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By email
29 November 2023

Lindsay McGavin
Civic and Cultural Centre
Cnr Brett Street and Wharf Street
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Dear Lindsay McGavin

## Tweed Mall Shopping Centre Redevelopment

### Traffic and Transport Impact Assessment - RFI response

Tweed Shire Council have submitted a request for information (RFI) on the 19 October 2023 for DA23/0209 for the staged redevelopment of the Tweed Mall on Wharf Street. Arup has provided a response for traffic related items 2d, 2e and 2f. The response to each item is summarised in Table 1 and additional information is provided in this report.

**Table 1: Tweed Shire Council RFI items to be addressed**

| Item | | Response |
|---|---|---|
| 2d | The provided SIDRA intersection modelling diagrams indicates turning lane lengths significantly longer than what is currently in place. **This may impact on modelling outcomes and is to be reviewed.** | Two lanes have been identified as having incorrect lengths in the SIDRA models.<br><br>The right lane in the westbound direction of Frances Street was modelled as a long lane, it should have been a 75m short lane.<br><br>The left exit lane of Wharf Street, north of Bay Street was modelled as a long lane, it should have been a 75m short lane.<br><br>These lane lengths have been rectified and the model's re-run. The updated results are presented in this report. The changes have minor impacts on the intersections, but the overall outcome of the modelling does not change. |
| 2e | The provided SIDRA intersection modelling indicates that the Frances Street westbound left lane permits a straight-ahead movement which is incorrect. **This may impact on modelling outcomes and is to be reviewed.** | The Frances Street westbound left lane was modelled to allowing through movements; however, the road markings indicate that this movement is not permitted.<br><br>This has been rectified and the model re-run. The updated results are presented in this report. The changes |

| Item | | Response |
|---|---|---|
| | | have minor impacts on the intersections, but the overall outcome of the modelling does not change. |
| 2f | To assess the current baseline traffic data, surveys were conducted on Friday 26 and Saturday 27 March 2021 at two intersections, being Wharf Street / Bay Street and Wharf Street / Frances Street. The data was collected for 5 hours on the Friday and 4 hours on the Saturday. **Further traffic survey data is required to provide confidence on the existing traffic volumes impacting on adjacent intersections to determine potential road upgrades required for each stage of the development. In this regard, representative data is required to ensure that maximum peak traffic is catered for.** | At the time of the assessment, SCATS data was acquired for Friday 18 November 2022 at the signalised intersection, to compare it to the 2021 traffic data. The 2021 data showed slightly higher volumes at this intersection when compared to the 2022 SCATS data in both the AM and PM peak hours. Therefore, the 2021 survey data was deemed to be the more conservative volumes to model and assess.<br><br>SCATS data is not available for the roundabout.<br><br>A comparison of the volumes at the Wharf Street/Bay Street intersection are presented in this report. |

## Updated Modelling results

The updated modelling results due to the changes requested in the RFI are presented in this section.

### Wharf Street/Bay Street intersection

The modelling results for the Wharf Street/Bay Street intersection are presented in Table 2, Table 3 and Table 4 for each of the representative Weekday AM, PM and weekend peak hours respectively.

**Table 2: SIDRA modelling results – Weekday AM peak - Wharf Street/Bay Street intersection**

| AM (08:00-09:00) | | 2021 Existing | 2028 Stage 1 | | 2031 Stage 2 | | 2034 Stage 3 | |
|---|---|---|---|---|---|---|---|---|
| | | Baseline | Baseline | Baseline + development | Baseline | Baseline + development | Baseline | Baseline + development |
| Wharf Street/Bay Street intersection | DoS | 38% | 40% | 52% | 41% | 57% | 42% | 71% |
| | Delay (s) | 16s | 16s | 16s | 16s | 17s | 16s | 18s |
| | LoS | B | B | B | B | B | B | B |
| | 95th percentile queue (m) | 51m | 54m | 70m | 55m | 76m | 56m | 91m |

The 2021 Existing modelling results show that the intersection operates well within its capacity with a degree of saturation of 38% and level of service B, this is considered acceptable. The future year modelling results show that the intersection operates well within its capacity during the AM

peak hour throughout all development stages. From Stage 1 of development to Stage 3 of development, the degree of saturation increases from 52% to 71%, the delay increases by two seconds and the queue increases from 70m to 91m. However, the intersection remains at a level of service B which is considered acceptable.

**Table 3: SIDRA modelling results – Weekday PM peak - Wharf Street/Bay Street intersection**

| PM (15:00-16:00) | | 2021 Existing | 2028 Stage 1 | | 2031 Stage 2 | | 2034 Stage 3 | |
|---|---|---|---|---|---|---|---|---|
| | | Baseline | Baseline | Baseline + development | Baseline | Baseline + development | Baseline | Baseline + development |
| Wharf Street/Bay Street intersection | DoS | 47% | 49% | 59% | 50% | 62% | 52% | 72% |
| | Delay (s) | 16s | 16s | 17s | 16s | 18s | 16s | 19s |
| | LoS | B | B | B | B | B | B | B |
| | 95th percentile queue (m) | 64m | 68m | 78m | 69m | 74m | 71m | 85m |

The 2021 Existing modelling results show that the intersection operates well within its capacity with a degree of saturation of 47% and level of service B, this is considered acceptable. The modelling results show that the intersection operates well within its capacity during the PM peak hour throughout all development stages. From Stage 1 of development to Stage 3 of development, the degree of saturation increases from 59% to 72%, the delay increases by two second and the queue increases from 74m to 85m. However, the intersection remains at a level of service B which is considered acceptable.

**Table 4: SIDRA modelling results – Saturday peak - Wharf Street/Bay Street intersection**

| Sat (11:30-12:30) | | 2021 Existing | 2028 Stage 1 | | 2031 Stage 2 | | 2034 Stage 3 | |
|---|---|---|---|---|---|---|---|---|
| | | Baseline | Baseline | Baseline + development | Baseline | Baseline + development | Baseline | Baseline + development |
| Wharf Street/Bay Street intersection | DoS | 50% | 53% | 74% | 54% | 80% | 55% | 93% |
| | Delay (s) | 16s | 16s | 18s | 16s | 20s | 16s | 26s |
| | LoS | B | B | B | B | B | B | B |
| | 95th percentile queue (m) | 67m | 70m | 88m | 72m | 100m | 73m | 164m |

The 2021 Existing modelling results show that the intersection operates well within its capacity with a degree of saturation of 50% and level of service B, this is considered acceptable. The modelling results show that the intersection operates well within its capacity during the Saturday

peak hour throughout all development stages. From Stage 1 of development to Stage 3 of development, the degree of saturation increases from 74% to 93%, the delay increases by eight seconds and the queue increases from 88m to 164m. However, the intersection remains at a level of service B which is considered acceptable.

### Wharf Street/Frances Street roundabout

The modelling results for the Wharf Street/Frances Street roundabout are presented in Table 5, Table 6 and Table 7 for the weekday AM, PM and weekend peak hours respectively.

**Table 5: SIDRA modelling results – Weekday AM peak - Wharf Street/Frances Street roundabout**

| AM (08:00-09:00) | | 2021 Existing | 2028 Stage 1 | | 2031 Stage 2 | | 2034 Stage 3 | |
|---|---|---|---|---|---|---|---|---|
| | | Baseline | Baseline | Baseline + development | Baseline | Baseline + development | Baseline | Baseline + development |
| Wharf Street/Frances Street roundabout | DoS | 28% | 29% | 44% | 30% | 44% | 30% | 60% |
| | Delay (s) | 11s | 11s | 12s | 11s | 12s | 11s | 13s |
| | LoS | A | A | A | A | A | A | A |
| | 95th percentile queue (m) | 15m | 16m | 26m | 16m | 27m | 17m | 47m |

The 2021 Existing modelling results show that the intersection operates well within its capacity with a degree of saturation of 28% and level of service A, this is considered acceptable. The modelling results show that the intersection operates well within its capacity during the AM peak hour through each development stage. From Stage 1 of development to Stage 3, the degree of saturation increases from 44% to 60%, the delay increases by one second and the queue increases from 26m to 47m. However, the roundabout remains at a level of service A which is considered acceptable.

**Table 6: SIDRA modelling results – Weekday PM peak - Wharf Street/Frances Street roundabout**

| PM (15:00-16:00) | | 2021 Existing | 2028 Stage 1 | | 2031 Stage 2 | | 2034 Stage 3 | |
|---|---|---|---|---|---|---|---|---|
| | | Baseline | Baseline | Baseline + development | Baseline | Baseline + development | Baseline | Baseline + development |
| Wharf Street/Frances Street roundabout | DoS | 34% | 36% | 58% | 37% | 60% | 38% | 95% |
| | Delay (s) | 12s | 12s | 15s | 12s | 17s | 12s | 77s |
| | LoS | A | A | B | A | B | A | F |
| | 95th percentile queue (m) | 19m | 20m | 45m | 21m | 52m | 22m | 214m |

The 2021 Existing modelling results show that the intersection operates well within its capacity with a degree of saturation of 34% and level of service A, this is considered acceptable. The modelling results show that the intersection reaches its operating capacity during the PM peak hour after Stage 3 of development. From Stage 2 to Stage 3 of development, the degree of saturation increases from 60% to 95%, the delay increases by 60 seconds and the queue increases from 52m to 214m. The level of service for the roundabout is F which is considered over capacity.

**Table 7: SIDRA modelling results – Sat peak - Wharf Street/Frances Street roundabout**

| Sat (11:30-12:30) | | 2021 Existing | 2028 Stage 1 | | 2031 Stage 2 | | 2034 Stage 3 | |
|---|---|---|---|---|---|---|---|---|
| | | Baseline | Baseline | Baseline + development | Baseline | Baseline + development | Baseline | Baseline + development |
| Wharf Street/Frances Street roundabout | DoS | 36% | 39% | 79% | 39% | 84% | 40% | 127% |
| | Delay (s) | 11s | 11s | 33s | 11s | 38s | 11s | 298s |
| | LoS | A | A | C | A | C | A | F |
| | 95th percentile queue (m) | 21m | 22m | 101m | 23m | 119m | 24m | 710m |

The 2021 Existing modelling results show that the intersection operates well within its capacity with a degree of saturation of 36% and level of service A, this is considered acceptable. The modelling results show that the intersection reaches its operating capacity during the Saturday peak hour after Stage 3 of development. From Stage 2 to Stage 3 of development. the degree of saturation increases from 84% to 127%, the delay increases by 260 seconds and the queue increases from 119m to 710m. The level of service for the roundabout is F which is considered over capacity.

The Wharf Street/Frances Street roundabout does not have enough capacity to accommodate the volume of vehicles forecast after Stage 3 of development in 2034. As a result of the potential future

light rail development the roundabout is expected to be signalised at Stage 3. The signalisation of the roundabout will improve the capacity of the intersection and should be assessed when the light rail plans have been developed further. Consultation with the local authority will be undertaken prior to Stage 3 DA, to ensure the signalisation can accommodate the additional traffic.

The full model outputs from the SIDRA modelling are presented in Appendix A of this report.

### Modelling summary

The SIDRA models have been updated to amend the lane lengths and the turning movements raised in item 2d and 2e. The models were re-run, and the results show some minor changes to the degree of saturation, delay and queue length. However, the level of service and overall outcome of the modelling has not changed.

The results still show the same over capacity results for Stage 3 when the development is added. When compared to the baseline volumes, the Wharf Street/Frances Street roundabout goes over capacity with a LoS F.

## SCATS traffic data

When the initial assessment was being conducted in November 2022, SCATS data was obtained for the Wharf Street/Bay Street intersection for Friday 18 November 2022. This was used to verify the traffic count data that was used as part of the assessment.

Table 8 summarised the volumes at the intersection for the AM and PM peak periods for both sets of data. This shows that during both peak periods more vehicles were recorded traveling through the intersection in 2021 when compared to 2022. This verifies that the volumes recorded in the traffic survey were more conservative and provides a more robust assessment.

It is worth nothing that SCATS data is not available for the roundabout as there are no traffic signals. Therefore, a comparison at this intersection could not be completed without an additional survey, but it is expected that the signalised intersection would be fairly representative of the area given it accommodates at least half of the development traffic.

**Table 8: Traffic data comparison Wharf Street/Bay Street intersection**

| Source | Date | AM Peak (08:00-09:00) | PM Peak (15:00-16:00) |
|---|---|---|---|
| **Traffic Survey** | Friday, 26/03/2021 | 1,310 vehicles | 1,622 vehicles |
| **SCATS data** | Friday, 18/11/2022 | 1,167 vehicles | 1,537 vehicles |
| | **Reduction** | 11% (143 vehicles) | 5% (85 vehicles) |

## Summary

Arup has addressed the issues raised in Tweed Shire Council's RFI. The SIDRA models have been updated to amend the lane lengths and the turning movements raised in item 2d and 2e. The models were re-run, and the results show some minor changes to the results but the level of service and overall outcome of the modelling has not changed.

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**Date** 29 November 2023

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Arup has also addressed item 2f. SCATS data was obtained at the time of the assessment to verify the traffic count data use in the assessment. The comparison of the volumes shows the volumes in 2022 were between 5-10% lower than in 2021.

Regards

James Turner
Senior Engineer

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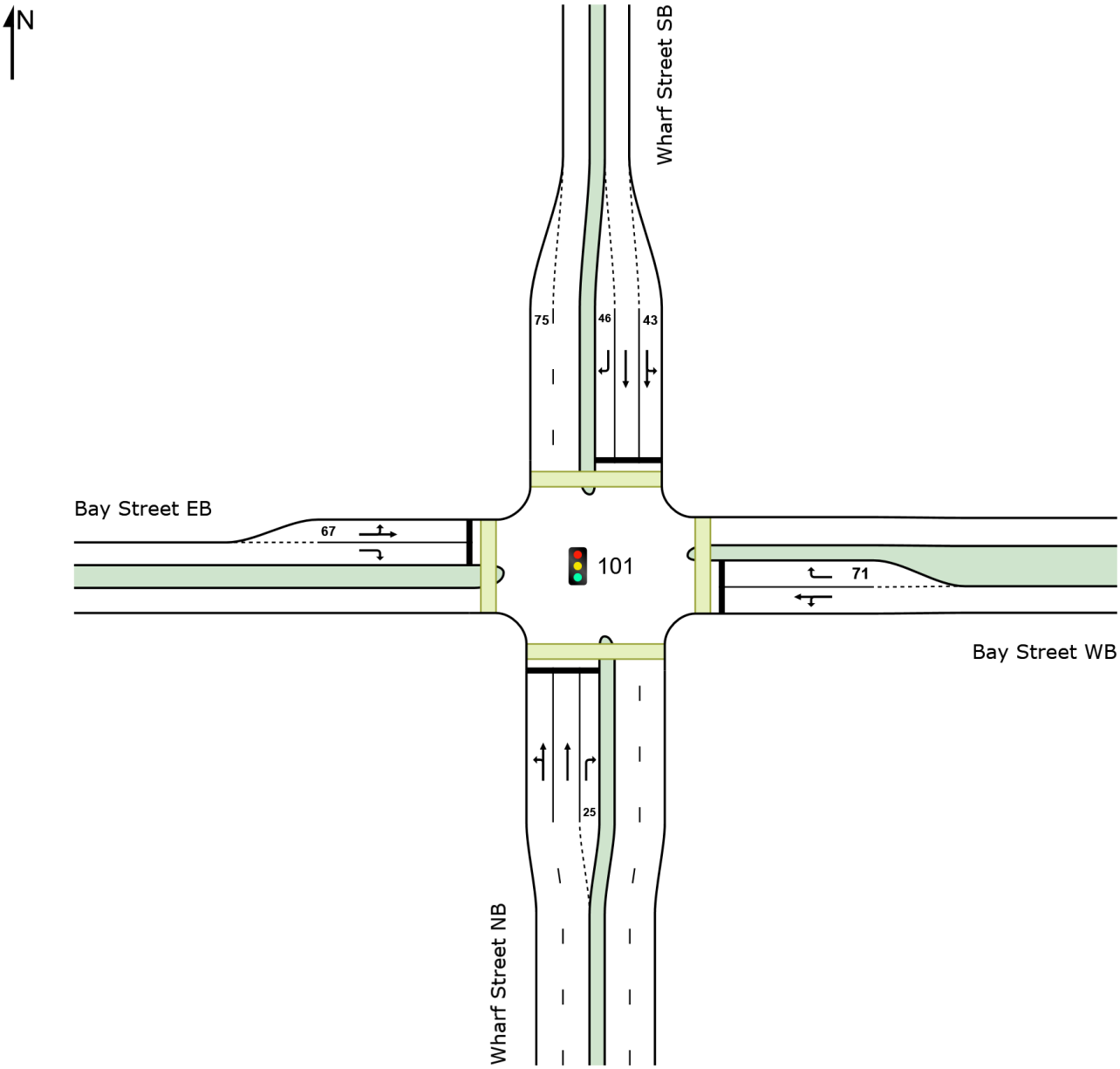
## Appendix A
## SIDRA modelling

# SITE LAYOUT

## Site: 101 [2021 AM Base (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: ARUP AUSTRALIA SERVICES PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 29 November 2023 11:54:29 AM
Project: \\global.arup.com\australasia\SYD\Projects\288000\288867-00 Tweed Mall Redevelopment\Work\Internal\Transport\Traffic Analysis \SIDRA Modelling\Wharf Street-Bay St Intersection. - Phased Assessmet - Redistribution - RFI update.sip9

# LANE SUMMARY

## Site: 101 [2021 AM Base (Site Folder: General)]

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

### Lane Use and Performance

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 168 | 8.1 | 887 | 0.190 | 51[5] | 15.5 | LOS B | 3.1 | 23.2 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 335 | 7.9 | 895[1] | 0.374 | 100 | 10.9 | LOS A | 6.8 | 50.9 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 59 | 0.0 | 481 | 0.123 | 100 | 17.5 | LOS B | 1.2 | 8.3 | Short | 25 | 0.0 | NA |
| Approach | 562 | 7.1 | | 0.374 | | 13.0 | LOS A | 6.8 | 50.9 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 101 | 0.0 | 599 | 0.169 | 100 | 22.6 | LOS B | 2.5 | 17.7 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 19 | 5.6 | 395 | 0.048 | 100 | 25.4 | LOS B | 0.5 | 3.5 | Short | 71 | 0.0 | NA |
| Approach | 120 | 0.9 | | 0.169 | | 23.1 | LOS B | 2.5 | 17.7 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 208 | 5.9 | 923 | 0.225 | 100 | 11.1 | LOS A | 3.9 | 28.6 | Short | 43 | 0.0 | NA |
| Lane 2 | 210 | 6.6 | 935 | 0.225 | 100 | 10.0 | LOS A | 3.9 | 29.2 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 25 | 0.0 | 404 | 0.063 | 100 | 19.1 | LOS B | 0.5 | 3.7 | Short | 46 | 0.0 | NA |
| Approach | 443 | 5.9 | | 0.225 | | 11.0 | LOS A | 3.9 | 29.2 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 99 | 1.1 | 581 | 0.170 | 100 | 22.1 | LOS B | 2.5 | 17.5 | Short | 67 | 0.0 | NA |
| Lane 2 | 155 | 2.0 | 403 | 0.384 | 100 | 27.9 | LOS B | 4.4 | 31.3 | Full | 284 | 0.0 | 0.0 |
| Approach | 254 | 1.7 | | 0.384 | | 25.7 | LOS B | 4.4 | 31.3 | | | | |
| Intersection | 1379 | 5.2 | | 0.384 | | 15.6 | LOS B | 6.8 | 50.9 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

### Approach Lane Flows (veh/h)

South: Wharf Street NB

| 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 | 168 | - | - | 168 | 8.1 | 887 | 0.190 | 51[5] | NA | NA |
| Lane 2 | - | 335 | - | 335 | 7.9 | 895[1] | 0.374 | 100 | NA | NA |
| Lane 3 | - | - | 59 | 59 | 0.0 | 481 | 0.123 | 100 | 0.0 | 2 |
| Approach | 168 | 335 | 59 | 562 | 7.1 | | 0.374 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 68 | 33 | - | 101 | 0.0 | 599 | 0.169 | 100 | NA | NA |
| Lane 2 | - | - | 19 | 19 | 5.6 | 395 | 0.048 | 100 | 0.0 | 1 |
| Approach | 68 | 33 | 19 | 120 | 0.9 | | 0.169 | | | |

North: Wharf Street SB

| 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 | 38 | 170 | - | 208 | 5.9 | 923 | 0.225 | 100 | 0.0 | 2 |
| Lane 2 | - | 210 | - | 210 | 6.6 | 935 | 0.225 | 100 | NA | NA |
| Lane 3 | - | - | 25 | 25 | 0.0 | 404 | 0.063 | 100 | 0.0 | 2 |
| Approach | 38 | 380 | 25 | 443 | 5.9 | | 0.225 | | | |

West: Bay Street EB

| 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 | 51 | 48 | - | 99 | 1.1 | 581 | 0.170 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 155 | 155 | 2.0 | 403 | 0.384 | 100 | NA | NA |
| Approach | 51 | 48 | 155 | 254 | 1.7 | | 0.384 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1379 | 5.2 | 0.384 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 354 | 367 | 3.00 | 2.00 | 51 | 1425 | 0.035 | 0.6 | 0.7 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 354 | 1800 | 0.196 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2021 PM Base (Site Folder: General)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 184 | 2.8 | 926 | 0.199 | 42[6] | 14.5 | LOS A | 3.5 | 25.0 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 409 | 3.3 | 874[1] | 0.469 | 100 | 12.0 | LOS A | 8.9 | 64.3 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 53 | 0.0 | 401 | 0.131 | 100 | 19.6 | LOS B | 1.1 | 8.0 | Short | 25 | 0.0 | NA |
| Approach | 646 | 2.9 | | 0.469 | | 13.3 | LOS A | 8.9 | 64.3 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 151 | 3.5 | 609 | 0.247 | 100 | 21.8 | LOS B | 3.8 | 27.4 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 53 | 0.0 | 414 | 0.127 | 100 | 25.9 | LOS B | 1.4 | 9.5 | Short | 71 | 0.0 | NA |
| Approach | 203 | 2.6 | | 0.247 | | 22.9 | LOS B | 3.8 | 27.4 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 273 | 3.4 | 922 | 0.297 | 100 | 11.9 | LOS A | 5.5 | 39.6 | Short | 43 | 0.0 | NA |
| Lane 2 | 278 | 3.5 | 937 | 0.297 | 100 | 11.1 | LOS A | 5.6 | 40.2 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 18 | 5.9 | 331 | 0.054 | 100 | 21.2 | LOS B | 0.4 | 3.0 | Short | 46 | 0.0 | NA |
| Approach | 569 | 3.5 | | 0.297 | | 11.8 | LOS A | 5.6 | 40.2 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 113 | 1.9 | 604 | 0.186 | 100 | 21.3 | LOS B | 2.8 | 19.8 | Short | 67 | 0.0 | NA |
| Lane 2 | 176 | 1.2 | 382 | 0.460 | 100 | 29.3 | LOS C | 5.2 | 36.8 | Full | 284 | 0.0 | 0.0 |
| Approach | 288 | 1.5 | | 0.460 | | 26.2 | LOS B | 5.2 | 36.8 | | | | |
| Intersection | 1707 | 2.8 | | 0.469 | | 16.1 | LOS B | 8.9 | 64.3 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 122 | 62 | - | 184 | 2.8 | 926 | 0.199 | 42[6] | NA | NA |
| Lane 2 | - | 409 | - | 409 | 3.3 | 874[1] | 0.469 | 100 | NA | NA |
| Lane 3 | - | - | 53 | 53 | 0.0 | 401 | 0.131 | 100 | 0.0 | 2 |
| Approach | 122 | 472 | 53 | 646 | 2.9 | | 0.469 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 83 | 67 | - | 151 | 3.5 | 609 | 0.247 | 100 | NA | NA |
| Lane 2 | - | - | 53 | 53 | 0.0 | 414 | 0.127 | 100 | 0.0 | 1 |
| Approach | 83 | 67 | 53 | 203 | 2.6 | | 0.247 | | | |

North: Wharf Street SB

| 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 | 39 | 235 | - | 273 | 3.4 | 922 | 0.297 | 100 | 0.0 | 2 |
| Lane 2 | - | 278 | - | 278 | 3.5 | 937 | 0.297 | 100 | NA | NA |
| Lane 3 | - | - | 18 | 18 | 5.9 | 331 | 0.054 | 100 | 0.0 | 2 |
| Approach | 39 | 513 | 18 | 569 | 3.5 | | 0.297 | | | |

West: Bay Street EB

| 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 | 52 | 61 | - | 113 | 1.9 | 604 | 0.186 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 176 | 176 | 1.2 | 382 | 0.460 | 100 | NA | NA |
| Approach | 52 | 61 | 176 | 288 | 1.5 | | 0.460 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1707 | 2.8 | 0.469 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 462 | 469 | 3.00 | 2.00 | 114 | 1319 | 0.086 | 0.8 | 1.0 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 462 | 1800 | 0.257 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2021 Sat Base (Site Folder: General)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 213 | 1.4 | 1004 | 0.212 | 42[6] | 12.6 | LOS A | 3.8 | 27.3 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 444 | 2.6 | 889[1] | 0.500 | 100 | 10.9 | LOS A | 9.3 | 66.7 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 69 | 7.6 | 371 | 0.187 | 100 | 18.9 | LOS B | 1.5 | 11.1 | Short | 25 | 0.0 | NA |
| Approach | 726 | 2.8 | | 0.500 | | 12.2 | LOS A | 9.3 | 66.7 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 179 | 0.0 | 574 | 0.312 | 100 | 24.0 | LOS B | 4.8 | 33.6 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 61 | 5.2 | 387 | 0.158 | 100 | 27.1 | LOS B | 1.6 | 11.9 | Short | 71 | 0.0 | NA |
| Approach | 240 | 1.3 | | 0.312 | | 24.8 | LOS B | 4.8 | 33.6 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 309 | 2.7 | 978 | 0.316 | 100 | 11.2 | LOS A | 6.0 | 42.8 | Short | 43 | 0.0 | NA |
| Lane 2 | 313 | 3.4 | 992 | 0.316 | 100 | 10.0 | LOS A | 6.1 | 43.6 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 24 | 0.0 | 343 | 0.071 | 100 | 19.9 | LOS B | 0.5 | 3.7 | Short | 46 | 0.0 | NA |
| Approach | 646 | 2.9 | | 0.316 | | 11.0 | LOS A | 6.1 | 43.6 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 88 | 0.0 | 565 | 0.156 | 100 | 22.1 | LOS B | 2.2 | 15.7 | Short | 67 | 0.0 | NA |
| Lane 2 | 158 | 0.0 | 329 | 0.480 | 100 | 31.9 | LOS C | 4.9 | 34.2 | Full | 284 | 0.0 | 0.0 |
| Approach | 246 | 0.0 | | 0.480 | | 28.4 | LOS B | 4.9 | 34.2 | | | | |
| Intersection | 1859 | 2.3 | | 0.500 | | 15.5 | LOS B | 9.3 | 66.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 100 | 113 | - | 213 | 1.4 | 1004 | 0.212 | 42[6] | NA | NA |
| Lane 2 | - | 444 | - | 444 | 2.6 | 889[1] | 0.500 | 100 | NA | NA |
| Lane 3 | - | - | 69 | 69 | 7.6 | 371 | 0.187 | 100 | 0.0 | 2 |
| Approach | 100 | 557 | 69 | 726 | 2.8 | | 0.500 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 107 | 72 | - | 179 | 0.0 | 574 | 0.312 | 100 | NA | NA |
| Lane 2 | - | - | 61 | 61 | 5.2 | 387 | 0.158 | 100 | 0.0 | 1 |
| Approach | 107 | 72 | 61 | 240 | 1.3 | | 0.312 | | | |

North: Wharf Street SB

| Mov.<br>From N<br>To Exit: | L2<br><br>E | T1<br><br>S | R2<br><br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 64 | 245 | - | 309 | 2.7 | 978 | 0.316 | 100 | 4.5 | 2 |
| Lane 2 | - | 313 | - | 313 | 3.4 | 992 | 0.316 | 100 | NA | NA |
| Lane 3 | - | - | 24 | 24 | 0.0 | 343 | 0.071 | 100 | 0.0 | 2 |
| Approach | 64 | 558 | 24 | 646 | 2.9 | | 0.316 | | | |

West: Bay Street EB

| Mov.<br>From W<br>To Exit: | L2<br><br>N | T1<br><br>E | R2<br><br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 34 | 55 | - | 88 | 0.0 | 565 | 0.156 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 158 | 158 | 0.0 | 329 | 0.480 | 100 | NA | NA |
| Approach | 34 | 55 | 158 | 246 | 0.0 | | 0.480 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1859 | 2.3 | 0.500 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 505 | 512 | 3.00 | 2.00 | 147 | 1273 | 0.115 | 0.9 | 1.1 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 505 | 1800 | 0.281 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 AM Base (Site Folder: 2028 Scenarios)]

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

### Lane Use and Performance

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 177 | 8.3 | 886 | 0.200 | 50[5] | 15.5 | LOS B | 3.3 | 24.5 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 349 | 7.8 | 880[1] | 0.397 | 100 | 11.0 | LOS A | 7.2 | 53.7 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 62 | 0.0 | 470 | 0.132 | 100 | 17.6 | LOS B | 1.3 | 8.8 | Short | 25 | 0.0 | NA |
| Approach | 588 | 7.2 | | 0.397 | | 13.1 | LOS A | 7.2 | 53.7 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 105 | 0.0 | 599 | 0.176 | 100 | 22.7 | LOS B | 2.6 | 18.5 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 20 | 5.3 | 392 | 0.051 | 100 | 25.4 | LOS B | 0.5 | 3.7 | Short | 71 | 0.0 | NA |
| Approach | 125 | 0.8 | | 0.176 | | 23.2 | LOS B | 2.6 | 18.5 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 217 | 5.9 | 924 | 0.235 | 100 | 11.1 | LOS A | 4.1 | 30.1 | Short | 43 | 0.0 | NA |
| Lane 2 | 220 | 6.6 | 936 | 0.235 | 100 | 10.1 | LOS A | 4.1 | 30.7 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 26 | 0.0 | 391 | 0.067 | 100 | 19.8 | LOS B | 0.6 | 4.0 | Short | 46 | 0.0 | NA |
| Approach | 463 | 5.9 | | 0.235 | | 11.1 | LOS A | 4.1 | 30.7 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 103 | 1.0 | 582 | 0.177 | 100 | 22.2 | LOS B | 2.6 | 18.3 | Short | 67 | 0.0 | NA |
| Lane 2 | 161 | 2.0 | 399 | 0.403 | 100 | 28.1 | LOS B | 4.6 | 32.8 | Full | 284 | 0.0 | 0.0 |
| Approach | 264 | 1.6 | | 0.403 | | 25.8 | LOS B | 4.6 | 32.8 | | | | |
| Intersection | 1441 | 5.2 | | 0.403 | | 15.7 | LOS B | 7.2 | 53.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

### Approach Lane Flows (veh/h)

South: Wharf Street NB

| 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 | 177 | - | - | 177 | 8.3 | 886 | 0.200 | 50[5] | NA | NA |
| Lane 2 | - | 349 | - | 349 | 7.8 | 880[1] | 0.397 | 100 | NA | NA |
| Lane 3 | - | - | 62 | 62 | 0.0 | 470 | 0.132 | 100 | 0.0 | 2 |
| Approach | 177 | 349 | 62 | 588 | 7.2 | | 0.397 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 72 | 34 | - | 105 | 0.0 | 599 | 0.176 | 100 | NA | NA |
| Lane 2 | - | - | 20 | 20 | 5.3 | 392 | 0.051 | 100 | 0.0 | 1 |
| Approach | 72 | 34 | 20 | 125 | 0.8 | | 0.176 | | | |

North: Wharf Street SB

| Mov.<br>From N<br>To Exit: | L2<br><br>E | T1<br><br>S | R2<br><br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 40 | 177 | - | 217 | 5.9 | 924 | 0.235 | 100 | 0.0 | 2 |
| Lane 2 | - | 220 | - | 220 | 6.6 | 936 | 0.235 | 100 | NA | NA |
| Lane 3 | - | - | 26 | 26 | 0.0 | 391 | 0.067 | 100 | 0.0 | 2 |
| Approach | 40 | 397 | 26 | 463 | 5.9 | | 0.235 | | | |

West: Bay Street EB

| Mov.<br>From W<br>To Exit: | L2<br><br>N | T1<br><br>E | R2<br><br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 53 | 51 | - | 103 | 1.0 | 582 | 0.177 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 161 | 161 | 2.0 | 399 | 0.403 | 100 | NA | NA |
| Approach | 53 | 51 | 161 | 264 | 1.6 | | 0.403 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1441 | 5.2 | 0.403 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 369 | 384 | 3.00 | 2.00 | 53 | 1408 | 0.037 | 0.6 | 0.7 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 369 | 1800 | 0.205 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 PM Base (Site Folder: 2028 Scenarios)]

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

### Lane Use and Performance

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 194 | 2.8 | 927 | 0.209 | 42[6] | 14.5 | LOS B | 3.7 | 26.5 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 426 | 3.4 | 864[1] | 0.493 | 100 | 12.2 | LOS A | 9.4 | 67.7 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 55 | 0.0 | 388 | 0.141 | 100 | 19.7 | LOS B | 1.2 | 8.4 | Short | 25 | 0.0 | NA |
| Approach | 675 | 3.0 | | 0.493 | | 13.5 | LOS A | 9.4 | 67.7 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 158 | 3.3 | 610 | 0.259 | 100 | 21.9 | LOS B | 4.0 | 28.9 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 55 | 0.0 | 410 | 0.133 | 100 | 26.0 | LOS B | 1.4 | 10.0 | Short | 71 | 0.0 | NA |
| Approach | 213 | 2.5 | | 0.259 | | 22.9 | LOS B | 4.0 | 28.9 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 286 | 3.4 | 921 | 0.310 | 100 | 12.0 | LOS A | 5.8 | 41.7 | Short | 43 | 0.0 | NA |
| Lane 2 | 291 | 3.5 | 937 | 0.310 | 100 | 11.2 | LOS A | 5.9 | 42.5 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 19 | 5.6 | 319 | 0.059 | 100 | 22.0 | LOS B | 0.4 | 3.2 | Short | 46 | 0.0 | NA |
| Approach | 596 | 3.5 | | 0.310 | | 11.9 | LOS A | 5.9 | 42.5 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 118 | 1.8 | 605 | 0.195 | 100 | 21.4 | LOS B | 2.9 | 20.8 | Short | 67 | 0.0 | NA |
| Lane 2 | 183 | 1.1 | 376 | 0.487 | 100 | 29.6 | LOS C | 5.5 | 38.7 | Full | 284 | 0.0 | 0.0 |
| Approach | 301 | 1.4 | | 0.487 | | 26.3 | LOS B | 5.5 | 38.7 | | | | |
| Intersection | 1784 | 2.8 | | 0.493 | | 16.2 | LOS B | 9.4 | 67.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

### Approach Lane Flows (veh/h)

South: Wharf Street NB

| 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 | 127 | 67 | - | 194 | 2.8 | 927 | 0.209 | 42[6] | NA | NA |
| Lane 2 | - | 426 | - | 426 | 3.4 | 864[1] | 0.493 | 100 | NA | NA |
| Lane 3 | - | - | 55 | 55 | 0.0 | 388 | 0.141 | 100 | 0.0 | 2 |
| Approach | 127 | 493 | 55 | 675 | 3.0 | | 0.493 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 87 | 71 | - | 158 | 3.3 | 610 | 0.259 | 100 | NA | NA |
| Lane 2 | - | - | 55 | 55 | 0.0 | 410 | 0.133 | 100 | 0.0 | 1 |
| Approach | 87 | 71 | 55 | 213 | 2.5 | | 0.259 | | | |

North: Wharf Street SB

| 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 | 41 | 245 | - | 286 | 3.4 | 921 | 0.310 | 100 | 2.3 | 2 |
| Lane 2 | - | 291 | - | 291 | 3.5 | 937 | 0.310 | 100 | NA | NA |
| Lane 3 | - | - | 19 | 19 | 5.6 | 319 | 0.059 | 100 | 0.0 | 2 |
| Approach | 41 | 536 | 19 | 596 | 3.5 | | 0.310 | | | |

West: Bay Street EB

| 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 | 54 | 64 | - | 118 | 1.8 | 605 | 0.195 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 183 | 183 | 1.1 | 376 | 0.487 | 100 | NA | NA |
| Approach | 54 | 64 | 183 | 301 | 1.4 | | 0.487 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1784 | 2.8 | 0.493 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 481 | 488 | 3.00 | 2.00 | 120 | 1299 | 0.093 | 0.8 | 1.0 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 481 | 1800 | 0.267 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 Sat Base (Site Folder: 2028 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 225 | 1.5 | 1004 | 0.224 | 42[6] | 12.7 | LOS A | 4.1 | 29.0 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 461 | 2.7 | 874[1] | 0.528 | 100 | 11.0 | LOS A | 9.8 | 70.2 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 73 | 7.2 | 358 | 0.203 | 100 | 19.0 | LOS B | 1.6 | 11.7 | Short | 25 | 0.0 | NA |
| Approach | 759 | 2.8 | | 0.528 | | 12.3 | LOS A | 9.8 | 70.2 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 187 | 0.0 | 574 | 0.327 | 100 | 24.1 | LOS B | 5.1 | 35.4 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 63 | 5.0 | 384 | 0.164 | 100 | 27.1 | LOS B | 1.7 | 12.4 | Short | 71 | 0.0 | NA |
| Approach | 251 | 1.3 | | 0.327 | | 24.9 | LOS B | 5.1 | 35.4 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 323 | 2.7 | 978 | 0.330 | 100 | 11.3 | LOS A | 6.3 | 45.2 | Short | 43 | 0.0 | NA |
| Lane 2 | 327 | 3.4 | 991 | 0.330 | 100 | 10.1 | LOS A | 6.4 | 46.0 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 25 | 0.0 | 329 | 0.077 | 100 | 20.7 | LOS B | 0.6 | 3.9 | Short | 46 | 0.0 | NA |
| Approach | 676 | 3.0 | | 0.330 | | 11.1 | LOS A | 6.4 | 46.0 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 92 | 0.0 | 565 | 0.162 | 100 | 22.2 | LOS B | 2.3 | 16.3 | Short | 67 | 0.0 | NA |
| Lane 2 | 165 | 0.0 | 323 | 0.512 | 100 | 32.2 | LOS C | 5.2 | 36.2 | Full | 284 | 0.0 | 0.0 |
| Approach | 257 | 0.0 | | 0.512 | | 28.6 | LOS C | 5.2 | 36.2 | | | | |
| Intersection | 1942 | 2.3 | | 0.528 | | 15.7 | LOS B | 9.8 | 70.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 104 | 121 | - | 225 | 1.5 | 1004 | 0.224 | 42[6] | NA | NA |
| Lane 2 | - | 461 | - | 461 | 2.7 | 874[1] | 0.528 | 100 | NA | NA |
| Lane 3 | - | - | 73 | 73 | 7.2 | 358 | 0.203 | 100 | 0.0 | 2 |
| Approach | 104 | 582 | 73 | 759 | 2.8 | | 0.528 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 113 | 75 | - | 187 | 0.0 | 574 | 0.327 | 100 | NA | NA |
| Lane 2 | - | - | 63 | 63 | 5.0 | 384 | 0.164 | 100 | 0.0 | 1 |
| Approach | 113 | 75 | 63 | 251 | 1.3 | | 0.327 | | | |

North: Wharf Street SB

| 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 | 67 | 256 | - | 323 | 2.7 | 978 | 0.330 | 100 | 9.4 | 2 |
| Lane 2 | - | 327 | - | 327 | 3.4 | 991 | 0.330 | 100 | NA | NA |
| Lane 3 | - | - | 25 | 25 | 0.0 | 329 | 0.077 | 100 | 0.0 | 2 |
| Approach | 67 | 583 | 25 | 676 | 3.0 | | 0.330 | | | |

West: Bay Street EB

| 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 | 35 | 57 | - | 92 | 0.0 | 565 | 0.162 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 165 | 165 | 0.0 | 323 | 0.512 | 100 | NA | NA |
| Approach | 35 | 57 | 165 | 257 | 0.0 | | 0.512 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1942 | 2.3 | 0.528 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 524 | 532 | 3.00 | 2.00 | 156 | 1252 | 0.124 | 0.9 | 1.2 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 524 | 1800 | 0.291 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 AM Base + Development (Site Folder: 2028 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 225 | 6.5 | 927 | 0.243 | 47[5] | 15.2 | LOS B | 4.2 | 30.8 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 447 | 6.1 | 865[1] | 0.517 | 100 | 11.1 | LOS A | 9.5 | 70.1 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 79 | 0.0 | 472 | 0.167 | 100 | 17.3 | LOS B | 1.6 | 11.1 | Short | 25 | 0.0 | NA |
| Approach | 752 | 5.6 | | 0.517 | | 13.0 | LOS A | 9.5 | 70.1 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 159 | 0.0 | 572 | 0.278 | 100 | 24.2 | LOS B | 4.2 | 29.5 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 29 | 3.6 | 366 | 0.081 | 100 | 27.3 | LOS B | 0.8 | 5.6 | Short | 71 | 0.0 | NA |
| Approach | 188 | 0.6 | | 0.278 | | 24.7 | LOS B | 4.2 | 29.5 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 229 | 5.5 | 952 | 0.240 | 100 | 10.8 | LOS A | 4.2 | 30.9 | Short | 43 | 0.0 | NA |
| Lane 2 | 231 | 6.4 | 963 | 0.240 | 100 | 9.6 | LOS A | 4.3 | 31.5 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 26 | 0.0 | 330 | 0.080 | 100 | 20.7 | LOS B | 0.6 | 4.1 | Short | 46 | 0.0 | NA |
| Approach | 486 | 5.6 | | 0.240 | | 10.8 | LOS A | 4.3 | 31.5 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 118 | 0.9 | 558 | 0.211 | 100 | 22.9 | LOS B | 3.1 | 21.5 | Short | 67 | 0.0 | NA |
| Lane 2 | 166 | 1.9 | 340 | 0.489 | 100 | 31.2 | LOS C | 5.1 | 36.3 | Full | 284 | 0.0 | 0.0 |
| Approach | 284 | 1.5 | | 0.489 | | 27.8 | LOS B | 5.1 | 36.3 | | | | |
| Intersection | 1711 | 4.4 | | 0.517 | | 16.1 | LOS B | 9.5 | 70.1 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 225 | - | - | 225 | 6.5 | 927 | 0.243 | 47[5] | NA | NA |
| Lane 2 | - | 447 | - | 447 | 6.1 | 865[1] | 0.517 | 100 | NA | NA |
| Lane 3 | - | - | 79 | 79 | 0.0 | 472 | 0.167 | 100 | 0.0 | 2 |
| Approach | 225 | 447 | 79 | 752 | 5.6 | | 0.517 | | | |

East: Bay Street WB

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

| From E<br>To Exit: | S | W | N | | | Cap.<br>veh/h | Satn<br>v/c | Util.<br>% | SL Ov.<br>% | Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 107 | 52 | - | 159 | 0.0 | 572 | 0.278 | 100 | NA | NA |
| Lane 2 | - | - | 29 | 29 | 3.6 | 366 | 0.081 | 100 | 0.0 | 1 |
| Approach | 107 | 52 | 29 | 188 | 0.6 | | 0.278 | | | |
| North: Wharf Street SB | | | | | | | | | | |
| Mov.<br>From N<br>To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 51 | 178 | - | 229 | 5.5 | 952 | 0.240 | 100 | 0.0 | 2 |
| Lane 2 | - | 231 | - | 231 | 6.4 | 963 | 0.240 | 100 | NA | NA |
| Lane 3 | - | - | 26 | 26 | 0.0 | 330 | 0.080 | 100 | 0.0 | 2 |
| Approach | 51 | 409 | 26 | 486 | 5.6 | | 0.240 | | | |
| West: Bay Street EB | | | | | | | | | | |
| Mov.<br>From W<br>To Exit: | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 53 | 65 | - | 118 | 0.9 | 558 | 0.211 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 166 | 166 | 1.9 | 340 | 0.489 | 100 | NA | NA |
| Approach | 53 | 65 | 166 | 284 | 1.5 | | 0.489 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1711 | 4.4 | 0.517 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 477 | 491 | 3.00 | 2.00 | 53 | 1296 | 0.041 | 0.8 | 1.0 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 477 | 1800 | 0.265 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 PM Base + Development (Site Folder: 2028 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 233 | 2.5 | 931 | 0.251 | 42[6] | 14.7 | LOS B | 4.6 | 32.6 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 477 | 3.0 | 808[1] | 0.590 | 100 | 12.6 | LOS A | 10.9 | 78.2 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 83 | 0.0 | 364 | 0.229 | 100 | 21.1 | LOS B | 1.9 | 13.6 | Short | 25 | 0.0 | NA |
| Approach | 794 | 2.5 | | 0.590 | | 14.1 | LOS A | 10.9 | 78.2 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 197 | 2.7 | 614 | 0.321 | 100 | 22.3 | LOS B | 5.1 | 36.7 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 68 | 0.0 | 385 | 0.178 | 100 | 27.2 | LOS B | 1.8 | 12.9 | Short | 71 | 0.0 | NA |
| Approach | 265 | 2.0 | | 0.321 | | 23.6 | LOS B | 5.1 | 36.7 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 313 | 3.0 | 922 | 0.339 | 100 | 12.5 | LOS A | 6.4 | 46.3 | Short | 43 | 0.0 | NA |
| Lane 2 | 318 | 3.3 | 939 | 0.339 | 100 | 11.4 | LOS A | 6.6 | 47.2 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 19 | 5.6 | 281 | 0.067 | 100 | 22.9 | LOS B | 0.5 | 3.3 | Short | 46 | 0.0 | NA |
| Approach | 649 | 3.2 | | 0.339 | | 12.2 | LOS A | 6.6 | 47.2 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 151 | 1.4 | 610 | 0.247 | 100 | 21.2 | LOS B | 3.8 | 27.0 | Short | 67 | 0.0 | NA |
| Lane 2 | 195 | 1.1 | 347 | 0.561 | 100 | 31.0 | LOS C | 6.0 | 42.7 | Full | 284 | 0.0 | 0.0 |
| Approach | 345 | 1.2 | | 0.561 | | 26.7 | LOS B | 6.0 | 42.7 | | | | |
| Intersection | 2054 | 2.5 | | 0.590 | | 16.9 | LOS B | 10.9 | 78.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 146 | 87 | - | 233 | 2.5 | 931 | 0.251 | 42[6] | NA | NA |
| Lane 2 | - | 477 | - | 477 | 3.0 | 808[1] | 0.590 | 100 | NA | NA |
| Lane 3 | - | - | 83 | 83 | 0.0 | 364 | 0.229 | 100 | 0.0 | 2 |
| Approach | 146 | 564 | 83 | 794 | 2.5 | | 0.590 | | | |

East: Bay Street WB

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

| From E<br>To Exit: | S | W | N | | | Cap.<br>veh/h | Satn<br>v/c | Util.<br>% | SL Ov.<br>% | Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 108 | 88 | - | 197 | 2.7 | 614 | 0.321 | 100 | NA | NA |
| Lane 2 | - | - | 68 | 68 | 0.0 | 385 | 0.178 | 100 | 0.0 | 1 |
| Approach | 108 | 88 | 68 | 265 | 2.0 | | 0.321 | | | |
| North: Wharf Street SB | | | | | | | | | | |
| Mov.<br>From N<br>To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob. SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 62 | 250 | - | 313 | 3.0 | 922 | 0.339 | 100 | 11.6 | 2 |
| Lane 2 | - | 318 | - | 318 | 3.3 | 939 | 0.339 | 100 | NA | NA |
| Lane 3 | - | - | 19 | 19 | 5.6 | 281 | 0.067 | 100 | 0.0 | 2 |
| Approach | 62 | 568 | 19 | 649 | 3.2 | | 0.339 | | | |
| West: Bay Street EB | | | | | | | | | | |
| Mov.<br>From W<br>To Exit: | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob. SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 54 | 97 | - | 151 | 1.4 | 610 | 0.247 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 195 | 195 | 1.1 | 347 | 0.561 | 100 | NA | NA |
| Approach | 54 | 97 | 195 | 345 | 1.2 | | 0.561 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2054 | 2.5 | 0.590 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 545 | 553 | 3.00 | 2.00 | 141 | 1231 | 0.114 | 1.0 | 1.2 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 545 | 1800 | 0.303 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 Sat Base + Development (Site Folder: 2028 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 316 | 1.3 | 1008 | 0.313 | 42[6] | 13.2 | LOS A | 6.1 | 43.1 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 520 | 2.2 | 704[1] | 0.738 | 100 | 13.4 | LOS A | 12.4 | 88.2 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 158 | 3.3 | 324 | 0.487 | 100 | 22.7 | LOS B | 4.2 | 30.1 | Short | 25 | 0.0 | NA |
| Approach | 994 | 2.1 | | 0.738 | | 14.8 | LOS B | 12.4 | 88.2 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 308 | 0.0 | 574 | 0.537 | 100 | 25.8 | LOS B | 9.0 | 62.9 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 108 | 2.9 | 341 | 0.318 | 100 | 29.9 | LOS C | 3.2 | 22.7 | Short | 71 | 0.0 | NA |
| Approach | 417 | 0.8 | | 0.537 | | 26.9 | LOS B | 9.0 | 62.9 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 375 | 2.0 | 976 | 0.384 | 100 | 12.6 | LOS A | 7.6 | 54.0 | Short | 43 | 0.0 | NA |
| Lane 2 | 381 | 3.3 | 993 | 0.384 | 100 | 10.5 | LOS A | 7.7 | 55.4 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 25 | 0.0 | 277 | 0.091 | 100 | 22.3 | LOS B | 0.6 | 4.2 | Short | 46 | 0.0 | NA |
| Approach | 781 | 2.6 | | 0.384 | | 11.9 | LOS A | 7.7 | 55.4 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 155 | 0.0 | 569 | 0.272 | 100 | 22.0 | LOS B | 4.1 | 28.6 | Short | 67 | 0.0 | NA |
| Lane 2 | 174 | 0.0 | 237 | 0.732 | 100 | 39.5 | LOS C | 6.3 | 44.2 | Full | 284 | 0.0 | 0.0 |
| Approach | 328 | 0.0 | | 0.732 | | 31.2 | LOS C | 6.3 | 44.2 | | | | |
| Intersection | 2520 | 1.8 | | 0.738 | | 18.0 | LOS B | 12.4 | 88.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 127 | 189 | - | 316 | 1.3 | 1008 | 0.313 | 42[6] | NA | NA |
| Lane 2 | - | 520 | - | 520 | 2.2 | 704[1] | 0.738 | 100 | NA | NA |
| Lane 3 | - | - | 158 | 158 | 3.3 | 324 | 0.487 | 100 | 21.8 | 2 |
| Approach | 127 | 708 | 158 | 994 | 2.1 | | 0.738 | | | |

East: Bay Street WB

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

| From E<br>To Exit: | S | W | N | | | Cap.<br>veh/h | Satn<br>v/c | Util.<br>% | SL Ov.<br>% | Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 185 | 123 | - | 308 | 0.0 | 574 | 0.537 | 100 | NA | NA |
| Lane 2 | - | - | 108 | 108 | 2.9 | 341 | 0.318 | 100 | 0.0 | 1 |
| Approach | 185 | 123 | 108 | 417 | 0.8 | | 0.537 | | | |
| North: Wharf Street SB | | | | | | | | | | |
| Mov.<br>From N<br>To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 141 | 234 | - | 375 | 2.0 | 976 | 0.384 | 100 | 25.7 | 2 |
| Lane 2 | - | 381 | - | 381 | 3.3 | 993 | 0.384 | 100 | NA | NA |
| Lane 3 | - | - | 25 | 25 | 0.0 | 277 | 0.091 | 100 | 0.0 | 2 |
| Approach | 141 | 615 | 25 | 781 | 2.6 | | 0.384 | | | |
| West: Bay Street EB | | | | | | | | | | |
| Mov.<br>From W<br>To Exit: | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 35 | 120 | - | 155 | 0.0 | 569 | 0.272 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 174 | 174 | 0.0 | 237 | 0.732 | 100 | NA | NA |
| Approach | 35 | 120 | 174 | 328 | 0.0 | | 0.732 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2520 | 1.8 | 0.738 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 628 | 636 | 3.00 | 2.00 | 223 | 1143 | 0.195 | 1.2 | 1.6 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 628 | 1800 | 0.349 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 AM Base (Site Folder: 2031 Scenarios)]

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

### Lane Use and Performance

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 180 | 8.2 | 887 | 0.203 | 50[5] | 15.6 | LOS B | 3.3 | 25.0 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 357 | 8.0 | 873[1] | 0.409 | 100 | 11.1 | LOS A | 7.4 | 55.2 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 63 | 0.0 | 465 | 0.136 | 100 | 17.7 | LOS B | 1.3 | 8.9 | Short | 25 | 0.0 | NA |
| Approach | 600 | 7.2 | | 0.409 | | 13.1 | LOS A | 7.4 | 55.2 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 107 | 0.0 | 599 | 0.179 | 100 | 22.7 | LOS B | 2.7 | 18.9 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 20 | 5.3 | 391 | 0.051 | 100 | 25.4 | LOS B | 0.5 | 3.7 | Short | 71 | 0.0 | NA |
| Approach | 127 | 0.8 | | 0.179 | | 23.1 | LOS B | 2.7 | 18.9 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 221 | 6.0 | 923 | 0.240 | 100 | 11.1 | LOS A | 4.2 | 30.8 | Short | 43 | 0.0 | NA |
| Lane 2 | 224 | 6.8 | 935 | 0.240 | 100 | 10.1 | LOS A | 4.2 | 31.4 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 27 | 0.0 | 385 | 0.071 | 100 | 19.8 | LOS B | 0.6 | 4.1 | Short | 46 | 0.0 | NA |
| Approach | 473 | 6.0 | | 0.240 | | 11.2 | LOS A | 4.2 | 31.4 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 105 | 1.0 | 582 | 0.181 | 100 | 22.2 | LOS B | 2.6 | 18.7 | Short | 67 | 0.0 | NA |
| Lane 2 | 164 | 1.9 | 398 | 0.413 | 100 | 28.2 | LOS B | 4.7 | 33.5 | Full | 284 | 0.0 | 0.0 |
| Approach | 269 | 1.6 | | 0.413 | | 25.8 | LOS B | 4.7 | 33.5 | | | | |
| Intersection | 1469 | 5.2 | | 0.413 | | 15.7 | LOS B | 7.4 | 55.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

### Approach Lane Flows (veh/h)

South: Wharf Street NB

| 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 | 180 | - | - | 180 | 8.2 | 887 | 0.203 | 50[5] | NA | NA |
| Lane 2 | - | 357 | - | 357 | 8.0 | 873[1] | 0.409 | 100 | NA | NA |
| Lane 3 | - | - | 63 | 63 | 0.0 | 465 | 0.136 | 100 | 0.0 | 2 |
| Approach | 180 | 357 | 63 | 600 | 7.2 | | 0.409 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 73 | 35 | - | 107 | 0.0 | 599 | 0.179 | 100 | NA | NA |
| Lane 2 | - | - | 20 | 20 | 5.3 | 391 | 0.051 | 100 | 0.0 | 1 |
| Approach | 73 | 35 | 20 | 127 | 0.8 | | 0.179 | | | |

North: Wharf Street SB

| 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 | 40 | 181 | - | 221 | 6.0 | 923 | 0.240 | 100 | 0.0 | 2 |
| Lane 2 | - | 224 | - | 224 | 6.8 | 935 | 0.240 | 100 | NA | NA |
| Lane 3 | - | - | 27 | 27 | 0.0 | 385 | 0.071 | 100 | 0.0 | 2 |
| Approach | 40 | 405 | 27 | 473 | 6.0 | | 0.240 | | | |

West: Bay Street EB

| 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 | 54 | 52 | - | 105 | 1.0 | 582 | 0.181 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 164 | 164 | 1.9 | 398 | 0.413 | 100 | NA | NA |
| Approach | 54 | 52 | 164 | 269 | 1.6 | | 0.413 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1469 | 5.2 | 0.413 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 377 | 392 | 3.00 | 2.00 | 54 | 1400 | 0.038 | 0.6 | 0.7 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 377 | 1800 | 0.209 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 PM Base (Site Folder: 2031 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 198 | 2.8 | 927 | 0.214 | 42[6] | 14.5 | LOS B | 3.8 | 27.2 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 433 | 3.4 | 860[1] | 0.504 | 100 | 12.2 | LOS A | 9.6 | 69.2 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 56 | 0.0 | 384 | 0.145 | 100 | 19.7 | LOS B | 1.2 | 8.6 | Short | 25 | 0.0 | NA |
| Approach | 687 | 2.9 | | 0.504 | | 13.5 | LOS A | 9.6 | 69.2 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 160 | 3.3 | 610 | 0.262 | 100 | 21.9 | LOS B | 4.1 | 29.3 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 56 | 0.0 | 409 | 0.137 | 100 | 26.0 | LOS B | 1.5 | 10.2 | Short | 71 | 0.0 | NA |
| Approach | 216 | 2.4 | | 0.262 | | 23.0 | LOS B | 4.1 | 29.3 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 291 | 3.3 | 922 | 0.315 | 100 | 12.0 | LOS A | 5.9 | 42.5 | Short | 43 | 0.0 | NA |
| Lane 2 | 296 | 3.5 | 937 | 0.315 | 100 | 11.2 | LOS A | 6.0 | 43.3 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 19 | 5.6 | 314 | 0.060 | 100 | 22.0 | LOS B | 0.4 | 3.2 | Short | 46 | 0.0 | NA |
| Approach | 605 | 3.5 | | 0.315 | | 11.9 | LOS A | 6.0 | 43.3 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 120 | 1.8 | 605 | 0.198 | 100 | 21.4 | LOS B | 3.0 | 21.2 | Short | 67 | 0.0 | NA |
| Lane 2 | 187 | 1.1 | 375 | 0.500 | 100 | 29.7 | LOS C | 5.6 | 39.7 | Full | 284 | 0.0 | 0.0 |
| Approach | 307 | 1.4 | | 0.500 | | 26.4 | LOS B | 5.6 | 39.7 | | | | |
| Intersection | 1816 | 2.8 | | 0.504 | | 16.3 | LOS B | 9.6 | 69.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 129 | 69 | - | 198 | 2.8 | 927 | 0.214 | 42[6] | NA | NA |
| Lane 2 | - | 433 | - | 433 | 3.4 | 860[1] | 0.504 | 100 | NA | NA |
| Lane 3 | - | - | 56 | 56 | 0.0 | 384 | 0.145 | 100 | 0.0 | 2 |
| Approach | 129 | 502 | 56 | 687 | 2.9 | | 0.504 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 88 | 72 | - | 160 | 3.3 | 610 | 0.262 | 100 | NA | NA |
| Lane 2 | - | - | 56 | 56 | 0.0 | 409 | 0.137 | 100 | 0.0 | 1 |
| Approach | 88 | 72 | 56 | 216 | 2.4 | | 0.262 | | | |

North: Wharf Street SB

| 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 | 41 | 250 | - | 291 | 3.3 | 922 | 0.315 | 100 | 4.0 | 2 |
| Lane 2 | - | 296 | - | 296 | 3.5 | 937 | 0.315 | 100 | NA | NA |
| Lane 3 | - | - | 19 | 19 | 5.6 | 314 | 0.060 | 100 | 0.0 | 2 |
| Approach | 41 | 545 | 19 | 605 | 3.5 | | 0.315 | | | |

West: Bay Street EB

| 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 | 55 | 65 | - | 120 | 1.8 | 605 | 0.198 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 187 | 187 | 1.1 | 375 | 0.500 | 100 | NA | NA |
| Approach | 55 | 65 | 187 | 307 | 1.4 | | 0.500 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1816 | 2.8 | 0.504 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 489 | 496 | 3.00 | 2.00 | 124 | 1290 | 0.096 | 0.8 | 1.0 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 489 | 1800 | 0.272 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 Sat Base (Site Folder: 2031 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 230 | 1.4 | 1004 | 0.229 | 42[6] | 12.7 | LOS A | 4.2 | 29.7 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 469 | 2.7 | 871[1] | 0.539 | 100 | 11.1 | LOS A | 10.0 | 71.7 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 74 | 7.1 | 354 | 0.208 | 100 | 19.7 | LOS B | 1.6 | 12.2 | Short | 25 | 0.0 | NA |
| Approach | 773 | 2.7 | | 0.539 | | 12.4 | LOS A | 10.0 | 71.7 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 191 | 0.0 | 574 | 0.332 | 100 | 24.2 | LOS B | 5.1 | 36.0 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 65 | 4.8 | 383 | 0.170 | 100 | 27.2 | LOS B | 1.8 | 12.8 | Short | 71 | 0.0 | NA |
| Approach | 256 | 1.2 | | 0.332 | | 25.0 | LOS B | 5.1 | 36.0 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 329 | 2.7 | 978 | 0.336 | 100 | 11.3 | LOS A | 6.4 | 46.1 | Short | 43 | 0.0 | NA |
| Lane 2 | 333 | 3.4 | 992 | 0.336 | 100 | 10.2 | LOS A | 6.5 | 47.0 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 25 | 0.0 | 324 | 0.078 | 100 | 20.7 | LOS B | 0.6 | 4.0 | Short | 46 | 0.0 | NA |
| Approach | 687 | 2.9 | | 0.336 | | 11.1 | LOS A | 6.5 | 47.0 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 94 | 0.0 | 565 | 0.166 | 100 | 22.2 | LOS B | 2.4 | 16.7 | Short | 67 | 0.0 | NA |
| Lane 2 | 168 | 0.0 | 320 | 0.526 | 100 | 32.3 | LOS C | 5.3 | 37.1 | Full | 284 | 0.0 | 0.0 |
| Approach | 262 | 0.0 | | 0.526 | | 28.7 | LOS C | 5.3 | 37.1 | | | | |
| Intersection | 1978 | 2.2 | | 0.539 | | 15.7 | LOS B | 10.0 | 71.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 106 | 123 | - | 230 | 1.4 | 1004 | 0.229 | 42[6] | NA | NA |
| Lane 2 | - | 469 | - | 469 | 2.7 | 871[1] | 0.539 | 100 | NA | NA |
| Lane 3 | - | - | 74 | 74 | 7.1 | 354 | 0.208 | 100 | 0.0 | 2 |
| Approach | 106 | 593 | 74 | 773 | 2.7 | | 0.539 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 115 | 76 | - | 191 | 0.0 | 574 | 0.332 | 100 | NA | NA |
| Lane 2 | - | - | 65 | 65 | 4.8 | 383 | 0.170 | 100 | 0.0 | 1 |
| Approach | 115 | 76 | 65 | 256 | 1.2 | | 0.332 | | | |

North: Wharf Street SB

| Mov.<br>From N<br>To Exit: | L2<br><br>E | T1<br><br>S | R2<br><br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 68 | 260 | - | 329 | 2.7 | 978 | 0.336 | 100 | 11.3 | 2 |
| Lane 2 | - | 333 | - | 333 | 3.4 | 992 | 0.336 | 100 | NA | NA |
| Lane 3 | - | - | 25 | 25 | 0.0 | 324 | 0.078 | 100 | 0.0 | 2 |
| Approach | 68 | 594 | 25 | 687 | 2.9 | | 0.336 | | | |

West: Bay Street EB

| Mov.<br>From W<br>To Exit: | L2<br><br>N | T1<br><br>E | R2<br><br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 36 | 58 | - | 94 | 0.0 | 565 | 0.166 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 168 | 168 | 0.0 | 320 | 0.526 | 100 | NA | NA |
| Approach | 36 | 58 | 168 | 262 | 0.0 | | 0.526 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1978 | 2.2 | 0.539 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 535 | 542 | 3.00 | 2.00 | 159 | 1242 | 0.128 | 0.9 | 1.2 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 535 | 1800 | 0.297 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 AM Base + Development (Site Folder: 2031 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 235 | 6.3 | 904 | 0.260 | 45[5] | 15.9 | LOS B | 4.5 | 33.2 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 466 | 6.1 | 812[1] | 0.574 | 100 | 11.9 | LOS A | 10.4 | 76.4 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 96 | 0.0 | 455 | 0.210 | 100 | 18.8 | LOS B | 2.1 | 14.5 | Short | 25 | 0.0 | NA |
| Approach | 797 | 5.4 | | 0.574 | | 13.9 | LOS A | 10.4 | 76.4 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 244 | 0.0 | 599 | 0.408 | 100 | 24.4 | LOS B | 6.7 | 46.7 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 45 | 2.3 | 376 | 0.120 | 100 | 26.8 | LOS B | 1.2 | 8.5 | Short | 71 | 0.0 | NA |
| Approach | 289 | 0.4 | | 0.408 | | 24.8 | LOS B | 6.7 | 46.7 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 231 | 5.4 | 924 | 0.250 | 100 | 11.7 | LOS A | 4.4 | 32.2 | Short | 43 | 0.0 | NA |
| Lane 2 | 233 | 6.8 | 934 | 0.250 | 100 | 10.2 | LOS A | 4.4 | 32.9 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 27 | 0.0 | 304 | 0.090 | 100 | 22.2 | LOS B | 0.6 | 4.5 | Short | 46 | 0.0 | NA |
| Approach | 492 | 5.8 | | 0.250 | | 11.6 | LOS A | 4.4 | 32.9 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 133 | 0.8 | 586 | 0.226 | 100 | 22.0 | LOS B | 3.4 | 23.9 | Short | 67 | 0.0 | NA |
| Lane 2 | 163 | 1.9 | 296 | 0.552 | 100 | 33.4 | LOS C | 5.2 | 37.3 | Full | 284 | 0.0 | 0.0 |
| Approach | 296 | 1.4 | | 0.552 | | 28.3 | LOS B | 5.2 | 37.3 | | | | |
| Intersection | 1874 | 4.1 | | 0.574 | | 17.2 | LOS B | 10.4 | 76.4 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 235 | - | - | 235 | 6.3 | 904 | 0.260 | 45[5] | NA | NA |
| Lane 2 | - | 466 | - | 466 | 6.1 | 812[1] | 0.574 | 100 | NA | NA |
| Lane 3 | - | - | 96 | 96 | 0.0 | 455 | 0.210 | 100 | 0.0 | 2 |
| Approach | 235 | 466 | 96 | 797 | 5.4 | | 0.574 | | | |

East: Bay Street WB

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

| From E<br>To Exit: | S | W | N | | | Cap.<br>veh/h | Satn<br>v/c | Util.<br>% | SL Ov.<br>% | Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 165 | 79 | - | 244 | 0.0 | 599 | 0.408 | 100 | NA | NA |
| Lane 2 | - | - | 45 | 45 | 2.3 | 376 | 0.120 | 100 | 0.0 | 1 |
| Approach | 165 | 79 | 45 | 289 | 0.4 | | 0.408 | | | |
| North: Wharf Street SB | | | | | | | | | | |
| Mov.<br>From N<br>To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 61 | 170 | - | 231 | 5.4 | 924 | 0.250 | 100 | 0.0 | 2 |
| Lane 2 | - | 233 | - | 233 | 6.8 | 934 | 0.250 | 100 | NA | NA |
| Lane 3 | - | - | 27 | 27 | 0.0 | 304 | 0.090 | 100 | 0.0 | 2 |
| Approach | 61 | 403 | 27 | 492 | 5.8 | | 0.250 | | | |
| West: Bay Street EB | | | | | | | | | | |
| Mov.<br>From W<br>To Exit: | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 54 | 79 | - | 133 | 0.8 | 586 | 0.226 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 163 | 163 | 1.9 | 296 | 0.552 | 100 | NA | NA |
| Approach | 54 | 79 | 163 | 296 | 1.4 | | 0.552 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1874 | 4.1 | 0.574 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 512 | 526 | 3.00 | 2.00 | 54 | 1259 | 0.043 | 0.9 | 1.1 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 512 | 1800 | 0.284 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 PM Base + Development (Site Folder: 2031 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 245 | 2.5 | 933 | 0.263 | 42[6] | 14.6 | LOS B | 4.8 | 34.5 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 455 | 3.0 | 735[1] | 0.619 | 100 | 12.4 | LOS A | 10.2 | 73.5 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 127 | 0.0 | 348 | 0.366 | 100 | 22.2 | LOS B | 3.2 | 22.4 | Short | 25 | 0.0 | NA |
| Approach | 827 | 2.4 | | 0.619 | | 14.6 | LOS B | 10.2 | 73.5 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 233 | 2.3 | 616 | 0.377 | 100 | 22.8 | LOS B | 6.2 | 44.2 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 81 | 0.0 | 346 | 0.234 | 100 | 28.5 | LOS B | 2.3 | 15.9 | Short | 71 | 0.0 | NA |
| Approach | 314 | 1.7 | | 0.377 | | 24.2 | LOS B | 6.2 | 44.2 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 330 | 2.7 | 922 | 0.358 | 100 | 13.1 | LOS A | 6.9 | 49.3 | Short | 43 | 0.0 | NA |
| Lane 2 | 336 | 3.3 | 939 | 0.358 | 100 | 11.5 | LOS A | 7.0 | 50.5 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 19 | 5.6 | 291 | 0.065 | 100 | 22.1 | LOS B | 0.4 | 3.2 | Short | 46 | 0.0 | NA |
| Approach | 685 | 3.1 | | 0.358 | | 12.6 | LOS A | 7.0 | 50.5 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 202 | 1.0 | 615 | 0.329 | 100 | 21.2 | LOS B | 5.3 | 37.2 | Short | 67 | 0.0 | NA |
| Lane 2 | 197 | 1.1 | 321 | 0.614 | 100 | 32.6 | LOS C | 6.4 | 44.9 | Full | 284 | 0.0 | 0.0 |
| Approach | 399 | 1.1 | | 0.614 | | 26.8 | LOS B | 6.4 | 44.9 | | | | |
| Intersection | 2225 | 2.3 | | 0.619 | | 17.5 | LOS B | 10.2 | 73.5 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 144 | 101 | - | 245 | 2.5 | 933 | 0.263 | 42[6] | NA | NA |
| Lane 2 | - | 455 | - | 455 | 3.0 | 735[1] | 0.619 | 100 | NA | NA |
| Lane 3 | - | - | 127 | 127 | 0.0 | 348 | 0.366 | 100 | 0.0 | 2 |
| Approach | 144 | 556 | 127 | 827 | 2.4 | | 0.619 | | | |

East: Bay Street WB

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

| From E<br>To Exit: | S | W | N | | | Cap.<br>veh/h | Satn<br>v/c | Util.<br>% | SL Ov.<br>% | Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 128 | 104 | - | 233 | 2.3 | 616 | 0.377 | 100 | NA | NA |
| Lane 2 | - | - | 81 | 81 | 0.0 | 346 | 0.234 | 100 | 0.0 | 1 |
| Approach | 128 | 104 | 81 | 314 | 1.7 | | 0.377 | | | |

North: Wharf Street SB

| Mov.<br>From N<br>To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 94 | 236 | - | 330 | 2.7 | 922 | 0.358 | 100 | 17.4 | 2 |
| Lane 2 | - | 336 | - | 336 | 3.3 | 939 | 0.358 | 100 | NA | NA |
| Lane 3 | - | - | 19 | 19 | 5.6 | 291 | 0.065 | 100 | 0.0 | 2 |
| Approach | 94 | 573 | 19 | 685 | 3.1 | | 0.358 | | | |

West: Bay Street EB

| Mov.<br>From W<br>To Exit: | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 55 | 147 | - | 202 | 1.0 | 615 | 0.329 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 197 | 197 | 1.1 | 321 | 0.614 | 100 | NA | NA |
| Approach | 55 | 147 | 197 | 399 | 1.1 | | 0.614 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2225 | 2.3 | 0.619 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 536 | 543 | 3.00 | 2.00 | 156 | 1241 | 0.125 | 0.9 | 1.2 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 536 | 1800 | 0.298 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 Sat Base + Development (Site Folder: 2031 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 335 | 1.4 | 981 | 0.341 | 42[6] | 13.9 | LOS A | 6.7 | 47.7 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 512 | 2.2 | 637[1] | 0.803 | 100 | 18.0 | LOS B | 14.0 | 100.1 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 181 | 2.9 | 299 | 0.605 | 100 | 25.8 | LOS B | 5.4 | 38.4 | Short | 25 | 0.0 | NA |
| Approach | 1027 | 2.0 | | 0.803 | | 18.1 | LOS B | 14.0 | 100.1 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 356 | 0.0 | 601 | 0.592 | 100 | 25.5 | LOS B | 10.5 | 73.2 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 124 | 2.5 | 345 | 0.360 | 100 | 29.4 | LOS C | 3.6 | 25.9 | Short | 71 | 0.0 | NA |
| Approach | 480 | 0.7 | | 0.592 | | 26.6 | LOS B | 10.5 | 73.2 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 394 | 1.9 | 950 | 0.415 | 100 | 13.6 | LOS A | 8.3 | 59.3 | Short | 43 | 0.0 | NA |
| Lane 2 | 401 | 3.2 | 967 | 0.415 | 100 | 11.3 | LOS A | 8.5 | 61.0 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 25 | 0.0 | 267 | 0.095 | 100 | 23.1 | LOS B | 0.6 | 4.3 | Short | 46 | 0.0 | NA |
| Approach | 821 | 2.4 | | 0.415 | | 12.8 | LOS A | 8.5 | 61.0 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 175 | 0.0 | 597 | 0.293 | 100 | 21.3 | LOS B | 4.6 | 32.0 | Short | 67 | 0.0 | NA |
| Lane 2 | 179 | 0.0 | 223 | 0.802 | 100 | 42.6 | LOS D | 6.9 | 48.4 | Full | 284 | 0.0 | 0.0 |
| Approach | 354 | 0.0 | | 0.802 | | 32.1 | LOS C | 6.9 | 48.4 | | | | |
| Intersection | 2682 | 1.6 | | 0.803 | | 19.8 | LOS B | 14.0 | 100.1 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 128 | 206 | - | 335 | 1.4 | 981 | 0.341 | 42[6] | NA | NA |
| Lane 2 | - | 512 | - | 512 | 2.2 | 637[1] | 0.803 | 100 | NA | NA |
| Lane 3 | - | - | 181 | 181 | 2.9 | 299 | 0.605 | 100 | 44.4 | 2 |
| Approach | 128 | 718 | 181 | 1027 | 2.0 | | 0.803 | | | |

East: Bay Street WB

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

| From E<br>To Exit: | S | W | N | | | Cap.<br>veh/h | Satn<br>v/c | Util.<br>% | SL Ov.<br>% | Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 214 | 142 | - | 356 | 0.0 | 601 | 0.592 | 100 | NA | NA |
| Lane 2 | - | - | 124 | 124 | 2.5 | 345 | 0.360 | 100 | 0.0 | 1 |
| Approach | 214 | 142 | 124 | 480 | 0.7 | | 0.592 | | | |
| North: Wharf Street SB | | | | | | | | | | |
| Mov.<br>From N<br>To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 163 | 231 | - | 394 | 1.9 | 950 | 0.415 | 100 | 34.4 | 2 |
| Lane 2 | - | 401 | - | 401 | 3.2 | 967 | 0.415 | 100 | NA | NA |
| Lane 3 | - | - | 25 | 25 | 0.0 | 267 | 0.095 | 100 | 0.0 | 2 |
| Approach | 163 | 633 | 25 | 821 | 2.4 | | 0.415 | | | |
| West: Bay Street EB | | | | | | | | | | |
| Mov.<br>From W<br>To Exit: | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 36 | 139 | - | 175 | 0.0 | 597 | 0.293 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 179 | 179 | 0.0 | 223 | 0.802 | 100 | NA | NA |
| Approach | 36 | 139 | 179 | 354 | 0.0 | | 0.802 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2682 | 1.6 | 0.803 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 636 | 643 | 3.00 | 2.00 | 242 | 1135 | 0.213 | 1.2 | 1.7 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 636 | 1800 | 0.353 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 AM Base (Site Folder: 2034 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 183 | 8.0 | 888 | 0.206 | 49[5] | 15.6 | LOS B | 3.4 | 25.4 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 363 | 7.8 | 869[1] | 0.418 | 100 | 11.1 | LOS A | 7.5 | 56.3 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 64 | 0.0 | 461 | 0.139 | 100 | 17.7 | LOS B | 1.3 | 9.1 | Short | 25 | 0.0 | NA |
| Approach | 611 | 7.1 | | 0.418 | | 13.2 | LOS A | 7.5 | 56.3 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 111 | 0.0 | 599 | 0.185 | 100 | 22.8 | LOS B | 2.8 | 19.4 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 20 | 5.3 | 389 | 0.051 | 100 | 25.5 | LOS B | 0.5 | 3.7 | Short | 71 | 0.0 | NA |
| Approach | 131 | 0.8 | | 0.185 | | 23.2 | LOS B | 2.8 | 19.4 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 225 | 5.9 | 924 | 0.244 | 100 | 11.2 | LOS A | 4.3 | 31.5 | Short | 43 | 0.0 | NA |
| Lane 2 | 228 | 6.6 | 936 | 0.244 | 100 | 10.2 | LOS A | 4.3 | 32.0 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 27 | 0.0 | 380 | 0.072 | 100 | 19.8 | LOS B | 0.6 | 4.1 | Short | 46 | 0.0 | NA |
| Approach | 481 | 5.9 | | 0.244 | | 11.2 | LOS A | 4.3 | 32.0 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 107 | 1.0 | 582 | 0.184 | 100 | 22.2 | LOS B | 2.7 | 19.1 | Short | 67 | 0.0 | NA |
| Lane 2 | 167 | 1.9 | 395 | 0.423 | 100 | 28.3 | LOS B | 4.8 | 34.3 | Full | 284 | 0.0 | 0.0 |
| Approach | 275 | 1.5 | | 0.423 | | 25.9 | LOS B | 4.8 | 34.3 | | | | |
| Intersection | 1497 | 5.1 | | 0.423 | | 15.7 | LOS B | 7.5 | 56.3 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 183 | - | - | 183 | 8.0 | 888 | 0.206 | 49[5] | NA | NA |
| Lane 2 | - | 363 | - | 363 | 7.8 | 869[1] | 0.418 | 100 | NA | NA |
| Lane 3 | - | - | 64 | 64 | 0.0 | 461 | 0.139 | 100 | 0.0 | 2 |
| Approach | 183 | 363 | 64 | 611 | 7.1 | | 0.418 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 75 | 36 | - | 111 | 0.0 | 599 | 0.185 | 100 | NA | NA |
| Lane 2 | - | - | 20 | 20 | 5.3 | 389 | 0.051 | 100 | 0.0 | 1 |
| Approach | 75 | 36 | 20 | 131 | 0.8 | | 0.185 | | | |

North: Wharf Street SB

| 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 | 41 | 184 | - | 225 | 5.9 | 924 | 0.244 | 100 | 0.0 | 2 |
| Lane 2 | - | 228 | - | 228 | 6.6 | 936 | 0.244 | 100 | NA | NA |
| Lane 3 | - | - | 27 | 27 | 0.0 | 380 | 0.072 | 100 | 0.0 | 2 |
| Approach | 41 | 413 | 27 | 481 | 5.9 | | 0.244 | | | |

West: Bay Street EB

| 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 | 55 | 53 | - | 107 | 1.0 | 582 | 0.184 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 167 | 167 | 1.9 | 395 | 0.423 | 100 | NA | NA |
| Approach | 55 | 53 | 167 | 275 | 1.5 | | 0.423 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1497 | 5.1 | 0.423 |

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 383 | 398 | 3.00 | 2.00 | 55 | 1393 | 0.039 | 0.6 | 0.7 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 383 | 1800 | 0.213 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 PM Base (Site Folder: 2034 Scenarios)]

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

### Lane Use and Performance

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 203 | 2.7 | 928 | 0.219 | 42[6] | 14.6 | LOS B | 3.9 | 27.9 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 441 | 3.3 | 856[1] | 0.515 | 100 | 12.3 | LOS A | 9.8 | 70.8 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 57 | 0.0 | 379 | 0.150 | 100 | 19.8 | LOS B | 1.3 | 8.8 | Short | 25 | 0.0 | NA |
| Approach | 701 | 2.9 | | 0.515 | | 13.6 | LOS A | 9.8 | 70.8 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 163 | 3.2 | 611 | 0.267 | 100 | 21.9 | LOS B | 4.2 | 29.9 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 57 | 0.0 | 407 | 0.140 | 100 | 26.1 | LOS B | 1.5 | 10.4 | Short | 71 | 0.0 | NA |
| Approach | 220 | 2.4 | | 0.267 | | 23.0 | LOS B | 4.2 | 29.9 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 296 | 3.3 | 923 | 0.321 | 100 | 12.0 | LOS A | 6.0 | 43.5 | Short | 43 | 0.0 | NA |
| Lane 2 | 301 | 3.4 | 938 | 0.321 | 100 | 11.2 | LOS A | 6.1 | 44.3 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 19 | 5.6 | 308 | 0.062 | 100 | 22.0 | LOS B | 0.4 | 3.2 | Short | 46 | 0.0 | NA |
| Approach | 617 | 3.4 | | 0.321 | | 12.0 | LOS A | 6.1 | 44.3 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 122 | 1.7 | 605 | 0.202 | 100 | 21.4 | LOS B | 3.0 | 21.6 | Short | 67 | 0.0 | NA |
| Lane 2 | 191 | 1.1 | 372 | 0.512 | 100 | 29.8 | LOS C | 5.7 | 40.6 | Full | 284 | 0.0 | 0.0 |
| Approach | 313 | 1.3 | | 0.512 | | 26.5 | LOS B | 5.7 | 40.6 | | | | |
| Intersection | 1851 | 2.7 | | 0.515 | | 16.3 | LOS B | 9.8 | 70.8 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

### Approach Lane Flows (veh/h)

South: Wharf Street NB

| 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 | 133 | 70 | - | 203 | 2.7 | 928 | 0.219 | 42[6] | NA | NA |
| Lane 2 | - | 441 | - | 441 | 3.3 | 856[1] | 0.515 | 100 | NA | NA |
| Lane 3 | - | - | 57 | 57 | 0.0 | 379 | 0.150 | 100 | 0.0 | 2 |
| Approach | 133 | 512 | 57 | 701 | 2.9 | | 0.515 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 91 | 73 | - | 163 | 3.2 | 611 | 0.267 | 100 | NA | NA |
| Lane 2 | - | - | 57 | 57 | 0.0 | 407 | 0.140 | 100 | 0.0 | 1 |
| Approach | 91 | 73 | 57 | 220 | 2.4 | | 0.267 | | | |

North: Wharf Street SB

| 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 | 42 | 254 | - | 296 | 3.3 | 923 | 0.321 | 100 | 6.1 | 2 |
| Lane 2 | - | 301 | - | 301 | 3.4 | 938 | 0.321 | 100 | NA | NA |
| Lane 3 | - | - | 19 | 19 | 5.6 | 308 | 0.062 | 100 | 0.0 | 2 |
| Approach | 42 | 556 | 19 | 617 | 3.4 | | 0.321 | | | |

West: Bay Street EB

| 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 | 56 | 66 | - | 122 | 1.7 | 605 | 0.202 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 191 | 191 | 1.1 | 372 | 0.512 | 100 | NA | NA |
| Approach | 56 | 66 | 191 | 313 | 1.3 | | 0.512 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1851 | 2.7 | 0.515 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 498 | 505 | 3.00 | 2.00 | 126 | 1281 | 0.099 | 0.8 | 1.1 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 498 | 1800 | 0.277 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 Sat Base (Site Folder: 2034 Scenarios)]

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

### Lane Use and Performance

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 235 | 1.4 | 1004 | 0.234 | 42[6] | 12.8 | LOS A | 4.3 | 30.5 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 477 | 2.6 | 866[1] | 0.551 | 100 | 11.2 | LOS A | 10.3 | 73.4 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 75 | 7.0 | 348 | 0.215 | 100 | 19.7 | LOS B | 1.7 | 12.4 | Short | 25 | 0.0 | NA |
| Approach | 787 | 2.7 | | 0.551 | | 12.5 | LOS A | 10.3 | 73.4 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 195 | 0.0 | 574 | 0.339 | 100 | 24.2 | LOS B | 5.3 | 36.9 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 66 | 4.8 | 382 | 0.174 | 100 | 27.2 | LOS B | 1.8 | 13.0 | Short | 71 | 0.0 | NA |
| Approach | 261 | 1.2 | | 0.339 | | 25.0 | LOS B | 5.3 | 36.9 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 336 | 2.8 | 978 | 0.343 | 100 | 11.4 | LOS A | 6.6 | 47.3 | Short | 43 | 0.0 | NA |
| Lane 2 | 340 | 3.5 | 991 | 0.343 | 100 | 10.2 | LOS A | 6.7 | 48.3 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 26 | 0.0 | 318 | 0.083 | 100 | 20.7 | LOS B | 0.6 | 4.1 | Short | 46 | 0.0 | NA |
| Approach | 702 | 3.0 | | 0.343 | | 11.2 | LOS A | 6.7 | 48.3 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 96 | 0.0 | 565 | 0.170 | 100 | 22.3 | LOS B | 2.4 | 17.1 | Short | 67 | 0.0 | NA |
| Lane 2 | 172 | 0.0 | 317 | 0.541 | 100 | 32.4 | LOS C | 5.4 | 37.9 | Full | 284 | 0.0 | 0.0 |
| Approach | 267 | 0.0 | | 0.541 | | 28.8 | LOS C | 5.4 | 37.9 | | | | |
| Intersection | 2018 | 2.2 | | 0.551 | | 15.8 | LOS B | 10.3 | 73.4 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

### Approach Lane Flows (veh/h)

South: Wharf Street NB

| 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 | 108 | 127 | - | 235 | 1.4 | 1004 | 0.234 | 42[6] | NA | NA |
| Lane 2 | - | 477 | - | 477 | 2.6 | 866[1] | 0.551 | 100 | NA | NA |
| Lane 3 | - | - | 75 | 75 | 7.0 | 348 | 0.215 | 100 | 0.0 | 2 |
| Approach | 108 | 604 | 75 | 787 | 2.7 | | 0.551 | | | |

East: Bay Street WB

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

| To Exit: | S | W | N | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 117 | 78 | - | 195 | 0.0 | 574 | 0.339 | 100 | NA | NA |
| Lane 2 | - | - | 66 | 66 | 4.8 | 382 | 0.174 | 100 | 0.0 | 1 |
| Approach | 117 | 78 | 66 | 261 | 1.2 | | 0.339 | | | |

North: Wharf Street SB

| Mov.<br>From N<br>To Exit: | L2<br><br>E | T1<br><br>S | R2<br><br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 69 | 266 | - | 336 | 2.8 | 978 | 0.343 | 100 | 13.7 | 2 |
| Lane 2 | - | 340 | - | 340 | 3.5 | 991 | 0.343 | 100 | NA | NA |
| Lane 3 | - | - | 26 | 26 | 0.0 | 318 | 0.083 | 100 | 0.0 | 2 |
| Approach | 69 | 606 | 26 | 702 | 3.0 | | 0.343 | | | |

West: Bay Street EB

| Mov.<br>From W<br>To Exit: | L2<br><br>N | T1<br><br>E | R2<br><br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 37 | 59 | - | 96 | 0.0 | 565 | 0.170 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 172 | 172 | 0.0 | 317 | 0.541 | 100 | NA | NA |
| Approach | 37 | 59 | 172 | 267 | 0.0 | | 0.541 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2018 | 2.2 | 0.551 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 544 | 552 | 3.00 | 2.00 | 164 | 1232 | 0.133 | 1.0 | 1.2 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 544 | 1800 | 0.302 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 AM Base + Development (Site Folder: 2034 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 275 | 5.4 | 938 | 0.293 | 42[6] | 15.5 | LOS B | 5.2 | 38.4 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 546 | 5.2 | 791[1] | 0.691 | 100 | 11.9 | LOS A | 12.5 | 91.1 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 124 | 0.0 | 451 | 0.275 | 100 | 18.6 | LOS B | 2.7 | 19.0 | Short | 25 | 0.0 | NA |
| Approach | 945 | 4.6 | | 0.691 | | 13.8 | LOS A | 12.5 | 91.1 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 299 | 0.0 | 572 | 0.523 | 100 | 26.1 | LOS B | 8.7 | 60.6 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 56 | 1.9 | 340 | 0.164 | 100 | 28.8 | LOS C | 1.6 | 11.0 | Short | 71 | 0.0 | NA |
| Approach | 355 | 0.3 | | 0.523 | | 26.5 | LOS B | 8.7 | 60.6 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 247 | 4.9 | 952 | 0.260 | 100 | 11.5 | LOS A | 4.6 | 33.6 | Short | 43 | 0.0 | NA |
| Lane 2 | 250 | 6.6 | 962 | 0.260 | 100 | 9.7 | LOS A | 4.7 | 34.4 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 27 | 0.0 | 265 | 0.103 | 100 | 23.2 | LOS B | 0.7 | 4.7 | Short | 46 | 0.0 | NA |
| Approach | 524 | 5.4 | | 0.260 | | 11.3 | LOS A | 4.7 | 34.4 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 157 | 0.7 | 562 | 0.279 | 100 | 22.9 | LOS B | 4.2 | 29.3 | Short | 67 | 0.0 | NA |
| Lane 2 | 169 | 1.9 | 241 | 0.705 | 100 | 38.7 | LOS C | 6.1 | 43.1 | Full | 284 | 0.0 | 0.0 |
| Approach | 326 | 1.3 | | 0.705 | | 31.1 | LOS C | 6.1 | 43.1 | | | | |
| Intersection | 2151 | 3.6 | | 0.705 | | 17.9 | LOS B | 12.5 | 91.1 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 275 | 0 | - | 275 | 5.4 | 938 | 0.293 | 42[6] | NA | NA |
| Lane 2 | - | 546 | - | 546 | 5.2 | 791[1] | 0.691 | 100 | NA | NA |
| Lane 3 | - | - | 124 | 124 | 0.0 | 451 | 0.275 | 100 | 0.0 | 2 |
| Approach | 275 | 546 | 124 | 945 | 4.6 | | 0.691 | | | |

East: Bay Street WB

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

| From E<br>To Exit: | S | W | N | | | Cap.<br>veh/h | Satn<br>v/c | Util.<br>% | SL Ov.<br>% | Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 202 | 97 | - | 299 | 0.0 | 572 | 0.523 | 100 | NA | NA |
| Lane 2 | - | - | 56 | 56 | 1.9 | 340 | 0.164 | 100 | 0.0 | 1 |
| Approach | 202 | 97 | 56 | 355 | 0.3 | | 0.523 | | | |
| North: Wharf Street SB | | | | | | | | | | |
| Mov.<br>From N<br>To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 80 | 167 | - | 247 | 4.9 | 952 | 0.260 | 100 | 0.0 | 2 |
| Lane 2 | - | 250 | - | 250 | 6.6 | 962 | 0.260 | 100 | NA | NA |
| Lane 3 | - | - | 27 | 27 | 0.0 | 265 | 0.103 | 100 | 0.0 | 2 |
| Approach | 80 | 417 | 27 | 524 | 5.4 | | 0.260 | | | |
| West: Bay Street EB | | | | | | | | | | |
| Mov.<br>From W<br>To Exit: | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 55 | 102 | - | 157 | 0.7 | 562 | 0.279 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 169 | 169 | 1.9 | 241 | 0.705 | 100 | NA | NA |
| Approach | 55 | 102 | 169 | 326 | 1.3 | | 0.705 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2151 | 3.6 | 0.705 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 602 | 617 | 3.00 | 2.00 | 55 | 1163 | 0.047 | 1.1 | 1.3 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 602 | 1800 | 0.334 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 PM Base + Development (Site Folder: 2034 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 285 | 2.3 | 936 | 0.304 | 42[6] | 14.9 | LOS B | 5.7 | 41.0 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 490 | 2.7 | 684[1] | 0.717 | 100 | 13.9 | LOS A | 11.8 | 84.6 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 155 | 0.0 | 332 | 0.466 | 100 | 23.8 | LOS B | 4.2 | 29.1 | Short | 25 | 0.0 | NA |
| Approach | 929 | 2.2 | | 0.717 | | 15.8 | LOS B | 11.8 | 84.6 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 285 | 1.8 | 619 | 0.461 | 100 | 23.4 | LOS B | 7.8 | 55.8 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 100 | 0.0 | 321 | 0.312 | 100 | 29.9 | LOS C | 2.9 | 20.4 | Short | 71 | 0.0 | NA |
| Approach | 385 | 1.4 | | 0.461 | | 25.1 | LOS B | 7.8 | 55.8 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 348 | 2.5 | 922 | 0.378 | 100 | 13.5 | LOS A | 7.4 | 52.6 | Short | 43 | 0.0 | NA |
| Lane 2 | 355 | 3.2 | 940 | 0.378 | 100 | 11.6 | LOS A | 7.5 | 53.9 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 19 | 5.6 | 264 | 0.072 | 100 | 23.7 | LOS B | 0.5 | 3.4 | Short | 46 | 0.0 | NA |
| Approach | 722 | 2.9 | | 0.378 | | 12.8 | LOS A | 7.5 | 53.9 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 236 | 0.9 | 617 | 0.382 | 100 | 21.4 | LOS B | 6.3 | 44.3 | Short | 67 | 0.0 | NA |
| Lane 2 | 202 | 1.0 | 283 | 0.713 | 100 | 36.7 | LOS C | 7.1 | 50.3 | Full | 284 | 0.0 | 0.0 |
| Approach | 438 | 1.0 | | 0.713 | | 28.4 | LOS B | 7.1 | 50.3 | | | | |
| Intersection | 2475 | 2.0 | | 0.717 | | 18.6 | LOS B | 11.8 | 84.6 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 159 | 126 | - | 285 | 2.3 | 936 | 0.304 | 42[6] | NA | NA |
| Lane 2 | - | 490 | - | 490 | 2.7 | 684[1] | 0.717 | 100 | NA | NA |
| Lane 3 | - | - | 155 | 155 | 0.0 | 332 | 0.466 | 100 | 18.9 | 2 |
| Approach | 159 | 616 | 155 | 929 | 2.2 | | 0.717 | | | |

East: Bay Street WB

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

| From E<br>To Exit: | S | W | N | | | Cap.<br>veh/h | Satn<br>v/c | Util.<br>% | SL Ov.<br>% | Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 158 | 127 | - | 285 | 1.8 | 619 | 0.461 | 100 | NA | NA |
| Lane 2 | - | - | 100 | 100 | 0.0 | 321 | 0.312 | 100 | 0.0 | 1 |
| Approach | 158 | 127 | 100 | 385 | 1.4 | | 0.461 | | | |
| North: Wharf Street SB | | | | | | | | | | |
| Mov.<br>From N<br>To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 115 | 233 | - | 348 | 2.5 | 922 | 0.378 | 100 | 23.2 | 2 |
| Lane 2 | - | 355 | - | 355 | 3.2 | 940 | 0.378 | 100 | NA | NA |
| Lane 3 | - | - | 19 | 19 | 5.6 | 264 | 0.072 | 100 | 0.0 | 2 |
| Approach | 115 | 588 | 19 | 722 | 2.9 | | 0.378 | | | |
| West: Bay Street EB | | | | | | | | | | |
| Mov.<br>From W<br>To Exit: | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 56 | 180 | - | 236 | 0.9 | 617 | 0.382 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 202 | 202 | 1.0 | 283 | 0.713 | 100 | NA | NA |
| Approach | 56 | 180 | 202 | 438 | 1.0 | | 0.713 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2475 | 2.0 | 0.717 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 590 | 597 | 3.00 | 2.00 | 182 | 1184 | 0.153 | 1.1 | 1.4 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 590 | 1800 | 0.328 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 Sat Base + Development (Site Folder: 2034 Scenarios)]

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

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 389 | 1.2 | 983 | 0.396 | 42[6] | 14.5 | LOS B | 8.1 | 57.4 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 557 | 2.0 | 598[1] | 0.932 | 100 | 40.5 | LOS C | 23.0 | 163.9 | Full | 230 | 0.0 | 0.0 |
| Lane 3 | 211 | 2.5 | 297 | 0.709 | 100 | 29.6 | LOS C | 7.0 | 50.3 | Short | 25 | 0.0 | NA |
| Approach | 1157 | 1.8 | | 0.932 | | 29.8 | LOS C | 23.0 | 163.9 | | | | |
| East: Bay Street WB | | | | | | | | | | | | | |
| Lane 1 | 414 | 0.0 | 601 | 0.688 | 100 | 26.9 | LOS B | 12.8 | 89.8 | Full | 260 | 0.0 | 0.0 |
| Lane 2 | 144 | 2.2 | 328 | 0.439 | 100 | 30.9 | LOS C | 4.4 | 31.2 | Short | 71 | 0.0 | NA |
| Approach | 558 | 0.6 | | 0.688 | | 27.9 | LOS B | 12.8 | 89.8 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1 | 398 | 1.8 | 948 | 0.420 | 100 | 14.0 | LOS A | 8.5 | 60.1 | Short | 43 | 0.0 | NA |
| Lane 2 | 405 | 3.4 | 965 | 0.420 | 100 | 11.4 | LOS A | 8.6 | 61.9 | Full | 290 | 0.0 | 0.0 |
| Lane 3 | 26 | 0.0 | 236 | 0.111 | 100 | 24.1 | LOS B | 0.7 | 4.6 | Short | 46 | 0.0 | NA |
| Approach | 829 | 2.5 | | 0.420 | | 13.0 | LOS A | 8.6 | 61.9 | | | | |
| West: Bay Street EB | | | | | | | | | | | | | |
| Lane 1 | 198 | 0.0 | 598 | 0.331 | 100 | 21.5 | LOS B | 5.3 | 36.8 | Short | 67 | 0.0 | NA |
| Lane 2 | 174 | 0.0 | 187 | 0.931 | 100 | 56.8 | LOS E | 8.0 | 55.7 | Full | 284 | 0.0 | 0.0 |
| Approach | 372 | 0.0 | | 0.931 | | 38.0 | LOS C | 8.0 | 55.7 | | | | |
| Intersection | 2916 | 1.6 | | 0.932 | | 25.7 | LOS B | 23.0 | 163.9 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| 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 | 144 | 245 | - | 389 | 1.2 | 983 | 0.396 | 42[6] | NA | NA |
| Lane 2 | - | 557 | - | 557 | 2.0 | 598[1] | 0.932 | 100 | NA | NA |
| Lane 3 | - | - | 211 | 211 | 2.5 | 297 | 0.709 | 100 | 69.9 | 2 |
| Approach | 144 | 802 | 211 | 1157 | 1.8 | | 0.932 | | | |

East: Bay Street WB

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

| From E<br>To Exit: | S | W | N | | | Cap.<br>veh/h | Satn<br>v/c | Util.<br>% | SL Ov.<br>% | Lane<br>No. |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 248 | 165 | - | 414 | 0.0 | 601 | 0.688 | 100 | NA | NA |
| Lane 2 | - | - | 144 | 144 | 2.2 | 328 | 0.439 | 100 | 0.0 | 1 |
| Approach | 248 | 165 | 144 | 558 | 0.6 | | 0.688 | | | |
| North: Wharf Street SB | | | | | | | | | | |
| Mov.<br>From N<br>To Exit: | L2<br>E | T1<br>S | R2<br>W | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 189 | 209 | - | 398 | 1.8 | 948 | 0.420 | 100 | 35.5 | 2 |
| Lane 2 | - | 405 | - | 405 | 3.4 | 965 | 0.420 | 100 | NA | NA |
| Lane 3 | - | - | 26 | 26 | 0.0 | 236 | 0.111 | 100 | 0.0 | 2 |
| Approach | 189 | 614 | 26 | 829 | 2.5 | | 0.420 | | | |
| West: Bay Street EB | | | | | | | | | | |
| Mov.<br>From W<br>To Exit: | L2<br>N | T1<br>E | R2<br>S | Total | %HV | Cap.<br>veh/h | Deg.<br>Satn<br>v/c | Lane<br>Util.<br>% | Prob.<br>SL Ov.<br>% | Ov.<br>Lane<br>No. |
| Lane 1 | 37 | 161 | - | 198 | 0.0 | 598 | 0.331 | 100 | 0.0 | 2 |
| Lane 2 | - | - | 174 | 174 | 0.0 | 187 | 0.931 | 100 | NA | NA |
| Approach | 37 | 161 | 174 | 372 | 0.0 | | 0.931 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2916 | 1.6 | 0.932 |

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**

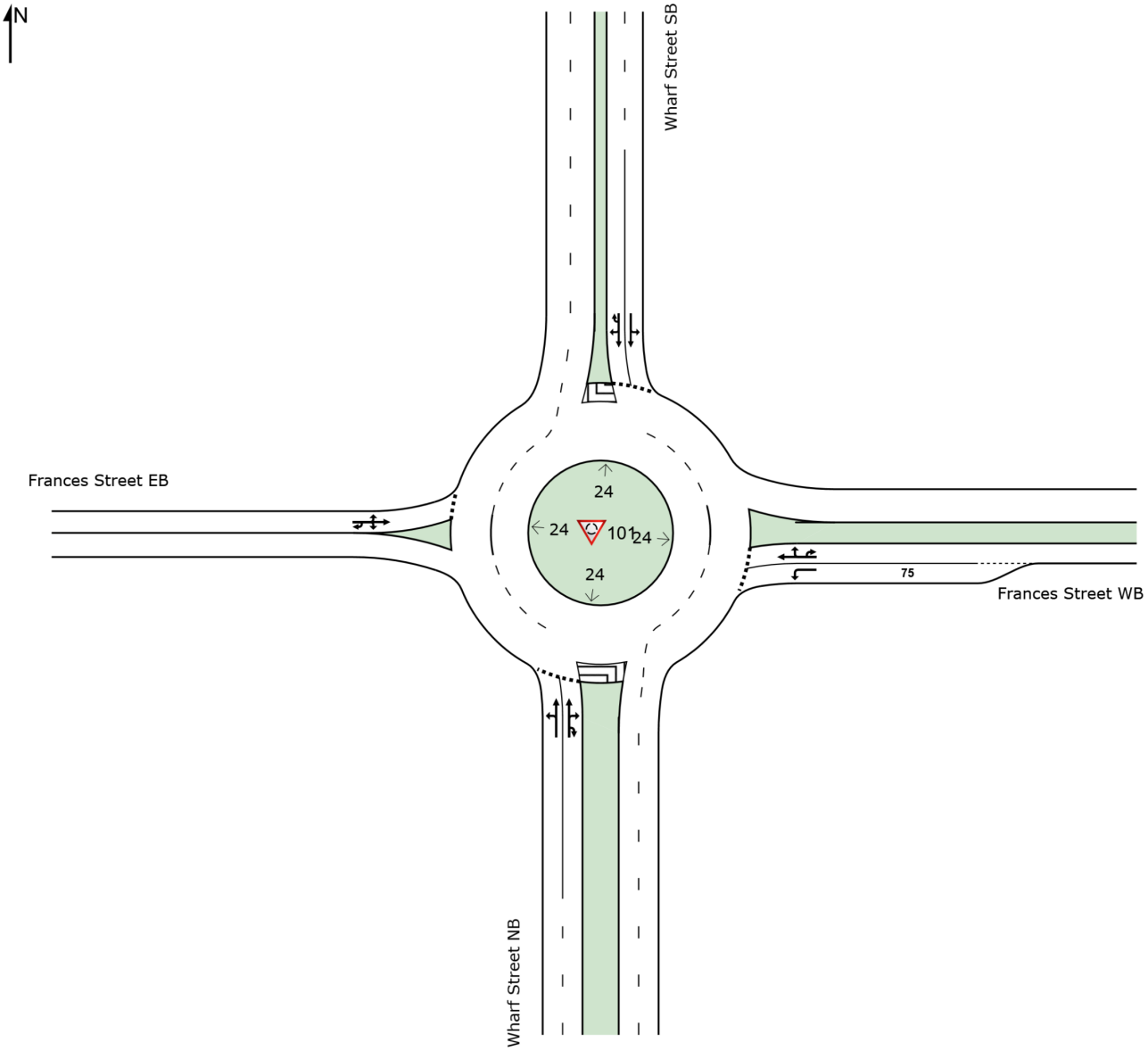
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Bay Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Priority** | | | | | | | | | | | | |
| Exit Short Lane | 1 | 75 | 0.0 | 702 | 709 | 3.00 | 2.00 | 282 | 1065 | 0.264 | 1.4 | 2.1 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 702 | 1800 | 0.390 | 0.0 | 0.0 |
| West Exit: Bay Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# SITE LAYOUT

## Site: 101 [2021 AM Base (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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





Organisation: ARUP AUSTRALIA SERVICES PTY LTD | Licence: NETWORK / Enterprise | Created: Wednesday, 29 November 2023 11:52:23 AM
Project: \\global.arup.com\australasia\SYD\Projects\288000\288867-00 Tweed Mall Redevelopment\Work\Internal\Transport\Traffic Analysis \SIDRA Modelling\Wharf Street-Frances St Roundabout. - Phased Assessmet - Redistribution - RFI update.sip9

# LANE SUMMARY

## Site: 101 [2021 AM Base (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 422 | 8.4 | 1525 | 0.277 | 100 | 4.6 | LOS A | 2.0 | 14.8 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 367 | 3.2 | 1327 | 0.277 | 100 | 8.6 | LOS A | 1.9 | 13.9 | Full | 250 | 0.0 | 0.0 |
| Approach | 789 | 6.0 | | 0.277 | | 6.5 | LOS A | 2.0 | 14.8 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 81 | 6.5 | 961 | 0.084 | 100 | 5.8 | LOS A | 0.4 | 2.9 | Short | 75 | 0.0 | NA |
| Lane 2 | 62 | 1.7 | 845 | 0.073 | 100 | 11.2 | LOS A | 0.3 | 2.4 | Full | 168 | 0.0 | 0.0 |
| Approach | 143 | 4.4 | | 0.084 | | 8.1 | LOS A | 0.4 | 2.9 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 321 | 4.4 | 1328 | 0.242 | 100 | 5.4 | LOS A | 1.7 | 12.6 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 264 | 4.6 | 1091 | 0.242 | 100 | 7.3 | LOS A | 1.7 | 12.2 | Full | 230 | 0.0 | 0.0 |
| Approach | 585 | 4.5 | | 0.242 | | 6.2 | LOS A | 1.7 | 12.6 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 4 | 0.0 | 718 | 0.006 | 100 | 8.7 | LOS A | 0.0 | 0.2 | Full | 60 | 0.0 | 0.0 |
| Approach | 4 | 0.0 | | 0.006 | | 8.7 | LOS A | 0.0 | 0.2 | | | | |
| Intersection | 1522 | 5.3 | | 0.277 | | 6.5 | LOS A | 2.0 | 14.8 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 7 | 415 | - | - | 422 | 8.4 | 1525 | 0.277 | 100 | NA | NA |
| Lane 2 | - | 98 | 232 | 38 | 367 | 3.2 | 1327 | 0.277 | 100 | NA | NA |
| Approach | 7 | 513 | 232 | 38 | 789 | 6.0 | | 0.277 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 81 | - | - | - | 81 | 6.5 | 961 | 0.084 | 100 | 0.0 | 2 |
| Lane 2 | - | 1 | 59 | 2 | 62 | 1.7 | 845 | 0.073 | 100 | NA | NA |
| Approach | 81 | 1 | 59 | 2 | 143 | 4.4 | | 0.084 | | | |

| North: Wharf Street SB | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 77 | 244 | - | - | 321 | 4.4 | 1328 | 0.242 | 100 | NA | NA | |
| Lane 2 | - | 212 | 1 | 51 | 264 | 4.6 | 1091 | 0.242 | 100 | NA | NA | |
| Approach | 77 | 457 | 1 | 51 | 585 | 4.5 | | 0.242 | | | | |
| West: Frances Street EB | | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 1 | 1 | 1 | 1 | 4 | 0.0 | 718 | 0.006 | 100 | NA | NA | |
| Approach | 1 | 1 | 1 | 1 | 4 | 0.0 | | 0.006 | | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1522 | 5.3 | 0.277 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2021 PM Base (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 423 | 2.5 | 1464 | 0.289 | 100 | 4.9 | LOS A | 2.1 | 14.8 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 355 | 1.5 | 1230 | 0.289 | 100 | 8.8 | LOS A | 2.0 | 14.3 | Full | 250 | 0.0 | 0.0 |
| Approach | 778 | 2.0 | | 0.289 | | 6.7 | LOS A | 2.1 | 14.8 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 194 | 0.5 | 863 | 0.224 | 100 | 6.5 | LOS A | 1.2 | 8.1 | Short | 75 | 0.0 | NA |
| Lane 2 | 93 | 5.7 | 608 | 0.152 | 100 | 11.8 | LOS A | 0.7 | 5.1 | Full | 168 | 0.0 | 0.0 |
| Approach | 286 | 2.2 | | 0.224 | | 8.3 | LOS A | 1.2 | 8.1 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 443 | 3.1 | 1311 | 0.338 | 100 | 5.7 | LOS A | 2.6 | 18.8 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 365 | 1.7 | 1081 | 0.338 | 100 | 7.9 | LOS A | 2.5 | 17.8 | Full | 230 | 0.0 | 0.0 |
| Approach | 808 | 2.5 | | 0.338 | | 6.7 | LOS A | 2.6 | 18.8 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 124 | 2.5 | 695 | 0.179 | 100 | 7.5 | LOS A | 0.8 | 5.6 | Full | 60 | 0.0 | 0.0 |
| Approach | 124 | 2.5 | | 0.179 | | 7.5 | LOS A | 0.8 | 5.6 | | | | |
| Intersection | 1997 | 2.3 | | 0.338 | | 7.0 | LOS A | 2.6 | 18.8 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 17 | 406 | - | - | 423 | 2.5 | 1464 | 0.289 | 100 | NA | NA |
| Lane 2 | - | 125 | 179 | 52 | 355 | 1.5 | 1230 | 0.289 | 100 | NA | NA |
| Approach | 17 | 531 | 179 | 52 | 778 | 2.0 | | 0.289 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 194 | - | - | - | 194 | 0.5 | 863 | 0.224 | 100 | 0.0 | 2 |
| Lane 2 | - | 22 | 69 | 1 | 93 | 5.7 | 608 | 0.152 | 100 | NA | NA |
| Approach | 194 | 22 | 69 | 1 | 286 | 2.2 | | 0.224 | | | |

| North: Wharf Street SB | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 72 | 372 | - | - | 443 | 3.1 | 1311 | 0.338 | 100 | NA | NA |
| Lane 2 | - | 267 | 43 | 55 | 365 | 1.7 | 1081 | 0.338 | 100 | NA | NA |
| Approach | 72 | 639 | 43 | 55 | 808 | 2.5 | | 0.338 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 52 | 41 | 31 | 1 | 124 | 2.5 | 695 | 0.179 | 100 | NA | NA |
| Approach | 52 | 41 | 31 | 1 | 124 | 2.5 | | 0.179 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1997 | 2.3 | 0.338 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2021 Sat Base (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 498 | 2.0 | 1459 | 0.341 | 100 | 5.0 | LOS A | 2.6 | 18.5 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 417 | 0.9 | 1223 | 0.341 | 100 | 9.1 | LOS A | 2.5 | 17.8 | Full | 250 | 0.0 | 0.0 |
| Approach | 915 | 1.5 | | 0.341 | | 6.9 | LOS A | 2.6 | 18.5 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 165 | 0.0 | 853 | 0.194 | 100 | 6.5 | LOS A | 1.0 | 6.9 | Short | 75 | 0.0 | NA |
| Lane 2 | 113 | 3.7 | 661 | 0.170 | 100 | 10.6 | LOS A | 0.8 | 5.9 | Full | 168 | 0.0 | 0.0 |
| Approach | 278 | 1.5 | | 0.194 | | 8.1 | LOS A | 1.0 | 6.9 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 460 | 2.4 | 1271 | 0.362 | 100 | 5.9 | LOS A | 2.9 | 20.7 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 373 | 2.2 | 1031 | 0.362 | 100 | 8.0 | LOS A | 2.8 | 19.6 | Full | 230 | 0.0 | 0.0 |
| Approach | 833 | 2.3 | | 0.362 | | 6.8 | LOS A | 2.9 | 20.7 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 80 | 1.3 | 654 | 0.122 | 100 | 7.6 | LOS A | 0.5 | 3.8 | Full | 60 | 0.0 | 0.0 |
| Approach | 80 | 1.3 | | 0.122 | | 7.6 | LOS A | 0.5 | 3.8 | | | | |
| Intersection | 2105 | 1.8 | | 0.362 | | 7.1 | LOS A | 2.9 | 20.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 19 | 479 | - | - | 498 | 2.0 | 1459 | 0.341 | 100 | NA | NA |
| Lane 2 | - | 121 | 247 | 48 | 417 | 0.9 | 1223 | 0.341 | 100 | NA | NA |
| Approach | 19 | 600 | 247 | 48 | 915 | 1.5 | | 0.341 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 165 | - | - | - | 165 | 0.0 | 853 | 0.194 | 100 | 0.0 | 2 |
| Lane 2 | - | 44 | 67 | 1 | 113 | 3.7 | 661 | 0.170 | 100 | NA | NA |
| Approach | 165 | 44 | 67 | 1 | 278 | 1.5 | | 0.194 | | | |

| North: Wharf Street SB | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 69 | 390 | - | - | 460 | 2.4 | 1271 | 0.362 | 100 | NA | NA |
| Lane 2 | - | 288 | 39 | 46 | 373 | 2.2 | 1031 | 0.362 | 100 | NA | NA |
| Approach | 69 | 678 | 39 | 46 | 833 | 2.3 | | 0.362 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 35 | 26 | 18 | 1 | 80 | 1.3 | 654 | 0.122 | 100 | NA | NA |
| Approach | 35 | 26 | 18 | 1 | 80 | 1.3 | | 0.122 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2105 | 1.8 | 0.362 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 AM Base (Site Folder: 2028 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 441 | 8.3 | 1521 | 0.290 | 100 | 4.6 | LOS A | 2.1 | 15.7 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 383 | 3.1 | 1322 | 0.290 | 100 | 8.7 | LOS A | 2.1 | 14.8 | Full | 250 | 0.0 | 0.0 |
| Approach | 824 | 5.9 | | 0.290 | | 6.5 | LOS A | 2.1 | 15.7 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 84 | 6.3 | 947 | 0.089 | 100 | 5.8 | LOS A | 0.4 | 3.1 | Short | 75 | 0.0 | NA |
| Lane 2 | 64 | 1.6 | 828 | 0.078 | 100 | 11.3 | LOS A | 0.4 | 2.5 | Full | 168 | 0.0 | 0.0 |
| Approach | 148 | 4.3 | | 0.089 | | 8.2 | LOS A | 0.4 | 3.1 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 336 | 4.4 | 1314 | 0.256 | 100 | 5.5 | LOS A | 1.9 | 13.5 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 275 | 4.6 | 1076 | 0.256 | 100 | 7.4 | LOS A | 1.8 | 13.0 | Full | 230 | 0.0 | 0.0 |
| Approach | 612 | 4.5 | | 0.256 | | 6.3 | LOS A | 1.9 | 13.5 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 4 | 0.0 | 703 | 0.006 | 100 | 8.9 | LOS A | 0.0 | 0.2 | Full | 60 | 0.0 | 0.0 |
| Approach | 4 | 0.0 | | 0.006 | | 8.9 | LOS A | 0.0 | 0.2 | | | | |
| Intersection | 1588 | 5.2 | | 0.290 | | 6.6 | LOS A | 2.1 | 15.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 7 | 434 | - | - | 441 | 8.3 | 1521 | 0.290 | 100 | NA | NA |
| Lane 2 | - | 101 | 242 | 40 | 383 | 3.1 | 1322 | 0.290 | 100 | NA | NA |
| Approach | 7 | 535 | 242 | 40 | 824 | 5.9 | | 0.290 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 84 | - | - | - | 84 | 6.3 | 947 | 0.089 | 100 | 0.0 | 2 |
| Lane 2 | - | 1 | 61 | 2 | 64 | 1.6 | 828 | 0.078 | 100 | NA | NA |
| Approach | 84 | 1 | 61 | 2 | 148 | 4.3 | | 0.089 | | | |

| North: Wharf Street SB | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 80 | 256 | - | - | 336 | 4.4 | 1314 | 0.256 | 100 | NA | NA | |
| Lane 2 | - | 222 | 1 | 53 | 275 | 4.6 | 1076 | 0.256 | 100 | NA | NA | |
| Approach | 80 | 478 | 1 | 53 | 612 | 4.5 | | 0.256 | | | | |
| West: Frances Street EB | | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 1 | 1 | 1 | 1 | 4 | 0.0 | 703 | 0.006 | 100 | NA | NA | |
| Approach | 1 | 1 | 1 | 1 | 4 | 0.0 | | 0.006 | | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1588 | 5.2 | 0.290 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 PM Base (Site Folder: 2028 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 443 | 2.5 | 1454 | 0.305 | 100 | 5.0 | LOS A | 2.2 | 15.9 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 372 | 1.5 | 1219 | 0.305 | 100 | 8.9 | LOS A | 2.2 | 15.3 | Full | 250 | 0.0 | 0.0 |
| Approach | 815 | 2.1 | | 0.305 | | 6.7 | LOS A | 2.2 | 15.9 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 202 | 0.5 | 843 | 0.240 | 100 | 6.7 | LOS A | 1.3 | 8.8 | Short | 75 | 0.0 | NA |
| Lane 2 | 97 | 5.4 | 593 | 0.163 | 100 | 12.0 | LOS A | 0.8 | 5.5 | Full | 168 | 0.0 | 0.0 |
| Approach | 299 | 2.1 | | 0.240 | | 8.4 | LOS A | 1.3 | 8.8 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 463 | 3.0 | 1296 | 0.358 | 100 | 5.8 | LOS A | 2.8 | 20.3 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 381 | 1.6 | 1064 | 0.358 | 100 | 8.1 | LOS A | 2.7 | 19.2 | Full | 230 | 0.0 | 0.0 |
| Approach | 844 | 2.4 | | 0.358 | | 6.8 | LOS A | 2.8 | 20.3 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 129 | 2.4 | 679 | 0.191 | 100 | 7.7 | LOS A | 0.8 | 6.1 | Full | 60 | 0.0 | 0.0 |
| Approach | 129 | 2.4 | | 0.191 | | 7.7 | LOS A | 0.8 | 6.1 | | | | |
| Intersection | 2087 | 2.2 | | 0.358 | | 7.1 | LOS A | 2.8 | 20.3 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 18 | 425 | - | - | 443 | 2.5 | 1454 | 0.305 | 100 | NA | NA |
| Lane 2 | - | 129 | 187 | 55 | 372 | 1.5 | 1219 | 0.305 | 100 | NA | NA |
| Approach | 18 | 555 | 187 | 55 | 815 | 2.1 | | 0.305 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 202 | - | - | - | 202 | 0.5 | 843 | 0.240 | 100 | 0.0 | 2 |
| Lane 2 | - | 23 | 73 | 1 | 97 | 5.4 | 593 | 0.163 | 100 | NA | NA |
| Approach | 202 | 23 | 73 | 1 | 299 | 2.1 | | 0.240 | | | |

| North: Wharf Street SB | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 75 | 389 | - | - | 463 | 3.0 | 1296 | 0.358 | 100 | NA | NA |
| Lane 2 | - | 279 | 45 | 57 | 381 | 1.6 | 1064 | 0.358 | 100 | NA | NA |
| Approach | 75 | 667 | 45 | 57 | 844 | 2.4 | | 0.358 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 54 | 43 | 32 | 1 | 129 | 2.4 | 679 | 0.191 | 100 | NA | NA |
| Approach | 54 | 43 | 32 | 1 | 129 | 2.4 | | 0.191 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2087 | 2.2 | 0.358 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 Sat Base (Site Folder: 2028 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 521 | 2.1 | 1446 | 0.360 | 100 | 5.1 | LOS A | 2.8 | 19.9 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 436 | 0.9 | 1210 | 0.360 | 100 | 9.2 | LOS A | 2.7 | 19.1 | Full | 250 | 0.0 | 0.0 |
| Approach | 957 | 1.5 | | 0.360 | | 7.0 | LOS A | 2.8 | 19.9 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 173 | 0.0 | 828 | 0.209 | 100 | 6.6 | LOS A | 1.1 | 7.5 | Short | 75 | 0.0 | NA |
| Lane 2 | 118 | 3.6 | 639 | 0.185 | 100 | 10.8 | LOS A | 0.9 | 6.4 | Full | 168 | 0.0 | 0.0 |
| Approach | 291 | 1.4 | | 0.209 | | 8.3 | LOS A | 1.1 | 7.5 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 481 | 2.3 | 1253 | 0.384 | 100 | 6.1 | LOS A | 3.1 | 22.4 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 388 | 2.1 | 1012 | 0.384 | 100 | 8.2 | LOS A | 3.0 | 21.1 | Full | 230 | 0.0 | 0.0 |
| Approach | 869 | 2.2 | | 0.384 | | 7.0 | LOS A | 3.1 | 22.4 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 83 | 1.3 | 633 | 0.131 | 100 | 7.8 | LOS A | 0.6 | 4.1 | Full | 60 | 0.0 | 0.0 |
| Approach | 83 | 1.3 | | 0.131 | | 7.8 | LOS A | 0.6 | 4.1 | | | | |
| Intersection | 2200 | 1.8 | | 0.384 | | 7.2 | LOS A | 3.1 | 22.4 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 20 | 501 | - | - | 521 | 2.1 | 1446 | 0.360 | 100 | NA | NA |
| Lane 2 | - | 126 | 259 | 51 | 436 | 0.9 | 1210 | 0.360 | 100 | NA | NA |
| Approach | 20 | 627 | 259 | 51 | 957 | 1.5 | | 0.360 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 173 | - | - | - | 173 | 0.0 | 828 | 0.209 | 100 | 0.0 | 2 |
| Lane 2 | - | 46 | 71 | 1 | 118 | 3.6 | 639 | 0.185 | 100 | NA | NA |
| Approach | 173 | 46 | 71 | 1 | 291 | 1.4 | | 0.209 | | | |

| North: Wharf Street SB | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 73 | 408 | - | - | 481 | 2.3 | 1253 | 0.384 | 100 | NA | NA |
| Lane 2 | - | 299 | 41 | 48 | 388 | 2.1 | 1012 | 0.384 | 100 | NA | NA |
| Approach | 73 | 707 | 41 | 48 | 869 | 2.2 | | 0.384 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 36 | 27 | 19 | 1 | 83 | 1.3 | 633 | 0.131 | 100 | NA | NA |
| Approach | 36 | 27 | 19 | 1 | 83 | 1.3 | | 0.131 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2200 | 1.8 | 0.384 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 AM Base + Development (Site Folder: 2028 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 560 | 7.7 | 1323 | 0.423 | 97[5] | 5.6 | LOS A | 3.5 | 26.2 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 497 | 1.1 | 1138 | 0.437 | 100 | 11.2 | LOS A | 3.5 | 25.0 | Full | 250 | 0.0 | 0.0 |
| Approach | 1057 | 4.6 | | 0.437 | | 8.2 | LOS A | 3.5 | 26.2 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 285 | 1.8 | 953 | 0.299 | 100 | 6.1 | LOS A | 1.7 | 12.0 | Short | 75 | 0.0 | NA |
| Lane 2 | 217 | 0.5 | 817 | 0.266 | 100 | 11.6 | LOS A | 1.4 | 9.9 | Full | 168 | 0.0 | 0.0 |
| Approach | 502 | 1.3 | | 0.299 | | 8.5 | LOS A | 1.7 | 12.0 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 374 | 3.7 | 1077 | 0.347 | 100 | 6.9 | LOS A | 2.9 | 20.7 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 290 | 4.6 | 835 | 0.347 | 100 | 9.1 | LOS A | 2.6 | 19.2 | Full | 230 | 0.0 | 0.0 |
| Approach | 664 | 4.1 | | 0.347 | | 7.9 | LOS A | 2.9 | 20.7 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 4 | 0.0 | 535 | 0.008 | 100 | 10.2 | LOS A | 0.0 | 0.2 | Full | 60 | 0.0 | 0.0 |
| Approach | 4 | 0.0 | | 0.008 | | 10.2 | LOS A | 0.0 | 0.2 | | | | |
| Intersection | 2227 | 3.7 | | 0.437 | | 8.2 | LOS A | 3.5 | 26.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 7 | 553 | - | - | 560 | 7.7 | 1323 | 0.423 | 97[5] | NA | NA |
| Lane 2 | - | - | 457 | 40 | 497 | 1.1 | 1138 | 0.437 | 100 | NA | NA |
| Approach | 7 | 553 | 457 | 40 | 1057 | 4.6 | | 0.437 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 285 | - | - | - | 285 | 1.8 | 953 | 0.299 | 100 | 0.0 | 2 |
| Lane 2 | - | 1 | 214 | 2 | 217 | 0.5 | 817 | 0.266 | 100 | NA | NA |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | 285 | 1 | 214 | 2 | 502 | 1.3 | | 0.299 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 146 | 228 | - | - | 374 | 3.7 | 1077 | 0.347 | 100 | NA | NA | |
| Lane 2 | - | 242 | 1 | 47 | 290 | 4.6 | 835 | 0.347 | 100 | NA | NA | |
| Approach | 146 | 469 | 1 | 47 | 664 | 4.1 | | 0.347 | | | | |
| West: Frances Street EB | | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 1 | 1 | 1 | 1 | 4 | 0.0 | 535 | 0.008 | 100 | NA | NA | |
| Approach | 1 | 1 | 1 | 1 | 4 | 0.0 | | 0.008 | | | | |
| | Total | %HV | Deg.Satn (v/c) | | | | | | | | | |
| Intersection | 2227 | 3.7 | 0.437 | | | | | | | | | |

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 % | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 PM Base + Development (Site Folder: 2028 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 599 | 2.5 | 1305 | 0.459 | 91[5] | 5.8 | LOS A | 3.9 | 28.2 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 546 | 0.4 | 1086 | 0.503 | 100 | 11.7 | LOS A | 4.3 | 30.1 | Full | 250 | 0.0 | 0.0 |
| Approach | 1145 | 1.5 | | 0.503 | | 8.7 | LOS A | 4.3 | 30.1 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 467 | 0.2 | 803 | 0.582 | 100 | 8.8 | LOS A | 4.6 | 32.0 | Short | 75 | 0.0 | NA |
| Lane 2 | 222 | 2.4 | 581 | 0.382 | 100 | 12.6 | LOS A | 2.2 | 15.4 | Full | 168 | 0.0 | 0.0 |
| Approach | 689 | 0.9 | | 0.582 | | 10.0 | LOS A | 4.6 | 32.0 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 519 | 2.6 | 915 | 0.567 | 100 | 10.9 | LOS A | 6.3 | 45.0 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 391 | 1.7 | 690 | 0.567 | 100 | 14.9 | LOS B | 5.8 | 41.0 | Full | 230 | 0.0 | 0.0 |
| Approach | 909 | 2.2 | | 0.567 | | 12.6 | LOS A | 6.3 | 45.0 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 202 | 1.6 | 502 | 0.403 | 100 | 10.3 | LOS A | 2.2 | 15.5 | Full | 60 | 0.0 | 0.0 |
| Approach | 202 | 1.6 | | 0.403 | | 10.3 | LOS A | 2.2 | 15.5 | | | | |
| Intersection | 2946 | 1.6 | | 0.582 | | 10.3 | LOS A | 6.3 | 45.0 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 18 | 581 | - | - | 599 | 2.5 | 1305 | 0.459 | 91[5] | NA | NA |
| Lane 2 | - | - | 493 | 54 | 546 | 0.4 | 1086 | 0.503 | 100 | NA | NA |
| Approach | 18 | 581 | 493 | 54 | 1145 | 1.5 | | 0.503 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 467 | - | - | - | 467 | 0.2 | 803 | 0.582 | 100 | 0.0 | 2 |
| Lane 2 | - | 54 | 167 | 1 | 222 | 2.4 | 581 | 0.382 | 100 | NA | NA |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | 467 | 54 | 167 | 1 | 689 | 0.9 | | 0.582 | | | |
| North: Wharf Street SB | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 197 | 322 | - | - | 519 | 2.6 | 915 | 0.567 | 100 | NA | NA |
| Lane 2 | - | 297 | 42 | 52 | 391 | 1.7 | 690 | 0.567 | 100 | NA | NA |
| Approach | 197 | 619 | 42 | 52 | 909 | 2.2 | | 0.567 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 57 | 113 | 32 | 1 | 202 | 1.6 | 502 | 0.403 | 100 | NA | NA |
| Approach | 57 | 113 | 32 | 1 | 202 | 1.6 | | 0.403 | | | |
| | Total | %HV | Deg.Satn (v/c) | | | | | | | | |
| Intersection | 2946 | 1.6 | 0.582 | | | | | | | | |

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 % | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2028 Sat Base + Development (Site Folder: 2028 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 624 | 2.1 | 874 | 0.714 | 100 | 12.7 | LOS A | 9.6 | 68.6 | Full | 250 | 0.0 | 0.0 |
| Lane 2[d] | 804 | 0.2 | 1126 | 0.714 | 100 | 15.4 | LOS B | 10.2 | 71.8 | Full | 250 | 0.0 | 0.0 |
| Approach | 1427 | 1.0 | | 0.714 | | 14.2 | LOS A | 10.2 | 71.8 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 586 | 0.0 | 797 | 0.735 | 100 | 11.1 | LOS A | 7.2 | 50.7 | Short | 75 | 0.0 | NA |
| Lane 2 | 401 | 1.0 | 635 | 0.632 | 100 | 14.1 | LOS A | 4.9 | 34.6 | Full | 168 | 0.0 | 0.0 |
| Approach | 987 | 0.4 | | 0.735 | | 12.4 | LOS A | 7.2 | 50.7 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 539 | 1.9 | 679 | 0.794 | 100 | 26.1 | LOS B | 14.1 | 100.6 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 389 | 2.2 | 490 | 0.794 | 100 | 32.9 | LOS C | 11.8 | 84.4 | Full | 230 | 0.0 | 0.0 |
| Approach | 928 | 2.0 | | 0.794 | | 29.0 | LOS C | 14.1 | 100.6 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 133 | 0.8 | 329 | 0.403 | 100 | 14.0 | LOS A | 2.3 | 16.5 | Full | 60 | 0.0 | 0.0 |
| Approach | 133 | 0.8 | | 0.403 | | 14.0 | LOS A | 2.3 | 16.5 | | | | |
| Intersection | 3476 | 1.1 | | 0.794 | | 17.6 | LOS B | 14.1 | 100.6 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 20 | 604 | - | - | 624 | 2.1 | 874 | 0.714 | 100 | NA | NA |
| Lane 2 | - | 36 | 717 | 51 | 804 | 0.2 | 1126 | 0.714 | 100 | NA | NA |
| Approach | 20 | 640 | 717 | 51 | 1427 | 1.0 | | 0.714 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 586 | - | - | - | 586 | 0.0 | 797 | 0.735 | 100 | 0.0 | 2 |
| Lane 2 | - | 158 | 242 | 1 | 401 | 1.0 | 635 | 0.632 | 100 | NA | NA |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | 586 | 158 | 242 | 1 | 987 | 0.4 | | 0.735 | | | |
| North: Wharf Street SB | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 203 | 336 | - | - | 539 | 1.9 | 679 | 0.794 | 100 | NA | NA |
| Lane 2 | - | 309 | 37 | 43 | 389 | 2.2 | 490 | 0.794 | 100 | NA | NA |
| Approach | 203 | 645 | 37 | 43 | 928 | 2.0 | | 0.794 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 37 | 76 | 19 | 1 | 133 | 0.8 | 329 | 0.403 | 100 | NA | NA |
| Approach | 37 | 76 | 19 | 1 | 133 | 0.8 | | 0.403 | | | |
| | Total | %HV | Deg.Satn (v/c) | | | | | | | | |
| Intersection | 3476 | 1.1 | 0.794 | | | | | | | | |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 AM Base (Site Folder: 2031 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 449 | 8.3 | 1516 | 0.296 | 100 | 4.6 | LOS A | 2.1 | 16.1 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 390 | 3.1 | 1317 | 0.296 | 100 | 8.7 | LOS A | 2.1 | 15.2 | Full | 250 | 0.0 | 0.0 |
| Approach | 839 | 5.9 | | 0.296 | | 6.5 | LOS A | 2.1 | 16.1 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 86 | 6.1 | 942 | 0.092 | 100 | 5.9 | LOS A | 0.4 | 3.2 | Short | 75 | 0.0 | NA |
| Lane 2 | 66 | 1.6 | 823 | 0.081 | 100 | 11.3 | LOS A | 0.4 | 2.6 | Full | 168 | 0.0 | 0.0 |
| Approach | 153 | 4.1 | | 0.092 | | 8.2 | LOS A | 0.4 | 3.2 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 342 | 4.3 | 1310 | 0.261 | 100 | 5.5 | LOS A | 1.9 | 13.9 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 280 | 4.5 | 1072 | 0.261 | 100 | 7.4 | LOS A | 1.8 | 13.3 | Full | 230 | 0.0 | 0.0 |
| Approach | 622 | 4.4 | | 0.261 | | 6.4 | LOS A | 1.9 | 13.9 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 4 | 0.0 | 696 | 0.006 | 100 | 8.9 | LOS A | 0.0 | 0.2 | Full | 60 | 0.0 | 0.0 |
| Approach | 4 | 0.0 | | 0.006 | | 8.9 | LOS A | 0.0 | 0.2 | | | | |
| Intersection | 1618 | 5.1 | | 0.296 | | 6.6 | LOS A | 2.1 | 16.1 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 7 | 442 | - | - | 449 | 8.3 | 1516 | 0.296 | 100 | NA | NA |
| Lane 2 | - | 104 | 246 | 40 | 390 | 3.1 | 1317 | 0.296 | 100 | NA | NA |
| Approach | 7 | 545 | 246 | 40 | 839 | 5.9 | | 0.296 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 86 | - | - | - | 86 | 6.1 | 942 | 0.092 | 100 | 0.0 | 2 |
| Lane 2 | - | 1 | 63 | 2 | 66 | 1.6 | 823 | 0.081 | 100 | NA | NA |
| Approach | 86 | 1 | 63 | 2 | 153 | 4.1 | | 0.092 | | | |

| North: Wharf Street SB | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 81 | 261 | - | - | 342 | 4.3 | 1310 | 0.261 | 100 | NA | NA | |
| Lane 2 | - | 225 | 1 | 54 | 280 | 4.5 | 1072 | 0.261 | 100 | NA | NA | |
| Approach | 81 | 486 | 1 | 54 | 622 | 4.4 | | 0.261 | | | | |
| West: Frances Street EB | | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 1 | 1 | 1 | 1 | 4 | 0.0 | 696 | 0.006 | 100 | NA | NA | |
| Approach | 1 | 1 | 1 | 1 | 4 | 0.0 | | 0.006 | | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1618 | 5.1 | 0.296 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 PM Base (Site Folder: 2031 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 451 | 2.5 | 1451 | 0.311 | 100 | 5.0 | LOS A | 2.3 | 16.3 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 378 | 1.5 | 1215 | 0.311 | 100 | 8.9 | LOS A | 2.2 | 15.7 | Full | 250 | 0.0 | 0.0 |
| Approach | 828 | 2.0 | | 0.311 | | 6.8 | LOS A | 2.3 | 16.3 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 206 | 0.5 | 834 | 0.247 | 100 | 6.7 | LOS A | 1.3 | 9.1 | Short | 75 | 0.0 | NA |
| Lane 2 | 98 | 5.4 | 584 | 0.168 | 100 | 12.1 | LOS A | 0.8 | 5.7 | Full | 168 | 0.0 | 0.0 |
| Approach | 304 | 2.1 | | 0.247 | | 8.4 | LOS A | 1.3 | 9.1 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 473 | 3.3 | 1288 | 0.367 | 100 | 5.9 | LOS A | 2.9 | 21.0 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 389 | 1.7 | 1058 | 0.367 | 100 | 8.1 | LOS A | 2.8 | 19.8 | Full | 230 | 0.0 | 0.0 |
| Approach | 862 | 2.6 | | 0.367 | | 6.9 | LOS A | 2.9 | 21.0 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 133 | 2.4 | 673 | 0.197 | 100 | 7.7 | LOS A | 0.9 | 6.3 | Full | 60 | 0.0 | 0.0 |
| Approach | 133 | 2.4 | | 0.197 | | 7.7 | LOS A | 0.9 | 6.3 | | | | |
| Intersection | 2127 | 2.3 | | 0.367 | | 7.1 | LOS A | 2.9 | 21.0 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 18 | 433 | - | - | 451 | 2.5 | 1451 | 0.311 | 100 | NA | NA |
| Lane 2 | - | 132 | 191 | 55 | 378 | 1.5 | 1215 | 0.311 | 100 | NA | NA |
| Approach | 18 | 565 | 191 | 55 | 828 | 2.0 | | 0.311 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 206 | - | - | - | 206 | 0.5 | 834 | 0.247 | 100 | 0.0 | 2 |
| Lane 2 | - | 23 | 74 | 1 | 98 | 5.4 | 584 | 0.168 | 100 | NA | NA |
| Approach | 206 | 23 | 74 | 1 | 304 | 2.1 | | 0.247 | | | |

| North: Wharf Street SB | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 77 | 396 | - | - | 473 | 3.3 | 1288 | 0.367 | 100 | NA | NA |
| Lane 2 | - | 285 | 46 | 58 | 389 | 1.7 | 1058 | 0.367 | 100 | NA | NA |
| Approach | 77 | 681 | 46 | 58 | 862 | 2.6 | | 0.367 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 55 | 44 | 33 | 1 | 133 | 2.4 | 673 | 0.197 | 100 | NA | NA |
| Approach | 55 | 44 | 33 | 1 | 133 | 2.4 | | 0.197 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2127 | 2.3 | 0.367 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 Sat Base (Site Folder: 2031 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 530 | 2.1 | 1443 | 0.368 | 100 | 5.1 | LOS A | 2.9 | 20.5 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 443 | 0.9 | 1206 | 0.368 | 100 | 9.3 | LOS A | 2.8 | 19.6 | Full | 250 | 0.0 | 0.0 |
| Approach | 974 | 1.5 | | 0.368 | | 7.0 | LOS A | 2.9 | 20.5 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 176 | 0.0 | 818 | 0.215 | 100 | 6.6 | LOS A | 1.1 | 7.8 | Short | 75 | 0.0 | NA |
| Lane 2 | 120 | 3.5 | 630 | 0.191 | 100 | 10.8 | LOS A | 0.9 | 6.6 | Full | 168 | 0.0 | 0.0 |
| Approach | 296 | 1.4 | | 0.215 | | 8.3 | LOS A | 1.1 | 7.8 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 491 | 2.3 | 1245 | 0.394 | 100 | 6.1 | LOS A | 3.2 | 23.2 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 396 | 2.1 | 1004 | 0.394 | 100 | 8.3 | LOS A | 3.1 | 21.9 | Full | 230 | 0.0 | 0.0 |
| Approach | 886 | 2.3 | | 0.394 | | 7.1 | LOS A | 3.2 | 23.2 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 85 | 1.2 | 625 | 0.136 | 100 | 7.8 | LOS A | 0.6 | 4.2 | Full | 60 | 0.0 | 0.0 |
| Approach | 85 | 1.2 | | 0.136 | | 7.8 | LOS A | 0.6 | 4.2 | | | | |
| Intersection | 2241 | 1.8 | | 0.394 | | 7.2 | LOS A | 3.2 | 23.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 20 | 510 | - | - | 530 | 2.1 | 1443 | 0.368 | 100 | NA | NA |
| Lane 2 | - | 129 | 263 | 52 | 443 | 0.9 | 1206 | 0.368 | 100 | NA | NA |
| Approach | 20 | 639 | 263 | 52 | 974 | 1.5 | | 0.368 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 176 | - | - | - | 176 | 0.0 | 818 | 0.215 | 100 | 0.0 | 2 |
| Lane 2 | - | 47 | 72 | 1 | 120 | 3.5 | 630 | 0.191 | 100 | NA | NA |
| Approach | 176 | 47 | 72 | 1 | 296 | 1.4 | | 0.215 | | | |

| North: Wharf Street SB | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 74 | 417 | - | - | 491 | 2.3 | 1245 | 0.394 | 100 | NA | NA |
| Lane 2 | - | 305 | 41 | 49 | 396 | 2.1 | 1004 | 0.394 | 100 | NA | NA |
| Approach | 74 | 722 | 41 | 49 | 886 | 2.3 | | 0.394 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 37 | 28 | 19 | 1 | 85 | 1.2 | 625 | 0.136 | 100 | NA | NA |
| Approach | 37 | 28 | 19 | 1 | 85 | 1.2 | | 0.136 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2241 | 1.8 | 0.394 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 AM Base + Development (Site Folder: 2031 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 566 | 7.6 | 1298 | 0.436 | 100 | 5.7 | LOS A | 3.7 | 27.4 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 482 | 1.4 | 1106 | 0.436 | 100 | 11.1 | LOS A | 3.5 | 25.0 | Full | 250 | 0.0 | 0.0 |
| Approach | 1048 | 4.7 | | 0.436 | | 8.2 | LOS A | 3.7 | 27.4 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 313 | 1.7 | 923 | 0.339 | 100 | 6.3 | LOS A | 1.9 | 13.7 | Short | 75 | 0.0 | NA |
| Lane 2 | 237 | 0.4 | 783 | 0.303 | 100 | 11.9 | LOS A | 1.6 | 11.4 | Full | 168 | 0.0 | 0.0 |
| Approach | 549 | 1.1 | | 0.339 | | 8.7 | LOS A | 1.9 | 13.7 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 399 | 3.6 | 1109 | 0.360 | 100 | 6.7 | LOS A | 3.0 | 21.6 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 312 | 4.2 | 868 | 0.360 | 100 | 8.8 | LOS A | 2.8 | 20.0 | Full | 230 | 0.0 | 0.0 |
| Approach | 712 | 3.8 | | 0.360 | | 7.6 | LOS A | 3.0 | 21.6 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 4 | 0.0 | 528 | 0.008 | 100 | 10.3 | LOS A | 0.0 | 0.2 | Full | 60 | 0.0 | 0.0 |
| Approach | 4 | 0.0 | | 0.008 | | 10.3 | LOS A | 0.0 | 0.2 | | | | |
| Intersection | 2314 | 3.6 | | 0.436 | | 8.1 | LOS A | 3.7 | 27.4 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 7 | 559 | - | - | 566 | 7.6 | 1298 | 0.436 | 100 | NA | NA |
| Lane 2 | - | 20 | 422 | 40 | 482 | 1.4 | 1106 | 0.436 | 100 | NA | NA |
| Approach | 7 | 579 | 422 | 40 | 1048 | 4.7 | | 0.436 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 313 | - | - | - | 313 | 1.7 | 923 | 0.339 | 100 | 0.0 | 2 |
| Lane 2 | - | 1 | 234 | 2 | 237 | 0.4 | 783 | 0.303 | 100 | NA | NA |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | 313 | 1 | 234 | 2 | 549 | 1.1 | | 0.339 | | | |
| North: Wharf Street SB | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 136 | 263 | - | - | 399 | 3.6 | 1109 | 0.360 | 100 | NA | NA |
| Lane 2 | - | 264 | 1 | 47 | 312 | 4.2 | 868 | 0.360 | 100 | NA | NA |
| Approach | 136 | 527 | 1 | 47 | 712 | 3.8 | | 0.360 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 1 | 1 | 1 | 1 | 4 | 0.0 | 528 | 0.008 | 100 | NA | NA |
| Approach | 1 | 1 | 1 | 1 | 4 | 0.0 | | 0.008 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2314 | 3.6 | 0.436 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 PM Base + Development (Site Folder: 2031 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 648 | 2.3 | 1338 | 0.485 | 95[5] | 5.8 | LOS A | 4.3 | 30.5 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 568 | 0.4 | 1111 | 0.511 | 100 | 11.6 | LOS A | 4.4 | 31.0 | Full | 250 | 0.0 | 0.0 |
| Approach | 1217 | 1.4 | | 0.511 | | 8.5 | LOS A | 4.4 | 31.0 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 414 | 0.3 | 786 | 0.526 | 100 | 8.3 | LOS A | 3.8 | 27.0 | Short | 75 | 0.0 | NA |
| Lane 2 | 197 | 2.7 | 566 | 0.348 | 100 | 12.4 | LOS A | 1.9 | 13.6 | Full | 168 | 0.0 | 0.0 |
| Approach | 611 | 1.0 | | 0.526 | | 9.6 | LOS A | 3.8 | 27.0 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 536 | 2.8 | 890 | 0.603 | 100 | 12.2 | LOS A | 7.2 | 51.5 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 402 | 1.8 | 668 | 0.603 | 100 | 16.5 | LOS B | 6.5 | 46.4 | Full | 230 | 0.0 | 0.0 |
| Approach | 939 | 2.4 | | 0.603 | | 14.1 | LOS A | 7.2 | 51.5 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 213 | 1.5 | 491 | 0.433 | 100 | 10.7 | LOS A | 2.4 | 16.9 | Full | 60 | 0.0 | 0.0 |
| Approach | 213 | 1.5 | | 0.433 | | 10.7 | LOS A | 2.4 | 16.9 | | | | |
| Intersection | 2979 | 1.6 | | 0.603 | | 10.6 | LOS A | 7.2 | 51.5 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 18 | 631 | - | - | 648 | 2.3 | 1338 | 0.485 | 95[5] | NA | NA |
| Lane 2 | - | - | 514 | 55 | 568 | 0.4 | 1111 | 0.511 | 100 | NA | NA |
| Approach | 18 | 631 | 514 | 55 | 1217 | 1.4 | | 0.511 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 414 | - | - | - | 414 | 0.3 | 786 | 0.526 | 100 | 0.0 | 2 |
| Lane 2 | - | 47 | 148 | 1 | 197 | 2.7 | 566 | 0.348 | 100 | NA | NA |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | 414 | 47 | 148 | 1 | 611 | 1.0 | | 0.526 | | | |
| North: Wharf Street SB | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 206 | 330 | - | - | 536 | 2.8 | 890 | 0.603 | 100 | NA | NA |
| Lane 2 | - | 308 | 43 | 52 | 402 | 1.8 | 668 | 0.603 | 100 | NA | NA |
| Approach | 206 | 638 | 43 | 52 | 939 | 2.4 | | 0.603 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 61 | 118 | 33 | 1 | 213 | 1.5 | 491 | 0.433 | 100 | NA | NA |
| Approach | 61 | 118 | 33 | 1 | 213 | 1.5 | | 0.433 | | | |
| | Total | %HV | Deg.Satn (v/c) | | | | | | | | |
| Intersection | 2979 | 1.6 | 0.603 | | | | | | | | |

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 % | 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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2031 Sat Base + Development (Site Folder: 2031 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 636 | 2.0 | 872 | 0.729 | 100 | 13.2 | LOS A | 10.2 | 72.6 | Full | 250 | 0.0 | 0.0 |
| Lane 2[d] | 819 | 0.3 | 1123 | 0.729 | 100 | 15.7 | LOS B | 10.9 | 76.1 | Full | 250 | 0.0 | 0.0 |
| Approach | 1455 | 1.0 | | 0.729 | | 14.6 | LOS B | 10.9 | 76.1 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 582 | 0.0 | 767 | 0.759 | 100 | 12.0 | LOS A | 7.7 | 53.6 | Short | 75 | 0.0 | NA |
| Lane 2 | 398 | 1.1 | 606 | 0.657 | 100 | 14.9 | LOS B | 5.2 | 36.5 | Full | 168 | 0.0 | 0.0 |
| Approach | 980 | 0.4 | | 0.759 | | 13.2 | LOS A | 7.7 | 53.6 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 569 | 1.9 | 680 | 0.836 | 100 | 30.6 | LOS C | 16.8 | 119.4 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 411 | 2.2 | 492 | 0.836 | 100 | 38.0 | LOS C | 13.9 | 99.3 | Full | 230 | 0.0 | 0.0 |
| Approach | 980 | 2.0 | | 0.836 | | 33.7 | LOS C | 16.8 | 119.4 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 135 | 0.8 | 320 | 0.422 | 100 | 14.6 | LOS B | 2.5 | 17.5 | Full | 60 | 0.0 | 0.0 |
| Approach | 135 | 0.8 | | 0.422 | | 14.6 | LOS B | 2.5 | 17.5 | | | | |
| Intersection | 3549 | 1.1 | | 0.836 | | 19.5 | LOS B | 16.8 | 119.4 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 20 | 616 | - | - | 636 | 2.0 | 872 | 0.729 | 100 | NA | NA |
| Lane 2 | - | 56 | 712 | 52 | 819 | 0.3 | 1123 | 0.729 | 100 | NA | NA |
| Approach | 20 | 672 | 712 | 52 | 1455 | 1.0 | | 0.729 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 582 | - | - | - | 582 | 0.0 | 767 | 0.759 | 100 | 0.0 | 2 |
| Lane 2 | - | 157 | 240 | 1 | 398 | 1.1 | 606 | 0.657 | 100 | NA | NA |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | 582 | 157 | 240 | 1 | 980 | 0.4 | | 0.759 | | | |
| North: Wharf Street SB | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 201 | 368 | - | - | 569 | 1.9 | 680 | 0.836 | 100 | NA | NA |
| Lane 2 | - | 327 | 40 | 44 | 411 | 2.2 | 492 | 0.836 | 100 | NA | NA |
| Approach | 201 | 695 | 40 | 44 | 980 | 2.0 | | 0.836 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 39 | 76 | 19 | 1 | 135 | 0.8 | 320 | 0.422 | 100 | NA | NA |
| Approach | 39 | 76 | 19 | 1 | 135 | 0.8 | | 0.422 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 3549 | 1.1 | 0.836 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 AM Base (Site Folder: 2034 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 458 | 8.5 | 1512 | 0.303 | 100 | 4.6 | LOS A | 2.2 | 16.6 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 399 | 3.1 | 1315 | 0.303 | 100 | 8.7 | LOS A | 2.2 | 15.7 | Full | 250 | 0.0 | 0.0 |
| Approach | 857 | 6.0 | | 0.303 | | 6.5 | LOS A | 2.2 | 16.6 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 87 | 6.0 | 936 | 0.093 | 100 | 5.9 | LOS A | 0.4 | 3.3 | Short | 75 | 0.0 | NA |
| Lane 2 | 67 | 1.6 | 817 | 0.082 | 100 | 11.4 | LOS A | 0.4 | 2.7 | Full | 168 | 0.0 | 0.0 |
| Approach | 155 | 4.1 | | 0.093 | | 8.3 | LOS A | 0.4 | 3.3 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 350 | 4.5 | 1302 | 0.268 | 100 | 5.5 | LOS A | 2.0 | 14.4 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 286 | 4.4 | 1066 | 0.268 | 100 | 7.5 | LOS A | 1.9 | 13.8 | Full | 230 | 0.0 | 0.0 |
| Approach | 636 | 4.5 | | 0.268 | | 6.4 | LOS A | 2.0 | 14.4 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 4 | 0.0 | 689 | 0.006 | 100 | 9.0 | LOS A | 0.0 | 0.2 | Full | 60 | 0.0 | 0.0 |
| Approach | 4 | 0.0 | | 0.006 | | 9.0 | LOS A | 0.0 | 0.2 | | | | |
| Intersection | 1652 | 5.2 | | 0.303 | | 6.7 | LOS A | 2.2 | 16.6 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 8 | 450 | - | - | 458 | 8.5 | 1512 | 0.303 | 100 | NA | NA |
| Lane 2 | - | 107 | 251 | 41 | 399 | 3.1 | 1315 | 0.303 | 100 | NA | NA |
| Approach | 8 | 557 | 251 | 41 | 857 | 6.0 | | 0.303 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 87 | - | - | - | 87 | 6.0 | 936 | 0.093 | 100 | 0.0 | 2 |
| Lane 2 | - | 1 | 64 | 2 | 67 | 1.6 | 817 | 0.082 | 100 | NA | NA |
| Approach | 87 | 1 | 64 | 2 | 155 | 4.1 | | 0.093 | | | |

| North: Wharf Street SB | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 84 | 265 | - | - | 350 | 4.5 | 1302 | 0.268 | 100 | NA | NA | |
| Lane 2 | - | 230 | 1 | 55 | 286 | 4.4 | 1066 | 0.268 | 100 | NA | NA | |
| Approach | 84 | 496 | 1 | 55 | 636 | 4.5 | | 0.268 | | | | |
| West: Frances Street EB | | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 1 | 1 | 1 | 1 | 4 | 0.0 | 689 | 0.006 | 100 | NA | NA | |
| Approach | 1 | 1 | 1 | 1 | 4 | 0.0 | | 0.006 | | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 1652 | 5.2 | 0.303 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 PM Base (Site Folder: 2034 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 459 | 2.5 | 1447 | 0.317 | 100 | 5.0 | LOS A | 2.3 | 16.7 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 384 | 1.4 | 1210 | 0.317 | 100 | 8.9 | LOS A | 2.3 | 16.1 | Full | 250 | 0.0 | 0.0 |
| Approach | 843 | 2.0 | | 0.317 | | 6.8 | LOS A | 2.3 | 16.7 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 211 | 0.5 | 822 | 0.256 | 100 | 6.8 | LOS A | 1.3 | 9.5 | Short | 75 | 0.0 | NA |
| Lane 2 | 100 | 5.3 | 575 | 0.174 | 100 | 12.1 | LOS A | 0.8 | 5.9 | Full | 168 | 0.0 | 0.0 |
| Approach | 311 | 2.0 | | 0.256 | | 8.5 | LOS A | 1.3 | 9.5 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 482 | 3.2 | 1282 | 0.376 | 100 | 5.9 | LOS A | 3.0 | 21.6 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 395 | 1.6 | 1051 | 0.376 | 100 | 8.2 | LOS A | 2.9 | 20.4 | Full | 230 | 0.0 | 0.0 |
| Approach | 877 | 2.5 | | 0.376 | | 6.9 | LOS A | 3.0 | 21.6 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 134 | 2.4 | 663 | 0.202 | 100 | 7.8 | LOS A | 0.9 | 6.4 | Full | 60 | 0.0 | 0.0 |
| Approach | 134 | 2.4 | | 0.202 | | 7.8 | LOS A | 0.9 | 6.4 | | | | |
| Intersection | 2164 | 2.2 | | 0.376 | | 7.1 | LOS A | 3.0 | 21.6 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 18 | 441 | - | - | 459 | 2.5 | 1447 | 0.317 | 100 | NA | NA |
| Lane 2 | - | 135 | 194 | 56 | 384 | 1.4 | 1210 | 0.317 | 100 | NA | NA |
| Approach | 18 | 576 | 194 | 56 | 843 | 2.0 | | 0.317 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 211 | - | - | - | 211 | 0.5 | 822 | 0.256 | 100 | 0.0 | 2 |
| Lane 2 | - | 24 | 75 | 1 | 100 | 5.3 | 575 | 0.174 | 100 | NA | NA |
| Approach | 211 | 24 | 75 | 1 | 311 | 2.0 | | 0.256 | | | |

| North: Wharf Street SB | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 78 | 404 | - | - | 482 | 3.2 | 1282 | 0.376 | 100 | NA | NA |
| Lane 2 | - | 290 | 46 | 59 | 395 | 1.6 | 1051 | 0.376 | 100 | NA | NA |
| Approach | 78 | 694 | 46 | 59 | 877 | 2.5 | | 0.376 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 56 | 44 | 33 | 1 | 134 | 2.4 | 663 | 0.202 | 100 | NA | NA |
| Approach | 56 | 44 | 33 | 1 | 134 | 2.4 | | 0.202 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2164 | 2.2 | 0.376 |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 Sat Base (Site Folder: 2034 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1[d] | 541 | 2.0 | 1441 | 0.375 | 100 | 5.1 | LOS A | 3.0 | 21.1 | Full | 250 | 0.0 | 0.0 |
| Lane 2 | 452 | 0.8 | 1203 | 0.375 | 100 | 9.3 | LOS A | 2.9 | 20.2 | Full | 250 | 0.0 | 0.0 |
| Approach | 993 | 1.5 | | 0.375 | | 7.0 | LOS A | 3.0 | 21.1 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 179 | 0.0 | 809 | 0.221 | 100 | 6.7 | LOS A | 1.2 | 8.1 | Short | 75 | 0.0 | NA |
| Lane 2 | 121 | 3.5 | 620 | 0.195 | 100 | 10.9 | LOS A | 0.9 | 6.8 | Full | 168 | 0.0 | 0.0 |
| Approach | 300 | 1.4 | | 0.221 | | 8.4 | LOS A | 1.2 | 8.1 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 500 | 2.3 | 1238 | 0.403 | 100 | 6.2 | LOS A | 3.4 | 23.9 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 402 | 2.1 | 997 | 0.403 | 100 | 8.3 | LOS A | 3.2 | 22.5 | Full | 230 | 0.0 | 0.0 |
| Approach | 902 | 2.2 | | 0.403 | | 7.1 | LOS A | 3.4 | 23.9 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 86 | 1.2 | 618 | 0.140 | 100 | 7.9 | LOS A | 0.6 | 4.3 | Full | 60 | 0.0 | 0.0 |
| Approach | 86 | 1.2 | | 0.140 | | 7.9 | LOS A | 0.6 | 4.3 | | | | |
| Intersection | 2281 | 1.8 | | 0.403 | | 7.3 | LOS A | 3.4 | 23.9 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 21 | 520 | - | - | 541 | 2.0 | 1441 | 0.375 | 100 | NA | NA |
| Lane 2 | - | 131 | 268 | 53 | 452 | 0.8 | 1203 | 0.375 | 100 | NA | NA |
| Approach | 21 | 651 | 268 | 53 | 993 | 1.5 | | 0.375 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 179 | - | - | - | 179 | 0.0 | 809 | 0.221 | 100 | 0.0 | 2 |
| Lane 2 | - | 47 | 73 | 1 | 121 | 3.5 | 620 | 0.195 | 100 | NA | NA |
| Approach | 179 | 47 | 73 | 1 | 300 | 1.4 | | 0.221 | | | |

| North: Wharf Street SB | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 75 | 425 | - | - | 500 | 2.3 | 1238 | 0.403 | 100 | NA | NA | |
| Lane 2 | - | 311 | 42 | 49 | 402 | 2.1 | 997 | 0.403 | 100 | NA | NA | |
| Approach | 75 | 736 | 42 | 49 | 902 | 2.2 | | 0.403 | | | | |
| West: Frances Street EB | | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 38 | 28 | 19 | 1 | 86 | 1.2 | 618 | 0.140 | 100 | NA | NA | |
| Approach | 38 | 28 | 19 | 1 | 86 | 1.2 | | 0.140 | | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2281 | 1.8 | 0.403 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 AM Base + Development (Site Folder: 2034 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 556 | 7.6 | 926 | 0.601 | 100 | 9.0 | LOS A | 6.3 | 46.7 | Full | 250 | 0.0 | 0.0 |
| Lane 2[d] | 729 | 1.3 | 1214 | 0.601 | 100 | 11.9 | LOS A | 6.4 | 45.4 | Full | 250 | 0.0 | 0.0 |
| Approach | 1285 | 4.0 | | 0.601 | | 10.7 | LOS A | 6.4 | 46.7 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 468 | 1.1 | 900 | 0.521 | 100 | 7.4 | LOS A | 3.8 | 27.2 | Short | 75 | 0.0 | NA |
| Lane 2 | 354 | 0.3 | 761 | 0.465 | 100 | 12.9 | LOS A | 3.1 | 21.4 | Full | 168 | 0.0 | 0.0 |
| Approach | 822 | 0.8 | | 0.521 | | 9.7 | LOS A | 3.8 | 27.2 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 440 | 3.3 | 879 | 0.500 | 100 | 9.1 | LOS A | 5.0 | 36.1 | Full | 230 | 0.0 | 0.0 |
| Lane 2 | 329 | 4.2 | 657 | 0.500 | 100 | 12.4 | LOS A | 4.6 | 33.6 | Full | 230 | 0.0 | 0.0 |
| Approach | 768 | 3.7 | | 0.500 | | 10.5 | LOS A | 5.0 | 36.1 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 4 | 0.0 | 364 | 0.012 | 100 | 13.4 | LOS A | 0.1 | 0.4 | Full | 60 | 0.0 | 0.0 |
| Approach | 4 | 0.0 | | 0.012 | | 13.4 | LOS A | 0.1 | 0.4 | | | | |
| Intersection | 2880 | 3.0 | | 0.601 | | 10.4 | LOS A | 6.4 | 46.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 8 | 548 | - | - | 556 | 7.6 | 926 | 0.601 | 100 | NA | NA |
| Lane 2 | - | 69 | 619 | 41 | 729 | 1.3 | 1214 | 0.601 | 100 | NA | NA |
| Approach | 8 | 617 | 619 | 41 | 1285 | 4.0 | | 0.601 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 468 | - | - | - | 468 | 1.1 | 900 | 0.521 | 100 | 0.0 | 2 |
| Lane 2 | - | 1 | 351 | 2 | 354 | 0.3 | 761 | 0.465 | 100 | NA | NA |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | 468 | 1 | 351 | 2 | 822 | 0.8 | | 0.521 | | | |
| North: Wharf Street SB | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 198 | 242 | - | - | 440 | 3.3 | 879 | 0.500 | 100 | NA | NA |
| Lane 2 | - | 285 | 1 | 43 | 329 | 4.2 | 657 | 0.500 | 100 | NA | NA |
| Approach | 198 | 526 | 1 | 43 | 768 | 3.7 | | 0.500 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 1 | 1 | 1 | 1 | 4 | 0.0 | 364 | 0.012 | 100 | NA | NA |
| Approach | 1 | 1 | 1 | 1 | 4 | 0.0 | | 0.012 | | | |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| Intersection | 2880 | 3.0 | 0.601 |

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: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 PM Base + Development (Site Folder: 2034 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 651 | 2.2 | 989 | 0.659 | 100 | 9.4 | LOS A | 7.8 | 55.7 | Full | 250 | 0.0 | 0.0 |
| Lane 2[d] | 823 | 0.3 | 1250 | 0.659 | 100 | 12.8 | LOS A | 7.9 | 55.8 | Full | 250 | 0.0 | 0.0 |
| Approach | 1475 | 1.1 | | 0.659 | | 11.3 | LOS A | 7.9 | 55.8 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 613 | 0.2 | 802 | 0.764 | 100 | 12.1 | LOS A | 8.2 | 57.4 | Short | 75 | 0.0 | NA |
| Lane 2 | 289 | 1.8 | 582 | 0.497 | 100 | 13.8 | LOS A | 3.2 | 23.0 | Full | 168 | 0.0 | 0.0 |
| Approach | 902 | 0.7 | | 0.764 | | 12.7 | LOS A | 8.2 | 57.4 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 578 | 2.5 | 610 | 0.947 | 100 | 66.8 | LOS E | 29.9 | 213.9 | Full | 230 | 0.0 | 2.9 |
| Lane 2 | 410 | 1.9 | 433 | 0.947 | 100 | 77.3 | LOS F | 23.2 | 165.3 | Full | 230 | 0.0 | 0.0 |
| Approach | 988 | 2.2 | | 0.947 | | 71.2 | LOS F | 29.9 | 213.9 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 267 | 1.2 | 343 | 0.780 | 100 | 28.1 | LOS B | 6.4 | 45.2 | Full | 60 | 0.0 | 0.0 |
| Approach | 267 | 1.2 | | 0.780 | | 28.1 | LOS B | 6.4 | 45.2 | | | | |
| Intersection | 3633 | 1.3 | | 0.947 | | 29.2 | LOS C | 29.9 | 213.9 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 18 | 633 | - | - | 651 | 2.2 | 989 | 0.659 | 100 | NA | NA |
| Lane 2 | - | 31 | 737 | 56 | 823 | 0.3 | 1250 | 0.659 | 100 | NA | NA |
| Approach | 18 | 664 | 737 | 56 | 1475 | 1.1 | | 0.659 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 613 | - | - | - | 613 | 0.2 | 802 | 0.764 | 100 | 0.0 | 2 |
| Lane 2 | - | 69 | 219 | 1 | 289 | 1.8 | 582 | 0.497 | 100 | NA | NA |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | 613 | 69 | 219 | 1 | 902 | 0.7 | | 0.764 | | | |
| North: Wharf Street SB | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 295 | 283 | - | - | 578 | 2.5 | 610 | 0.947 | 100 | NA | NA |
| Lane 2 | - | 323 | 41 | 46 | 410 | 1.9 | 433 | 0.947 | 100 | NA | NA |
| Approach | 295 | 606 | 41 | 46 | 988 | 2.2 | | 0.947 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 64 | 169 | 33 | 1 | 267 | 1.2 | 343 | 0.780 | 100 | NA | NA |
| Approach | 64 | 169 | 33 | 1 | 267 | 1.2 | | 0.780 | | | |
| | Total | %HV | Deg.Satn (v/c) | | | | | | | | |
| Intersection | 3633 | 1.3 | 0.947 | | | | | | | | |

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 veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

# LANE SUMMARY

## Site: 101 [2034 Sat Base + Development (Site Folder: 2034 Scenarios)]

New Site
Site Category: (None)
Roundabout

**Lane Use and Performance**

| | DEMAND 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: Wharf Street NB | | | | | | | | | | | | | |
| Lane 1 | 729 | 1.9 | 726 | 1.005 | 93[5] | 63.9 | LOS E | 40.6 | 288.5 | Full | 250 | 0.0 | 9.4 |
| Lane 2[d] | 1048 | 0.1 | 968 | 1.083 | 100 | 111.6 | LOS F | 83.6 | 586.0 | Full | 250 | 0.0 | 43.9 |
| Approach | 1778 | 0.8 | | 1.083 | | 92.0 | LOS F | 83.6 | 586.0 | | | | |
| East: Frances Street WB | | | | | | | | | | | | | |
| Lane 1[d] | 817 | 0.0 | 893 | 0.914 | 100 | 18.9 | LOS B | 16.8 | 117.6 | Short | 75 | 0.0 | NA |
| Lane 2 | 557 | 0.8 | 729 | 0.764 | 100 | 15.8 | LOS B | 8.0 | 56.1 | Full | 168 | 0.0 | 0.0 |
| Approach | 1374 | 0.3 | | 0.914 | | 17.7 | LOS B | 16.8 | 117.6 | | | | |
| North: Wharf Street SB | | | | | | | | | | | | | |
| Lane 1[d] | 585 | 1.8 | 463 | 1.265 | 100 | 288.8 | LOS F | 99.9 | 709.6 | Full | 230 | 0.0 | 100.0 |
| Lane 2 | 403 | 2.4 | 319 | 1.265 | 100 | 297.5 | LOS F | 70.7 | 505.5 | Full | 230 | 0.0 | 38.6 |
| Approach | 988 | 2.0 | | 1.265 | | 292.3 | LOS F | 99.9 | 709.6 | | | | |
| West: Frances Street EB | | | | | | | | | | | | | |
| Lane 1[d] | 167 | 0.6 | 233 | 0.719 | 100 | 37.8 | LOS C | 5.3 | 37.3 | Full | 60 | 0.0 | 0.0 |
| Approach | 167 | 0.6 | | 0.719 | | 37.8 | LOS C | 5.3 | 37.3 | | | | |
| Intersection | 4307 | 0.9 | | 1.265 | | 112.2 | LOS F | 99.9 | 709.6 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane under-utilisation found by the program
d Dominant lane on roundabout approach

**Approach Lane Flows (veh/h)**

South: Wharf Street NB

| Mov. From S To Exit: | L2 W | T1 N | R2 E | U S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 21 | 708 | - | - | 729 | 1.9 | 726 | 1.005 | 93[5] | NA | NA |
| Lane 2 | - | - | 996 | 53 | 1048 | 0.1 | 968 | 1.083 | 100 | NA | NA |
| Approach | 21 | 708 | 996 | 53 | 1778 | 0.8 | | 1.083 | | | |

East: Frances Street WB

| Mov. From E To Exit: | L2 S | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 817 | - | - | - | 817 | 0.0 | 893 | 0.914 | 100 | 20.4 | 2 |
| Lane 2 | - | 220 | 336 | 1 | 557 | 0.8 | 729 | 0.764 | 100 | NA | NA |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach | 817 | 220 | 336 | 1 | 1374 | 0.3 | | 0.914 | | | |
| North: Wharf Street SB | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 281 | 304 | - | - | 585 | 1.8 | 463 | 1.265 | 100 | NA | NA |
| Lane 2 | - | 328 | 37 | 38 | 403 | 2.4 | 319 | 1.265 | 100 | NA | NA |
| Approach | 281 | 633 | 37 | 38 | 988 | 2.0 | | 1.265 | | | |
| West: Frances Street EB | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 41 | 106 | 19 | 1 | 167 | 0.6 | 233 | 0.719 | 100 | NA | NA |
| Approach | 41 | 106 | 19 | 1 | 167 | 0.6 | | 0.719 | | | |
| | Total | %HV | Deg.Satn (v/c) | | | | | | | | |
| Intersection | 4307 | 0.9 | 1.265 | | | | | | | | |

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 % | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South Exit: Wharf Street NB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Frances Street WB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wharf Street SB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Frances Street EB<br>Merge Type: **Not Applied** | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |