

Memo To: Hearing Panel AK C PPC 48 – 50

From: Marlene Oliver (Independent Facilitator for Expert Conferencing)

Date: 18 November 2021.

Subject: Additional Information – Drury East Transport Modelling Memo (16 November 2021)

The Applicants' transport experts have circulated the attached Report: "Drury East Traffic Memorandum Modelling Update Plan Changes 48,49 & 50" (prepared by Stantec).

This updated material addresses matters raised during several of the expert conferencing sessions.

For clarification: although this material may have been discussed directly between various experts, this Memo has not been presented to, and discussed at, a facilitated expert conferencing session.

Drury East Traffic Memorandum
Modelling Update
Plan Changes 48,49 & 50

We design with community in mind

Revision Schedule

Rev No	Date	Description	Signature of Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
0	16/11/21	Final	SV/EM	HP	DH	DH

Quality Statement

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1 Background

As a result of discussions at the Drury East Plan Changes 48,49 & 50 Traffic Expert Caucusing, Stantec NZ has updated the modelling results for the Drury East development. This update covers the early development years prior to the introduction of the proposed ATAP improvements in the area, specifically, three scenarios – Test 1, 2 and 3, discussed in the modelling report. This update supersedes previous results for these scenarios reported in the Modelling Report dated 30th September 2021.

The key change for this updated modelling assessment is the introduction of an interim signalised intersection at the Great South Road (**GSR**)/Waihoehoe Road intersection. The interim signalised intersection replaces the previously proposed upgraded roundabout layout and is now considered a preferred layout based on discussions held in the expert conferencing meetings between September through October 2021.

Three tests that were remodelled are described below:

- **Test 1** – models the first development years, prior to Drury Central station and prior to completion of SH1 widening between Drury and Papakura, with improvements to the GSR/Waihoehoe Road intersection (signalised interim layout). This incorporates a lower Public Transport (PT) mode share uptake percentage assumption, as it would occur prior to Drury Central rail station construction.
- **Test 2** – assesses the impact of the SH1 widening and Drury Interchange improvements. As with Test 1, this model includes lower PT mode share uptake percentage without the train station.
- **Test 3** – assesses the impact of Drury Central station and models the impact of the immediate larger PT % mode share uptake that it enables. It also includes the impact of the direct connection from SH1 (in the vicinity of the Drury interchange) to the Kiwi Property development site.

The updated modelling also provides additional information on the Drury East development traffic impact on the road network in Drury South and assess additional intersection of Fitzgerald Road/Road 8/Jack Stevenson Road.

The additional data also provides more information on Drury East traffic wider network rerouting and assess the SH22/SH1 interchange in more detail.

2 GSR / Waihoehoe Rd Intersection Layout

The interim signalised layout takes into account existing private property boundaries and provides active mode facilities on all approaches. The layout concept drawing is shown below in Figure 1.

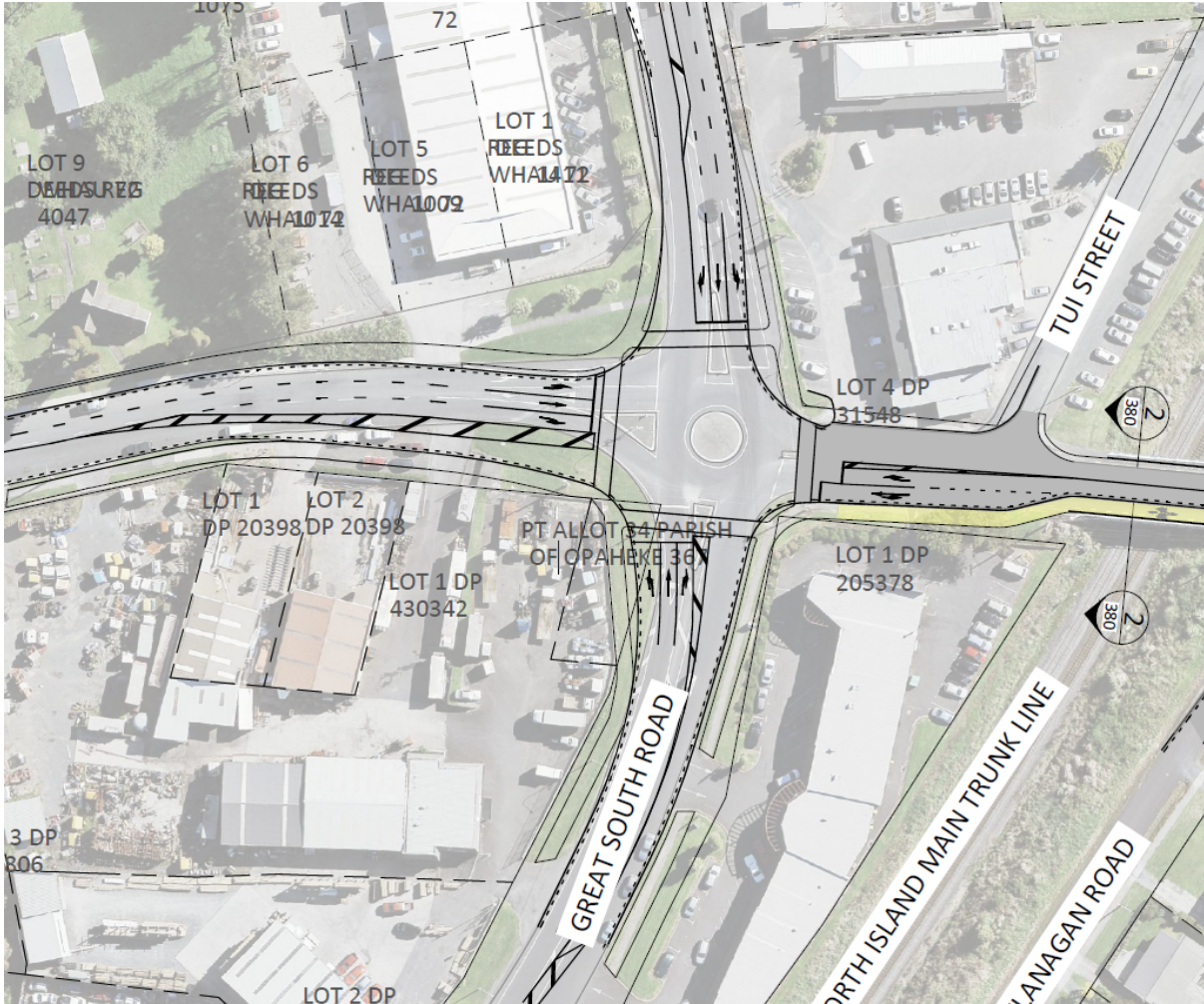


Figure 1: Great South Road / Waihoehoe Road Intersection

3 SH22 / SH1 Interchange Modelling

The SH22/SH1 Interchange was modelled in more detail, as a network in SIDRA, to assess the operation of AM and PM peaks. Previously this interchange was only assessed in SATURN. The critical model for this interchange is Test 2, where due to lack of the direct SH 1 – Drury East town centre connection the traffic at the southbound off-ramp during the PM peak are higher than in other early year scenarios.

The SIDRA model for the interchange is shown below in Figure 2.

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

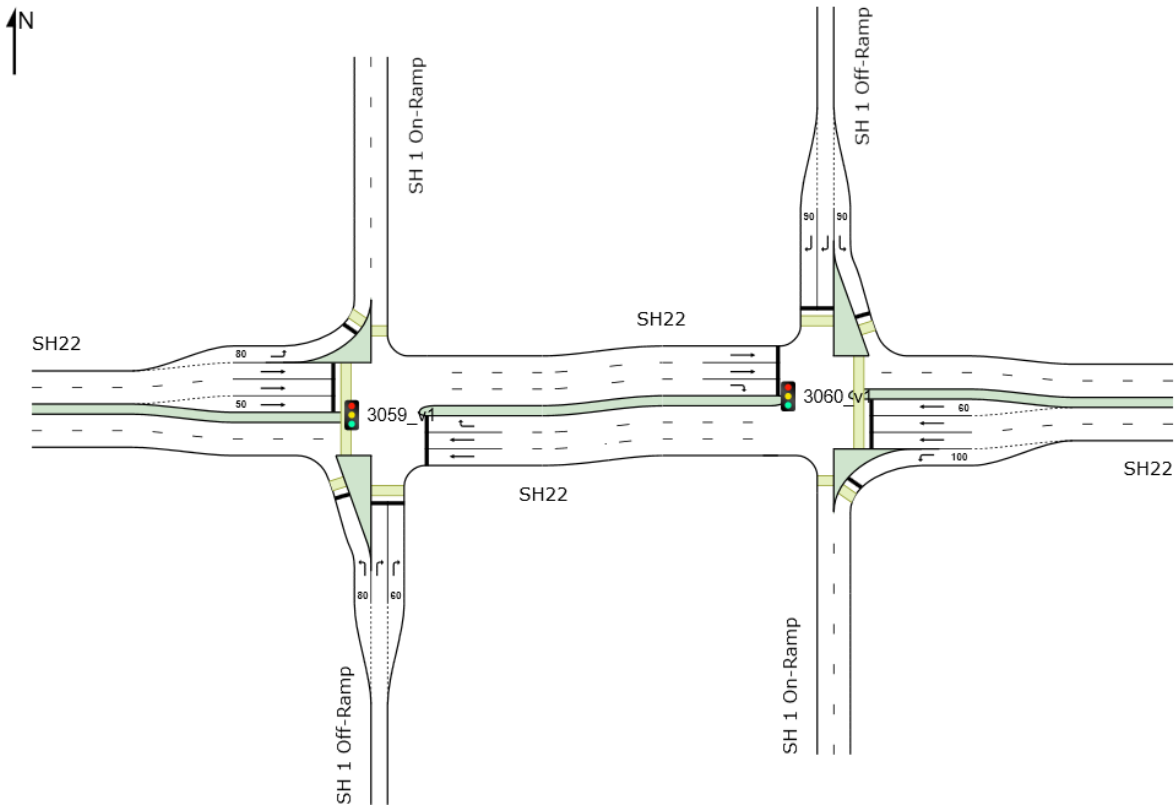


Figure 2: SH22 / SH1 Interchange SIDRA Network

4 Modelling Outputs

All three scenarios were modelled in SIDRA. In addition, Test 2 and Test 3 previously defined 'pass' scenarios were remodelled in SATURN to capture potential wider area rerouting. Test 1 was not rerun in SATURN as there is no strategic model available model from SGA developed for the base year.

4.1 SATURN modelling results for Test 2 and Test 3

The strategic model results for Test 2 and Test 3 show noticeably lower rerouting of Drury East traffic through Drury South network after introduction of the signalised intersection at the GSR/Waihoehoe Road intersection. This is mainly due to additional capacity provided by the interim signalised intersection when compared to the roundabout and lower delays at the Waihoehoe Road approach to the GSR/Waihoehoe Road intersection.

The figure showing PM peak model traffic distribution along Fitzgerald Road link (southbound section of Fitzgerald Road between Drury Hills Road and Quarry Road) is shown below – Test 2 results are shown in Figure 1 and Test 3 results are in Figure 2.

These results show that slightly larger volumes use Fitzgerald Road southern connection to Drury South in Test 3 however overall traffic volumes on Quarry Road and within Drury South are similar.

Detailed traffic distribution from the SATURN model is shown in **Appendix A**.

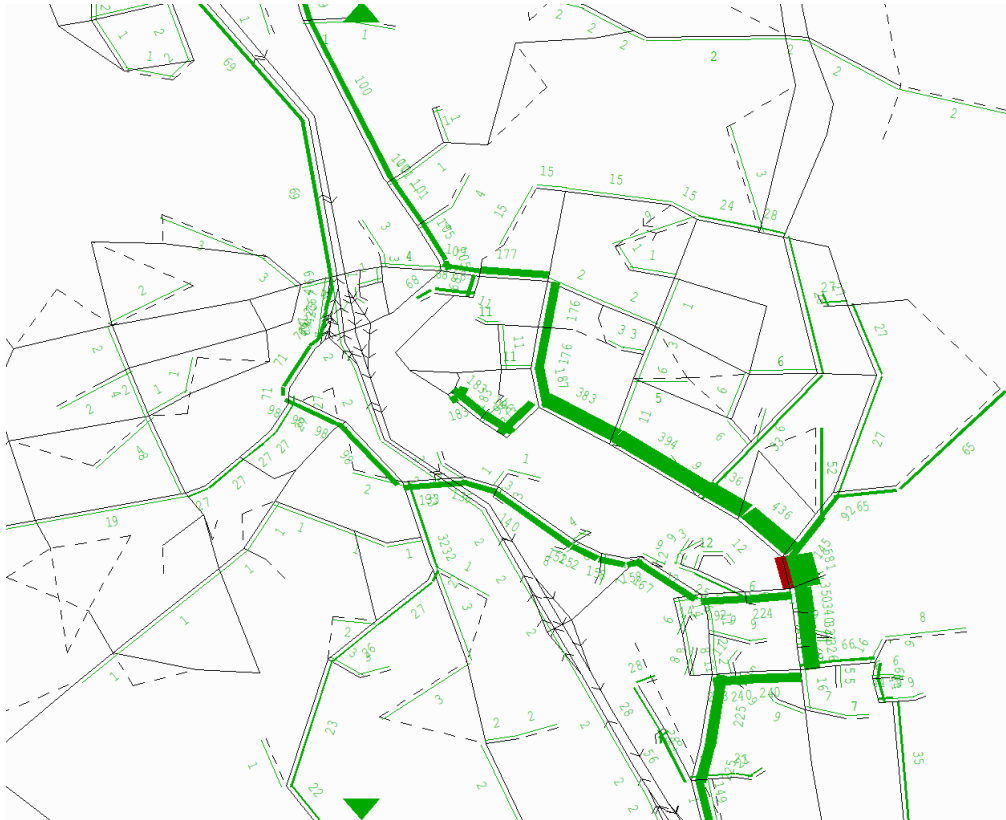


Figure 3: SATURN Results, Test 2, PM Peak

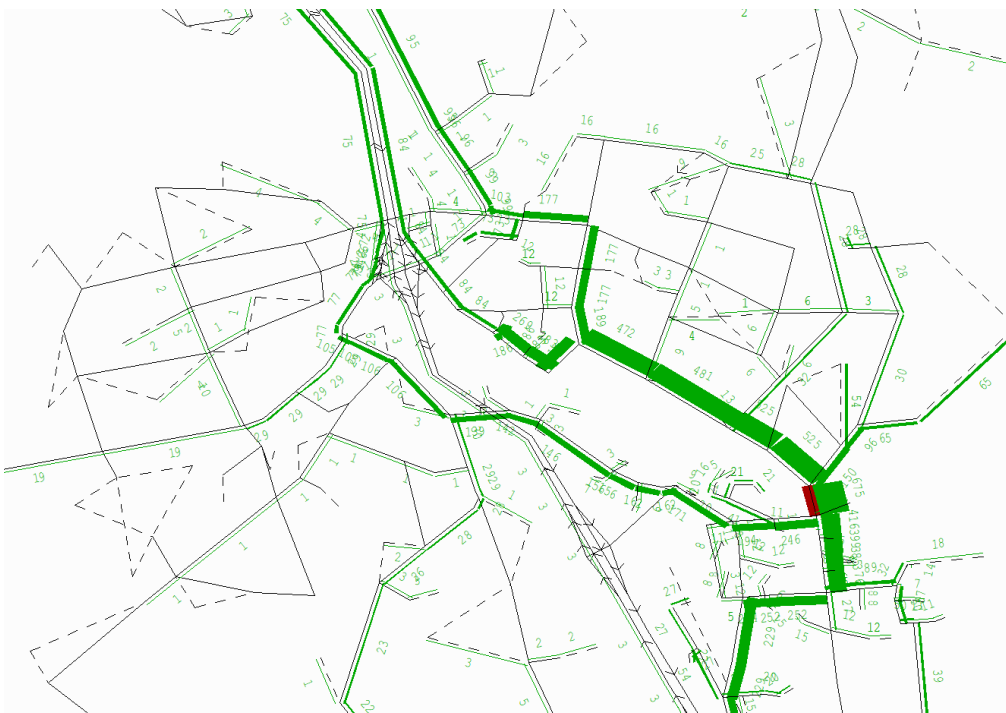


Figure 4: SATURN Results, Test 3, PM Peak

The wider network routing data of Drury East development traffic is discussed below. The map with the location references is shown in Figure 3.

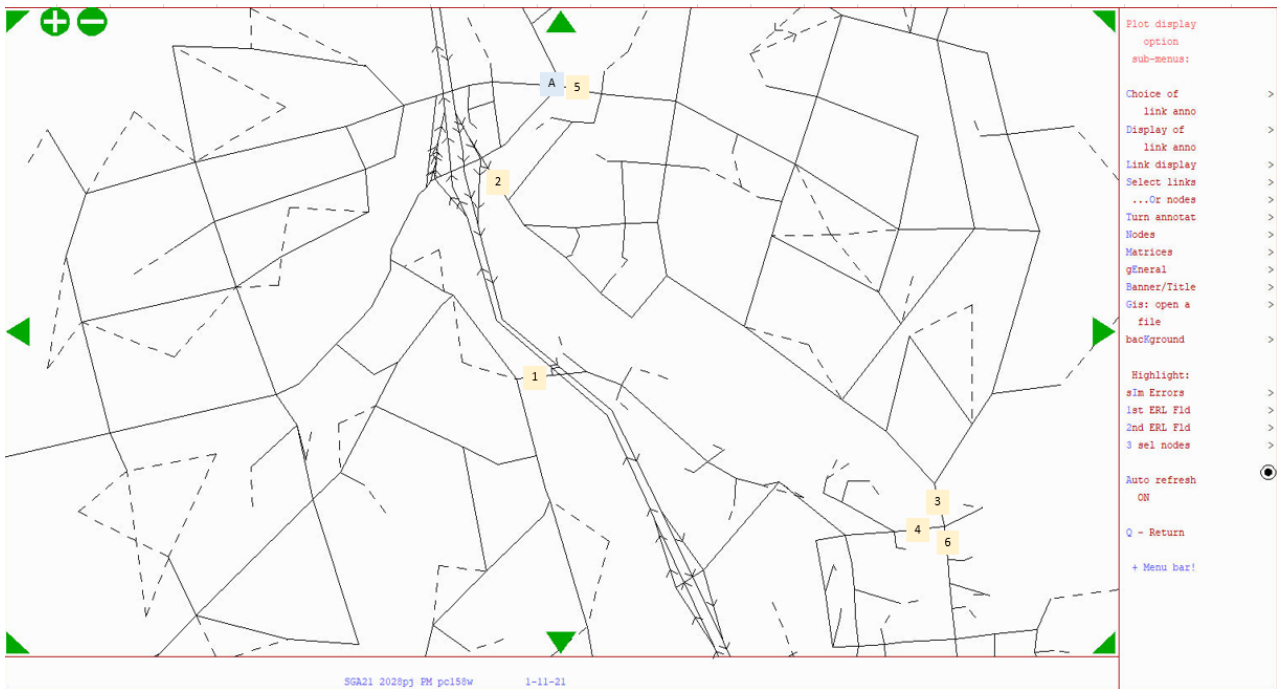


Figure 5: SATURN Network, Drury East

In Test 2, the scenario without the direct SH 1 connection to the Drury East town centre, around 70% of the development traffic travel through the GSR/Waihoehoe Road intersection, 20% through Fitzgerald Road connection to the south and approximately 10% remain internally. This data is shown in Table 1 below.

Table 1: Test 2 Trips

Drury East Trips (incl. zones 5552 and 5553)	Trip counts					Trip Proportions		
	AM	PM	IP	ADT		AM	PM	IP
Cross-section Location (as per map above)								
A. GSR/Waihoehoe	1198	1713	1062	17686		71%	69%	71%
2. SH1 SB Off-ramp connection	0	0	0	0		0%	0%	0%
3. Fitzgerald Rd (Sth) SB	186	335	137	2643		11%	13%	9%
3. Fitzgerald Rd (Sth) NB	156	245	142	2397		9%	10%	10%
Internal	140	207	154			8%	8%	10%
Drury East Vol	1680	2500	1495			100%	100%	100%

In Test 3, around 55% of the development traffic travel through the GSR/Waihoehoe Road intersection, 15% of traffic use SH1 – Town Centre connection, 20% through Fitzgerald Road connection to the south and approximately 10% remain internally. As shown in Table 2: Test 3 Trips below.

Table 2: Test 3 Trips

Drury East Trips (incl. zones 5552 and 5553)	Trip counts					Trip Proportions		
	AM	PM	IP	ADT		AM	PM	IP
Cross-section Location (as per map above)								
A. GSR/Waihoehoe	949	1461	829	14311		56%	58%	55%
2. SH1 SB Off-ramp connection	270	299	238	3806		16%	12%	16%
3. Fitzgerald Rd (Sth) SB	181	335	133	2617		11%	13%	9%
3. Fitzgerald Rd (Sth) NB	137	195	141	2237		8%	8%	9%
Internal	143	210	154			9%	8%	10%
Drury East Vol	1680	2500	1495			100%	100%	100%

4.2 SIDRA modelling results

4.2.1 GSR/Waihoehoe Test 1

This test assessed the modelling of the early development years, prior to the construction of SH1 widening. No SATURN modelling was completed for this scenario (as the base year was not available) therefore the base year SIDRA model for the GSR/Waihoehoe Road intersection was used and development traffic added. The traffic survey data from 2017, during the construction of SH 1 section between Papakura and Manukau, was used. This is considered a conservative scenario as volumes on GSR are likely to be higher than post SH1 construction due to traffic bypassing congestion on SH1 and using GSR as an alternative route.

Same development yield of 710 houses was used as identified in the modelling report for Test 1 assessment point. The modelled intersection layout is shown below in Figure 6.

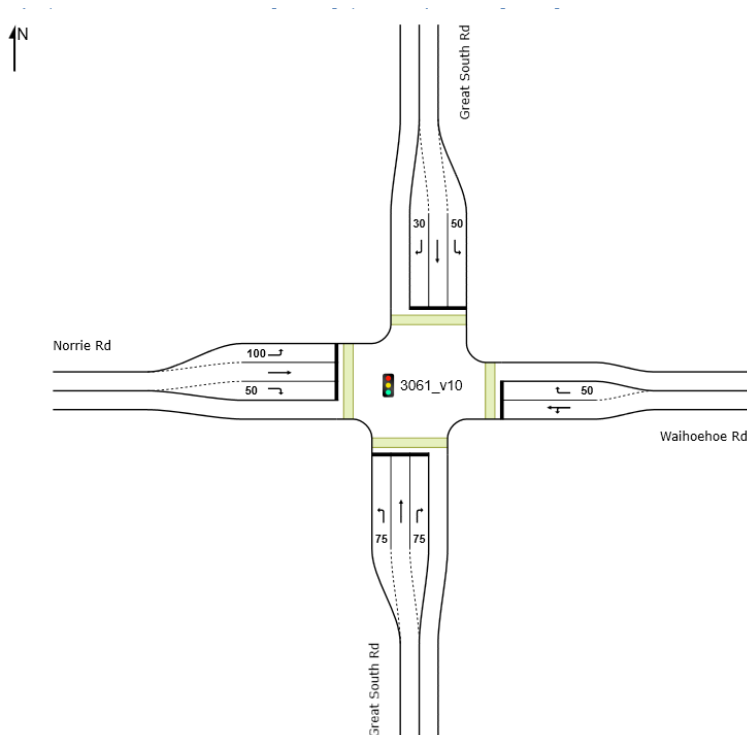


Figure 6: Great South Road / Waihoehoe Road SIDRA Layout, Signalised

The modelled intersection phasing for Test 1 is shown in Figure 7.

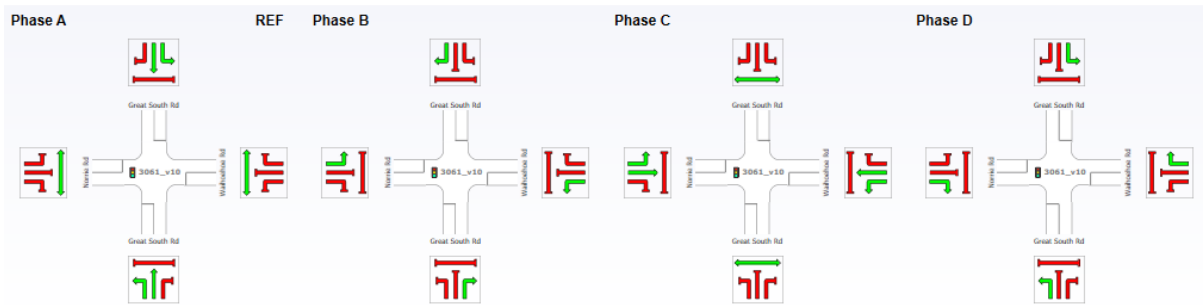


Figure 7: SIDRA Phasing, Test 1

Modelling results show that the intersection will be operating close to its capacity and the critical peak is expected to be the morning peak. The largest queues and delays are expected on the southern and eastern approaches of the GSR/Waihoehoe Road intersection, however, the intersection performance parameters are within the defined modelling thresholds (for modelling thresholds see Section 2.3 in the modelling report).

SIDRA results for the GSR/Waihoehoe Road intersection for Test 1 (AM peak) is shown in Figure 8.

Vehicle Movement Performance											
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m	
South: Great South Rd											
1	L2	20	0	20	0.0	0.014	10.0	LOS A	0.2	1.5	
2	T1	674	49	674	7.3	* 1.019	110.0	LOS F	42.3	314.2	
3	R2	106	7	106	6.6	0.551	70.5	LOS E	4.3	32.1	
Approach		800	56	800	7.0	1.019	102.2	LOS F	42.3	314.2	
East: Waihoehoe Rd											
4	L2	83	8	83	9.6	0.885	85.8	LOS F	6.1	46.4	
5	T1	47	4	47	8.5	0.885	81.1	LOS F	6.1	46.4	
6	R2	528	34	528	6.4	* 1.024	122.5	LOS F	34.0	251.1	
Approach		658	46	658	7.0	1.024	114.9	LOS F	34.0	251.1	
North: Great South Rd											
7	L2	125	10	125	8.0	0.097	10.4	LOS B	1.5	11.1	
8	T1	356	35	356	9.8	0.631	38.3	LOS D	11.8	89.4	
9	R2	115	13	115	11.3	0.943	96.1	LOS F	5.8	44.3	
Approach		596	58	596	9.7	0.943	43.6	LOS D	11.8	89.4	
West: Norrie Rd											
10	L2	373	20	373	5.4	* 1.028	128.6	LOS F	23.4	171.5	
11	T1	32	3	32	9.4	0.303	71.7	LOS E	1.4	10.2	
12	R2	22	2	22	9.1	0.037	37.6	LOS D	0.6	4.6	
Approach		427	25	427	5.9	1.028	119.6	LOS F	23.4	171.5	
All Vehicles		2481	185	2481	7.5	1.028	94.5	LOS F	42.3	314.2	

Figure 8: GSR / Waihoehoe Road SIDRA Results, Test 1, AM Peak

PM peak results presented below (Figure 9) show that the most congested approach during the afternoon peak is expected to be the eastern approach, however, same as in the AM peak model, the intersection is operating within the acceptable performance limits.

Vehicle Movement Performance										
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE	
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m
South: Great South Rd										
1	L2	20	0	20	0.0	0.015	10.1	LOS B	0.2	1.4
2	T1	438	19	438	4.3	0.470	19.3	LOS B	9.1	65.7
3	R2	210	9	210	4.3	* 0.989	91.3	LOS F	9.2	67.0
Approach		668	28	668	4.2	0.989	41.7	LOS D	9.2	67.0
East: Waihoehoe Rd										
4	L2	167	10	167	6.0	0.939	74.0	LOS E	8.2	60.3
5	T1	42	3	42	7.1	* 0.939	69.4	LOS E	8.2	60.3
6	R2	266	12	266	4.5	* 1.013	104.0	LOS F	12.8	93.2
Approach		475	25	475	5.3	1.013	90.4	LOS F	12.8	93.2
North: Great South Rd										
7	L2	270	10	270	3.7	0.214	11.1	LOS B	3.1	22.1
8	T1	846	30	846	3.5	* 0.986	70.2	LOS E	37.6	271.2
9	R2	85	8	85	9.4	0.422	52.6	LOS D	2.6	19.4
Approach		1201	48	1201	4.0	0.986	55.6	LOS E	37.6	271.2
West: Norrie Rd										
10	L2	121	2	121	1.7	0.289	41.2	LOS D	3.2	22.5
11	T1	44	3	44	6.8	0.403	54.6	LOS D	1.4	10.5
12	R2	32	0	32	0.0	0.108	45.8	LOS D	0.9	6.1
Approach		197	5	197	2.5	0.403	45.0	LOS D	3.2	22.5
All Vehicles		2541	106	2541	4.2	1.013	57.6	LOS E	37.6	271.2

Figure 9: GSR / Waihoehoe Road SIDRA Results, Test 1, PM Peak

Overall, the optimised signal controlled interim GSR/Waihoehoe intersection layout operates better previously tested improved roundabout layout.

4.2.2 Test 2 and Test 3 modelling results

Test 2 and 3 SIDRA models are based on traffic flows from the strategic SATURN model and as such all key intersection in the area are assessed. The summary of intersection performance is shown in Tables Table 3 through Table 8 overleaf. A detailed summary of intersection SIDRA performance is shown in **Appendix B**, with Test 2 and Test 3 results (intersection model layouts and movement summaries) shown in **Appendix C** and **D** respectively.

Different signal phasing (shown in Figure 10 below) was used for GSR/Waihoehoe intersection as traffic flow patterns changed with the completion of the SH 1 widening.

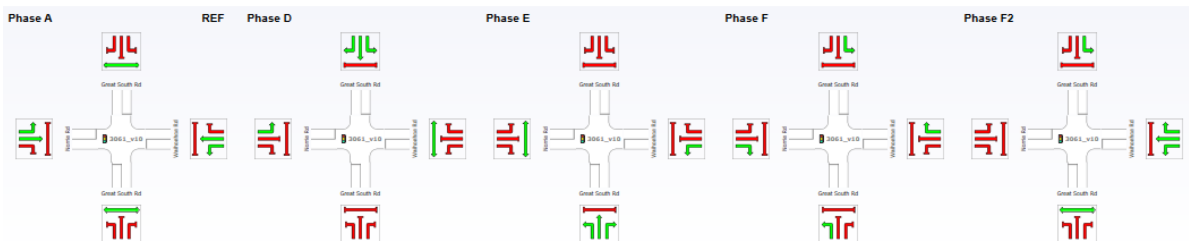


Figure 10: SIDRA Phasing, Test 2/3

Table 3: Test 2 AM Peak SIDRA Results

Extracted Site name	LOS					Worst Delay				Worst Queue				DoS				
	Intersection	North	West	South	East	North	West	South	East	North	West	South	East	Intersection	North	West	South	East
Oyster / Waihoehoe - LILO_Give Way	NA	A	NA		NA	8	5	0	0	0	0	0	0	0.4	0.0	0.4		0.4
Fitzgerald / Waihoehoe - Signalised	C	D	C	C	D	45	34	42	44	20	78	73	41	0.8	0.6	0.8	0.7	0.7
Brookfield / Fitzgerald - Signalised	B	B	C	B		21	27	15	0	12	4	20	0	0.5	0.3	0.2	0.5	
GSR / Waihoehoe - Signalised	C	C	D	D	C	45	45	39	42	40	84	71	58	0.8	0.8	0.8	0.8	0.8
Fitzgerald / Pitt - Signalised	B	B	C	B		27	27	19	0	10	2	18	0	0.3	0.2	0.1	0.3	
P&R / Waihoehoe - Roundabout	A	B	A	A	A	14	8	13	9	2	20	2	25	0.7	0.1	0.6	0.1	0.7
Fulton Access / Fitzgerald - Signalised	B	B		B	C	28	0	21	27	12	0	21	2	0.6	0.4		0.6	0.2
Firth / GSR - Signalised	C	C	D	C	B	42	40	41	49	16	140	7	21	0.9	0.3	0.9	0.1	0.2
Great South Rd / Quarry Rd - Give-Way	NA	NA		A	A	5	0	6	8	0	0	0	4	0.3	0.2		0.1	0.3
SH22/GSR - Signalised	B	B		B	C	16	0	37	41	42	0	72	36	0.7	0.4		0.7	0.7
Fitzgerald / Jack Stevenson / Rd 8 / Rd 9	C	C	C	C	C	34	30	28	30	54	41	36	5	0.8	0.8	0.5	0.8	0.2

Table 4: Test 2 Interpeak SIDRA Results

Extracted Site name	LOS					Worst Delay				Worst Queue				DoS				
	Intersection	North	West	South	East	North	West	South	East	North	West	South	East	Intersection	North	West	South	East
Oyster / Waihoehoe - LILO_Give Way	NA	A	NA		NA	8	5	0	0	0	0	0	0	0.4	0.0	0.4		0.4
Fitzgerald / Waihoehoe - Signalised	C	D	C	C	D	44	32	42	44	12	91	74	22	0.8	0.4	0.8	0.7	0.7
Brookfield / Fitzgerald - Signalised	B	B	C	B		21	27	16	0	13	9	13	0	0.4	0.4	0.3	0.4	
GSR / Waihoehoe - Signalised	C	C	C	D	C	40	38	42	34	36	30	45	60	0.8	0.8	0.5	0.8	0.8
Fitzgerald / Pitt - Signalised	B	B	B	B		21	21	24	0	10	2	12	0	0.3	0.3	0.1	0.3	
P&R / Waihoehoe - Roundabout	A	B	A	B	A	13	8	13	8	2	18	2	18	0.5	0.1	0.5	0.1	0.5
Fulton Access / Fitzgerald - Signalised	B	B		B	C	28	0	21	27	12	0	13	2	0.4	0.4		0.4	0.2
Firth / GSR - Signalised	C	C	C	C	B	36	36	34	39	20	56	6	21	0.7	0.4	0.7	0.1	0.2
Great South Rd / Quarry Rd - Give-Way	NA	NA		A	A	5	0	6	7	0	0	0	5	0.3	0.2		0.0	0.3
SH22/GSR - Signalised	B	B		B	C	16	0	44	34	49	0	44	31	0.5	0.5		0.5	0.5
Fitzgerald / Jack Stevenson / Rd 8 / Rd 9	C	C	C	C	C	32	30	27	30	40	30	34	6	0.7	0.7	0.4	0.7	0.2

Table 5: Test 2 PM Peak SIDRA Results

Extracted Site name	LOS					Worst Delay				Worst Queue				DoS				
	Intersection	North	West	South	East	North	West	South	East	North	West	South	East	Intersection	North	West	South	East
Oyster / Waihoehoe - LILLO_Give Way	NA	B	NA		NA	11	5	0	0	0	0	0	0	0.5	0.0	0.5		0.5
Fitzgerald / Waihoehoe - Signalised	C	D	D	C	E	61	46	59	67	20	168	141	39	0.9	0.5	0.9	0.8	0.8
Brookfield / Fitzgerald - Signalised	B	B	C	B		21	27	15	0	23	22	7	0	0.7	0.7	0.7	0.2	
GSR / Waihoehoe - Signalised	E	D	D	F	D	85	49	145	74	88	59	85	134	1.1	1.0	0.9	1.1	1.0
Fitzgerald / Pitt - Signalised	B	B	B	B		21	20	25	0	20	25	3	0	0.6	0.6	0.6	0.1	
P&R / Waihoehoe - Roundabout	A	B	A	C	A	18	9	29	8	3	33	17	35	0.8	0.2	0.8	0.6	0.7
Fulton Access / Fitzgerald - Signalised	B	B		B	C	23	0	24	33	20	0	35	2	0.7	0.4		0.7	0.5
Firth / GSR - Signalised	C	D	C	C	B	41	38	37	46	32	64	6	41	0.8	0.7	0.8	0.1	0.5
Great South Rd / Quarry Rd - Give-Way	NA	NA		A	A	5	0	6	9	0	0	0	13	0.6	0.2		0.1	0.6
SH22/GSR - Signalised	C	C		B	D	22	0	58	47	178	0	33	56	0.9	0.9		0.8	0.8
Fitzgerald / Jack Stevenson / Rd 8 / Rd 9	C	C	C	C	C	28	38	37	37	74	43	19	8	0.7	0.7	0.3	0.5	0.4

Table 6: Test 3 AM Peak SIDRA Results

Extracted Site name	LOS					Worst Delay				Worst Queue				DoS				
	Intersection	North	West	South	East	North	West	South	East	North	West	South	East	Intersection	North	West	South	East
Oyster / Waihoehoe - LILLO_Give Way	NA	A	NA		NA	6	5	0	0	0	0	0	0	0.5	0.0	0.2		0.5
Fitzgerald / Waihoehoe - Signalised	C	C	D	C	C	39	38	34	39	17	44	87	36	0.9	0.6	0.8	0.9	0.8
Brookfield / Fitzgerald - Signalised	B	B	C	B		21	27	19	0	12	24	25	0	0.7	0.4	0.7	0.7	
GSR / Waihoehoe - Signalised	C	C	D	D	C	38	40	38	38	36	79	50	59	0.9	0.8	0.9	0.9	0.8
Fitzgerald / Pitt - Signalised	B	B	C	B		27	27	19	0	9	2	20	0	0.3	0.2	0.1	0.3	
P&R / Waihoehoe - Roundabout	A	A	A	B	A	11	8	13	9	1	11	2	26	0.7	0.1	0.4	0.1	0.7
Fulton Access / Fitzgerald - Signalised	B	B		B	C	24	0	21	27	10	0	21	2	0.5	0.3		0.5	0.2
Firth / GSR - Signalised	C	C	C	C	B	39	37	37	44	14	61	6	20	0.7	0.3	0.7	0.1	0.2
Great South Rd / Quarry Rd - Give-Way	NA	NA		A	A	5	0	6	7	0	0	0	3	0.3	0.2		0.1	0.3
SH22/GSR - Signalised	B	B		B	C	16	0	39	41	44	0	71	34	0.7	0.4		0.7	0.7
Fitzgerald / Jack Stevenson / Rd 8 / Rd 9	C	C	C	C	C	33	33	34	34	65	39	43	7	0.7	0.7	0.4	0.7	0.3

Table 7: Test 3 Interpeak SIDRA Results

Extracted Site name	LOS					Worst Delay				Worst Queue				DoS				
	Intersection	North	West	South	East	North	West	South	East	North	West	South	East	Intersection	North	West	South	East
Oyster / Waihoehoe - LILO_Give Way	NA	A	NA		NA	6	5	0	0	0	0	0	0	0.4	0.0	0.2		0.4
Fitzgerald / Waihoehoe - Signalised	C	C	C	C	D	39	35	30	40	10	49	77	20	0.7	0.3	0.7	0.7	0.7
Brookfield / Fitzgerald - Signalised	B	B	C	B		21	24	20	0	12	25	16	0	0.7	0.5	0.7	0.6	
GSR / Waihoehoe - Signalised	C	C	C	D	C	36	37	38	29	35	30	16	54	0.7	0.7	0.5	0.5	0.7
Fitzgerald / Pitt - Signalised	B	B	B	B		21	21	24	0	9	2	12	0	0.3	0.2	0.1	0.3	
P&R / Waihoehoe - Roundabout	A	A	A	B	A	10	8	13	8	1	9	2	18	0.5	0.1	0.4	0.1	0.5
Fulton Access / Fitzgerald - Signalised	B	B		B	C	28	0	21	27	11	0	13	2	0.4	0.4		0.4	0.2
Firth / GSR - Signalised	C	C	C	C	B	36	36	34	39	20	37	6	23	0.7	0.4	0.7	0.1	0.3
Great South Rd / Quarry Rd - Give-Way	NA	NA		A	A	5	0	6	7	0	0	0	5	0.3	0.1		0.0	0.3
SH22/GSR - Signalised	B	B		B	C	17	0	42	35	53	0	42	31	0.5	0.5		0.5	0.5
Fitzgerald / Jack Stevenson / Rd 8 / Rd 9	C	C	C	C	C	30	31	28	30	44	29	27	6	0.7	0.7	0.3	0.6	0.2

Table 8: Test 3 PM Peak SIDRA Results

Extracted Site name	LOS					Worst Delay				Worst Queue				DoS				
	Intersection	North	West	South	East	North	West	South	East	North	West	South	East	Intersection	North	West	South	East
Oyster / Waihoehoe - LILLO_Give Way	NA	A	NA		NA	8	5	0	0	0	0	0	0	0.5	0.0	0.4		0.5
Fitzgerald / Waihoehoe - Signalised	C	D	C	C	D	53	39	41	56	17	98	144	32	0.8	0.4	0.8	0.8	0.8
Brookfield / Fitzgerald - Signalised	C	C	C	B		24	31	18	0	26	57	6	0	0.9	0.8	0.9	0.2	
GSR / Waihoehoe - Signalised	E	E	D	E	E	121	44	73	104	122	65	49	175	1.1	1.1	0.8	1.0	1.0
Fitzgerald / Pitt - Signalised	B	B	B	B		19	19	25	0	19	27	2	0	0.7	0.7	0.6	0.1	
P&R / Waihoehoe - Roundabout	A	B	A	C	A	13	8	27	8	2	18	15	32	0.7	0.1	0.6	0.6	0.7
Fulton Access / Fitzgerald - Signalised	B	B		B	C	21	0	24	30	17	0	35	2	0.7	0.4		0.7	0.2
Firth / GSR - Signalised	C	D	C	C	B	44	36	39	48	34	71	7	46	0.7	0.7	0.7	0.1	0.4
Great South Rd / Quarry Rd - Give-Way	NA	NA		A	A	5	0	6	9	0	0	0	14	0.6	0.2		0.1	0.6
SH22/GSR - Signalised	C	C		B	D	26	0	55	50	198	0	33	63	0.9	0.9		0.8	0.9
Fitzgerald / Jack Stevenson / Rd 8 / Rd 9	C	C	C	C	C	27	37	38	37	75	30	18	8	0.7	0.7	0.2	0.5	0.4

Overall, in both scenarios results show that the GSR/Waihoehoe interim signalised intersection layout provides slightly more capacity than the previously tested improved roundabout layout

Modelling results show that in both scenarios all intersections are operating within acceptable limits except for the SH22/GSR intersection. The model with the single right turn lane from GSR can result in long queues (400m+) on both the northern approach of SH 22 and the GSR approach (see *SH22/GSR v3* results in Appendix D). To mitigate this the second short right turn lane is proposed at the GSR approach (see *SH22/GSR - Signalised* in the results tables above).

SH22/SH1 interchange modelling for Test 2 scenario showed that both AM and PM peaks operate within the available queuing storage capacity. Summary of the results is shown below in Figure 11 and Figure 12, and detailed results in Appendix C.

AM Peak

APPROACH LEVEL OF SERVICE

Approach Level of Service

■ ■ Network: N101 [Network1 - MH (Network Folder: General)]

New Network

Network Category: (None)

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 112 seconds (CCG Optimum Cycle Time - Minimum Delay)

Common Control Group: CCG1 [CCGName]

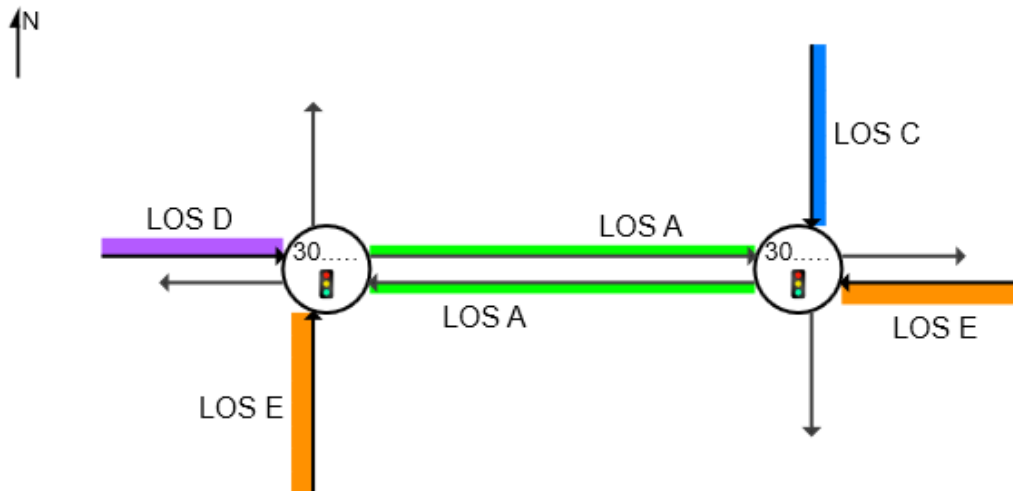


Figure 11: SH22/SH1 Interchange Network SIDRA LOS Results, Test 2, AM Peak

PM Peak

APPROACH LEVEL OF SERVICE

Approach Level of Service

■ ■ Network: N101 [Network1 - MH (Network Folder: General)]

New Network

Network Category: (None)

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 86 seconds (CCG Optimum Cycle Time - Minimum Delay)

Common Control Group: CCG1 [CCGName]

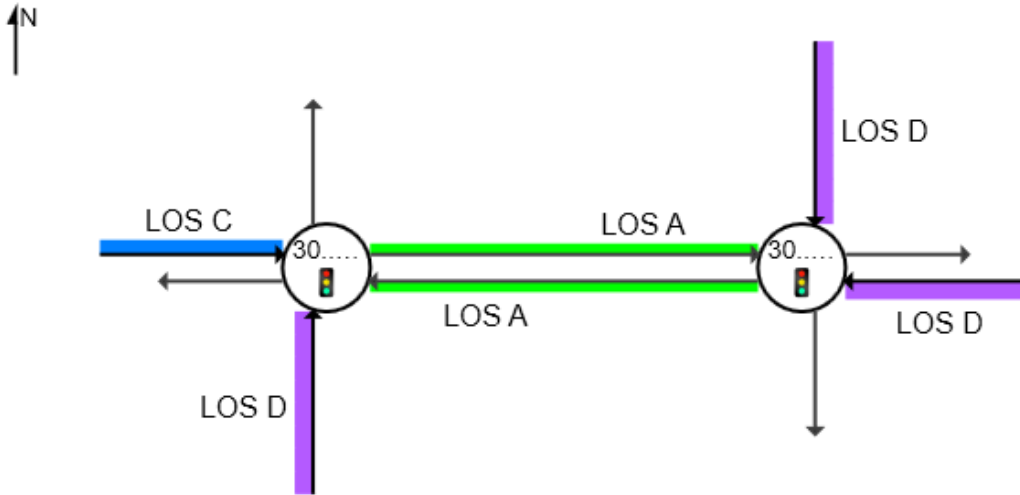


Figure 12: SH22/SH1 Interchange Network SIDRA LOS Results, Test 2, PM Peak

Detailed SIDRA results are presented in **Appendix C** (Test 2) and **Appendix D** (Test 3).

5 Conclusion

The early years of the development have been remodelled to assess the impact of Drury East development with the signalised GSR/Waihoehoe Road intersection. The results also included more detailed assessment of the development on the Drury South network operation.

Overall, the results showed that the pre-ATAP improvements, the signalised intersection layout at the GSR/Waihoehoe intersection will operate slightly better than the previously tested roundabout layout and as such these results supersede the results in the Modelling Report dated 30/09/2021 for Tests 1, 2 and 3. The development yield levels remain unchanged and are reported in the Modelling Report.

Appendices

We design with community in mind



Appendix A SATURN Traffic Distribution

Test 2

				Drury East SZA – Test 2									Link	%age
				pcu				vehs			veh	Total	Drury	
				AM	PM	IP	Daily	AM	PM	IP	Daily	ADT	East	
a_b	Location (see Map sheet)	Anode	Bnode											
3056_3035	1. Quarry Rd WB	3056	3035		37	96	25	584	27	85	19	470	5511	9%
3035_3056	1. Quarry Rd EB	3035	3056		40	34	11	297	35	28	9	250	3590	7%
–														
9143_9141	2. SH1 SB Off-ramp connection	9143	9141		0	0	0	0	0	0	0	0	0	0%
–														
3039_6106	3. Fitzgerald Rd (Sth) SB	3039	6106		207	365	170	3130	186	334	135	2643	5861	45%
6106_3039	3. Fitzgerald Rd (Sth) NB	6106	3039		173	280	183	2956	156	244	140	2397	5273	45%
–														
6106_6141	4. Road 8 WB	6106	6141		168	133	125	2007	139	125	96	1617	5201	31%
6141_6106	4. Road 8 EB	6141	6106		151	226	140	2339	137	201	108	1928	3926	49%
–														
9144_3061	5. Waihoehoe WB	9144	3061		699	1060	662	11000	626	961	532	9277	13355	69%

3061_9144	5. Waihoehoe EB	3061	9144		611	833	637	9967	564	754	525	8534	12931	66%
-														
6106_6176	6. Jack Stevenson SB	6106	6176		36	229	42	1081	30	201	31	884	2539	35%
6176_6106	6. Jack Stevenson NB	6176	6106		22	50	40	578	17	41	28	427	3227	13%
	A. GSR/Waihoehoe								1198	1707	1044	17686	40786	43%
9144_3061	GSR/Waihoehoe - Waihoehoe Appr	9144	3061		699	1060	662	11000	626	961	532	9277	13355	69%
9901_3061	GSR/Waihoehoe - GSR Sth Appr	9901	3061		306	243	280	4164	267	207	219	3369	7519	45%
4553_3061	GSR/Waihoehoe - GSR Nth Appr	4553	3061		254	453	292	4686	226	407	237	3951	13713	29%
3069_3061	GSR/Waihoehoe - Norrie Appr	3069	3061		85	141	65	1210	79	131	56	1088	6199	18%

Test 3

				Drury East SZA - Test 3							Drury East	Link	%age	
				pcu				vehs			veh	Total	Drury	
				AM	PM	IP	Daily	AM	PM	IP	Daily	ADT	East	
a_b	Location (see Map sheet)	Anode	Bnode											
3056_3035	1. Quarry Rd WB	3056	3035		37	105	25	610	27	92	19	490	5610	9%
3035_3056	1. Quarry Rd EB	3035	3056		21	18	11	208	19	15	9	179	3064	6%
-														
9143_9141	2. SH1 SB Off-ramp connection	9143	9141		300	349	293	4550	270	301	238	3806	6778	56%
-														
3039_6106	3. Fitzgerald Rd (Sth) SB	3039	6106		208	383	172	3193	181	337	133	2617	7824	33%
6106_3039	3. Fitzgerald Rd (Sth) NB	6106	3039		154	227	183	2779	137	196	141	2237	5106	44%
-														
6106_6141	4. Road 8 WB	6106	6141		168	138	126	2021	139	124	102	1678	4918	34%
6141_6106	4. Road 8 EB	6141	6106		130	173	140	2156	118	154	109	1765	3857	46%
-														
9144_3061	5. Waihoehoe WB	9144	3061		715	1069	676	11208	641	973	544	9465	13650	69%
3061_9144	5. Waihoehoe EB	3061	9144		346	559	358	5839	316	504	290	4946	8612	57%
-														

6106_6176	6. Jack Stevenson SB	6106	6176		37	243	43	1129	30	210	31	912	4297	21%
6176_6106	6. Jack Stevenson NB	6176	6106		22	49	41	585	17	41	31	452	2642	17%
	A. GSR/Waihoehoe								949	1467	829	14311	37757	38%
9144_3061	GSR/Waihoehoe - Waihoehoe Appr	9144	3061		715	1069	676	11208	641	973	544	9465	13650	69%
9901_3061	GSR/Waihoehoe - GSR Sth Appr	9901	3061		104	106	101	1536	87	85	74	1171	4360	27%
4553_3061	GSR/Waihoehoe - GSR Nth Appr	4553	3061		161	380	191	3257	142	339	153	2727	13306	20%
3069_3061	GSR/Waihoehoe - Norrie Appr	3069	3061		84	74	66	1057	78	69	58	947	6441	15%

Appendix B Test 2 SIDRA Results

SITE LAYOUT

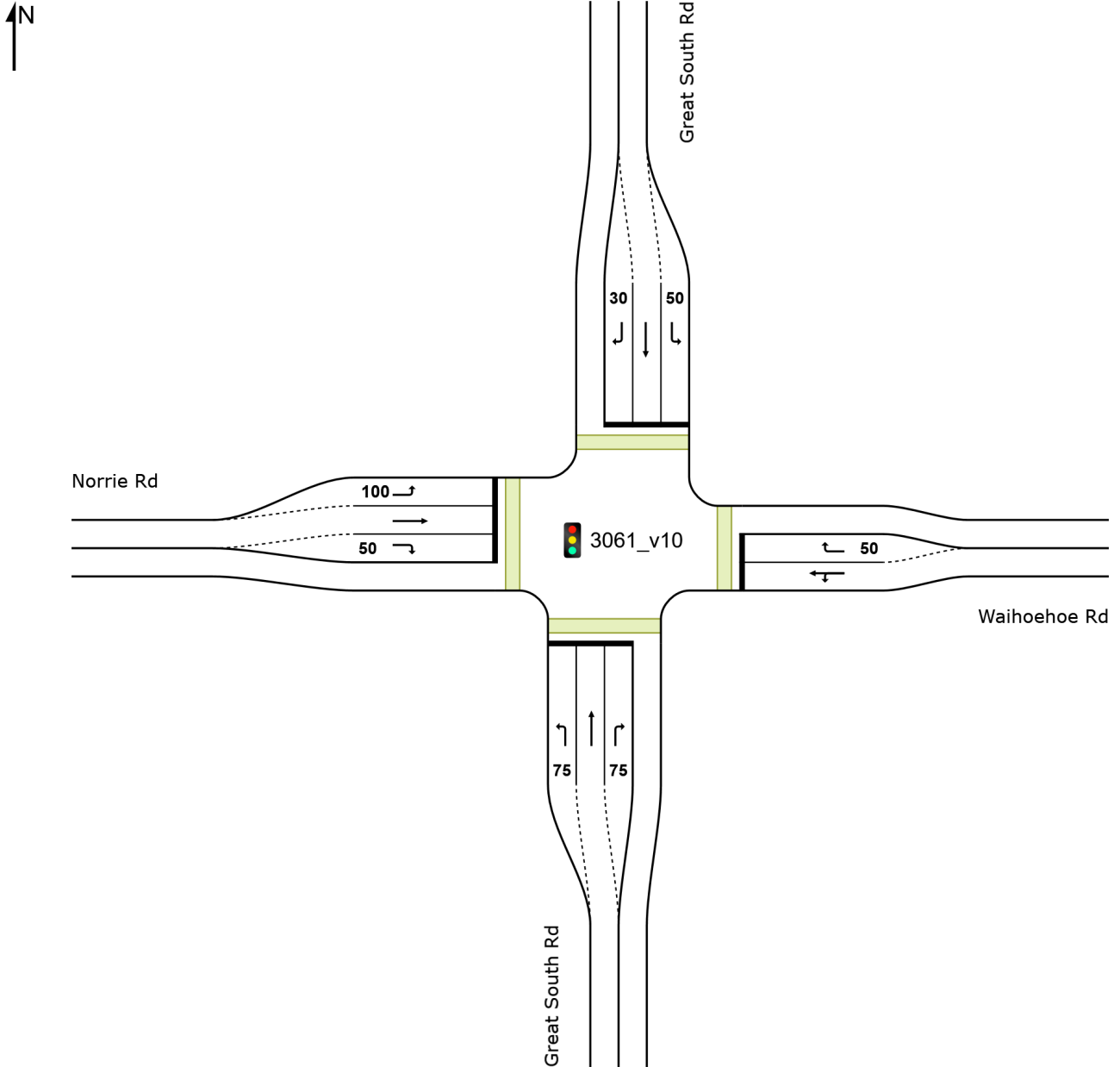
Site: 3061_v10 [Scenario62n : AM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62n : AM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3061_v10 [Scenario62n : AM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62n : AM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing
 Site Category: (None)
 Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 82 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Great South Rd														
1	L2	20	0	20	0.0	0.036	26.8	LOS C	0.3	2.4	0.74	0.67	0.74	34.1
2	T1	353	34	353	9.6	0.826	38.5	LOS D	9.4	70.9	1.00	1.01	1.22	32.8
3	R2	301	17	301	5.6	0.716	38.1	LOS D	7.2	52.9	0.98	0.87	1.05	29.0
Approach		674	51	674	7.6	0.826	38.0	LOS D	9.4	70.9	0.98	0.94	1.13	31.3
East: Waihoehoe Rd														
4	L2	247	12	247	4.9	* 0.687	24.3	LOS C	5.8	42.1	0.94	0.86	0.97	34.7
5	T1	112	5	112	4.5	* 0.687	19.7	LOS B	5.8	42.1	0.94	0.86	0.97	31.7
6	R2	306	24	306	7.8	0.785	41.6	LOS D	7.8	58.5	1.00	0.93	1.16	28.1
Approach		665	41	665	6.2	0.785	31.5	LOS C	7.8	58.5	0.97	0.89	1.06	30.9
North: Great South Rd														
7	L2	390	15	390	3.8	* 0.692	20.3	LOS C	4.8	34.7	0.94	0.85	0.95	35.9
8	T1	132	22	132	16.7	0.481	35.3	LOS D	3.1	24.6	0.96	0.77	0.96	33.8
9	R2	210	13	210	6.2	0.790	45.2	LOS D	5.5	40.4	1.00	0.94	1.23	28.2
Approach		732	50	732	6.8	0.790	30.2	LOS C	5.5	40.4	0.96	0.86	1.03	32.9
West: Norrie Rd														
10	L2	447	18	447	4.0	0.828	39.8	LOS D	11.6	84.2	1.00	0.95	1.18	29.6
11	T1	103	3	103	2.9	0.358	35.2	LOS D	2.4	16.9	0.94	0.74	0.94	26.5
12	R2	20	0	20	0.0	* 0.142	45.2	LOS D	0.5	3.4	0.97	0.69	0.97	28.3
Approach		570	21	570	3.7	0.828	39.2	LOS D	11.6	84.2	0.99	0.91	1.13	29.1
All Vehicles		2641	163	2641	6.2	0.828	34.4	LOS C	11.6	84.2	0.97	0.90	1.08	31.1

Site Level of Service (LOS) Method: Delay (SIDRA). 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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
South: Great South Rd												
P1	Full	50	53	29.9	LOS C	0.1	0.1	0.86	0.86	59.2	38.0	0.64
East: Waihoehoe Rd												

P2 Full	50	53	35.3	LOS D	0.1	0.1	0.93	0.93	61.5	34.0	0.55
North: Great South Rd											
P3 Full	50	53	35.3	LOS D	0.1	0.1	0.93	0.93	64.5	38.0	0.59
West: Norrie Rd											
P4 Full	50	53	34.4	LOS D	0.1	0.1	0.92	0.92	63.6	38.0	0.60
All Pedestrians	0	211	33.7	LOS D	0.1	0.1	0.91	0.91	62.2	37.0	0.59

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

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

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

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SITE LAYOUT

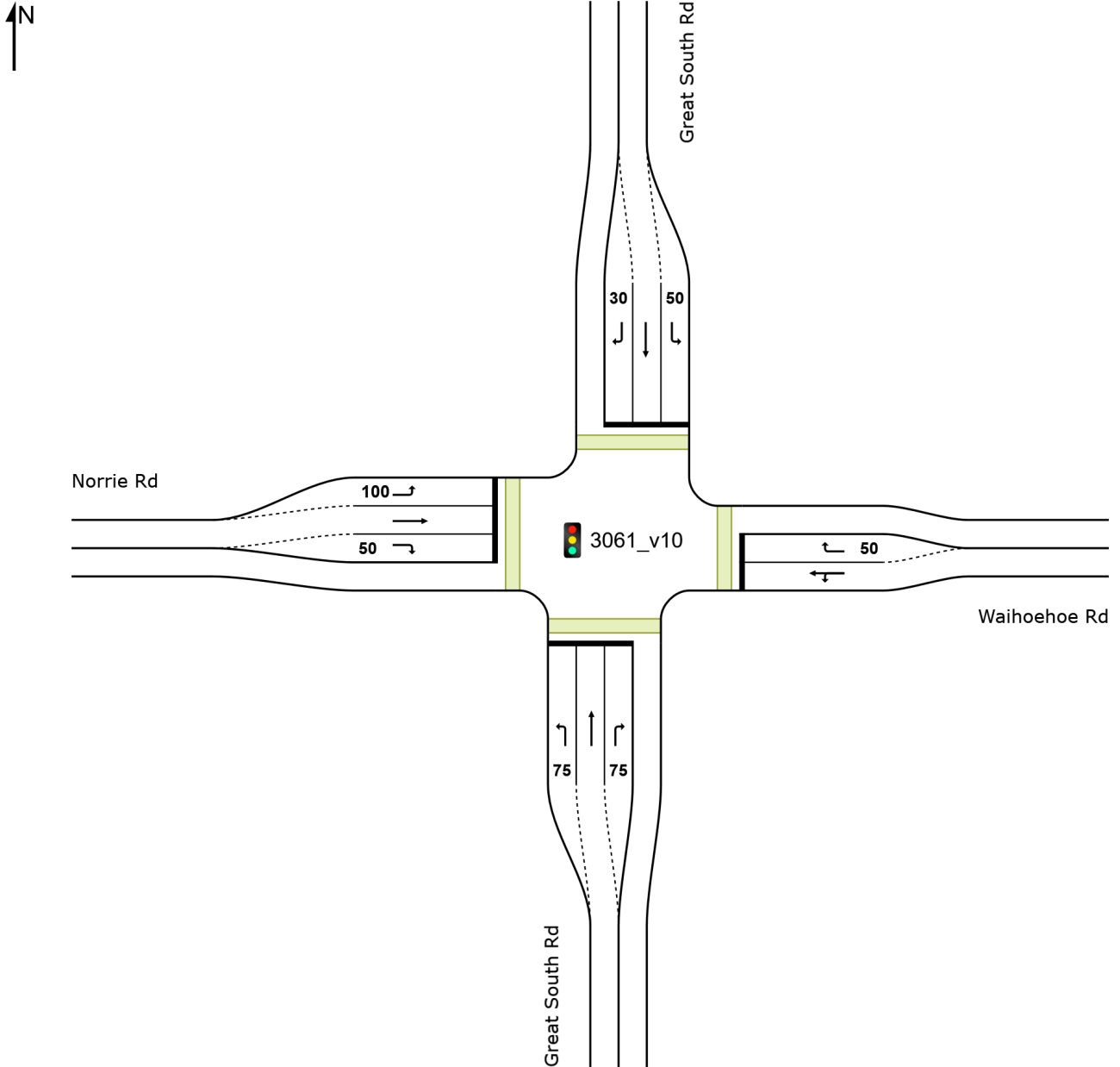
Site: 3061_v10 [Scenario62n : IP 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62n : IP 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3061_v10 [Scenario62n : IP 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62n : IP 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing
 Site Category: (None)
 Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Great South Rd														
1	L2	20	0	20	0.0	0.043	26.5	LOS C	0.3	2.3	0.79	0.68	0.79	34.1
2	T1	97	26	97	26.8	0.355	28.9	LOS C	1.9	16.2	0.92	0.73	0.92	35.9
3	R2	245	29	245	11.8	0.837	42.3	LOS D	5.8	45.0	1.00	1.00	1.35	27.7
Approach		362	55	362	15.2	0.837	37.9	LOS D	5.8	45.0	0.97	0.91	1.21	30.3
East: Waihoehoe Rd														
4	L2	244	40	244	16.4	* 0.612	16.7	LOS B	3.3	25.9	0.90	0.80	0.90	38.2
5	T1	70	7	70	10.0	* 0.612	12.0	LOS B	3.3	25.9	0.90	0.80	0.90	35.9
6	R2	357	46	357	12.9	0.778	34.2	LOS C	7.7	60.1	0.98	0.93	1.14	30.5
Approach		671	93	671	13.9	0.778	25.5	LOS C	7.7	60.1	0.94	0.87	1.03	33.4
North: Great South Rd														
7	L2	362	44	362	12.2	* 0.620	18.4	LOS B	3.9	30.2	0.89	0.84	0.89	36.8
8	T1	126	31	126	24.6	0.494	30.7	LOS C	2.6	21.6	0.96	0.76	0.96	35.2
9	R2	215	17	215	7.9	0.771	39.6	LOS D	4.8	36.2	1.00	0.93	1.23	29.8
Approach		703	92	703	13.1	0.771	27.1	LOS C	4.8	36.2	0.93	0.86	1.00	34.0
West: Norrie Rd														
10	L2	223	16	223	7.2	0.485	29.1	LOS C	4.1	30.3	0.90	0.80	0.90	33.1
11	T1	64	7	64	10.9	0.307	32.5	LOS C	1.3	10.0	0.96	0.72	0.96	27.4
12	R2	20	0	20	0.0	* 0.121	38.3	LOS D	0.4	2.9	0.95	0.69	0.95	30.3
Approach		307	23	307	7.5	0.485	30.4	LOS C	4.1	30.3	0.91	0.78	0.91	31.9
All Vehicles		2043	263	2043	12.9	0.837	29.0	LOS C	7.7	60.1	0.94	0.86	1.03	32.8

Site Level of Service (LOS) Method: Delay (SIDRA). 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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
South: Great South Rd												
P1	Full	50	53	26.6	LOS C	0.1	0.1	0.87	0.87	55.9	38.0	0.68
East: Waihoehoe Rd												

P2 Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	55.5	34.0	0.61
North: Great South Rd											
P3 Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	58.6	38.0	0.65
West: Norrie Rd											
P4 Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	58.6	38.0	0.65
All Pedestrians	0	211	28.7	LOS C	0.1	0.1	0.91	0.91	57.1	37.0	0.65

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

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

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

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Project: \\nz4105-ppfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62n\Scenario62n IP sip files
 \3061_FT_GSR_Waihoehoe_Sig_v10.sip9

SITE LAYOUT

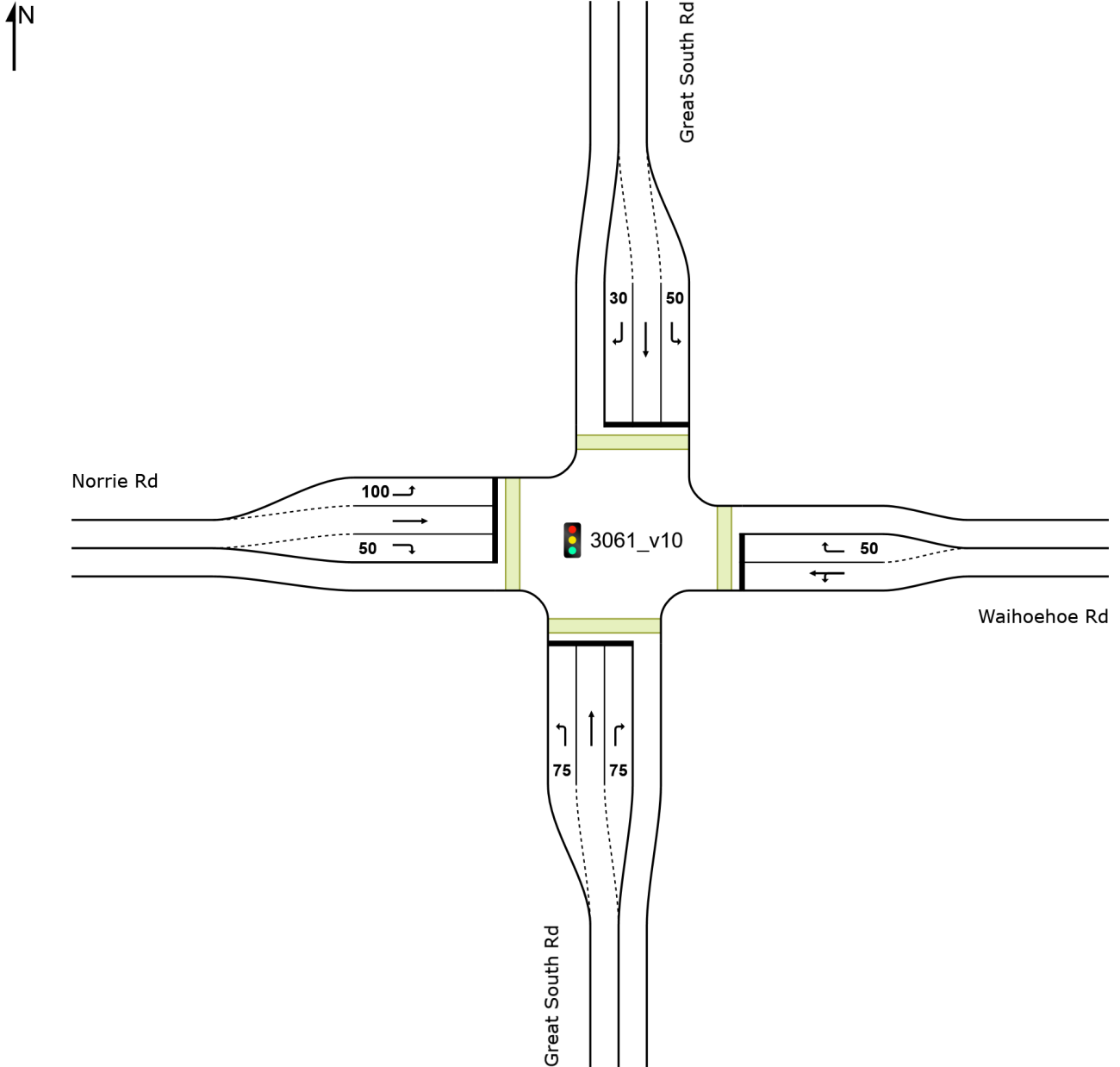
Site: 3061_v10 [Scenario62n : PM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62n : PM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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Project: \\nz4105-ppfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62n\Scenario62n PM sip files\3061_FT_GSR_Waihoehoe_Sig_v10.sip9

MOVEMENT SUMMARY

Site: 3061_v10 [Scenario62n : PM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62n : PM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing
 Site Category: (None)
 Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 84 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Great South Rd														
1	L2	22	2	22	9.1	0.075	37.1	LOS D	0.5	3.6	0.87	0.69	0.87	30.4
2	T1	212	23	212	10.8	1.085	135.3	LOS F	11.1	84.8	1.00	1.62	2.53	17.3
3	R2	209	15	209	7.2	1.092	145.1	LOS F	11.2	83.1	1.00	1.56	2.58	13.2
Approach		443	40	443	9.0	1.092	135.0	LOS F	11.2	84.8	0.99	1.55	2.47	15.7
East: Waihoehoe Rd														
4	L2	470	25	470	5.3	* 0.769	24.4	LOS C	10.8	79.0	0.91	0.93	0.96	34.5
5	T1	130	6	130	4.6	0.769	19.8	LOS B	10.8	79.0	0.91	0.93	0.96	31.4
6	R2	493	28	493	5.7	* 0.983	74.0	LOS E	18.2	133.8	0.86	1.20	1.60	21.0
Approach		1093	59	1093	5.4	0.983	46.2	LOS D	18.2	133.8	0.89	1.05	1.25	26.4
North: Great South Rd														
7	L2	533	29	533	5.4	* 0.586	15.3	LOS B	5.7	41.8	0.76	0.82	0.76	38.5
8	T1	291	22	291	7.6	1.008	84.8	LOS F	11.8	87.8	1.00	1.43	1.97	23.1
9	R2	204	10	204	4.9	0.830	48.3	LOS D	5.6	40.8	1.00	0.98	1.32	27.4
Approach		1028	61	1028	5.9	1.008	41.5	LOS D	11.8	87.8	0.87	1.03	1.21	29.5
West: Norrie Rd														
10	L2	320	14	320	4.4	0.770	41.1	LOS D	8.2	59.5	0.99	0.91	1.12	29.2
11	T1	140	4	140	2.9	* 0.855	49.2	LOS D	4.0	28.8	1.00	1.00	1.45	22.3
12	R2	20	0	20	0.0	0.145	46.3	LOS D	0.5	3.5	0.97	0.69	0.97	28.0
Approach		480	18	480	3.8	0.855	43.6	LOS D	8.2	59.5	1.00	0.93	1.21	27.3
All Vehicles		3044	178	3044	5.8	1.092	57.1	LOS E	18.2	133.8	0.92	1.10	1.41	24.7

Site Level of Service (LOS) Method: Delay (SIDRA). 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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
South: Great South Rd												
P1	Full	50	53	21.5	LOS C	0.1	0.1	0.72	0.72	50.7	38.0	0.75
East: Waihoehoe Rd												

P2 Full	50	53	36.3	LOS D	0.1	0.1	0.93	0.93	62.4	34.0	0.54
North: Great South Rd											
P3 Full	50	53	36.3	LOS D	0.1	0.1	0.93	0.93	65.5	38.0	0.58
West: Norrie Rd											
P4 Full	50	53	36.3	LOS D	0.1	0.1	0.93	0.93	65.5	38.0	0.58
All Pedestrians	0	211	32.6	LOS D	0.1	0.1	0.88	0.88	61.1	37.0	0.61

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

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

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

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Project: \\nz4105-ppfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62n\Scenario62n PM sip files\3061_FT_GSR_Waihoehoe_Sig_v10.sip9

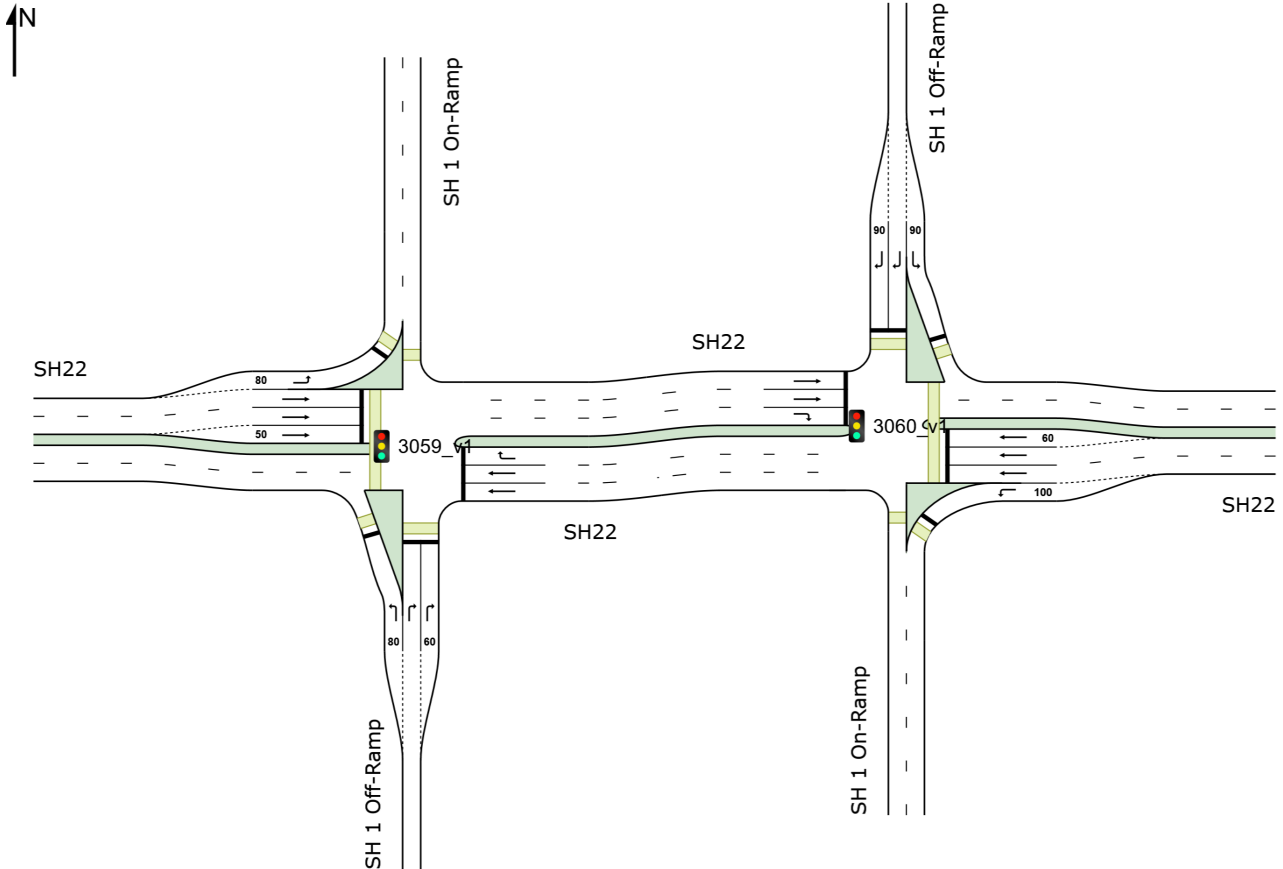
NETWORK LAYOUT

Network: N101 [Network1 - MH (Network Folder: General)]

New Network

Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	CCG ID	Site Name
3059_v1	CCG1	Scenario62n : AM 2028 - 3059_SH1_SH22_Interchange_West
3060_v1	CCG1	Scenario62n : AM 2028 - 3060_SH1_SH22_Interchange_East

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Project: \\nz4105-ppfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62n\Scenario62n AM sip files\3059_3060_SH1_SH22_Interchange_Both.sip9

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Network1 - MH (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 112 seconds (CCG Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
Site: 3059_v1 [Scenario62n : AM 2028 - 3059_SH1_SH22_Interchange_West]														
South: SH 1 Off-Ramp														
7	L2	62	1.6	62	1.6	0.540	63.2	LOS E	3.5	25.0	1.00	0.76	1.02	18.2
9	R2	104	9.6	104	9.6	0.479	63.2	LOS E	2.9	22.3	1.00	0.75	1.00	14.7
Approach		166	6.6	166	6.6	0.540	63.2	LOS E	3.5	25.0	1.00	0.75	1.01	16.1
East: SH22														
11	T1	688	8.6	688	8.6	0.224	0.3	LOS A	0.5	3.5	0.03	0.02	0.03	49.3
9	R2	169	4.1	169	4.1	0.148	5.1	LOS A	0.2	1.5	0.02	0.54	0.02	43.3
Approach		857	7.7	857	7.7	0.224	1.2	LOS A	0.5	3.5	0.03	0.13	0.03	47.1
West: SH22														
1	L2	1189	12.9	1189	12.9	* 0.938	33.8	LOS C	59.3	460.6	0.68	0.90	0.86	27.6
5	T1	348	11.8	348	11.8	0.598	49.5	LOS D	8.2	63.0	0.98	0.79	0.98	8.6
Approach		1537	12.6	1537	12.6	0.938	37.3	LOS D	59.3	460.6	0.75	0.87	0.88	23.9
All Vehicles		2560	10.6	2560	10.6	0.938	26.9	LOS C	59.3	460.6	0.52	0.61	0.61	26.4
Site: 3060_v1 [Scenario62n : AM 2028 - 3060_SH1_SH22_Interchange_East]														
East: SH22														
1	L2	85	13.6	85	13.6	0.061	6.3	LOS A	0.8	6.3	0.19	0.53	0.19	44.9
5	T1	373	9.3	373	9.3	* 0.970	69.2	LOS E	10.2	77.3	1.00	1.01	1.42	6.1
Approach		458	10.1	458	10.1	0.970	57.5	LOS E	10.2	77.3	0.85	0.92	1.19	11.2
North: SH 1 Off-Ramp														
7	L2	519	5.5	519	5.5	0.581	25.6	LOS C	19.8	145.2	0.76	0.80	0.76	29.7
9	R2	528	6.6	528	6.6	0.298	22.1	LOS C	8.4	61.9	0.63	0.74	0.63	28.2
Approach		1047	6.0	1047	6.0	0.581	23.8	LOS C	19.8	145.2	0.69	0.77	0.69	29.0
West: SH22														
11	T1	462	11.6	462	11.6	0.324	1.5	LOS A	0.7	5.7	0.05	0.05	0.05	46.3
9	R2	21	0.0	21	0.0	0.044	11.8	LOS B	0.2	1.3	0.17	0.56	0.17	39.2
Approach		483	11.1	483	11.1	0.324	1.9	LOS A	0.7	5.7	0.06	0.07	0.06	45.5
All Vehicles		1988	8.2	1988	8.2	0.970	26.2	LOS C	19.8	145.2	0.57	0.63	0.65	24.9

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
					[Ped ped	Dist] m					
Site: 3059_v1 [Scenario62n : AM 2028 - 3059_SH1_SH22_Interchange_West]											

South: SH 1 Off-Ramp											
P3	Full	5	50.2	LOS E	0.0	0.0	0.95	0.95	210.6	208.6	0.99
P3B	Slip/ Bypass	5	50.2	LOS E	0.0	0.0	0.95	0.95	207.3	204.3	0.99
North: SH 1 On-Ramp											
P4	Full	53	50.3	LOS E	0.2	0.2	0.95	0.95	210.7	208.6	0.99
West: SH22											
P2	Full	5	50.2	LOS E	0.0	0.0	0.95	0.95	219.8	220.5	1.00
P2B	Slip/ Bypass	5	50.2	LOS E	0.0	0.0	0.95	0.95	207.3	204.3	0.99
All Pedestrians		74	50.2	LOS E	0.2	0.2	0.95	0.95	210.9	208.8	0.99
Site: 3060_v1 [Scenario62n : AM 2028 - 3060_SH1_SH22_Interchange_East]											
South: SH 1 On-Ramp											
P4	Full	53	50.3	LOS E	0.2	0.2	0.95	0.95	210.7	208.6	0.99
East: SH22											
P2	Full	5	50.2	LOS E	0.0	0.0	0.95	0.95	219.8	220.5	1.00
P2B	Slip/ Bypass	5	50.2	LOS E	0.0	0.0	0.95	0.95	207.3	204.3	0.99
North: SH 1 Off-Ramp											
P3	Full	5	50.2	LOS E	0.0	0.0	0.95	0.95	210.6	208.6	0.99
P3B	Slip/ Bypass	5	50.2	LOS E	0.0	0.0	0.95	0.95	207.3	204.3	0.99
All Pedestrians		74	50.2	LOS E	0.2	0.2	0.95	0.95	210.9	208.8	0.99

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

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

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

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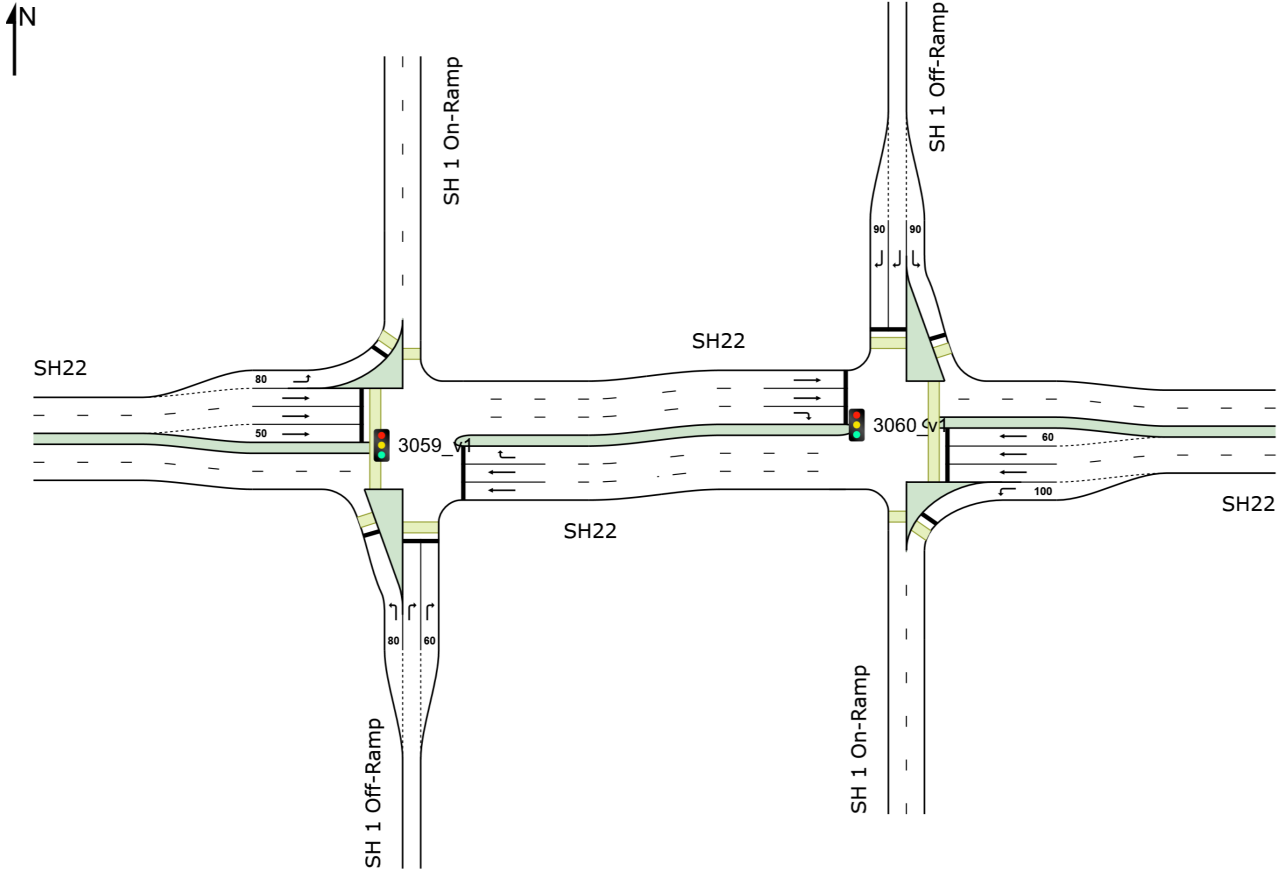
Project: \\nz4105-ppfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62n\Scenario62n AM sip files\3059_3060_SH1_SH22_Interchange_Both.sip9

NETWORK LAYOUT

Network: N101 [Network1 - MH (Network Folder: General)]

New Network
 Network Category: (None)
 EQUISAT (Fixed-Time/SCATS) Isolated
 Common Control Group: CCG1 [CCGName]

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	CCG ID	Site Name
3059_v1	CCG1	Scenario62n : PM 2028 - 3059_SH1_SH22_Interchange_West
3060_v1	CCG1	Scenario62n : PM 2028 - 3060_SH1_SH22_Interchange_East

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Network1 - MH (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 86 seconds (CCG Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h	HV] %	[Total HV] veh/h	%				[Veh. veh	Dist] m				
Site: 3059_v1 [Scenario62n : PM 2028 - 3059_SH1_SH22_Interchange_West]														
South: SH 1 Off-Ramp														
7	L2	83	3.6	83	3.6	*0.657	50.9	LOS D	3.7	27.0	1.00	0.83	1.14	20.8
9	R2	56	26.8	56	26.8	0.257	49.0	LOS D	1.2	10.4	0.98	0.72	0.98	17.5
Approach		139	12.9	139	12.9	0.657	50.1	LOS D	3.7	27.0	0.99	0.78	1.08	19.6
East: SH22														
11	T1	1497	5.5	1497	5.5	0.503	0.4	LOS A	1.2	9.0	0.04	0.04	0.04	49.1
9	R2	351	7.1	351	7.1	0.305	5.0	LOS A	0.4	3.1	0.03	0.54	0.03	43.3
Approach		1848	5.8	1848	5.8	0.503	1.3	LOS A	1.2	9.0	0.04	0.13	0.04	47.0
West: SH22														
1	L2	912	10.0	912	10.0	0.839	21.3	LOS C	32.0	242.9	0.80	0.87	0.87	33.3
5	T1	139	13.7	139	13.7	*0.494	44.7	LOS D	2.7	21.1	1.00	0.74	1.00	9.4
Approach		1051	10.5	1051	10.5	0.839	24.4	LOS C	32.0	242.9	0.83	0.86	0.89	30.4
All Vehicles		3038	7.8	3038	7.8	0.839	11.5	LOS B	32.0	242.9	0.36	0.41	0.38	35.6
Site: 3060_v1 [Scenario62n : PM 2028 - 3060_SH1_SH22_Interchange_East]														
East: SH22														
1	L2	167	4.8	167	4.8	0.118	6.6	LOS A	1.6	11.5	0.25	0.56	0.25	44.7
5	T1	697	6.7	697	6.7	*0.951	47.3	LOS D	20.6	152.6	0.96	1.02	1.27	8.4
Approach		864	6.4	864	6.4	0.951	39.4	LOS D	20.6	152.6	0.82	0.93	1.07	15.0
North: SH 1 Off-Ramp														
7	L2	538	5.8	538	5.8	0.811	35.2	LOS D	22.4	164.9	0.96	0.93	1.08	25.8
9	R2	1152	5.4	1152	5.4	*0.915	49.7	LOS D	31.9	233.8	0.98	1.05	1.34	18.2
Approach		1690	5.5	1690	5.5	0.915	45.1	LOS D	31.9	233.8	0.98	1.01	1.25	20.5
West: SH22														
11	T1	178	18.5	178	18.5	0.105	0.5	LOS A	0.1	0.7	0.02	0.02	0.02	48.7
9	R2	21	4.8	21	4.8	0.056	9.2	LOS A	0.1	0.8	0.13	0.56	0.13	41.0
Approach		199	17.1	199	17.1	0.105	1.4	LOS A	0.1	0.8	0.04	0.08	0.04	46.7
All Vehicles		2753	6.6	2753	6.6	0.951	40.2	LOS D	31.9	233.8	0.86	0.92	1.11	19.7

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
					[Ped ped	Dist] m					
Site: 3059_v1 [Scenario62n : PM 2028 - 3059_SH1_SH22_Interchange_West]											

South: SH 1 Off-Ramp											
P3	Full	5	37.2	LOS D	0.0	0.0	0.93	0.93	197.7	208.6	1.06
P3B	Slip/ Bypass	5	37.2	LOS D	0.0	0.0	0.93	0.93	194.4	204.3	1.05
North: SH 1 On-Ramp											
P4	Full	53	37.3	LOS D	0.1	0.1	0.93	0.93	197.8	208.6	1.05
West: SH22											
P2	Full	5	37.2	LOS D	0.0	0.0	0.93	0.93	206.8	220.5	1.07
P2B	Slip/ Bypass	5	37.2	LOS D	0.0	0.0	0.93	0.93	194.4	204.3	1.05
All Pedestrians		74	37.3	LOS D	0.1	0.1	0.93	0.93	197.9	208.8	1.06
Site: 3060_v1 [Scenario62n : PM 2028 - 3060_SH1_SH22_Interchange_East]											
South: SH 1 On-Ramp											
P4	Full	53	37.3	LOS D	0.1	0.1	0.93	0.93	197.8	208.6	1.05
East: SH22											
P2	Full	5	37.2	LOS D	0.0	0.0	0.93	0.93	206.8	220.5	1.07
P2B	Slip/ Bypass	5	37.2	LOS D	0.0	0.0	0.93	0.93	194.4	204.3	1.05
North: SH 1 Off-Ramp											
P3	Full	5	37.2	LOS D	0.0	0.0	0.93	0.93	197.7	208.6	1.06
P3B	Slip/ Bypass	5	37.2	LOS D	0.0	0.0	0.93	0.93	194.4	204.3	1.05
All Pedestrians		74	37.3	LOS D	0.1	0.1	0.93	0.93	197.9	208.8	1.06

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

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

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

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Project: \\nz4105-ppfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62n\Scenario62n PM sip files\3059_3060_SH1_SH22_Interchange_Both.sip9

SITE LAYOUT

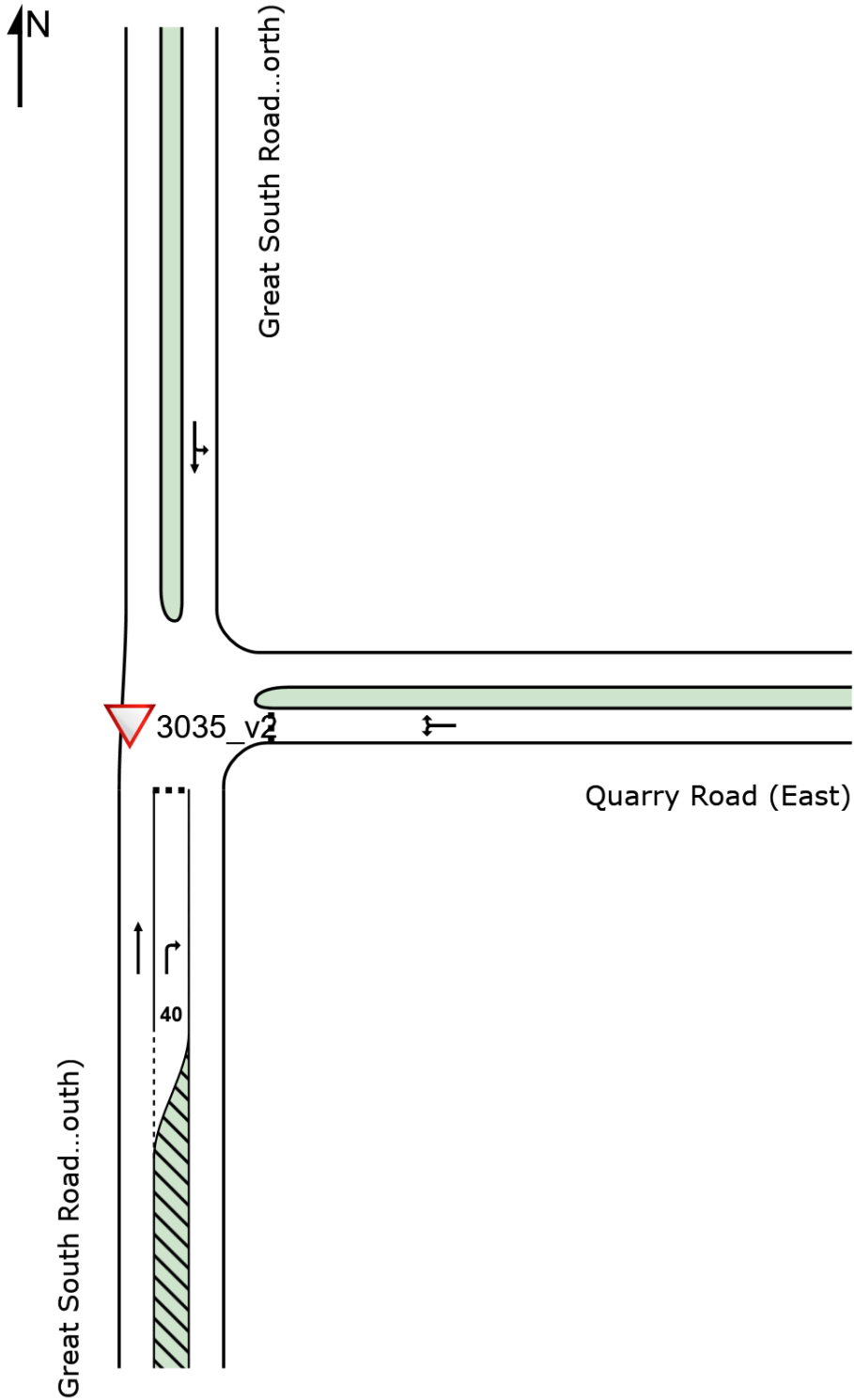
▼ Site: 3035_v2 [Scenario62n : AM 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62n : AM 2028 - Great South Rd / Quarry Rd - Give-Way

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3035_v2 [Scenario62n : AM 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62n : AM 2028 - Great South Rd / Quarry Rd - Give-Way
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	[HV] veh/h	[Total veh/h	[HV] %				[Veh. veh	[Dist] m				
South: Great South Road (South)														
5	T1	130	21	137	16.2	0.078	3.3	LOS A	0.0	0.0	0.00	0.46	0.00	45.0
6	R2	33	3	35	9.1	0.043	6.4	LOS A	0.1	0.4	0.39	0.63	0.39	41.4
Approach		163	24	172	14.7	0.078	3.9	LOS A	0.1	0.4	0.08	0.50	0.08	44.2
East: Quarry Road (East)														
7	L2	21	1	22	4.8	0.295	5.0	LOS A	0.5	4.0	0.40	0.69	0.42	41.5
9	R2	197	42	207	21.3	0.295	7.6	LOS A	0.5	4.0	0.40	0.69	0.42	41.0
Approach		218	43	229	19.7	0.295	7.4	LOS A	0.5	4.0	0.40	0.69	0.42	41.0
North: Great South Road (North)														
10	L2	258	17	272	6.6	0.192	4.6	LOS A	0.0	0.0	0.00	0.42	0.00	45.1
11	T1	69	6	73	8.7	0.192	0.0	LOS A	0.0	0.0	0.00	0.42	0.00	45.5
Approach		327	23	344	7.0	0.192	3.7	NA	0.0	0.0	0.00	0.42	0.00	45.2
All Vehicles		708	90	745	12.7	0.295	4.9	NA	0.5	4.0	0.14	0.52	0.15	43.6

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

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

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

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

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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Project: \\nz4105-pfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62n\Scenario62n AM sip files\3035_GSR_Quarry_GW.sip9

SITE LAYOUT

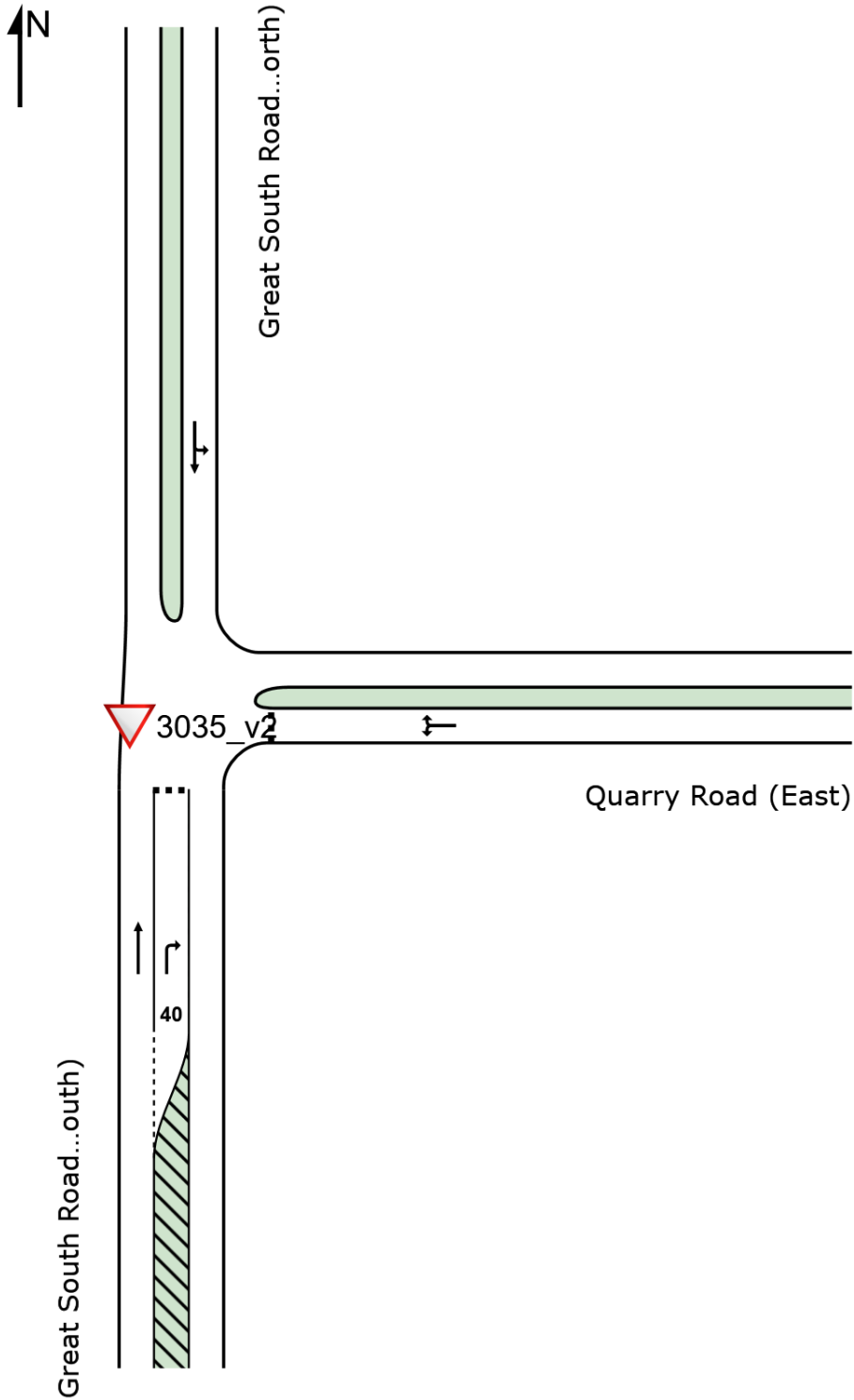
▼ Site: 3035_v2 [Scenario62n : IP 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62n : IP 2028 - Great South Rd / Quarry Rd - Give-Way

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3035_v2 [Scenario62n : IP 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62n : IP 2028 - Great South Rd / Quarry Rd - Give-Way
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Great South Road (South)														
5	T1	81	9	85	11.1	0.047	3.3	LOS A	0.0	0.0	0.00	0.46	0.00	45.1
6	R2	22	2	23	9.1	0.026	6.0	LOS A	0.0	0.3	0.34	0.59	0.34	41.9
Approach		103	11	108	10.7	0.047	3.8	LOS A	0.0	0.3	0.07	0.49	0.07	44.3
East: Quarry Road (East)														
7	L2	23	3	24	13.0	0.331	5.1	LOS A	0.6	4.7	0.39	0.66	0.40	41.9
9	R2	249	50	262	20.1	0.331	6.8	LOS A	0.6	4.7	0.39	0.66	0.40	41.5
Approach		272	53	286	19.5	0.331	6.7	LOS A	0.6	4.7	0.39	0.66	0.40	41.6
North: Great South Road (North)														
10	L2	174	20	183	11.5	0.152	4.7	LOS A	0.0	0.0	0.00	0.37	0.00	45.5
11	T1	79	7	83	8.9	0.152	0.0	LOS A	0.0	0.0	0.00	0.37	0.00	46.1
Approach		253	27	266	10.7	0.152	3.2	NA	0.0	0.0	0.00	0.37	0.00	45.7
All Vehicles		628	91	661	14.5	0.331	4.8	NA	0.6	4.7	0.18	0.51	0.19	43.5

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

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

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

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

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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Project: \\nz4105-pfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62n\Scenario62n IP sip files\3035_GSR_Quarry_GW.sip9

SITE LAYOUT

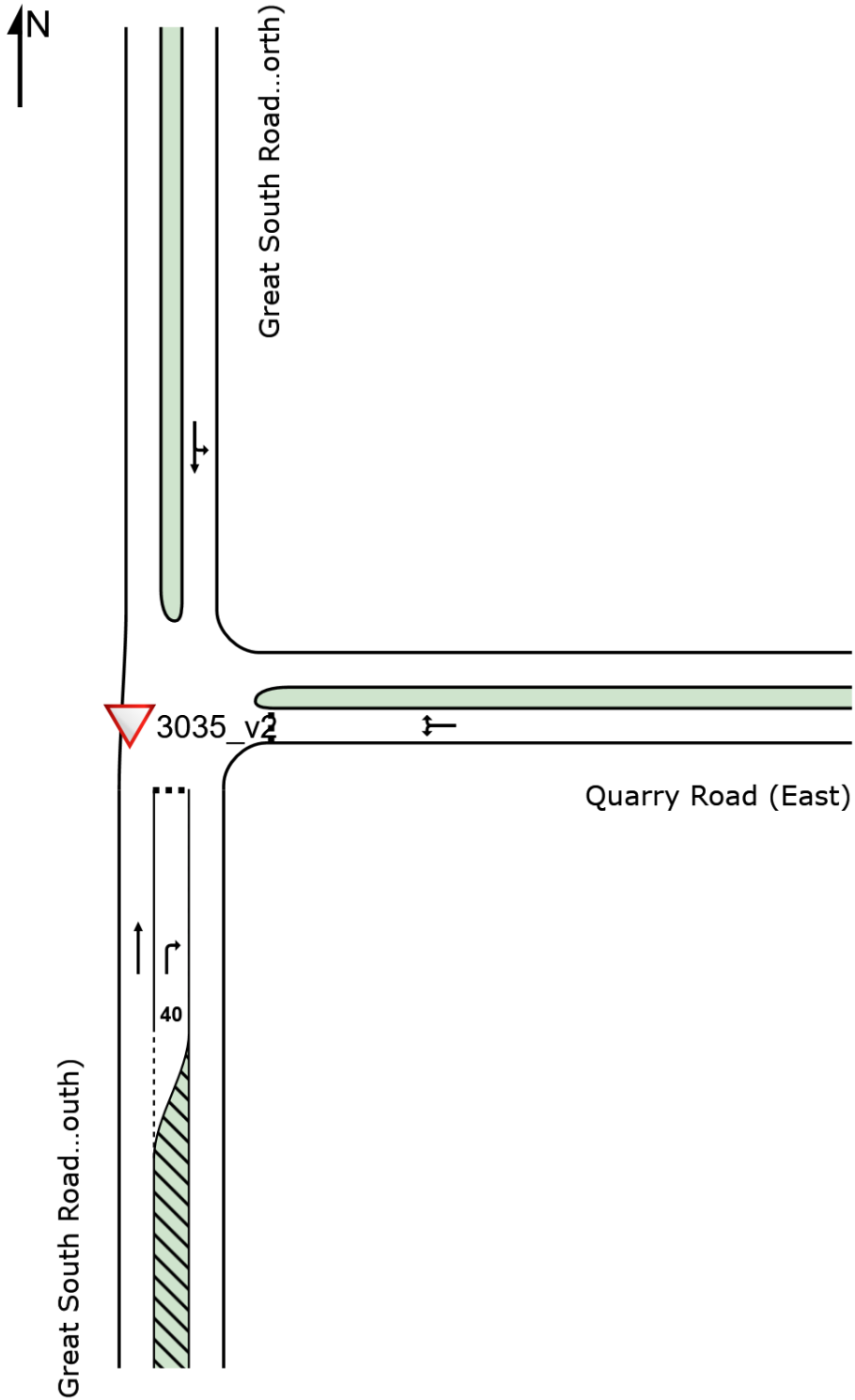
▼ Site: 3035_v2 [Scenario62n : PM 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62n : PM 2028 - Great South Rd / Quarry Rd - Give-Way

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3035_v2 [Scenario62n : PM 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62n : PM 2028 - Great South Rd / Quarry Rd - Give-Way
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV veh/h]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Great South Road (South)														
5	T1	98	6	103	6.1	0.055	3.2	LOS A	0.0	0.0	0.00	0.46	0.00	45.2
6	R2	22	1	23	4.5	0.026	6.0	LOS A	0.0	0.2	0.35	0.60	0.35	41.9
Approach		120	7	126	5.8	0.055	3.7	LOS A	0.0	0.2	0.06	0.49	0.06	44.5
East: Quarry Road (East)														
7	L2	61	1	64	1.6	0.564	6.6	LOS A	1.7	12.9	0.53	0.83	0.76	40.6
9	R2	420	32	442	7.6	0.564	8.6	LOS A	1.7	12.9	0.53	0.83	0.76	40.4
Approach		481	33	506	6.9	0.564	8.4	LOS A	1.7	12.9	0.53	0.83	0.76	40.4
North: Great South Road (North)														
10	L2	120	18	126	15.0	0.154	4.7	LOS A	0.0	0.0	0.00	0.25	0.00	46.5
11	T1	140	9	147	6.4	0.154	0.0	LOS A	0.0	0.0	0.00	0.25	0.00	47.4
Approach		260	27	274	10.4	0.154	2.2	NA	0.0	0.0	0.00	0.25	0.00	47.0
All Vehicles		861	67	906	7.8	0.564	5.9	NA	1.7	12.9	0.30	0.60	0.43	42.7

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

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

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

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

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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Project: \\nz4105-pfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62n\Scenario62n PM sip files\3035_GSR_Quarry_GW.sip9

Appendix C Test 3 SIDRA Results

SITE LAYOUT

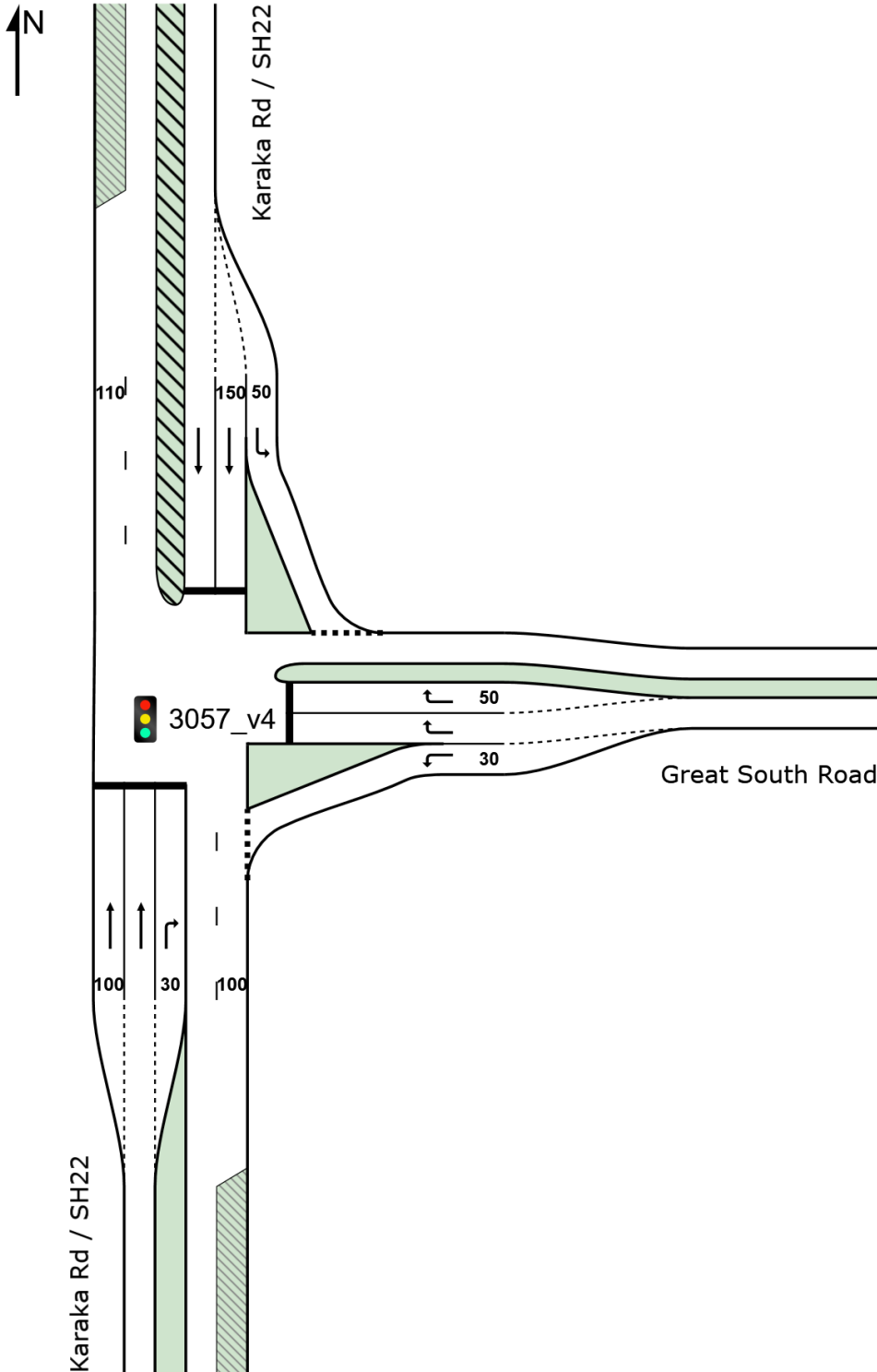
Site: 3057_v4 [Scenario62o : PM 2028 - SH22/GSR - Signalised (extra 50m RT lane) (Site Folder: 3057 SH22/GSR)]

Scenario62o : PM 2028 - SH22/GSR - Signalised (extra 50m RT lane)

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3057_v4 [Scenario62o : PM 2028 - SH22/GSR - Signalised (extra 50m RT lane) (Site Folder: 3057 SH22/GSR)]

Scenario62o : PM 2028 - SH22/GSR - Signalised (extra 50m RT lane)

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Karaka Rd / SH22														
5	T1	681	69	717	10.1	0.402	6.1	LOS A	4.4	33.2	0.42	0.36	0.42	44.6
6	R2	105	6	111	5.7	*0.796	55.1	LOS E	3.3	24.2	1.00	0.93	1.32	20.8
Approach		786	75	827	9.5	0.796	12.6	LOS B	4.4	33.2	0.50	0.44	0.54	39.5
East: Great South Road														
7	L2	142	3	149	2.1	0.236	20.4	LOS C	2.4	17.0	0.68	0.72	0.68	33.8
9	R2	410	39	432	9.5	*0.870	49.6	LOS D	8.3	63.0	0.98	0.93	1.20	28.2
Approach		552	42	581	7.6	0.870	42.1	LOS D	8.3	63.0	0.91	0.87	1.07	29.0
North: Karaka Rd / SH22														
10	L2	187	14	197	7.5	0.142	5.6	LOS A	0.8	5.6	0.23	0.57	0.23	46.0
11	T1	1341	65	1412	4.8	*0.895	25.9	LOS C	27.1	197.9	0.86	0.87	0.97	32.8
Approach		1528	79	1608	5.2	0.895	23.5	LOS C	27.1	197.9	0.78	0.83	0.88	34.4
All Vehicles		2866	196	3017	6.8	0.895	24.1	LOS C	27.1	197.9	0.73	0.73	0.82	34.1

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

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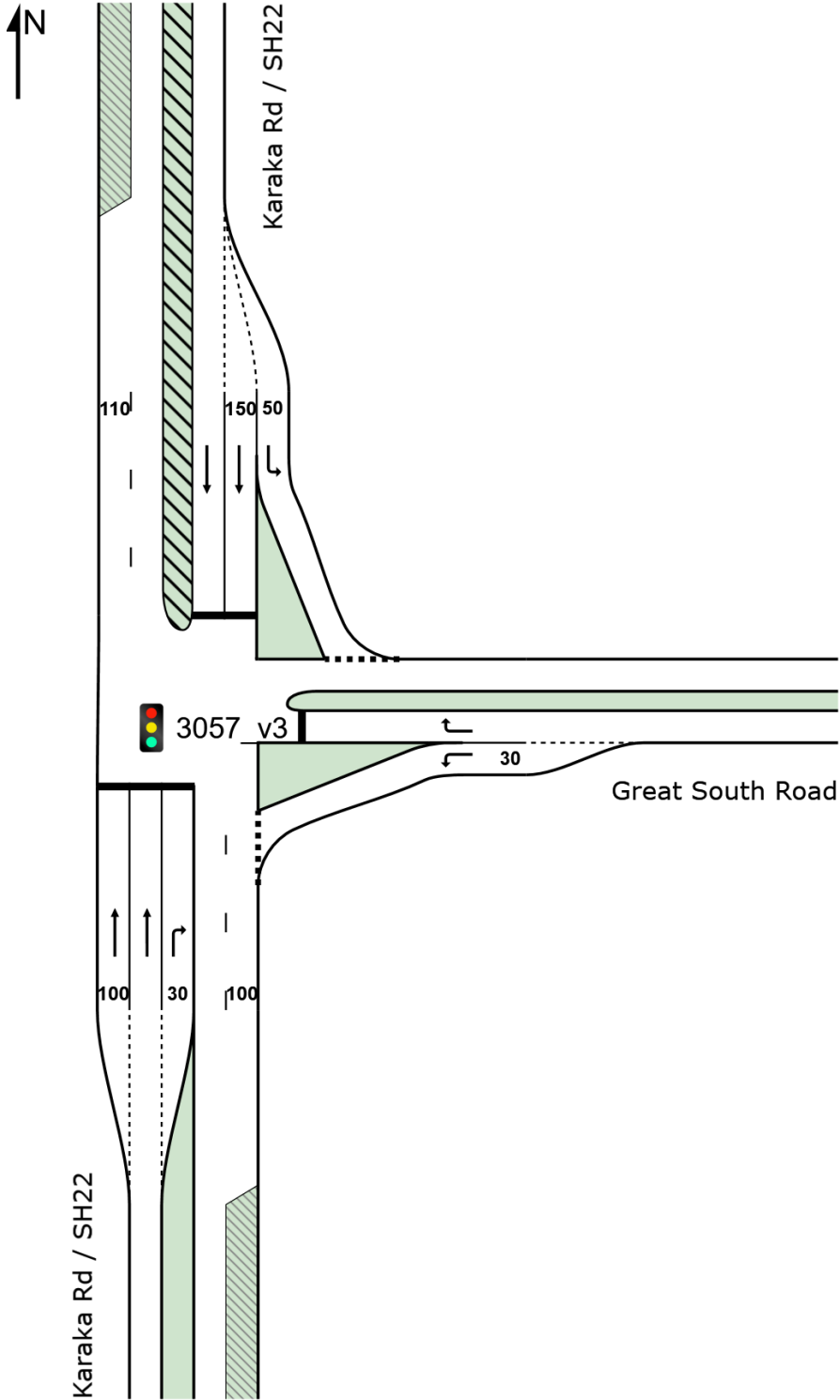
Project: C:\Templ\sidra\2 nov\Scenario62o PM sip files\3057_SH22_GSR_sig_v4.sip9

SITE LAYOUT

Site: 3057_v3 [Scenario62o : PM 2028 - SH22/GSR - Signalised_v3 (Site Folder: 3057 SH22/GSR)]

Scenario62o : PM 2028 - SH22/GSR - Signalised_v3
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3057_v3 [Scenario62o : PM 2028 - SH22/GSR - Signalised_v3 (Site Folder: 3057 SH22/GSR)]

Scenario62o : PM 2028 - SH22/GSR - Signalised_v3

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Karaka Rd / SH22														
5	T1	681	69	717	10.1	0.465	9.9	LOS A	5.7	43.7	0.54	0.47	0.54	41.6
6	R2	105	6	111	5.7	* 0.929	65.7	LOS E	3.7	27.1	1.00	1.10	1.74	18.6
Approach		786	75	827	9.5	0.929	17.4	LOS B	5.7	43.7	0.60	0.55	0.70	36.5
East: Great South Road														
7	L2	142	3	149	2.1	0.203	21.4	LOS C	2.4	17.4	0.69	0.71	0.69	33.0
9	R2	410	39	432	9.5	* 1.109	164.2	LOS F	26.5	200.8	1.00	1.58	2.48	13.9
Approach		552	42	581	7.6	1.109	127.5	LOS F	26.5	200.8	0.92	1.35	2.02	15.4
North: Karaka Rd / SH22														
10	L2	187	14	197	7.5	0.145	5.6	LOS A	0.7	5.6	0.23	0.57	0.23	46.0
11	T1	1341	65	1412	4.8	* 1.088	97.2	LOS F	55.4	404.1	0.92	1.46	1.71	16.4
Approach		1528	79	1608	5.2	1.088	86.0	LOS F	55.4	404.1	0.84	1.35	1.53	18.3
All Vehicles		2866	196	3017	6.8	1.109	75.2	LOS E	55.4	404.1	0.79	1.13	1.40	20.0

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

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Project: \\nz4105-ppfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62o\Scenario62o PM sip files\3057_SH22_GSR_sig_v3.sip9

SITE LAYOUT

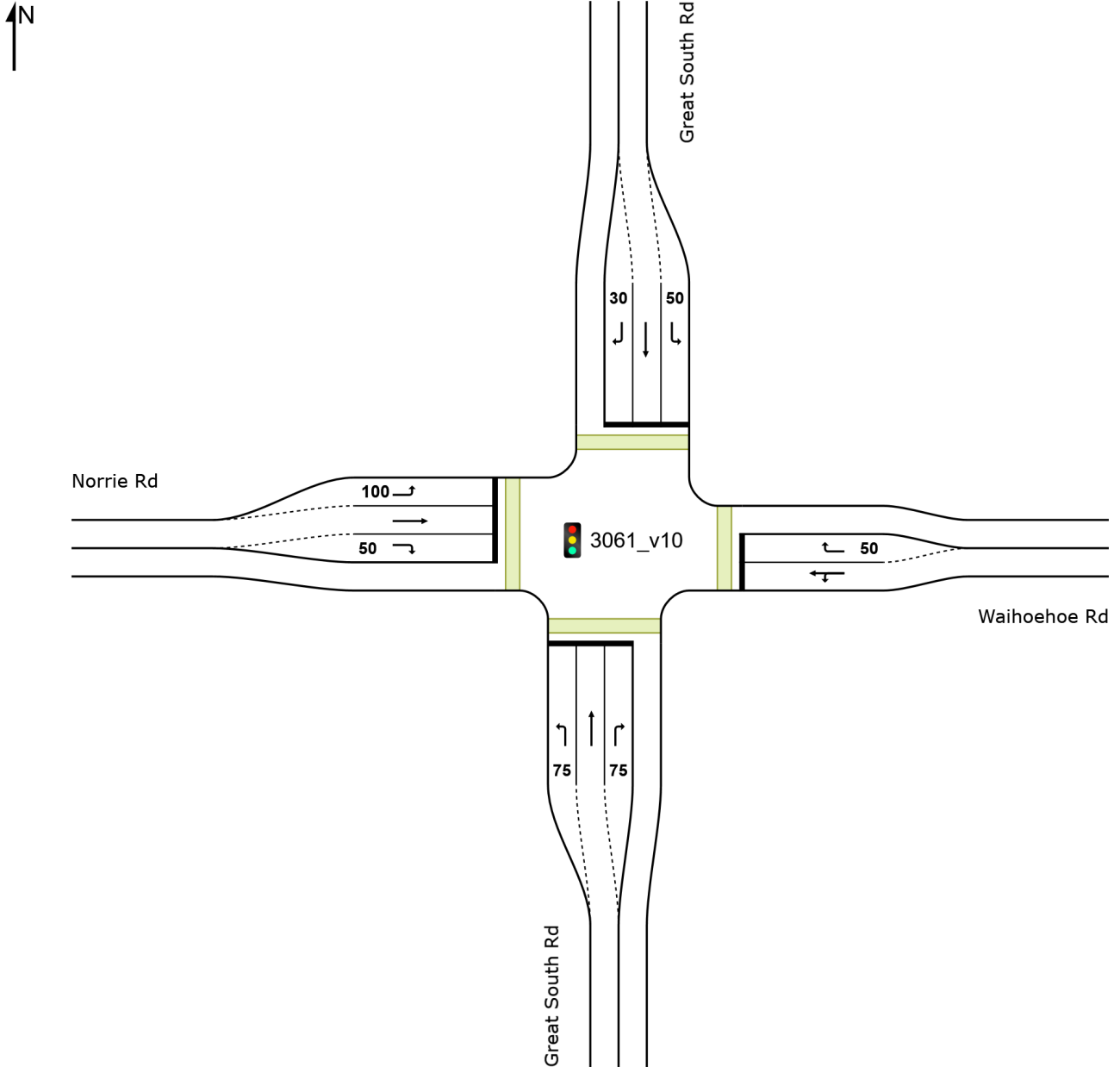
Site: 3061_v10 [Scenario62o : PM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62o : PM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3061_v10 [Scenario62o : AM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62o : AM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing
 Site Category: (None)
 Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 68 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Great South Rd														
1	L2	20	0	20	0.0	0.042	25.5	LOS C	0.3	2.2	0.78	0.67	0.78	34.6
2	T1	277	30	277	10.8	0.861	37.9	LOS D	6.6	50.3	1.00	1.07	1.40	33.0
3	R2	122	12	122	9.8	0.397	32.6	LOS C	2.3	17.5	0.93	0.78	0.93	30.8
Approach		419	42	419	10.0	0.861	35.8	LOS D	6.6	50.3	0.97	0.97	1.24	32.5
East: Waihoehoe Rd														
4	L2	241	13	241	5.4	* 0.673	18.7	LOS B	3.8	28.0	0.94	0.84	0.98	37.3
5	T1	92	5	92	5.4	* 0.673	14.1	LOS B	3.8	28.0	0.94	0.84	0.98	34.7
6	R2	350	25	350	7.1	0.832	38.0	LOS D	7.9	59.0	1.00	0.99	1.28	29.3
Approach		683	43	683	6.3	0.832	28.0	LOS C	7.9	59.0	0.97	0.92	1.13	32.3
North: Great South Rd														
7	L2	305	12	305	3.9	* 0.535	16.0	LOS B	3.1	22.2	0.87	0.79	0.87	38.1
8	T1	148	24	148	16.2	0.526	29.7	LOS C	2.9	23.2	0.96	0.77	0.96	35.6
9	R2	223	13	223	5.8	0.761	38.0	LOS D	4.8	35.6	1.00	0.93	1.21	30.3
Approach		676	49	676	7.2	0.761	26.3	LOS C	4.8	35.6	0.94	0.83	1.00	34.6
West: Norrie Rd														
10	L2	453	18	453	4.0	0.878	40.3	LOS D	11.0	79.5	1.00	1.03	1.35	29.4
11	T1	106	3	106	2.8	0.408	30.7	LOS C	2.1	14.9	0.96	0.75	0.96	28.1
12	R2	20	0	20	0.0	* 0.118	37.1	LOS D	0.4	2.8	0.95	0.69	0.95	30.6
Approach		579	21	579	3.6	0.878	38.4	LOS D	11.0	79.5	0.99	0.97	1.27	29.3
All Vehicles		2357	155	2357	6.6	0.878	31.4	LOS C	11.0	79.5	0.97	0.91	1.15	32.2

Site Level of Service (LOS) Method: Delay (SIDRA). 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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
South: Great South Rd												
P1	Full	50	53	27.4	LOS C	0.1	0.1	0.90	0.90	56.7	38.0	0.67
East: Waihoehoe Rd												

P2 Full	50	53	28.3	LOS C	0.1	0.1	0.91	0.91	54.5	34.0	0.62
North: Great South Rd											
P3 Full	50	53	28.3	LOS C	0.1	0.1	0.91	0.91	57.6	38.0	0.66
West: Norrie Rd											
P4 Full	50	53	28.3	LOS C	0.1	0.1	0.91	0.91	57.6	38.0	0.66
All Pedestrians	0	211	28.1	LOS C	0.1	0.1	0.91	0.91	56.6	37.0	0.65

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

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

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

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Project: C:\Temp\sidra\2 nov\Scenario62o AM sip files\3061_FT_GSR_Waihoehoe_Sig_v10.sip9

MOVEMENT SUMMARY

Site: 3061_v10 [Scenario62o : IP 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62o : IP 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing
 Site Category: (None)
 Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 68 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Great South Rd														
1	L2	20	0	20	0.0	0.059	30.2	LOS C	0.3	2.4	0.86	0.68	0.86	32.8
2	T1	88	26	88	29.5	0.548	34.2	LOS C	1.9	16.3	0.99	0.79	1.03	34.1
3	R2	82	12	82	14.6	0.479	38.2	LOS D	1.7	13.4	0.98	0.77	0.98	28.9
Approach		190	38	190	20.0	0.548	35.5	LOS D	1.9	16.3	0.98	0.77	0.99	31.9
East: Waihoehoe Rd														
4	L2	234	40	234	17.1	* 0.572	17.6	LOS B	3.2	25.2	0.88	0.81	0.88	37.8
5	T1	75	7	75	9.3	* 0.572	12.8	LOS B	3.2	25.2	0.88	0.81	0.88	35.4
6	R2	366	46	366	12.6	0.699	28.6	LOS C	7.0	54.0	0.94	0.87	0.99	32.5
Approach		675	93	675	13.8	0.699	23.0	LOS C	7.0	54.0	0.91	0.84	0.94	34.5
North: Great South Rd														
7	L2	269	36	269	13.4	* 0.403	13.5	LOS B	2.6	20.0	0.76	0.76	0.76	39.4
8	T1	160	40	160	25.0	0.561	29.1	LOS C	3.1	26.7	0.96	0.78	0.96	35.8
9	R2	224	17	224	7.6	0.713	36.0	LOS D	4.7	34.9	0.99	0.89	1.13	31.0
Approach		653	93	653	14.2	0.713	25.0	LOS C	4.7	34.9	0.89	0.81	0.93	35.1
West: Norrie Rd														
10	L2	234	16	234	6.8	0.467	27.1	LOS C	4.1	30.0	0.88	0.80	0.88	33.9
11	T1	66	8	66	12.1	0.311	31.4	LOS C	1.3	10.1	0.95	0.72	0.95	27.9
12	R2	20	0	20	0.0	* 0.118	37.1	LOS D	0.4	2.8	0.95	0.69	0.95	30.6
Approach		320	24	320	7.5	0.467	28.6	LOS C	4.1	30.0	0.90	0.77	0.90	32.6
All Vehicles		1838	248	1838	13.5	0.713	26.0	LOS C	7.0	54.0	0.91	0.81	0.94	34.1

Site Level of Service (LOS) Method: Delay (SIDRA). 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.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Queue Model: SIDRA Standard.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
South: Great South Rd												
P1	Full	50	53	23.9	LOS C	0.1	0.1	0.84	0.84	53.2	38.0	0.71
East: Waihoehoe Rd												

P2 Full	50	53	28.3	LOS C	0.1	0.1	0.91	0.91	54.5	34.0	0.62
North: Great South Rd											
P3 Full	50	53	28.3	LOS C	0.1	0.1	0.91	0.91	57.6	38.0	0.66
West: Norrie Rd											
P4 Full	50	53	28.3	LOS C	0.1	0.1	0.91	0.91	57.6	38.0	0.66
All Pedestrians	0	211	27.2	LOS C	0.1	0.1	0.90	0.90	55.7	37.0	0.66

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

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

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

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Project: C:\Temp\sidra\2 nov\Scenario62o IP sip files\3061_FT_GSR_Waihoehoe_Sig_v10.sip9

MOVEMENT SUMMARY

Site: 3061_v10 [Scenario62o : PM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing (Site Folder: 3061 - GSR / Waihoehoe)]

Scenario62o : PM 2028 - GSR / Waihoehoe_Sig_Fast_Track_Optm_Phasing

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Great South Rd														
1	L2	21	1	21	4.8	0.071	35.8	LOS D	0.4	3.2	0.88	0.69	0.88	30.8
2	T1	172	28	172	16.3	0.990	73.5	LOS E	6.1	49.1	1.00	1.32	2.03	25.0
3	R2	87	8	87	9.2	0.497	43.9	LOS D	2.1	15.9	0.99	0.77	0.99	27.3
Approach		280	37	280	13.2	0.990	61.4	LOS E	6.1	49.1	0.99	1.10	1.62	25.9
East: Waihoehoe Rd														
4	L2	441	25	441	5.7	* 0.788	26.5	LOS C	10.4	76.1	0.94	0.96	1.02	33.6
5	T1	126	4	126	3.2	0.788	21.9	LOS C	10.4	76.1	0.94	0.96	1.02	30.4
6	R2	511	27	511	5.3	* 1.031	103.6	LOS F	24.0	175.3	1.00	1.42	2.06	17.0
Approach		1078	56	1078	5.2	1.031	62.5	LOS E	24.0	175.3	0.97	1.18	1.52	22.6
North: Great South Rd														
7	L2	462	25	462	5.4	* 0.521	12.8	LOS B	4.6	34.0	0.73	0.77	0.73	39.9
8	T1	329	31	329	9.4	1.068	121.4	LOS F	16.2	122.3	1.00	1.71	2.39	18.6
9	R2	237	11	237	4.6	0.952	64.3	LOS E	7.6	55.7	1.00	1.21	1.77	23.9
Approach		1028	67	1028	6.5	1.068	59.4	LOS E	16.2	122.3	0.88	1.17	1.50	25.1
West: Norrie Rd														
10	L2	366	14	366	3.8	0.792	39.2	LOS D	9.1	65.5	0.99	0.93	1.15	29.8
11	T1	76	3	76	3.9	* 0.447	39.8	LOS D	1.8	13.3	0.99	0.75	0.99	24.9
12	R2	20	0	20	0.0	0.139	44.0	LOS D	0.5	3.3	0.96	0.69	0.96	28.6
Approach		462	17	462	3.7	0.792	39.5	LOS D	9.1	65.5	0.99	0.89	1.11	29.0
All Vehicles		2848	177	2848	6.2	1.068	57.5	LOS E	24.0	175.3	0.94	1.12	1.46	24.8

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
South: Great South Rd												
P1	Full	50	53	22.5	LOS C	0.1	0.1	0.75	0.75	51.8	38.0	0.73
East: Waihoehoe Rd												

P2 Full	50	53	34.3	LOS D	0.1	0.1	0.93	0.93	60.5	34.0	0.56
North: Great South Rd											
P3 Full	50	53	34.3	LOS D	0.1	0.1	0.93	0.93	63.5	38.0	0.60
West: Norrie Rd											
P4 Full	50	53	34.3	LOS D	0.1	0.1	0.93	0.93	63.5	38.0	0.60
All Pedestrians	0	211	31.4	LOS D	0.1	0.1	0.88	0.88	59.8	37.0	0.62

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

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

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

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Project: C:\Temp\sidra\2 nov\Scenario62o PM sip files\3061_FT_GSR_Waihoehoe_Sig_v10.sip9

SITE LAYOUT

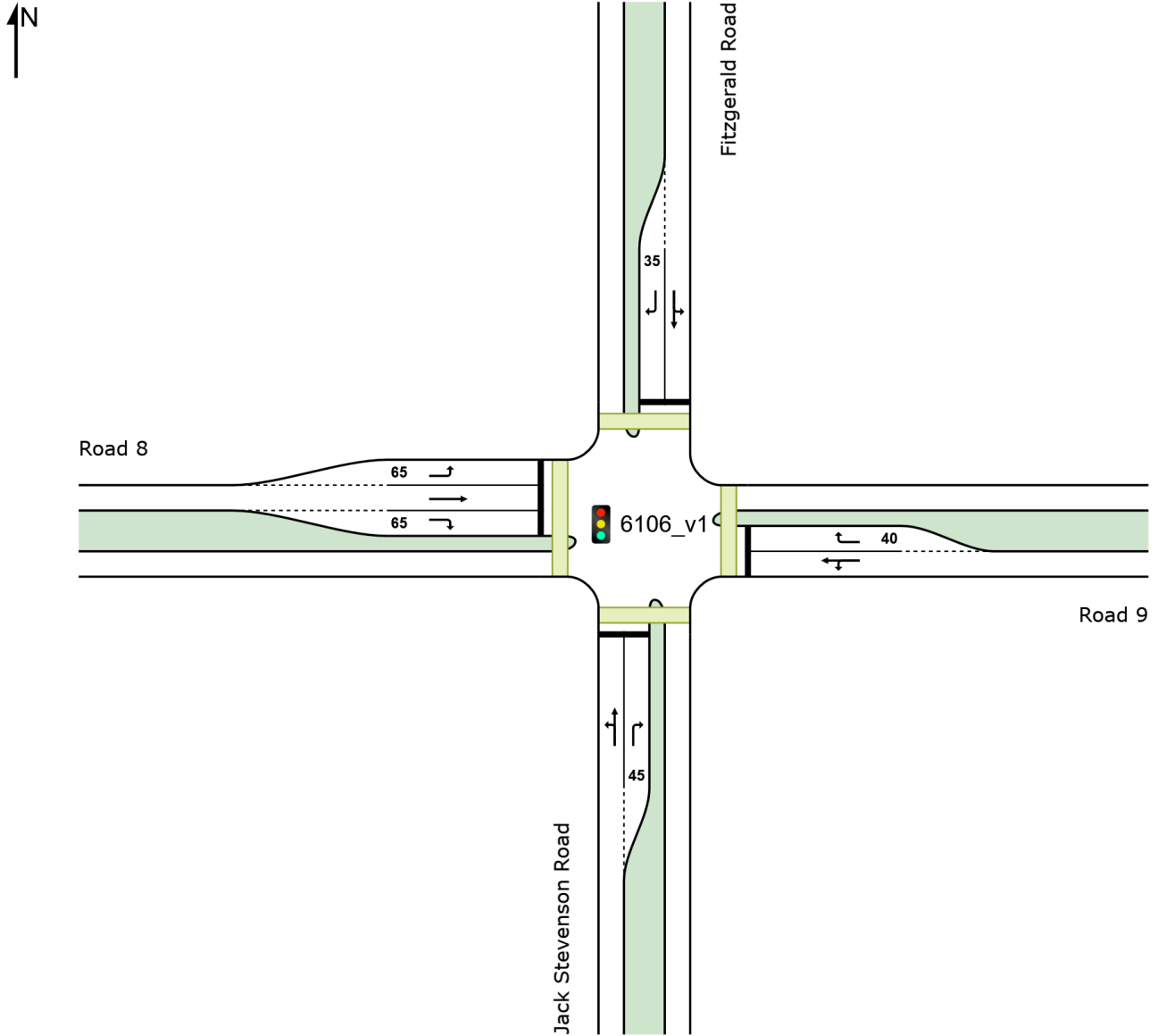
Site: 6106_v1 [Scenario62o : PM 2028 - Fitzgerald / Jack Stevenson / Rd 8 / Rd 9 (Site Folder: General)]

Scenario62o : PM 2028 - Fitzgerald / Jack Stevenson / Rd 8 / Rd 9

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 6106_v1 [Scenario62o : PM 2028 - Fitzgerald / Jack Stevenson / Rd 8 / Rd 9 (Site Folder: General)]

Scenario62o : PM 2028 - Fitzgerald / Jack Stevenson / Rd 8 / Rd 9

Site Category: -

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Optimum Cycle Time - Minimum Delay)

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

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Jack Stevenson Road														
1	L2	39	7.7	41	7.7	* 0.452	23.3	LOS C	2.3	17.5	0.96	0.76	0.96	30.5
2	T1	56	12.5	59	12.5	0.452	18.7	LOS B	2.3	17.5	0.96	0.76	0.96	28.0
3	R2	20	0.0	21	0.0	0.132	38.5	LOS D	0.7	5.0	0.95	0.70	0.95	24.2
Approach		115	8.7	121	8.7	0.452	23.7	LOS C	2.3	17.5	0.96	0.74	0.96	27.9
East: Road 9														
4	L2	20	0.0	21	0.0	* 0.361	27.1	LOS C	1.1	8.1	0.99	0.72	0.99	29.6
5	T1	21	4.8	22	4.8	* 0.361	22.5	LOS C	1.1	8.1	0.99	0.72	0.99	32.9
6	R2	21	4.8	22	4.8	0.123	37.3	LOS D	0.7	5.3	0.94	0.70	0.94	25.7
Approach		62	3.2	65	3.2	0.361	29.0	LOS C	1.1	8.1	0.97	0.71	0.97	29.3
North: Fitzgerald Road														
7	L2	21	4.8	22	4.8	0.651	23.0	LOS C	10.0	75.0	0.83	0.72	0.84	33.8
8	T1	328	8.8	345	8.8	* 0.651	18.4	LOS B	10.0	75.0	0.83	0.72	0.84	29.3
9	R2	277	5.8	292	5.8	0.545	27.2	LOS C	8.5	62.8	0.89	0.81	0.89	28.5
Approach		626	7.3	659	7.3	0.651	22.5	LOS C	10.0	75.0	0.86	0.76	0.86	29.0
West: Road 8														
10	L2	165	7.3	174	7.3	0.246	19.8	LOS B	4.0	29.6	0.70	0.74	0.70	32.1
11	T1	20	0.0	21	0.0	0.108	32.4	LOS C	0.7	4.8	0.94	0.66	0.94	29.8
12	R2	24	4.2	25	4.2	0.140	37.4	LOS D	0.8	6.0	0.94	0.70	0.94	23.1
Approach		209	6.2	220	6.2	0.246	23.0	LOS C	4.0	29.6	0.75	0.73	0.75	30.6
All Vehicles		1012	7.0	1065	7.0	0.651	23.1	LOS C	10.0	75.0	0.85	0.75	0.86	29.3

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
		ped/h	ped/h	sec	[Ped ped]	[Dist m]						
South: Jack Stevenson Road												
P1	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	193.9	213.9	1.10
East: Road 9												
P2	Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	193.9	213.9	1.10

North: Fitzgerald Road												
P3 Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	193.9	213.9	1.10	
West: Road 8												
P4 Full	50	53	29.3	LOS C	0.1	0.1	0.92	0.92	196.4	217.2	1.11	
All Pedestrians	200	211	29.3	LOS C	0.1	0.1	0.92	0.92	194.5	214.7	1.10	

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

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

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

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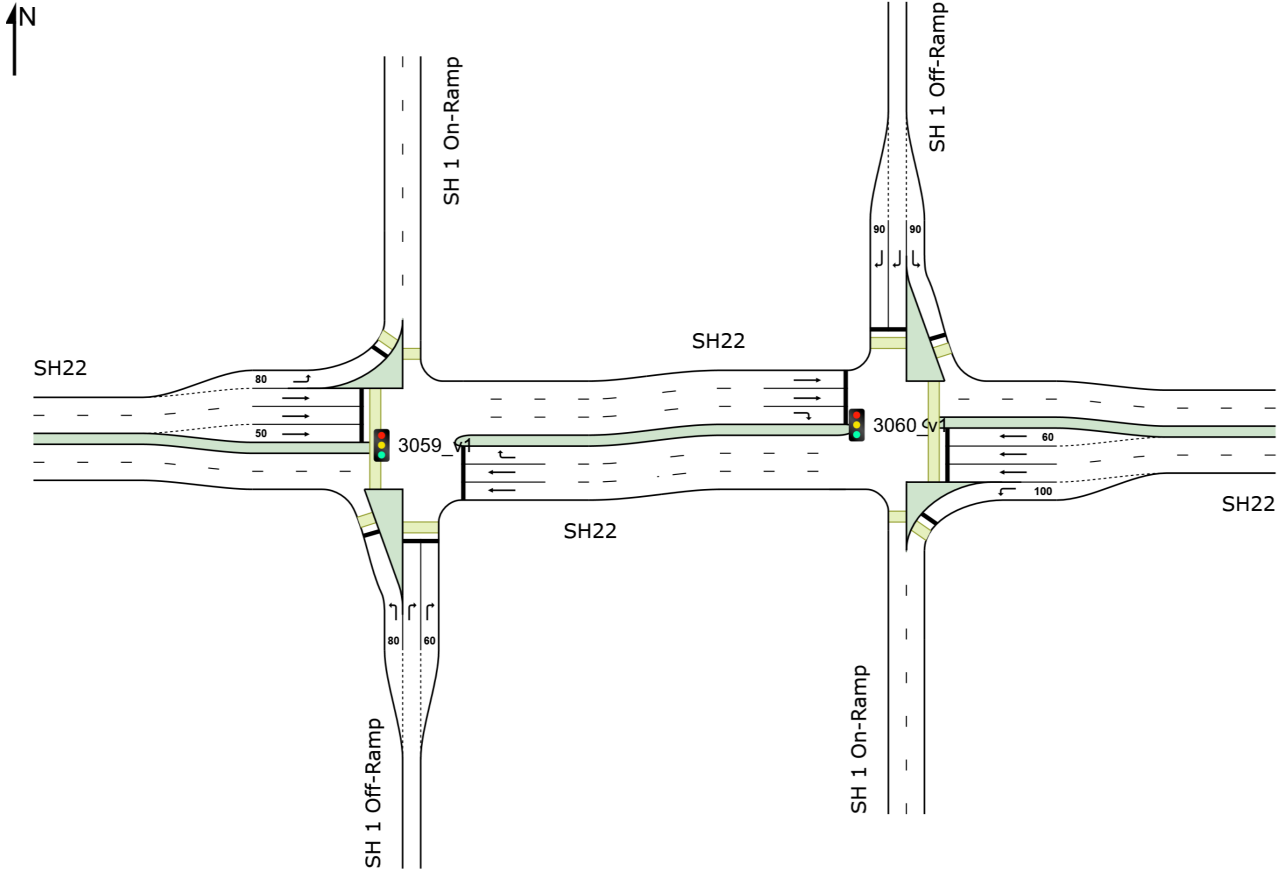
Project: C:\Temp\sidra\2 nov\Scenario62o PM sip files\6106_Jack Stv_Fitz_Sig.sip9

NETWORK LAYOUT

Network: N101 [Network1 - MH (Network Folder: General)]

New Network
 Network Category: (None)
 EQUISAT (Fixed-Time/SCATS) Isolated
 Common Control Group: CCG1 [CCGName]

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	CCG ID	Site Name
3059_v1	CCG1	Scenario62o : AM 2028 - 3059_SH1_SH22_Interchange_West
3060_v1	CCG1	Scenario62o : AM 2028 - 3060_SH1_SH22_Interchange_East

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Network1 - MH (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (CCG Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%				[Veh. veh	Dist] m				
Site: 3059_v1 [Scenario62o : AM 2028 - 3059_SH1_SH22_Interchange_West]														
South: SH 1 Off-Ramp														
7	L2	61	1.6	61	1.6	0.392	62.1	LOS E	3.5	24.7	0.99	0.75	0.99	18.5
9	R2	94	10.6	94	10.6	0.321	61.9	LOS E	2.7	20.4	0.98	0.74	0.98	14.9
Approach		155	7.1	155	7.1	0.392	62.0	LOS E	3.5	24.7	0.98	0.75	0.98	16.4
East: SH22														
11	T1	676	8.3	676	8.3	0.225	0.3	LOS A	0.5	3.6	0.03	0.02	0.03	49.2
9	R2	163	4.3	163	4.3	0.159	5.2	LOS A	0.2	1.6	0.03	0.54	0.03	43.2
Approach		839	7.5	839	7.5	0.225	1.3	LOS A	0.5	3.6	0.03	0.12	0.03	47.0
West: SH22														
1	L2	1202	13.0	1202	13.0	* 0.930	29.4	LOS C	57.9	450.6	0.67	0.86	0.80	29.3
5	T1	312	10.9	312	10.9	0.391	44.8	LOS D	7.0	54.0	0.91	0.73	0.91	9.4
Approach		1514	12.5	1514	12.5	0.930	32.6	LOS C	57.9	450.6	0.72	0.84	0.82	25.9
All Vehicles		2508	10.5	2508	10.5	0.930	23.9	LOS C	57.9	450.6	0.50	0.59	0.57	28.1
Site: 3060_v1 [Scenario62o : AM 2028 - 3060_SH1_SH22_Interchange_East]														
East: SH22														
1	L2	90	12.2	90	12.2	0.065	6.7	LOS A	1.0	7.7	0.21	0.53	0.21	44.5
5	T1	353	9.9	353	9.9	* 0.972	72.8	LOS E	10.1	77.0	1.00	1.01	1.42	5.8
Approach		443	10.4	443	10.4	0.972	59.4	LOS E	10.1	77.0	0.84	0.91	1.17	11.2
North: SH 1 Off-Ramp														
7	L2	300	7.3	300	7.3	0.386	28.3	LOS C	11.5	85.8	0.72	0.76	0.72	28.5
9	R2	486	5.8	486	5.8	0.309	27.4	LOS C	9.0	65.8	0.69	0.75	0.69	25.5
Approach		786	6.4	786	6.4	0.386	27.7	LOS C	11.5	85.8	0.70	0.75	0.70	26.8
West: SH22														
11	T1	382	11.3	382	11.3	0.230	0.8	LOS A	0.3	2.1	0.03	0.02	0.03	48.0
9	R2	23	0.0	23	0.0	0.037	5.4	LOS A	0.0	0.2	0.02	0.54	0.02	44.0
Approach		405	10.6	405	10.6	0.230	1.0	LOS A	0.3	2.1	0.03	0.05	0.03	47.4
All Vehicles		1634	8.5	1634	8.5	0.972	29.7	LOS C	11.5	85.8	0.57	0.62	0.66	22.8

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
					[Ped ped	Dist] m					
Site: 3059_v1 [Scenario62o : AM 2028 - 3059_SH1_SH22_Interchange_West]											

South: SH 1 Off-Ramp											
P3 Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	213.6	208.6	0.98	
P3B Slip/ Bypass	5	53.2	LOS E	0.0	0.0	0.95	0.95	210.3	204.3	0.97	
North: SH 1 On-Ramp											
P4 Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	213.7	208.6	0.98	
West: SH22											
P2 Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	222.8	220.5	0.99	
P2B Slip/ Bypass	5	53.2	LOS E	0.0	0.0	0.95	0.95	210.3	204.3	0.97	
All Pedestrians	74	53.2	LOS E	0.2	0.2	0.95	0.95	213.9	208.8	0.98	
Site: 3060_v1 [Scenario62o : AM 2028 - 3060_SH1_SH22_Interchange_East]											
South: SH 1 On-Ramp											
P4 Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	213.7	208.6	0.98	
East: SH22											
P2 Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	222.8	220.5	0.99	
P2B Slip/ Bypass	5	53.2	LOS E	0.0	0.0	0.95	0.95	210.3	204.3	0.97	
North: SH 1 Off-Ramp											
P3 Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	213.6	208.6	0.98	
P3B Slip/ Bypass	5	53.2	LOS E	0.0	0.0	0.95	0.95	210.3	204.3	0.97	
All Pedestrians	74	53.2	LOS E	0.2	0.2	0.95	0.95	213.9	208.8	0.98	

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

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

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

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Project: \\nz4105-ppfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62o\Scenario62o AM sip files\3059_3060_SH1_SH22_Interchange_Both.sip9

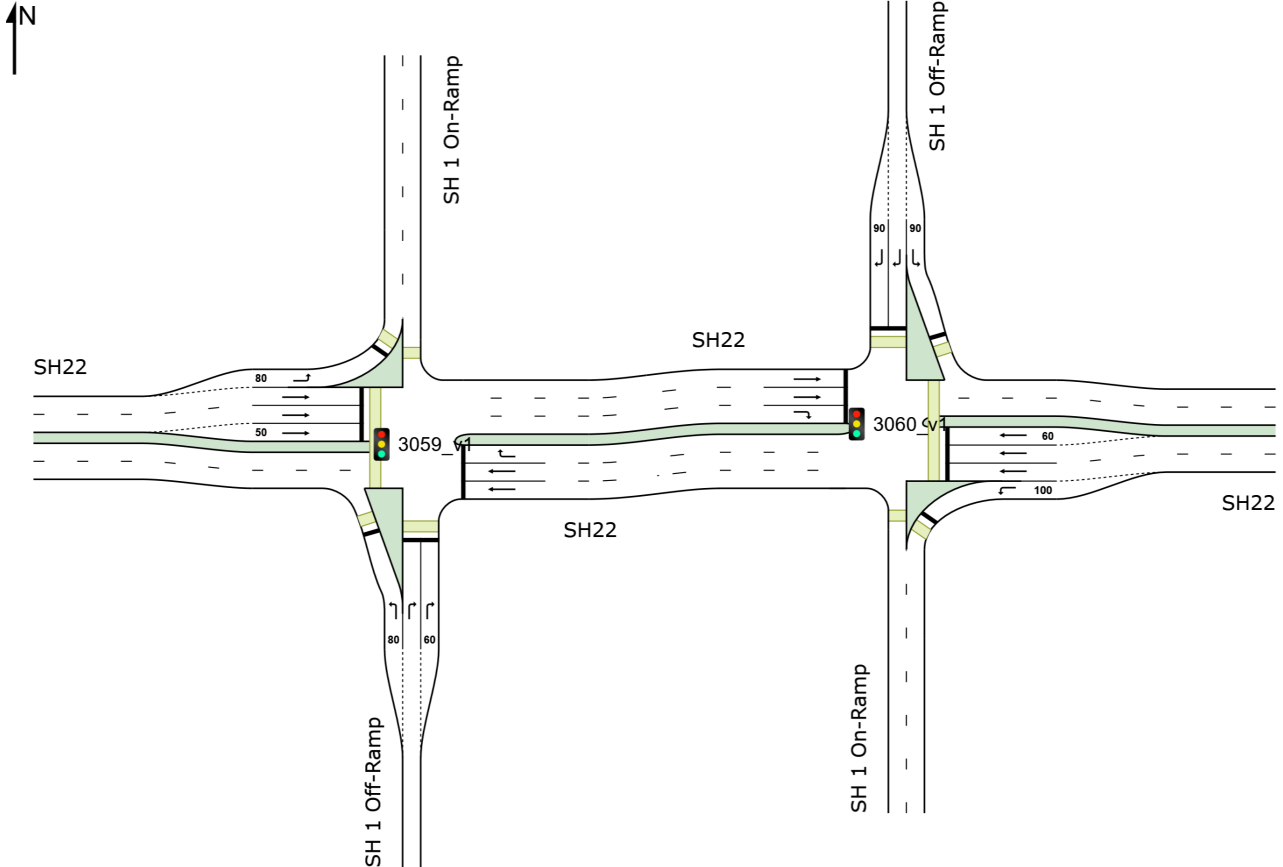
NETWORK LAYOUT

Network: N101 [Network1 - MH (Network Folder: General)]

New Network

Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	CCG ID	Site Name
3059_v1	CCG1	Scenario62o : PM 2028 - 3059_SH1_SH22_Interchange_West
3060_v1	CCG1	Scenario62o : PM 2028 - 3060_SH1_SH22_Interchange_East

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Project: \\nz4105-ppfss01\shared_projects\310203562\4.0 Technical\4.9 Transportation\Modelling\SIDRA\Scenario 62o\Scenario62o PM sip files\3059_3060_SH1_SH22_Interchange_Both.sip9

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Network1 - MH (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 86 seconds (CCG Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
Site: 3059_v1 [Scenario62o : PM 2028 - 3059_SH1_SH22_Interchange_West]														
South: SH 1 Off-Ramp														
7	L2	83	3.6	83	3.6	0.657	50.9	LOS D	3.7	27.0	1.00	0.83	1.14	20.8
9	R2	64	25.0	64	25.0	0.291	49.1	LOS D	1.4	11.8	0.98	0.72	0.98	17.5
Approach		147	12.9	147	12.9	0.657	50.1	LOS D	3.7	27.0	0.99	0.78	1.07	19.5
East: SH22														
11	T1	1489	5.2	1489	5.2	0.499	0.4	LOS A	1.2	8.8	0.04	0.04	0.04	49.1
9	R2	324	8.0	324	8.0	0.283	5.0	LOS A	0.4	2.8	0.03	0.54	0.03	43.3
Approach		1813	5.7	1813	5.7	0.499	1.2	LOS A	1.2	8.8	0.04	0.13	0.04	47.1
West: SH22														
1	L2	938	9.5	938	9.5	* 0.841	20.1	LOS C	31.8	240.5	0.77	0.86	0.84	33.9
5	T1	190	12.6	190	12.6	0.672	46.2	LOS D	3.8	29.6	1.00	0.82	1.14	9.1
Approach		1128	10.0	1128	10.0	0.841	24.5	LOS C	31.8	240.5	0.81	0.85	0.89	29.9
All Vehicles		3088	7.6	3088	7.6	0.841	12.0	LOS B	31.8	240.5	0.37	0.42	0.40	35.0
Site: 3060_v1 [Scenario62o : PM 2028 - 3060_SH1_SH22_Interchange_East]														
East: SH22														
1	L2	182	8.2	182	8.2	0.131	6.7	LOS A	1.7	13.1	0.25	0.56	0.25	44.6
5	T1	714	6.7	714	6.7	* 0.856	39.5	LOS D	14.0	104.0	0.98	0.90	1.11	9.8
Approach		896	7.0	896	7.0	0.856	32.8	LOS C	14.0	104.0	0.83	0.83	0.93	17.2
North: SH 1 Off-Ramp														
7	L2	375	6.1	375	6.1	0.533	26.1	LOS C	12.1	89.4	0.82	0.80	0.82	29.5
9	R2	1098	4.9	1098	4.9	0.774	31.4	LOS C	21.3	155.5	0.94	0.89	0.99	23.8
Approach		1473	5.2	1473	5.2	0.774	30.0	LOS C	21.3	155.5	0.91	0.87	0.95	25.3
West: SH22														
11	T1	253	15.4	253	15.4	0.153	0.8	LOS A	0.2	1.6	0.04	0.03	0.04	47.8
9	R2	20	0.0	20	0.0	0.051	12.4	LOS B	0.2	1.3	0.23	0.57	0.23	38.8
Approach		273	14.3	273	14.3	0.153	1.7	LOS A	0.2	1.6	0.05	0.07	0.05	46.1
All Vehicles		2642	6.8	2642	6.8	0.856	28.1	LOS C	21.3	155.5	0.79	0.77	0.85	23.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
					[Ped ped	Dist] m					
Site: 3059_v1 [Scenario62o : PM 2028 - 3059_SH1_SH22_Interchange_West]											

South: SH 1 Off-Ramp											
P3 Full	5	37.2	LOS D	0.0	0.0	0.93	0.93	197.7	208.6	1.06	
P3B Slip/ Bypass	5	37.2	LOS D	0.0	0.0	0.93	0.93	194.4	204.3	1.05	
North: SH 1 On-Ramp											
P4 Full	53	37.3	LOS D	0.1	0.1	0.93	0.93	197.8	208.6	1.05	
West: SH22											
P2 Full	5	37.2	LOS D	0.0	0.0	0.93	0.93	206.8	220.5	1.07	
P2B Slip/ Bypass	5	37.2	LOS D	0.0	0.0	0.93	0.93	194.4	204.3	1.05	
All Pedestrians	74	37.3	LOS D	0.1	0.1	0.93	0.93	197.9	208.8	1.06	
Site: 3060_v1 [Scenario62o : PM 2028 - 3060_SH1_SH22_Interchange_East]											
South: SH 1 On-Ramp											
P4 Full	53	37.3	LOS D	0.1	0.1	0.93	0.93	197.8	208.6	1.05	
East: SH22											
P2 Full	5	37.2	LOS D	0.0	0.0	0.93	0.93	206.8	220.5	1.07	
P2B Slip/ Bypass	5	37.2	LOS D	0.0	0.0	0.93	0.93	194.4	204.3	1.05	
North: SH 1 Off-Ramp											
P3 Full	5	37.2	LOS D	0.0	0.0	0.93	0.93	197.7	208.6	1.06	
P3B Slip/ Bypass	5	37.2	LOS D	0.0	0.0	0.93	0.93	194.4	204.3	1.05	
All Pedestrians	74	37.3	LOS D	0.1	0.1	0.93	0.93	197.9	208.8	1.06	

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

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

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

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SITE LAYOUT

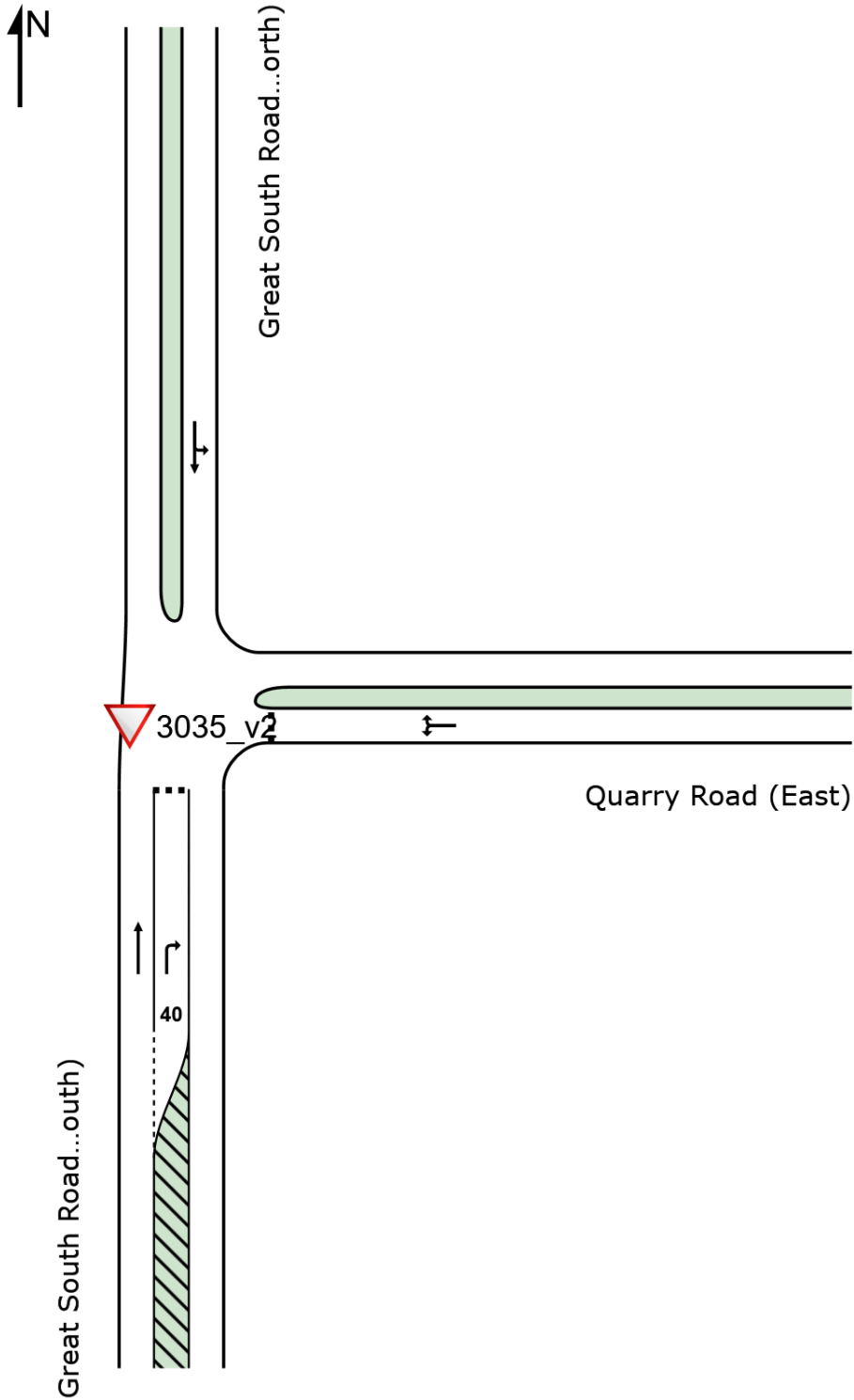
▽ Site: 3035_v2 [Scenario62o : AM 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62o : AM 2028 - Great South Rd / Quarry Rd - Give-Way

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3035_v2 [Scenario62o : AM 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62o : AM 2028 - Great South Rd / Quarry Rd - Give-Way

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Great South Road (South)														
5	T1	131	24	138	18.3	0.079	3.3	LOS A	0.0	0.0	0.00	0.46	0.00	44.9
6	R2	31	3	33	9.7	0.038	6.1	LOS A	0.0	0.4	0.36	0.61	0.36	41.7
Approach		162	27	171	16.7	0.079	3.9	LOS A	0.0	0.4	0.07	0.49	0.07	44.2
East: Quarry Road (East)														
7	L2	21	1	22	4.8	0.273	4.9	LOS A	0.4	3.5	0.38	0.67	0.38	41.8
9	R2	185	41	195	22.2	0.273	7.3	LOS A	0.4	3.5	0.38	0.67	0.38	41.2
Approach		206	42	217	20.4	0.273	7.1	LOS A	0.4	3.5	0.38	0.67	0.38	41.3
North: Great South Road (North)														
10	L2	215	13	226	6.0	0.166	4.6	LOS A	0.0	0.0	0.00	0.40	0.00	45.3
11	T1	69	6	73	8.7	0.166	0.0	LOS A	0.0	0.0	0.00	0.40	0.00	45.7
Approach		284	19	299	6.7	0.166	3.5	NA	0.0	0.0	0.00	0.40	0.00	45.4
All Vehicles		652	88	686	13.5	0.273	4.7	NA	0.4	3.5	0.14	0.51	0.14	43.7

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

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

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

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

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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SITE LAYOUT

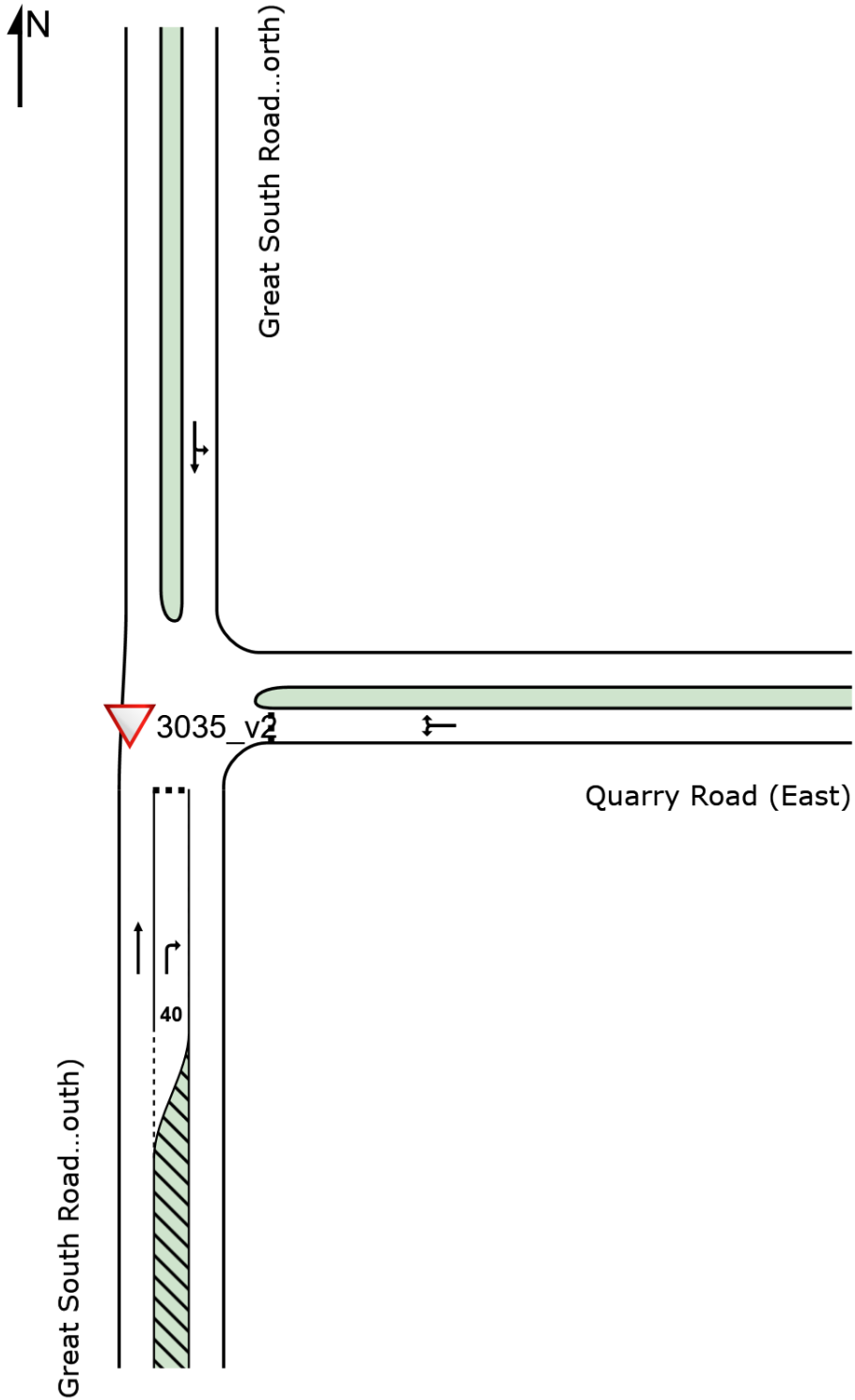
▼ Site: 3035_v2 [Scenario62o : IP 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62o : IP 2028 - Great South Rd / Quarry Rd - Give-Way

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3035_v2 [Scenario62o : IP 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62o : IP 2028 - Great South Rd / Quarry Rd - Give-Way
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV]	[Total veh/h]	[HV] %				[Veh.]	[Dist] m				
South: Great South Road (South)														
5	T1	82	9	86	11.0	0.047	3.3	LOS A	0.0	0.0	0.00	0.46	0.00	45.1
6	R2	22	2	23	9.1	0.026	5.9	LOS A	0.0	0.2	0.33	0.58	0.33	41.9
Approach		104	11	109	10.6	0.047	3.8	LOS A	0.0	0.2	0.07	0.49	0.07	44.3
East: Quarry Road (East)														
7	L2	23	3	24	13.0	0.328	5.2	LOS A	0.6	4.6	0.41	0.67	0.42	41.8
9	R2	245	49	258	20.0	0.328	6.9	LOS A	0.6	4.6	0.41	0.67	0.42	41.5
Approach		268	52	282	19.4	0.328	6.7	LOS A	0.6	4.6	0.41	0.67	0.42	41.5
North: Great South Road (North)														
10	L2	143	13	151	9.1	0.143	4.7	LOS A	0.0	0.0	0.00	0.31	0.00	46.0
11	T1	100	7	105	7.0	0.143	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	46.6
Approach		243	20	256	8.2	0.143	2.8	NA	0.0	0.0	0.00	0.31	0.00	46.2
All Vehicles		615	83	647	13.5	0.328	4.7	NA	0.6	4.6	0.19	0.50	0.19	43.7

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

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

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

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

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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SITE LAYOUT

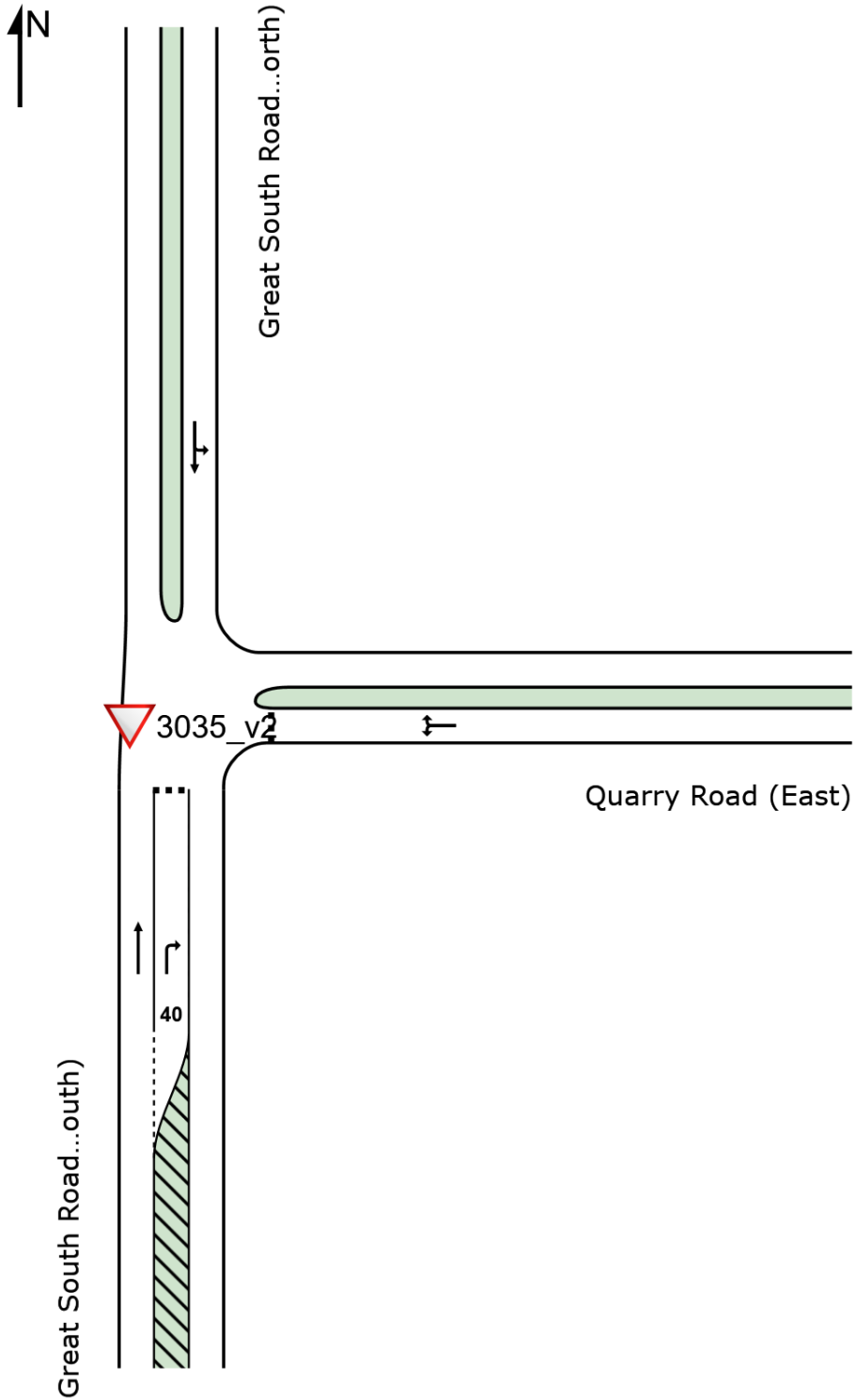
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Scenario62o : PM 2028 - Great South Rd / Quarry Rd - Give-Way

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 3035_v2 [Scenario62o : PM 2028 - Great South Rd / Quarry Rd - Give-Way (Site Folder: 3035 Great South Rd / Quarry Rd)]

Scenario62o : PM 2028 - Great South Rd / Quarry Rd - Give-Way
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV veh/h]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Great South Road (South)														
5	T1	94	6	99	6.4	0.053	3.2	LOS A	0.0	0.0	0.00	0.46	0.00	45.2
6	R2	21	1	22	4.8	0.025	6.0	LOS A	0.0	0.2	0.35	0.59	0.35	41.9
Approach		115	7	121	6.1	0.053	3.7	LOS A	0.0	0.2	0.06	0.49	0.06	44.5
East: Quarry Road (East)														
7	L2	62	1	65	1.6	0.590	6.8	LOS A	1.9	14.4	0.55	0.85	0.82	40.3
9	R2	438	36	461	8.2	0.590	8.9	LOS A	1.9	14.4	0.55	0.85	0.82	40.2
Approach		500	37	526	7.4	0.590	8.7	LOS A	1.9	14.4	0.55	0.85	0.82	40.2
North: Great South Road (North)														
10	L2	112	11	118	9.8	0.152	4.7	LOS A	0.0	0.0	0.00	0.23	0.00	46.8
11	T1	150	9	158	6.0	0.152	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	47.5
Approach		262	20	276	7.6	0.152	2.0	NA	0.0	0.0	0.00	0.23	0.00	47.2
All Vehicles		877	64	923	7.3	0.590	6.0	NA	1.9	14.4	0.32	0.62	0.47	42.5

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

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

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

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

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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