

Traffic Engineering

Proposed Subdivision Development
231 Roystonea Avenue, Farrar, NT
Traffic Impact Assessment

Ref: 26MET0233R01B



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1. Introduction

Colliers International Engineering & Design (Vic) Pty Ltd has been engaged to prepare a Traffic Impact Assessment (TIA) report for the proposed subdivision development located at 5 Farrar Boulevard, 6 Gurd Street and 231 Roystonea Avenue, Farrar, NT.

The TIA has been prepared with reference to the following documents:

- Austroads Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments
- Northern Territory Subdivision Development Guidelines
- Palmerston Eastern Suburbs Planning Principles and Area Plans
- Annual Traffic Report 2025

This report provides an assessment of the following:

- A review of existing transport conditions.
- A review of future transport conditions based on the Northern Territory Subdivision Development Guidelines.
- An assessment of the traffic volumes likely to be generated by the development.
- An assessment of internal transport considerations, including street hierarchy, cross-sections, intersection treatments and traffic management treatments.
- A review of external transport considerations.

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Record

No.	Author	Reviewed/Approved	Description	Date
A.	A. Sahin	D. Hancox	Original Issue	15/07/2026
B.	A. Sahin	D. Hancox	Amendment to Site Layout	14/09/2026

2. Existing Conditions

2.1. Site Location

The site is located at 231 Roystonea Avenue, Farrar, NT and has a site area of approximately 42.42 ha. The site has approximately 1.3 kilometres of frontage to Roystonea Avenue along its southern boundary and approximately 353 metres of frontage to Farrar Boulevard along its northern boundary, shown in the figures below. The major arterial roads nearby the site are Stuart Highway north of the site running northwest-southeast, and Roystonea Avenue which transitions to Tiger Brennan Drive further west of the site.

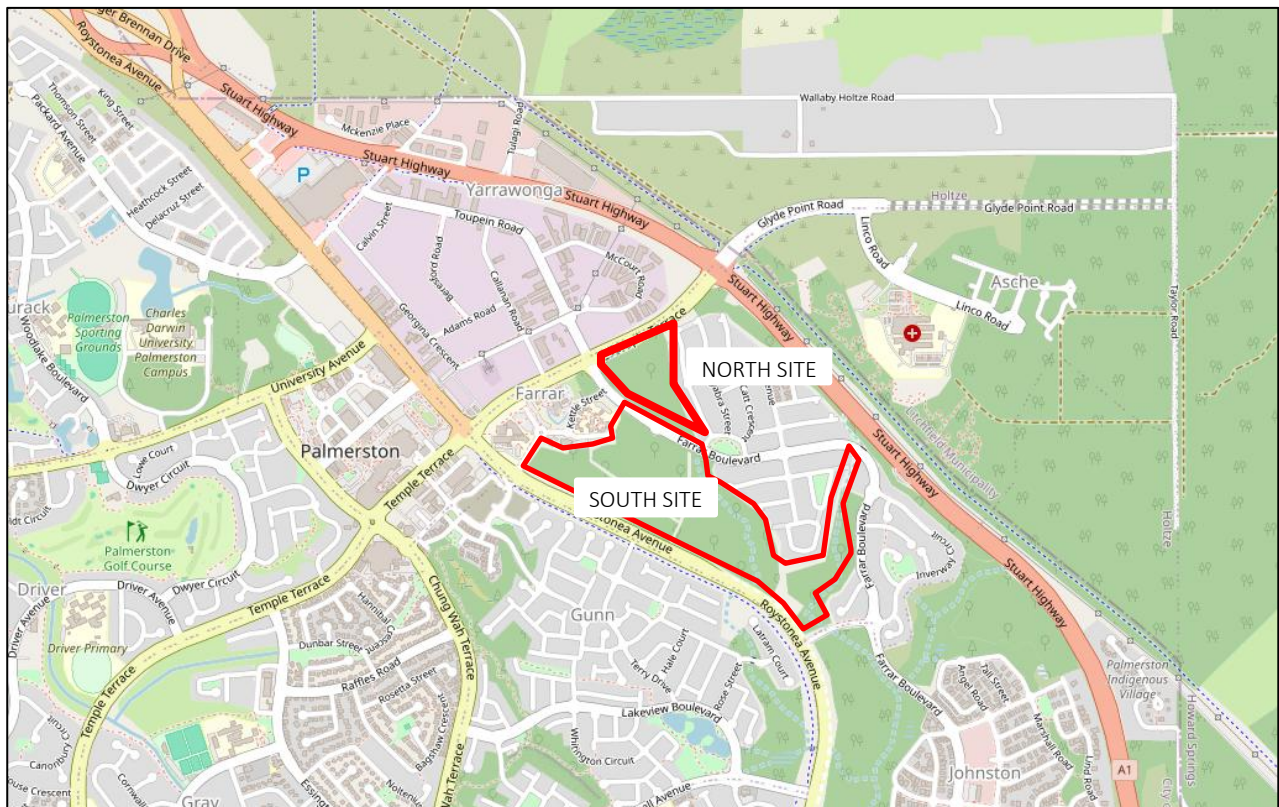


Figure 1: Location Map (Source: OpenStreetMap)

The overall development will be referred to as consisting of the north site and south site, corresponding to the development areas north of Farrar Boulevard and south of Farrar Boulevard respectively.



Figure 2: Aerial Map (Source: Nearmap, May 2026)

2.2. Zoning and Overlays

The site is located in the Future Development (FD) zone within the City of Palmerston Locality. The site is surrounded by residential and commercial uses and the central business zone as shown in the figure below. Note that Roystonea Avenue is classified as a Main Road.

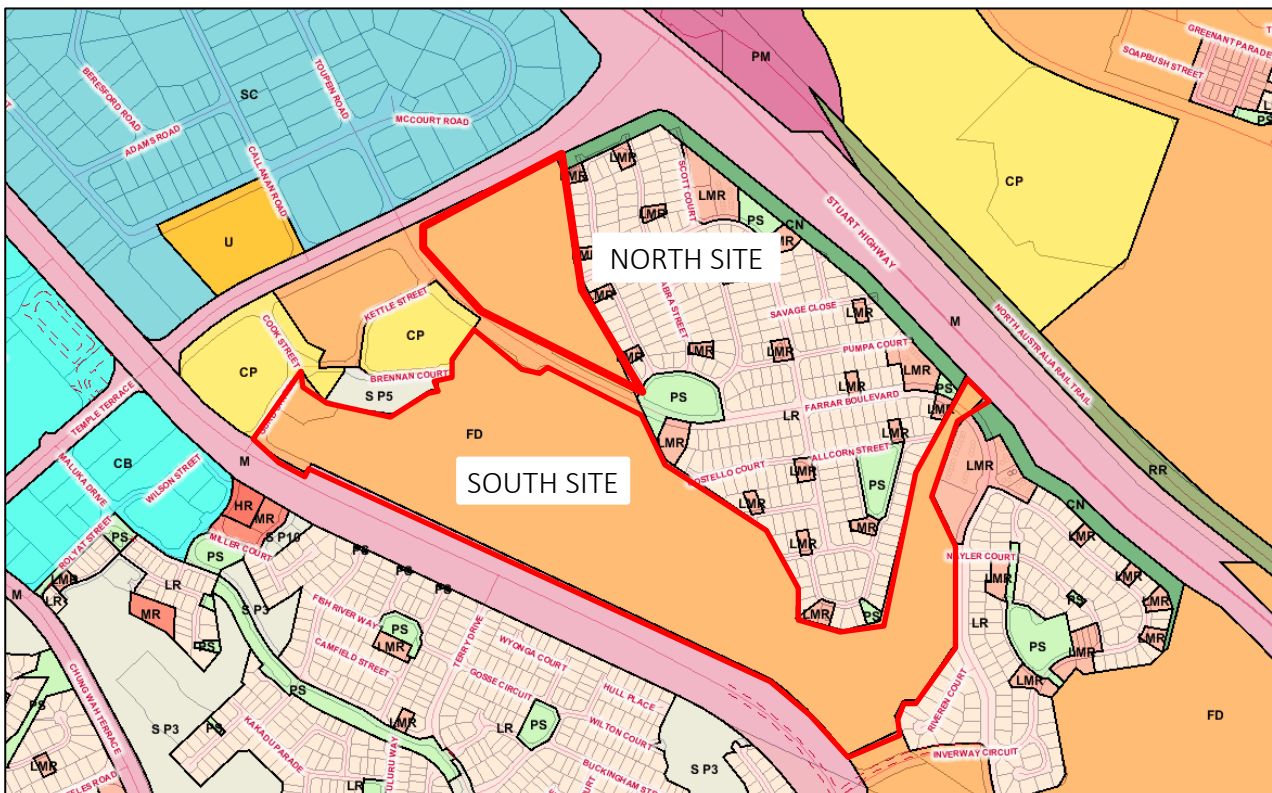


Figure 3: Zoning Map (Source: NT Atlas, 2026)

2.3. Road Network

2.3.1. Roystonea Avenue

Roystonea Avenue is an arterial road currently under construction for road duplication along the site frontage. The ultimate road width is approximately 33 metres wide. The speed limit along Roystonea Avenue is 70 km/hr to the west of the site and 80 km/hr to the east of the site. The existing condition of Roystonea Avenue is shown in the figure below.



Figure 4: Roystonea Avenue Facing East (Source: Google Streetview, November 2021)

2.3.2. Farrar Boulevard

Farrar Boulevard is a collector road approximately 11 metres wide. The speed limit along Farrar Boulevard is 60 km/hr nearby the site. The existing condition of Farrar Boulevard is shown in the figure below.



Figure 5: Farrar Boulevard Facing East (Source: Google Streetview, December 2021)

2.3.3. Brennan Court

Brennan Court is a local road with an approximately 8 metre wide carriageway. The existing condition of Farrar Boulevard is shown in the figure below.



3. Northern Territory and Palmerston Guidelines

3.1. NT Subdivision Development Guidelines

The *Northern Territory Subdivision Development Guidelines* provide the technical framework for the design of subdivisions in Northern Territory. The most recent version has been approved in May 2025.

Subdivision guidelines are tailored to the use and locality of the site, which the *Guidelines* lists into several categories. This site lies in the City of Palmerston, which the *Guidelines* lists as Subdivision Infrastructure Category A (Set 1).

3.2. Palmerston Eastern Suburbs Planning Principles and Area Plans

The Palmerston Eastern Suburbs Planning Principles and Area Plans shows that future land will predominantly be developed for residential uses and natural open spaces. The subject site also includes a small portion of commercial/mixed use to further enhance the activity corridor between the Palmerston CBD and Palmerston Regional Hospital. The area plan is reproduced in the figure below.



Figure 7: Palmerston Eastern Suburbs Plan

The plan includes an internal road network to run through the north and south portions of the site, providing a more direct connection between Terry Drive and Farrar Boulevard. A pedestrian/cycling network is shown on the plans to run along the boundaries of the site, in the indicative open space areas. The pedestrian/cycling network is encouraged to connect to the internal road network.

4. Proposal

4.1. Development Summary

It is proposed to subdivide the site into residential and commercial developments. The majority of large lots are likely to consist of medium density developments and commercial uses. Access to the lots is provided mainly via Farrar Boulevard and Roystonea Avenue. The overall subdivision development is summarised in the table below.

Table 1: Schedule of Uses

Use	No. of Lots
Residential Subdivisions	Total: 241 lots North Site: 13 lots South Site: 228 lots
Low-Medium Density Developments	Total: 5 lots North Site: 3 lots South Site: 2 lots
Medium Density Developments	Total: 6 lots North Site: 2 lots South Site: 4 lots
Commercial Developments	Total: 1 lot North Site: 1 lot

The large lot developments currently do not specify the provision of dwellings/facilities, thus the following is conservatively assumed:

- For low-medium density developments, each dwelling occupies 200 square metres within its site area,
- For medium density developments, each dwelling occupies 100 square metres within its site area,
- For commercial developments, it is assumed that the primary use is for retail which the building floor area occupies 50% of the overall site area,
- The community purposes site is considered ancillary to the development and is expected to generate negligible additional trips to the overall development.

Based on the above, the assumed number of dwellings and retail for each large lot is estimated in the table below.

Table 2: Large Lot Composition

Large Lot Site No.	Assumed Use	Site Area	Floor Area/No. of Dwellings
1 (North Site)	Medium Density	5,867 sqm	59 no.
2 (North Site)	Low-Medium Density	4,611 sqm	23 no.
3 (North Site)	Medium Density	5,458 sqm	55 no.
4 (North Site)	Low-Medium Density	3,869 sqm	19 no.
5 (North Site)	Low-Medium Density	3,042 sqm	15 no.
6 (South Site)	Medium Density	2,864 sqm	14 no.
7 (South Site)	Medium Density	3,053 sqm	15 no.
8 (South Site)	Medium Density	3,829 sqm	19 no.
9 (South Site)	Medium Density	3,446 sqm	17 no.
10 (South Site)	Low-Medium Density	2,580 sqm	13 no.
11 (South Site)	Low-Medium Density	2,277 sqm	11 no.
12 (North Site)	Retail	10,000 sqm	5,000 sqm
TOTAL			Total Retail: 5,000 sqm Dwellings: 260 no. North Site Retail: 5,000 sqm Dwellings: 171 no. South Site Dwellings: 89 no.

Accounting for the individual subdivision developments, the total inventory is as follows:

Table 3: Inventory Summary

Location	Inventory
Entire Development	Retail: 5,000 sqm Dwellings: 501 no.
North Site	Retail: 5,000 sqm Dwellings: 184 no.
South Site	Dwellings: 317 no.

A copy of the proposed subdivision plan is attached in Appendix A.

4.2. Site Access

There are numerous access points from the site to the internal road network, highlighted in the table and figure below:

Table 4: Access

Identifier	Road Connection	Access
A	Farrar Boulevard (West)	Fully Directional
B	Farrar Boulevard (East)	Fully Directional
C	Roystonea Avenue (West)	Fully Directional
D	Roystonea Avenue (East)	Left-in, Left-out
E	Farrar Boulevard	Fully Directional

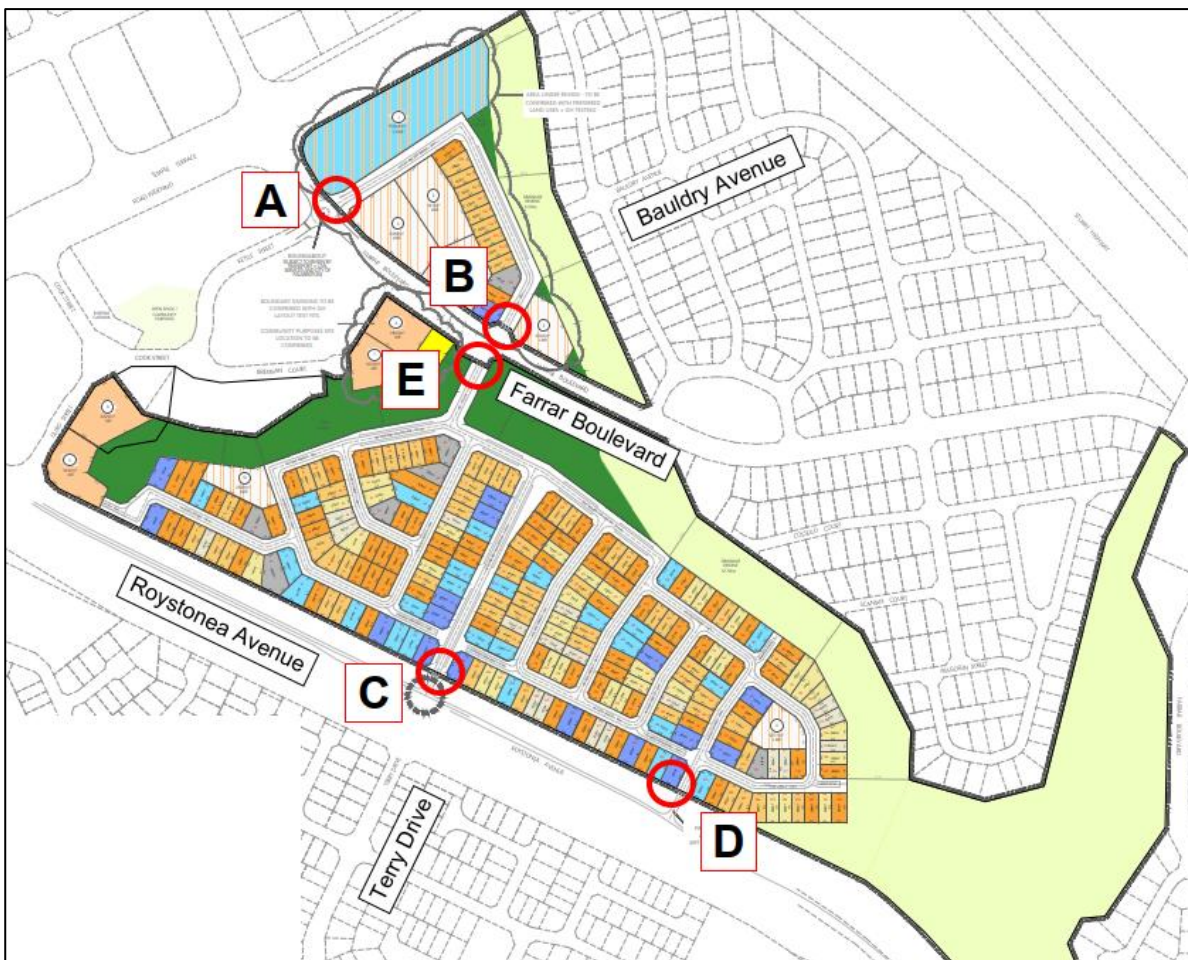


Figure 8: Site Access

5. Traffic Generation and Distribution

Austroads Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments Appendix D notes that the most comprehensive document on traffic generation rates is the NSW Guides, which the current document used in practice is the '*Guide to Transport Impact Assessment (November 2024)*'. As such, traffic generation rates used in this report are referenced from that document.

5.1. Local Road Network Existing Traffic Volumes

5.1.1. Roystonea Avenue

The existing traffic volumes along Roystonea Avenue have been sourced from the *Annual Traffic Report (2025)* prepared by Territory Traffic Surveys. The Annual Average Daily Traffic (AADT) through volumes along Roystonea Avenue nearby the site was determined to be 14,100 vehicles per day.

5.1.2. Farrar Boulevard

The existing traffic volumes along Farrar Boulevard have been sourced from traffic counts undertaken by Territory Asset Management Systems from 28/01/2020 to 11/02/2020. The daily traffic through volumes along Farrar Boulevards nearby the development was determined to be 2,650 vehicles per day (1,257 eastbound and 1,393 westbound).

5.1.3. Brennan Court

Is a cul-de-sac and had traffic volumes less than 100 vehicles per day including no traffic toward the northern court bowl end. Some higher density residential dwellings are proposed to have access from Brennan Court. This additional traffic can be accommodated within Brennan Court, which would have a theoretical capacity in the order of 3,000 vehicles per day. Brennan Court could also function as construction vehicle access during the early stage of the development because of it's generous pavement width and minimal traffic volumes.

5.2. Site Generated Traffic Volumes

This site is situated within walking distance of the Palmerston city centre and is within 20 kilometres of Darwin. Thus, for our assessment, we have adopted the following metropolitan trip generation rates:

Table 5: Traffic Generation Rates

Use	Daily Trip Rate	Weekday AM Peak Hour Trip Rate	Weekday PM Peak Hour Trip Rate
Residential Site	8.12 vpd per lot	0.68 vph per lot	0.77 vph per lot
Low-Medium Density Site / Medium Density Site (MD Site)	2.72 vpd per lot	0.39 vph per lot	0.37 vph per lot
Retail Site	43.37 vpd per 100 sqm floor area	1.78 vph per 100 sqm floor area	3.71 vph per 100 sqm floor area

For this assessment, it is conservatively assumed that the peak hour trips for the dwellings and shops occur at similar times. The actual peak times between these uses may differ which would lower the overall peak hour volumes generated by this development.

Vehicle trips typically have an arrival / departure split as follows:

Table 6: Arrival/Departure Split

Use	Arrival Split	Departure Split
Dwelling	Weekday AM Peak: 20% Weekday PM Peak: 65%	Weekday AM Peak: 80% Weekday PM Peak: 35%
Retail	Weekday AM Peak: 50% Weekday PM Peak: 50%	Weekday AM Peak: 50% Weekday PM Peak: 50%

Based on the rates and splits above, the anticipated traffic volumes generated are summarised in the table below.

Table 7: Anticipated Site Generated Traffic Volumes – Entire Development

Duration	Lot Type	Rate	Trips Generated
AM Peak Hour	Residential: 241 lots	0.68 vph per lot	164 vph (33 arrival, 131 departure)
	MD: 260 lots	0.39 vph per lot	101 vph (20 arrival, 81 departure)
	Retail: 5,000 sqm	1.78 vph per 100 sqm FA	90 vph (45 arrival, 45 departure)
	Total		355 vph (98 arrival, 257 departure)
PM Peak Hour	Residential: 241 lots	0.77 vph per lot	186 vph (121 arrival, 65 departure)
	MD: 260 lots	0.37 vph per lot	97 vph (63 arrival, 34 departure)
	Retail: 5,000 sqm	3.71 vph per 100 sqm FA	186 vph (93 arrival, 93 departure)
	Total		469 vph (277 arrival, 192 departure)
Daily	Residential: 241 lots	8.12 vpd per lot	1,957 vpd (978 arrival, 979 departure)
	MD: 260 lots	2.72 vpd per lot	707 vpd (354 arrival, 354 departure)
	Retail: 5,000 sqm	43.37 vph per 100 sqm FA	2,169 vph (1,085 arrival, 1,085 departure)
	Total		4,833 vpd (2,418 arrival, 2,418 departure)

The entire site is expected to generate a total of up to 4,833 vehicle movements per day, with up to 469 movements occurring during peak hour.

5.3. Traffic Network Movements

The majority of traffic along the road network is expected to be travelling to/from Palmerston City and Darwin towards the west of the site. Drivers are likely to travel via Stuart Highway, Roystonea Avenue, or Tiger Brennan Drive to reach their destination. Thus, the approximate movements to/from the site are estimated to be split as follows.

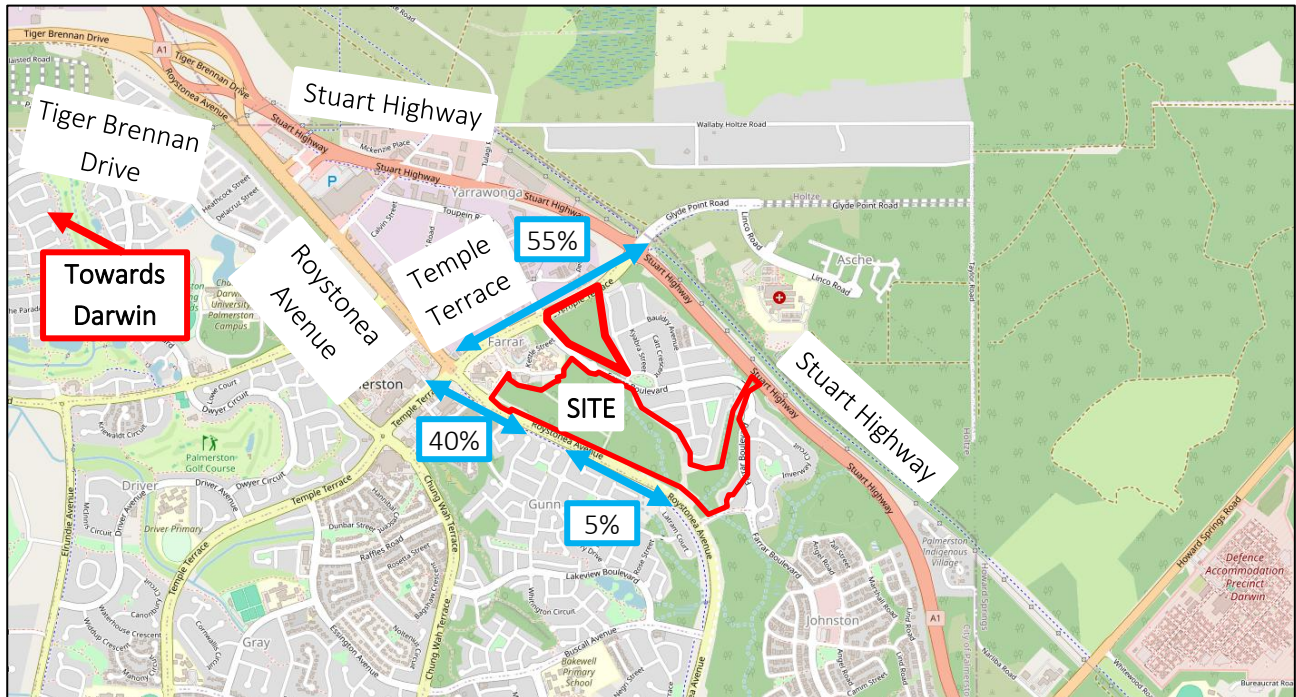


Figure 9: Traffic Network Movements

The traffic is expected to be split:

- 55% of traffic are estimated to travel via Temple Terrace.
- 40% of traffic are estimated to travel east along Roystonea Avenue.
- 5% of traffic are estimated to travel west along Roystonea Avenue.

5.4. Site Traffic Distribution

The vehicle movements to/from the site onto the local road network are based on proximity to the nearest access and in the direction of the broader network as per Figure 9. Note that large lots 4, 6, 7, & 8 are excluded from this analysis because they are likely to be accessed directly from the adjoining road network. The traffic generated by the sites excluding lots accessed directly from the existing network is summarised in the table below using the rates and splits from Sections 5.2 and 5.3.

Table 8: Anticipated Site Generated Traffic Volumes (Excluding Externally Accessed Lots)

Duration	Overall Traffic Residential: 241 no. MD: 193 no. Retail: 5,000 sqm	Temple Terrace Traffic (55%) Residential: 241 no. MD: 193 no. Retail: 5,000 sqm	Roystonea Avenue (West) Traffic (40%) Residential: 241 no. MD: 193 no. Retail: 5,000 sqm	Roystonea Avenue (East) Traffic (5%) Residential: 241 no. MD: 193 no. Retail: 5,000 sqm
AM Peak Hour	329 vph (93 in, 236 out)	181 vph (51 in, 130 out)	132 vph (37 in, 94 out)	16 vph (5 in, 11 out)
PM Peak Hour	443 vph (260 in, 183 out)	244 vph (143 in, 101 out)	177 vph (104 in, 73 out)	22 vph (13 in, 9 out)
Daily	4,651 vpd	2,558 vpd	1,860 vpd	233 vpd

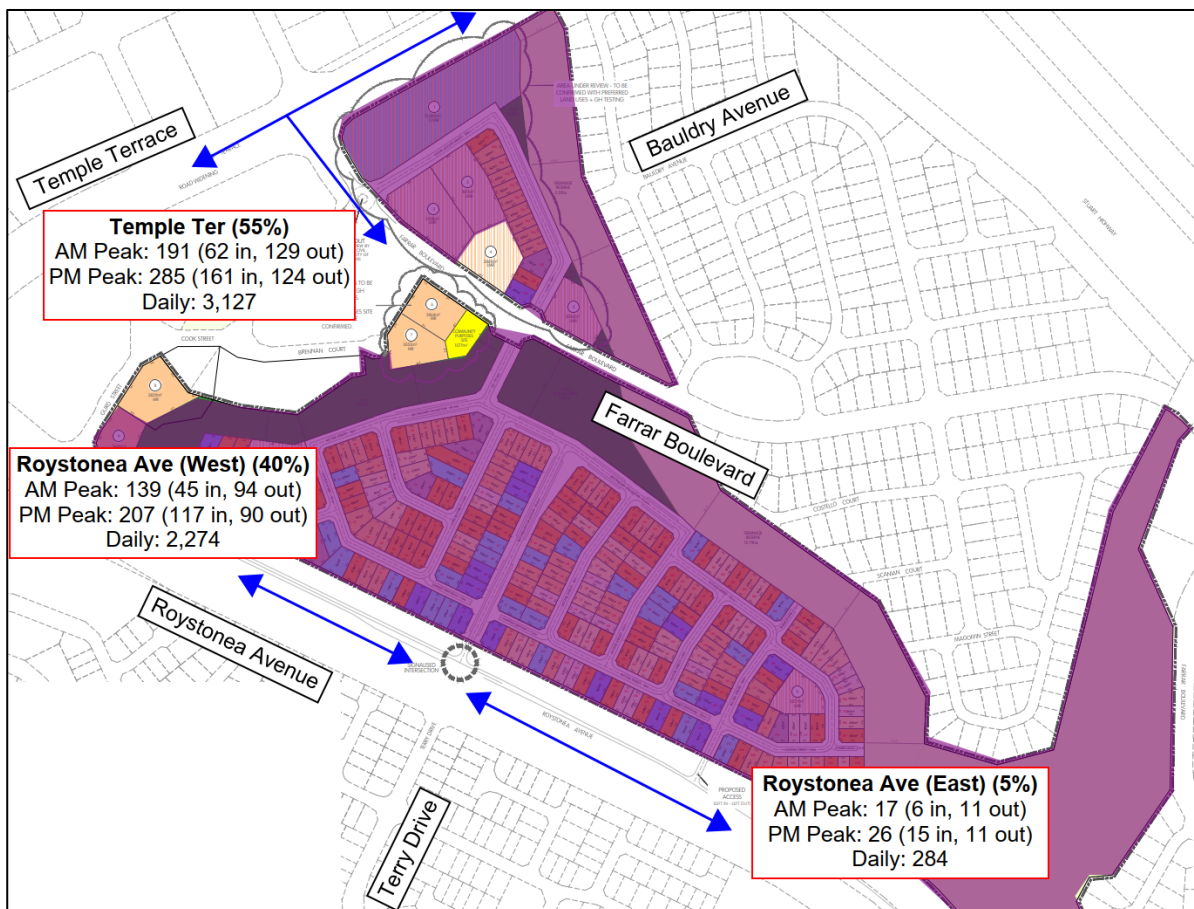


Figure 10: Traffic Split

The arrival and departure movements from Table 8 have been further split into the accesses for the north and south sites based on the number of uses and trips generated as per Section 5.2. This is shown in the figure below.

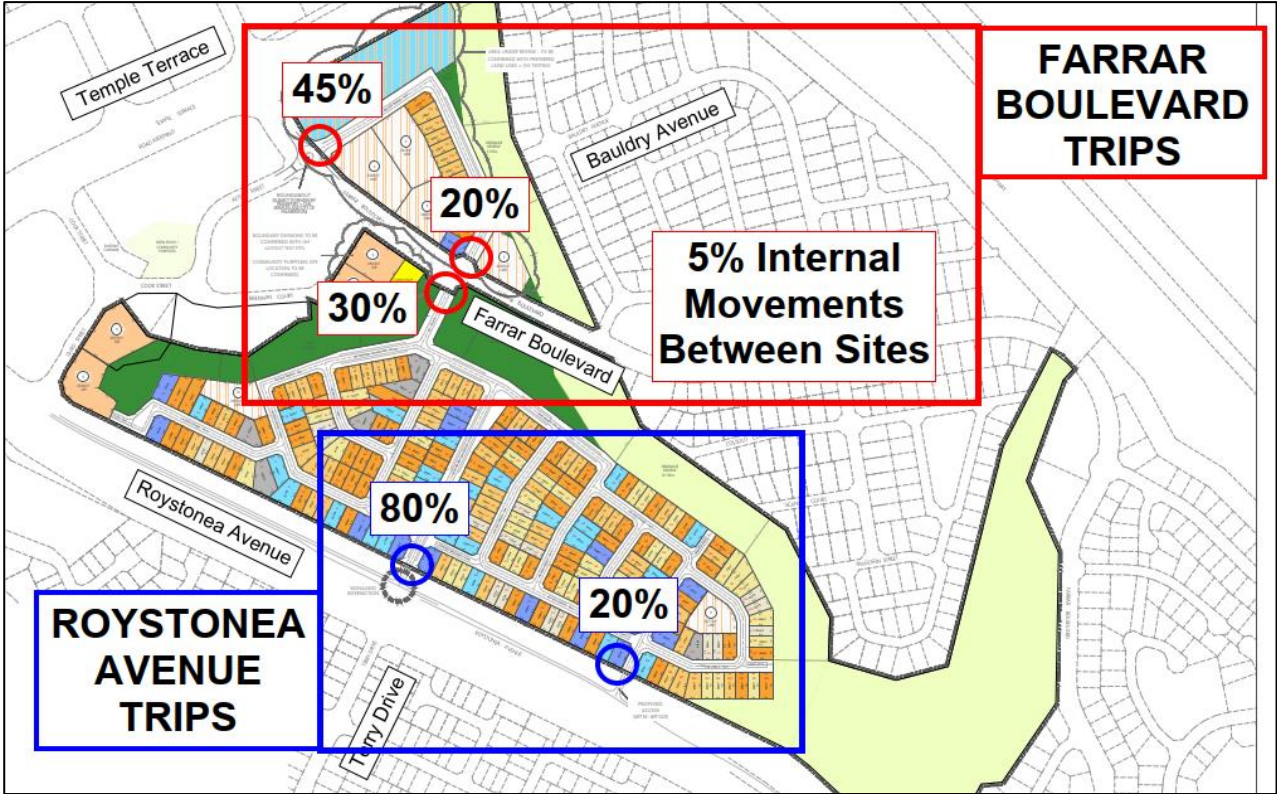


Figure 11: Access Split

The total arrival and departure traffic volumes from Figure 10 are to be split amongst each access proportioned as per Figure 11. The movements during each peak time are shown in the figures below.

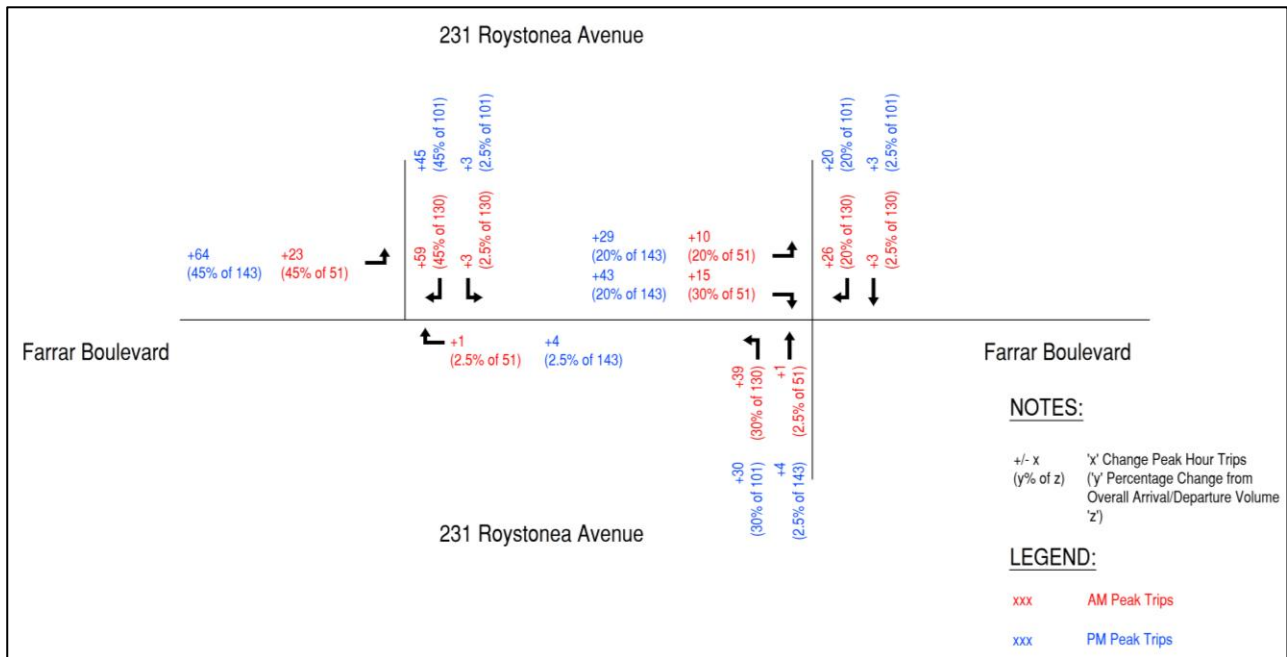


Figure 12: Farrar Boulevard Additional Traffic

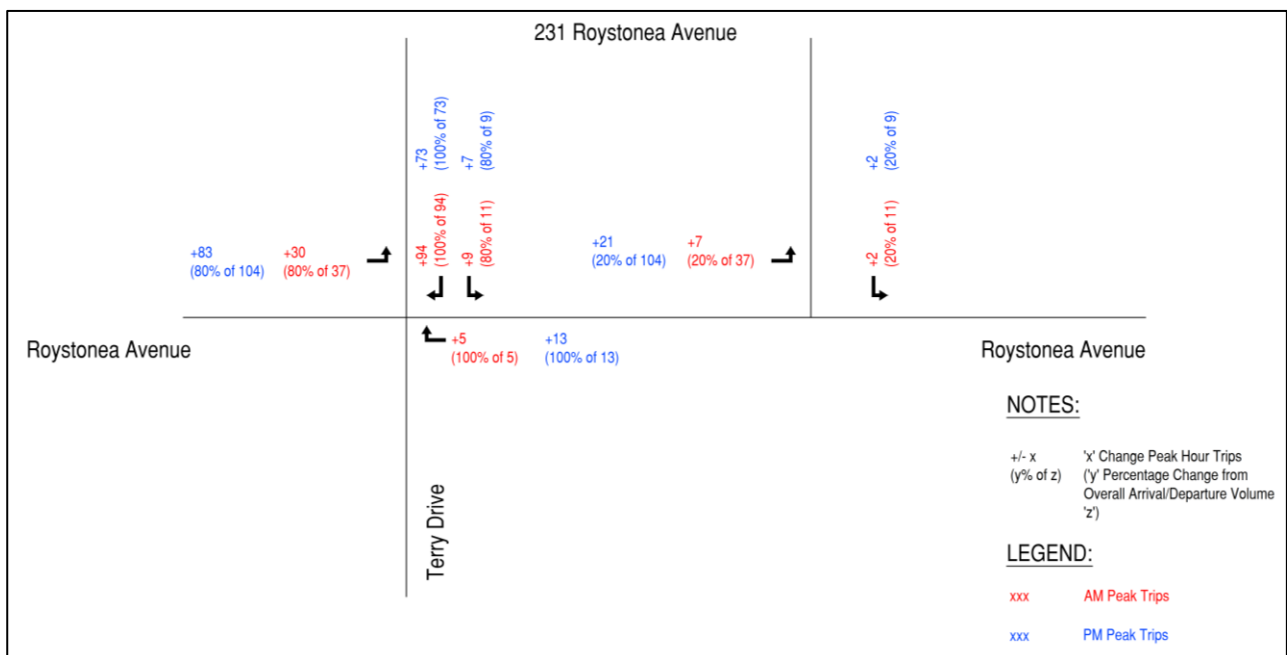


Figure 13: Roystonea Avenue Additional Traffic

5.5. External Network Impacts

To determine the impacts of the site traffic onto the local road network, Colliers has undertaken intersection analysis using SIDRA Intersection V10 for a 10-year design life post-development for the Roystonea Avenue / Terry Drive and Farrar Boulevard / Kettle Street intersections.

5.5.1. Roystonea Avenue / Terry Drive

In preparation of the analysis at Roystonea Avenue / Terry Drive, the following assumptions were made:

- The traffic volume growth along Roystonea Avenue is assumed to be 3% per annum.
- The peak hour volume is assumed to be 10% of the daily traffic volume (14,100 vpd). After applying a 3% growth linearly over 10 years, the overall peak hour volume equates to an anticipated 1,833 vph along Roystonea Avenue for both AM and PM peaks.
- The Roystonea Avenue/Terry Drive intersection is assumed to serve 250 existing dwellings via Terry Drive. Applying the residential rates from Table 5 results in the following peak hour volumes.

Table 9: Terry Drive Residential Existing Traffic Volumes

Item	AM Peak Hour Trips	PM Peak Hour Trips
Dwelling Quantity	250 no.	250 no.
Rate	0.68 vph per lot	0.77 vph per lot
Traffic Volume	170 vph	193 vph

- A majority of uses in the locality consist of dwellings, thus the arrival and departure split along Roystonea Avenue to/from the Palmerston CBD towards the west is assumed to follow the same dwelling rates from Table 6, repeated below.

Table 10: Dwelling Arrival/Departure Split

Use	Arrival Split	Departure Split
Dwelling	AM Peak: 20% PM Peak: 65%	AM Peak: 80% PM Peak: 35%

- A majority of turning movements from Terry Drive is assumed to be directed to/from the Palmerston CBD towards the west at a split of 80 (west) – 20 (east).
- The through movements to/from Terry Drive and the site are assumed to be minimal, 10 vehicle movements per hour in each direction has been assumed.

Applying the above recommendations, the volumes at the Roystonea Avenue / Terry Drive intersection is summarised in the below figure.

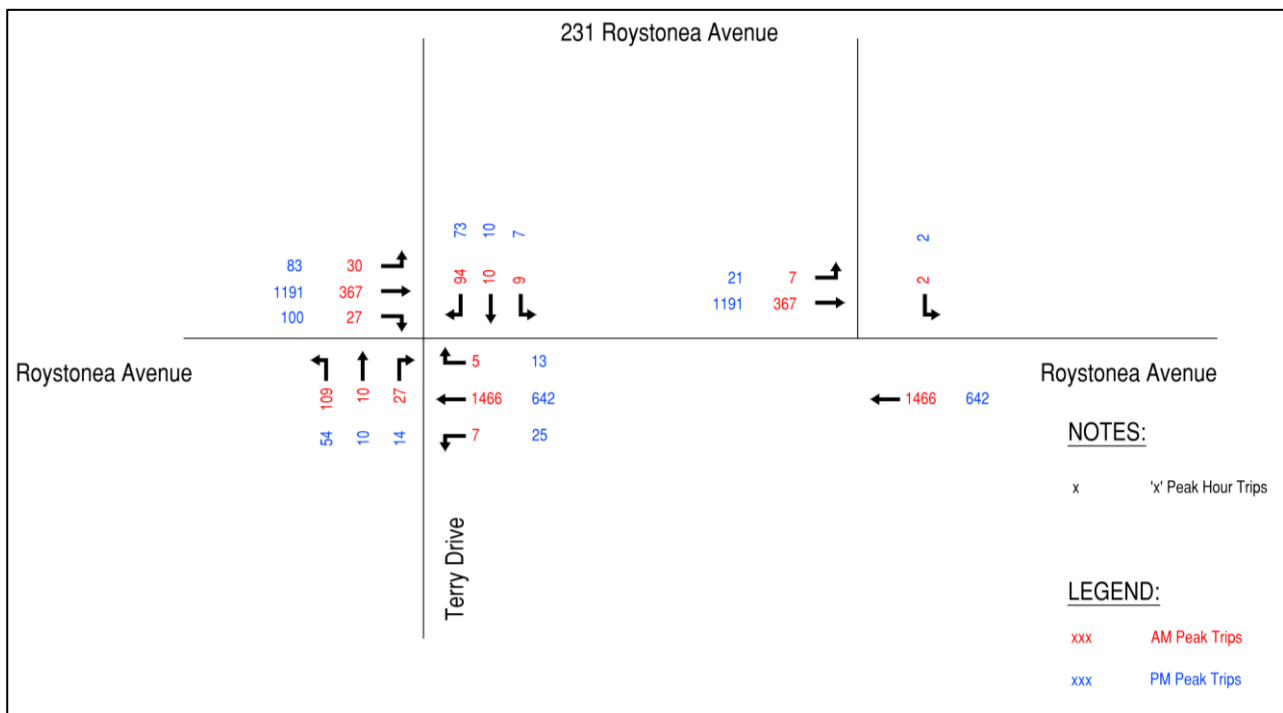
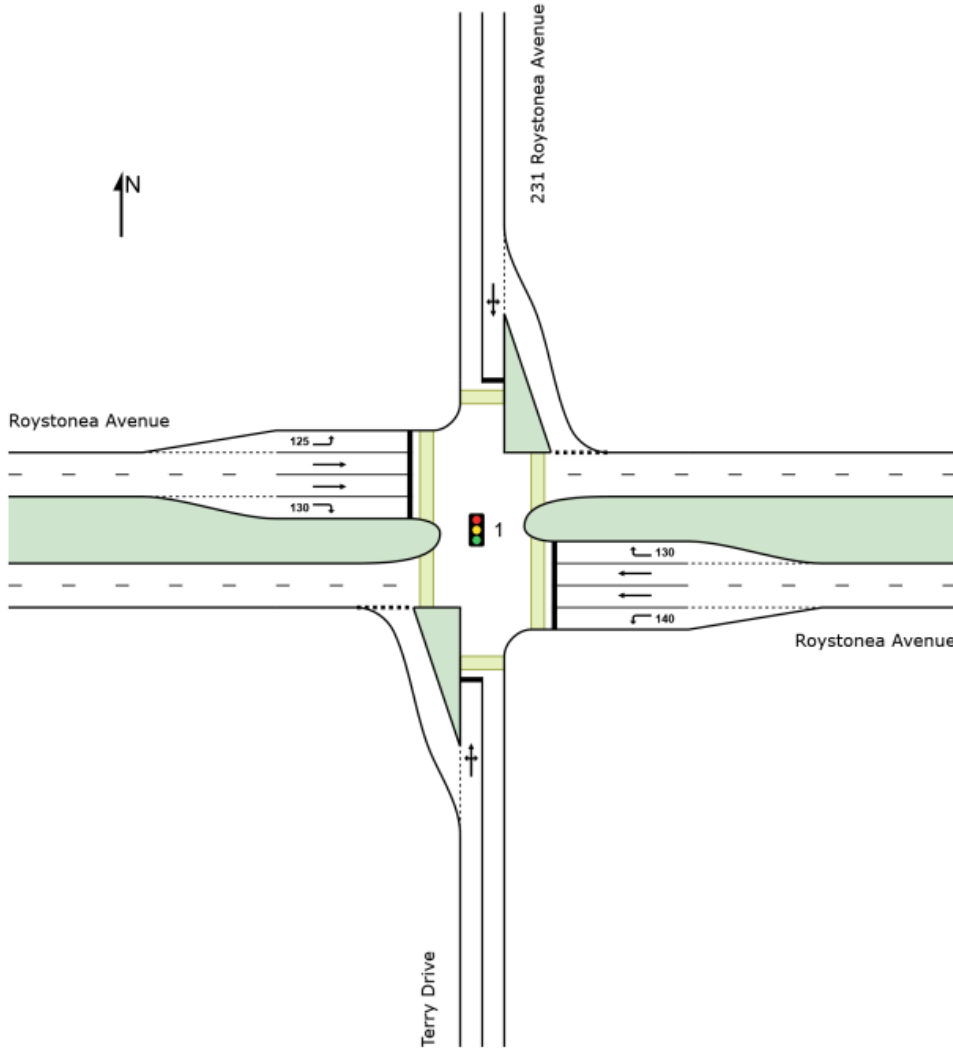


Figure 14: Roystonea Avenue 10-Year Post-Development Traffic Volumes

The anticipated traffic volumes at the Roystonea Avenue / Terry Drive intersection were modelled in SIDRA Intersection, the summary of outputs for the Degree of Saturation and 95th percentile queue length for each peak period are shown in the table below. The SIDRA output results are attached in Appendix B.

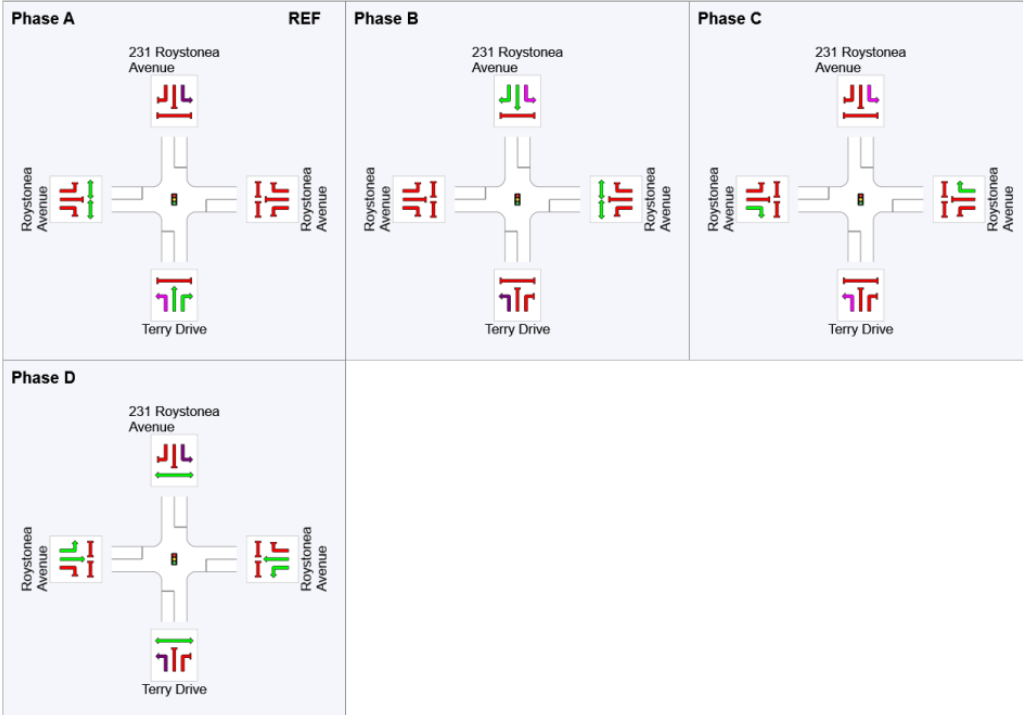
Table 11: Roystonea Avenue/Terry Drive Intersection Analysis – Post Development

Post Development SIDRA Analysis – Roystonea Avenue/Terry Drive		
	AM Peak	PM Peak
Site Layout		

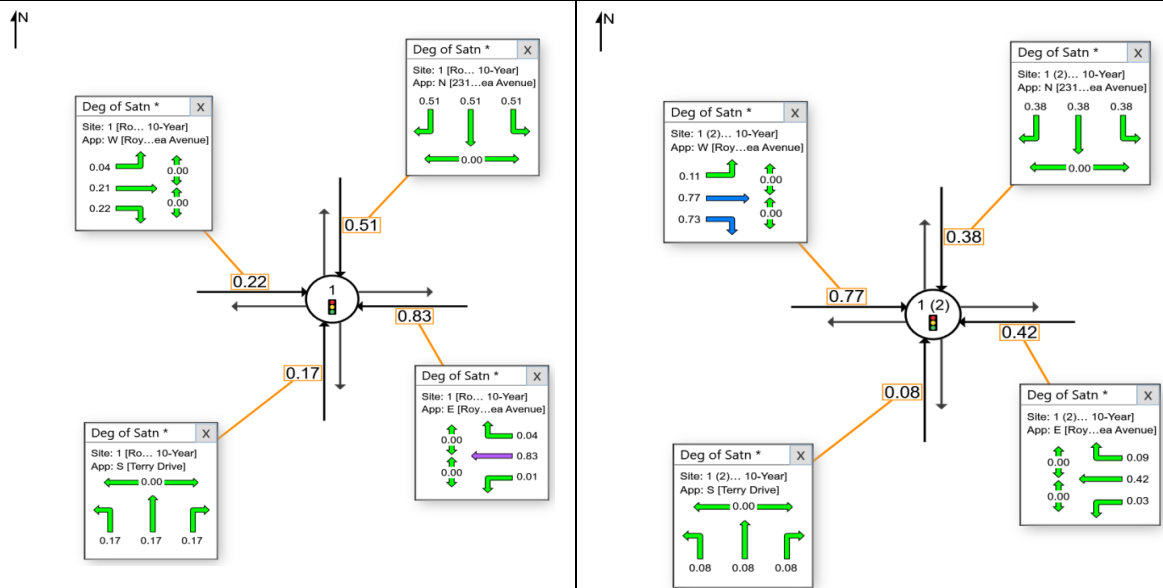
Post Development SIDRA Analysis – Roystonea Avenue/Terry Drive

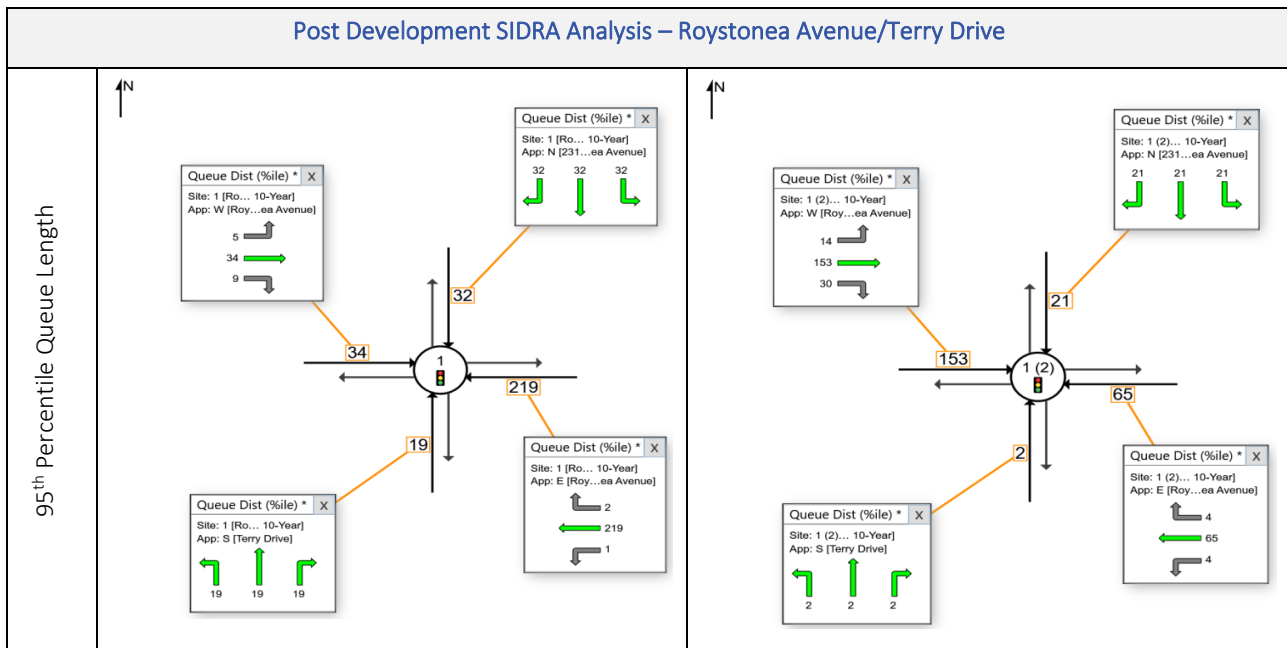
Phasing

Output Phase Sequence



Degree of Saturation





The degree of saturation for the intersection is at most 0.83 which indicates the intersection can accommodate the additional traffic 10 years post-development. Furthermore, the 95th percentile queue length within 32 metres into the site which is approximately 5 vehicles queued. This indicates that the queue distance within the development is expected to be minimal throughout a typical day.

Colliers considers the traffic generated by the site can be accommodated by the local road network near Roystonea Avenue.

5.5.2. Farrar Boulevard / Kettle Street

In preparation of the analysis at Farrar Boulevard / Kettle Street, the following assumptions were made:

- The traffic volume growth along Farrar Boulevard is assumed to be 3% per annum.
- The peak hour volume is assumed to be 10% of the daily traffic volume (1,257 vpd eastbound and 1,393 vpd westbound). After applying a 3% growth linearly over 10 years, the overall peak hour volume equates to an anticipated 164 vph eastbound and 181 vph westbound along Farrar Boulevard for both AM and PM peaks.
- The uses accessed via Kettle Street is similar to that of the proposal at the Farrar Boulevard/Kettle Street intersection. The volumes arriving and departing from Kettle Street at the intersection is assumed to be the same as the proposed volumes accessing the development.
- The through movements to/from Kettle Street and the site are assumed to be minimal, 10 vehicle movements per hour in each direction has been assumed.

Applying the above recommendations, the volumes at the Farrar Boulevard / Kettle Street intersection is summarised in the below figure.

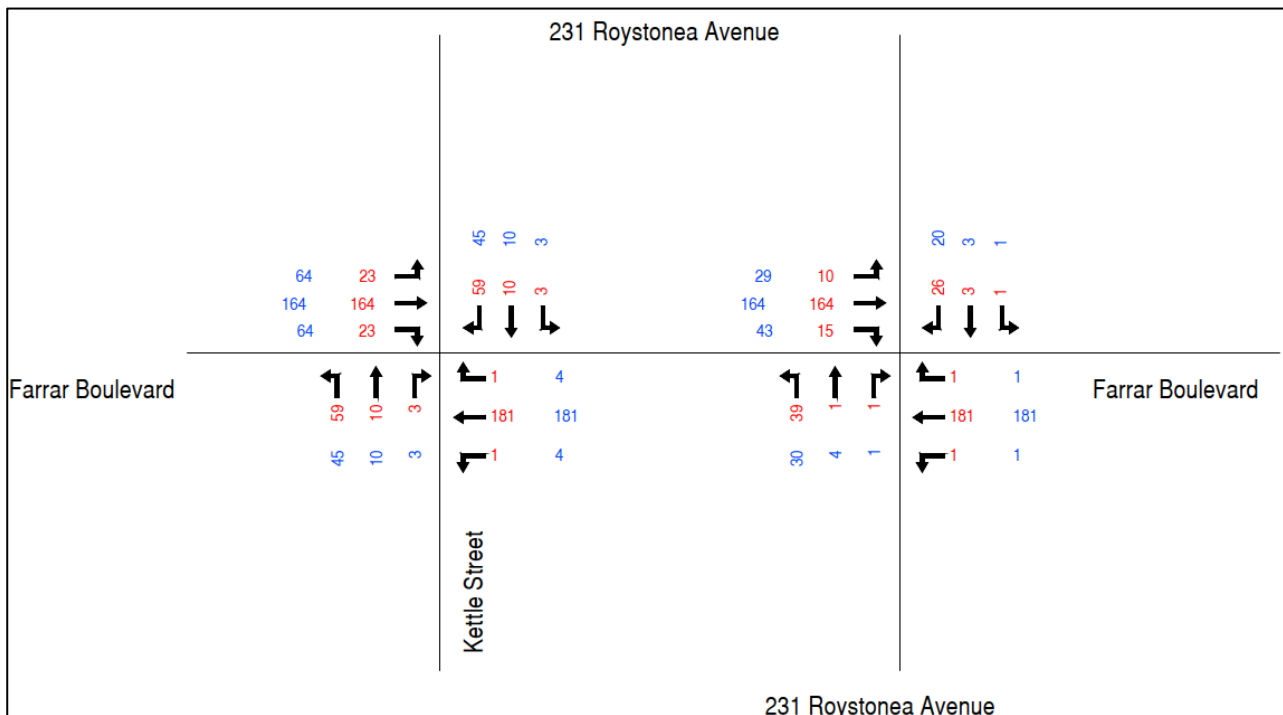
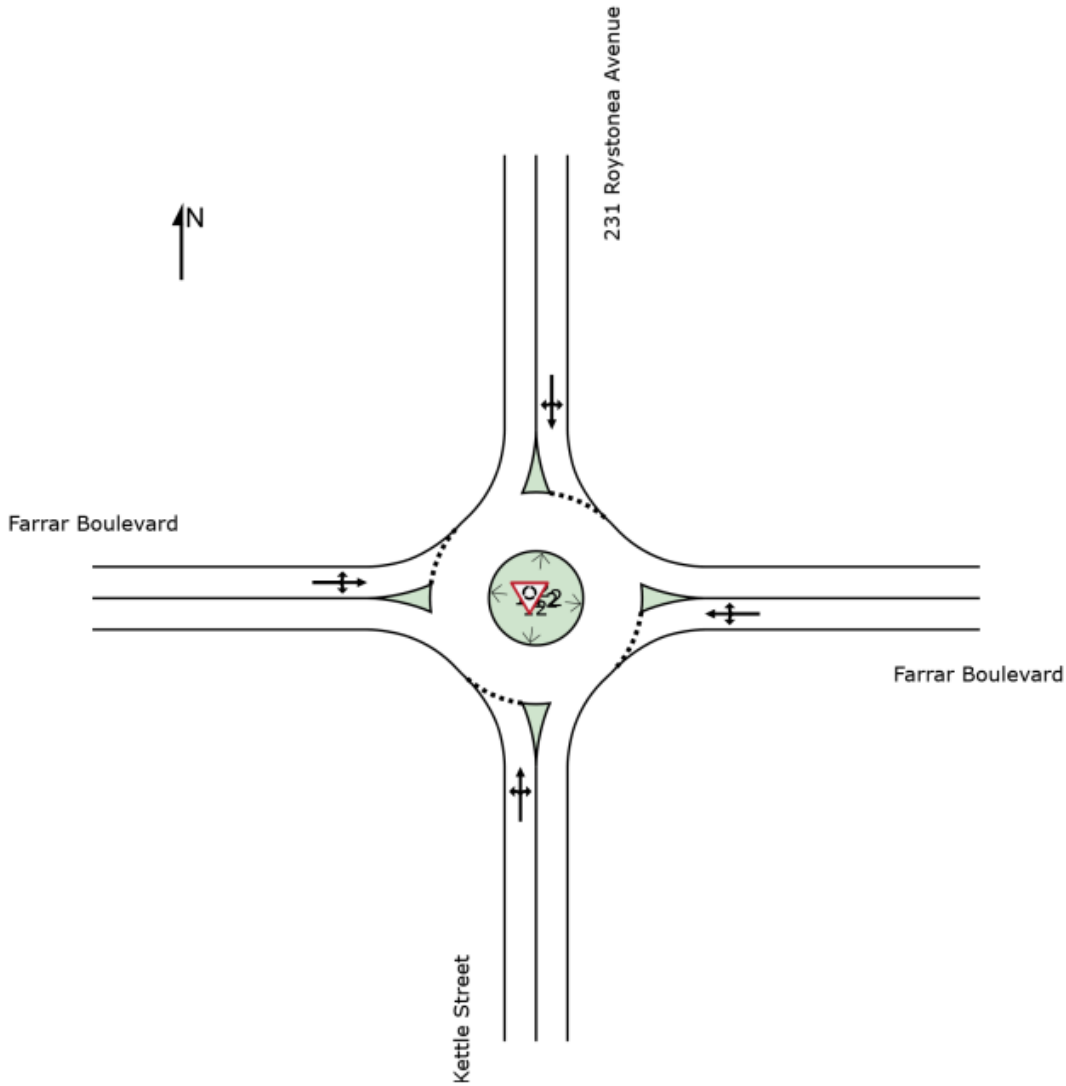
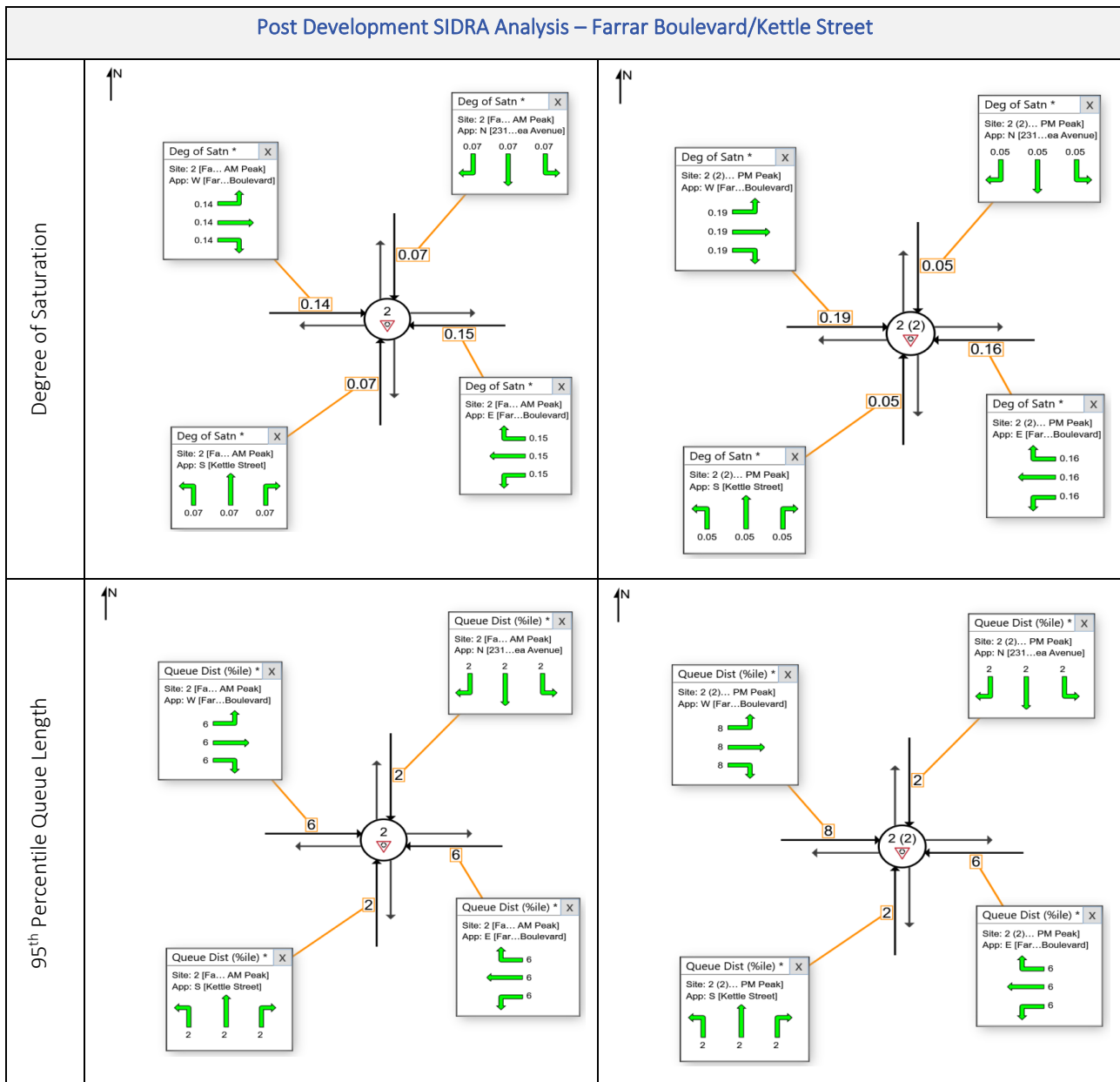


Figure 15: Farrar Boulevard 10-Year Post-Development Traffic Volumes

The anticipated traffic volumes at the Farrar Boulevard / Kettle Street intersection were modelled in SIDRA Intersection, the summary of outputs for the Degree of Saturation and 95th percentile queue length for each peak period are shown in the table below. The SIDRA output results are attached in Appendix B.

Table 12: Farrar Boulevard/Kettle Street Intersection Analysis – Post Development

Post Development SIDRA Analysis – Farrar Boulevard/Kettle Street		
	AM Peak	PM Peak
Site Layout		



The degree of saturation for the intersection is at most 0.19 which indicates the intersection can accommodate the additional traffic 10 years post-development. Furthermore, the 95th percentile queue length within 6 metres into the site which is approximately 1 vehicles queue. This indicates that the queue distance within the development and along Farrar Boulevard is expected to be minimal throughout a typical day. The queue lengths will have no impact on the existing traffic signals at the intersection of Temple Terrace and Farrar Blvd.

Colliers considers the traffic generated by the site can be accommodated by the local road network near Farrar Boulevard.

5.6. Internal Network Impacts

For the south portion of the development, traffic volumes are expected to be significantly greater along the main route which allows drivers to pass through the site between Roystonea Avenue and Farrar Boulevard while also providing access to the most dwellings.

Using the traffic generation rates from Section 5.2, the daily traffic generated by the south site (excluding lots accessed directly from the existing road network) is calculated below.

Table 13: South Site Daily Traffic Volumes

Duration	South Site Residential: 228 no. MD: 41 no.
Daily	1,963 vpd

This equates to approximately 982 movements in each direction daily.

Conservatively assuming that all traffic generated by the site will access the south site via one of the accessways, the internal roads which may experience this extreme scenario are shown in the figure below.



Figure 16: Internal Daily Traffic Volumes

The planning principles has been strategically designed to accommodate the traffic impacts of future residential development across the precinct, including upgrades to the surrounding road network and key intersections. As such, the traffic generated by the subject site has effectively been incorporated into the transport modelling and infrastructure planning and is not anticipated to result in adverse impacts on the operational performance of the local road network.

6. Transport Considerations

6.1. Road Hierarchy and Cross-Sections

The selection of street types and design criteria for this site is guided by the document *Northern Territory Subdivision Development Guidelines*. Specifically, *Table 5 and Table 6* detail the recommended street types to implement throughout subdivisions in Category A (Set 1) based on daily traffic volumes, number of dwellings, and street lengths, shown below.

Table 14: Street Hierarchy Selection Criteria Category A (NT Subdivision Development Guidelines)

Table 5 – Street Hierarchy Selection Criteria – Category A				
Zoning	Street Type	Max Annual Daily Traffic Volumes (vpd) ¹	Typical No. of Dwellings ¹	Typical Street Length (m) ¹
Residential/ Mixed Use	Laneway (Set A Only)	n/a	10	140
	Minor Street/ Cul-de-sac ²	150	25	200
	Access Street	3,000	60	600
	Secondary Collector	5,000	300	As approved
	Primary Collector	10,000	400	As approved
Industrial	Access Street	n/a	50	1,000
	Collector	n/a	>50	As approved

Table Notes:

- Selection criteria are not always directly proportional and street hierarchy selection may be governed by any of the three criteria, depending on context. Annual Daily Traffic is a 'maximum' value and must not be exceeded. Number of Dwellings and Street Length are typical guide values only, but generally at least one of the two will be compliant with the listed values.
- Minor Street/Cul-de-sac must only be used where access is to Single Dwellings (LR/LMR Zones).

Table 15: Street Hierarchy Selection Criteria Category A Set 1 (NT Subdivision Development Guidelines)

Table 6 – Street Hierarchy Design Criteria – Category A – Set 1								
Zoning Type	Street Hierarchy	Reserve Width (Minimum) ⁵	Carriageway Width (Minimum)	Central Median	Verge Width (Minimum)	Formalised Parking Lanes ³	Footpath ⁴	Lot Access
Residential/ Mixed Use ¹	Laneway	6.25m ²	2 x 3m	None	None	None	None	Direct access
	Minor Street/ Cul-de-sac	15m	2 x 3m	None	2 x 4.5m	None	1 x 1.5m	Direct access
	Access Street	16m	2 x 3.5m	None	2 x 4.5m	None	1 x 1.5m	Direct access
	Secondary Collector	21.6m	2 x 3.5m	As Required	2 x 5m	2 x 2.3m	1 x 1.5m 1 x 2.5m	Direct access
	Primary Collector	24.6m	2 x 3.5m	3m	2 x 5m	2 x 2.3m	2 x 2.5m	Access via rear laneway where ADT > 5000
Industrial	Access Street	21m	2 x 5.5m	As Required	2 x 5m	None	1 x 1.5m	Direct access
	Collector	23m	2 x 6.5m	As Required	2 x 5m	None	1 x 1.5m	Direct access

Table Notes:

1. Street Hierarchy for Residential/mixed Use Zoning also applies to Rural Residential (RR) allotments residing in Residential/Mixed Use Subdivisions.
2. Laneway Reserve Widths may need to be widened to accommodate street lighting, landscaping treatments, garbage collection, and/or to improve passive surveillance.
3. Formalised Parking Lanes are in addition to the minimum Carriageway Width specified. Formalised parking requirements must be confirmed with the Relevant Authority for Secondary and Primary Collector Roads.
4. On-street Cycle Lanes should also be considered where Annual Daily Traffic (ADT) is forecast to exceed 3,000 vehicles per day. The Developer should consult with the Relevant Authority during the project development phase to confirm regional cycle path network strategies and agree on appropriate provision of cyclist facilities, considering exposure based warrants.

The key internal roads within the site extents south of Farrar Boulevard provides access to 269 dwellings within the site and allows drivers to pass through for local access to additional dwellings. Furthermore, it should also serve to connect pedestrians and cyclists to the broader pedestrian/cyclist network as per the *Palmerston Eastern Suburbs planning principles and Area Plans*. From Section 5.6, the daily traffic volume is expected to be in the order of 1,963 vehicles per day, thus the secondary collector street type is appropriate for these roads.

Streets that are likely to experience two-way movements are the connections to the external road network and the internal secondary collector road. The access street carriageway width is 7 metres wide, which is sufficient width for cars to be parked kerbside on both sides while also allowing a car to pass through. Access streets are therefore appropriate for the roads which experience moderate volumes and connects to the remainder of the access points throughout the site.

The minor street/cul-de-sac carriageway width is 6 metres, which only allows for cars to be parked on one side of the road and have a single travel lane for vehicle movements, which should only be reserved for local access experiencing up to 150 vehicles per day or streets which have dwelling access on one side only. The remaining roads are to be allocated as minor streets/cul-de-sacs, based on expected traffic volumes being only local to nearby dwellings.

The nominated street types are highlighted in the figure below.

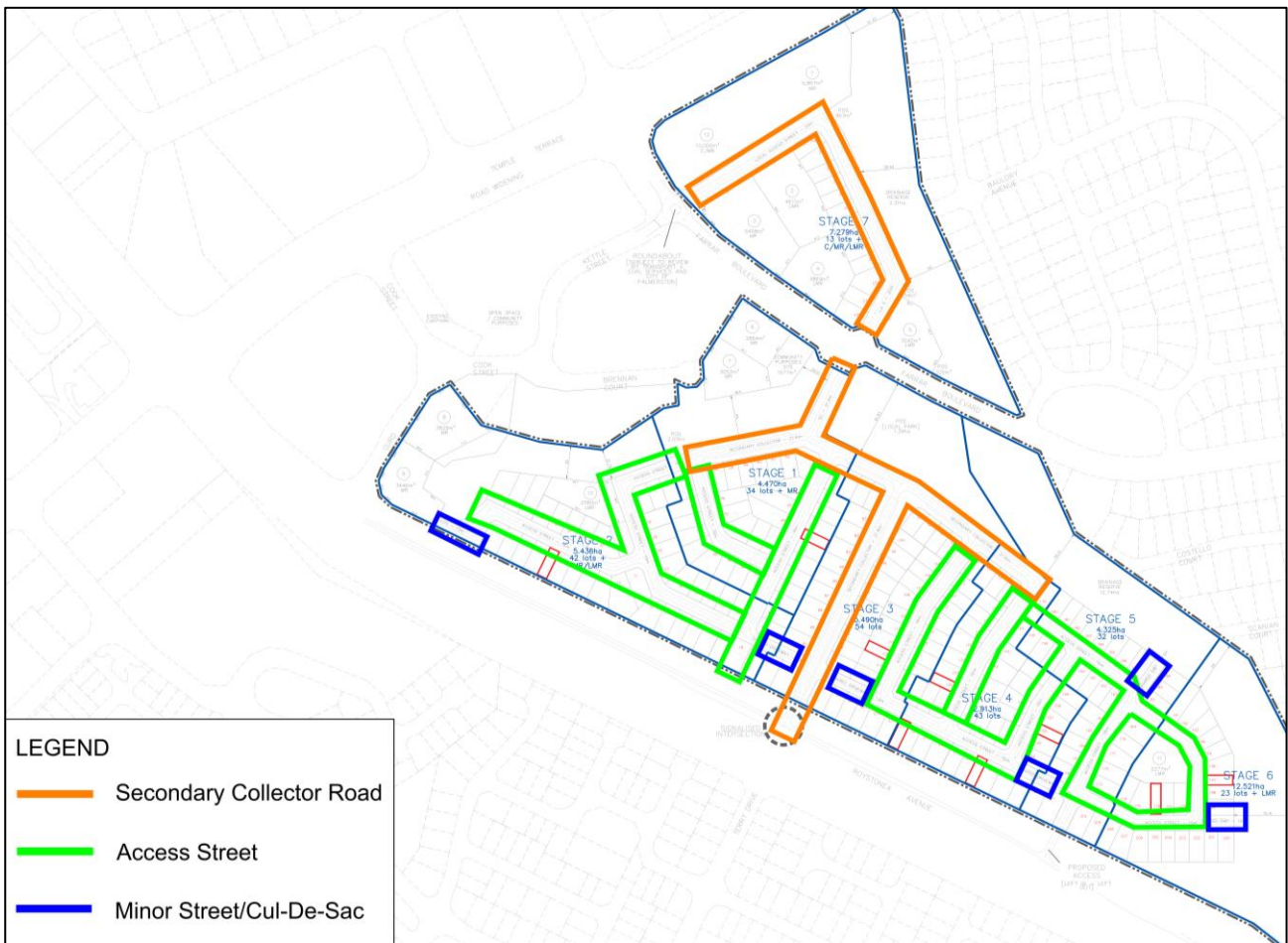


Figure 17: Street Type Allocation

The NT Subdivision Development Guidelines Standard Drawings detail the recommended cross-sections of each street type, shown in the figures below.

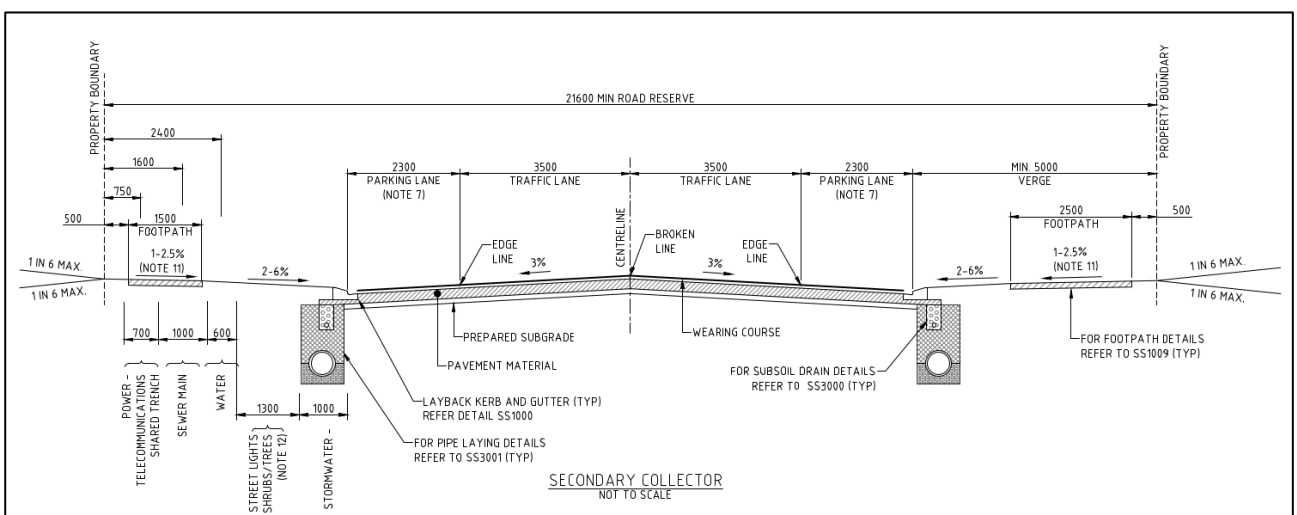


Figure 18: Secondary Collector Road (21.6-metre reserve, 11.6-metre carriageway)

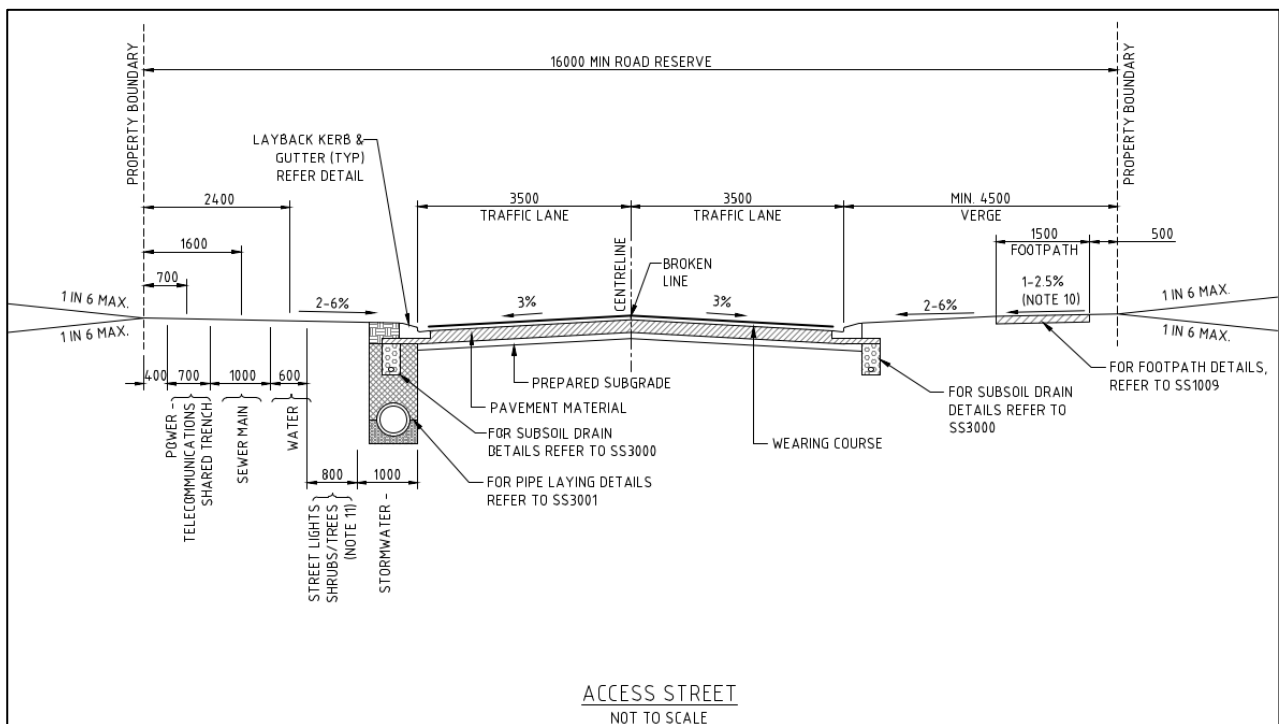


Figure 19: Access Street (16-metre reserve, 7-metre carriageway)

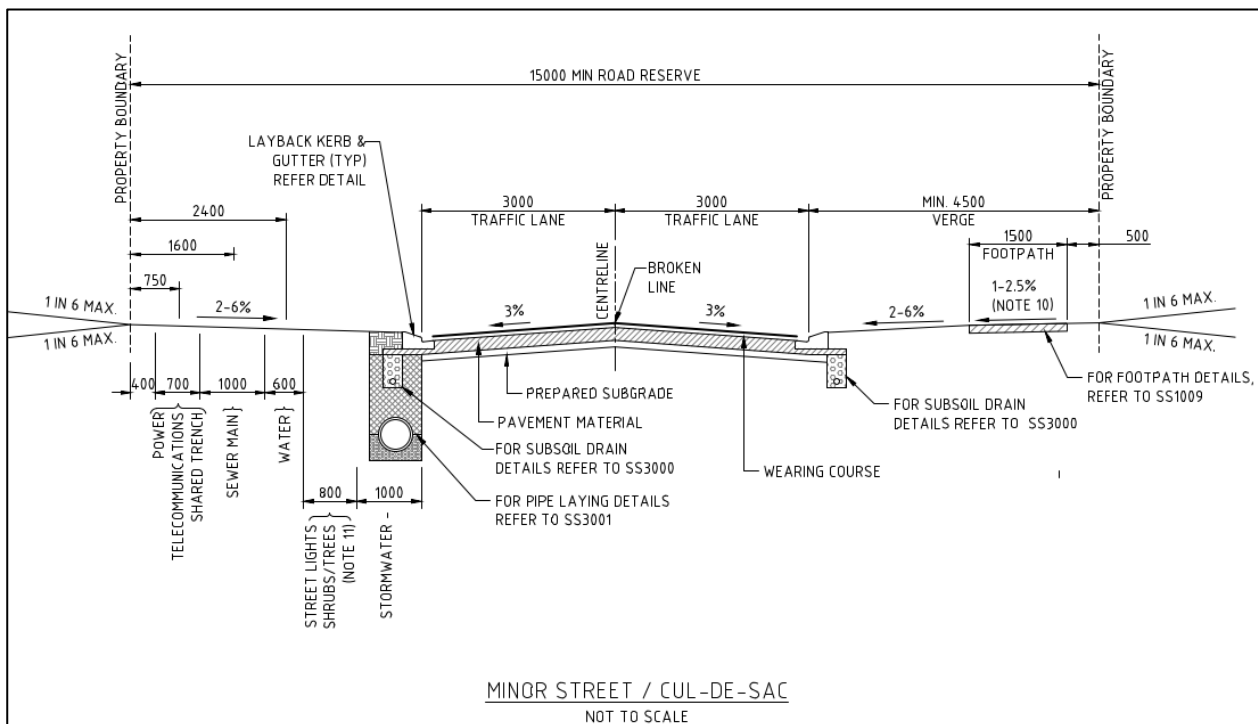


Figure 20: Minor Street/Cul-De-Sac (15-metre reserve, 6-metre carriageway)

The internal road reserve in the development plans attached in Appendix A provide at least the width recommended as per the above figures.

6.2. Internal Intersection Treatments

The intersections within the site consist of typical local street T-intersections, with signage and linemarking to be resolved during the detailed design stage subject to Council specifications.

The greatest peak hour volumes experienced at any site access is 176 vehicles per hour. This is typically low when accessing a collector street in a residential zone, which can be adequately accommodated by give-way controlled intersections.

6.3. Roystonea Avenue Access

The proposed Roystonea Avenue can accommodate a treatment similar to the Terry Drive/Roystonea Avenue intersection opposite the site access. A high level concept of the Roystonea Avenue access is shown in the figure below.



Figure 21: Roystonea Avenue Access Layout Plan

6.4. Bauldry Avenue Access

There is existing reserve north of the site connecting to Bauldry Avenue. Providing an access from Bauldry Avenue through the site to Farrar Boulevard would provide negligible change to traffic movements on the local road network. Motorists accessing dwellings nearby Bauldry Avenue have a direct connection to Farrar Boulevard and can also be accessed via William Street.



Figure 22: Bauldry Avenue Access

6.5. Traffic Management Treatments

The internal roads are generally up to 200 metres long. On roads exceeding 100 metres in length, traffic calming treatments such as road humps are used to control vehicle speeds. The appropriate treatments can be resolved during the detailed design stage to the satisfaction of the relevant authority.

6.6. Temporary Turnaround Treatments

Depending on development staging, temporary turnaround treatments may be required at the temporary end of a street that will be extended as part of a future development stage.

The temporary turnaround treatment should be designed and constructed to Council's specifications and able to accommodate a three-point turn for an 8.8 metres service vehicle.

7. Conclusions

Based on the traffic engineering assessments set out in this report, Colliers considers:

- The future development of the site may generate in the order of up to 4,833 vehicle trips per day and 469 vehicle trips in the peak hours (inclusive of both arrivals and departures).
- All internal streets are expected to carry in the order of 1,963 vehicles per day following completion of the development, consistent with the classification of secondary collector roads.
- The external streets can adequately accommodate the expected traffic generated by the site and surrounding properties post-development.
- The reserves for the internal roadway is provided in accordance with the *Northern Territory Subdivision Development Guidelines*.

Based on the above, Colliers considers the proposed subdivision appropriate from a traffic perspective.

Colliers International Engineering & Design (Vic) Pty Ltd

A handwritten signature in black ink, appearing to read "Asim", written over a horizontal line.

Adem Sahin
Project Consultant – Transport

Appendix A Subdivision Plans

Appendix B SIDRA Output

SITE LAYOUT

 Site: [1] Roystonea Ave - Terry Dr AM Peak 10-Year (Folder1)

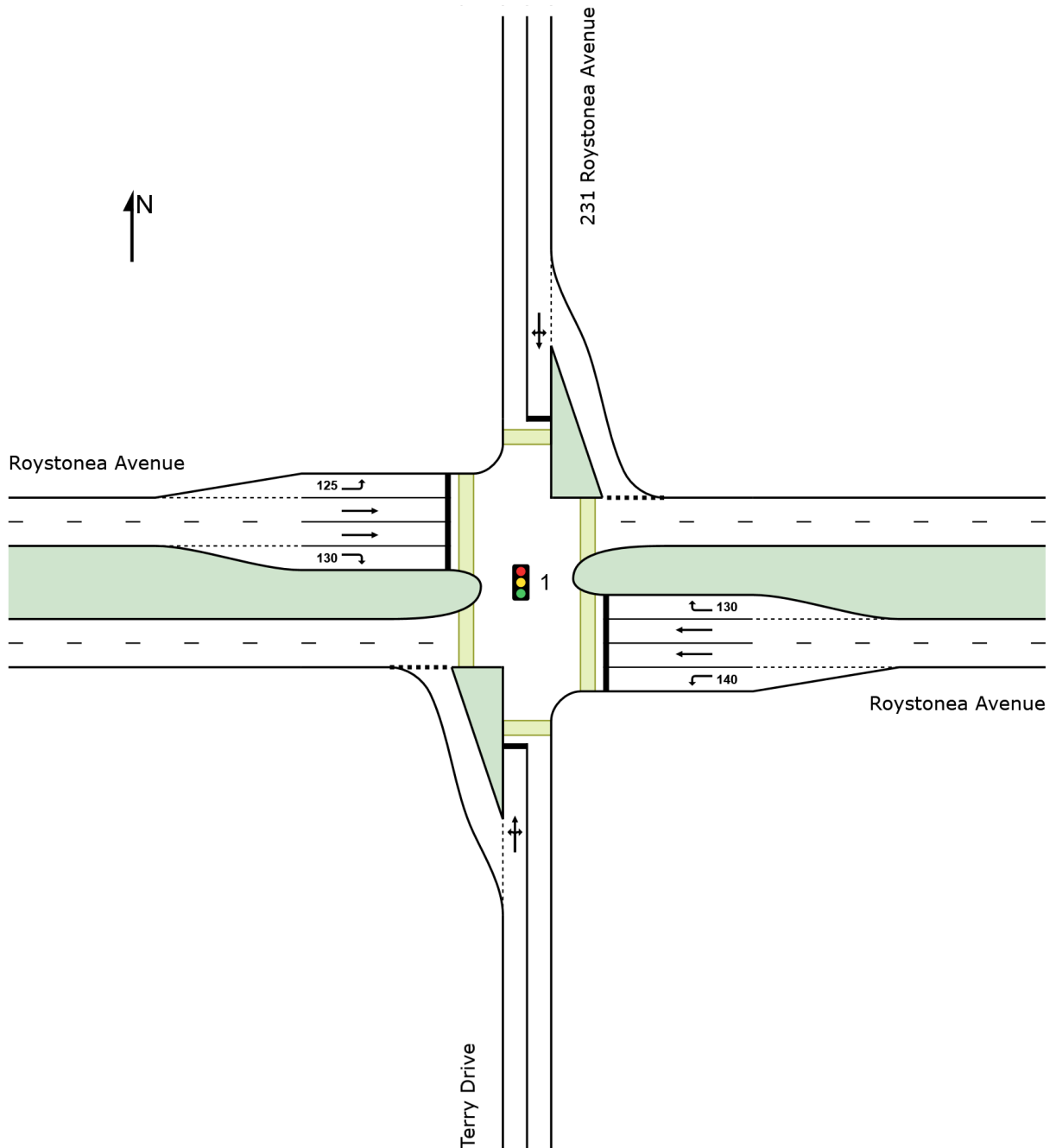
New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Site Scenario: 1 | Local Volumes

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



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\\6 - Analysis\SIDRA\SIDRA.sipx

 Site: [1] Roystonea Ave - Terry Dr AM Peak 10-Year (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Site Scenario: 1 | Local Volumes

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
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.

- * Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec	[Ped Dist]					sec	m	m/sec
South: Terry Drive												

P1 Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
East: Roystonea Avenue											
P21 Stage 1	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
P22 Stage 2	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: 231 Roystonea Avenue											
P3 Full	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Roystonea Avenue											
P41 Stage 1	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
P42 Stage 2	10	10	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians	40	60	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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

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

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

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PHASING SUMMARY

 **Site: [1] Roystonea Ave - Terry Dr AM Peak 10-Year (Folder1)**
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90.0 seconds (Site Practical Cycle Time)
Site Scenario: 1 | Local Volumes

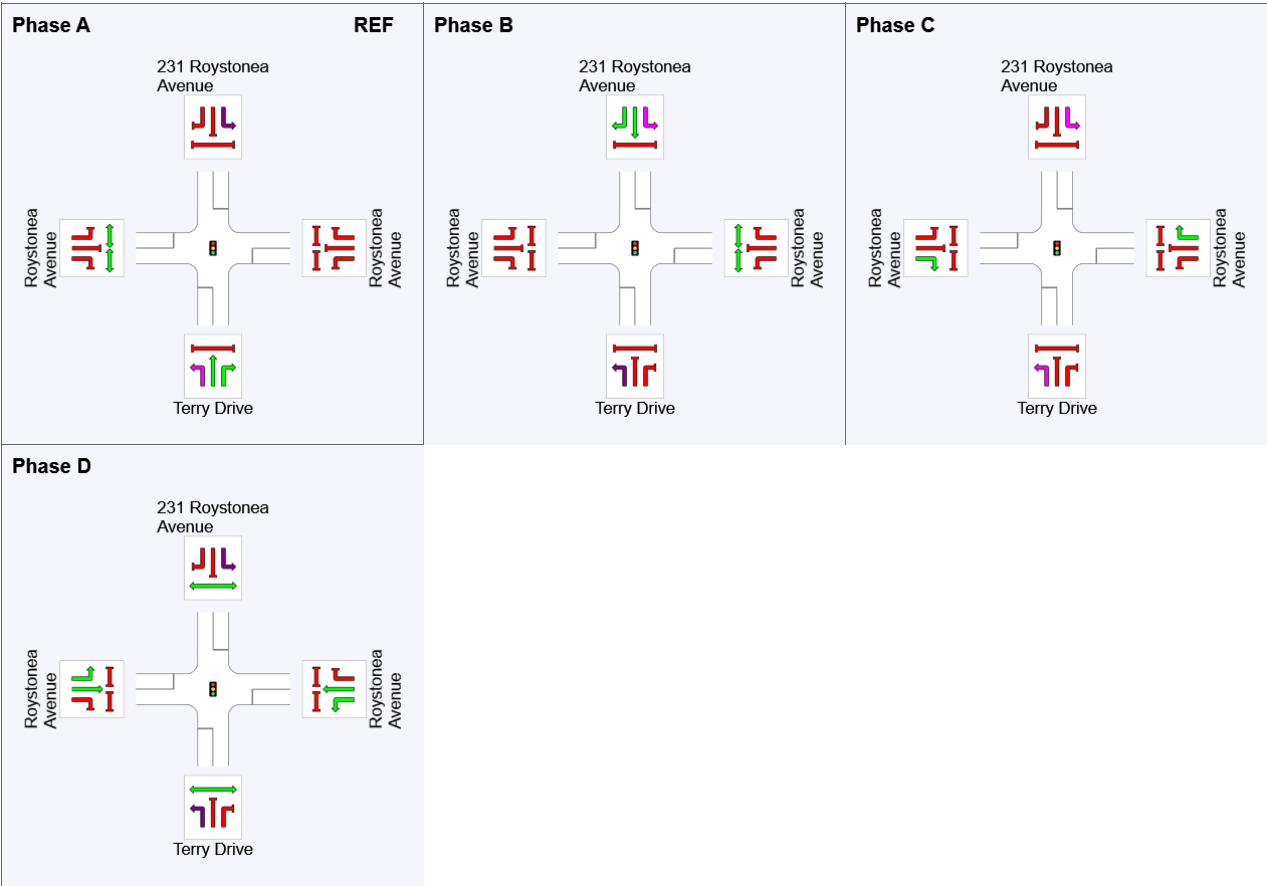
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Split Phasing - Copy
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0.0	15.3	30.6	42.6
Green Time (sec)	9.3	9.3	6.0	41.4
Phase Time (sec)	15.3	15.3	12.0	47.4
Phase Split	17%	17%	13%	53%
Phase Frequency (%)	100.0	100.0	100.0	100.0

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

APPROACH MOVEMENT ARRIVAL FLOWS

Site Approach Movement Arrival Flow Rates (veh/h) and Pedestrian Flow Rates (ped/h)

 Site: [1] Roystonea Ave - Terry Dr AM Peak 10-Year (Folder1)

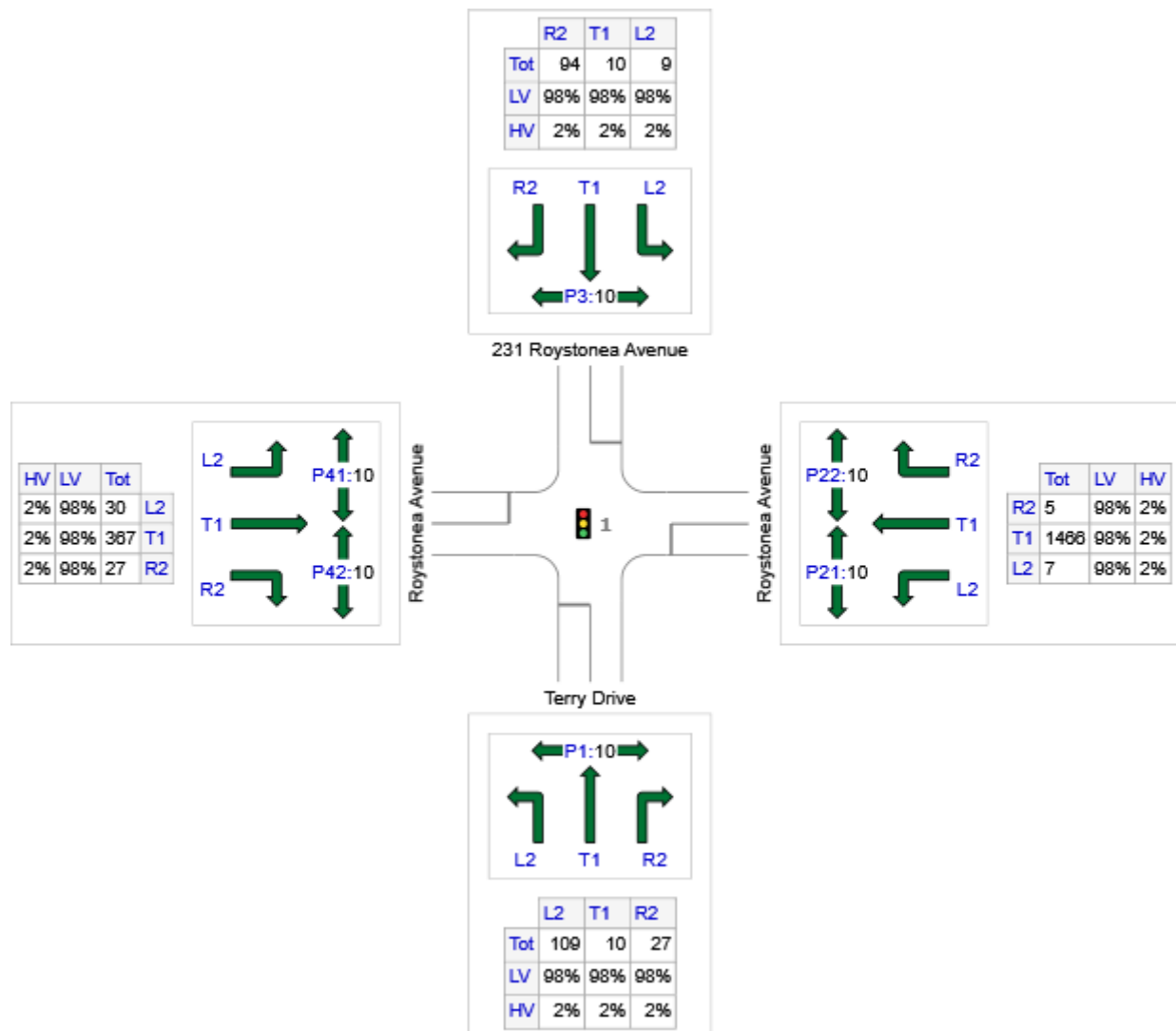
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90.0 seconds (Site Practical Cycle Time)

Site Scenario: 1 | Local Volumes



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Terry Drive	146	143	3
E: Roystonea Avenue	1478	1448	30
N: 231 Roystonea Avenue	113	111	2
W: Roystonea Avenue	424	416	8
Total	2161	2118	43

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects. In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per movement

 **Site: [1] Roystonea Ave - Terry Dr AM Peak 10-Year (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90.0 seconds (Site Practical Cycle Time)

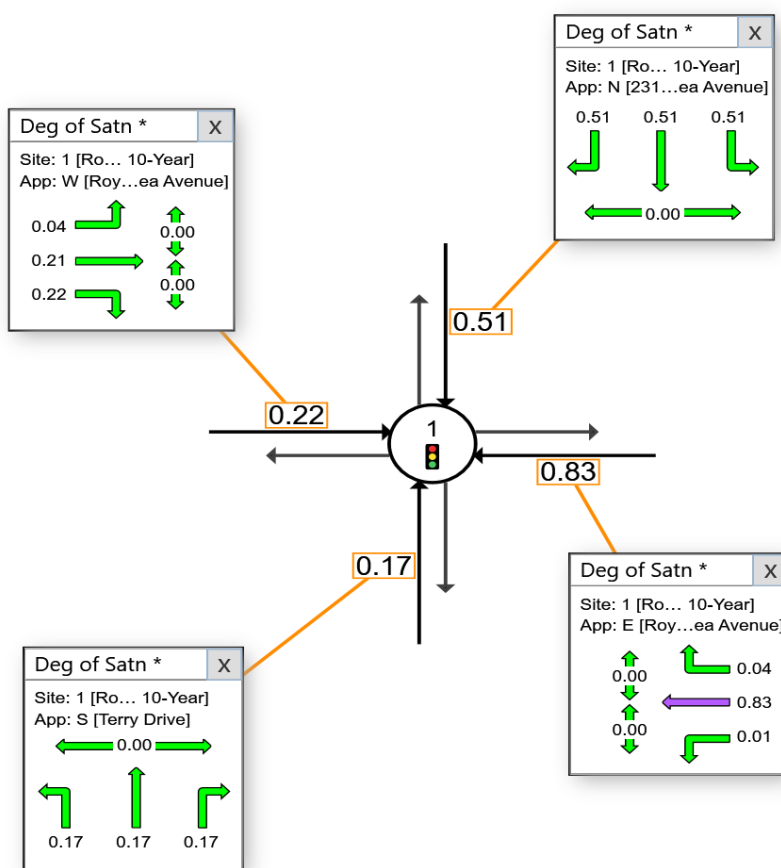
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.

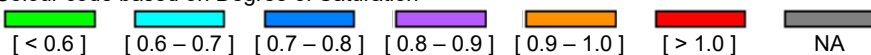
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Degree of Saturation



NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.

QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane used by the vehicle movement (metres)

 **Site: [1] Roystonea Ave - Terry Dr AM Peak 10-Year** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

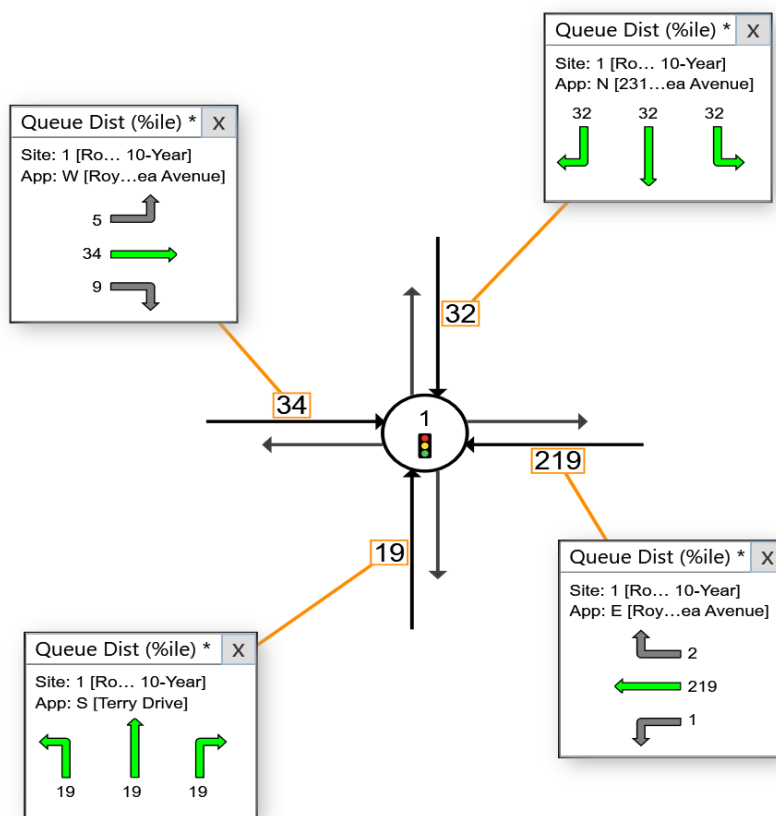
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90.0 seconds (Site Practical Cycle Time)

Site Scenario: 1 | Local Volumes

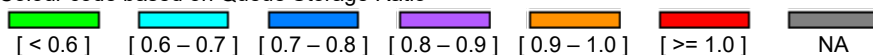
Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Queue Storage Ratio



NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.

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

SITE LAYOUT

 Site: [1 (2)] Roystonea Ave - Terry Dr PM Peak 10-Year
(Folder1)

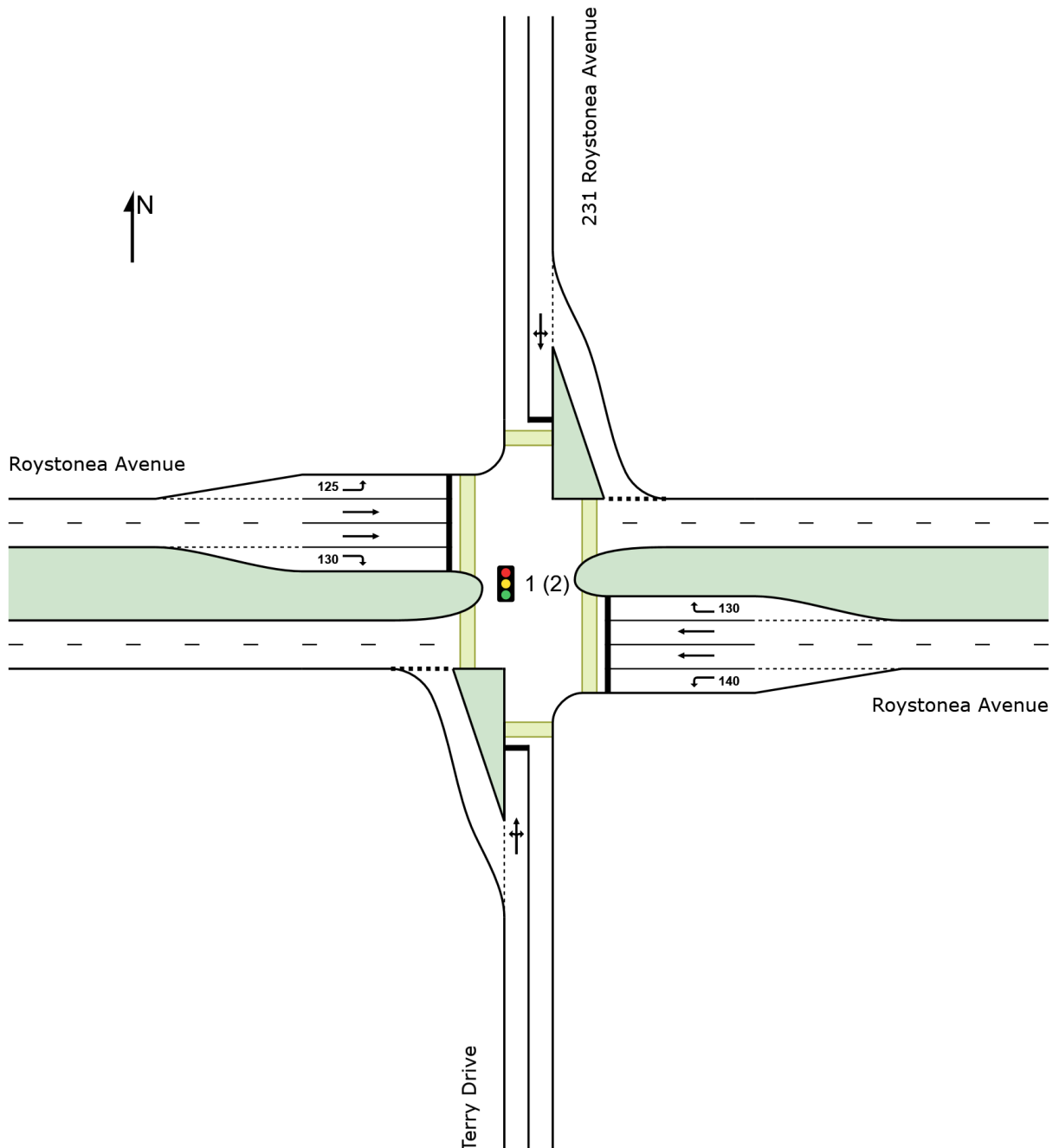
New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

 **Site: [1 (2)] Roystonea Ave - Terry Dr PM Peak 10-Year**
(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80.0 seconds (Site Practical Cycle Time)

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles Rate to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Terry Drive														
1	L2	All MCs	54	2.0	54	2.0	0.084	5.7	LOS A	0.3	2.2	0.28	0.96	36.1
2	T1	All MCs	10	2.0	10	2.0	* 0.084	2.8	LOS A	0.3	2.2	0.28	0.96	37.0
3	R2	All MCs	14	2.0	14	2.0	0.084	8.4	LOS A	0.3	2.2	0.28	0.96	36.1
Approach			78	2.0	78	2.0	0.084	5.8	LOS A	0.3	2.2	0.28	0.96	36.2
East: Roystonea Avenue														
4	L2	All MCs	25	2.0	25	2.0	0.034	21.1	LOS C	0.6	4.2	0.63	0.68	43.1
5	T1	All MCs	642	2.0	642	2.0	0.417	18.7	LOS B	9.1	64.5	0.77	0.66	45.9
6	R2	All MCs	13	2.0	13	2.0	0.095	44.9	LOS D	0.5	3.6	0.96	0.68	33.8
Approach			680	2.0	680	2.0	0.417	19.3	LOS B	9.1	64.5	0.77	0.66	45.4
North: 231 Roystonea Avenue														
7	L2	All MCs	7	2.0	7	2.0	0.375	9.9	LOS A	2.9	20.8	0.95	1.08	27.8
8	T1	All MCs	10	2.0	10	2.0	* 0.375	34.0	LOS C	2.9	20.8	0.95	1.08	28.3
9	R2	All MCs	73	2.0	73	2.0	0.375	39.6	LOS D	2.9	20.8	0.95	1.08	27.9
Approach			90	2.0	90	2.0	0.375	36.7	LOS D	2.9	20.8	0.95	1.08	27.9
West: Roystonea Avenue														
10	L2	All MCs	83	2.0	83	2.0	0.113	21.8	LOS C	2.0	14.5	0.66	0.72	42.8
11	T1	All MCs	1191	2.0	1191	2.0	* 0.774	24.6	LOS C	21.4	152.6	0.93	0.87	42.7
12	R2	All MCs	100	2.0	100	2.0	* 0.728	49.5	LOS D	4.3	30.4	1.00	0.88	32.4
Approach			1374	2.0	1374	2.0	0.774	26.3	LOS C	21.4	152.6	0.92	0.86	41.7
All Vehicles			2222	2.0	2222	2.0	0.774	23.8	LOS C	21.4	152.6	0.85	0.81	41.7

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

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

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.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped	Dist]			sec	m	m/sec

South: Terry Drive												
P1 Full	10	10	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	
East: Roystonea Avenue												
P21 Stage 1	10	10	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	
P22 Stage 2	10	10	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	
North: 231 Roystonea Avenue												
P3 Full	10	10	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	
West: Roystonea Avenue												
P41 Stage 1	10	10	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	
P42 Stage 2	10	10	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	
All Pedestrians	40	60	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	

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

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

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

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PHASING SUMMARY

 **Site: [1 (2)] Roystonea Ave - Terry Dr PM Peak 10-Year**
(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80.0 seconds (Site Practical Cycle Time)
Site Scenario: 1 | Local Volumes

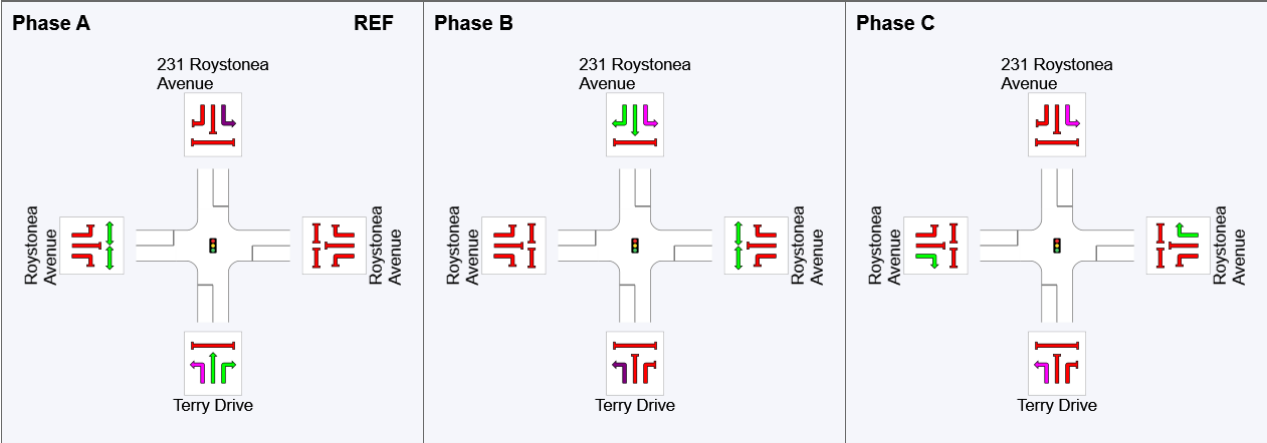
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Split Phasing - Copy
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase A

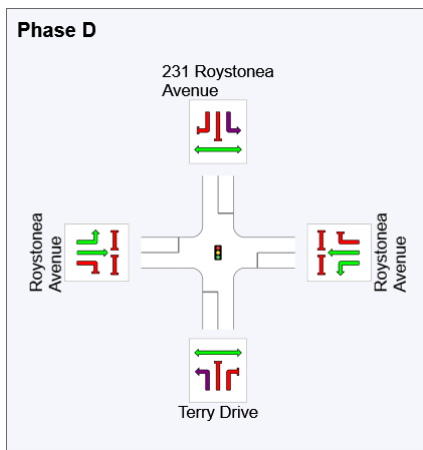
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0.0	15.0	30.0	42.0
Green Time (sec)	9.0	9.0	6.0	32.0
Phase Time (sec)	15.0	15.0	12.0	38.0
Phase Split	19%	19%	15%	47%
Phase Frequency (%)	100.0	100.0	100.0	100.0

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

Output Phase Sequence





REF: Reference Phase

VAR: Variable Phase



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 \6 - Analysis\SIDRA\SIDRA.sipx

APPROACH MOVEMENT ARRIVAL FLOWS

Site Approach Movement Arrival Flow Rates (veh/h) and Pedestrian Flow Rates (ped/h)

 Site: [1 (2)] Roystonea Ave - Terry Dr PM Peak 10-Year (Folder1)

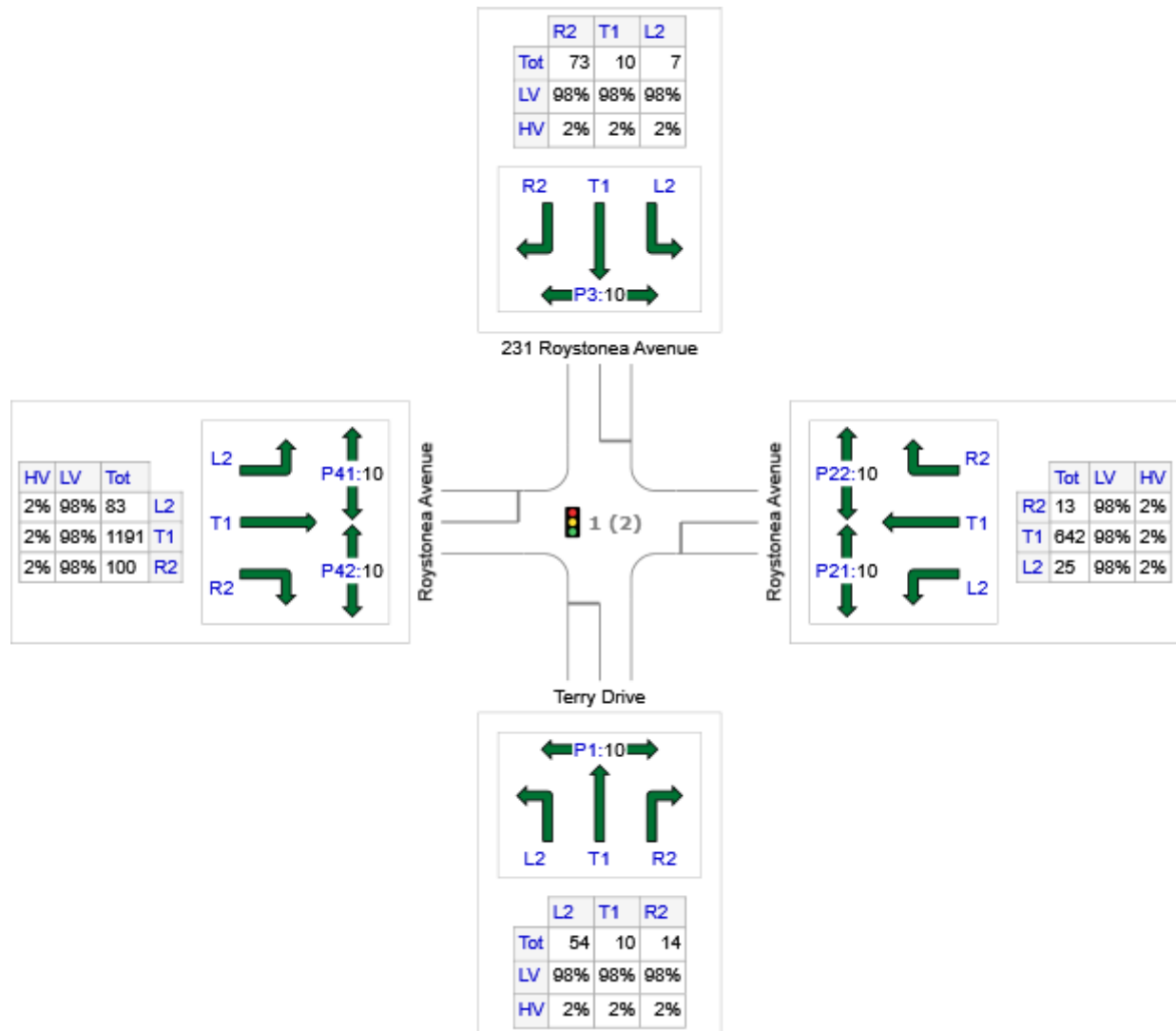
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80.0 seconds (Site Practical Cycle Time)

Site Scenario: 1 | Local Volumes



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Terry Drive	78	76	2
E: Roystonea Avenue	680	666	14
N: 231 Roystonea Avenue	90	88	2
W: Roystonea Avenue	1374	1347	27
Total	2222	2178	44

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects. In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per movement

 Site: [1 (2)] Roystonea Ave - Terry Dr PM Peak 10-Year
(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

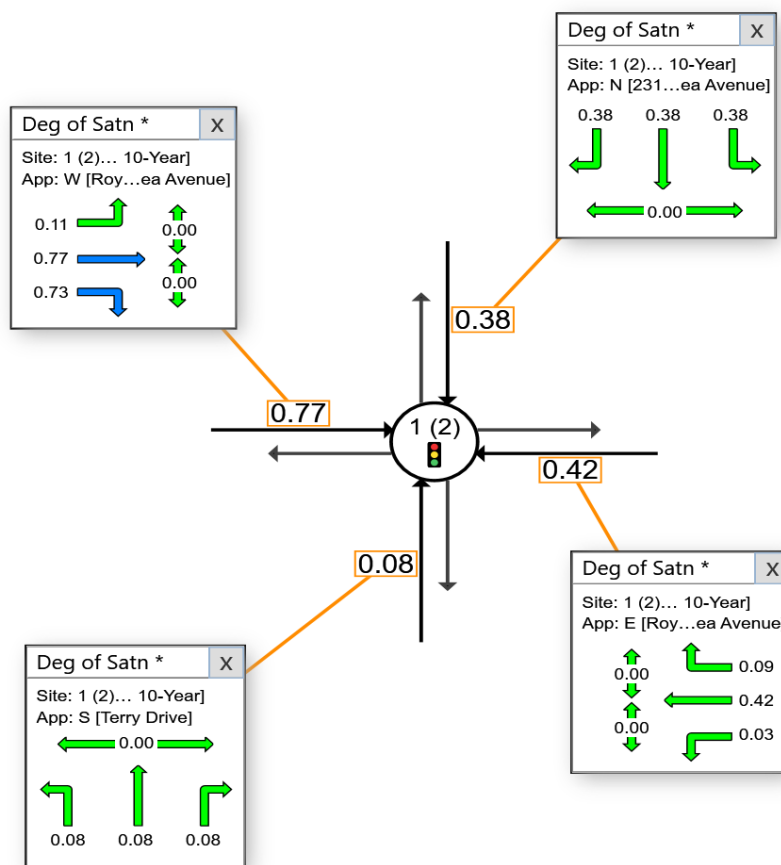
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80.0 seconds (Site Practical Cycle Time)

Site Scenario: 1 | Local Volumes

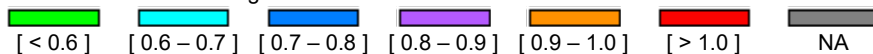
Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Degree of Saturation



NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.

QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane used by the vehicle movement (metres)

 **Site: [1 (2)] Roystonea Ave - Terry Dr PM Peak 10-Year**
(Folder1)

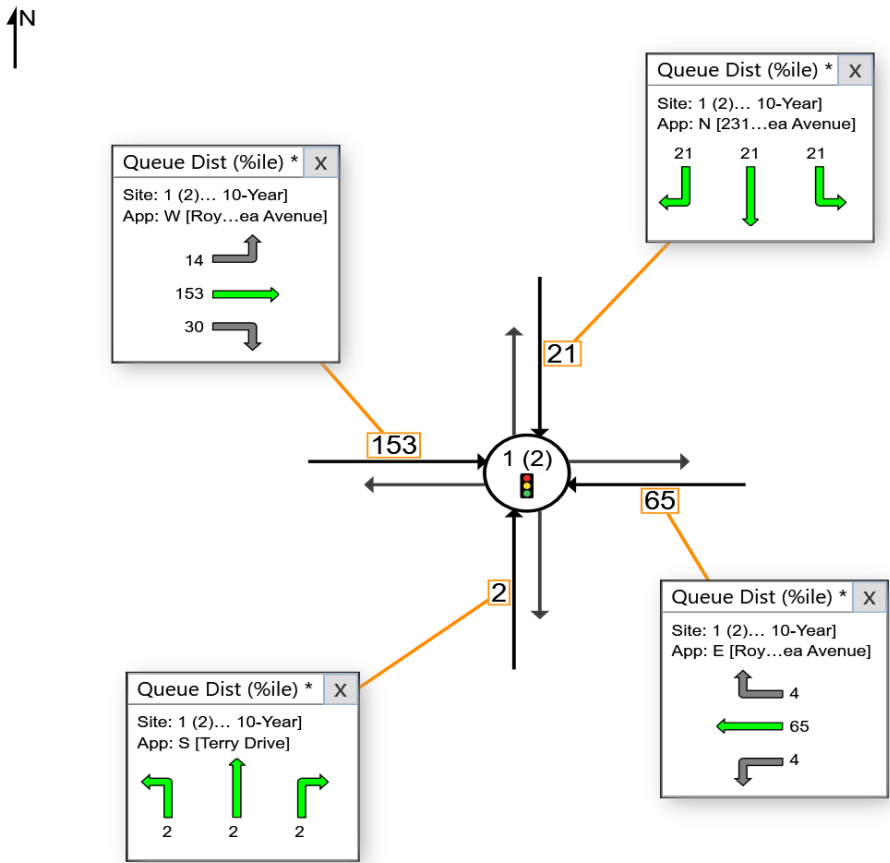
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80.0 seconds (Site Practical Cycle Time)
Site Scenario: 1 | Local Volumes

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.

Close All Popups

All Movement Classes (*)



Colour code based on Queue Storage Ratio

Queue Storage Ratio	Colour
[< 0.6]	Green
[0.6 – 0.7]	Cyan
[0.7 – 0.8]	Blue
[0.8 – 0.9]	Purple
[0.9 – 1.0]	Orange
[>= 1.0]	Red
NA	Grey

NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

SITE LAYOUT

 **Site: [2] Farrar Blvd - Kettle St AM Peak (Folder1)**

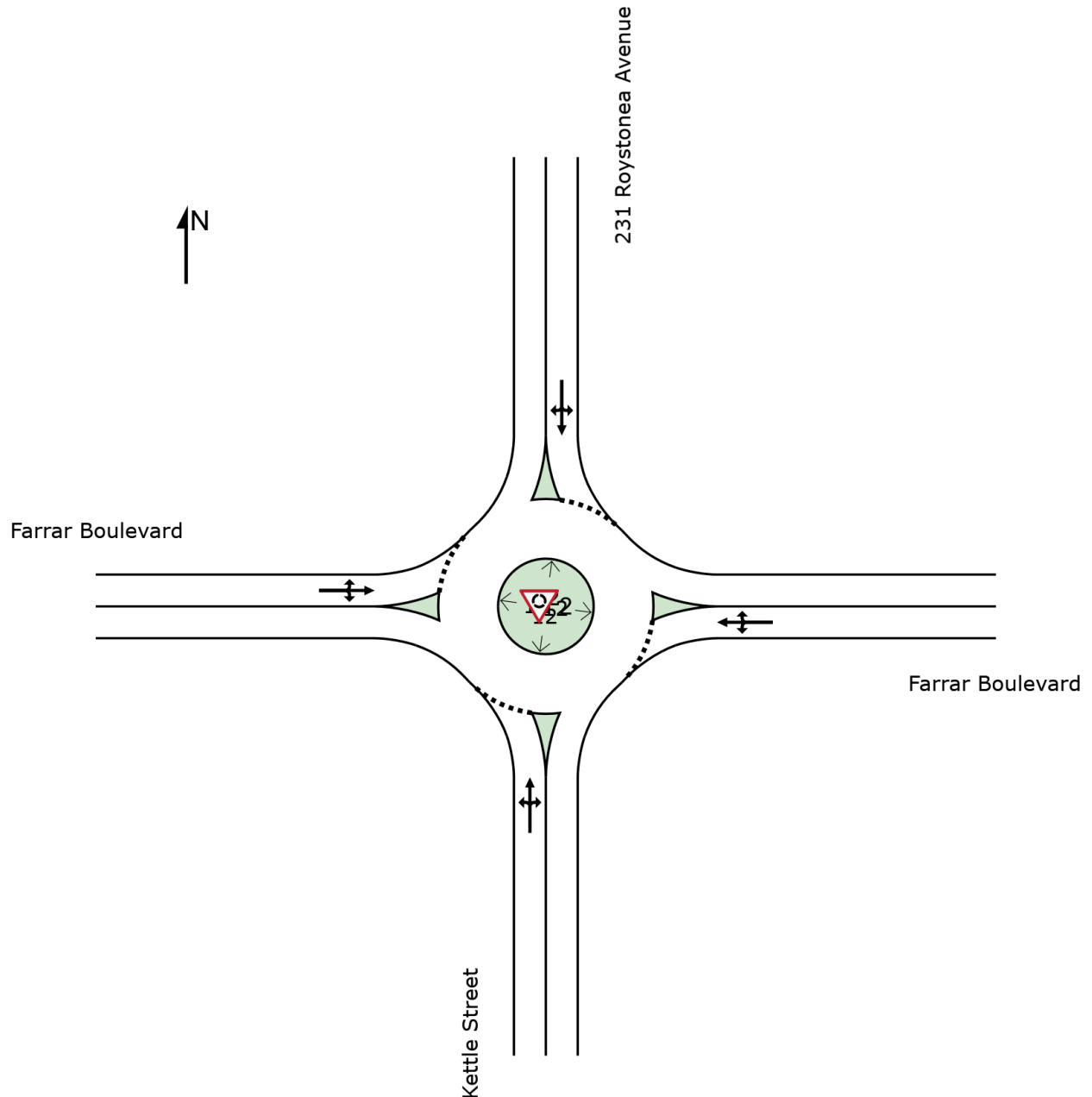
New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

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



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MOVEMENT SUMMARY



Site: [2] Farrar Blvd - Kettle St AM Peak (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	Dist]				km/h
			veh/h		veh/h					veh	m				
South: Kettle Street															
1	L2	All MCs	59	2.0	59	2.0	0.069	5.6	LOS A	0.3	2.4	0.40	0.56	0.40	52.7
2	T1	All MCs	10	2.0	10	2.0	0.069	5.9	LOS A	0.3	2.4	0.40	0.56	0.40	53.1
3	R2	All MCs	3	2.0	3	2.0	0.069	9.4	LOS A	0.3	2.4	0.40	0.56	0.40	52.3
Approach			72	2.0	72	2.0	0.069	5.8	LOS A	0.3	2.4	0.40	0.56	0.40	52.7
East: Farrar Boulevard															
4	L2	All MCs	1	2.0	1	2.0	0.148	4.8	LOS A	0.8	5.7	0.26	0.46	0.26	52.8
5	T1	All MCs	181	2.0	181	2.0	0.148	5.1	LOS A	0.8	5.7	0.26	0.46	0.26	53.2
6	R2	All MCs	1	2.0	1	2.0	0.148	8.7	LOS A	0.8	5.7	0.26	0.46	0.26	52.4
Approach			183	2.0	183	2.0	0.148	5.1	LOS A	0.8	5.7	0.26	0.46	0.26	53.2
North: 231 Roystonea Avenue															
7	L2	All MCs	3	2.0	3	2.0	0.065	5.3	LOS A	0.3	2.2	0.35	0.62	0.35	50.8
8	T1	All MCs	10	2.0	10	2.0	0.065	5.6	LOS A	0.3	2.2	0.35	0.62	0.35	51.2
9	R2	All MCs	59	2.0	59	2.0	0.065	9.2	LOS A	0.3	2.2	0.35	0.62	0.35	50.5
Approach			72	2.0	72	2.0	0.065	8.5	LOS A	0.3	2.2	0.35	0.62	0.35	50.6
West: Farrar Boulevard															
10	L2	All MCs	23	2.0	23	2.0	0.140	4.4	LOS A	0.8	5.6	0.09	0.48	0.09	53.3
11	T1	All MCs	164	2.0	164	2.0	0.140	4.6	LOS A	0.8	5.6	0.09	0.48	0.09	53.7
12	R2	All MCs	23	2.0	23	2.0	0.140	8.2	LOS A	0.8	5.6	0.09	0.48	0.09	52.9
Approach			210	2.0	210	2.0	0.140	5.0	LOS A	0.8	5.6	0.09	0.48	0.09	53.6
All Vehicles			537	2.0	537	2.0	0.148	5.6	LOS A	0.8	5.7	0.22	0.50	0.22	52.9

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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.

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APPROACH MOVEMENT ARRIVAL FLOWS

Site Approach Movement Arrival Flow Rates (veh/h) and Pedestrian Flow Rates (ped/h)

 Site: [2] Farrar Blvd - Kettle St AM Peak (Folder1)

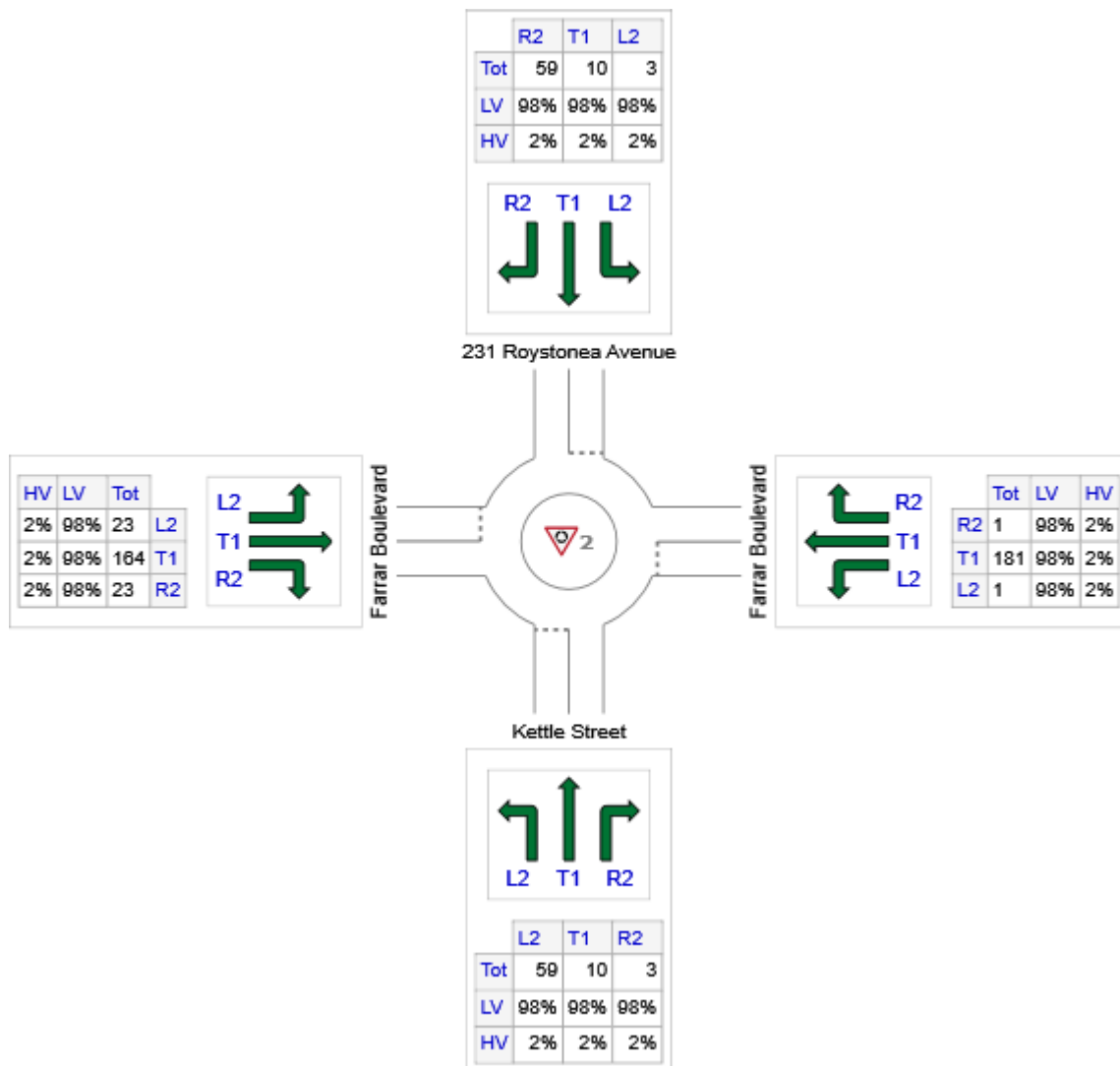
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Kettle Street	72	71	1
E: Farrar Boulevard	183	179	4
N: 231 Roystonea Avenue	72	71	1
W: Farrar Boulevard	210	206	4
Total	537	526	11

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects. In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per movement

 **Site: [2] Farrar Blvd - Kettle St AM Peak (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

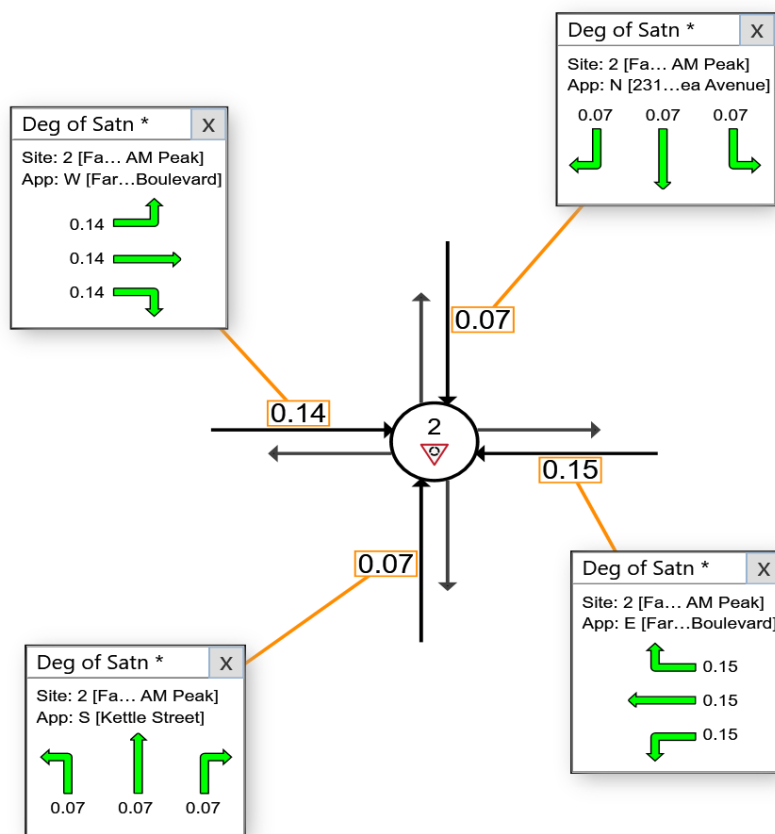
Roundabout

Site Scenario: 1 | Local Volumes

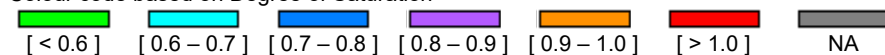
Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Degree of Saturation



NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.

QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane used by the vehicle movement (metres)

 **Site: [2] Farrar Blvd - Kettle St AM Peak (Folder1)**

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

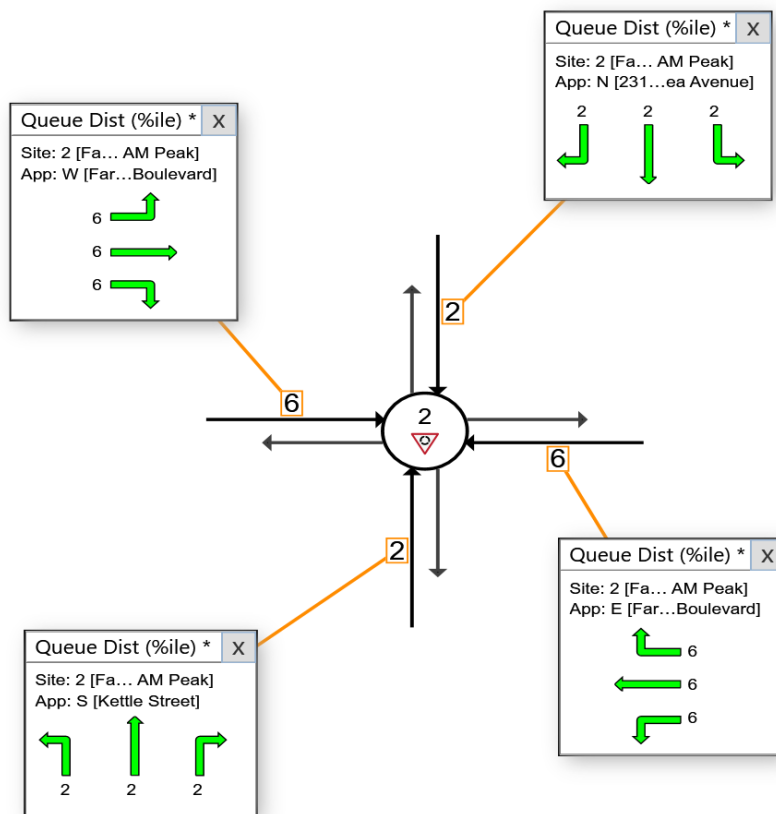
Roundabout

Site Scenario: 1 | Local Volumes

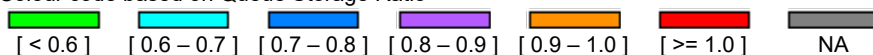
Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Queue Storage Ratio



NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.

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

SITE LAYOUT

 **Site: [2 (2)] Farrar Blvd - Kettle St PM Peak (Folder1)**

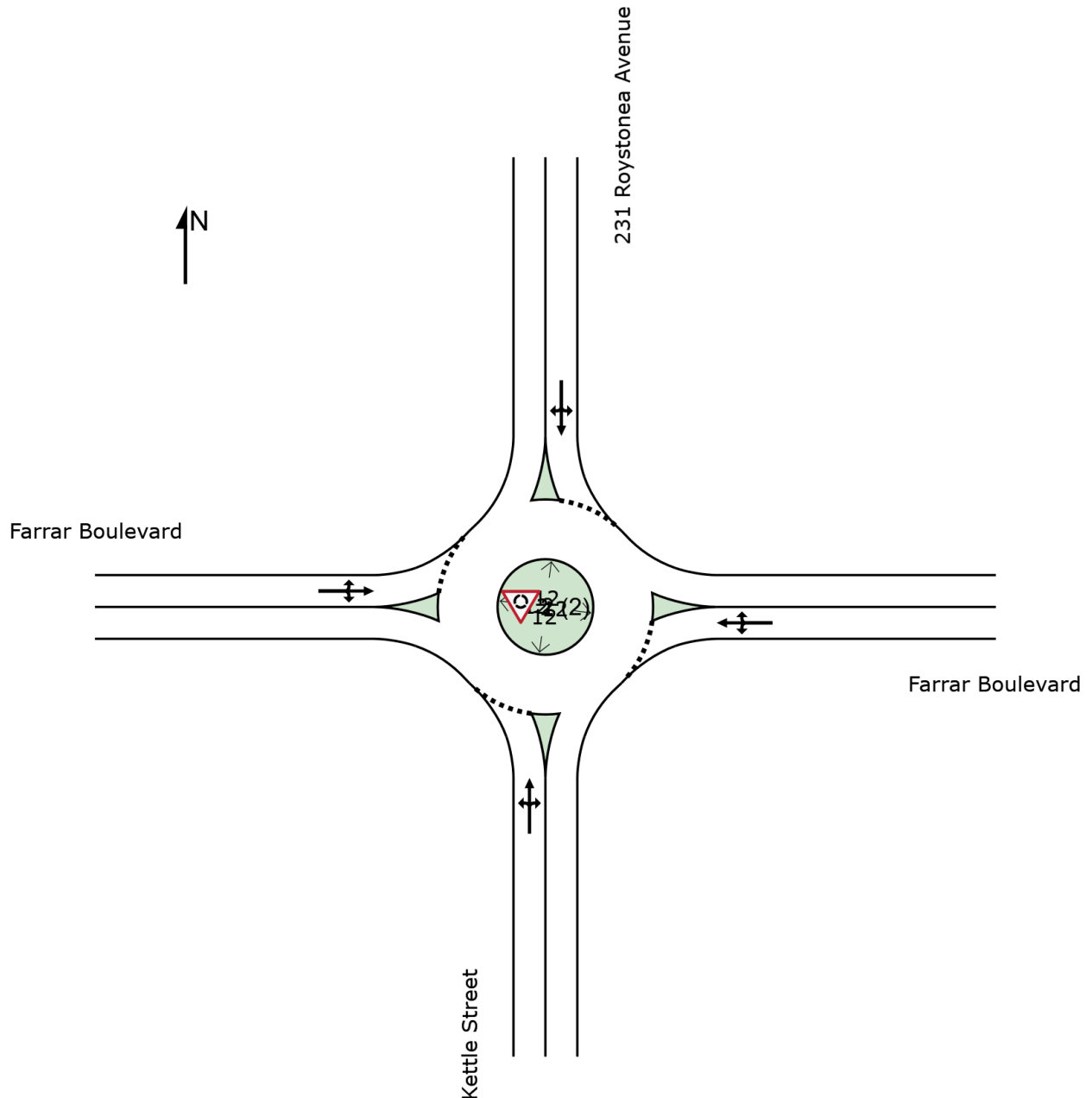
New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

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MOVEMENT SUMMARY



Site: [2 (2)] Farrar Blvd - Kettle St PM Peak (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]		[Total HV]					[Veh.]	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Kettle Street															
1	L2	All MCs	45	2.0	45	2.0	0.055	5.5	LOS A	0.3	1.9	0.39	0.55	0.39	52.7
2	T1	All MCs	10	2.0	10	2.0	0.055	5.8	LOS A	0.3	1.9	0.39	0.55	0.39	53.1
3	R2	All MCs	3	2.0	3	2.0	0.055	9.3	LOS A	0.3	1.9	0.39	0.55	0.39	52.3
Approach			58	2.0	58	2.0	0.055	5.8	LOS A	0.3	1.9	0.39	0.55	0.39	52.7
East: Farrar Boulevard															
4	L2	All MCs	4	2.0	4	2.0	0.159	5.0	LOS A	0.8	6.0	0.30	0.47	0.30	52.7
5	T1	All MCs	181	2.0	181	2.0	0.159	5.3	LOS A	0.8	6.0	0.30	0.47	0.30	53.1
6	R2	All MCs	4	2.0	4	2.0	0.159	8.8	LOS A	0.8	6.0	0.30	0.47	0.30	52.3
Approach			189	2.0	189	2.0	0.159	5.3	LOS A	0.8	6.0	0.30	0.47	0.30	53.0
North: 231 Roystonea Avenue															
7	L2	All MCs	3	2.0	3	2.0	0.054	5.5	LOS A	0.3	1.9	0.38	0.62	0.38	50.8
8	T1	All MCs	10	2.0	10	2.0	0.054	5.8	LOS A	0.3	1.9	0.38	0.62	0.38	51.2
9	R2	All MCs	45	2.0	45	2.0	0.054	9.4	LOS A	0.3	1.9	0.38	0.62	0.38	50.5
Approach			58	2.0	58	2.0	0.054	8.5	LOS A	0.3	1.9	0.38	0.62	0.38	50.6
West: Farrar Boulevard															
10	L2	All MCs	64	2.0	64	2.0	0.193	4.4	LOS A	1.1	8.0	0.10	0.51	0.10	53.0
11	T1	All MCs	164	2.0	164	2.0	0.193	4.7	LOS A	1.1	8.0	0.10	0.51	0.10	53.4
12	R2	All MCs	64	2.0	64	2.0	0.193	8.2	LOS A	1.1	8.0	0.10	0.51	0.10	52.6
Approach			292	2.0	292	2.0	0.193	5.4	LOS A	1.1	8.0	0.10	0.51	0.10	53.1
All Vehicles			597	2.0	597	2.0	0.193	5.7	LOS A	1.1	8.0	0.22	0.51	0.22	52.8

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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.

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APPROACH MOVEMENT ARRIVAL FLOWS

Site Approach Movement Arrival Flow Rates (veh/h) and Pedestrian Flow Rates (ped/h)

 Site: [2 (2)] Farrar Blvd - Kettle St PM Peak (Folder1)

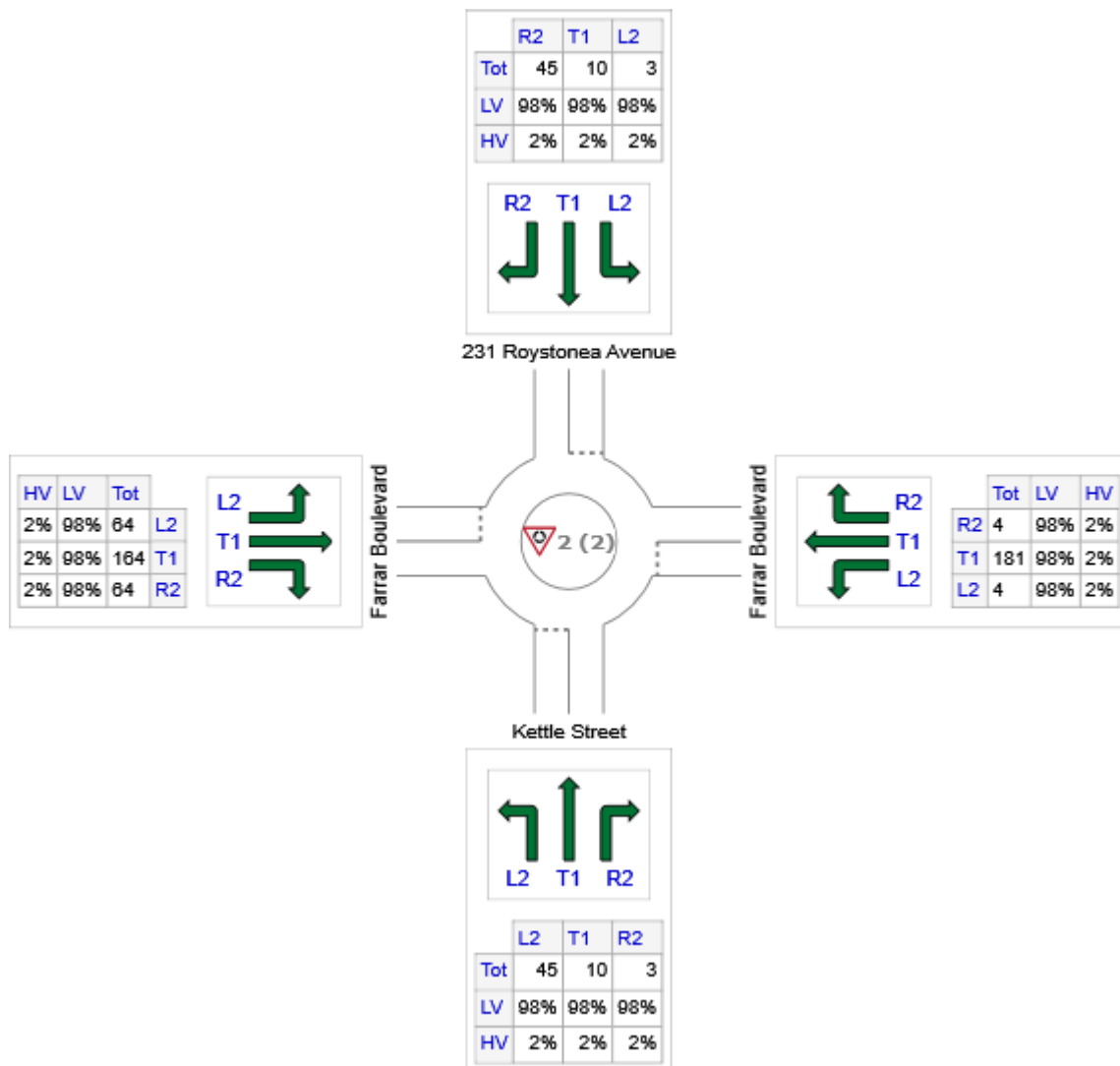
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Roundabout

Site Scenario: 1 | Local Volumes



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Kettle Street	58	57	1
E: Farrar Boulevard	189	185	4
N: 231 Roystonea Avenue	58	57	1
W: Farrar Boulevard	292	286	6
Total	597	585	12

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects. In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.

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DEGREE OF SATURATION

Ratio of Arrival Flow to Capacity, v/c ratio per movement

 Site: [2 (2)] Farrar Blvd - Kettle St PM Peak (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site

Site Category: (None)

Roundabout

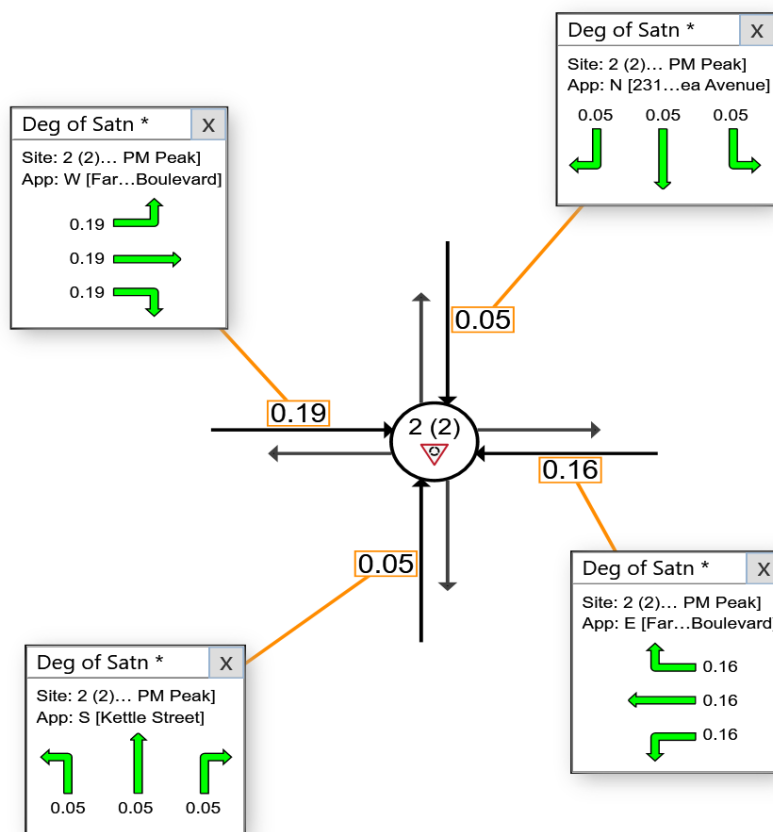
Site Scenario: 1 | Local Volumes

Use the button below to open or close all popup boxes. Click value labels to open selected ones.

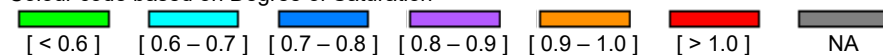
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Degree of Saturation



NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.

QUEUE DISTANCE (PERCENTILE)

Largest 95% Back of Queue Distance for any lane used by the vehicle movement (metres)

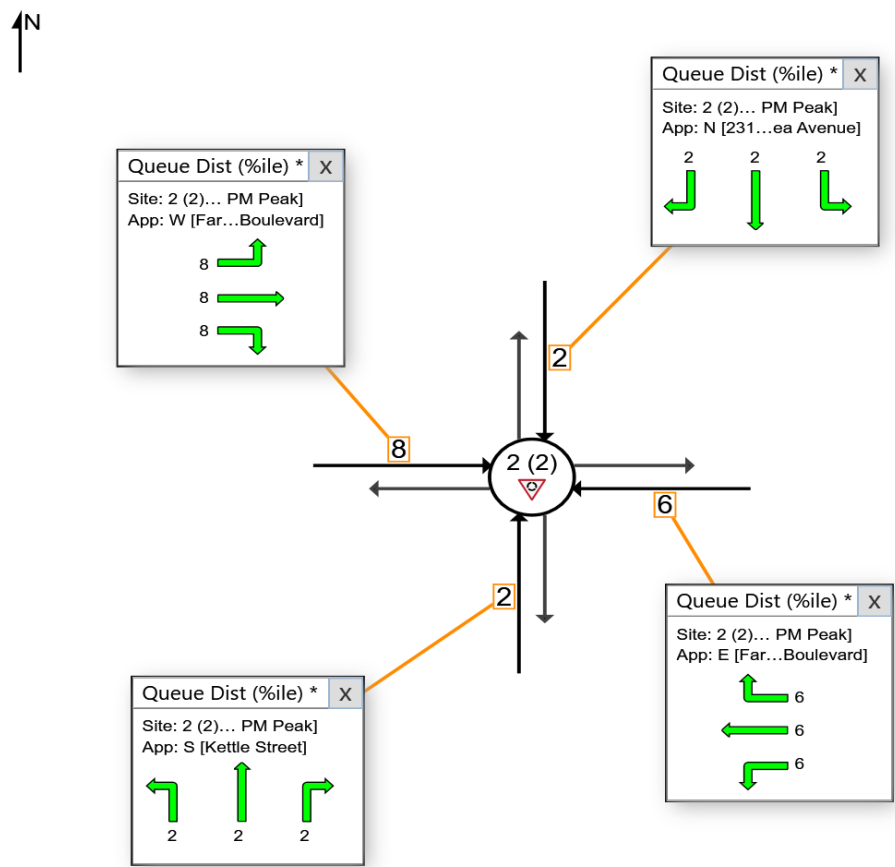
 **Site: [2 (2)] Farrar Blvd - Kettle St PM Peak (Folder1)**
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

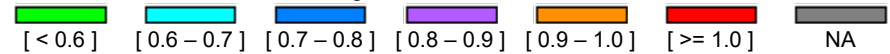
Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

All Movement Classes (*)



Colour code based on Queue Storage Ratio



NA: The movement only runs in short lanes and these are not included in determining Queue Storage Ratio, or the movement has zero volume for the selected Movement Class.

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