

9 October 2020
Ref: 20174 Rev B

Mr Tom Bitmead
Project Manager
Johnstaff Projects Pty Ltd

E: tom.bitmead@johnstaff.com.au

Dear Tom

Wahroonga Adventist School

We are continuing with our assessment review of the Road Upgrade Requirements for the Wahroonga Estate developments, however I understand that there is a pressing need to accommodate more school students in the First Term next year.

Further, I understand that there is a Consent Condition restricting the school enrolment to the current 553 students until the intersection of Fox Valley Road and the School access intersection is operational (whether it be with roundabout or traffic signal control).

Vehicle access for the school parking and set-down/pick-up activity is currently provided through the main Hospital Access Road and its traffic signal controlled intersection with Fox Valley Road. Observations reveal that this intersection functions quite satisfactorily with the current shared use and it is understood that it is intended to submit an application to DPIE to permit an increase to the school enrolment based on an assessment of the temporarily retained access through the Hospital Access Road.

The following sets out that assessment however, firstly there is a need to verify the appropriateness of recent survey data in relation to the potential impact of Covid on peak traffic movements. In order to assess this impact, we have:

- Obtained SCATS traffic data from TfNSW for November 2019 for the Fox Valley Road/The Comenarra Parkway and Fox Valley Road/Hospital access intersections
- Undertaken traffic surveys at these 2 intersections in August 2020

The SCATS data and the results of those surveys are summarised and compared on the attached diagram and it is noted that the SCATS data for through and turning movements cannot be separated for shared lanes, nonetheless totals are provided for comparison although the left turn out of the Hospital Road has no detector count.

It can be seen that the only movement which is significantly lower in the 2020 circumstance is the eastbound through movement in the AM on The Comenarra Parkway. In fact, there are numerous movements which are higher in the 2020 results. What is also relevant in relation to the movements along Fox Valley Road is that the 3.0-4.0pm period is in fact the PM peak due to the school and hospital related movements.

The recorded peak school movements (i.e. at the connection to the Hospital Access Road are as follows (traffic survey results are appended).

AM		PM	
IN	OUT	IN	OUT
184	139	133	140
(0.33)	(0.25)	(0.24)	(0.25)

() vtpm per student i.e. 553

The lower IN trips per student in the afternoon reflect the fact that the arrival of cars is more “spread” while there are a few trips in both peaks to/from the hospital (i.e. rather than Fox Valley Road).

It is noted that there are generally some 30 cars apparently belonging to Hospital staff parked in the parking area adjacent to the school and this is confirmed by the attached Saturday Nearthmap image. Nonetheless the movements related to these 30 cars will not be discounted ensuring a robust assessment of the school generated traffic.

The school envisages a need to increase the enrolment to 647 (+94) students for 2021 and this would result in an increased ‘sibling factor’, however again the assessment will not have regard for this eventuality (i.e. siblings travelling together, less cars). The established peak vtpm per student factor is applied to the additional 94 students in the following:

	AM		PM	
	IN	OUT	IN	OUT
Existing	184	139	133	140
Additional	31	24	23	24
Total:	215	163	156	164

The north-south split of the school car movements at the Fox Valley Road intersection is not known while the split of total access movements is biased to the north so a 60% north and 40% south split for school cars has been adopted. Thus, the additional movements at the Fox Valley Road access intersection are as follow:

	AM	PM
RT IN	19	14
LT IN	12	9
RT OUT	9	15
LT OUT	15	9

The operational performance of the Fox Valley Road access intersection for the “existing” and “additional students” has been assessed with SIDRA. The results are appended and summarised in the following while the criteria for interpreting SIDRA results is also appended.

	AM		PM	
	LOS	AVD	LOS	AVD
Existing	B	22.4	B	20.6
Additional Students	B	24.0	B	21.1

It is apparent that the operational performance of the access intersection will remain quite satisfactory with the proposed additional students.

As indicated in the foregoing, we are progressing with our assessment of all intersections along Fox Valley Road and we have completed SIDRA modelling for the existing circumstances at these intersections which indicate the following:

	AM		PM	
	LOS	AVD	LOS	AVD
Ada Avenue	A	5.5	A	5.7
Lucinda Avenue	A	7.9	A	8.1
The Comenarra	C	42.0	D	47.0

It is apparent that these intersections operate quite satisfactorily at the present time and the very small additional volumes resultant to the additional school enrolment (less than 20vtph per direction) would not have any adverse traffic implications for these intersections.

It is concluded that the required additional school enrolment would not have any adverse traffic implications.

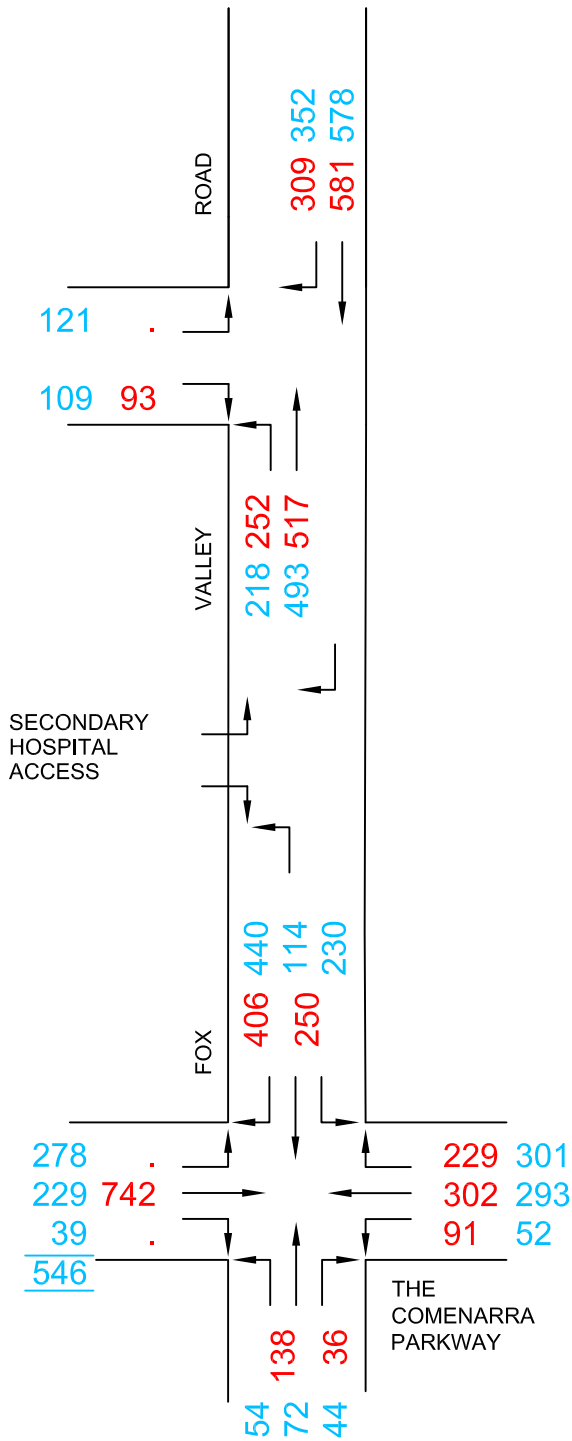
Yours faithfully



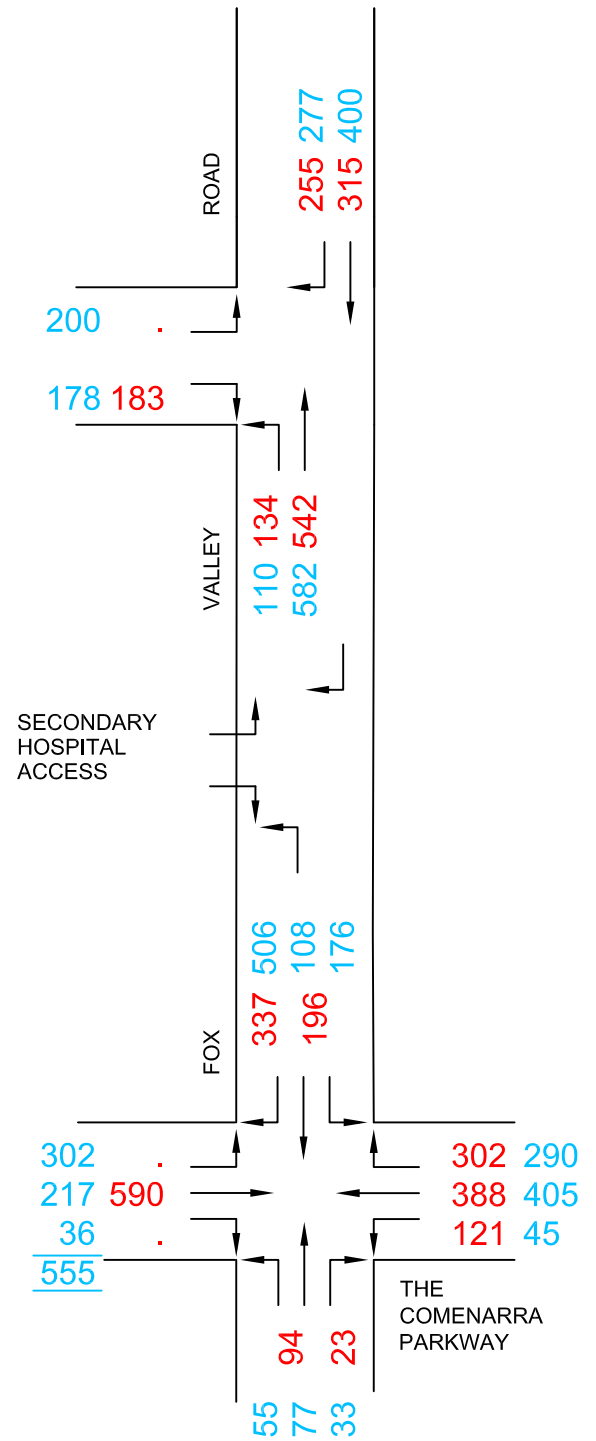
Ross Nettle

Director

Transport and Traffic Planning Associates



AM PEAK
7:45-8:45



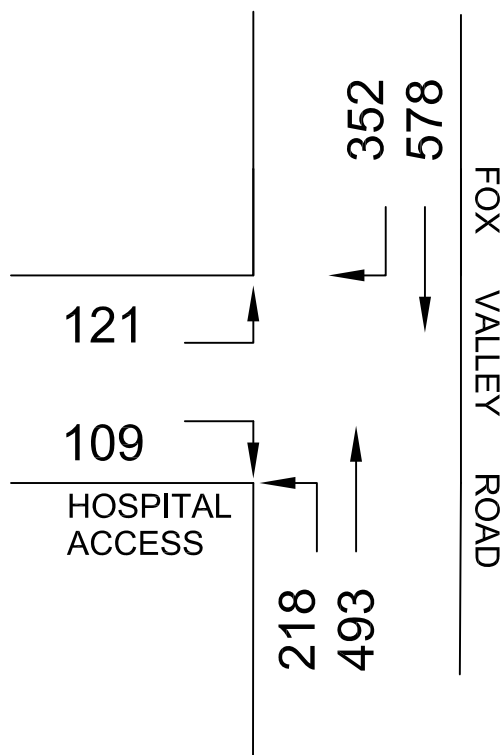
PM PEAK
3:00-4:00

LEGEND

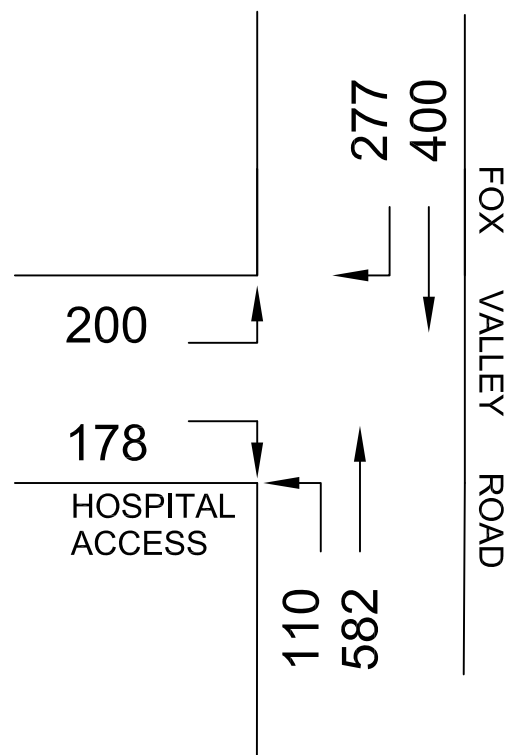
- 2019
- 2020



**COMPARISON OF PRE
AND POST COVID - 19
TRAFFIC VOLUMES**



AM PEAK
7:45-8:45

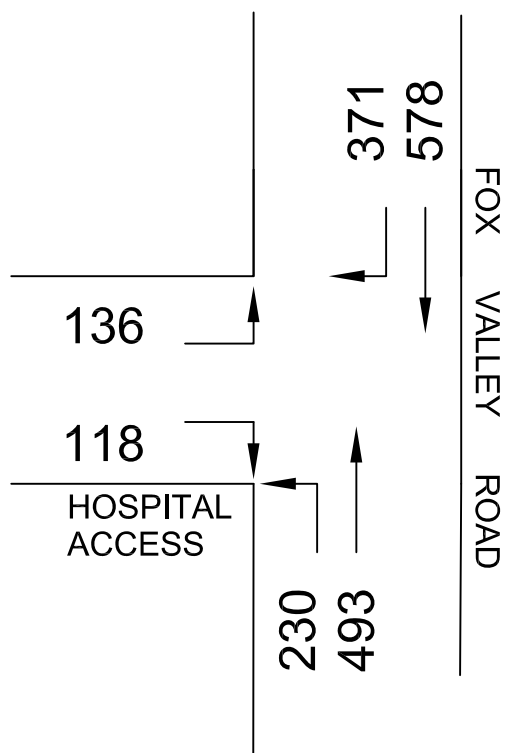


PM PEAK
3:00-4:00

LEGEND

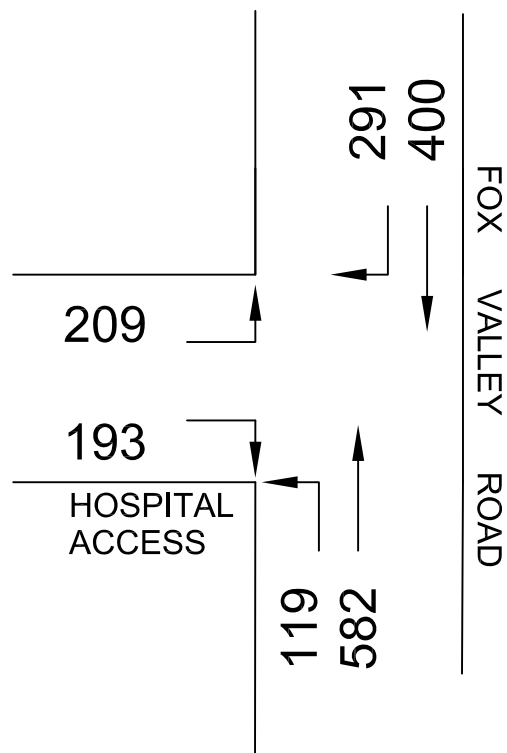


**EXISTING PEAK
TRAFFIC VOLUMES**



AM PEAK

7:45-8:45



PM PEAK

3:00-4:00

LEGEND



**ADDITIONAL STUDENTS
PEAK
TRAFFIC VOLUMES**

TCS 1310

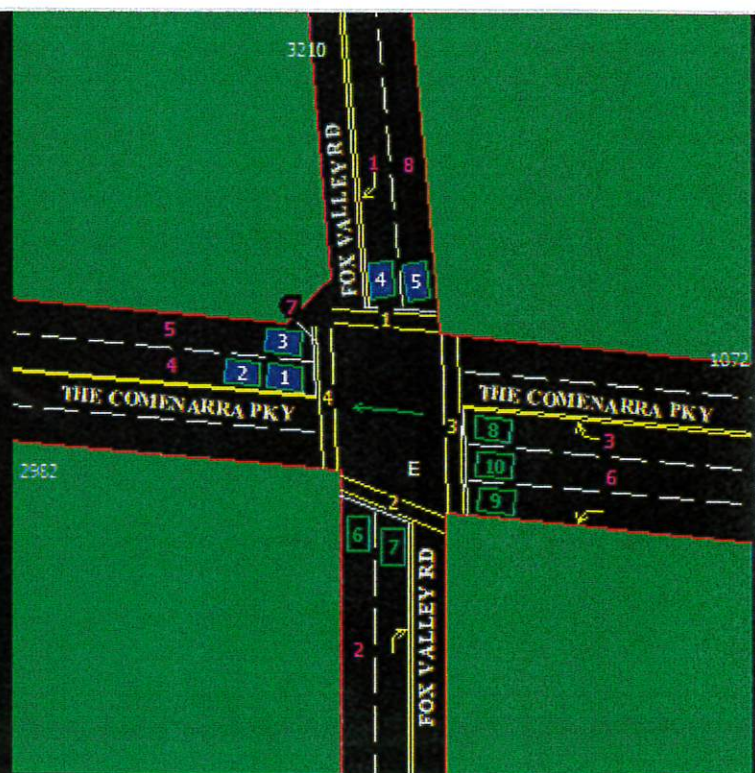
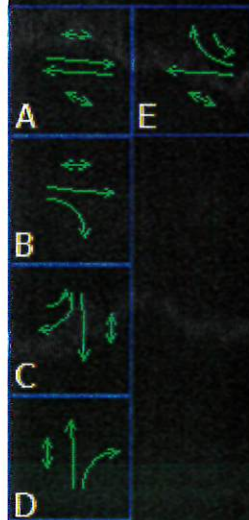
WAHROONGA

153H15

HOR

SS=19

5 PHASES



Site	Date	Interval start	Interval end	D 1	D 2	D 3	D 4	D 5	D 6	D 7	D 8	D 9	D 10	Total
1310	Monday, 4 November 2019	12:00:00 AM AEDT	1:00:00 AM AEDT	24	7	6	16	7	1	1	5	0	10	77
1310	Monday, 4 November 2019	12:15:00 AM AEDT	1:15:00 AM AEDT	21	7	7	13	3	1	1	4	0	7	64
1310	Monday, 4 November 2019	12:30:00 AM AEDT	1:30:00 AM AEDT	13	5	6	8	3	1	1	3	0	5	45
1310	Monday, 4 November 2019	12:45:00 AM AEDT	1:45:00 AM AEDT	10	4	7	7	3	1	1	3	0	4	40
1310	Monday, 4 November 2019	1:00:00 AM AEDT	2:00:00 AM AEDT	8	5	7	4	4	1	1	2	0	3	35
1310	Monday, 4 November 2019	1:15:00 AM AEDT	2:15:00 AM AEDT	6	4	8	3	4	1	1	2	0	4	33
1310	Monday, 4 November 2019	1:30:00 AM AEDT	2:30:00 AM AEDT	12	8	7	4	6	2	2	3	0	8	52
1310	Monday, 4 November 2019	1:45:00 AM AEDT	2:45:00 AM AEDT	15	11	8	3	4	1	1	2	0	6	51
1310	Monday, 4 November 2019	2:00:00 AM AEDT	3:00:00 AM AEDT	17	12	9	4	5	2	1	2	0	5	57
1310	Monday, 4 November 2019	2:15:00 AM AEDT	3:15:00 AM AEDT	17	13	6	4	5	2	1	1	0	5	54
1310	Monday, 4 November 2019	2:30:00 AM AEDT	3:30:00 AM AEDT	9	8	5	2	4	2	0	0	0	1	31
1310	Monday, 4 November 2019	2:45:00 AM AEDT	3:45:00 AM AEDT	6	4	6	6	4	2	0	1	0	1	30
1310	Monday, 4 November 2019	3:00:00 AM AEDT	4:00:00 AM AEDT	6	5	8	5	2	2	1	4	0	2	35
1310	Monday, 4 November 2019	3:15:00 AM AEDT	4:15:00 AM AEDT	8	6	10	5	3	2	1	4	0	3	42
1310	Monday, 4 November 2019	3:30:00 AM AEDT	4:30:00 AM AEDT	13	7	17	8	3	2	2	6	0	4	62
1310	Monday, 4 November 2019	3:45:00 AM AEDT	4:45:00 AM AEDT	17	8	17	8	3	2	3	5	0	5	68
1310	Monday, 4 November 2019	4:00:00 AM AEDT	5:00:00 AM AEDT	25	11	31	13	7	3	3	2	0	6	101
1310	Monday, 4 November 2019	4:15:00 AM AEDT	5:15:00 AM AEDT	49	23	43	24	9	6	5	4	0	10	173
1310	Monday, 4 November 2019	4:30:00 AM AEDT	5:30:00 AM AEDT	77	40	61	35	17	7	5	5	1	15	263
1310	Monday, 4 November 2019	4:45:00 AM AEDT	5:45:00 AM AEDT	120	73	98	53	25	13	8	10	1	26	427
1310	Monday, 4 November 2019	5:00:00 AM AEDT	6:00:00 AM AEDT	152	105	142	71	38	13	10	14	2	37	584
1310	Monday, 4 November 2019	5:15:00 AM AEDT	6:15:00 AM AEDT	179	145	194	90	57	16	12	26	4	44	767
1310	Monday, 4 November 2019	5:30:00 AM AEDT	6:30:00 AM AEDT	217	208	270	124	83	22	18	32	6	67	1047
1310	Monday, 4 November 2019	5:45:00 AM AEDT	6:45:00 AM AEDT	244	273	327	148	113	35	26	50	9	94	1319
1310	Monday, 4 November 2019	6:00:00 AM AEDT	7:00:00 AM AEDT	293	353	401	190	149	53	31	74	20	124	1688
1310	Monday, 4 November 2019	6:15:00 AM AEDT	7:15:00 AM AEDT	336	415	447	232	178	65	36	88	33	175	2005
1310	Monday, 4 November 2019	6:30:00 AM AEDT	7:30:00 AM AEDT	334	440	466	283	212	78	44	120	41	206	2224
1310	Monday, 4 November 2019	6:45:00 AM AEDT	7:45:00 AM AEDT	309	434	480	354	254	85	51	152	54	224	2397
1310	Monday, 4 November 2019	7:00:00 AM AEDT	8:00:00 AM AEDT	286	422	459	403	269	94	52	178	61	260	2484
1310	Monday, 4 November 2019	7:15:00 AM AEDT	8:15:00 AM AEDT	260	406	483	429	284	113	50	204	64	272	2565
1310	Monday, 4 November 2019	7:30:00 AM AEDT	8:30:00 AM AEDT	228	374	470	419	265	133	41	237	78	290	2535
1310	Monday, 4 November 2019	7:45:00 AM AEDT	8:45:00 AM AEDT	245	375	497	406	250	138	36	224	91	302	2564
1310	Monday, 4 November 2019	8:00:00 AM AEDT	9:00:00 AM AEDT	236	382	516	404	248	135	34	210	105	301	2571
1310	Monday, 4 November 2019	8:15:00 AM AEDT	9:15:00 AM AEDT	230	364	499	403	225	116	36	197	109	288	2467
1310	Monday, 4 November 2019	8:30:00 AM AEDT	9:30:00 AM AEDT	277	351	482	406	222	105	35	159	106	263	2406
1310	Monday, 4 November 2019	8:45:00 AM AEDT	9:45:00 AM AEDT	283	317	434	377	196	106	28	146	96	240	2223
1310	Monday, 4 November 2019	9:00:00 AM AEDT	10:00:00 AM AEDT	283	256	409	331	171	99	33	137	79	208	2006
1310	Monday, 4 November 2019	9:15:00 AM AEDT	10:15:00 AM AEDT	297	231	371	303	169	100	28	130	82	192	1903
1310	Monday, 4 November 2019	9:30:00 AM AEDT	10:30:00 AM AEDT	290	216	347	271	166	93	32	132	84	195	1826
1310	Monday, 4 November 2019	9:45:00 AM AEDT	10:45:00 AM AEDT	283	201	323	259	175	88	29	139	88	206	1791
1310	Monday, 4 November 2019	10:00:00 AM AEDT	11:00:00 AM AEDT	290	201	289	263	179	92	23	144	96	210	1787
1310	Monday, 4 November 2019	10:15:00 AM AEDT	11:15:00 AM AEDT	265	197	277	250	177	97	26	140	82	204	1715
1310	Monday, 4 November 2019	10:30:00 AM AEDT	11:30:00 AM AEDT	256	205	280	263	176	97	24	130	88	204	1723
1310	Monday, 4 November 2019	10:45:00 AM AEDT	11:45:00 AM AEDT	258	217	281	267	169	91	27	135	93	193	1731
1310	Monday, 4 November 2019	11:00:00 AM AEDT	12:00:00 PM AEDT	238	221	270	273	170	84	27	138	87	196	1704
1310	Monday, 4 November 2019	11:15:00 AM AEDT	12:15:00 PM AEDT	242	212	266	286	182	82	31	157	104	217	1779
1310	Monday, 4 November 2019	11:30:00 AM AEDT	12:30:00 PM AEDT	240	203	279	297	174	72	28	160	101	229	1783
1310	Monday, 4 November 2019	11:45:00 AM AEDT	12:45:00 PM AEDT	221	191	270	309	174	80	30	153	105	239	1772
1310	Monday, 4 November 2019	12:00:00 PM AEDT	1:00:00 PM AEDT	223	188	272	290	168	82	32	149	115	248	1767

Site	Date	Interval start	Interval end	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Total
1310	Monday, 4 November 2019	12:15:00 PM AEDT	1:15:00 PM AEDT	206	189	269	296	152	84	28	138	111	250	1723
1310	Monday, 4 November 2019	12:30:00 PM AEDT	1:30:00 PM AEDT	238	200	251	298	151	98	31	135	106	260	1768
1310	Monday, 4 November 2019	12:45:00 PM AEDT	1:45:00 PM AEDT	251	204	271	285	142	88	28	142	90	273	1774
1310	Monday, 4 November 2019	1:00:00 PM AEDT	2:00:00 PM AEDT	271	200	285	312	131	86	28	151	84	271	1819
1310	Monday, 4 November 2019	1:15:00 PM AEDT	2:15:00 PM AEDT	289	207	296	317	139	81	32	143	77	263	1844
1310	Monday, 4 November 2019	1:30:00 PM AEDT	2:30:00 PM AEDT	239	203	311	315	140	72	31	172	76	242	1801
1310	Monday, 4 November 2019	1:45:00 PM AEDT	2:45:00 PM AEDT	233	208	304	326	161	72	32	182	76	237	1831
1310	Monday, 4 November 2019	2:00:00 PM AEDT	3:00:00 PM AEDT	197	214	323	346	175	80	28	191	84	239	1877
1310	Monday, 4 November 2019	2:15:00 PM AEDT	3:15:00 PM AEDT	226	215	328	355	186	84	24	225	112	271	2026
1310	Monday, 4 November 2019	2:30:00 PM AEDT	3:30:00 PM AEDT	257	214	318	388	201	86	28	239	120	327	2178
1310	Monday, 4 November 2019	2:45:00 PM AEDT	3:45:00 PM AEDT	259	211	313	425	208	95	35	263	130	352	2291
1310	Monday, 4 November 2019	3:00:00 PM AEDT	4:00:00 PM AEDT	302	211	288	412	220	89	42	302	121	388	2375
1310	Monday, 4 November 2019	3:15:00 PM AEDT	4:15:00 PM AEDT	262	220	296	422	204	91	46	336	110	415	2402
1310	Monday, 4 November 2019	3:30:00 PM AEDT	4:30:00 PM AEDT	272	214	292	387	209	93	41	346	118	411	2383
1310	Monday, 4 November 2019	3:45:00 PM AEDT	4:45:00 PM AEDT	270	222	304	343	191	89	30	340	130	455	2374
1310	Monday, 4 November 2019	4:00:00 PM AEDT	5:00:00 PM AEDT	250	217	305	337	186	94	23	320	138	487	2357
1310	Monday, 4 November 2019	4:15:00 PM AEDT	5:15:00 PM AEDT	266	217	302	341	204	101	19	281	123	503	2357
1310	Monday, 4 November 2019	4:30:00 PM AEDT	5:30:00 PM AEDT	206	222	313	366	193	94	23	262	110	526	2315
1310	Monday, 4 November 2019	4:45:00 PM AEDT	5:45:00 PM AEDT	193	232	317	398	204	88	27	266	97	520	2342
1310	Monday, 4 November 2019	5:00:00 PM AEDT	6:00:00 PM AEDT	210	240	333	394	196	87	27	259	83	509	2338
1310	Monday, 4 November 2019	5:15:00 PM AEDT	6:15:00 PM AEDT	196	228	335	404	192	69	30	252	75	488	2269
1310	Monday, 4 November 2019	5:30:00 PM AEDT	6:30:00 PM AEDT	251	224	329	387	187	64	32	240	70	492	2276
1310	Monday, 4 November 2019	5:45:00 PM AEDT	6:45:00 PM AEDT	271	206	326	364	167	60	31	220	60	467	2172
1310	Monday, 4 November 2019	6:00:00 PM AEDT	7:00:00 PM AEDT	278	194	320	374	152	51	30	191	61	419	2070
1310	Monday, 4 November 2019	6:15:00 PM AEDT	7:15:00 PM AEDT	301	169	287	345	120	50	26	163	67	372	1900
1310	Monday, 4 November 2019	6:30:00 PM AEDT	7:30:00 PM AEDT	280	164	277	334	101	49	20	146	52	297	1720
1310	Monday, 4 November 2019	6:45:00 PM AEDT	7:45:00 PM AEDT	272	145	244	308	91	46	20	114	43	230	1513
1310	Monday, 4 November 2019	7:00:00 PM AEDT	8:00:00 PM AEDT	272	131	186	274	83	39	20	92	32	200	1329
1310	Monday, 4 November 2019	7:15:00 PM AEDT	8:15:00 PM AEDT	268	132	174	252	83	34	16	80	24	170	1233
1310	Monday, 4 November 2019	7:30:00 PM AEDT	8:30:00 PM AEDT	268	115	148	220	85	33	15	56	25	133	1098
1310	Monday, 4 November 2019	7:45:00 PM AEDT	8:45:00 PM AEDT	250	105	134	199	76	26	12	46	24	125	997
1310	Monday, 4 November 2019	8:00:00 PM AEDT	9:00:00 PM AEDT	226	104	135	182	70	23	12	43	21	109	925
1310	Monday, 4 November 2019	8:15:00 PM AEDT	9:15:00 PM AEDT	219	107	118	163	64	17	10	40	18	105	861
1310	Monday, 4 November 2019	8:30:00 PM AEDT	9:30:00 PM AEDT	203	104	112	154	50	19	7	42	17	100	808
1310	Monday, 4 November 2019	8:45:00 PM AEDT	9:45:00 PM AEDT	234	106	108	168	52	21	4	43	16	97	849
1310	Monday, 4 November 2019	9:00:00 PM AEDT	10:00:00 PM AEDT	226	96	108	166	48	19	2	41	19	90	815
1310	Monday, 4 November 2019	9:15:00 PM AEDT	10:15:00 PM AEDT	191	77	103	141	41	20	5	36	16	77	707
1310	Monday, 4 November 2019	9:30:00 PM AEDT	10:30:00 PM AEDT	188	69	96	135	40	11	5	30	12	70	656
1310	Monday, 4 November 2019	9:45:00 PM AEDT	10:45:00 PM AEDT	147	52	87	112	31	5	5	24	9	59	531
1310	Monday, 4 November 2019	10:00:00 PM AEDT	11:00:00 PM AEDT	126	39	78	94	26	6	5	19	4	51	448
1310	Monday, 4 November 2019	10:15:00 PM AEDT	11:15:00 PM AEDT	123	37	67	87	23	10	2	17	3	39	408
1310	Monday, 4 November 2019	10:30:00 PM AEDT	11:30:00 PM AEDT	99	30	51	69	19	11	2	16	3	28	328
1310	Monday, 4 November 2019	10:45:00 PM AEDT	11:45:00 PM AEDT	101	32	36	63	14	13	2	12	3	18	294
1310	Monday, 4 November 2019	11:00:00 PM AEDT	12:00:00 AM AEDT	88	29	22	52	13	12	1	10	3	10	240

TCS 3210

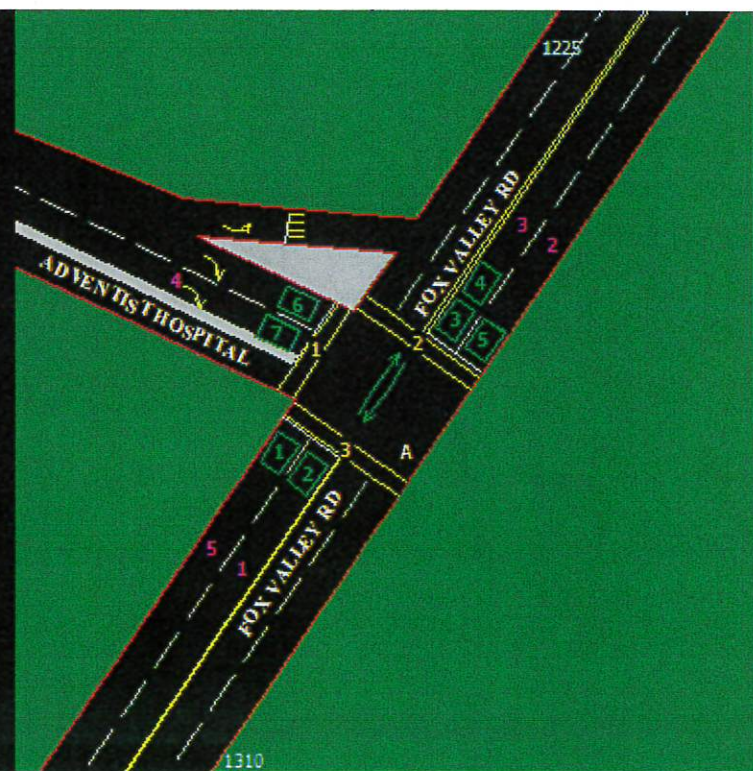
WAHROONGA

153H14

HOR

SS=22

4 PHASES



Site	Date	Interval start	Interval end	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Total
3210	Monday, 4 November 2019	12:00:00 AM AEDT	1:00:00 AM AEDT	3	15	19	19	4	1	1	1	0	0	62
3210	Monday, 4 November 2019	12:15:00 AM AEDT	1:15:00 AM AEDT	3	16	13	13	2	1	0	0	0	0	48
3210	Monday, 4 November 2019	12:30:00 AM AEDT	1:30:00 AM AEDT	4	14	11	11	3	0	0	0	0	0	43
3210	Monday, 4 November 2019	12:45:00 AM AEDT	1:45:00 AM AEDT	3	13	10	10	2	2	0	0	0	0	38
3210	Monday, 4 November 2019	1:00:00 AM AEDT	2:00:00 AM AEDT	2	13	8	8	2	2	0	0	0	0	33
3210	Monday, 4 November 2019	1:15:00 AM AEDT	2:15:00 AM AEDT	4	12	8	8	2	2	0	0	0	0	34
3210	Monday, 4 November 2019	1:30:00 AM AEDT	2:30:00 AM AEDT	3	11	8	8	2	2	0	1	0	0	33
3210	Monday, 4 November 2019	1:45:00 AM AEDT	2:45:00 AM AEDT	2	7	7	7	2	2	0	1	0	0	26
3210	Monday, 4 November 2019	2:00:00 AM AEDT	3:00:00 AM AEDT	2	5	5	5	3	3	1	1	0	0	22
3210	Monday, 4 November 2019	2:15:00 AM AEDT	3:15:00 AM AEDT	0	2	5	5	3	3	1	1	0	0	17
3210	Monday, 4 November 2019	2:30:00 AM AEDT	3:30:00 AM AEDT	0	1	5	5	3	3	3	1	0	0	18
3210	Monday, 4 November 2019	2:45:00 AM AEDT	3:45:00 AM AEDT	0	5	4	4	2	2	3	1	0	0	19
3210	Monday, 4 November 2019	3:00:00 AM AEDT	4:00:00 AM AEDT	0	15	5	5	1	2	1	1	0	0	29
3210	Monday, 4 November 2019	3:15:00 AM AEDT	4:15:00 AM AEDT	0	16	6	6	2	2	2	1	0	0	33
3210	Monday, 4 November 2019	3:30:00 AM AEDT	4:30:00 AM AEDT	3	22	9	8	2	2	0	0	0	0	44
3210	Monday, 4 November 2019	3:45:00 AM AEDT	4:45:00 AM AEDT	4	21	15	14	3	0	0	0	0	0	57
3210	Monday, 4 November 2019	4:00:00 AM AEDT	5:00:00 AM AEDT	7	30	20	18	7	7	0	0	0	0	82
3210	Monday, 4 November 2019	4:15:00 AM AEDT	5:15:00 AM AEDT	9	46	33	30	9	9	0	0	0	0	127
3210	Monday, 4 November 2019	4:30:00 AM AEDT	5:30:00 AM AEDT	7	65	49	47	17	1	1	0	0	0	186
3210	Monday, 4 November 2019	4:45:00 AM AEDT	5:45:00 AM AEDT	11	106	79	74	26	3	1	0	0	0	300
3210	Monday, 4 November 2019	5:00:00 AM AEDT	6:00:00 AM AEDT	19	138	115	105	43	3	1	0	0	0	424
3210	Monday, 4 November 2019	5:15:00 AM AEDT	6:15:00 AM AEDT	30	195	152	143	53	4	1	0	0	0	588
3210	Monday, 4 November 2019	5:30:00 AM AEDT	6:30:00 AM AEDT	42	260	205	194	97	4	1	0	0	0	803
3210	Monday, 4 November 2019	5:45:00 AM AEDT	6:45:00 AM AEDT	70	310	248	240	140	4	0	0	0	0	1012
3210	Monday, 4 November 2019	6:00:00 AM AEDT	7:00:00 AM AEDT	96	380	301	298	207	6	4	0	0	0	1292
3210	Monday, 4 November 2019	6:15:00 AM AEDT	7:15:00 AM AEDT	118	421	322	330	267	11	6	0	0	0	1475
3210	Monday, 4 November 2019	6:30:00 AM AEDT	7:30:00 AM AEDT	139	465	354	366	339	10	12	0	0	0	1685
3210	Monday, 4 November 2019	6:45:00 AM AEDT	7:45:00 AM AEDT	146	500	373	399	438	11	16	0	0	0	1883
3210	Monday, 4 November 2019	7:00:00 AM AEDT	8:00:00 AM AEDT	164	499	348	405	515	16	21	0	0	0	1968
3210	Monday, 4 November 2019	7:15:00 AM AEDT	8:15:00 AM AEDT	198	528	298	385	573	20	35	0	0	0	2037
3210	Monday, 4 November 2019	7:30:00 AM AEDT	8:30:00 AM AEDT	225	508	241	368	580	28	40	0	0	0	1990
3210	Monday, 4 November 2019	7:45:00 AM AEDT	8:45:00 AM AEDT	247	504	169	333	590	37	54	0	0	0	1934
3210	Monday, 4 November 2019	8:00:00 AM AEDT	9:00:00 AM AEDT	252	517	140	309	581	36	60	0	0	0	1895
3210	Monday, 4 November 2019	8:15:00 AM AEDT	9:15:00 AM AEDT	226	488	189	330	550	33	52	0	0	0	1868
3210	Monday, 4 November 2019	8:30:00 AM AEDT	9:30:00 AM AEDT	202	487	190	302	515	28	56	0	0	0	1780
3210	Monday, 4 November 2019	8:45:00 AM AEDT	9:45:00 AM AEDT	177	468	231	298	430	21	48	0	0	0	1673
3210	Monday, 4 November 2019	9:00:00 AM AEDT	10:00:00 AM AEDT	165	438	245	286	334	21	44	0	0	0	1533
3210	Monday, 4 November 2019	9:15:00 AM AEDT	10:15:00 AM AEDT	156	428	200	248	297	19	54	0	0	0	1402
3210	Monday, 4 November 2019	9:30:00 AM AEDT	10:30:00 AM AEDT	152	398	206	250	266	32	49	0	0	0	1353
3210	Monday, 4 November 2019	9:45:00 AM AEDT	10:45:00 AM AEDT	137	388	192	241	245	35	53	0	0	0	1291
3210	Monday, 4 November 2019	10:00:00 AM AEDT	11:00:00 AM AEDT	124	377	179	226	249	37	57	0	0	0	1249
3210	Monday, 4 November 2019	10:15:00 AM AEDT	11:15:00 AM AEDT	128	349	203	235	226	38	51	0	0	0	1230
3210	Monday, 4 November 2019	10:30:00 AM AEDT	11:30:00 AM AEDT	119	356	198	228	231	33	59	0	0	0	1224
3210	Monday, 4 November 2019	10:45:00 AM AEDT	11:45:00 AM AEDT	126	356	182	216	226	36	63	0	0	0	1205
3210	Monday, 4 November 2019	11:00:00 AM AEDT	12:00:00 PM AEDT	117	345	187	233	227	41	69	0	0	0	1219
3210	Monday, 4 November 2019	11:15:00 AM AEDT	12:15:00 PM AEDT	111	369	179	224	242	43	74	0	0	0	1242
3210	Monday, 4 November 2019	11:30:00 AM AEDT	12:30:00 PM AEDT	117	370	198	245	228	39	77	0	0	0	1274
3210	Monday, 4 November 2019	11:45:00 AM AEDT	12:45:00 PM AEDT	120	358	202	245	230	41	80	0	0	0	1276
3210	Monday, 4 November 2019	12:00:00 PM AEDT	1:00:00 PM AEDT	130	355	202	238	219	41	68	0	0	0	1253

Site	Date	Interval start	Interval end	D 1	D 2	D 3	D 4	D 5	D 6	D 7	D 8	D 9	D 10	Total
3210	Monday, 4 November 2019	12:15:00 PM AEDT	1:15:00 PM AEDT	124	338	204	250	213	46	68	0	0	0	1243
3210	Monday, 4 November 2019	12:30:00 PM AEDT	1:30:00 PM AEDT	122	330	181	230	222	47	63	0	0	0	1195
3210	Monday, 4 November 2019	12:45:00 PM AEDT	1:45:00 PM AEDT	131	350	181	224	214	43	63	0	0	0	1206
3210	Monday, 4 November 2019	1:00:00 PM AEDT	2:00:00 PM AEDT	127	380	196	238	206	41	71	0	0	0	1259
3210	Monday, 4 November 2019	2:15:00 PM AEDT	2:15:00 PM AEDT	127	382	194	240	225	40	80	0	0	0	1288
3210	Monday, 4 November 2019	1:30:00 PM AEDT	2:30:00 PM AEDT	136	397	207	249	235	39	82	0	0	0	1345
3210	Monday, 4 November 2019	1:45:00 PM AEDT	2:45:00 PM AEDT	129	398	221	267	259	36	76	0	0	0	1386
3210	Monday, 4 November 2019	2:00:00 PM AEDT	3:00:00 PM AEDT	139	408	209	266	284	38	86	0	0	0	1430
3210	Monday, 4 November 2019	2:15:00 PM AEDT	3:15:00 PM AEDT	157	449	210	268	298	45	90	0	0	0	1517
3210	Monday, 4 November 2019	2:30:00 PM AEDT	3:30:00 PM AEDT	147	479	199	275	313	53	98	0	0	0	1564
3210	Monday, 4 November 2019	2:45:00 PM AEDT	3:45:00 PM AEDT	146	508	195	262	325	62	125	0	0	0	1623
3210	Monday, 4 November 2019	3:00:00 PM AEDT	4:00:00 PM AEDT	134	542	203	255	315	61	122	0	0	0	1632
3210	Monday, 4 November 2019	3:15:00 PM AEDT	4:15:00 PM AEDT	123	571	223	271	280	53	115	0	0	0	1636
3210	Monday, 4 November 2019	3:30:00 PM AEDT	4:30:00 PM AEDT	119	604	228	253	265	53	106	0	0	0	1628
3210	Monday, 4 November 2019	3:45:00 PM AEDT	4:45:00 PM AEDT	112	618	221	253	230	51	87	0	0	0	1572
3210	Monday, 4 November 2019	4:00:00 PM AEDT	5:00:00 PM AEDT	100	616	224	249	223	48	83	0	0	0	1543
3210	Monday, 4 November 2019	4:15:00 PM AEDT	5:15:00 PM AEDT	85	605	228	247	233	54	81	0	0	0	1533
3210	Monday, 4 November 2019	4:30:00 PM AEDT	5:30:00 PM AEDT	78	575	253	272	228	44	85	0	0	0	1535
3210	Monday, 4 November 2019	4:45:00 PM AEDT	5:45:00 PM AEDT	70	583	283	301	230	45	82	0	0	0	1594
3210	Monday, 4 November 2019	5:00:00 PM AEDT	6:00:00 PM AEDT	72	588	285	315	252	44	75	0	0	0	1631
3210	Monday, 4 November 2019	5:15:00 PM AEDT	6:15:00 PM AEDT	70	595	291	314	235	43	73	0	0	0	1621
3210	Monday, 4 November 2019	5:30:00 PM AEDT	6:30:00 PM AEDT	65	572	293	324	224	46	66	0	0	0	1590
3210	Monday, 4 November 2019	5:45:00 PM AEDT	6:45:00 PM AEDT	75	528	280	309	211	40	59	0	0	0	1502
3210	Monday, 4 November 2019	6:00:00 PM AEDT	7:00:00 PM AEDT	74	495	298	316	164	39	61	0	0	0	1447
3210	Monday, 4 November 2019	6:15:00 PM AEDT	7:15:00 PM AEDT	71	408	300	319	137	27	58	0	0	0	1320
3210	Monday, 4 November 2019	6:30:00 PM AEDT	7:30:00 PM AEDT	81	384	274	288	116	24	56	0	0	0	1223
3210	Monday, 4 November 2019	6:45:00 PM AEDT	7:45:00 PM AEDT	64	331	248	260	104	21	52	0	0	0	1080
3210	Monday, 4 November 2019	7:00:00 PM AEDT	8:00:00 PM AEDT	55	251	215	227	90	21	53	0	0	0	912
3210	Monday, 4 November 2019	7:15:00 PM AEDT	8:15:00 PM AEDT	52	236	190	198	86	21	52	0	0	0	835
3210	Monday, 4 November 2019	7:30:00 PM AEDT	8:30:00 PM AEDT	39	194	165	171	75	21	54	0	0	0	719
3210	Monday, 4 November 2019	7:45:00 PM AEDT	8:45:00 PM AEDT	37	172	155	157	65	20	53	0	0	0	659
3210	Monday, 4 November 2019	8:00:00 PM AEDT	9:00:00 PM AEDT	34	164	140	141	62	17	45	0	0	0	603
3210	Monday, 4 November 2019	8:15:00 PM AEDT	9:15:00 PM AEDT	27	147	116	118	54	21	40	0	0	0	523
3210	Monday, 4 November 2019	8:30:00 PM AEDT	9:30:00 PM AEDT	22	142	110	112	45	17	40	0	0	0	488
3210	Monday, 4 November 2019	8:45:00 PM AEDT	9:45:00 PM AEDT	23	144	133	140	46	15	43	0	0	0	544
3210	Monday, 4 November 2019	9:00:00 PM AEDT	10:00:00 PM AEDT	24	141	137	145	44	12	41	0	0	0	544
3210	Monday, 4 November 2019	9:15:00 PM AEDT	10:15:00 PM AEDT	23	136	132	138	39	5	34	0	0	0	507
3210	Monday, 4 November 2019	9:30:00 PM AEDT	10:30:00 PM AEDT	26	122	127	129	36	6	31	0	0	0	477
3210	Monday, 4 November 2019	9:45:00 PM AEDT	10:45:00 PM AEDT	21	107	100	99	29	7	23	0	0	0	386
3210	Monday, 4 November 2019	10:00:00 PM AEDT	11:00:00 PM AEDT	17	98	79	77	22	6	22	0	0	0	321
3210	Monday, 4 November 2019	10:15:00 PM AEDT	11:15:00 PM AEDT	16	82	67	67	16	6	22	0	0	0	276
3210	Monday, 4 November 2019	10:30:00 PM AEDT	11:30:00 PM AEDT	12	71	60	59	14	7	13	0	0	0	236
3210	Monday, 4 November 2019	10:45:00 PM AEDT	11:45:00 PM AEDT	10	56	49	47	10	5	16	0	0	0	193
3210	Monday, 4 November 2019	11:00:00 PM AEDT	12:00:00 PM AEDT	6	43	40	38	7	6	14	0	0	0	154

TCS 3210

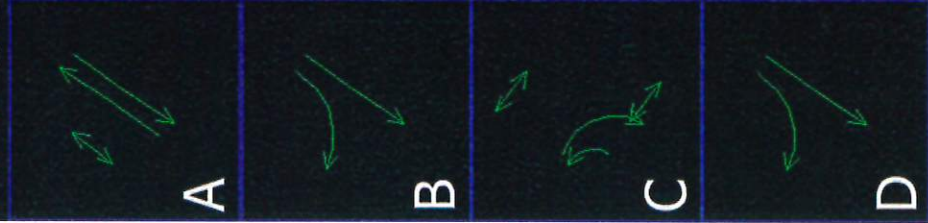
WAHROONGA

153H14

HOR

SS=22

4 PHASES



Wednesday, 12 August 2020

Approach		detector(s)...							
Approach	1	1	2	4	5	6	7		
01:00	Approach	1	1	20	19	4	1	2	47
02:00	Approach	1	1	5	10	2	0	1	19
03:00	Approach	1	2	16	7	3	0	1	29
04:00	Approach	1	0	13	10	2	0	0	25
05:00	Approach	1	1	30	10	2	0	0	43
06:00	Approach	1	22	130	74	29	0	1	256
07:00	Approach	1	90	376	266	182	6	10	930
08:00	Approach	1	160	530	362	419	12	27	1510
09:00	Approach	1	218	493	352	578	50	59	1750
10:00	Approach	1	141	407	289	251	30	42	1160
11:00	Approach	1	134	376	249	225	27	47	1058
12:00	Approach	1	106	365	237	212	30	56	1006
13:00	Approach	1	93	330	222	201	27	57	930
14:00	Approach	1	119	409	295	227	31	68	1149
15:00	Approach	1	132	477	285	261	31	77	1263
16:00	Approach	1	110	582	277	400	70	108	1547
17:00	Approach	1	58	597	261	251	37	59	1263
18:00	Approach	1	46	580	317	185	41	165	1334
19:00	Approach	1	49	400	260	140	29	45	923
20:00	Approach	1	26	206	173	76	21	39	541
21:00	Approach	1	12	126	130	34	10	20	332
22:00	Approach	1	21	119	102	16	4	20	282
23:00	Approach	1	5	74	55	14	7	21	176
24:00	Approach	1	4	30	33	8	2	15	92

Approach	1	AM peak	1836	07:35 - 08:35	PM peak	1570	14:45 - 15:45	Daily Total
			17665					

Location Fox Valley Road Duration 7:30 - 9:30

The Comenarra Park Way 15:00 - 18:00

Fox Valley Road -

The Comenarra Park Way Wednesday, 12 August 2020

WAHROONGA Dry

Suburb

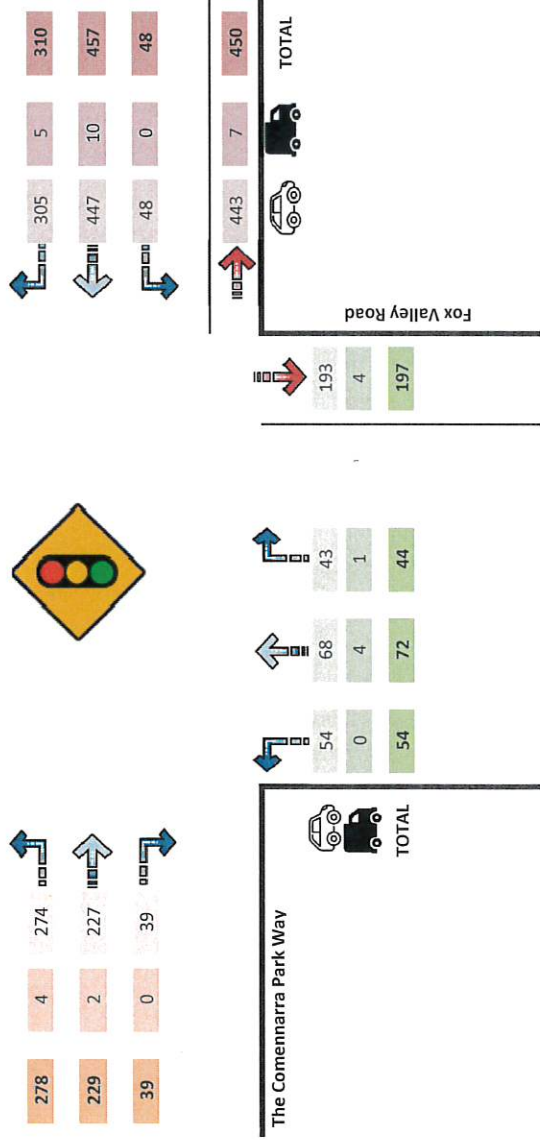
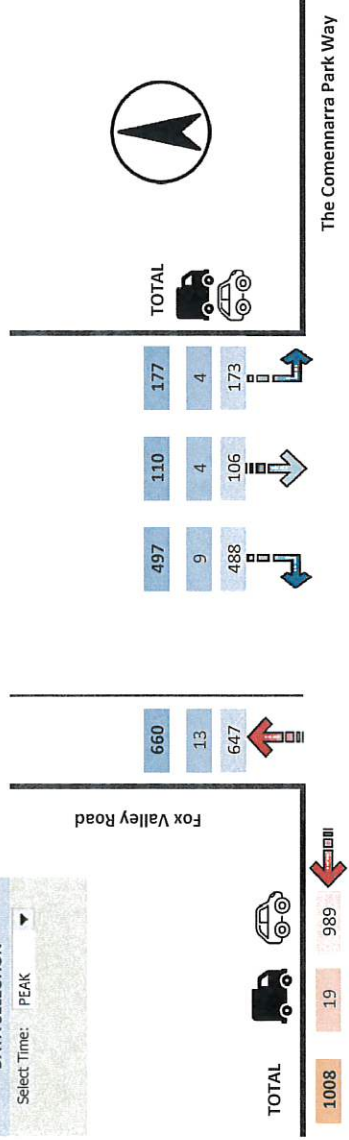
All Vehicles Time Per Hour	NORTH										EAST									
	Fox Valley Road					The Comenarra Park Way					The Comenarra Park Way					The Comenarra Park Way				
	L	Σ	LIGHT	HEAVY	Σ	I	L	Σ	LIGHT	HEAVY	Σ	I	L	Σ	LIGHT	HEAVY	Σ	I	L	Σ
7:30 - 8:30	214	2	216	98	1	99	437	5	442	757	39	5	44	269	4	273	291	3	294	611
7:45 - 8:45	228	2	230	112	2	114	437	3	440	784	47	5	52	290	3	293	299	2	301	646
8:00 - 9:00	229	1	230	128	1	129	413	3	416	775	54	4	58	282	2	284	296	1	297	639
8:15 - 9:15	207	3	210	127	2	129	407	8	415	754	55	2	57	285	2	287	292	2	294	598
8:30 - 9:30	153	2	155	95	2	97	347	10	357	609	52	0	52	260	2	262	215	1	216	530
Period End																				
15:00 - 16:00	173	3	176	105	3	108	496	10	506	790	45	0	45	397	8	405	284	6	290	740
15:15 - 16:15	173	4	177	106	4	110	488	9	497	784	48	0	48	447	10	457	305	5	310	815
15:30 - 16:30	168	3	171	92	4	96	432	9	441	708	50	0	50	464	7	471	316	4	320	841
15:45 - 16:45	159	4	163	70	3	73	428	6	434	670	48	0	48	441	7	448	298	2	300	796
16:00 - 17:00	143	2	145	51	2	53	398	4	402	600	43	0	43	440	7	447	303	1	304	794
16:15 - 17:15	152	1	153	45	2	47	412	5	417	617	45	0	45	431	4	435	259	1	260	740
16:30 - 17:30	140	1	141	56	1	57	436	6	442	640	40	0	40	425	5	430	234	2	236	706
16:45 - 17:45	129	0	129	65	2	67	448	7	455	651	34	0	34	437	7	444	232	2	234	712
17:00 - 18:00	124	0	124	69	3	72	432	6	438	634	31	0	31	436	7	443	214	2	216	690
Period End																				

All Vehicles Time Per Hour	SOUTH										WEST									
	Fox Valley Road					The Comenarra Park Way					The Comenarra Park Way					The Comenarra Park Way				
	L	Σ	LIGHT	HEAVY	Σ	I	L	Σ	LIGHT	HEAVY	Σ	I	L	Σ	LIGHT	HEAVY	Σ	I	L	Σ
7:30 - 8:30	45	0	45	101	2	103	43	1	44	192	450	3	453	365	8	373	34	1	35	861
7:45 - 8:45	48	0	48	104	3	107	45	1	46	201	392	4	396	337	9	346	34	2	36	778
8:00 - 9:00	49	2	51	90	4	94	42	1	43	188	380	3	383	312	7	319	44	3	47	749
8:15 - 9:15	48	3	51	87	4	91	50	0	50	192	358	4	362	287	4	291	47	2	49	702
8:30 - 9:30	35	3	38	76	5	81	42	0	42	161	373	3	376	280	3	283	48	2	50	709
Period End																				
15:00 - 16:00	55	0	55	76	3	79	32	1	33	167	300	2	302	213	4	217	35	1	36	555
15:15 - 16:15	54	0	54	68	4	72	43	1	44	170	274	4	278	227	2	229	39	0	39	546
15:30 - 16:30	44	0	44	65	3	68	32	1	33	145	254	4	258	238	2	240	37	0	37	535
15:45 - 16:45	39	1	40	68	3	71	36	0	36	147	265	5	270	243	1	244	37	0	37	551
16:00 - 17:00	37	1	38	64	3	67	38	0	38	143	261	4	265	239	0	239	29	0	29	533
16:15 - 17:15	37	1	38	62	1	63	30	0	30	131	254	2	256	225	0	225	24	0	24	505
16:30 - 17:30	47	1	48	64	2	66	32	0	32	146	280	2	282	231	0	231	20	0	20	533
16:45 - 17:45	51	0	51	58	2	60	28	0	28	139	282	1	283	230	0	230	19	0	19	532
17:00 - 18:00	42	0	42	60	2	62	22	0	22	126	301	1	302	243	1	244	23	0	23	569
Period End																				

Location	Fox Valley Road	Duration	7:30 - 9:30
	The Comennarra Park Way		15:00 - 18:00
	Fox Valley Road		-
	The Comennarra Park Way	Day/Date	Wednesday, 12 August 2020
Suburb	WAHROONGA	Weather	Dry

DATA SELECTION
Select Time: PEAK

TIME RANGE	
PEAK	- PM
15:15	- 16:15



Location	School Access	Duration	7:30 - 9:30
	White Road		14:30 - 16:30
Suburb	Hospital Access	Day/Date	Wednesday, 12 August 2020
	WAHROONGA	Weather	Dry

		SOUTH EAST											
		White Road											
		SCHOOL ACCESS				HOSPITAL ACCESS				TOTAL			
Time Per Hour	All Vehicles	L		I		R		U		Σ		TOTAL	
		LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY
7:30 - 8:30		89	0	89	2	0	2	0	0	0	0	92	1
7:45 - 8:45		135	0	135	4	0	4	0	0	0	0	140	1
8:00 - 9:00		139	0	139	4	0	4	0	0	0	0	144	1
8:15 - 9:15		108	0	108	5	0	5	0	0	0	0	114	1
8:30 - 9:30		57	0	57	4	0	4	0	0	0	0	61	0
Period End		137	0	137	3	0	3	0	0	0	0	141	1
14:30 - 15:30		144	0	144	2	0	2	0	0	0	0	147	1
14:45 - 15:45		122	0	122	2	0	2	0	0	0	0	125	1
15:00 - 16:00		92	0	92	2	0	2	0	0	0	0	95	1
15:15 - 16:15		23	0	23	0	0	0	0	0	0	0	23	0
15:30 - 16:30		23	0	23	0	0	0	0	0	0	0	23	0
Period End		137	0	137	3	0	3	0	0	0	0	141	1
14:30 - 15:30		144	0	144	2	0	2	0	0	0	0	147	1
14:45 - 15:45		122	0	122	2	0	2	0	0	0	0	125	1
15:00 - 16:00		92	0	92	2	0	2	0	0	0	0	95	1
15:15 - 16:15		23	0	23	0	0	0	0	0	0	0	23	0
15:30 - 16:30		23	0	23	0	0	0	0	0	0	0	23	0
Period End		137	0	137	3	0	3	0	0	0	0	141	1

		SOUTH WEST											
		Hospital Access											
		SCHOOL ACCESS				HOSPITAL ACCESS				TOTAL			
Time Per Hour	All Vehicles	L		I		R		U		Σ		TOTAL	
		LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY	LIGHT	HEAVY
7:30 - 8:30		2	0	2	89	1	90	3	0	3	0	95	1
7:45 - 8:45		2	0	2	95	1	96	4	0	4	0	102	1
8:00 - 9:00		2	0	2	91	2	93	3	0	3	0	98	2
8:15 - 9:15		3	0	3	87	3	90	5	0	5	0	98	3
8:30 - 9:30		1	0	1	89	3	92	5	0	5	0	98	3
Period End		3	0	3	241	1	242	1	0	1	0	246	3
14:30 - 15:30		2	0	2	251	1	252	1	0	1	0	255	1
14:45 - 15:45		3	0	3	251	1	252	1	0	1	0	256	1
15:00 - 16:00		2	0	2	262	1	263	0	0	0	0	265	1
15:15 - 16:15		1	0	1	255	1	256	0	0	0	0	257	1
15:30 - 16:30		1	0	1	255	1	256	0	0	0	0	257	1
Period End		3	0	3	241	1	242	1	0	1	0	246	3
14:30 - 15:30		2	0	2	251	1	252	1	0	1	0	255	1
14:45 - 15:45		3	0	3	251	1	252	1	0	1	0	256	1
15:00 - 16:00		2	0	2	262	1	263	0	0	0	0	265	1
15:15 - 16:15		1	0	1	255	1	256	0	0	0	0	257	1
15:30 - 16:30		1	0	1	255	1	256	0	0	0	0	257	1
Period End		3	0	3	241	1	242	1	0	1	0	246	3

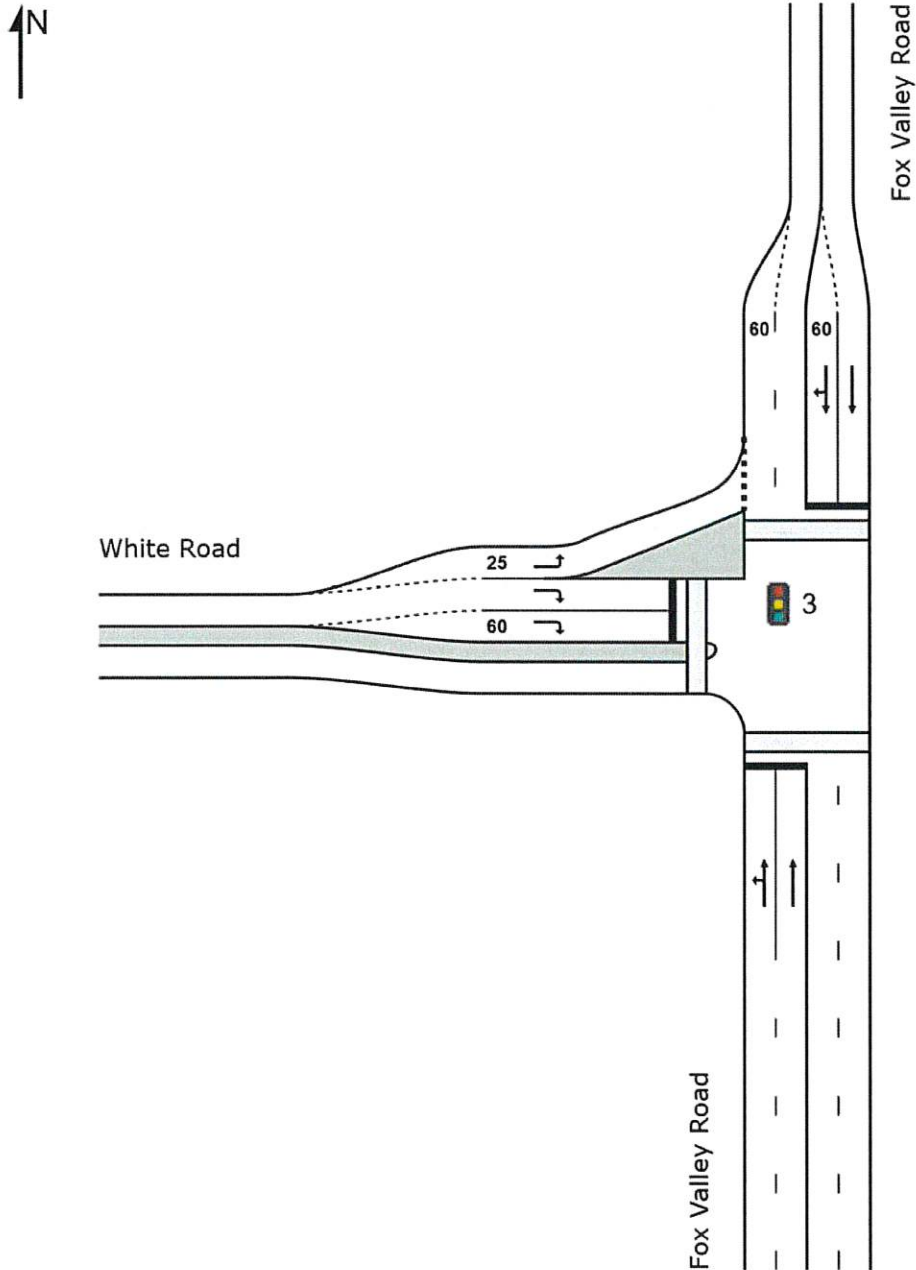
SITE LAYOUT

Site: 3 [Hospital Rd]

White Road (Hospital Access) and Fox Valley Road

Site Category: Wahroonga

Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 3 [Hospital Rd Existing AM Peak]

White Road (Hospital Access) and Fox Valley Road

Site Category: Wahroonga

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fox Valley Road												
1	L2	229	0.0	0.824	37.3	LOS C	7.6	53.5	1.00	0.99	1.37	19.8
2	T1	519	0.0	0.840	27.2	LOS B	16.9	118.4	0.99	1.05	1.25	37.3
Approach		748	0.0	0.840	30.3	LOS C	16.9	118.4	1.00	1.03	1.28	33.7
North: Fox Valley Road												
8	T1	608	0.0	0.480	5.8	LOS A	9.1	63.5	0.55	0.49	0.55	46.6
9	R2	371	0.0	0.855	36.2	LOS C	12.7	88.6	1.00	1.03	1.36	33.8
Approach		979	0.0	0.855	17.3	LOS B	12.7	88.6	0.72	0.69	0.86	40.9
West: White Road												
10	L2	127	0.0	0.120	9.1	LOS A	1.5	10.2	0.48	0.64	0.48	44.7
12	R2	115	0.0	0.206	29.9	LOS C	1.5	10.8	0.91	0.73	0.91	22.2
Approach		242	0.0	0.206	18.9	LOS B	1.5	10.8	0.69	0.68	0.69	36.4
All Vehicles		1969	0.0	0.855	22.4	LOS B	16.9	118.4	0.82	0.82	1.00	37.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P3	North Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P4	West Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
All Pedestrians		158	24.4	LOS C			0.90	0.90	

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: 3 [Hospital Rd Existing PM Peak]

White Road (Hospital Access) and Fox Valley Road

Site Category: Wahroonga

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fox Valley Road												
1	L2	116	0.0	0.534	33.6	LOS C	3.4	24.1	0.99	0.78	1.00	21.0
2	T1	613	0.0	0.820	23.0	LOS B	18.8	131.4	0.96	0.99	1.14	38.8
Approach		728	0.0	0.820	24.7	LOS B	18.8	131.4	0.97	0.95	1.12	37.1
North: Fox Valley Road												
8	T1	421	0.0	0.316	4.1	LOS A	5.0	34.7	0.43	0.38	0.43	47.5
9	R2	292	0.0	0.785	33.5	LOS C	9.2	64.6	1.00	0.95	1.23	34.6
Approach		713	0.0	0.785	16.1	LOS B	9.2	64.6	0.66	0.61	0.76	41.4
West: White Road												
10	L2	211	0.0	0.218	10.3	LOS A	2.8	19.9	0.56	0.68	0.56	44.1
12	R2	187	0.0	0.432	33.1	LOS C	2.7	19.2	0.97	0.77	0.97	21.0
Approach		398	0.0	0.432	21.0	LOS B	2.8	19.9	0.75	0.72	0.75	35.4
All Vehicles		1839	0.0	0.820	20.6	LOS B	18.8	131.4	0.80	0.77	0.90	38.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P3	North Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P4	West Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
All Pedestrians		158	24.4	LOS C			0.90	0.90	

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: 3 [Hospital Rd Additional Students AM Peak]

White Road (Hospital Access) and Fox Valley Road

Site Category: Wahroonga

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fox Valley Road												
1	L2	242	0.0	0.869	40.1	LOS C	8.5	59.4	1.00	1.06	1.50	18.9
2	T1	519	0.0	0.887	32.5	LOS C	18.7	130.7	1.00	1.14	1.39	35.5
Approach		761	0.0	0.887	35.0	LOS C	18.7	130.7	1.00	1.12	1.43	31.9
North: Fox Valley Road												
8	T1	608	0.0	0.480	5.8	LOS A	9.1	63.5	0.55	0.49	0.55	46.6
9	R2	391	0.0	0.841	34.5	LOS C	13.0	91.2	1.00	1.01	1.31	34.3
Approach		999	0.0	0.841	17.0	LOS B	13.0	91.2	0.72	0.69	0.85	41.0
West: White Road												
10	L2	143	0.0	0.133	9.4	LOS A	1.7	11.9	0.50	0.63	0.50	44.5
12	R2	124	0.0	0.223	30.0	LOS C	1.7	11.8	0.92	0.74	0.92	22.2
Approach		267	0.0	0.223	19.0	LOS B	1.7	11.9	0.69	0.68	0.69	36.5
All Vehicles		2027	0.0	0.887	24.0	LOS B	18.7	130.7	0.82	0.85	1.04	37.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P3	North Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
P4	West Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90	
All Pedestrians		158	24.4	LOS C			0.90	0.90	

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: 3 [Hospital Rd Additional Students PM Peak]

White Road (Hospital Access) and Fox Valley Road

Site Category: Wairoonga

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fox Valley Road												
1	L2	125	0.0	0.578	33.9	LOS C	3.8	26.4	0.99	0.81	1.04	20.9
2	T1	613	0.0	0.820	23.0	LOS B	18.8	131.4	0.96	0.99	1.14	38.8
Approach		738	0.0	0.820	24.8	LOS B	18.8	131.4	0.97	0.96	1.12	36.9
North: Fox Valley Road												
8	T1	421	0.0	0.316	4.1	LOS A	5.0	34.7	0.43	0.38	0.43	47.5
9	R2	306	0.0	0.825	35.4	LOS C	10.1	70.7	1.00	0.99	1.32	34.0
Approach		727	0.0	0.825	17.3	LOS B	10.1	70.7	0.67	0.64	0.80	40.9
West: White Road												
10	L2	220	0.0	0.228	10.4	LOS A	3.0	21.0	0.57	0.68	0.57	44.0
12	R2	203	0.0	0.469	33.2	LOS C	3.0	20.9	0.98	0.77	0.98	20.9
Approach		423	0.0	0.469	21.4	LOS B	3.0	21.0	0.76	0.72	0.76	35.1
All Vehicles		1888	0.0	0.825	21.1	LOS B	18.8	131.4	0.81	0.78	0.92	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90
P3	North Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90
P4	West Full Crossing	53	24.4	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		158	24.4	LOS C			0.90	0.90

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.

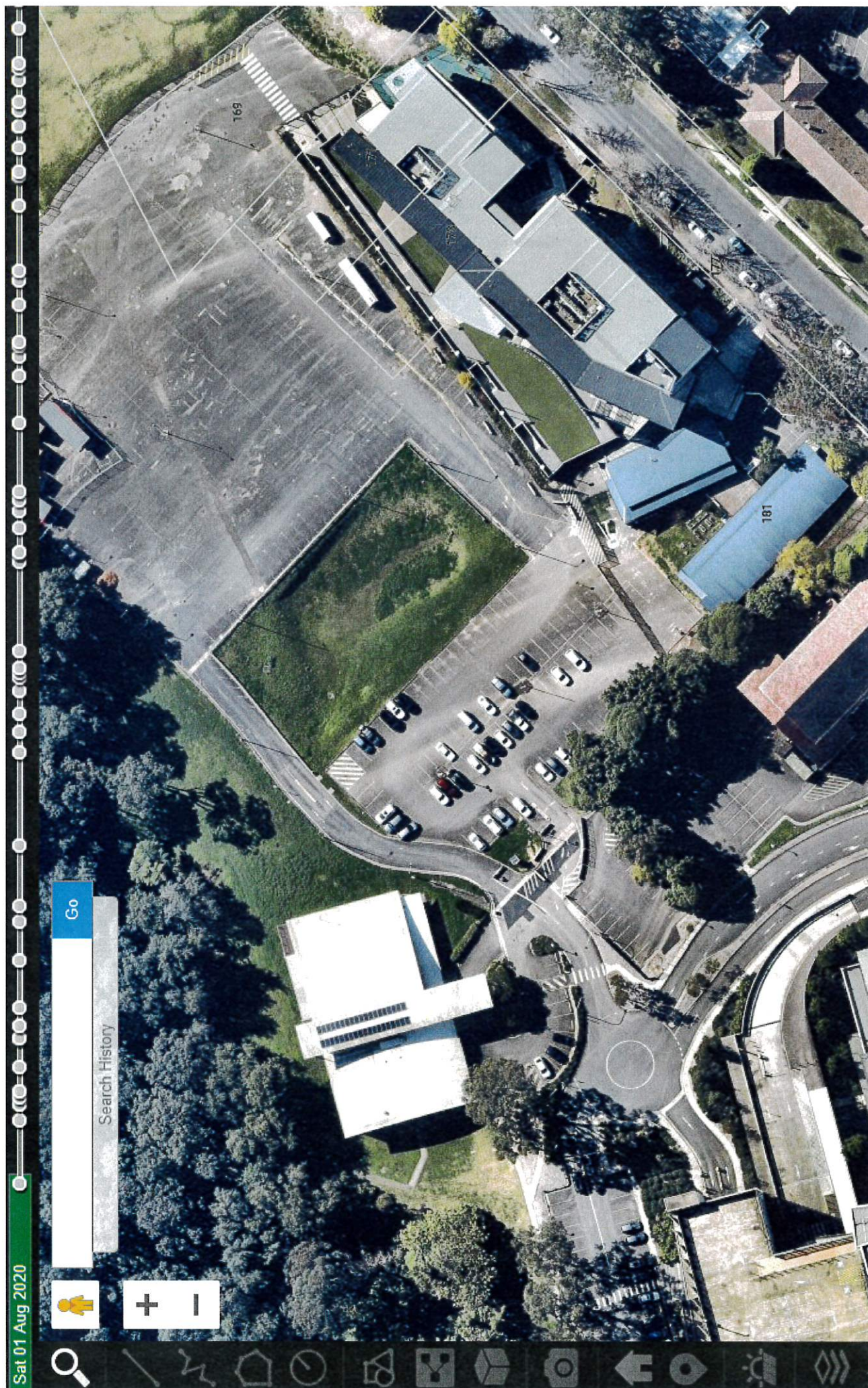
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Sat 01 Aug 2020



Go

Search History



Criteria for Interpreting Results of SIDRA Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good	Good
'B'	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
'C'	Satisfactory	Satisfactory but accident study required
'D'	Operating near capacity	Near capacity and Accident Study required
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
'F'	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below, which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals**¹ both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a **roundabout** or **GIVE WAY** or **STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

¹ the values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs

MOVEMENT SUMMARY

Site: 1 [Ada Ave Exisitng AM Peak]

Network: 1 [Existing AM PEAK]

Ada Avenue and Fox Valley Road
Site Category: Wahroonga
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand veh/h	Flows HV %	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles	Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Ada Avenue South													
1	L2	13	0.0	13	0.0	0.062	8.9	LOS A	0.2	1.2	0.80	0.73	37.7
2	T1	13	0.0	13	0.0	0.062	8.3	LOS A	0.2	1.2	0.80	0.73	44.4
3	R2	18	0.0	18	0.0	0.062	12.4	LOS A	0.2	1.2	0.80	0.73	44.4
Approach		43	0.0	43	0.0	0.062	10.2	LOS A	0.2	1.2	0.80	0.73	43.2
East: Fox Valley Road													
4	L2	8	0.0	8	0.0	0.540	4.9	LOS A	1.9	13.5	0.57	0.53	45.6
5	T1	579	1.3	579	1.3	0.540	4.4	LOS A	1.9	13.5	0.57	0.53	42.6
6	R2	104	1.0	104	1.0	0.540	8.5	LOS A	1.9	13.5	0.57	0.53	46.8
6u	U	15	0.0	15	0.0	0.540	11.9	LOS A	1.9	13.5	0.57	0.53	50.5
Approach		706	1.2	706	1.2	0.540	5.2	LOS A	1.9	13.5	0.57	0.53	43.9
North: Ada Avenue													
7	L2	105	1.0	105	1.0	0.281	6.1	LOS A	0.7	5.1	0.63	0.71	45.0
8	T1	8	0.0	8	0.0	0.281	5.5	LOS A	0.7	5.1	0.63	0.71	45.4
9	R2	173	0.6	173	0.6	0.281	9.7	LOS A	0.7	5.1	0.63	0.71	41.0
9u	U	2	0.0	2	0.0	0.281	13.0	LOS A	0.7	5.1	0.63	0.71	49.3
Approach		288	0.7	288	0.7	0.281	8.3	LOS A	0.7	5.1	0.63	0.71	43.2
West: Fox Valley Road													
10	L2	175	0.0	175	0.0	0.439	4.5	LOS A	1.4	9.5	0.44	0.47	46.5
11	T1	418	1.3	418	1.3	0.439	4.0	LOS A	1.4	9.5	0.44	0.47	47.4
12	R2	3	0.0	3	0.0	0.439	8.1	LOS A	1.4	9.5	0.44	0.47	47.2
12u	U	5	0.0	5	0.0	0.439	11.5	LOS A	1.4	9.5	0.44	0.47	43.5
Approach		601	0.9	601	0.9	0.439	4.2	LOS A	1.4	9.5	0.44	0.47	47.1
All Vehicles		1639	1.0	1639	1.0	0.540	5.5	LOS A	1.9	13.5	0.54	0.54	45.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Ada Ave Exisitng PM Peak]

Network: 2 [Existing PM
PEAK]

Ada Avenue and Fox Valley Road
Site Category: Wahroonga
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Total veh/h	Flows HV % veh/h	Arrival Total HV % veh/h	Deg. Satn V/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles	Back of Distance m	Prop. Queued	Effective Stop Rate	Aver. No Cycles	Averag Speed km/h
South: Ada Avenue South													
1	L2	2	0.0	2	0.0	0.015	9.4	LOS A	0.0	0.3	0.83	0.67	36.5
2	T1	1	0.0	1	0.0	0.015	8.9	LOS A	0.0	0.3	0.83	0.67	43.5
3	R2	6	0.0	6	0.0	0.015	13.0	LOS A	0.0	0.3	0.83	0.67	43.5
Approach		9	0.0	9	0.0	0.015	11.7	LOS A	0.0	0.3	0.83	0.67	42.6
East: Fox Valley Road													
4	L2	16	0.0	16	0.0	0.593	5.1	LOS A	2.2	15.8	0.61	0.55	45.4
5	T1	587	1.6	587	1.6	0.593	4.5	LOS A	2.2	15.8	0.61	0.55	42.3
6	R2	148	0.7	148	0.7	0.593	8.6	LOS A	2.2	15.8	0.61	0.55	46.7
6u	U	25	0.0	25	0.0	0.593	12.0	LOS A	2.2	15.8	0.61	0.55	50.3
Approach		777	1.4	777	1.4	0.593	5.6	LOS A	2.2	15.8	0.61	0.55	44.0
North: Ada Avenue													
7	L2	77	1.4	77	1.4	0.248	5.9	LOS A	0.6	4.5	0.61	0.70	44.9
8	T1	3	0.0	3	0.0	0.248	5.3	LOS A	0.6	4.5	0.61	0.70	45.3
9	R2	176	1.2	176	1.2	0.248	9.5	LOS A	0.6	4.5	0.61	0.70	40.9
9u	U	2	0.0	2	0.0	0.248	12.8	LOS A	0.6	4.5	0.61	0.70	49.2
Approach		258	1.2	258	1.2	0.248	8.4	LOS A	0.6	4.5	0.61	0.70	42.7
West: Fox Valley Road													
10	L2	167	0.6	167	0.6	0.434	4.7	LOS A	1.4	9.6	0.50	0.49	46.3
11	T1	385	2.7	385	2.7	0.434	4.2	LOS A	1.4	9.6	0.50	0.49	47.2
12	R2	7	0.0	7	0.0	0.434	8.3	LOS A	1.4	9.6	0.50	0.49	47.0
12u	U	6	0.0	6	0.0	0.434	11.7	LOS A	1.4	9.6	0.50	0.49	43.2
Approach		566	2.0	566	2.0	0.434	4.5	LOS A	1.4	9.6	0.50	0.49	46.9
All Vehicles		1611	1.6	1611	1.6	0.593	5.7	LOS A	2.2	15.8	0.57	0.55	45.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 2 [Lucinda Ave Existing AM Peak]

 Network: 1 [Existing AM PEAK]

Lucinda Avenue and Fox Valley Road
Site Category: Wairoonga
Roundabout

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg Satn	Average Delay	Level of Service	Aver Queue Vehicles	Back of Queue Distance	Prop Queued	Effective Stop Rate	Aver No. Cycles	Average Speed
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		veh	m				km/h
South: Lucinda Avenue South														
1b	L3	33	0.0	33	0.0	0.187	9.8	LOS A	0.5	3.7	0.91	0.88	0.91	37.6
2	T1	23	0.0	23	0.0	0.187	12.3	LOS A	0.5	3.7	0.91	0.88	0.91	43.4
3a	R1	33	0.0	33	0.0	0.187	15.4	LOS B	0.5	3.7	0.91	0.88	0.91	37.6
Approach		88	0.0	88	0.0	0.187	12.5	LOS A	0.5	3.7	0.91	0.88	0.91	39.7
NorthEast: Fox Valley Road														
24a	L1	21	10.0	21	10.0	0.741	8.7	LOS A	4.0	28.3	0.89	0.87	1.06	44.7
25	T1	612	0.9	612	0.9	0.741	8.7	LOS A	4.0	28.3	0.89	0.87	1.06	40.1
26b	R3	131	0.8	131	0.8	0.741	13.5	LOS A	4.0	28.3	0.89	0.87	1.06	45.3
26u	U	2	0.0	2	0.0	0.741	15.8	LOS B	4.0	28.3	0.89	0.87	1.06	40.1
Approach		765	1.1	765	1.1	0.741	9.5	LOS A	4.0	28.3	0.89	0.87	1.06	41.6
North: Lucinda Avenue														
7b	L3	154	0.7	154	0.7	0.505	7.5	LOS A	1.6	11.5	0.78	0.83	0.83	40.2
8	T1	7	0.0	7	0.0	0.505	7.2	LOS A	1.6	11.5	0.78	0.83	0.83	45.1
9a	R1	283	0.4	283	0.4	0.505	10.3	LOS A	1.6	11.5	0.78	0.83	0.83	40.2
Approach		444	0.5	444	0.5	0.505	9.3	LOS A	1.6	11.5	0.78	0.83	0.83	40.3
SouthWest: Fox Valley Road														
30a	L1	321	0.3	321	0.3	0.626	4.5	LOS A	2.4	17.0	0.64	0.56	0.64	47.4
31	T1	404	1.3	404	1.3	0.626	4.9	LOS A	2.4	17.0	0.64	0.56	0.64	45.7
32b	R3	9	0.0	9	0.0	0.626	9.6	LOS A	2.4	17.0	0.64	0.56	0.64	47.9
32u	U	19	0.0	19	0.0	0.626	12.0	LOS A	2.4	17.0	0.64	0.56	0.64	45.7
Approach		754	0.8	754	0.8	0.626	5.0	LOS A	2.4	17.0	0.64	0.56	0.64	46.6
All Vehicles		2052	0.8	2052	0.8	0.741	7.9	LOS A	4.0	28.3	0.77	0.75	0.85	43.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Lucinda Ave Existing PM Peak]

Network: 2 [Existing PM PEAK]

Lucinda Avenue and Fox Valley Road
Site Category: Wahroonga
Roundabout

Movement Performance - Vehicles														
Mov. ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	Aver. Back of Queue	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m			km/h	
South: Lucinda Avenue South														
1b	L3	34	3.1	34	3.1	0.151	7.4	LOS A	0.4	2.8	0.80	0.80	39.7	
2	T1	23	0.0	23	0.0	0.151	9.4	LOS A	0.4	2.8	0.80	0.80	44.8	
3a	R1	34	3.1	34	3.1	0.151	12.7	LOS A	0.4	2.8	0.80	0.80	39.7	
3u	U	2	0.0	2	0.0	0.151	16.6	LOS B	0.4	2.8	0.80	0.80	48.1	
Approach		93	2.3	93	2.3	0.151	10.0	LOS A	0.4	2.8	0.80	0.80	41.8	
NorthEast: Fox Valley Road														
24a	L1	27	0.0	27	0.0	0.627	4.5	LOS A	2.4	17.3	0.64	0.58	45.9	
25	T1	555	1.7	555	1.7	0.627	4.8	LOS A	2.4	17.3	0.64	0.58	41.9	
26b	R3	178	1.2	178	1.2	0.627	9.6	LOS A	2.4	17.3	0.64	0.58	46.5	
26u	U	1	0.0	1	0.0	0.627	11.9	LOS A	2.4	17.3	0.64	0.58	41.9	
Approach		761	1.5	761	1.5	0.627	5.9	LOS A	2.4	17.3	0.64	0.58	43.7	
North: Lucinda Avenue														
7b	L3	116	2.7	116	2.7	0.311	6.7	LOS A	0.9	6.1	0.73	0.77	41.2	
8	T1	15	0.0	15	0.0	0.311	6.4	LOS A	0.9	6.1	0.73	0.77	45.7	
9a	R1	123	1.7	123	1.7	0.311	9.5	LOS A	0.9	6.1	0.73	0.77	41.2	
Approach		254	2.1	254	2.1	0.311	8.1	LOS A	0.9	6.1	0.73	0.77	41.6	
SouthWest: Fox Valley Road														
30a	L1	449	0.5	449	0.5	0.789	7.7	LOS A	4.8	33.9	0.87	0.78	46.7	
31	T1	423	1.5	423	1.5	0.789	8.0	LOS A	4.8	33.9	0.87	0.78	44.7	
32b	R3	26	4.0	26	4.0	0.789	12.9	LOS A	4.8	33.9	0.87	0.78	47.2	
32u	U	15	0.0	15	0.0	0.789	15.1	LOS B	4.8	33.9	0.87	0.78	44.7	
Approach		914	1.0	914	1.0	0.789	8.1	LOS A	4.8	33.9	0.87	0.78	45.9	
All Vehicles		2021	1.4	2021	1.4	0.789	7.4	LOS A	4.8	33.9	0.76	0.71	44.8	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 5 [The Comenarra Pkwy Existing AM Peak]

Network: 1 [Existing AM PEAK]

The Comenarra Parkway and Fox Valley Road

Site Category: Wahroonga

Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand	Flows	Arrival	Flows	Deg Satn	Average Delay	Level of Service	Aver Back of Queue	Prop Queued	Effective Stop Rate	Aver No. Cycles	Average Speed	
		Total veh/h	HV %	Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m			km/h	
South: Fox Valley Road														
1	L2	72	0.0	72	0.0	0.700	58.8	LOS E	4.9	34.3	1.00	0.86	1.10	25.8
2	T1	74	0.0	74	0.0	0.700	54.2	LOS D	4.9	34.3	1.00	0.86	1.10	15.4
3	R2	38	0.0	38	0.0	0.187	54.0	LOS D	1.2	8.2	0.94	0.73	0.94	26.4
Approach		183	0.0	183	0.0	0.700	56.0	LOS D	4.9	34.3	0.99	0.83	1.06	22.6
East: The Comenarra Parkway														
4	L2	96	0.0	96	0.0	0.236	43.0	LOS D	2.6	18.3	0.87	0.76	0.87	29.1
5	T1	318	0.0	318	0.0	0.838	50.5	LOS D	10.9	76.3	0.99	0.99	1.19	29.6
6	R2	236	0.0	236	0.0	0.822	59.5	LOS E	8.3	58.0	1.00	0.93	1.21	19.2
Approach		649	0.0	649	0.0	0.838	52.6	LOS D	10.9	76.3	0.98	0.93	1.15	26.2
North: Fox Valley Road														
7	L2	211	0.0	211	0.0	0.421	21.9	LOS B	4.3	30.0	0.78	0.75	0.78	33.7
8	T1	53	0.0	53	0.0	0.421	17.4	LOS B	4.3	30.0	0.78	0.75	0.78	30.5
9	R2	427	0.0	427	0.0	0.844	52.2	LOS D	14.9	104.0	1.00	0.94	1.16	23.0
Approach		691	0.0	691	0.0	0.844	40.3	LOS C	14.9	104.0	0.92	0.87	1.01	25.9
West: The Comenarra Parkway														
10	L2	523	0.0	523	0.0	0.492	19.4	LOS B	10.1	70.7	0.64	0.76	0.64	32.8
11	T1	373	0.0	373	0.0	0.855	50.7	LOS D	14.0	97.7	1.00	1.01	1.19	29.5
12	R2	22	0.0	22	0.0	0.855	55.3	LOS D	14.0	97.7	1.00	1.01	1.19	27.0
Approach		918	0.0	918	0.0	0.855	33.0	LOS C	14.0	97.7	0.80	0.87	0.88	30.7
All Vehicles		2441	0.0	2441	0.0	0.855	42.0	LOS C	14.9	104.0	0.89	0.88	1.00	27.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5 [The Comenarra Pkwy Existing PM Peak]

Network: 2 [Existing PM PEAK]

The Comenarra Parkway and Fox Valley Road

Site Category: Wahroonga

Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Network Practical Cycle Time)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total veh/h	Flows HV %	Arrival Total veh/h	Flows HV %	Deg Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Back of Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fox Valley Road														
1	L2	37	0.0	37	0.0	0.449	55.8	LOS D	3.0	21.0	0.98	0.77	0.98	26.6
2	T1	57	0.0	57	0.0	0.449	51.3	LOS D	3.0	21.0	0.98	0.77	0.98	16.0
3	R2	44	0.0	44	0.0	0.218	54.2	LOS D	1.4	9.6	0.95	0.73	0.95	26.3
Approach		138	0.0	138	0.0	0.449	53.4	LOS D	3.0	21.0	0.97	0.76	0.97	23.1
East: The Comenarra Parkway														
4	L2	127	0.0	127	0.0	0.251	38.2	LOS C	3.3	22.9	0.82	0.76	0.82	30.5
5	T1	408	0.0	408	0.0	0.900	54.7	LOS D	15.1	105.5	0.98	1.08	1.28	28.6
6	R2	318	0.0	318	0.0	0.856	58.9	LOS E	11.4	79.9	1.00	0.96	1.23	19.3
Approach		854	0.0	854	0.0	0.900	53.8	LOS D	15.1	105.5	0.97	0.99	1.19	25.9
North: Fox Valley Road														
7	L2	155	0.0	155	0.0	0.459	27.9	LOS B	5.1	36.0	0.87	0.79	0.92	31.4
8	T1	98	0.0	98	0.0	0.459	23.3	LOS B	5.1	36.0	0.87	0.79	0.92	27.9
9	R2	434	0.0	434	0.0	0.886	58.1	LOS E	15.7	110.0	1.00	0.98	1.24	21.7
Approach		686	0.0	686	0.0	0.886	46.3	LOS D	15.7	110.0	0.95	0.91	1.12	24.0
West: The Comenarra Parkway														
10	L2	303	0.0	303	0.0	0.310	20.1	LOS B	5.6	38.9	0.60	0.73	0.60	32.4
11	T1	292	0.0	292	0.0	0.841	52.7	LOS D	11.2	78.4	1.00	1.00	1.20	29.0
12	R2	26	0.0	26	0.0	0.841	57.3	LOS E	11.2	78.4	1.00	1.00	1.20	26.5
Approach		621	0.0	621	0.0	0.841	37.0	LOS C	11.2	78.4	0.81	0.87	0.91	29.9
All Vehicles		2299	0.0	2299	0.0	0.900	47.0	LOS D	15.7	110.0	0.92	0.92	1.08	26.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.