Appendix D

Construction Scenario 1.1 – Phasing Diagrams

PHASING SUMMARY

Site: 1.0 [1.0 Pakuranga Rd / Ti Rakau Rd (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Site Practical Cycle Time)

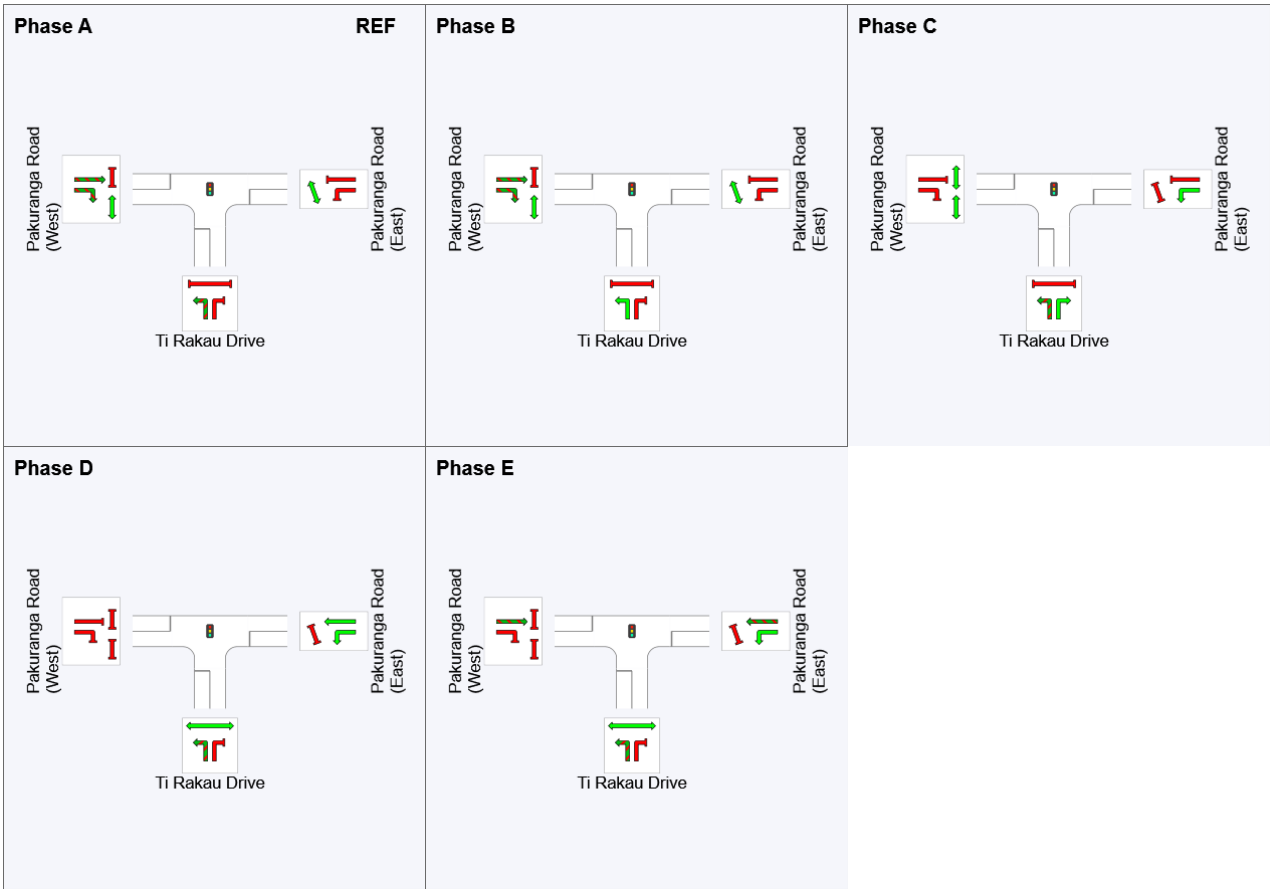
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Map Extract Default
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

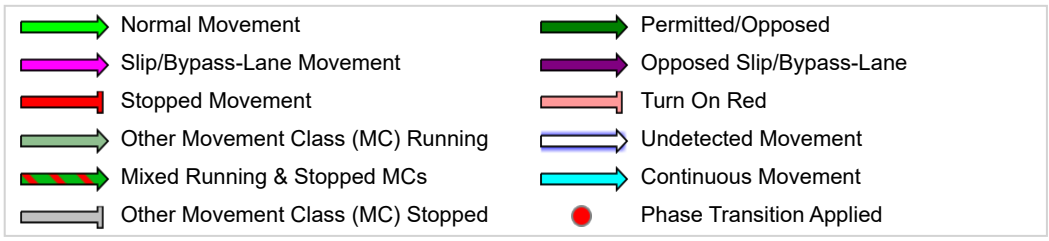
Phase	A	B	C	D	E
Phase Change Time (sec)	0	17	29	52	64
Green Time (sec)	11	6	17	6	20
Phase Time (sec)	17	12	23	12	26
Phase Split	19%	13%	26%	13%	29%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 1.5 [1.5 Saint Kentigern/ Pakuranga Rd - PD (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 67 seconds (Site Practical Cycle Time)

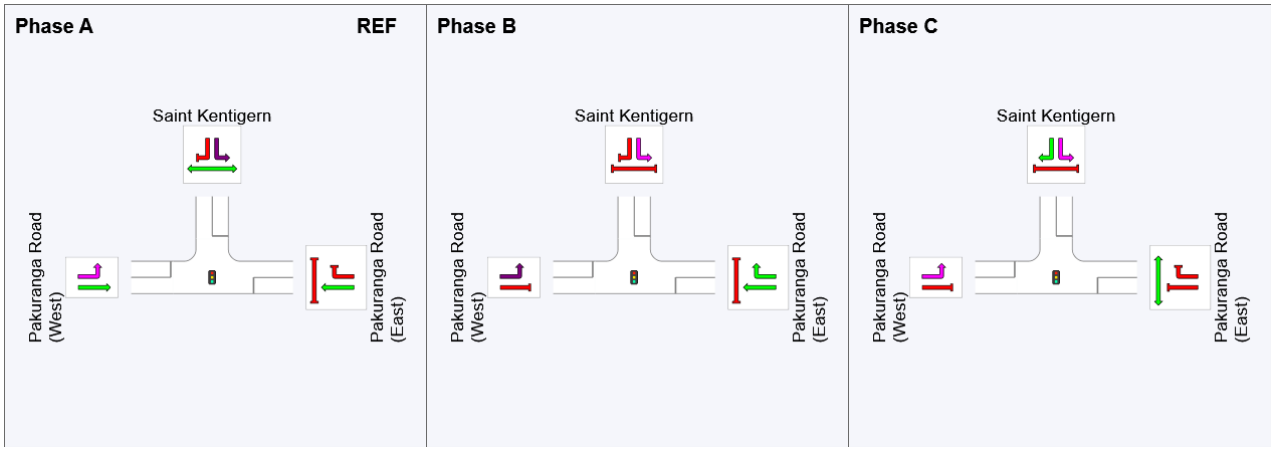
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D*
Output Phase Sequence: A, B, C
(* Variable Phase)

Phase Timing Summary

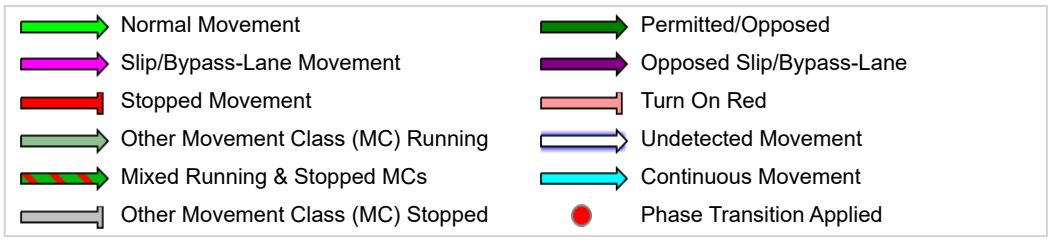
Phase	A	B	C
Phase Change Time (sec)	0	27	39
Green Time (sec)	21	6	22
Phase Time (sec)	27	12	28
Phase Split	40%	18%	42%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 5.0 [5.0 Pakuranga HWY/ Reeves Rd (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

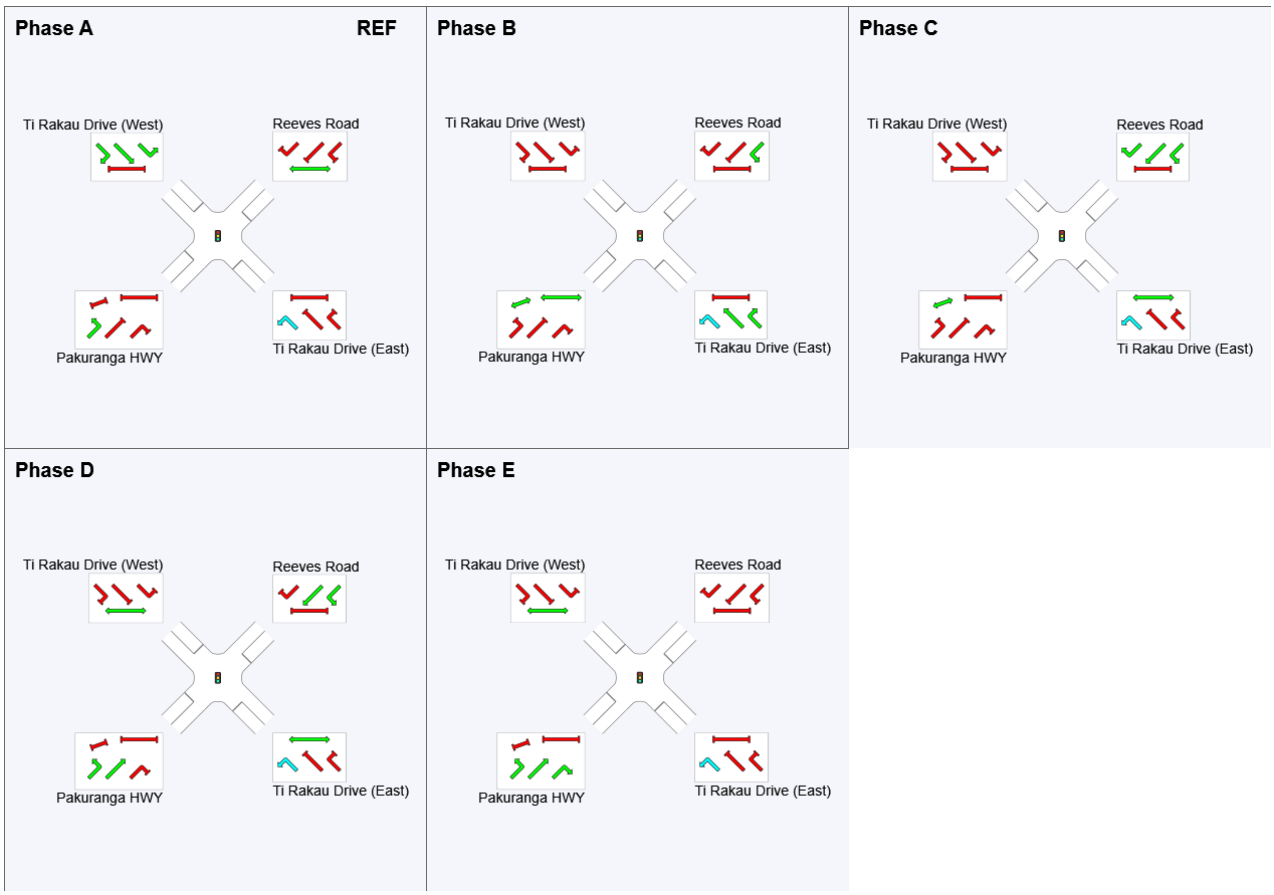
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Map Extract Default
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

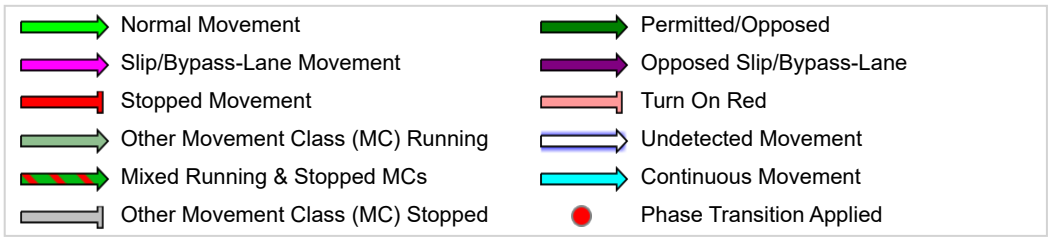
Phase	A	B	C	D	E
Phase Change Time (sec)	0	42	67	79	89
Green Time (sec)	36	19	6	4	15
Phase Time (sec)	42	25	12	10	21
Phase Split	38%	23%	11%	9%	19%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 7.0 [7.0 Mattson Rd/ Ti Rakau Dr (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 64 seconds (Site Practical Cycle Time)

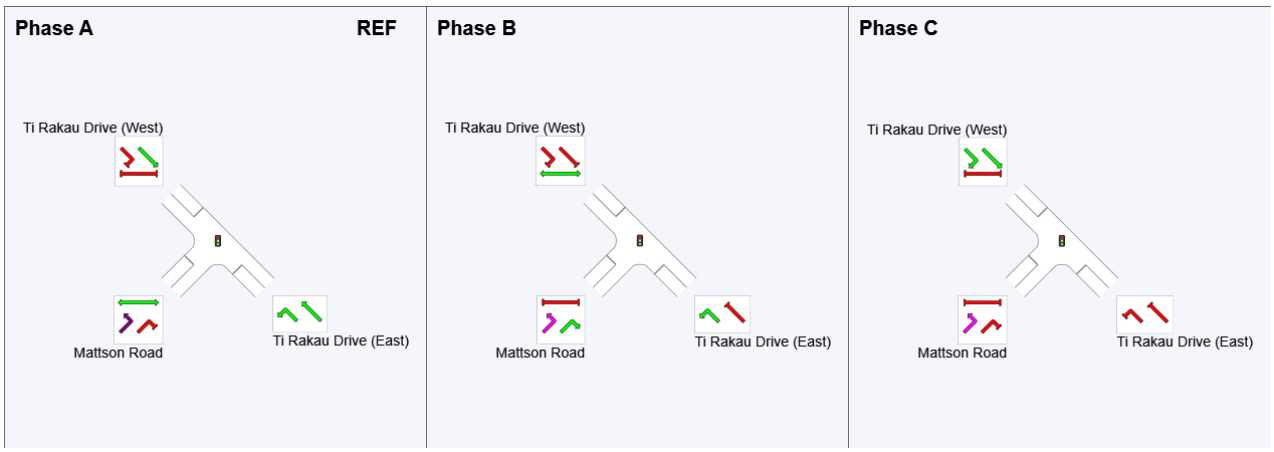
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Map Extract Default
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

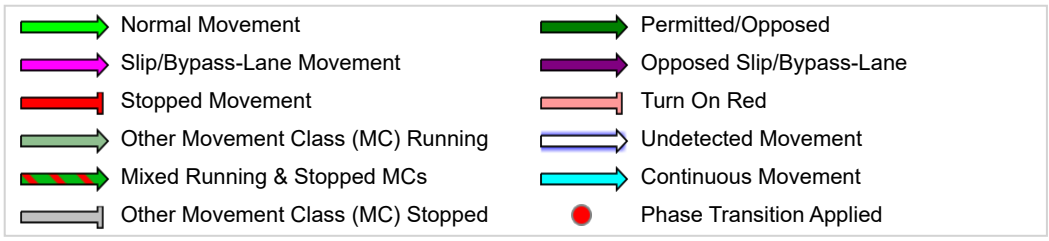
Phase	A	B	C
Phase Change Time (sec)	0	37	52
Green Time (sec)	31	9	6
Phase Time (sec)	37	15	12
Phase Split	58%	23%	19%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 10.0 [10.0 Edgewater Dr (West) / Chevis Pl (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

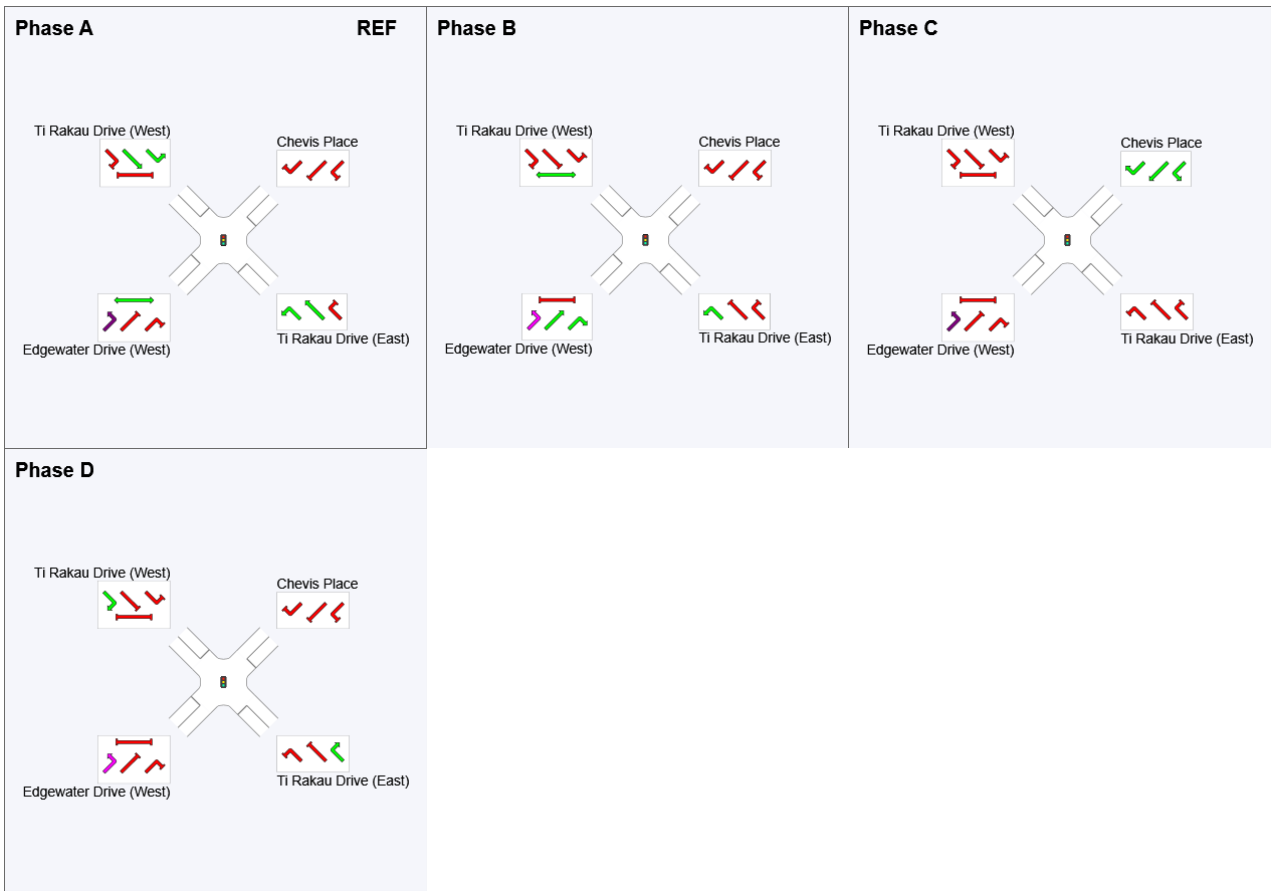
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

Phase Timing Summary

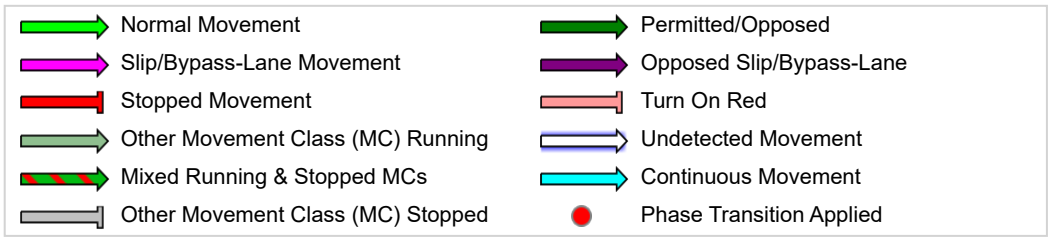
Phase	A	B	C	D
Phase Change Time (sec)	0	55	76	88
Green Time (sec)	49	15	6	6
Phase Time (sec)	55	21	12	12
Phase Split	55%	21%	12%	12%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 13.0 [13.0 Gossamer Dr / Ti Rakau Dr (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

Scheme Design
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site Practical Cycle Time)

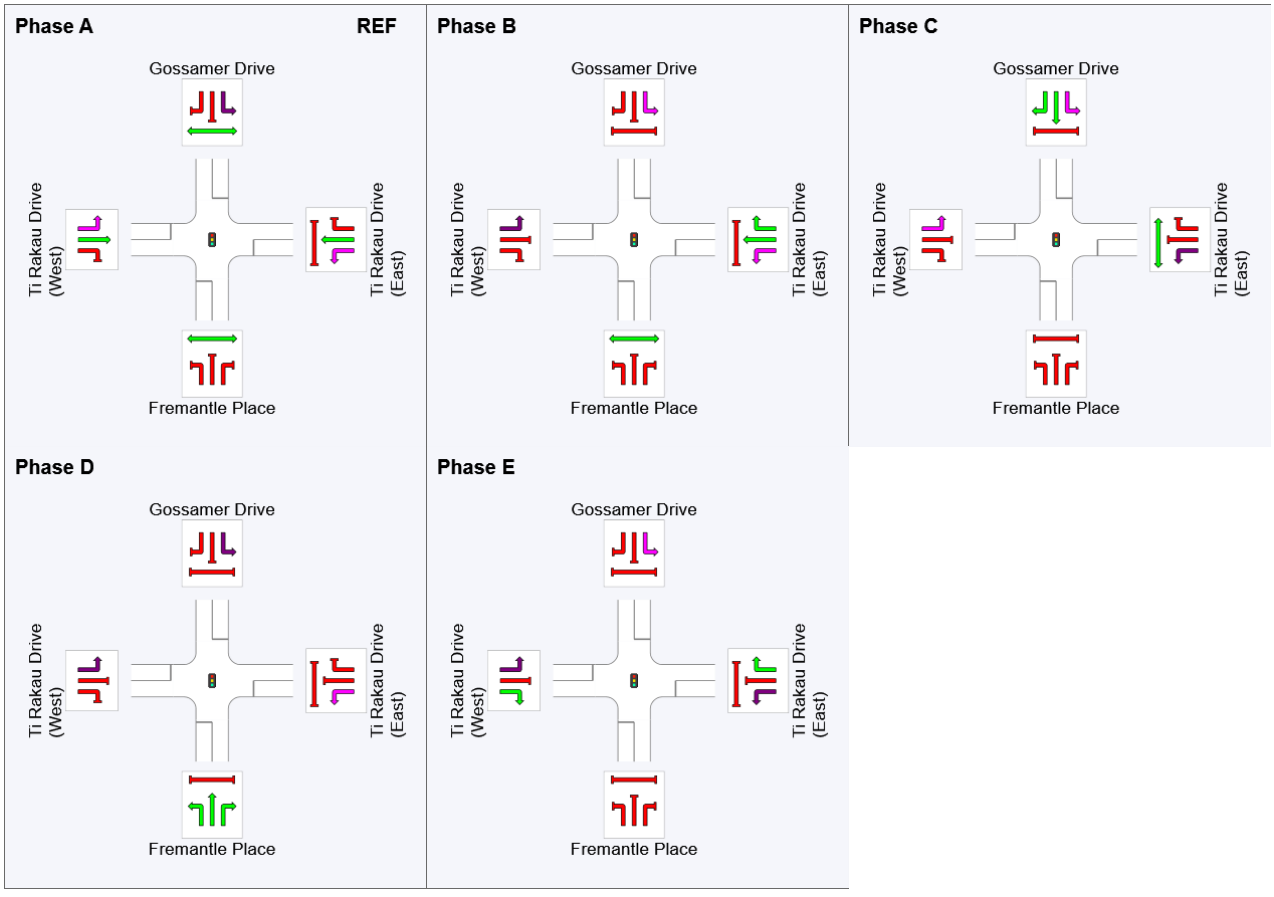
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

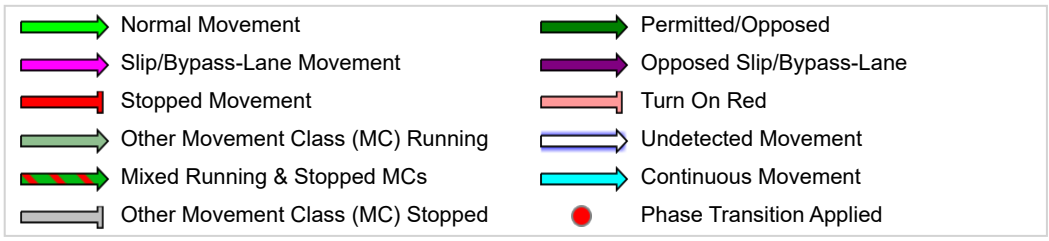
Phase	A	B	C	D	E
Phase Change Time (sec)	0	46	65	120	132
Green Time (sec)	40	13	49	6	12
Phase Time (sec)	46	19	55	12	18
Phase Split	31%	13%	37%	8%	12%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 1.0 [1.0 Pakuranga Rd / Ti Rakau Rd (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Site Practical Cycle Time)

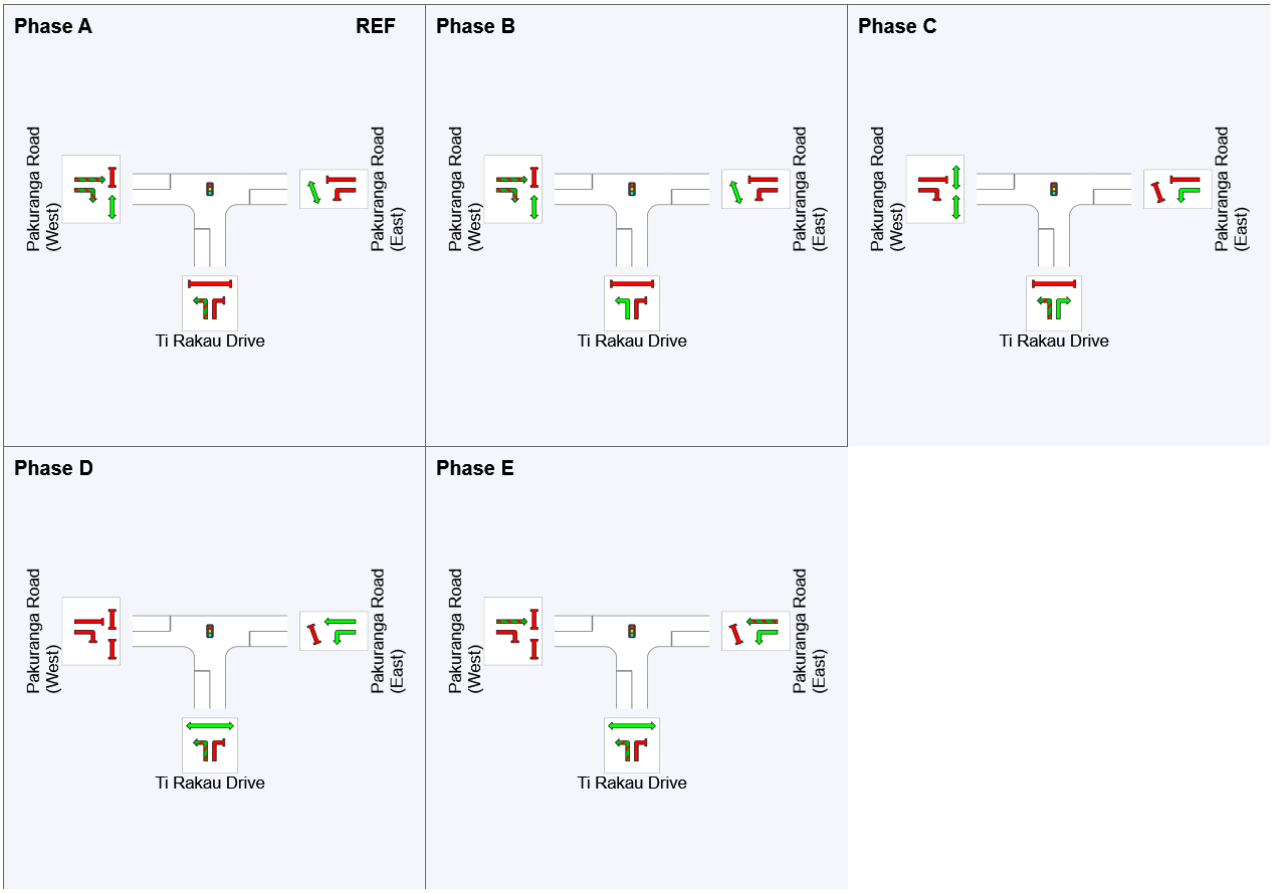
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Map Extract Default
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

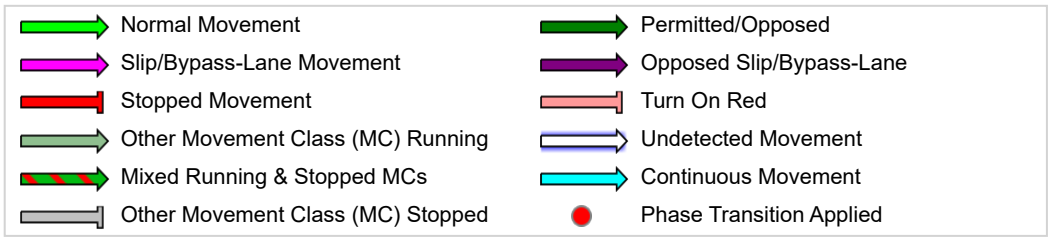
Phase	A	B	C	D	E
Phase Change Time (sec)	0	23	35	94	106
Green Time (sec)	17	6	53	6	18
Phase Time (sec)	23	12	59	12	24
Phase Split	18%	9%	45%	9%	18%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 1.5 [1.5 Saint Kentigern/ Pakuranga Rd - Import (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)

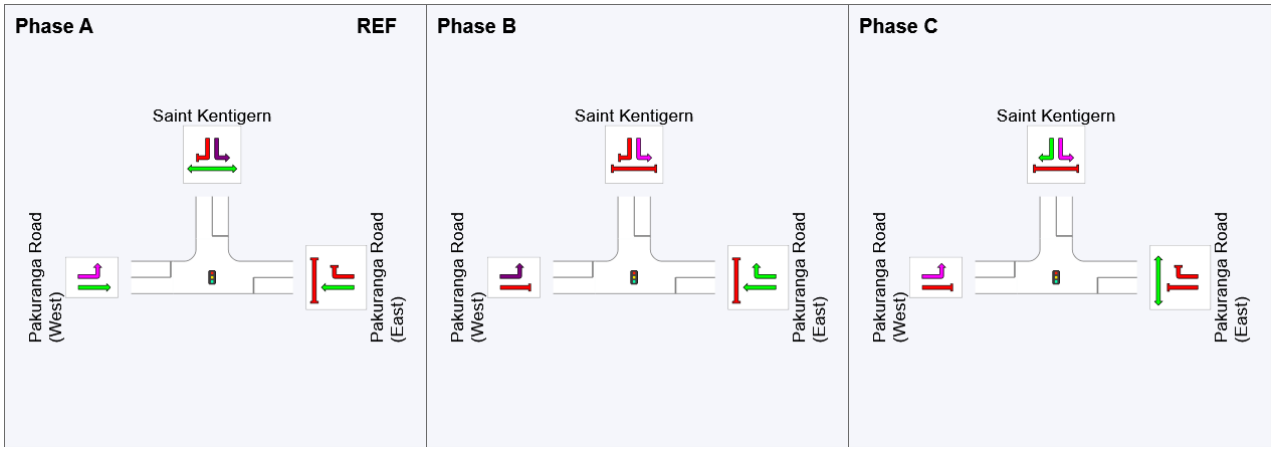
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D*
Output Phase Sequence: A, B, C
(* Variable Phase)

Phase Timing Summary

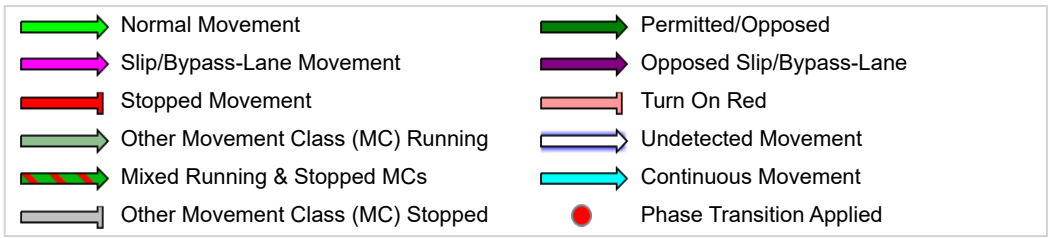
Phase	A	B	C
Phase Change Time (sec)	0	100	112
Green Time (sec)	94	6	22
Phase Time (sec)	100	12	28
Phase Split	71%	9%	20%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 5.0 [5.0 Pakuranga HWY/ Reeves Rd (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 166 seconds (Site Practical Cycle Time)

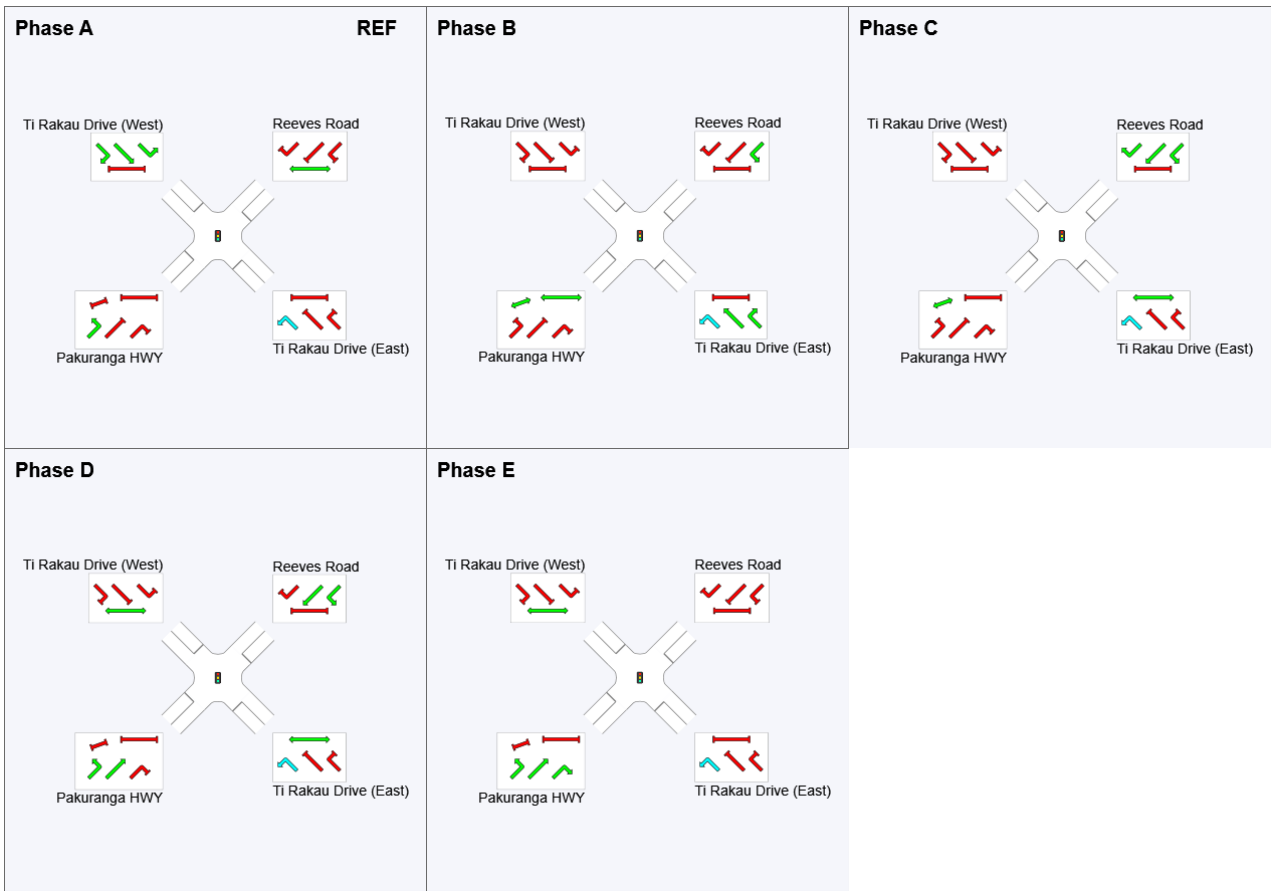
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Map Extract Default
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

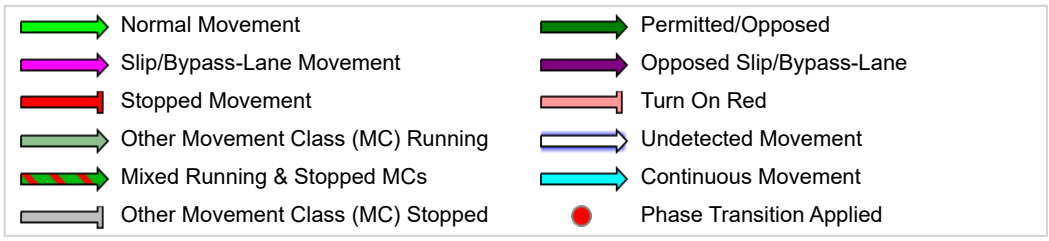
Phase	A	B	C	D	E
Phase Change Time (sec)	0	40	79	91	107
Green Time (sec)	34	33	6	10	53
Phase Time (sec)	40	39	12	16	59
Phase Split	24%	23%	7%	10%	36%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 7.0 [7.0 Mattson Rd/ Ti Rakau Dr (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

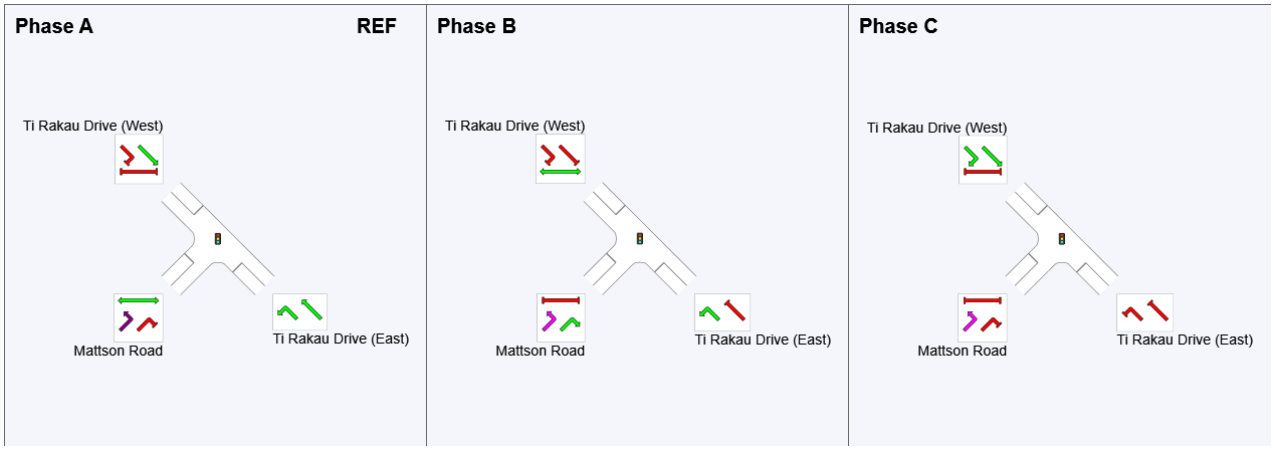
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Map Extract Default
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

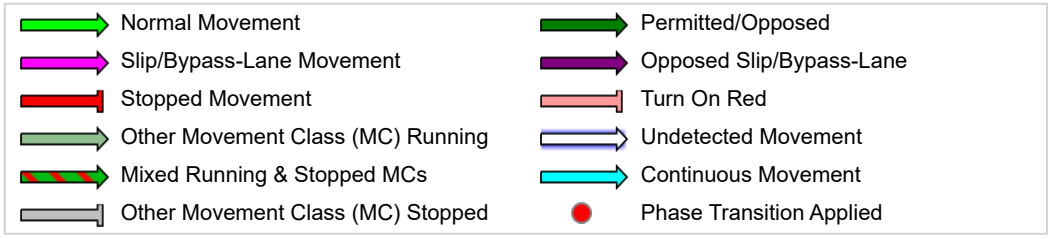
Phase	A	B	C
Phase Change Time (sec)	0	42	58
Green Time (sec)	36	10	6
Phase Time (sec)	42	16	12
Phase Split	60%	23%	17%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 10.0 [10.0 Edgewater Dr (West) / Chevis Pl (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

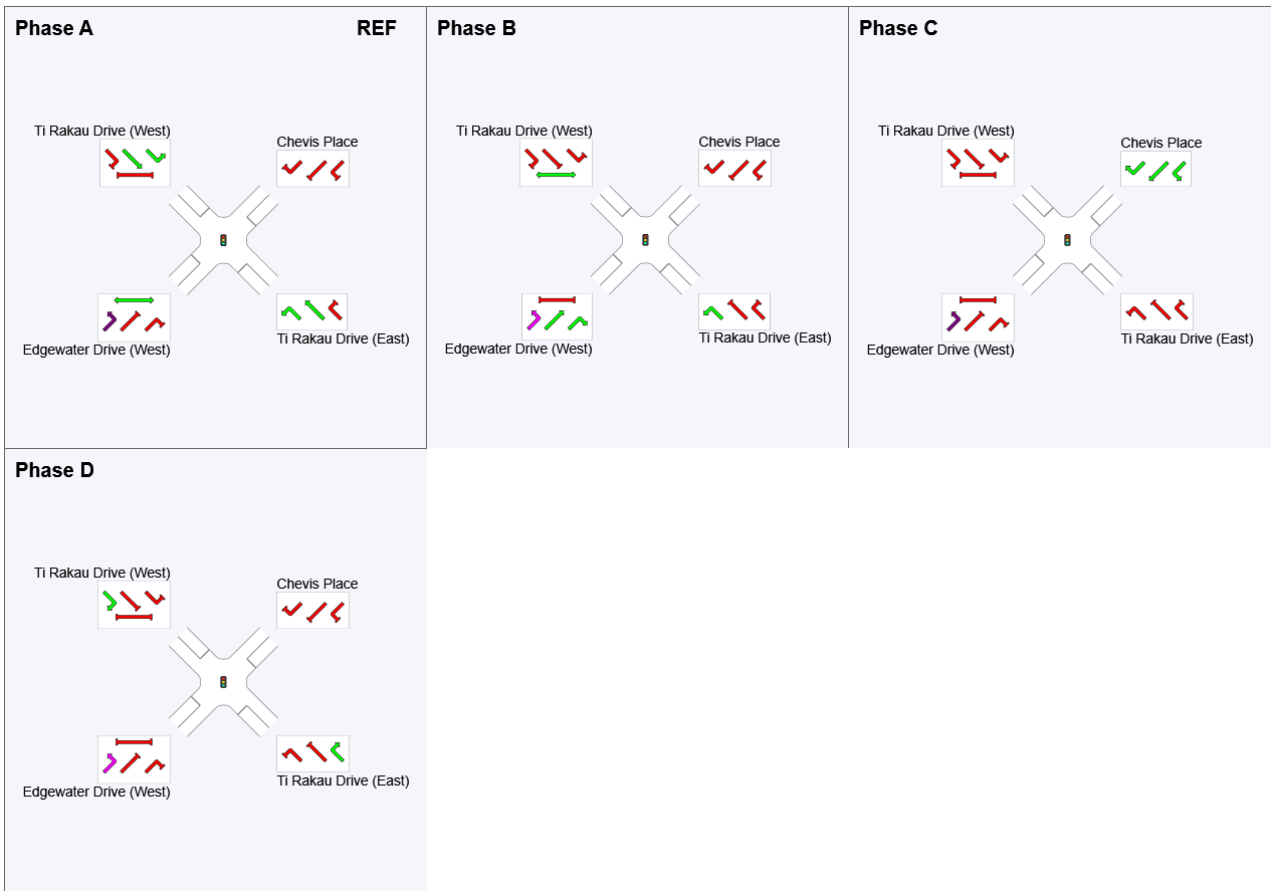
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

Phase Timing Summary

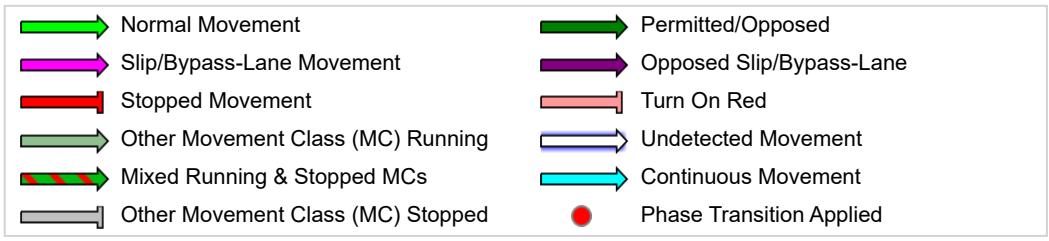
Phase	A	B	C	D
Phase Change Time (sec)	0	64	86	98
Green Time (sec)	58	16	6	6
Phase Time (sec)	64	22	12	12
Phase Split	58%	20%	11%	11%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



PHASING SUMMARY

Site: 13.0 [13.0 Gossamer Dr / Ti Rakau Dr (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

Scheme Design
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 171 seconds (Site Practical Cycle Time)

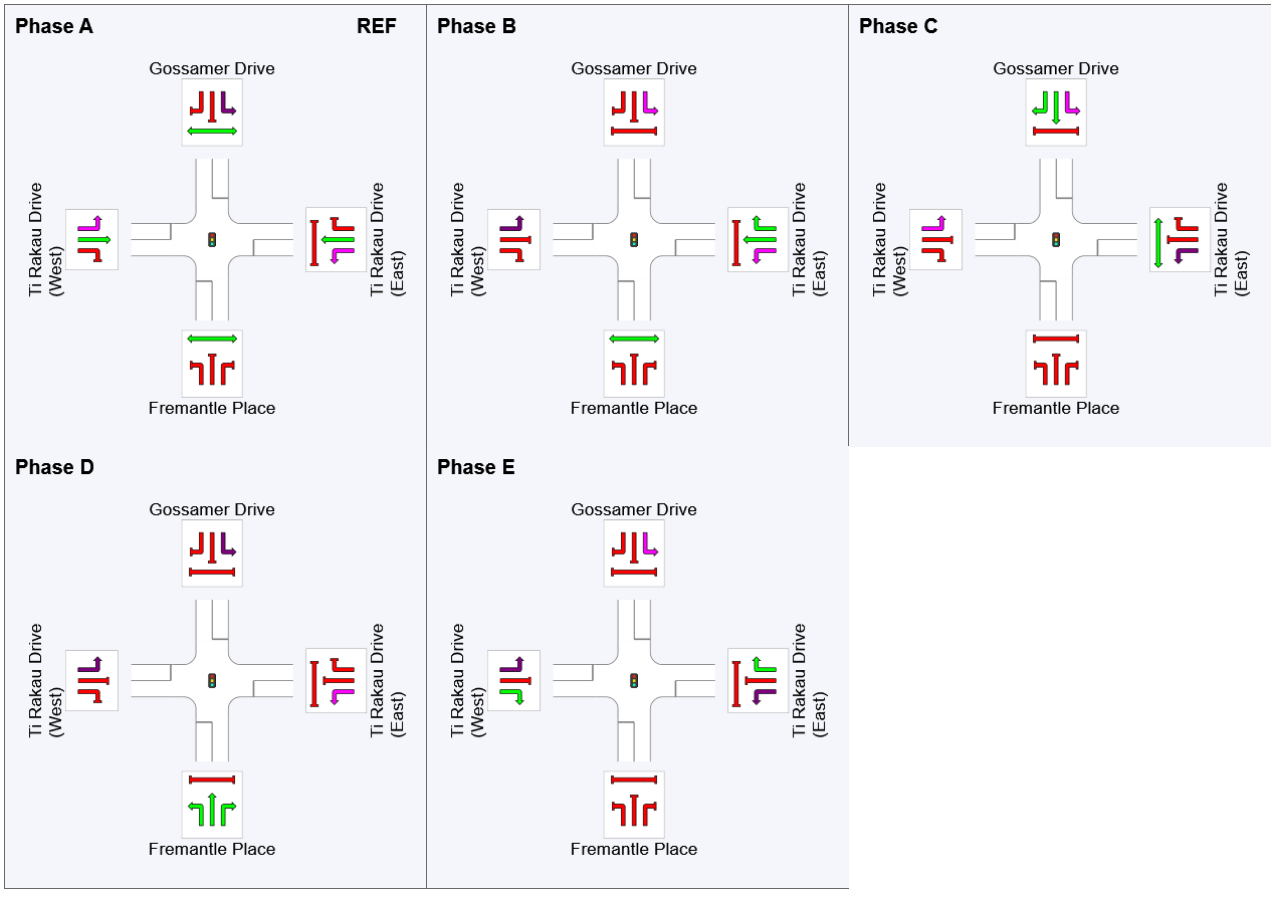
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

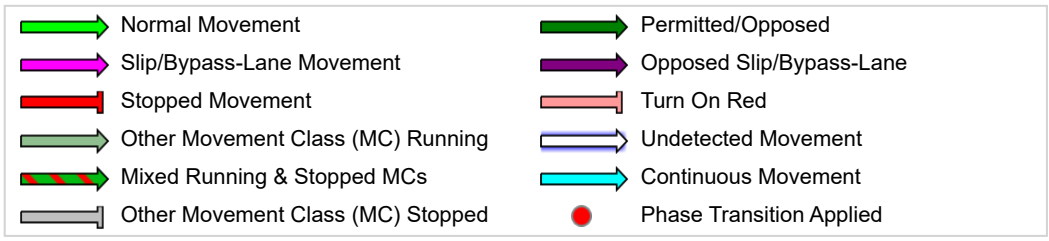
Phase	A	B	C	D	E
Phase Change Time (sec)	0	63	102	131	143
Green Time (sec)	57	33	23	6	22
Phase Time (sec)	63	39	29	12	28
Phase Split	37%	23%	17%	7%	16%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix E

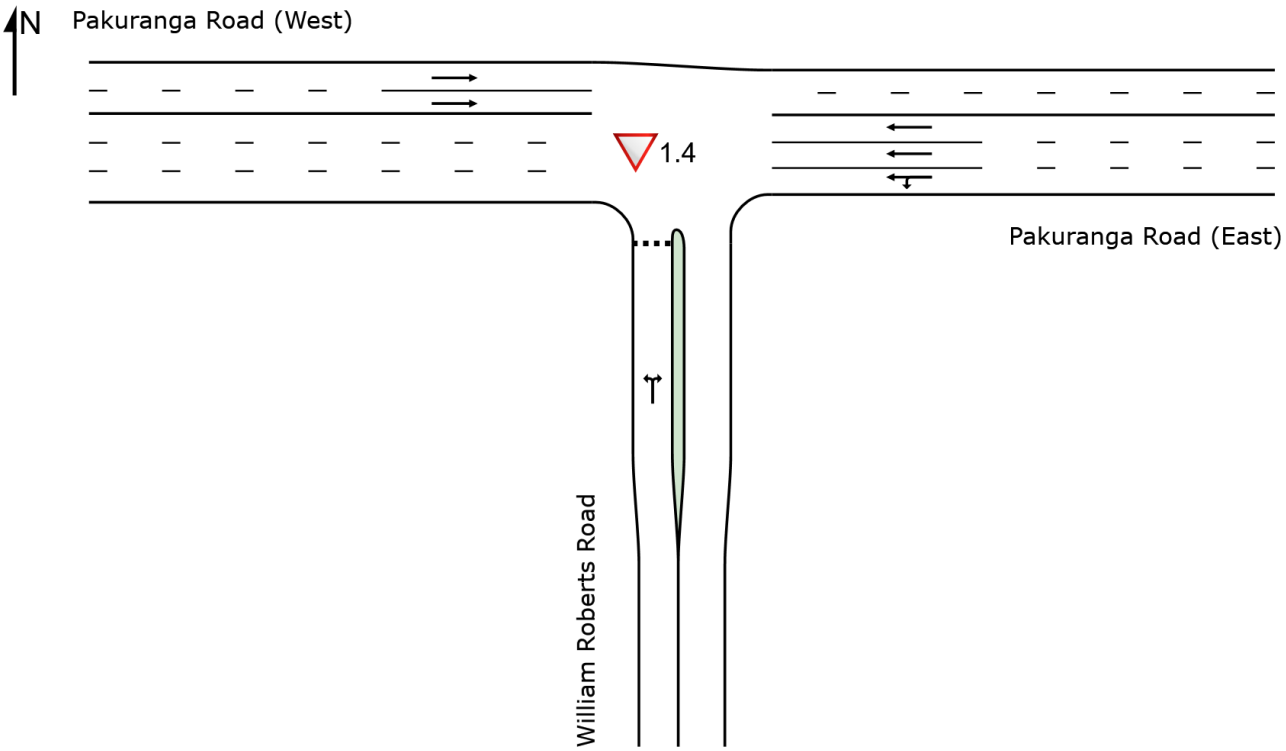
Construction Scenario 1.1 – Lane Performance Summaries

SITE LAYOUT

Site: 1.4 [1.4 William Roberts/ Pakuranga Rd - PD (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



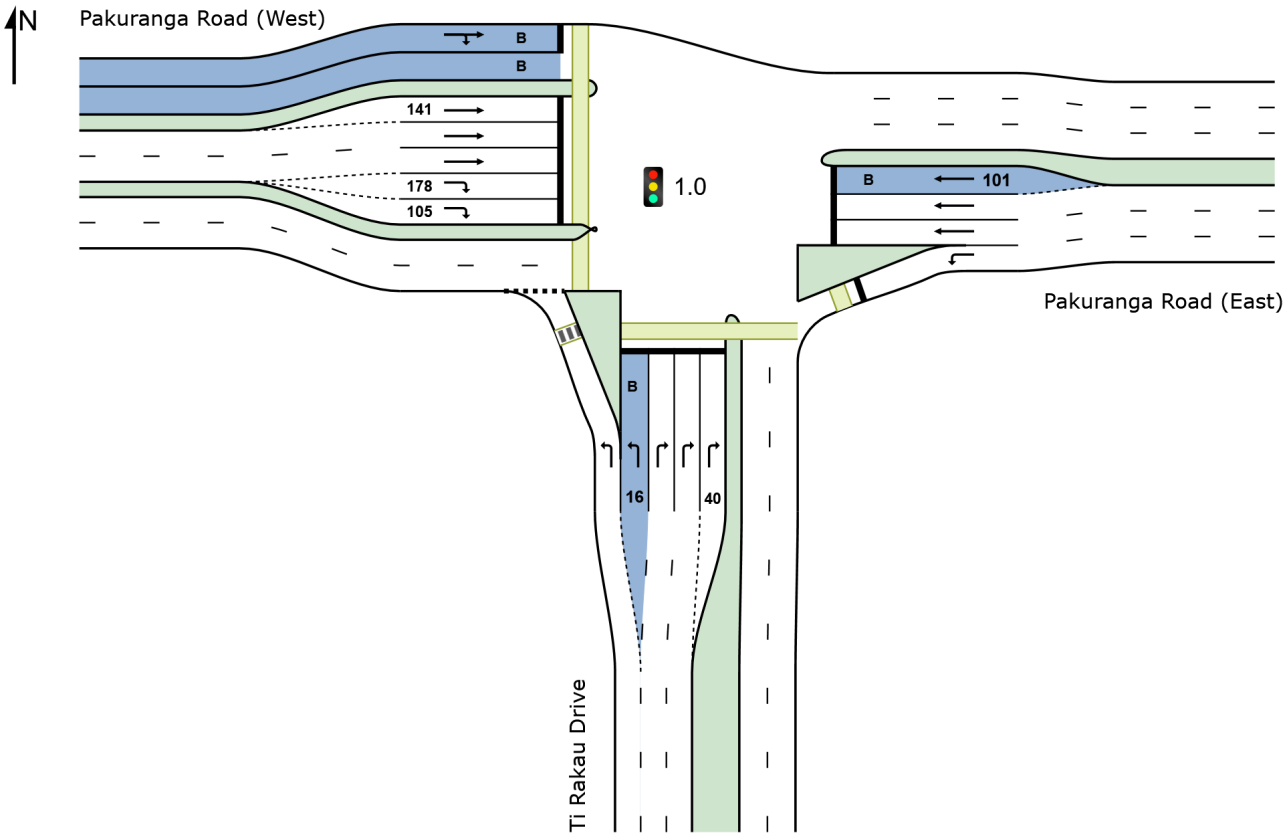
Organisation: AECOM AUSTRALIA PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 15 February 2023 9:05:32 am
Project: C:\Users\jacques.vandenheever\Eastern Busway Alliance\PAA - 05 DESIGN MGMNT\12 Transport\3-3. Integrated Transport Assessment\ITA 2 - EB2,3R\Version 9 (Addendum)\AIMSUN and SIDRA\CS 1.1\CS 1.1 AM.sip9

SITE LAYOUT

Site: 1.0 [1.0 Pakuranga Rd / Ti Rakau Rd (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated

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



Organisation: AECOM AUSTRALIA PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 15 February 2023 8:43:07 am
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LANE SUMMARY

Site: 1.0 [1.0 Pakuranga Rd / Ti Rakau Rd (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Ti Rakau Drive															
Lane 1	575	8.7	519	8.7	916[1]	0.567	100	13.0	LOS B	12.1	91.1	Full	130	0.0	0.0
Lane 2 (B)	17	100.0	17	100.0	113	0.151	100	50.7	LOS D	0.8	9.8	Short	16	0.0	NA
Lane 3	210	4.6	190	4.6	338	0.561	100	41.3	LOS D	7.8	56.7	Full	130	0.0	0.0
Lane 4	210	4.6	190	4.6	338	0.561	100	41.3	LOS D	7.8	56.7	Full	130	0.0	0.0
Lane 5	210	4.6	190	4.6	338	0.561	100	41.3	LOS D	7.8	56.7	Short	40	0.0	NA
Approach	1223	7.8	1105[N1]	8.0		0.567		28.2	LOS C	12.1	91.1				
East: Pakuranga Road (East)															
Lane 1	914	4.5	861	4.6	1093	0.788	100	20.3	LOS C	25.4[N4]	184.4[N4]	Full	113	0.0	50.0
Lane 2	630	5.7	594	5.8	664	0.894	100	42.2	LOS D	25.1[N4]	184.4[N4]	Full	113	0.0	50.0
Lane 3	623	5.7	587	5.8	657[1]	0.894	100	42.2	LOS D	25.1[N4]	184.4[N4]	Full	113	0.0	50.0
Lane 4 (B)	25	100.0	25	100.0	80	0.314	100	49.2	LOS D	1.2	15.1	Short	101	0.0	NA
Approach	2192	6.3	2067[N1]	6.5		0.894		33.2	LOS C	25.4	184.4				
West: Pakuranga Road (West)															
Lane 1 (B)	24	100.0	24	100.0	75	0.318	100	47.8	LOS D	1.1	13.8	Full	388	0.0	0.0
Lane 2	306	8.8	306	8.8	754	0.406	100	20.2	LOS C	9.5	71.6	Short	141	0.0	NA
Lane 3	306	8.8	306	8.8	754	0.406	100	20.2	LOS C	9.5	71.6	Full	388	0.0	0.0
Lane 4	306	8.8	306	8.8	754	0.406	100	20.2	LOS C	9.5	71.6	Full	388	0.0	0.0
Lane 5	176	15.4	176	15.4	203	0.862	100	57.4	LOS E	8.9	70.3	Short	178	0.0	NA
Lane 6	176	15.4	176	15.4	203	0.862	100	57.4	LOS E	8.9	70.3	Short	105	0.0	NA
Approach	1293	12.3	1293	12.3		0.862		30.8	LOS C	9.5	71.6				
Intersection	4708	8.3	4465[N1]	8.8		0.894		31.2	LOS C	25.4	184.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N4 Average back of queue has been restricted to the available queue storage space.

Approach Lane Flows (veh/h)

South: Ti Rakau Drive

Mov. From S To Exit:	L2 W	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	519	-	519	8.7	916[1]	0.567	100	NA	NA
Lane 2	17	-	17	100.0	113	0.151	100	0.0	1
Lane 3	-	190	190	4.6	338	0.561	100	NA	NA

Lane 4	-	190	190	4.6	338	0.561	100	NA	NA
Lane 5	-	190	190	4.6	338	0.561	100	36.9	4
Approach	536	569	1105	8.0		0.567			

East: Pakuranga Road (East)

Mov. From E To Exit:	L2 S	T1 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	861	-	861	4.6	1093	0.788	100	NA	NA
Lane 2	-	594	594	5.8	664	0.894	100	NA	NA
Lane 3	-	587	587	5.8	657[1]	0.894	100	NA	NA
Lane 4	-	25	25	100.0	80	0.314	100	0.0	3
Approach	861	1206	2067	6.5		0.894			

West: Pakuranga Road (West)

Mov. From W To Exit:	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	9	15	24	100.0	75	0.318	100	NA	NA
Lane 2	306	-	306	8.8	754	0.406	100	0.0	3
Lane 3	306	-	306	8.8	754	0.406	100	NA	NA
Lane 4	306	-	306	8.8	754	0.406	100	NA	NA
Lane 5	-	176	176	15.4	203	0.862	100	0.0	4
Lane 6	-	176	176	15.4	203	0.862	100	0.0	5
Approach	927	366	1293	12.3		0.862			

	Total	%HV	Deg.Satn (v/c)
Intersection	4465	8.8	0.894

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Merge Analysis

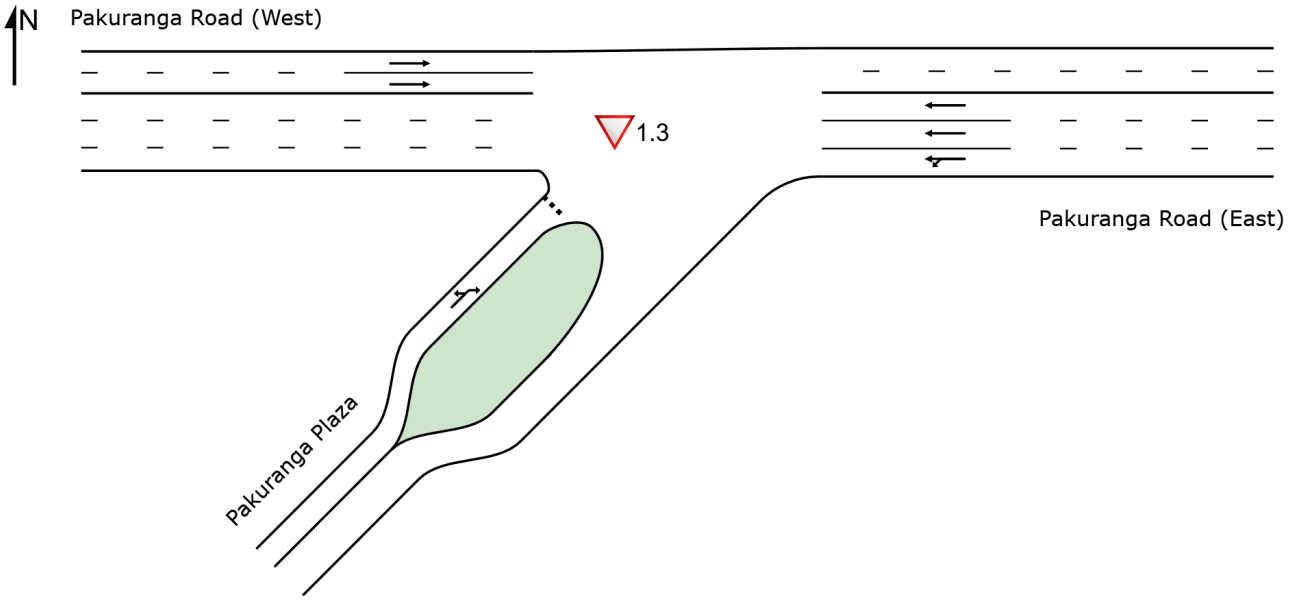
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Ti Rakau Drive Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Pakuranga Road (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
West Exit: Pakuranga Road (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										

SITE LAYOUT

Site: 1.3 [1.3 Mall/ Pakuranga Rd - PD (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



Organisation: AECOM AUSTRALIA PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 15 February 2023 8:43:14 am
Project: C:\Users\jacques.vandenheever\Eastern Busway Alliance\PAA - 05 DESIGN MGMNT\12 Transport\3-3. Integrated Transport Assessment\ITA 2 - EB2,3R\Version 9 (Addendum)\AIMSUN and SIDRA\CS 1.1\CS 1.1 AM.sip9

LANE SUMMARY

Site: 1.3 [1.3 Mall/ Pakuranga Rd - PD (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Pakuranga Road (East)															
Lane 1	736	8.3	703	8.1	1855	0.379	100	0.7	LOS A	0.0	0.0	Full	152	0.0	0.0
Lane 2	752	5.2	718	5.3	1895	0.379	100	0.0	LOS A	0.0	0.0	Full	152	0.0	0.0
Lane 3	752	5.2	718	5.3	1895	0.379	100	0.0	LOS A	0.0	0.0	Full	152	0.0	0.0
Approach	2239	6.2	2140 N1	6.2		0.379		0.2	NA	0.0	0.0				
West: Pakuranga Road (West)															
Lane 1	775	7.6	762	7.7	1790	0.426	100	0.0	LOS A	0.0	0.0	Full	108	0.0	0.0
Lane 2	770	7.6	758	7.7	1780	0.426	100	0.0	LOS A	0.0	0.0	Full	108	0.0	0.0
Approach	1545	7.6	1519 N1	7.7		0.426		0.0	NA	0.0	0.0				
SouthWest: Pakuranga Plaza															
Lane 1	24	4.2	24	4.2	14	1.686	100	977.2	LOS F	9.8	71.1	Full	196	0.0	0.0
Approach	24	4.2	24	4.2		1.686		977.2	LOS F	9.8	71.1				
Intersection	3808	6.7	3683 N1	7.0		1.686		6.5	NA	9.8	71.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Approach Lane Flows (veh/h)

East: Pakuranga Road (East)

Mov. From E To Exit:	L1 SW	T1 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	80	623	703	8.1	1855	0.379	100	NA	NA
Lane 2	-	718	718	5.3	1895	0.379	100	NA	NA
Lane 3	-	718	718	5.3	1895	0.379	100	NA	NA
Approach	80	2060	2140	6.2		0.379			

West: Pakuranga Road (West)

Mov. From W To Exit:	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	762	762	7.7	1790	0.426	100	NA	NA
Lane 2	758	758	7.7	1780	0.426	100	NA	NA
Approach	1519	1519	7.7		0.426			

SouthWest: Pakuranga Plaza

Mov. From SW To Exit:	L3 W	R1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	14	10	24	4.2	14	1.686	100	NA	NA
Approach	14	10	24	4.2		1.686			

	Total	%HV	Deg.Satn (v/c)
Intersection	3683	7.0	1.686

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Flow Rate sec veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Pakuranga Road (East) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
West Exit: Pakuranga Road (West) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
SouthWest Exit: Pakuranga Plaza Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									

LANE SUMMARY

Site: 1.4 [1.4 William Roberts/ Pakuranga Rd - PD (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: William Roberts Road															
Lane 1	158	9.5	156	9.6	22	7.229	100	5713.5	LOS F	80.1[N4]	606.4[N4]	Full	244	0.0	49.9
Approach	158	9.5	156[N1]	9.6		7.229		5713.5	LOS F	80.1	606.4				
East: Pakuranga Road (East)															
Lane 1	773	6.2	773	6.2	1809	0.427	100	1.6	LOS A	0.0	0.0	Full	184	0.0	0.0
Lane 2	780	6.2	780	6.2	1825	0.427	100	0.1	LOS A	0.0	0.0	Full	184	0.0	0.0
Lane 3	788	6.2	788	6.2	1845	0.427	100	0.1	LOS A	0.0	0.0	Full	184	0.0	0.0
Approach	2340	6.2	2340	6.2		0.427		0.6	NA	0.0	0.0				
West: Pakuranga Road (West)															
Lane 1	736	7.2	722	7.3	1843	0.392	100	0.0	LOS A	0.0	0.0	Full	152	0.0	0.0
Lane 2	712	7.2	699	7.3	1785	0.392	100	0.0	LOS A	0.0	0.0	Full	152	0.0	0.0
Approach	1448	7.2	1421[N1]	7.3		0.392		0.0	NA	0.0	0.0				
Intersection	3946	6.7	3917[N1]	6.8		7.229		227.8	NA	80.1	606.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N4 Average back of queue has been restricted to the available queue storage space.

Approach Lane Flows (veh/h)

South: William Roberts Road

Mov. From S To Exit:	L2 W	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	113	42	156	9.6	22	7.229	100	NA	NA
Approach	113	42	156	9.6		7.229			

East: Pakuranga Road (East)

Mov. From E To Exit:	L2 S	T1 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	209	564	773	6.2	1809	0.427	100	NA	NA
Lane 2	-	780	780	6.2	1825	0.427	100	NA	NA
Lane 3	-	788	788	6.2	1845	0.427	100	NA	NA
Approach	209	2131	2340	6.2		0.427			

West: Pakuranga Road (West)

Mov.	T1	Total	%HV		Deg.	Lane	Prob.	Ov.

From W To Exit:	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	722	722	7.3	1843	0.392	100	NA	NA
Lane 2	699	699	7.3	1785	0.392	100	NA	NA
Approach	1421	1421	7.3		0.392			
	Total	%HV	Deg.Satn (v/c)					
Intersection	3917	6.8	7.229					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

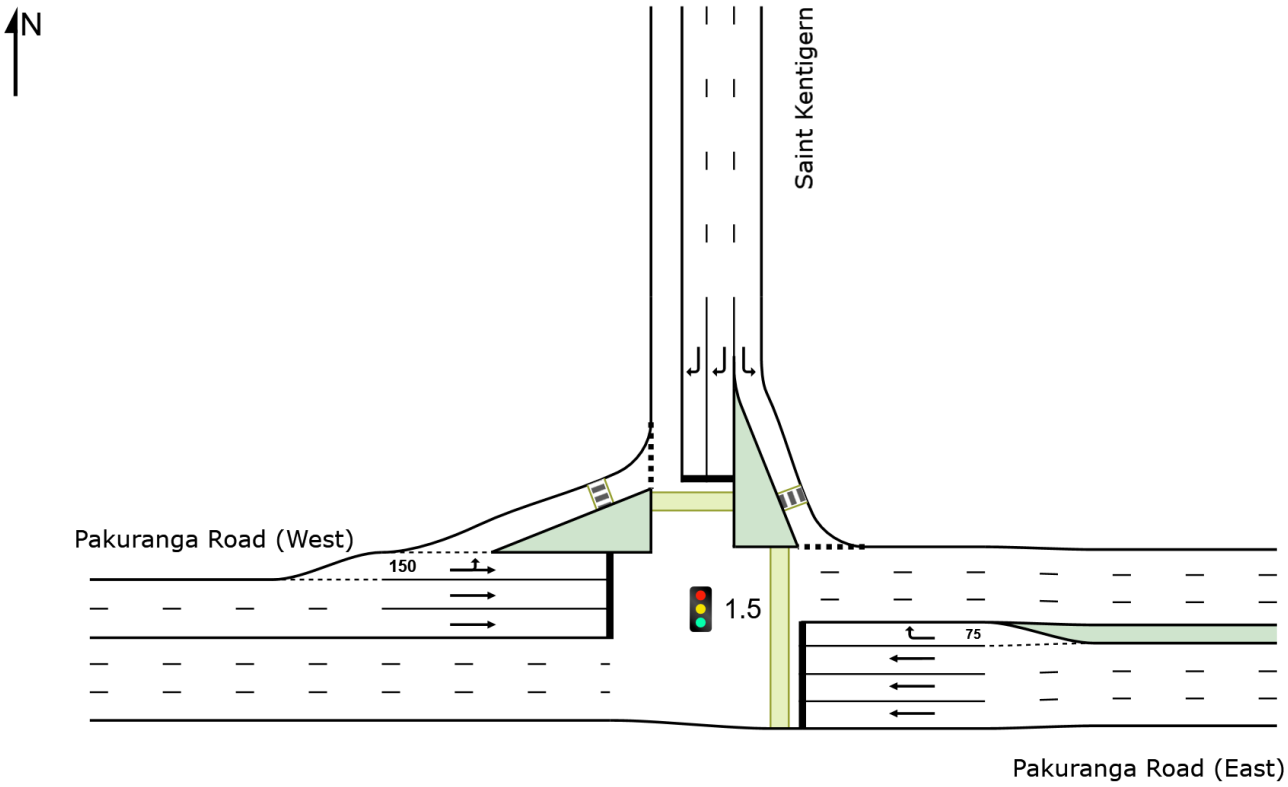
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: William Roberts Road Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
East Exit: Pakuranga Road (East) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
West Exit: Pakuranga Road (West) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									

SITE LAYOUT

Site: 1.5 [1.5 Saint Kentigern/ Pakuranga Rd - PD (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



Organisation: AECOM AUSTRALIA PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 15 February 2023 9:02:21 am
Project: C:\Users\jacques.vandenheever\Eastern Busway Alliance\PAA - 05 DESIGN MGMNT\12 Transport\3-3. Integrated Transport Assessment\ITA 2 - EB2,3R\Version 9 (Addendum)\AIMSUN and SIDRA\CS 1.1\CS 1.1 AM.sip9

LANE SUMMARY

Site: 1.5 [1.5 Saint Kentigern/ Pakuranga Rd - PD (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 67 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Pakuranga Road (East)															
Lane 1	791	6.3	791	6.3	908	0.870	100	25.7	LOS C	28.9	212.9	Full	87	0.0	89.1
Lane 2	791	6.3	791	6.3	908	0.870	100	25.7	LOS C	28.9	212.9	Full	87	0.0	89.1
Lane 3	757	6.3	757	6.3	870[1]	0.870	100	25.5	LOS C	27.0	199.5	Full	87	0.0	82.7
Lane 4	95	5.3	95	5.3	154	0.615	100	40.8	LOS D	3.3	24.2	Short	75	0.0	NA
Approach	2433	6.2	2433	6.2		0.870		26.2	LOS C	28.9	212.9				
North: Saint Kentigern															
Lane 1	17	0.0	17	0.0	958	0.018	100	4.6	LOS A	0.2	1.3	Full	96	0.0	0.0
Lane 2	17	9.1	17	9.1	564	0.030	100	16.4	LOS B	0.4	2.8	Full	96	0.0	0.0
Lane 3	16	9.1	16	9.1	555	0.030	100	16.5	LOS B	0.4	2.7	Full	96	0.0	0.0
Approach	50	6.0	50	6.0		0.030		12.4	LOS B	0.4	2.8				
West: Pakuranga Road (West)															
Lane 1	482	7.0	461	6.8	556	0.828	100	25.5	LOS C	14.3	106.1	Short	150	0.0	NA
Lane 2	502	7.8	480	7.6	579	0.828	100	29.1	LOS C	17.0	126.7	Full	184	0.0	0.0
Lane 3	502	7.8	480	7.6	579	0.828	100	29.1	LOS C	17.0	126.7	Full	184	0.0	0.0
Approach	1485	7.5	1421[N1]	7.4		0.828		27.9	LOS C	17.0	126.7				
Intersection	3968	6.7	3904[N1]	6.8		0.870		26.6	LOS C	28.9	212.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Approach Lane Flows (veh/h)

East: Pakuranga Road (East)

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	791	-	791	6.3	908	0.870	100	NA	NA
Lane 2	791	-	791	6.3	908	0.870	100	NA	NA
Lane 3	757	-	757	6.3	870[1]	0.870	100	NA	NA
Lane 4	-	95	95	5.3	154	0.615	100	0.0	3
Approach	2338	95	2433	6.2		0.870			

North: Saint Kentigern

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	17	-	17	0.0	958	0.018	100	NA	NA
Lane 2	-	17	17	9.1	564	0.030	100	NA	NA
Lane 3	-	16	16	9.1	555	0.030	100	NA	NA
Approach	17	33	50	6.0		0.030			

West: Pakuranga Road (West)

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	108	353	461	6.8	556	0.828	100	0.0	2
Lane 2	-	480	480	7.6	579	0.828	100	NA	NA
Lane 3	-	480	480	7.6	579	0.828	100	NA	NA
Approach	108	1313	1421	7.4		0.828			

	Total	%HV	Deg.Satn (v/c)
Intersection	3904	6.8	0.870

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Merge Analysis

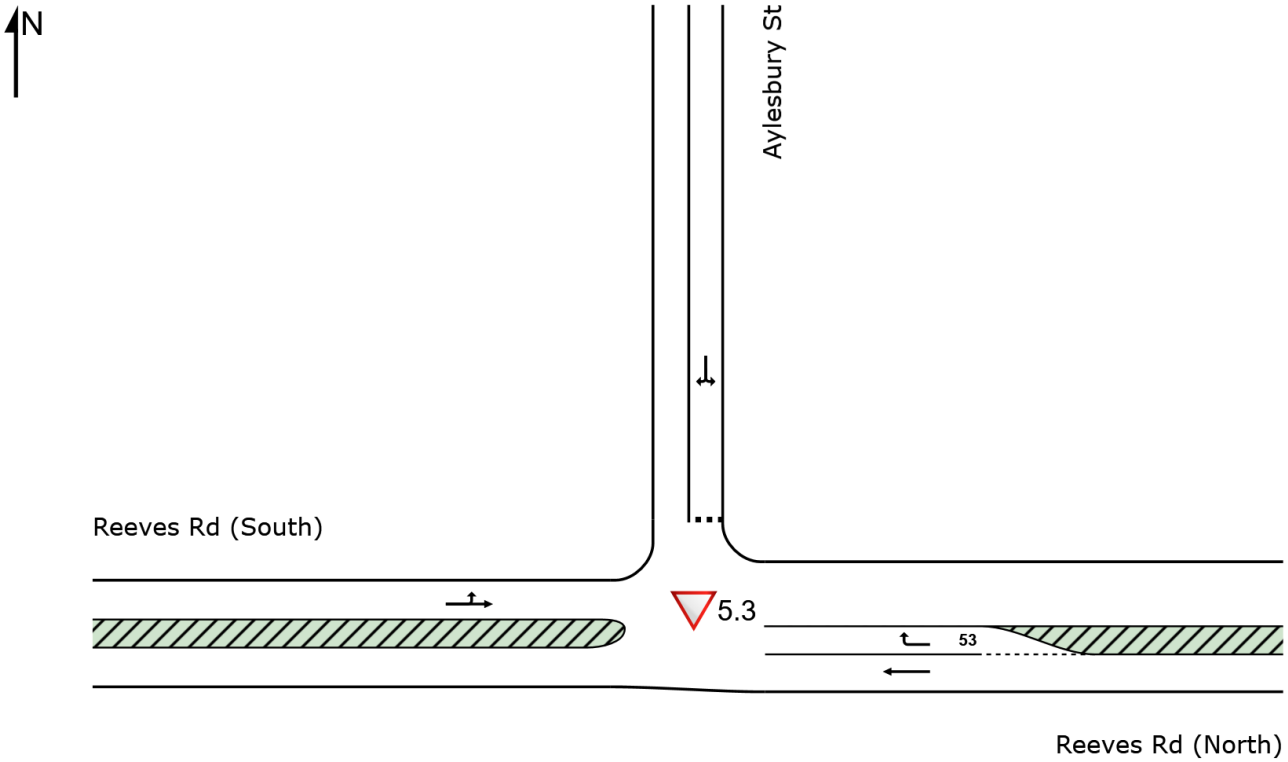
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Pakuranga Road (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
North Exit: Saint Kentigern Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Pakuranga Road (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										

SITE LAYOUT

Site: 5.3 [5.3 Reeves Rd/ Aylesbury St (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



LANE SUMMARY

Site: 5.3 [5.3 Reeves Rd/ Aylesbury St (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Reeves Rd (North)															
Lane 1	497	7.4	497	7.4	1913	0.260	100	0.0	LOS A	0.0	0.0	Full	55	0.0	0.0
Lane 2	26	3.8	26	3.8	1391	0.019	100	5.1	LOS A	0.1	0.6	Short	53	0.0	NA
Approach	523	7.3	523	7.3		0.260		0.3	NA	0.1	0.6				
North: Aylesbury St															
Lane 1	20	0.0	20	0.0	646	0.031	100	3.9	LOS A	0.1	0.8	Full	193	0.0	0.0
Approach	20	0.0	20	0.0		0.031		3.9	LOS A	0.1	0.8				
West: Reeves Rd (South)															
Lane 1	258	10.1	242	10.3	1902	0.127	100	0.4	LOS A	0.0	0.0	Full	60	0.0	0.0
Approach	258	10.1	242[N1]	10.3		0.127		0.4	NA	0.0	0.0				
Intersection	801	8.0	785[N1]	8.1		0.260		0.4	NA	0.1	0.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Approach Lane Flows (veh/h)

East: Reeves Rd (North)

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	497	-	497	7.4	1913	0.260	100	NA	NA
Lane 2	-	26	26	3.8	1391	0.019	100	0.0	1
Approach	497	26	523	7.3		0.260			

North: Aylesbury St

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	10	20	0.0	646	0.031	100	NA	NA
Approach	10	10	20	0.0		0.031			

West: Reeves Rd (South)

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	24	218	242	10.3	1902	0.127	100	NA	NA

Approach	24	218	242	10.3	0.127
	Total	%HV	Deg.Satn (v/c)		
Intersection	785	8.1		0.260	

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

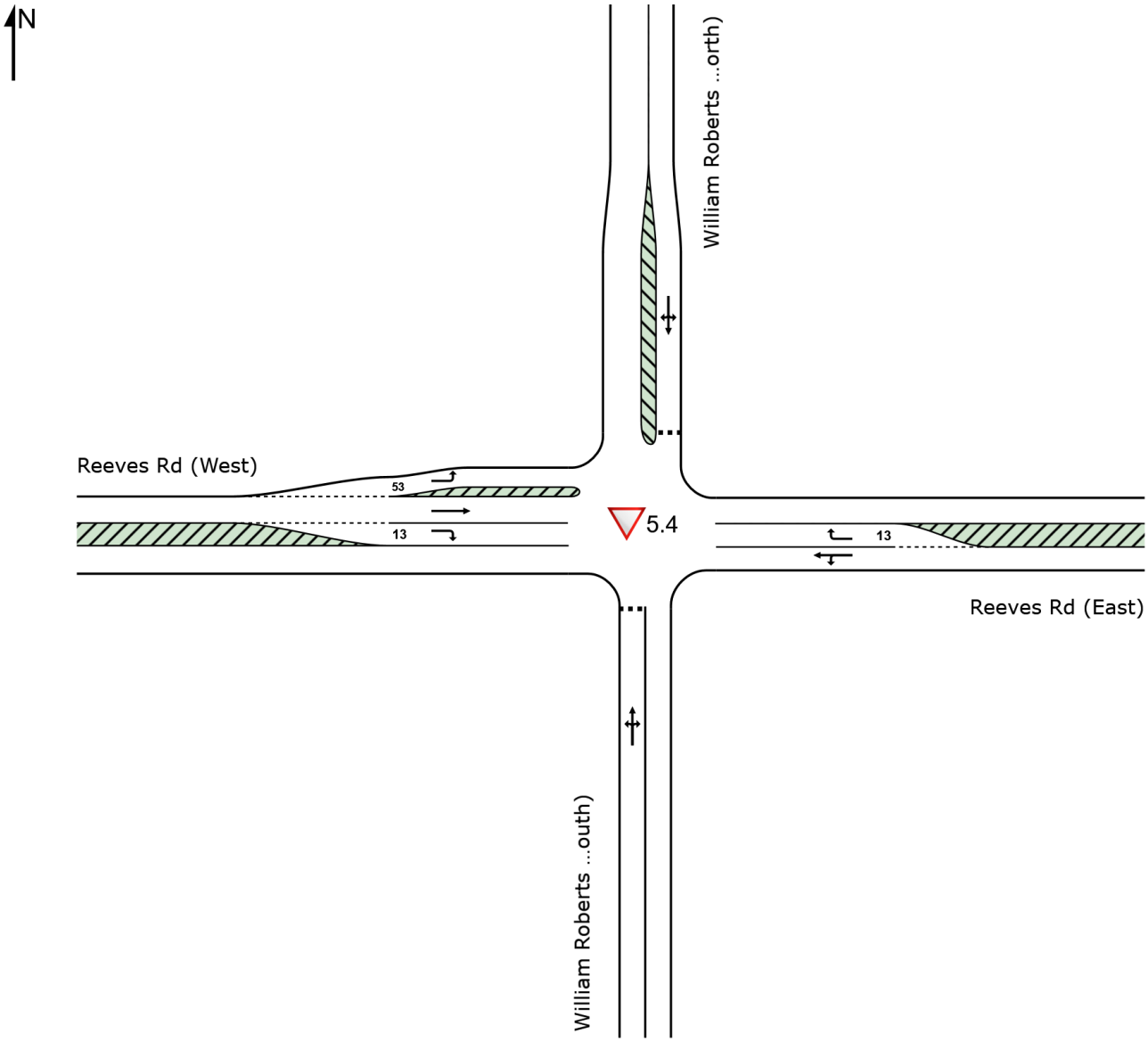
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Reeves Rd (North) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Aylesbury St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Reeves Rd (South) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

SITE LAYOUT

Site: 5.4 [5.4 Reeves Rd / William Roberts Rd (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



LANE SUMMARY

Site: 5.4 [5.4 Reeves Rd / William Roberts Rd (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: William Roberts Rd (South)															
Lane 1	35	5.7	35	5.7	276	0.127	100	12.4	LOS B	1.4[N5]	10.0[N5]	Full	170	-23.9[N7]	17.2
Approach	35	5.7	35	5.7		0.127		12.4	LOS B	1.4	10.0				
East: Reeves Rd (East)															
Lane 1	337	6.8	337	6.8	1818	0.185	100	0.2	LOS A	0.0	0.0	Full	266	0.0	0.0
Lane 2	113	12.4	113	12.4	1074	0.105	100	5.8	LOS A	14.0[N5]	108.3[N5]	Short	13	0.0	NA
Approach	450	8.2	450	8.2		0.185		1.6	NA	14.0	108.3				
North: William Roberts Rd (North)															
Lane 1	306	8.2	306	8.2	346	0.885	100	41.8	LOS E	11.6	86.9	Full	244	0.0	0.0
Approach	306	8.2	306	8.2		0.885		41.8	LOS E	11.6	86.9				
West: Reeves Rd (West)															
Lane 1	38	7.9	36	8.0	1683	0.021	100	4.1	LOS A	4.4[N5]	33.2[N5]	Short	53	0.0	NA
Lane 2	189	11.1	178	11.4	1819	0.098	100	0.0	LOS A	0.0	0.0	Full	55	0.0	0.0
Lane 3	13	0.0	12	0.0	1291	0.009	100	5.2	LOS A	0.0	0.3	Short	13	0.0	NA
Approach	240	10.0	226[N1]	10.2		0.098		0.9	NA	4.4	33.2				
Intersection	1031	8.5	1017[N1]	8.6		0.885		13.9	NA	14.0	108.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N5 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows).
N7 The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

Approach Lane Flows (veh/h)

South: William Roberts Rd (South)

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	14	11	10	35	5.7	276	0.127	100	NA	NA
Approach	14	11	10	35	5.7		0.127			

East: Reeves Rd (East)

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	327	-	337	6.8	1818	0.185	100	NA	NA

Lane 2	-	-	113	113	12.4	1074	0.105	100	100.0	1
Approach	10	327	113	450	8.2		0.185			
North: William Roberts Rd (North)										
Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	111	10	185	306	8.2	346	0.885	100	NA	NA
Approach	111	10	185	306	8.2		0.885			
West: Reeves Rd (West)										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	36	-	-	36	8.0	1683	0.021	100	33.1	2
Lane 2	-	178	-	178	11.4	1819	0.098	100	NA	NA
Lane 3	-	-	12	12	0.0	1291	0.009	100	0.0	2
Approach	36	178	12	226	10.2		0.098			
	Total	%HV	Deg.Satn (v/c)							
Intersection	1017	8.6	0.885							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

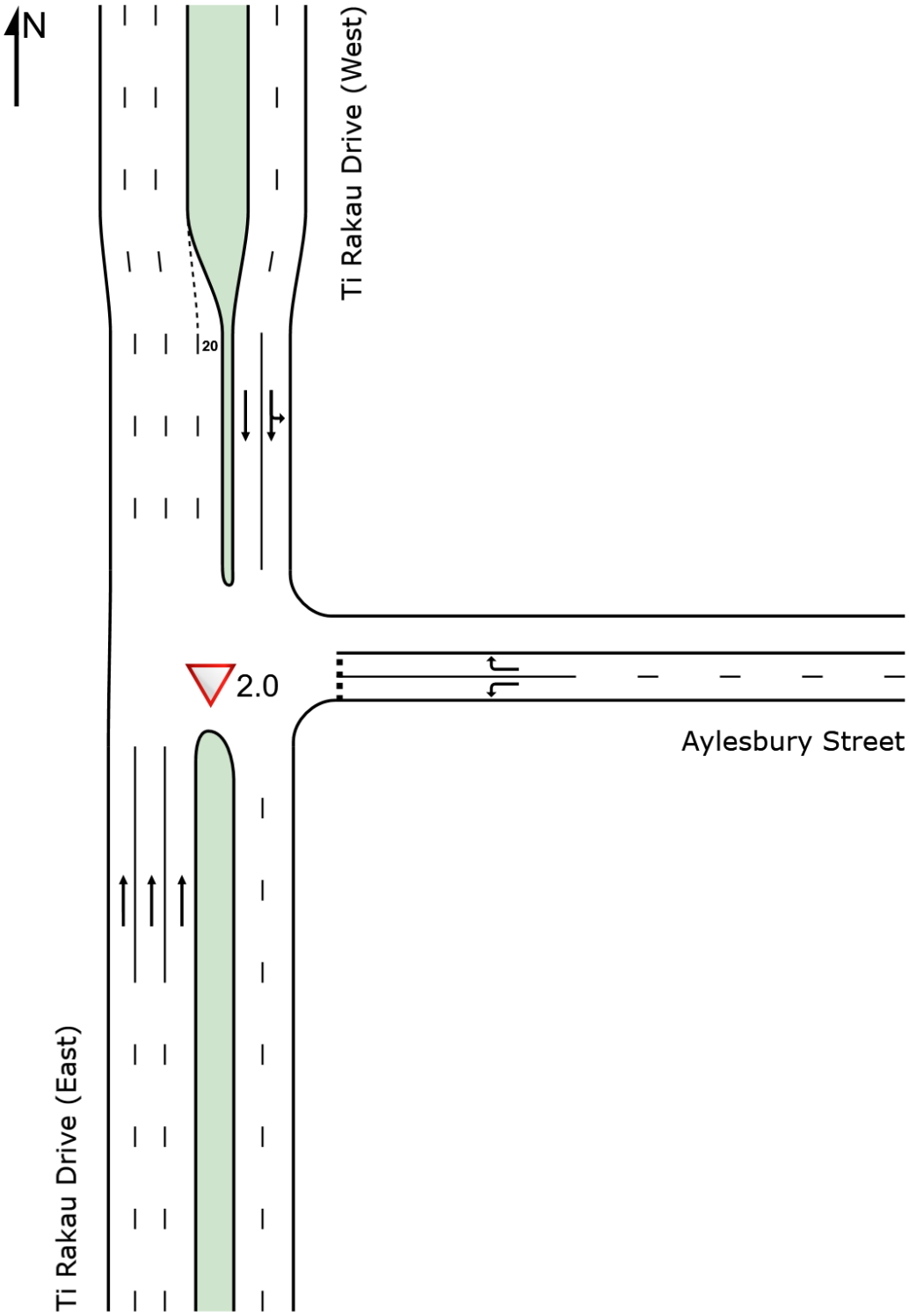
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: William Roberts Rd (South) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
East Exit: Reeves Rd (East) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
North Exit: William Roberts Rd (North) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
West Exit: Reeves Rd (West) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									

SITE LAYOUT

Site: 2.0 [2.0 Aylesbury St North/Ti Rakau Dr (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



LANE SUMMARY

Site: 2.0 [2.0 Aylesbury St North/Ti Rakau Dr (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Ti Rakau Drive (East)															
Lane 1	409	7.9	369	8.1	1785	0.207	100	0.0	LOS A	0.0	0.0	Full	63	0.0	0.0
Lane 2	416	7.9	375	8.1	1814	0.207	100	0.0	LOS A	0.0	0.0	Full	63	0.0	0.0
Lane 3	418	7.9	377	8.1	1824	0.207	100	0.0	LOS A	0.0	0.0	Full	63	0.0	0.0
Approach	1243	7.9	1122 N1	8.1		0.207		0.0	NA	0.0	0.0				
East: Aylesbury Street															
Lane 1	10	0.0	10	0.0	723	0.014	100	3.2	LOS A	0.1	0.4	Full	28	0.0	0.0
Lane 2	11	9.1	11	9.1	9	1.166	100	823.7	LOS F	4.2	31.8	Full	28	0.0	8.8
Approach	21	4.8	21	4.8		1.166		433.0	LOS F	4.2	31.8				
North: Ti Rakau Drive (West)															
Lane 1	644	8.6	617	8.9	1794	0.344	100	0.1	LOS A	0.0	0.0	Full	130	0.0	0.0
Lane 2	644	8.6	618	8.8	1796	0.344	100	0.0	LOS A	0.0	0.0	Full	130	0.0	0.0
Approach	1288	8.6	1235 N1	8.8		0.344		0.1	NA	0.0	0.0				
Intersection	2552	8.2	2378 N1	8.8		1.166		3.9	NA	4.2	31.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Approach Lane Flows (veh/h)

South: Ti Rakau Drive (East)

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	369	369	8.1	1785	0.207	100	NA	NA
Lane 2	375	375	8.1	1814	0.207	100	NA	NA
Lane 3	377	377	8.1	1824	0.207	100	NA	NA
Approach	1122	1122	8.1		0.207			

East: Aylesbury Street

Mov. From E To Exit:	L2 S	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	-	10	0.0	723	0.014	100	NA	NA
Lane 2	-	11	11	9.1	9	1.166	100	NA	NA
Approach	10	11	21	4.8		1.166			

North: Ti Rakau Drive (West)									
Mov. From N To Exit:	L2 E	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	11	607	617	8.9	1794	0.344	100	NA	NA
Lane 2	-	618	618	8.8	1796	0.344	100	NA	NA
Approach	11	1225	1235	8.8		0.344			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2378	8.8	1.166						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

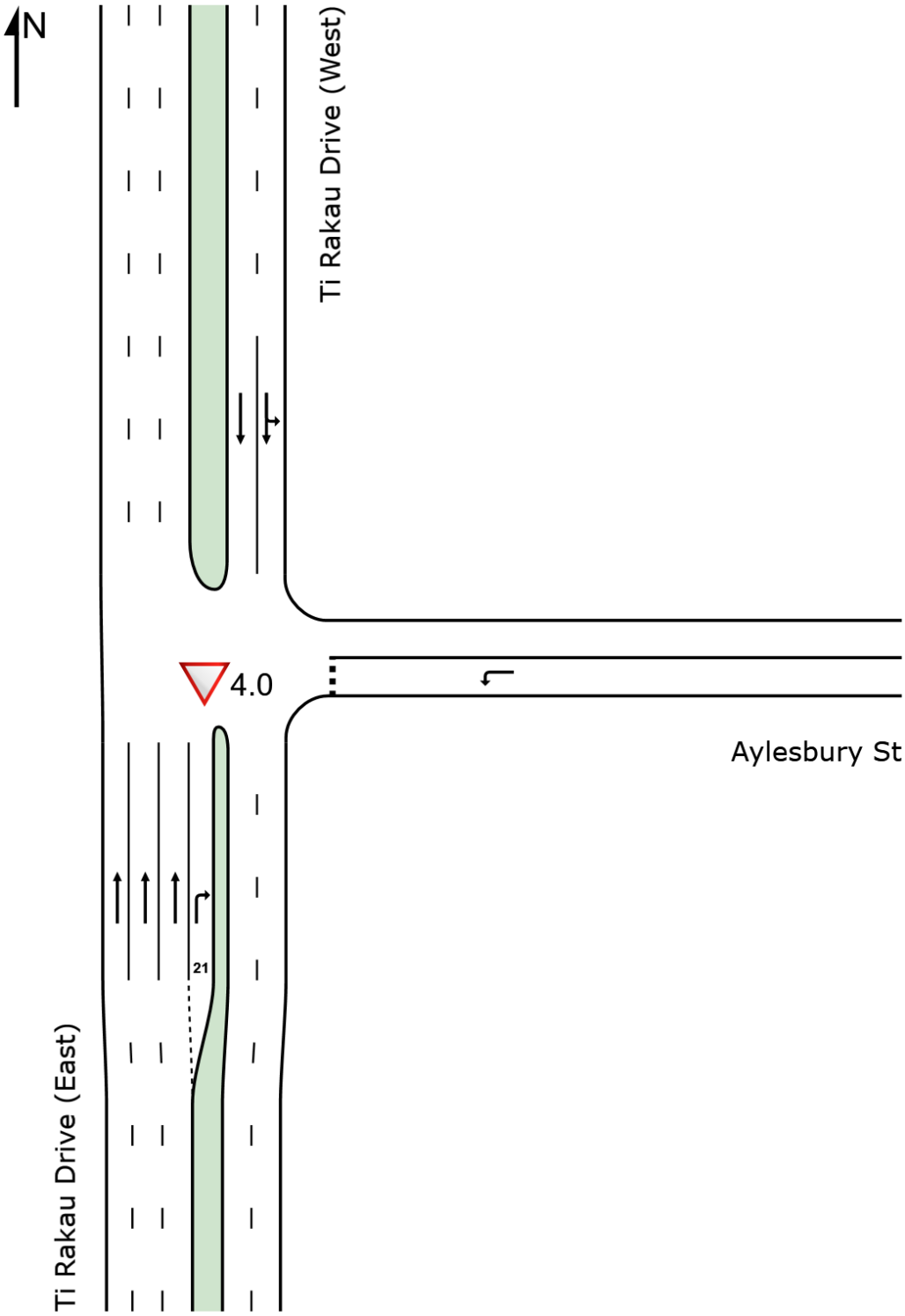
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Aylesbury Street Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Ti Rakau Drive (West) Merge Type: **Priority**												
Exit Short Lane	4	20	0.0	377	393	3.00	2.00	9	1399	0.007	0.6	0.7
Merge Lane	3	-	100.0	Merge Lane is not Opposed				377	1800	0.210	0.0	0.0

SITE LAYOUT

Site: 4.0 [4.0 Aylesbury St South/ Ti Rakau Dr (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



LANE SUMMARY

Site: 4.0 [4.0 Aylesbury St South/ Ti Rakau Dr (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Ti Rakau Drive (East)															
Lane 1	411	7.9	382	7.9	1778	0.215	100	0.0	LOS A	0.0	0.0	Full	84	0.0	0.0
Lane 2	420	7.9	391	7.9	1816	0.215	100	0.0	LOS A	0.0	0.0	Full	84	0.0	0.0
Lane 3	409	7.9	380	7.9	1768	0.215	100	0.0	LOS A	0.0	0.0	Full	84	0.0	0.0
Lane 4	14	7.1	13	7.1	255	0.051	100	18.0	LOS C	0.1	1.0	Short	21	0.0	NA
Approach	1253	7.9	1166[N1]	7.9		0.215		0.2	NA	0.1	1.0				
East: Aylesbury St															
Lane 1	10	0.0	10	0.0	327	0.031	100	3.4	LOS A	0.1[N5]	0.7[N5]	Full	93	-50.0[N3]	0.0
Approach	10	0.0	10	0.0		0.031		3.4	LOS A	0.1	0.7				
North: Ti Rakau Drive (West)															
Lane 1	655	8.5	608	8.8	1785	0.341	100	0.1	LOS A	6.1[N5]	46.0[N5]	Full	45	0.0	11.4
Lane 2	661	8.7	614	9.0	1804	0.341	100	0.0	LOS A	9.7[N6]	73.4[N6]	Full	45	0.0	50.0[N6]
Approach	1316	8.6	1222[N1]	8.9		0.341		0.0	NA	9.7	73.4				
Intersection	2579	8.2	2399[N1]	8.8		0.341		0.1	NA	9.7	73.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N3 Capacity Adjustment due to downstream lane blockage determined by the program.
N5 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows).
N6 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows) but average back of queue has been restricted to the available queue storage space.

Approach Lane Flows (veh/h)

South: Ti Rakau Drive (East)

Mov. From S To Exit:	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	382	-	382	7.9	1778	0.215	100	NA	NA
Lane 2	391	-	391	7.9	1816	0.215	100	NA	NA
Lane 3	380	-	380	7.9	1768	0.215	100	NA	NA
Lane 4	-	13	13	7.1	255	0.051	100	0.0	3
Approach	1153	13	1166	7.9		0.215			

East: Aylesbury St

Mov. From E	L2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	S			veh/h	v/c	%	%	No.
Lane 1	10	10	0.0	327	0.031	100	NA	NA
Approach	10	10	0.0		0.031			

North: Ti Rakau Drive (West)

Mov. From N To Exit:	L2 E	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	9	599	608	8.8	1785	0.341	100	NA	NA
Lane 2	-	614	614	9.0	1804	0.341	100	NA	NA
Approach	9	1213	1222	8.9		0.341			

	Total	%HV	Deg.Satn (v/c)
Intersection	2399	8.8	0.341

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

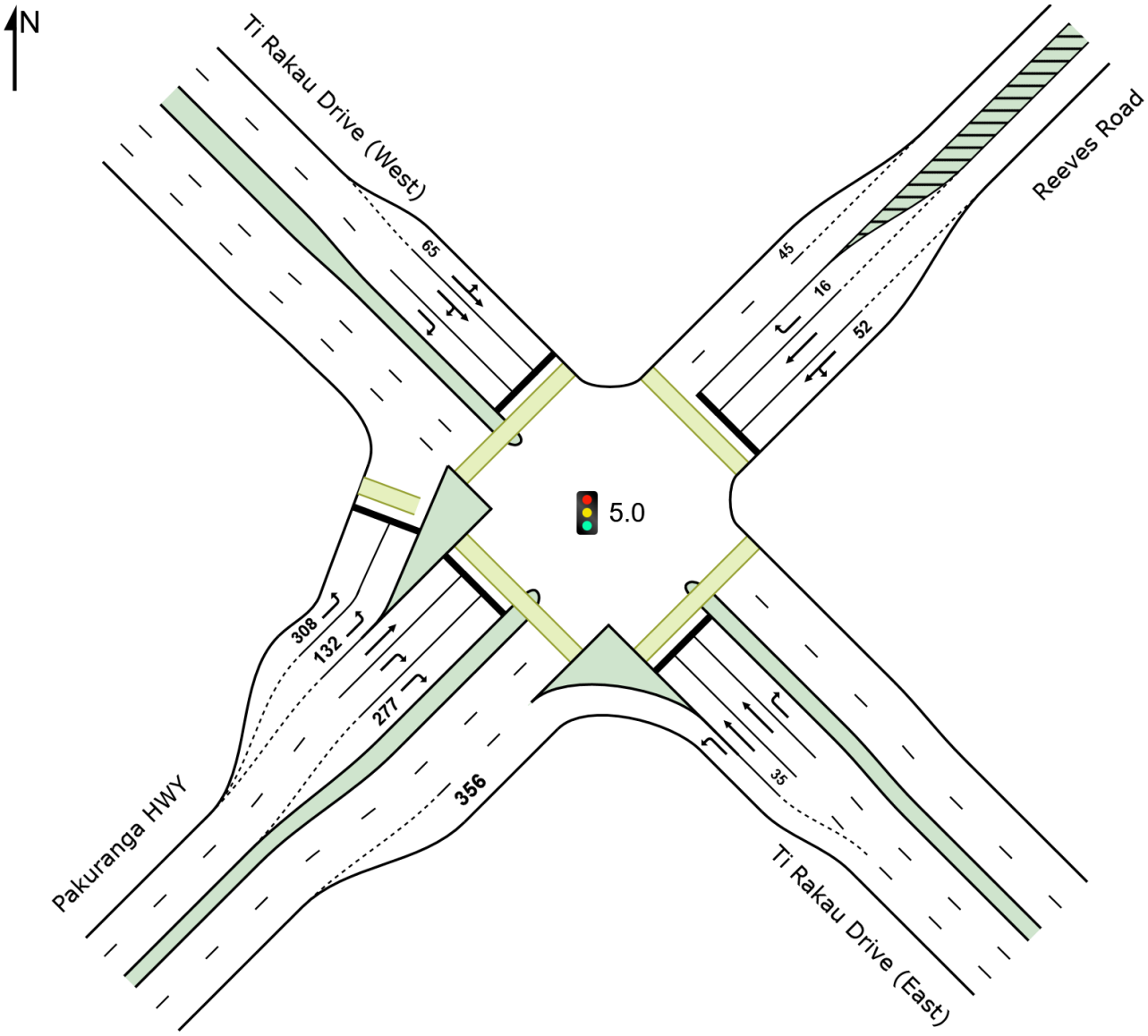
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Aylesbury St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										

SITE LAYOUT

Site: 5.0 [5.0 Pakuranga HWY/ Reeves Rd (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



LANE SUMMARY

Site: 5.0 [5.0 Pakuranga HWY/ Reeves Rd (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Ti Rakau Drive (East)															
Lane 1	1533	9.3	1210	9.6	1684	0.718	100	63.1	LOS E	0.0	0.0	Full	91	0.0	0.0
Lane 2	176	12.6	140	13.8	214[1]	0.654	100	46.0	LOS D	7.0	55.0	Short	35	0.0	NA
Lane 3	251	12.6	200	13.8	306	0.654	100	47.2	LOS D	10.3	81.0	Full	91	0.0	0.0
Lane 4	102	5.9	80	6.1	303	0.266	100	47.9	LOS D	3.8	28.1	Full	91	0.0	0.0
Approach	2062	9.8	1630[N1]	10.3		0.718		58.9	LOS E	10.3	81.0				
NorthEast: Reeves Road															
Lane 1	233	8.8	233	8.8	272[1]	0.855	100	58.9	LOS E	13.8	104.1	Short	52	0.0	NA
Lane 2	209	7.0	209	7.0	245[1]	0.855	100	57.8	LOS E	12.3	91.0	Full	72	0.0	38.7[8]
Lane 3	31	9.7	31	9.7	94	0.331	100	62.6	LOS E	1.7	13.1	Short	16	0.0	NA
Approach	473	8.0	473	8.0		0.855		58.7	LOS E	13.8	104.1				
NorthWest: Ti Rakau Drive (West)															
Lane 1	305	20.7	285	21.3	543	0.525	59[5]	33.2	LOS C	12.5	103.5	Short	65	0.0	NA
Lane 2	466	4.9	433	5.1	489[1]	0.886	100	53.6	LOS D	18.8[N4]	137.1[N4]	Full	84	0.0	50.0
Lane 3	548	4.9	509	5.1	574	0.886	100	54.3	LOS D	18.8[N4]	137.1[N4]	Full	84	0.0	50.0
Approach	1319	8.6	1226[N1]	8.9		0.886		49.1	LOS D	18.8	137.1				
SouthWest: Pakuranga HWY															
Lane 1	398	5.2	398	5.2	1091	0.365	100	19.1	LOS B	10.6	77.4	Short	308	0.0	NA
Lane 2	405	5.2	405	5.2	1108	0.365	100	19.1	LOS B	10.7	78.6	Short	132	0.0	NA
Lane 3	165	10.3	165	10.3	409	0.404	100	43.0	LOS D	7.6	58.1	Full	1650	0.0	0.0
Lane 4	208	8.6	208	8.6	237	0.878	100	69.1	LOS E	12.8	95.9	Full	1650	0.0	0.0
Lane 5	211	8.6	211	8.6	240	0.878	100	69.0	LOS E	12.9	96.8	Short	277	0.0	NA
Approach	1387	6.8	1387	6.8		0.878		37.0	LOS D	12.9	96.8				
Intersection	5241	8.5	4716[N1]	9.5		0.886		49.9	LOS D	18.8	137.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
5 Lane under-utilisation found by the program
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N4 Average back of queue has been restricted to the available queue storage space.

Approach Lane Flows (veh/h)

SouthEast: Ti Rakau Drive (East)

Mov.	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From SE To Exit:	SW	NW	NE			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	1210	-	-	1210	9.6	1684	0.718	100	NA	NA
Lane 2	-	140	-	140	13.8	214[1]	0.654	100	46.4	1
Lane 3	-	200	-	200	13.8	306	0.654	100	NA	NA
Lane 4	-	-	80	80	6.1	303	0.266	100	NA	NA
Approach	1210	340	80	1630	10.3		0.718			

NorthEast: Reeves Road

Mov. From NE To Exit:	L2 SE	T1 SW	R2 NW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	55	178	-	233	8.8	272[1]	0.855	100	69.4	2
Lane 2	-	209	-	209	7.0	245[1]	0.855	100	NA	NA
Lane 3	-	-	31	31	9.7	94	0.331	100	0.0	2
Approach	55	387	31	473	8.0		0.855			

NorthWest: Ti Rakau Drive (West)

Mov. From NW To Exit:	L2 NE	T1 SE	R2 SW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	38	247	-	285	21.3	543	0.525	59[5]	47.7	2
Lane 2	-	-	433	433	5.1	489[1]	0.886	100	NA	NA
Lane 3	-	-	509	509	5.1	574	0.886	100	NA	NA
Approach	38	247	941	1226	8.9		0.886			

SouthWest: Pakuranga HWY

Mov. From SW To Exit:	L2 NW	T1 NE	R2 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	398	-	-	398	5.2	1091	0.365	100	0.0	3
Lane 2	405	-	-	405	5.2	1108	0.365	100	0.0	3
Lane 3	-	165	-	165	10.3	409	0.404	100	NA	NA
Lane 4	-	-	208	208	8.6	237	0.878	100	NA	NA
Lane 5	-	-	211	211	8.6	240	0.878	100	0.0	4
Approach	803	165	419	1387	6.8		0.878			

	Total	%HV	Deg.Satn (v/c)
Intersection	4716	9.5	0.886

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

5 Lane under-utilisation found by the program

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
SouthEast Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
NorthEast Exit: Reeves Road Merge Type: **Priority**												
Exit Short Lane	1	45	0.0	163	170	3.00	2.00	121	1629	0.074	0.2	0.3
Merge Lane	2	-	100.0	Merge Lane is not Opposed				163	1800	0.090	0.0	0.0

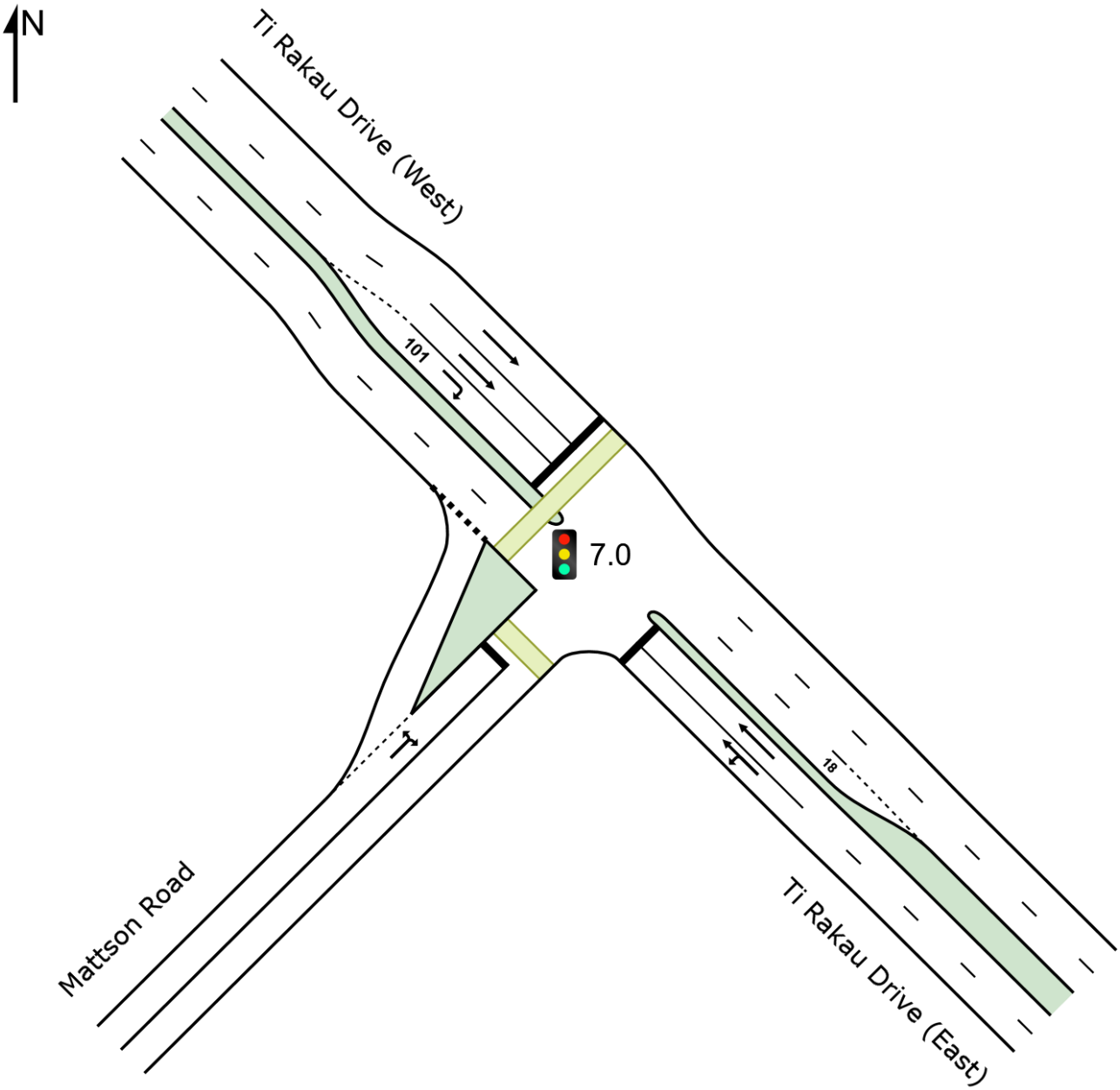
NorthWest Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
SouthWest Exit: Pakuranga HWY Merge Type: **Priority**												
Exit Short Lane	1	356	0.0	611	628	3.00	2.00	1210	1151	1.050	1.2	58.6
Merge Lane	2	-	100.0	Merge Lane is not Opposed				611	1800	0.339	0.0	0.0

SITE LAYOUT

Site: 7.0 [7.0 Mattson Rd/ Ti Rakau Dr (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



Organisation: AECOM AUSTRALIA PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 15 February 2023 9:03:21 am
Project: C:\Users\jacques.vandenheever\Eastern Busway Alliance\PAA - 05 DESIGN MGMNT\12 Transport\3-3. Integrated Transport Assessment\ITA 2 - EB2,3R\Version 9 (Addendum)\AIMSUN and SIDRA\CS 1.1\CS 1.1 AM.sip9

LANE SUMMARY

Site: 7.0 [7.0 Mattson Rd/ Ti Rakau Dr (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 64 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Ti Rakau Drive (East)															
Lane 1	972	10.1	748	10.8	845	0.885	100	28.0	LOS C	28.0	213.9	Full	187	0.0	17.2
Lane 2	978	10.2	752	10.9	850	0.885	100	28.0	LOS C	28.0	214.7	Full	187	0.0	17.5
Approach	1950	10.2	1500 N1	10.9		0.885		28.0	LOS C	28.0	214.7				
NorthWest: Ti Rakau Drive (West)															
Lane 1	364	14.0	356	14.1	1244	0.286	100	4.6	LOS A	4.5	35.3	Full	148	0.0	0.0
Lane 2	343	14.0	335	14.1	1169	0.286	100	4.6	LOS A	4.2	33.2	Full	148	0.0	0.0
Lane 3	33	9.1	32	9.1	160	0.201	100	35.7	LOS D	1.0	7.6	Short	101	0.0	NA
Approach	740	13.8	723 N1	13.8		0.286		6.0	LOS A	4.5	35.3				
SouthWest: Mattson Road															
Lane 1	97	5.2	97	5.2	452	0.215	100	21.2	LOS C	2.4	17.2	Full	282	0.0	0.0
Approach	97	5.2	97	5.2		0.215		21.2	LOS C	2.4	17.2				
Intersection	2787	10.9	2320 N1	13.1		0.885		20.8	LOS C	28.0	214.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Approach Lane Flows (veh/h)

SouthEast: Ti Rakau Drive (East)

Mov. From SE To Exit:	L2 SW	T1 NW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	19	729	748	10.8	845	0.885	100	NA	NA
Lane 2	-	752	752	10.9	850	0.885	100	NA	NA
Approach	19	1481	1500	10.9		0.885			

NorthWest: Ti Rakau Drive (West)

Mov. From NW To Exit:	T1 SE	R2 SW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	356	-	356	14.1	1244	0.286	100	NA	NA
Lane 2	335	-	335	14.1	1169	0.286	100	NA	NA
Lane 3	-	32	32	9.1	160	0.201	100	0.0	2
Approach	691	32	723	13.8		0.286			

SouthWest: Mattson Road

Mov. From SW	L2	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

To Exit:	NW	SE							
Lane 1	37	60	97	5.2	452	0.215	100	NA	NA
Approach	37	60	97	5.2		0.215			

	Total	%HV	Deg.Satn (v/c)
Intersection	2320	13.1	0.885

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

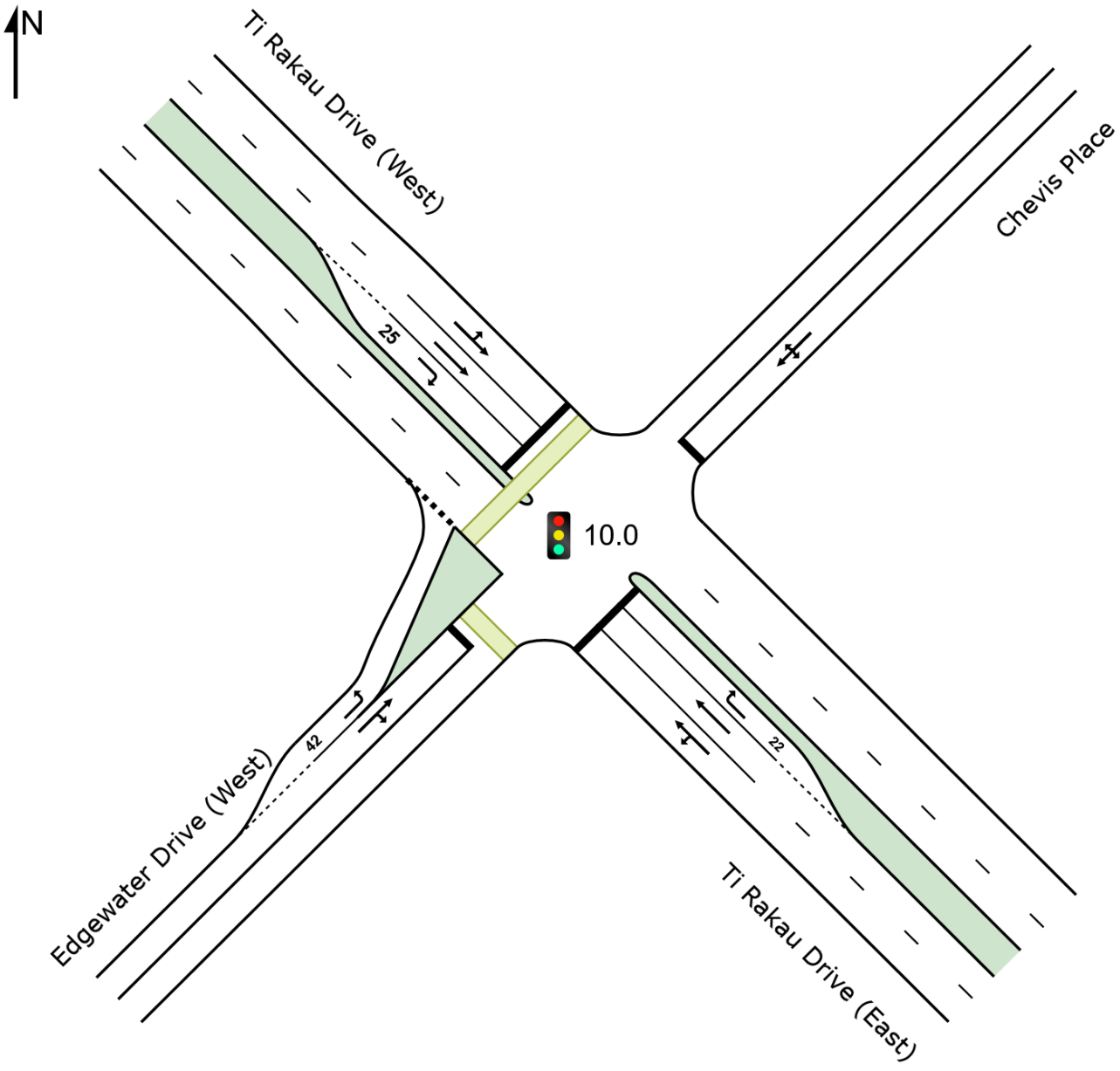
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
SouthEast Exit: Ti Rakau Drive (East) Merge Type: **Priority**												
Exit Short Lane	3	18	0.0	335	358	3.00	2.00	60	1435	0.042	0.5	0.6
Merge Lane	2	-	100.0	Merge Lane is not Opposed				335	1800	0.186	0.0	0.0
NorthWest Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
SouthWest Exit: Mattson Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

SITE LAYOUT

Site: 10.0 [10.0 Edgewater Dr (West) / Chevis Pl (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



LANE SUMMARY

Site: 10.0 [10.0 Edgewater Dr (West) / Chevis Pl (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Ti Rakau Drive (East)															
Lane 1	803	10.4	769	10.5	895	0.859	100	31.2	LOS C	34.7[N4]	264.4[N4]	Full	162	0.0	50.0
Lane 2	787	11.0	753	11.1	876[1]	0.859	100	31.1	LOS C	34.5[N4]	264.4[N4]	Full	162	0.0	50.0
Lane 3	10	0.0	10	0.0	107	0.090	100	55.1	LOS E	0.5	3.3	Short	22	0.0	NA
Approach	1600	10.6	1531[N 1]	10.7		0.859		31.3	LOS C	34.7	264.4				
NorthEast: Chevis Place															
Lane 1	30	0.0	30	0.0	113	0.265	100	54.6	LOS D	1.5	10.4	Full	138	0.0	0.0
Approach	30	0.0	30	0.0		0.265		54.6	LOS D	1.5	10.4				
NorthWest: Ti Rakau Drive (West)															
Lane 1	445	12.7	379	13.0	903	0.420	100	17.6	LOS B	11.8	91.8	Full	68	0.0	32.3
Lane 2	389	13.0	332	13.3	791[1]	0.420	100	17.2	LOS B	10.2	79.2	Full	68	0.0	18.8
Lane 3	34	14.7	29	14.8	100	0.289	100	56.7	LOS E	1.5	11.5	Short	25	0.0	NA
Approach	868	12.9	740[N1]	13.2		0.420		18.9	LOS B	11.8	91.8				
SouthWest: Edgewater Drive (West)															
Lane 1	114	8.8	114	8.8	679	0.168	100	15.5	LOS B	2.6	19.8	Short	42	0.0	NA
Lane 2	48	6.3	48	6.3	268	0.179	100	44.6	LOS D	2.1	15.4	Full	789	0.0	0.0
Approach	162	8.0	162	8.0		0.179		24.1	LOS C	2.6	19.8				
Intersection	2660	11.1	2464[N 1]	12.0		0.859		27.4	LOS C	34.7	264.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N4 Average back of queue has been restricted to the available queue storage space.

Approach Lane Flows (veh/h)

SouthEast: Ti Rakau Drive (East)

Mov. From SE To Exit:	L2 SW	T1 NW	R2 NE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	99	669	-	769	10.5	895	0.859	100	NA	NA
Lane 2	-	753	-	753	11.1	876[1]	0.859	100	NA	NA
Lane 3	-	-	10	10	0.0	107	0.090	100	0.0	2
Approach	99	1422	10	1531	10.7		0.859			

NorthEast: Chevis Place

Mov.	L2	T1	R2	Total	%HV		Deg.	Lane	Prob.	Ov.

From NE To Exit:	SE	SW	NW			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	10	10	10	30	0.0	113	0.265	100	NA	NA
Approach	10	10	10	30	0.0		0.265			
NorthWest: Ti Rakau Drive (West)										
Mov. From NW To Exit:	L2 NE	T1 SE	R2 SW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	8	371	-	379	13.0	903	0.420	100	NA	NA
Lane 2	-	332	-	332	13.3	791[1]	0.420	100	NA	NA
Lane 3	-	-	29	29	14.8	100	0.289	100	0.0	2
Approach	8	703	29	740	13.2		0.420			
SouthWest: Edgewater Drive (West)										
Mov. From SW To Exit:	L2 NW	T1 NE	R2 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	114	-	-	114	8.8	679	0.168	100	0.0	2
Lane 2	-	10	38	48	6.3	268	0.179	100	NA	NA
Approach	114	10	38	162	8.0		0.179			

	Total	%HV	Deg.Satn (v/c)
Intersection	2464	12.0	0.859

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Merge Analysis

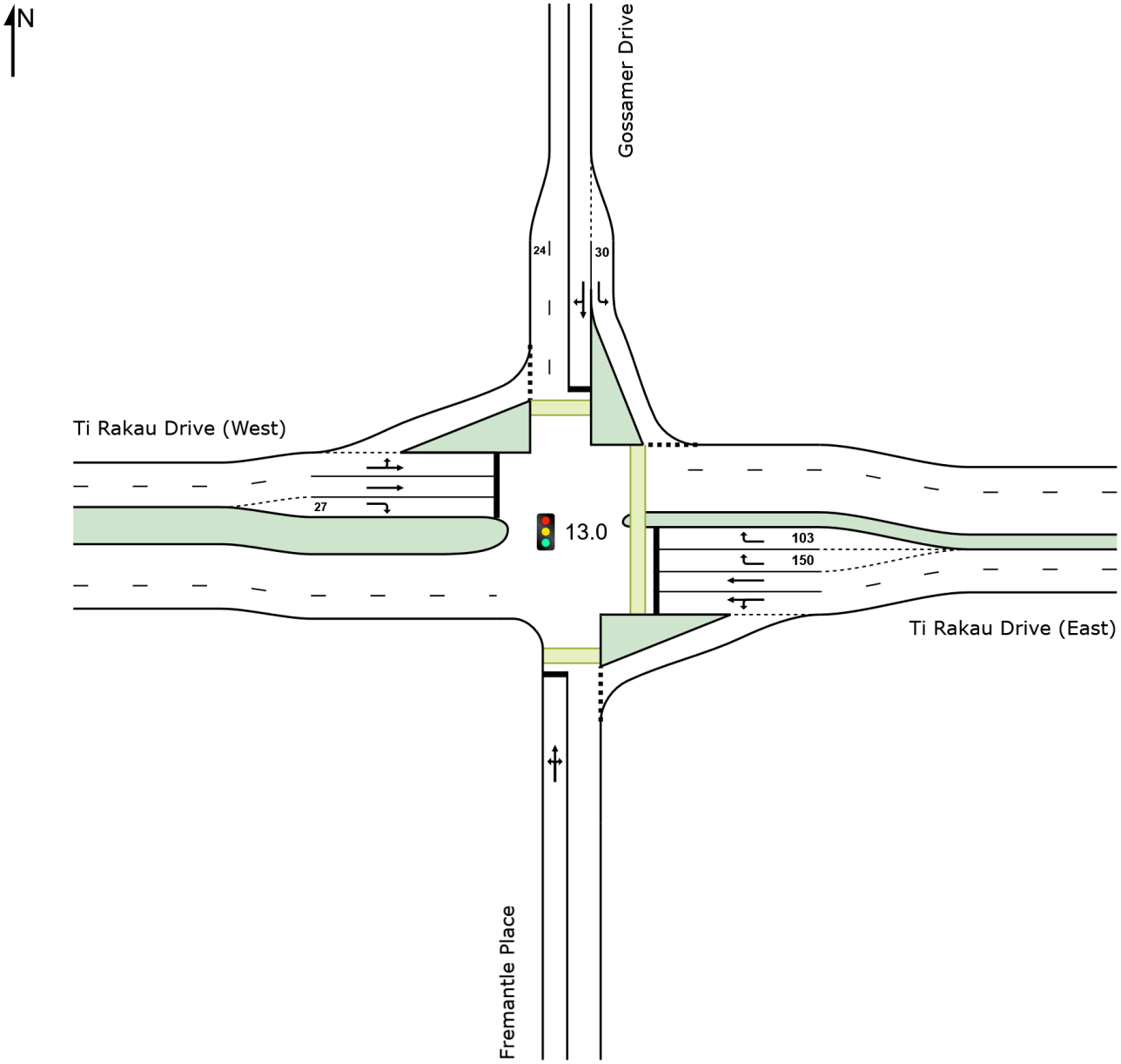
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
SouthEast Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
NorthEast Exit: Chevis Place Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
NorthWest Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
SouthWest Exit: Edgewater Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

SITE LAYOUT

Site: 13.0 [13.0 Gossamer Dr / Ti Rakau Dr (Site Folder: General)]

Scheme Design
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



LANE SUMMARY

Site: 13.0 [13.0 Gossamer Dr / Ti Rakau Dr (Site Folder: General)]

Network: N101 [AM (Network Folder: General)]

Scheme Design
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Fremantle Place															
Lane 1	48	6.3	48	6.3	72	0.669	100	87.0	LOS F	3.8	27.8	Full	285	0.0	0.0
Approach	48	6.3	48	6.3		0.669		87.0	LOS F	3.8	27.8				
East: Ti Rakau Drive (East)															
Lane 1	732	10.9	732	10.9	710	1.031	100	114.3	LOS F	78.0	596.7	Full	636	0.0	0.0
Lane 2	697	11.0	697	11.0	676[1]	1.031	100	120.2	LOS F	77.9	596.7	Full	636	0.0	0.0
Lane 3	61	0.3	61	0.3	304	0.201	23[6]	35.5	LOS D	2.3	16.4	Short	150	0.0	NA
Lane 4	266	0.3	266	0.3	304	0.875	100	51.1	LOS D	13.5	95.0	Short	103	0.0	NA
Approach	1756	8.9	1756	8.9		1.031		104.4	LOS F	78.0	596.7				
North: Gossamer Drive															
Lane 1	1052	8.2	1052	8.2	1088[1]	0.967	100	54.8	LOS D	73.2	548.6	Short	30	0.0	NA
Lane 2	172	7.0	172	7.0	163[1]	1.055	100	169.9	LOS F	21.9	162.3	Full	1010	0.0	0.0
Approach	1224	8.0	1224	8.0		1.055		71.0	LOS E	73.2	548.6				
West: Ti Rakau Drive (West)															
Lane 1	430	12.5	365	12.9	479	0.762	100	57.1	LOS E	24.7	192.1	Full	479	0.0	0.0
Lane 2	409	12.7	348	13.1	456[1]	0.762	100	55.6	LOS E	23.7	184.8	Full	479	0.0	0.0
Lane 3	11	9.1	9	9.2	135	0.069	100	74.9	LOS E	0.6	4.9	Short	27	0.0	NA
Approach	850	12.6	722[N1]	12.9		0.762		56.6	LOS E	24.7	192.1				
Intersection	3878	9.4	3750[N1]	9.7		1.055		84.0	LOS F	78.0	596.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Approach Lane Flows (veh/h)

South: Fremantle Place

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	21	10	17	48	6.3	72	0.669	100	NA	NA
Approach	21	10	17	48	6.3		0.669			

East: Ti Rakau Drive (East)

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	18	714	-	732	10.9	710	1.031	100	NA	NA
Lane 2	-	697	-	697	11.0	676[1]	1.031	100	NA	NA
Lane 3	-	-	61	61	0.3	304	0.201	23[6]	0.0	2
Lane 4	-	-	266	266	0.3	304	0.875	100	0.0	3
Approach	18	1411	327	1756	8.9		1.031			

North: Gossamer Drive

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1052	-	-	1052	8.2	1088[1]	0.967	100	100.0	2
Lane 2	-	11	161	172	7.0	163[1]	1.055	100	NA	NA
Approach	1052	11	161	1224	8.0		1.055			

West: Ti Rakau Drive (West)

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	19	346	-	365	12.9	479	0.762	100	NA	NA
Lane 2	-	348	-	348	13.1	456[1]	0.762	100	NA	NA
Lane 3	-	-	9	9	9.2	135	0.069	100	0.0	2
Approach	19	694	9	722	12.9		0.762			

	Total	%HV	Deg.Satn (v/c)
Intersection	3750	9.7	1.055

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

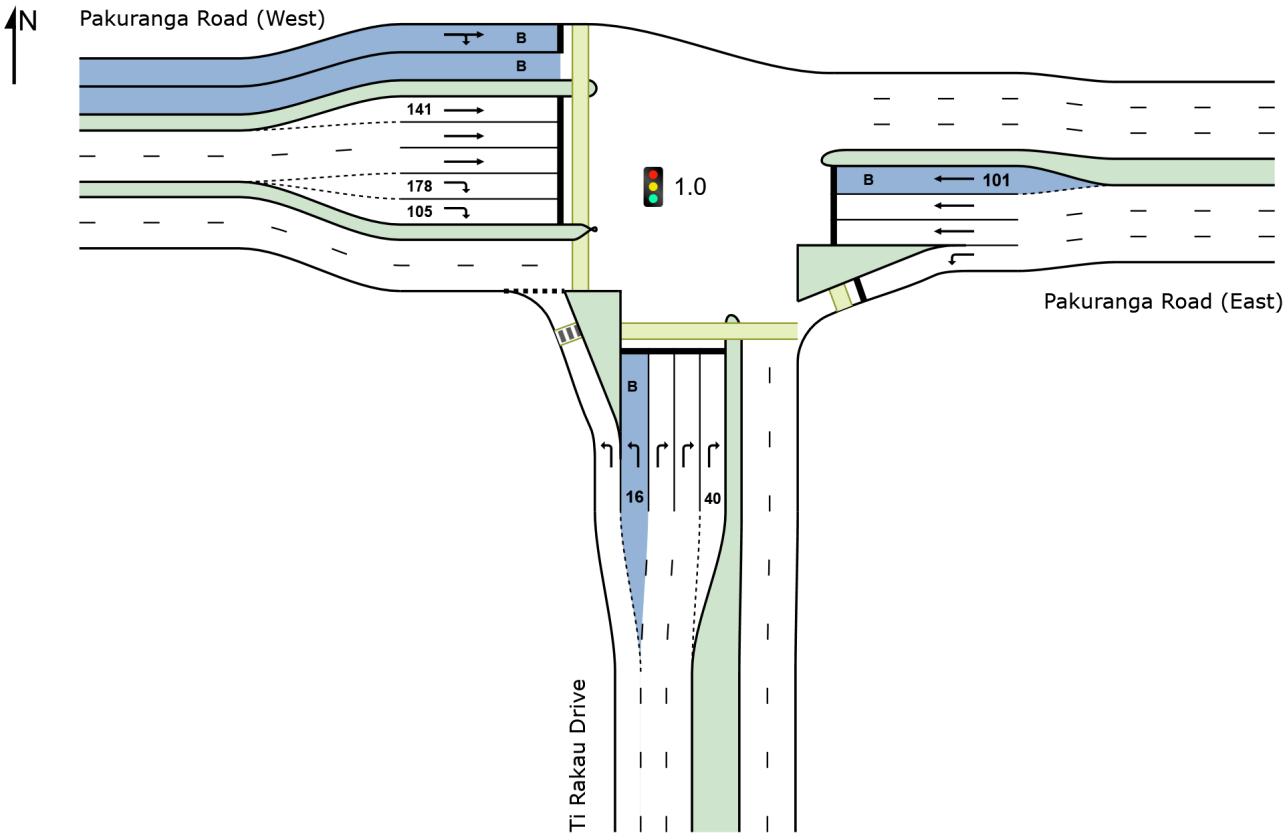
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Fremantle Place Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: Gossamer Drive Merge Type: **Zipper**												
Exit Short Lane	1	24	50.0	138	138	2.50	2.00	80	1640	0.049	0.0	0.1
Merge Lane	2	-	50.0	40	40	2.50	2.00	276	1755	0.157	0.0	0.0
West Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										

SITE LAYOUT

Site: 1.0 [1.0 Pakuranga Rd / Ti Rakau Rd (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated

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



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LANE SUMMARY

Site: 1.0 [1.0 Pakuranga Rd / Ti Rakau Rd (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Ti Rakau Drive															
Lane 1	680	6.6	651	6.6	1217[1]	0.535	100	10.3	LOS B	15.9	117.8	Full	130	0.0	0.0
Lane 2 (B)	13	100.0	13	100.0	78	0.162	100	73.5	LOS E	0.8	10.7	Short	16	0.0	NA
Lane 3	636	3.1	610	3.1	692	0.882	100	53.3	LOS D	29.5[N4]	212.2[N4]	Full	130	-6.1[N3]	50.0
Lane 4	402	3.1	385	3.1	436[1]	0.882	100	53.7	LOS D	23.6	169.3	Full	130	-6.9[N3]	29.0
Lane 5	398	3.1	382	3.1	433[1]	0.882	100	53.9	LOS D	23.4	168.5	Short	40	-8.4[N3]	NA
Approach	2129	4.8	2040[N] 1	4.8		0.882		39.9	LOS D	29.5	212.2				
East: Pakuranga Road (East)															
Lane 1	575	2.3	509	2.4	1243	0.410	100	15.1	LOS B	13.8	98.9	Full	113	0.0	0.0
Lane 2	424	8.0	377	8.6	424	0.888	100	64.4	LOS E	24.5[N4]	184.4[N4]	Full	113	0.0	50.0
Lane 3	424	8.0	377	8.6	424	0.888	100	64.4	LOS E	24.5[N4]	184.4[N4]	Full	113	0.0	50.0
Lane 4 (B)	11	100.0	11	100.0	55	0.200	100	71.7	LOS E	0.7	9.6	Short	101	0.0	NA
Approach	1433	6.4	1274[N] 1	6.9		0.888		44.7	LOS D	24.5	184.4				
West: Pakuranga Road (West)															
Lane 1 (B)	42	100.0	42	100.0	50	0.840	100	75.2	LOS E	3.0	38.9	Full	388	-5.2[N7]	0.0
Lane 2	425	6.7	425	6.7	550	0.773	100	45.1	LOS D	25.1	185.9	Short	141	-6.1[N3]	NA
Lane 3	422	6.7	422	6.7	546	0.773	100	45.1	LOS D	24.9	184.5	Full	388	-6.9[N3]	0.0
Lane 4	415	6.7	415	6.7	537	0.773	100	45.3	LOS D	24.6	181.9	Full	388	-8.4[N3]	0.0
Lane 5	199	7.7	199	7.7	229	0.870	100	76.2	LOS E	14.1	104.9	Short	178	0.0	NA
Lane 6	191	7.7	191	7.7	219	0.870	100	76.7	LOS E	13.5	100.7	Short	105	-4.3[N7]	NA
Approach	1694	9.3	1694	9.3		0.870		53.1	LOS D	25.1	185.9				
Intersection	5256	6.7	5008[N] 1	7.0		0.888		45.6	LOS D	29.5	212.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N3 Capacity Adjustment due to downstream lane blockage determined by the program.
N4 Average back of queue has been restricted to the available queue storage space.
N7 The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

Approach Lane Flows (veh/h)

South: Ti Rakau Drive

Mov. From S To Exit:	L2 W	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	651	-	651	6.6	1217[1]	0.535	100	NA	NA
Lane 2	13	-	13	100.0	78	0.162	100	0.0	1
Lane 3	-	610	610	3.1	692	0.882	100	NA	NA
Lane 4	-	385	385	3.1	436[1]	0.882	100	NA	NA
Lane 5	-	382	382	3.1	433[1]	0.882	100	100.0	4
Approach	664	1376	2040	4.8		0.882			

East: Pakuranga Road (East)

Mov. From E To Exit:	L2 S	T1 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	509	-	509	2.4	1243	0.410	100	NA	NA
Lane 2	-	377	377	8.6	424	0.888	100	NA	NA
Lane 3	-	377	377	8.6	424	0.888	100	NA	NA
Lane 4	-	11	11	100.0	55	0.200	100	0.0	3
Approach	509	764	1274	6.9		0.888			

West: Pakuranga Road (West)

Mov. From W To Exit:	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	21	21	42	100.0	50	0.840	100	NA	NA
Lane 2	425	-	425	6.7	550	0.773	100	30.1	3
Lane 3	422	-	422	6.7	546	0.773	100	NA	NA
Lane 4	415	-	415	6.7	537	0.773	100	NA	NA
Lane 5	-	199	199	7.7	229	0.870	100	0.0	4
Lane 6	-	191	191	7.7	219	0.870	100	1.3	5
Approach	1283	411	1694	9.3		0.870			

	Total	%HV	Deg.Satn (v/c)
Intersection	5008	7.0	0.888

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Ti Rakau Drive Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Pakuranga Road (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
West Exit: Pakuranga Road (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										

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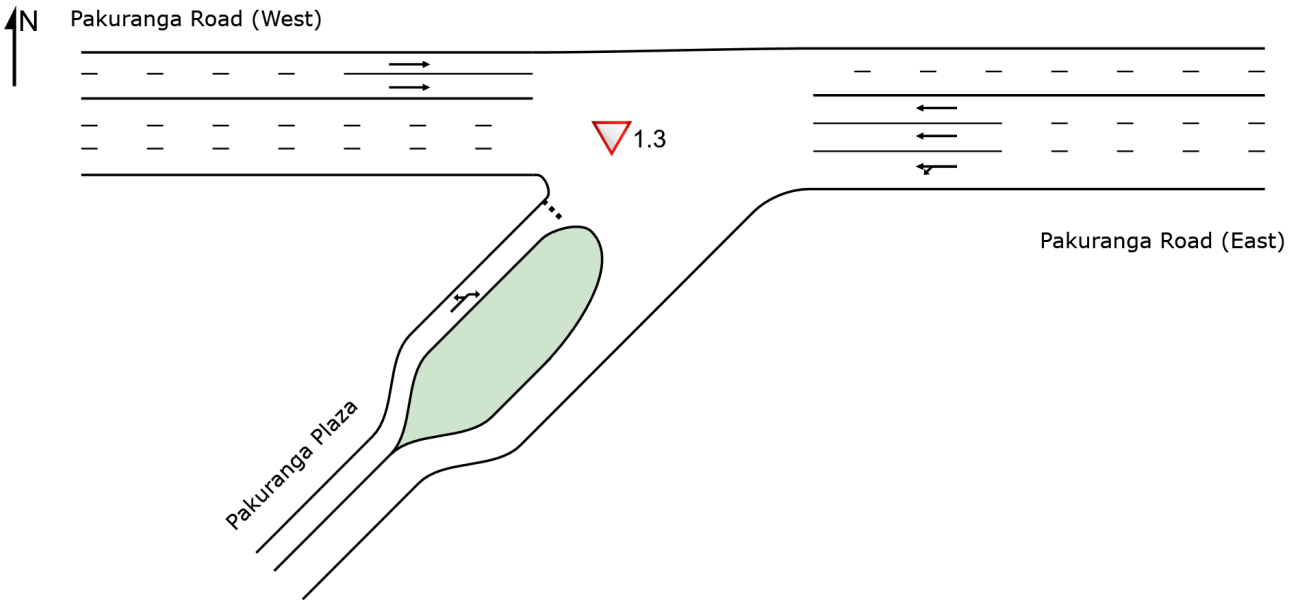
SITE LAYOUT

Site: 1.3 [1.3 Mall/ Pakuranga Rd - Import (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



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LANE SUMMARY

Site: 1.3 [1.3 Mall/ Pakuranga Rd - Import (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Pakuranga Road (East)															
Lane 1	492	7.9	449	8.1	1973	0.228	100	0.4	LOS A	0.0	0.0	Full	152	0.0	0.0
Lane 2	470	5.9	429	6.3	1884	0.228	100	0.0	LOS A	0.0	0.0	Full	152	0.0	0.0
Lane 3	470	5.9	429	6.3	1884	0.228	100	0.0	LOS A	0.0	0.0	Full	152	0.0	0.0
Approach	1432	6.6	1307 N1	6.9		0.228		0.1	NA	0.0	0.0				
West: Pakuranga Road (West)															
Lane 1	1340	5.5	1318	5.6	1813	0.727	100	0.1	LOS A	0.0	0.0	Full	108	0.0	0.0
Lane 2	1368	5.5	1346	5.6	1852	0.727	100	0.1	LOS A	0.0	0.0	Full	108	0.0	0.0
Approach	2708	5.5	2664 N1	5.6		0.727		0.1	NA	0.0	0.0				
SouthWest: Pakuranga Plaza															
Lane 1	35	5.7	35	5.7	19	1.858	100	1038.1	LOS F	14.0	103.0	Full	196	0.0	0.0
Approach	35	5.7	35	5.7		1.858		1038.1	LOS F	14.0	103.0				
Intersection	4175	5.9	4006 N1	6.1		1.858		9.2	NA	14.0	103.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Approach Lane Flows (veh/h)

East: Pakuranga Road (East)

Mov. From E To Exit:	L1 SW	T1 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	27	422	449	8.1	1973	0.228	100	NA	NA
Lane 2	-	429	429	6.3	1884	0.228	100	NA	NA
Lane 3	-	429	429	6.3	1884	0.228	100	NA	NA
Approach	27	1279	1307	6.9		0.228			

West: Pakuranga Road (West)

Mov. From W To Exit:	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1318	1318	5.6	1813	0.727	100	NA	NA
Lane 2	1346	1346	5.6	1852	0.727	100	NA	NA
Approach	2664	2664	5.6		0.727			

SouthWest: Pakuranga Plaza

Mov. From SW To Exit:	L3 W	R1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	24	11	35	5.7	19	1.858	100	NA	NA
Approach	24	11	35	5.7		1.858			

	Total	%HV	Deg.Satn (v/c)
Intersection	4006	6.1	1.858

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

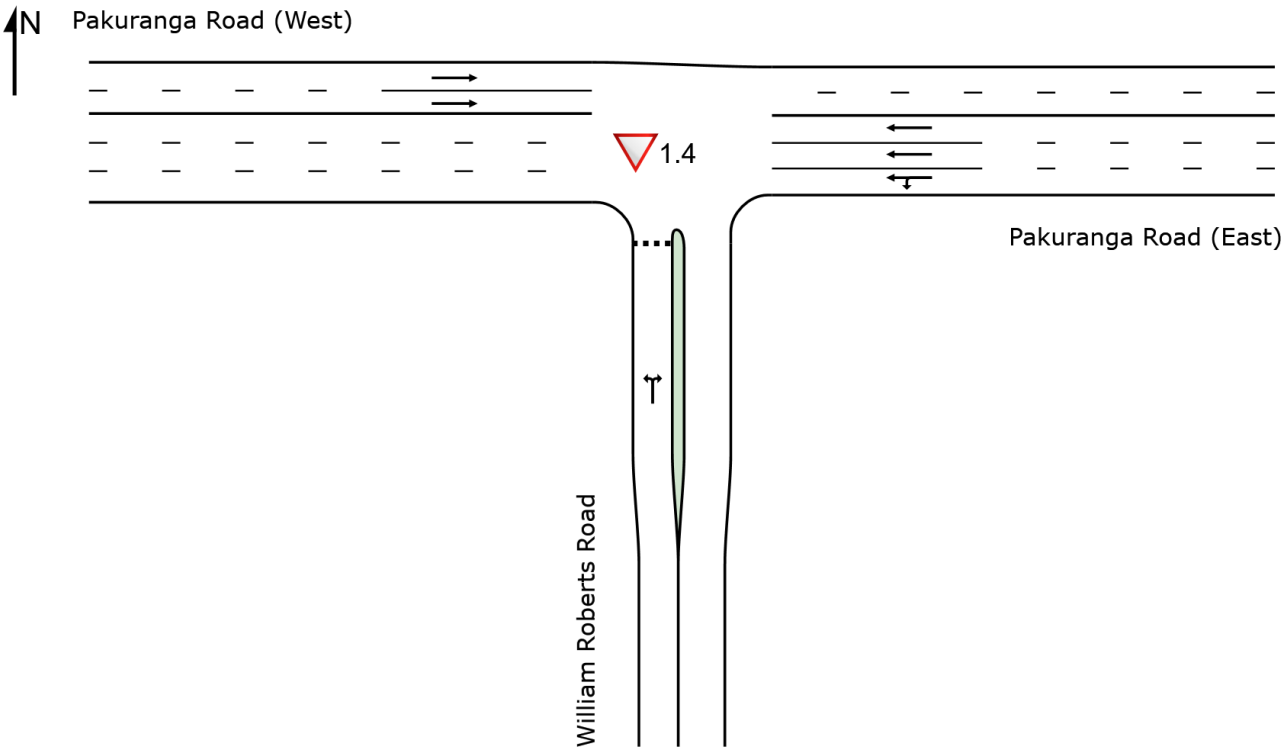
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Flow Rate sec	Capacity veh/h	Deg. Satn veh/h	Min. Delay v/c	Merge Delay sec
East Exit: Pakuranga Road (East) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
West Exit: Pakuranga Road (West) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
Full Length Lane	3	Merge Analysis not applied.									
SouthWest Exit: Pakuranga Plaza Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									

SITE LAYOUT

Site: 1.4 [1.4 William Roberts/ Pakuranga Rd - Import (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



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LANE SUMMARY

Site: 1.4 [1.4 William Roberts/ Pakuranga Rd - Import (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: William Roberts Road															
Lane 1	326	11.7	320	11.7	7	48.040	100	42392.7	LOS F	78.7[N4]	606.4[N4]	Full	244	-32.3[N7]	49.9
Approach	326	11.7	320[N1]	11.7		48.040		42392.7	LOS F	78.7	606.4				
East: Pakuranga Road (East)															
Lane 1	469	8.0	469	8.0	1787	0.262	100	1.6	LOS A	0.0	0.0	Full	184	0.0	0.0
Lane 2	477	6.8	477	6.8	1818	0.262	100	0.0	LOS A	0.0	0.0	Full	184	0.0	0.0
Lane 3	482	6.8	482	6.8	1838	0.262	100	0.0	LOS A	0.0	0.0	Full	184	0.0	0.0
Approach	1427	7.2	1427	7.2		0.262		0.5	NA	0.0	0.0				
West: Pakuranga Road (West)															
Lane 1	1394	5.6	1369	5.6	1076	1.272	100	40.9	LOS E	0.0	0.0	Full	152	-42.2[N3]	0.0
Lane 2	1308	5.6	1285	5.6	1010	1.272	100	40.9	LOS E	0.0	0.0	Full	152	-44.0[N3]	0.0
Approach	2702	5.6	2653[N1]	5.6		1.272		40.9	NA	0.0	0.0				
Intersection	4455	6.6	4400[N1]	6.6		48.040		3107.6	NA	78.7	606.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N3 Capacity Adjustment due to downstream lane blockage determined by the program.
N4 Average back of queue has been restricted to the available queue storage space.
N7 The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

Approach Lane Flows (veh/h)

South: William Roberts Road

Mov. From S To Exit:	L2 W	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	126	194	320	11.7	7	48.040	100	NA	NA
Approach	126	194	320	11.7		48.040			

East: Pakuranga Road (East)

Mov. From E To Exit:	L2 S	T1 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	126	343	469	8.0	1787	0.262	100	NA	NA
Lane 2	-	477	477	6.8	1818	0.262	100	NA	NA

Lane 3	-	482	482	6.8	1838	0.262	100	NA	NA
Approach	126	1301	1427	7.2		0.262			

West: Pakuranga Road (West)

Mov. From W To Exit:	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1369	1369	5.6	1076	1.272	100	NA	NA
Lane 2	1285	1285	5.6	1010	1.272	100	NA	NA
Approach	2653	2653	5.6		1.272			

	Total	%HV	Deg.Satn (v/c)
Intersection	4400	6.6	48.040

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

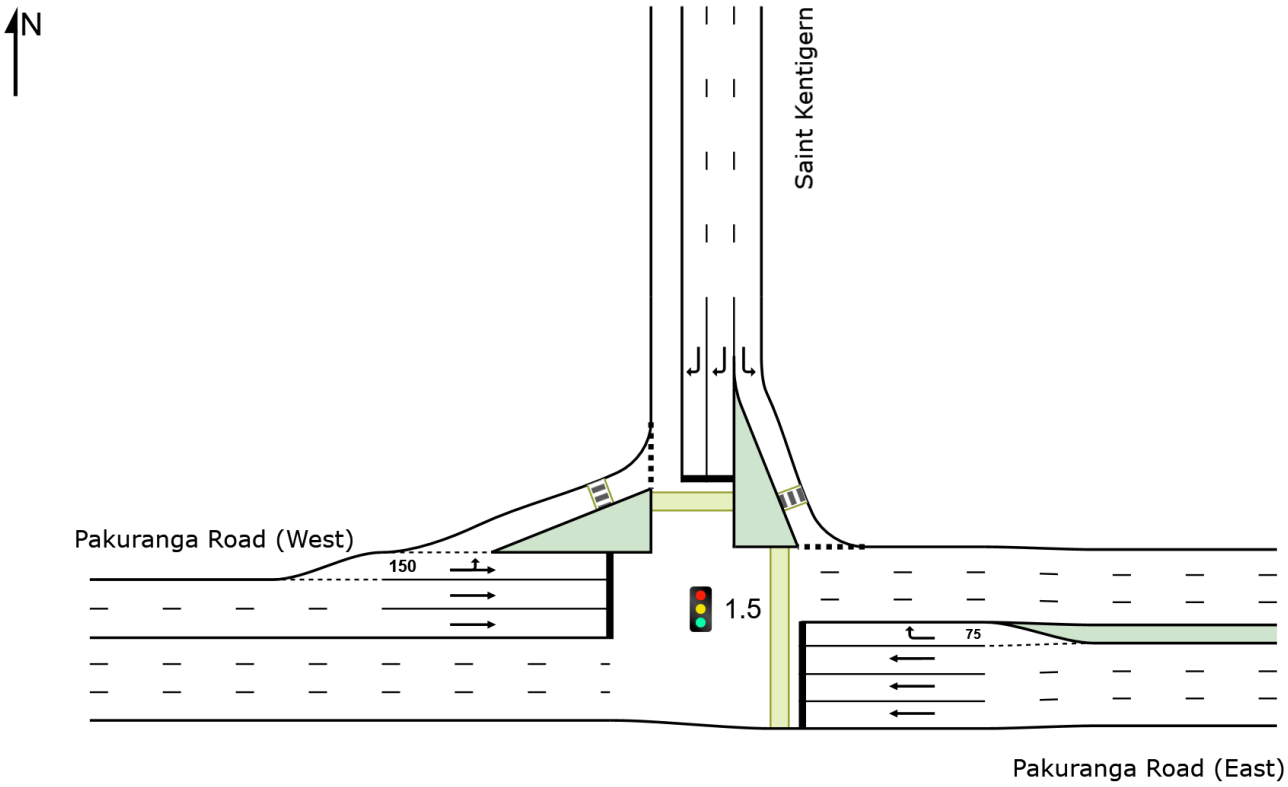
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: William Roberts Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: Pakuranga Road (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
West Exit: Pakuranga Road (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										

SITE LAYOUT

Site: 1.5 [1.5 Saint Kentigern/ Pakuranga Rd - Import (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



Organisation: AECOM AUSTRALIA PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 15 February 2023 9:09:06 am
Project: C:\Users\jacques.vandenheever\Eastern Busway Alliance\PAA - 05 DESIGN MGMNT\12 Transport\3-3. Integrated Transport Assessment\ITA 2 - EB2,3R\Version 9 (Addendum)\AIMSUN and SIDRA\CS 1.1\CS 1.1 PM.sip9

LANE SUMMARY

Site: 1.5 [1.5 Saint Kentigern/ Pakuranga Rd - Import (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Pakuranga Road (East)															
Lane 1	450	7.2	450	7.2	1388	0.324	100	5.7	LOS A	9.6	71.6	Full	87	0.0	0.0
Lane 2	450	7.2	450	7.2	1388	0.324	100	5.7	LOS A	9.6	71.6	Full	87	0.0	0.0
Lane 3	453	7.2	453	7.2	1395	0.324	100	5.7	LOS A	9.7	72.0	Full	87	0.0	0.0
Lane 4	36	5.6	36	5.6	74	0.488	100	81.8	LOS F	2.6	19.0	Short	75	0.0	NA
Approach	1389	7.2	1389	7.2		0.488		7.7	LOS A	9.7	72.0				
North: Saint Kentigern															
Lane 1	69	4.3	69	4.3	470	0.147	100	11.3	LOS B	2.0	14.3	Full	96	0.0	0.0
Lane 2	38	9.2	38	9.2	270	0.142	100	55.2	LOS E	2.3	17.2	Full	96	0.0	0.0
Lane 3	38	9.2	38	9.2	265	0.142	100	55.2	LOS E	2.2	16.9	Full	96	0.0	0.0
Approach	145	6.9	145	6.9		0.147		34.3	LOS C	2.3	17.2				
West: Pakuranga Road (West)															
Lane 1	980	6.3	895	5.6	1245	0.719	100	15.9	LOS B	37.7	276.3	Short	150	0.0	NA
Lane 2	932	6.4	852	5.7	1185[1]	0.719	100	14.6	LOS B	34.3	252.1	Full	184	0.0	42.2[8]
Lane 3	988	6.4	903	5.7	1256	0.719	100	15.4	LOS B	38.4	281.6	Full	184	0.0	44.0
Approach	2900	6.4	2650[N1]	5.7		0.719		15.3	LOS B	38.4	281.6				
Intersection	4434	6.7	4184[N1]	7.1		0.719		13.4	LOS B	38.4	281.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Approach Lane Flows (veh/h)

East: Pakuranga Road (East)

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	450	-	450	7.2	1388	0.324	100	NA	NA
Lane 2	450	-	450	7.2	1388	0.324	100	NA	NA
Lane 3	453	-	453	7.2	1395	0.324	100	NA	NA
Lane 4	-	36	36	5.6	74	0.488	100	0.0	3
Approach	1353	36	1389	7.2		0.488			

North: Saint Kentigern

Mov. From N	L2	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	E	W			veh/h	v/c	%	%	No.
Lane 1	69	-	69	4.3	470	0.147	100	NA	NA
Lane 2	-	38	38	9.2	270	0.142	100	NA	NA
Lane 3	-	38	38	9.2	265	0.142	100	NA	NA
Approach	69	76	145	6.9		0.147			

West: Pakuranga Road (West)

Mov. From W To Exit:	L2 N	T1 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	27	868	895	5.6	1245	0.719	100	61.4	2
Lane 2	-	852	852	5.7	1185[1]	0.719	100	NA	NA
Lane 3	-	903	903	5.7	1256	0.719	100	NA	NA
Approach	27	2623	2650	5.7		0.719			

	Total	%HV	Deg.Satn (v/c)
Intersection	4184	7.1	0.719

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Merge Analysis

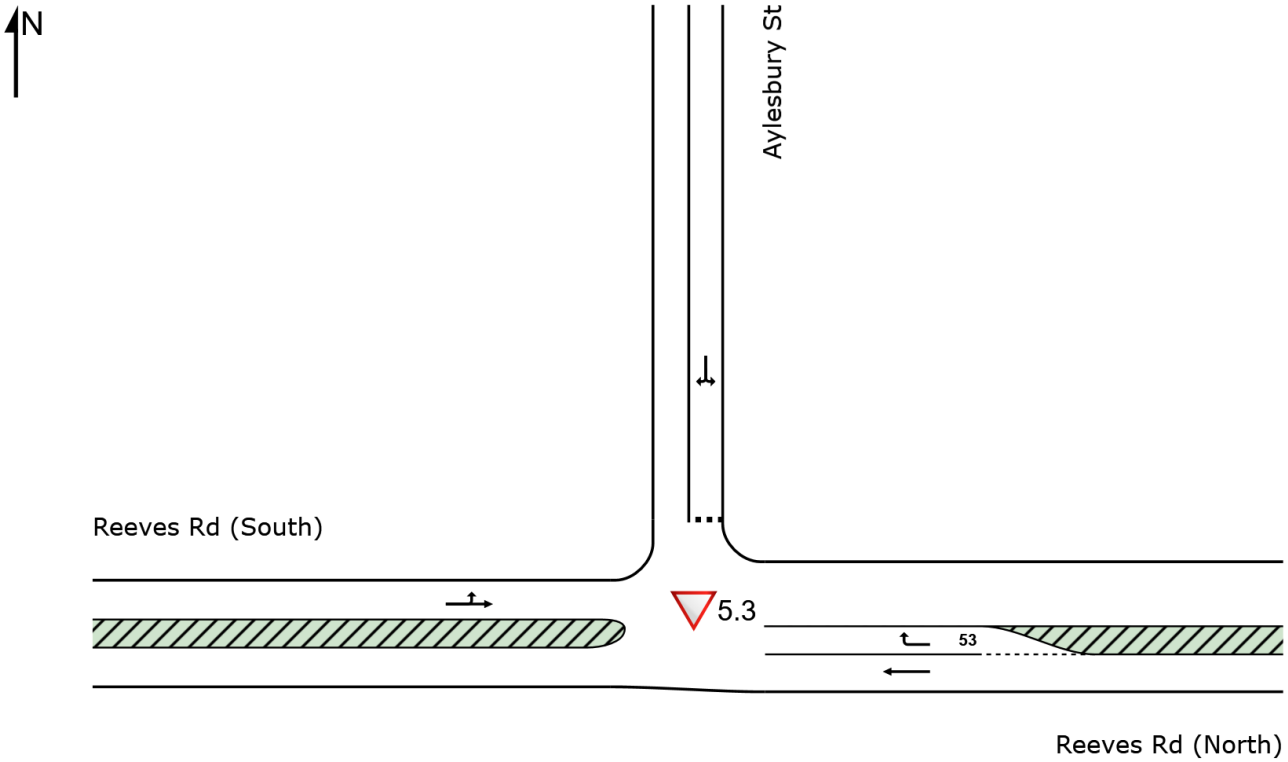
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Pakuranga Road (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										
North Exit: Saint Kentigern Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Pakuranga Road (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										

SITE LAYOUT

Site: 5.3 [5.3 Reeves Rd/ Aylesbury St (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



LANE SUMMARY

Site: 5.3 [5.3 Reeves Rd/ Aylesbury St (Site Folder: General)] Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Reeves Rd (North)															
Lane 1	277	11.9	274	11.9	1876	0.146	100	0.0	LOS A	0.0	0.0	Full	55	0.0	0.0
Lane 2	10	0.0	10	0.0	777	0.013	100	7.7	LOS A	0.0	0.3	Short	53	0.0	NA
Approach	287	11.5	284[N1]	11.5		0.146		0.3	NA	0.0	0.3				
North: Aylesbury St															
Lane 1	56	5.4	56	5.4	246	0.227	100	9.9	LOS A	4.5[N5]	32.7[N5]	Full	193	-31.7[N7]	100.0
Approach	56	5.4	56	5.4		0.227		9.9	LOS A	4.5	32.7				
West: Reeves Rd (South)															
Lane 1	730	9.2	702	9.2	1923	0.365	100	0.2	LOS A	19.8[N6]	149.1[N6]	Full	60	0.0	49.9[N6]
Approach	730	9.2	702[N1]	9.2		0.365		0.2	NA	19.8	149.1				
Intersection	1073	9.6	1043[N1]	9.9		0.365		0.7	NA	19.8	149.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N5 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows).
N6 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows) but average back of queue has been restricted to the available queue storage space.
N7 The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

Approach Lane Flows (veh/h)

East: Reeves Rd (North)

Mov. From E To Exit:	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	274	-	274	11.9	1876	0.146	100	NA	NA
Lane 2	-	10	10	0.0	777	0.013	100	0.0	1
Approach	274	10	284	11.5		0.146			

North: Aylesbury St

Mov. From N To Exit:	L2 E	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	26	30	56	5.4	246	0.227	100	NA	NA
Approach	26	30	56	5.4		0.227			

West: Reeves Rd (South)

Mov.	L2	T1	Total	%HV		Deg.	Lane	Prob.	Ov.

From W To Exit:	N	E			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	27	675	702	9.2	1923	0.365	100	NA	NA
Approach	27	675	702	9.2		0.365			
	Total	%HV	Deg.Satn (v/c)						
Intersection	1043	9.9		0.365					

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

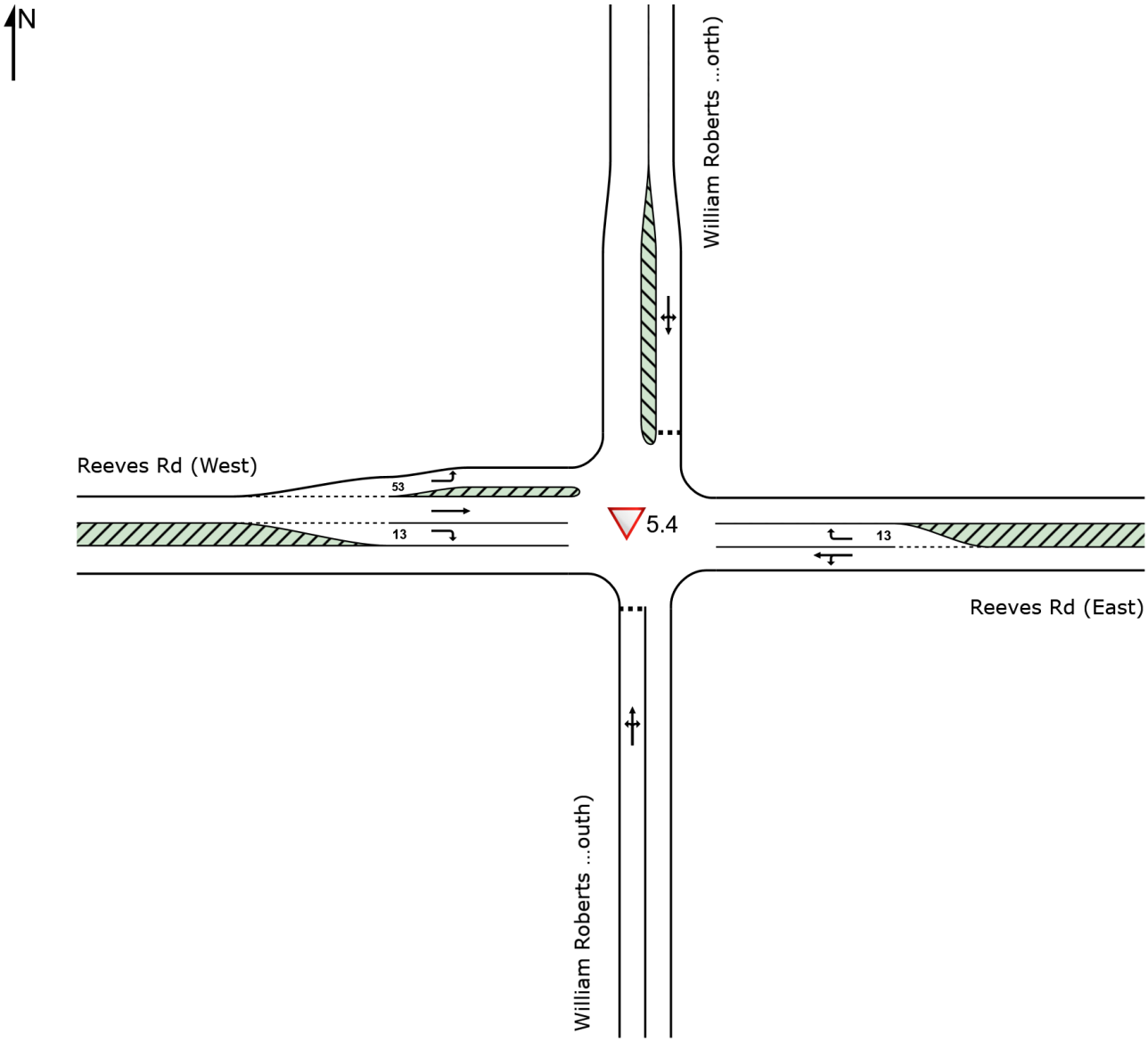
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
East Exit: Reeves Rd (North) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Aylesbury St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Reeves Rd (South) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

SITE LAYOUT

Site: 5.4 [5.4 Reeves Rd / William Roberts Rd (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



LANE SUMMARY

Site: 5.4 [5.4 Reeves Rd / William Roberts Rd (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: William Roberts Rd (South)															
Lane 1	46	4.3	46	4.3	277	0.166	100	13.0	LOS B	6.7[N5]	48.5[N5]	Full	170	-20.7[N7]	16.8
Approach	46	4.3	46	4.3		0.166		13.0	LOS B	6.7	48.5				
East: Reeves Rd (East)															
Lane 1	140	8.6	140	8.6	1795	0.078	100	0.3	LOS A	0.0	0.0	Full	266	0.0	3.2[8]
Lane 2	53	24.5	53	24.5	542	0.098	100	10.0	LOS B	29.5[N5]	249.9[N5]	Short	13	0.0	NA
Approach	193	13.0	193	13.0		0.098		3.0	NA	29.5	249.9				
North: William Roberts Rd (North)															
Lane 1	259	15.8	259	15.8	259	0.999	100	88.8	LOS F	16.8	133.2	Full	244	0.0	0.0
Approach	259	15.8	259	15.8		0.999		88.8	LOS F	16.8	133.2				
West: Reeves Rd (West)															
Lane 1	259	9.7	249	9.6	1666	0.149	100	4.1	LOS A	18.0[N6]	136.7[N6]	Short	53	0.0	NA
Lane 2	426	9.6	409	9.6	1844	0.222	100	0.0	LOS A	0.0	0.0	Full	55	0.0	49.9[8]
Lane 3	43	4.7	41	4.6	1543	0.027	100	4.5	LOS A	0.1	0.9	Short	13	0.0	NA
Approach	728	9.3	699[N1]	9.3		0.222		1.7	NA	18.0	136.7				
Intersection	1226	11.1	1197[N1]	11.4		0.999		21.2	NA	29.5	249.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N5 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows).
N6 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows) but average back of queue has been restricted to the available queue storage space.
N7 The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

Approach Lane Flows (veh/h)

South: William Roberts Rd (South)

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	24	12	10	46	4.3	277	0.166	100	NA	NA
Approach	24	12	10	46	4.3		0.166			

East: Reeves Rd (East)

Mov. From E	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	S	W	N			veh/h	v/c	%	%	No.
Lane 1	10	130	-	140	8.6	1795	0.078	100	NA	NA
Lane 2	-	-	53	53	24.5	542	0.098	100	100.0	1
Approach	10	130	53	193	13.0		0.098			

North: William Roberts Rd (North)

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	114	17	128	259	15.8	259	0.999	100	NA	NA
Approach	114	17	128	259	15.8		0.999			

West: Reeves Rd (West)

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	249	-	-	249	9.6	1666	0.149	100	54.8	2
Lane 2	-	409	-	409	9.6	1844	0.222	100	NA	NA
Lane 3	-	-	41	41	4.6	1543	0.027	100	0.0	2
Approach	249	409	41	699	9.3		0.222			

	Total	%HV	Deg.Satn (v/c)
Intersection	1197	11.4	0.999

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

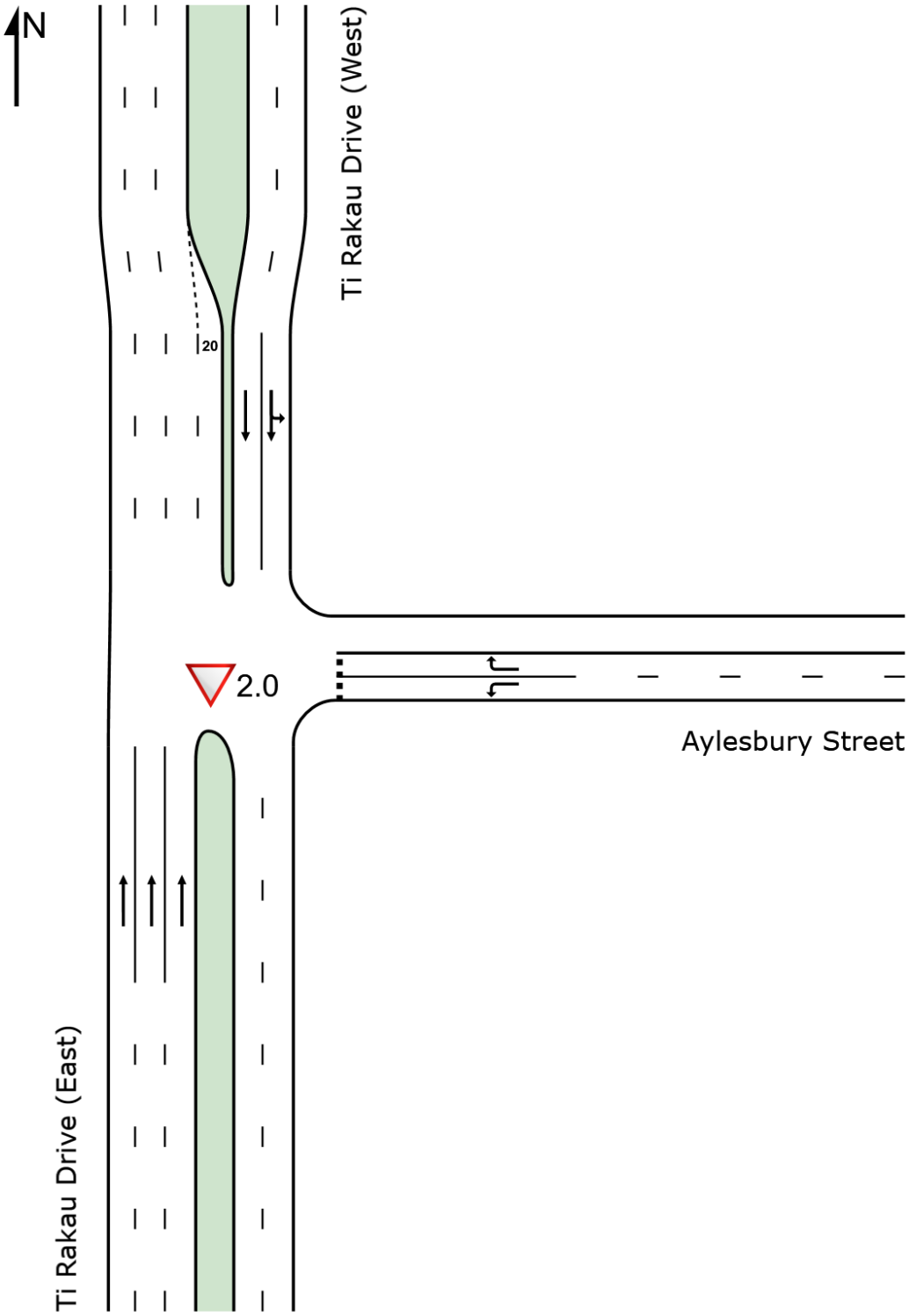
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: William Roberts Rd (South) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: Reeves Rd (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: William Roberts Rd (North) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: Reeves Rd (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

SITE LAYOUT

Site: 2.0 [2.0 Aylesbury St North/Ti Rakau Dr (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



LANE SUMMARY

Site: 2.0 [2.0 Aylesbury St North/Ti Rakau Dr (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Ti Rakau Drive (East)															
Lane 1	767	5.0	742	4.9	1821	0.408	100	0.0	LOS A	0.0	0.0	Full	63	0.0	0.0
Lane 2	780	5.0	754	4.9	1850	0.408	100	0.0	LOS A	12.6 N5	91.6 N5	Full	63	0.0	39.2
Lane 3	533	5.0	516	4.9	1266	0.408	100	0.0	LOS A	0.0	0.0	Full	63	-31.9 N3	0.0
Approach	2080	5.0	2013 N1	4.9		0.408		0.0	NA	12.6	91.6				
East: Aylesbury Street															
Lane 1	14	7.1	14	7.1	752	0.019	100	1.8	LOS A	0.1	0.4	Full	28	-21.9 N7	0.0
Lane 2	28	0.0	28	0.0	6	4.667	100	3633.8	LOS F	23.9	167.6	Full	28	0.0	100.0
Approach	42	2.4	42	2.4		4.667		2423.1	LOS F	23.9	167.6				
North: Ti Rakau Drive (West)															
Lane 1	495	6.4	463	6.8	1817	0.255	100	0.1	LOS A	0.0	0.0	Full	130	0.0	0.0
Lane 2	496	6.5	463	6.9	1818	0.255	100	0.0	LOS A	0.0	0.0	Full	130	0.0	0.0
Approach	991	6.5	925 N1	6.8		0.255		0.1	NA	0.0	0.0				
Intersection	3113	5.4	2980 N1	5.6		4.667		34.2	NA	23.9	167.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N3 Capacity Adjustment due to downstream lane blockage determined by the program.
N5 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows).
N7 The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

Approach Lane Flows (veh/h)

South: Ti Rakau Drive (East)

Mov. From S To Exit:	T1 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	742	742	4.9	1821	0.408	100	NA	NA
Lane 2	754	754	4.9	1850	0.408	100	NA	NA
Lane 3	516	516	4.9	1266	0.408	100	NA	NA
Approach	2013	2013	4.9		0.408			

East: Aylesbury Street

Mov. From E To Exit:	L2 S	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	14	-	14	7.1	752	0.019	100	NA	NA

Lane 2	-	28	28	0.0	6	4.667	100	NA	NA
Approach	14	28	42	2.4		4.667			
North: Ti Rakau Drive (West)									
Mov. From N To Exit:	L2 E	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	9	453	463	6.8	1817	0.255	100	NA	NA
Lane 2	-	463	463	6.9	1818	0.255	100	NA	NA
Approach	9	916	925	6.8		0.255			
	Total	%HV	Deg.Satn (v/c)						
Intersection	2980	5.6	4.667						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

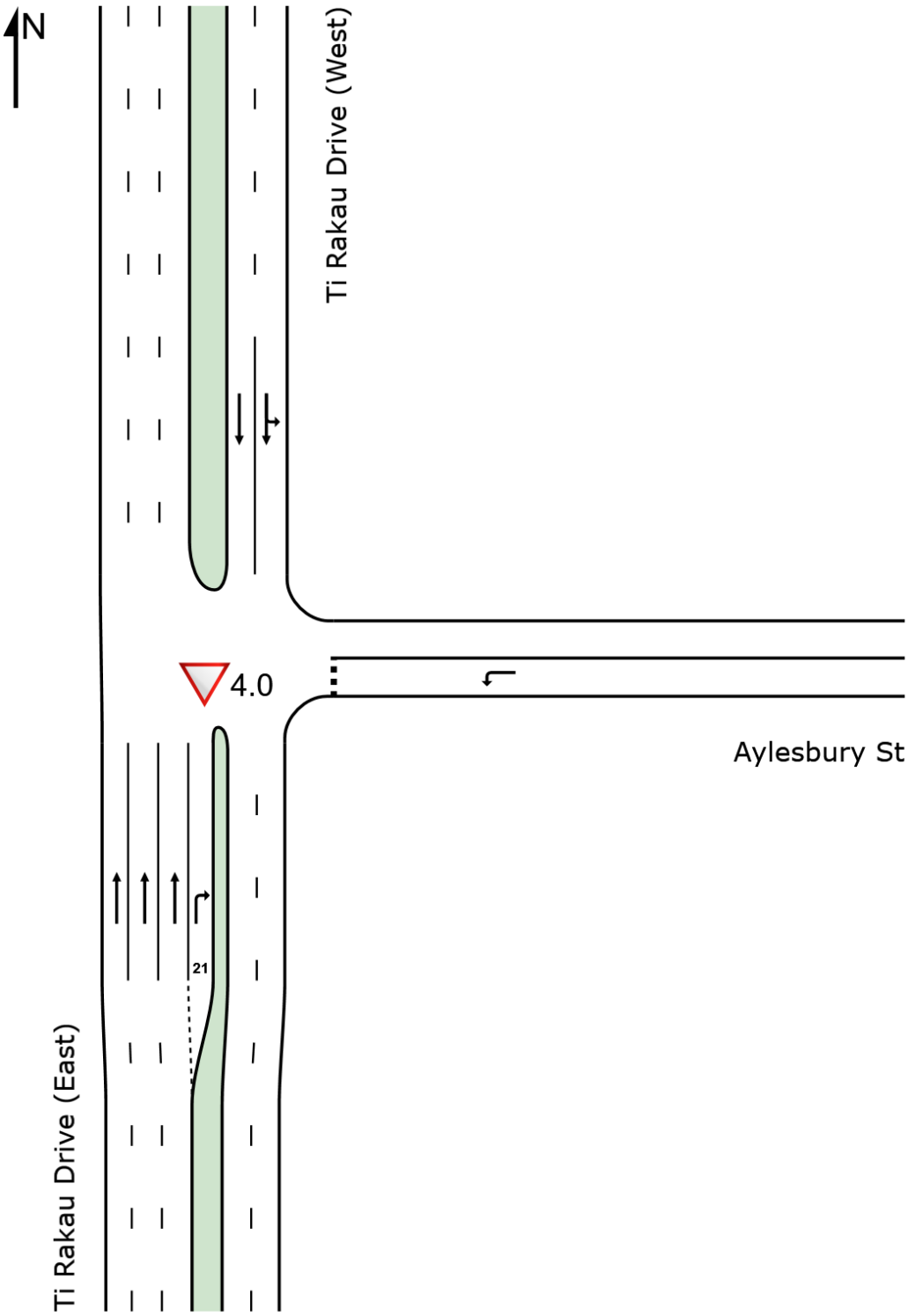
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Aylesbury Street Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Ti Rakau Drive (West) Merge Type: **Priority**												
Exit Short Lane	4	20	0.0	516	529	3.00	2.00	6	1256	0.005	0.9	1.0
Merge Lane	3	-	100.0	Merge Lane is not Opposed				516	1800	0.287	0.0	0.0

SITE LAYOUT

Site: 4.0 [4.0 Aylesbury St South/ Ti Rakau Dr (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

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



LANE SUMMARY

Site: 4.0 [4.0 Aylesbury St South/ Ti Rakau Dr (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Ti Rakau Drive (East)															
Lane 1	694	4.9	683	4.9	1811	0.377	100	0.0	LOS A	0.0	0.0	Full	84	0.0	0.0
Lane 2	709	4.9	698	4.9	1851	0.377	100	0.0	LOS A	0.0	0.0	Full	84	0.0	0.0
Lane 3	700	4.9	689	4.9	1828	0.377	100	0.0	LOS A	0.0	0.0	Full	84	0.0	0.0
Lane 4	10	0.0	10	0.0	484	0.020	100	10.6	LOS B	0.1	0.4	Short	21	0.0	NA
Approach	2113	4.9	2080 N1	4.9		0.377		0.1	NA	0.1	0.4				
East: Aylesbury St															
Lane 1	11	18.2	11	18.2	426	0.026	100	2.0	LOS A	0.3 N5	2.5 N5	Full	93	-50.0 N3	0.0
Approach	11	18.2	11	18.2		0.026		2.0	LOS A	0.3	2.5				
North: Ti Rakau Drive (West)															
Lane 1	503	6.5	459	6.9	1845	0.249	100	0.1	LOS A	9.9 N6	73.4 N6	Full	45	0.0	50.0 N6
Lane 2	493	6.6	450	7.1	1806	0.249	100	0.0	LOS A	9.9 N6	73.4 N6	Full	45	0.0	50.0 N6
Approach	996	6.5	909 N1	7.0		0.249		0.0	NA	9.9	73.4				
Intersection	3120	5.5	3000 N1	5.7		0.377		0.1	NA	9.9	73.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N3 Capacity Adjustment due to downstream lane blockage determined by the program.
N5 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows).
N6 Continuous Lane results determined by Back of Queue values of downstream lanes (proportional to lane movement flows) but average back of queue has been restricted to the available queue storage space.

Approach Lane Flows (veh/h)

South: Ti Rakau Drive (East)

Mov. From S To Exit:	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	683	-	683	4.9	1811	0.377	100	NA	NA
Lane 2	698	-	698	4.9	1851	0.377	100	NA	NA
Lane 3	689	-	689	4.9	1828	0.377	100	NA	NA
Lane 4	-	10	10	0.0	484	0.020	100	0.0	3
Approach	2070	10	2080	4.9		0.377			

East: Aylesbury St

Mov. From E To Exit:	L2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

	S								
Lane 1	11	11	18.2		426	0.026	100	NA	NA
Approach	11	11	18.2			0.026			

North: Ti Rakau Drive (West)

Mov. From N To Exit:	L2 E	T1 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	9	450	459	6.9	1845	0.249	100	NA	NA
Lane 2	-	450	450	7.1	1806	0.249	100	NA	NA
Approach	9	900	909	7.0		0.249			

	Total	%HV	Deg.Satn (v/c)
Intersection	3000	5.7	0.377

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

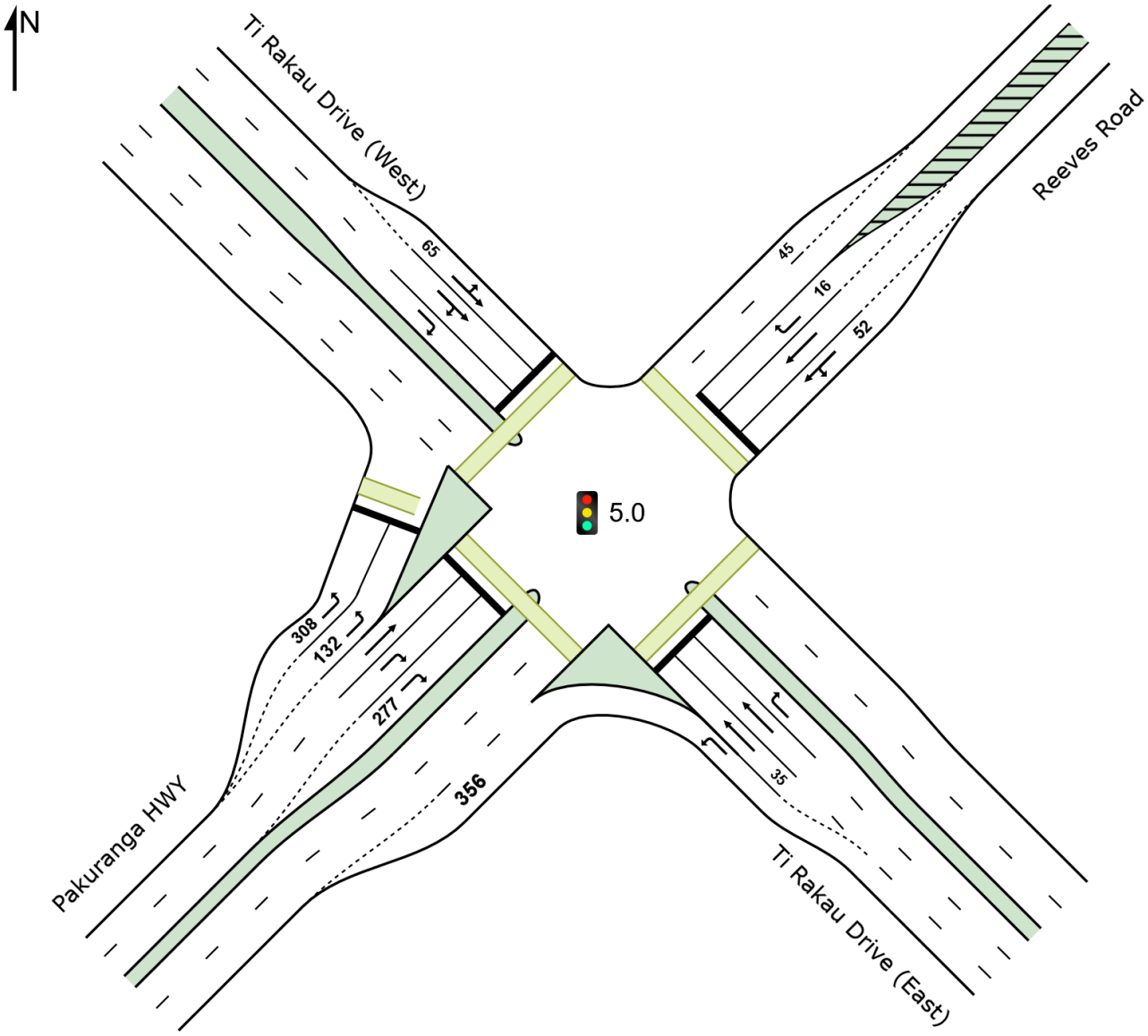
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
East Exit: Aylesbury St Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
Full Length Lane	3	Merge Analysis not applied.										

SITE LAYOUT

Site: 5.0 [5.0 Pakuranga HWY/ Reeves Rd (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



LANE SUMMARY

Site: 5.0 [5.0 Pakuranga HWY/ Reeves Rd (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 166 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Ti Rakau Drive (East)															
Lane 1	862	8.9	821	8.6	1695	0.484	100	5.9	LOS A	0.0	0.0	Full	91	0.0	17.5[8]
Lane 2	143	7.0	136	7.0	137[1]	0.995	100	124.8	LOS F	14.1	104.4	Short	35	0.0	NA
Lane 3	382	7.0	365	7.0	367	0.995	100	117.8	LOS F	20.0[N4]	148.5[N4]	Full	91	0.0	50.0
Lane 4	192	3.1	183	3.0	356	0.515	100	68.6	LOS E	13.3	95.3	Full	91	0.0	9.2
Approach	1579	7.6	1506[N1]	7.4		0.995		51.4	LOS D	20.0	148.5				
NorthEast: Reeves Road															
Lane 1	188	8.3	187	8.3	227[1]	0.826	100	82.2	LOS F	15.6	116.7	Short	52	0.0	NA
Lane 2	174	11.1	173	11.1	210[1]	0.826	100	81.7	LOS F	14.5	111.1	Full	72	0.0	49.4[8]
Lane 3	34	14.7	34	14.7	60	0.563	100	96.3	LOS F	2.9	23.0	Short	16	0.0	NA
Approach	396	10.1	394[N1]	10.1		0.826		83.2	LOS F	15.6	116.7				
NorthWest: Ti Rakau Drive (West)															
Lane 1	299	10.2	273	11.0	273[1]	1.002	100	127.6	LOS F	17.9[N4]	137.1[N4]	Short	65	0.0	NA
Lane 2	309	5.5	283	5.9	282[1]	1.002	100	129.6	LOS F	18.6[N4]	137.1[N4]	Full	84	0.0	50.0[8]
Lane 3	395	4.4	361	4.6	361	1.002	100	126.8	LOS F	18.8[N4]	137.1[N4]	Full	84	0.0	50.0
Approach	1003	6.5	918[N1]	6.9		1.002		127.9	LOS F	18.8	137.1				
SouthWest: Pakuranga HWY															
Lane 1	875	4.0	875	4.0	1186	0.738	100	27.6	LOS C	46.1	333.4	Short	308	0.0	NA
Lane 2	676	4.0	676	4.0	916[1]	0.738	100	23.9	LOS C	29.0	210.1	Short	132	0.0	NA
Lane 3	547	9.7	547	9.7	538[1]	1.017	100	125.7	LOS F	65.2	493.9	Full	1650	0.0	0.0
Lane 4	476	6.9	476	6.9	562	0.846	100	69.2	LOS E	37.9	280.7	Full	1650	0.0	0.0
Lane 5	480	6.9	480	6.9	568	0.846	100	69.0	LOS E	38.2	283.2	Short	277	0.0	NA
Approach	3054	5.9	3054	5.9		1.017		57.3	LOS E	65.2	493.9				
Intersection	6032	6.7	5871[N1]	6.9		1.017		68.6	LOS E	65.2	493.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N4 Average back of queue has been restricted to the available queue storage space.

Approach Lane Flows (veh/h)

SouthEast: Ti Rakau Drive (East)

Mov. From SE To Exit:	L2 SW	T1 NW	R2 NE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	821	-	-	821	8.6	1695	0.484	100	NA	NA
Lane 2	-	136	-	136	7.0	137[1]	0.995	100	100.0	1
Lane 3	-	365	-	365	7.0	367	0.995	100	NA	NA
Lane 4	-	-	183	183	3.0	356	0.515	100	NA	NA
Approach	821	501	183	1506	7.4		0.995			

NorthEast: Reeves Road

Mov. From NE To Exit:	L2 SE	T1 SW	R2 NW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	101	87	-	187	8.3	227[1]	0.826	100	80.5	2
Lane 2	-	173	-	173	11.1	210[1]	0.826	100	NA	NA
Lane 3	-	-	34	34	14.7	60	0.563	100	38.2	2
Approach	101	260	34	394	10.1		0.826			

NorthWest: Ti Rakau Drive (West)

Mov. From NW To Exit:	L2 NE	T1 SE	R2 SW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	21	252	-	273	11.0	273[1]	1.002	100	74.5	2
Lane 2	-	81	202	283	5.9	282[1]	1.002	100	NA	NA
Lane 3	-	-	361	361	4.6	361	1.002	100	NA	NA
Approach	21	333	563	918	6.9		1.002			

SouthWest: Pakuranga HWY

Mov. From SW To Exit:	L2 NW	T1 NE	R2 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	875	-	-	875	4.0	1186	0.738	100	12.2	3
Lane 2	676	-	-	676	4.0	916[1]	0.738	100	47.7	3
Lane 3	-	547	-	547	9.7	538[1]	1.017	100	NA	NA
Lane 4	-	-	476	476	6.9	562	0.846	100	NA	NA
Lane 5	-	-	480	480	6.9	568	0.846	100	7.0	4
Approach	1551	547	956	3054	5.9		1.017			

	Total	%HV	Deg.Satn (v/c)
Intersection	5871	6.9	1.017

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
SouthEast Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
NorthEast Exit: Reeves Road Merge Type: **Priority**												
Exit Short Lane	1	45	0.0	452	468	3.00	2.00	290	1320	0.220	0.8	1.1
Merge Lane	2	-	100.0	Merge Lane is not Opposed				452	1800	0.251	0.0	0.0
NorthWest Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										

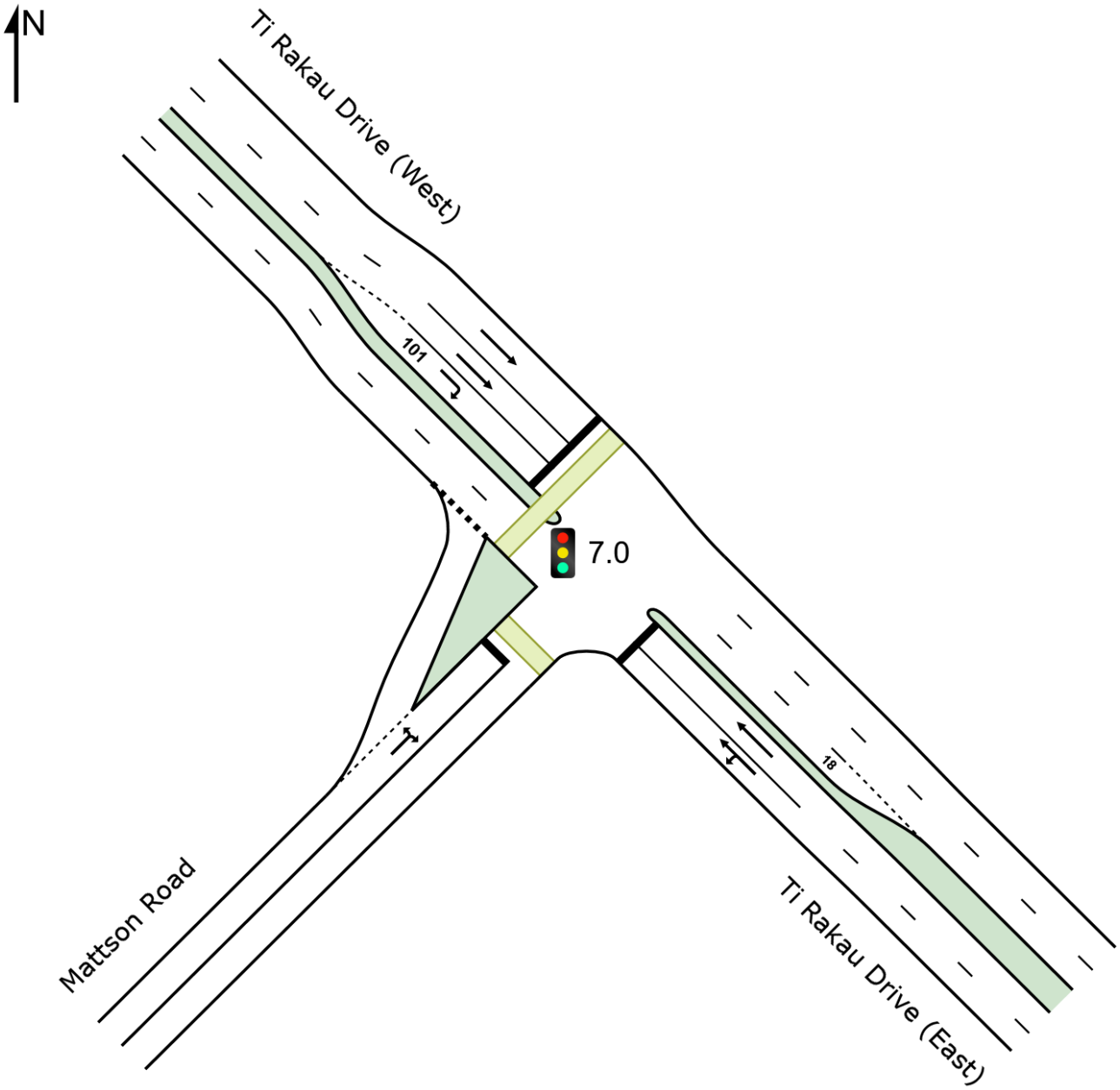
Full Length Lane	3	Merge Analysis not applied.									
SouthWest Exit: Pakuranga HWY Merge Type: **Priority**											
Exit Short Lane	1	356	0.0	288	298	3.00	2.00	821	1497	0.548	0.4	1.4
Merge Lane	2	-	100.0	Merge Lane is not Opposed				288	1800	0.160	0.0	0.0

SITE LAYOUT

Site: 7.0 [7.0 Mattson Rd/ Ti Rakau Dr (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



LANE SUMMARY

Site: 7.0 [7.0 Mattson Rd/ Ti Rakau Dr (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Ti Rakau Drive (East)															
Lane 1	854	7.2	812	7.0	918	0.884	100	27.7	LOS C	32.0	237.1	Full	187	0.0	26.6
Lane 2	781	7.3	742	7.1	840	0.884	100	28.9	LOS C	29.8	221.0	Full	187	-10.5 N7	20.2
Approach	1635	7.3	1554 N1	7.1		0.884		28.3	LOS C	32.0	237.1				
NorthWest: Ti Rakau Drive (West)															
Lane 1	677	7.5	662	7.6	1321	0.501	100	5.6	LOS A	10.8	80.4	Full	148	0.0	0.0
Lane 2	636	7.5	622	7.6	1241	0.501	100	5.7	LOS A	10.1	75.7	Full	148	0.0	0.0
Lane 3	120	4.2	117	4.2	151	0.775	100	43.9	LOS D	4.5	32.6	Short	101	0.0	NA
Approach	1433	7.2	1402 N1	7.3		0.775		8.9	LOS A	10.8	80.4				
SouthWest: Mattson Road															
Lane 1	55	5.5	55	5.5	353	0.156	100	25.6	LOS C	1.6	11.5	Full	282	0.0	0.0
Approach	55	5.5	55	5.5		0.156		25.6	LOS C	1.6	11.5				
Intersection	3123	7.2	3011 N1	7.5		0.884		19.2	LOS B	32.0	237.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N7 The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

Approach Lane Flows (veh/h)

SouthEast: Ti Rakau Drive (East)

Mov. From SE To Exit:	L2 SW	T1 NW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	24	788	812	7.0	918	0.884	100	NA	NA
Lane 2	-	742	742	7.1	840	0.884	100	NA	NA
Approach	24	1530	1554	7.1		0.884			

NorthWest: Ti Rakau Drive (West)

Mov. From NW To Exit:	T1 SE	R2 SW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	662	-	662	7.6	1321	0.501	100	NA	NA
Lane 2	622	-	622	7.6	1241	0.501	100	NA	NA
Lane 3	-	117	117	4.2	151	0.775	100	0.0	2
Approach	1284	117	1402	7.3		0.775			

SouthWest: Mattson Road

Mov. From SW To Exit:	L2 NW	R2 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	14	41	55	5.5	353	0.156	100	NA	NA
Approach	14	41	55	5.5		0.156			

	Total	%HV	Deg.Satn (v/c)
Intersection	3011	7.5	0.884

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

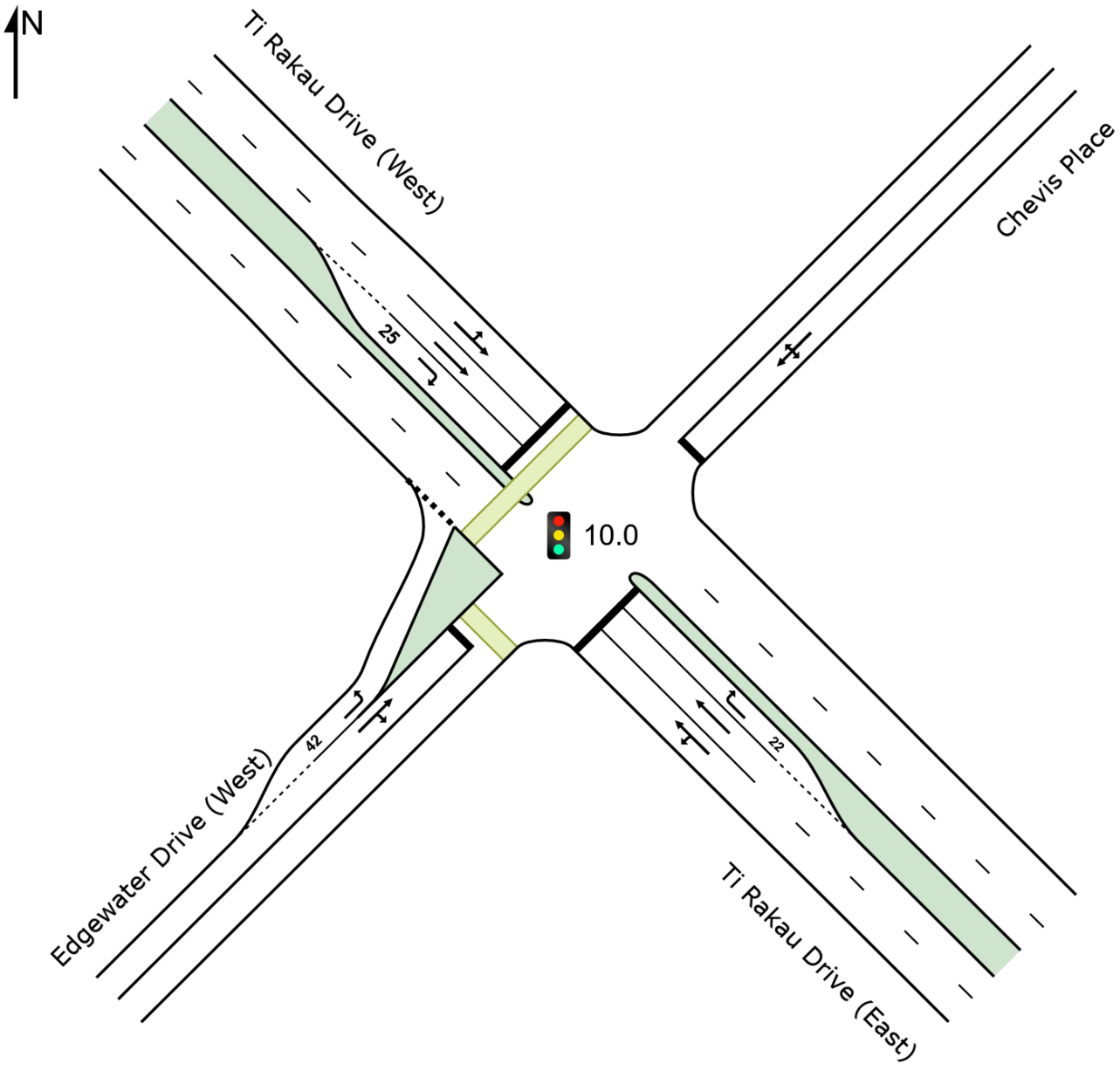
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
SouthEast Exit: Ti Rakau Drive (East) Merge Type: **Priority**												
Exit Short Lane	3	18	0.0	622	646	3.00	2.00	41	1132	0.036	1.2	1.4
Merge Lane	2	-	100.0	Merge Lane is not Opposed				622	1800	0.346	0.0	0.0
NorthWest Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
SouthWest Exit: Mattson Road Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

SITE LAYOUT

Site: 10.0 [10.0 Edgewater Dr (West) / Chevis Pl (Site Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



LANE SUMMARY

Site: 10.0 [10.0 Edgewater Dr (West) / Chevis Pl (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: Ti Rakau Drive (East)															
Lane 1	845	6.8	835	6.8	986	0.846	100	27.8	LOS C	35.7[N4]	264.4[N4]	Full	162	0.0	50.0
Lane 2	828	7.2	818	7.2	966[1]	0.846	100	27.8	LOS C	35.6[N4]	264.4[N4]	Full	162	0.0	50.0
Lane 3	10	0.0	10	0.0	97	0.102	100	60.8	LOS E	0.5	3.7	Short	22	0.0	NA
Approach	1683	7.0	1662[N1]	7.0		0.846		28.0	LOS C	35.7	264.4				
NorthEast: Chevis Place															
Lane 1	30	0.0	30	0.0	103	0.291	100	60.4	LOS E	1.7	11.6	Full	138	0.0	0.0
Approach	30	0.0	30	0.0		0.291		60.4	LOS E	1.7	11.6				
NorthWest: Ti Rakau Drive (West)															
Lane 1	623	5.2	603	5.2	1020	0.592	100	19.1	LOS B	15.2[N4]	111.0[N4]	Full	68	0.0	50.0
Lane 2	516	5.3	500	5.3	845[1]	0.592	100	18.0	LOS B	15.2[N4]	111.0[N4]	Full	68	0.0	50.0
Lane 3	81	6.2	78	6.1	97	0.812	100	68.1	LOS E	4.7	34.6	Short	25	0.0	NA
Approach	1220	5.3	1181[N1]	5.3		0.812		21.9	LOS C	15.2	111.0				
SouthWest: Edgewater Drive (West)															
Lane 1	94	5.3	94	5.3	649	0.145	100	16.7	LOS B	2.4	17.5	Short	42	0.0	NA
Lane 2	56	5.4	56	5.4	261	0.215	100	49.4	LOS D	2.7	19.8	Full	789	0.0	0.0
Approach	150	5.3	150	5.3		0.215		28.9	LOS C	2.7	19.8				
Intersection	3083	6.2	3024[N1]	6.3		0.846		26.0	LOS C	35.7	264.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.
N4 Average back of queue has been restricted to the available queue storage space.

Approach Lane Flows (veh/h)

SouthEast: Ti Rakau Drive (East)

Mov. From SE To Exit:	L2 SW	T1 NW	R2 NE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	94	741	-	835	6.8	986	0.846	100	NA	NA
Lane 2	-	818	-	818	7.2	966[1]	0.846	100	NA	NA
Lane 3	-	-	10	10	0.0	97	0.102	100	0.0	2
Approach	94	1559	10	1662	7.0		0.846			

NorthEast: Chevis Place

Mov.	L2	T1	R2	Total	%HV	Deg.	Lane	Prob.	Ov.

From NE To Exit:	SE	SW	NW			Cap. veh/h	Satn v/c	Util. %	SL Ov. %	Lane No.
Lane 1	10	10	10	30	0.0	103	0.291	100	NA	NA
Approach	10	10	10	30	0.0		0.291			
NorthWest: Ti Rakau Drive (West)										
Mov. From NW To Exit:	L2 NE	T1 SE	R2 SW	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	594	-	603	5.2	1020	0.592	100	NA	NA
Lane 2	-	500	-	500	5.3	845[1]	0.592	100	NA	NA
Lane 3	-	-	78	78	6.1	97	0.812	100	34.6	2
Approach	10	1093	78	1181	5.3		0.812			
SouthWest: Edgewater Drive (West)										
Mov. From SW To Exit:	L2 NW	T1 NE	R2 SE	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	94	-	-	94	5.3	649	0.145	100	0.0	2
Lane 2	-	10	46	56	5.4	261	0.215	100	NA	NA
Approach	94	10	46	150	5.3		0.215			

	Total	%HV	Deg.Satn (v/c)
Intersection	3024	6.3	0.846

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Merge Analysis

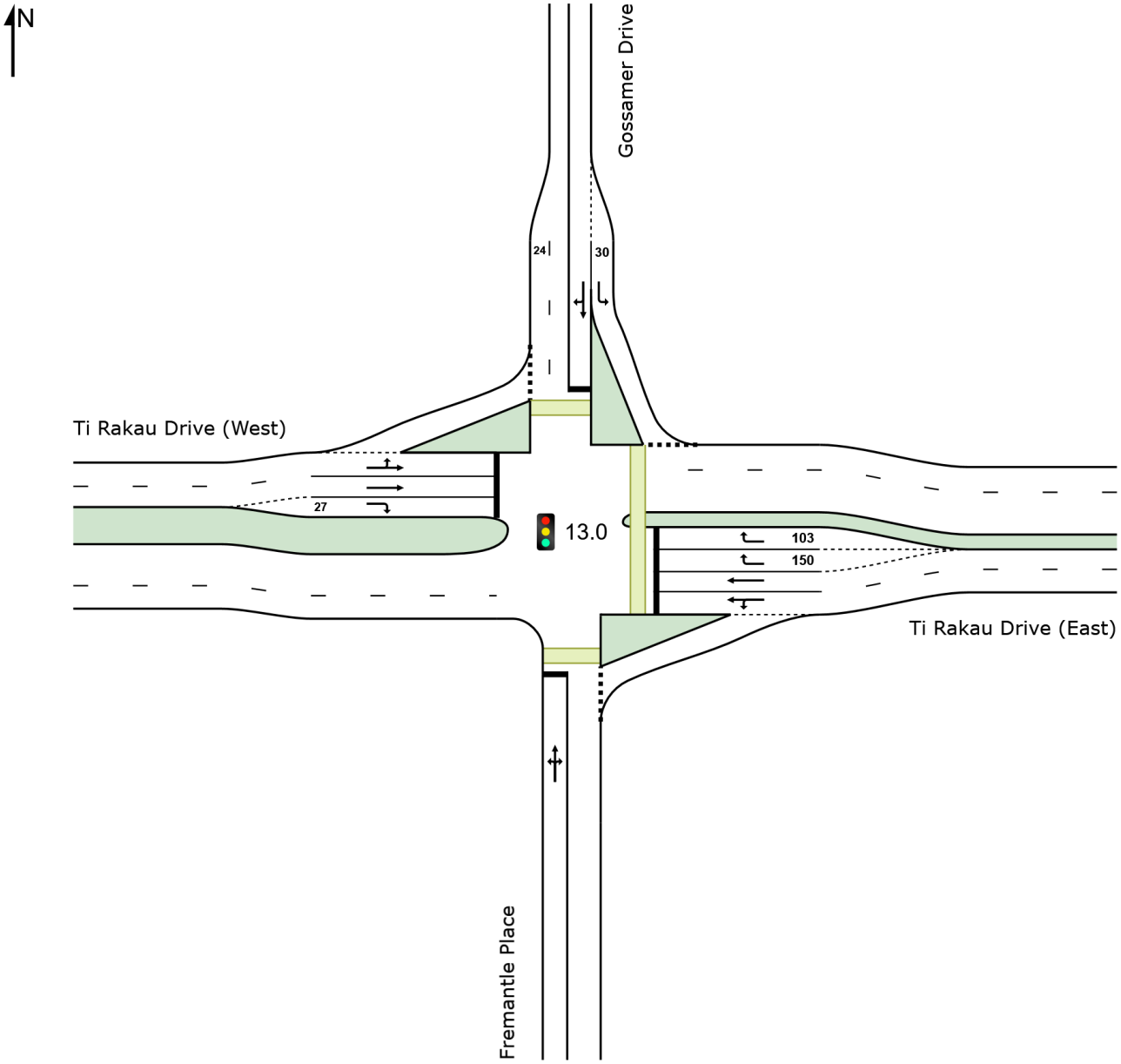
	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
SouthEast Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
NorthEast Exit: Chevis Place Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
NorthWest Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									
Full Length Lane	2	Merge Analysis not applied.									
SouthWest Exit: Edgewater Drive (West) Merge Type: **Not Applied**											
Full Length Lane	1	Merge Analysis not applied.									

SITE LAYOUT

Site: 13.0 [13.0 Gossamer Dr / Ti Rakau Dr (Site Folder: General)]

Scheme Design
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



LANE SUMMARY

Site: 13.0 [13.0 Gossamer Dr / Ti Rakau Dr (Site Folder: General)]

Network: N101 [PM (Network Folder: General)]

Scheme Design
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 171 seconds (Site Practical Cycle Time)

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Fremantle Place															
Lane 1	39	2.6	39	2.6	65	0.602	100	97.7	LOS F	3.5	24.7	Full	285	0.0	0.0
Approach	39	2.6	39	2.6		0.602		97.7	LOS F	3.5	24.7				
East: Ti Rakau Drive (East)															
Lane 1	863	6.9	863	6.9	1037	0.832	100	32.6	LOS C	57.8	428.8	Full	636	0.0	0.0
Lane 2	779	7.0	779	7.0	936[1]	0.832	100	30.4	LOS C	49.0	363.9	Full	636	0.0	0.0
Lane 3	113	8.9	113	8.9	553	0.205	23[6]	28.4	LOS C	4.1	30.8	Short	150	0.0	NA
Lane 4	494	8.9	494	8.9	553	0.893	100	48.2	LOS D	28.3	213.3	Short	103	0.0	NA
Approach	2249	7.5	2249	7.5		0.893		35.1	LOS D	57.8	428.8				
North: Gossamer Drive															
Lane 1	475	17.3	475	17.3	912[1]	0.521	100	17.9	LOS B	18.2	146.6	Short	30	0.0	NA
Lane 2	41	4.9	41	4.9	241	0.170	100	74.3	LOS E	3.0	22.2	Full	1010	0.0	0.0
Approach	516	16.3	516	16.3		0.521		22.4	LOS C	18.2	146.6				
West: Ti Rakau Drive (West)															
Lane 1	587	5.2	560	5.2	629	0.890	100	72.3	LOS E	47.8	349.9	Full	479	0.0	0.0
Lane 2	554	5.5	529	5.4	594[1]	0.890	100	67.9	LOS E	45.6	333.9	Full	479	0.0	0.0
Lane 3	18	0.0	17	0.0	231	0.074	100	75.1	LOS E	1.3	8.8	Short	27	0.0	NA
Approach	1159	5.3	1106[N] [1]	5.2		0.890		70.2	LOS E	47.8	349.9				
Intersection	3963	7.9	3910[N] [1]	8.0		0.893		44.0	LOS D	57.8	428.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Approach Lane Flows (veh/h)

South: Fremantle Place

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	12	10	17	39	2.6	65	0.602	100	NA	NA
Approach	12	10	17	39	2.6		0.602			

East: Ti Rakau Drive (East)

Mov. From E To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

	S	W	N							
Lane 1	20	843	-	863	6.9	1037	0.832	100	NA	NA
Lane 2	-	779	-	779	7.0	936[1]	0.832	100	NA	NA
Lane 3	-	-	113	113	8.9	553	0.205	23[6]	37.2	2
Lane 4	-	-	494	494	8.9	553	0.893	100	72.7	3
Approach	20	1622	607	2249	7.5		0.893			

North: Gossamer Drive

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	475	-	-	475	17.3	912[1]	0.521	100	100.0	2
Lane 2	-	10	31	41	4.9	241	0.170	100	NA	NA
Approach	475	10	31	516	16.3		0.521			

West: Ti Rakau Drive (West)

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	58	502	-	560	5.2	629	0.890	100	NA	NA
Lane 2	-	529	-	529	5.4	594[1]	0.890	100	NA	NA
Lane 3	-	-	17	17	0.0	231	0.074	100	0.0	2
Approach	58	1031	17	1106	5.2		0.890			

	Total	%HV	Deg.Satn (v/c)
Intersection	3910	8.0	0.893

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

6 Lane under-utilisation due to downstream effects

Merge Analysis

	Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: Fremantle Place Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: Ti Rakau Drive (East) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										
North Exit: Gossamer Drive Merge Type: **Zipper**												
Exit Short Lane	1	24	50.0	252	263	2.50	2.00	171	1481	0.116	0.0	0.1
Merge Lane	2	-	50.0	86	89	2.50	2.00	504	1699	0.296	0.0	0.0
West Exit: Ti Rakau Drive (West) Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
Full Length Lane	2	Merge Analysis not applied.										