

Appendix R

Construction Scenario 1.4 – Lane Performance Summaries

SITE LAYOUT

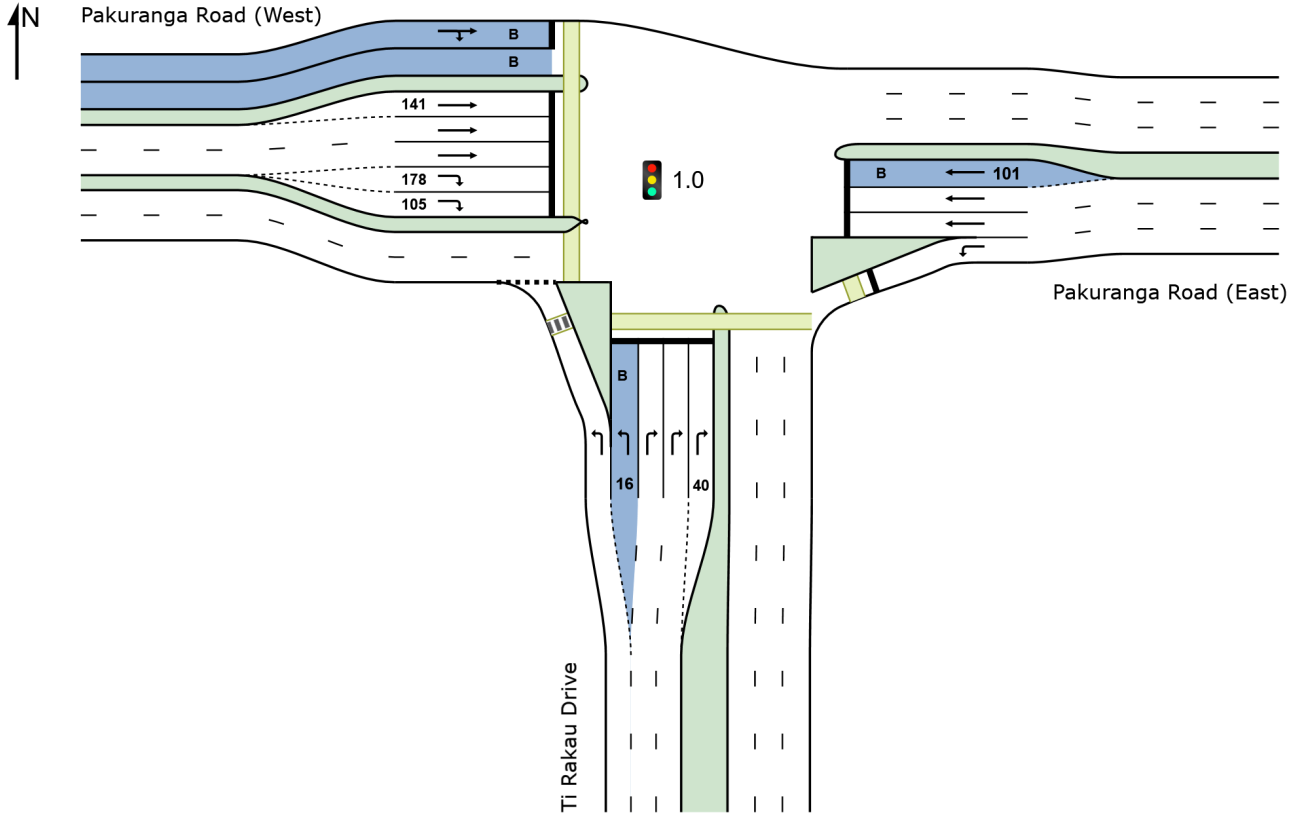
 Site: 1.0 [1.0 Pakuranga Rd / Ti Rakau Rd (Site Folder: General)]

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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Organisation: AECOM AUSTRALIA PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 15 February 2023 9:56:38 am
Project: C:\Users\jacques.vandenneever\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 1.4\CS 1.4 AM - V1.sip9

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 = 84 seconds (Site Practical Cycle Time)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|-----------------------------|--------------|-------|--------------------------------|-------|------------------|---------------|--------------|-----------------|------------------|--------------------|---------------------|-------------|---------------|-------------|----------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 85% BACK OF QUEUE | | Lane Config | Lane Length m | Cap. Adj. % | Prob. Block. % |
| | [Total HV] | % | [Total HV] | % | | | | | | [Veh] | [Dist] | | | | |
| South: Ti Rakau Drive | | | | | | | | | | | | | | | |
| Lane 1 | 579 | 8.6 | 567 | 8.5 | 896 ¹ | 0.633 | 100 | 13.7 | LOS B | 12.4 | 93.0 | Full | 174 | 0.0 | 0.0 |
| Lane 2 (B) | 17 | 100.0 | 17 | 100.0 | 121 | 0.141 | 100 | 47.3 | LOS D | 0.6 | 8.1 | Short | 16 | 0.0 | NA |
| Lane 3 | 191 | 4.0 | 187 | 4.0 | 342 | 0.546 | 100 | 38.7 | LOS D | 6.4 | 46.3 | Full | 174 | 0.0 | 0.0 |
| Lane 4 | 191 | 4.0 | 187 | 4.0 | 342 | 0.546 | 100 | 38.7 | LOS D | 6.4 | 46.3 | Full | 174 | 0.0 | 0.0 |
| Lane 5 | 191 | 4.0 | 187 | 4.0 | 342 | 0.546 | 100 | 38.7 | LOS D | 6.4 | 46.3 | Short | 40 | 0.0 | NA |
| Approach | 1168 | 7.7 | 1144 ^N ₁ | 7.7 | | 0.633 | | 26.4 | LOS C | 12.4 | 93.0 | | | | |
| East: Pakuranga Road (East) | | | | | | | | | | | | | | | |
| Lane 1 | 832 | 4.8 | 812 | 4.8 | 1127 | 0.720 | 100 | 16.9 | LOS B | 20.1 | 146.3 | Full | 113 | 0.0 | 38.7 |
| Lane 2 | 626 | 6.1 | 611 | 6.0 | 689 | 0.887 | 100 | 38.5 | LOS D | 22.4 ^{N4} | 165.1 ^{N4} | Full | 113 | 0.0 | 50.0 |
| Lane 3 | 626 | 6.1 | 611 | 6.0 | 689 | 0.887 | 100 | 38.5 | LOS D | 22.4 ^{N4} | 165.1 ^{N4} | Full | 113 | 0.0 | 50.0 |
| Lane 4 (B) | 25 | 100.0 | 25 | 100.0 | 85 | 0.293 | 100 | 45.6 | LOS D | 1.0 | 12.5 | Short | 101 | 0.0 | NA |
| Approach | 2109 | 6.7 | 2059 ^N ₁ | 6.7 | | 0.887 | | 30.0 | LOS C | 22.4 | 165.1 | | | | |
| West: Pakuranga Road (West) | | | | | | | | | | | | | | | |
| Lane 1 (B) | 24 | 100.0 | 24 | 100.0 | 81 | 0.297 | 100 | 44.1 | LOS D | 0.9 | 11.4 | Full | 388 | 0.0 | 0.0 |
| Lane 2 | 318 | 9.6 | 318 | 9.6 | 695 | 0.458 | 100 | 21.1 | LOS C | 8.8 | 66.8 | Short | 141 | 0.0 | NA |
| Lane 3 | 318 | 9.6 | 318 | 9.6 | 695 | 0.458 | 100 | 21.1 | LOS C | 8.8 | 66.8 | Full | 388 | 0.0 | 0.0 |
| Lane 4 | 318 | 9.6 | 318 | 9.6 | 695 | 0.458 | 100 | 21.1 | LOS C | 8.8 | 66.8 | Full | 388 | 0.0 | 0.0 |
| Lane 5 | 131 | 11.5 | 131 | 11.5 | 142 | 0.920 | 100 | 62.1 | LOS E | 6.0 | 45.9 | Short | 178 | 0.0 | NA |
| Lane 6 | 131 | 11.5 | 131 | 11.5 | 142 | 0.920 | 100 | 62.1 | LOS E | 6.0 | 45.9 | Short | 105 | 0.0 | NA |
| Approach | 1241 | 11.8 | 1241 | 11.8 | | 0.920 | | 30.2 | LOS C | 8.8 | 66.8 | | | | |
| Intersection | 4518 | 8.3 | 4444 ^N ₁ | 8.5 | | 0.920 | | 29.2 | LOS C | 22.4 | 165.1 | | | | |

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.

^{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 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL % | Ov. Lane No. | |
| | W | E | | | | | | | | |
| Lane 1 | 567 | - | 567 | 8.5 | 896 ¹ | 0.633 | 100 | NA | NA | |
| Lane 2 | 17 | - | 17 | 100.0 | 121 | 0.141 | 100 | 0.0 | 1 | |
| Lane 3 | - | 187 | 187 | 4.0 | 342 | 0.546 | 100 | NA | NA | |

| Lane 4 | - | 187 | 187 | 4.0 | 342 | 0.546 | 100 | NA | NA |
|-----------------------------|------|------|-------|-------|------------|---------------|--------------|----------------|--------------|
| Lane 5 | - | 187 | 187 | 4.0 | 342 | 0.546 | 100 | 28.4 | 4 |
| Approach | 584 | 560 | 1144 | 7.7 | | 0.633 | | | |
| East: Pakuranga Road (East) | | | | | | | | | |
| Mov. From E To Exit: | L2 | T1 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | S | W | | | | | | | |
| Lane 1 | 812 | - | 812 | 4.8 | 1127 | 0.720 | 100 | NA | NA |
| Lane 2 | - | 611 | 611 | 6.0 | 689 | 0.887 | 100 | NA | NA |
| Lane 3 | - | 611 | 611 | 6.0 | 689 | 0.887 | 100 | NA | NA |
| Lane 4 | - | 25 | 25 | 100.0 | 85 | 0.293 | 100 | 0.0 | 3 |
| Approach | 812 | 1247 | 2059 | 6.7 | | 0.887 | | | |
| West: Pakuranga Road (West) | | | | | | | | | |
| Mov. From W To Exit: | T1 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | E | S | | | | | | | |
| Lane 1 | 9 | 15 | 24 | 100.0 | 81 | 0.297 | 100 | NA | NA |
| Lane 2 | 318 | - | 318 | 9.6 | 695 | 0.458 | 100 | 0.0 | 3 |
| Lane 3 | 318 | - | 318 | 9.6 | 695 | 0.458 | 100 | NA | NA |
| Lane 4 | 318 | - | 318 | 9.6 | 695 | 0.458 | 100 | NA | NA |
| Lane 5 | - | 131 | 131 | 11.5 | 142 | 0.920 | 100 | 0.0 | 4 |
| Lane 6 | - | 131 | 131 | 11.5 | 142 | 0.920 | 100 | 0.0 | 5 |
| Approach | 964 | 277 | 1241 | 11.8 | | 0.920 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 4444 | 8.5 | | 0.920 | | | | | |

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.

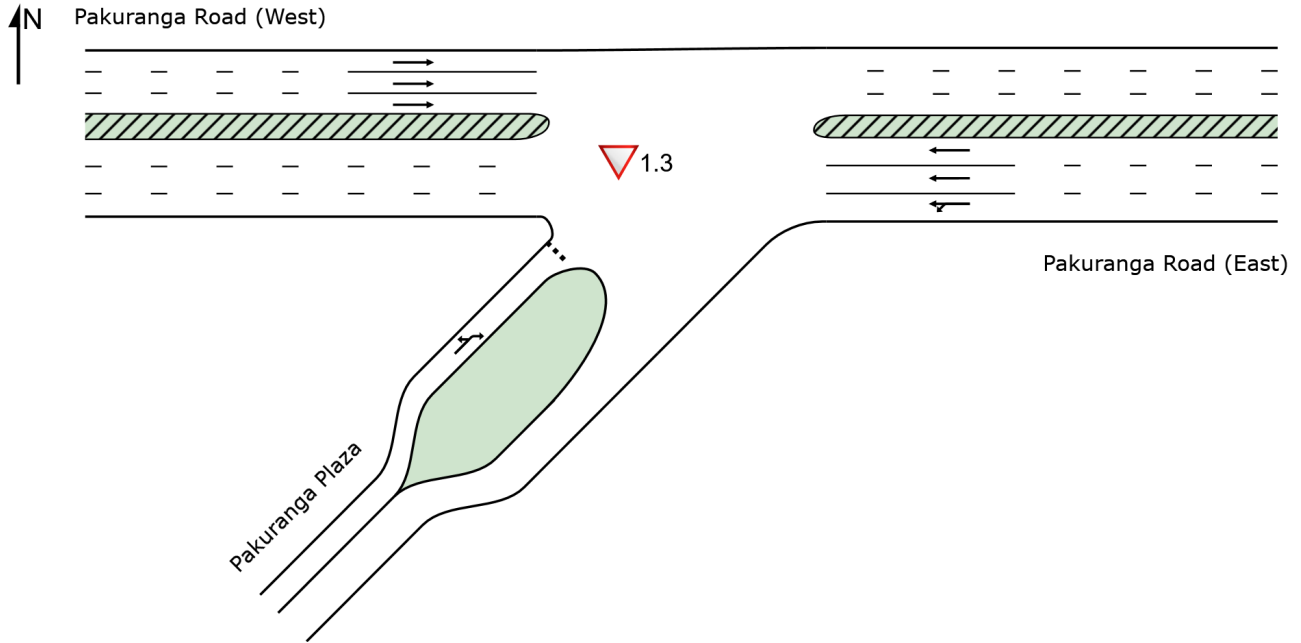
| Merge Analysis | | | | | | | | | | | |
|----------------------------------|------------------|---------------------|------------------------------|--------------------------|------------------|-----------------------|-------------------------------|---------------|----------------|-----------------|--|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate 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. | | | | | | | | |
| | Full Length Lane | 3 | 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.



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 | | ARRIVAL FLOWS | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 85% BACK OF QUEUE | | Lane Config | Lane Length m | Cap. Adj. % | Prob. Block. % |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | | | | | | [Veh] | [Dist m] | | | | |
| East: Pakuranga Road (East) | | | | | | | | | | | | | | | |
| Lane 1 | 719 | 8.5 | 719 | 8.5 | 1844 | 0.390 | 100 | 1.4 | LOS A | 0.0 | 0.0 | Full | 152 | 0.0 | 0.0 |
| Lane 2 | 737 | 5.6 | 737 | 5.6 | 1892 | 0.390 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 152 | 0.0 | 0.0 |
| Lane 3 | 737 | 5.6 | 737 | 5.6 | 1892 | 0.390 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 152 | 0.0 | 0.0 |
| Approach | 2193 | 6.5 | 2193 | 6.5 | | 0.390 | | 0.5 | NA | 0.0 | 0.0 | | | | |
| West: Pakuranga Road (West) | | | | | | | | | | | | | | | |
| Lane 1 | 509 | 8.1 | 506 | 8.1 | 1785 | 0.283 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 108 | 0.0 | 0.0 |
| Lane 2 | 509 | 8.1 | 506 | 8.1 | 1785 | 0.283 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 108 | 0.0 | 0.0 |
| Lane 3 | 506 | 8.1 | 503 | 8.1 | 1775 | 0.283 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 108 | 0.0 | 0.0 |
| Approach | 1524 | 8.1 | 1514 ^{N1} | 8.1 | | 0.283 | | 0.0 | NA | 0.0 | 0.0 | | | | |
| SouthWest: Pakuranga Plaza | | | | | | | | | | | | | | | |
| Lane 1 | 54 | 5.6 | 54 | 5.6 | 11 | 4.747 | 100 | 3565.0 | LOS F | 26.0 | 190.8 | Full | 196 | -11.4 ^{N7} | 14.0 |
| Approach | 54 | 5.6 | 54 | 5.6 | | 4.747 | | 3565.0 | LOS F | 26.0 | 190.8 | | | | |
| Intersection | 3771 | 7.2 | 3761 ^{N1} | 7.2 | | 4.747 | | 51.5 | NA | 26.0 | 190.8 | | | | |

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.

^{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: Pakuranga Road (East) | | | | | | | | | | |
| Mov. From E To Exit: | L1 | T1 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | SW | W | | | | | | | | |
| Lane 1 | 180 | 539 | 719 | 8.5 | 1844 | 0.390 | 100 | NA | NA | |
| Lane 2 | - | 737 | 737 | 5.6 | 1892 | 0.390 | 100 | NA | NA | |
| Lane 3 | - | 737 | 737 | 5.6 | 1892 | 0.390 | 100 | NA | NA | |
| Approach | 180 | 2013 | 2193 | 6.5 | | 0.390 | | | | |
| West: Pakuranga Road (West) | | | | | | | | | | |
| Mov. From W To Exit: | T1 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | | |
| | E | | | | | | | | | |
| Lane 1 | 506 | 506 | 8.1 | 1785 | 0.283 | 100 | NA | NA | | |
| Lane 2 | 506 | 506 | 8.1 | 1785 | 0.283 | 100 | NA | NA | | |

| | | | | | | | | | |
|----------------------------|---------|---------|-------|-------|---------------|------------------|-----------------|---------------|-----------------|
| Lane 3 | 503 | 503 | 8.1 | | 1775 | 0.283 | 100 | NA | NA |
| Approach | 1514 | 1514 | 8.1 | | | 0.283 | | | |
| 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. Lane No. |
| Lane 1 | 29 | 25 | 54 | 5.6 | 11 | 4.747 | 100 | NA | NA |
| Approach | 29 | 25 | 54 | 5.6 | | 4.747 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 3761 | 7.2 | | 4.747 | | | | | |

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

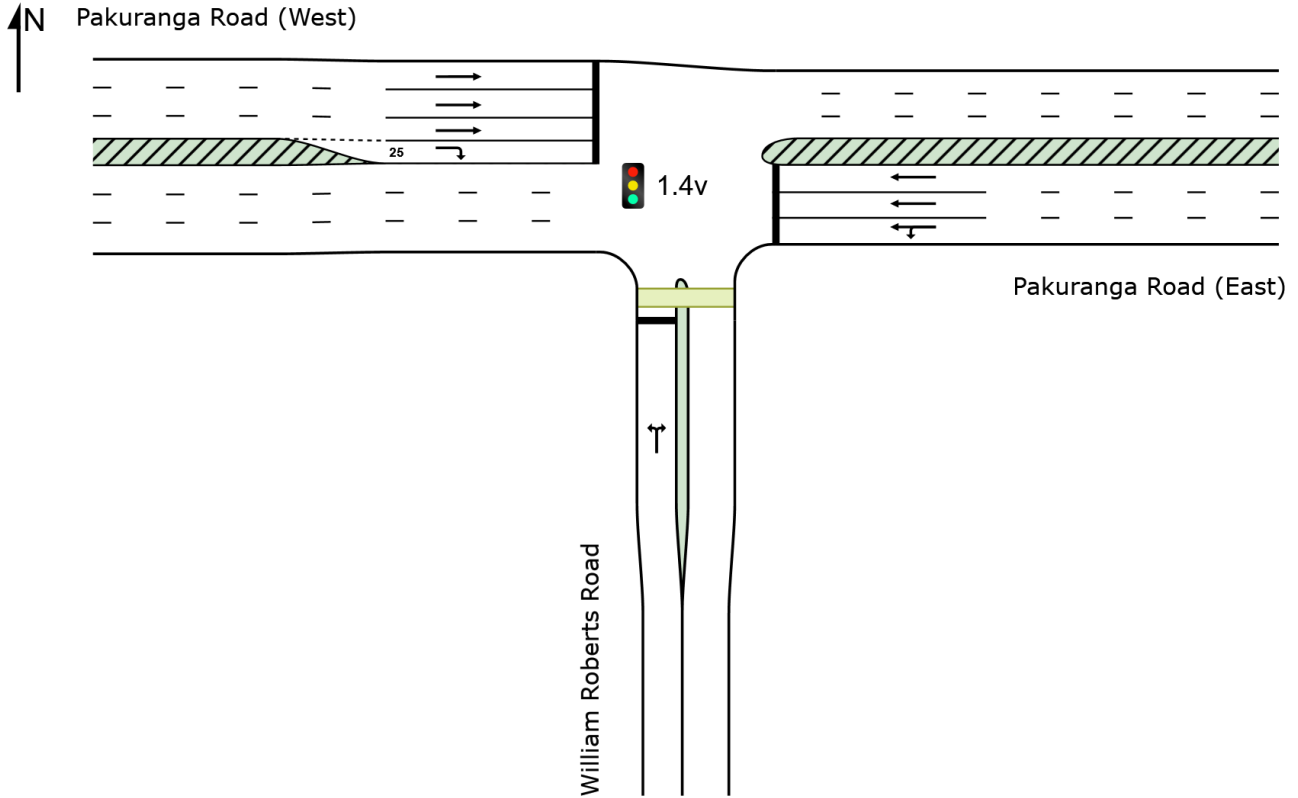
| Merge Analysis | | | | | | | | | | | | |
|----------------------------------|------------------|---------------------|------------------------|-----------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | 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. |
| 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: 1.4v [1.4 William Roberts/ Pakuranga Rd - PD - Conversion (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: 1.4v [1.4 William Roberts/ Pakuranga Rd - PD - Conversion (Site Folder: General)]

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 61 seconds (Site Practical Cycle Time)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|-----------------------------|---|------|--|------|------------------|------------------|-----------------|--------------------|------------------|--|-------|-------------|------------------|--------------------|-------------------|
| | DEMAND FLOWS [Total HV] veh/h % | | ARRIVAL FLOWS [Total HV] veh/h % | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 85% BACK OF QUEUE [Veh Dist] m | | Lane Config | Lane Length m | Cap. Adj. % | Prob. Block. % |
| South: William Roberts Road | | | | | | | | | | | | | | | |
| Lane 1 | 287 | 8.7 | 287 | 8.7 | 330 | 0.868 | 100 | 39.8 | LOS D | 9.1 | 68.7 | Full | 244 | -0.4 ^{N7} | 0.0 |
| Approach | 287 | 8.7 | 287 | 8.7 | | 0.868 | | 39.8 | LOS D | 9.1 | 68.7 | | | | |
| East: Pakuranga Road (East) | | | | | | | | | | | | | | | |
| Lane 1 | 699 | 6.0 | 699 | 6.0 | 790 | 0.885 | 100 | 29.7 | LOS C | 22.6 | 166.4 | Full | 184 | 0.0 | 5.9 |
| Lane 2 | 688 | 6.2 | 688 | 6.2 | 778 | 0.885 | 100 | 28.9 | LOS C | 22.3 | 164.1 | Full | 184 | 0.0 | 4.6 |
| Lane 3 | 696 | 6.2 | 696 | 6.2 | 786 | 0.885 | 100 | 28.8 | LOS C | 22.4 | 165.5 | Full | 184 | 0.0 | 5.4 |
| Approach | 2083 | 6.1 | 2083 | 6.1 | | 0.885 | | 29.1 | LOS C | 22.6 | 166.4 | | | | |
| West: Pakuranga Road (West) | | | | | | | | | | | | | | | |
| Lane 1 | 550 | 8.1 | 543 | 8.1 | 1142 | 0.475 | 100 | 6.7 | LOS A | 7.8 | 58.2 | Full | 152 | 0.0 | 0.0 |
| Lane 2 | 532 | 8.1 | 525 | 8.1 | 1105 | 0.475 | 100 | 6.7 | LOS A | 7.5 | 56.4 | Full | 152 | -3.2 ^{N3} | 0.0 |
| Lane 3 | 470 | 8.1 | 464 | 8.1 | 976 ¹ | 0.475 | 100 | 6.4 | LOS A | 6.4 | 48.1 | Full | 152 | -3.2 ^{N3} | 0.0 |
| Lane 4 | 54 | 13.0 | 53 | 13.0 | 160 | 0.333 | 100 | 35.8 | LOS D | 1.4 | 11.2 | Short | 25 | 0.0 | NA |
| Approach | 1605 | 8.2 | 1585 ^{N1} | 8.3 | | 0.475 | | 7.6 | LOS A | 7.8 | 58.2 | | | | |
| Intersection | 3975 | 7.2 | 3955 ^{N1} | 7.2 | | 0.885 | | 21.3 | LOS C | 22.6 | 166.4 | | | | |

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.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{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 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | W | E | | | | | | | | |
| Lane 1 | 253 | 34 | 287 | 8.7 | 330 | 0.868 | 100 | NA | NA | |
| Approach | 253 | 34 | 287 | 8.7 | | 0.868 | | | | |
| East: Pakuranga Road (East) | | | | | | | | | | |
| Mov. From E To Exit: | L2 | T1 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | S | W | | | | | | | | |
| Lane 1 | 143 | 556 | 699 | 6.0 | 790 | 0.885 | 100 | NA | NA | |
| Lane 2 | - | 688 | 688 | 6.2 | 778 | 0.885 | 100 | NA | NA | |

| Lane 3 | - | 696 | 696 | 6.2 | 786 | 0.885 | 100 | NA | NA |
|-----------------------------|------|------|-------|-------|------------------|---------------|--------------|----------------|--------------|
| Approach | 143 | 1940 | 2083 | 6.1 | | 0.885 | | | |
| West: Pakuranga Road (West) | | | | | | | | | |
| Mov. From W To Exit: | T1 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | E | S | | | | | | | |
| Lane 1 | 543 | - | 543 | 8.1 | 1142 | 0.475 | 100 | NA | NA |
| Lane 2 | 525 | - | 525 | 8.1 | 1105 | 0.475 | 100 | NA | NA |
| Lane 3 | 464 | - | 464 | 8.1 | 976 ¹ | 0.475 | 100 | NA | NA |
| Lane 4 | - | 53 | 53 | 13.0 | 160 | 0.333 | 100 | 0.0 | 3 |
| Approach | 1532 | 53 | 1585 | 8.3 | | 0.475 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 3955 | 7.2 | | 0.885 | | | | | |

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.

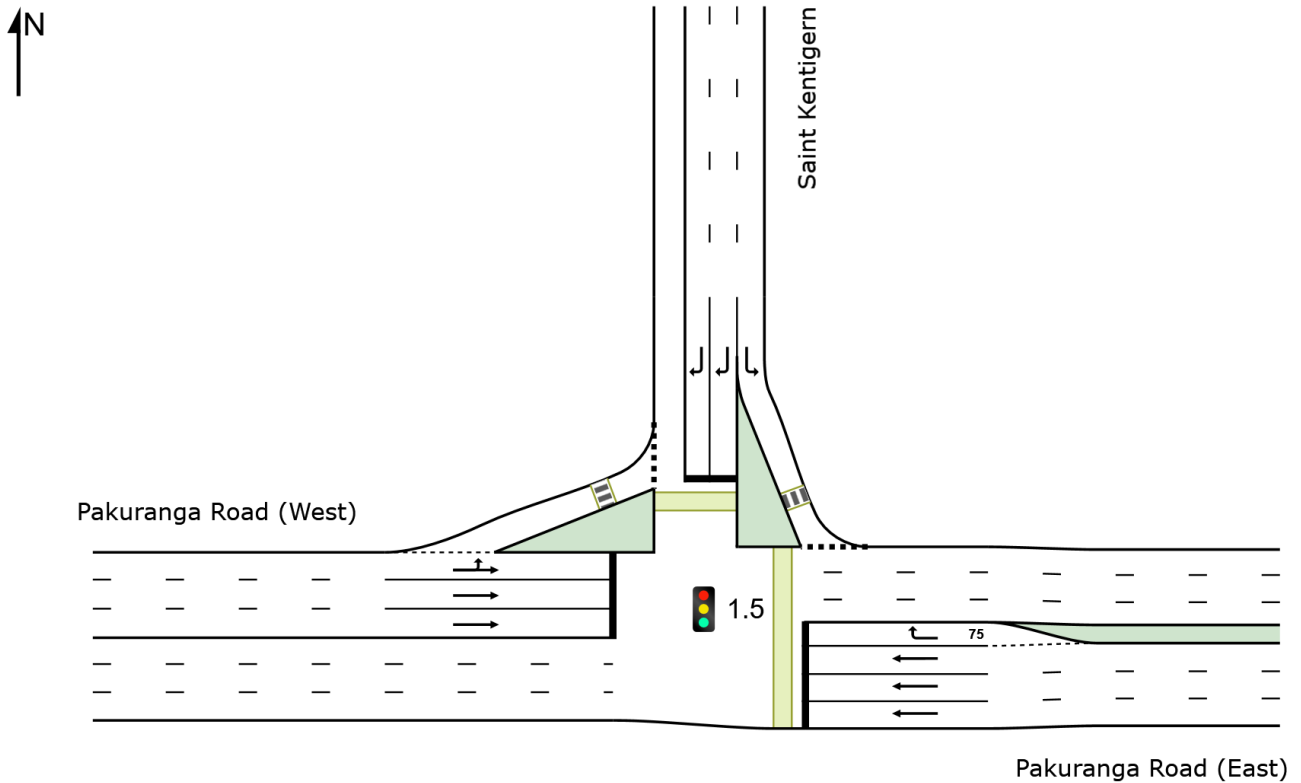
| Merge Analysis | | | | | | | | | | | | |
|----------------------------------|------------------|---------------------|------------------------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|--|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % 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 | | | | | | | | | | | |
| East Exit: Pakuranga Road (East) | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | | | | | | | | | | | |
| Full Length Lane | 2 | | | | | | | | | | | |
| Full Length Lane | 3 | | | | | | | | | | | |
| West Exit: Pakuranga Road (West) | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | | | | | | | | | | | |
| Full Length Lane | 2 | | | | | | | | | | | |
| Full Length Lane | 3 | | | | | | | | | | | |

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.



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 = 87 seconds (Site Practical Cycle Time)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|-----------------------------|---|------|--|------|-------|-----------|------------|-------------|------------------|--|-------|-------------|-------------|--------------------|--------------|
| | DEMAND FLOWS [Total HV] veh/h % | | ARRIVAL FLOWS [Total HV] veh/h % | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | 85% BACK OF QUEUE [Veh Dist] m | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | | | | | veh/h | v/c | % | sec | | | | | m | % | % |
| East: Pakuranga Road (East) | | | | | | | | | | | | | | | |
| Lane 1 | 685 | 6.3 | 685 | 6.3 | 1057 | 0.648 | 100 | 11.8 | LOS B | 16.8 | 123.6 | Full | 87 | -5.9 ^{N7} | 47.3 |
| Lane 2 | 694 | 6.3 | 694 | 6.3 | 1071 | 0.648 | 100 | 11.8 | LOS B | 17.0 | 125.2 | Full | 87 | -4.6 ^{N3} | 48.6 |
| Lane 3 | 672 | 6.3 | 672 | 6.3 | 1037 | 0.648 | 100 | 11.5 | LOS B | 16.1 | 119.0 | Full | 87 | -5.4 ^{N3} | 43.8 |
| Lane 4 | 72 | 2.8 | 72 | 2.8 | 242 | 0.297 | 100 | 25.7 | LOS C | 1.5 | 10.5 | Short | 75 | 0.0 | NA |
| Approach | 2124 | 6.2 | 2124 | 6.2 | | 0.648 | | 12.2 | LOS B | 17.0 | 125.2 | | | | |
| North: Saint Kentigern | | | | | | | | | | | | | | | |
| Lane 1 | 13 | 0.0 | 13 | 0.0 | 947 | 0.014 | 100 | 5.9 | LOS A | 0.2 | 1.2 | Full | 96 | 0.0 | 0.0 |
| Lane 2 | 20 | 10.0 | 20 | 10.0 | 412 | 0.049 | 100 | 26.6 | LOS C | 0.6 | 4.4 | Full | 96 | -4.6 ^{N3} | 0.0 |
| Lane 3 | 20 | 10.0 | 20 | 10.0 | 402 | 0.049 | 100 | 26.6 | LOS C | 0.6 | 4.3 | Full | 96 | -5.4 ^{N3} | 0.0 |
| Approach | 53 | 7.5 | 53 | 7.5 | | 0.049 | | 21.5 | LOS C | 0.6 | 4.4 | | | | |
| West: Pakuranga Road (West) | | | | | | | | | | | | | | | |
| Lane 1 | 503 | 6.4 | 497 | 6.5 | 582 | 0.854 | 100 | 33.2 | LOS C | 18.6 | 137.1 | Full | 184 | 0.0 | 0.0 |
| Lane 2 | 534 | 7.3 | 527 | 7.3 | 617 | 0.854 | 100 | 37.1 | LOS D | 21.7 | 161.5 | Full | 184 | 0.0 | 3.2 |
| Lane 3 | 534 | 7.3 | 527 | 7.3 | 617 | 0.854 | 100 | 37.1 | LOS D | 21.7 | 161.5 | Full | 184 | 0.0 | 3.2 |
| Approach | 1570 | 7.0 | 1552 ^{N1} | 7.0 | | 0.854 | | 35.8 | LOS D | 21.7 | 161.5 | | | | |
| Intersection | 3747 | 6.5 | 3729 ^{N1} | 6.6 | | 0.854 | | 22.1 | LOS C | 21.7 | 161.5 | | | | |

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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

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: Pakuranga Road (East) | | | | | | | | | | |
| Mov. From E To Exit: | T1 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | W | N | | | | | | | | |
| Lane 1 | 685 | - | 685 | 6.3 | 1057 | 0.648 | 100 | NA | NA | |
| Lane 2 | 694 | - | 694 | 6.3 | 1071 | 0.648 | 100 | NA | NA | |
| Lane 3 | 672 | - | 672 | 6.3 | 1037 | 0.648 | 100 | NA | NA | |
| Lane 4 | - | 72 | 72 | 2.8 | 242 | 0.297 | 100 | 0.0 | 3 | |
| Approach | 2052 | 72 | 2124 | 6.2 | | 0.648 | | | | |
| North: Saint Kentigern | | | | | | | | | | |
| Mov. From N | L2 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |

| To Exit: | E | W | | | veh/h | v/c | % | % | No. |
|-----------------------------|------|------|-------|-------|-------|-------|-------|--------|------|
| Lane 1 | 13 | - | 13 | 0.0 | 947 | 0.014 | 100 | NA | NA |
| Lane 2 | - | 20 | 20 | 10.0 | 412 | 0.049 | 100 | NA | NA |
| Lane 3 | - | 20 | 20 | 10.0 | 402 | 0.049 | 100 | NA | NA |
| Approach | 13 | 40 | 53 | 7.5 | | 0.049 | | | |
| West: Pakuranga Road (West) | | | | | | | | | |
| Mov. | L2 | T1 | Total | %HV | | Deg. | Lane | Prob. | Ov. |
| From W | | | | | Cap. | Satn | Util. | SL Ov. | Lane |
| To Exit: | N | E | | | veh/h | v/c | % | % | No. |
| Lane 1 | 127 | 369 | 497 | 6.5 | 582 | 0.854 | 100 | NA | NA |
| Lane 2 | - | 527 | 527 | 7.3 | 617 | 0.854 | 100 | NA | NA |
| Lane 3 | - | 527 | 527 | 7.3 | 617 | 0.854 | 100 | NA | NA |
| Approach | 127 | 1424 | 1552 | 7.0 | | 0.854 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | |
| Intersection | 3729 | 6.6 | | 0.854 | | | | | |

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

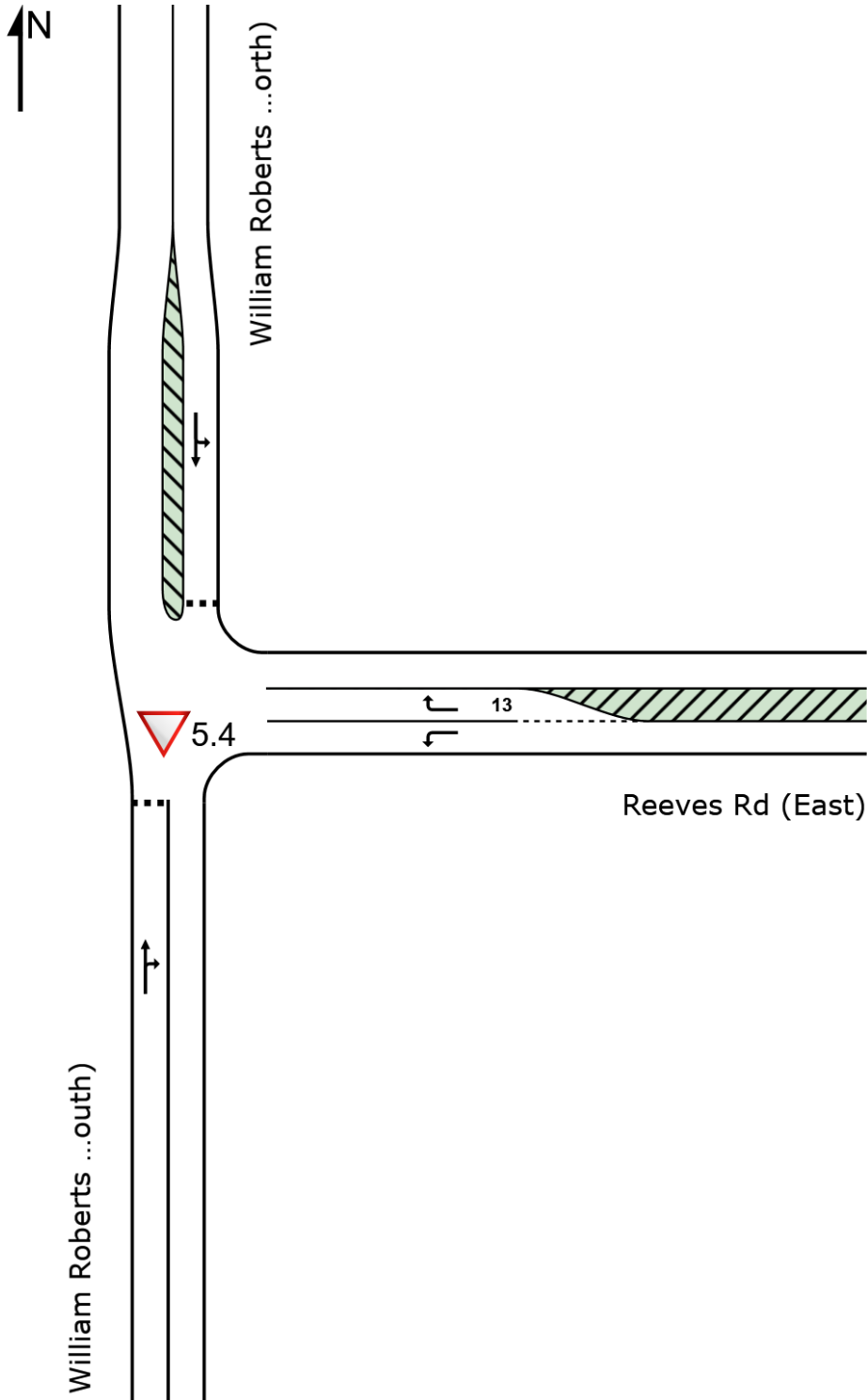
| Merge Analysis | | | | | | | | | | | | |
|----------------------------------|------------------|---------------------|------------------------|----------------------------|-------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| | 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 |
| East Exit: Pakuranga Road (East) | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | | | | | | | | | | | |
| Full Length Lane | 2 | | | | | | | | | | | |
| Full Length Lane | 3 | | | | | | | | | | | |
| North Exit: Saint Kentigern | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | | | | | | | | | | | |
| West Exit: Pakuranga Road (West) | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | | | | | | | | | | | |
| Full Length Lane | 2 | | | | | | | | | | | |
| Full Length Lane | 3 | | | | | | | | | | | |

SITE LAYOUT

▽ Site: 5.4 [5.4 Reeves Rd / William Roberts 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.



Organisation: AECOM AUSTRALIA PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 15 February 2023 9:56:58 am
Project: C:\Users\jacques.vandenhoeffer\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 1.4\CS 1.4 AM - V1.sip9

LANE SUMMARY

Site: 5.4 [5.4 Reeves Rd / William Roberts Rd - Import (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 HV] | | ARRIVAL FLOWS [Total HV] | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | 85% BACK OF QUEUE [Veh Dist] | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | veh/h | % | veh/h | % | veh/h | v/c | % | sec | | | m | | m | % | % |
| South: William Roberts Rd (South) | | | | | | | | | | | | | | | |
| Lane 1 | 220 | 8.2 | 220 | 8.2 | 831 | 0.265 | 100 | 4.2 | LOS A | 0.8 | 5.7 | Full | 243 | 0.0 | 0.0 |
| Approach | 220 | 8.2 | 220 | 8.2 | | 0.265 | | 4.2 | LOS A | 0.8 | 5.7 | | | | |
| East: Reeves Rd (East) | | | | | | | | | | | | | | | |
| Lane 1 | 215 | 9.3 | 215 | 9.3 | 1714 | 0.125 | 100 | 4.7 | LOS A | 0.0 | 0.0 | Full | 266 | 0.0 | 0.0 |
| Lane 2 | 222 | 9.0 | 222 | 9.0 | 1718 | 0.129 | 100 | 4.7 | LOS A | 0.0 | 0.0 | Short | 13 | 0.0 | NA |
| Approach | 437 | 9.2 | 437 | 9.2 | | 0.129 | | 4.7 | NA | 0.0 | 0.0 | | | | |
| North: William Roberts Rd (North) | | | | | | | | | | | | | | | |
| Lane 1 | 141 | 5.0 | 141 | 5.0 | 1112 | 0.126 | 100 | 5.7 | LOS A | 0.3 | 2.5 | Full | 244 | 0.0 | 0.0 |
| Approach | 141 | 5.0 | 141 | 5.0 | | 0.126 | | 5.7 | LOS A | 0.3 | 2.5 | | | | |
| Intersection | 798 | 8.2 | 797 ^{N1} | 8.2 | | 0.265 | | 4.7 | NA | 0.8 | 5.7 | | | | |

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.

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.

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|-----------------------------------|-----|-----|-------|-----|------------|---------------|--------------|----------------|--------------|--|
| South: William Roberts Rd (South) | | | | | | | | | | |
| Mov. From S To Exit: | T1 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 67 | 153 | 220 | 8.2 | 831 | 0.265 | 100 | NA | NA | |
| Approach | 67 | 153 | 220 | 8.2 | | 0.265 | | | | |
| East: Reeves Rd (East) | | | | | | | | | | |
| Mov. From E To Exit: | L2 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 215 | - | 215 | 9.3 | 1714 | 0.125 | 100 | NA | NA | |
| Lane 2 | - | 222 | 222 | 9.0 | 1718 | 0.129 | 100 | 0.0 | 1 | |
| Approach | 215 | 222 | 437 | 9.2 | | 0.129 | | | | |
| North: William Roberts Rd (North) | | | | | | | | | | |
| Mov. From N To Exit: | L2 | T1 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 42 | 99 | 141 | 5.0 | 1112 | 0.126 | 100 | NA | NA | |
| Approach | 42 | 99 | 141 | 5.0 | | 0.126 | | | | |

| | Total | %HV | Deg.Satn (v/c) |
|--------------|-------|-----|----------------|
| Intersection | 797 | 8.2 | 0.265 |

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

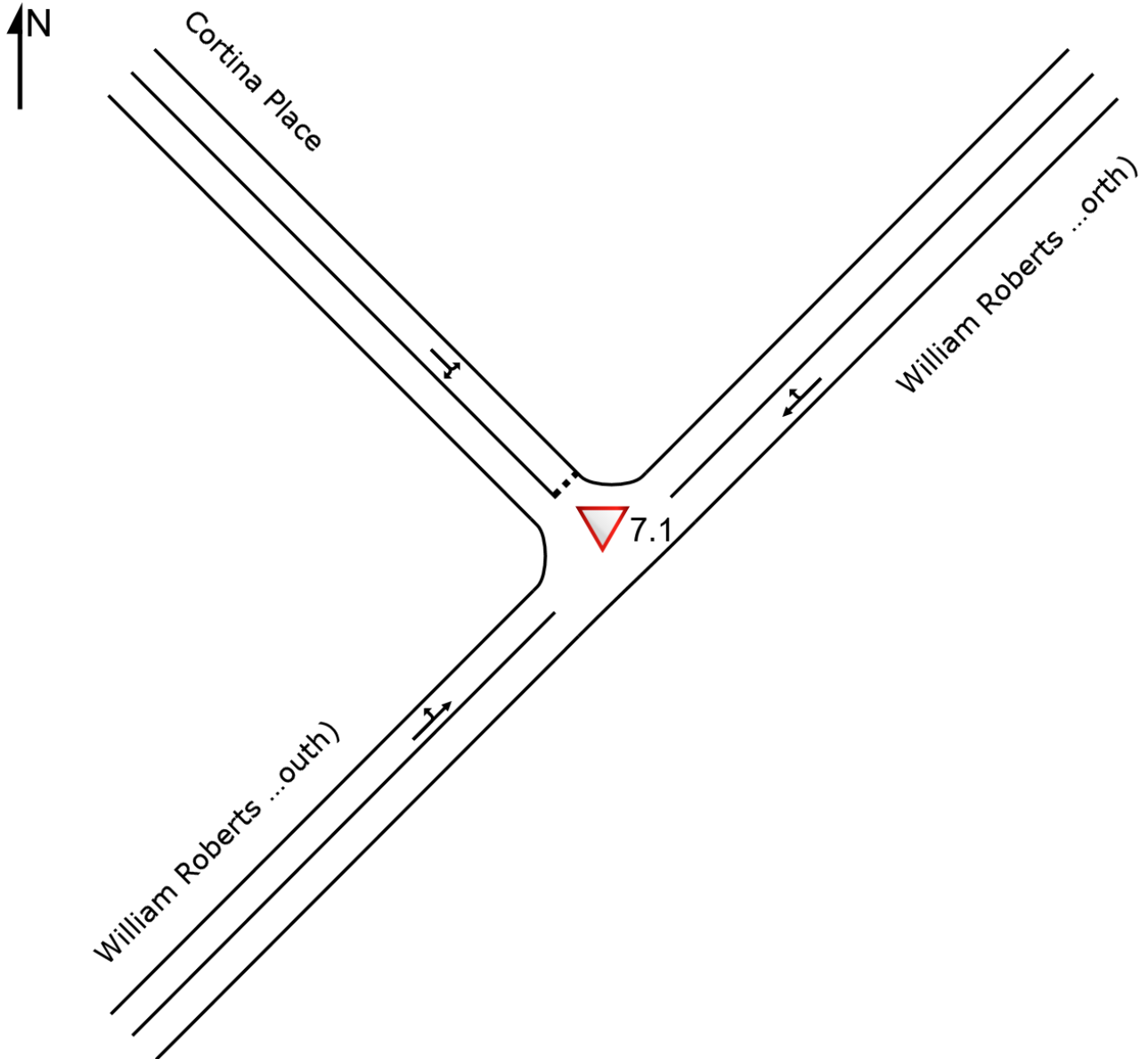
| Merge Analysis | | | | | | | | | | | |
|--|------------------|---------------------|------------------------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % 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. | | | | | | | | |

SITE LAYOUT

▽ Site: 7.1 [7.1 William Roberts Rd / Cortina PI - Import (Site Folder: General)]

Scheme Design
Site Category: (None)
Give-Way (Two-Way)

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



LANE SUMMARY

Site: 7.1 [7.1 William Roberts Rd / Cortina PI - Import (Site Folder: General)]

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

Scheme Design
 Site Category: (None)
 Give-Way (Two-Way)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|---|---------------------------|-----|----------------------------|-----|-------|-----------|------------|-------------|------------------|--------------------------------|-------------|-------------|-----------|--------------|-----|
| | DEMAND FLOWS [Total HV] | | ARRIVAL FLOWS [Total HV] | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | 85% BACK OF QUEUE [Veh Dist] | Lane Config | Lane Length | Cap. Adj. | Prob. Block. | |
| | veh/h | % | veh/h | % | veh/h | v/c | % | sec | | | | m | m | % | % |
| NorthEast: William Roberts Road (North) | | | | | | | | | | | | | | | |
| Lane 1 | 293 | 7.8 | 293 | 7.9 | 1772 | 0.165 | 100 | 0.5 | LOS A | 0.2 | 1.6 | Full | 243 | 0.0 | 0.0 |
| Approach | 293 | 7.8 | 293 | 7.9 | | 0.165 | | 0.5 | NA | 0.2 | 1.6 | | | | |
| NorthWest: Cortina Place | | | | | | | | | | | | | | | |
| Lane 1 | 31 | 6.5 | 31 | 6.5 | 1051 | 0.029 | 100 | 3.3 | LOS A | 0.1 | 0.6 | Full | 177 | 0.0 | 0.0 |
| Approach | 31 | 6.5 | 31 | 6.5 | | 0.029 | | 3.3 | LOS A | 0.1 | 0.6 | | | | |
| SouthWest: William Roberts Road (South) | | | | | | | | | | | | | | | |
| Lane 1 | 204 | 8.8 | 204 | 8.8 | 1785 | 0.114 | 100 | 0.2 | LOS A | 0.0 | 0.0 | Full | 110 | 0.0 | 0.0 |
| Approach | 204 | 8.8 | 204 | 8.8 | | 0.114 | | 0.2 | NA | 0.0 | 0.0 | | | | |
| Intersection | 528 | 8.2 | 527 ^{N1} | 8.2 | | 0.165 | | 0.6 | NA | 0.2 | 1.6 | | | | |

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.

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|---|-----|-----|-------|-----|------------|-----------|------------|----------|----------|--|
| NorthEast: William Roberts Road (North) | | | | | | | | | | |
| Mov. | T1 | R2 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. Lane | |
| From NE | | | | | Cap. veh/h | v/c | % | % | No. | |
| To Exit: | SW | NW | | | | | | | | |
| Lane 1 | 256 | 37 | 293 | 7.9 | 1772 | 0.165 | 100 | NA | NA | |
| Approach | 256 | 37 | 293 | 7.9 | | 0.165 | | | | |
| NorthWest: Cortina Place | | | | | | | | | | |
| Mov. | L2 | R2 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. Lane | |
| From NW | | | | | Cap. veh/h | v/c | % | % | No. | |
| To Exit: | NE | SW | | | | | | | | |
| Lane 1 | 20 | 11 | 31 | 6.5 | 1051 | 0.029 | 100 | NA | NA | |
| Approach | 20 | 11 | 31 | 6.5 | | 0.029 | | | | |
| SouthWest: William Roberts Road (South) | | | | | | | | | | |
| Mov. | L2 | T1 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. Lane | |
| From SW | | | | | Cap. veh/h | v/c | % | % | No. | |
| To Exit: | NW | NE | | | | | | | | |
| Lane 1 | 24 | 180 | 204 | 8.8 | 1785 | 0.114 | 100 | NA | NA | |
| Approach | 24 | 180 | 204 | 8.8 | | 0.114 | | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | | |

| | | | |
|--------------|-----|-----|-------|
| Intersection | 527 | 8.2 | 0.165 |
|--------------|-----|-----|-------|

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 sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| NorthEast Exit: William Roberts Road (North) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | | | | | | | | | | Merge Analysis not applied. |
| NorthWest Exit: Cortina Place Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | | | | | | | | | | Merge Analysis not applied. |
| SouthWest Exit: William Roberts Road (South) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | | | | | | | | | | Merge Analysis not applied. |

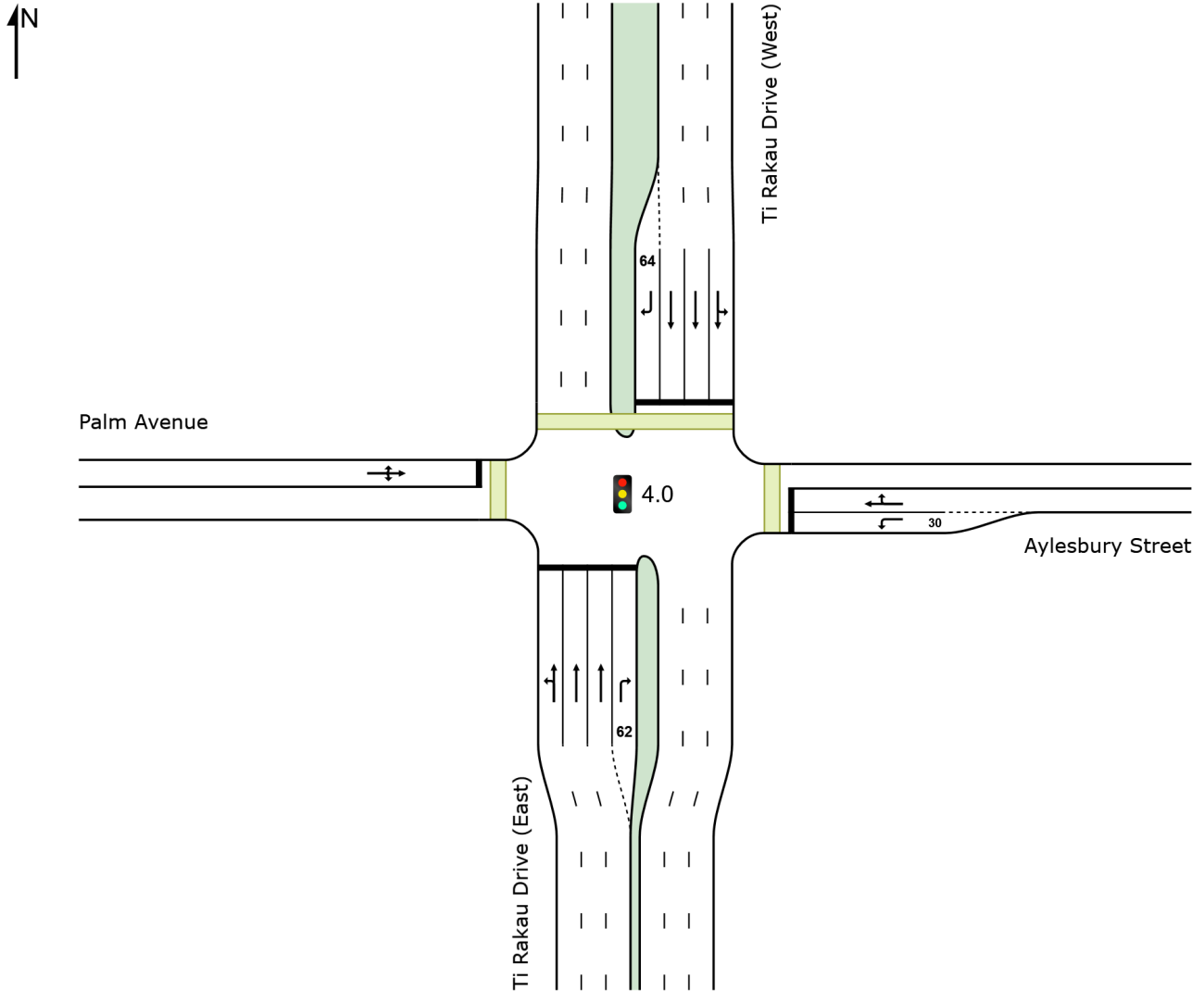
SITE LAYOUT

 Site: 4.0 [4.0 Palm Ave / Aylesbury St - Import (Site Folder: General)]

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated

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



SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: AECOM AUSTRALIA PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 15 February 2023 9:57:13 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 1.4\CS 1.4 AM - V1.sip9

LANE SUMMARY

Site: 4.0 [4.0 Palm Ave / Aylesbury St - Import (Site Folder: General)]

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

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 82 seconds (Site Practical Cycle Time)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|------------------------------|---------------|------|--------------------|------|------------|---------------|--------------|-----------------|------------------|-------------------|----------|-------------|---------------|---------------------|----------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 85% BACK OF QUEUE | | Lane Config | Lane Length m | Cap. Adj. % | Prob. Block. % |
| | [Total veh/h | HV % | [Total veh/h | HV % | | | | | | [Veh | Dist] m | | | | |
| South: Ti Rakau Drive (East) | | | | | | | | | | | | | | | |
| Lane 1 | 370 | 7.5 | 354 | 7.4 | 604 | 0.586 | 100 | 28.6 | LOS C | 10.4 | 77.1 | Full | 110 | 0.0 | 0.0 |
| Lane 2 | 382 | 7.9 | 365 | 7.8 | 623 | 0.586 | 100 | 26.8 | LOS C | 10.7 | 80.2 | Full | 110 | 0.0 | 0.0 |
| Lane 3 | 382 | 7.9 | 365 | 7.8 | 623 | 0.586 | 100 | 26.8 | LOS C | 10.7 | 80.2 | Full | 110 | 0.0 | 0.0 |
| Lane 4 | 23 | 4.3 | 22 | 4.3 | 125 | 0.176 | 100 | 44.9 | LOS D | 0.8 | 5.8 | Short | 62 | 0.0 | NA |
| Approach | 1157 | 7.7 | 1106 ^{N1} | 7.6 | | 0.586 | | 27.7 | LOS C | 10.7 | 80.2 | | | | |
| East: Aylesbury Street | | | | | | | | | | | | | | | |
| Lane 1 | 10 | 0.0 | 10 | 0.0 | 251 | 0.040 | 100 | 18.5 | LOS B | 0.2 | 1.3 | Short | 30 | 0.0 | NA |
| Lane 2 | 20 | 0.0 | 20 | 0.0 | 131 | 0.152 | 100 | 41.9 | LOS D | 0.7 | 5.0 | Full | 40 | 0.0 | 0.0 |
| Approach | 30 | 0.0 | 30 | 0.0 | | 0.152 | | 34.1 | LOS C | 0.7 | 5.0 | | | | |
| North: Ti Rakau Drive (West) | | | | | | | | | | | | | | | |
| Lane 1 | 543 | 7.8 | 533 | 7.9 | 623 | 0.856 | 100 | 37.8 | LOS D | 20.9 | 156.4 | Full | 174 | 0.0 | 5.3 |
| Lane 2 | 271 | 7.8 | 267 | 7.9 | 311 | 0.856 | 100 | 44.8 | LOS D | 11.6 | 86.4 | Full | 174 | -50.0 ^{N3} | 0.0 |
| Lane 3 | 271 | 7.8 | 267 | 7.9 | 311 | 0.856 | 100 | 44.8 | LOS D | 11.6 | 86.4 | Full | 174 | -50.0 ^{N3} | 0.0 |
| Lane 4 | 21 | 0.0 | 21 | 0.0 | 129 | 0.160 | 100 | 44.6 | LOS D | 0.7 | 5.2 | Short | 64 | 0.0 | NA |
| Approach | 1107 | 7.7 | 1087 ^{N1} | 7.7 | | 0.856 | | 41.4 | LOS D | 20.9 | 156.4 | | | | |
| West: Palm Avenue | | | | | | | | | | | | | | | |
| Lane 1 | 135 | 4.4 | 135 | 4.4 | 273 | 0.494 | 100 | 34.7 | LOS C | 4.4 | 32.0 | Full | 87 | -31.5 ^{N3} | 0.0 |
| Approach | 135 | 4.4 | 135 | 4.4 | | 0.494 | | 34.7 | LOS C | 4.4 | 32.0 | | | | |
| Intersection | 2429 | 7.4 | 2358 ^{N1} | 7.6 | | 0.856 | | 34.5 | LOS C | 20.9 | 156.4 | | | | |

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.

^{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.

| Approach Lane Flows (veh/h) | | | | | | | | | | | | |
|------------------------------|----|------|----|----|----|-------|-----|------------|---------------|--------------|----------------|--------------|
| South: Ti Rakau Drive (East) | | | | | | | | | | | | |
| Mov. From S To Exit: | L2 | | T1 | | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | N | N | E | | | | | | | | |
| Lane 1 | 33 | 322 | - | - | - | 354 | 7.4 | 604 | 0.586 | 100 | NA | NA |
| Lane 2 | - | 365 | - | - | - | 365 | 7.8 | 623 | 0.586 | 100 | NA | NA |
| Lane 3 | - | 365 | - | - | - | 365 | 7.8 | 623 | 0.586 | 100 | NA | NA |
| Lane 4 | - | - | 22 | 22 | - | 22 | 4.3 | 125 | 0.176 | 100 | 0.0 | 3 |
| Approach | 33 | 1052 | 22 | 22 | - | 1106 | 7.6 | | 0.586 | | | |

| East: Aylesbury Street | | | | | | | | | | |
|------------------------------|------|------|----|-------|-----|------------|---------------|--------------|----------------|--------------|
| 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. |
| Lane 1 | 10 | - | - | 10 | 0.0 | 251 | 0.040 | 100 | 0.0 | 2 |
| Lane 2 | - | 10 | 10 | 20 | 0.0 | 131 | 0.152 | 100 | NA | NA |
| Approach | 10 | 10 | 10 | 30 | 0.0 | | 0.152 | | | |
| North: Ti Rakau Drive (West) | | | | | | | | | | |
| Mov. From N To Exit: | L2 | T1 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 11 | 522 | - | 533 | 7.9 | 623 | 0.856 | 100 | NA | NA |
| Lane 2 | - | 267 | - | 267 | 7.9 | 311 | 0.856 | 100 | NA | NA |
| Lane 3 | - | 267 | - | 267 | 7.9 | 311 | 0.856 | 100 | NA | NA |
| Lane 4 | - | - | 21 | 21 | 0.0 | 129 | 0.160 | 100 | 0.0 | 3 |
| Approach | 11 | 1056 | 21 | 1087 | 7.7 | | 0.856 | | | |
| West: Palm Avenue | | | | | | | | | | |
| Mov. From W To Exit: | L2 | T1 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 63 | 10 | 62 | 135 | 4.4 | 273 | 0.494 | 100 | NA | NA |
| Approach | 63 | 10 | 62 | 135 | 4.4 | | 0.494 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | |
| Intersection | 2358 | 7.6 | | | | | 0.856 | | | |

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

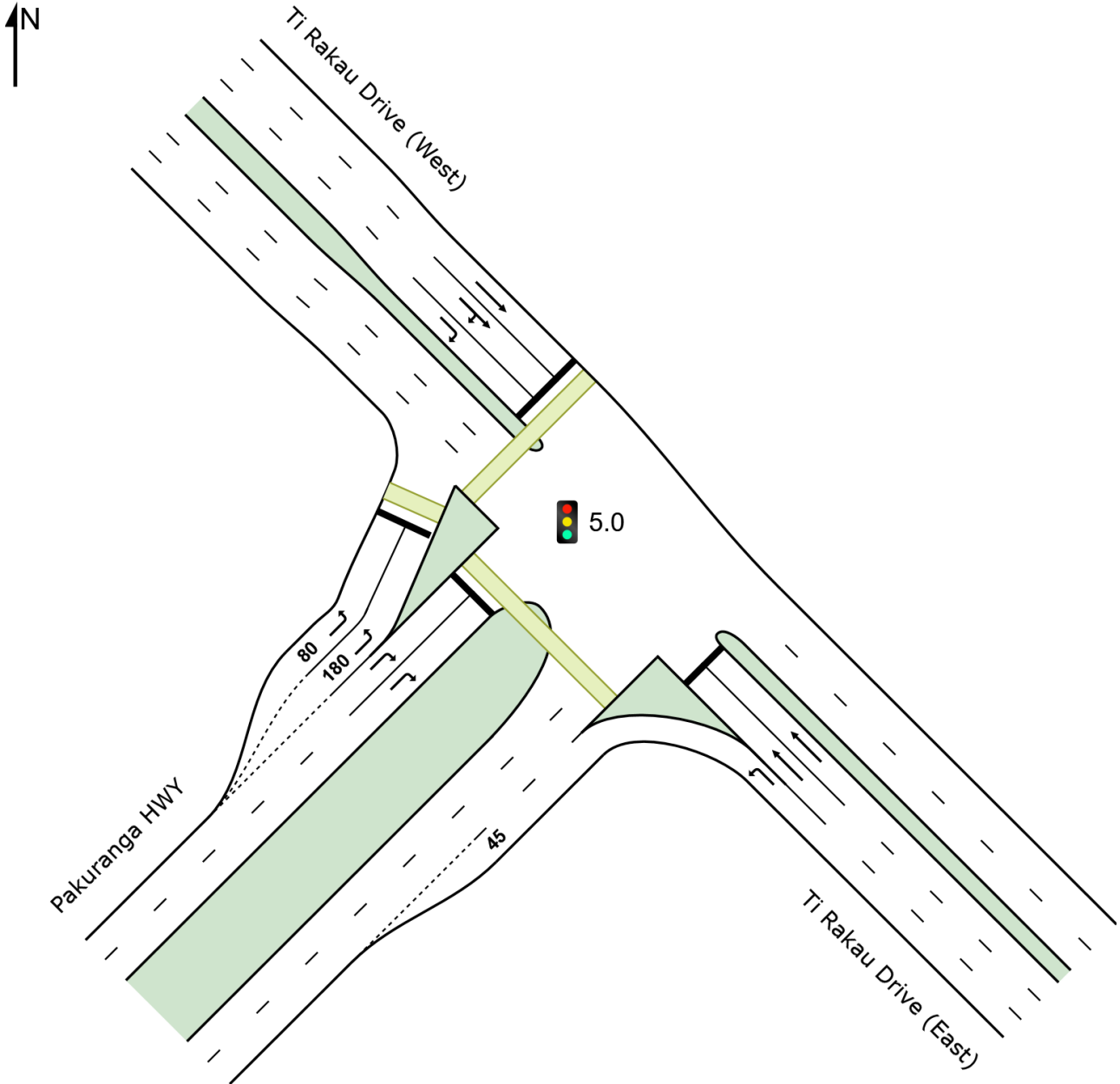
| Merge Analysis | | | | | | | | | | | |
|---|------------------|---------------------|------------------------|----------------------------|-------|------------------|-----------------------|-------------------------------|---------------|----------------|-----------------------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Opposing Flow Rate % veh/h | pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate 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. |
| Full Length Lane | 3 | | | | | | | | | | 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: 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: Palm Avenue Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | | | | | | | | | | 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 1 | 152 | - | 152 | 24.2 | 506 | 0.300 | 33 ⁵ | NA | NA |
|---------------------------|------|-----|-------|-------|------------|---------------|-----------------|----------------|--------------|
| Lane 2 | - | 490 | 490 | 5.2 | 546 | 0.898 | 100 | NA | NA |
| Lane 3 | - | 478 | 478 | 5.2 | 532 | 0.898 | 100 | NA | NA |
| Approach | 152 | 968 | 1120 | 7.8 | | 0.898 | | | |
| SouthWest: Pakuranga HWY | | | | | | | | | |
| Mov. From SW To Exit: | L2 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 324 | - | 324 | 4.9 | 1146 | 0.283 | 100 | 0.0 | 2 |
| Lane 2 | 324 | - | 324 | 4.9 | 1146 | 0.283 | 100 | 0.0 | 4 |
| Lane 3 | - | 429 | 429 | 9.3 | 487 | 0.882 | 100 | NA | NA |
| Lane 4 | - | 434 | 434 | 9.3 | 492 | 0.882 | 100 | NA | NA |
| Approach | 648 | 863 | 1511 | 7.4 | | 0.882 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 4506 | 9.1 | | 0.898 | | | | | |

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

5 Lane under-utilisation found by the program

| Merge Analysis | | | | | | | | | | | | |
|---|------------------|---------------------|------------------------------|---------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % 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. | | | | | | | | | |
| 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 | 45 | 0.0 | 490 | 503 | 3.00 | 2.00 | 1412 | 1283 | 1.100 | 0.8 | 98.7 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | 490 | 1800 | 0.272 | 0.0 | 0.0 | |