	98
	3	3	825	1	148
	4	2	289	120	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.06	6.14	0.1	A
2	0.28	2.61	0.4	A
3	0.66	6.43	1.9	A
4	0.28	3.08	0.4	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	26	926	875	0.030	26	0.0	4.243	A
2	370	114	1957	0.189	369	0.2	2.265	A
3	736	113	1669	0.441	732	0.8	3.830	A
4	309	661	1853	0.167	309	0.2	2.329	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	31	1109	770	0.041	31	0.0	4.877	A
2	441	137	1942	0.227	441	0.3	2.399	A
3	878	136	1655	0.531	877	1.1	4.619	A
4	369	792	1756	0.210	369	0.3	2.596	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	39	1357	627	0.062	38	0.1	6.120	A
2	541	167	1920	0.282	540	0.4	2.608	A
3	1076	166	1636	0.658	1073	1.9	6.360	A
4	453	968	1624	0.279	452	0.4	3.070	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	39	1360	625	0.062	39	0.1	6.138	A
2	541	167	1920	0.282	541	0.4	2.608	A
3	1076	166	1636	0.658	1076	1.9	6.426	A
4	453	971	1622	0.279	453	0.4	3.078	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	31	1113	767	0.041	32	0.0	4.897	A
2	441	137	1941	0.227	442	0.3	2.402	A
3	878	136	1655	0.531	881	1.1	4.672	A
4	369	796	1753	0.211	370	0.3	2.605	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	26	931	872	0.030	26	0.0	4.257	A
2	370	115	1957	0.189	370	0.2	2.268	A
3	736	114	1669	0.441	737	0.8	3.867	A
4	309	665	1850	0.167	310	0.2	2.336	A

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 4.0 CONSTRUCTION Kiln Lane ROUNDABOUT.j9
Path: \\UKLDS2PFPSW001.na.aecomnet.com\LE_PROJECTS\Transport Projects\60580855 - Project Koala\Modelling\4_R'abouts\4.0 Kiln Lane Roundabout Proposed Mitigation
Report generation date: 16/10/2018 11:45:40

»Do Minimum - CONSTRUCTION - BASE + COMMITTED, 2020, AM
»Do Minimum - CONSTRUCTION - BASE + COMMITTED, 2020, PM
»Do Minimum - CONSTRUCTION - BASE + COMMITTED + PEAK OF CONSTRUCTION, 2020, AM
»Do Minimum - CONSTRUCTION - BASE + COMMITTED + PEAK OF CONSTRUCTION, 2020, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Do Minimum - CONSTRUCTION - BASE + COMMITTED, 2020							
Arm 1	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Arm 2	7.1	15.33	0.88	C	0.5	3.29	0.29	A
Arm 3	0.6	5.20	0.33	A	2.2	7.51	0.67	A
Arm 4	0.2	2.77	0.14	A	1.0	4.44	0.47	A
	Do Minimum - CONSTRUCTION - BASE + COMMITTED + PEAK OF CONSTRUCTION, 2020							
Arm 1	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Arm 2	15.3	31.14	0.95	D	0.5	3.34	0.30	A
Arm 3	0.7	5.83	0.36	A	2.2	7.61	0.67	A
Arm 4	0.2	2.82	0.15	A	1.2	4.94	0.52	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	20/08/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\CLEASBYD
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	CONSTRUCTION - BASE + COMMITTED, 2020	AM	ONE HOUR	06:45	08:15	15
D2	CONSTRUCTION - BASE + COMMITTED, 2020	PM	ONE HOUR	15:45	17:15	15
D3	CONSTRUCTION - BASE + COMMITTED + PEAK OF CONSTRUCTION, 2020	AM	ONE HOUR	06:45	08:15	15
D4	CONSTRUCTION - BASE + COMMITTED + PEAK OF CONSTRUCTION, 2020	PM	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Do Minimum	100.000

Do Minimum - CONSTRUCTION - BASE + COMMITTED, 2020, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	12.04	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Unnamed Access	
2	A1173 EB Approach	
3	A1173 SB Approach	
4	Kiln Lane WB Approach	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.65	4.50	12.6	21.0	49.2	10.8	
2	3.70	8.24	19.0	40.0	49.2	16.4	
3	3.25	7.99	12.3	31.0	49.2	14.8	
4	3.97	8.14	64.8	19.9	49.2	17.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.576	1409
2	0.697	2037
3	0.640	1742
4	0.748	2348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	CONSTRUCTION - BASE + COMMITTED, 2020	AM	ONE HOUR	06:45	08:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1	100.000
2		✓	1578	100.000
3		✓	384	100.000
4		✓	277	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	1	0	0
	2	0	2	910	666
	3	1	280	0	103
	4	0	207	70	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	4	11
	3	0	24	0	19
	4	0	39	41	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.00	0.00	0.0	A
2	0.88	15.33	7.1	C
3	0.33	5.20	0.6	A
4	0.14	2.77	0.2	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	419	1167	0.000	0	0.0	0.000	A
2	1188	53	2000	0.594	1182	1.5	4.666	A
3	289	500	1422	0.203	288	0.3	3.887	A
4	209	212	2189	0.095	208	0.1	2.535	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	502	1119	0.000	0	0.0	0.000	A
2	1419	63	1993	0.712	1414	2.6	6.600	A
3	345	599	1359	0.254	345	0.4	4.349	A
4	249	254	2158	0.115	249	0.2	2.630	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	615	1054	0.000	0	0.0	0.000	A
2	1737	77	1983	0.876	1721	6.7	13.853	B
3	423	728	1276	0.331	422	0.6	5.164	A
4	305	311	2115	0.144	305	0.2	2.773	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	615	1054	0.000	0	0.0	0.000	A
2	1737	77	1983	0.876	1736	7.1	15.329	C
3	423	735	1272	0.333	423	0.6	5.197	A
4	305	312	2115	0.144	305	0.2	2.774	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	503	1119	0.000	0	0.0	0.000	A
2	1419	63	1993	0.712	1436	2.7	7.116	A
3	345	608	1353	0.255	346	0.4	4.384	A
4	249	255	2157	0.115	249	0.2	2.632	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	421	1166	0.000	0	0.0	0.000	A
2	1188	53	2000	0.594	1192	1.6	4.788	A
3	289	505	1419	0.204	290	0.3	3.907	A
4	209	213	2188	0.095	209	0.1	2.536	A

Do Minimum - CONSTRUCTION - BASE + COMMITTED, 2020, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	5.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	CONSTRUCTION - BASE + COMMITTED, 2020	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1	100.000
2		✓	519	100.000
3		✓	951	100.000
4		✓	716	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	1	0	0
	2	0	0	280	239
	3	0	793	1	157
	4	0	593	123	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	16	38
	3	0	5	0	44
	4	0	10	21	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.00	0.00	0.0	A
2	0.29	3.29	0.5	A
3	0.67	7.51	2.2	A
4	0.47	4.44	1.0	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1132	756	0.000	0	0.0	0.000	A
2	391	93	1972	0.198	389	0.3	2.848	A
3	716	179	1627	0.440	713	0.9	4.311	A
4	539	595	1903	0.283	537	0.4	2.942	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1355	627	0.000	0	0.0	0.000	A
2	467	111	1959	0.238	466	0.4	3.018	A
3	855	215	1605	0.533	853	1.2	5.257	A
4	644	713	1815	0.355	643	0.6	3.430	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1658	453	0.000	0	0.0	0.000	A
2	571	136	1942	0.294	571	0.5	3.287	A
3	1047	263	1574	0.665	1043	2.1	7.412	A
4	788	871	1696	0.465	787	1.0	4.418	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1662	450	0.000	0	0.0	0.000	A
2	571	137	1942	0.294	571	0.5	3.288	A
3	1047	263	1574	0.665	1047	2.2	7.511	A
4	788	874	1694	0.465	788	1.0	4.440	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1362	624	0.000	0	0.0	0.000	A
2	467	112	1959	0.238	467	0.4	3.021	A
3	855	215	1604	0.533	858	1.3	5.329	A
4	644	717	1812	0.355	645	0.6	3.453	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1139	752	0.000	0	0.0	0.000	A
2	391	93	1972	0.198	391	0.3	2.853	A
3	716	180	1627	0.440	718	0.9	4.359	A
4	539	599	1900	0.284	540	0.4	2.958	A

Do Minimum - CONSTRUCTION - BASE + COMMITTED + PEAK OF CONSTRUCTION, 2020, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	23.64	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	CONSTRUCTION - BASE + COMMITTED + PEAK OF CONSTRUCTION, 2020	AM	ONE HOUR	06:45	08:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1	100.000
2		✓	1711	100.000
3		✓	385	100.000
4		✓	287	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	1	0	0
	2	0	2	910	799
	3	1	280	0	104
	4	0	217	70	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	4	10
	3	0	24	0	19
	4	0	41	41	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.00	0.00	0.0	A
2	0.95	31.14	15.3	D
3	0.36	5.83	0.7	A
4	0.15	2.82	0.2	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	427	1163	0.000	0	0.0	0.000	A
2	1288	53	2000	0.644	1281	1.9	5.284	A
3	290	599	1358	0.213	289	0.3	4.118	A
4	216	212	2189	0.099	215	0.2	2.572	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	511	1114	0.000	0	0.0	0.000	A
2	1538	63	1993	0.772	1532	3.5	8.218	A
3	346	717	1283	0.270	346	0.4	4.704	A
4	258	254	2158	0.120	258	0.2	2.671	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	626	1048	0.000	0	0.0	0.000	A
2	1884	77	1983	0.950	1845	13.1	23.232	C
3	424	864	1189	0.357	423	0.7	5.750	A
4	316	311	2115	0.149	316	0.2	2.820	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	626	1048	0.000	0	0.0	0.000	A
2	1884	77	1983	0.950	1875	15.3	31.137	D
3	424	878	1180	0.359	424	0.7	5.832	A
4	316	312	2115	0.149	316	0.2	2.821	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	512	1113	0.000	0	0.0	0.000	A
2	1538	63	1993	0.772	1584	3.8	10.388	B
3	346	742	1267	0.273	347	0.5	4.799	A
4	258	255	2157	0.120	258	0.2	2.675	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	429	1161	0.000	0	0.0	0.000	A
2	1288	53	2000	0.644	1295	2.0	5.504	A
3	290	606	1354	0.214	290	0.3	4.149	A
4	216	213	2188	0.099	216	0.2	2.575	A

Do Minimum - CONSTRUCTION - BASE + COMMITTED + PEAK OF CONSTRUCTION, 2020, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 4 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	5.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	CONSTRUCTION - BASE + COMMITTED + PEAK OF CONSTRUCTION, 2020	PM	ONE HOUR	15:45	17:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1	100.000
2		✓	529	100.000
3		✓	951	100.000
4		✓	800	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	1	0	0
	2	0	0	280	249
	3	0	793	1	157
	4	0	676	124	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	16	40
	3	0	5	0	44
	4	0	10	21	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.00	0.00	0.0	A
2	0.30	3.34	0.5	A
3	0.67	7.61	2.2	A
4	0.52	4.94	1.2	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1195	720	0.000	0	0.0	0.000	A
2	398	94	1971	0.202	397	0.3	2.882	A
3	716	187	1622	0.441	713	0.9	4.332	A
4	602	595	1903	0.317	600	0.5	3.074	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1431	584	0.000	0	0.0	0.000	A
2	476	112	1959	0.243	475	0.4	3.062	A
3	855	224	1599	0.535	853	1.2	5.297	A
4	719	712	1815	0.396	718	0.7	3.657	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1750	400	0.000	0	0.0	0.000	A
2	582	137	1941	0.300	582	0.5	3.339	A
3	1047	274	1567	0.668	1043	2.2	7.510	A
4	881	871	1696	0.519	879	1.2	4.903	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1755	397	0.000	0	0.0	0.000	A
2	582	138	1941	0.300	582	0.5	3.343	A
3	1047	274	1566	0.668	1047	2.2	7.609	A
4	881	874	1694	0.520	881	1.2	4.938	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1438	580	0.000	0	0.0	0.000	A
2	476	113	1958	0.243	476	0.4	3.065	A
3	855	224	1599	0.535	859	1.3	5.372	A
4	719	717	1812	0.397	721	0.7	3.687	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	0	1202	716	0.000	0	0.0	0.000	A
2	398	94	1971	0.202	399	0.3	2.888	A
3	716	188	1622	0.441	718	0.9	4.384	A
4	602	599	1900	0.317	603	0.5	3.101	A

ANNEX 19: A1173 / A180 MODELLING OUTPUTS

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 5.0 A180 A1173 Interchange.j9
Path: \\UKLDS2PFPSW001.na.aecomnet.com\LE_PROJECTS\Transport Projects\60580855 - Project Koala\Modelling\4_R'abouts\5.0_A180 Interchange
Report generation date: 19/09/2018 11:41:11

»Do Minimum - OPERATION - BASE 2018, AM
»Do Minimum - OPERATION - BASE 2018, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Do Minimum [Lane Simulation] - OPERATION - BASE 2018							
Arm A	0.6	8.10		A	0.3	5.04		A
Arm B	0.5	4.08		A	0.3	3.96		A
Arm C	0.4	2.15		A	2.1	3.09		A
Arm D	2.9	8.83		A	0.6	3.29		A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Arm and junction delays are averages for all movements, including movements with zero delay.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	20/08/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\CLEASBYD
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	50197840	159	10.25

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	OPERATION - BASE 2018	AM	ONE HOUR	06:45	08:15	15	✓
D2	OPERATION - BASE 2018	PM	ONE HOUR	15:45	17:15	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do Minimum	✓	✓	100.000	100.000

Do Minimum - OPERATION - BASE 2018, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	6.59	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A1173 NB APPROACH	
B	A180 EB OFFSLIP	
C	A1173 SB APPROACH	
D	A180 WB OFF-SLIP	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	4.48	7.91	21.9	31.0	136.2	26.3	
B	6.21	8.38	24.6	46.7	67.6	20.6	
C	5.22	8.26	21.2	40.2	136.5	17.6	
D	8.01	8.75	22.5	95.7	67.1	27.4	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.889	2658
B	1.116	2893
C	1.128	3070
D	1.434	3345

The slope and intercept shown above include any corrections and adjustments.

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B	✓	8.00	0	99999
		2	A,C,D	✓	8.00	0	99999
	2	1	(A,B,C,D)		Infinity		
B	1 [Give-way line]	1	B,C,D		Infinity	1500	2000
		2	A,B,D		Infinity	1500	2000
C	1 [Give-way line]	1	A,B,C,D		Infinity	1800	99999
D	1 [Give-way line]	1	A,B		Infinity	1500	2000
		2	B,C,D		Infinity	1500	2000

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.445	1329
		2	0.445	1329
B	1 [Give-way line]	1	0.558	1447
		2	0.558	1447
C	1 [Give-way line]	1	1.128	3070
D	1 [Give-way line]	1	0.717	1673
		2	0.717	1673

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			A	B	C	D
A	1 [Give-way line]	1		✓		
		2	✓		✓	✓
	2	1	✓	✓	✓	✓
B	1 [Give-way line]	1		✓	✓	✓
		2	✓	✓		✓
C	1 [Give-way line]	1	✓	✓	✓	✓
D	1 [Give-way line]	1	✓	✓		
		2		✓	✓	✓

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	OPERATION - BASE 2018	AM	ONE HOUR	06:45	08:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	229	100.000
B		ONE HOUR	✓	354	100.000
C		ONE HOUR	✓	422	100.000
D		ONE HOUR	✓	1083	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	11	62	156
	B	16	1	336	1
	C	40	176	0	206
	D	74	0	1009	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	45	3
	B	33	0	23	0
	C	52	75	0	13
	D	15	0	3	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	8.10	0.6	A	212	318
B	4.08	0.5	A	323	485
C	2.15	0.4	A	392	588
D	8.83	2.9	A	998	1497

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	170	43	882	171	101	0.0	0.2	4.988	A
B	268	67	916	268	138	0.0	0.3	3.624	A
C	319	80	129	318	1055	0.0	0.2	1.935	A
D	812	203	173	811	274	0.0	1.1	4.434	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	206	52	1077	206	118	0.2	0.3	6.142	A
B	312	78	1115	312	169	0.3	0.2	3.859	A
C	384	96	153	384	1274	0.2	0.2	1.996	A
D	984	246	210	985	328	1.1	1.5	5.601	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	253	63	1302	255	142	0.3	0.6	8.098	A
B	394	98	1347	392	210	0.2	0.5	3.851	A
C	476	119	191	475	1548	0.2	0.4	2.153	A
D	1185	296	259	1184	407	1.5	2.7	8.829	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	254	63	1322	254	149	0.6	0.5	8.075	A
B	381	95	1371	381	206	0.5	0.5	4.080	A
C	476	119	188	475	1563	0.4	0.3	2.148	A
D	1208	302	259	1212	404	2.7	2.9	8.826	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	206	52	1047	205	118	0.5	0.5	6.503	A
B	319	80	1089	319	163	0.5	0.4	3.704	A
C	376	94	150	376	1258	0.3	0.2	2.013	A
D	966	241	203	961	322	2.9	1.9	5.834	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	183	46	907	183	107	0.5	0.3	5.346	A
B	265	66	946	266	144	0.4	0.3	3.551	A
C	320	80	140	319	1073	0.2	0.2	1.930	A
D	832	208	183	831	276	1.9	1.2	4.744	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

06:45 - 07:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	937	0.009	9	0.0	0.0	3.899	A
			2	A,C,D	162	937	0.173	163	0.0	0.2	5.048	A
		2	1	(A,B,C,D)	170			170	0.0	0.0	0.005	A
	Exit	1	1		101			101	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	256	1500	0.170	256	0.0	0.3	3.642	A
			2	A,B,D	12	1500	0.008	12	0.0	0.0	3.232	A
	Exit	1	1		138			138	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	319	2923	0.109	318	0.0	0.2	1.935	A
	Exit	1	1		1055			1055	0.0	0.0	0.000	A
D	Entry	1	1	A,B	58	1553	0.037	58	0.0	0.1	2.809	A
			2	B,C,D	755	1553	0.486	753	0.0	1.1	4.539	A
	Exit	1	1		274			274	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	850	0.012	10	0.0	0.0	4.204	A
			2	A,C,D	196	850	0.230	196	0.2	0.3	6.254	A
		2	1	(A,B,C,D)	206			206	0.0	0.0	0.000	A
	Exit	1	1		118			118	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	298	1500	0.199	298	0.3	0.2	3.895	A
			2	A,B,D	14	1500	0.009	14	0.0	0.0	3.106	A
	Exit	1	1		169			169	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	384	2896	0.132	384	0.2	0.2	1.996	A
	Exit	1	1		1274			1274	0.0	0.0	0.000	A
D	Entry	1	1	A,B	67	1533	0.044	67	0.1	0.0	2.759	A
			2	B,C,D	917	1533	0.598	919	1.1	1.4	5.794	A
	Exit	1	1		328			328	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	13	750	0.017	13	0.0	0.0	4.565	A
			2	A,C,D	240	750	0.321	242	0.3	0.6	8.287	A
		2	1	(A,B,C,D)	253			253	0.0	0.0	0.008	A
	Exit	1	1		142			142	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	375	1500	0.250	373	0.2	0.5	3.885	A
			2	A,B,D	19	1500	0.012	19	0.0	0.0	3.137	A
	Exit	1	1		210			210	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	476	2854	0.167	475	0.2	0.4	2.153	A
	Exit	1	1		1548			1548	0.0	0.0	0.000	A
D	Entry	1	1	A,B	79	1514	0.052	79	0.0	0.1	3.045	A
			2	B,C,D	1106	1514	0.730	1105	1.4	2.6	9.211	A
	Exit	1	1		407			407	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	741	0.017	12	0.0	0.0	5.368	A
			2	A,C,D	241	741	0.326	242	0.6	0.5	8.228	A
		2	1	(A,B,C,D)	254			254	0.0	0.0	0.002	A
	Exit	1	1		149			149	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	362	1500	0.241	363	0.5	0.4	4.107	A
			2	A,B,D	19	1500	0.012	18	0.0	0.0	3.508	A
	Exit	1	1		206			206	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	476	2857	0.167	475	0.4	0.3	2.148	A
	Exit	1	1		1563			1563	0.0	0.0	0.000	A
D	Entry	1	1	A,B	83	1516	0.055	84	0.1	0.1	2.893	A
			2	B,C,D	1125	1516	0.742	1128	2.6	2.8	9.216	A
	Exit	1	1		404			404	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	863	0.010	9	0.0	0.0	4.262	A
			2	A,C,D	198	863	0.229	196	0.5	0.5	6.632	A
		2	1	(A,B,C,D)	206			206	0.0	0.0	0.000	A
	Exit	1	1		118			118	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	303	1500	0.202	304	0.4	0.4	3.732	A
			2	A,B,D	15	1500	0.010	15	0.0	0.0	3.116	A
	Exit	1	1		163			163	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	376	2901	0.130	376	0.3	0.2	2.013	A
	Exit	1	1		1258			1258	0.0	0.0	0.000	A
D	Entry	1	1	A,B	69	1538	0.045	68	0.1	0.1	2.882	A
			2	B,C,D	897	1538	0.583	894	2.8	1.8	6.030	A
	Exit	1	1		322			322	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	8	925	0.008	8	0.0	0.0	3.904	A
			2	A,C,D	175	925	0.190	175	0.5	0.3	5.424	A
		2	1	(A,B,C,D)	183			183	0.0	0.0	0.000	A
	Exit	1	1		107			107	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	250	1500	0.167	251	0.4	0.3	3.565	A
			2	A,B,D	15	1500	0.010	15	0.0	0.0	3.266	A
	Exit	1	1		144			144	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	320	2912	0.110	319	0.2	0.2	1.930	A
	Exit	1	1		1073			1073	0.0	0.0	0.000	A
D	Entry	1	1	A,B	60	1547	0.039	60	0.1	0.0	2.662	A
			2	B,C,D	772	1547	0.499	771	1.8	1.1	4.884	A
	Exit	1	1		276			276	0.0	0.0	0.000	A

Do Minimum - OPERATION - BASE 2018, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	3.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity

[same as above]

Lane Simulation: Arm options

[same as above]

Lanes

[same as above]

Entry Lane slope and intercept

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	OPERATION - BASE 2018	PM	ONE HOUR	15:45	17:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	172	100.000
B		ONE HOUR	✓	218	100.000
C		ONE HOUR	✓	1398	100.000
D		ONE HOUR	✓	490	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	2	11	63	96
	B	61	1	156	0
	C	123	295	0	980
	D	186	2	301	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	44	5
	B	3	0	73	0
	C	9	22	0	4
	D	3	100	13	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.04	0.3	A	159	238
B	3.96	0.3	A	196	294
C	3.09	2.1	A	1281	1922
D	3.29	0.6	A	442	663

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	133	33	448	132	275	0.0	0.2	4.127	A
B	161	40	350	162	230	0.0	0.1	3.870	A
C	1036	259	122	1036	390	0.0	0.7	2.065	A
D	360	90	365	358	793	0.0	0.4	2.971	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	161	40	548	160	323	0.2	0.2	4.454	A
B	185	46	426	185	282	0.1	0.1	3.912	A
C	1275	319	141	1273	470	0.7	0.8	2.443	A
D	443	111	429	442	985	0.4	0.4	3.148	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	192	48	659	193	405	0.2	0.2	4.661	A
B	235	59	515	236	338	0.1	0.3	3.963	A
C	1523	381	176	1526	575	0.8	1.2	3.015	A
D	536	134	528	536	1174	0.4	0.6	3.222	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	187	47	652	187	416	0.2	0.3	5.040	A
B	238	59	504	237	335	0.3	0.2	3.831	A
C	1540	385	181	1532	561	1.2	2.1	3.093	A
D	533	133	536	532	1176	0.6	0.6	3.293	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	154	39	534	156	325	0.3	0.2	4.511	A
B	198	49	417	198	272	0.2	0.2	3.783	A
C	1254	313	141	1257	474	2.1	0.7	2.493	A
D	434	109	424	435	973	0.6	0.4	3.096	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	124	31	441	123	272	0.2	0.1	3.968	A
B	160	40	333	160	232	0.2	0.2	3.560	A
C	1061	265	120	1061	372	0.7	0.8	2.130	A
D	347	87	367	347	814	0.4	0.3	2.938	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

15:45 - 16:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	7	1130	0.007	7	0.0	0.0	3.054	A
			2	A,C,D	125	1130	0.111	124	0.0	0.2	4.211	A
		2	1	(A,B,C,D)	133			133	0.0	0.0	0.000	A
	Exit	1	1		275			275	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	113	1500	0.075	114	0.0	0.1	4.687	A
			2	A,B,D	48	1500	0.032	48	0.0	0.0	2.664	A
	Exit	1	1		230			230	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1036	2932	0.353	1036	0.0	0.7	2.065	A
	Exit	1	1		390			390	0.0	0.0	0.000	A
D	Entry	1	1	A,B	133	1501	0.089	132	0.0	0.1	2.588	A
			2	B,C,D	227	1501	0.151	226	0.0	0.2	3.214	A
	Exit	1	1		793			793	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1085	0.009	10	0.0	0.0	3.440	A
			2	A,C,D	151	1085	0.139	150	0.2	0.2	4.540	A
		2	1	(A,B,C,D)	161			161	0.0	0.0	0.000	A
	Exit	1	1		323			323	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	135	1500	0.090	135	0.1	0.1	4.745	A
			2	A,B,D	49	1500	0.033	49	0.0	0.0	2.618	A
	Exit	1	1		282			282	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1275	2910	0.438	1273	0.7	0.8	2.443	A
	Exit	1	1		470			470	0.0	0.0	0.000	A
D	Entry	1	1	A,B	166	1500	0.111	166	0.1	0.1	2.776	A
			2	B,C,D	277	1500	0.185	276	0.2	0.2	3.388	A
	Exit	1	1		985			985	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	1036	0.011	11	0.0	0.0	3.577	A
			2	A,C,D	180	1036	0.174	182	0.2	0.2	4.742	A
		2	1	(A,B,C,D)	192			192	0.0	0.0	0.002	A
	Exit	1	1		405			405	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	168	1500	0.112	169	0.1	0.2	4.897	A
			2	A,B,D	67	1500	0.045	67	0.0	0.0	2.553	A
	Exit	1	1		338			338	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1523	2871	0.530	1526	0.8	1.2	3.015	A
	Exit	1	1		575			575	0.0	0.0	0.000	A
D	Entry	1	1	A,B	202	1500	0.135	203	0.1	0.1	2.861	A
			2	B,C,D	334	1500	0.223	334	0.2	0.5	3.463	A
	Exit	1	1		1174			1174	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	1039	0.012	12	0.0	0.0	3.469	A
			2	A,C,D	176	1039	0.169	175	0.2	0.3	5.174	A
		2	1	(A,B,C,D)	187			187	0.0	0.0	0.000	A
	Exit	1	1		416			416	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	170	1500	0.113	169	0.2	0.2	4.660	A
			2	A,B,D	68	1500	0.045	68	0.0	0.0	2.595	A
	Exit	1	1		335			335	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1540	2866	0.537	1532	1.2	2.1	3.093	A
	Exit	1	1		561			561	0.0	0.0	0.000	A
D	Entry	1	1	A,B	204	1500	0.136	203	0.1	0.2	2.881	A
			2	B,C,D	329	1500	0.219	329	0.5	0.3	3.568	A
	Exit	1	1		1176			1176	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1092	0.009	10	0.0	0.0	3.429	A
			2	A,C,D	145	1092	0.132	146	0.3	0.2	4.602	A
		2	1	(A,B,C,D)	154			154	0.0	0.0	0.000	A
	Exit	1	1		325			325	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	146	1500	0.097	146	0.2	0.2	4.565	A
			2	A,B,D	52	1500	0.035	52	0.0	0.0	2.549	A
	Exit	1	1		272			272	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1254	2911	0.431	1257	2.1	0.7	2.493	A
	Exit	1	1		474			474	0.0	0.0	0.000	A
D	Entry	1	1	A,B	161	1500	0.107	161	0.2	0.1	2.775	A
			2	B,C,D	273	1500	0.182	274	0.3	0.2	3.313	A
	Exit	1	1		973			973	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	7	1133	0.007	7	0.0	0.0	2.830	A
			2	A,C,D	116	1133	0.102	116	0.2	0.1	4.061	A
		2	1	(A,B,C,D)	124			124	0.0	0.0	0.000	A
	Exit	1	1		272			272	0.0	0.0	0.000	A
B	Entry	1	1	B,C,D	112	1500	0.075	112	0.2	0.1	4.278	A
			2	A,B,D	48	1500	0.032	48	0.0	0.0	2.435	A
	Exit	1	1		232			232	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1061	2934	0.362	1061	0.7	0.8	2.130	A
	Exit	1	1		372			372	0.0	0.0	0.000	A
D	Entry	1	1	A,B	128	1501	0.086	129	0.1	0.1	2.638	A
			2	B,C,D	218	1501	0.145	218	0.2	0.2	3.144	A
	Exit	1	1		814			814	0.0	0.0	0.000	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

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Filename: OPERATION A180 Interchange.j9
Path: \\UKLDS2PFPSW001.na.aecomnet.com\LE_PROJECTS\Transport Projects\60580855 - Project Koala\Modelling\4_R'abouts\5.0 A180 Interchange Proposed Mitigation
Report generation date: 30/10/2018 15:13:44

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Do Minimum [Lane Simulation] - OPERATION - BASE + COMMITTED 2022								
Arm A	0.8	9.74		A	0.4	5.10		A
Arm B	0.7	4.34		A	0.5	4.13		A
Arm C	0.4	2.31		A	2.2	4.24		A
Arm D	6.2	16.07		C	0.8	3.52		A
Do Minimum [Lane Simulation] - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022								
Arm A	0.8	10.53		B	0.3	4.98		A
Arm B	0.6	4.73		A	0.5	4.26		A
Arm C	0.6	2.57		A	2.4	4.22		A
Arm D	8.0	20.39		C	0.7	3.51		A
Do Minimum [Lane Simulation] - OPERATION - BASE + COMMITTED 2028								
Arm A	1.1	12.41		B	0.4	5.45		A
Arm B	0.7	4.51		A	0.5	4.34		A
Arm C	0.5	2.39		A	2.8	5.03		A
Arm D	12.0	27.14		D	0.7	3.57		A
Do Minimum [Lane Simulation] - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028								
Arm A	1.1	13.57		B	0.5	5.54		A
Arm B	0.7	4.90		A	0.7	4.46		A
Arm C	0.5	2.66		A	3.1	5.40		A
Arm D	14.5	32.74		D	0.8	3.67		A
Do Minimum [Lane Simulation] - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026								
Arm A	3.2	15.32		C	1.4	6.68		A
Arm B	0.2	2.89		A	0.2	2.85		A
Arm C	0.3	1.87		A	1.0	3.00		A
Arm D	1.7	5.33		A	0.6	3.37		A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Arm and junction delays are averages for all movements, including movements with zero delay.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	20/08/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\CLEASBYD
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	528880539	820	61.15

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	OPERATION - BASE + COMMITTED 2022	AM	ONE HOUR	06:45	08:15	15	✓
D4	OPERATION - BASE + COMMITTED 2022	PM	ONE HOUR	15:45	17:15	15	✓
D5	OPERATION - BASE + COMMITTED + DEVELOPMENT 2022	AM	ONE HOUR	06:45	08:15	15	✓
D6	OPERATION - BASE + COMMITTED + DEVELOPMENT 2022	PM	ONE HOUR	15:45	17:15	15	✓
D7	OPERATION - BASE + COMMITTED 2028	AM	ONE HOUR	06:45	08:15	15	✓
D8	OPERATION - BASE + COMMITTED 2028	PM	ONE HOUR	15:45	17:15	15	✓
D9	OPERATION - BASE + COMMITTED + DEVELOPMENT 2028	AM	ONE HOUR	06:45	08:15	15	✓
D10	OPERATION - BASE + COMMITTED + DEVELOPMENT 2028	PM	ONE HOUR	15:45	17:15	15	✓
D11	OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026	AM	ONE HOUR	06:45	08:15	15	✓
D12	OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026	PM	ONE HOUR	15:45	17:15	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do Minimum	✓	✓	100.000	100.000

Do Minimum - OPERATION - BASE + COMMITTED 2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	10.44	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A1173 NB APPROACH	
B	A180 EB OFFSLIP	
C	A1173 SB APPROACH	
D	A180 WB OFF-SLIP	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	4.62	8.54	23.5	17.7	93.0	11.0	
B	7.72	8.46	24.6	24.2	100.0	10.0	
C	4.09	7.98	29.1	39.3	100.0	9.5	
D	6.55	7.41	25.6	44.3	93.0	0.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.963	2852
B	1.025	3095
C	1.121	2968
D	1.219	3099

The slope and intercept shown above include any corrections and adjustments.

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B	✓	9.00	0	99999
		2	A,C,D	✓	9.00	0	99999
	2	1	(A,B,C,D)		Infinity		
B	1 [Give-way line]	1	C		Infinity	1500	2000
		2	A,B,D		Infinity	1500	2000
C	1 [Give-way line]	1	A,B,C,D		Infinity	1800	99999
D	1 [Give-way line]	1	A		Infinity	1500	2000
		2	B,C,D		Infinity	1500	2000

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.482	1426
		2	0.482	1426
B	1 [Give-way line]	1	0.513	1548
		2	0.513	1548
C	1 [Give-way line]	1	1.121	2968
D	1 [Give-way line]	1	0.609	1550
		2	0.609	1550

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			A	B	C	D
A	1 [Give-way line]	1		✓		
		2	✓		✓	✓
	2	1	✓	✓	✓	✓
B	1 [Give-way line]	1			✓	
		2	✓	✓		✓
C	1 [Give-way line]	1	✓	✓	✓	✓
D	1 [Give-way line]	1	✓			
		2		✓	✓	✓

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	OPERATION - BASE + COMMITTED 2022	AM	ONE HOUR	06:45	08:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	255	100.000
B		ONE HOUR	✓	431	100.000
C		ONE HOUR	✓	511	100.000
D		ONE HOUR	✓	1235	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	12	78	165
	B	17	1	412	1
	C	47	218	0	246
	D	78	0	1157	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	38	3
	B	31	0	23	0
	C	52	73	0	14
	D	15	0	4	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	9.74	0.8	A	232	349
B	4.34	0.7	A	395	593
C	2.31	0.4	A	471	706
D	16.07	6.2	C	1136	1704

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	189	47	1033	189	106	0.0	0.3	4.959	A
B	320	80	1048	321	174	0.0	0.4	3.819	A
C	386	97	136	386	1232	0.0	0.3	2.035	A
D	927	232	213	927	310	0.0	1.6	5.759	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	226	57	1237	226	127	0.3	0.4	6.536	A
B	386	97	1258	386	205	0.4	0.5	3.985	A
C	459	115	166	459	1478	0.3	0.3	2.162	A
D	1112	278	253	1111	372	1.6	2.6	8.033	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	278	69	1516	278	158	0.4	0.8	9.305	A
B	479	120	1540	479	254	0.5	0.6	4.321	A
C	559	140	202	560	1817	0.3	0.4	2.300	A
D	1360	340	311	1363	451	2.6	5.8	14.630	B

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	281	70	1518	283	157	0.8	0.7	9.743	A
B	473	118	1549	472	252	0.6	0.7	4.343	A
C	564	141	202	563	1819	0.4	0.4	2.307	A
D	1366	341	309	1365	456	5.8	6.2	16.071	C

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	230	57	1243	229	128	0.7	0.5	7.205	A
B	390	98	1262	390	210	0.7	0.5	3.998	A
C	462	116	166	462	1486	0.4	0.3	2.182	A
D	1117	279	257	1114	372	6.2	2.6	8.570	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	191	48	1046	191	106	0.5	0.3	5.648	A
B	324	81	1058	325	179	0.5	0.3	3.809	A
C	392	98	136	392	1246	0.3	0.3	2.099	A
D	935	234	216	936	313	2.6	1.4	5.987	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

06:45 - 07:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	928	0.010	9	0.0	0.0	3.726	A
			2	A,C,D	180	928	0.194	180	0.0	0.3	5.027	A
		2	1	(A,B,C,D)	189			189	0.0	0.0	0.000	A
	Exit	1	1		106			106	0.0	0.0	0.000	A
B	Entry	1	1	C	306	1500	0.204	306	0.0	0.3	3.846	A
			2	A,B,D	14	1500	0.010	14	0.0	0.0	3.214	A
	Exit	1	1		174			174	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	386	2815	0.137	386	0.0	0.3	2.035	A
	Exit	1	1		1232			1232	0.0	0.0	0.000	A
D	Entry	1	1	A	58	1500	0.039	58	0.0	0.0	2.894	A
			2	B,C,D	869	1500	0.579	868	0.0	1.5	5.933	A
	Exit	1	1		310			310	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	830	0.012	10	0.0	0.0	4.377	A
			2	A,C,D	216	830	0.260	216	0.3	0.4	6.649	A
		2	1	(A,B,C,D)	226			226	0.0	0.0	0.000	A
	Exit	1	1		127			127	0.0	0.0	0.000	A
B	Entry	1	1	C	369	1500	0.246	369	0.3	0.5	4.029	A
			2	A,B,D	17	1500	0.011	17	0.0	0.0	2.987	A
	Exit	1	1		205			205	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	459	2782	0.165	459	0.3	0.3	2.162	A
	Exit	1	1		1478			1478	0.0	0.0	0.000	A
D	Entry	1	1	A	70	1500	0.047	70	0.0	0.1	2.936	A
			2	B,C,D	1042	1500	0.695	1041	1.5	2.5	8.343	A
	Exit	1	1		372			372	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	14	696	0.020	14	0.0	0.0	5.074	A
			2	A,C,D	264	696	0.380	264	0.4	0.7	9.503	A
		2	1	(A,B,C,D)	278			278	0.0	0.0	0.034	A
	Exit	1	1		158			158	0.0	0.0	0.000	A
B	Entry	1	1	C	458	1500	0.305	458	0.5	0.6	4.377	A
			2	A,B,D	21	1500	0.014	21	0.0	0.0	3.082	A
	Exit	1	1		254			254	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	559	2741	0.204	560	0.3	0.4	2.300	A
	Exit	1	1		1817			1817	0.0	0.0	0.000	A
D	Entry	1	1	A	87	1500	0.058	87	0.1	0.1	2.920	A
			2	B,C,D	1273	1500	0.848	1276	2.5	5.7	15.348	C
	Exit	1	1		451			451	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	13	695	0.019	13	0.0	0.0	5.258	A
			2	A,C,D	268	695	0.386	270	0.7	0.7	9.971	A
		2	1	(A,B,C,D)	281			281	0.0	0.0	0.025	A
	Exit	1	1		157			157	0.0	0.0	0.000	A
B	Entry	1	1	C	452	1500	0.302	452	0.6	0.6	4.404	A
			2	A,B,D	21	1500	0.014	21	0.0	0.0	2.997	A
	Exit	1	1		252			252	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	564	2741	0.206	563	0.4	0.4	2.307	A
	Exit	1	1		1819			1819	0.0	0.0	0.000	A
D	Entry	1	1	A	86	1500	0.057	86	0.1	0.1	2.934	A
			2	B,C,D	1280	1500	0.853	1279	5.7	6.1	16.870	C
	Exit	1	1		456			456	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	827	0.014	11	0.0	0.0	4.712	A
			2	A,C,D	218	827	0.264	217	0.7	0.5	7.341	A
		2	1	(A,B,C,D)	230			229	0.0	0.0	0.002	A
	Exit	1	1		128			128	0.0	0.0	0.000	A
B	Entry	1	1	C	373	1500	0.249	373	0.6	0.5	4.038	A
			2	A,B,D	17	1500	0.011	18	0.0	0.0	3.100	A
	Exit	1	1		210			210	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	462	2781	0.166	462	0.4	0.3	2.182	A
	Exit	1	1		1486			1486	0.0	0.0	0.000	A
D	Entry	1	1	A	70	1500	0.046	70	0.1	0.1	2.914	A
			2	B,C,D	1047	1500	0.698	1044	6.1	2.5	8.916	A
	Exit	1	1		372			372	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	922	0.010	9	0.0	0.0	3.976	A
			2	A,C,D	182	922	0.197	182	0.5	0.3	5.743	A
		2	1	(A,B,C,D)	191			191	0.0	0.0	0.000	A
	Exit	1	1		106			106	0.0	0.0	0.000	A
B	Entry	1	1	C	311	1500	0.207	312	0.5	0.3	3.845	A
			2	A,B,D	13	1500	0.009	13	0.0	0.0	2.991	A
	Exit	1	1		179			179	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	392	2815	0.139	392	0.3	0.3	2.099	A
	Exit	1	1		1246			1246	0.0	0.0	0.000	A
D	Entry	1	1	A	60	1500	0.040	60	0.1	0.1	2.907	A
			2	B,C,D	874	1500	0.583	876	2.5	1.4	6.176	A
	Exit	1	1		313			313	0.0	0.0	0.000	A

Do Minimum - OPERATION - BASE + COMMITTED 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	4.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	OPERATION - BASE + COMMITTED 2022	PM	ONE HOUR	15:45	17:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	186	100.000
B		ONE HOUR	✓	266	100.000
C		ONE HOUR	✓	1607	100.000
D		ONE HOUR	✓	545	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	2	12	71	101
	B	64	1	201	0
	C	142	357	0	1108
	D	196	2	346	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	43	5
	B	3	0	71	0
	C	9	22	0	4
	D	3	100	13	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.10	0.4	A	172	258
B	4.13	0.5	A	248	371
C	4.24	2.2	A	1474	2211
D	3.52	0.8	A	495	743

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	141	35	524	140	302	0.0	0.2	3.813	A
B	200	50	388	201	277	0.0	0.3	3.923	A
C	1205	301	127	1205	461	0.0	0.9	2.435	A
D	403	101	423	404	909	0.0	0.3	3.126	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	168	42	631	170	360	0.2	0.2	4.243	A
B	248	62	466	249	335	0.3	0.2	4.024	A
C	1449	362	158	1449	558	0.9	1.4	2.938	A
D	484	121	507	485	1100	0.3	0.3	3.262	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	207	52	758	206	439	0.2	0.4	4.934	A
B	297	74	564	297	400	0.2	0.5	3.908	A
C	1739	435	193	1743	667	1.4	1.8	4.120	A
D	584	146	615	581	1321	0.3	0.8	3.521	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	205	51	791	203	442	0.4	0.4	5.101	A
B	296	74	578	298	416	0.5	0.3	4.133	A
C	1797	449	183	1796	693	1.8	2.2	4.244	A
D	602	151	628	605	1352	0.8	0.6	3.482	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	165	41	642	166	360	0.4	0.2	4.450	A
B	234	59	465	236	342	0.3	0.2	3.935	A
C	1434	359	151	1433	551	2.2	1.2	3.092	A
D	488	122	511	491	1073	0.6	0.4	3.179	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	145	36	530	146	313	0.2	0.1	4.260	A
B	209	52	396	209	281	0.2	0.2	3.877	A
C	1219	305	133	1221	472	1.2	0.8	2.444	A
D	409	102	434	410	920	0.4	0.3	3.119	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

15:45 - 16:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	8	1173	0.007	8	0.0	0.0	2.862	A
			2	A,C,D	133	1173	0.114	133	0.0	0.2	3.884	A
		2	1	(A,B,C,D)	141			141	0.0	0.0	0.000	A
	Exit	1	1		302			302	0.0	0.0	0.000	A
B	Entry	1	1	C	152	1500	0.101	153	0.0	0.2	4.675	A
			2	A,B,D	48	1500	0.032	48	0.0	0.1	2.466	A
	Exit	1	1		277			277	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1205	2825	0.426	1205	0.0	0.9	2.435	A
	Exit	1	1		461			461	0.0	0.0	0.000	A
D	Entry	1	1	A	147	1500	0.098	147	0.0	0.1	2.781	A
			2	B,C,D	257	1500	0.171	257	0.0	0.2	3.340	A
	Exit	1	1		909			909	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	1122	0.009	11	0.0	0.0	3.159	A
			2	A,C,D	158	1122	0.140	159	0.2	0.2	4.334	A
		2	1	(A,B,C,D)	168			168	0.0	0.0	0.000	A
	Exit	1	1		360			360	0.0	0.0	0.000	A
B	Entry	1	1	C	187	1500	0.125	189	0.2	0.2	4.784	A
			2	A,B,D	61	1500	0.041	61	0.1	0.0	2.578	A
	Exit	1	1		335			335	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1449	2791	0.519	1449	0.9	1.4	2.938	A
	Exit	1	1		558			558	0.0	0.0	0.000	A
D	Entry	1	1	A	176	1500	0.117	176	0.1	0.1	2.923	A
			2	B,C,D	308	1500	0.205	309	0.2	0.2	3.479	A
	Exit	1	1		1100			1100	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	13	1061	0.012	13	0.0	0.0	3.814	A
			2	A,C,D	194	1061	0.183	193	0.2	0.4	5.027	A
		2	1	(A,B,C,D)	207			207	0.0	0.0	0.000	A
	Exit	1	1		439			439	0.0	0.0	0.000	A
B	Entry	1	1	C	224	1500	0.149	223	0.2	0.4	4.623	A
			2	A,B,D	74	1500	0.049	74	0.0	0.1	2.610	A
	Exit	1	1		400			400	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1739	2752	0.632	1743	1.4	1.8	4.120	A
	Exit	1	1		667			667	0.0	0.0	0.000	A
D	Entry	1	1	A	211	1500	0.141	209	0.1	0.3	2.946	A
			2	B,C,D	374	1500	0.249	372	0.2	0.5	3.871	A
	Exit	1	1		1321			1321	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	14	1045	0.013	14	0.0	0.0	3.593	A
			2	A,C,D	191	1045	0.183	189	0.4	0.4	5.224	A
		2	1	(A,B,C,D)	205			205	0.0	0.0	0.000	A
	Exit	1	1		442			442	0.0	0.0	0.000	A
B	Entry	1	1	C	225	1500	0.150	227	0.4	0.2	4.932	A
			2	A,B,D	70	1500	0.047	71	0.1	0.0	2.607	A
	Exit	1	1		416			416	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1797	2763	0.650	1796	1.8	2.2	4.244	A
	Exit	1	1		693			693	0.0	0.0	0.000	A
D	Entry	1	1	A	215	1500	0.143	214	0.3	0.2	2.884	A
			2	B,C,D	387	1500	0.258	391	0.5	0.3	3.851	A
	Exit	1	1		1352			1352	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	1117	0.010	11	0.0	0.0	3.192	A
			2	A,C,D	154	1117	0.138	155	0.4	0.2	4.557	A
		2	1	(A,B,C,D)	165			165	0.0	0.0	0.000	A
	Exit	1	1		360			360	0.0	0.0	0.000	A
B	Entry	1	1	C	177	1500	0.118	179	0.2	0.2	4.725	A
			2	A,B,D	57	1500	0.038	58	0.0	0.0	2.444	A
	Exit	1	1		342			342	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1434	2799	0.513	1433	2.2	1.2	3.092	A
	Exit	1	1		551			551	0.0	0.0	0.000	A
D	Entry	1	1	A	178	1500	0.118	179	0.2	0.1	2.745	A
			2	B,C,D	311	1500	0.207	313	0.3	0.3	3.446	A
	Exit	1	1		1073			1073	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1170	0.008	10	0.0	0.0	3.486	A
			2	A,C,D	135	1170	0.116	136	0.2	0.1	4.324	A
		2	1	(A,B,C,D)	145			145	0.0	0.0	0.000	A
	Exit	1	1		313			313	0.0	0.0	0.000	A
B	Entry	1	1	C	159	1500	0.106	159	0.2	0.2	4.557	A
			2	A,B,D	50	1500	0.033	49	0.0	0.0	2.618	A
	Exit	1	1		281			281	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1219	2819	0.433	1221	1.2	0.8	2.444	A
	Exit	1	1		472			472	0.0	0.0	0.000	A
D	Entry	1	1	A	148	1500	0.099	149	0.1	0.1	2.701	A
			2	B,C,D	261	1500	0.174	261	0.3	0.2	3.380	A
	Exit	1	1		920			920	0.0	0.0	0.000	A

Do Minimum - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	12.58	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	OPERATION - BASE + COMMITTED + DEVELOPMENT 2022	AM	ONE HOUR	06:45	08:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	256	100.000
B		ONE HOUR	✓	466	100.000
C		ONE HOUR	✓	577	100.000
D		ONE HOUR	✓	1273	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	12	79	165
	B	17	1	447	1
	C	47	251	0	279
	D	78	0	1195	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	37	3
	B	31	0	27	0
	C	52	75	0	20
	D	16	0	5	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	10.53	0.8	B	236	354
B	4.73	0.6	A	427	640
C	2.57	0.6	A	530	795
D	20.39	8.0	C	1169	1753

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	192	48	1083	191	112	0.0	0.3	5.104	A
B	351	88	1078	351	196	0.0	0.4	3.920	A
C	433	108	138	434	1291	0.0	0.2	2.180	A
D	959	240	237	958	335	0.0	1.7	6.083	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	233	58	1330	233	125	0.3	0.5	6.781	A
B	428	107	1309	429	255	0.4	0.5	4.241	A
C	527	132	166	529	1572	0.2	0.2	2.348	A
D	1158	289	300	1156	396	1.7	3.1	8.614	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	276	69	1589	277	153	0.5	0.8	9.962	A
B	507	127	1579	509	287	0.5	0.6	4.735	A
C	634	159	203	633	1885	0.2	0.4	2.444	A
D	1401	350	345	1397	491	3.1	7.2	16.642	C

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	289	72	1590	291	164	0.8	0.8	10.527	B
B	512	128	1596	514	285	0.6	0.6	4.689	A
C	638	159	206	638	1903	0.4	0.6	2.566	A
D	1401	350	350	1404	494	7.2	8.0	20.391	C

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	234	58	1284	231	124	0.8	0.6	7.786	A
B	406	101	1285	404	230	0.6	0.6	4.230	A
C	516	129	166	516	1524	0.6	0.3	2.303	A
D	1135	284	274	1133	407	8.0	2.7	10.140	B

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	191	48	1094	190	108	0.6	0.3	5.848	A
B	358	90	1090	356	195	0.6	0.5	3.874	A
C	432	108	136	431	1310	0.3	0.3	2.176	A
D	961	240	237	965	329	2.7	1.6	6.165	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

06:45 - 07:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	904	0.010	9	0.0	0.0	3.646	A
			2	A,C,D	183	904	0.202	182	0.0	0.3	5.180	A
		2	1	(A,B,C,D)	192			192	0.0	0.0	0.000	A
	Exit	1	1		112			112	0.0	0.0	0.000	A
B	Entry	1	1	C	337	1500	0.225	337	0.0	0.4	3.955	A
			2	A,B,D	14	1500	0.009	14	0.0	0.0	3.062	A
	Exit	1	1		196			196	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	433	2813	0.154	434	0.0	0.2	2.180	A
	Exit	1	1		1291			1291	0.0	0.0	0.000	A
D	Entry	1	1	A	62	1500	0.042	62	0.0	0.1	2.800	A
			2	B,C,D	897	1500	0.598	896	0.0	1.6	6.272	A
	Exit	1	1		335			335	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	785	0.015	11	0.0	0.0	4.756	A
			2	A,C,D	221	785	0.282	222	0.3	0.5	6.894	A
		2	1	(A,B,C,D)	233			233	0.0	0.0	0.000	A
	Exit	1	1		125			125	0.0	0.0	0.000	A
B	Entry	1	1	C	412	1500	0.274	412	0.4	0.5	4.302	A
			2	A,B,D	17	1500	0.011	17	0.0	0.0	2.821	A
	Exit	1	1		255			255	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	527	2782	0.189	529	0.2	0.2	2.348	A
	Exit	1	1		1572			1572	0.0	0.0	0.000	A
D	Entry	1	1	A	68	1500	0.046	68	0.1	0.0	2.932	A
			2	B,C,D	1090	1500	0.726	1087	1.6	3.0	8.947	A
	Exit	1	1		396			396	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	661	0.018	12	0.0	0.0	5.242	A
			2	A,C,D	264	661	0.400	265	0.5	0.8	10.182	B
		2	1	(A,B,C,D)	276			276	0.0	0.0	0.016	A
	Exit	1	1		153			153	0.0	0.0	0.000	A
B	Entry	1	1	C	484	1500	0.323	486	0.5	0.6	4.802	A
			2	A,B,D	22	1500	0.015	22	0.0	0.0	3.234	A
	Exit	1	1		287			287	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	634	2740	0.231	633	0.2	0.4	2.444	A
	Exit	1	1		1885			1885	0.0	0.0	0.000	A
D	Entry	1	1	A	82	1500	0.055	82	0.0	0.1	2.832	A
			2	B,C,D	1319	1500	0.879	1315	3.0	7.1	17.462	C
	Exit	1	1		491			491	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	13	660	0.019	13	0.0	0.0	5.907	A
			2	A,C,D	277	660	0.419	278	0.8	0.8	10.721	B
		2	1	(A,B,C,D)	289			290	0.0	0.0	0.056	A
	Exit	1	1		164			164	0.0	0.0	0.000	A
B	Entry	1	1	C	492	1500	0.328	493	0.6	0.6	4.747	A
			2	A,B,D	20	1500	0.013	21	0.0	0.0	3.242	A
	Exit	1	1		285			285	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	638	2737	0.233	638	0.4	0.6	2.566	A
	Exit	1	1		1903			1903	0.0	0.0	0.000	A
D	Entry	1	1	A	87	1500	0.058	87	0.1	0.1	2.894	A
			2	B,C,D	1314	1500	0.876	1317	7.1	8.0	21.420	C
	Exit	1	1		494			494	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	808	0.013	10	0.0	0.0	4.854	A
			2	A,C,D	223	808	0.277	221	0.8	0.6	7.934	A
		2	1	(A,B,C,D)	234			234	0.0	0.0	0.003	A
	Exit	1	1		124			124	0.0	0.0	0.000	A
B	Entry	1	1	C	391	1500	0.261	390	0.6	0.6	4.278	A
			2	A,B,D	14	1500	0.009	14	0.0	0.0	3.029	A
	Exit	1	1		230			230	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	516	2782	0.186	516	0.6	0.3	2.303	A
	Exit	1	1		1524			1524	0.0	0.0	0.000	A
D	Entry	1	1	A	70	1500	0.046	69	0.1	0.1	2.910	A
			2	B,C,D	1065	1500	0.710	1064	8.0	2.6	10.567	B
	Exit	1	1		407			407	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	8	899	0.009	8	0.0	0.0	4.248	A
			2	A,C,D	183	899	0.204	182	0.6	0.3	5.938	A
		2	1	(A,B,C,D)	191			191	0.0	0.0	0.000	A
	Exit	1	1		108			108	0.0	0.0	0.000	A
B	Entry	1	1	C	344	1500	0.230	342	0.6	0.5	3.911	A
			2	A,B,D	14	1500	0.009	14	0.0	0.0	2.945	A
	Exit	1	1		195			195	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	432	2816	0.153	431	0.3	0.3	2.176	A
	Exit	1	1		1310			1310	0.0	0.0	0.000	A
D	Entry	1	1	A	57	1500	0.038	58	0.1	0.0	2.933	A
			2	B,C,D	904	1500	0.602	907	2.6	1.6	6.355	A
	Exit	1	1		329			329	0.0	0.0	0.000	A

Do Minimum - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	4.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	OPERATION - BASE + COMMITTED + DEVELOPMENT 2022	PM	ONE HOUR	15:45	17:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	186	100.000
B		ONE HOUR	✓	279	100.000
C		ONE HOUR	✓	1635	100.000
D		ONE HOUR	✓	558	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	2	12	71	101
	B	64	1	214	0
	C	142	371	0	1122
	D	196	2	359	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	43	5
	B	3	0	72	0
	C	10	24	0	5
	D	3	100	15	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	4.98	0.3	A	173	259
B	4.26	0.5	A	256	384
C	4.22	2.4	A	1495	2243
D	3.51	0.7	A	511	767

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	143	36	545	143	306	0.0	0.1	3.886	A
B	210	52	402	210	286	0.0	0.2	4.009	A
C	1226	306	130	1225	483	0.0	1.0	2.484	A
D	422	106	429	422	926	0.0	0.3	3.117	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	162	41	662	162	359	0.1	0.2	4.377	A
B	245	61	476	245	347	0.2	0.4	4.097	A
C	1471	368	149	1470	572	1.0	1.5	3.065	A
D	502	126	519	502	1100	0.3	0.4	3.306	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	209	52	809	210	440	0.2	0.3	4.979	A
B	304	76	591	305	428	0.4	0.4	4.143	A
C	1790	448	186	1795	710	1.5	2.0	4.214	A
D	609	152	639	610	1342	0.4	0.6	3.467	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	208	52	808	209	442	0.3	0.3	4.905	A
B	308	77	593	309	425	0.4	0.5	4.263	A
C	1786	447	192	1787	709	2.0	2.4	4.224	A
D	613	153	638	612	1341	0.6	0.7	3.509	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	175	44	664	175	362	0.3	0.2	4.399	A
B	252	63	489	251	350	0.5	0.4	4.103	A
C	1467	367	154	1466	585	2.4	1.2	3.105	A
D	504	126	523	504	1098	0.7	0.5	3.327	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	140	35	554	139	302	0.2	0.1	4.116	A
B	215	54	402	214	292	0.4	0.3	3.909	A
C	1232	308	128	1231	488	1.2	1.0	2.535	A
D	418	105	437	419	922	0.5	0.4	3.167	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

15:45 - 16:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1163	0.008	10	0.0	0.0	2.991	A
			2	A,C,D	133	1163	0.114	134	0.0	0.1	3.961	A
		2	1	(A,B,C,D)	143			143	0.0	0.0	0.000	A
	Exit	1	1		306			306	0.0	0.0	0.000	A
B	Entry	1	1	C	159	1500	0.106	159	0.0	0.2	4.764	A
			2	A,B,D	51	1500	0.034	51	0.0	0.0	2.535	A
	Exit	1	1		286			286	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1226	2822	0.434	1225	0.0	1.0	2.484	A
	Exit	1	1		483			483	0.0	0.0	0.000	A
D	Entry	1	1	A	153	1500	0.102	152	0.0	0.1	2.683	A
			2	B,C,D	270	1500	0.180	270	0.0	0.2	3.385	A
	Exit	1	1		926			926	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1107	0.009	10	0.0	0.0	3.434	A
			2	A,C,D	152	1107	0.137	152	0.1	0.2	4.451	A
		2	1	(A,B,C,D)	162			162	0.0	0.0	0.000	A
	Exit	1	1		359			359	0.0	0.0	0.000	A
B	Entry	1	1	C	189	1500	0.126	188	0.2	0.3	4.825	A
			2	A,B,D	56	1500	0.038	56	0.0	0.0	2.636	A
	Exit	1	1		347			347	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1471	2801	0.525	1470	1.0	1.5	3.065	A
	Exit	1	1		572			572	0.0	0.0	0.000	A
D	Entry	1	1	A	176	1500	0.117	176	0.1	0.1	2.827	A
			2	B,C,D	326	1500	0.217	326	0.2	0.3	3.595	A
	Exit	1	1		1100			1100	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	1036	0.012	13	0.0	0.0	3.459	A
			2	A,C,D	197	1036	0.190	197	0.2	0.3	5.094	A
		2	1	(A,B,C,D)	209			209	0.0	0.0	0.000	A
	Exit	1	1		440			440	0.0	0.0	0.000	A
B	Entry	1	1	C	234	1500	0.156	235	0.3	0.3	4.933	A
			2	A,B,D	70	1500	0.047	70	0.0	0.1	2.575	A
	Exit	1	1		428			428	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1790	2759	0.649	1795	1.5	2.0	4.214	A
	Exit	1	1		710			710	0.0	0.0	0.000	A
D	Entry	1	1	A	214	1500	0.142	213	0.1	0.2	2.831	A
			2	B,C,D	395	1500	0.263	396	0.3	0.5	3.844	A
	Exit	1	1		1342			1342	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	14	1037	0.013	14	0.0	0.0	3.471	A
			2	A,C,D	195	1037	0.188	195	0.3	0.3	5.016	A
		2	1	(A,B,C,D)	208			208	0.0	0.0	0.000	A
	Exit	1	1		442			442	0.0	0.0	0.000	A
B	Entry	1	1	C	235	1500	0.156	235	0.3	0.5	5.111	A
			2	A,B,D	73	1500	0.049	73	0.1	0.0	2.653	A
	Exit	1	1		425			425	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1786	2753	0.649	1787	2.0	2.4	4.224	A
	Exit	1	1		709			709	0.0	0.0	0.000	A
D	Entry	1	1	A	213	1500	0.142	213	0.2	0.2	2.891	A
			2	B,C,D	400	1500	0.267	399	0.5	0.4	3.884	A
	Exit	1	1		1341			1341	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	1106	0.011	12	0.0	0.0	3.653	A
			2	A,C,D	163	1106	0.147	163	0.3	0.2	4.463	A
		2	1	(A,B,C,D)	175			175	0.0	0.0	0.000	A
	Exit	1	1		362			362	0.0	0.0	0.000	A
B	Entry	1	1	C	194	1500	0.130	193	0.5	0.3	4.854	A
			2	A,B,D	58	1500	0.038	57	0.0	0.0	2.598	A
	Exit	1	1		350			350	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1467	2795	0.525	1466	2.4	1.2	3.105	A
	Exit	1	1		585			585	0.0	0.0	0.000	A
D	Entry	1	1	A	176	1500	0.118	176	0.2	0.2	2.870	A
			2	B,C,D	328	1500	0.218	328	0.4	0.3	3.602	A
	Exit	1	1		1098			1098	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	1159	0.008	9	0.0	0.0	3.255	A
			2	A,C,D	130	1159	0.112	130	0.2	0.1	4.190	A
		2	1	(A,B,C,D)	140			140	0.0	0.0	0.000	A
	Exit	1	1		302			302	0.0	0.0	0.000	A
B	Entry	1	1	C	165	1500	0.110	164	0.3	0.3	4.588	A
			2	A,B,D	50	1500	0.033	50	0.0	0.0	2.589	A
	Exit	1	1		292			292	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1232	2825	0.436	1231	1.2	1.0	2.535	A
	Exit	1	1		488			488	0.0	0.0	0.000	A
D	Entry	1	1	A	145	1500	0.097	145	0.2	0.1	2.786	A
			2	B,C,D	273	1500	0.182	274	0.3	0.3	3.395	A
	Exit	1	1		922			922	0.0	0.0	0.000	A

Do Minimum - OPERATION - BASE + COMMITTED 2028, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	16.25	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	OPERATION - BASE + COMMITTED 2028	AM	ONE HOUR	06:45	08:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	272	100.000
B		ONE HOUR	✓	476	100.000
C		ONE HOUR	✓	574	100.000
D		ONE HOUR	✓	1332	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	12	86	174
	B	18	1	456	1
	C	54	248	0	272
	D	83	0	1249	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	35	4
	B	31	0	24	0
	C	49	72	0	14
	D	15	0	4	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	12.41	1.1	B	249	374
B	4.51	0.7	A	435	652
C	2.39	0.5	A	522	784
D	27.14	12.0	D	1221	1832

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	204	51	1137	205	116	0.0	0.3	5.419	A
B	360	90	1143	362	198	0.0	0.3	3.979	A
C	431	108	146	432	1359	0.0	0.2	2.104	A
D	1009	252	237	1015	341	0.0	2.0	7.039	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	243	61	1352	243	132	0.3	0.6	7.185	A
B	417	104	1355	416	240	0.3	0.5	4.230	A
C	513	128	169	512	1601	0.2	0.4	2.169	A
D	1189	297	289	1194	392	2.0	3.1	9.344	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	301	75	1639	299	167	0.6	1.0	11.066	B
B	534	134	1656	536	282	0.5	0.6	4.490	A
C	617	154	217	618	1975	0.4	0.5	2.356	A
D	1465	366	348	1457	487	3.1	12.0	23.173	C

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	299	75	1641	300	171	1.0	1.1	12.414	B
B	510	128	1658	514	283	0.6	0.7	4.513	A
C	624	156	217	624	1955	0.5	0.5	2.395	A
D	1466	367	346	1465	495	12.0	10.9	27.137	D

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	244	61	1351	244	147	1.1	0.5	8.468	A
B	427	107	1360	428	234	0.7	0.4	4.147	A
C	517	129	173	519	1615	0.5	0.3	2.239	A
D	1205	301	292	1205	399	10.9	3.1	12.469	B

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	206	51	1120	205	115	0.5	0.4	6.290	A
B	359	90	1128	360	198	0.4	0.4	3.736	A
C	433	108	143	434	1344	0.3	0.3	2.084	A
D	993	248	240	996	337	3.1	1.7	6.738	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

06:45 - 07:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	878	0.012	10	0.0	0.0	3.755	A
			2	A,C,D	194	878	0.221	195	0.0	0.3	5.511	A
		2	1	(A,B,C,D)	204			204	0.0	0.0	0.000	A
	Exit	1	1		116			116	0.0	0.0	0.000	A
B	Entry	1	1	C	345	1500	0.230	346	0.0	0.3	4.014	A
			2	A,B,D	15	1500	0.010	15	0.0	0.0	3.178	A
	Exit	1	1		198			198	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	431	2804	0.154	432	0.0	0.2	2.104	A
	Exit	1	1		1359			1359	0.0	0.0	0.000	A
D	Entry	1	1	A	65	1500	0.044	66	0.0	0.0	2.910	A
			2	B,C,D	943	1500	0.629	949	0.0	2.0	7.288	A
	Exit	1	1		341			341	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	775	0.016	12	0.0	0.0	4.566	A
			2	A,C,D	231	775	0.298	230	0.3	0.5	7.333	A
		2	1	(A,B,C,D)	243			243	0.0	0.0	0.002	A
	Exit	1	1		132			132	0.0	0.0	0.000	A
B	Entry	1	1	C	401	1500	0.267	400	0.3	0.5	4.282	A
			2	A,B,D	16	1500	0.011	17	0.0	0.0	2.994	A
	Exit	1	1		240			240	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	513	2778	0.185	512	0.2	0.4	2.169	A
	Exit	1	1		1601			1601	0.0	0.0	0.000	A
D	Entry	1	1	A	70	1500	0.047	70	0.0	0.1	2.971	A
			2	B,C,D	1118	1500	0.746	1124	2.0	3.0	9.727	A
	Exit	1	1		392			392	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	14	636	0.021	14	0.0	0.0	5.854	A
			2	A,C,D	287	636	0.451	286	0.5	1.0	11.267	B
		2	1	(A,B,C,D)	301			300	0.0	0.0	0.042	A
	Exit	1	1		167			167	0.0	0.0	0.000	A
B	Entry	1	1	C	510	1500	0.340	513	0.5	0.6	4.556	A
			2	A,B,D	24	1500	0.016	24	0.0	0.0	2.925	A
	Exit	1	1		282			282	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	617	2725	0.227	618	0.4	0.5	2.356	A
	Exit	1	1		1975			1975	0.0	0.0	0.000	A
D	Entry	1	1	A	88	1500	0.059	88	0.1	0.1	2.952	A
			2	B,C,D	1377	1500	0.918	1370	3.0	11.9	24.382	C
	Exit	1	1		487			487	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	13	636	0.021	13	0.0	0.0	5.951	A
			2	A,C,D	286	636	0.450	287	1.0	1.1	12.588	B
		2	1	(A,B,C,D)	299			299	0.0	0.0	0.162	A
	Exit	1	1		171			171	0.0	0.0	0.000	A
B	Entry	1	1	C	490	1500	0.327	494	0.6	0.6	4.575	A
			2	A,B,D	21	1500	0.014	20	0.0	0.0	3.085	A
	Exit	1	1		283			283	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	624	2725	0.229	624	0.5	0.5	2.395	A
	Exit	1	1		1955			1955	0.0	0.0	0.000	A
D	Entry	1	1	A	95	1500	0.063	94	0.1	0.1	2.970	A
			2	B,C,D	1371	1500	0.914	1371	11.9	10.8	28.626	D
	Exit	1	1		495			495	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	775	0.013	10	0.0	0.0	4.848	A
			2	A,C,D	234	775	0.301	234	1.1	0.5	8.642	A
		2	1	(A,B,C,D)	244			244	0.0	0.0	0.008	A
	Exit	1	1		147			147	0.0	0.0	0.000	A
B	Entry	1	1	C	409	1500	0.272	410	0.6	0.4	4.187	A
			2	A,B,D	18	1500	0.012	18	0.0	0.0	3.273	A
	Exit	1	1		234			234	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	517	2774	0.186	519	0.5	0.3	2.239	A
	Exit	1	1		1615			1615	0.0	0.0	0.000	A
D	Entry	1	1	A	79	1500	0.053	79	0.1	0.1	2.883	A
			2	B,C,D	1126	1500	0.751	1126	10.8	3.0	13.050	B
	Exit	1	1		399			399	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	886	0.011	9	0.0	0.0	4.043	A
			2	A,C,D	196	886	0.221	196	0.5	0.4	6.409	A
		2	1	(A,B,C,D)	206			206	0.0	0.0	0.001	A
	Exit	1	1		115			115	0.0	0.0	0.000	A
B	Entry	1	1	C	345	1500	0.230	345	0.4	0.4	3.771	A
			2	A,B,D	14	1500	0.009	14	0.0	0.0	2.904	A
	Exit	1	1		198			198	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	433	2808	0.154	434	0.3	0.3	2.084	A
	Exit	1	1		1344			1344	0.0	0.0	0.000	A
D	Entry	1	1	A	64	1500	0.042	64	0.1	0.0	2.849	A
			2	B,C,D	930	1500	0.620	932	3.0	1.7	6.974	A
	Exit	1	1		337			337	0.0	0.0	0.000	A

Do Minimum - OPERATION - BASE + COMMITTED 2028, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	4.68	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	OPERATION - BASE + COMMITTED 2028	PM	ONE HOUR	15:45	17:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	203	100.000
B		ONE HOUR	✓	311	100.000
C		ONE HOUR	✓	1758	100.000
D		ONE HOUR	✓	593	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	2	12	82	107
	B	68	1	242	0
	C	154	401	0	1203
	D	207	2	383	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	42	6
	B	3	0	71	0
	C	9	23	0	4
	D	3	100	13	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.45	0.4	A	182	274
B	4.34	0.5	A	286	429
C	5.03	2.8	A	1609	2413
D	3.57	0.7	A	543	814

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	148	37	595	149	327	0.0	0.2	4.126	A
B	235	59	425	235	319	0.0	0.3	4.024	A
C	1341	335	130	1340	530	0.0	1.1	2.671	A
D	443	111	478	444	993	0.0	0.4	3.164	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	178	45	693	179	394	0.2	0.3	4.729	A
B	286	71	508	285	364	0.3	0.4	4.254	A
C	1577	394	158	1578	636	1.1	1.5	3.318	A
D	528	132	559	529	1177	0.4	0.5	3.299	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	222	56	867	222	472	0.3	0.4	5.259	A
B	338	84	629	338	460	0.4	0.5	4.299	A
C	1938	484	195	1937	772	1.5	2.8	4.966	A
D	649	162	690	648	1442	0.5	0.6	3.571	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	222	55	867	221	478	0.4	0.4	5.447	A
B	330	83	631	332	457	0.5	0.4	4.342	A
C	1932	483	197	1930	766	2.8	2.8	5.029	A
D	654	164	690	655	1437	0.6	0.7	3.531	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	178	44	710	178	393	0.4	0.3	4.894	A
B	290	73	515	289	373	0.4	0.5	4.075	A
C	1566	391	160	1566	645	2.8	1.4	3.311	A
D	538	134	565	538	1160	0.7	0.5	3.361	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	146	36	590	146	313	0.3	0.2	4.320	A
B	237	59	425	237	310	0.5	0.3	3.965	A
C	1300	325	129	1300	533	1.4	1.1	2.707	A
D	443	111	459	443	969	0.5	0.4	3.221	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

15:45 - 16:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1139	0.009	10	0.0	0.0	3.164	A
			2	A,C,D	139	1139	0.122	139	0.0	0.2	4.200	A
		2	1	(A,B,C,D)	148			148	0.0	0.0	0.000	A
	Exit	1	1		327			327	0.0	0.0	0.000	A
B	Entry	1	1	C	184	1500	0.123	183	0.0	0.3	4.728	A
			2	A,B,D	52	1500	0.034	52	0.0	0.0	2.518	A
	Exit	1	1		319			319	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1341	2822	0.475	1340	0.0	1.1	2.671	A
	Exit	1	1		530			530	0.0	0.0	0.000	A
D	Entry	1	1	A	156	1500	0.104	157	0.0	0.1	2.730	A
			2	B,C,D	287	1500	0.192	288	0.0	0.2	3.421	A
	Exit	1	1		993			993	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1092	0.009	10	0.0	0.0	3.394	A
			2	A,C,D	168	1092	0.154	169	0.2	0.2	4.829	A
		2	1	(A,B,C,D)	178			178	0.0	0.0	0.000	A
	Exit	1	1		394			394	0.0	0.0	0.000	A
B	Entry	1	1	C	221	1500	0.148	221	0.3	0.3	4.989	A
			2	A,B,D	64	1500	0.043	64	0.0	0.0	2.722	A
	Exit	1	1		364			364	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1577	2791	0.565	1578	1.1	1.5	3.318	A
	Exit	1	1		636			636	0.0	0.0	0.000	A
D	Entry	1	1	A	189	1500	0.126	189	0.1	0.2	2.829	A
			2	B,C,D	339	1500	0.226	340	0.2	0.3	3.579	A
	Exit	1	1		1177			1177	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	13	1008	0.013	14	0.0	0.0	3.558	A
			2	A,C,D	209	1008	0.207	209	0.2	0.4	5.389	A
		2	1	(A,B,C,D)	222			222	0.0	0.0	0.000	A
	Exit	1	1		472			472	0.0	0.0	0.000	A
B	Entry	1	1	C	264	1500	0.176	265	0.3	0.4	5.049	A
			2	A,B,D	73	1500	0.049	73	0.0	0.1	2.652	A
	Exit	1	1		460			460	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1938	2749	0.705	1937	1.5	2.8	4.966	A
	Exit	1	1		772			772	0.0	0.0	0.000	A
D	Entry	1	1	A	226	1500	0.150	226	0.2	0.1	2.952	A
			2	B,C,D	424	1500	0.282	423	0.3	0.5	3.936	A
	Exit	1	1		1442			1442	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	14	1008	0.013	14	0.0	0.0	3.720	A
			2	A,C,D	208	1008	0.206	208	0.4	0.4	5.580	A
		2	1	(A,B,C,D)	222			222	0.0	0.0	0.001	A
	Exit	1	1		478			478	0.0	0.0	0.000	A
B	Entry	1	1	C	255	1500	0.170	255	0.4	0.4	5.142	A
			2	A,B,D	76	1500	0.050	76	0.1	0.1	2.648	A
	Exit	1	1		457			457	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1932	2747	0.703	1930	2.8	2.8	5.029	A
	Exit	1	1		766			766	0.0	0.0	0.000	A
D	Entry	1	1	A	228	1500	0.152	228	0.1	0.2	2.923	A
			2	B,C,D	426	1500	0.284	426	0.5	0.5	3.890	A
	Exit	1	1		1437			1437	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	1084	0.009	9	0.0	0.0	3.518	A
			2	A,C,D	168	1084	0.155	169	0.4	0.2	4.992	A
		2	1	(A,B,C,D)	178			178	0.0	0.0	0.000	A
	Exit	1	1		393			393	0.0	0.0	0.000	A
B	Entry	1	1	C	226	1500	0.150	225	0.4	0.4	4.752	A
			2	A,B,D	65	1500	0.043	65	0.1	0.1	2.657	A
	Exit	1	1		373			373	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1566	2789	0.561	1566	2.8	1.4	3.311	A
	Exit	1	1		645			645	0.0	0.0	0.000	A
D	Entry	1	1	A	190	1500	0.126	190	0.2	0.2	2.849	A
			2	B,C,D	348	1500	0.232	348	0.5	0.4	3.666	A
	Exit	1	1		1160			1160	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	1142	0.008	9	0.0	0.0	3.196	A
			2	A,C,D	137	1142	0.120	136	0.2	0.2	4.410	A
		2	1	(A,B,C,D)	146			146	0.0	0.0	0.000	A
	Exit	1	1		313			313	0.0	0.0	0.000	A
B	Entry	1	1	C	188	1500	0.125	187	0.4	0.2	4.630	A
			2	A,B,D	49	1500	0.033	50	0.1	0.0	2.542	A
	Exit	1	1		310			310	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1300	2824	0.460	1300	1.4	1.1	2.707	A
	Exit	1	1		533			533	0.0	0.0	0.000	A
D	Entry	1	1	A	153	1500	0.102	153	0.2	0.1	2.745	A
			2	B,C,D	290	1500	0.193	290	0.4	0.3	3.495	A
	Exit	1	1		969			969	0.0	0.0	0.000	A

Do Minimum - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	18.83	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	OPERATION - BASE + COMMITTED + DEVELOPMENT 2028	AM	ONE HOUR	06:45	08:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	273	100.000
B		ONE HOUR	✓	511	100.000
C		ONE HOUR	✓	640	100.000
D		ONE HOUR	✓	1370	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	12	87	174
	B	18	1	491	1
	C	54	281	0	305
	D	83	0	1287	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	34	4
	B	31	0	27	0
	C	49	75	0	19
	D	15	0	5	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	13.57	1.1	B	253	379
B	4.90	0.7	A	471	707
C	2.66	0.5	A	586	879
D	32.74	14.5	D	1249	1873

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	207	52	1161	205	120	0.0	0.5	5.609	A
B	389	97	1141	388	225	0.0	0.6	4.103	A
C	482	120	149	482	1380	0.0	0.3	2.242	A
D	1002	251	277	1005	355	0.0	1.7	6.885	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	245	61	1416	245	145	0.5	0.6	7.356	A
B	461	115	1396	460	265	0.6	0.7	4.453	A
C	576	144	178	575	1678	0.3	0.4	2.366	A
D	1232	308	323	1238	430	1.7	3.2	10.463	B

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	302	75	1717	305	172	0.6	1.0	11.892	B
B	564	141	1697	566	325	0.7	0.7	4.899	A
C	701	175	216	705	2047	0.4	0.3	2.578	A
D	1508	377	391	1497	529	3.2	13.5	26.257	D

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	299	75	1716	301	165	1.0	1.1	13.567	B
B	560	140	1688	561	329	0.7	0.7	4.851	A
C	702	175	208	702	2040	0.3	0.5	2.660	A
D	1493	373	392	1489	518	13.5	14.5	32.742	D

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	253	63	1417	256	141	1.1	0.4	9.267	A
B	456	114	1404	455	268	0.7	0.6	4.442	A
C	571	143	188	572	1672	0.5	0.3	2.385	A
D	1233	308	325	1234	436	14.5	4.3	15.756	C

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	212	53	1170	211	118	0.4	0.4	6.618	A
B	399	100	1162	399	220	0.6	0.5	4.146	A
C	485	121	146	485	1415	0.3	0.3	2.285	A
D	1024	256	265	1024	365	4.3	2.0	7.069	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

06:45 - 07:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	8	866	0.010	8	0.0	0.0	3.925	A
			2	A,C,D	198	866	0.229	196	0.0	0.5	5.687	A
		2	1	(A,B,C,D)	207			207	0.0	0.0	0.000	A
	Exit	1	1		120			120	0.0	0.0	0.000	A
B	Entry	1	1	C	375	1500	0.250	373	0.0	0.6	4.128	A
			2	A,B,D	14	1500	0.010	14	0.0	0.0	3.448	A
	Exit	1	1		225			225	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	482	2801	0.172	482	0.0	0.3	2.242	A
	Exit	1	1		1380			1380	0.0	0.0	0.000	A
D	Entry	1	1	A	60	1500	0.040	60	0.0	0.0	2.915	A
			2	B,C,D	942	1500	0.628	945	0.0	1.7	7.123	A
	Exit	1	1		355			355	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	744	0.014	11	0.0	0.0	4.928	A
			2	A,C,D	234	744	0.315	235	0.5	0.5	7.474	A
		2	1	(A,B,C,D)	245			245	0.0	0.0	0.000	A
	Exit	1	1		145			145	0.0	0.0	0.000	A
B	Entry	1	1	C	442	1500	0.295	442	0.6	0.6	4.508	A
			2	A,B,D	19	1500	0.012	19	0.0	0.0	3.116	A
	Exit	1	1		265			265	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	576	2768	0.208	575	0.3	0.4	2.366	A
	Exit	1	1		1678			1678	0.0	0.0	0.000	A
D	Entry	1	1	A	76	1500	0.051	77	0.0	0.0	2.922	A
			2	B,C,D	1156	1500	0.771	1161	1.7	3.2	10.907	B
	Exit	1	1		430			430	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	599	0.020	13	0.0	0.0	6.181	A
			2	A,C,D	289	599	0.483	293	0.5	1.0	12.148	B
		2	1	(A,B,C,D)	302			302	0.0	0.0	0.029	A
	Exit	1	1		172			172	0.0	0.0	0.000	A
B	Entry	1	1	C	541	1500	0.361	544	0.6	0.7	4.976	A
			2	A,B,D	23	1500	0.015	23	0.0	0.0	3.037	A
	Exit	1	1		325			325	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	701	2726	0.257	705	0.4	0.3	2.578	A
	Exit	1	1		2047			2047	0.0	0.0	0.000	A
D	Entry	1	1	A	93	1500	0.062	93	0.0	0.1	2.883	A
			2	B,C,D	1415	1500	0.943	1404	3.2	13.4	27.622	D
	Exit	1	1		529			529	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	14	600	0.024	14	0.0	0.0	6.260	A
			2	A,C,D	285	600	0.475	286	1.0	1.1	13.842	B
		2	1	(A,B,C,D)	299			299	0.0	0.0	0.092	A
	Exit	1	1		165			165	0.0	0.0	0.000	A
B	Entry	1	1	C	539	1500	0.359	539	0.7	0.7	4.914	A
			2	A,B,D	22	1500	0.014	22	0.0	0.0	3.261	A
	Exit	1	1		329			329	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	702	2734	0.257	702	0.3	0.5	2.660	A
	Exit	1	1		2040			2040	0.0	0.0	0.000	A
D	Entry	1	1	A	87	1500	0.058	88	0.1	0.1	2.922	A
			2	B,C,D	1406	1500	0.937	1401	13.4	14.5	34.497	D
	Exit	1	1		518			518	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	743	0.016	12	0.0	0.0	5.101	A
			2	A,C,D	241	743	0.324	244	1.1	0.4	9.465	A
		2	1	(A,B,C,D)	253			253	0.0	0.0	0.014	A
	Exit	1	1		141			141	0.0	0.0	0.000	A
B	Entry	1	1	C	435	1500	0.290	434	0.7	0.6	4.504	A
			2	A,B,D	21	1500	0.014	21	0.0	0.0	3.058	A
	Exit	1	1		268			268	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	571	2757	0.207	572	0.5	0.3	2.385	A
	Exit	1	1		1672			1672	0.0	0.0	0.000	A
D	Entry	1	1	A	73	1500	0.049	73	0.1	0.1	2.962	A
			2	B,C,D	1160	1500	0.773	1161	14.5	4.2	16.536	C
	Exit	1	1		436			436	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	862	0.013	11	0.0	0.0	4.320	A
			2	A,C,D	201	862	0.233	200	0.4	0.4	6.746	A
		2	1	(A,B,C,D)	212			212	0.0	0.0	0.000	A
	Exit	1	1		118			118	0.0	0.0	0.000	A
B	Entry	1	1	C	384	1500	0.256	384	0.6	0.5	4.187	A
			2	A,B,D	15	1500	0.010	15	0.0	0.0	3.121	A
	Exit	1	1		220			220	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	485	2804	0.173	485	0.3	0.3	2.285	A
	Exit	1	1		1415			1415	0.0	0.0	0.000	A
D	Entry	1	1	A	62	1500	0.041	62	0.1	0.0	2.873	A
			2	B,C,D	962	1500	0.641	962	4.2	2.0	7.319	A
	Exit	1	1		365			365	0.0	0.0	0.000	A

Do Minimum - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	4.95	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D10	OPERATION - BASE + COMMITTED + DEVELOPMENT 2028	PM	ONE HOUR	15:45	17:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	203	100.000
B		ONE HOUR	✓	324	100.000
C		ONE HOUR	✓	1786	100.000
D		ONE HOUR	✓	606	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	2	12	82	107
	B	68	1	255	0
	C	154	415	0	1217
	D	207	2	396	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	42	6
	B	3	0	72	0
	C	9	25	0	5
	D	3	100	15	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.54	0.5	A	188	281
B	4.46	0.7	A	297	446
C	5.40	3.1	A	1633	2449
D	3.67	0.8	A	559	839

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	152	38	607	151	328	0.0	0.3	4.160	A
B	246	61	442	245	316	0.0	0.3	3.961	A
C	1336	334	139	1337	549	0.0	0.9	2.736	A
D	453	113	480	455	996	0.0	0.4	3.317	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	185	46	723	185	391	0.3	0.3	4.728	A
B	298	74	521	298	386	0.3	0.3	4.281	A
C	1617	404	160	1618	659	0.9	1.6	3.450	A
D	535	134	580	534	1198	0.4	0.5	3.422	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	221	55	902	220	478	0.3	0.5	5.539	A
B	344	86	651	346	471	0.3	0.3	4.454	A
C	1962	491	196	1966	801	1.6	2.6	5.403	A
D	673	168	706	675	1457	0.5	0.7	3.653	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	230	57	889	230	486	0.5	0.4	5.518	A
B	357	89	653	354	466	0.3	0.7	4.457	A
C	1961	490	196	1959	811	2.6	3.1	5.245	A
D	681	170	696	680	1459	0.7	0.8	3.675	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	185	46	729	185	389	0.4	0.3	4.756	A
B	296	74	534	297	380	0.7	0.4	4.097	A
C	1586	397	166	1583	665	3.1	1.7	3.510	A
D	554	139	563	554	1186	0.8	0.6	3.438	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	153	38	613	153	328	0.3	0.2	4.380	A
B	244	61	445	244	321	0.4	0.3	3.953	A
C	1335	334	138	1337	551	1.7	1.0	2.730	A
D	460	115	482	459	992	0.6	0.5	3.261	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

15:45 - 16:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	1134	0.008	9	0.0	0.0	3.021	A
			2	A,C,D	144	1134	0.127	142	0.0	0.3	4.246	A
		2	1	(A,B,C,D)	152			152	0.0	0.0	0.000	A
	Exit	1	1		328			328	0.0	0.0	0.000	A
B	Entry	1	1	C	190	1500	0.127	190	0.0	0.3	4.623	A
			2	A,B,D	56	1500	0.037	56	0.0	0.0	2.513	A
	Exit	1	1		316			316	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1336	2812	0.475	1337	0.0	0.9	2.736	A
	Exit	1	1		549			549	0.0	0.0	0.000	A
D	Entry	1	1	A	153	1500	0.102	154	0.0	0.1	2.790	A
			2	B,C,D	300	1500	0.200	301	0.0	0.3	3.621	A
	Exit	1	1		996			996	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1078	0.009	10	0.0	0.0	3.358	A
			2	A,C,D	175	1078	0.163	175	0.3	0.3	4.832	A
		2	1	(A,B,C,D)	185			185	0.0	0.0	0.000	A
	Exit	1	1		391			391	0.0	0.0	0.000	A
B	Entry	1	1	C	234	1500	0.156	235	0.3	0.3	5.086	A
			2	A,B,D	64	1500	0.042	63	0.0	0.1	2.535	A
	Exit	1	1		386			386	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1617	2789	0.580	1618	0.9	1.6	3.450	A
	Exit	1	1		659			659	0.0	0.0	0.000	A
D	Entry	1	1	A	186	1500	0.124	186	0.1	0.1	2.892	A
			2	B,C,D	349	1500	0.233	348	0.3	0.4	3.736	A
	Exit	1	1		1198			1198	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	992	0.012	12	0.0	0.0	3.489	A
			2	A,C,D	209	992	0.210	208	0.3	0.5	5.692	A
		2	1	(A,B,C,D)	221			221	0.0	0.0	0.003	A
	Exit	1	1		478			478	0.0	0.0	0.000	A
B	Entry	1	1	C	270	1500	0.180	272	0.3	0.3	5.283	A
			2	A,B,D	74	1500	0.049	74	0.1	0.0	2.591	A
	Exit	1	1		471			471	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1962	2748	0.714	1966	1.6	2.6	5.403	A
	Exit	1	1		801			801	0.0	0.0	0.000	A
D	Entry	1	1	A	231	1500	0.154	230	0.1	0.3	2.978	A
			2	B,C,D	442	1500	0.295	445	0.4	0.5	4.042	A
	Exit	1	1		1457			1457	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	15	998	0.015	15	0.0	0.0	3.527	A
			2	A,C,D	214	998	0.215	215	0.5	0.4	5.676	A
		2	1	(A,B,C,D)	230			230	0.0	0.0	0.000	A
	Exit	1	1		486			486	0.0	0.0	0.000	A
B	Entry	1	1	C	281	1500	0.187	278	0.3	0.6	5.269	A
			2	A,B,D	76	1500	0.051	76	0.0	0.1	2.648	A
	Exit	1	1		466			466	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1961	2748	0.713	1959	2.6	3.1	5.245	A
	Exit	1	1		811			811	0.0	0.0	0.000	A
D	Entry	1	1	A	238	1500	0.158	238	0.3	0.2	2.948	A
			2	B,C,D	443	1500	0.295	441	0.5	0.7	4.096	A
	Exit	1	1		1459			1459	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	1075	0.010	11	0.0	0.0	3.812	A
			2	A,C,D	174	1075	0.162	174	0.4	0.3	4.825	A
		2	1	(A,B,C,D)	185			185	0.0	0.0	0.000	A
	Exit	1	1		389			389	0.0	0.0	0.000	A
B	Entry	1	1	C	232	1500	0.155	232	0.6	0.3	4.771	A
			2	A,B,D	64	1500	0.043	64	0.1	0.0	2.612	A
	Exit	1	1		380			380	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1586	2782	0.570	1583	3.1	1.7	3.510	A
	Exit	1	1		665			665	0.0	0.0	0.000	A
D	Entry	1	1	A	191	1500	0.127	192	0.2	0.1	2.785	A
			2	B,C,D	363	1500	0.242	362	0.7	0.5	3.816	A
	Exit	1	1		1186			1186	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	8	1131	0.007	8	0.0	0.0	3.244	A
			2	A,C,D	145	1131	0.128	145	0.3	0.2	4.459	A
		2	1	(A,B,C,D)	153			153	0.0	0.0	0.000	A
	Exit	1	1		328			328	0.0	0.0	0.000	A
B	Entry	1	1	C	189	1500	0.126	189	0.3	0.3	4.631	A
			2	A,B,D	55	1500	0.036	55	0.0	0.0	2.480	A
	Exit	1	1		321			321	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1335	2814	0.475	1337	1.7	1.0	2.730	A
	Exit	1	1		551			551	0.0	0.0	0.000	A
D	Entry	1	1	A	158	1500	0.106	159	0.1	0.1	2.761	A
			2	B,C,D	301	1500	0.201	301	0.5	0.4	3.555	A
	Exit	1	1		992			992	0.0	0.0	0.000	A

Do Minimum - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	7.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D11	OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026	AM	ONE HOUR	06:45	08:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	707	100.000
B		ONE HOUR	✓	268	100.000
C		ONE HOUR	✓	483	100.000
D		ONE HOUR	✓	924	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	62	231	414
	B	13	0	255	0
	C	140	128	0	215
	D	146	0	778	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	15.32	3.2	C	649	974
B	2.89	0.2	A	247	371
C	1.87	0.3	A	445	668
D	5.33	1.7	A	846	1268

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	536	134	686	536	229	0.0	0.9	5.435	A
B	203	51	1076	203	147	0.0	0.1	2.752	A
C	368	92	329	368	951	0.0	0.1	1.553	A
D	699	175	216	699	481	0.0	0.8	3.789	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	641	160	816	642	269	0.9	1.4	7.328	A
B	234	58	1279	234	178	0.1	0.2	2.775	A
C	444	111	391	443	1123	0.1	0.3	1.714	A
D	825	206	258	827	576	0.8	0.9	4.208	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	792	198	991	789	326	1.4	3.2	12.747	B
B	295	74	1566	295	214	0.2	0.2	2.888	A
C	534	134	479	536	1382	0.3	0.2	1.872	A
D	1003	251	315	1002	700	0.9	1.6	5.161	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	779	195	991	779	334	3.2	3.2	15.316	C
B	297	74	1559	297	211	0.2	0.2	2.841	A
C	526	132	473	528	1383	0.2	0.2	1.859	A
D	1017	254	310	1014	691	1.6	1.7	5.328	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	622	156	813	625	264	3.2	1.1	8.113	A
B	250	62	1268	250	170	0.2	0.2	2.840	A
C	433	108	384	434	1134	0.2	0.2	1.741	A
D	824	206	250	827	568	1.7	0.9	4.272	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	525	131	690	527	228	1.1	0.7	5.876	A
B	204	51	1073	204	145	0.2	0.2	2.749	A
C	366	91	324	366	953	0.2	0.1	1.589	A
D	705	176	215	704	476	0.9	0.8	3.744	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

06:45 - 07:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	48	1095	0.044	48	0.0	0.0	3.313	A
			2	A,C,D	488	1095	0.446	488	0.0	0.9	5.618	A
		2	1	(A,B,C,D)	536			536	0.0	0.0	0.021	A
	Exit	1	1		229			229	0.0	0.0	0.000	A
B	Entry	1	1	C	192	1500	0.128	193	0.0	0.1	2.760	A
			2	A,B,D	11	1500	0.007	11	0.0	0.0	2.583	A
	Exit	1	1		147			147	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	368	2599	0.141	368	0.0	0.1	1.553	A
	Exit	1	1		951			951	0.0	0.0	0.000	A
D	Entry	1	1	A	112	1500	0.074	112	0.0	0.1	2.526	A
			2	B,C,D	588	1500	0.392	588	0.0	0.7	4.035	A
	Exit	1	1		481			481	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	58	1033	0.056	58	0.0	0.1	3.740	A
			2	A,C,D	583	1033	0.564	584	0.9	1.3	7.639	A
		2	1	(A,B,C,D)	641			641	0.0	0.0	0.039	A
	Exit	1	1		269			269	0.0	0.0	0.000	A
B	Entry	1	1	C	224	1500	0.149	224	0.1	0.2	2.783	A
			2	A,B,D	10	1500	0.007	10	0.0	0.0	2.610	A
	Exit	1	1		178			178	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	444	2530	0.175	443	0.1	0.3	1.714	A
	Exit	1	1		1123			1123	0.0	0.0	0.000	A
D	Entry	1	1	A	131	1500	0.087	132	0.1	0.1	2.586	A
			2	B,C,D	694	1500	0.462	695	0.7	0.8	4.512	A
	Exit	1	1		576			576	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	67	949	0.071	67	0.1	0.1	4.106	A
			2	A,C,D	725	949	0.765	722	1.3	2.9	12.869	B
		2	1	(A,B,C,D)	792			793	0.0	0.2	0.629	A
	Exit	1	1		326			326	0.0	0.0	0.000	A
B	Entry	1	1	C	282	1500	0.188	282	0.2	0.2	2.899	A
			2	A,B,D	13	1500	0.009	13	0.0	0.0	2.651	A
	Exit	1	1		214			214	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	534	2431	0.220	536	0.3	0.2	1.872	A
	Exit	1	1		1382			1382	0.0	0.0	0.000	A
D	Entry	1	1	A	159	1500	0.106	158	0.1	0.1	2.702	A
			2	B,C,D	845	1500	0.563	844	0.8	1.5	5.624	A
	Exit	1	1		700			700	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	69	949	0.072	69	0.1	0.1	4.053	A
			2	A,C,D	709	949	0.748	710	2.9	2.9	14.706	B
		2	1	(A,B,C,D)	779			778	0.2	0.3	1.529	A
	Exit	1	1		334			334	0.0	0.0	0.000	A
B	Entry	1	1	C	282	1500	0.188	283	0.2	0.2	2.862	A
			2	A,B,D	15	1500	0.010	15	0.0	0.0	2.469	A
	Exit	1	1		211			211	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	526	2437	0.216	528	0.2	0.2	1.859	A
	Exit	1	1		1383			1383	0.0	0.0	0.000	A
D	Entry	1	1	A	165	1500	0.110	165	0.1	0.2	2.777	A
			2	B,C,D	852	1500	0.568	849	1.5	1.5	5.816	A
	Exit	1	1		691			691	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	56	1034	0.054	56	0.1	0.0	3.798	A
			2	A,C,D	566	1034	0.547	569	2.9	1.1	8.467	A
		2	1	(A,B,C,D)	622			622	0.3	0.0	0.091	A
	Exit	1	1		264			264	0.0	0.0	0.000	A
B	Entry	1	1	C	237	1500	0.158	237	0.2	0.2	2.871	A
			2	A,B,D	13	1500	0.008	13	0.0	0.0	2.250	A
	Exit	1	1		170			170	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	433	2538	0.171	434	0.2	0.2	1.741	A
	Exit	1	1		1134			1134	0.0	0.0	0.000	A
D	Entry	1	1	A	128	1500	0.085	128	0.2	0.1	2.597	A
			2	B,C,D	696	1500	0.464	699	1.5	0.8	4.580	A
	Exit	1	1		568			568	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	47	1093	0.043	47	0.0	0.0	3.468	A
			2	A,C,D	478	1093	0.437	480	1.1	0.7	6.104	A
		2	1	(A,B,C,D)	525			525	0.0	0.0	0.013	A
	Exit	1	1		228			228	0.0	0.0	0.000	A
B	Entry	1	1	C	195	1500	0.130	194	0.2	0.2	2.765	A
			2	A,B,D	10	1500	0.007	10	0.0	0.0	2.451	A
	Exit	1	1		145			145	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	366	2605	0.140	366	0.2	0.1	1.589	A
	Exit	1	1		953			953	0.0	0.0	0.000	A
D	Entry	1	1	A	112	1500	0.074	112	0.1	0.1	2.511	A
			2	B,C,D	593	1500	0.396	592	0.8	0.7	3.983	A
	Exit	1	1		476			476	0.0	0.0	0.000	A

Do Minimum - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2022, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D10 - OPERATION - BASE + COMMITTED + DEVELOPMENT 2028, PM	Demand Set 10: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Demand Sets	D12 - OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026, PM	Demand Set 12: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	4.06	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D12	OPERATION WITH LINK ROAD - BASE + COMMITTED + DEVELOPMENT 2026	PM	ONE HOUR	15:45	17:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	706	100.000
B		ONE HOUR	✓	252	100.000
C		ONE HOUR	✓	1115	100.000
D		ONE HOUR	✓	569	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	62	230	414
	B	13	0	239	0
	C	386	219	0	510
	D	413	0	156	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	6.68	1.4	A	647	971
B	2.85	0.2	A	229	344
C	3.00	1.0	A	1013	1519
D	3.37	0.6	A	519	779

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	527	132	293	526	613	0.0	0.8	4.261	A
B	187	47	605	187	214	0.0	0.1	2.725	A
C	837	209	320	836	472	0.0	0.5	1.918	A
D	438	110	469	438	686	0.0	0.4	2.959	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	645	161	339	643	735	0.8	0.9	4.916	A
B	235	59	727	235	256	0.1	0.2	2.766	A
C	995	249	385	994	576	0.5	0.6	2.289	A
D	523	131	548	525	832	0.4	0.3	2.981	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	779	195	408	777	899	0.9	1.4	6.679	A
B	273	68	878	272	308	0.2	0.2	2.851	A
C	1227	307	465	1227	686	0.6	1.0	3.004	A
D	626	156	679	628	1012	0.3	0.5	3.367	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	777	194	395	777	880	1.4	1.2	6.507	A
B	271	68	869	271	302	0.2	0.1	2.796	A
C	1211	303	465	1212	676	1.0	0.8	2.925	A
D	603	151	672	603	1005	0.5	0.6	3.200	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	634	158	332	636	713	1.2	0.9	5.277	A
B	231	58	723	231	245	0.1	0.2	2.755	A
C	980	245	386	982	567	0.8	0.6	2.382	A
D	496	124	548	497	821	0.6	0.4	2.993	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	523	131	279	523	607	0.9	0.5	4.396	A
B	179	45	593	179	209	0.2	0.2	2.649	A
C	827	207	315	827	458	0.6	0.4	2.031	A
D	431	108	456	429	685	0.4	0.4	2.892	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

15:45 - 16:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	45	1285	0.035	45	0.0	0.1	2.977	A
			2	A,C,D	482	1285	0.375	481	0.0	0.7	4.383	A
		2	1	(A,B,C,D)	527			527	0.0	0.0	0.000	A
	Exit	1	1		613			613	0.0	0.0	0.000	A
B	Entry	1	1	C	177	1500	0.118	177	0.0	0.1	2.747	A
			2	A,B,D	10	1500	0.007	10	0.0	0.0	2.315	A
	Exit	1	1		214			214	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	837	2609	0.321	836	0.0	0.5	1.918	A
	Exit	1	1		472			472	0.0	0.0	0.000	A
D	Entry	1	1	A	314	1500	0.209	314	0.0	0.3	3.059	A
			2	B,C,D	125	1500	0.083	124	0.0	0.1	2.701	A
	Exit	1	1		686			686	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	59	1263	0.047	60	0.1	0.0	2.947	A
			2	A,C,D	586	1263	0.464	583	0.7	0.9	5.103	A
		2	1	(A,B,C,D)	645			645	0.0	0.0	0.000	A
	Exit	1	1		735			735	0.0	0.0	0.000	A
B	Entry	1	1	C	224	1500	0.149	224	0.1	0.2	2.790	A
			2	A,B,D	11	1500	0.007	11	0.0	0.0	2.262	A
	Exit	1	1		256			256	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	995	2536	0.392	994	0.5	0.6	2.289	A
	Exit	1	1		576			576	0.0	0.0	0.000	A
D	Entry	1	1	A	380	1500	0.253	382	0.3	0.2	3.137	A
			2	B,C,D	143	1500	0.095	143	0.1	0.1	2.574	A
	Exit	1	1		832			832	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	69	1229	0.056	69	0.0	0.1	2.944	A
			2	A,C,D	709	1229	0.577	708	0.9	1.3	6.999	A
		2	1	(A,B,C,D)	779			778	0.0	0.1	0.032	A
	Exit	1	1		899			899	0.0	0.0	0.000	A
B	Entry	1	1	C	260	1500	0.173	259	0.2	0.2	2.883	A
			2	A,B,D	13	1500	0.008	12	0.0	0.0	2.236	A
	Exit	1	1		308			308	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1227	2447	0.501	1227	0.6	1.0	3.004	A
	Exit	1	1		686			686	0.0	0.0	0.000	A
D	Entry	1	1	A	458	1500	0.306	458	0.2	0.4	3.602	A
			2	B,C,D	168	1500	0.112	170	0.1	0.1	2.729	A
	Exit	1	1		1012			1012	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	66	1236	0.053	67	0.1	0.0	2.978	A
			2	A,C,D	711	1236	0.576	710	1.3	1.2	6.795	A
		2	1	(A,B,C,D)	777			777	0.1	0.0	0.059	A
	Exit	1	1		880			880	0.0	0.0	0.000	A
B	Entry	1	1	C	257	1500	0.172	258	0.2	0.1	2.807	A
			2	A,B,D	14	1500	0.009	14	0.0	0.0	2.600	A
	Exit	1	1		302			302	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1211	2446	0.495	1212	1.0	0.8	2.925	A
	Exit	1	1		676			676	0.0	0.0	0.000	A
D	Entry	1	1	A	443	1500	0.295	443	0.4	0.4	3.404	A
			2	B,C,D	160	1500	0.107	160	0.1	0.2	2.641	A
	Exit	1	1		1005			1005	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	55	1266	0.043	55	0.0	0.1	3.062	A
			2	A,C,D	579	1266	0.457	581	1.2	0.8	5.501	A
		2	1	(A,B,C,D)	634			634	0.0	0.0	0.002	A
	Exit	1	1		713			713	0.0	0.0	0.000	A
B	Entry	1	1	C	220	1500	0.147	220	0.1	0.2	2.766	A
			2	A,B,D	11	1500	0.007	11	0.0	0.0	2.536	A
	Exit	1	1		245			245	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	980	2535	0.387	982	0.8	0.6	2.382	A
	Exit	1	1		567			567	0.0	0.0	0.000	A
D	Entry	1	1	A	355	1500	0.236	355	0.4	0.3	3.173	A
			2	B,C,D	141	1500	0.094	142	0.2	0.1	2.524	A
	Exit	1	1		821			821	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	48	1292	0.037	48	0.1	0.0	2.739	A
			2	A,C,D	475	1292	0.368	475	0.8	0.5	4.560	A
		2	1	(A,B,C,D)	523			523	0.0	0.0	0.000	A
	Exit	1	1		607			607	0.0	0.0	0.000	A
B	Entry	1	1	C	170	1500	0.113	170	0.2	0.1	2.680	A
			2	A,B,D	10	1500	0.006	9	0.0	0.0	2.082	A
	Exit	1	1		209			209	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	827	2615	0.316	827	0.6	0.4	2.031	A
	Exit	1	1		458			458	0.0	0.0	0.000	A
D	Entry	1	1	A	312	1500	0.208	311	0.3	0.3	3.037	A
			2	B,C,D	119	1500	0.079	118	0.1	0.1	2.508	A
	Exit	1	1		685			685	0.0	0.0	0.000	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []

Filename: CONSTRUCTION A180 Interchange.j9
Path: \\UKLDS2PFPSW001.na.aecomnet.com\LE_PROJECTS\Transport Projects\60580855 - Project Koala\Modelling\4_R'abouts\5.0 A180 Interchange Proposed Mitigation
Report generation date: 16/10/2018 12:05:02

»Do Minimum - CONSTRUCTION - BASE + COMMITTED 2020, AM
»Do Minimum - CONSTRUCTION - BASE + COMMITTED 2020, PM
»Do Minimum - CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020, AM
»Do Minimum - CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	Do Minimum [Lane Simulation] - CONSTRUCTION - BASE + COMMITTED 2020							
Arm A	0.8	10.04		B	0.3	4.65		A
Arm B	0.7	4.26		A	0.4	3.92		A
Arm C	0.5	2.27		A	1.8	3.77		A
Arm D	6.5	17.97		C	0.7	3.41		A
	Do Minimum [Lane Simulation] - CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020							
Arm A	0.8	10.02		B	0.3	5.15		A
Arm B	0.8	4.59		A	0.3	4.11		A
Arm C	0.4	2.25		A	2.2	4.10		A
Arm D	7.9	19.40		C	0.5	3.36		A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Arm and junction delays are averages for all movements, including movements with zero delay.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	20/08/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\CLEASBYD
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Lane Simulation options

Stop criteria (%)	Stop criteria time (s)	Stop criteria number of trials	Random seed	Results refresh speed (s)	Individual vehicle animation number of trials	Use crossings quick response	Last run random seed	Last run number of trials	Last run time taken (s)
1.00	100000	100000	-1	3	1	✓	1600911316	261	20.21

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	CONSTRUCTION - BASE + COMMITTED 2020	AM	ONE HOUR	06:45	08:15	15	✓
D4	CONSTRUCTION - BASE + COMMITTED 2020	PM	ONE HOUR	15:45	17:15	15	✓
D5	CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020	AM	ONE HOUR	06:45	08:15	15	✓
D6	CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020	PM	ONE HOUR	15:45	17:15	15	✓

Analysis Set Details

ID	Name	Use Lane Simulation	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do Minimum	✓	✓	100.000	100.000

Do Minimum - CONSTRUCTION - BASE + COMMITTED 2020, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	11.66	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A1173 NB APPROACH	
B	A180 EB OFFSLIP	
C	A1173 SB APPROACH	
D	A180 WB OFF-SLIP	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	4.62	8.54	23.5	17.7	93.0	11.0	
B	7.72	8.46	24.6	24.2	100.0	10.0	
C	4.09	7.98	29.1	39.3	100.0	9.5	
D	6.55	7.41	25.6	44.3	93.0	0.0	

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.963	2852
B	1.025	3095
C	1.121	2968
D	1.219	3099

The slope and intercept shown above include any corrections and adjustments.

Lane Simulation: Arm options

Arm	Lane capacity source	Traffic Considering Secondary Lanes (%)
A	Evenly split	10.00
B	Evenly split	10.00
C	Evenly split	10.00
D	Evenly split	10.00

Lanes

Arm	Lane level	Lane	Destination arms	Has limited storage	Storage (PCU)	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)
A	1 [Give-way line]	1	B	✓	9.00	0	99999
		2	A,C,D	✓	9.00	0	99999
	2	1	(A,B,C,D)		Infinity		
B	1 [Give-way line]	1	C		Infinity	1500	2000
		2	A,B,D		Infinity	1500	2000
C	1 [Give-way line]	1	A,B,C,D		Infinity	1800	99999
D	1 [Give-way line]	1	A		Infinity	1500	2000
		2	B,C,D		Infinity	1500	2000

Entry Lane slope and intercept

Arm	Lane level	Lane	Final slope	Final intercept (PCU/hr)
A	1 [Give-way line]	1	0.482	1426
		2	0.482	1426
B	1 [Give-way line]	1	0.513	1548
		2	0.513	1548
C	1 [Give-way line]	1	1.121	2968
D	1 [Give-way line]	1	0.609	1550
		2	0.609	1550

Lane Movements

Arm	Lane Level	Lane	Destination arm			
			A	B	C	D
A	1 [Give-way line]	1		✓		
		2	✓		✓	✓
	2	1	✓	✓	✓	✓
B	1 [Give-way line]	1			✓	
		2	✓	✓		✓
C	1 [Give-way line]	1	✓	✓	✓	✓
D	1 [Give-way line]	1	✓			
		2		✓	✓	✓

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	CONSTRUCTION - BASE + COMMITTED 2020	AM	ONE HOUR	06:45	08:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	252	100.000
B		ONE HOUR	✓	423	100.000
C		ONE HOUR	✓	468	100.000
D		ONE HOUR	✓	1256	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	11	81	160
	B	16	1	405	1
	C	42	196	0	230
	D	76	0	1180	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	33	3
	B	33	0	21	0
	C	48	72	0	14
	D	15	0	3	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	10.04	0.8	B	230	345
B	4.26	0.7	A	388	583
C	2.27	0.5	A	426	639
D	17.97	6.5	C	1149	1723

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	189	47	1041	189	103	0.0	0.3	4.901	A
B	323	81	1071	325	159	0.0	0.3	3.703	A
C	358	89	133	357	1262	0.0	0.3	2.024	A
D	948	237	197	947	293	0.0	1.6	5.871	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	225	56	1236	226	124	0.3	0.4	6.458	A
B	381	95	1278	382	185	0.3	0.4	3.932	A
C	410	103	159	409	1501	0.3	0.2	2.096	A
D	1132	283	226	1135	342	1.6	2.3	8.017	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	275	69	1521	273	150	0.4	0.8	8.945	A
B	462	116	1564	463	230	0.4	0.5	4.259	A
C	512	128	194	513	1834	0.2	0.4	2.271	A
D	1379	345	283	1388	423	2.3	6.5	16.015	C

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	273	68	1510	274	148	0.8	0.8	10.035	B
B	467	117	1563	464	222	0.5	0.7	4.226	A
C	505	126	191	504	1836	0.4	0.5	2.258	A
D	1374	344	272	1386	423	6.5	6.2	17.973	C

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	231	58	1230	231	113	0.8	0.5	7.189	A
B	375	94	1273	375	188	0.7	0.4	3.890	A
C	422	105	159	421	1488	0.5	0.2	2.112	A
D	1114	279	224	1119	356	6.2	2.3	8.809	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	189	47	1035	188	103	0.5	0.4	5.575	A
B	322	81	1067	322	155	0.4	0.3	3.723	A
C	349	87	133	349	1256	0.2	0.2	2.010	A
D	946	236	192	946	291	2.3	1.7	6.071	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

06:45 - 07:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	8	925	0.009	8	0.0	0.0	4.051	A
			2	A,C,D	181	925	0.195	181	0.0	0.3	4.943	A
		2	1	(A,B,C,D)	189			189	0.0	0.0	0.000	A
	Exit	1	1		103			103	0.0	0.0	0.000	A
B	Entry	1	1	C	309	1500	0.206	310	0.0	0.3	3.725	A
			2	A,B,D	14	1500	0.010	14	0.0	0.0	3.176	A
	Exit	1	1		159			159	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	358	2818	0.127	357	0.0	0.3	2.024	A
	Exit	1	1		1262			1262	0.0	0.0	0.000	A
D	Entry	1	1	A	57	1500	0.038	56	0.0	0.0	2.899	A
			2	B,C,D	891	1500	0.594	890	0.0	1.5	6.040	A
	Exit	1	1		293			293	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	831	0.013	11	0.0	0.0	4.222	A
			2	A,C,D	214	831	0.258	215	0.3	0.4	6.574	A
		2	1	(A,B,C,D)	225			225	0.0	0.0	0.000	A
	Exit	1	1		124			124	0.0	0.0	0.000	A
B	Entry	1	1	C	364	1500	0.242	365	0.3	0.4	3.971	A
			2	A,B,D	17	1500	0.012	17	0.0	0.0	3.012	A
	Exit	1	1		185			185	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	410	2790	0.147	409	0.3	0.2	2.096	A
	Exit	1	1		1501			1501	0.0	0.0	0.000	A
D	Entry	1	1	A	72	1500	0.048	72	0.0	0.0	2.833	A
			2	B,C,D	1060	1500	0.707	1063	1.5	2.3	8.319	A
	Exit	1	1		342			342	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	693	0.018	12	0.0	0.0	4.909	A
			2	A,C,D	263	693	0.380	261	0.4	0.8	9.131	A
		2	1	(A,B,C,D)	275			275	0.0	0.0	0.023	A
	Exit	1	1		150			150	0.0	0.0	0.000	A
B	Entry	1	1	C	443	1500	0.295	444	0.4	0.5	4.315	A
			2	A,B,D	20	1500	0.013	20	0.0	0.0	2.969	A
	Exit	1	1		230			230	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	512	2751	0.186	513	0.2	0.4	2.271	A
	Exit	1	1		1834			1834	0.0	0.0	0.000	A
D	Entry	1	1	A	84	1500	0.056	84	0.0	0.1	2.988	A
			2	B,C,D	1294	1500	0.863	1304	2.3	6.4	16.748	C
	Exit	1	1		423			423	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	13	698	0.019	13	0.0	0.0	5.218	A
			2	A,C,D	260	698	0.373	261	0.8	0.8	10.256	B
		2	1	(A,B,C,D)	273			273	0.0	0.0	0.027	A
	Exit	1	1		148			148	0.0	0.0	0.000	A
B	Entry	1	1	C	447	1500	0.298	444	0.5	0.6	4.272	A
			2	A,B,D	20	1500	0.014	20	0.0	0.0	3.115	A
	Exit	1	1		222			222	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	505	2754	0.184	504	0.4	0.5	2.258	A
	Exit	1	1		1836			1836	0.0	0.0	0.000	A
D	Entry	1	1	A	84	1500	0.056	84	0.1	0.1	2.933	A
			2	B,C,D	1290	1500	0.860	1301	6.4	6.1	18.859	C
	Exit	1	1		423			423	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	833	0.012	10	0.0	0.0	4.297	A
			2	A,C,D	220	833	0.264	220	0.8	0.5	7.338	A
		2	1	(A,B,C,D)	231			231	0.0	0.0	0.003	A
	Exit	1	1		113			113	0.0	0.0	0.000	A
B	Entry	1	1	C	362	1500	0.241	362	0.6	0.4	3.918	A
			2	A,B,D	14	1500	0.009	13	0.0	0.0	3.204	A
	Exit	1	1		188			188	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	422	2790	0.151	421	0.5	0.2	2.112	A
	Exit	1	1		1488			1488	0.0	0.0	0.000	A
D	Entry	1	1	A	67	1500	0.045	67	0.1	0.0	2.819	A
			2	B,C,D	1047	1500	0.698	1052	6.1	2.3	9.155	A
	Exit	1	1		356			356	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	928	0.010	9	0.0	0.0	3.861	A
			2	A,C,D	179	928	0.194	178	0.5	0.3	5.664	A
		2	1	(A,B,C,D)	189			189	0.0	0.0	0.000	A
	Exit	1	1		103			103	0.0	0.0	0.000	A
B	Entry	1	1	C	307	1500	0.205	307	0.4	0.3	3.746	A
			2	A,B,D	15	1500	0.010	15	0.0	0.0	3.195	A
	Exit	1	1		155			155	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	349	2819	0.124	349	0.2	0.2	2.010	A
	Exit	1	1		1256			1256	0.0	0.0	0.000	A
D	Entry	1	1	A	58	1500	0.038	58	0.0	0.1	2.897	A
			2	B,C,D	888	1500	0.592	889	2.3	1.6	6.254	A
	Exit	1	1		291			291	0.0	0.0	0.000	A

Do Minimum - CONSTRUCTION - BASE + COMMITTED 2020, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	3.77	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	CONSTRUCTION - BASE + COMMITTED 2020	PM	ONE HOUR	15:45	17:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	179	100.000
B		ONE HOUR	✓	239	100.000
C		ONE HOUR	✓	1523	100.000
D		ONE HOUR	✓	519	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	2	11	67	99
	B	63	1	175	0
	C	131	333	0	1059
	D	191	2	325	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	43	5
	B	3	0	71	0
	C	9	22	0	4
	D	3	100	13	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	4.65	0.3	A	164	246
B	3.92	0.4	A	218	327
C	3.77	1.8	A	1397	2095
D	3.41	0.7	A	477	715

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	129	32	489	129	292	0.0	0.2	3.846	A
B	178	45	365	178	253	0.0	0.2	3.851	A
C	1133	283	126	1133	416	0.0	0.7	2.373	A
D	385	96	393	388	866	0.0	0.2	3.105	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	163	41	596	165	350	0.2	0.1	4.239	A
B	220	55	449	217	312	0.2	0.4	3.869	A
C	1363	341	154	1364	512	0.7	1.0	2.838	A
D	471	118	474	471	1044	0.2	0.5	3.172	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	196	49	741	197	420	0.1	0.3	4.630	A
B	262	65	545	262	393	0.4	0.2	3.918	A
C	1672	418	182	1681	625	1.0	1.3	3.733	A
D	581	145	583	578	1280	0.5	0.7	3.386	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	197	49	722	198	418	0.3	0.3	4.652	A
B	264	66	543	266	378	0.2	0.3	3.838	A
C	1660	415	179	1663	630	1.3	1.8	3.766	A
D	564	141	579	561	1263	0.7	0.7	3.406	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	164	41	603	165	354	0.3	0.2	4.456	A
B	209	52	454	209	313	0.3	0.2	3.822	A
C	1375	344	152	1376	511	1.8	1.2	2.945	A
D	477	119	482	475	1047	0.7	0.5	3.192	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	134	33	509	132	278	0.2	0.2	4.026	A
B	173	43	367	174	275	0.2	0.1	3.566	A
C	1176	294	120	1174	422	1.2	0.8	2.350	A
D	381	95	407	380	887	0.5	0.4	2.988	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

15:45 - 16:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	7	1191	0.005	7	0.0	0.0	3.245	A
			2	A,C,D	122	1191	0.103	122	0.0	0.2	3.892	A
		2	1	(A,B,C,D)	129			129	0.0	0.0	0.000	A
	Exit	1	1		292			292	0.0	0.0	0.000	A
B	Entry	1	1	C	128	1500	0.085	127	0.0	0.2	4.717	A
			2	A,B,D	50	1500	0.034	50	0.0	0.0	2.460	A
	Exit	1	1		253			253	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1133	2826	0.401	1133	0.0	0.7	2.373	A
	Exit	1	1		416			416	0.0	0.0	0.000	A
D	Entry	1	1	A	143	1500	0.095	144	0.0	0.1	2.868	A
			2	B,C,D	242	1500	0.161	244	0.0	0.1	3.254	A
	Exit	1	1		866			866	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	1139	0.010	11	0.0	0.0	3.141	A
			2	A,C,D	152	1139	0.133	154	0.2	0.1	4.328	A
		2	1	(A,B,C,D)	163			163	0.0	0.0	0.000	A
	Exit	1	1		350			350	0.0	0.0	0.000	A
B	Entry	1	1	C	163	1500	0.109	161	0.2	0.3	4.723	A
			2	A,B,D	57	1500	0.038	57	0.0	0.1	2.498	A
	Exit	1	1		312			312	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1363	2795	0.488	1364	0.7	1.0	2.838	A
	Exit	1	1		512			512	0.0	0.0	0.000	A
D	Entry	1	1	A	174	1500	0.116	174	0.1	0.1	2.865	A
			2	B,C,D	297	1500	0.198	297	0.1	0.3	3.374	A
	Exit	1	1		1044			1044	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	14	1069	0.013	14	0.0	0.0	3.142	A
			2	A,C,D	182	1069	0.171	183	0.1	0.2	4.748	A
		2	1	(A,B,C,D)	196			196	0.0	0.0	0.000	A
	Exit	1	1		420			420	0.0	0.0	0.000	A
B	Entry	1	1	C	191	1500	0.127	190	0.3	0.1	4.764	A
			2	A,B,D	71	1500	0.047	71	0.1	0.0	2.581	A
	Exit	1	1		393			393	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1672	2763	0.605	1681	1.0	1.3	3.733	A
	Exit	1	1		625			625	0.0	0.0	0.000	A
D	Entry	1	1	A	215	1500	0.143	214	0.1	0.2	2.912	A
			2	B,C,D	366	1500	0.244	364	0.3	0.5	3.683	A
	Exit	1	1		1280			1280	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	11	1078	0.010	11	0.0	0.0	3.421	A
			2	A,C,D	186	1078	0.172	187	0.2	0.3	4.743	A
		2	1	(A,B,C,D)	197			197	0.0	0.0	0.000	A
	Exit	1	1		418			418	0.0	0.0	0.000	A
B	Entry	1	1	C	197	1500	0.131	198	0.1	0.2	4.579	A
			2	A,B,D	67	1500	0.045	68	0.0	0.0	2.685	A
	Exit	1	1		378			378	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1660	2767	0.600	1663	1.3	1.8	3.766	A
	Exit	1	1		630			630	0.0	0.0	0.000	A
D	Entry	1	1	A	205	1500	0.137	204	0.2	0.2	2.887	A
			2	B,C,D	359	1500	0.240	358	0.5	0.5	3.734	A
	Exit	1	1		1263			1263	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	1136	0.008	9	0.0	0.0	3.364	A
			2	A,C,D	155	1136	0.136	156	0.3	0.2	4.537	A
		2	1	(A,B,C,D)	164			164	0.0	0.0	0.000	A
	Exit	1	1		354			354	0.0	0.0	0.000	A
B	Entry	1	1	C	151	1500	0.101	151	0.2	0.2	4.586	A
			2	A,B,D	58	1500	0.039	59	0.0	0.0	2.588	A
	Exit	1	1		313			313	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1375	2797	0.492	1376	1.8	1.2	2.945	A
	Exit	1	1		511			511	0.0	0.0	0.000	A
D	Entry	1	1	A	176	1500	0.117	175	0.2	0.2	2.823	A
			2	B,C,D	300	1500	0.200	300	0.5	0.3	3.430	A
	Exit	1	1		1047			1047	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	1181	0.008	9	0.0	0.0	3.082	A
			2	A,C,D	124	1181	0.105	123	0.2	0.2	4.101	A
		2	1	(A,B,C,D)	134			134	0.0	0.0	0.000	A
	Exit	1	1		278			278	0.0	0.0	0.000	A
B	Entry	1	1	C	129	1500	0.086	130	0.2	0.1	4.324	A
			2	A,B,D	44	1500	0.030	44	0.0	0.0	2.300	A
	Exit	1	1		275			275	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1176	2834	0.415	1174	1.2	0.8	2.350	A
	Exit	1	1		422			422	0.0	0.0	0.000	A
D	Entry	1	1	A	134	1500	0.090	134	0.2	0.1	2.678	A
			2	B,C,D	246	1500	0.164	246	0.3	0.3	3.182	A
	Exit	1	1		887			887	0.0	0.0	0.000	A

Do Minimum - CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	12.11	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020	AM	ONE HOUR	06:45	08:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	252	100.000
B		ONE HOUR	✓	535	100.000
C		ONE HOUR	✓	478	100.000
D		ONE HOUR	✓	1278	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	11	81	160
	B	16	1	517	1
	C	42	201	0	235
	D	76	0	1202	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	33	3
	B	33	0	16	0
	C	48	73	0	14
	D	15	0	3	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	10.02	0.8	B	230	345
B	4.59	0.8	A	493	739
C	2.25	0.4	A	439	658
D	19.40	7.9	C	1169	1754

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	191	48	1057	191	102	0.0	0.3	5.073	A
B	404	101	1088	403	160	0.0	0.6	3.866	A
C	363	91	139	363	1352	0.0	0.2	2.001	A
D	961	240	197	962	305	0.0	1.6	6.086	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	222	56	1254	223	120	0.3	0.4	6.511	A
B	476	119	1288	476	189	0.6	0.6	4.130	A
C	430	107	160	430	1604	0.2	0.3	2.138	A
D	1142	285	232	1142	358	1.6	2.9	8.538	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	276	69	1536	277	144	0.4	0.8	9.091	A
B	592	148	1580	593	233	0.6	0.8	4.595	A
C	526	132	195	526	1977	0.3	0.3	2.253	A
D	1399	350	284	1396	437	2.9	7.6	17.713	C

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	279	70	1541	279	152	0.8	0.8	10.016	B
B	595	149	1585	595	234	0.8	0.8	4.594	A
C	529	132	200	528	1979	0.3	0.4	2.249	A
D	1406	351	290	1403	438	7.6	7.9	19.397	C

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	227	57	1259	225	120	0.8	0.5	7.128	A
B	477	119	1295	477	189	0.8	0.6	4.094	A
C	429	107	161	429	1611	0.4	0.3	2.128	A
D	1149	287	231	1148	359	7.9	2.7	9.768	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	186	46	1050	186	100	0.5	0.3	5.608	A
B	412	103	1077	413	159	0.6	0.4	3.837	A
C	355	89	134	355	1356	0.3	0.3	2.046	A
D	958	239	193	957	295	2.7	1.6	6.261	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

06:45 - 07:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	8	917	0.009	8	0.0	0.0	3.738	A
			2	A,C,D	183	917	0.200	183	0.0	0.3	5.140	A
		2	1	(A,B,C,D)	191			191	0.0	0.0	0.000	A
	Exit	1	1		102			102	0.0	0.0	0.000	A
B	Entry	1	1	C	389	1500	0.259	388	0.0	0.6	3.892	A
			2	A,B,D	14	1500	0.010	14	0.0	0.0	3.069	A
	Exit	1	1		160			160	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	363	2812	0.129	363	0.0	0.2	2.001	A
	Exit	1	1		1352			1352	0.0	0.0	0.000	A
D	Entry	1	1	A	57	1500	0.038	57	0.0	0.0	2.886	A
			2	B,C,D	904	1500	0.602	905	0.0	1.6	6.265	A
	Exit	1	1		305			305	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	822	0.013	10	0.0	0.0	4.147	A
			2	A,C,D	212	822	0.258	213	0.3	0.4	6.636	A
		2	1	(A,B,C,D)	222			222	0.0	0.0	0.001	A
	Exit	1	1		120			120	0.0	0.0	0.000	A
B	Entry	1	1	C	459	1500	0.306	459	0.6	0.5	4.159	A
			2	A,B,D	17	1500	0.011	17	0.0	0.0	3.204	A
	Exit	1	1		189			189	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	430	2788	0.154	430	0.2	0.3	2.138	A
	Exit	1	1		1604			1604	0.0	0.0	0.000	A
D	Entry	1	1	A	67	1500	0.045	67	0.0	0.1	2.919	A
			2	B,C,D	1075	1500	0.717	1075	1.6	2.8	8.855	A
	Exit	1	1		358			358	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	686	0.018	12	0.0	0.0	5.113	A
			2	A,C,D	264	686	0.385	264	0.4	0.8	9.285	A
		2	1	(A,B,C,D)	276			276	0.0	0.0	0.009	A
	Exit	1	1		144			144	0.0	0.0	0.000	A
B	Entry	1	1	C	572	1500	0.381	572	0.5	0.7	4.639	A
			2	A,B,D	20	1500	0.013	20	0.0	0.0	3.212	A
	Exit	1	1		233			233	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	526	2749	0.191	526	0.3	0.3	2.253	A
	Exit	1	1		1977			1977	0.0	0.0	0.000	A
D	Entry	1	1	A	81	1500	0.054	81	0.1	0.1	2.914	A
			2	B,C,D	1319	1500	0.879	1315	2.8	7.5	18.541	C
	Exit	1	1		437			437	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	12	684	0.018	12	0.0	0.0	5.553	A
			2	A,C,D	267	684	0.391	266	0.8	0.8	10.212	B
		2	1	(A,B,C,D)	279			279	0.0	0.0	0.035	A
	Exit	1	1		152			152	0.0	0.0	0.000	A
B	Entry	1	1	C	573	1500	0.382	573	0.7	0.8	4.641	A
			2	A,B,D	22	1500	0.014	22	0.0	0.0	3.156	A
	Exit	1	1		234			234	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	529	2743	0.193	528	0.3	0.4	2.249	A
	Exit	1	1		1979			1979	0.0	0.0	0.000	A
D	Entry	1	1	A	84	1500	0.056	84	0.1	0.1	2.957	A
			2	B,C,D	1322	1500	0.881	1319	7.5	7.8	20.329	C
	Exit	1	1		438			438	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	820	0.012	10	0.0	0.0	4.734	A
			2	A,C,D	217	820	0.265	216	0.8	0.5	7.249	A
		2	1	(A,B,C,D)	227			227	0.0	0.0	0.001	A
	Exit	1	1		120			120	0.0	0.0	0.000	A
B	Entry	1	1	C	461	1500	0.307	460	0.8	0.6	4.128	A
			2	A,B,D	17	1500	0.011	17	0.0	0.0	3.072	A
	Exit	1	1		189			189	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	429	2787	0.154	429	0.4	0.3	2.128	A
	Exit	1	1		1611			1611	0.0	0.0	0.000	A
D	Entry	1	1	A	68	1500	0.046	68	0.1	0.1	2.955	A
			2	B,C,D	1080	1500	0.720	1080	7.8	2.7	10.156	B
	Exit	1	1		359			359	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	8	920	0.009	8	0.0	0.0	4.080	A
			2	A,C,D	178	920	0.193	178	0.5	0.3	5.685	A
		2	1	(A,B,C,D)	186			186	0.0	0.0	0.003	A
	Exit	1	1		100			100	0.0	0.0	0.000	A
B	Entry	1	1	C	398	1500	0.265	398	0.6	0.4	3.860	A
			2	A,B,D	15	1500	0.010	15	0.0	0.0	3.095	A
	Exit	1	1		159			159	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	355	2818	0.126	355	0.3	0.3	2.046	A
	Exit	1	1		1356			1356	0.0	0.0	0.000	A
D	Entry	1	1	A	57	1500	0.038	57	0.1	0.0	2.833	A
			2	B,C,D	901	1500	0.600	899	2.7	1.6	6.455	A
	Exit	1	1		295			295	0.0	0.0	0.000	A

Do Minimum - CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Lane Simulation	A1 - Do Minimum [Lane Simulation]	This analysis set uses Lane Simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results.
Warning	Demand Sets	D6 - CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020, PM	Demand Set 6: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	A1173 / A180 INTERCHANGE	Large Roundabout	A,B,C,D	4.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A	1025	39.00
B	1211	110.00
C	248	49.00
D	248	104.00

Slope / Intercept / Capacity
[same as above]

Lane Simulation: Arm options
[same as above]

Lanes
[same as above]

Entry Lane slope and intercept
[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	CONSTRUCTION - BASE + COMMITTED + DEVELOPMENT 2020	PM	ONE HOUR	15:45	17:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	179	100.000
B		ONE HOUR	✓	244	100.000
C		ONE HOUR	✓	1606	100.000
D		ONE HOUR	✓	524	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	2	11	67	99
	B	63	1	180	0
	C	131	401	0	1074
	D	191	2	330	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	43	5
	B	3	0	71	0
	C	9	18	0	5
	D	3	100	14	0

Results

Results Summary for whole modelled period

Arm	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	5.15	0.3	A	164	246
B	4.11	0.3	A	224	336
C	4.10	2.2	A	1464	2196
D	3.36	0.5	A	480	720

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	137	34	545	138	292	0.0	0.1	3.922	A
B	187	47	371	186	312	0.0	0.3	3.730	A
C	1192	298	126	1195	431	0.0	0.7	2.432	A
D	391	98	448	389	873	0.0	0.5	3.093	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	157	39	657	156	345	0.1	0.3	4.168	A
B	214	53	443	213	370	0.3	0.3	3.839	A
C	1423	356	151	1425	505	0.7	1.2	2.928	A
D	469	117	533	469	1043	0.5	0.5	3.200	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	193	48	819	194	426	0.3	0.3	4.901	A
B	264	66	554	265	460	0.3	0.3	3.989	A
C	1774	444	183	1777	635	1.2	2.2	4.104	A
D	582	145	663	583	1298	0.5	0.5	3.344	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	201	50	823	201	431	0.3	0.3	5.155	A
B	271	68	551	269	473	0.3	0.3	4.115	A
C	1778	445	182	1785	638	2.2	2.0	4.030	A
D	574	144	679	574	1288	0.5	0.5	3.355	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	164	41	662	162	341	0.3	0.3	4.450	A
B	223	56	451	222	373	0.3	0.3	3.768	A
C	1418	355	151	1420	522	2.0	1.1	2.980	A
D	469	117	534	469	1038	0.5	0.4	3.210	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	132	33	552	131	292	0.3	0.1	3.990	A
B	184	46	373	186	311	0.3	0.2	3.800	A
C	1198	299	125	1197	434	1.1	0.8	2.528	A
D	395	99	451	394	871	0.4	0.4	3.077	A

Lane Results

Lane Level notation: Lane Level 1 is always closest to the junction.

Lanes: Main Results for each time segment

15:45 - 16:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	9	1163	0.008	9	0.0	0.0	3.156	A
			2	A,C,D	128	1163	0.110	129	0.0	0.1	3.983	A
		2	1	(A,B,C,D)	137			137	0.0	0.0	0.000	A
	Exit	1	1		292			292	0.0	0.0	0.000	A
B	Entry	1	1	C	140	1500	0.093	138	0.0	0.3	4.480	A
			2	A,B,D	48	1500	0.032	48	0.0	0.0	2.453	A
	Exit	1	1		312			312	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1192	2827	0.422	1195	0.0	0.7	2.432	A
	Exit	1	1		431			431	0.0	0.0	0.000	A
D	Entry	1	1	A	145	1500	0.097	145	0.0	0.1	2.759	A
			2	B,C,D	246	1500	0.164	245	0.0	0.3	3.302	A
	Exit	1	1		873			873	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1110	0.009	10	0.0	0.0	3.156	A
			2	A,C,D	147	1110	0.132	146	0.1	0.3	4.253	A
		2	1	(A,B,C,D)	157			157	0.0	0.0	0.000	A
	Exit	1	1		345			345	0.0	0.0	0.000	A
B	Entry	1	1	C	157	1500	0.104	156	0.3	0.3	4.624	A
			2	A,B,D	57	1500	0.038	57	0.0	0.0	2.528	A
	Exit	1	1		370			370	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1423	2799	0.508	1425	0.7	1.2	2.928	A
	Exit	1	1		505			505	0.0	0.0	0.000	A
D	Entry	1	1	A	171	1500	0.114	171	0.1	0.2	2.758	A
			2	B,C,D	298	1500	0.199	298	0.3	0.3	3.485	A
	Exit	1	1		1043			1043	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	13	1031	0.012	13	0.0	0.0	3.333	A
			2	A,C,D	180	1031	0.175	181	0.3	0.2	5.023	A
		2	1	(A,B,C,D)	193			193	0.0	0.0	0.000	A
	Exit	1	1		426			426	0.0	0.0	0.000	A
B	Entry	1	1	C	194	1500	0.129	194	0.3	0.3	4.716	A
			2	A,B,D	70	1500	0.047	71	0.0	0.0	2.731	A
	Exit	1	1		460			460	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1774	2762	0.642	1777	1.2	2.2	4.104	A
	Exit	1	1		635			635	0.0	0.0	0.000	A
D	Entry	1	1	A	209	1500	0.139	208	0.2	0.2	2.908	A
			2	B,C,D	373	1500	0.249	374	0.3	0.4	3.622	A
	Exit	1	1		1298			1298	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	13	1030	0.013	13	0.0	0.0	3.570	A
			2	A,C,D	188	1030	0.183	188	0.2	0.3	5.284	A
		2	1	(A,B,C,D)	201			201	0.0	0.0	0.000	A
	Exit	1	1		431			431	0.0	0.0	0.000	A
B	Entry	1	1	C	199	1500	0.133	196	0.3	0.3	5.029	A
			2	A,B,D	72	1500	0.048	72	0.0	0.0	2.581	A
	Exit	1	1		473			473	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1778	2764	0.643	1785	2.2	2.0	4.030	A
	Exit	1	1		638			638	0.0	0.0	0.000	A
D	Entry	1	1	A	208	1500	0.139	209	0.2	0.1	2.931	A
			2	B,C,D	366	1500	0.244	365	0.4	0.4	3.628	A
	Exit	1	1		1288			1288	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	10	1107	0.009	10	0.0	0.0	3.489	A
			2	A,C,D	154	1107	0.139	152	0.3	0.3	4.524	A
		2	1	(A,B,C,D)	164			164	0.0	0.0	0.000	A
	Exit	1	1		341			341	0.0	0.0	0.000	A
B	Entry	1	1	C	164	1500	0.109	164	0.3	0.2	4.559	A
			2	A,B,D	59	1500	0.039	59	0.0	0.0	2.440	A
	Exit	1	1		373			373	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1418	2799	0.507	1420	2.0	1.1	2.980	A
	Exit	1	1		522			522	0.0	0.0	0.000	A
D	Entry	1	1	A	169	1500	0.113	169	0.1	0.2	2.796	A
			2	B,C,D	300	1500	0.200	300	0.4	0.2	3.474	A
	Exit	1	1		1038			1038	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Side	Lane level	Lane	Destination arms	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	Entry	1	1	B	8	1160	0.007	8	0.0	0.0	3.053	A
			2	A,C,D	124	1160	0.107	123	0.3	0.1	4.061	A
		2	1	(A,B,C,D)	132			132	0.0	0.0	0.000	A
	Exit	1	1		292			292	0.0	0.0	0.000	A
B	Entry	1	1	C	135	1500	0.090	136	0.2	0.2	4.531	A
			2	A,B,D	49	1500	0.033	50	0.0	0.0	2.568	A
	Exit	1	1		311			311	0.0	0.0	0.000	A
C	Entry	1	1	A,B,C,D	1198	2828	0.424	1197	1.1	0.8	2.528	A
	Exit	1	1		434			434	0.0	0.0	0.000	A
D	Entry	1	1	A	142	1500	0.094	142	0.2	0.1	2.714	A
			2	B,C,D	253	1500	0.169	253	0.2	0.3	3.306	A
	Exit	1	1		871			871	0.0	0.0	0.000	A

ANNEX 20: A180 WESTGATE ROUNDABOUT MODELLING OUTPUTS

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Operation Westgate Roundabout Grimsby.j9
Path: \\UKLDS2PFPSW001.na.aecomnet.com\LE_PROJECTS\Transport Projects\60580855 - Project Koala\Modelling\4_R'abouts\7.0 Westgate Roundabout Grimsby
Report generation date: 06/11/2018 09:09:09

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	OPERATION - Base 2018							
Arm 1	44.1	73.20	1.02	F	3.1	7.97	0.75	A
Arm 2	5.8	31.36	0.87	D	1.3	6.95	0.57	A
Arm 3	4.0	98.54	0.85	F	1.7	19.53	0.63	C
Arm 4	2.6	6.92	0.70	A	200.0	336.80	1.19	F
Arm 5	0.6	9.52	0.32	A	19.3	210.43	1.07	F
	OPERATION - Base + Committed 2022							
Arm 1	137.5	199.91	1.13	F				
Arm 2	11.7	57.94	0.95	F				
Arm 3	9.6	208.75	1.03	F				
Arm 4	3.4	8.42	0.75	A				
Arm 5	0.7	10.91	0.37	B				
	OPERATION - Base + Committed 2022							
Arm 1					4.2	10.09	0.80	B
Arm 2					1.7	8.37	0.63	A
Arm 3					2.8	30.41	0.74	D
Arm 4					351.2	610.73	1.30	F
Arm 5					28.8	317.50	1.14	F
	OPERATION - Base + Committed + Development 2022							
Arm 1	154.9	236.28	1.14	F				
Arm 2	12.9	63.04	0.96	F				
Arm 3	10.4	221.53	1.05	F				
Arm 4	3.7	9.06	0.77	A				
Arm 5	0.7	11.23	0.37	B				
	OPERATION - Base + Committed + Development 2022							
Arm 1					4.4	10.47	0.81	B
Arm 2					1.7	8.61	0.63	A
Arm 3					2.9	31.98	0.75	D
Arm 4					364.4	631.32	1.31	F
Arm 5					28.8	318.62	1.14	F
	OPERATION - Base + Committed 2028							
Arm 1	229.2	392.01	1.22	F	6.0	13.71	0.86	B
Arm 2	22.4	97.94	1.01	F	2.3	10.59	0.69	B
Arm 3	16.4	346.01	1.16	F	5.9	62.87	0.88	F
Arm 4	4.5	10.63	0.80	B	526.9	898.82	1.40	F
Arm 5	0.8	12.45	0.41	B	41.7	493.73	1.22	F
	OPERATION - Base + Committed + Development 2028							
Arm 1	250.8	437.63	1.24	F	6.3	14.36	0.86	B
Arm 2	25.2	107.80	1.02	F	2.3	10.89	0.70	B
Arm 3	17.5	390.19	1.17	F	6.4	68.30	0.90	F
Arm 4	5.1	11.76	0.82	B	541.0	926.19	1.41	F
Arm 5	0.9	13.00	0.42	B	41.7	494.70	1.22	F

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	26/09/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	EU\cleasbyd
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	OPERATION - Base 2018	AM	ONE HOUR	06:45	08:15	15
D2	OPERATION - Base 2018	PM	ONE HOUR	15:45	17:15	15
D3	OPERATION - Base + Committed 2022	AM	ONE HOUR	06:45	08:15	15
D4	OPERATION - Base + Committed 2022	PM	ONE HOUR	15:45	17:15	15
D5	OPERATION - Base + Committed + Development 2022	AM	ONE HOUR	06:45	08:15	15
D6	OPERATION - Base + Committed + Development 2022	PM	ONE HOUR	15:45	17:15	15
D7	OPERATION - Base + Committed 2028	AM	ONE HOUR	06:45	08:15	15
D8	OPERATION - Base + Committed 2028	PM	ONE HOUR	15:45	17:15	15
D9	OPERATION - Base + Committed + Development 2028	AM	ONE HOUR	06:45	08:15	15
D10	OPERATION - Base + Committed + Development 2028	PM	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

OPERATION - Base 2018, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	44.38	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A180 E	
2	Pyewipe Rd	
3	Birchin Way	
4	A180 W	
5	Moody Lane	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	7.25	7.25	0.0	33.0	83.0	18.0	
2	4.75	6.75	10.0	20.0	83.0	15.0	
3	3.25	4.25	8.0	17.0	83.0	20.0	
4	7.25	7.25	0.0	18.0	83.0	25.0	
5	4.00	4.00	0.0	26.0	83.0	25.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.571	2331
2	0.507	1903
3	0.404	1232
4	0.544	2223
5	0.407	1247

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	OPERATION - Base 2018	AM	ONE HOUR	06:45	08:15	15