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PO Box 570
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3 October 2024

P2499 M+P Fullerton Cove RFIs

Monteath & Powys
Bull Road
Newcastle NSW 2300

Attn: Jamie Graham

Dear Jamie

Response to Road Authority Comments, Proposed Neighbourhood Centre, Fullerton Cove, NSW

The following letter has been provided in response to items raised by Transport for NSW dated 3rd June 2024 regarding the proposed commercial and neighbourhood centre on Fullerton Cove Road, Fullerton Cove and a subsequent letter from Transport for NSW dated 19th July 2024 and September 20th 2024..

Further consideration has been given to the review as shown in the Excel Spreadsheet provided by Transport for NSW: "TfNSW - NTH24_00037_005 - WR 1161 - 20240918 - SIDRA Model Review_V02.xlsx". The matters raised by the reviewer have been addressed and a notation is to each issue addressing the comments is included in Appendix F "TfNSW - NTH24_00037_005 - WR 1161 - 20240918 - SIDRA Model Review_V02 Sep 2024 SECA Response.xlsx " electronic file. Please note that the SIDRA Network model has been updated and is included as Appendix E: "P2499 M+P Fullerton Cove retail RFI Network post TfNSW.sip9"

The relevant items and response are as follows.

We trust that the above satisfies both Transport for NSW and Council's request for further information.

Please feel free to contact our office on 4032 7979 should there be any further queries.

Yours sincerely,

Cathy Thomas

Director

Version	Date	Description	Prepared by	Reviewed and Approved for Issue
Ver01	23/6/24	RFI	C.Thomas	F.Iacono
Ver02	13/8/24	TfNSW Review	F.Iacono	C.Thomas
Ver03	29/9/24	TfNSW 2nd review	F.Iacono	C.Thomas

Attachment A – RFI

Transport for NSW

1.TfNSW does not support the position of the updated TIA that the development should not be considered and assessed as a Shopping Centre. The development is proposed to contain a variety of commercial premises, including a Supermarket, Supporting Specialty tenancies and a Medical Centre, all of which are applicable to a Shopping Centre in accordance with the *RTA Guide to Traffic Generating Developments (2002), (GTGD).* Each of the tenancy types applicable to this development have dedicated formulas which are used to calculate the traffic generation rates relative to each land use activity. The traffic generation of the Shopping Centre as a whole is determined by collating the individual tenancy results together, per identified peak hour period.	Shopping Centre rates for the applicable tenancy types have been applied. 25% for multi-purpose trips per 3.6.1 GtTGDs 22% for linked (diverted) trips per AUSTROADS Guide Part 12
2. TfNSW does not support the position of the updated TIA whereby the provided PM rate is stated to "*reflect the nature of the project"* and an unsubstantiated mid-week AM peak hour traffic generation rate (calculated half the rate of the PM) is used in lieu of the Saturday AM (11am-12noon) peak hour traffic generation rate, identified in the GTGD. TfNSW reiterates that the development should clearly demonstrate an assessment of all three (development associated) peak hour periods specified in the GTGD, as Thursday PM (4:30pm-5:30pm), Friday PM (4:30pm-5:30pm) and Saturday AM (11am-12noon).	SIDRA updated to reflect three peaks as requested.
3. SIDRA analysis should directly reflect the values demonstrated throughout the updated TIA, to ensure the statements made in the TIA can be supported by the SIDRA outputs. PDFs of the SIDRA Outputs for both the classified road roundabout intersection and a (single of two available) site access have been provided twice as appendices (B and sub-part D) in the updated TIA, it is unclear why they have been included twice.	Updated SIDRA provided
4. There is no SIDRA modelling file for the (singular) site access, only the PDF copies mentioned above, and the heading for two outputs refers to *"+30%"*, it is unclear what this is in reference to. Furthermore, not all relevant roundabouts or site accesses between the classified road network and the site have been assessed or networked in SIDRA to confirm potential queuing impacts generated by the development.	Electronic file now provided Attachment D "P2499 M+P Fullerton Cove retail RFI Network post TfNSW2.sip9" A 2% growth factor over 10 years has been applied for all SIDRA growth scenarios (plus the development traffic) – See Attachments C, D and G See response below

4. The updated TIA suggests a lower volume of background traffic during the Saturday AM peak hour period, however there is no evidence provided to support this statement and the source of the suggested historic traffic data is unclear. Council should be satisfied that any background traffic data used to support the development has been captured within reasonable distance to the development / key intersections and is of a reasonable capture date to accurately reflect contemporary traffic movements (with appropriate traffic growth rates applied if applicable).	Updated survey results for the three nominated peak periods applied
5. Where the application proposes to assess the development during a self-identified background traffic peak hour period, such as a mid-week AM period, TfNSW advise Council to consider these as additional assessments only and not to be considered in lieu of the development associated peak hour periods, as per the GTGD. Any additional assessments undertaken using background traffic peak hours, should to be supported with evidence through comprehensive full day traffic counts for both the classified (State) road and the local road and be supported by traffic generations rates taken from a TfNSW supported source, such as the GTGD.	SIDRA updated to reflect the three peaks only as requested. SIDRA has been expanded to be a network model for all peak periods and scenarios including the intersections of: Nelson Bay Road/Fullerton Cove Road/Seaside Boulevarde roundabout + Fullerton Cove Road/The Cove Road roundabout + Fullerton Cove Road/Fullerton Neighbourhood Centre Main Access + Fullerton Cove Road/Fullerton Neighbourhood Centre Secondary Access.
6. TfNSW reiterate (Item 9) comments regarding a need to consider footpath connections to Public and Active transport infrastructure, in particular the bus stop located on the same side of Fullerton Cove Road, as the proposed development.	
7. A design for the CHR/s has been included in the Engineering RFI Response document. This is a matter for Council as it is located on a local road. Council should be satisfied that the design is in accordance with the relevant Austroads guidelines requirements for the design speed of Fullerton Cove Road. Notwithstanding this, TfNSW note, queuing impacts of vehicles turning into the proposed site access at this location, have not yet been confirmed, due to the outstanding matters raised above.	

Traffic Generation

The RTA Guide to Traffic Generation (TfNSW) provides the following:

For Thursdays and Fridays, the models are for the vehicle trips in the evening peak hour - V(P) – where this period has been taken as 4.30-5.30 pm.
For Saturday morning, the peak vehicle hour has been used - PVT. This is typically 11.00 am-12.00 pm. Localised variations in these peak hours can occur.

Thursday:
V(P) = 20 A(S) + 51 A(F) + 155 A(SM) + 46 A(SS) + 22 A(OM)
(vehicle trips per 1000m_2).

Friday:
V(P)= 11 A(S) + 23 A(F) + 138 A(SM) + 56 A(SS) + 5 A(OM)
(vehicle trips per 1000m_2).

Saturday:
PVT= 38 A(S) + 13 A(F) + 147 A(SM) + 107 A(SS)
(vehicle trips per 1000m_2).

where:

A(S): Slow Trade gross leasable floor area (Gross Leasable Floor Area in square metres) includes major department stores such as David Jones and Grace Bros., furniture, electrical and whitegoods stores.

A(F): Faster Trade GLFA - includes discount department stores such as K-Mart and Target, together with larger specialist stores such as Fosseys.

A(SM): Supermarket GLFA - includes stores such as Franklins and large fruit markets.

A(SS): Specialty shops, secondary retail GLFA - includes specialty shops and take-away stores such as McDonalds. These stores are grouped as they tend to not be primary attractors to the centre.

A(OM): Office, medical GLFA: includes medical centres and general business offices.

The following calculations allowing for the supermarket A(SM) and the smaller retail tenancies A(SS) along with a tenancy (04) nominated for a medical use A(OM):

138 x (Area of supermarket) + 56 x (area of ancillary uses) + 5 x (area medical suite) per 1,000 m2 GFA

Thursday

Friday:

Applying this to the development this provides the following traffic flows:

138 x 2485m2 + 56 x 1665m2+ 5 x 848 (vehicle trips per 1000m2).

Trip Generation

	GFAm²	Thursday PM Vehicle trips per 1000m2 155 A(SM) + 46 A(SS) + 22 A(OM)	Friday PM Vehicle trips per 1000m2 138 A(SM) + 56 A(SS) + 5 A(OM)	Saturday Vehicle trips per 1000m2 147 A(SM) + 107 A(SS)
Supermarket	2485	385.17	342.93 (343)	365.30
Ancillary Shops	1665	76.59	93.24 (93)	178.16
Medical Centre	848	18.66	4.24 (4)	-
TOTAL		480	440	544
Applying Multi-trip discount per GtTGD	25%	-120	-110	-136
TOTAL TRIPS		360 (180 inbound / 180 outbound)	330 (165 inbound/165 outbound)	408 (204 inbound /204outbound)

Trip Distribution

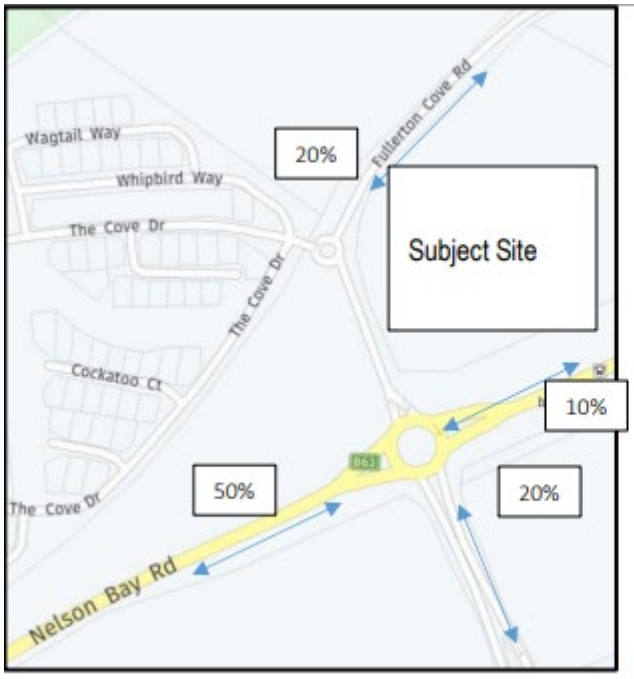
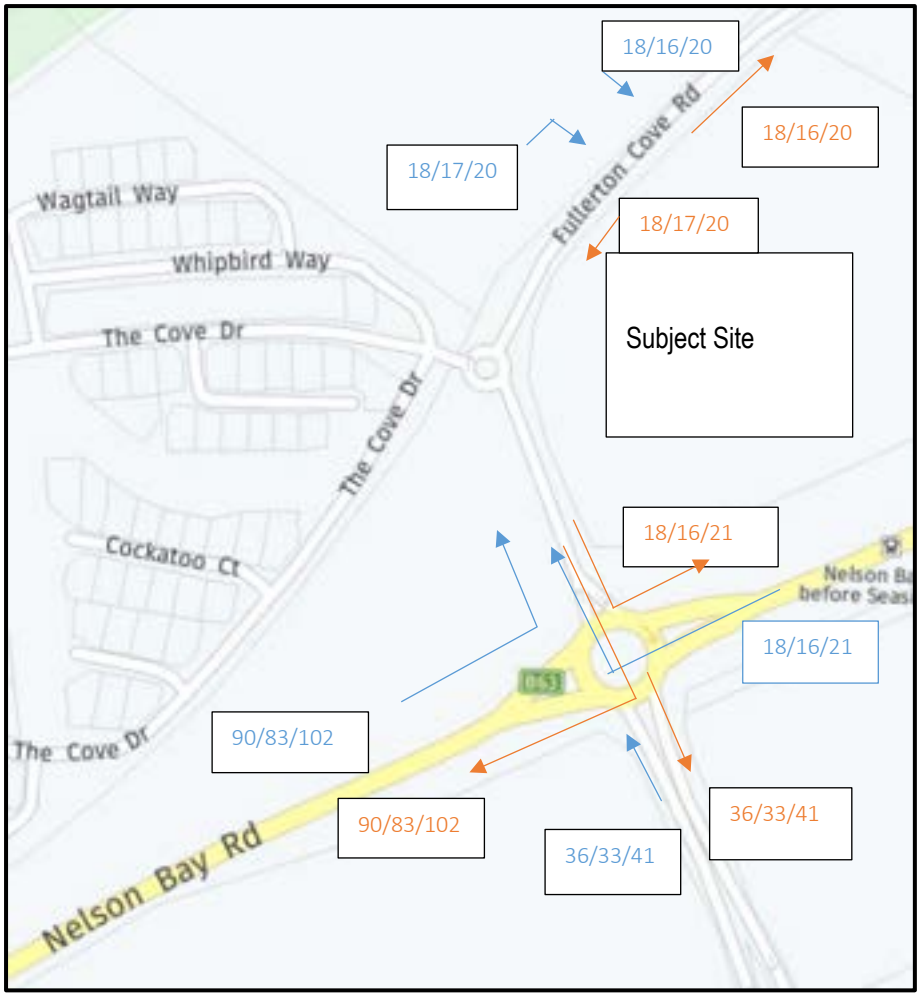


Figure 2-3 Assignment of traffic to the broader road network

Applying the assignment of trips per Figure 2-3 from the TIA would allow for the following:

	Thursday (T) In/Out	Friday (F) In/Out	Saturday (S) In/Out
20% west*	36/36	33/33	40/40
10% north	18/18	16/16	21/21
50% south	90/90	83/83	102/102
20% east	36/36	33/33	41/41
	180in/180out	165 in/165 out	204 in/204 out

*No impact on Nelson Bay Road



T/F/S Inbound Trip distribution T/F/S Outbound Trip distribution

Figure 1 Trip Distribution across road network – (A detailed map is included in Appendix C)

Diverted trips

Applying the Austroads Guide Part 12 rates per Table C8 2 for shopping centres, 22% of the traffic would be diverted trips from Nelson Bay Road.

The balance (78%) would therefore be new trips (78%).

Segmentation of Trips per Austroads Guide Part 12 Table C8 2

	Percentage of trips	No of trips- Thursday	No of trips- Friday	No of trips- Saturday
New trips	78%	281 trips	257 trips	318 trips
Diverted trips	22% per Austroads Guide	79 trips	73 trips	90 trips

Based on the traffic surveys these vehicles turning into Fullerton Cove Road from Nelson Bay Road to then re-enter the traffic flow on Nelson Bay Road, continuing their journey direction, are split northbound/southbound 55%/45% Thursday, 60%/40% Friday and 40%/60% Saturday.

The survey through volumes are therefore reduced as follows:

	Thursday (T)	Friday (F)	Saturday (S)
Northbound	-22 vph	-22 vph	-18 vph

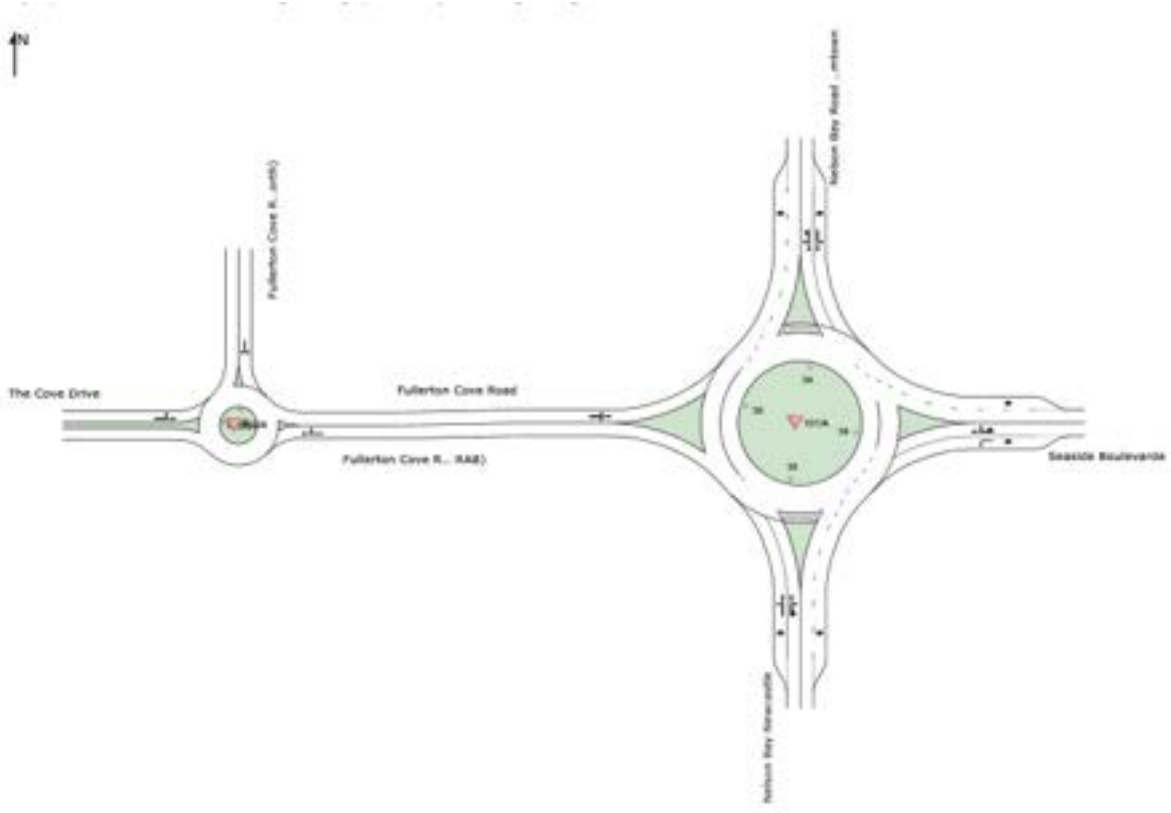
Southbound	-18 vph	-15 vph	-27 vph

Sidra intersection Modelling allowing for updated trip rates per above

The SIDRA modelling has been updated to reflect the above. TfNSW has also requested that SIDRA Network modelling be undertaken. The SIDRA Network modelling includes the existing operation of the following existing intersections:

1. Nelson Bay Road/Fullerton Cove Road/Seaside Boulevarde roundabout
2. Fullerton Cove Road/The Cove Drive roundabout

The geometry of this network developed in SIDRA is:



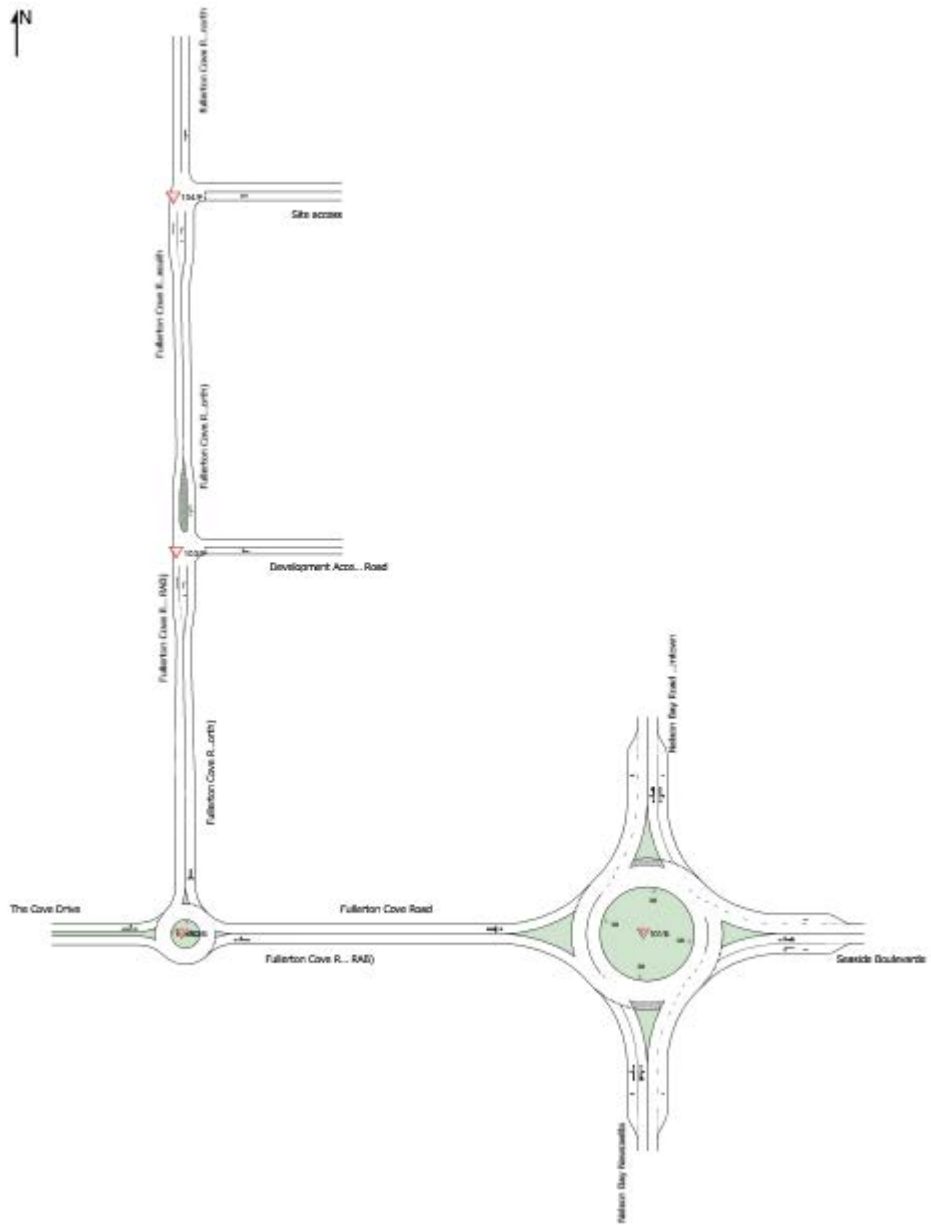
The modelling of the above 2 intersections included existing peak periods based on surveys undertaken on Thursday 13 June 2024 (4:30-5:30PM peak), Friday 14 June 2024 (4:30-5:30PM peak), Saturday 15 June (11:00-12:00PM).

TfNSW also requested that in assessing the traffic impact on the above 2 intersections and the performance of proposed access intersections to the subject development site that the ultimate traffic generation from "The Elements" seniors living development (located opposite the subject site) and "The Cove" seniors development (fully developed and accessed via the Fullerton Cove Road/The Cove Drive roundabout) be included in the SIDRA Network modelling analysis and assessment be undertaken.

To assess the post development and 10 year (i.e. 2034) traffic projections the SIDRA Network models were expanded to include the following scenarios and arrangements:

1. Nelson Bay Road/Fullerton Cove Road/Seaside Boulevarde roundabout
2. Fullerton Cove Road/The Cove Drive roundabout
3. Fullerton Cove Road/Main Development Access Road
4. Fullerton Cove Road/Secondary Development Access Road

The geometry of this network developed in SIDRA is:



The SIDRA Network Models, as included in the SIDRA Network 9.1 file (Attachment E: "P2499 M+P Fullerton Cove retail RFI Network post TfNSW2.sip9") includes the following assessments in the network models created:

1. Thursday PM Existing 2024 (Network)
2. Thursday PM Peak 2024 with Development
3. Thursday PM Peak with Development + Growth 2034
4. Friday PM Peak Existing 2024
5. Friday PM Peak 2024 with Development
6. Friday PM Peak with Development + Growth 2034
7. Saturday Midday Peak Existing 2024
8. Saturday Midday Peak 2024 with Development
9. Saturday Midday Peak with Development + Growth 2034

SIDRA Network select output for the above is included in Appendix D. Appendix D also includes individual movement summaries for the individual intersections, as applicable, for the above listed Network analyses.

Summary findings of the worst movement performance of each intersection for each scenario are provided below. SECA Solution found that the existing roundabouts at Nelson Bay Road/Fullerton Cove Road/Seaside Boulevarde and Fullerton Cove Road/The Cove Road roundabout and the proposed priority-controlled intersections of Fullerton Cove Road and the proposed intersections with the Main Access Road and the Secondary Access Road to the development will operate satisfactorily, without the need for future adjustments, beyond the 10 year growth forecasts.

An additional SIDRA Network was undertaken which only considered adding 10 years of 2% growth to the existing traffic in the network – 2034 simulation (i.e. excluding any additional development traffic) and comparing the analysis of the existing traffic plus 10 years of 2% growth plus the development traffic.

This scenario only considered the heaviest traffic period which was found to be the Thursday PM peak. The summary of this comparison is included in Table 11 below and further details are included in Appendix G. It is limited to the consideration of the operation of the Nelson Bay Drive/Fullerton Cove Road/Seaside Boulevarde roundabout as the other intersections considered have very low Degree of Saturation and delays and this consideration was not considered to provide any further meaningful information. SECA solution found that the roundabout will operate satisfactorily both with and without the impacts of the development traffic considered.

Loading and distribution of development traffic on the intersections in the network under consideration:

Appendix C shows details of the existing traffic and the trip distributions throughout the network. To provide additional clarity the development traffic has been added as a "user class" in the SIDRA Network models built. The input volumes which clearly show the components of each movement (existing light vehicles, existing heavy vehicles and development traffic) are provided in Appendix H.

Summary of analyses of the Nelson Bay Road, Seaside Boulevarde and Fullerton Cove Road roundabout existing geometry:

Table 1 summarises the SIDRA analyses of the highest Degree of Saturation and associated highest delay for each approach (excluding "U" turns as volumes are very low):

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation
- Friday 14 June 2024 4:30PM (Peak) – existing operation
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation

Table 1 SIDRA analysis –roundabout intersection at Nelson Bay Road and Fullerton Cove Road (2024 existing Thursday/Friday/Saturday traffic flows)

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Nelson Bay Road (Newcastle)	Right turn	0.542 / 0.440 / 0.208	11.1 / 11.1 / 11.2	A / A / A	36.1 / 25.2 / 8.5
Seaside Boulevarde	Right turn	0.040 / 0.036 / 0.042	12.9 / 11.5 / 11.9	A / A / A	1.3 / 1.1/ 1.2
Nelson Bay Road (Williamtown)	Right turn	0.519 / 0.314 / 0.319	13.3 / 12.4 / 11.5	A / A / A	29.1 / 14.4 / 14.4
Fullerton Cove Road	Right turn	0.076/ 0.043 / 0.045	14.7 / 12.9 / 10.9	B/ A / A	2.6/ 1.3 / 1.3

The existing roundabout is operating at good Level of Service, spare capacity and with acceptable delays during the peak periods assessed.

Table 2 Sidra analysis –roundabout intersection at Nelson Bay Road and Fullerton Cove Road (2024 existing Thursday/Friday/Saturday traffic flows plus additional development traffic)

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Nelson Bay Road (Newcastle)	Right turn	0.612 / 0.498 / 0.261	11.5 / 11.4 / 11.5	A / A / A	44.2 / 30.1 / 11.6
Seaside Boulevarde	Right turn	0.103 / 0.075 / 0.093	13.6 / 11.8 / 12.1	A / A / A	3.7 / 2.4 / 3.0
Nelson Bay Road (Williamtown)	Right turn	0.573 / 0.346 / 0.360	13.7 / 12.4 / 12.2	A / A / A	36.4 / 17.1 / 17.8
Fullerton Cove Road	Right turn	0.349 / 0.251 / 0.223	16.3 / 13.8 / 11.3	B / A / A	14.0 / 8.8 / 7.4

Table 2 summarises the SIDRA analyses of the highest Degree of Saturation and associated highest delay for each approach (excluding "U" turns as volumes are very low):

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation + Development traffic and diversions
- Friday 14 June 2024 4:30PM (Peak) – existing operation + Development traffic and diversions
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation + Development traffic and diversions

The above SIDRA results show that the additional traffic movements generated by the project shall have a minor impact upon the operation of the roundabout. Post development the roundabout will continue to operate at good Level of Service with a good level of spare capacity and acceptable delays.

The impact for the future 2034 design year has also been assessed, allowing for a 2% per annum background growth in traffic on all legs of the Nelson Bay Road roundabout. The results of this assessment are provided below.

Table 3 summarises the SIDRA analyses of the highest Degree of Saturation and associated highest delay for each approach (excluding "U" turns as volumes are very low):

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation + Development traffic and diversions + 2% growth to 2034
- Friday 14 June 2024 4:30PM (Peak) – existing operation + Development traffic and diversions + 2% growth to 2034
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation + Development traffic and diversions + 2% growth to 2034

Table 3 Sidra analysis –roundabout intersection at Nelson Bay Road and Fullerton Cove Road (2024 existing Thursday/Friday/Saturday traffic flows plus additional development traffic plus 10 years growth to background traffic)

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Nelson Bay Road (Newcastle)	Right turn	0.731 / 0.594 / 0.310	11.8 / 11.5 / 11.6	A / A / A	68.2 / 41.4 / 14.6
Seaside Boulevarde	Right turn	0.144 / 0.093 / 0.125	15.1 / 12.4 / 12.8	B/ A / A	5.6 / 3.1 / 4.2
Nelson Bay Road (Williamtown)	Right turn	0.714 / 0.309 / 0.438	15.3 / 12.9 / 12.4	B/ A / A	66.3 / 22.7 / 23.4
Fullerton Cove Road	Right turn	0.485 / 0.309 / 0.247	23.0 / 15.3 / 11.7	B / B / A	23.4 / 11.6 / 8.4

The 2024 plus 10 year growth (i.e. 2034) analysis as shown in Table 3 indicates that the existing roundabout at the intersection of Nelson Bay Road, Seaside Boulevarde and Fullerton Cove Road will continue to operate at a good Level of Service with acceptable delays beyond the 10 year forecast analysed in SIDRA 9.1.

Whilst the delays and queues increase, the level of service for each of the approaches remains acceptable with no mitigation measures considered necessary.

Summary of analyses of the Fullerton Cove Road and The Cove Drive roundabout existing geometry:

Table 4 summarises the SIDRA analyses of:

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation
- Friday 14 June 2024 4:30PM (Peak) – existing operation
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation

Table 4 Sidra analysis – roundabout intersection at Fullerton Cove Road and The Cove Road (2024 existing Thursday/Friday/Saturday traffic flows plus additional development traffic)

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Fullerton Cove Road (from Nelson Bay Rd)	Right turn	0.035 / 0.026 / 0.054	8.2 / 8.1 /8.1	A / A / A	1.2 / 0.9 / 1.8
The Cove Road	Left turn	0.010 / 0.007 / 0.010	0.3/ 0.4 / 0.6	A / A / A	0.3 / 0.3 / 0.4
Fullerton Road (north)	Right turn	0.028 / 0.018 / 0.027	8.1 / 8.1 / 8.1	A / A / A	1.0 / 0.6 / 0.4

The existing roundabout operates at very good Level of Service, with minimal delay and with low Degree of Saturation.

Table 5 summarises the SIDRA analyses of:

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation + Development traffic and diversions
- Friday 14 June 2024 4:30PM (Peak) – existing operation + Development traffic and diversions
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation + Development traffic and diversions

Table 5 Sidra analysis – roundabout intersection Fullerton Cove Road and The Cove Road (2024 existing Thursday/Friday/Saturday traffic flows plus additional development traffic.

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Fullerton Cove Road (from Nelson Bay Rd)	Right turn	0.152 / 0.136 / 0.181	8.1 / 8.1 / 8.1	A / A / A	5.6 / 4.8 / 6.9
The Cove Road	Left turn	0.021 / 0.019 / 0.023	1.5 / 1.4 / 1.7	A / A / A	0.7 / 0.7 / 0.8
Fullerton Road (north)	Right turn	0.133 / 0.117 / 0.146	8.1 / 8.1 / 8.1	A / A / A	5.4 / 4.6 / 6.0

The addition of development traffic on the existing roundabout is minimal and the roundabout will continue to operate efficiently and with good Level of Service, low Degree of Saturation and low delays.

Table 6 summarises the SIDRA analyses of:

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation + Development traffic and diversions + 2% growth to 2034
- Friday 14 June 2024 4:30PM (Peak) – existing operation + Development traffic and diversions + 2% growth to 2034
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation + Development traffic and diversions + 2% growth to 2034

Table 6 Sidra analysis – roundabout intersection Fullerton Cove Road and The Cove Road (2024 existing Thursday/Friday/Saturday traffic flows plus additional development traffic plus 10 years growth to background traffic)

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Fullerton Cove Road (from Nelson Bay Rd)	Right turn	0.156 / 0.139 / 0.191	8.1 / 8.1 / 8.1	A / A / A	5.8/ 5.0 / 7.2
The Cove Road	Left turn	0.021 / 0.019/ 0.023	1.5 / 1.4 / 1.8	A / A / A	0.7 / 0.7 / 0.8
Fullerton Road (north)	Right turn	0.138 / 0.120 / 0.177	8.1 / 8.1 / 8.1	A / A / A	5.6 / 4.7 / 6.2

The addition of development traffic plus 10 years background growth of 2% per annum on the existing roundabout is minimal and the roundabout will continue to operate efficiently and with good Level of Service beyond the 10 year forecast.

Site access

The site access will be provided via 2 access intersections off Fullerton Cove Road. The main access will include a channelised right turn (modelled as 50 metres long, length to be confirmed) and a secondary access to the north will be configured as a "T" intersection. The performance through to 2034 was assessed with SIDRA Network with the following trip distributions applied in the modelling and assessment:

Traffic will be distributed between 2 intersections with most traffic (80% based on parking locations) entering and leaving via the southern intersection.

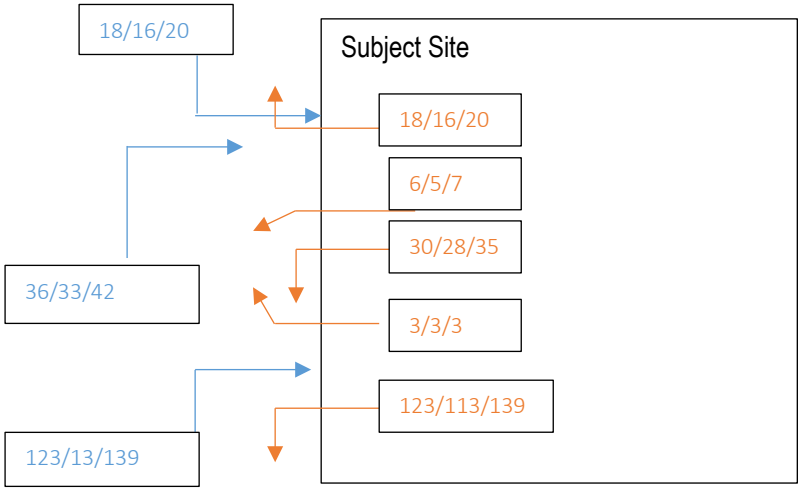


Figure 2 Development trip distribution (T/F/S) on Fullerton Cove Road at site access intersections (see Appendix C for more detail)

Passing traffic based on surveys showing 55% of Fullerton Cove Road existing demands being two way past subject site (**Appendix B**)

Traffic associated with the Elements site has been calculated allowing 144 lots @ 0.4 vph (seniors living) in the PM peak. 60% inbound flows consistent with survey undertaken at the adjacent Cove development.

Peak hour trips – 58vph (35 inbound/23 outbound)

Adjusted to allow for the existing construction demands included in existing situation (1/1/1 inbound 10/7/9 outbound).

Refer **Appendix C** for all distribution maps.

SIDRA analysis of the Proposed Site Access Road and Fullerton Cove Road priority controlled intersection

Analyses of the proposed channelised right turn intersection (priority controlled) of Fullerton Cove Road and The Main Development Access Road:

Table 7 summarises the SIDRA analyses of:

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation + Development traffic and diversions
- Friday 14 June 2024 4:30PM (Peak) – existing operation + Development traffic and diversions
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation + Development traffic and diversions

Table 7 Sidra analysis – proposed intersection Fullerton Cove Road and The Main Access Road to the development (2024 existing Thursday/Friday/Saturday traffic flows plus additional development traffic).

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Fullerton Cove Road (from The Cove RAB)	Right turn	0.079 / 0.072/ 0.089	5.7 / 5.7 /5.8	A / A / A	2.6 / 2.4 / 3.0
Main Access	Right turn	0.088 / 0.080 / 0.099	3.2 / 2.9 / 3.5	A / A / A	2.6 / 2.3 / 2.9
Fullerton Road (north of access)	Left turn	0.039 / 0.033 / 0.041	5.5 / 5.5 / 5.5	A / A / A	0.0 / 0.0 / 0.0

The SIDRA analyses indicates that the proposed intersection, which includes a 50 metre right turn bay, on Fullerton Cove Road into the Main Development Access Road operates efficiently with minimal delays and significant spare capacity.

Table 8 summarises the SIDRA analyses of:

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation + Development traffic and diversions + 2% growth to 2034
- Friday 14 June 2024 4:30PM (Peak) – existing operation + Development traffic and diversions + 2% growth to 2034
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation + Development traffic and diversions + 2% growth to 2034

Table 8 Sidra analysis – roundabout intersection Fullerton Cove Road and The Cove Road (2024 existing Thursday/Friday/Saturday traffic flows plus additional development traffic plus 10 years growth to background traffic)

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Fullerton Cove Road (from The Cove RAB)	Right turn	0.080 / 0.072/ 0.089	5.8 / 5.7 /5.8	A / A / A	2.6 / 2.4 / 3.0
Main Access	Right turn	0.089 / 0.080 / 0.100	3.3 / 3.0 / 3.6	A / A / A	2.6 / 2.3 / 3.0
Fullerton Road (north of access)	Left turn	0.047 / 0.035 / 0.045	5.5 / 5.5 / 5.5	A / A / A	0.0 / 0.0 / 0.0

The SIDRA analyses indicates that the proposed intersection, which includes a sheltered 50 metre right turn lane, on Fullerton Cove Road into the Main Development Access Road will operate efficiently with minimal delays and significant spare capacity with the application of 10 years background growth to the through movements on Fullerton Cove Road. The maximum 95th percentile queue length in the proposed right turn lane into the Main Access Road is under 5 metres, the lane is shown on engineering drawings to be approximately 50 metres in length. The proposed intersection will provide good level of service beyond the 10 year forecast.

Analyses of the proposed channelised right turn intersection (priority controlled) of Fullerton Cove Road and The Secondary Development Access Road (northern end of the development site):

Table 9 summarises the SIDRA analyses of:

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation + Development traffic and diversions
- Friday 14 June 2024 4:30PM (Peak) – existing operation + Development traffic and diversions
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation + Development traffic and diversions
-

Table 9 Sidra analysis – proposed intersection Fullerton Cove Road and The Secondary Access Road to the development (2024 existing Thursday/Friday/Saturday traffic flows plus additional development traffic).

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Fullerton Cove Road (from The Main Access)	Right turn	0.041 / 0.020/ 0.026	5.6 / 5.5 /5.6	A / A / A	1.2 / 0.6 / 0.8
Secondary Access	Right turn	0.040 / 0.053 / 0.048	1.9 / 2.0 / 2.2	A / A / A	1.0 / 1.5 / 1.4
Fullerton Road (north of site)	Left turn	0.027 / 0.019 / 0.028	5.5 / 5.5 / 5.5	A / A / A	0.0 / 0.0 / 0.0

The SIDRA analyses indicates that the proposed intersection of Fullerton Cove Road and the Secondary Development Access Road will operate efficiently with minimal delays and significant spare capacity.

Table 10 summarises the SIDRA analyses of:

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) – existing operation + Development traffic and diversions + 2% growth to 2034
- Friday 14 June 2024 4:30PM (Peak) – existing operation + Development traffic and diversions + 2% growth to 2034
- Saturday 15 June 2024 11:00AM – 12:00PM – existing operation + Development traffic and diversions + 2% growth to 2034

Table 10 Sidra analysis – roundabout intersection Fullerton Cove Road and The Secondary Access Road (2024 existing Thursday/Friday/Saturday traffic flows plus additional development traffic plus 10 years growth to background traffic)

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Fullerton Cove Road (from The Main Access)	Right turn	0.045 / 0.020/ 0.026	5.6 / 5.6 /5.6	A / A / A	1.3 / 0.6 / 0.8
Secondary Access	Right turn	0.040 / 0.053 / 0.050	2.0 / 2.0/ 2.3	A / A / A	1.0 / 1.5 / 1.4
Fullerton Road (north of site)	Left turn	0.031 / 0.021 / 0.048	5.5 / 5.5 / 5.5	A / A / A	0.0 / 0.0 / 0.0

The SIDRA analyses indicates that the proposed intersection on Fullerton Cove Road into the Secondary Development Access Road operates efficiently with minimal delays and significant spare capacity beyond the 10 year forecast.

Summary of analyses of the Nelson Bay Road, Seaside Boulevarde and Fullerton Cove Road roundabout existing geometry comparing existing 2024 traffic plus 10 years growth at 2% per annum (i.e. 2034 as it would operate without adding the development of the subject Neighbourhood Centre or "The Elements developments on Fullerton Cove Road) to the 2034 projection which includes the full traffic generation from the subject developments plus 10 years growth at 2% per annum

Table 11 summarises the SIDRA analyses of the highest Degree of Saturation and associated highest delay for each approach (excluding "U" turns as volumes are very low):

- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) plus 10 years growth at 2% per annum to existing traffic only
- Thursday 13 June 2024 4:30PM – 5:30PM (Peak) plus 10 years growth at 2% per annum to existing traffic only plus the full traffic generation from the subject Neighbourhood Centre, The Cove and The Elements Development)

(Note: the Thursday PM peak had the highest demand on the network and this scenario is provided to show how the intersection would operate without the additional impact of the additional development traffic)

Further SIDRA output details are included in Appendix G.

Table 31 SIDRA analysis –roundabout intersection at Nelson Bay Road and Fullerton Cove Road (2024 existing Thursday traffic plus 2% growth over 10 years – 2034 – NO DEVELOPMENT / 2024 existing Thursday traffic plus 2% growth over 10 years PLUS DEVELOPMENT– 2034)

Approach	Worst movement	Degree of saturation	Average delay (seconds)	LoS	95% Queue (metres)
Nelson Bay Road (Newcastle)	Right turn	0.656 / 0.731	11.3 / 11.8	A / A	54.6 / 68.2
Seaside Boulevarde	Right turn	0.058 / 0.144	14.1 / 15.1	A / A	2.1 / 5.6
Nelson Bay Road (Williamtown)	Right turn	0.650 / 0.714	14.6 / 15.3	B / B	46.9 / 66.3
Fullerton Cove Road	Right turn	0.116/ 0.485	17.3 / 23.0	B/ B	4.3/ 23.4

The comparison of the operation of the roundabout applying 10 years growth to existing traffic to that of applying 10 years growth to existing traffic plus the full development traffic generated from the proposed Neighbourhood Centre, The Cove and The Elements developments shows that the impact of the development will make small differences to the operation of the Nelson Bay Drive/Fullerton Cove Road, Seaside Boulevarde roundabout. The Degree of Saturation (noting that the biggest increase is on the Fullerton Cove Road approach as it has minor existing traffic volumes), increases average delay marginally and not significantly increasing queue lengths.

The overall Level of Service of the roundabout remains at "A", the worst approach from the south on Nelson Bay Road Degree of Saturation moves from 0.656 (without development) to 0.731 (with development) and the same approach 95th percentile queue length modestly increases from 8 vehicles (54.6 metres) to 10 vehicles (68.2 vehicles). This indicates that without or with the development the roundabout will continue to operate at good operating conditions beyond the 10 year forecast.

Conclusion

As requested by Transport for NSW (TfNSW), SECA Solution has undertaken traffic surveys for the PM peak – Thursday 13 June 2024, Friday 14 June 2024 and the Saturday 15 June 2024 11:00am to 12:00pm periods. Also, as requested by TfNSW, SIDRA Network models of the existing intersections of the roundabouts at Nelson Bay Road/Fullerton Cove Road/ Seaside Boulevard and Fullerton Cove Road /The Cove Drive plus the proposed Main Access Road and Secondary Access Road intersections with Fullerton Cove Road has been created and analysed under existing and future traffic demands through to the 10 year traffic forecast. This has included the future development flows associated with the subject proposed Neighbourhood Centre, The Elements development, The Cove development plus 2% pa background growth to provide a robust assessment.

As outlined in the SIDRA summaries above, the SIDRA Network select output in Appendix D and the SIDRA Network electronic file (Appendix E – "P2499 M+P Fullerton Cove retail RFI Network post TfNSW2.sip9") all intersections will operate satisfactorily beyond the 10 year traffic load forecasts.

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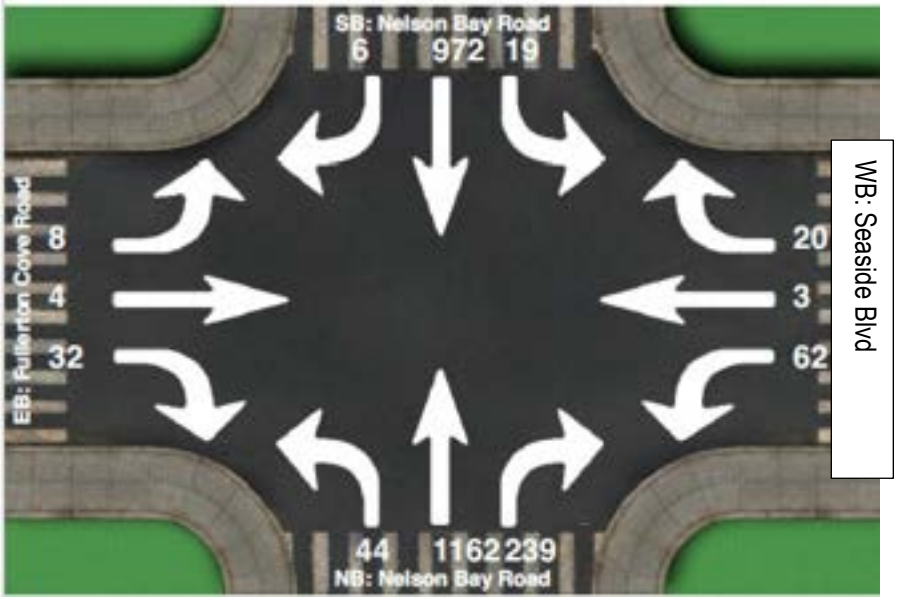
Appendix B – Updated traffic surveys

Thursday 13th June 2024

Intersection Peak Hour

Location: Nelson Bay Road at Fullerton Cove Road, Fullerton Cove
GPS Coordinates:
Date: 2024-06-13
Day of week: Thursday
Weather: Cloudy
Analyst: CT



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	19	972	6	62	3	20	44	1162	239	8	4	32	2571
Factor	0.68	0.83	0.50	0.86	0.75	0.71	0.65	0.95	0.89	0.50	0.50	0.89	0.91
Approach Factor	0.83			0.89			0.95			0.82			

Peak Hour Vehicle Summary

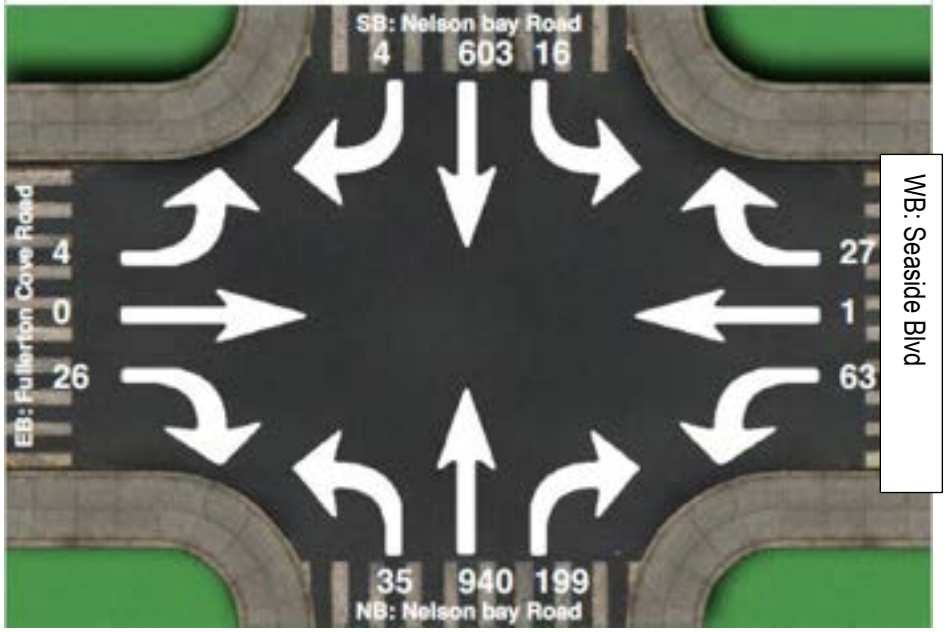
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	18	959	4	62	3	20	43	1146	235	8	2	30	2530
Trucks	1	13	2	0	0	0	1	16	4	0	2	2	41
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0

U-Turns	10	2	2	0

Friday 14th June 2024

Intersection Peak Hour

Location: Nelson bay Road at Fullerton Cove Road, Fullerton Cove
GPS Coordinates:
Date: 2024-06-14
Day of week: Friday
Weather: Wet
Analyst: CT



Intersection Peak Hour

16:30 - 17:30

	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	16	603	4	63	1	27	35	940	199	4	0	26	1918
Factor	0.80	0.88	0.25	0.63	0.25	0.61	0.51	0.83	0.87	0.50	0.00	0.81	0.88
Approach Factor		0.88			0.76			0.85			0.75		

Peak Hour Vehicle Summary

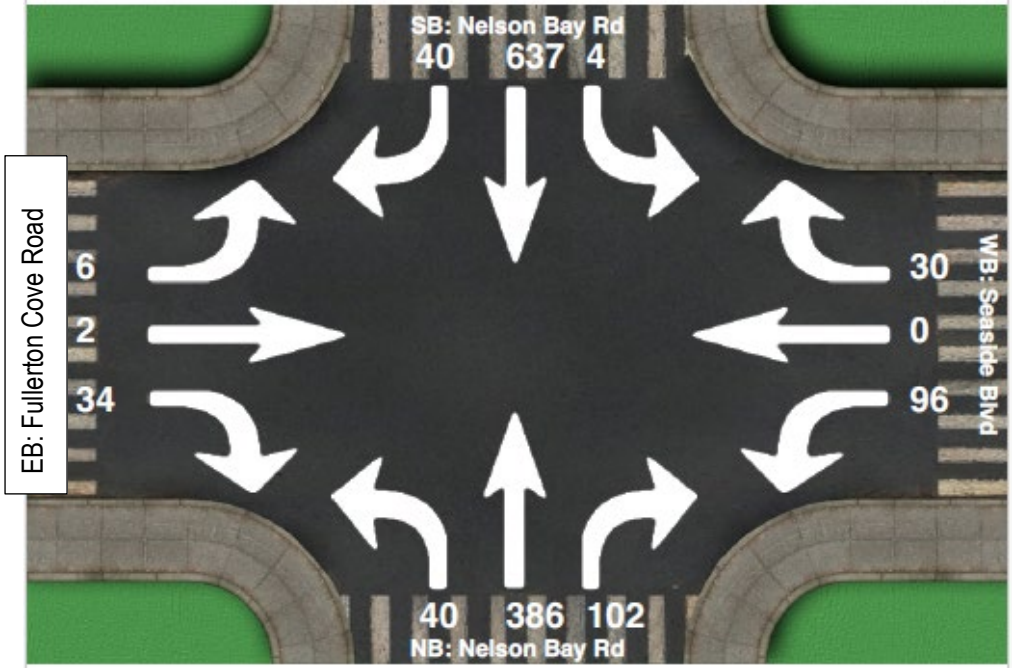
Vehicle	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	15	592	3	63	1	27	35	927	196	4	0	25	1888
Trucks	1	11	1	0	0	0	0	13	3	0	0	1	30
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0

U-Turns	7	3	2	0

Saturday 15th June 2024

Intersection Peak Hour

Location: Nelson Bay Rd at Seaside Blvd, Fern Bay
GPS Coordinates: Lat=-32.856384, Lon=151.802639
Date: 2024-06-15
Day of week: Saturday
Weather: Rain Clearing
Analyst: ST



Intersection Peak Hour

11:00 - 12:00

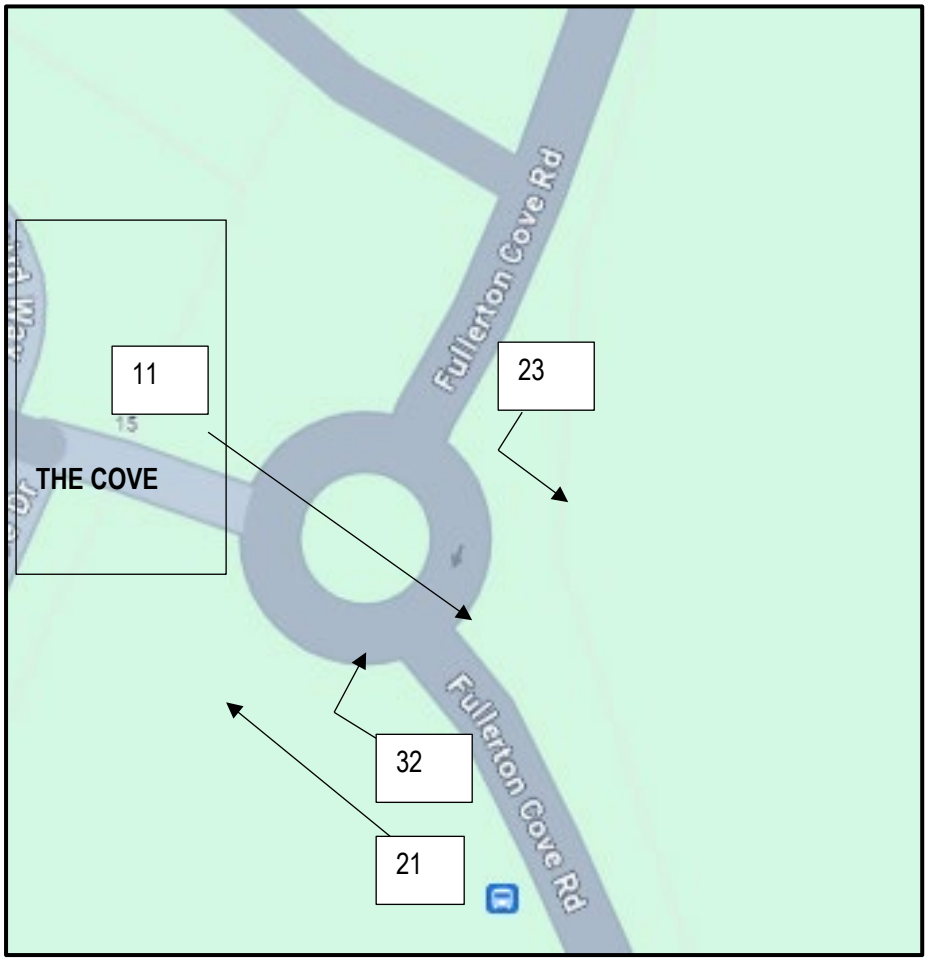
	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	4	637	40	96	0	30	40	386	102	6	2	34	1377
Factor	0.50	0.82	0.34	0.73	0.00	0.75	0.77	0.89	0.82	0.75	0.50	0.85	0.88
Approach Factor		0.88			0.79			0.92			0.81		

Peak Hour Vehicle Summary

Vehicle	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	4	632	39	96	0	30	39	384	100	5	1	34	1364
Trucks	0	5	1	0	0	0	1	2	2	1	1	0	13
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0

U-Turns	6	3	1	0

The Cove Access – Thursday PM



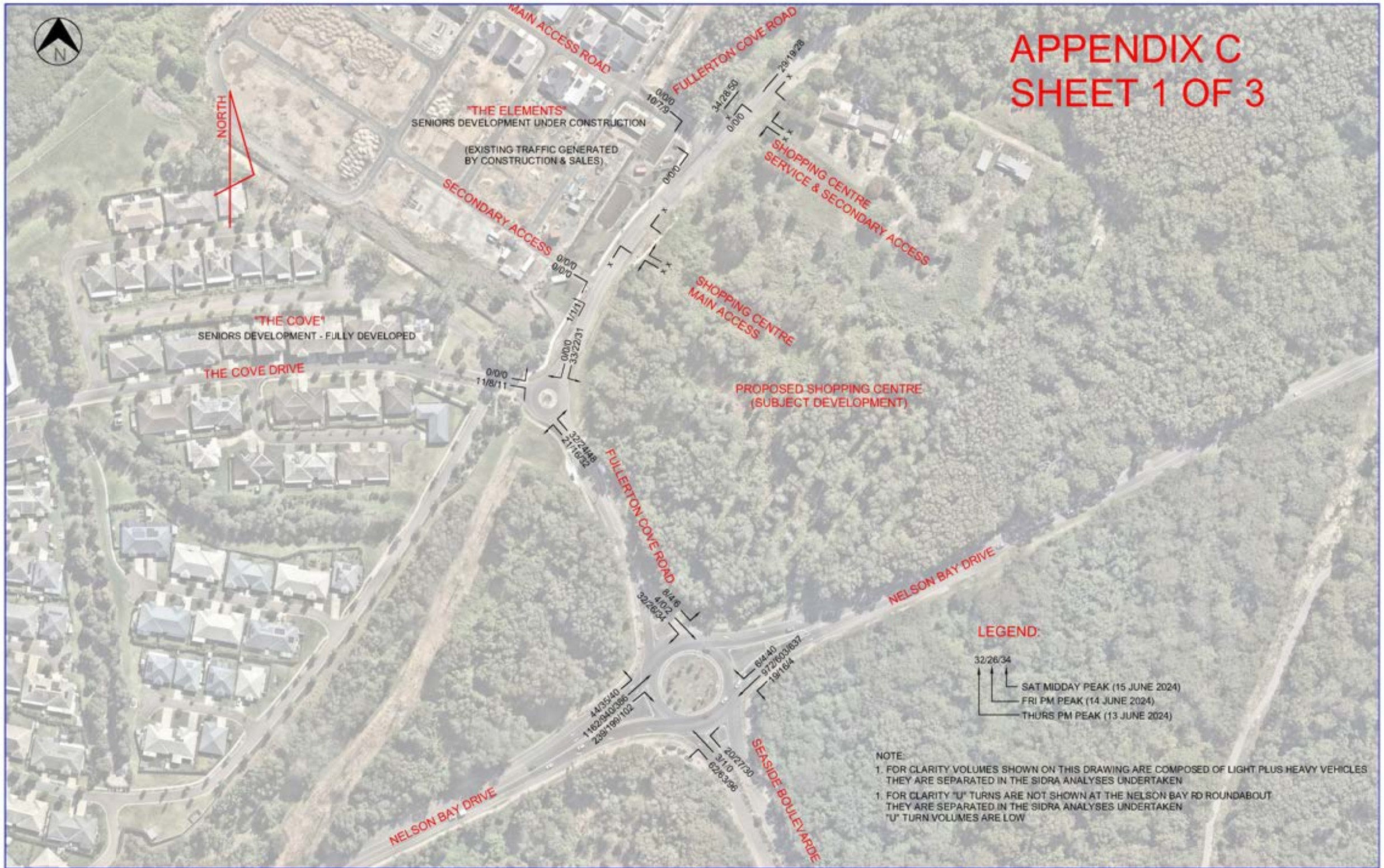
Appendix C – Existing and development traffic distribution maps

Sheet 1 of 3 - 2024 Existing Peak Traffic Movement Volumes

Sheet 2 of 3 – Full Development Peak Period Post Development Trip Distributions

Sheet 3 of 3 – Existing + Development Traffic Turn Volumes

APPENDIX C
SHEET 1 OF 3



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SHEET 1 OF 3

SCALE 0m 50m 100m

EXISTING PEAK TRAFFIC TURNING MOVEMENT FLOWS

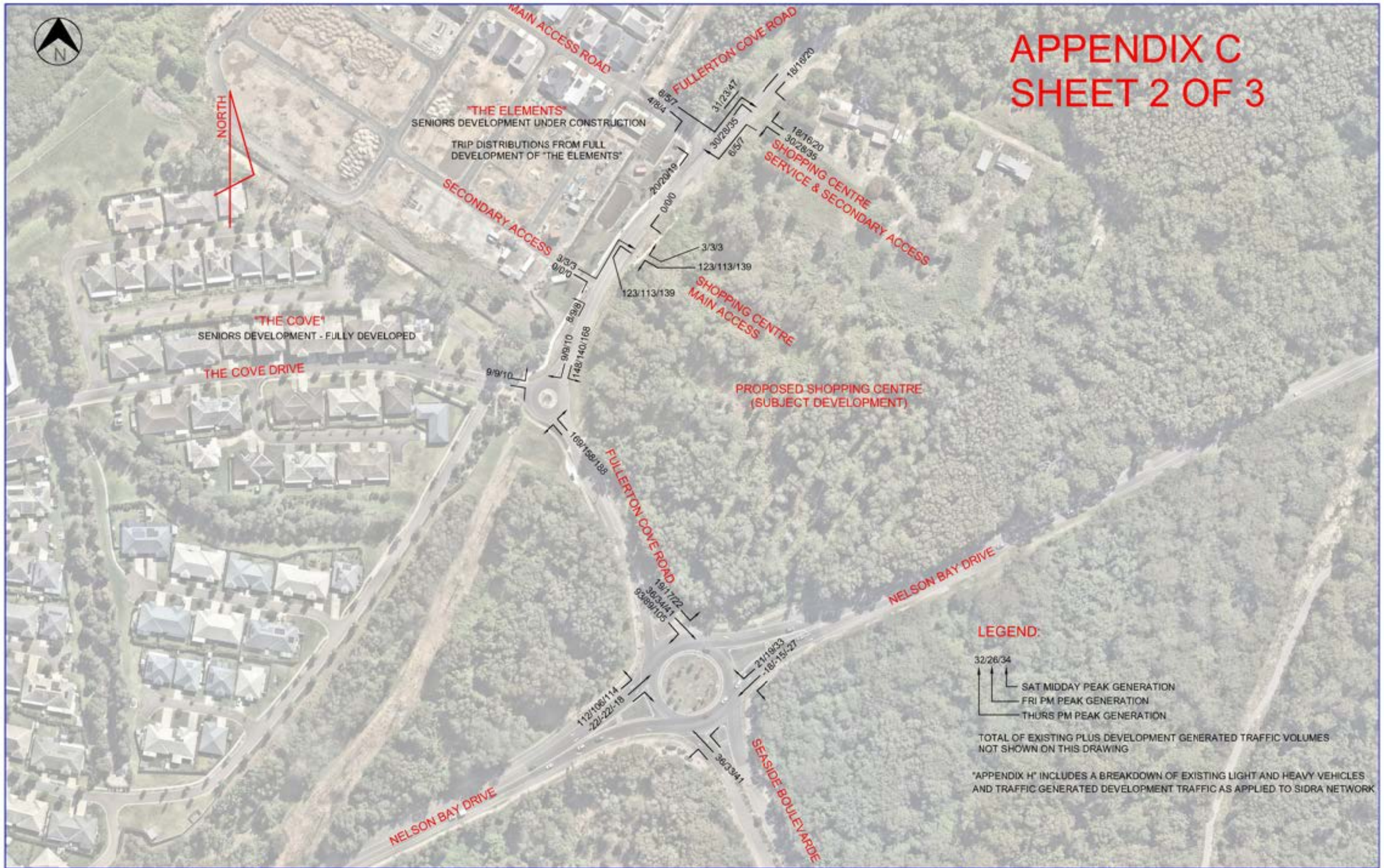
PROJECT P2499

DETAILED BY FRANK IACONO

APPROVED BY

FULLERTON COVE RETAILCENTRE
FULLERTON COVE RD - FULLERTON

APPENDIX C
SHEET 2 OF 3



LEGEND:

32/26/34
- SAT MIDDAY PEAK GENERATION
- FRI PM PEAK GENERATION
- THURS PM PEAK GENERATION

TOTAL OF EXISTING PLUS DEVELOPMENT GENERATED TRAFFIC VOLUMES NOT SHOWN ON THIS DRAWING

"APPENDIX H" INCLUDES A BREAKDOWN OF EXISTING LIGHT AND HEAVY VEHICLES AND TRAFFIC GENERATED DEVELOPMENT TRAFFIC AS APPLIED TO SIDRA NETWORK

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SHEET 2 OF 3

SCALE 0m 50m 100m

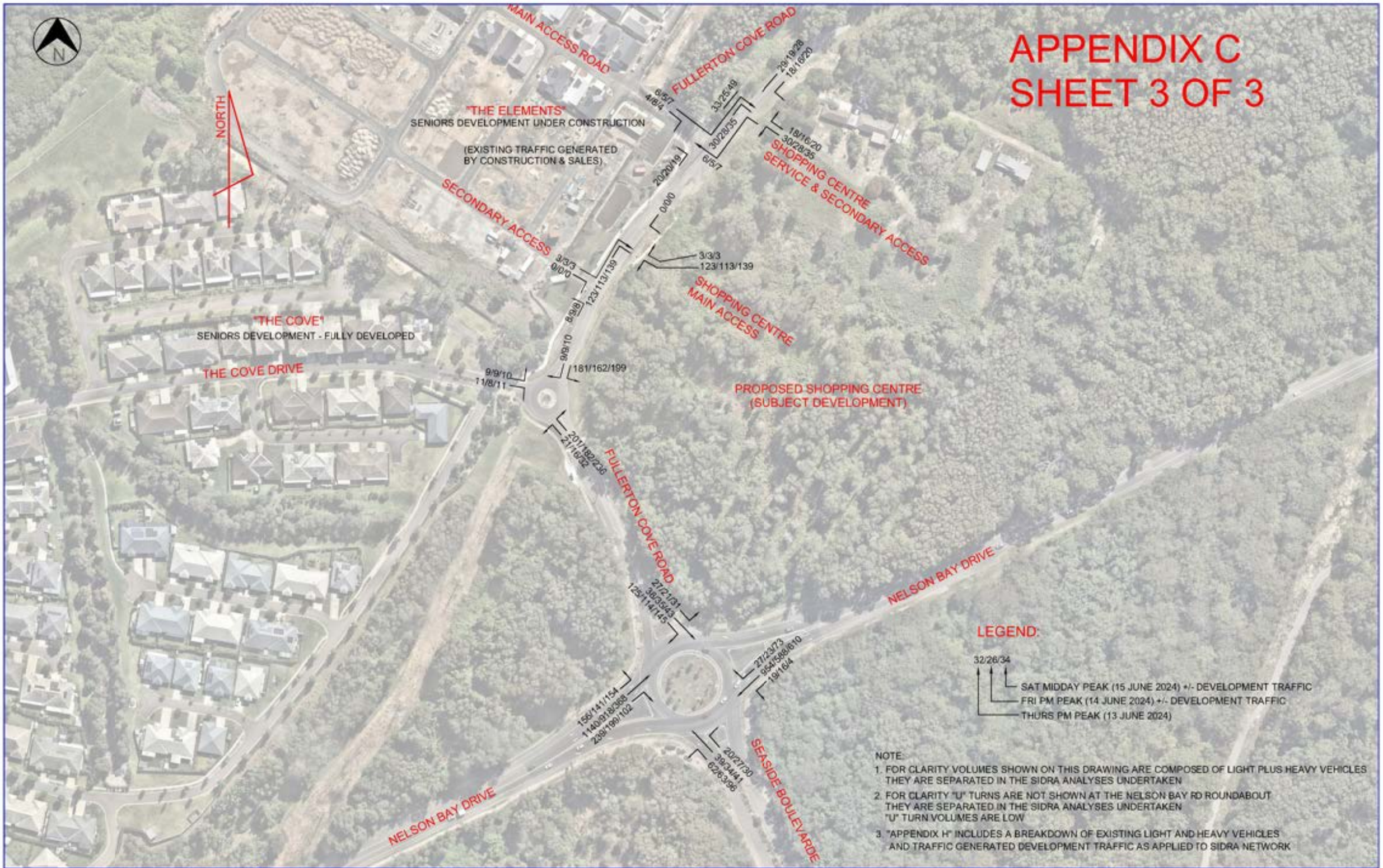
FULL DEVELOPMENT
PEAK PERIOD POST DEVEL.
TRIP DISTRIBUTIONS

PROJECT: FULLERTON COVE RETAILCENTRE
FULLERTON COVE RD - FULLERTON

DETAILED BY: FRANK IACONO

APPROVED BY:

APPENDIX C
SHEET 3 OF 3



LEGEND:

32/26/34

- SAT MIDDAY PEAK (15 JUNE 2024) +/- DEVELOPMENT TRAFFIC
- FRI PM PEAK (14 JUNE 2024) +/- DEVELOPMENT TRAFFIC
- THURS PM PEAK (13 JUNE 2024)

NOTE:

1. FOR CLARITY VOLUMES SHOWN ON THIS DRAWING ARE COMPOSED OF LIGHT PLUS HEAVY VEHICLES THEY ARE SEPARATED IN THE SIDRA ANALYSES UNDERTAKEN
2. FOR CLARITY "U" TURNS ARE NOT SHOWN AT THE NELSON BAY RD ROUNDABOUT THEY ARE SEPARATED IN THE SIDRA ANALYSES UNDERTAKEN "U" TURN VOLUMES ARE LOW
3. "APPENDIX H" INCLUDES A BREAKDOWN OF EXISTING LIGHT AND HEAVY VEHICLES AND TRAFFIC GENERATED DEVELOPMENT TRAFFIC AS APPLIED TO SIDRA NETWORK

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SHEET 3 OF 3

SCALE 0m 50m 100m

2024
EXISTING + DEVELOPMENT
TRAFFIC TURN VOLUMES

PROJECT
P2499

DETAILED BY
FRANK IACONO

APPROVED BY

FULLERTON COVE RETAILCENTRE
FULLERTON COVE RD - FULLERTON

Appendix D - SIDRA Network select output

P2499 Fullerton Cove neighbourhood centre select SIDRA Network output.pdf

Appendix E – SIDRA 9.1 Electronic File

P2499 M+P Fullerton Cove retail RFI Network post TfNSW.sip9

Appendix F – Excel Response to Modelling

Appendix G – SIDRA analysis comparison

Thursday PM peak (13 June 2024) existing traffic operation to Thursday PM peak (13 June 2024) existing traffic plus 2% growth per annum (2034) traffic operation

Appendix H – SIDRA Input volumes

Showing existing and development traffic components of each movement at each intersection in the network

Fullerton Cove Proposed Neighbourhood Centre

Response to Road Authority Request for SIDRA Network Modelling

SIDRA 9.1 File Name:

P2499 M+P Fullerton Cove retail RFI Network post TfNSWsip9.sip9

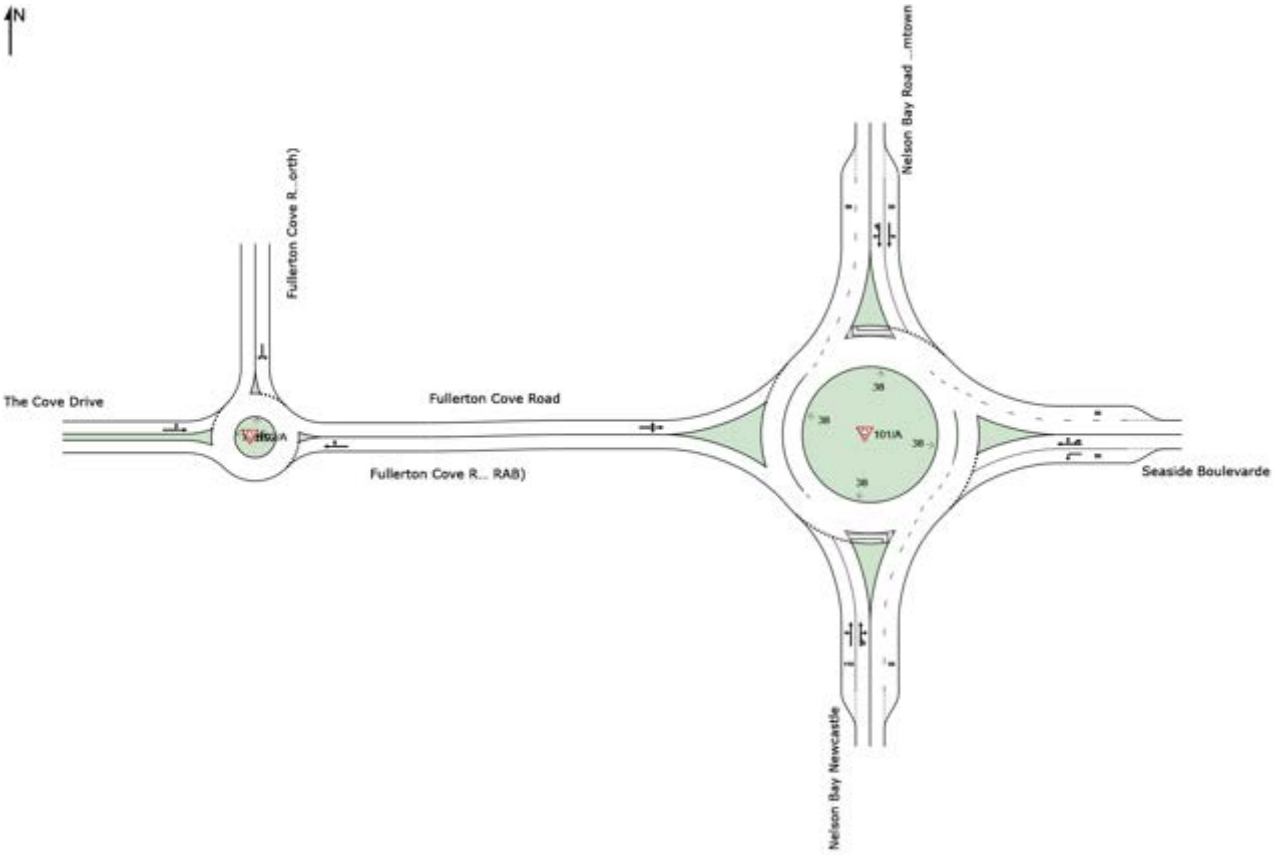
List of select SIDRA Network Output Reports:

NETWORK LAYOUT

Network: T101/A [Thursday PM Existing 2024 (Network Folder: Thursday PM Existing 2024)]

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Thurs Base Year Existing

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



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101/A	NA	1. 2024 Thurs Exist RAB PM Peak Nelson Bay RD
102/A	NA	10. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Thurs PM Peak

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Saturday, 28 September 2024 6:16:16 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

NETWORK SUMMARY

Network: T101/A [Thursday PM Existing 2024 (Network Folder: Thursday PM Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Thurs Base Year Existing

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.86		
Travel Time Index		8.42		
Congestion Coefficient		1.17		
Travel Speed (Average)	km/h	58.7	58.7	km/h
Travel Distance (Total)	veh-km/h	2834.8	3401.8	pers-km/h
Travel Time (Total)	veh-h/h	48.3	57.9	pers-h/h
Desired Speed	km/h	68.5		
Demand Flows (Total for all Sites)	veh/h	2825	3390	pers/h
Arrival Flows (Total for all Sites)	veh/h	2825	3390	pers/h
Demand Flows (Entry Total)	veh/h	2723		
Midblock Inflows (Total)	veh/h	0		
Midblock Outflows (Total)	veh/h	0		
Percent Heavy Vehicles (Demand)	%	1.8		
Percent Heavy Vehicles (Arrival)	%	1.8		
Degree of Saturation		0.542		
Control Delay (Total)	veh-h/h	5.41	6.49	pers-h/h
Control Delay (Average)	sec	6.9	6.9	sec
Control Delay (Worst Lane by MC)	sec	13.8		
Control Delay (Worst Movement by MC)	sec	18.7	18.7	sec
Geometric Delay (Average)	sec	5.0		
Stop-Line Delay (Average)	sec	1.9		
Ave. Que Storage Ratio (Worst Lane)		0.03		
Effective Stops (Total)	veh/h	1352	1623	pers/h
Effective Stop Rate		0.48	0.48	
Proportion Queued		0.37	0.37	
Performance Index		76.0	76.0	
Cost (Total)	$/h	2364.25	2364.25	$/h
Fuel Consumption (Total)	L/h	257.6		
Fuel Economy	L/100km	9.1		
Carbon Dioxide (Total)	kg/h	608.0		
Hydrocarbons (Total)	kg/h	0.057		
Carbon Monoxide (Total)	kg/h	0.88		
NOx (Total)	kg/h	0.656		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	1,356,126	1,627,352	pers/y
Delay (Total)	veh-h/y	2,597	3,117	pers-h/y
Effective Stops (Total)	veh/y	649,022	778,827	pers/y
Travel Distance (Total)	veh-km/y	1,360,710	1,632,852	pers-km/y
Travel Time (Total)	veh-h/y	23,175	27,810	pers-h/y

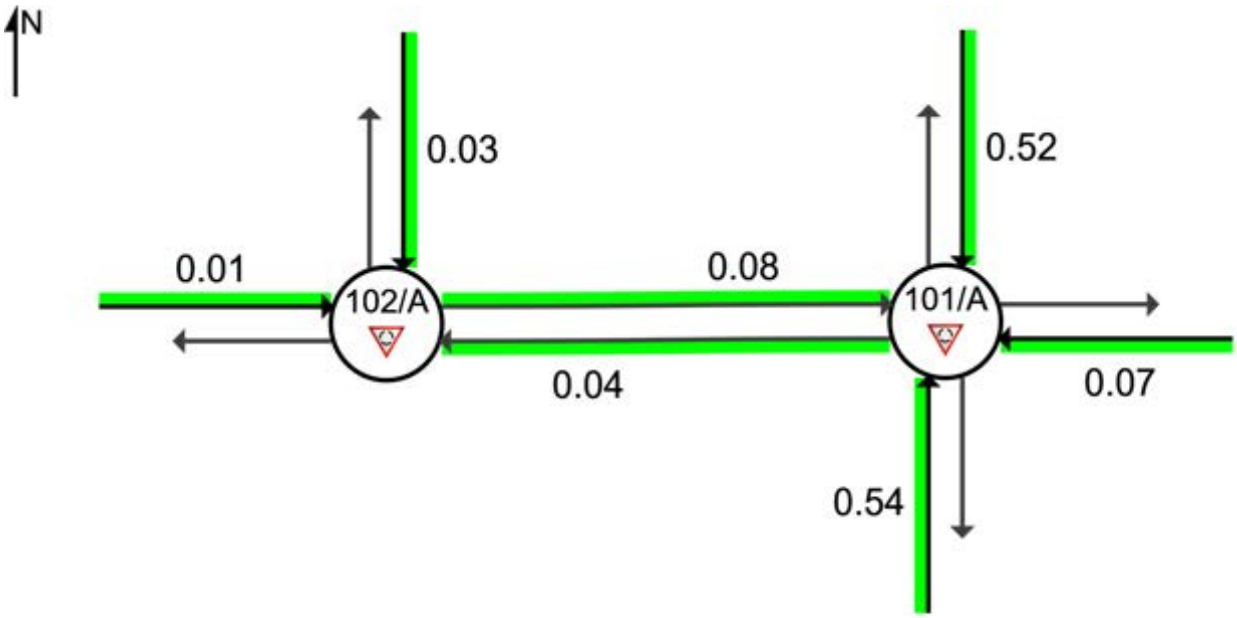
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

Network: T101/A [Thursday PM Existing 2024 (Network Folder: Thursday PM Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Thurs Base Year Existing



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:36 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

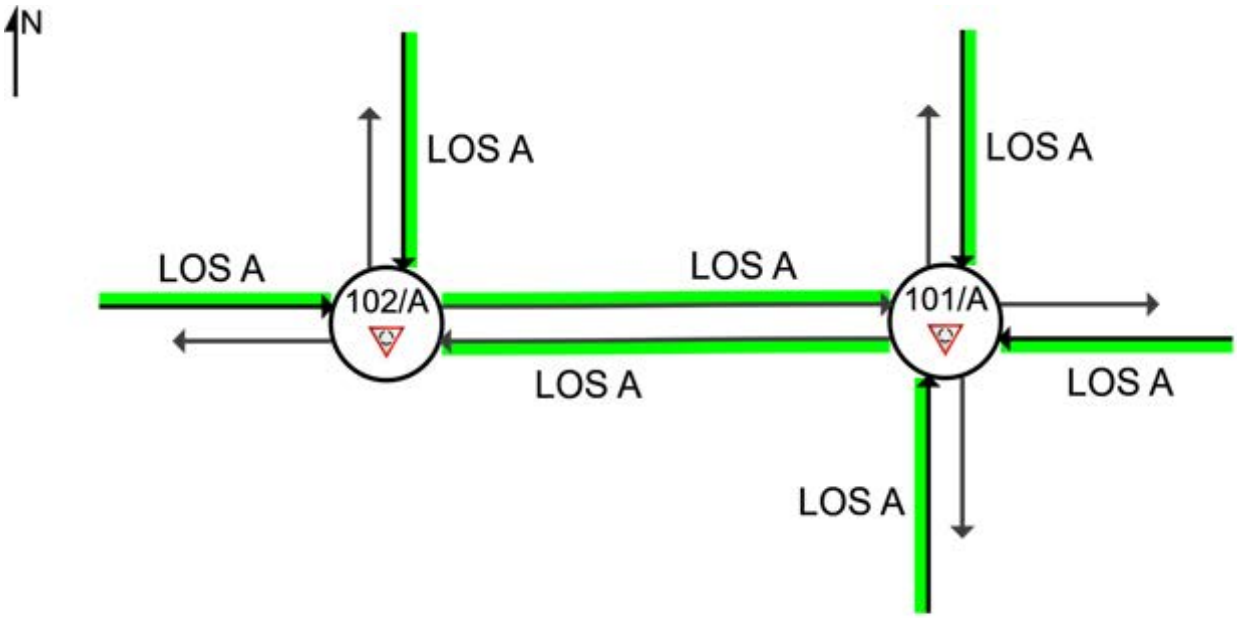
APPROACH LEVEL OF SERVICE

Approach Level of Service

Network: T101/A [Thursday PM Existing 2024 (Network Folder: Thursday PM Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Thurs Base Year Existing



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:36 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

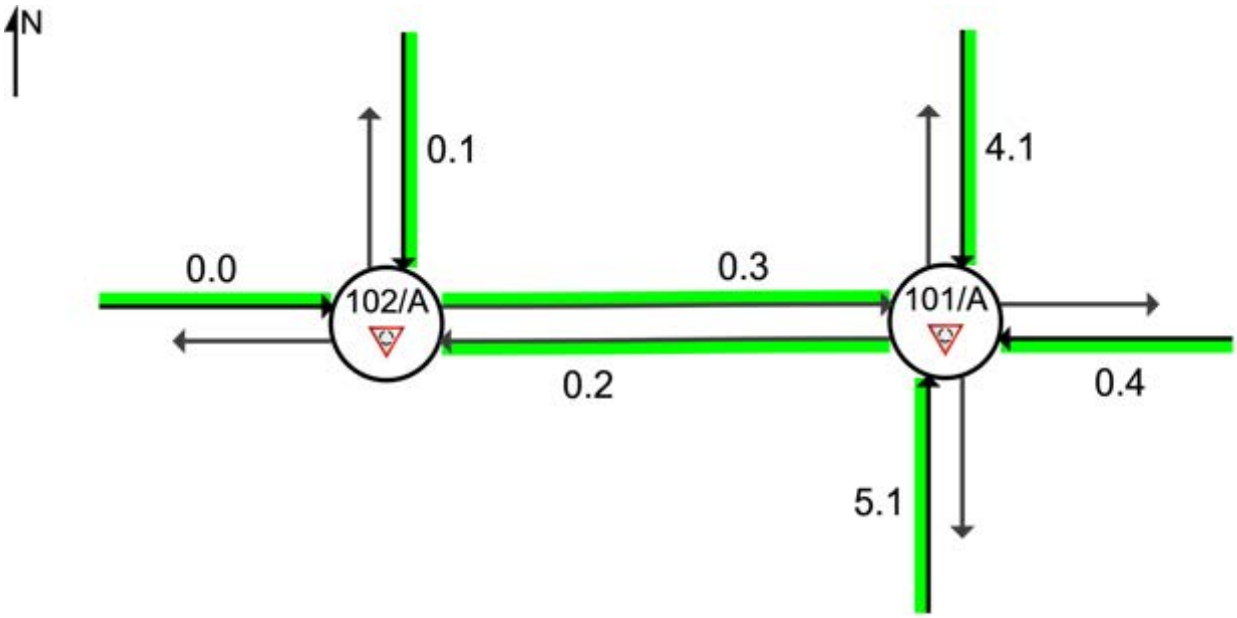
VEHICLE QUEUE (PERCENTILE)

Largest 95% Back of Queue for any lane on the approach (vehicles)

Network: T101/A [Thursday PM Existing 2024 (Network Folder: Thursday PM Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Thurs Base Year Existing



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:36 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

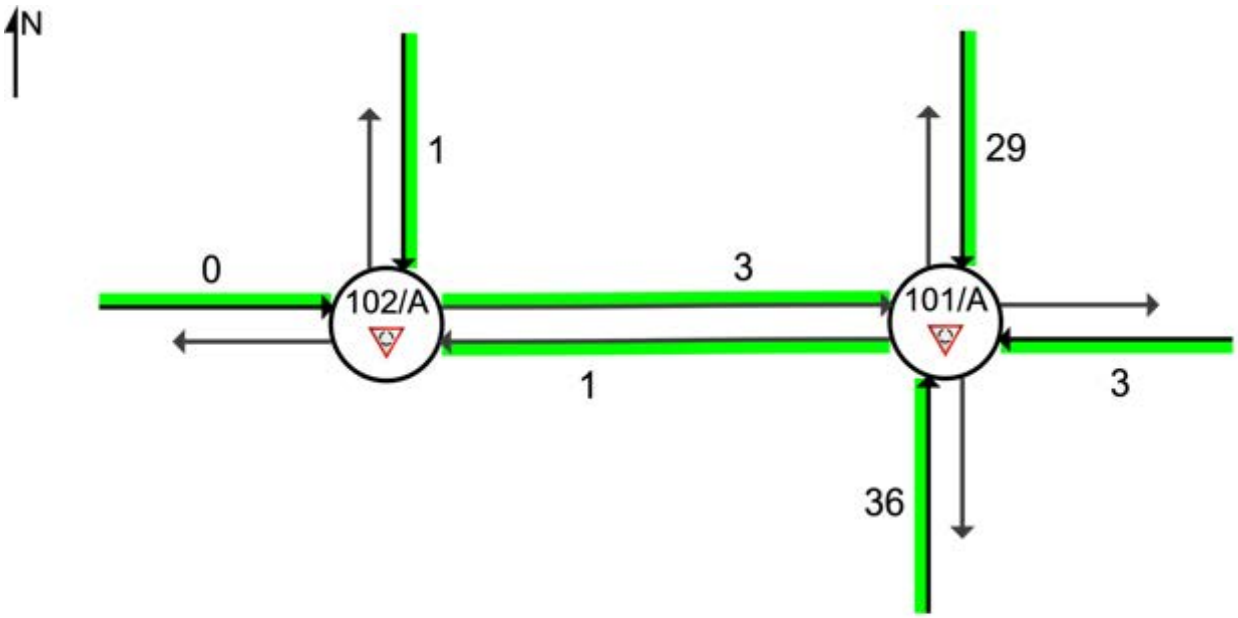
QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane on the approach (metres)

Network: T101/A [Thursday PM Existing 2024 (Network Folder: Thursday PM Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Thurs Base Year Existing



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:36 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MIDBLOCK INFLOWS & OUTFLOWS FOR NETWORK

Midblock Inflow (positive) and Outflow (negative) values determined as the difference between upstream and downstream demand flow rates (veh/h)

Network: T101/A [Thursday PM Existing 2024 (Network Folder: Thursday PM Existing 2024)]

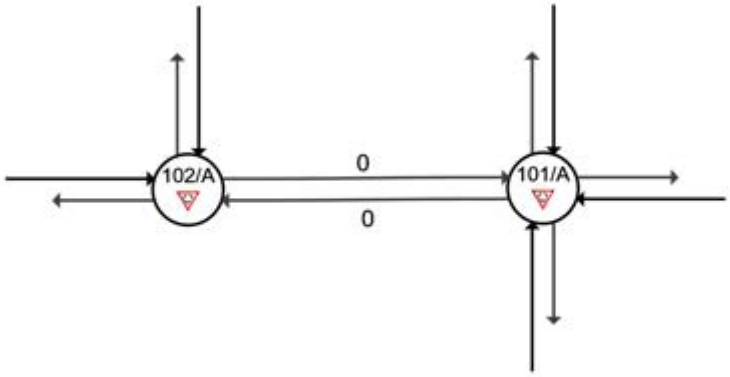
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Thurs Base Year Existing

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups

All Movement Classes (*)



Any Initial Queued Demand and Capacity Constraint adjustments are not included in Demand Flow Rates.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:36 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 101/A [1. 2024 Thurs Exist RAB PM Peak Nelson Bay RD (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/A [Thursday PM Existing 2024 (Network Folder: Thursday PM Existing 2024)]

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without development
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	46	2.3	46	2.3	0.373	4.6	LOS A	2.7	19.4	0.22	0.38	0.22	58.2
2	T1	All MCs	1223	1.4	1223	1.4	0.542	5.9	LOS A	5.1	36.1	0.23	0.42	0.23	61.1
3	R2	All MCs	252	1.7	252	1.7	0.542	11.1	LOS A	5.1	36.1	0.24	0.45	0.24	55.2
3u	U	All MCs	2	0.0	2	0.0	0.542	14.0	LOS A	5.1	36.1	0.24	0.45	0.24	59.2
Approach			1523	1.5	1523	1.5	0.542	6.8	LOS A	5.1	36.1	0.24	0.43	0.24	60.1
East: Seaside Boulevarde															
4	L2	All MCs	65	0.0	65	0.0	0.071	8.8	LOS A	0.4	2.6	0.68	0.68	0.68	55.6
5	T1	All MCs	3	0.0	3	0.0	0.040	6.5	LOS A	0.2	1.3	0.67	0.77	0.67	40.7
6	R2	All MCs	21	0.0	21	0.0	0.040	12.9	LOS A	0.2	1.3	0.67	0.77	0.67	50.4
6u	U	All MCs	2	0.0	2	0.0	0.040	15.4	LOS B	0.2	1.3	0.67	0.77	0.67	46.0
Approach			92	0.0	92	0.0	0.071	9.8	LOS A	0.4	2.6	0.68	0.71	0.68	53.6
North: Nelson Bay Road Williamtown															
7	L2	All MCs	20	5.3	20	5.3	0.253	6.5	LOS A	1.5	10.5	0.49	0.51	0.49	55.7
8	T1	All MCs	1023	1.3	1023	1.3	0.519	6.6	LOS A	4.1	29.1	0.55	0.52	0.55	59.7
9	R2	All MCs	6	33.3	6	33.3	0.519	13.3	LOS A	4.1	29.1	0.57	0.52	0.57	54.1
9u	U	All MCs	11	0.0	11	0.0	0.519	15.2	LOS B	4.1	29.1	0.57	0.52	0.57	58.2
Approach			1060	1.6	1060	1.6	0.519	6.7	LOS A	4.1	29.1	0.55	0.52	0.55	59.6
West: Fullerton Cove Road															
10	L2	All MCs	8	0.0	8	0.0	0.076	11.6	LOS A	0.3	2.6	0.72	0.83	0.72	48.2
11	T1	All MCs	4	50.0	4	50.0	0.076	10.8	LOS A	0.3	2.6	0.72	0.83	0.72	42.0
12	R2	All MCs	34	6.3	34	6.3	0.076	14.7	LOS B	0.3	2.6	0.72	0.83	0.72	45.8
Approach			46	9.1	46	9.1	0.076	13.8	LOS A	0.3	2.6	0.72	0.83	0.72	45.9
All Vehicles			2721	1.6	2721	1.6	0.542	7.0	LOS A	5.1	36.1	0.38	0.48	0.38	59.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:36 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 102/A [10. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Thurs PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/A [Thursday PM Existing 2024 (Network Folder: Thursday PM Existing 2024)]

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without Prop Shopping Centre development
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Fullerton Cove Rd (from Nelson Bar RAB)															
5	T1	All MCs	22	0.0	22	0.0	0.035	5.1	LOS A	0.2	1.2	0.01	0.62	0.01	27.0
6	R2	All MCs	34	9.4	34	9.4	0.035	8.2	LOS A	0.2	1.2	0.01	0.62	0.01	47.8
Approach			56	5.7	56	5.7	0.035	7.0	LOS A	0.2	1.2	0.01	0.62	0.01	36.6
North: Fullerton Cove Road (north)															
7	L2	All MCs	35	12.1	35	12.1	0.028	4.6	LOS A	0.1	1.0	0.07	0.53	0.07	51.8
9	R2	All MCs	1	0.0	1	0.0	0.028	8.1	LOS A	0.1	1.0	0.07	0.53	0.07	33.8
Approach			36	11.8	36	11.8	0.028	4.7	LOS A	0.1	1.0	0.07	0.53	0.07	50.3
West: The Cove Drive															
10	L2	All MCs	1	0.0	1	0.0	0.010	0.5	LOS A	0.0	0.3	0.14	0.04	0.14	34.0
11	T1	All MCs	12	0.0	12	0.0	0.010	0.2	LOS A	0.0	0.3	0.14	0.04	0.14	24.8
Approach			13	0.0	13	0.0	0.010	0.2	LOS A	0.0	0.3	0.14	0.04	0.14	25.8
All Vehicles			104	7.1	104	7.1	0.035	5.4	LOS A	0.2	1.2	0.05	0.52	0.05	37.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:36 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

NETWORK LAYOUT

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development

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

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101/B	NA	2. 2024 Thurs Exist RAB PM Peak Nelson Bay RD + Development
102/B	NA	11. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Thurs PM Peak + Development
103/A	NA	19. 2024 Fullerton Cove Rd & Prop Main Site Access Thurs PM Peak with Development
104/A	NA	25. 2024 Fullerton Cove Rd & Prop Secondary Site access 2024 Thur PM Peak with development

NETWORK SUMMARY

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development

Network Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Network Level of Service (LOS)		LOS B	
Speed Efficiency		0.84	
Travel Time Index		8.23	
Congestion Coefficient		1.19	
Travel Speed (Average)	km/h	52.9	52.9 km/h
Travel Distance (Total)	veh-km/h	3246.4	3895.7 pers-km/h
Travel Time (Total)	veh-h/h	61.3	73.6 pers-h/h
Desired Speed	km/h	62.9	
Demand Flows (Total for all Sites)	veh/h	4072	4886 pers/h
Arrival Flows (Total for all Sites)	veh/h	4072	4886 pers/h
Demand Flows (Entry Total)	veh/h	3072	
Midblock Inflows (Total)	veh/h	4	
Midblock Outflows (Total)	veh/h	-19	
Percent Heavy Vehicles (Demand)	%	1.6	
Percent Heavy Vehicles (Arrival)	%	1.6	
Degree of Saturation		0.612	
Control Delay (Total)	veh-h/h	7.85	9.42 pers-h/h
Control Delay (Average)	sec	6.9	6.9 sec
Control Delay (Worst Lane by MC)	sec	14.6	
Control Delay (Worst Movement by MC)	sec	21.1	21.1 sec
Geometric Delay (Average)	sec	4.9	
Stop-Line Delay (Average)	sec	2.1	
Ave. Que Storage Ratio (Worst Lane)		0.04	
Effective Stops (Total)	veh/h	2120	2544 pers/h
Effective Stop Rate		0.52	0.52
Proportion Queued		0.43	0.43
Performance Index		109.2	109.2
Cost (Total)	$/h	2979.42	2979.42 $/h
Fuel Consumption (Total)	L/h	318.5	
Fuel Economy	L/100km	9.8	
Carbon Dioxide (Total)	kg/h	751.2	
Hydrocarbons (Total)	kg/h	0.071	
Carbon Monoxide (Total)	kg/h	1.01	
NOx (Total)	kg/h	0.737	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %
Number of Iterations: 5 (Maximum: 30)
Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%
Network Level of Service (LOS) Method: SIDRA Speed Efficiency.
Software Setup used: Standard Left.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total for all Sites)	veh/y	1,954,358	2,345,230 pers/y
Delay (Total)	veh-h/y	3,766	4,520 pers-h/y
Effective Stops (Total)	veh/y	1,017,466	1,220,959 pers/y
Travel Distance (Total)	veh-km/y	1,558,269	1,869,923 pers-km/y
Travel Time (Total)	veh-h/y	29,436	35,323 pers-h/y

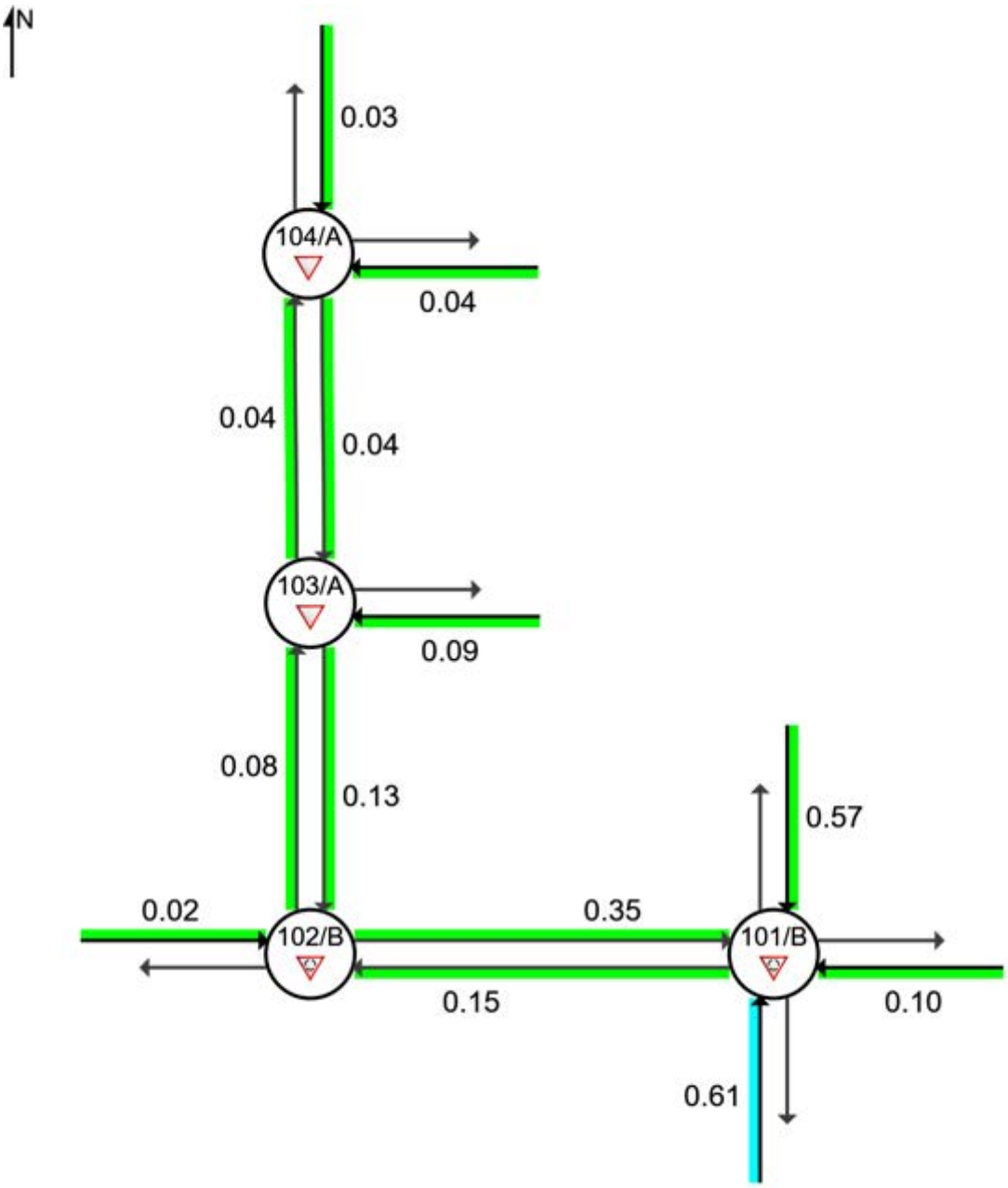
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

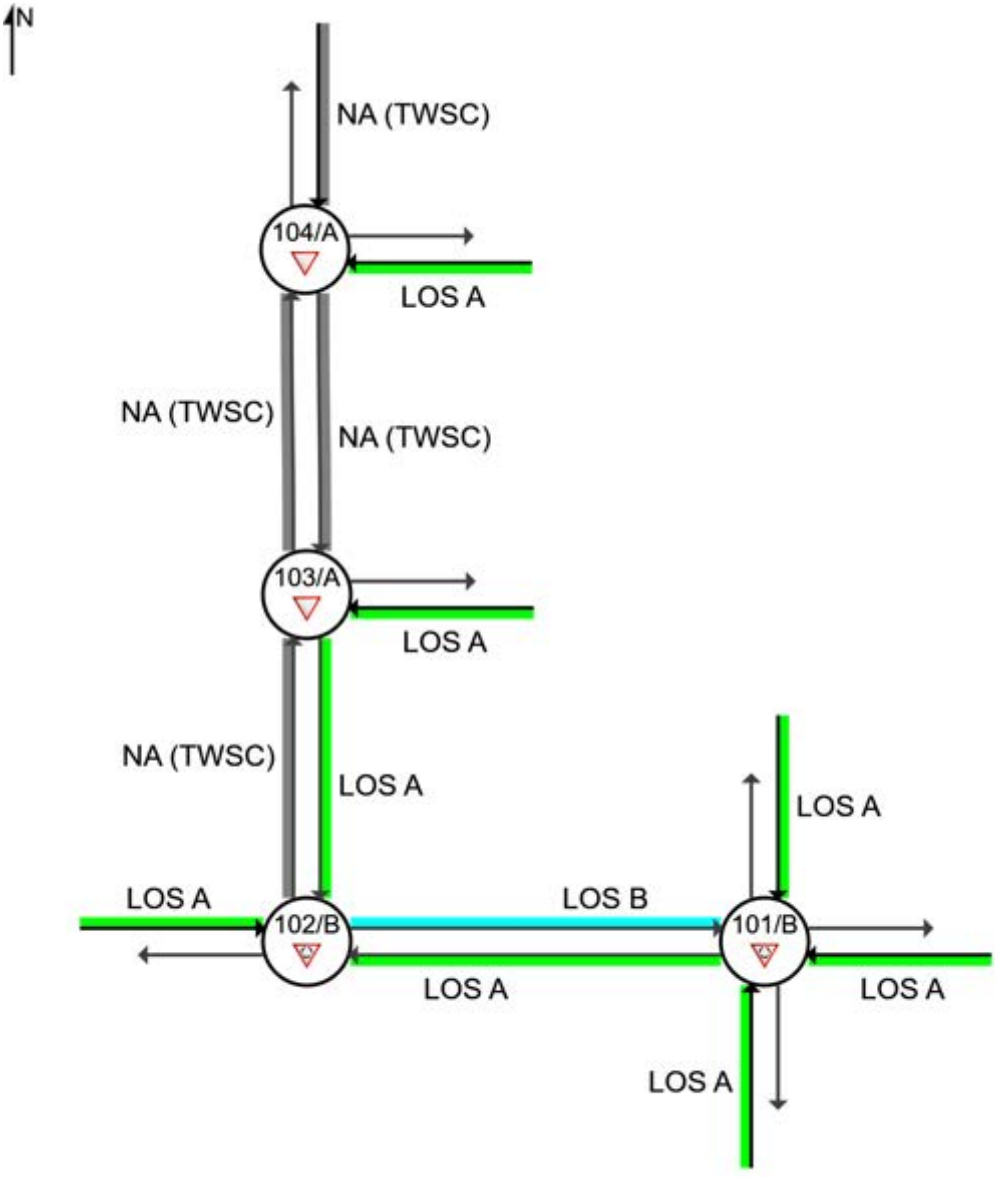
APPROACH LEVEL OF SERVICE

Approach Level of Service

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

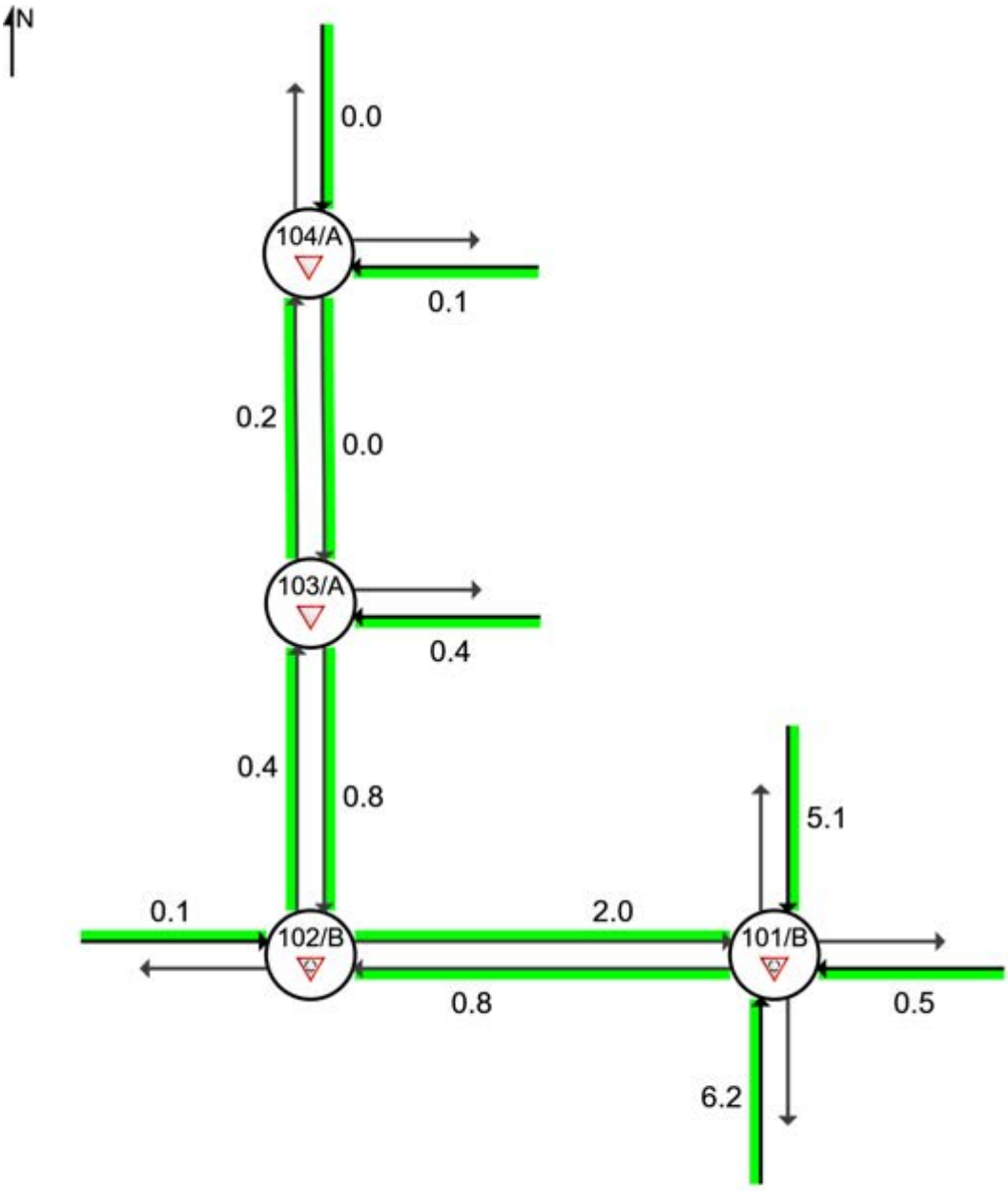
VEHICLE QUEUE (PERCENTILE)

Largest 95% Back of Queue for any lane on the approach (vehicles)

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

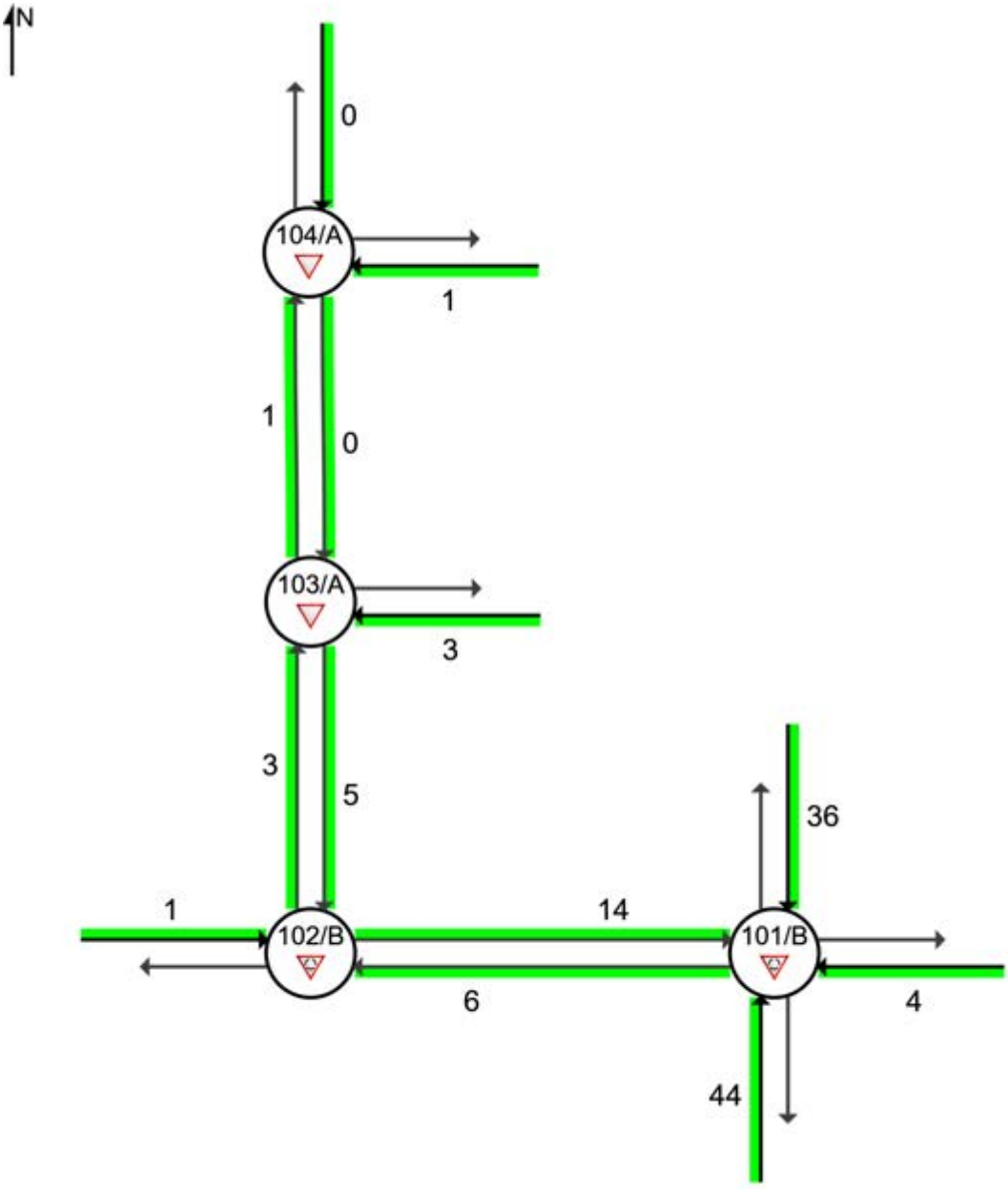
QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane on the approach (metres)

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

MIDBLOCK INFLOWS & OUTFLOWS FOR NETWORK

Midblock Inflow (positive) and Outflow (negative) values determined as the difference between upstream and downstream demand flow rates (veh/h)

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

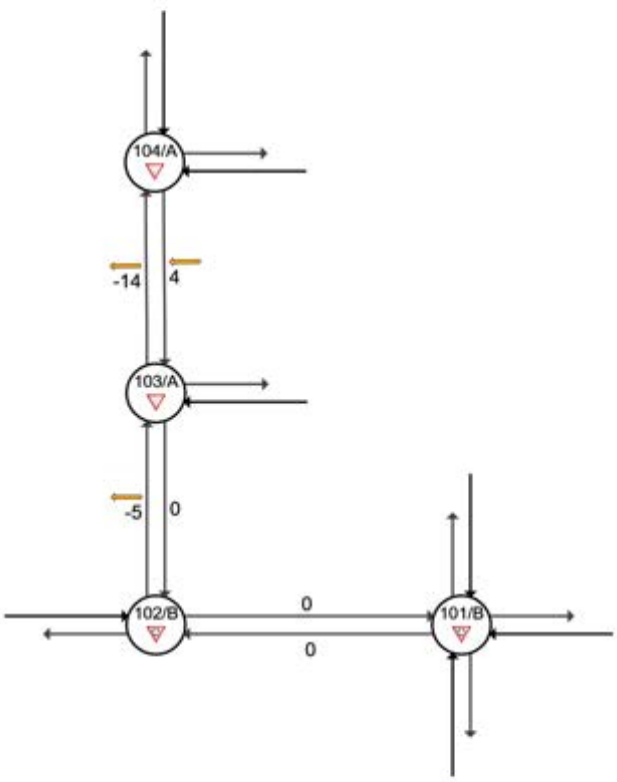
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups

All Movement Classes (*)



Any Initial Queued Demand and Capacity Constraint adjustments are not included in Demand Flow Rates.

MOVEMENT SUMMARY

Site: 101/B [2. 2024 Thurs Exist RAB PM Peak Nelson Bay RD + Development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	164	0.6	164	0.6	0.421	4.9	LOS A	3.2	22.7	0.37	0.43	0.37	56.6
2	T1	All MCs	1200	1.4	1200	1.4	0.612	6.2	LOS A	6.2	44.2	0.41	0.46	0.41	60.1
3	R2	All MCs	252	1.7	252	1.7	0.612	11.5	LOS A	6.2	44.2	0.43	0.48	0.43	54.3
3u	U	All MCs	2	0.0	2	0.0	0.612	14.3	LOS A	6.2	44.2	0.43	0.48	0.43	58.3
Approach			1618	1.4	1618	1.4	0.612	6.9	LOS A	6.2	44.2	0.41	0.46	0.41	58.9
East: Seaside Boulevarde															
4	L2	All MCs	65	0.0	65	0.0	0.079	10.0	LOS A	0.5	3.2	0.75	0.71	0.75	55.3
5	T1	All MCs	41	0.0	41	0.0	0.103	7.1	LOS A	0.5	3.7	0.74	0.77	0.74	42.7
6	R2	All MCs	21	0.0	21	0.0	0.103	13.6	LOS A	0.5	3.7	0.74	0.77	0.74	52.0
6u	U	All MCs	2	0.0	2	0.0	0.103	16.0	LOS B	0.5	3.7	0.74	0.77	0.74	47.6
Approach			129	0.0	129	0.0	0.103	9.7	LOS A	0.5	3.7	0.75	0.74	0.75	51.7
North: Nelson Bay Road Williamtown															
7	L2	All MCs	20	5.3	20	5.3	0.280	7.3	LOS A	1.7	12.3	0.61	0.57	0.61	54.9
8	T1	All MCs	1004	1.4	1004	1.4	0.573	7.7	LOS A	5.1	36.4	0.69	0.61	0.71	58.7
9	R2	All MCs	28	7.4	28	7.4	0.573	13.7	LOS A	5.1	36.4	0.72	0.62	0.75	52.5
9u	U	All MCs	11	0.0	11	0.0	0.573	16.3	LOS B	5.1	36.4	0.72	0.62	0.75	57.2
Approach			1063	1.6	1063	1.6	0.573	8.0	LOS A	5.1	36.4	0.69	0.61	0.71	58.5
West: Fullerton Cove Road															
10	L2	All MCs	28	0.0	28	0.0	0.349	13.5	LOS A	2.0	14.0	0.83	0.88	0.89	47.4
11	T1	All MCs	42	5.0	42	5.0	0.349	10.3	LOS A	2.0	14.0	0.83	0.88	0.89	41.9
12	R2	All MCs	132	1.6	132	1.6	0.349	16.2	LOS B	2.0	14.0	0.83	0.88	0.89	46.2
Approach			202	2.1	202	2.1	0.349	14.6	LOS B	2.0	14.0	0.83	0.88	0.89	45.6
All Vehicles			3013	1.4	3013	1.4	0.612	7.9	LOS A	6.2	44.2	0.55	0.55	0.56	57.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102/B [11. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Thurs PM Peak + Development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

2024 Thursday PM Existing traffic flows+ "The Elements" and Shopping Centre Development (includiing trip redistributions)
13 June 2024 4:30PM to 5:30PM

Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Fullerton Cove Rd (from Nelson Bar RAB)															
5	T1	All MCs	22	0.0	22	0.0	0.152	5.1	LOS A	0.8	5.6	0.07	0.63	0.07	26.8
6	R2	All MCs	212	1.5	212	1.5	0.152	8.1	LOS A	0.8	5.6	0.07	0.63	0.07	33.7
Approach			234	1.4	234	1.4	0.152	7.8	LOS A	0.8	5.6	0.07	0.63	0.07	31.3
North: Fullerton Cove Road (north)															
7	L2	All MCs	191	2.2	191	2.2	0.133	4.5	LOS A	0.8	5.4	0.08	0.53	0.08	34.5
9	R2	All MCs	11	0.0	11	0.0	0.133	8.1	LOS A	0.8	5.4	0.08	0.53	0.08	26.3
Approach			201	2.1	201	2.1	0.133	4.7	LOS A	0.8	5.4	0.08	0.53	0.08	32.2
West: The Cove Drive															
10	L2	All MCs	11	0.0	11	0.0	0.021	1.5	LOS A	0.1	0.7	0.39	0.22	0.39	24.4
11	T1	All MCs	12	0.0	12	0.0	0.021	1.2	LOS A	0.1	0.7	0.39	0.22	0.39	24.4
Approach			22	0.0	22	0.0	0.021	1.3	LOS A	0.1	0.7	0.39	0.22	0.39	24.4
All Vehicles			457	1.6	457	1.6	0.152	6.1	LOS A	0.8	5.6	0.09	0.57	0.09	30.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:54 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 103/A [19. 2024 Fullerton Cove Rd & Prop Main Site Access Thurs PM Peak with Development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 13 June 2024 4:30PM to 5:30PM
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Rd (from The Cove RAB)															
2	T1	All MCs	84	3.8	84	3.8	0.045	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	133	0.0	133	0.0	0.079	5.7	LOS A	0.4	2.6	0.18	0.57	0.18	25.8
Approach			217	1.5	217	1.5	0.079	3.5	NA	0.4	2.6	0.11	0.35	0.11	27.4
East: Development Access Road															
4	L2	All MCs	129	0.0	129	0.0	0.088	1.3	LOS A	0.4	2.6	0.17	0.24	0.17	24.4
6	R2	All MCs	3	0.0	3	0.0	0.088	3.2	LOS A	0.4	2.6	0.17	0.24	0.17	24.4
Approach			133	0.0	133	0.0	0.088	1.3	LOS A	0.4	2.6	0.17	0.24	0.17	24.4
North: Fullerton Cove Rd (north)															
7	L2	All MCs	1	0.0	1	0.0	0.039	5.5	LOS A	0.0	0.0	0.00	0.53	0.00	50.6
8	T1	All MCs	72	5.9	72	5.9	0.039	4.1	LOS A	0.0	0.0	0.00	0.53	0.00	36.8
Approach			73	5.8	73	5.8	0.039	4.2	NA	0.0	0.0	0.00	0.53	0.00	37.6
All Vehicles			422	1.7	422	1.7	0.088	2.9	NA	0.4	2.6	0.11	0.34	0.11	26.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:54 PM
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MOVEMENT SUMMARY

Site: 104/A [25. 2024 Fullerton Cove Rd & Prop Secondary Site access 2024 Thur PM Peak with development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/B [Thursday PM Peak 2024 with Development (Network Folder: Thursday PM Peak 2024 with Development)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 13 June 2024 4:30PM to 5:30PM
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Road south															
2	T1	All MCs	36	8.8	36	8.8	0.041	0.1	LOS A	0.2	1.2	0.12	0.31	0.12	54.9
3	R2	All MCs	38	0.0	38	0.0	0.041	5.6	LOS A	0.2	1.2	0.12	0.31	0.12	33.0
Approach			74	4.3	74	4.3	0.041	2.9	NA	0.2	1.2	0.12	0.31	0.12	48.0
East: Site access															
4	L2	All MCs	38	0.0	38	0.0	0.040	1.1	LOS A	0.1	1.0	0.11	0.24	0.11	21.2
6	R2	All MCs	19	0.0	19	0.0	0.040	1.9	LOS A	0.1	1.0	0.11	0.24	0.11	46.3
Approach			57	0.0	57	0.0	0.040	1.4	LOS A	0.1	1.0	0.11	0.24	0.11	38.0
North: fullerton Cove Road north															
7	L2	All MCs	19	0.0	19	0.0	0.027	5.5	LOS A	0.0	0.0	0.00	0.23	0.00	45.6
8	T1	All MCs	31	13.8	31	13.8	0.027	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	55.8
Approach			49	8.5	49	8.5	0.027	2.1	NA	0.0	0.0	0.00	0.23	0.00	51.1
All Vehicles			180	4.1	180	4.1	0.041	2.2	NA	0.2	1.2	0.08	0.26	0.08	46.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:35:54 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

NETWORK LAYOUT

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% growth PA over 10 years to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development + 10YRS

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

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101/C	NA	3. 2024 Thurs Exist RAB PM Peak Nelson Bay RD + Development (Growth)
102/C	NA	12. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Thurs PM Peak + Development (Growth)
103/B	NA	20. 2024 Fullerton Cove Rd & Prop Main Site Access Thurs PM Peak with Development (Growth)

NETWORK SUMMARY

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% growth PA over 10 years to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.83		
Travel Time Index		8.13		
Congestion Coefficient		1.20		
Travel Speed (Average)	km/h	52.8	52.8	km/h
Travel Distance (Total)	veh-km/h	3803.5	4564.2	pers-km/h
Travel Time (Total)	veh-h/h	72.0	86.4	pers-h/h
Desired Speed	km/h	63.5		
Demand Flows (Total for all Sites)	veh/h	4655	5586	pers/h
Arrival Flows (Total for all Sites)	veh/h	4655	5586	pers/h
Demand Flows (Entry Total)	veh/h	3604		
Midblock Inflows (Total)	veh/h	15		
Midblock Outflows (Total)	veh/h	-30		
Percent Heavy Vehicles (Demand)	%	1.7		
Percent Heavy Vehicles (Arrival)	%	1.7		
Degree of Saturation		0.731		
Control Delay (Total)	veh-h/h	10.94	13.13	pers-h/h
Control Delay (Average)	sec	8.5	8.5	sec
Control Delay (Worst Lane by MC)	sec	21.8		
Control Delay (Worst Movement by MC)	sec	29.5	29.5	sec
Geometric Delay (Average)	sec	4.8		
Stop-Line Delay (Average)	sec	3.7		
Ave. Que Storage Ratio (Worst Lane)		0.07		
Effective Stops (Total)	veh/h	2609	3130	pers/h
Effective Stop Rate		0.56	0.56	
Proportion Queued		0.52	0.52	
Performance Index		145.3	145.3	
Cost (Total)	$/h	3498.60	3498.60	$/h
Fuel Consumption (Total)	L/h	373.7		
Fuel Economy	L/100km	9.8		
Carbon Dioxide (Total)	kg/h	881.4		
Hydrocarbons (Total)	kg/h	0.083		
Carbon Monoxide (Total)	kg/h	1.19		
NOx (Total)	kg/h	0.879		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	2,234,375	2,681,250	pers/y
Delay (Total)	veh-h/y	5,250	6,300	pers-h/y

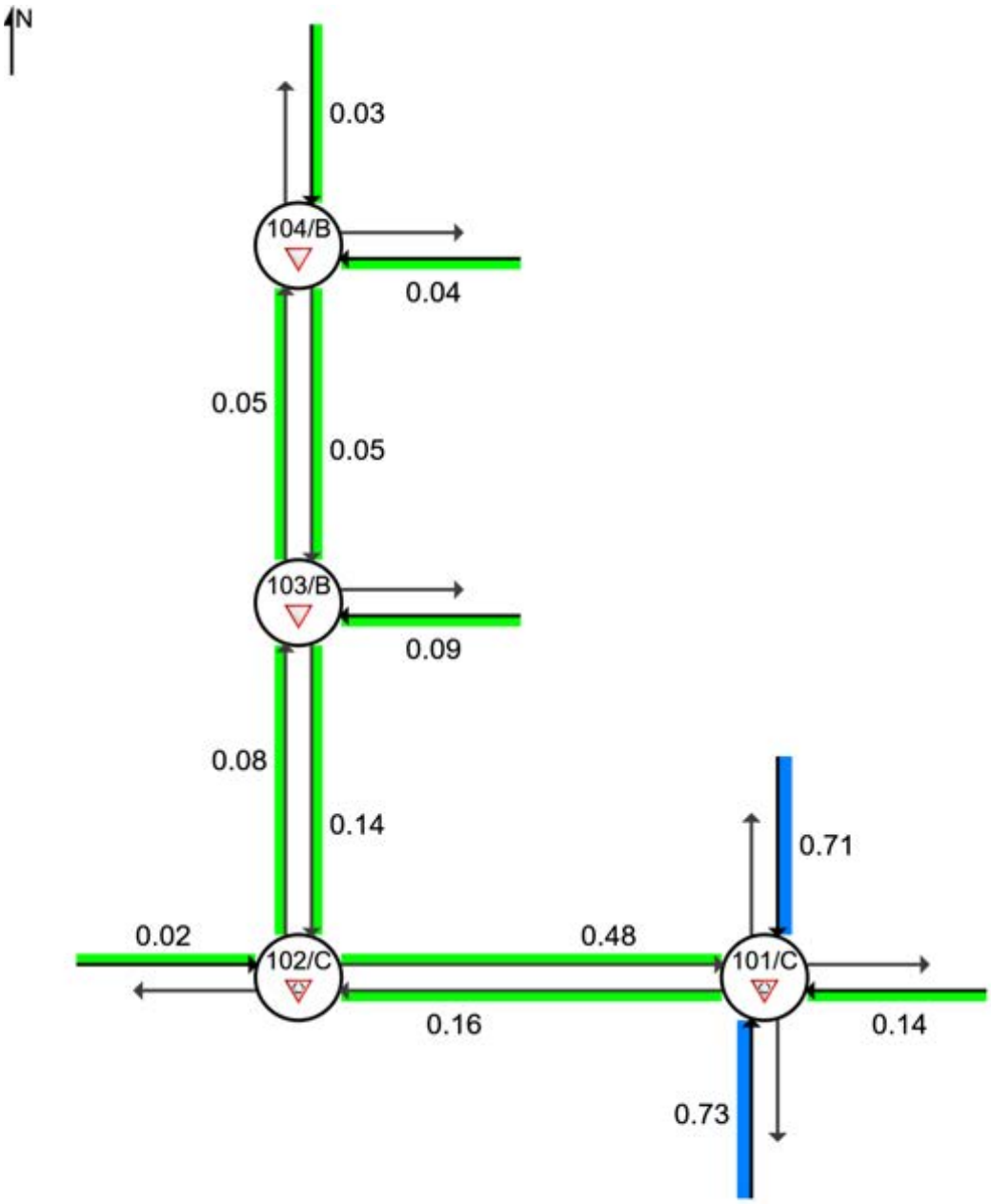
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% growth PA over 10 years to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Degree of Saturation

[< 0.6]	[0.6 – 0.7]	[0.7 – 0.8]	[0.8 – 0.9]	[0.9 – 1.0]	[> 1.0]

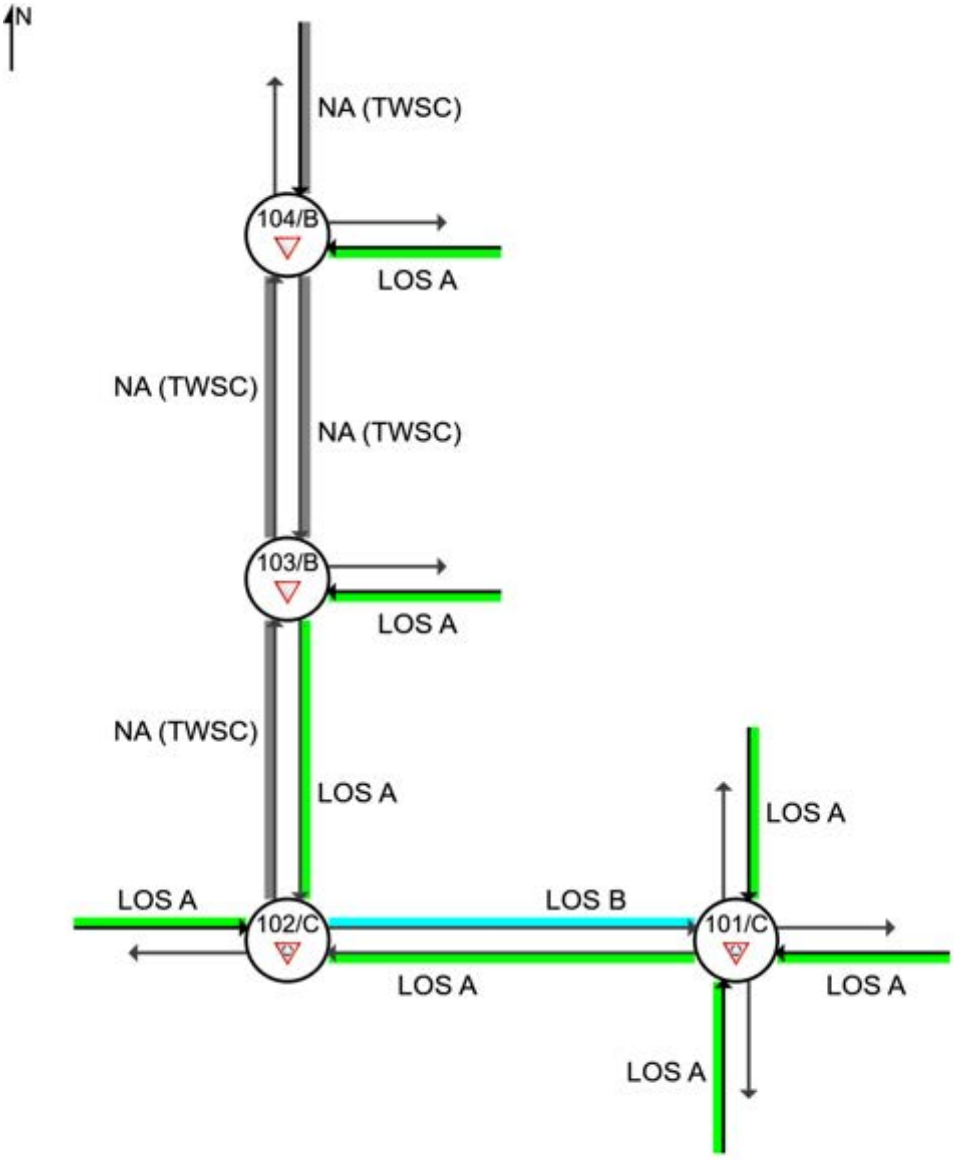
APPROACH LEVEL OF SERVICE

Approach Level of Service

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% growth PA over 10 years to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site

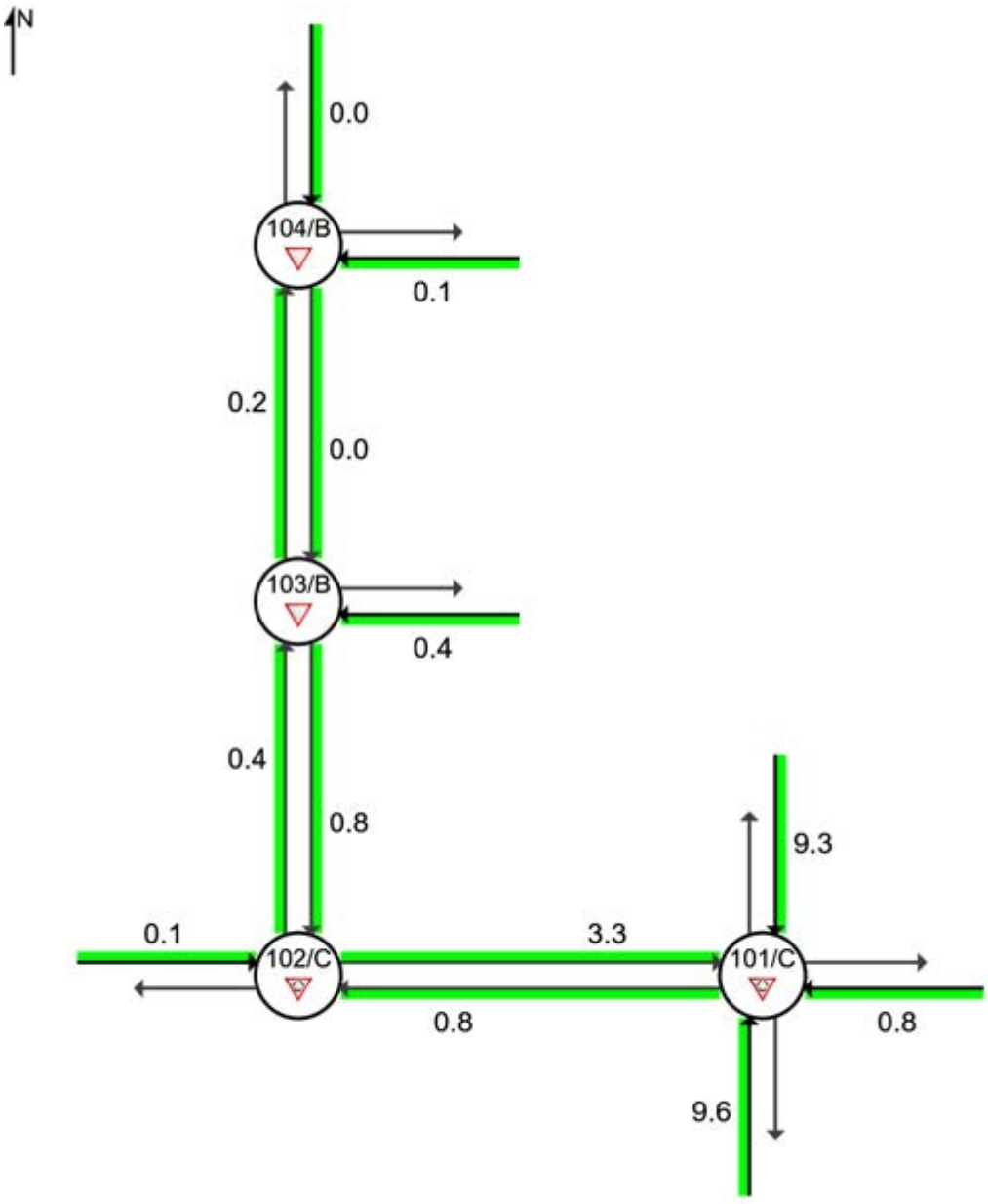
VEHICLE QUEUE (PERCENTILE)

Largest 95% Back of Queue for any lane on the approach (vehicles)

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% growth PA over 10 years to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

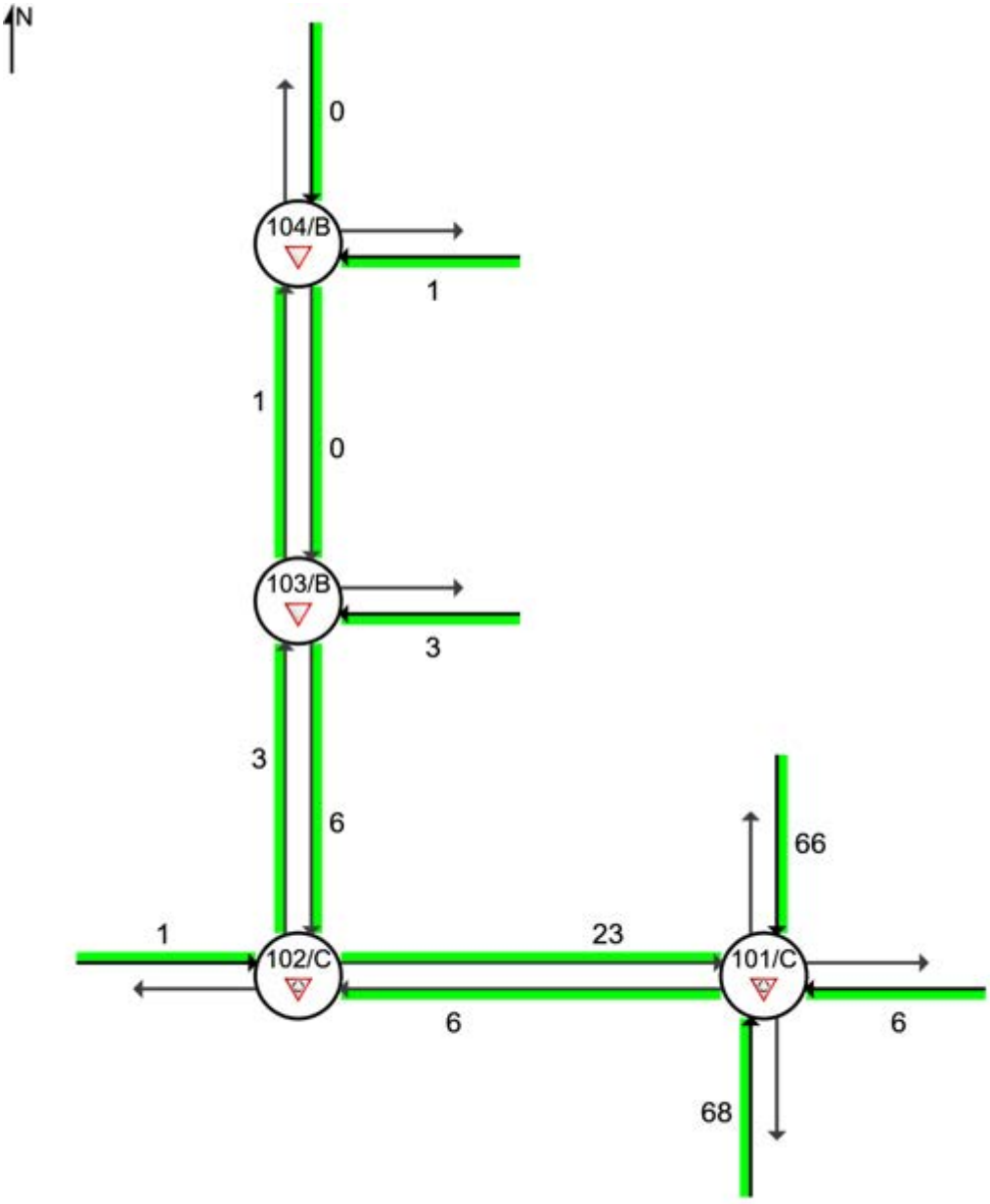
QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane on the approach (metres)

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% growth PA over 10 years to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Queue Storage Ratio

[< 0.6]	[0.6 – 0.7]	[0.7 – 0.8]	[0.8 – 0.9]	[0.9 – 1.0]	[> 1.0]

MOVEMENT SUMMARY

Site: 101/C [3. 2024 Thurs Exist RAB PM Peak Nelson Bay RD + Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM - Growth applied in Network Demand settings
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	173	0.7	173	0.7	0.503	4.4	LOS A	4.3	30.5	0.43	0.43	0.43	55.1
2	T1	All MCs	1440	1.4	1440	1.4	0.731	7.5	LOS A	9.6	68.2	0.50	0.48	0.50	59.3
3	R2	All MCs	302	1.7	302	1.7	0.731	11.8	LOS A	9.6	68.2	0.54	0.50	0.54	53.7
3u	U	All MCs	3	0.0	3	0.0	0.731	14.6	LOS B	9.6	68.2	0.54	0.50	0.54	57.7
Approach			1918	1.4	1918	1.4	0.731	7.9	LOS A	9.6	68.2	0.50	0.48	0.50	58.2
East: Seaside Boulevarde															
4	L2	All MCs	78	0.0	78	0.0	0.117	13.6	LOS A	0.7	5.2	0.85	0.77	0.85	54.7
5	T1	All MCs	42	0.0	42	0.0	0.144	8.7	LOS A	0.8	5.6	0.83	0.83	0.83	41.3
6	R2	All MCs	25	0.0	25	0.0	0.144	15.1	LOS B	0.8	5.6	0.83	0.83	0.83	51.1
6u	U	All MCs	3	0.0	3	0.0	0.144	17.6	LOS B	0.8	5.6	0.83	0.83	0.83	48.5
Approach			148	0.0	148	0.0	0.144	12.5	LOS A	0.8	5.6	0.84	0.80	0.84	51.2
North: Nelson Bay Road Williamtown															
7	L2	All MCs	24	5.3	24	5.3	0.348	8.0	LOS A	2.3	16.2	0.67	0.61	0.67	54.5
8	T1	All MCs	1205	1.4	1205	1.4	0.714	10.4	LOS A	9.3	66.3	0.81	0.74	0.96	57.9
9	R2	All MCs	30	8.5	30	8.5	0.714	15.3	LOS B	9.3	66.3	0.86	0.78	1.06	51.1
9u	U	All MCs	13	0.0	13	0.0	0.714	18.9	LOS B	9.3	66.3	0.86	0.78	1.06	56.3
Approach			1271	1.6	1271	1.6	0.714	10.6	LOS A	9.3	66.3	0.81	0.74	0.96	57.7
West: Fullerton Cove Road															
10	L2	All MCs	30	0.0	30	0.0	0.485	23.2	LOS B	3.3	23.4	0.92	1.00	1.20	41.0
11	T1	All MCs	43	5.9	43	5.9	0.485	17.0	LOS B	3.3	23.4	0.92	1.00	1.20	37.1
12	R2	All MCs	138	1.8	138	1.8	0.485	23.0	LOS B	3.3	23.4	0.92	1.00	1.20	40.0
Approach			211	2.4	211	2.4	0.485	21.8	LOS B	3.3	23.4	0.92	1.00	1.20	39.6
All Vehicles			3548	1.5	3548	1.5	0.731	9.9	LOS A	9.6	68.2	0.65	0.62	0.72	56.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102/C [12. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Thurs PM Peak + Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
13 June 2024 4:30PM to 5:30PM
Growth applied in Network Demand settings
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Fullerton Cove Rd (from Nelson Bar RAB)															
5	T1	All MCs	22	0.0	22	0.0	0.156	5.1	LOS A	0.8	5.8	0.07	0.63	0.07	26.8
6	R2	All MCs	218	1.7	218	1.7	0.156	8.1	LOS A	0.8	5.8	0.07	0.63	0.07	33.7
Approach			240	1.6	240	1.6	0.156	7.8	LOS A	0.8	5.8	0.07	0.63	0.07	31.4
North: Fullerton Cove Road (north)															
7	L2	All MCs	197	2.6	197	2.6	0.138	4.5	LOS A	0.8	5.6	0.08	0.53	0.08	34.5
9	R2	All MCs	11	0.0	11	0.0	0.138	8.1	LOS A	0.8	5.6	0.08	0.53	0.08	26.3
Approach			208	2.4	208	2.4	0.138	4.7	LOS A	0.8	5.6	0.08	0.53	0.08	32.2
West: The Cove Drive															
10	L2	All MCs	11	0.0	11	0.0	0.021	1.5	LOS A	0.1	0.7	0.39	0.23	0.39	24.4
11	T1	All MCs	12	0.0	12	0.0	0.021	1.2	LOS A	0.1	0.7	0.39	0.23	0.39	24.4
Approach			22	0.0	22	0.0	0.021	1.4	LOS A	0.1	0.7	0.39	0.23	0.39	24.4
All Vehicles			471	1.9	471	1.9	0.156	6.1	LOS A	0.8	5.8	0.09	0.57	0.09	30.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:34:46 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 103/B [20. 2024 Fullerton Cove Rd & Prop Main Site Access Thurs PM Peak with Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 13 June 2024 4:30PM to 5:30PM
Growth applied in Network Demand settings
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Rd (from The Cove RAB)															
2	T1	All MCs	91	4.2	91	4.2	0.048	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	133	0.0	133	0.0	0.080	5.8	LOS A	0.4	2.6	0.20	0.57	0.20	25.8
Approach			223	1.7	223	1.7	0.080	3.4	NA	0.4	2.6	0.12	0.34	0.12	27.5
East: Development Access Road															
4	L2	All MCs	129	0.0	129	0.0	0.089	1.3	LOS A	0.4	2.6	0.19	0.24	0.19	24.4
6	R2	All MCs	3	0.0	3	0.0	0.089	3.3	LOS A	0.4	2.6	0.19	0.24	0.19	24.4
Approach			133	0.0	133	0.0	0.089	1.4	LOS A	0.4	2.6	0.19	0.24	0.19	24.4
North: Fullerton Cove Rd (north)															
7	L2	All MCs	1	0.0	1	0.0	0.047	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	55.8
8	T1	All MCs	86	5.9	86	5.9	0.047	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach			87	5.8	87	5.8	0.047	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.1
All Vehicles			443	2.0	443	2.0	0.089	2.2	NA	0.4	2.6	0.11	0.24	0.11	27.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:34:46 PM
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MOVEMENT SUMMARY

Site: 104/B [26. 2024 Fullerton Cove Rd & Prop Secondary Site access 2024 Thur PM Peak with development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 13 June 2024 4:30PM to 5:30PM
Growth applied in Network Demand settings
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Road south															
2	T1	All MCs	43	8.8	43	8.8	0.045	0.1	LOS A	0.2	1.3	0.12	0.29	0.12	55.2
3	R2	All MCs	38	0.0	38	0.0	0.045	5.6	LOS A	0.2	1.3	0.12	0.29	0.12	33.4
Approach			81	4.7	81	4.7	0.045	2.7	NA	0.2	1.3	0.12	0.29	0.12	49.2
East: Site access															
4	L2	All MCs	38	0.0	38	0.0	0.040	1.2	LOS A	0.1	1.0	0.13	0.24	0.13	21.1
6	R2	All MCs	19	0.0	19	0.0	0.040	2.0	LOS A	0.1	1.0	0.13	0.24	0.13	46.2
Approach			57	0.0	57	0.0	0.040	1.4	LOS A	0.1	1.0	0.13	0.24	0.13	37.9
North: fullerton Cove Road north															
7	L2	All MCs	19	0.0	19	0.0	0.031	5.5	LOS A	0.0	0.0	0.00	0.20	0.00	45.8
8	T1	All MCs	37	13.8	37	13.8	0.031	0.0	LOS A	0.0	0.0	0.00	0.20	0.00	56.2
Approach			56	9.1	56	9.1	0.031	1.9	NA	0.0	0.0	0.00	0.20	0.00	51.9
All Vehicles			193	4.6	193	4.6	0.045	2.1	NA	0.2	1.3	0.09	0.25	0.09	47.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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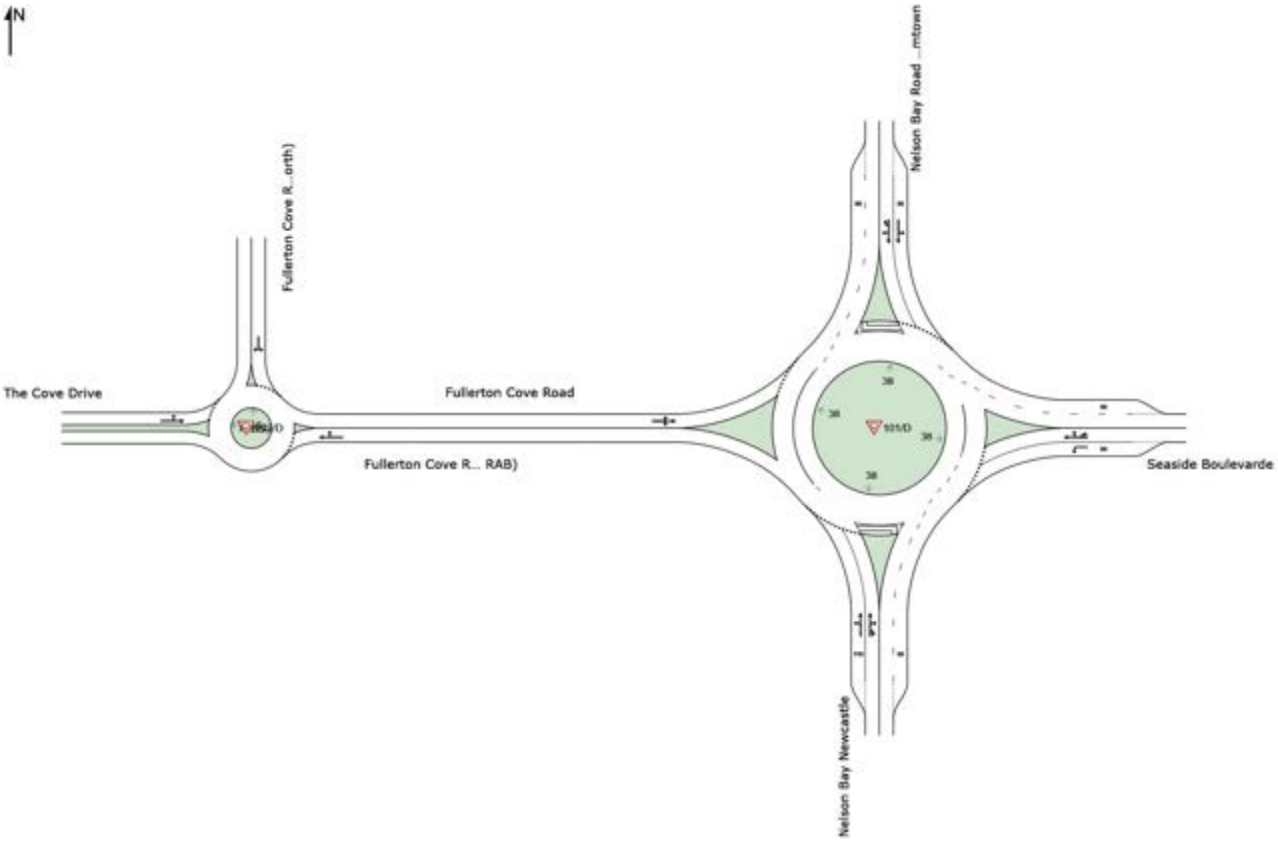
NETWORK LAYOUT

Network: F102/A [Friday PM Peak Existing 2024 (Network Folder: Friday PM Peak Existing 2024)]

2024 Friday PM Existing traffic flows
14 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Fri Base Year Existing

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



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101/D	NA	4. 2024 Fri Exist RAB PM Peak Nelson Bay Rd
102/D	NA	13. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Fri PM Peak

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Saturday, 28 September 2024 6:46:41 PM
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NETWORK SUMMARY

Network: F102/A [Friday PM Peak Existing 2024 (Network Folder: Friday PM Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows
14 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Fri Base Year Existing

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.86		
Travel Time Index		8.47		
Congestion Coefficient		1.16		
Travel Speed (Average)	km/h	59.0	59.0	km/h
Travel Distance (Total)	veh-km/h	2088.3	2506.0	pers-km/h
Travel Time (Total)	veh-h/h	35.4	42.4	pers-h/h
Desired Speed	km/h	68.5		
Demand Flows (Total for all Sites)	veh/h	2107	2529	pers/h
Arrival Flows (Total for all Sites)	veh/h	2107	2529	pers/h
Demand Flows (Entry Total)	veh/h	2033		
Midblock Inflows (Total)	veh/h	0		
Midblock Outflows (Total)	veh/h	0		
Percent Heavy Vehicles (Demand)	%	1.5		
Percent Heavy Vehicles (Arrival)	%	1.5		
Degree of Saturation		0.440		
Control Delay (Total)	veh-h/h	3.65	4.39	pers-h/h
Control Delay (Average)	sec	6.2	6.2	sec
Control Delay (Worst Lane by MC)	sec	12.2		
Control Delay (Worst Movement by MC)	sec	14.6	14.6	sec
Geometric Delay (Average)	sec	5.1		
Stop-Line Delay (Average)	sec	1.1		
Ave. Que Storage Ratio (Worst Lane)		0.02		
Effective Stops (Total)	veh/h	962	1154	pers/h
Effective Stop Rate		0.46	0.46	
Proportion Queued		0.29	0.29	
Performance Index		52.0	52.0	
Cost (Total)	$/h	1729.90	1729.90	$/h
Fuel Consumption (Total)	L/h	187.9		
Fuel Economy	L/100km	9.0		
Carbon Dioxide (Total)	kg/h	443.4		
Hydrocarbons (Total)	kg/h	0.041		
Carbon Monoxide (Total)	kg/h	0.64		
NOx (Total)	kg/h	0.457		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	1,011,537	1,213,844	pers/y
Delay (Total)	veh-h/y	1,754	2,105	pers-h/y
Effective Stops (Total)	veh/y	461,752	554,102	pers/y
Travel Distance (Total)	veh-km/y	1,002,396	1,202,875	pers-km/y
Travel Time (Total)	veh-h/y	16,980	20,376	pers-h/y

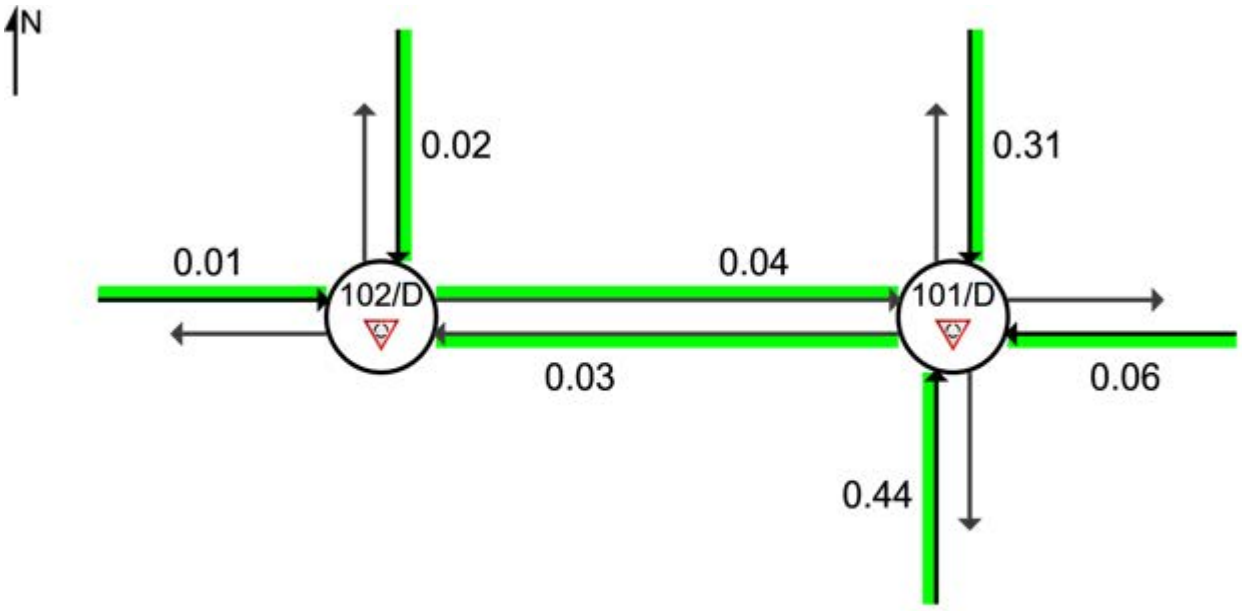
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

Network: F102/A [Friday PM Peak Existing 2024 (Network Folder: Friday PM Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows
14 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Fri Base Year Existing



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

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Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

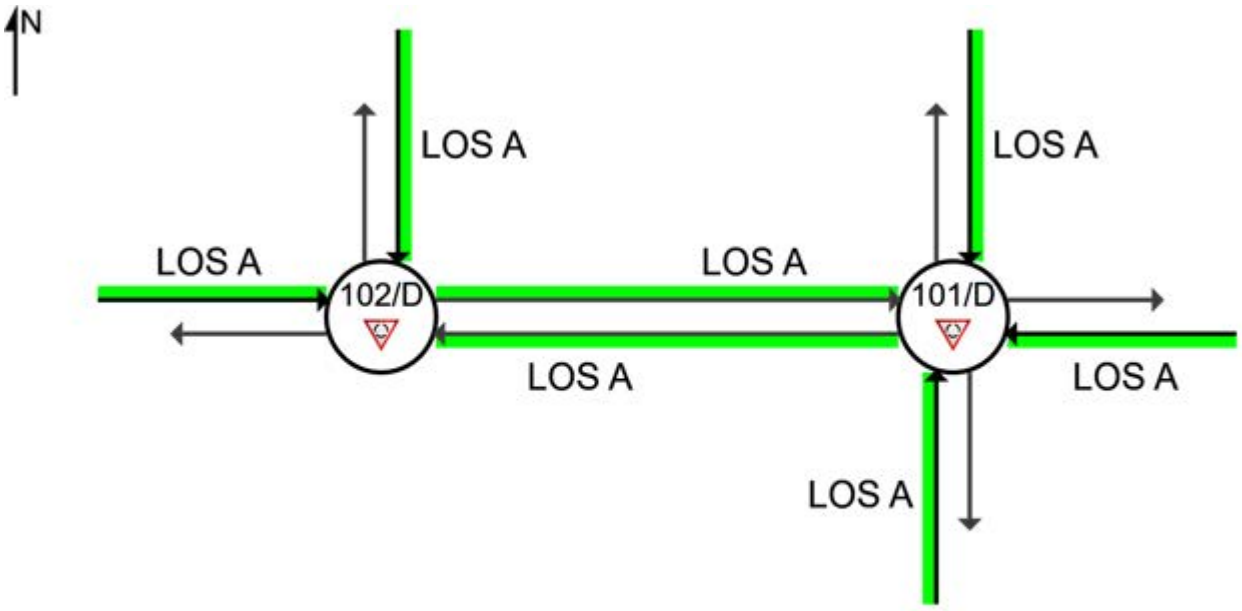
APPROACH LEVEL OF SERVICE

Approach Level of Service

Network: F102/A [Friday PM Peak Existing 2024 (Network Folder: Friday PM Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows
14 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Fri Base Year Existing



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:12 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

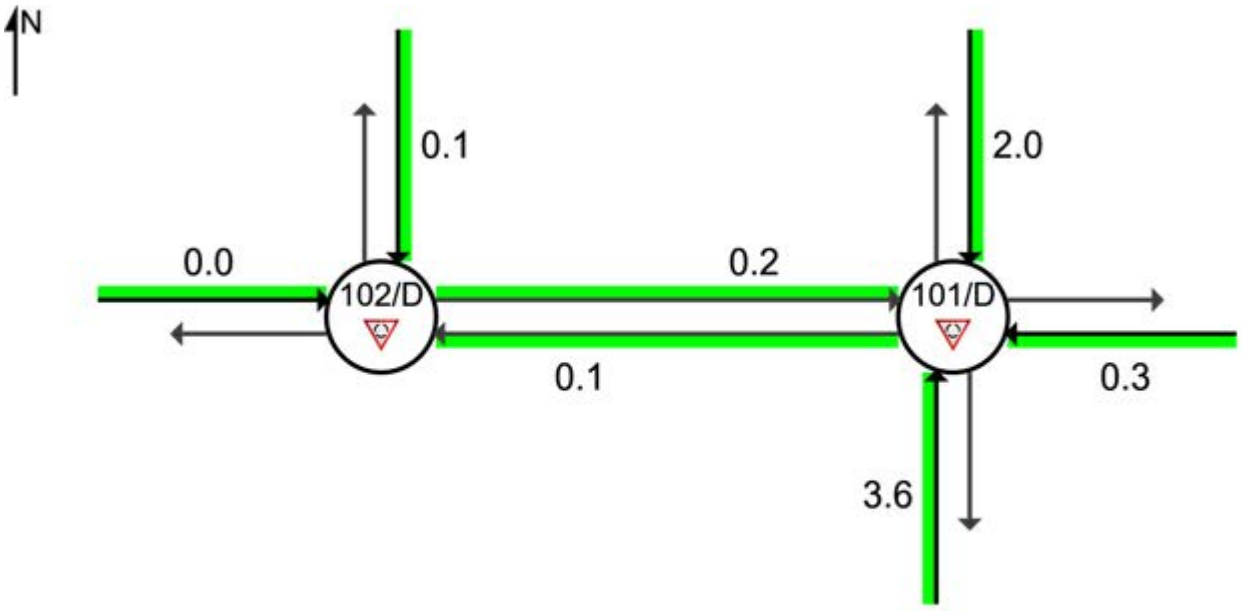
VEHICLE QUEUE (PERCENTILE)

Largest 95% Back of Queue for any lane on the approach (vehicles)

Network: F102/A [Friday PM Peak Existing 2024 (Network Folder: Friday PM Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows
14 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Fri Base Year Existing



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:12 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

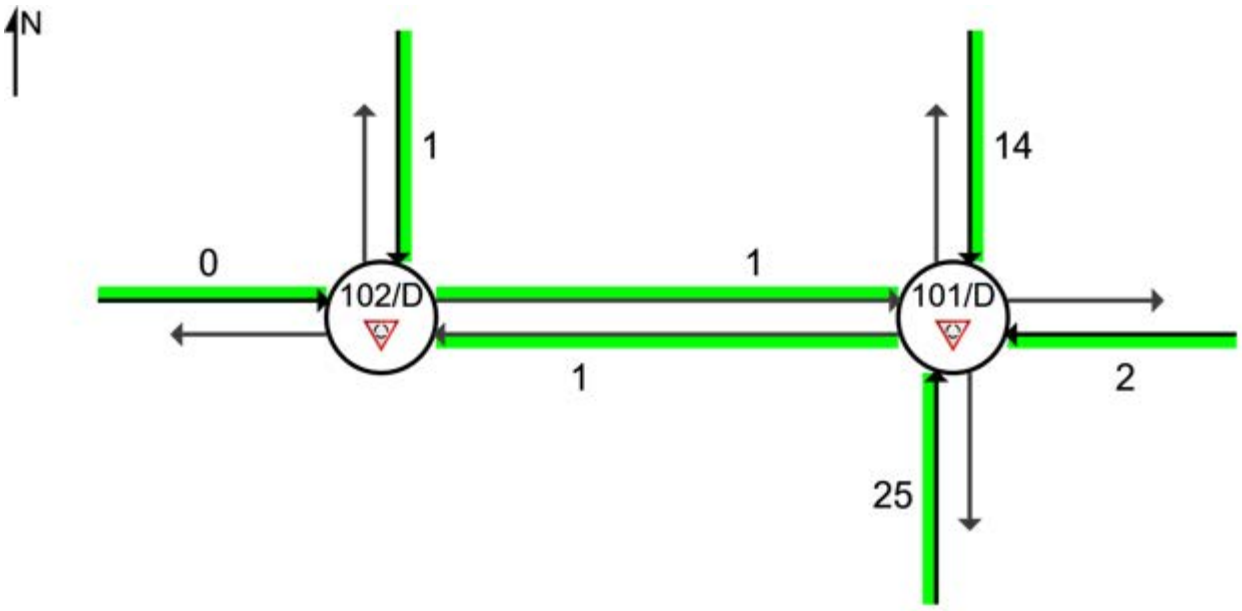
QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane on the approach (metres)

Network: F102/A [Friday PM Peak Existing 2024 (Network Folder: Friday PM Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows
14 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Fri Base Year Existing



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:12 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MIDBLOCK INFLOWS & OUTFLOWS FOR NETWORK

Midblock Inflow (positive) and Outflow (negative) values determined as the difference between upstream and downstream demand flow rates (veh/h)

Network: F102/A [Friday PM Peak Existing 2024 (Network Folder: Friday PM Peak Existing 2024)]

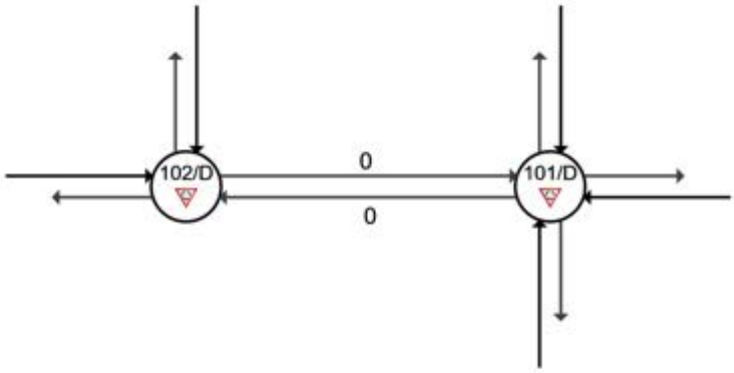
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows
14 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Fri Base Year Existing

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups

All Movement Classes (*)



Any Initial Queued Demand and Capacity Constraint adjustments are not included in Demand Flow Rates.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:12 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 101/D [4. 2024 Fri Exist RAB PM Peak Nelson Bay Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: F102/A [Friday PM Peak Existing 2024 (Network Folder: Friday PM Peak Existing 2024)]

2024 Friday PM Existing traffic flows
14 June 2024 4:30PM to 5:30PM
Existing without development
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	37	0.0	37	0.0	0.303	4.5	LOS A	2.0	14.4	0.20	0.38	0.20	58.4
2	T1	All MCs	989	1.4	989	1.4	0.440	5.3	LOS A	3.6	25.2	0.21	0.42	0.21	61.2
3	R2	All MCs	209	1.5	209	1.5	0.440	11.1	LOS A	3.6	25.2	0.21	0.46	0.21	55.4
3u	U	All MCs	2	0.0	2	0.0	0.440	13.9	LOS A	3.6	25.2	0.21	0.46	0.21	59.3
Approach			1238	1.4	1238	1.4	0.440	6.3	LOS A	3.6	25.2	0.21	0.43	0.21	60.2
East: Seaside Boulevarde															
4	L2	All MCs	66	0.0	66	0.0	0.057	5.9	LOS A	0.3	1.8	0.51	0.57	0.51	56.4
5	T1	All MCs	1	0.0	1	0.0	0.036	5.0	LOS A	0.1	1.1	0.53	0.71	0.53	41.3
6	R2	All MCs	28	3.7	28	3.7	0.036	11.6	LOS A	0.1	1.1	0.53	0.71	0.53	50.0
6u	U	All MCs	1	0.0	1	0.0	0.036	14.0	LOS A	0.1	1.1	0.53	0.71	0.53	46.5
Approach			97	1.1	97	1.1	0.057	7.7	LOS A	0.3	1.8	0.52	0.61	0.52	54.1
North: Nelson Bay Road Williamtown															
7	L2	All MCs	17	6.3	17	6.3	0.153	6.0	LOS A	0.8	5.8	0.41	0.47	0.41	56.2
8	T1	All MCs	635	1.8	635	1.8	0.314	5.6	LOS A	2.0	14.4	0.43	0.46	0.43	60.5
9	R2	All MCs	4	25.0	4	25.0	0.314	12.4	LOS A	2.0	14.4	0.43	0.46	0.43	55.6
9u	U	All MCs	7	0.0	7	0.0	0.314	14.6	LOS B	2.0	14.4	0.43	0.46	0.43	59.1
Approach			663	2.1	663	2.1	0.314	5.7	LOS A	2.0	14.4	0.43	0.46	0.43	60.3
West: Fullerton Cove Road															
10	L2	All MCs	4	0.0	4	0.0	0.043	8.7	LOS A	0.2	1.3	0.63	0.77	0.63	49.4
11	T1	All MCs	1	0.0	1	0.0	0.043	6.8	LOS A	0.2	1.3	0.63	0.77	0.63	43.9
12	R2	All MCs	27	0.0	27	0.0	0.043	12.9	LOS A	0.2	1.3	0.63	0.77	0.63	48.5
Approach			33	0.0	33	0.0	0.043	12.2	LOS A	0.2	1.3	0.63	0.77	0.63	48.5
All Vehicles			2031	1.6	2031	1.6	0.440	6.3	LOS A	3.6	25.2	0.30	0.45	0.30	59.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:12 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 102/D [13. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Fri PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: F102/A [Friday PM Peak Existing 2024 (Network Folder: Friday PM Peak Existing 2024)]

2024 Friday PM Existing traffic flows
14 June 2024 4:30PM to 5:30PM
Existing without development
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Fullerton Cove Rd (from Nelson Bar RAB)															
5	T1	All MCs	17	0.0	17	0.0	0.026	5.1	LOS A	0.1	0.9	0.01	0.62	0.01	27.0
6	R2	All MCs	25	4.2	25	4.2	0.026	8.1	LOS A	0.1	0.9	0.01	0.62	0.01	37.2
Approach			42	2.5	42	2.5	0.026	6.9	LOS A	0.1	0.9	0.01	0.62	0.01	30.1
North: Fullerton Cove Road (north)															
7	L2	All MCs	24	0.0	24	0.0	0.018	4.5	LOS A	0.1	0.6	0.06	0.53	0.06	34.9
9	R2	All MCs	1	0.0	1	0.0	0.018	8.1	LOS A	0.1	0.6	0.06	0.53	0.06	26.3
Approach			25	0.0	25	0.0	0.018	4.6	LOS A	0.1	0.6	0.06	0.53	0.06	32.8
West: The Cove Drive															
10	L2	All MCs	1	0.0	1	0.0	0.007	0.4	LOS A	0.0	0.3	0.12	0.03	0.12	26.6
11	T1	All MCs	8	0.0	8	0.0	0.007	0.1	LOS A	0.0	0.3	0.12	0.03	0.12	24.8
Approach			9	0.0	9	0.0	0.007	0.2	LOS A	0.0	0.3	0.12	0.03	0.12	25.0
All Vehicles			77	1.4	77	1.4	0.026	5.3	LOS A	0.1	0.9	0.04	0.52	0.04	29.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

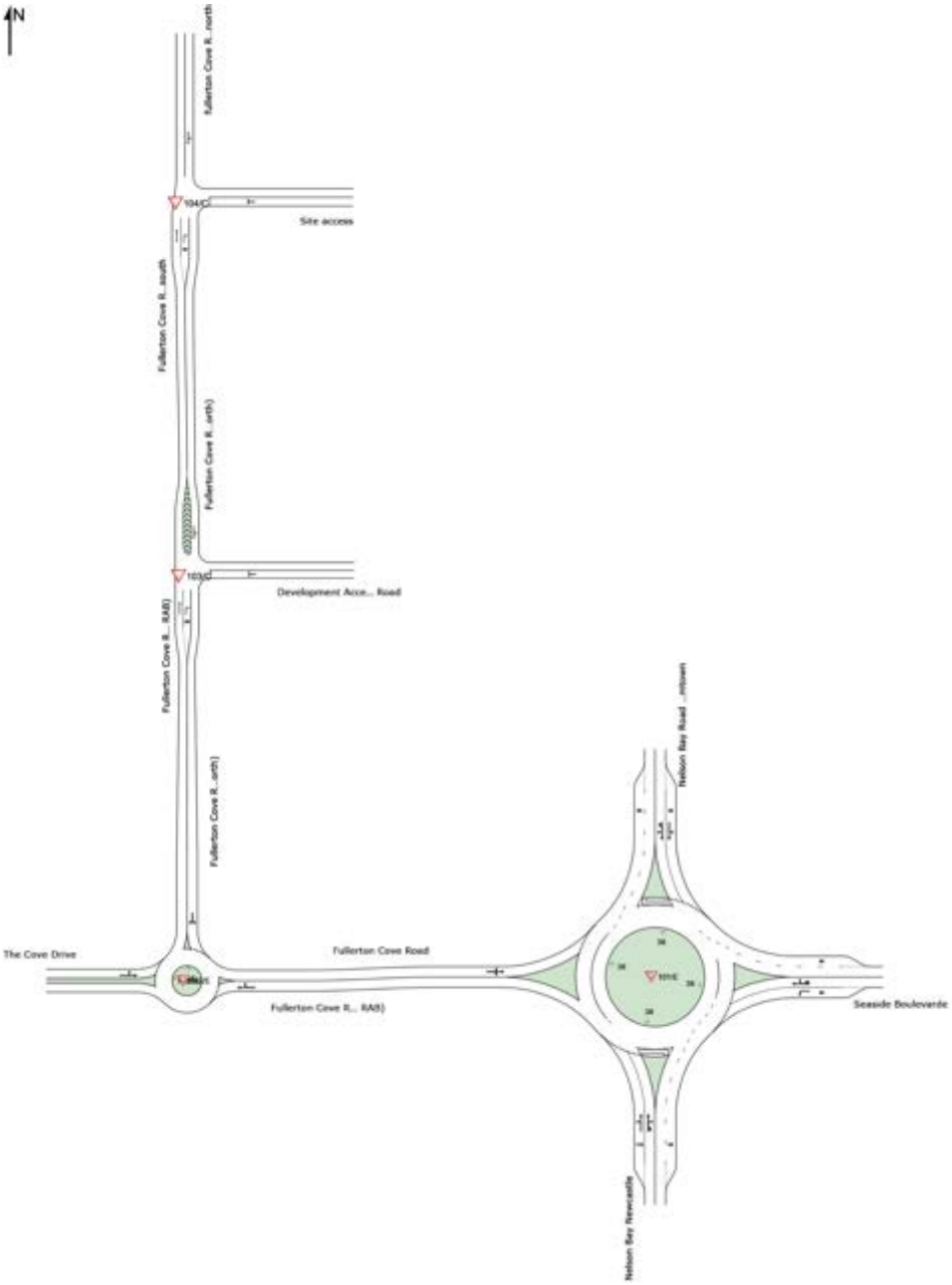
Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:12 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

NETWORK LAYOUT

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development

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



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽101/E	NA	5. 2024 Fri Exist RAB PM Peak Nelson Bay Rd + Development
▽102/E	NA	14. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Fri PM Peak + Development
▽103/C	NA	21. 2024 Fullerton Cove Rd & Prop Main Site Access Fri PM Peak with Development
▽104/C	NA	27. 2024 Fullerton Cove Rd & Prop Secondary Site access 2024 Fri PM Peak with development

NETWORK SUMMARY

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development

Network Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Network Level of Service (LOS)		LOS B	
Speed Efficiency		0.85	
Travel Time Index		8.34	
Congestion Coefficient		1.18	
Travel Speed (Average)	km/h	52.6	52.6 km/h
Travel Distance (Total)	veh-km/h	2501.3	3001.6 pers-km/h
Travel Time (Total)	veh-h/h	47.6	57.1 pers-h/h
Desired Speed	km/h	61.8	
Demand Flows (Total for all Sites)	veh/h	3268	3922 pers/h
Arrival Flows (Total for all Sites)	veh/h	3268	3922 pers/h
Demand Flows (Entry Total)	veh/h	2373	
Midblock Inflows (Total)	veh/h	9	
Midblock Outflows (Total)	veh/h	-21	
Percent Heavy Vehicles (Demand)	%	1.1	
Percent Heavy Vehicles (Arrival)	%	1.1	
Degree of Saturation		0.498	
Control Delay (Total)	veh-h/h	5.49	6.59 pers-h/h
Control Delay (Average)	sec	6.0	6.0 sec
Control Delay (Worst Lane by MC)	sec	12.0	
Control Delay (Worst Movement by MC)	sec	15.2	15.2 sec
Geometric Delay (Average)	sec	4.8	
Stop-Line Delay (Average)	sec	1.2	
Ave. Que Storage Ratio (Worst Lane)		0.03	
Effective Stops (Total)	veh/h	1560	1871 pers/h
Effective Stop Rate		0.48	0.48
Proportion Queued		0.34	0.34
Performance Index		76.3	76.3
Cost (Total)	$/h	2299.71	2299.71 $/h
Fuel Consumption (Total)	L/h	242.5	
Fuel Economy	L/100km	9.7	
Carbon Dioxide (Total)	kg/h	571.7	
Hydrocarbons (Total)	kg/h	0.053	
Carbon Monoxide (Total)	kg/h	0.76	
NOx (Total)	kg/h	0.516	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total for all Sites)	veh/y	1,568,842	1,882,611 pers/y
Delay (Total)	veh-h/y	2,636	3,163 pers-h/y
Effective Stops (Total)	veh/y	748,585	898,302 pers/y
Travel Distance (Total)	veh-km/y	1,200,632	1,440,758 pers-km/y
Travel Time (Total)	veh-h/y	22,846	27,415 pers-h/y

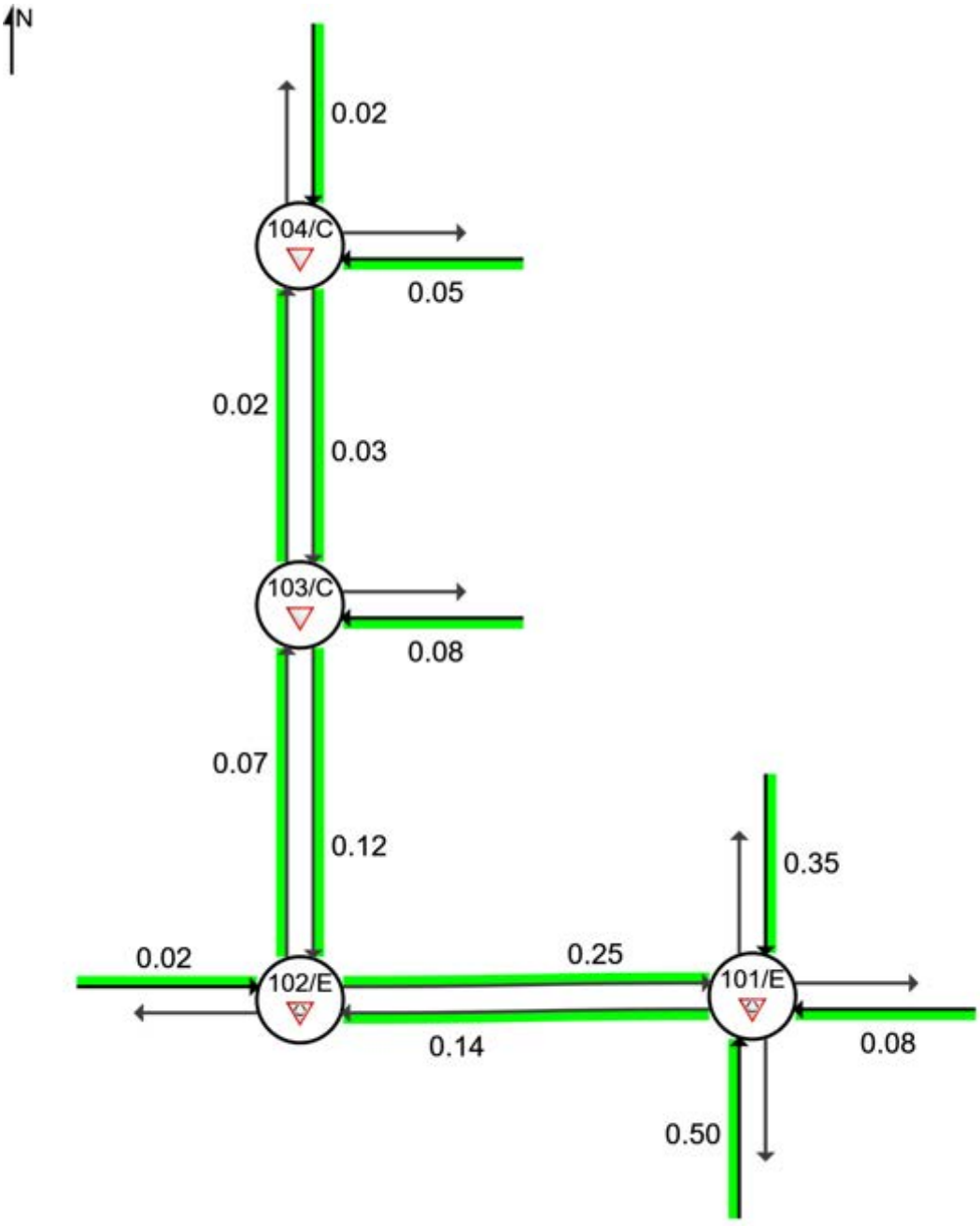
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

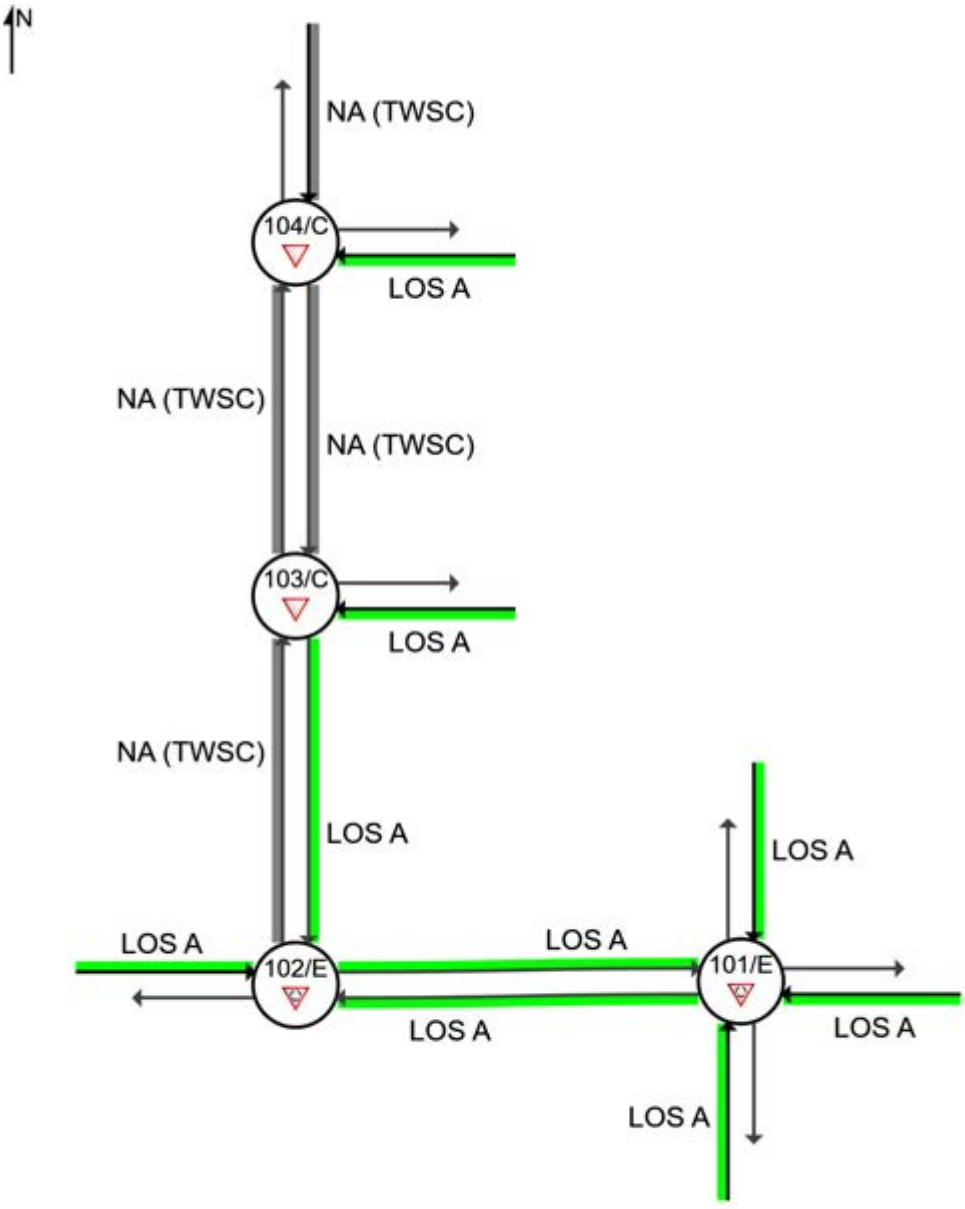
APPROACH LEVEL OF SERVICE

Approach Level of Service

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

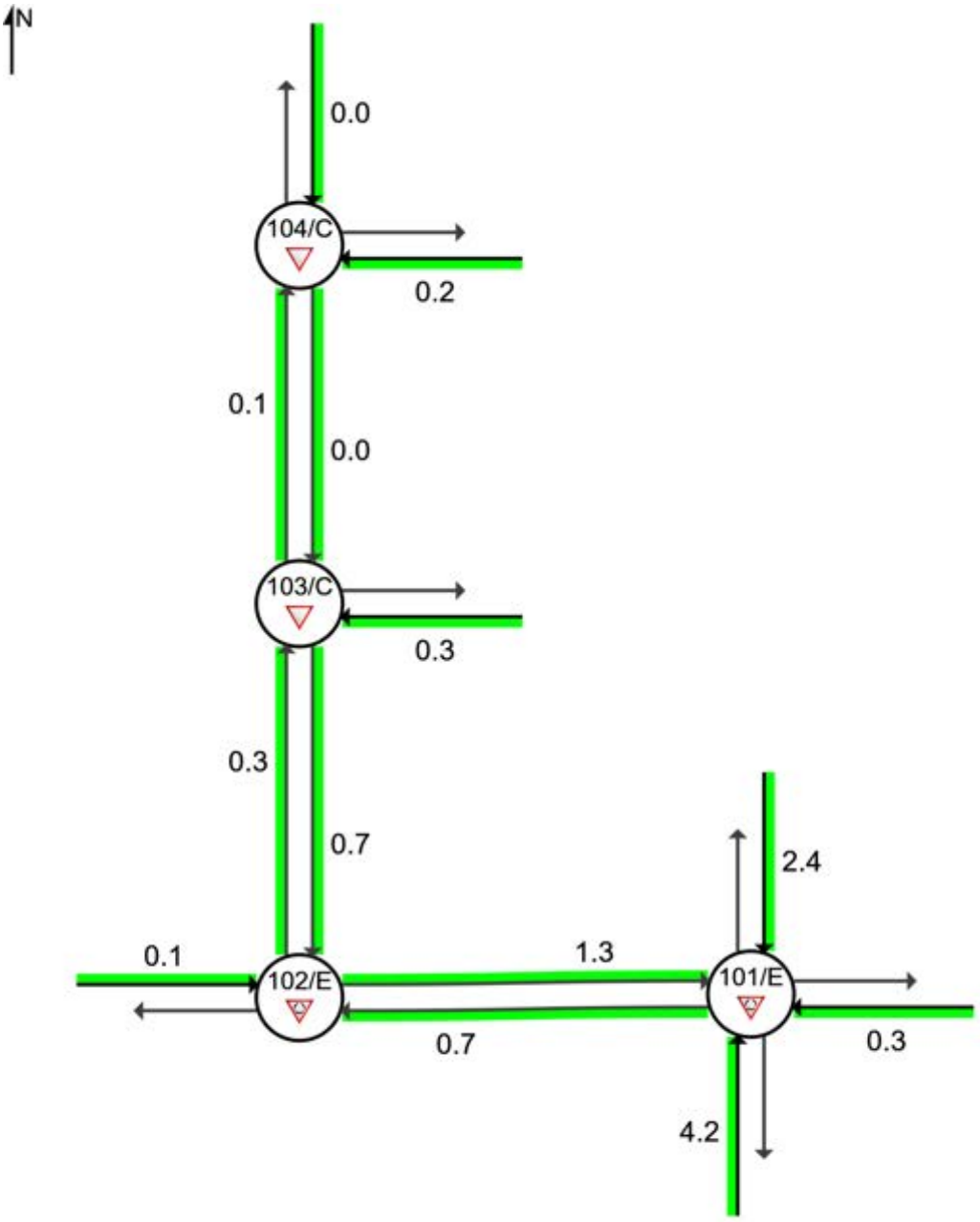
VEHICLE QUEUE (PERCENTILE)

Largest 95% Back of Queue for any lane on the approach (vehicles)

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

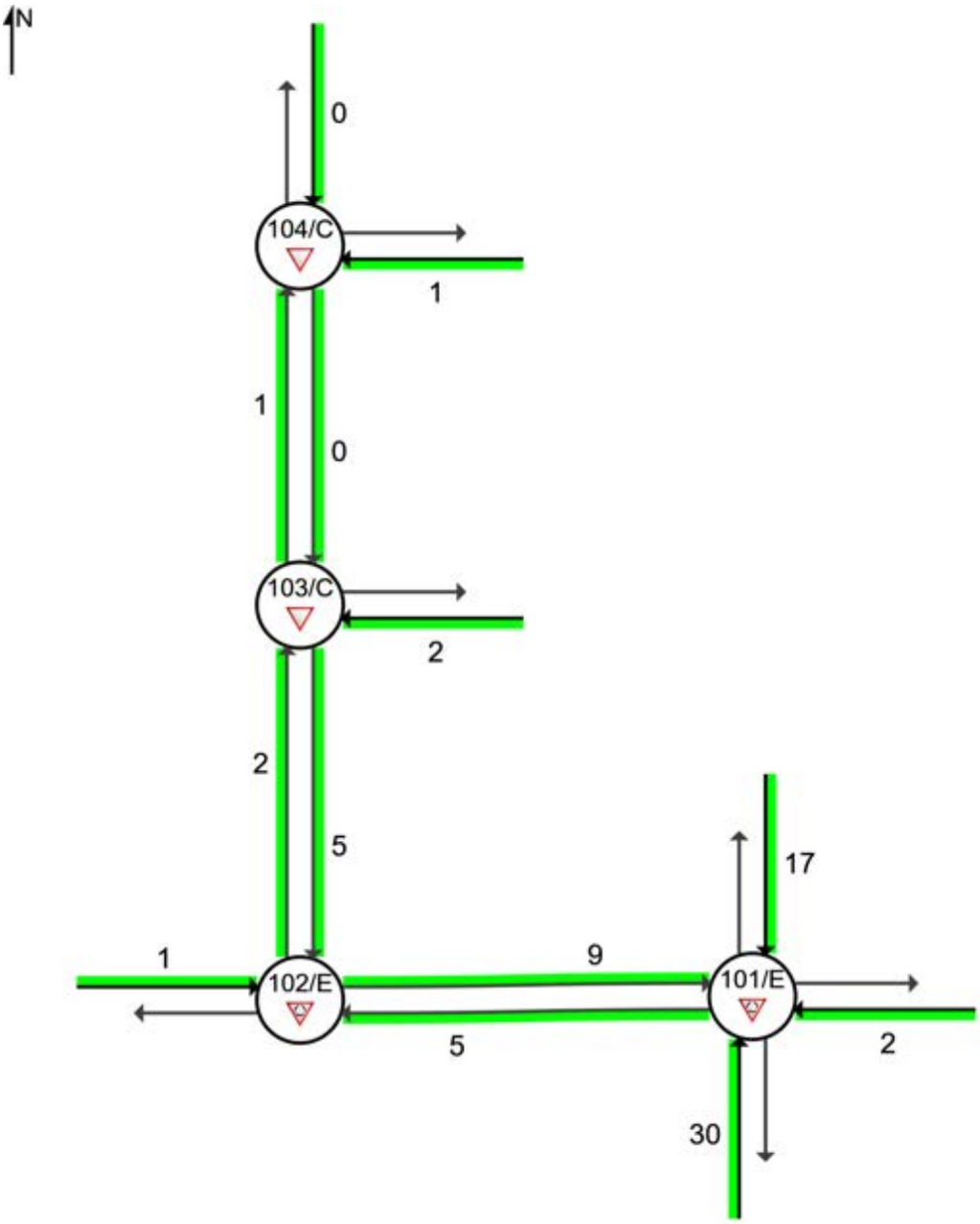
QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane on the approach (metres)

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

MIDBLOCK INFLOWS & OUTFLOWS FOR NETWORK

Midblock Inflow (positive) and Outflow (negative) values determined as the difference between upstream and downstream demand flow rates (veh/h)

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

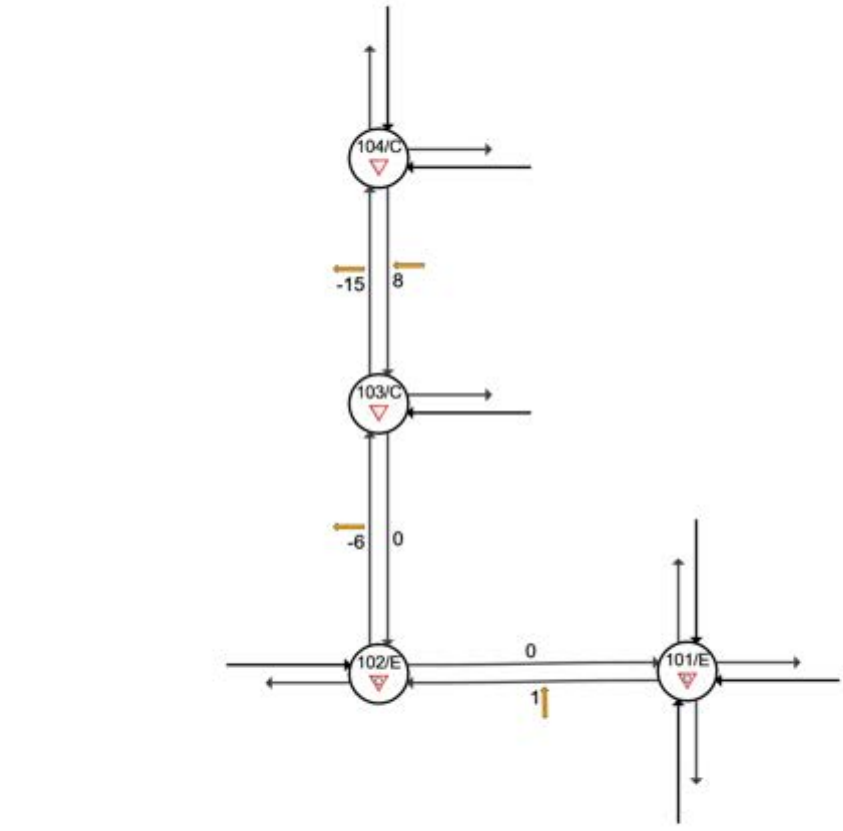
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups

All Movement Classes (*)



Any Initial Queued Demand and Capacity Constraint adjustments are not included in Demand Flow Rates.

MOVEMENT SUMMARY

Site: 101/E [5. 2024 Fri Exist RAB PM Peak Nelson Bay Rd + Development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
14 June 2024 4:30PM to 5:30PM

Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	148	0.0	148	0.0	0.343	4.8	LOS A	2.4	16.6	0.32	0.42	0.32	57.1
2	T1	All MCs	966	1.4	966	1.4	0.498	5.5	LOS A	4.2	30.1	0.34	0.45	0.34	60.4
3	R2	All MCs	209	1.5	209	1.5	0.498	11.4	LOS A	4.2	30.1	0.35	0.47	0.35	54.7
3u	U	All MCs	2	0.0	2	0.0	0.498	14.2	LOS A	4.2	30.1	0.35	0.47	0.35	58.7
Approach			1326	1.3	1326	1.3	0.498	6.4	LOS A	4.2	30.1	0.34	0.45	0.34	59.3
East: Seaside Boulevarde															
4	L2	All MCs	66	0.0	66	0.0	0.061	6.5	LOS A	0.3	2.1	0.57	0.60	0.57	56.2
5	T1	All MCs	36	0.0	36	0.0	0.075	5.2	LOS A	0.3	2.4	0.58	0.65	0.58	44.1
6	R2	All MCs	28	3.7	28	3.7	0.075	11.8	LOS A	0.3	2.4	0.58	0.65	0.58	52.0
6u	U	All MCs	1	0.0	1	0.0	0.075	14.2	LOS A	0.3	2.4	0.58	0.65	0.58	48.5
Approach			132	0.8	132	0.8	0.075	7.4	LOS A	0.3	2.4	0.58	0.62	0.58	52.8
North: Nelson Bay Road Williamtown															
7	L2	All MCs	17	6.3	17	6.3	0.169	6.7	LOS A	1.0	6.8	0.52	0.53	0.52	55.5
8	T1	All MCs	619	1.9	619	1.9	0.346	6.3	LOS A	2.4	17.1	0.55	0.53	0.55	59.5
9	R2	All MCs	24	4.3	24	4.3	0.346	12.5	LOS A	2.4	17.1	0.56	0.53	0.56	54.0
9u	U	All MCs	7	0.0	7	0.0	0.346	15.2	LOS B	2.4	17.1	0.56	0.53	0.56	58.1
Approach			667	2.1	667	2.1	0.346	6.6	LOS A	2.4	17.1	0.55	0.53	0.55	59.3
West: Fullerton Cove Road															
10	L2	All MCs	22	0.0	22	0.0	0.251	9.7	LOS A	1.3	8.8	0.73	0.80	0.73	49.4
11	T1	All MCs	37	0.0	37	0.0	0.251	7.7	LOS A	1.3	8.8	0.73	0.80	0.73	43.9
12	R2	All MCs	121	0.0	121	0.0	0.251	13.8	LOS A	1.3	8.8	0.73	0.80	0.73	48.5
Approach			180	0.0	180	0.0	0.251	12.0	LOS A	1.3	8.8	0.73	0.80	0.73	47.8
All Vehicles			2305	1.4	2305	1.4	0.498	6.9	LOS A	4.2	30.1	0.45	0.51	0.45	58.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:29 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 102/E [14. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Fri PM Peak + Development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
14 June 2024 4:30PM to 5:30PM

Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Fullerton Cove Rd (from Nelson Bar RAB)															
5	T1	All MCs	17	0.0	17	0.0	0.136	5.1	LOS A	0.7	4.8	0.06	0.64	0.06	26.8
6	R2	All MCs	193	0.5	193	0.5	0.136	8.1	LOS A	0.7	4.8	0.06	0.64	0.06	33.6
Approach			209	0.5	209	0.5	0.136	7.8	LOS A	0.7	4.8	0.06	0.64	0.06	31.6
North: Fullerton Cove Road (north)															
7	L2	All MCs	172	0.0	172	0.0	0.117	4.5	LOS A	0.7	4.6	0.06	0.53	0.06	34.7
9	R2	All MCs	9	0.0	9	0.0	0.117	8.1	LOS A	0.7	4.6	0.06	0.53	0.06	26.3
Approach			181	0.0	181	0.0	0.117	4.6	LOS A	0.7	4.6	0.06	0.53	0.06	32.3
West: The Cove Drive															
10	L2	All MCs	12	0.0	12	0.0	0.019	1.4	LOS A	0.1	0.7	0.37	0.21	0.37	24.4
11	T1	All MCs	8	0.0	8	0.0	0.019	1.1	LOS A	0.1	0.7	0.37	0.21	0.37	24.4
Approach			20	0.0	20	0.0	0.019	1.2	LOS A	0.1	0.7	0.37	0.21	0.37	24.4
All Vehicles			411	0.3	411	0.3	0.136	6.1	LOS A	0.7	4.8	0.08	0.57	0.08	30.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:29 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 103/C [21. 2024 Fullerton Cove Rd & Prop Main Site Access Fri PM Peak with Development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 13 June 2024 4:30PM to 5:30PM
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Rd (from The Cove RAB)															
2	T1	All MCs	76	1.4	76	1.4	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	122	0.0	122	0.0	0.072	5.7	LOS A	0.3	2.4	0.16	0.57	0.16	25.8
Approach			198	0.5	198	0.5	0.072	3.5	NA	0.3	2.4	0.10	0.35	0.10	27.4
East: Development Access Road															
4	L2	All MCs	119	0.0	119	0.0	0.080	1.2	LOS A	0.3	2.3	0.15	0.23	0.15	24.4
6	R2	All MCs	3	0.0	3	0.0	0.080	2.9	LOS A	0.3	2.3	0.15	0.23	0.15	24.4
Approach			122	0.0	122	0.0	0.080	1.3	LOS A	0.3	2.3	0.15	0.23	0.15	24.4
North: Fullerton Cove Rd (north)															
7	L2	All MCs	1	0.0	1	0.0	0.033	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	55.8
8	T1	All MCs	62	0.0	62	0.0	0.033	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.2
Approach			63	0.0	63	0.0	0.033	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.9
All Vehicles			383	0.3	383	0.3	0.080	2.2	NA	0.3	2.4	0.10	0.26	0.10	26.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:29 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 104/C [27. 2024 Fullerton Cove Rd & Prop Secondary Site access 2024 Fri PM Peak with development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T102/B [Friday PM Peak 2024 with Development (Network Folder: Friday PM Peak 2024 with Development)]

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 14 June 2024 4:30PM to 5:30PM
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Road south															
2	T1	All MCs	29	3.6	29	3.6	0.015	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	35	0.0	35	0.0	0.020	5.5	LOS A	0.1	0.6	0.11	0.56	0.11	28.9
Approach			64	1.6	64	1.6	0.020	3.0	NA	0.1	0.6	0.06	0.30	0.06	47.8
East: Site access															
4	L2	All MCs	35	0.0	35	0.0	0.053	1.1	LOS A	0.2	1.5	0.11	0.25	0.11	21.0
6	R2	All MCs	34	0.0	34	0.0	0.053	2.0	LOS A	0.2	1.5	0.11	0.25	0.11	46.3
Approach			68	0.0	68	0.0	0.053	1.5	LOS A	0.2	1.5	0.11	0.25	0.11	41.2
North: fullerton Cove Road north															
7	L2	All MCs	17	0.0	17	0.0	0.019	5.5	LOS A	0.0	0.0	0.00	0.27	0.00	45.4
8	T1	All MCs	20	0.0	20	0.0	0.019	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	55.4
Approach			37	0.0	37	0.0	0.019	2.5	NA	0.0	0.0	0.00	0.27	0.00	50.1
All Vehicles			169	0.6	169	0.6	0.053	2.3	NA	0.2	1.5	0.07	0.28	0.07	46.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:36:29 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

NETWORK LAYOUT

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development + 10YRS

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

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101/F	NA	6. 2024 Fri Exist RAB PM Peak Nelson Bay Rd + Development (Growth)
102/F	NA	15. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Fri PM Peak + Development (Growth)
103/D	NA	22. 2024 Fullerton Cove Rd & Prop Main Site Access Fri PM Peak with Development (Growth)

NETWORK SUMMARY

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.85		
Travel Time Index		8.28		
Congestion Coefficient		1.18		
Travel Speed (Average)	km/h	53.0	53.0	km/h
Travel Distance (Total)	veh-km/h	2913.7	3496.5	pers-km/h
Travel Time (Total)	veh-h/h	54.9	65.9	pers-h/h
Desired Speed	km/h	62.7		
Demand Flows (Total for all Sites)	veh/h	3696	4436	pers/h
Arrival Flows (Total for all Sites)	veh/h	3696	4436	pers/h
Demand Flows (Entry Total)	veh/h	2768		
Midblock Inflows (Total)	veh/h	11		
Midblock Outflows (Total)	veh/h	-23		
Percent Heavy Vehicles (Demand)	%	1.1		
Percent Heavy Vehicles (Arrival)	%	1.1		
Degree of Saturation		0.594		
Control Delay (Total)	veh-h/h	6.68	8.02	pers-h/h
Control Delay (Average)	sec	6.5	6.5	sec
Control Delay (Worst Lane by MC)	sec	13.8		
Control Delay (Worst Movement by MC)	sec	15.6	15.6	sec
Geometric Delay (Average)	sec	4.8		
Stop-Line Delay (Average)	sec	1.7		
Ave. Que Storage Ratio (Worst Lane)		0.03		
Effective Stops (Total)	veh/h	1816	2180	pers/h
Effective Stop Rate		0.49	0.49	
Proportion Queued		0.39	0.39	
Performance Index		91.7	91.7	
Cost (Total)	$/h	2662.74	2662.74	$/h
Fuel Consumption (Total)	L/h	282.9		
Fuel Economy	L/100km	9.7		
Carbon Dioxide (Total)	kg/h	666.9		
Hydrocarbons (Total)	kg/h	0.063		
Carbon Monoxide (Total)	kg/h	0.90		
NOx (Total)	kg/h	0.618		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	1,774,282	2,129,139	pers/y
Delay (Total)	veh-h/y	3,207	3,848	pers-h/y

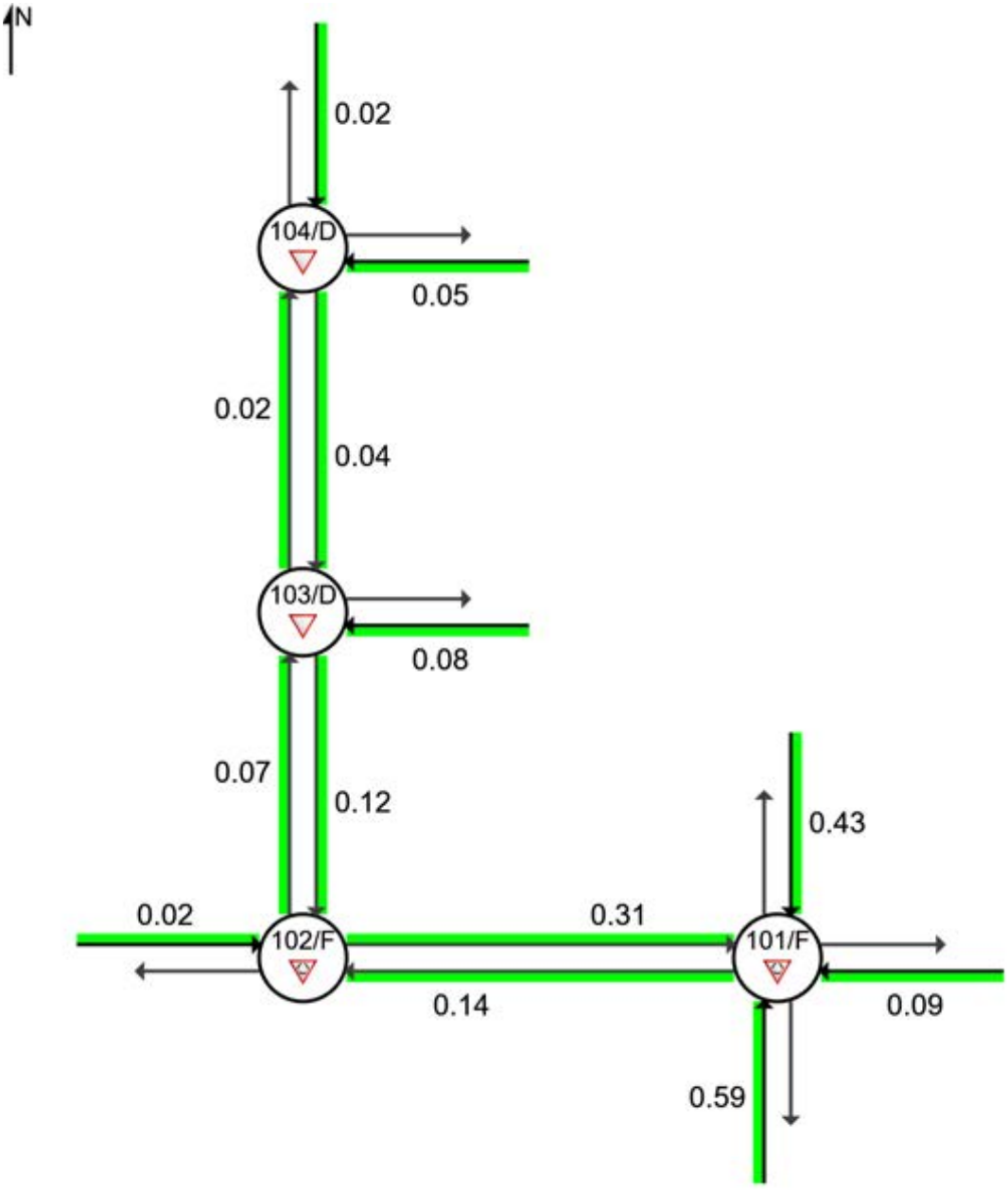
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Degree of Saturation

[< 0.6]	[0.6 – 0.7]	[0.7 – 0.8]	[0.8 – 0.9]	[0.9 – 1.0]	[> 1.0]

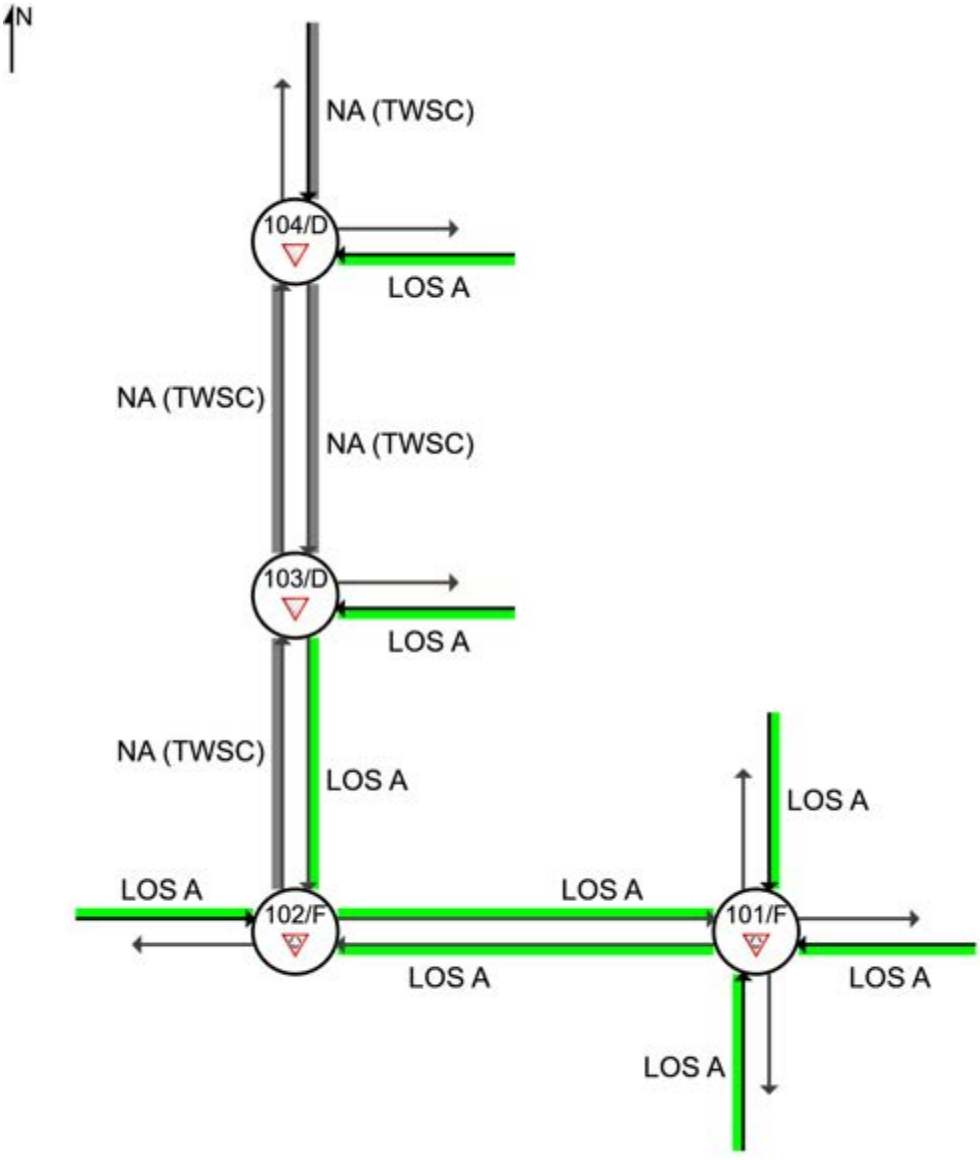
APPROACH LEVEL OF SERVICE

Approach Level of Service

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site

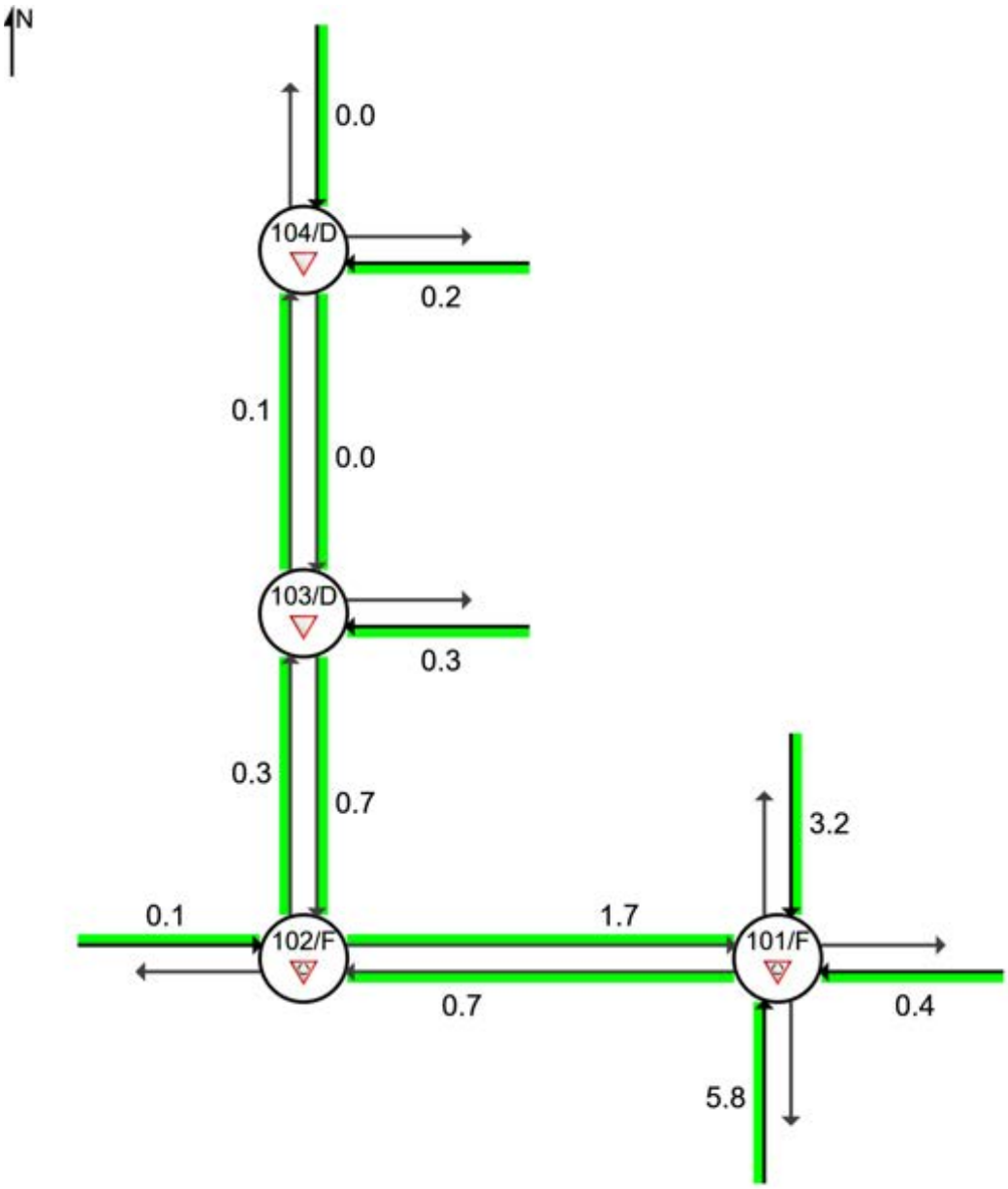
VEHICLE QUEUE (PERCENTILE)

Largest 95% Back of Queue for any lane on the approach (vehicles)

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

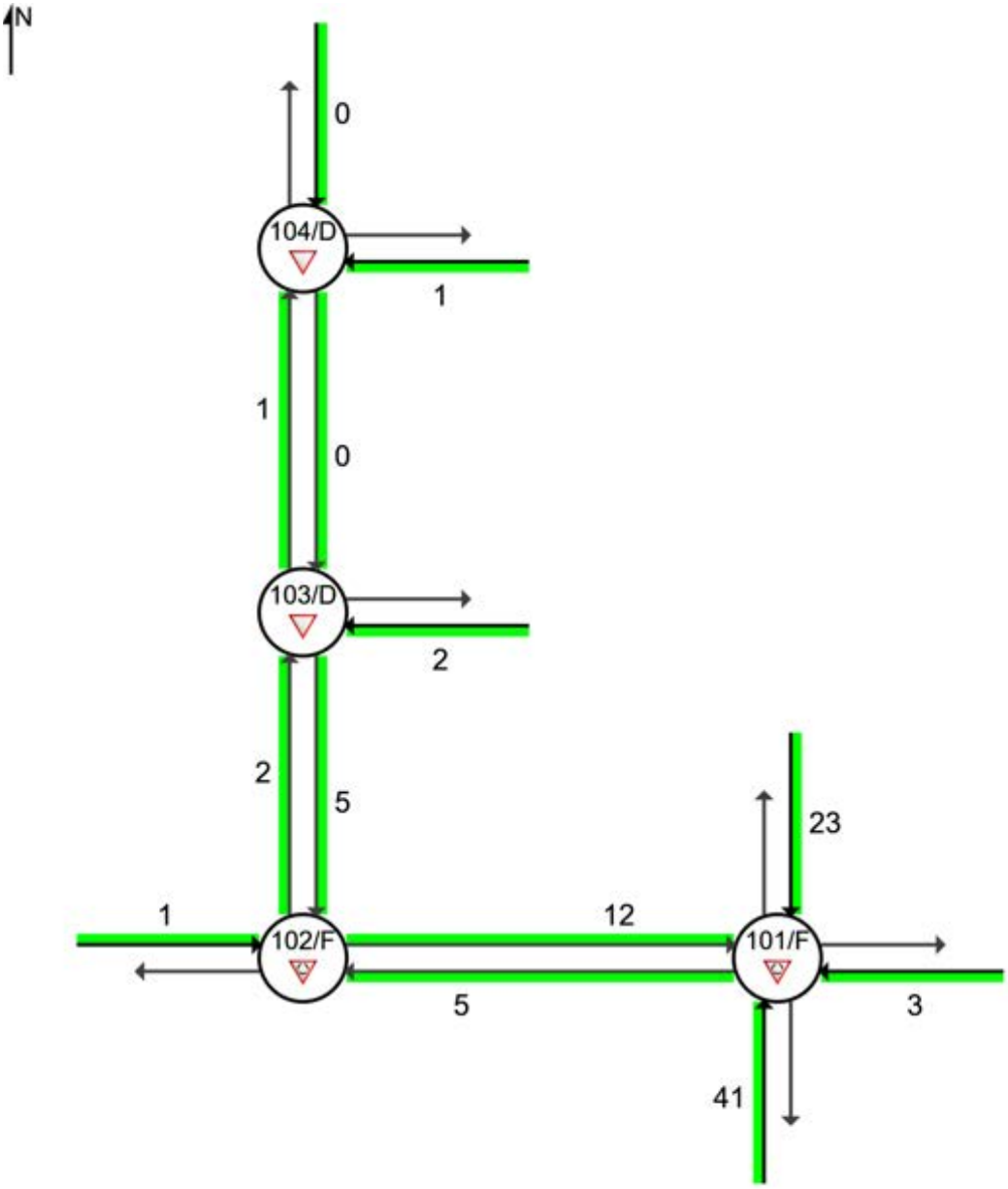
QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane on the approach (metres)

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 14 June 2024 4:30PM to 5:30PM
Network Category: Fri Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Queue Storage Ratio

[< 0.6]	[0.6 – 0.7]	[0.7 – 0.8]	[0.8 – 0.9]	[0.9 – 1.0]	[> 1.0]

MOVEMENT SUMMARY

Site: 101/F [6. 2024 Fri Exist RAB PM Peak Nelson Bay Rd + Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
14 June 2024 4:30PM to 5:30PM
Growth applied in Network Demand settings
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	156	0.0	156	0.0	0.409	4.9	LOS A	3.1	21.6	0.37	0.43	0.37	56.7
2	T1	All MCs	1160	1.4	1160	1.4	0.594	6.1	LOS A	5.8	41.4	0.40	0.46	0.40	60.1
3	R2	All MCs	251	1.5	251	1.5	0.594	11.5	LOS A	5.8	41.4	0.42	0.48	0.42	54.3
3u	U	All MCs	3	0.0	3	0.0	0.594	14.3	LOS A	5.8	41.4	0.42	0.48	0.42	58.3
Approach			1569	1.3	1569	1.3	0.594	6.9	LOS A	5.8	41.4	0.40	0.46	0.40	58.9
East: Seaside Boulevarde															
4	L2	All MCs	80	0.0	80	0.0	0.080	7.4	LOS A	0.4	2.9	0.64	0.64	0.64	55.8
5	T1	All MCs	36	0.0	36	0.0	0.093	5.8	LOS A	0.4	3.1	0.64	0.70	0.64	43.2
6	R2	All MCs	34	3.7	34	3.7	0.093	12.4	LOS A	0.4	3.1	0.64	0.70	0.64	51.5
6u	U	All MCs	1	0.0	1	0.0	0.093	14.8	LOS B	0.4	3.1	0.64	0.70	0.64	47.9
Approach			151	0.8	151	0.8	0.093	8.2	LOS A	0.4	3.1	0.64	0.67	0.64	52.6
North: Nelson Bay Road Williamtown															
7	L2	All MCs	20	6.3	20	6.3	0.208	7.1	LOS A	1.2	8.7	0.57	0.56	0.57	55.2
8	T1	All MCs	743	1.9	743	1.9	0.426	6.8	LOS A	3.2	22.7	0.62	0.56	0.62	59.1
9	R2	All MCs	25	5.0	25	5.0	0.426	12.9	LOS A	3.2	22.7	0.63	0.56	0.63	53.3
9u	U	All MCs	9	0.0	9	0.0	0.426	15.6	LOS B	3.2	22.7	0.63	0.56	0.63	57.7
Approach			797	2.1	797	2.1	0.426	7.1	LOS A	3.2	22.7	0.62	0.56	0.62	58.9
West: Fullerton Cove Road															
10	L2	All MCs	23	0.0	23	0.0	0.309	12.5	LOS A	1.7	11.6	0.81	0.85	0.81	48.1
11	T1	All MCs	37	0.0	37	0.0	0.309	9.3	LOS A	1.7	11.6	0.81	0.85	0.81	42.6
12	R2	All MCs	127	0.0	127	0.0	0.309	15.3	LOS B	1.7	11.6	0.81	0.85	0.81	47.3
Approach			187	0.0	187	0.0	0.309	13.8	LOS A	1.7	11.6	0.81	0.85	0.81	46.5
All Vehicles			2704	1.4	2704	1.4	0.594	7.5	LOS A	5.8	41.4	0.51	0.53	0.51	57.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 104/D [28. 2024 Fullerton Cove Rd & Prop Secondary Site access 2024 Fri PM Peak with development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 14 June 2024 4:30PM to 5:30PM
Growth applied in Network Demand settings
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Road south															
2	T1	All MCs	35	3.6	35	3.6	0.019	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	35	0.0	35	0.0	0.020	5.6	LOS A	0.1	0.6	0.12	0.56	0.12	28.9
Approach			70	1.8	70	1.8	0.020	2.8	NA	0.1	0.6	0.06	0.28	0.06	49.1
East: Site access															
4	L2	All MCs	35	0.0	35	0.0	0.053	1.1	LOS A	0.2	1.5	0.12	0.26	0.12	21.0
6	R2	All MCs	34	0.0	34	0.0	0.053	2.0	LOS A	0.2	1.5	0.12	0.26	0.12	46.2
Approach			68	0.0	68	0.0	0.053	1.6	LOS A	0.2	1.5	0.12	0.26	0.12	41.1
North: fullerton Cove Road north															
7	L2	All MCs	17	0.0	17	0.0	0.021	5.5	LOS A	0.0	0.0	0.00	0.24	0.00	45.6
8	T1	All MCs	24	0.0	24	0.0	0.021	0.0	LOS A	0.0	0.0	0.00	0.24	0.00	55.8
Approach			41	0.0	41	0.0	0.021	2.3	NA	0.0	0.0	0.00	0.24	0.00	50.9
All Vehicles			179	0.7	179	0.7	0.053	2.2	NA	0.2	1.5	0.07	0.26	0.07	46.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:37:26 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 102/F [15. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Fri PM Peak + Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

2024 Friday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
14 June 2024 4:30PM to 5:30PM
Growth applied in Network Demand settings
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Fullerton Cove Rd (from Nelson Bar RAB)															
5	T1	All MCs	17	0.0	17	0.0	0.139	5.1	LOS A	0.7	5.0	0.06	0.64	0.06	26.8
6	R2	All MCs	198	0.6	198	0.6	0.139	8.1	LOS A	0.7	5.0	0.06	0.64	0.06	33.6
Approach			215	0.6	215	0.6	0.139	7.8	LOS A	0.7	5.0	0.06	0.64	0.06	31.6
North: Fullerton Cove Road (north)															
7	L2	All MCs	176	0.0	176	0.0	0.120	4.5	LOS A	0.7	4.7	0.06	0.53	0.06	34.7
9	R2	All MCs	9	0.0	9	0.0	0.120	8.1	LOS A	0.7	4.7	0.06	0.53	0.06	26.3
Approach			186	0.0	186	0.0	0.120	4.6	LOS A	0.7	4.7	0.06	0.53	0.06	32.4
West: The Cove Drive															
10	L2	All MCs	12	0.0	12	0.0	0.019	1.4	LOS A	0.1	0.7	0.37	0.21	0.37	24.4
11	T1	All MCs	8	0.0	8	0.0	0.019	1.1	LOS A	0.1	0.7	0.37	0.21	0.37	24.4
Approach			20	0.0	20	0.0	0.019	1.3	LOS A	0.1	0.7	0.37	0.21	0.37	24.4
All Vehicles			421	0.3	421	0.3	0.139	6.1	LOS A	0.7	5.0	0.08	0.57	0.08	30.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:37:26 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 103/D [22. 2024 Fullerton Cove Rd & Prop Main Site Access Fri PM Peak with Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T102/C [Friday PM Peak with Development + Growth 2034 (Network Folder: Friday PM Peak with Development + Growth 2034)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 13 June 2024 4:30PM to 5:30PM
Growth applied in Network Demand settings
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Rd (from The Cove RAB)															
2	T1	All MCs	81	1.6	81	1.6	0.043	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	122	0.0	122	0.0	0.072	5.7	LOS A	0.3	2.4	0.17	0.57	0.17	25.8
Approach			203	0.6	203	0.6	0.072	3.4	NA	0.3	2.4	0.10	0.34	0.10	27.5
East: Development Access Road															
4	L2	All MCs	119	0.0	119	0.0	0.080	1.3	LOS A	0.3	2.3	0.16	0.23	0.16	24.4
6	R2	All MCs	3	0.0	3	0.0	0.080	3.0	LOS A	0.3	2.3	0.16	0.23	0.16	24.4
Approach			122	0.0	122	0.0	0.080	1.3	LOS A	0.3	2.3	0.16	0.23	0.16	24.4
North: Fullerton Cove Rd (north)															
7	L2	All MCs	1	0.0	1	0.0	0.035	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	55.8
8	T1	All MCs	67	0.0	67	0.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.1
Approach			68	0.0	68	0.0	0.035	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.7
All Vehicles			393	0.3	393	0.3	0.080	2.2	NA	0.3	2.4	0.10	0.25	0.10	26.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

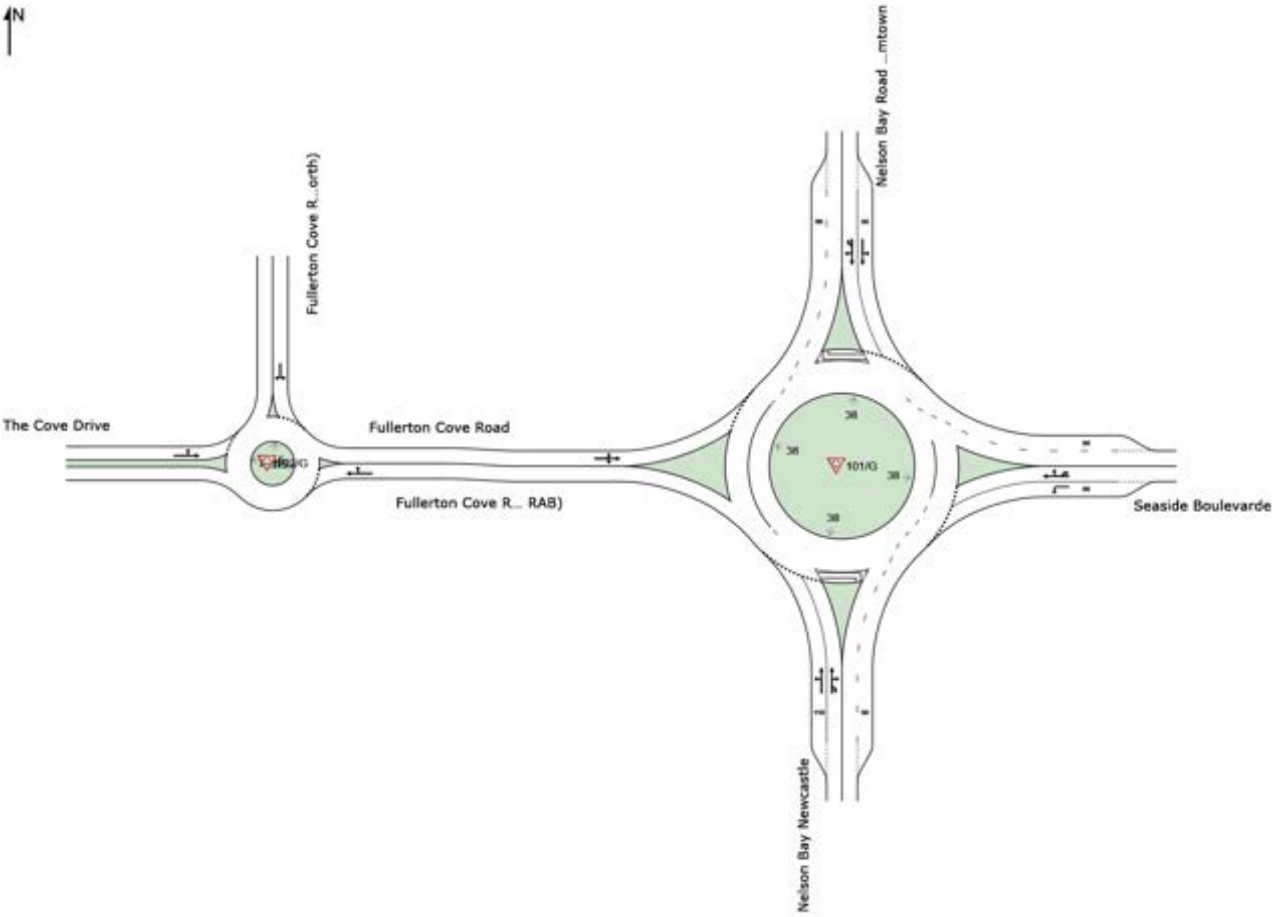
Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:37:26 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

NETWORK LAYOUT

Network: T103/A [Saturday Midday Peak Existing 2024 (Network Folder: Saturday Midday Peak Existing 2024)]

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows
15 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Sat Base Year Existing

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



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101/G	NA	7. 2024 Sat Exist RAB Late Morning Peak Nelson Bay Rd
102/G	NA	16. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Sat Late Morning Peak

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Created: Saturday, 28 September 2024 7:03:54 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

NETWORK SUMMARY

Network: T103/A [Saturday Midday Peak Existing 2024 (Network Folder: Saturday Midday Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows
15 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Sat Base Year Existing

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.86		
Travel Time Index		8.43		
Congestion Coefficient		1.16		
Travel Speed (Average)	km/h	57.6	57.6	km/h
Travel Distance (Total)	veh-km/h	1493.9	1792.7	pers-km/h
Travel Time (Total)	veh-h/h	25.9	31.1	pers-h/h
Desired Speed	km/h	67.0		
Demand Flows (Total for all Sites)	veh/h	1594	1912	pers/h
Arrival Flows (Total for all Sites)	veh/h	1594	1912	pers/h
Demand Flows (Entry Total)	veh/h	1465		
Midblock Inflows (Total)	veh/h	0		
Midblock Outflows (Total)	veh/h	-1		
Percent Heavy Vehicles (Demand)	%	1.1		
Percent Heavy Vehicles (Arrival)	%	1.1		
Degree of Saturation		0.319		
Control Delay (Total)	veh-h/h	2.70	3.24	pers-h/h
Control Delay (Average)	sec	6.1	6.1	sec
Control Delay (Worst Lane by MC)	sec	11.7		
Control Delay (Worst Movement by MC)	sec	14.4	14.4	sec
Geometric Delay (Average)	sec	5.2		
Stop-Line Delay (Average)	sec	0.9		
Ave. Que Storage Ratio (Worst Lane)		0.01		
Effective Stops (Total)	veh/h	753	904	pers/h
Effective Stop Rate		0.47	0.47	
Proportion Queued		0.29	0.29	
Performance Index		37.1	37.1	
Cost (Total)	$/h	1258.47	1258.47	$/h
Fuel Consumption (Total)	L/h	134.0		
Fuel Economy	L/100km	9.0		
Carbon Dioxide (Total)	kg/h	315.5		
Hydrocarbons (Total)	kg/h	0.030		
Carbon Monoxide (Total)	kg/h	0.46		
NOx (Total)	kg/h	0.241		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	764,968	917,962	pers/y
Delay (Total)	veh-h/y	1,297	1,556	pers-h/y
Effective Stops (Total)	veh/y	361,429	433,715	pers/y
Travel Distance (Total)	veh-km/y	717,076	860,492	pers-km/y
Travel Time (Total)	veh-h/y	12,455	14,946	pers-h/y

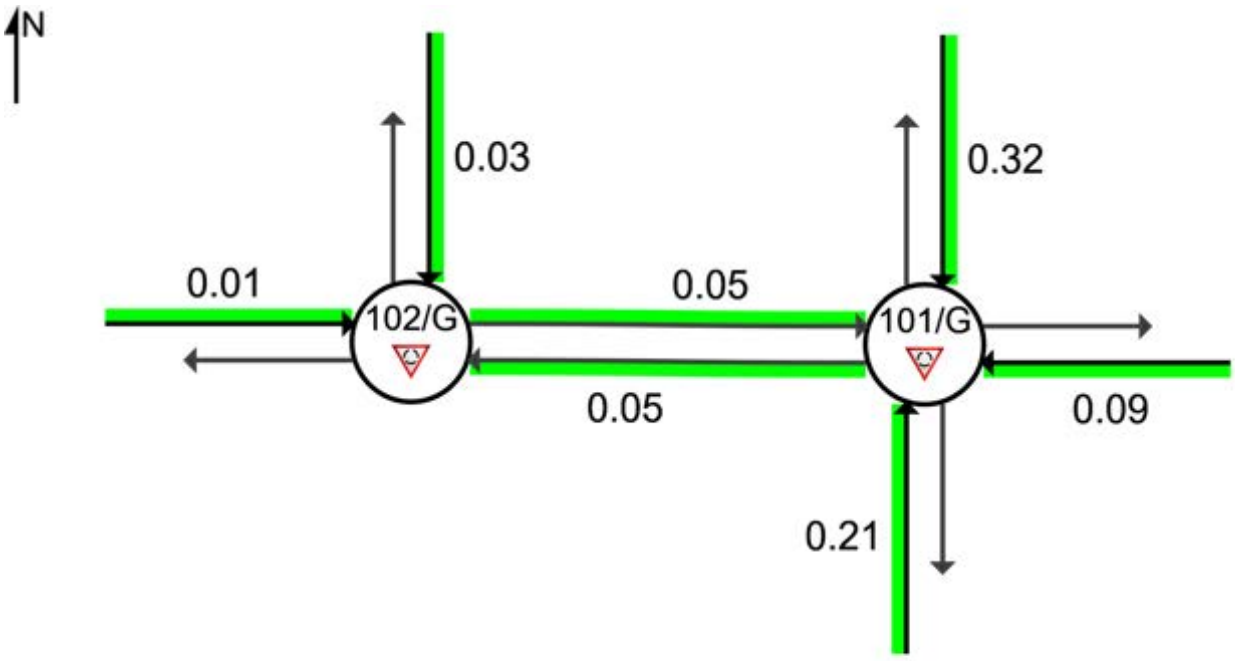
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

Network: T103/A [Saturday Midday Peak Existing 2024 (Network Folder: Saturday Midday Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows
15 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Sat Base Year Existing



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:24 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

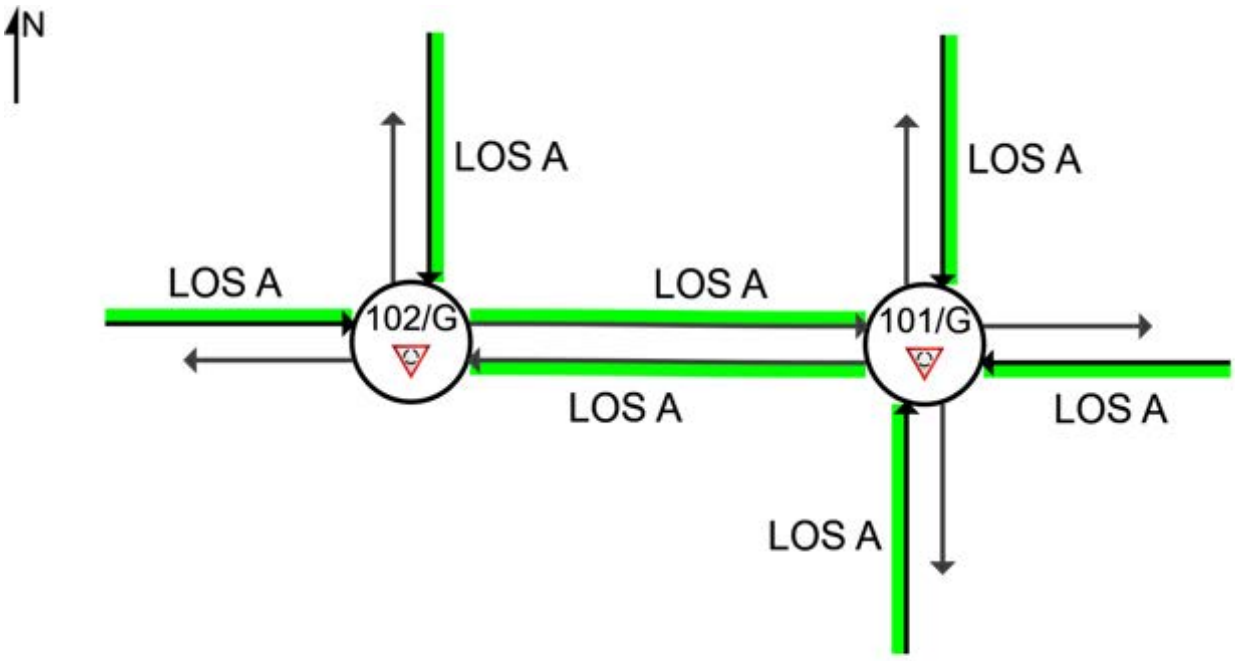
APPROACH LEVEL OF SERVICE

Approach Level of Service

Network: T103/A [Saturday Midday Peak Existing 2024 (Network Folder: Saturday Midday Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows
15 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Sat Base Year Existing



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:24 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

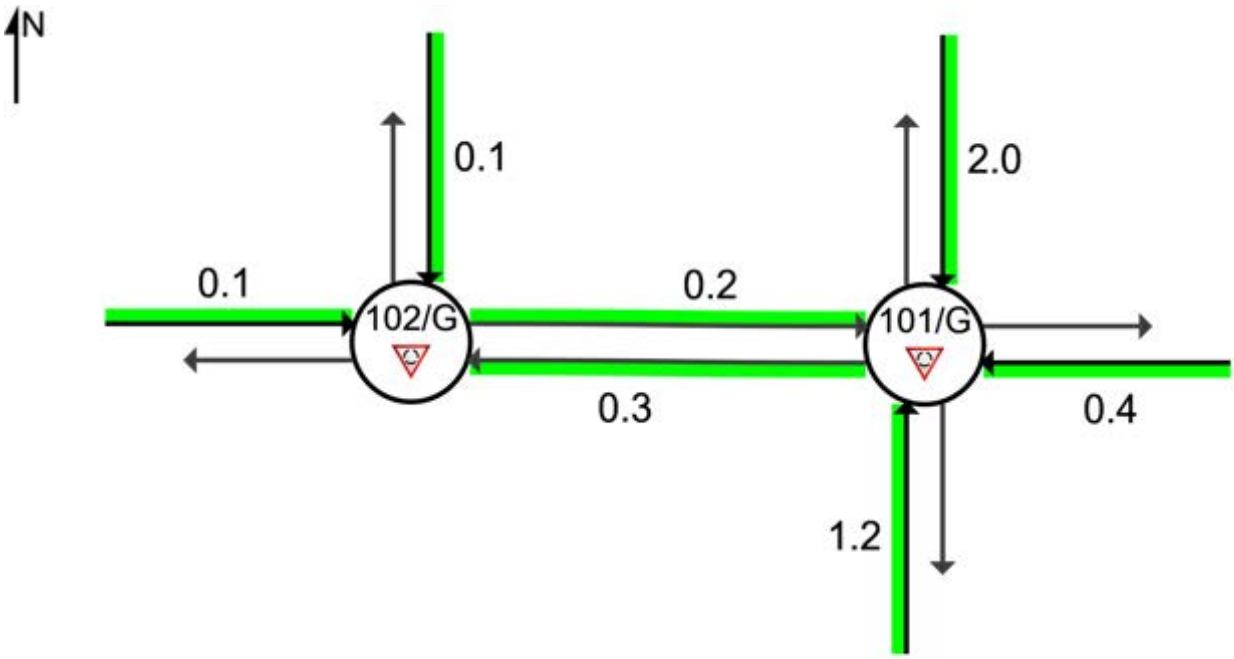
VEHICLE QUEUE (PERCENTILE)

Largest 95% Back of Queue for any lane on the approach (vehicles)

Network: T103/A [Saturday Midday Peak Existing 2024 (Network Folder: Saturday Midday Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows
15 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Sat Base Year Existing



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:24 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

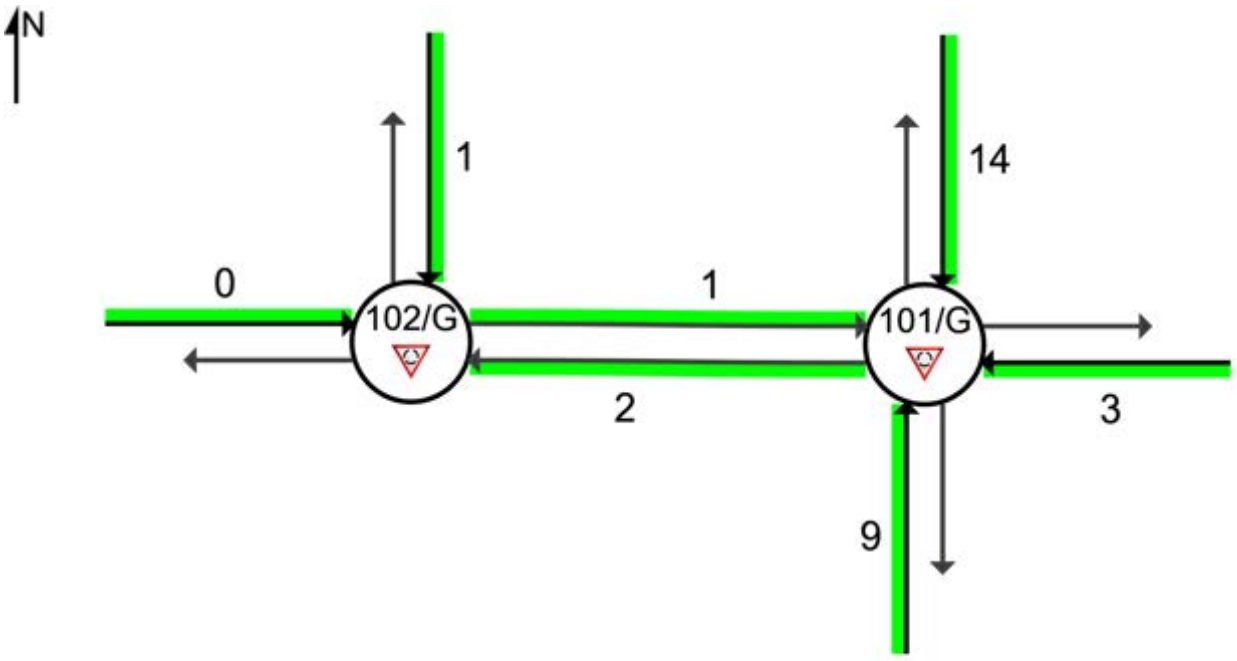
QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane on the approach (metres)

Network: T103/A [Saturday Midday Peak Existing 2024 (Network Folder: Saturday Midday Peak Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows
15 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Sat Base Year Existing



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:24 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MIDBLOCK INFLOWS & OUTFLOWS FOR NETWORK

Midblock Inflow (positive) and Outflow (negative) values determined as the difference between upstream and downstream demand flow rates (veh/h)

Network: T103/A [Saturday Midday Peak Existing 2024 (Network Folder: Saturday Midday Peak Existing 2024)]

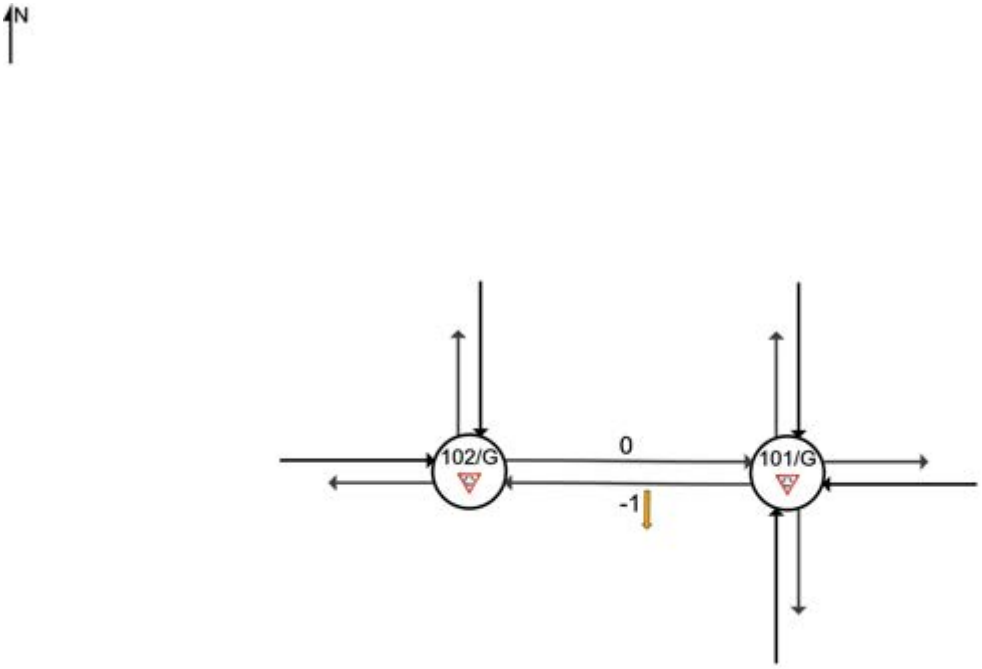
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows
15 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Sat Base Year Existing

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups

All Movement Classes (*)



Any Initial Queued Demand and Capacity Constraint adjustments are not included in Demand Flow Rates.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:24 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 101/G [7. 2024 Sat Exist RAB Late Morning Peak Nelson Bay Rd (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/A [Saturday Midday Peak Existing 2024 (Network Folder: Saturday Midday Peak Existing 2024)]

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows
15 June 2024 4:30PM to 5:30PM
Existing without development
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	42	2.5	42	2.5	0.143	4.7	LOS A	0.8	5.4	0.23	0.40	0.23	58.1
2	T1	All MCs	406	0.5	406	0.5	0.208	4.8	LOS A	1.2	8.5	0.23	0.45	0.23	61.0
3	R2	All MCs	107	2.0	107	2.0	0.208	11.2	LOS A	1.2	8.5	0.22	0.48	0.22	55.0
3u	U	All MCs	3	0.0	3	0.0	0.208	14.0	LOS A	1.2	8.5	0.22	0.48	0.22	59.0
Approach			559	0.9	559	0.9	0.208	6.1	LOS A	1.2	8.5	0.23	0.45	0.23	59.7
East: Seaside Boulevarde															
4	L2	All MCs	101	0.0	101	0.0	0.088	6.3	LOS A	0.4	2.8	0.53	0.59	0.53	56.3
5	T1	All MCs	1	0.0	1	0.0	0.042	5.4	LOS A	0.2	1.2	0.54	0.73	0.54	41.2
6	R2	All MCs	32	0.0	32	0.0	0.042	11.9	LOS A	0.2	1.2	0.54	0.73	0.54	50.7
6u	U	All MCs	1	0.0	1	0.0	0.042	14.4	LOS A	0.2	1.2	0.54	0.73	0.54	46.4
Approach			135	0.0	135	0.0	0.088	7.6	LOS A	0.4	2.8	0.54	0.63	0.54	54.7
North: Nelson Bay Road Williamtown															
7	L2	All MCs	4	0.0	4	0.0	0.156	5.2	LOS A	0.8	5.8	0.33	0.42	0.33	56.9
8	T1	All MCs	671	0.8	671	0.8	0.319	5.2	LOS A	2.0	14.4	0.33	0.44	0.33	60.9
9	R2	All MCs	42	2.5	42	2.5	0.319	11.5	LOS A	2.0	14.4	0.34	0.44	0.34	56.1
9u	U	All MCs	6	0.0	6	0.0	0.319	14.3	LOS A	2.0	14.4	0.34	0.44	0.34	59.4
Approach			723	0.9	723	0.9	0.319	5.7	LOS A	2.0	14.4	0.33	0.44	0.33	60.7
West: Fullerton Cove Road															
10	L2	All MCs	6	16.7	6	16.7	0.045	5.6	LOS A	0.2	1.3	0.46	0.67	0.46	49.8
11	T1	All MCs	2	50.0	2	50.0	0.045	5.8	LOS A	0.2	1.3	0.46	0.67	0.46	44.6
12	R2	All MCs	36	0.0	36	0.0	0.045	10.9	LOS A	0.2	1.3	0.46	0.67	0.46	49.8
Approach			44	4.8	44	4.8	0.045	9.9	LOS A	0.2	1.3	0.46	0.67	0.46	49.6
All Vehicles			1461	0.9	1461	0.9	0.319	6.1	LOS A	2.0	14.4	0.31	0.47	0.31	59.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102/G [16. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Sat Late Morning Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/A [Saturday Midday Peak Existing 2024 (Network Folder: Saturday Midday Peak Existing 2024)]

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows
15 June 2024 4:30PM to 5:30PM
Existing without development
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Fullerton Cove Rd (from Nelson Bar RAB)															
5	T1	All MCs	34	0.0	34	0.0	0.054	5.1	LOS A	0.3	1.8	0.03	0.61	0.03	27.0
6	R2	All MCs	51	4.2	51	4.2	0.054	8.1	LOS A	0.3	1.8	0.03	0.61	0.03	37.1
Approach			84	2.5	84	2.5	0.054	6.9	LOS A	0.3	1.8	0.03	0.61	0.03	30.1
North: Fullerton Cove Road (north)															
7	L2	All MCs	33	6.5	33	6.5	0.027	4.5	LOS A	0.1	0.9	0.07	0.53	0.07	34.3
9	R2	All MCs	3	0.0	3	0.0	0.027	8.1	LOS A	0.1	0.9	0.07	0.53	0.07	26.2
Approach			36	5.9	36	5.9	0.027	4.8	LOS A	0.1	0.9	0.07	0.53	0.07	31.0
West: The Cove Drive															
10	L2	All MCs	1	0.0	1	0.0	0.010	0.6	LOS A	0.1	0.4	0.18	0.06	0.18	26.6
11	T1	All MCs	12	0.0	12	0.0	0.010	0.3	LOS A	0.1	0.4	0.18	0.06	0.18	24.7
Approach			13	0.0	13	0.0	0.010	0.3	LOS A	0.1	0.4	0.18	0.06	0.18	24.9
All Vehicles			133	3.2	133	3.2	0.054	5.7	LOS A	0.3	1.8	0.05	0.54	0.05	29.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

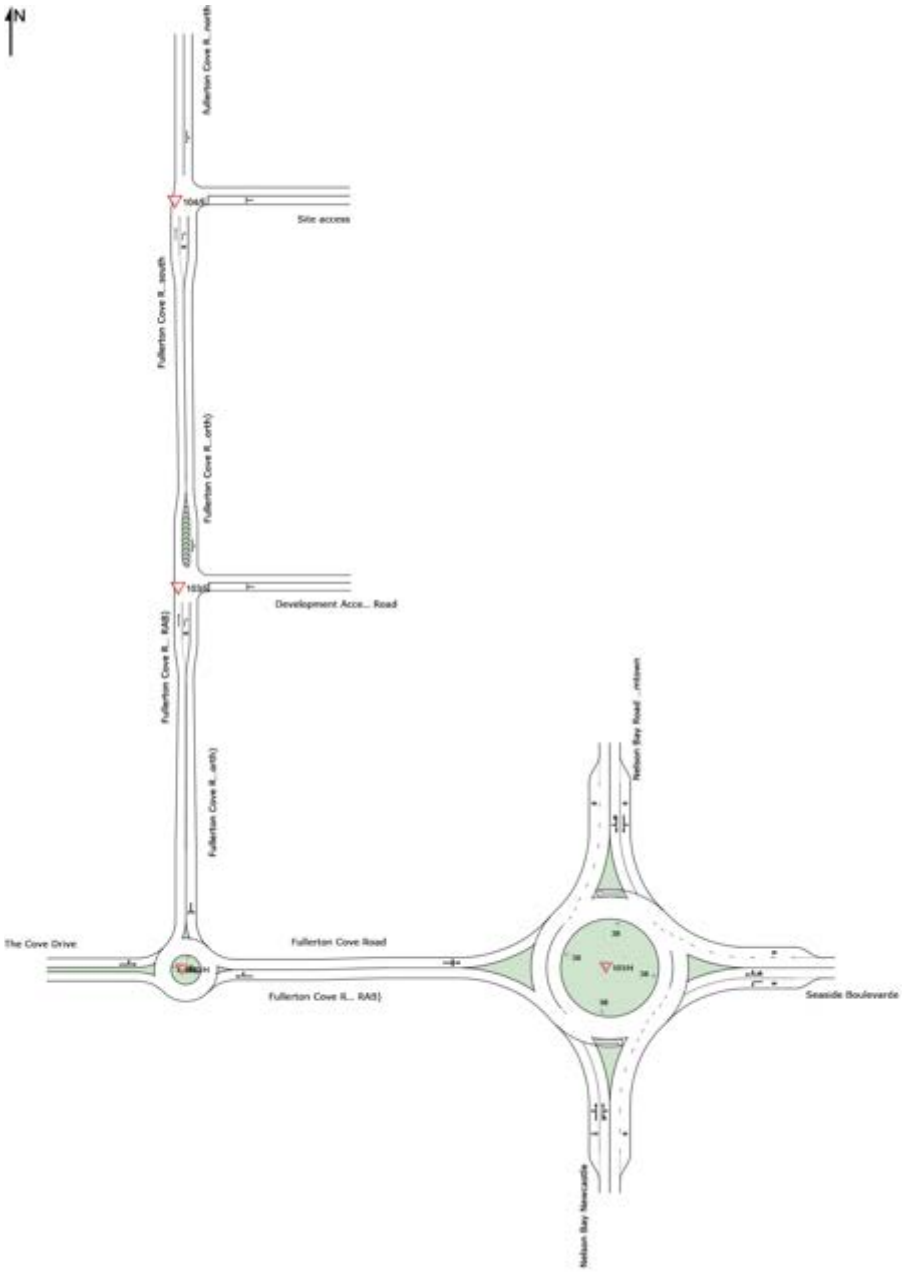
Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:24 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

NETWORK LAYOUT

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elemenst" and Shopping Centre Development (includiing trip redistributions)
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development

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



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101/H	NA	8. 2024 Sat Exist RAB Late Morning Peak Nelson Bay Rd - Development
102/H	NA	17. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Sat Late Morning Peak + Development
103/E	NA	23. 2024 Fullerton Cove Rd & Prop Main Site Access Sat Late Morn Peak with Development

NETWORK SUMMARY

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elemenst" and Shopping Centre Development (includiing trip redistributions)
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development

Network Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Network Level of Service (LOS)		LOS B	
Speed Efficiency		0.86	
Travel Time Index		8.48	
Congestion Coefficient		1.16	
Travel Speed (Average)	km/h	49.2	49.2 km/h
Travel Distance (Total)	veh-km/h	1993.8	2392.5 pers-km/h
Travel Time (Total)	veh-h/h	40.5	48.6 pers-h/h
Desired Speed	km/h	57.0	
Demand Flows (Total for all Sites)	veh/h	3012	3614 pers/h
Arrival Flows (Total for all Sites)	veh/h	3012	3614 pers/h
Demand Flows (Entry Total)	veh/h	1856	
Midblock Inflows (Total)	veh/h	4	
Midblock Outflows (Total)	veh/h	-17	
Percent Heavy Vehicles (Demand)	%	0.9	
Percent Heavy Vehicles (Arrival)	%	0.9	
Degree of Saturation		0.360	
Control Delay (Total)	veh-h/h	4.83	5.80 pers-h/h
Control Delay (Average)	sec	5.8	5.8 sec
Control Delay (Worst Lane by MC)	sec	9.3	
Control Delay (Worst Movement by MC)	sec	15.0	15.0 sec
Geometric Delay (Average)	sec	4.8	
Stop-Line Delay (Average)	sec	1.0	
Ave. Que Storage Ratio (Worst Lane)		0.02	
Effective Stops (Total)	veh/h	1459	1751 pers/h
Effective Stop Rate		0.48	0.48
Proportion Queued		0.31	0.31
Performance Index		64.2	64.2
Cost (Total)	$/h	1938.12	1938.12 $/h
Fuel Consumption (Total)	L/h	199.2	
Fuel Economy	L/100km	10.0	
Carbon Dioxide (Total)	kg/h	468.8	
Hydrocarbons (Total)	kg/h	0.044	
Carbon Monoxide (Total)	kg/h	0.60	
NOx (Total)	kg/h	0.322	

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %
Number of Iterations: 5 (Maximum: 30)
Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%
Network Level of Service (LOS) Method: SIDRA Speed Efficiency.
Software Setup used: Standard Left.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total for all Sites)	veh/y	1,445,558	1,734,670 pers/y
Delay (Total)	veh-h/y	2,319	2,783 pers-h/y
Effective Stops (Total)	veh/y	700,358	840,430 pers/y
Travel Distance (Total)	veh-km/y	957,014	1,148,417 pers-km/y

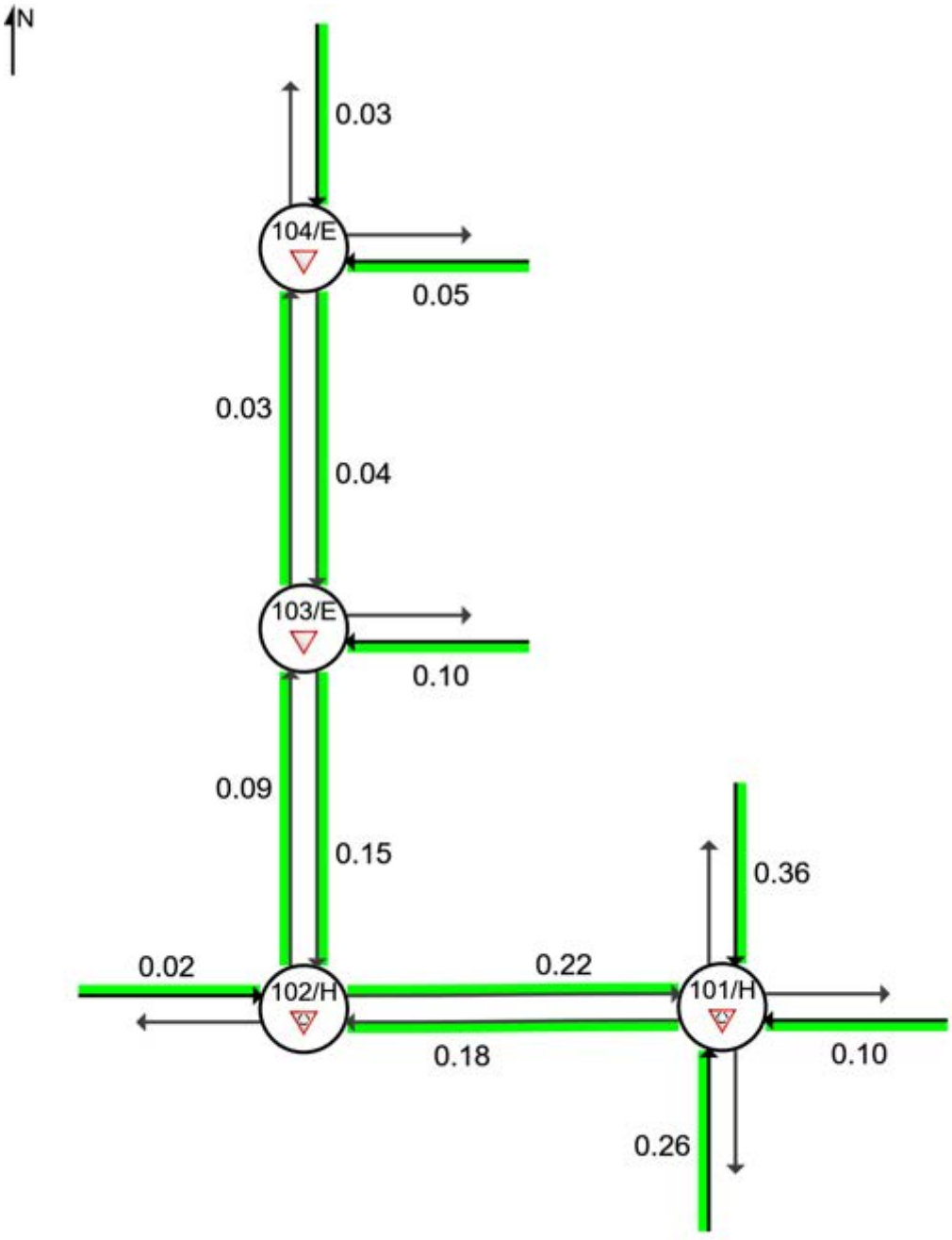
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elemenst" and Shopping Centre Development (includiing trip redistributions)
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development



Colour code based on Degree of Saturation

[< 0.6]	[0.6 – 0.7]	[0.7 – 0.8]	[0.8 – 0.9]	[0.9 – 1.0]	[> 1.0]

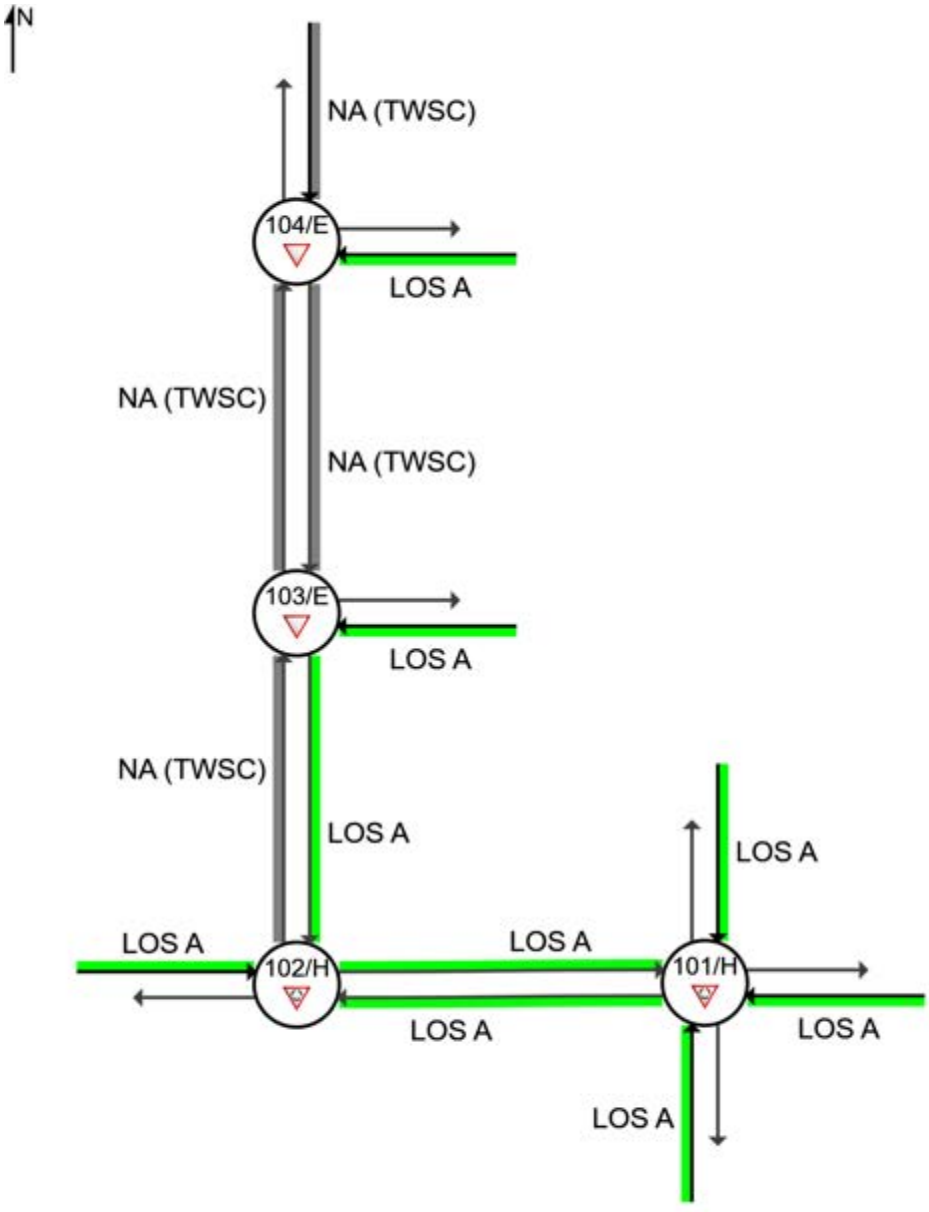
APPROACH LEVEL OF SERVICE

Approach Level of Service

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elemenst" and Shopping Centre Development (includiing trip redistributions)
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site

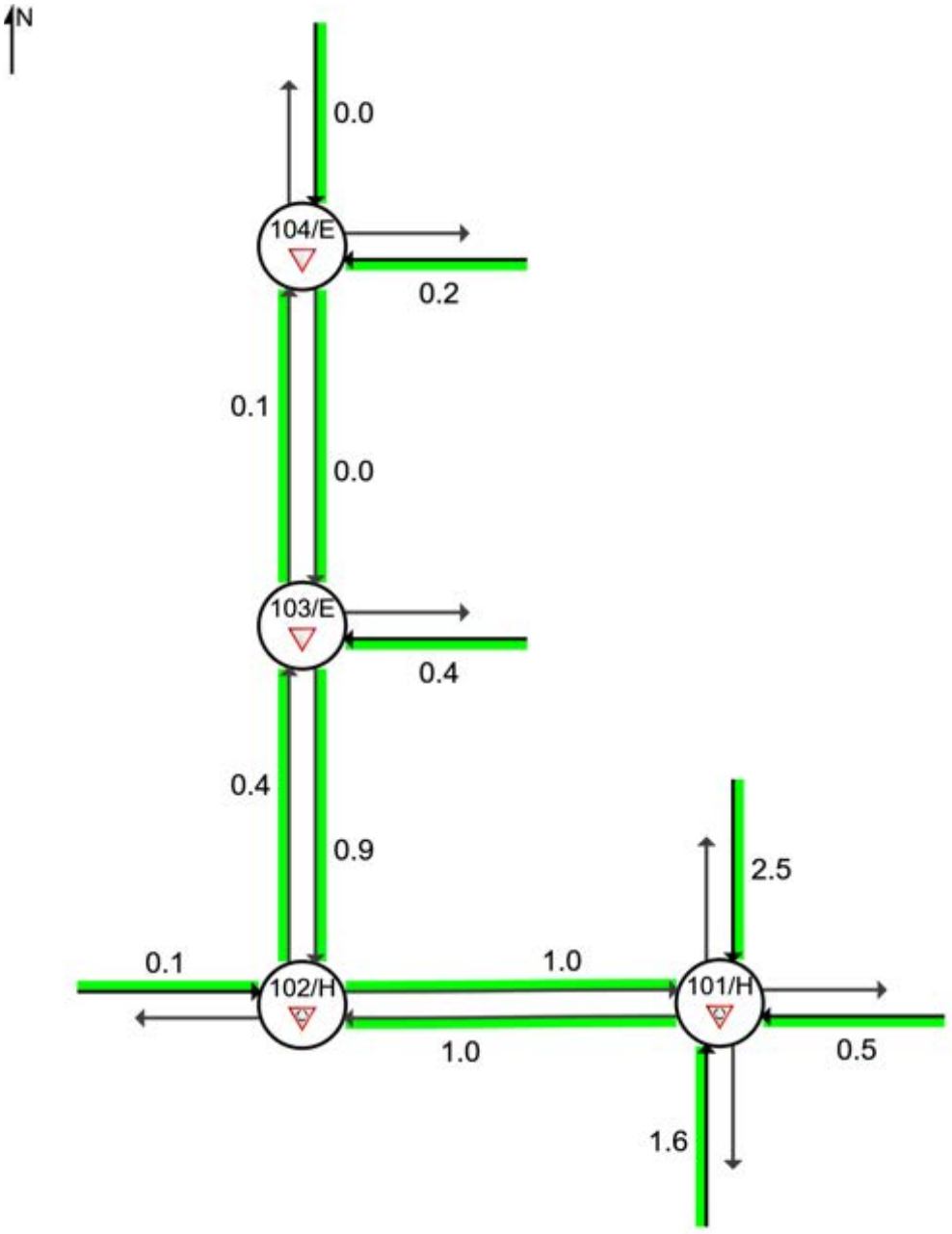
VEHICLE QUEUE (PERCENTILE)

Largest 95% Back of Queue for any lane on the approach (vehicles)

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elemenst" and Shopping Centre Development (includiing trip redistributions)
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

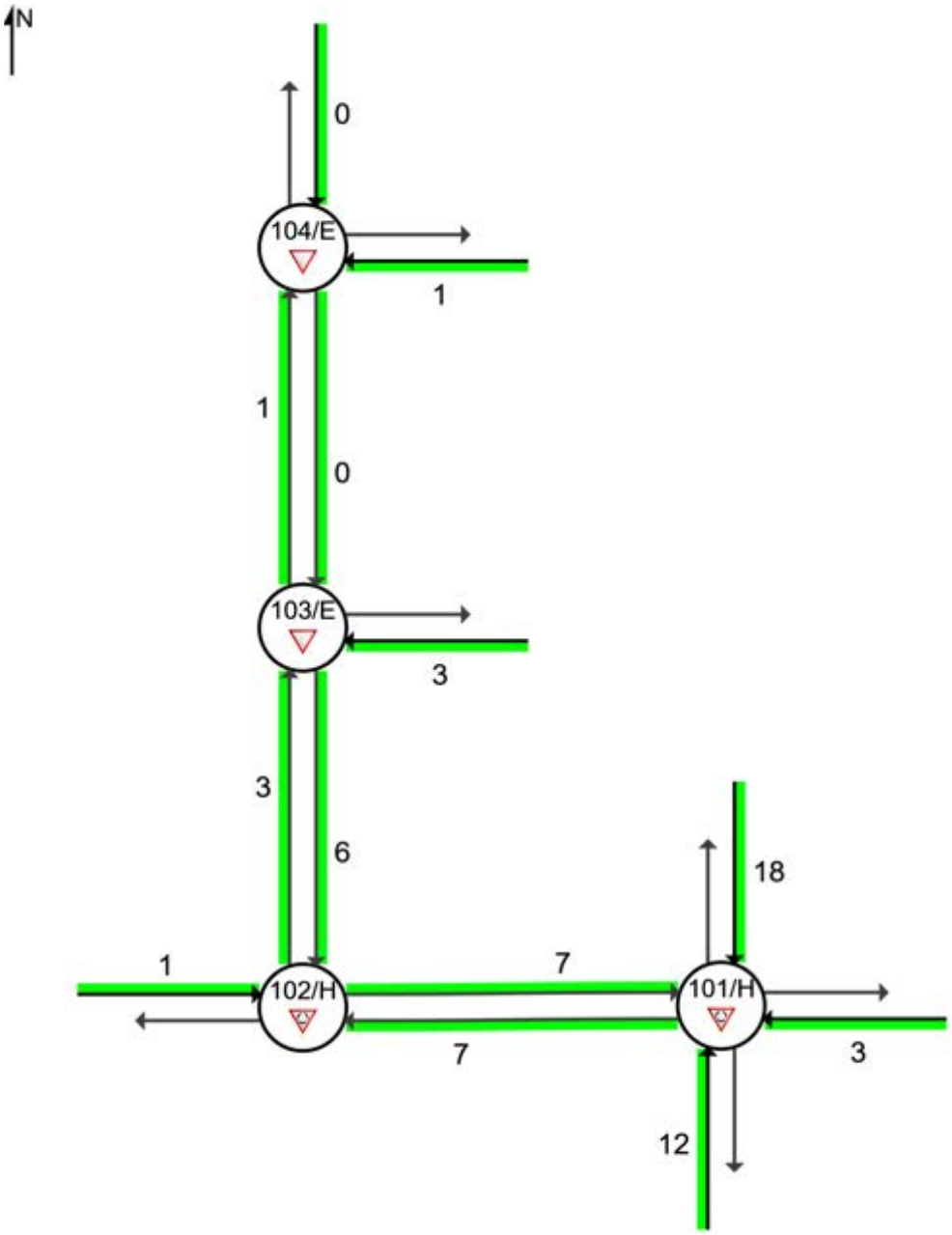
QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane on the approach (metres)

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elemenst" and Shopping Centre Development (includiing trip redistributions)
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development



Colour code based on Queue Storage Ratio

[< 0.6]	[0.6 – 0.7]	[0.7 – 0.8]	[0.8 – 0.9]	[0.9 – 1.0]	[> 1.0]

MIDBLOCK INFLOWS & OUTFLOWS FOR NETWORK

Midblock Inflow (positive) and Outflow (negative) values determined as the difference between upstream and downstream demand flow rates (veh/h)

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

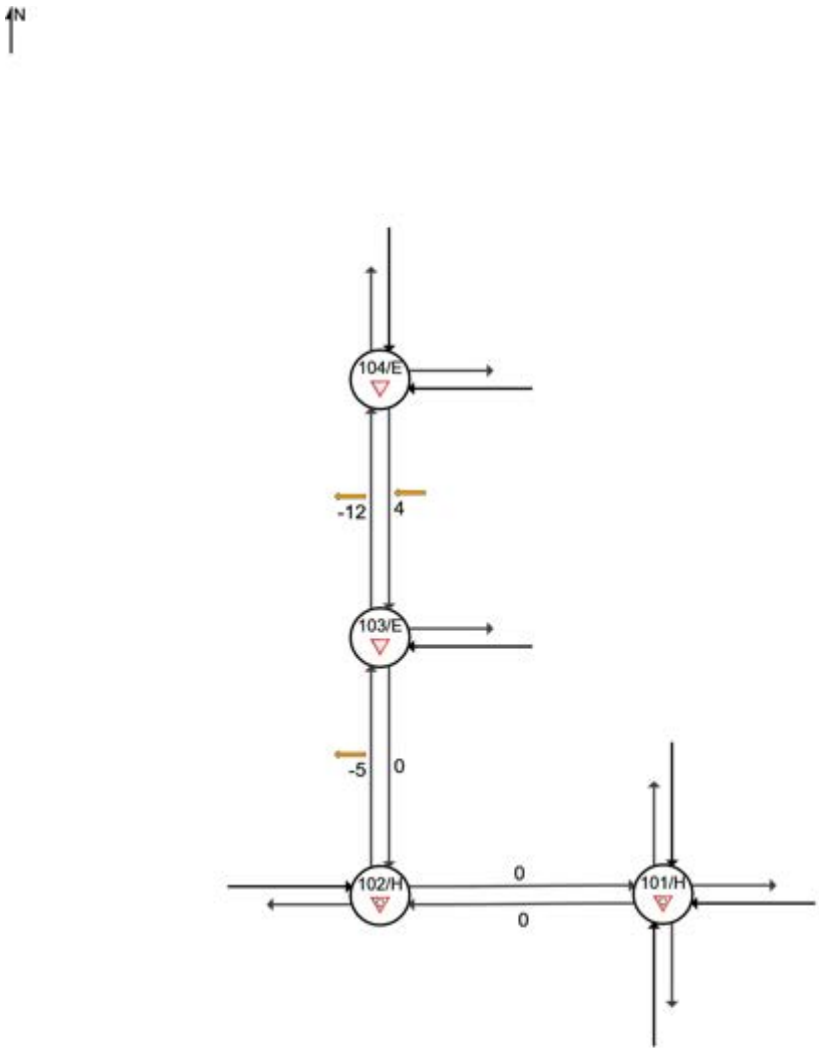
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elemenst" and Shopping Centre Development (includiing trip redistributions)
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Open All Popups

All Movement Classes (*)



Any Initial Queued Demand and Capacity Constraint adjustments are not included in Demand Flow Rates.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:52 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 101/H [8. 2024 Sat Exist RAB Late Morning Peak Nelson Bay Rd - Development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
15 June 2024 4:30PM to 5:30PM

Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	162	0.6	162	0.6	0.180	5.0	LOS A	1.0	7.1	0.35	0.47	0.35	57.1
2	T1	All MCs	387	0.5	387	0.5	0.261	5.0	LOS A	1.6	11.6	0.34	0.48	0.34	60.2
3	R2	All MCs	107	2.0	107	2.0	0.261	11.5	LOS A	1.6	11.6	0.34	0.49	0.34	54.6
3u	U	All MCs	3	0.0	3	0.0	0.261	14.3	LOS A	1.6	11.6	0.34	0.49	0.34	58.7
Approach			660	0.8	660	0.8	0.261	6.1	LOS A	1.6	11.6	0.34	0.48	0.34	58.8
East: Seaside Boulevarde															
4	L2	All MCs	101	0.0	101	0.0	0.096	7.0	LOS A	0.5	3.4	0.61	0.63	0.61	56.0
5	T1	All MCs	43	0.0	43	0.0	0.093	5.7	LOS A	0.4	3.0	0.61	0.67	0.61	43.7
6	R2	All MCs	32	0.0	32	0.0	0.093	12.1	LOS A	0.4	3.0	0.61	0.67	0.61	52.7
6u	U	All MCs	1	0.0	1	0.0	0.093	14.6	LOS B	0.4	3.0	0.61	0.67	0.61	48.3
Approach			177	0.0	177	0.0	0.096	7.6	LOS A	0.5	3.4	0.61	0.65	0.61	53.2
North: Nelson Bay Road Williamtown															
7	L2	All MCs	4	0.0	4	0.0	0.176	6.0	LOS A	1.0	7.0	0.48	0.50	0.48	55.9
8	T1	All MCs	642	0.8	642	0.8	0.360	6.1	LOS A	2.5	17.8	0.51	0.52	0.51	59.6
9	R2	All MCs	77	1.4	77	1.4	0.360	12.2	LOS A	2.5	17.8	0.52	0.53	0.52	53.9
9u	U	All MCs	6	0.0	6	0.0	0.360	15.0	LOS B	2.5	17.8	0.52	0.53	0.52	58.1
Approach			729	0.9	729	0.9	0.360	6.8	LOS A	2.5	17.8	0.51	0.52	0.51	59.2
West: Fullerton Cove Road															
10	L2	All MCs	29	3.6	29	3.6	0.223	5.8	LOS A	1.0	7.4	0.53	0.66	0.53	51.3
11	T1	All MCs	45	2.3	45	2.3	0.223	5.1	LOS A	1.0	7.4	0.53	0.66	0.53	45.9
12	R2	All MCs	146	0.0	146	0.0	0.223	11.3	LOS A	1.0	7.4	0.53	0.66	0.53	50.5
Approach			221	1.0	221	1.0	0.223	9.3	LOS A	1.0	7.4	0.53	0.66	0.53	49.8
All Vehicles			1787	0.8	1787	0.8	0.360	6.9	LOS A	2.5	17.8	0.46	0.53	0.46	57.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102/H [17. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Sat Late Morning Peak + Development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
15 June 2024 4:30PM to 5:30PM

Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Fullerton Cove Rd (from Nelson Bar RAB)															
5	T1	All MCs	34	0.0	34	0.0	0.184	5.2	LOS A	1.0	6.9	0.08	0.63	0.08	26.8
6	R2	All MCs	248	0.8	248	0.8	0.184	8.1	LOS A	1.0	6.9	0.08	0.63	0.08	33.7
Approach			282	0.7	282	0.7	0.184	7.7	LOS A	1.0	6.9	0.08	0.63	0.08	30.9
North: Fullerton Cove Road (north)															
7	L2	All MCs	209	1.0	209	1.0	0.146	4.5	LOS A	0.9	6.0	0.08	0.53	0.08	34.5
9	R2	All MCs	14	0.0	14	0.0	0.146	8.1	LOS A	0.9	6.0	0.08	0.53	0.08	26.3
Approach			223	0.9	223	0.9	0.146	4.7	LOS A	0.9	6.0	0.08	0.53	0.08	31.8
West: The Cove Drive															
10	L2	All MCs	12	0.0	12	0.0	0.023	1.7	LOS A	0.1	0.8	0.42	0.25	0.42	24.4
11	T1	All MCs	12	0.0	12	0.0	0.023	1.4	LOS A	0.1	0.8	0.42	0.25	0.42	24.4
Approach			23	0.0	23	0.0	0.023	1.6	LOS A	0.1	0.8	0.42	0.25	0.42	24.4
All Vehicles			528	0.8	528	0.8	0.184	6.2	LOS A	1.0	6.9	0.10	0.57	0.10	30.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:52 PM
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MOVEMENT SUMMARY

Site: 103/E [23. 2024 Fullerton Cove Rd & Prop Main Site Access Sat Late Morn Peak with Development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

2024 Saturday Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 15 June 2024 11:00AM to 12:00PM
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Rd (from The Cove RAB)															
2	T1	All MCs	105	2.0	105	2.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	149	0.0	149	0.0	0.089	5.8	LOS A	0.4	3.0	0.18	0.57	0.18	25.8
Approach			255	0.8	255	0.8	0.089	3.4	NA	0.4	3.0	0.11	0.33	0.11	27.6
East: Development Access Road															
4	L2	All MCs	146	0.0	146	0.0	0.099	1.3	LOS A	0.4	2.9	0.18	0.24	0.18	24.4
6	R2	All MCs	3	0.0	3	0.0	0.099	3.5	LOS A	0.4	2.9	0.18	0.24	0.18	24.4
Approach			149	0.0	149	0.0	0.099	1.3	LOS A	0.4	2.9	0.18	0.24	0.18	24.4
North: Fullerton Cove Rd (north)															
7	L2	All MCs	1	0.0	1	0.0	0.041	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	55.8
8	T1	All MCs	77	2.7	77	2.7	0.041	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach			78	2.7	78	2.7	0.041	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.0
All Vehicles			482	0.9	482	0.9	0.099	2.2	NA	0.4	3.0	0.11	0.25	0.11	26.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:52 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 104/E [29. 2024 Fullerton Cove Rd & Prop Secondary Site access 2024 Sat Peak with development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/B [Saturday Midday Peak 2024 with Development (Network Folder: Saturday Midday Peak 2024 with Development)]

2024 Saturday Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 15 June 2024 11:00AM to 12:00PM
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Road south															
2	T1	All MCs	53	4.0	53	4.0	0.028	4.1	LOS A	0.0	0.0	0.00	0.53	0.00	51.0
3	R2	All MCs	44	0.0	44	0.0	0.026	5.6	LOS A	0.1	0.8	0.14	0.56	0.14	28.8
Approach			97	2.2	97	2.2	0.028	4.8	NA	0.1	0.8	0.06	0.54	0.06	44.8
East: Site access															
4	L2	All MCs	44	0.0	44	0.0	0.048	1.1	LOS A	0.2	1.4	0.12	0.24	0.12	21.1
6	R2	All MCs	21	0.0	21	0.0	0.048	2.2	LOS A	0.2	1.4	0.12	0.24	0.12	46.3
Approach			65	0.0	65	0.0	0.048	1.5	LOS A	0.2	1.4	0.12	0.24	0.12	37.6
North: fullerton Cove Road north															
7	L2	All MCs	22	0.0	22	0.0	0.028	5.5	LOS A	0.0	0.0	0.00	0.25	0.00	45.4
8	T1	All MCs	29	7.1	29	7.1	0.028	0.0	LOS A	0.0	0.0	0.00	0.25	0.00	55.5
Approach			52	4.1	52	4.1	0.028	2.4	NA	0.0	0.0	0.00	0.25	0.00	50.4
All Vehicles			214	2.0	214	2.0	0.048	3.2	NA	0.2	1.4	0.07	0.38	0.07	45.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:38:52 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

NETWORK LAYOUT

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development + 10YRS

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

SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽101/J	NA	9. 2024 Sat Exist RAB Late Morning Peak Nelson Bay Rd - Development (Growth)
▽102/J	NA	18. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Sat Late Morning Peak + Development (Growth)
▽103/F	NA	24. 2024 Fullerton Cove Rd & Prop Main Site Access Sat Late Morn Peak with Development (Growth)
▽104/F	NA	30. 2024 Fullerton Cove Rd & Prop Secondary Site access 2024 Sat Peak with development (Growth)

NETWORK SUMMARY

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.85		
Travel Time Index		8.29		
Congestion Coefficient		1.18		
Travel Speed (Average)	km/h	50.1	50.1	km/h
Travel Distance (Total)	veh-km/h	2292.4	2750.8	pers-km/h
Travel Time (Total)	veh-h/h	45.8	54.9	pers-h/h
Desired Speed	km/h	59.2		
Demand Flows (Total for all Sites)	veh/h	3355	4026	pers/h
Arrival Flows (Total for all Sites)	veh/h	3355	4026	pers/h
Demand Flows (Entry Total)	veh/h	2148		
Midblock Inflows (Total)	veh/h	8		
Midblock Outflows (Total)	veh/h	-32		
Percent Heavy Vehicles (Demand)	%	0.9		
Percent Heavy Vehicles (Arrival)	%	0.9		
Degree of Saturation		0.438		
Control Delay (Total)	veh-h/h	5.58	6.70	pers-h/h
Control Delay (Average)	sec	6.0	6.0	sec
Control Delay (Worst Lane by MC)	sec	9.8		
Control Delay (Worst Movement by MC)	sec	15.3	15.3	sec
Geometric Delay (Average)	sec	4.7		
Stop-Line Delay (Average)	sec	1.3		
Ave. Que Storage Ratio (Worst Lane)		0.03		
Effective Stops (Total)	veh/h	1639	1967	pers/h
Effective Stop Rate		0.49	0.49	
Proportion Queued		0.35	0.35	
Performance Index		74.2	74.2	
Cost (Total)	$/h	2193.67	2193.67	$/h
Fuel Consumption (Total)	L/h	226.6		
Fuel Economy	L/100km	9.9		
Carbon Dioxide (Total)	kg/h	533.4		
Hydrocarbons (Total)	kg/h	0.051		
Carbon Monoxide (Total)	kg/h	0.70		
NOx (Total)	kg/h	0.368		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	1,610,476	1,932,571	pers/y
Delay (Total)	veh-h/y	2,680	3,216	pers-h/y

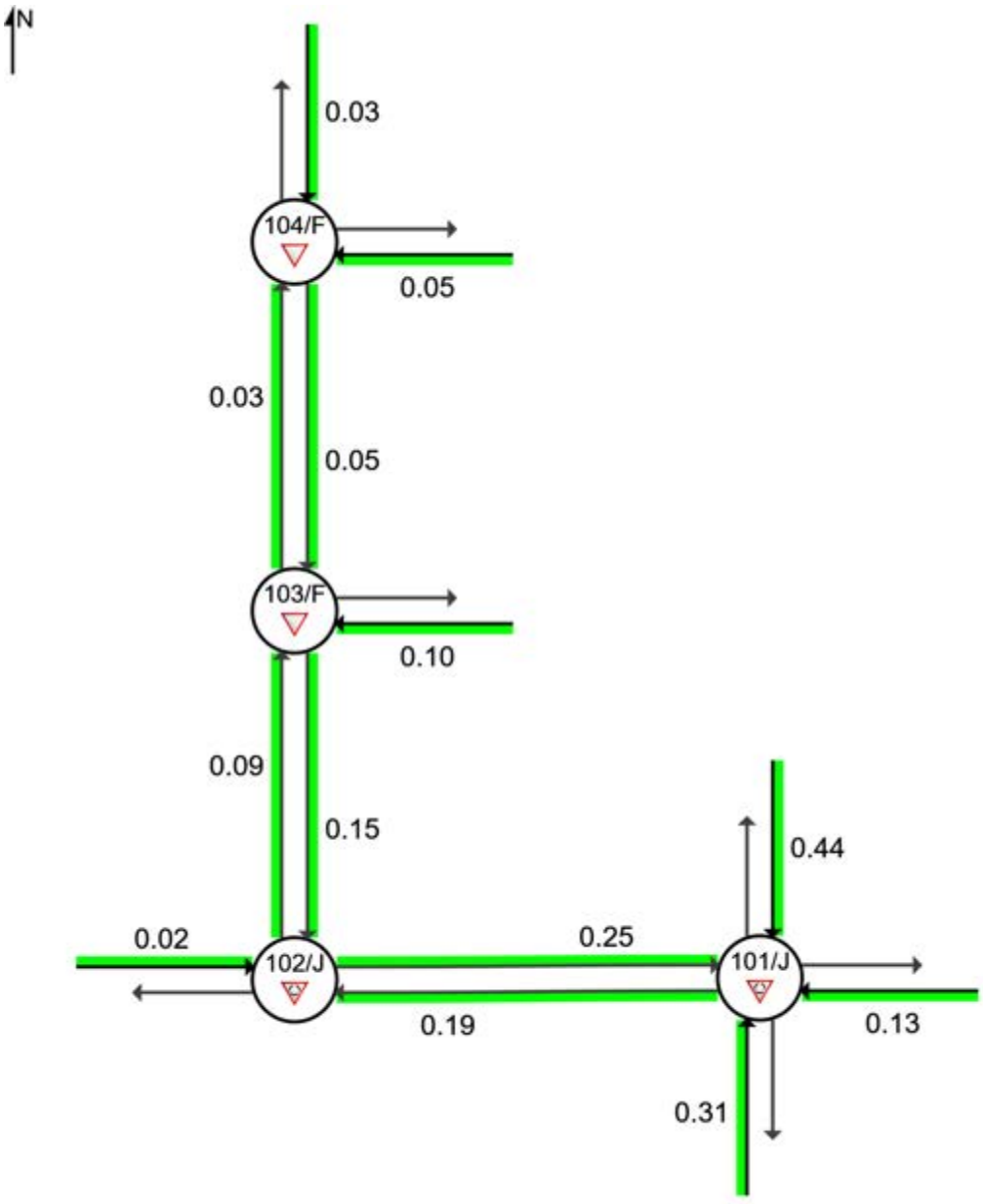
DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio (worst lane for the approach)

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Degree of Saturation

[< 0.6]	[0.6 – 0.7]	[0.7 – 0.8]	[0.8 – 0.9]	[0.9 – 1.0]	[> 1.0]

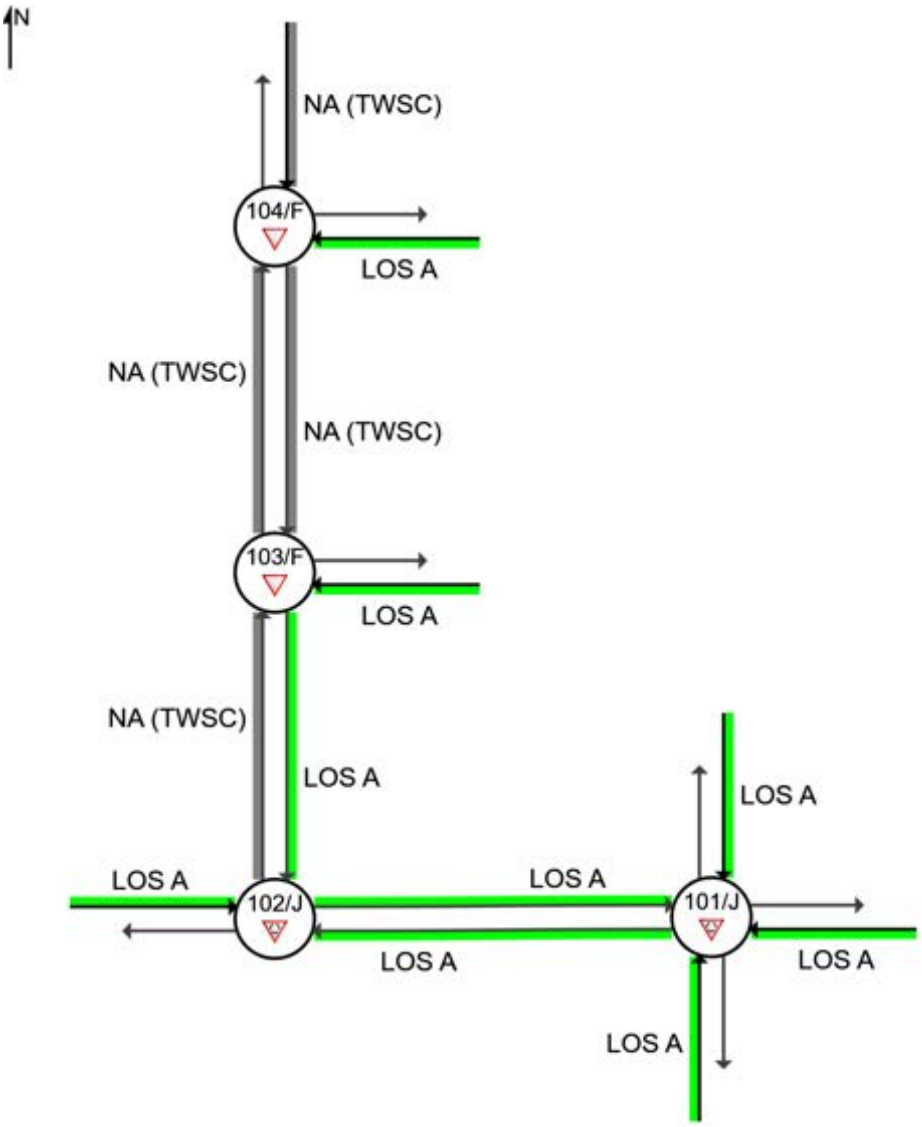
APPROACH LEVEL OF SERVICE

Approach Level of Service

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Level of Service

LOS A	LOS B	LOS C	LOS D	LOS E	LOS F

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

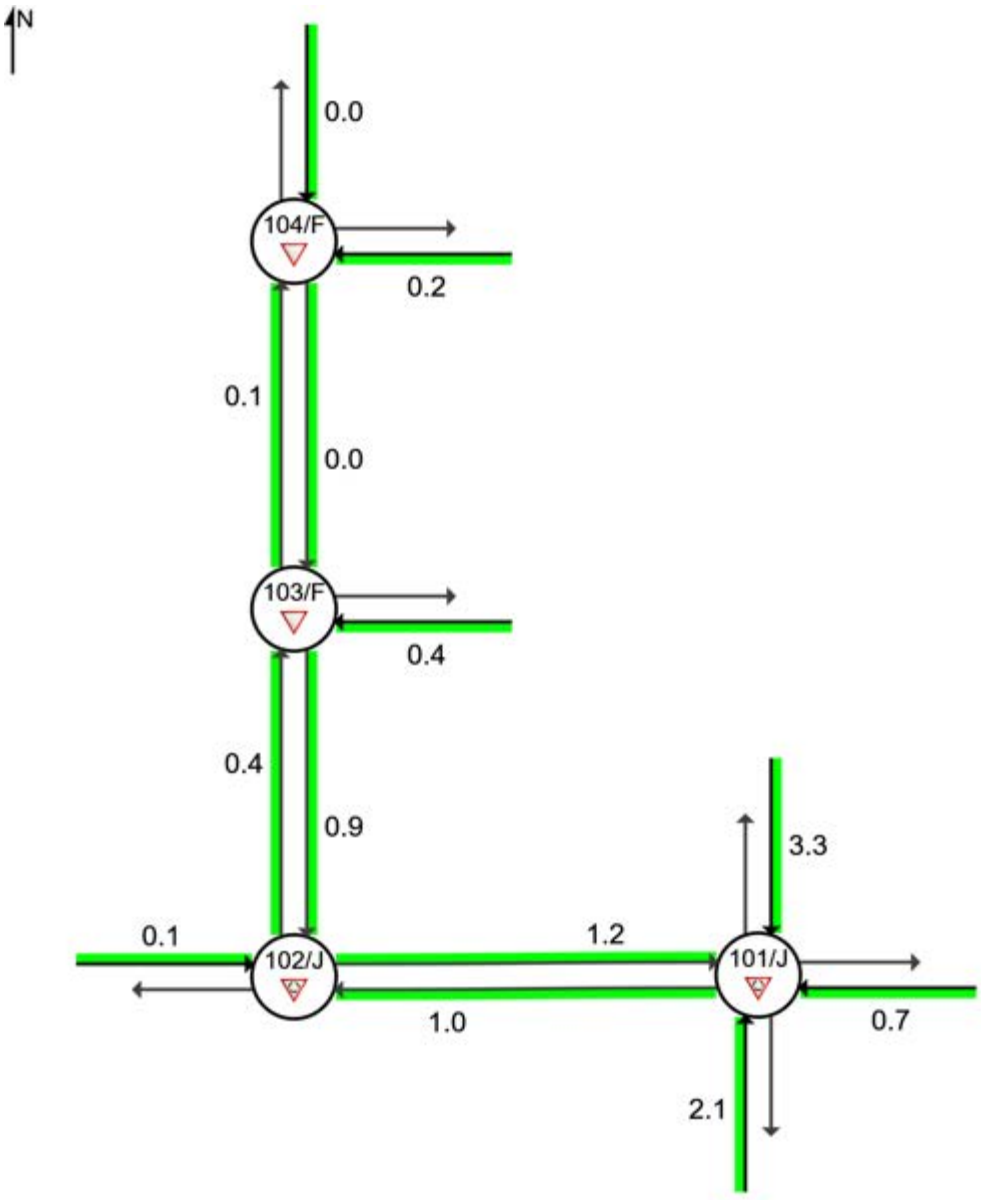
VEHICLE QUEUE (PERCENTILE)

Largest 95% Back of Queue for any lane on the approach (vehicles)

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

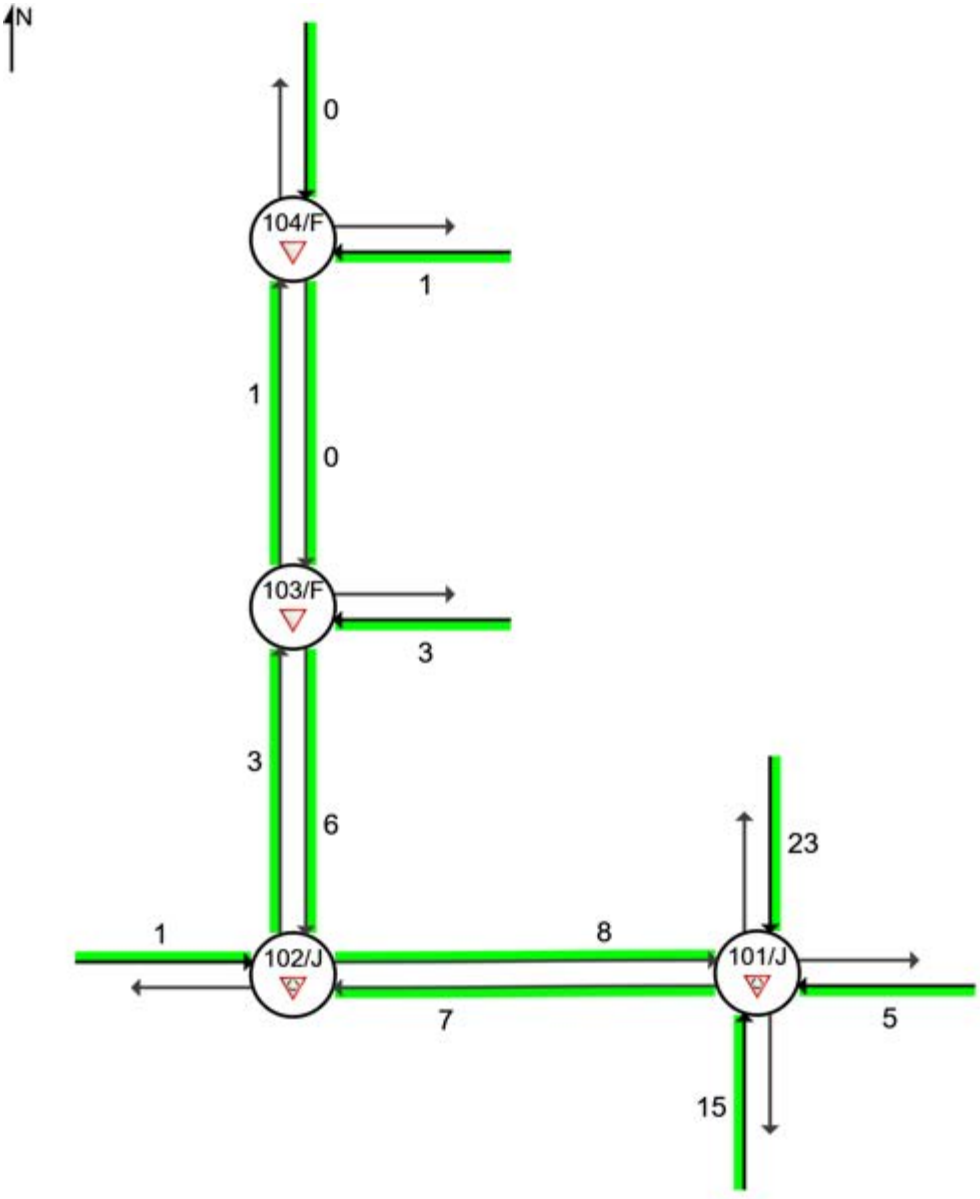
QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane on the approach (metres)

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Saturday 11AM to 12PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% PA for 10 years growth to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 15 June 2024 11:00 AM to 12:00PM
Network Category: Sat Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

MOVEMENT SUMMARY

Site: 101/J [9. 2024 Sat Exist RAB Late Morning Peak Nelson Bay Rd - Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows+ "The Elements" and Shopping Centre Development (includiing trip redistributions)
15 June 2024 4:30PM to 5:30PM
Growth applied in Network Demand settings
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	171	0.7	171	0.7	0.213	5.2	LOS A	1.2	8.8	0.39	0.48	0.39	56.7
2	T1	All MCs	465	0.5	465	0.5	0.310	5.2	LOS A	2.1	14.6	0.39	0.49	0.39	60.0
3	R2	All MCs	129	2.0	129	2.0	0.310	11.6	LOS A	2.1	14.6	0.39	0.50	0.39	54.3
3u	U	All MCs	4	0.0	4	0.0	0.310	14.4	LOS A	2.1	14.6	0.39	0.50	0.39	58.4
Approach			768	0.8	768	0.8	0.310	6.3	LOS A	2.1	14.6	0.39	0.49	0.39	58.5
East: Seaside Boulevarde															
4	L2	All MCs	121	0.0	121	0.0	0.127	8.2	LOS A	0.7	4.8	0.68	0.67	0.68	55.6
5	T1	All MCs	52	0.0	52	0.0	0.125	6.3	LOS A	0.6	4.2	0.68	0.72	0.68	43.1
6	R2	All MCs	38	0.0	38	0.0	0.125	12.8	LOS A	0.6	4.2	0.68	0.72	0.68	52.2
6u	U	All MCs	1	0.0	1	0.0	0.125	15.3	LOS B	0.6	4.2	0.68	0.72	0.68	47.8
Approach			212	0.0	212	0.0	0.127	8.6	LOS A	0.7	4.8	0.68	0.69	0.68	52.8
North: Nelson Bay Road Williamtown															
7	L2	All MCs	5	0.0	5	0.0	0.214	6.2	LOS A	1.3	8.8	0.52	0.52	0.52	55.6
8	T1	All MCs	771	0.8	771	0.8	0.438	6.5	LOS A	3.3	23.4	0.56	0.54	0.56	59.3
9	R2	All MCs	85	1.5	85	1.5	0.438	12.4	LOS A	3.3	23.4	0.58	0.54	0.58	53.4
9u	U	All MCs	8	0.0	8	0.0	0.438	15.2	LOS B	3.3	23.4	0.58	0.54	0.58	57.8
Approach			868	0.9	868	0.9	0.438	7.2	LOS A	3.3	23.4	0.56	0.54	0.56	58.9
West: Fullerton Cove Road															
10	L2	All MCs	31	4.1	31	4.1	0.247	6.4	LOS A	1.2	8.4	0.58	0.69	0.58	50.9
11	T1	All MCs	46	2.8	46	2.8	0.247	5.5	LOS A	1.2	8.4	0.58	0.69	0.58	45.6
12	R2	All MCs	153	0.0	153	0.0	0.247	11.7	LOS A	1.2	8.4	0.58	0.69	0.58	50.2
Approach			230	1.1	230	1.1	0.247	9.8	LOS A	1.2	8.4	0.58	0.69	0.58	49.5
All Vehicles			2079	0.8	2079	0.8	0.438	7.3	LOS A	3.3	23.4	0.51	0.55	0.51	57.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102/J [18. 2024 Fullerton Cove Rd & Cove Rd Exist RAB Sat Late Morning Peak + Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

2024 Saturday 11:00AM to 12:00 PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
15 June 2024 4:30PM to 5:30PM
Growth applied in Network Demand settings
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Fullerton Cove Rd (from Nelson Bar RAB)															
5	T1	All MCs	34	0.0	34	0.0	0.191	5.2	LOS A	1.0	7.2	0.08	0.63	0.08	26.8
6	R2	All MCs	259	1.0	259	1.0	0.191	8.1	LOS A	1.0	7.2	0.08	0.63	0.08	33.7
Approach			292	0.9	292	0.9	0.191	7.8	LOS A	1.0	7.2	0.08	0.63	0.08	31.0
North: Fullerton Cove Road (north)															
7	L2	All MCs	216	1.2	216	1.2	0.150	4.5	LOS A	0.9	6.2	0.08	0.53	0.08	34.5
9	R2	All MCs	14	0.0	14	0.0	0.150	8.1	LOS A	0.9	6.2	0.08	0.53	0.08	26.3
Approach			230	1.1	230	1.1	0.150	4.7	LOS A	0.9	6.2	0.08	0.53	0.08	31.9
West: The Cove Drive															
10	L2	All MCs	12	0.0	12	0.0	0.023	1.8	LOS A	0.1	0.8	0.43	0.26	0.43	24.4
11	T1	All MCs	12	0.0	12	0.0	0.023	1.5	LOS A	0.1	0.8	0.43	0.26	0.43	24.4
Approach			23	0.0	23	0.0	0.023	1.6	LOS A	0.1	0.8	0.43	0.26	0.43	24.4
All Vehicles			545	0.9	545	0.9	0.191	6.2	LOS A	1.0	7.2	0.10	0.57	0.10	30.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:39:43 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 103/F [24. 2024 Fullerton Cove Rd & Prop Main Site Access Sat Late Morn Peak with Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

2024 Saturday Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 15 June 2024 11:00AM to 12:00PM
Growth applied in Network Demand settings
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Rd (from The Cove RAB)															
2	T1	All MCs	113	2.2	113	2.2	0.060	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	149	0.0	149	0.0	0.089	5.8	LOS A	0.4	3.0	0.19	0.57	0.19	25.8
Approach			263	1.0	263	1.0	0.089	3.3	NA	0.4	3.0	0.11	0.32	0.11	27.7
East: Development Access Road															
4	L2	All MCs	146	0.0	146	0.0	0.100	1.3	LOS A	0.4	3.0	0.18	0.24	0.18	24.4
6	R2	All MCs	3	0.0	3	0.0	0.100	3.6	LOS A	0.4	3.0	0.18	0.24	0.18	24.4
Approach			149	0.0	149	0.0	0.100	1.4	LOS A	0.4	3.0	0.18	0.24	0.18	24.4
North: Fullerton Cove Rd (north)															
7	L2	All MCs	1	0.0	1	0.0	0.045	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	55.8
8	T1	All MCs	84	3.0	84	3.0	0.045	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.2
Approach			85	3.0	85	3.0	0.045	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.9
All Vehicles			497	1.0	497	1.0	0.100	2.2	NA	0.4	3.0	0.11	0.25	0.11	27.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:39:43 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

MOVEMENT SUMMARY

Site: 104/F [30. 2024 Fullerton Cove Rd & Prop Secondary Site access 2024 Sat Peak with development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T103/C [Saturday Midday Peak with Development + Growth 2034 (Network Folder: Saturday Midday Peak with Development + Growth 2034)]

2024 Saturday Existing traffic flows + "The Elements" and Shopping Centre Development (trip assignments)
Base count - 15 June 2024 11:00AM to 12:00PM
Growth applied in Network Demand Settings
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Fullerton Cove Road south															
2	T1	All MCs	63	4.0	63	4.0	0.033	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	44	0.0	44	0.0	0.026	5.6	LOS A	0.1	0.8	0.15	0.56	0.15	28.7
Approach			107	2.4	107	2.4	0.033	2.3	NA	0.1	0.8	0.06	0.23	0.06	51.3
East: Site access															
4	L2	All MCs	44	0.0	44	0.0	0.049	1.2	LOS A	0.2	1.4	0.14	0.25	0.14	21.0
6	R2	All MCs	21	0.0	21	0.0	0.049	2.3	LOS A	0.2	1.4	0.14	0.25	0.14	46.2
Approach			65	0.0	65	0.0	0.049	1.5	LOS A	0.2	1.4	0.14	0.25	0.14	37.5
North: fullerton Cove Road north															
7	L2	All MCs	26	0.0	26	0.0	0.033	5.5	LOS A	0.0	0.0	0.00	0.25	0.00	45.4
8	T1	All MCs	35	7.1	35	7.1	0.033	0.0	LOS A	0.0	0.0	0.00	0.25	0.00	55.5
Approach			62	4.1	62	4.1	0.033	2.4	NA	0.0	0.0	0.00	0.25	0.00	50.5
All Vehicles			234	2.2	234	2.2	0.049	2.1	NA	0.2	1.4	0.07	0.24	0.07	48.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ADANNER PTY LTD | Licence: NETWORK / 1PC | Processed: Saturday, 28 September 2024 3:39:43 PM
Project: C:\Users\Frank\Downloads\P2499 M+P Fullerton Cove retail RFI Network post TfNSW 2sip9.sip9

Thursday PM SIDRA comparison of 2024 exi + 10 yrs growth & 2024 ex + 10 yrs growth + development

NETWORK SUMMARY

Network: T101/A [Thursday PM Existing 2024 + Growth 2034 (Network Folder: Thursday PM Existing 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows plus 10 years growth - NO DEVELOPMENT ADDED
13 June 2024 4:30PM to 5:30PM
Existing without development
Network Category: Thurs Base Year Existing
Design Life Analysis (Final Year): Results for 10 years

Network Performance - Hourly Values				
Performance Measure	Vehicles:	All MCs	Persons	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.85		
Travel Time Index		8.32		
Congestion Coefficient		1.18		
Travel Speed (Average)	km/h	58.2	58.2	km/h
Travel Distance (Total)	veh-km/h	3397.2	4076.7	pers-km/h
Travel Time (Total)	veh-h/h	58.4	70.0	pers-h/h
Desired Speed	km/h	68.6		
Demand Flows (Total for all Sites)	veh/h	3383	4060	pers/h
Arrival Flows (Total for all Sites)	veh/h	3383	4060	pers/h
Demand Flows (Entry Total)	veh/h	3265		
Midblock Inflows (Total)	veh/h	2		
Midblock Outflows (Total)	veh/h	-4		
Percent Heavy Vehicles (Demand)	%	1.8		
Percent Heavy Vehicles (Arrival)	%	1.8		
Degree of Saturation		0.656		
Control Delay (Total)	veh-h/h	7.68	9.22	pers-h/h
Control Delay (Average)	sec	8.2	8.2	sec
Control Delay (Worst Lane by MC)	sec	17.0		
Control Delay (Worst Movement by MC)	sec	22.6	22.6	sec
Geometric Delay (Average)	sec	5.0		
Stop-Line Delay (Average)	sec	3.1		
Ave. Que Storage Ratio (Worst Lane)		0.04		
Effective Stops (Total)	veh/h	1747	2097	pers/h
Effective Stop Rate		0.52	0.52	
Proportion Queued		0.46	0.46	
Performance Index		99.9	99.9	
Cost (Total)	$/h	2862.05	2862.05	$/h
Fuel Consumption (Total)	L/h	313.0		
Fuel Economy	L/100km	9.2		
Carbon Dioxide (Total)	kg/h	738.7		
Hydrocarbons (Total)	kg/h	0.069		
Carbon Monoxide (Total)	kg/h	1.06		
NOx (Total)	kg/h	0.802		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values				
Performance Measure	Vehicles:	All MCs	Persons	
Demand Flows (Total for all Sites)	veh/y	1,623,916	1,948,699	pers/y
Delay (Total)	veh-h/y	3,686	4,423	pers-h/y
Effective Stops (Total)	veh/y	838,632	1,006,358	pers/y
Travel Distance (Total)	veh-km/y	1,630,662	1,956,794	pers-km/y

Thursday PM SIDRA comparison of 2024 exi + 10 yrs growth & 2024 ex + 10 yrs growth + development

MOVEMENT SUMMARY

Site: 101/A [1. 2024 Thurs Exist RAB PM Peak Nelson Bay RD (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/A [Thursday PM Existing 2024 + Growth 2034 (Network Folder: Thursday PM Existing 2024)]

2024 Thursday PM Existing traffic flows
13 June 2024 4:30PM to 5:30PM
Existing without development
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	56	2.3	56	2.3	0.451	4.7	LOS A	3.7	26.3	0.27	0.38	0.27	57.6
2	T1	All MCs	1468	1.4	1468	1.4	0.656	7.3	LOS A	7.7	54.6	0.30	0.43	0.30	60.7
3	R2	All MCs	302	1.7	302	1.7	0.656	11.3	LOS A	7.7	54.6	0.33	0.46	0.33	54.7
3u	U	All MCs	3	0.0	3	0.0	0.656	14.1	LOS A	7.7	54.6	0.33	0.46	0.33	58.7
Approach			1828	1.5	1828	1.5	0.656	7.9	LOS A	7.7	54.6	0.31	0.43	0.31	59.7
East: Seaside Boulevarde															
4	L2	All MCs	78	0.0	78	0.0	0.103	11.7	LOS A	0.6	4.3	0.79	0.74	0.79	55.1
5	T1	All MCs	4	0.0	4	0.0	0.058	7.6	LOS A	0.3	2.1	0.76	0.83	0.76	39.6
6	R2	All MCs	25	0.0	25	0.0	0.058	14.1	LOS A	0.3	2.1	0.76	0.83	0.76	49.6
6u	U	All MCs	3	0.0	3	0.0	0.058	16.6	LOS B	0.3	2.1	0.76	0.83	0.76	45.3
Approach			110	0.0	110	0.0	0.103	12.2	LOS A	0.6	4.3	0.78	0.77	0.78	53.0
North: Nelson Bay Road Williamtown															
7	L2	All MCs	24	5.3	24	5.3	0.318	7.1	LOS A	2.0	14.1	0.57	0.55	0.57	55.2
8	T1	All MCs	1228	1.3	1228	1.3	0.650	8.0	LOS A	6.6	46.9	0.68	0.60	0.71	58.9
9	R2	All MCs	8	33.3	8	33.3	0.650	14.6	LOS B	6.6	46.9	0.72	0.62	0.76	52.7
9u	U	All MCs	13	0.0	13	0.0	0.650	16.3	LOS B	6.6	46.9	0.72	0.62	0.76	57.4
Approach			1272	1.6	1272	1.6	0.650	8.1	LOS A	6.6	46.9	0.68	0.60	0.71	58.8
West: Fullerton Cove Road															
10	L2	All MCs	10	0.0	10	0.0	0.116	17.2	LOS B	0.6	4.3	0.81	0.87	0.81	45.9
11	T1	All MCs	5	50.0	5	50.0	0.116	14.1	LOS A	0.6	4.3	0.81	0.87	0.81	39.8
12	R2	All MCs	40	6.3	40	6.3	0.116	17.3	LOS B	0.6	4.3	0.81	0.87	0.81	43.8
Approach			56	9.1	56	9.1	0.116	17.0	LOS B	0.6	4.3	0.81	0.87	0.81	43.8
All Vehicles			3265	1.6	3265	1.6	0.656	8.3	LOS A	7.7	54.6	0.48	0.52	0.49	58.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Thursday PM SIDRA comparison of 2024 exi + 10 yrs growth & 2024 ex + 10 yrs growth + development

NETWORK SUMMARY

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions) + 2% growth PA over 10 years to non-development traffic (as full development applied) - NOTE NO ADDITIONAL GROWTH APPLIED TO DEVELOPMENTS - ONLY APPLIED TO BACKGROUND GROWTH
Base count - 13 June 2024 4:30PM to 5:30PM
Network Category: Thurs Existing + Development + 10YRS
Design Life Analysis (Final Year): Results for 10 years

Network Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Network Level of Service (LOS)		LOS B		
Speed Efficiency		0.83		
Travel Time Index		8.13		
Congestion Coefficient		1.20		
Travel Speed (Average)	km/h	52.8	52.8	km/h
Travel Distance (Total)	veh-km/h	3803.5	4564.2	pers-km/h
Travel Time (Total)	veh-h/h	72.0	86.4	pers-h/h
Desired Speed	km/h	63.5		
Demand Flows (Total for all Sites)	veh/h	4655	5586	pers/h
Arrival Flows (Total for all Sites)	veh/h	4655	5586	pers/h
Demand Flows (Entry Total)	veh/h	3604		
Midblock Inflows (Total)	veh/h	15		
Midblock Outflows (Total)	veh/h	-30		
Percent Heavy Vehicles (Demand)	%	1.7		
Percent Heavy Vehicles (Arrival)	%	1.7		
Degree of Saturation		0.731		
Control Delay (Total)	veh-h/h	10.94	13.13	pers-h/h
Control Delay (Average)	sec	8.5	8.5	sec
Control Delay (Worst Lane by MC)	sec	21.8		
Control Delay (Worst Movement by MC)	sec	29.5	29.5	sec
Geometric Delay (Average)	sec	4.8		
Stop-Line Delay (Average)	sec	3.7		
Ave. Que Storage Ratio (Worst Lane)		0.07		
Effective Stops (Total)	veh/h	2609	3130	pers/h
Effective Stop Rate		0.56	0.56	
Proportion Queued		0.52	0.52	
Performance Index		145.3	145.3	
Cost (Total)	$/h	3498.60	3498.60	$/h
Fuel Consumption (Total)	L/h	373.7		
Fuel Economy	L/100km	9.8		
Carbon Dioxide (Total)	kg/h	881.4		
Hydrocarbons (Total)	kg/h	0.083		
Carbon Monoxide (Total)	kg/h	1.19		
NOx (Total)	kg/h	0.879		

Network Model Variability Index (Average value of largest changes in Lane Degrees of Saturation or Queue Storage Ratios from the third to the last Network Iterations): 0.0 %

Number of Iterations: 5 (Maximum: 30)

Largest change in Lane Degrees of Saturation or Queue Storage Ratios for the last three Network Iterations: 0.0% 0.0% 0.0%

Network Level of Service (LOS) Method: SIDRA Speed Efficiency.

Software Setup used: Standard Left.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Network Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total for all Sites)	veh/y	2,234,375	2,681,250	pers/y
Delay (Total)	veh-h/y	5,250	6,300	pers-h/y

Thursday PM SIDRA comparison of 2024 exi + 10 yrs growth & 2024 ex + 10 yrs growth + development

MOVEMENT SUMMARY

Site: 101/C [3. 2024 Thurs Exist RAB PM Peak Nelson Bay RD + Development (Growth) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: T101/C [Thursday PM Peak with Development + Growth 2034 (Network Folder: Thursday PM Peak with Development + Growth 2034)]

2024 Thursday PM Existing traffic flows + "The Elements" and Shopping Centre Development (includiing trip redistributions)
Base count - 13 June 2024 4:30PM to 5:30PM - Growth applied in Network Demand settings
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Nelson Bay Newcastle															
1	L2	All MCs	173	0.7	173	0.7	0.503	4.4	LOS A	4.3	30.5	0.43	0.43	0.43	55.1
2	T1	All MCs	1440	1.4	1440	1.4	0.731	7.5	LOS A	9.6	68.2	0.50	0.48	0.50	59.3
3	R2	All MCs	302	1.7	302	1.7	0.731	11.8	LOS A	9.6	68.2	0.54	0.50	0.54	53.7
3u	U	All MCs	3	0.0	3	0.0	0.731	14.6	LOS B	9.6	68.2	0.54	0.50	0.54	57.7
Approach			1918	1.4	1918	1.4	0.731	7.9	LOS A	9.6	68.2	0.50	0.48	0.50	58.2
East: Seaside Boulevarde															
4	L2	All MCs	78	0.0	78	0.0	0.117	13.6	LOS A	0.7	5.2	0.85	0.77	0.85	54.7
5	T1	All MCs	42	0.0	42	0.0	0.144	8.7	LOS A	0.8	5.6	0.83	0.83	0.83	41.3
6	R2	All MCs	25	0.0	25	0.0	0.144	15.1	LOS B	0.8	5.6	0.83	0.83	0.83	51.1
6u	U	All MCs	3	0.0	3	0.0	0.144	17.6	LOS B	0.8	5.6	0.83	0.83	0.83	48.5
Approach			148	0.0	148	0.0	0.144	12.5	LOS A	0.8	5.6	0.84	0.80	0.84	51.2
North: Nelson Bay Road Williamtown															
7	L2	All MCs	24	5.3	24	5.3	0.348	8.0	LOS A	2.3	16.2	0.67	0.61	0.67	54.5
8	T1	All MCs	1205	1.4	1205	1.4	0.714	10.4	LOS A	9.3	66.3	0.81	0.74	0.96	57.9
9	R2	All MCs	30	8.5	30	8.5	0.714	15.3	LOS B	9.3	66.3	0.86	0.78	1.06	51.1
9u	U	All MCs	13	0.0	13	0.0	0.714	18.9	LOS B	9.3	66.3	0.86	0.78	1.06	56.3
Approach			1271	1.6	1271	1.6	0.714	10.6	LOS A	9.3	66.3	0.81	0.74	0.96	57.7
West: Fullerton Cove Road															
10	L2	All MCs	30	0.0	30	0.0	0.485	23.2	LOS B	3.3	23.4	0.92	1.00	1.20	41.0
11	T1	All MCs	43	5.9	43	5.9	0.485	17.0	LOS B	3.3	23.4	0.92	1.00	1.20	37.1
12	R2	All MCs	138	1.8	138	1.8	0.485	23.0	LOS B	3.3	23.4	0.92	1.00	1.20	40.0
Approach			211	2.4	211	2.4	0.485	21.8	LOS B	3.3	23.4	0.92	1.00	1.20	39.6
All Vehicles			3548	1.5	3548	1.5	0.731	9.9	LOS A	9.6	68.2	0.65	0.62	0.72	56.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

2. 2024 Thurs Exist RAB PM Peak Nelson Bay RD + Development

Legend:

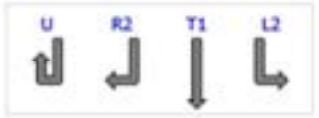
LV – Existing Light Vehicles

HV – Existing Heavy Vehicles

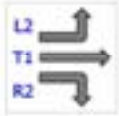
U1 – Additional Development Traffic

› display is enabled.

	U	R2	T1	L2
Tot	10	27	954	19
LV	10	4	941	18
HV		2	13	1
U1		21		



U1	HV	LV	Tot	
19	0	8	27	L2
36	2	2	40	T1
93	2	30	125	R2

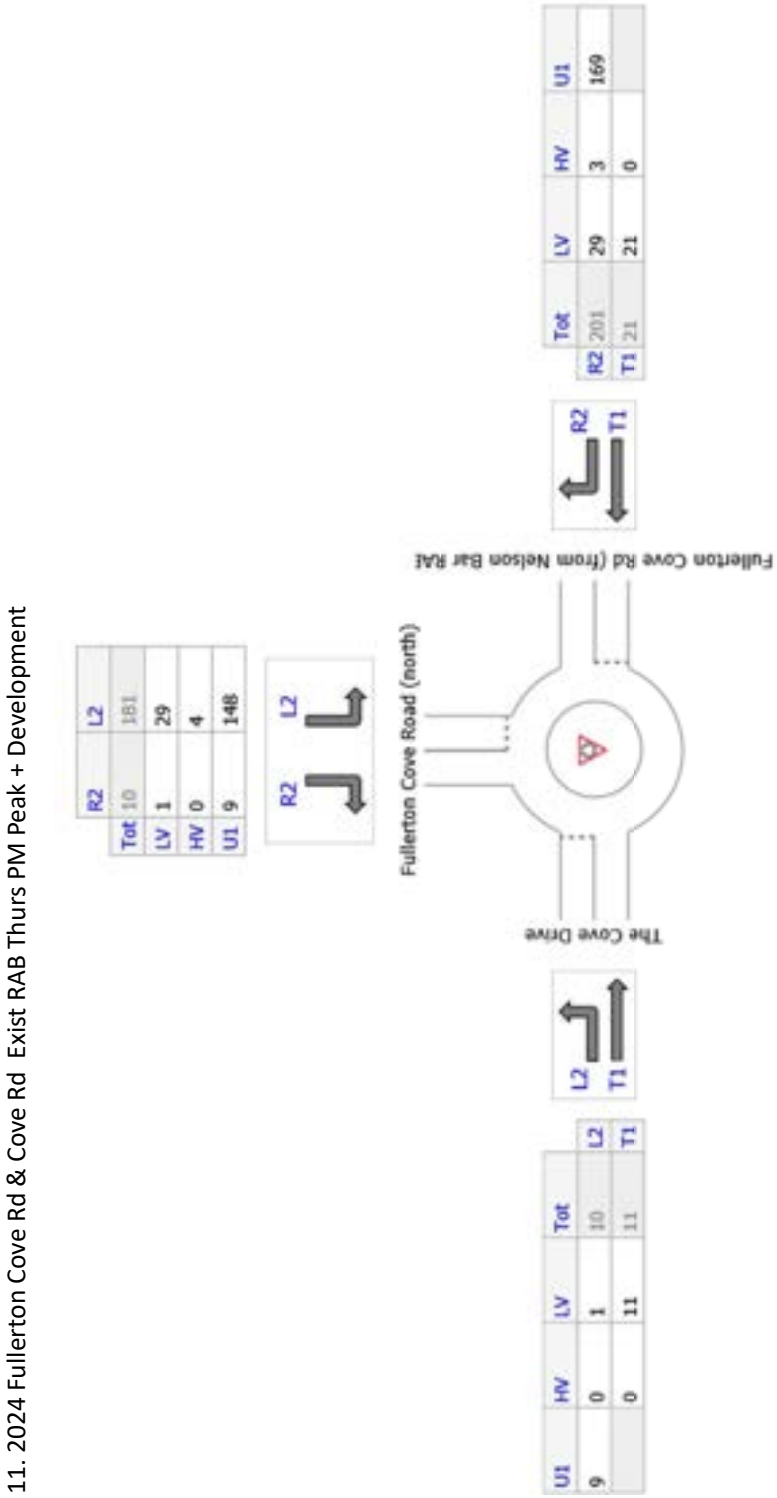


	Tot	LV	HV	U1
U	2	2		
R2	20	20	0	
T1	39	3	0	36
L2	62	62	0	

	L2	T1	R2	U
Tot	156	1140	239	2
LV	43	1124	235	2
HV	1	16	4	
U1	112			

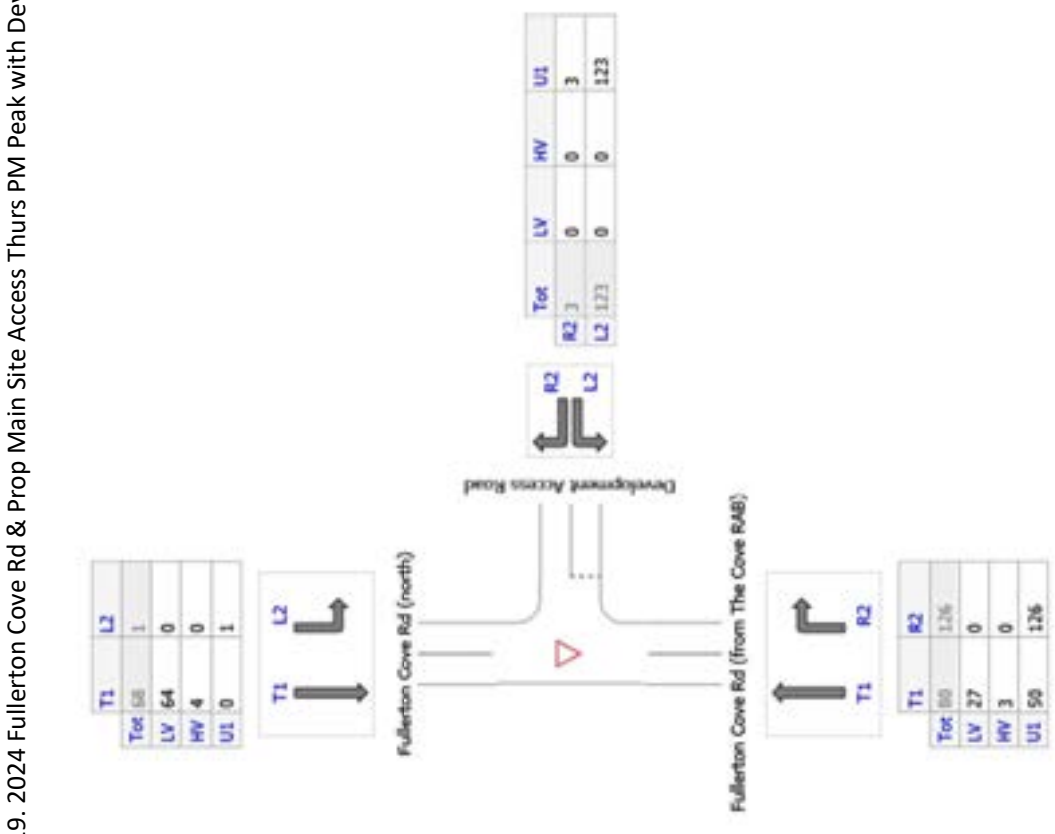
APPENDIX H

Fullerton Cove Neighbourhood Centre - Turning Movements applied through Network in SIDRA



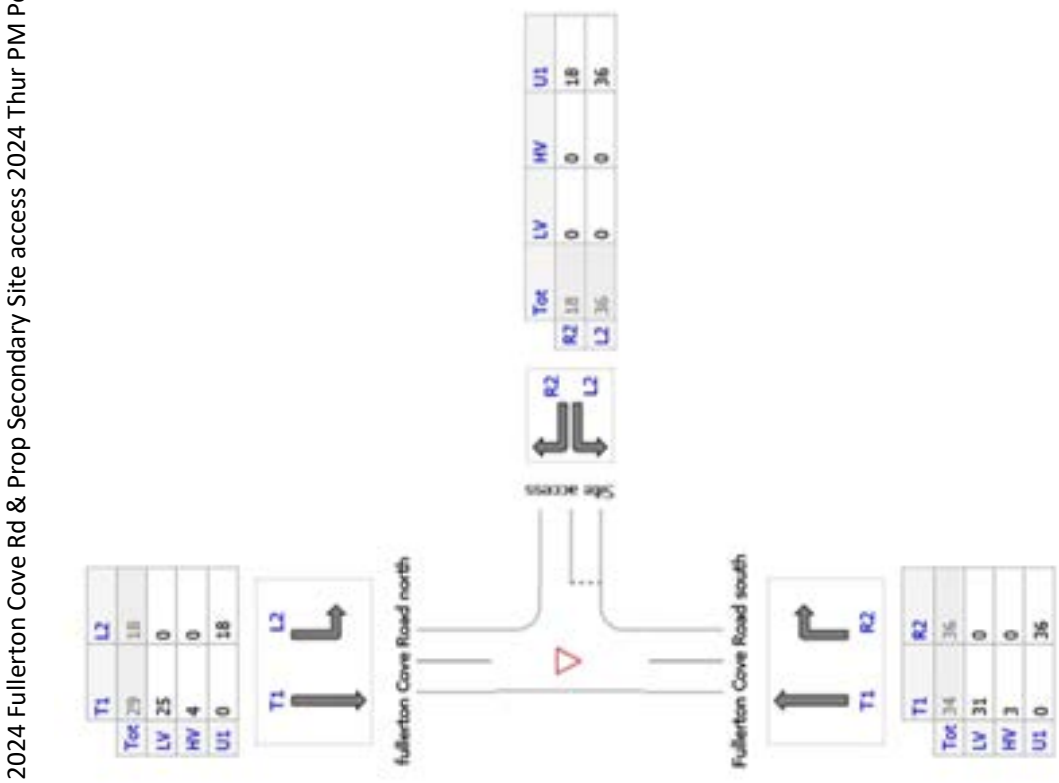
APPENDIX H

Fullerton Cove Neighbourhood Centre - Turning Movements applied through Network in SIDRA



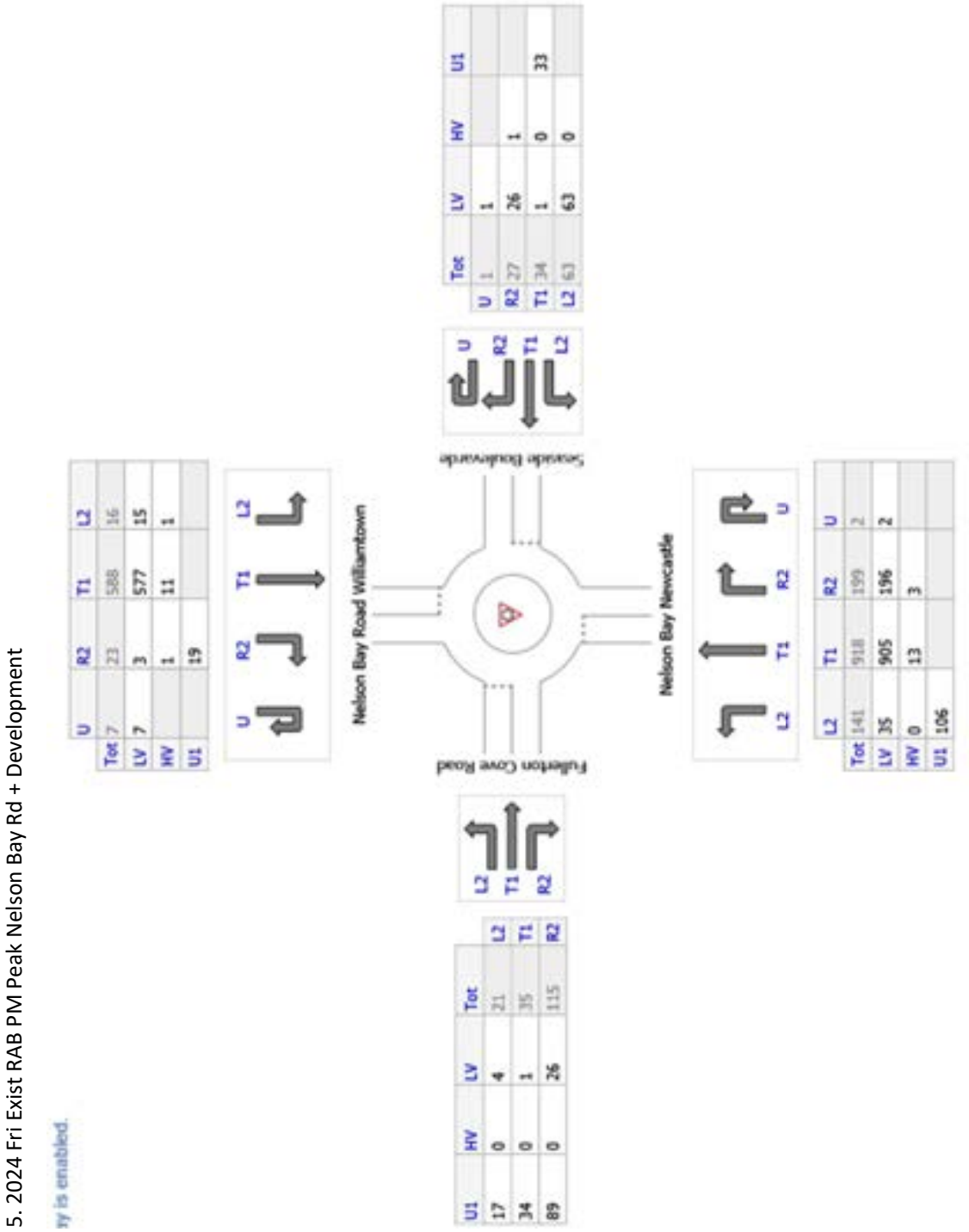
APPENDIX H

Fullerton Cove Neighbourhood Centre - Turning Movements applied through Network in SIDRA



APPENDIX H

Fullerton Cove Neighbourhood Centre - Turning Movements applied through Network in SIDRA



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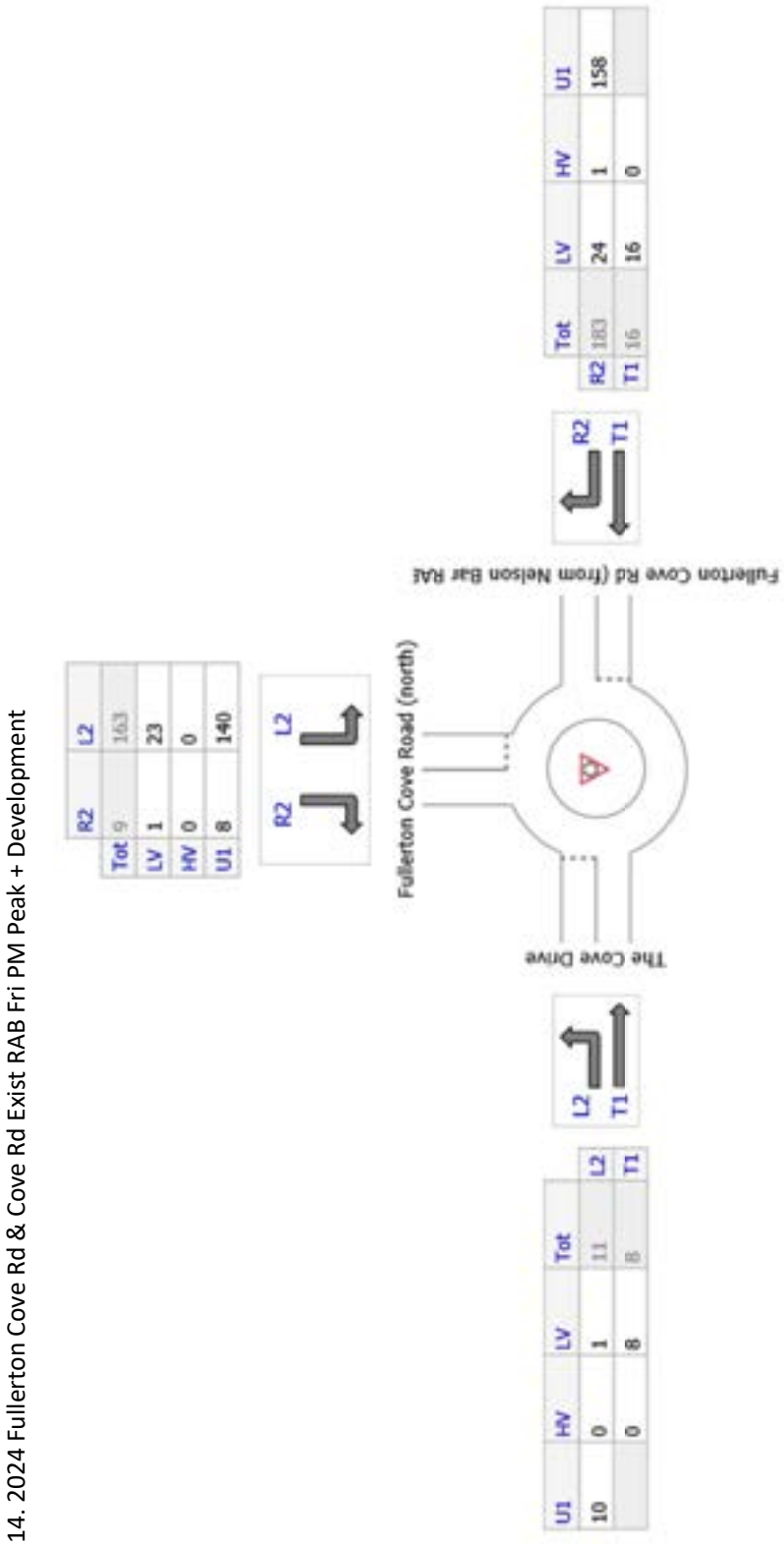
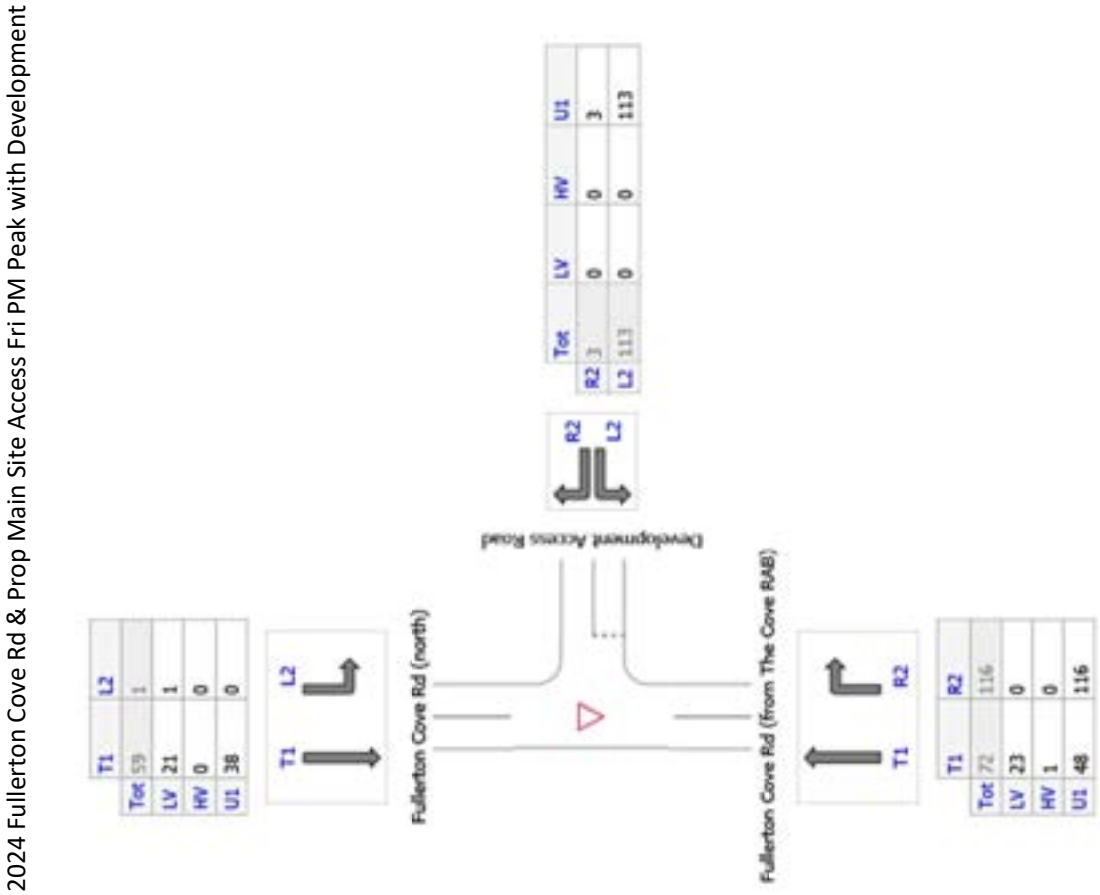
Fullerton Cove Neighbourhood Centre - Turning Movements applied through Network in SIDRA



APPENDIX H

Fullerton Cove Neighbourhood Centre - Turning Movements applied through Network in SIDRA



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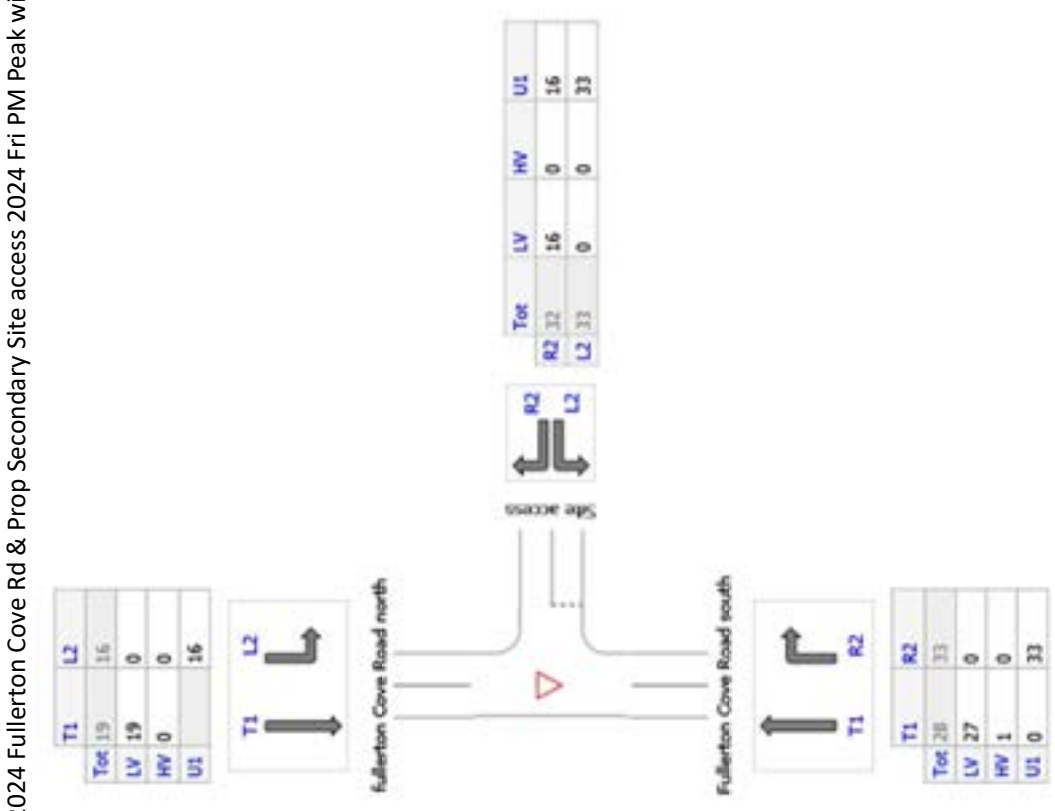

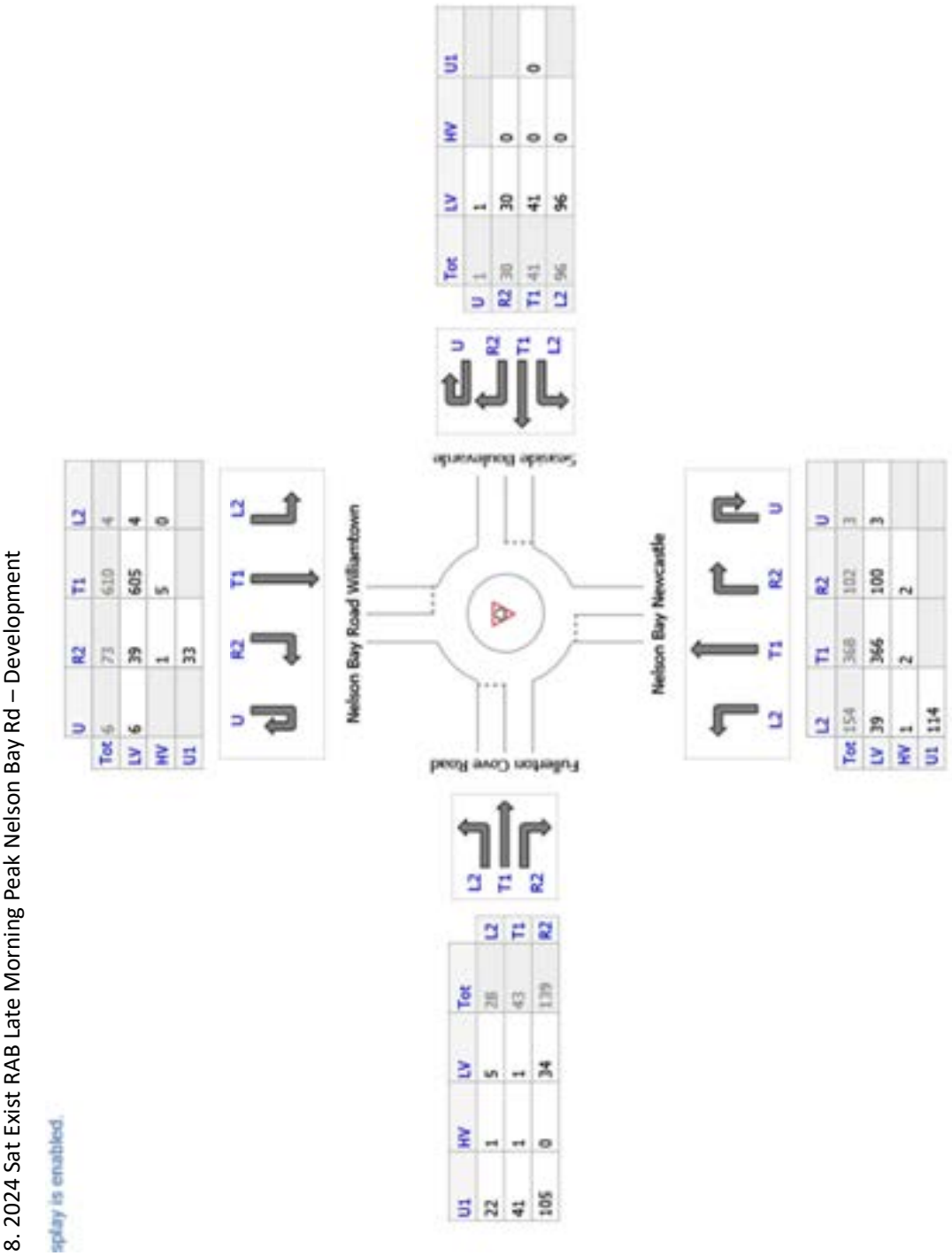
8. 2024 Sat Exist RAB Late Morning Peak Nelson Bay Rd – Development
splay is enabled.
Nelson Bay Road Williamtown
Fullerton Cove Road
Nelson Bay Newcastle
Tot 6 73 610 4
LV 6 39 605 4
HV 1 5 0
U1 33
Tot 154 368 102 3
LV 39 366 100 3
HV 1 2 2
U1 114
Tot 1 38 41 96
LV 1 30 41 96
HV 0 0 0
U1 0
Tot 28 43 139
LV 5 1 34
HV 1 1 0
U1 22 41 105

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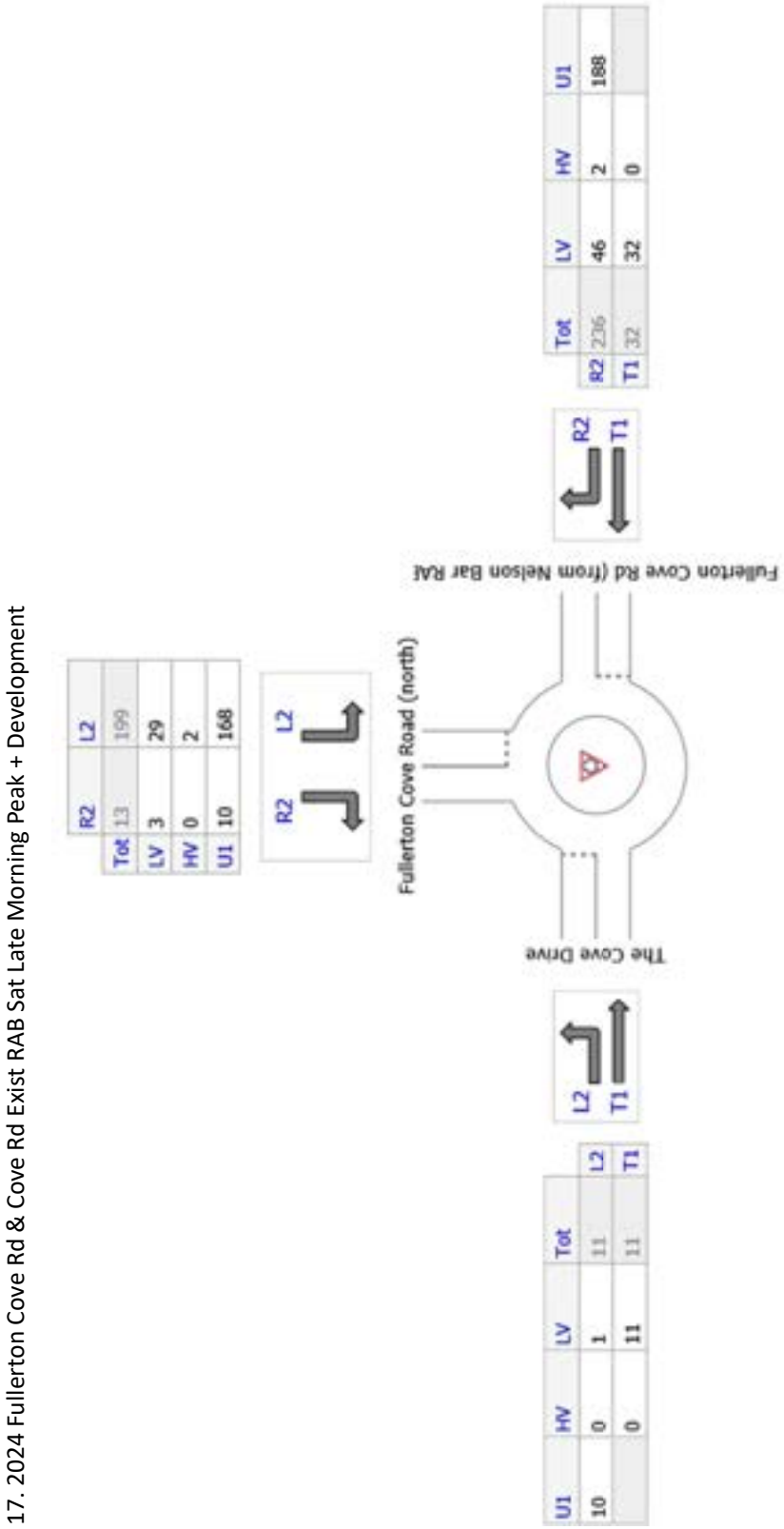

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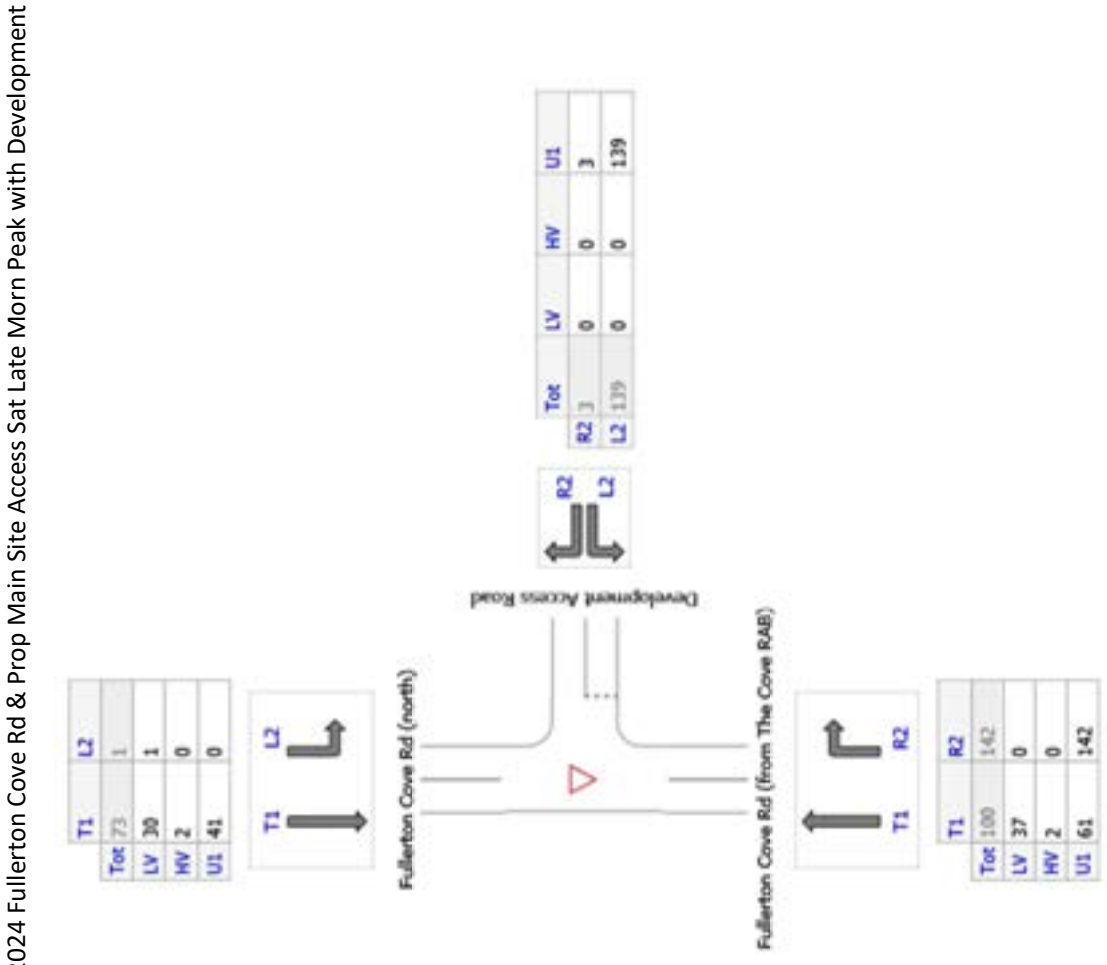

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