CfeIT bob.white@cfeit.com (02) 9740 8600

Traffic Count Summary Report

Count Number	**2920**	Ref : **TUP**	**Lat/Long : S33 43 26.9 / E150 50 40.3**	**UBD 147 C-12**
Street	**RICHMOND ROAD, OAKHURST : From QUAKERS HILL PARKWAY to GARFIELD ROAD WEST : NORTH BOUND**			
Location	Northbound north of Bells Creek, about House No. 760-800 , ELP 262799			*Carriageway*

TOTAL COUNT MATRIX

Start Date	11-FEB-09
Start Time	100
Duration	7 DAYS
Interval	1 HOUR

Weekly 50th Percentile Speed	74
Weekly 85th Percentile Speed	82
Five Day AADT	14586
Seven Day AADT	13220

	MON *16TH*	TUE *17TH*	WED *11TH*	THU *12TH*	FRI *13TH*	SAT *14TH*	SUN *15TH*	5 Day Total	5 Day Average	7 Day Total	7 Day Average
Midnight - 1am	68	68	61	94	87	153	234	**378**	**76**	**765**	**109**
1am - 2am	28	32	48	49	49	70	92	**206**	**41**	**368**	**53**
2am - 3am	34	46	32	47	48	67	65	**207**	**41**	**339**	**48**
3am - 4am	55	50	42	74	54	50	41	**275**	**55**	**366**	**52**
4am - 5am	128	120	131	131	131	74	60	**641**	**128**	**775**	**111**
5am - 6am	351	346	360	375	361	181	131	**1793**	**359**	**2105**	**301**
6am - 7am	729	732	723	731	666	268	242	**3581**	**716**	**4091**	**584**
7am - 8am	826	864	822	822	807	374	274	**4141**	**828**	**4789**	**684**
8am - 9am	**912**	**933**	**881**	**920**	**889**	451	303	**4535**	**907**	**5289**	**756**
9am - 10am	664	717	707	724	711	563	490	**3523**	**705**	**4576**	**654**
10am - 11am	676	638	700	690	671	680	600	**3375**	**675**	**4655**	**665**
11am - Midday	690	686	698	728	728	**733**	**729**	**3530**	**706**	**4992**	**713**
Midday - 1pm	735	750	700	708	805	829	690	**3698**	**740**	**5217**	**745**
1pm - 2pm	816	765	834	772	996	750	633	**4183**	**837**	**5566**	**795**
2pm - 3pm	976	1056	995	1062	1092	814	652	**5181**	**1036**	**6647**	**950**
3pm - 4pm	1234	1280	1272	1379	1288	747	687	**6453**	**1291**	**7887**	**1127**
4pm - 5pm	1307	**1478**	**1428**	**1412**	**1385**	742	670	**7010**	**1402**	**8422**	**1203**
5pm - 6pm	**1324**	1308	1410	1398	1273	**832**	**754**	**6713**	**1343**	**8299**	**1186**
6pm - 7pm	924	997	1057	1064	1026	645	489	**5068**	**1014**	**6202**	**886**
7pm - 8pm	468	517	565	586	710	387	360	**2846**	**569**	**3593**	**513**
8pm - 9pm	325	372	385	400	460	307	291	**1942**	**388**	**2540**	**363**
9pm - 10pm	306	318	361	387	337	254	255	**1709**	**342**	**2218**	**317**
10pm - 11pm	207	224	232	235	269	291	169	**1167**	**233**	**1627**	**232**
11pm - Midnight	108	143	144	147	234	307	131	**776**	**155**	**1214**	**173**
Total	**13891**	**14440**	**14588**	**14935**	**15077**	**10569**	**9042**	**72931**	**14586**	**92542**	**13220**

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Traffic Count Summary Report

Count Number	**2921**	Ref : **TUP**	**Lat/Long : S33 43 27.5 / E150 50 40.7**	**UBD 147 C-12**
Street	**RICHMOND ROAD, OAKHURST : From QUAKERS HILL PARKWAY to GARFIELD ROAD WEST : SOUTH BOUND**			
Location	Southbound north of Bells Creek, about House No. 760-800 , on 80km sign			*Carriageway*

TOTAL COUNT MATRIX

Start Date	11-FEB-09
Start Time	100
Duration	7 DAYS
Interval	1 HOUR

Weekly 50th Percentile Speed	69
Weekly 85th Percentile Speed	77
Five Day AADT	14321
Seven Day AADT	13038

	MON *16TH*	TUE *17TH*	WED *11TH*	THU *12TH*	FRI *13TH*	SAT *14TH*	SUN *15TH*	5 Dav Total	5 Dav Average	7 Dav Total	7 Dav Average
Midnight - 1am	51	29	46	54	59	108	125	**239**	**48**	**472**	**67**
1am - 2am	48	33	36	51	33	81	83	**201**	**40**	**365**	**52**
2am - 3am	54	68	67	56	66	76	59	**311**	**62**	**446**	**64**
3am - 4am	96	88	97	111	112	85	48	**504**	**101**	**637**	**91**
4am - 5am	281	269	280	282	255	134	79	**1367**	**273**	**1580**	**226**
5am - 6am	728	804	814	811	806	277	110	**3963**	**793**	**4350**	**621**
6am - 7am	1135	1167	1203	1172	1131	328	143	**5808**	**1162**	**6279**	**897**
7am - 8am	**1300**	**1376**	**1276**	**1313**	**1275**	406	213	**6540**	**1308**	**7159**	**1023**
8am - 9am	1208	1308	1189	1274	1111	530	317	**6090**	**1218**	**6937**	**991**
9am - 10am	851	978	947	952	995	637	532	**4723**	**945**	**5892**	**842**
10am - 11am	739	778	756	755	783	734	651	**3811**	**762**	**5196**	**742**
11am - Midday	726	709	681	738	745	**757**	**841**	**3599**	**720**	**5197**	**742**
Midday - 1pm	710	675	697	697	750	**804**	**744**	**3529**	**706**	**5077**	**725**
1pm - 2pm	675	682	689	697	755	730	708	**3498**	**700**	**4936**	**705**
2pm - 3pm	748	809	810	847	**952**	731	687	**4166**	**833**	**5584**	**798**
3pm - 4pm	884	925	921	947	919	688	736	**4596**	**919**	**6020**	**860**
4pm - 5pm	**1024**	**981**	**975**	**1068**	883	660	721	**4931**	**986**	**6312**	**902**
5pm - 6pm	915	917	899	847	877	677	722	**4455**	**891**	**5854**	**836**
6pm - 7pm	570	587	599	616	686	513	478	**3058**	**612**	**4049**	**578**
7pm - 8pm	340	332	394	391	457	370	408	**1914**	**383**	**2692**	**385**
8pm - 9pm	252	276	306	292	349	302	322	**1475**	**295**	**2099**	**300**
9pm - 10pm	248	222	280	277	288	322	268	**1315**	**263**	**1905**	**272**
10pm - 11pm	160	150	178	203	269	261	138	**960**	**192**	**1359**	**194**
11pm - Midnight	88	92	119	89	164	245	70	**552**	**110**	**867**	**124**
Total	**13831**	**14255**	**14259**	**14540**	**14720**	**10456**	**9203**	**71605**	**14321**	**91264**	**13037**

HOURLY TRAFFIC VOLUMES for Week commencing MON 15/08/05 Station No. 71.043.N

RICHMOND RD,MR537-SL9 COLEBEE-N OF MR537,ROOTY HILL RD NTH

HOUR	MON	TUE	WED	THU	FRI	SAT	SUN	WEEKDAYS			WEEKEND (+HOLIDAYS)			WHOLE WEEK		
comm.	15/08	16/08	17/08	18/08	19/08	20/08	21/08	TOTAL	MEAN	%	TOTAL	MEAN	%	TOTAL	MEAN	%
0	38	53	52	80	73	99	146	296	59	0.48	245	123	1.38	541	77	0.68
1	44	32	37	44	51	78	98	208	42	0.34	176	88	0.99	384	55	0.48
2	26	34	41	39	43	47	57	183	37	0.30	104	52	0.59	287	41	0.36
3	39	44	37	49	51	44	42	220	44	0.36	86	43	0.48	306	44	0.38
4	81	96	96	108	102	45	32	483	97	0.78	77	39	0.43	560	80	0.70
5	289	267	268	261	289	151	71	1374	275	2.22	222	111	1.25	1596	228	2.01
6	654	700	686	680	696	300	212	3416	683	5.52	512	256	2.88	3928	561	4.94
7	621	708	690	747	652	411	279	3418	684	5.53	690	345	3.89	4108	587	5.16
8	812	804	853	771	814	514	328	4054	811	6.56	842	421	4.74	4896	699	6.15
9	581	585	619	593	611	622	448	2989	598	4.83	1070	535	6.03	4059	580	5.10
10	496	530	550	497	536	729	631	2609	522	4.22	1360	680	7.66	3969	567	4.99
11	557	494	570	566	625	730	745	2812	562	4.55	1475	738	8.31	4287	612	5.39
12	566	586	582	581	632	802	751	2947	589	4.77	1553	777	8.75	4500	643	5.65
13	674	665	595	668	811	849	690	3413	683	5.52	1539	770	8.67	4952	707	6.22
14	731	800	813	791	844	695	594	3979	796	6.44	1289	645	7.26	5268	753	6.62
15	1051	1041	1119	1098	1159	609	542	5468	1094	8.84	1151	576	6.48	6619	946	8.32
16	1191	1222	1236	1207	1270	643	569	6126	1225	9.91	1212	606	6.83	7338	1048	9.22
17	1222	1252	1197	1124	1291	581	597	6086	1217	9.84	1178	589	6.64	7264	1038	9.13
18	842	895	969	918	1003	472	451	4627	925	7.48	923	462	5.20	5550	793	6.97
19	408	457	517	520	546	328	287	2448	490	3.96	615	308	3.46	3063	438	3.85
20	288	303	350	366	307	201	201	1614	323	2.61	402	201	2.26	2016	288	2.53
21	290	268	281	311	261	200	199	1411	282	2.28	399	200	2.25	1810	259	2.27
22	184	184	206	220	224	207	143	1018	204	1.65	350	175	1.97	1368	195	1.72
23	101	116	111	131	173	203	77	632	126	1.02	280	140	1.58	912	130	1.15
DAY TOT	11786	12136	12475	12370	13064	9560	8190	61831	12366	100.00	17750	8875	100.00	79581	11369	100.00
MAX	1222	1252	1236	1207	1291	849	751	AWT =	12366		AWE =	8875		ADT =	11369	

HOURLY TRAFFIC VOLUMES for Week commencing MON 15/08/05 Station No. 71.043.S

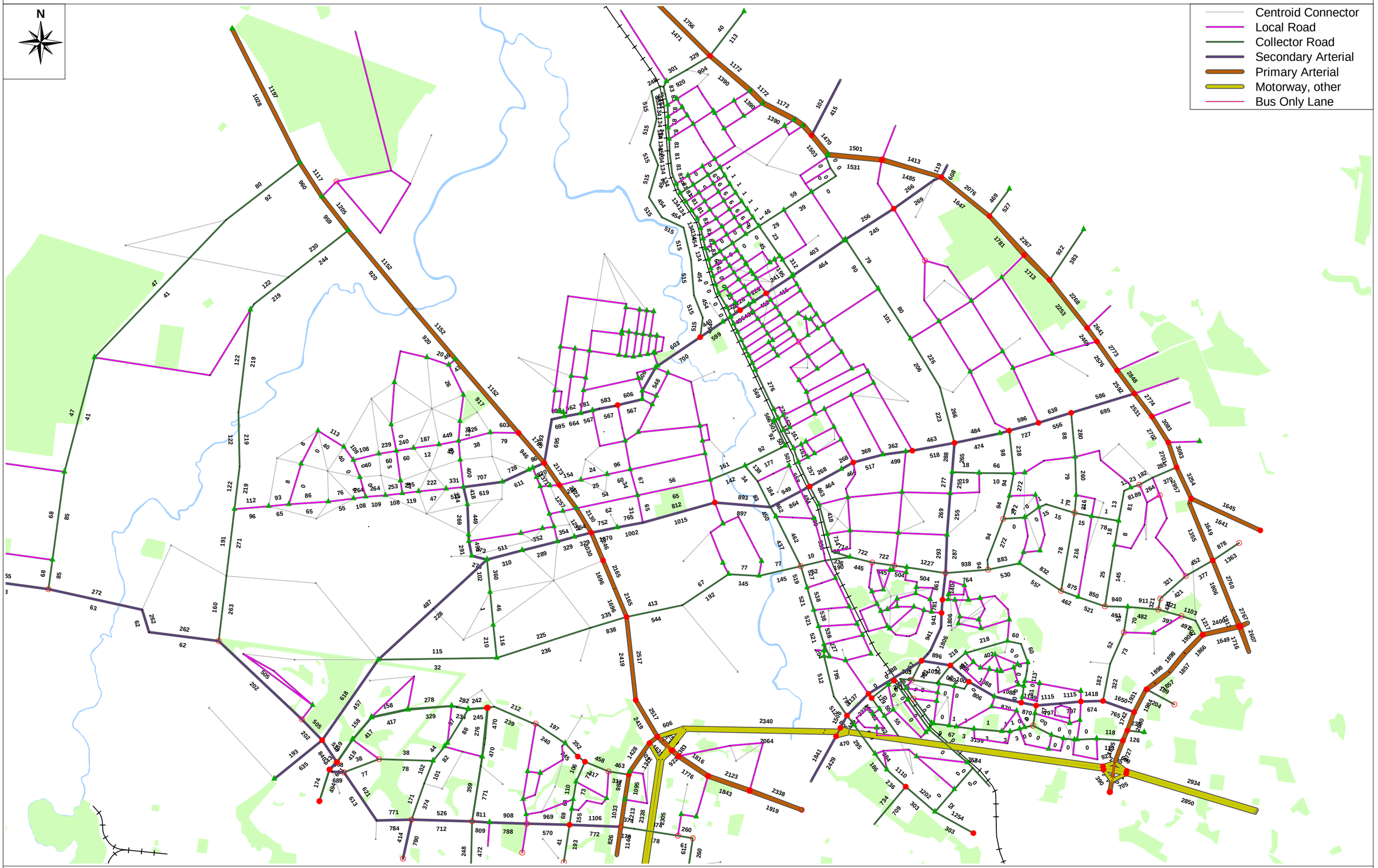
RICHMOND RD,MR537-SL9 COLEBEE-N OF MR537,ROOTY HILL RD NTH

HOUR	MON	TUE	WED	THU	FRI	SAT	SUN	WEEKDAYS			WEEKEND (+HOLIDAYS)			WHOLE WEEK		
comm.	15/08	16/08	17/08	18/08	19/08	20/08	21/08	TOTAL	MEAN	%	TOTAL	MEAN	%	TOTAL	MEAN	%
0	41	42	42	48	52	92	139	225	45	0.37	231	116	1.31	456	65	0.58
1	39	17	34	27	47	51	67	164	33	0.27	118	59	0.67	282	40	0.36
2	66	50	63	63	63	68	38	305	61	0.50	106	53	0.60	411	59	0.52
3	68	63	75	77	61	51	30	344	69	0.57	81	41	0.46	425	61	0.54
4	185	201	183	202	205	85	44	976	195	1.61	129	65	0.73	1105	158	1.41
5	571	562	549	531	557	250	82	2770	554	4.56	332	166	1.88	3102	443	3.96
6	1001	992	1042	1047	1027	350	97	5109	1022	8.41	447	224	2.54	5556	794	7.09
7	1159	1198	978	1126	1179	407	200	5640	1128	9.29	607	304	3.44	6247	892	7.97
8	1097	1165	1011	1199	1078	556	327	5550	1110	9.14	883	442	5.01	6433	919	8.21
9	794	789	778	774	770	604	445	3905	781	6.43	1049	525	5.95	4954	708	6.32
10	559	617	574	599	624	731	588	2973	595	4.90	1319	660	7.48	4292	613	5.48
11	527	533	596	629	686	748	684	2971	594	4.89	1432	716	8.12	4403	629	5.62
12	527	577	551	621	664	672	656	2940	588	4.84	1328	664	7.53	4268	610	5.45
13	521	608	609	624	712	729	663	3074	615	5.06	1392	696	7.90	4466	638	5.70
14	724	694	734	718	861	563	655	3731	746	6.14	1218	609	6.91	4949	707	6.32
15	762	770	830	822	824	681	681	4008	802	6.60	1362	681	7.73	5370	767	6.85
16	848	879	932	903	834	595	788	4396	879	7.24	1383	692	7.85	5779	826	7.38
17	786	787	859	821	739	716	568	3992	798	6.57	1284	642	7.28	5276	754	6.73
18	467	488	533	524	603	483	527	2615	523	4.31	1010	505	5.73	3625	518	4.63
19	287	293	312	307	367	253	267	1566	313	2.58	520	260	2.95	2086	298	2.66
20	173	228	222	230	244	192	240	1097	219	1.81	432	216	2.45	1529	218	1.95
21	205	164	210	186	244	198	195	1009	202	1.66	393	197	2.23	1402	200	1.79
22	171	141	173	166	219	190	147	870	174	1.43	337	169	1.91	1207	172	1.54
23	58	71	89	102	168	164	72	488	98	0.80	236	118	1.34	724	103	0.92
DAY TOT	11636	11929	11979	12346	12828	9429	8200	60718	12144	100.00	17629	8815	100.00	78347	11192	100.00
MAX	1159	1198	1042	1199	1179	748	788	AWT =	12144		AWE =	8815		ADT =	11192	

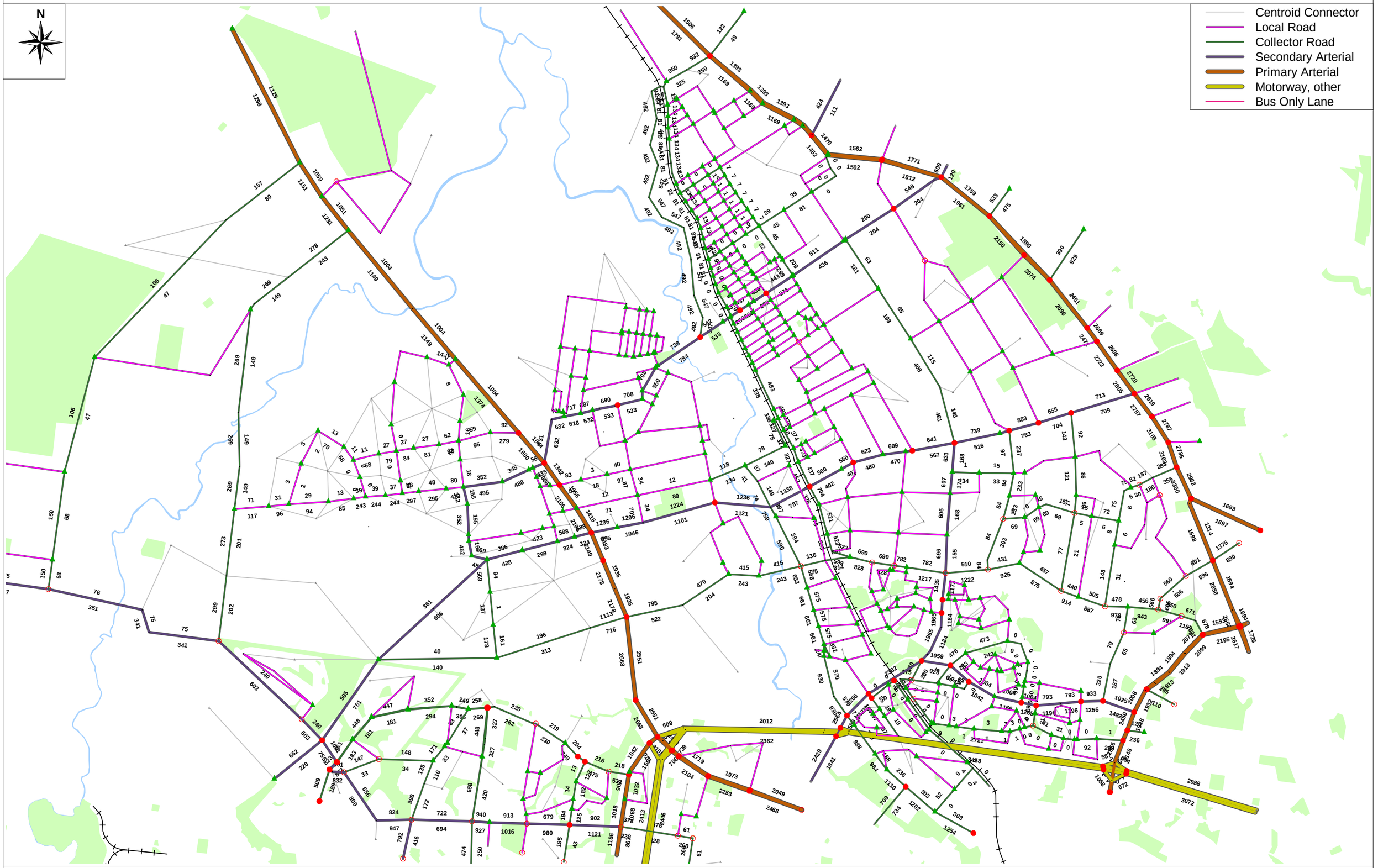
Appendix B

Marsden Park Precinct 2021 and 2036 Forecast Traffic Volumes (AECOM, 2012)

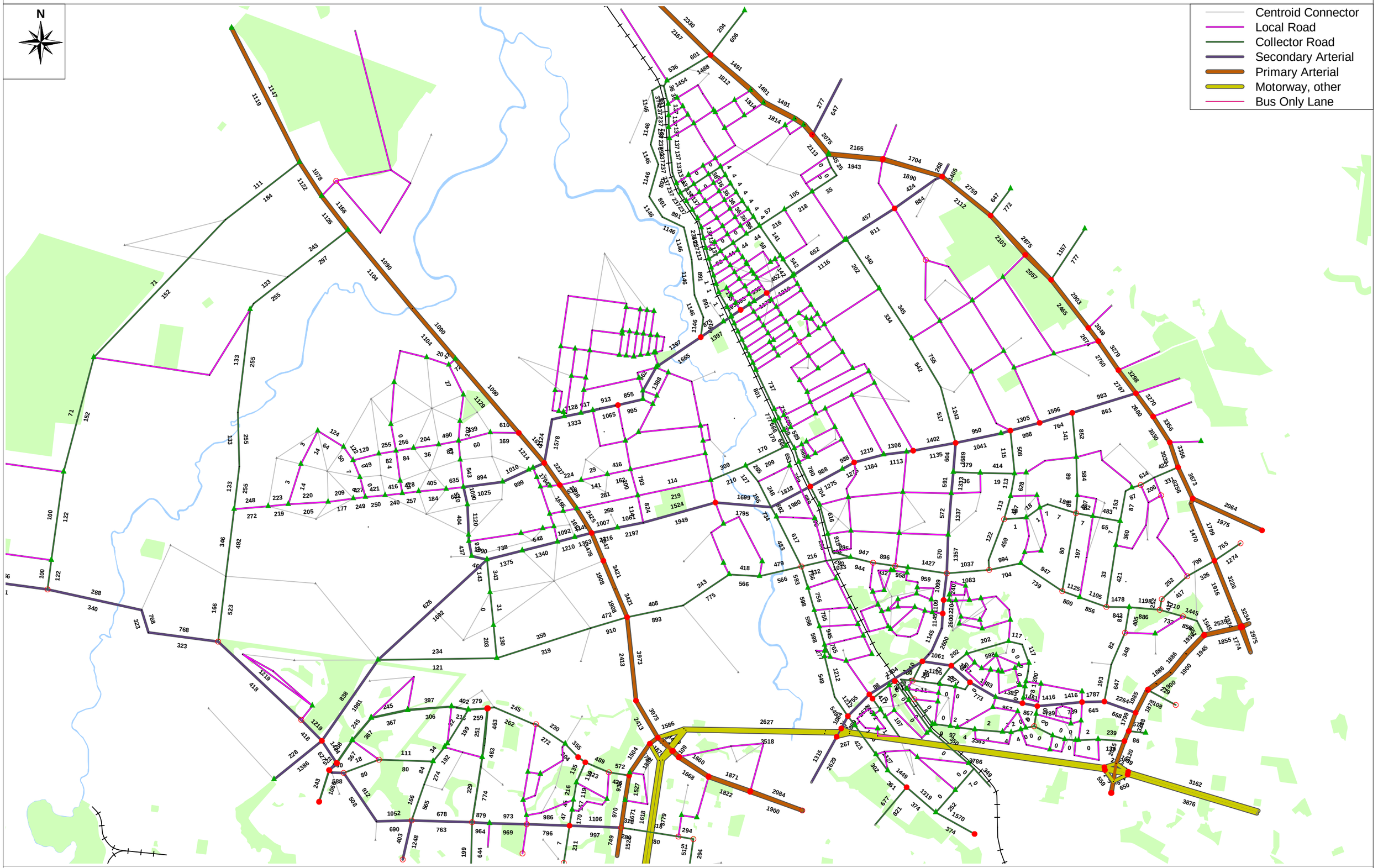
Marsden Park TA
2021 AM Ave Peak Flows (PCUs)
Scenario 1



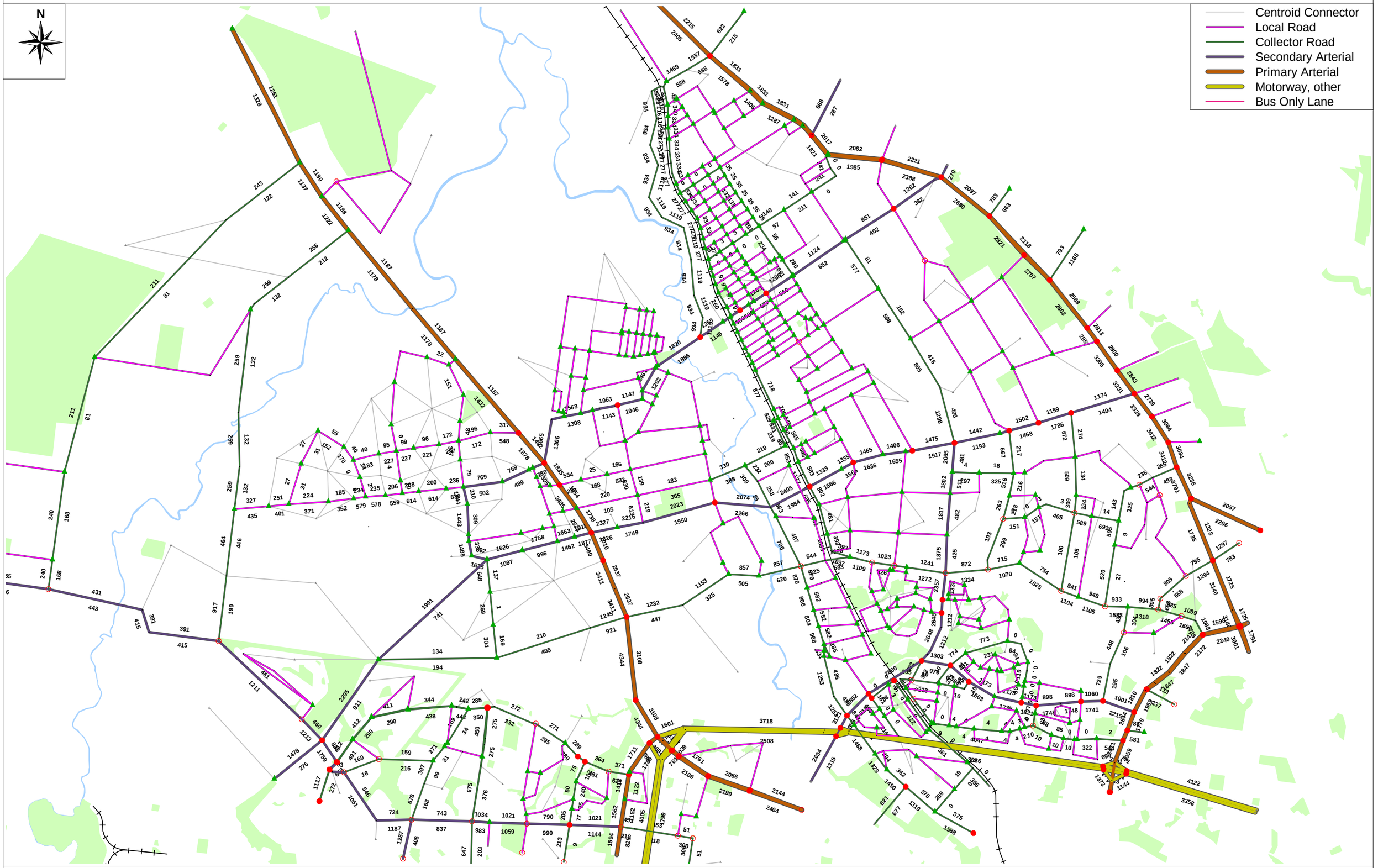
Marsden Park TA
2021 PM Ave Peak Flows (PCUs)
Scenario 1



Marsden Park TA
2036 (Full Development) AM Ave Peak Flows (PCUs)
Scenario 1



Marsden Park TA
2036 (Full Development) PM Ave Peak Flows (PCUs)
Scenario 1



Appendix C

SIDRA INTERSECTION Results

MOVEMENT SUMMARY

Site: Richmond-Townson 2025 PM

13S1023000 Costco, Marsden Park
Richmond Road / Townson Road
2025 Weekday PM Peak
Signals - Fixed Time Cycle Time = 150 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Richmond Rd (S leg)											
1	L	219	10.0	0.180	12.9	LOS A	0.9	7.1	0.06	0.70	57.0
2	T	3085	0.0	0.735	4.8	LOS A	13.9	97.0	0.26	0.24	67.0
3	R	57	10.0	0.407	90.5	LOS F	2.1	16.3	0.99	0.72	20.3
Approach		3361	0.8	0.735	6.8	LOS A	13.9	97.0	0.26	0.28	63.8
East: Townson Road (E leg)											
4	L	108	10.0	0.272	59.9	LOS E	6.5	49.4	0.87	0.79	22.7
5	T	189	10.0	0.697	67.3	LOS E	13.5	102.6	1.00	0.84	20.4
6	R	121	10.0	0.691	81.4	LOS F	9.0	68.2	1.00	0.84	18.8
Approach		418	10.0	0.697	69.5	LOS E	13.5	102.6	0.97	0.83	20.4
North: Richmond Road (N leg)											
7	L	45	10.0	0.037	12.8	LOS A	0.2	1.3	0.05	0.69	57.2
8	T	2684	0.0	0.640	4.3	LOS A	9.5	66.2	0.20	0.18	68.5
9	R	102	10.0	0.728	92.9	LOS F	4.0	30.3	1.00	0.78	19.9
Approach		2831	0.5	0.728	7.6	LOS A	9.5	66.2	0.23	0.21	62.8
West: Townson Road (W leg)											
10	L	25	10.0	0.615	73.5	LOS F	11.7	88.8	0.99	0.82	20.6
11	T	143	10.0	0.615	64.9	LOS E	11.7	88.8	0.99	0.81	20.7
12	R	241	10.0	0.688	81.3	LOS F	8.9	67.8	1.00	0.83	18.8
Approach		409	10.0	0.688	75.1	LOS F	11.7	88.8	0.99	0.82	19.5
All Vehicles		7019	1.8	0.735	14.8	LOS B	13.9	102.6	0.33	0.32	51.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	50	69.1	LOS F	0.2	0.2	0.96	0.96
P2	Across S approach	50	63.5	LOS F	0.2	0.2	0.92	0.92
P3	Across E approach	50	22.4	LOS C	0.1	0.1	0.55	0.55
P5	Across N approach	50	69.1	LOS F	0.2	0.2	0.96	0.96
P6	Across N approach	50	63.5	LOS F	0.2	0.2	0.92	0.92
P7	Across W approach	50	22.4	LOS C	0.1	0.1	0.55	0.55
All Pedestrians		300	51.7	LOS E			0.81	0.81

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

MOVEMENT SUMMARY

Site: Richmond-Colebee-Future Rd No. 18 (2025 PM)

13S1023000 Costco, Marsden Park
Richmond Road/ Colebee Access/ Future Southern Access
2025 Weekday PM Peak
Signals - Fixed Time Cycle Time = 150 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Richmond Road (S)											
1	L	188	10.0	0.171	12.4	LOS A	0.5	4.0	0.06	0.70	57.6
2	T	3268	0.0	0.832	27.4	LOS B	54.3	379.9	0.86	0.79	39.8
3	R	178	10.0	0.762	92.2	LOS F	6.9	52.6	1.00	0.85	20.0
Approach		3634	1.0	0.832	29.8	LOS C	54.3	379.9	0.82	0.79	38.6
East: Colebee Access (E)											
4	L	114	10.0	0.771	65.6	LOS E	14.6	110.9	1.00	0.90	21.9
5	T	108	10.0	0.771	57.0	LOS E	14.6	110.9	1.00	0.90	22.0
6	R	38	10.0	0.325	82.8	LOS F	2.8	21.1	0.99	0.74	18.5
Approach		260	10.0	0.771	64.6	LOS E	14.6	110.9	1.00	0.87	21.3
North: Richmond Road (N)											
7	L	6	10.0	0.005	12.3	LOS A	0.0	0.1	0.05	0.69	57.8
8	T	3020	0.0	0.708	4.0	LOS A	11.0	76.7	0.21	0.20	68.9
9	R	12	10.0	0.103	81.1	LOS F	0.8	6.2	0.93	0.69	22.1
Approach		3038	0.1	0.708	4.3	LOS A	11.0	76.7	0.22	0.20	68.3
West: Future Road No. 18 (W)											
10	L	18	10.0	0.230	52.9	LOS D	3.4	26.1	0.92	0.78	25.3
11	T	108	10.0	0.230	54.2	LOS D	4.1	30.9	0.92	0.71	23.1
12	R	182	10.0	0.779	88.9	LOS F	7.1	54.1	1.00	0.88	17.7
Approach		308	10.0	0.779	74.6	LOS F	7.1	54.1	0.97	0.81	19.6
All Vehicles		7240	1.3	0.832	22.3	LOS B	54.3	379.9	0.58	0.55	43.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	50	69.1	LOS F	0.2	0.2	0.96	0.96
P2	Across S approach	50	63.5	LOS F	0.2	0.2	0.92	0.92
P3	Across E approach	50	20.3	LOS C	0.1	0.1	0.52	0.52
P5	Across N approach	50	66.3	LOS F	0.2	0.2	0.94	0.94
P6	Across N approach	50	63.5	LOS F	0.2	0.2	0.92	0.92
P7	Across W approach	50	23.5	LOS C	0.1	0.1	0.56	0.56
All Pedestrians		300	51.0	LOS E			0.80	0.80

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

MOVEMENT SUMMARY

Site: Townson-Future Rd No. 18 (2025 PM)

13S1023000 Costco, Marsden Park
Townson Road / Future Road No. 18
2025 Weekday PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Future Road No. 18 (S)											
1	L	1	10.0	0.002	5.6	LOS A	0.0	0.1	0.34	0.46	43.9
2	T	1	10.0	0.002	4.2	LOS A	0.0	0.1	0.34	0.35	44.4
3	R	283	10.0	0.228	9.9	LOS A	1.1	8.0	0.35	0.65	40.5
Approach		285	10.0	0.228	9.9	LOS A	1.1	8.0	0.35	0.64	40.5
East: Townson Road (E)											
4	L	283	10.0	0.168	4.3	LOS A	0.8	5.9	0.03	0.41	45.4
5	T	113	10.0	0.156	3.0	LOS A	0.7	5.4	0.03	0.26	46.6
6	R	113	10.0	0.156	9.0	LOS A	0.7	5.4	0.03	0.77	41.7
Approach		509	10.0	0.168	5.1	LOS A	0.8	5.9	0.03	0.46	44.7
North: Future Road No. 18 (N)											
7	L	63	10.0	0.055	5.5	LOS A	0.2	1.8	0.41	0.51	43.4
8	T	1	10.0	0.003	4.8	LOS A	0.0	0.1	0.43	0.38	43.6
9	R	1	10.0	0.003	10.8	LOS A	0.0	0.1	0.43	0.68	40.8
Approach		65	10.0	0.055	5.5	LOS A	0.2	1.8	0.41	0.51	43.3
West: Townson Road (W)											
10	L	1	10.0	0.031	5.7	LOS A	0.1	1.0	0.43	0.54	43.7
11	T	63	10.0	0.031	4.4	LOS A	0.1	1.0	0.44	0.45	44.1
12	R	1	10.0	0.031	10.5	LOS A	0.1	1.0	0.44	0.83	41.3
Approach		65	10.0	0.031	4.5	LOS A	0.1	1.0	0.44	0.46	44.0
All Vehicles		924	10.0	0.228	6.5	LOS A	1.1	8.0	0.18	0.52	43.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Future Southern Access-Future Rd No. 18 (2025 PM)

13S1023000 Costco, Marsden Park
Future Southern Access Road / Future Road No. 18
2025 Weekday PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Future Southern Access Road (E)											
6	R	308	10.0	0.187	10.1	LOS A	0.0	0.0	0.00	0.68	37.8
Approach		308	10.0	0.187	10.1	LOS A	0.0	0.0	0.00	0.68	37.8
North: Proposed Road No.18 (N)											
7	L	308	10.0	0.187	5.3	LOS A	0.0	0.0	0.00	0.48	42.3
Approach		308	10.0	0.187	5.3	LOS A	0.0	0.0	0.00	0.48	42.3
All Vehicles		616	10.0	0.187	7.7	LOS A	0.0	0.0	0.00	0.58	39.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

13S1023000 Costco, Marsden Park
Richmond Road / Townson Road
2025 Saturday Peak
Signals - Fixed Time Cycle Time = 150 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Richmond Rd (S leg)											
1	L	445	10.0	0.443	13.8	LOS A	2.8	20.9	0.09	0.71	55.9
2	T	1735	0.0	0.667	28.3	LOS B	22.7	158.6	0.72	0.63	39.6
3	R	43	10.0	0.184	81.9	LOS F	1.5	11.3	0.94	0.71	21.9
Approach		2223	2.2	0.667	26.4	LOS B	22.7	158.6	0.60	0.65	41.4
East: Townson Road (E leg)											
4	L	81	10.0	0.133	44.1	LOS D	4.0	30.4	0.72	0.76	27.2
5	T	383	10.0	0.863	67.4	LOS E	29.5	224.5	1.00	0.99	20.3
6	R	91	10.0	0.600	81.6	LOS F	6.7	50.8	1.00	0.79	18.8
Approach		555	10.0	0.863	66.3	LOS E	29.5	224.5	0.96	0.92	20.8
North: Richmond Road (N leg)											
7	L	34	10.0	0.041	20.4	LOS B	0.5	4.0	0.23	0.70	48.6
8	T	2255	0.0	0.875	34.2	LOS C	39.0	273.1	0.88	0.82	35.8
9	R	207	10.0	0.887	91.5	LOS F	8.2	62.4	1.00	0.88	20.2
Approach		2496	1.0	0.887	38.8	LOS C	39.0	273.1	0.88	0.82	33.8
West: Townson Road (W leg)											
10	L	58	10.0	0.627	52.2	LOS D	23.9	181.4	0.89	0.89	25.7
11	T	336	10.0	0.627	43.7	LOS D	23.9	181.4	0.89	0.78	26.0
12	R	566	10.0	0.866	81.7	LOS F	22.4	170.3	1.00	0.97	18.8
Approach		960	10.0	0.866	66.6	LOS E	23.9	181.4	0.96	0.90	21.2
All Vehicles		6234	3.6	0.887	41.1	LOS C	39.0	273.1	0.80	0.78	31.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	50	56.3	LOS E	0.2	0.2	0.87	0.87
P2	Across S approach	50	51.3	LOS E	0.2	0.2	0.83	0.83
P3	Across E approach	50	42.6	LOS E	0.2	0.2	0.75	0.75
P5	Across N approach	50	56.3	LOS E	0.2	0.2	0.87	0.87
P6	Across N approach	50	51.3	LOS E	0.2	0.2	0.83	0.83
P7	Across W approach	50	42.6	LOS E	0.2	0.2	0.75	0.75
All Pedestrians		300	50.1	LOS E			0.82	0.82

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

MOVEMENT SUMMARY

Site: Richmond-Colebee-Future Rd No. 18 (2025 SAT)

13S1023000 Costco, Marsden Park
Richmond Road/ Colebee Access/ Future Southern Access
2025 Saturday Peak
Signals - Fixed Time Cycle Time = 150 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Richmond Road (S)											
1	L	395	10.0	0.380	12.8	LOS A	1.6	12.2	0.08	0.70	57.2
2	T	2077	0.0	0.638	31.9	LOS C	31.8	222.4	0.80	0.72	37.3
3	R	134	10.0	0.820	97.5	LOS F	5.4	41.0	1.00	0.87	19.2
Approach		2606	2.0	0.820	32.4	LOS C	31.8	222.4	0.70	0.72	37.4
East: Colebee Access (E)											
4	L	86	10.0	0.838	76.1	LOS F	23.1	175.8	1.00	0.98	20.0
5	T	227	10.0	0.838	67.6	LOS E	23.1	175.8	1.00	0.98	20.1
6	R	29	10.0	0.124	70.0	LOS E	1.9	14.3	0.92	0.72	20.8
Approach		342	10.0	0.838	69.9	LOS E	23.1	175.8	0.99	0.96	20.1
North: Richmond Road (N)											
7	L	5	10.0	0.005	12.5	LOS A	0.0	0.1	0.05	0.69	57.6
8	T	2888	0.0	0.838	16.8	LOS B	36.0	251.8	0.69	0.63	48.7
9	R	26	10.0	0.318	88.0	LOS F	1.9	14.5	0.98	0.72	20.8
Approach		2919	0.1	0.838	17.4	LOS B	36.0	251.8	0.69	0.63	48.1
West: Future Road No. 18 (W)											
10	L	39	10.0	0.358	58.4	LOS E	7.7	58.5	0.90	0.84	23.8
11	T	227	10.0	0.358	53.3	LOS D	8.4	63.5	0.91	0.74	23.4
12	R	382	10.0	0.818	82.6	LOS F	14.7	111.7	1.00	0.92	18.6
Approach		648	10.0	0.818	70.8	LOS F	14.7	111.7	0.96	0.85	20.3
All Vehicles		6515	2.4	0.838	31.5	LOS C	36.0	251.8	0.74	0.71	36.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	50	61.7	LOS F	0.2	0.2	0.91	0.91
P2	Across S approach	50	56.3	LOS E	0.2	0.2	0.87	0.87
P3	Across E approach	50	28.8	LOS C	0.1	0.1	0.62	0.62
P5	Across N approach	50	59.0	LOS E	0.2	0.2	0.89	0.89
P6	Across N approach	50	56.3	LOS E	0.2	0.2	0.87	0.87
P7	Across W approach	50	32.7	LOS D	0.1	0.1	0.66	0.66
All Pedestrians		300	49.1	LOS E			0.80	0.80

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

MOVEMENT SUMMARY

Site: Townson-Future Rd No. 18 (2025 SAT)

13S1023000 Costco, Marsden Park
Townson Road / Future Road No. 18
2025 Saturday Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Future Road No. 18 (S)											
1	L	1	10.0	0.002	5.3	LOS A	0.0	0.1	0.30	0.45	44.1
2	T	1	10.0	0.002	3.9	LOS A	0.0	0.1	0.30	0.33	44.7
3	R	866	10.0	0.638	10.2	LOS A	4.9	37.2	0.49	0.65	40.1
Approach		868	10.0	0.638	10.2	LOS A	4.9	37.2	0.48	0.64	40.1
East: Townson Road (E)											
4	L	866	10.0	0.507	4.3	LOS A	4.0	30.1	0.05	0.41	45.3
5	T	85	10.0	0.143	3.0	LOS A	0.7	5.1	0.03	0.26	46.6
6	R	85	10.0	0.143	9.0	LOS A	0.7	5.1	0.03	0.77	41.7
Approach		1036	10.0	0.507	4.6	LOS A	4.0	30.1	0.04	0.43	45.0
North: Future Road No. 18 (N)											
7	L	47	10.0	0.072	9.7	LOS A	0.5	3.4	0.80	0.73	40.7
8	T	1	10.0	0.005	9.8	LOS A	0.0	0.2	0.76	0.58	39.9
9	R	1	10.0	0.005	15.7	LOS B	0.0	0.2	0.76	0.70	37.6
Approach		49	10.0	0.072	9.8	LOS A	0.5	3.4	0.79	0.73	40.6
West: Townson Road (W)											
10	L	100	10.0	0.146	10.0	LOS A	0.9	6.9	0.79	0.78	40.4
11	T	47	10.0	0.094	9.9	LOS A	0.5	3.8	0.76	0.76	40.5
12	R	1	10.0	0.094	15.9	LOS B	0.5	3.8	0.76	0.91	38.1
Approach		148	10.0	0.146	10.0	LOS A	0.9	6.9	0.78	0.78	40.4
All Vehicles		2101	10.0	0.638	7.4	LOS A	4.9	37.2	0.30	0.55	42.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: Future Southern Access-Future Rd No. 18 (2025 PM)

13S1023000 Costco, Marsden Park
Future Southern Access Road / Future Road No. 18
2025 Weekday PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Future Southern Access Road (E)											
6	R	308	10.0	0.187	10.1	LOS A	0.0	0.0	0.00	0.68	37.8
Approach		308	10.0	0.187	10.1	LOS A	0.0	0.0	0.00	0.68	37.8
North: Proposed Road No.18 (N)											
7	L	308	10.0	0.187	5.3	LOS A	0.0	0.0	0.00	0.48	42.3
Approach		308	10.0	0.187	5.3	LOS A	0.0	0.0	0.00	0.48	42.3
All Vehicles		616	10.0	0.187	7.7	LOS A	0.0	0.0	0.00	0.58	39.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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