Transport Engineering Report

Proposed Mixed-Use Development

At 16 Poole Way, Bushland Beach

On behalf of BG Constructions

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Revision Record

No.	Author	Reviewed/Approved	Description	Date
1	J. Harrison	M Grierson	DA Report	18/12/2025
2	J. Harrison	M Grierson RPEQ 31037	Updated DA Report	27/04/2026

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Contents

Table Index

Figure Index

1. Introduction

1.1. Purpose

Colliers International Engineering and Design (TTMC) Pty Ltd has been engaged by Poole Way No. 2 PTY LTD to prepare a transport engineering report investigating a proposed mixed-use development located at 16 Poole Way, Bushland Beach. It is understood this report will accompany a Development Application (DA) to be lodged with Townsville City Council ('Council').

This traffic report has been updated in response to items 3 and 4 of Council's Information Request (IR) letter dated 19/02/26 (application no.: MCU26/0003). These items are outlined below in Section 1.3.

1.2. Scope

This report examines the transport-related aspects of the proposed development. The scope of the investigation includes the following:

- Reviewing the prevailing traffic and transport conditions surrounding the site
- Identifying parking supply required to cater for the future development demands
- Assessing the parking layout to provide efficient and safe internal circulation and manoeuvring
- Assessing the access configuration to provide efficient and safe manoeuvring between the site and the public road network for cars, service vehicles, cyclists and pedestrians
- Assessing the internal service vehicle layouts to provide efficiency and safety for on-site service vehicle operation
- Reviewing access to a suitable level of public and active transport provisions
- Identification of expected traffic volumes and traffic distribution from the development and the likely traffic impacts of development on the surrounding road network

To assess the proposed transport arrangements, the development plans have been assessed against the following guidelines and planning documents:

- Townsville City Council Planning Scheme, specifically:
  - 9.3.5 Transport Impact, Access and Parking Code
- Australian Standards for Parking Facilities, specifically:
  - Part 1: Off-streetcar parking (AS2890.1:2004).
  - Part 2: Off-street commercial vehicle facilities (AS2890.2:2018).

  - Part 6: Off-street parking for people with disabilities (AS2890.6:2022).
- Austroads 'Guide to Traffic Management Part 2: Traffic Theory Concepts' (2020).
- Transport for New South Wales (TfNSW) 'Guide to Transport Impact Assessment' (2024).

1.3. Information Request

The traffic-related items raised in Council's IR are summarised below, with the comments provided.

Advice Notice	Comment
Requested Item 3 – Relocate Refuse Bin Area	
The applicant is requested to provide amended plans which relocate the refuse bin area away from the neighbouring future residential lots to the North. Reason: To demonstrate compliance with Performance Outcome PO10 and PO17 of Low density residential zone code of the Townsville City Plan.	The refuse bin storage area has been relocated to the south-western corner of the development, adjacent to the southern site entry access, as reflected in the updated development plans included in **Appendix A**. The relocation of the refuse bin area has had minimal impact on the overall traffic and parking arrangements for the development. Notwithstanding this, Colliers has updated the swept-path analysis for the nominated refuse collection vehicle (refer Colliers Drawing 25BRT0474-02 Rev. B), included in **Appendix B**. Corresponding updates have also been made to the servicing commentary in Section 7.2 of this report to reflect the revised arrangement.
Requested Item 4 – Traffic Impact Assessment	
The applicant is requested to provide a Moderate level Traffic Impact Assessment (TIA) report to support the proposal, certified by an RPEQ. The report must address the requirements of SC6.4.5.2 Traffic impact assessments (TIA) of the Townsville City Plan. Reason: To demonstrate compliance with Performance Outcome PO1 of the Transport impact, access and parking code of the Townsville City Plan.	An expanded Traffic Impact Assessment (TIA) has been undertaken on the surrounding road network and is documented in Section 10 of this report.

2. Site Location

The subject site is located at 16 Poole Way, Bushland Beach, with dual frontages to Lynwood Avenue along the southern boundary and Poole Way along the eastern boundary. The property is legally described as Lot 6 on SP333154 and is currently vacant. The site falls within a Local Government Infrastructure Plan (LGIP) Area and is zoned Low Density Residential. The site location is illustrated in Figure 2-1 and Figure 2-2.

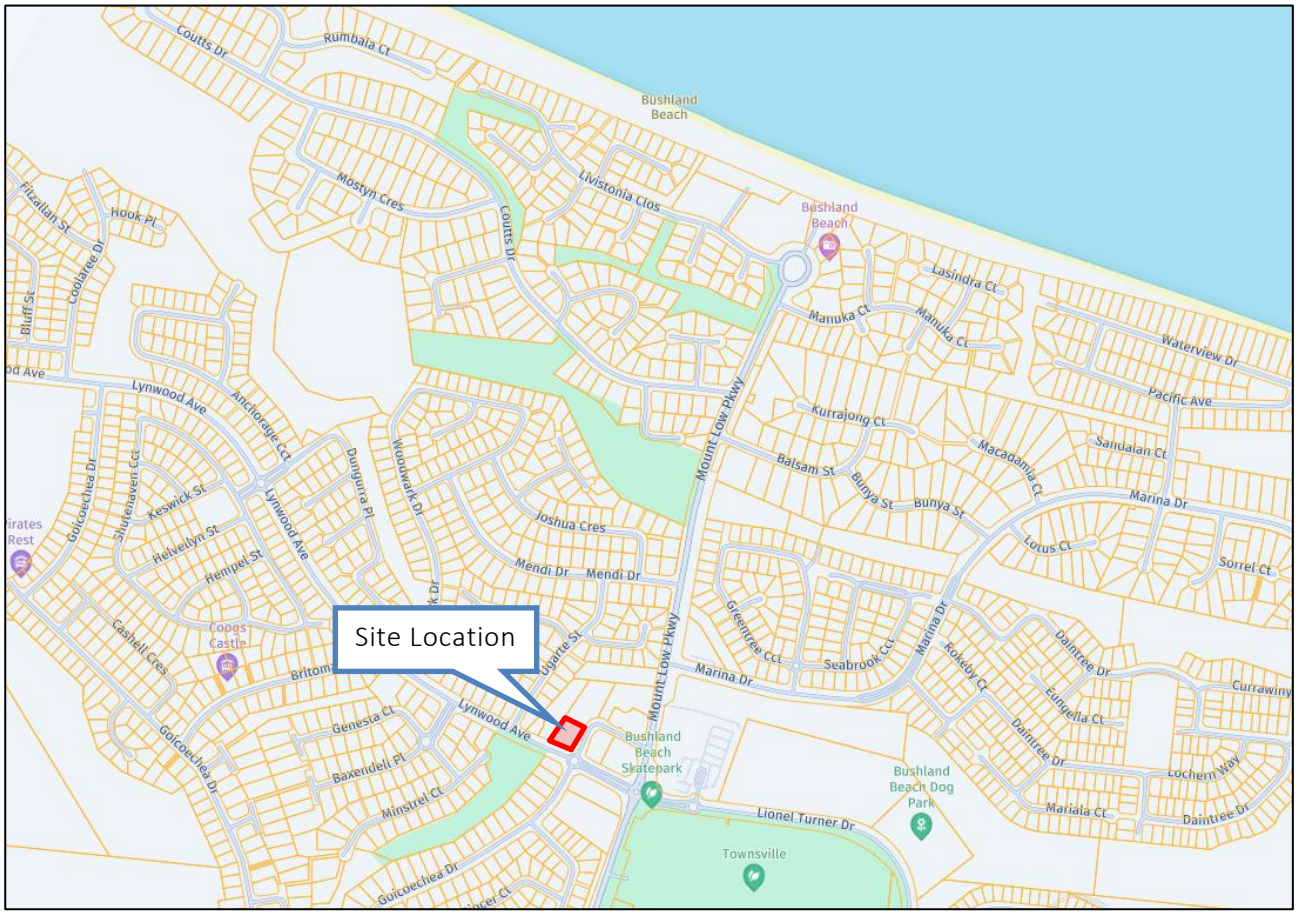


Figure 2-1: Site Location – Surrounding Context (Source: Nearmap)

Figure 2-2: Approximate Site Location – Immediate Context (Source: Nearmap)

3. Site Travel Environment

3.1. Road Network

All roads within the immediate vicinity of the site fall under the jurisdiction of Townsville City Council (TCC). Key nearby intersections include the Poole Way / Lynwood Avenue / Goicoechea Drive roundabout and the Mount Low Parkway / Lynwood Avenue roundabout, both of which are configured as four-leg roundabouts. The Poole Way / Mount Low Parkway intersection is as a priority-controlled T-intersection accommodating left-in / left-out movements only. Additionally, the Lynwood Avenue / Ugarte Street intersection, located to the west of the site, operates as a priority-controlled T-intersection with all movements permitted. The hierarchy and characteristics of these roads are summarised in Table 3-1.

Table 3-1: Local Road Hierarchy

Road	Speed Limit	Lanes/Configuration	Classification	Authority
Poole Way	50km/h[1]	2 lanes, two-way, undivided	Local Street	Council
Lynwood Avenue	60km/h	2 lanes, two-way, divided in sections	Major Collector	Council
Mount Low Parkway	60km/h	2 lanes, two-way, divided in sections	Major Collector (north of Lynwood Ave) Sub Arterial (south of Lynwood Ave)	Council
Goicoechea Drive	50km/h[1]	2 lanes, two-way, undivided	Local Street	Council
Ugarte Street	50km/h[1]	2 lanes, two-way, undivided	Local Street	Council

[1] Default speed limit along unsigned roads in built-up areas in Queensland.

3.2. Transport Planning

Colliers has reviewed Council's LGIP planning maps to identify any potential road works in the vicinity of the site. There are no planned works in the area that would affect, or be affected by, the proposed development.

3.3. Public Transport and Pedestrian Facilities

Bus Services

Bus stops are located on Lynwood Avenue between Poole Way and Mount Low Parkway, approximately 80m east of the subject site. This stop is serviced by Translink Route 233, which operates between Bushland Beach and Townsville Shopping Centre, with stops at Mount Low, Jensen, Deeragun, Burdell, Garbutt, and Domain Central. Services operate Monday to Saturday, with weekday frequencies of approximately every 45–60 minutes between 6:05 AM and 6:20 PM, and Saturday services operating every 1–2 hours between 7:42 AM and 5:42 PM.

Pedestrians

Pedestrian footpaths are provided along the western and northern sides of Poole Way, with additional footpaths along Mount Low Parkway, Lynwood Avenue and Lionel Turner Drive. Pedestrian crossing facilities, including refuge islands and kerb ramps, are located on Mount Low Parkway and Lynwood Avenue.

4. The Proposed Development

4.1. Development Profile

The proposed development consists of Health Care Services, Food and Drink Outlet/Shop and Dual Occupancy uses, as detailed in Table 4-1.

Table 4-1: Proposed mixed-use development

Use	Extent
Health Care Services	480m^2 GFA
Food and Drink Outlet	63m^2 GFA
Shop	68m^2 GFA
Dual Occupancy	2 units

A copy of the proposed site plan, prepared by Blackburne Jackson, is included in **Appendix A**.

4.2. Parking

The development proposal includes a parking supply of 35 spaces, provided as follows:

- 28 general car spaces
- 1 People with Disability (PWD) parking space, with shared area.
- 1 van space
- 4 residential parking spaces
- 1 dedicated ambulance bay

Further details regarding the proposed car and bicycle parking provisions are included in Sections 5 and 11.2.1

4.3. Access

The following access arrangements are proposed for the site:

- An entry only (left in/right in) 4.1m wide General Wide Crossover from Lynwood Avenue (Entry Only)
- An all movement 6.2m wide General Wide Crossover to/from Poole Way

Further details regarding the proposed access arrangements are included in Section 6.

4.4. Servicing

The development incorporates the following servicing arrangements:

- Servicing demands for the Health Care Services, Food and Drink Outlet, and Shop tenancies will be accommodated by vans and 6.4m Small Rigid Vehicles (SRVs). A dedicated ambulance bay and a designated van bay are provided on-site.
- For the Dual Occupancy units, the largest anticipated service vehicle is an 8.8m Medium Rigid Vehicle (MRV), primarily associated with furniture deliveries. The internal layout allows an MRV to temporarily stand within the parking aisle without impeding one-way circulation.
- Refuse collection will be undertaken on-site by a 10.5m Front-Lift Refuse Collection Vehicle (RCV), with entry via Lynwood Avenue and exit via Poole Way.

Further details regarding the proposed servicing arrangements are provided in Section 7.

5. Car Parking Arrangements

5.1. Council's Parking Supply Requirement

Table SC6.10.2.1 of TCC's Transport Access and Parking (TIAP) Code outlines the parking requirements applicable to the proposed on-site uses. These requirements, along with the proposed parking provisions, are summarised in Table 5-1.

Table 5-1: Parking Supply Requirement

Land Use	Council's Minimum Requirement	Extent	TCC Recommended	Provided
Health Care Services	1 space per 20m² of GFA, OR 4 spaces per medical practitioner (whichever is the greater) AND 1 space for ambulance vehicle pick-up and set down	480m² GFA 6 practitioners	24 spaces 1 ambulance bay **24 spaces total** **+ 1 ambulance bay**	20 spaces total 1 ambulance bay
Food and Drink Outlet	1 space per 10m² of GFA available to the public 1 space per 50m² of GFA for food preparation AND 1 space per 100m² of GFA used for storage	71m² GFA 21m² GFA 21m² GFA	7.1 spaces 0.42 spaces 0.21 spaces **7.73 spaces total**	8 spaces
Shop	1 space per 25m² of total retail area * available to the public AND 1 space for each 100m² of total storage GFA	44m² Public Area 24m² Storage	1.76 spaces 0.24 spaces **2 spaces total**	2 spaces
Dual Occupancy	2 spaces / dwelling	2 units	**4 spaces total**	4 spaces
Total			**38 spaces**	**34 spaces total (including 1 PWD space and 1 van space)** **+ 1 ambulance bay**

As outlined in Table 5-1, the parking supply for the Food and Drink Outlet, Shop, and Dual Occupancy uses complies with the minimum requirements of Council's TIAP Code. However, the Health Care Services use may have a slight shortfall of up to four spaces, with 20 spaces provided compared to the 24 spaces recommended under the TIAP Code.

Based on the operational information provided by the end user, a first-principles assessment of likely parking demands has been undertaken to confirm the adequacy of the proposed 20-space Health Care Services use provision. The assessment considers expected staffing levels, consultation durations, and potential patient overlap during peak operating periods.

Current plans indicate the Health Care Services use will comprise ten consulting rooms and two pathology rooms, noting that several consulting rooms will be used for administrative purposes rather than active clinical sessions. Total staffing is expected to include approximately 17 personnel, of which 6–8 would be on site at any one time, including up to six practitioners and two administrative staff. On this basis, the maximum expected full time staff presence at any one time is eight.

For assessment purposes, it has been conservatively assumed that all staff and patients will drive and park on site. Consultations are expected to operate on 30-minute appointments, with each practitioner typically having one patient in consultation and another arriving or waiting. Applying these assumptions results in the following estimated parking demand:

- Staff parking: 8 spaces
- Patient parking: 6 patients in consultation + 6 arriving/waiting = 12 spaces
- Total estimated concurrent demand: 20 spaces

This represents a theoretical peak demand consistent with the 20 spaces proposed, noting that the assumptions adopted do not account for potential mode share changes, drop-off activity, or staggered appointment scheduling, all of which could reduce actual on-site demand.

Accordingly, while the provision falls below the TIAP Code rate, it is considered operationally appropriate given the expected staff structure, patient turnover, and appointment scheduling practices typical of this scale of medical facility.

In addition, it is reasonable to expect a degree of reciprocal parking between the proposed land uses. Visitors attending appointments are likely to undertake linked trips, such as purchasing food, coffee, or convenience items before or after their appointment, thereby utilising the same parking space for multiple purposes. This overlap in parking activity will help reduce overall demand across the site.

On this basis, the proposed parking provisions are considered appropriate and fit-for-purpose, having regard to the anticipated operational characteristics of the development.

5.2. Car Parking Layout

Table 5-2 identifies the characteristics of the proposed parking area with respect to the Council's requirements/ Australian Standard AS2890.1 design provisions.

Table 5-2: Parking Design Requirements

Design Aspect	Council/ Minimum AS2890.1 Standard	Proposed Provision	Compliance
Parking space length • Residents (Class 1A) • General space (Class 3A) • PWD space (Class 4)	 5.4m (min) 5.4m (min) 5.4m (min)	 5.4m 5.4m 5.4m	 Compliant Compliant Compliant
Parking space width • Residents (Class 1) • General space (Class 3) • PWD space (Class 4)	 2.4m (min) 2.6m (min) 2.4m + 2.4m 'Shared Area' (min)	 2.4m 2.5m – 2.6m 2.4m + 2.4m 'Shared Area'	 Compliant Performance Solution Compliant
Parking Aisle Width	6.2m (min)	6.2m	Compliant
Maximum Gradient: • PWD parking • Parking aisle / areas	 1:40 (2.5%) maximum 1:20 (5.0%) maximum	 To be 1:40 (2.5%) To be 1:20 (5.0%)	 Further details below Further details below
Height Clearance • General spaces • PWD spaces	 2.2m (min) 2.5m (min)	 2.2m (min) 2.5m (min)	 Compliant Compliant

The development parking layouts are generally consistent with the provisions of the Council/AS2890.1 requirements. Further details in relation to deemed compliance of required provisions, or justification for design aspects resolved with performance solutions, are provided as follows:

Car Parking Widths

It is noted that four of the 29 non-residential parking spaces have been provided at a width of 2.5m. While this is marginally narrower than the 2.6m width specified for Class 3 parking spaces under AS2890.1:2004, a 2.5m-wide bay is still sufficient to accommodate full door openings (front and rear) in accordance with the standard. The parking aisle is also noted to be wider (6.2m) than the Class 3 recommended minimum of 5.8m

On this basis, the bays are considered to provide adequate opportunity for passenger loading and unloading, as well as for general goods handling. Nevertheless, Colliers recommends that these four bays be designated for staff parking to ensure optimal functionality.

Maximum Gradients/Height Clearances

The following maximum gradients are required in accordance with AS2890.1:2004:

- Maximum gradients General Parking:

- Standard parking: 1 in 20 (5.0%) measured parallel to the angle of parking
- Standard parking: 1 in 16 (6.25%) measured in any other direction to the angle of parking

- Maximum gradients PWD Parking
  - PWD parking and shared space: 1 in 40 (2.5%) in any direction, including associated parking aisle.

6. Site Access Arrangements

6.1. Vehicle Access Arrangements

Two access points are proposed to service the development - one via Lynwood Avenue along the site's southern frontage and one via Poole Avenue along the eastern frontage. The Lynwood Avenue access is proposed as an entry-only crossover permitting left-in and right-in movements, while the Poole Avenue access is proposed as an all-movements crossover. The key design characteristics of each access are summarised in Table 6-1 and Table 6-2.

6.1.1. Lynwood Avenue Access

Table 6-1: Lynwood Avenue Access

Design Aspect	Council / AS2890 Requirement	Proposed Provision	Compliance
Crossover design type	Type General Wide Flared (RS-051)	Type General Wide (RS-051)	Compliant
Crossover width	3.5m (min) (Entry Only) Subject to swept path assessment	3.5m (min)	Further details below
Sight distance[1]	83m (desirable) 65m (minimum)	~>83m to the west (for vehicles turning right into access)	AS2890.1:2004 compliant
Minimum queuing provision	2 vehicles (12m)	2 vehicles (1 vehicles per access)	AS2890.1:2004 compliant
Entry Grading	1:20(5%) first 6m into the site (max)	To be 1:20	Further details below

[1] Based on a sign-posted speed limit of 60km/h

The proposed access arrangements generally comply with Council, AS2890 requirements. Further details in relation to deemed compliance of required provisions, or justification for design aspects resolved with performance solutions, are provided below.

Crossover

The proposed crossover is approximately 6.0m wide at the kerb, tapering to 3.5m at the property boundary and is intended to operate as an entry-only access. Swept-path analysis included in **Appendix B** demonstrates that the crossover configuration accommodates the largest design vehicle expected to service the site - a 10.5m Refuse Collection Vehicle (RCV).

Lynwood Avenue Access

It is noted that grading along the Lynwood Avenue frontage will need to be resolved as part of the detailed design. In particular, grading across the verge and into the site is to be designed in accordance with AS2890.1:2004 and the relevant Council standard drawings.

6.1.2. Poole Way Access

Table 6-2: Poole Way Access

Design Aspect	Council / AS2890 Requirement	Proposed Provision	Compliance
Crossover design type	Type General Wide Flared (RS-051)	Type General Wide (RS-051)	Compliant
Crossover width	6.5m (min) Subject to swept path assessment	6.2m	Performance Solution
Sight distance[1]	69m (desirable) 45m (minimum)	~46m to the east ~48m to the south	AS2890.1:2004 compliant
Driveway sight splays[2]	2.0m wide x 2.5m deep (on both sides)	To be 2.0m wide x 2.5m deep (on both sides)	Further details below
Minimum queuing provision	2 vehicles (12m)	2 vehicles (1 vehicles per access)	AS2890.1:2004 compliant
Entry Grading	1:20(5%) first 6m into the site (max)	To be 1:20	Further details below

[1] Based on a sign-posted speed limit of 50km/h

[2] All landscaping within the pedestrian visibility splay zone, as nominated in the development plans, will need to be limited to a maximum height of 0.6m

The proposed access arrangements generally comply with Council, AS2890.1:2004 and AS2890.2:2018 requirements. Further details in relation to deemed compliance of required provisions, or justification for design aspects resolved with performance solutions, are provided below.

Crossover

The development plans propose a 6.2m wide crossover at the Poole Way access. While 6.5m is the prescribed width to accommodate service vehicles, it is noted that larger service vehicles (MRVs and RCVs) will instead access the site via the Lynwood Avenue entry. Smaller service vehicles such as vans, ambulances, and Small Rigid Vehicles (SRVs), will be permitted to access the site from either crossover.

Driveway Sight Splays

In accordance with AS2890.1:2004, pedestrian sight triangles measuring 2.0m wide by 2.5m deep are required for both sides of the driveway. There is sufficient area on both sides of the proposed driveway to accommodate this splay. It is Colliers' recommendation that the sight splay be shown on the development plans, and that only low-height landscaping be planted and maintained within this area to maintain visibility.

Entry Grading

The development plans indicate that the driveway grading will be generally flat. In accordance with AS2890.1:2004, the first 6.0 m into the site should be constructed at a maximum grade of 1 in 20 (5%).

If the above recommendations regarding lane widening and grading are adopted, Colliers considers the proposed access arrangements to be fit for purpose and compliant with relevant standards.

7. Service Vehicle Arrangements

To assess the required number of service bays for the development, Colliers has referred to the Council requirements for service vehicles. Table 9.3.5.3 of the *Transport impact, access and parking code* states:

Provision is made for the on-site loading, unloading, manoeuvring and access by service vehicles that:

- are adequate to meet the demands generated by the development;
- are able to accommodate the design service vehicle requirements; and
- does not unduly impede vehicular, cyclist and pedestrian safety and convenience both within the site and external to the site

In accordance with these requirements, the servicing arrangements for each proposed land use have been assessed as follows.

7.1. General Servicing

Health Care Services

Service vehicles associated with the Health Care Services component are expected to include ambulances, vans, and 6.4m Small Rigid Vehicles (SRVs). A dedicated ambulance bay and a designated van bay are provided on site. Pathology pick-ups and other low-impact commercial deliveries can be accommodated within the designated van bay or, where appropriate, within adjacent general parking spaces.

Food and Drink Outlet and Shop

Servicing demands for the food and drink outlet and shop tenancies will predominantly comprise van-based deliveries, with occasional SRV access. The on-site van bay provides a suitable location for routine delivery activity. Given the available aisle width and the low frequency of larger deliveries, temporary standing by an SRV within the parking aisle can be accommodated without adversely affecting on-site circulation.

Dual Occupancy Units

For the residential component, the anticipated largest service vehicle is an 8.8m Medium Rigid Vehicle (MRV), primarily associated with furniture deliveries. Routine servicing demands will more typically involve smaller vehicles such as courier vans for parcel deliveries and, from time to time, food delivery (e.g., Uber Eats). These vehicles can be accommodated within the general parking aisle or the designated van bay. The internal layout allows a MRV to temporarily stand within the parking aisle while still maintaining one-way passing opportunities.

7.2. Refuse Collection

Refuse collection for the development will be undertaken by a 10.5m front-lift Refuse Collection Vehicle (RCV). The RCV will access the site via the Lynwood Avenue entry and proceed along the internal parking aisle to a position beyond the bin storage area, where it will stand during servicing.

This arrangement, as illustrated on Colliers Drawing 25BRT0474-02 Rev. B (**Appendix B**), enables vehicles entering the site to pass the standing RCV without impediment. Following completion of servicing activities, the RCV will exit the site in forward gear via the Poole Way access.

The development plans indicate that the internal circulation road will be generally flat. In accordance with AS2890.2:2018, all areas where service vehicles would stand would need to have a maximum gradient of 1 in 25 (4.0%).

Swept-path analysis has been undertaken, as included in **Appendix B**. These include the following drawings:

- Colliers Drawings 25BRT0474-01 Rev. B shows the ingress/egress of a 6.4m SRV (entry/exit via Poole Way access). The use of a 6.4m SRV is intended to simulate an ambulance manoeuvring to/from the designated ambulance bay.
- Colliers Drawings 25BRT0474-02 Rev. B shows the circulation of a 10.5m Front Lift RCV.
- Colliers Drawings 25BRT0474-03 Rev. B shows a B99 Passenger Vehicle passing a standing RCV.

While the trafficable areas of the site are generally open to air, the following minimum height clearances are required where any building element, awning, or other structure overhangs a trafficable area:

- SRV – 3.5m
- MRV – 4.5m
- Front-Lift RCV – 6.5m

Overall, Colliers considers the service vehicle arrangements to be suitable for the proposed development.

8. Development Transport Demands

8.1. Estimated Development Traffic Generation

A first-principles approach has been adopted to estimate vehicle trips associated with the Health Care Services use. The assessment is based on the anticipated operating profile of the clinic, including expected staffing levels, consultation scheduling, and the timing and overlap of patient attendance. The relevant assumptions have been outlined below:

Staff - assume 8 on-duty staff arrive in the AM peak and 8 depart in the PM peak:

- 8 vph (AM peak hour)
- 8 vph (PM peak hour)

Patients - assume 6 patients in consultation and 6 arriving/waiting (i.e., 12 arrivals) and that all 12 complete and depart within the same peak hour (i.e., 12 departures).

- 24 vph (AM peak hour)
- 24 vph (PM peak hour)

Note: These estimates are considered highly conservative. In practice, staff start/finish times are staggered, and not all 12 patient arrivals and departures would cluster entirely within the peak hours.

Daily movements:

- Staff: 17 staff × 2 movements (enter and exit once) = 34vpd
- Patients: 12 arrivals/hour × 9 hours (8am–5pm) = 108 arrivals and 108 departures = 216 vpd

For the purposes of calculating the traffic generation potential associated with the other on-site uses, reference has been made to the NSW Government *Guide to Transport Impact Assessment* (TS 00085 v1.1). The anticipated traffic generation, based on the land-use-specific rates prescribed in this guide, is summarised in Table 8-1.

Table 8-1: Development Traffic Peak Hour Generation (Proposed)

Land Use	Yield	Generation Rate	AM Peak	PM Peak	Daily
Dual Occupancy	2 units	• 0.41vph per dwelling (AM peak hour) • 0.60vph per dwelling (PM peak hour) • 3.67 vehicles per dwelling (daily)	1vph	2vph	8vpd
Food and Drink Outlet[1]	113m^2 GFA	• 5 vph per 100m2 GFA (AM & PM peak hour) • 5 vph per 100m2 GFA (AM & PM peak hour) • 60 vehicles per 100m2 GFA (daily)	6vph	6vph	68vpd
Shop	68m^2 GFA	• 4.98 vph per 100m2 GFA (AM peak hour) • 4.98 vph per 100m2 GFA (PM peak hour) • 51.53 vehicles per 100m2 GFA (daily)	4vph	4vph	36vpd
Health Care Services	• Traffic generation as per first principles assessment		32vph	32vph	250vpd
Total			**43vph**	**44vph**	**362vpd**

[1]Restaurant traffic generation rate adopted for Food and Drink Outlet use

While Table 8-1 indicates an estimated 43–44 vehicle movements in the AM and PM peak hours, it is important to recognise that these values represent a conservative upper-bound estimate.

The Health Care Services component assumes all rostered staff arrive and depart during peak commuter periods, conditions that are unlikely to occur in practice given staggered staff start/finish times. In addition, no allowance has been made for linked trips between uses (e.g. patrons purchasing food or convenience items before or after appointments), nor for diverted or pass-by trips generated by vehicles already travelling near the site.

The assessment further adopts the conservative assumption that all Health Care Services trips are private vehicle based, with no proportion assigned to public or active travel modes. Finally, the temporal profiles of the individual uses differ: Food and Drink Outlet traffic is expected to peak at lunchtime, early evenings, and on weekends, whereas the Health Care Services component will operate only during business hours and is unlikely to contribute to evening or weekend peaks. Taken together, these factors indicate that the combined peak-hour traffic generation identified in Table 8-1 overstates the likely operational traffic conditions for the development.

8.2. Warrants for Traffic Impact Assessment

As outlined in Table 8-1, the proposed development is forecast to generate approximately 43–44 vehicle movements during both the AM and PM peak hour periods. Spread across a full peak hour, this is equivalent to approximately one vehicle movement every 1.5 minutes. When distributed across the surrounding local road network, even these conservative peak-hour traffic estimates represent a negligible increase in overall traffic volumes and are not expected to adversely affect intersection capacity, operational performance, or safety. Notwithstanding this, Colliers has undertaken a Traffic Impact Assessment (TIA) of the road network in the immediate vicinity of the subject site, as presented in the following sections.

9. Future Traffic Demands

9.1. Assessment Years and Traffic Growth

It is anticipated that the targeted completion date for the proposed development would be 2028. On this basis, the following assessment years have been considered:

- Opening Year (full completion): 2028
- Design Horizon (Opening Year + 10 years): 2038.

Colliers obtained traffic modelling data from Townsville City Council's Townsville Aimsun Integrated Model (TAIM), which is the City's adopted strategic transport planning tool aligned with the Local Government Infrastructure Plan (LGIP). Model outputs were obtained in five-year increments covering 2026, 2031, 2036, 2041 and 2046. The extracted datasets included Annual Average Daily Traffic (AADT) along with AM and PM peak hour volumes for key road segments in the vicinity of the subject site.

The modelled traffic volumes were reviewed to understand forecast growth trends over time. By comparing predicted volumes between the 2026 and 2036 model years, representing a ten-year assessment horizon, an average annual traffic growth rate of approximately 2.64 per cent was derived.

9.2. Base Traffic Volumes

Colliers identified the extent of the traffic assessment as the two key intersections in proximity to the subject site, being the following roundabouts (refer to Figure 9-1):

- Lynwood Avenue / Goicoechea Drive / Poole Way
- Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive

Figure 9-1: Assessment Intersections and Surrounding Road Network

Base traffic volumes for the assessment were derived from the TAIM, with data provided for road segments in the immediate vicinity of the subject site. As previously outlined, the TAIM data was supplied in the form of traffic volumes for individual network segments rather than full intersection turning movement counts. For each roundabout, the available information included vehicle volumes for the following movements:

- Vehicles entering the roundabout by each leg
- Vehicles departing the roundabout by each leg
- Vehicles continuing at each leg
- Vehicles circulating between approaches

For the Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive intersection, the TAIM data provides a high-level indication of traffic volumes entering and exiting each approach. However, the level of detail is insufficient to directly establish specific turning movement volumes within the 4-way intersection (i.e. left, through and right turns on each approach), which are required for detailed intersection modelling in SIDRA. As a result, an iterative estimation process was undertaken to derive turning movement distributions. This process maintained the TAIM modelling entering and exiting volumes for each approach while allocating movements based on surrounding land uses, nearby attractors, and likely travel patterns inferred from the wider network. While it is acknowledged that this approach represents an estimate of actual turning behaviour, the adopted distributions are considered reasonable and appropriate for the purposes of this assessment.

In relation to the Lynwood Avenue / Goicoechea Drive / Poole Way intersection, it is noted that the TAIM dataset does not include the northern leg of the roundabout (Poole Way). Within the TAIM, the intersection is represented as a three-legged roundabout. Given that the western and southern legs primarily serve residential catchments, and based on the available TAIM outputs, it was possible to derive full turning movement volumes for the three modelled approaches with a high degree of confidence.

However, given that Poole Way was not represented within the TAIM output, additional assessment was required to account for traffic using this leg. Poole Way extends north from Lynwood Avenue and eastwards to Mount Low Parkway, providing access to an existing Service Station and Car Wash. It is unclear whether traffic associated with these uses is already captured within the TAIM dataset. Notwithstanding this, Colliers has incorporated additional estimated traffic volumes associated with these uses by reviewing the historical TIA prepared by Northern Consulting Engineers for the Service Station and Car Wash development (Council Reference MCU190085). The traffic generation rates adopted within that assessment are as follows:

<u>Fuel Service Station</u>

- AM Peak Hour: 10.5vph per bowser (
- PM Peak Hour: 14.4vph per bowser

<u>Car Wash Facility (Self Service)</u>

- AM Peak Hour: 4.0vph per wash bay
- PM Peak Hour: 4.0vph per wash bay

<u>Car Wash Facility (Automatic)</u>

- AM Peak Hour: 6.0vph per wash bay
- PM Peak Hour: 0.0vph per wash bay

it is noted that the referenced Northern Consulting Engineers Traffic Impact Assessment does not explicitly identify or quantify the proportion of *pass-by* trips associated with the fuel service station and car wash facilities. It is, however, well established that such uses typically generate a high proportion of pass-by traffic, with vehicles accessing the site as part of an existing trip rather than making a primary trip solely to access the development. This is particularly relevant for fuel stations and car wash facilities, where customers commonly divert briefly from an established route.

A pass-by rate of 50% has therefore been assumed, with the remaining 50% of trips treated as new trips to the surrounding road network. This assumption is considered reasonable and conservative.

With respect to traffic distribution, the directional splits applied to the estimated Service Station traffic have been informed by the existing traffic patterns evident within the TAIM dataset. Specifically, the distribution of vehicles entering and exiting Poole Way has been based on the relative traffic volumes modelled on the surrounding intersection approach/departure legs.

Applying the above traffic generation rates and directional splits yields the estimated traffic demand outlined in Table 9-1 and Table 9-2.

Table 9-1: Service Station & Car Wash Facility Traffic Generation

Land Use	Yield	Generation Rate	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Fuel Service Station	5 fuel bowsers	10.5vph / bowser (AM peak) 14.4vph / bowser (PM peak)	27vph	26vph	53vph	36vph	36vph	72vph
Car Wash Facility (Self Service)	4 wash bays	4.0vph / wash bay (AM peak) 4.0vph / wash bay (PM peak)	8vph	8vph	16vph	8vph	8vph	16vph
Car Wash Facility (Automatic)	1 wash bays	6.0vph / wash bay (AM peak) 0.0vph / wash bay (PM peak)	3vph	3vph	6vph	0vph	0vph	0vph
Total			**38vph**	**37vph**	**75vph**	**44vph**	**44vph**	**88vph**

Table 9-2: Service Station & Car Wash Facility Traffic Generation (Pass-By Trip Adjustment)

Land Use	Peak	Total Traffic Generation			Pass-By Trips			New Trips		
		Total	In	Out	Total	In	Out	Total	In	Out
Fuel Service Station & Car Wash Facilities	AM	75	38	37	38	19	19	38	19	19
	PM	88	44	44	44	24	24	44	24	24

9.3. Committed Development Traffic Demands

Colliers has also considered traffic associated with committed developments within the vicinity of the subject site. In particular, reference is made to the following approvals:

- Council Reference: RAL250043 - Residential Subdivision at 12 Poole Way, Bushland Beach
  - Comprising eight (8) residential lots
- Council Reference MCU210140 - Child Care Centre at 2 Poole Way
  - Comprising 98 child care places

To estimate the anticipated traffic generation associated with the future residential development, reference has been made to the TfNSW GTIA 2024, which provides standard traffic generation rates for dwelling houses. These rates have been adopted to quantify the additional traffic expected to be generated by the approved subdivision for inclusion in the base traffic scenario. The nominated rates are as follows:

- AM Peak Hour: 0.83vph per dwelling
- PM Peak Hour: 0.84vph per dwelling

Regarding peak hour directional splits, in line with generally accepted traffic engineering practice this is estimated to be:

- AM Peak Hour: 30% inbound /70% outbound
- PM Peak Hour: 65% inbound /35% outbound

Application of the above generation rates and directional splits would result in proposed development traffic demand estimates as shown in Table 9-3.

Table 9-3: Traffic Generation Estimate (Committed Development Traffic)

Land Use	Yield	Generation Rate	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Dwelling House	8 dwellings	AM: 0.83 vph per dwelling PM: 0.84 vph per dwelling	2vph	5vph	7vph	5vph	2vph	7vph

With respect to the child care centre, reference is made to Q Traffic's 'Response to Council's Information Request – Traffic Matters' (Q Traffic Reference 1562_GR102), dated 2 December 2021. This document identifies the following traffic generation rates for the child care development:

- AM Peak Hour: 0.66vph per child place
- PM Peak Hour: 0.48 vph per child place

It is common practice for parents to drop off and pick up children as part of a linked trip, typically prior to travelling to work or other destinations. As such, a proportion of trips associated with the development will

not be new but rather classified as 'pass-by' trips. The following assumptions have been made with respect to this:

80% of the development traffic will be new trips

20% of the development traffic will be 'pass-by trips'

With respect to directional splits, and in line with standard assessment methodology, it is assumed that traffic will be distributed evenly, with 50% inbound and 50% outbound. This assumption reflects the typical behaviour of parents entering the site solely to drop off or pick up children.

the traffic distribution associated with the child care centre has been informed by observed traffic patterns derived from TAIM data for vehicles approaching and departing the nominated intersections. This approach recognises that background traffic conditions and travel behaviours within the surrounding road network may have evolved since the preparation of the earlier Traffic Impact Assessment.

Applying the above traffic generation rates and directional splits yields the estimated traffic demand outlined in Table 9-4.

Table 9-4: Traffic Generation Estimate (Committed Development Traffic)

Land Use	Peak	Total Traffic Generation			Pass-By Trips			New Trips		
		Total	In	Out	Total	In	Out	Total	In	Out
Child Care Centre (98 child places)	AM	65	33	32	13	7	6	52	26	26
	PM	47	23	24	9	4	5	38	19	19

9.4. Future Year Scenarios

The following future year traffic scenarios have been developed for the purposes of this Traffic Impact Assessment (TIA):

- **2026 Base Scenario:** Represents existing traffic conditions based on traffic volumes extrapolated from the 2026 TAIM data, together with estimated traffic volumes associated with the existing Service Station and Car Wash accessed via Poole Way. This scenario establishes the baseline against which all future traffic scenarios are assessed.
- **2028 Base Case Scenario:** Represents opening-year traffic conditions, incorporating background traffic growth applied to the 2026 Base Scenario and committed development traffic associated with the approved 8-lot residential subdivision at 12 Poole Way and Child Care Centre at 2 Poole Way.
- **2038 Base Case Scenario:** Represents the 10-year design horizon, incorporating background traffic growth applied to the 2026 Base Scenario and committed development traffic associated with the approved 12 Poole Way subdivision.
- **2028 Base Case + Development Traffic Scenario:** Assesses opening-year traffic conditions inclusive of the 2028 Base Case Scenario plus traffic generated by the proposed mixed-use development.

- **2038 Base Case + Development Traffic Scenario:** Assesses the 2038 Base Case Scenario plus traffic generated by the proposed mixed-use development.

Based on the development traffic demand estimates (refer Sections 8.1, 9.2 and 9.3) and background traffic growth assumptions (refer Section 9.1), a series of traffic network diagrams has been prepared. These diagrams show traffic movements along the surrounding road network and through the assessed intersections for each scenario. The network diagrams are provided in **Appendix C** and comprise the following:

- **Traffic Network Diagram 1:** 2026 TAIM Traffic Volumes
- **Traffic Network Diagram 2:** Service Station and Car Wash Traffic Volumes
- **Traffic Network Diagram 3:** 2026 Base Traffic Volumes
  - Calculated by combining the volumes presented in Diagrams 1 and 2
- **Traffic Network Diagram 4:** Committed Development Traffic Volumes (Child Care Centre)
- **Traffic Network Diagram 5:** Committed Development Traffic Volumes (Residential Subdivision)
- **Traffic Network Diagram 6:** Proposed Development Traffic Volumes
- **Traffic Network Diagram 7:** 2028 Growth Traffic Volumes
  - Represents background growth applied to 2026 Base Traffic Conditions
- **Traffic Network Diagram 8:** 2038 Growth Traffic Volumes
  - Represents background growth applied to 2026 Base Traffic Conditions
- **Traffic Network Diagram 9:** 2028 Base Traffic Volumes
  - Calculated by combining volumes shown in Diagrams 4, 5 and 7
- **Traffic Network Diagram 10:** 2038 Base Traffic Volumes
  - Calculated by combining volumes shown in Diagrams 4, 5 and 8
- **Traffic Network Diagram 11:** 2028 Base + Development Traffic Volumes
  - Calculated by combining volumes shown in Diagrams 6 and 9
- **Traffic Network Diagram 12:** 2038 Base + Development Traffic Volumes
  - Calculated by combining volumes shown in Diagrams 9 and 10

10. Traffic Impact Assessment

10.1. Extent of Assessment

This TIA has been prepared to assess the traffic and transport impacts associated with the proposed mixed-use development and to identify any mitigation measures required to maintain safe and efficient operation of the surrounding road network.

The assessment has considered the operational performance of the following intersections, reflecting their functional role in accommodating site-generated traffic:

- Lynwood Avenue / 16 Poole Way Southern Site Access
- Lynwood Avenue / Goicoechea Drive / Poole Way
- Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive

The scope of this TIA includes the following elements.

Turn Warrants Assessment – Refer Section 10.2

Turn-warrant assessments have been undertaken for the Lynwood Avenue / 16 Poole Way (proposed) Development Access, based on the relevant DTMR turning-warrant graphs and the adopted design speed conditions.

Intersection Delay Assessment – Refer Section 10.3

SIDRA Intersection 10 has been used to assess the future traffic operations of the intersections included in this assessment.

10.2. Turning Warrants Assessment

A turning warrant assessment has been undertaken for the proposed development access at Lynwood Avenue / 16 Poole Way, as this access connects to a higher-order road and is expected to accommodate the majority of development-generated traffic. A turning warrant assessment has not been undertaken for the eastern site access via Poole Way, as Poole Way operates as a lower-order local road servicing the existing Service Station/Car Wash, as well as future residential and child care uses only. The road does not function as a through-route and is characterised by low traffic volumes and localised movements. Traffic associated with the proposed development using this access is estimated to comprise approximately eight (8) vehicles in the peak hour, with entering movements likely limited to left-in (given that vehicles cannot turn right from Mount Low Parkway into Poole Way).

10.2.1. Lynwood Avenue / 16 Poole Way Access

This assessment was completed by plotting the anticipated turn volumes on the DTMR turn-warrant graphs (Figure 4A-1(c), Road Planning and Design Manual – Volume 3), replicated as Figure 10-1, based on a posted speed limit of 60 km/h and an adopted design speed of 70 km/h.

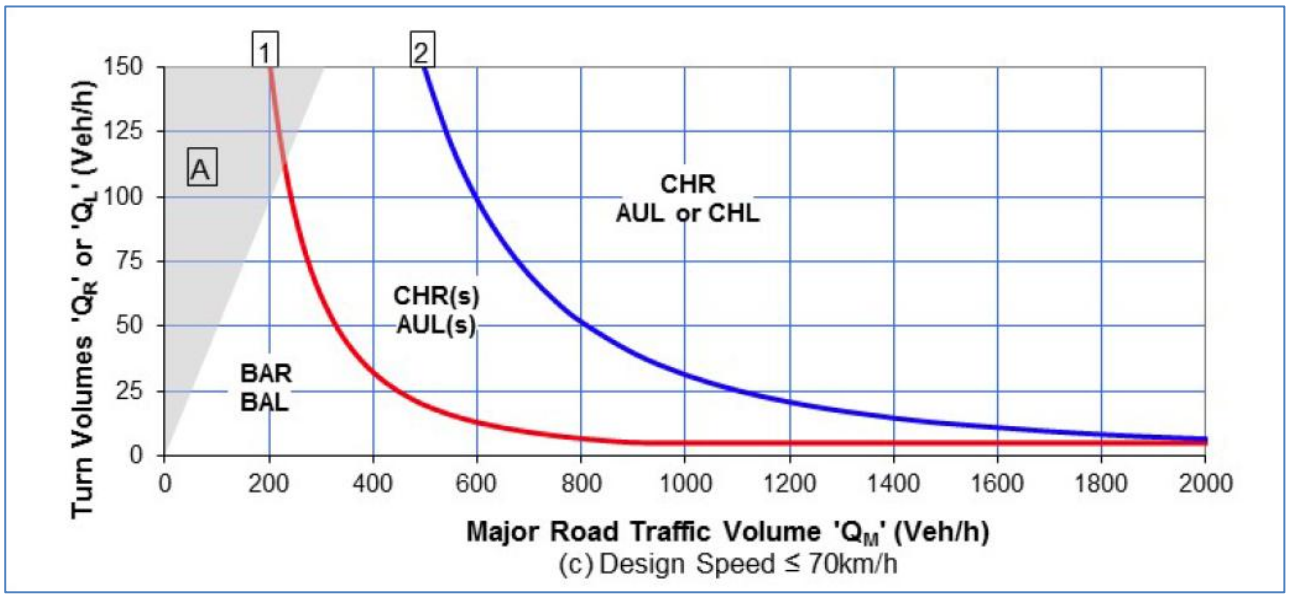
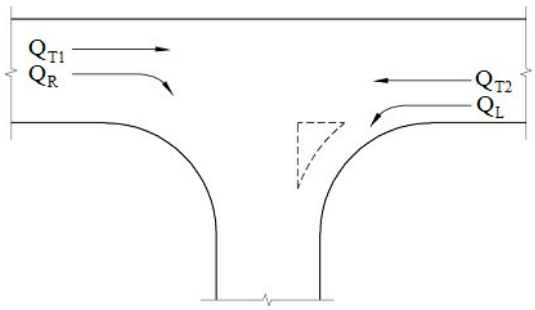


Figure 10-1: Warrants for Turn Lane Treatments (70km/h Design Speed)

The x-axis and y-axis on this graph relate to the following traffic volume parameters:

- Q_L and Q_R = left and right turn traffic volumes (vph).
- Q_M = major road traffic volume (vph), which is calculated in accordance with Figure 4A-2 of the aforementioned DTMR manual. This figure is replicated as Figure 10-2, with the relevant equations highlighted.



Road Type	Turn Type	Splitter Island	Q_M (veh/h)
2 Lane 2 Way	Right	No	= $Q_{T1} + Q_{T2} + Q_L$
		Yes	= $Q_{T1} + Q_{T2}$
	Left	Yes/No	= Q_{T2}
4 Lane 2 Way	Right	No	= 50% x $Q_{T1} + Q_{T2} + Q_L$
		Yes	= 50% x $Q_{T1} + Q_{T2}$
	Left	Yes/No	= 50% x Q_{T2}
6 Lane 2 Way	Right	No	= 33% x $Q_{T1} + Q_{T2} + Q_L$
		Yes	= 33% x $Q_{T1} + Q_{T2}$
	Left	Yes/No	= 33% x Q_{T2}

Figure 10-2: Calculation of the Major Road Traffic Volume Parameter 'Q_M'

Using the calculations outlined above, the left-turn (QL), right-turn (QR) and major-road (QM) traffic volume parameters for the Lynwood Avenue / 16 Poole Way intersection have been determined. These parameters have been assessed under the following scenarios:

- 2028 Base + Approved Development
- 2038 Base + Approved Development

In order to illustrate the required left and right turn lane treatments for each of the above scenarios, the traffic volume parameters determined have been plotted on Figure 4A-1(c). These plots are provided in Figure 10-3 and Figure 10-4 and summarised in Table 10-1.

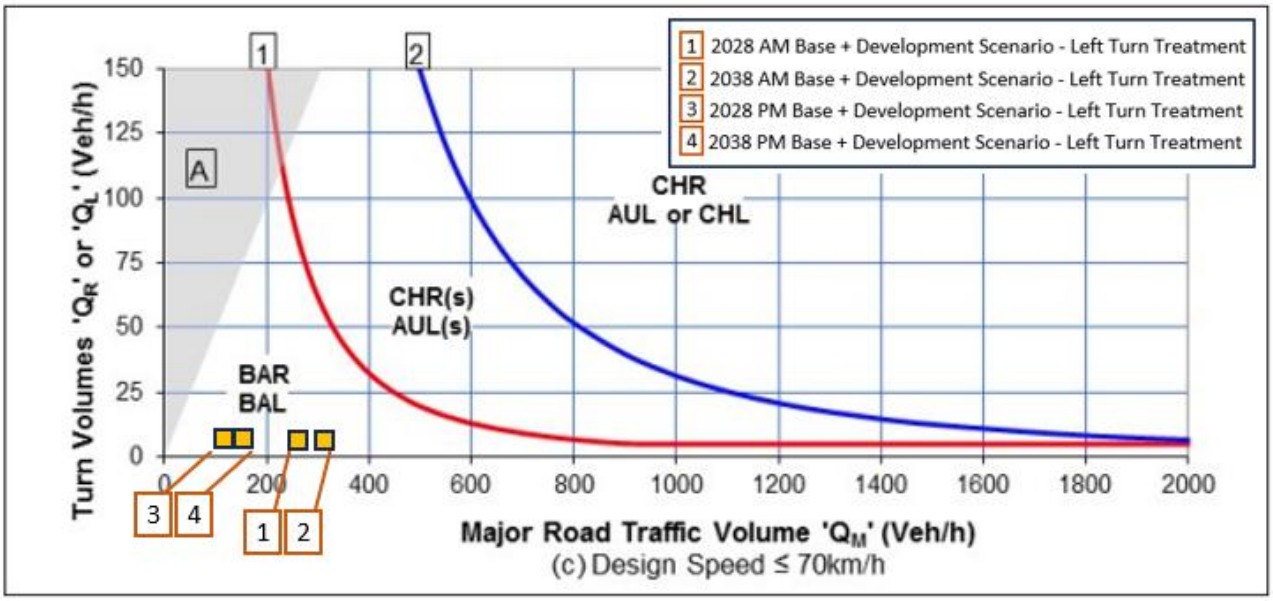


Figure 10-3: Turn Warrants Assessment for Lynwood Avenue / 16 Poole Way Access – Left Turn Treatment

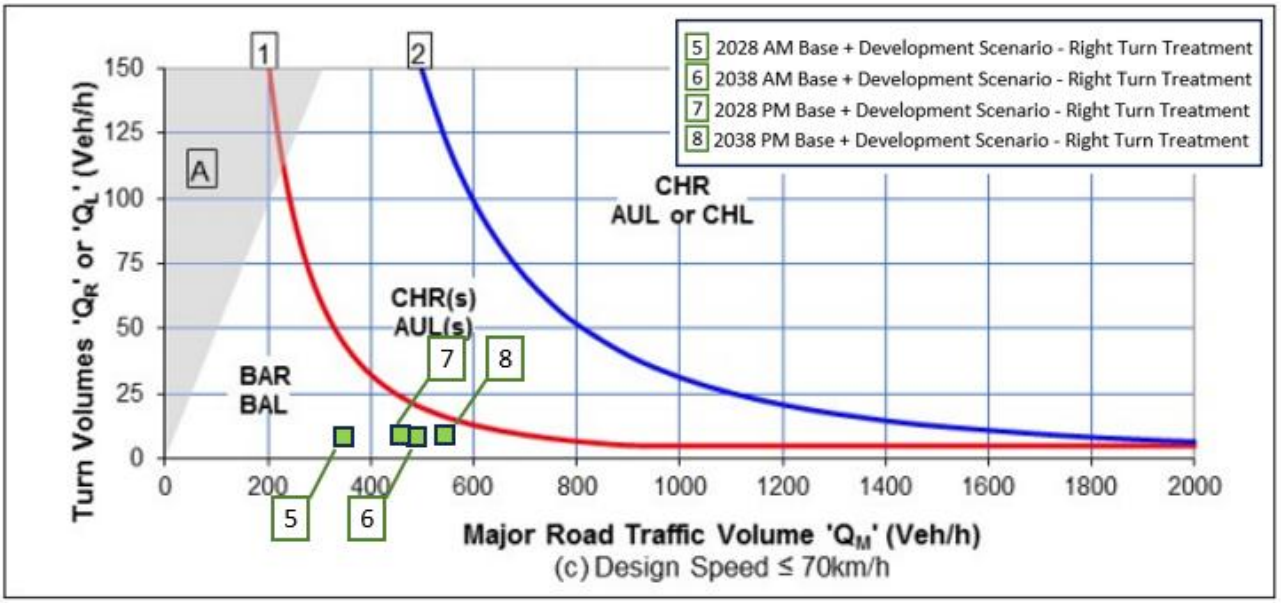


Figure 10-4: Turn Warrants Assessment for Lynwood Avenue / 16 Poole Way Access – Right Turn Treatment

Table 10-1: Traffic Volume Parameters – Lynwood Avenue / 16 Poole Way Access

Turn	Scenario	AM Peak Hour			PM Peak Hour		
		Q_L/Q_R	Q_M	Treatment	Q_L/Q_R	Q_M	Treatment
Left Turn	2028 Base + Development Scenario	5	246	BAL	6	143	BAL
	2038 Base + Development Scenario	5	316	BAL	6	184	BAL
Right Turn	2028 Base + Development Scenario	7	387	BAR	8	435	BAR
	2038 Base + Development Scenario	7	492	BAR	8	559	BAR

Figure 10-3 and Figure 10-4 demonstrate that, across all assessment scenarios, the forecast left and right-turn volumes from Lynwood Avenue into the proposed 16 Poole Way southern site access meet the warrants for Basic Left-Turn (BAL) and Basic Right-Turn (BAR) treatments, respectively. Notwithstanding this, both the eastbound and westbound traffic lanes on Lynwood Avenue are provided at widths of approximately 5.5m, which is sufficient to enable a through vehicle to pass a turning vehicle without impediment.

10.3. Intersection Delay Assessment

The SIDRA Intersection 10 software package has been used to assess the future traffic operations of the intersections included in this assessment. Detailed SIDRA output data is also included in **Appendix D**.

10.3.1. Lynwood Avenue / 16 Poole Way Southern Access Intersection

Figure 10-5 shows the configuration of the Lynwood Avenue / 16 Poole Way Access intersection adopted in the SIDRA analysis. All default SIDRA inputs were used for the analysis. The results of the SIDRA analysis under the various scenarios are summarised in Table 10-2.

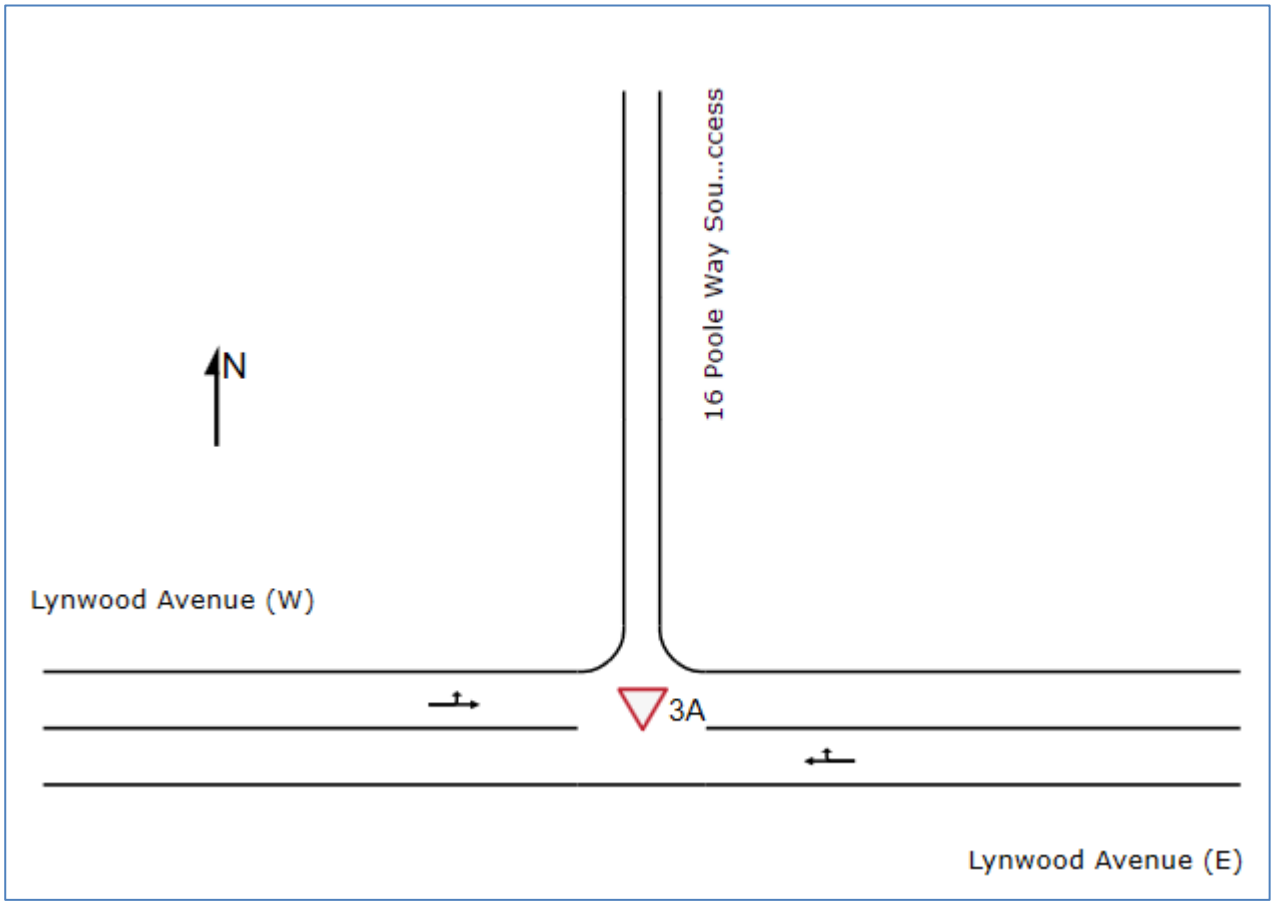


Figure 10-5: Lynwood Avenue / 16 Poole Way Southern Access Intersection – SIDRA Layout

Table 10-2: Lynwood Avenue / 16 Poole Way Southern Access Intersection – SIDRA Results Summary

Scenario	DoS %	Average Delay		LoS	95th Percentile Critical Queue (m)	
		Overall	Worst Movement		East	West
Weekday AM Peak Hour						
2028 Base + Development Scenario	12.7	0.2 sec	6.4 sec (EA RT)	NA	0.4m	0.0m
2038 Base + Development Scenario	16.2	0.2 sec	6.7 sec (EA RT)	NA	0.5m	0.0m
Weekday PM Peak Hour						
2028 Base + Development Scenario	15.1	0.2 sec	5.7 sec (EA RT)	NA	0.5m	0.0m
2038 Base + Development Scenario	19.3	0.2 sec	5.8 sec (EA RT)	NA	0.5m	0.0m

The generally accepted Degree of Saturation (DoS) threshold for priority-controlled intersections is 80%. As summarised in Table 10-2, the Lynwood Avenue / 16 Poole Way Southern Access intersection is forecast to operate well within capacity under all assessed scenarios. The highest DoS is predicted to occur in the 2038 PM peak development scenario, with a value of 19.5%, which remains substantially below the adopted capacity threshold.

In accordance with the Department of Transport and Main Roads (TMR) Guide to Transport Impact Assessment (GTIA), average delay is the primary performance indicator for priority-controlled intersections. The guideline notes that where *"average peak hour delays for any turn movement exceed 42 seconds, the intersection should be upgraded for safety reasons where it is practical to do so."* The assessment indicates that the maximum average delay across all movements and scenarios is less than one second.

On this basis, the proposed development's southern access is expected to operate within acceptable performance limits.

10.3.2. Lynwood Avenue / Goicoechea Drive / Poole Way Intersection

Figure 10-6 shows the configuration of the Lynwood Avenue / Goicoechea Drive / Poole Way intersection adopted in the SIDRA analysis. All default SIDRA inputs were used for the analysis. The results of the SIDRA analysis under the various scenarios are summarised in Table 10-3.

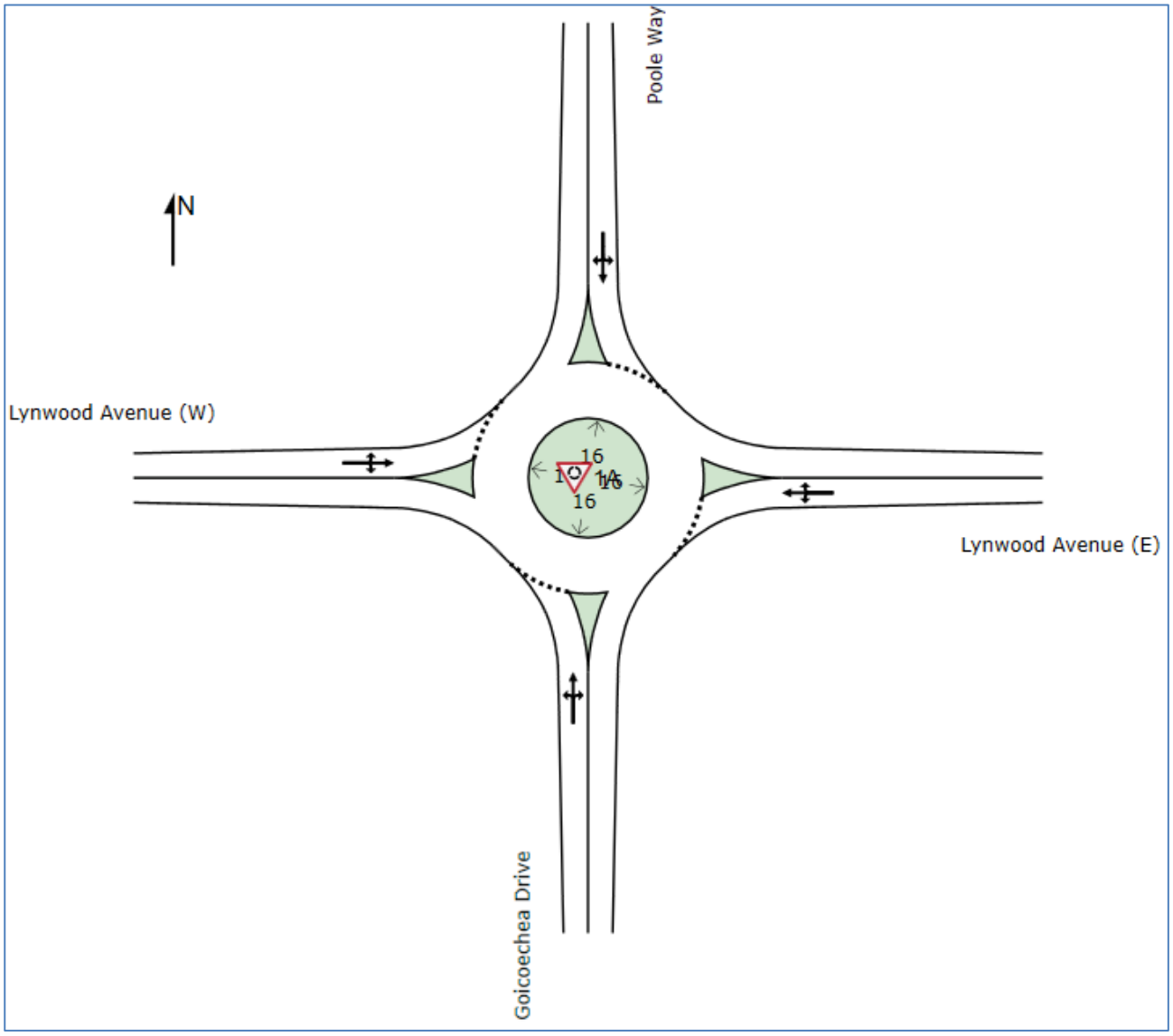


Figure 10-6: Lynwood Avenue / Goicoechea Drive / Poole Way Intersection – SIDRA Layout

Table 10-3: Lynwood Avenue / Goicoechea Drive / Poole Way Intersection – SIDRA Results Summary

Scenario	DoS %	Average Delay		LoS	95th Percentile Critical Queue (m)			
		Overall	Worst Movement		South	East	North	West
Weekday AM Peak Hour								
2026 Base Case	18.5	5.4 sec	9.8 sec (NA RT)	A	1.5m	4.3m	1.3m	7.3m
2028 Base Case	20.6	5.7 sec	9.9 sec (NA RT)	A	1.7m	5.4m	2.4m	8.2m
2028 Base + Development	20.8	5.8 sec	10.0 sec (NA RT)	A	1.8m	6.0m	3.0m	8.3m
2038 Base Case	26.6	5.7 sec	10.5 sec (NA RT)	A	2.3m	6.9m	2.7m	11.4m
2038 Base + Development	26.9	5.9 sec	10.5 sec (NA RT)	A	2.4m	7.5m	3.4m	11.5m
Weekday PM Peak Hour								
2026 Base Case	22.1	5.0 sec	9.9 sec (SA RT)	A	1.0m	9.6m	1.0m	4.0m
2028 Base Case	24.7	5.2 sec	10.1 sec (SA RT)	A	1.1m	11.1m	1.7m	4.4m
2028 Base + Development	26.3	5.3 sec	10.3 sec (SA RT)	A	1.2m	12.0m	2.3m	4.3m
2038 Base Case	31.3	5.1 sec	10.7 sec (SA RT)	A	1.5m	15.3m	1.8m	5.9m
2038 Base + Development	32.9	5.2 sec	10.8 sec (SA RT)	A	1.6m	16.4m	2.4m	5.9m

The generally accepted DoS threshold for unsignalised roundabouts is 85%. As summarised in Table 10-3, the Lynwood Avenue / Goicoechea Drive / Poole Way intersection is forecast to operate well within capacity across all assessed scenarios. Under the 2038 Base plus Development scenarios, the intersection records DoS values of 26.9% in the AM peak and 32.9% in the PM peak, with average delays of less than 6 seconds and Level of Service (LOS) A maintained in both peak periods.

The maximum 95th percentile queue length observed across all scenarios is approximately 16m, occurring on the eastern approach during the PM peak. This queue length is equivalent to approximately a two to three vehicle length.

On the basis of the above assessment, the Lynwood Avenue / Goicoechea Drive / Poole Way intersection is expected to continue operating within acceptable performance limits, with no adverse impacts arising from traffic generated by the proposed development through to and including the 10-year design horizon.

10.3.3. Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive Intersection

Figure 10-7 shows the configuration of the Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive intersection adopted in the SIDRA analysis. All default SIDRA inputs were used for the analysis. The results of the SIDRA analysis under the various scenarios are summarised in Table 10-4.

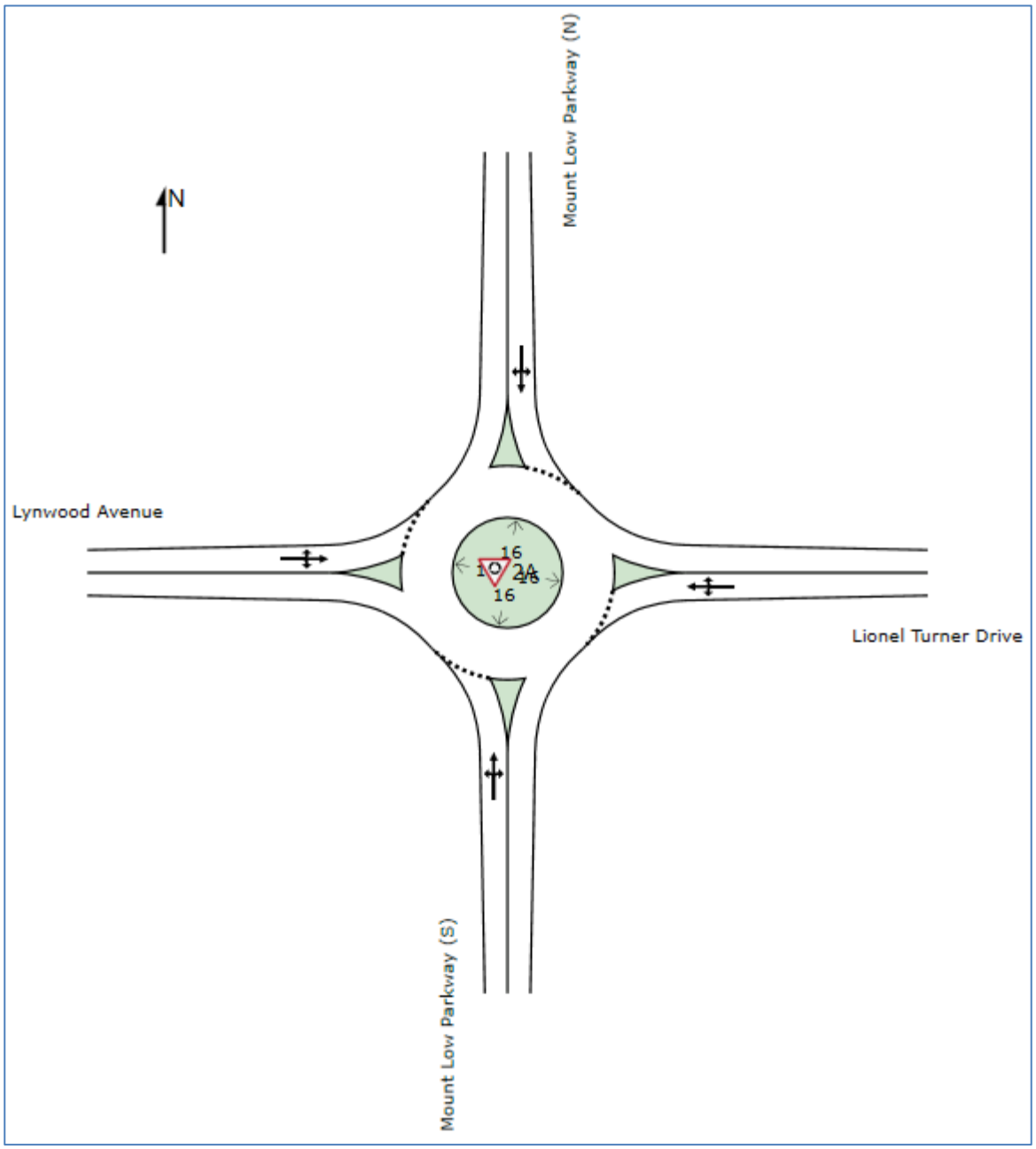


Figure 10-7: Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive Intersection – SIDRA Layout

Table 10-4: Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive Intersection – SIDRA Results Summary

Scenario	DoS %	Average Delay		LoS	95th Percentile Critical Queue (m)			
		Overall	Worst Movement		South	East	North	West
Weekday AM Peak Hour								
2026 Base Case	36.2	7.2 sec	10.5 sec (NA RT)	A	7.2m	6.5m	16.7m	11.8m
2028 Base Case	40.4	7.5 sec	11.1 sec (NA RT)	A	8.1m	7.4m	19.3m	13.6m
2028 Base + Development	41.3	7.5 sec	11.2 sec (NA RT)	A	8.4m	7.7m	19.9m	14.1m
2038 Base Case	56.8	8.7 sec	13.5 sec (NA RT)	A	11.6m	11.4m	36.0m	20.1m
2038 Base + Development	58.0	8.8 sec	13.8 sec (NA RT)	A	12.0m	11.8m	37.7m	20.7m
Weekday PM Peak Hour								
2026 Base Case	51.0	8.5	12.0 sec (SA RT)	A	28.2m	17.3m	8.6m	9.9m
2028 Base Case	56.7	9.1	13.2 sec (SA RT)	A	35.9m	19.6m	9.7m	12.0m
2028 Base + Development	57.9	9.2	13.5 sec (SA RT)	A	37.6m	20.2m	10.2m	12.8m
2038 Base Case	83.1	13.8	23.3 sec (SA RT)	B	97.5m	34.6m	14.6m	21.1m
2038 Base + Development	84.9	14.5	25.0 sec (SA RT)	B	105.5m	36.3m	15.1m	22.3m

As previously mentioned, the generally accepted DoS threshold for unsignalised roundabouts is 85%. As shown in Table 10-4, the intersection is forecast to operate below this threshold in all scenarios, including the 2038 Base plus Development case, noting that the PM peak approaches the threshold under 2038 Base and 2038 Base plus Development scenarios.

During the weekday AM peak hour, DoS values increase from 36.2% in the 2026 Base Case to 58.0% under the 2038 Base plus Development scenario. While this represents a noticeable increase over time due to background traffic growth, average delays remain relatively low, increasing from approximately 7.2 seconds to 8.8 seconds. Level of Service A is maintained in all AM peak scenarios.

The introduction of development traffic in the AM peak results in only marginal changes when compared to the corresponding base scenarios. For example, in 2038, the DoS increases from 56.8% in the Base Case to 58.0% with development, while average delay increases by approximately 0.1 seconds. Similarly, the longest queues on the northern approach increase modestly from approximately 36.0m to 37.7m, indicating that development traffic contributes only a small proportion of the overall demand.

In the weekday PM peak hour, DoS values increase from 51.0% in the 2026 Base Case to 84.9% in the 2038 Base plus Development scenario. Under these future conditions, average delays increase from approximately 13.8 seconds to 14.5 seconds, with the level of service reducing from LOS A to LOS B in the 2038 scenarios.

In the 2038 PM peak, the addition of development traffic results in an increase in DoS from 83.1% to 84.9%, remaining below the accepted threshold. Corresponding average delays increase by approximately 0.7 seconds. Queue lengths on the southern approach increase from approximately 96.1m in the Base Case to 103.9m with development, while queues on the eastern approach increase from approximately 34.6m to 36.3m. These increases are modest relative to the overall queue lengths and are primarily attributable to baseline demand levels rather than the development traffic itself.

Overall, the analysis indicates that the Lynwood Avenue / Goicoechea Drive / Poole Way intersection experiences increasing demand over time, particularly in the PM peak, and is forecast to operate close to the accepted capacity threshold by the 2038 horizon. However, the incremental impact of the proposed development is small when compared with the corresponding base scenarios, with only minor increases in DoS, delay, and queue length observed.

On this basis, the proposed development is not expected to result in a material or unacceptable worsening in the operation of the Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive Intersection through to, and including, the 10-year design horizon.

10.3.4. Net Delay Assessment

The net impact of development traffic on the surrounding road network has been assessed through comparison of total intersection delays under future-year scenarios. The resulting net change in intersection delay is summarised in Table 10-5.

Table 10-5: Net Intersection Delay

Intersection	AM Peak Hour	PM Peak Hour
Lynwood Avenue / Goicoechea Drive / Poole Way	+1.3%	+1.8%
Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive	+0.8%	+1.7%
Total	**+1.4%**	

As shown in Table 10-5, the intersection's change/increase in net delay is below 5%, with an aggregate of 1.4% across both AM and PM peaks. On this basis, the proposed development is considered to have a no net worsening effect to net delays for the surrounding road network. Therefore, no mitigation works are required.

10.4. Conclusion

This TIA has evaluated the traffic and transport impacts associated with the proposed mixed-use development, including turning-warrant assessments and SIDRA-based operational analysis of key surrounding intersections. The assessment demonstrates that the assessed intersections are forecast to

operate acceptably under future traffic conditions, including the ultimate design horizon with the development in place.

While increased traffic demand is forecast at the intersections over time, particularly during the weekday PM peak, the analysis indicates that intersection performance remains within accepted operational thresholds. The incremental impact of the proposed development on intersection degree of saturation, delay, and queueing is generally small relative to background traffic growth, with a negligible change in overall network delay. On this basis, the proposed development is not expected to result in adverse traffic or safety impacts on the surrounding road network, and no traffic mitigation works are required.

11. Active & Public Transport

11.1. Public Transport

The subject site has access to public transport, with a bus stop located on Lynwood Avenue within approximately 80m of the site. This stop is serviced by a single bus route, providing connections to key local centres and destinations with services operating Monday to Saturday.

11.2. Pedestrian Access

Pedestrian access to the site is supported by formal footpaths along the western and northern sides of Poole Way, as well as along Mount Low Parkway, Lynwood Avenue, and Lionel Turner Drive. Pedestrian crossing facilities, including refuge islands and kerb ramps, are also provided on Mount Low Parkway and Lynwood Avenue.

11.2.1. Cyclist Requirements

For bicycle parking provisions, reference has been made to the Cycling Aspects of the Austroads Guide, which specifies bicycle parking rates, as shown in Table 11-1:

Table 11-1: Parking Supply Requirement

Land Use	Austroads Recommendations	Extent	Recommendation
Health Care Services	1 space per 400m^2 GFA for staff 1 space per 200m^2 GFA for visitor	480m^2 GFA	4 spaces
Food and Drink Outlet	1 space per 100m^2 GFA for staff 1 space per 50m^2 GFA for visitors	113m^2 GFA	4 spaces
Shop	1 space per 300m^2 GFA for staff 1 space per 500m^2 GFA for visitors	68m^2 GFA	2 spaces
Dual Occupancy	1 per 4 lodging rooms for residents 1 per 16 lodging rooms for visitors	6 rooms (3 rooms per dwelling)	2 spaces

The development plans currently do not indicate any designated bicycle parking spaces. Based on the recommendations in Table 11-1, the Health Care Services and Food and Drink Outlet components generate the highest demand, with a recommendation of approximately four (4) bicycle parking spaces for each use.

For the residential component, it is expected that bicycle storage will be accommodated internally within garages or individual units.

Accordingly, Colliers recommends that a minimum of four (4) shared bicycle parking spaces be provided on site. These spaces would appropriately support the anticipated demand across the different land uses.

12. Summary and Conclusions

12.1. Proposed Development

The proposed mixed-use development comprises Health Care Services, a Food and Drink Outlet, a Shop tenancy and two Dual Occupancy units. A copy of the proposed site plan, prepared by Blackburne Jackson, is included in Appendix A.

12.2. Car Parking Arrangements

The development provides a total of 35 on-site car parking spaces, including one ambulance bay, one van bay and one PWD space. While the Health Care Services component adopts a nominal shortfall against the Transport Impact, Access and Parking Code, a first-principles assessment confirms that the proposed 20 spaces should sufficiently accommodate the expected staff and patient parking demand. Parking associated with the Food and Drink Outlet, Shop and Dual Occupancy units meets Council's minimum requirements.

The car parking layout generally complies with AS2890.1 standards.

Overall, Colliers considers the proposed car parking arrangements for this development to be appropriate.

12.3. Access Arrangements

Two driveway crossovers are proposed to service the site: an entry-only crossover from Lynwood Avenue, and an all-movements crossover from Poole Way. Access arrangement generally meets Council, AS2890.1, and IPWEAQ standards.

Overall, the proposed access arrangements are considered adequate to meet the needs of the proposed development.

12.4. Service Vehicle Arrangements

Servicing requirements for the various land uses have been considered with respect to likely vehicle types, which will predominantly include vans, SRVs, and periodic MRVs. The internal layout accommodates these vehicle types, with swept-path assessments confirming that each can enter, manoeuvre within and exit the site.

Refuse collection will be undertaken by a 10.5m front-lift RCV, with access provided via the Lynwood Avenue entry and forward-gear egress via Poole Way.

Overall, the proposed service vehicle arrangements are considered adequate to meet the needs of the proposed development.

12.5. Impact on Surrounding Road Network

The TIA indicates that the additional traffic generated by the development has a negligible effect on the operational performance of surrounding intersections. The incremental changes in DoS, delay and queueing are minor when compared with base conditions, with no net worsening of overall network delay identified.

On this basis, the development is not expected to adversely impact the surrounding road network, and no additional traffic mitigation measures or further detailed traffic assessment are warranted.

12.6. Active Transport Facilities

The subject site has access to public transport, with a bus stop located on Lynwood Avenue approximately 80m from the site. Pedestrian facilities include formal footpaths along Poole Way, Mount Low Parkway, Lynwood Avenue, and Lionel Turner Drive, with crossing facilities provided on Mount Low Parkway and Lynwood Avenue.

Colliers has made the recommendation that four (4) bicycle parking spaces be provided on the site to accommodate arrivals via this mode of transport.

12.7. Conclusion

Based on the assessment contained within this report, Colliers see no traffic engineering reason why the relevant approvals should not be granted.

Appendix A Development Plans

01 SITE LOCATION
1:1000

PROJECT SUMMARY

LOT 6 ON SP 333154
LOCAL AUTHORITY : TOWNSVILLE CITY COUNCIL
LOCATION : BUSHLAND BEACH
SITE AREA 2433m²

PROPOSED DEVELOPMENT

GROSS FLOOR AREA	
GROUND FLOOR LEVEL	
RETAIL T1 & T2	= 153m²
MEDICAL CENTRE	= 480m²
OUTDOOR DINING	= 50m²
LEVEL 2	
DUAL OCCUPANCY UNITS	= 249m²
TOTAL	**= 932m²**

SITE COVER	= 996m² (40.9%)
LANDSCAPING REQUIRED	= 243m² (10%)
LANDSCAPING PROVIDED	= 351m² (14%)

CAR PARKING		REQUIRED	PROVIDED
HEALTH CARE SERVICES	480m²	28 + 1 AMBULANCE	19 + 1 AMBULANCE
FOOD & DRINK OUTLET / SHOP	203m²	10	10
DUAL OCCUPANCY RES UNITS x2	249m²	2	4
TOTAL:		**40**	**29**
SERVICE VEHICLES		1 VAN	1 VAN + 1 AMBULANCE

NOTES :

- ALL CARPARKING IN ACCORDANCE WITH AS2890.1
- ALL BICYCLE PARKS IN ACCORDANCE WITH AS 2890.3
- BICYCLE STORAGE AS SHOWN
- MINIMUM TYPICAL DIMENSIONS:
  ALL AISLES : 6.2m WIDE
  SINGLE CAR : 5.4m x 2.6m

PROPOSED MIXED USE DEVELOPMENT, 16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

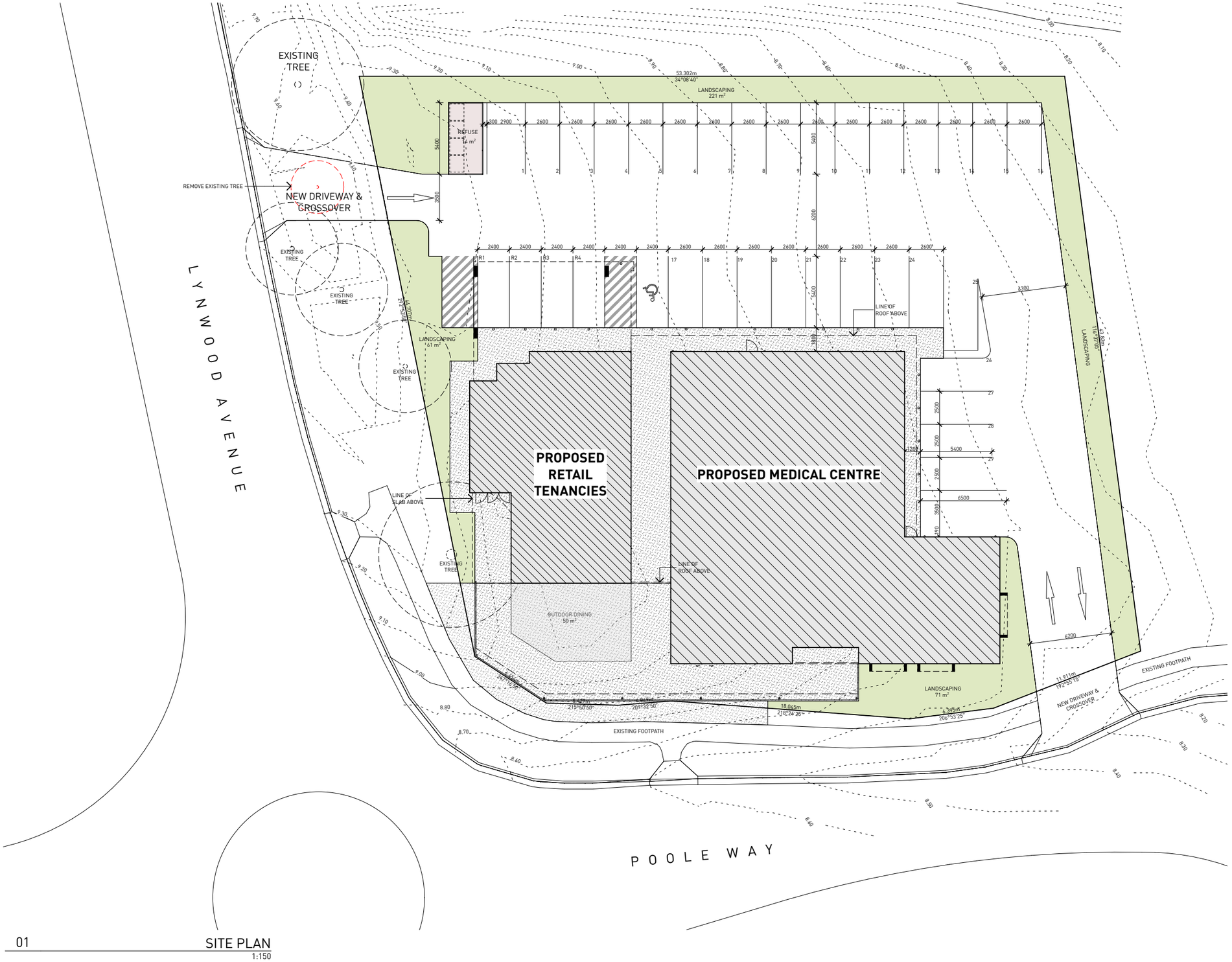
LOCATION PLAN & NOTES

DEVELOPMENT APPROVAL
scale : 1:1000 @A1 1:2000 @A3
issue : 03 date : 15-01-26

5819-DA01

north

BLACKBURNE JACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT



01 SITE PLAN
1:150

PROPOSED MIXED USE DEVELOPMENT, 16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

SITE PLAN

DEVELOPMENT APPROVAL
scale : 1:150 @A1 1:300 @A3
issue : 06 date : 18-03-26

5819-DA02

north

BLACKBURNEJACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT

01 FLOOR PLAN LEVEL 1
1:100

PROPOSED MIXED USE DEVELOPMENT, 16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

FLOOR PLAN - LEVEL 1

DEVELOPMENT APPROVAL

scale : 1:100 @A1 1:200 @A3

issue : 08 date : 18-03-26

5819-DA03

north

BLACKBURNEJACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT

01 FLOOR PLAN LEVEL 2
1:100

PROPOSED MIXED USE DEVELOPMENT, 16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

FLOOR PLAN - LEVEL 2

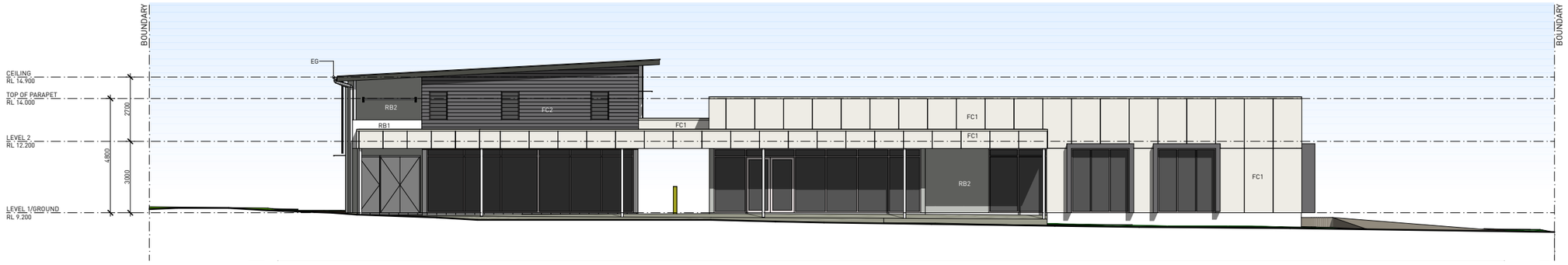
DEVELOPMENT APPROVAL
scale : 1:100 @A1 1:200 @A3
issue : 03 date : 15-01-26

5819-DA04

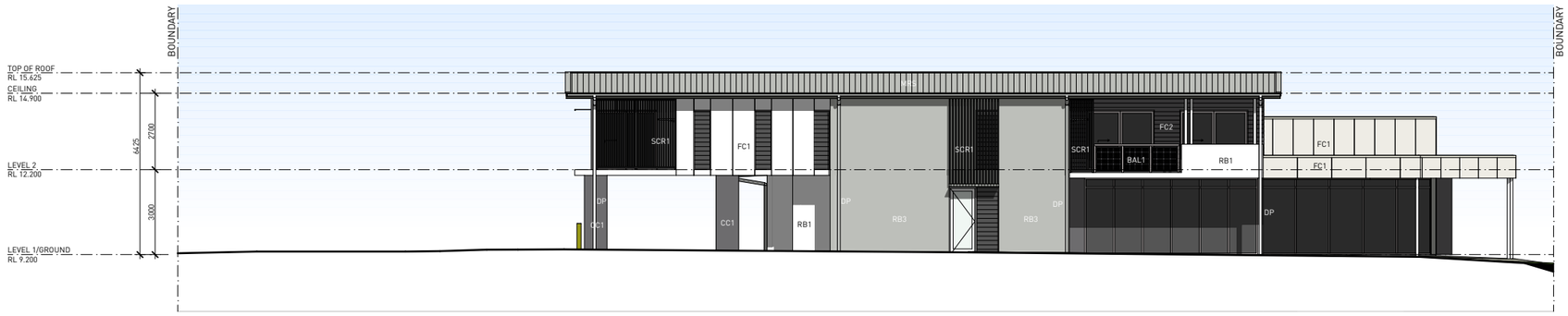
north

BLACKBURNE JACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT

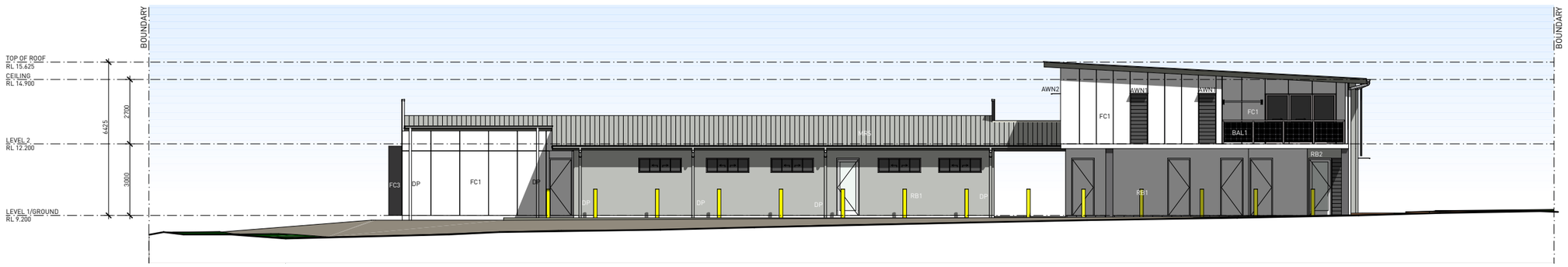
01 NORTH ELEVATION
1:100



02 EAST ELEVATION
1:100



03 SOUTH ELEVATION
1:100



04 WEST ELEVATION
1:100

PROPOSED MIXED USE DEVELOPMENT, 16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

ELEVATIONS

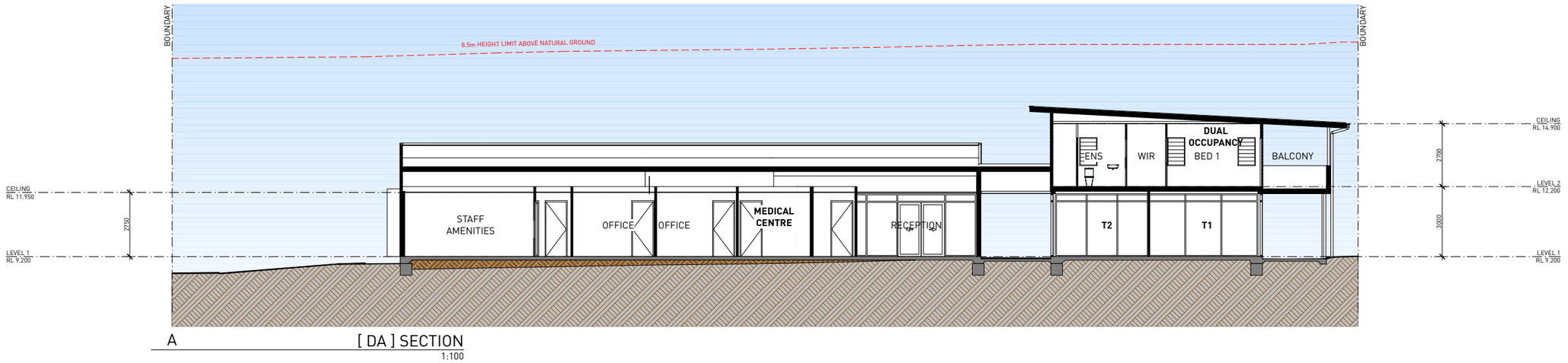
DEVELOPMENT APPROVAL

scale : 1:100 @A1 1:200 @A3

issue : 03 date : 15-01-26

5819-DA05

BLACKBURNEJACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT



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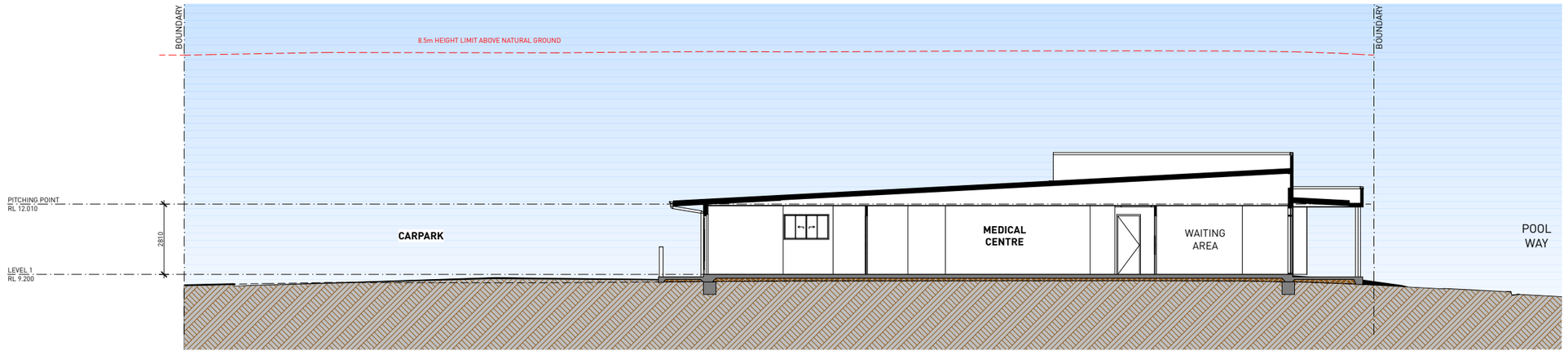

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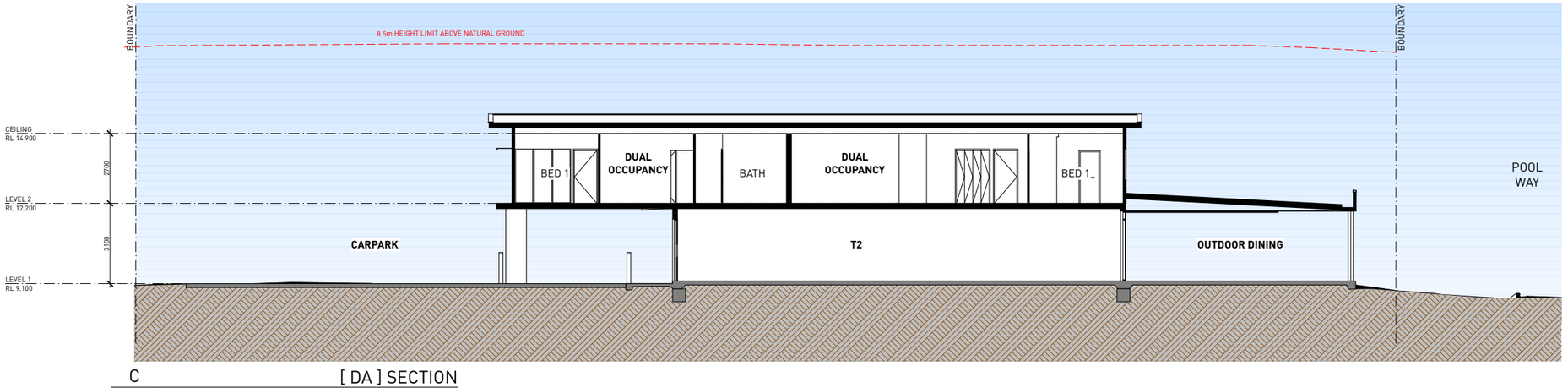


C [DA] SECTION
1:100

PROPOSED MIXED USE DEVELOPMENT, 16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

SECTION

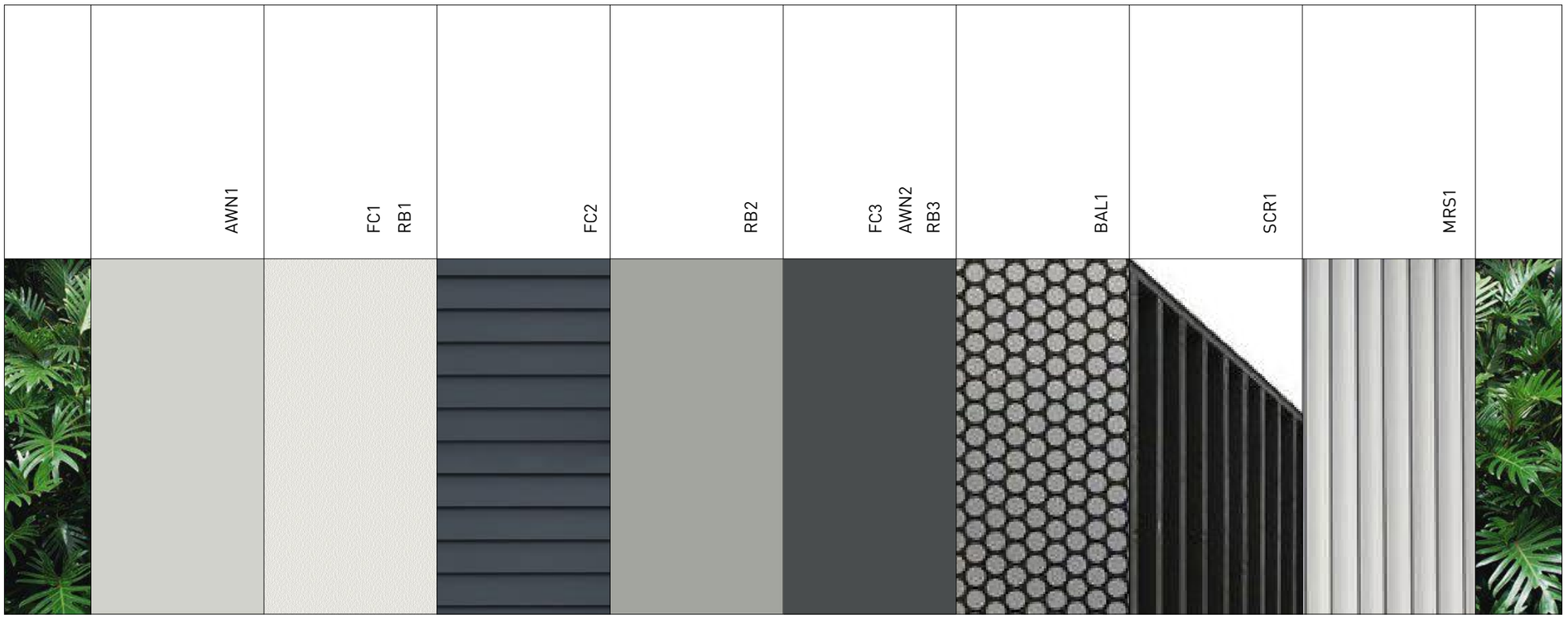
DEVELOPMENT APPROVAL

scale : 1:100 @A1 1:200 @A3

issue : 03 date : 15-01-26

5819-DA06

BLACKBURNEJACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT



MATERIALS AND FINISHES PALETTE

	CODE	ITEM	DESCRIPTION	MATERIAL	FINISH
	AW01	SUNSHADE	600mm WIDE SELF SUPPORTING AWNING	POWDERCOATED ALUMINIUM	DULUX COLORBOND - SURFMIST
	AW02	SUNSHADE	600mm WIDE SELF SUPPORTING AWNING	POWDERCOATED ALUMINIUM	DULUX COLORBOND - BASALT
	BAL1	BALUSTRADE	P'C ALUM BALUSTRADE WITH PERFORATED MESH INFILL - LOCKER RO4883 OR EQUIVALENT 33% OPEN	POWDERCOATED ALUMINIUM	DULUX CITI SILVER PEARL
	CC1	COLUMN	REINFORCED CONCRETE COLUMN	DULUX WEATHERSHEILD	DULUX - BASALT
	FC1	FIBRE CEMENT CLADDING	FIBRE CEMENT PANEL CLADDING SYSTEM WITH EXPRESSED JOINTS	PAINT FINISH	DULUX - MANORBURN
	FC2	FIBRE CEMENT CLADDING	FIBRE CEMENT WEATHERBOARS - HARDIES LINEA OR EQUAL	PAINT FINISH	DULUX - BASALT
	FC3	FIBRE CEMENT CLADDING	FIBRE CEMENT PANEL CLADDING SYSTEM WITH EXPRESSED JOINTS	PAINT FINISH	DULUX - BASALT
	GF01	GLAZING FRAME	COMMERCIAL SHOPFRONT ALUMINIUM GLAZING SYSTEM	POWDERCOATED ALUMINIUM	DULUX CITI SILVER PEARL
	MRS	METAL ROOF SHEET	LYSAGHT 0.42bmt TRIMDEK PROFILE	COLORBOND	COLORBOND SHALE GREY
	RB1	RENDERED BLOCK WORK	CORE FILLED BLOCKWORK WITH APPLIED RENDER FINISH	DULUX WEATHERSHEILD	DULUX - MANORBURN
	RB2	RENDERED BLOCK WORK	CORE FILLED BLOCKWORK WITH APPLIED RENDER FINISH	DULUX WEATHERSHEILD	DULUX - SHALE GREY
	RB3	RENDERED BLOCK WORK	CORE FILLED BLOCKWORK WITH APPLIED RENDER FINISH	DULUX WEATHERSHEILD	DULUX - BASALT
	SCR1	VERTICAL SCREEN	NOM 100x50 RHS SECTIONS AT 100 cts	POWDERCOATED ALUMINIUM	DULUX COLORBOND -MONUMENT

MATERIALS AND FINISHES LEGEND

PROPOSED MIXED USE DEVELOPMENT, 16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

FINISHES

DEVELOPMENT APPROVAL

scale : not to scale NOT TO SCALE
issue : 01 date : 16-10-25

5819-DA07

BLACKBURNE JACKSON
ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT

PERSPECTIVE VIEW 1

PERSPECTIVE VIEW 2

PROPOSED MIXED USE DEVELOPMENT, 16 POOLE WAY, BUSHLAND BEACH

POOLE WAY 2 PTY LTD

PERSPECTIVE VIEWS

DEVELOPMENT APPROVAL

scale : NTS

issue : 03 date : 19-01-26

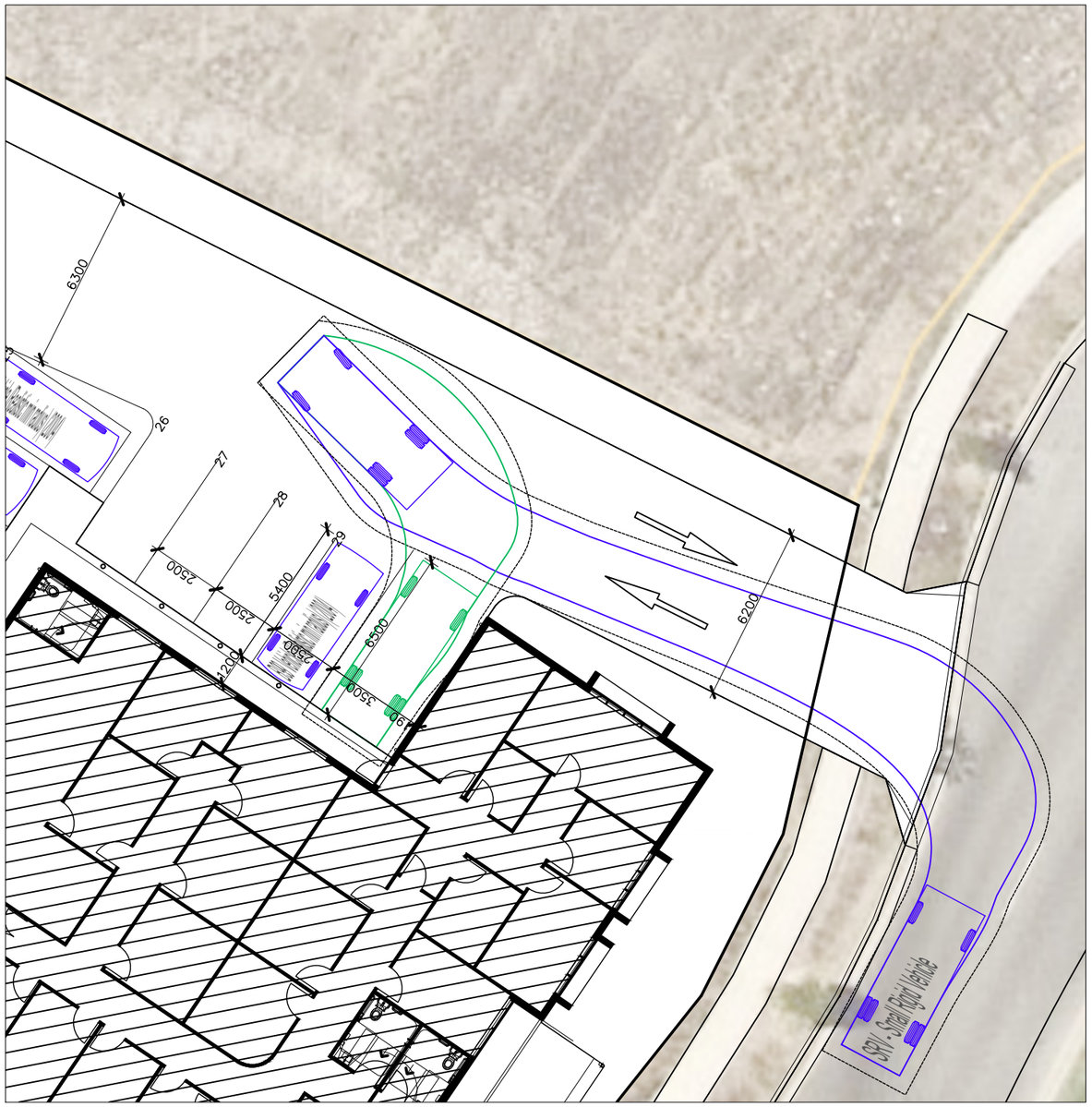
5819-DA08

north

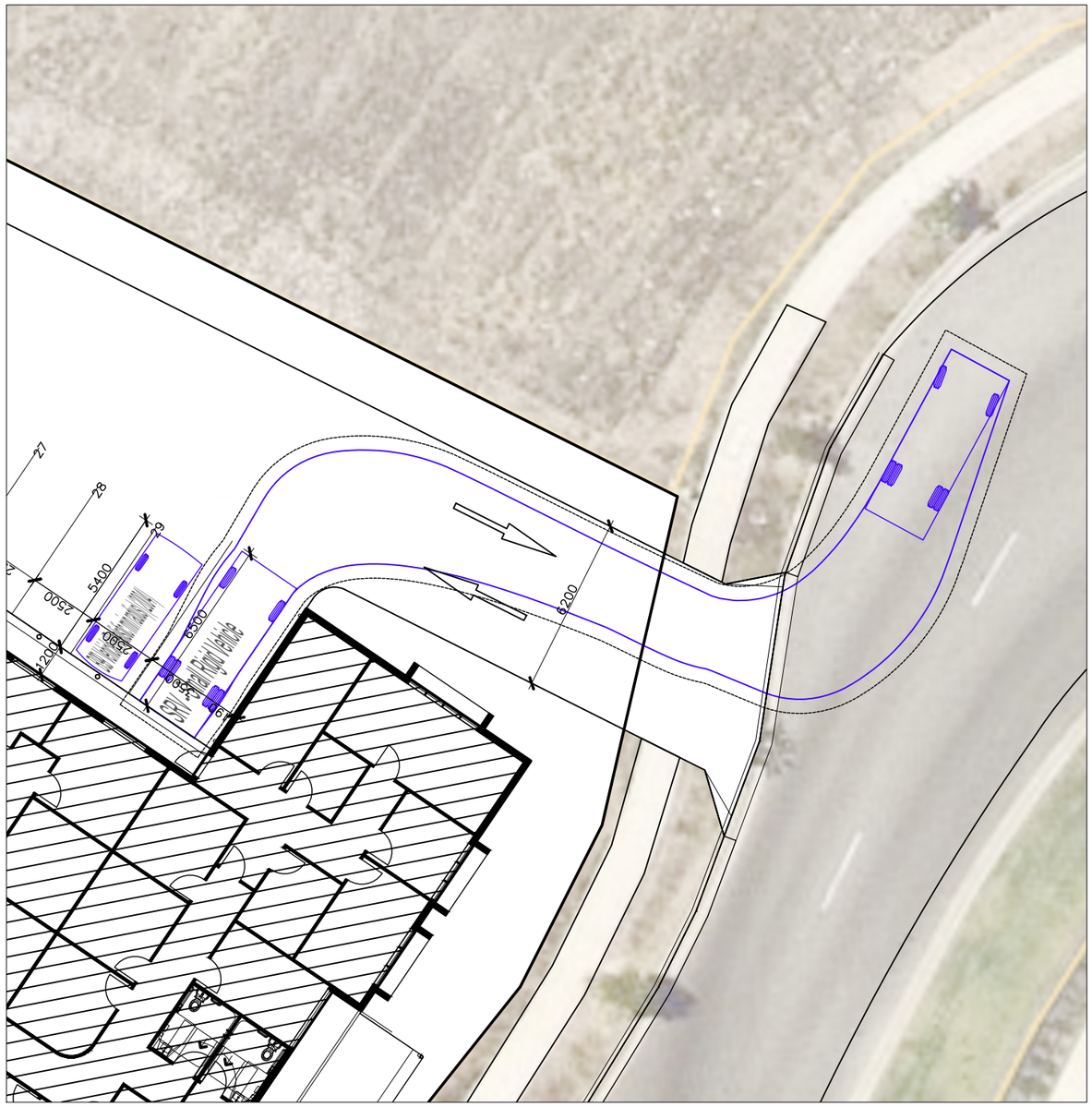
BLACKBURNEJACKSON

ARCHITECTURE | LANDSCAPE | INTERIOR | PROJECT MANAGEMENT

Appendix B Colliers Drawings

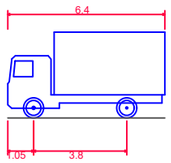


SRV INGRESS



SRV EGRESS

VEHICLE PROFILES



SRV - Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m
Design Speed Forward	5.0km/h
Clearance Envelope	0.500m

PRELIMINARY ADVICE ONLY

9 April 2026

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
B	09.04.2026	REVISED ARCHITECTURAL BASE	JH	MGr	MGr
A	18.12.2025	ORIGINAL ISSUE	JH	MGr	MGr

SCALE 0 2.5 5 7.5 10 12.5m

SCALE 1:250 AT ORIGINAL SIZE

NORTH

CLIENT

D&V PROPERTY INVESTMENTS PTY LTD

Colliers International Engineering & Design

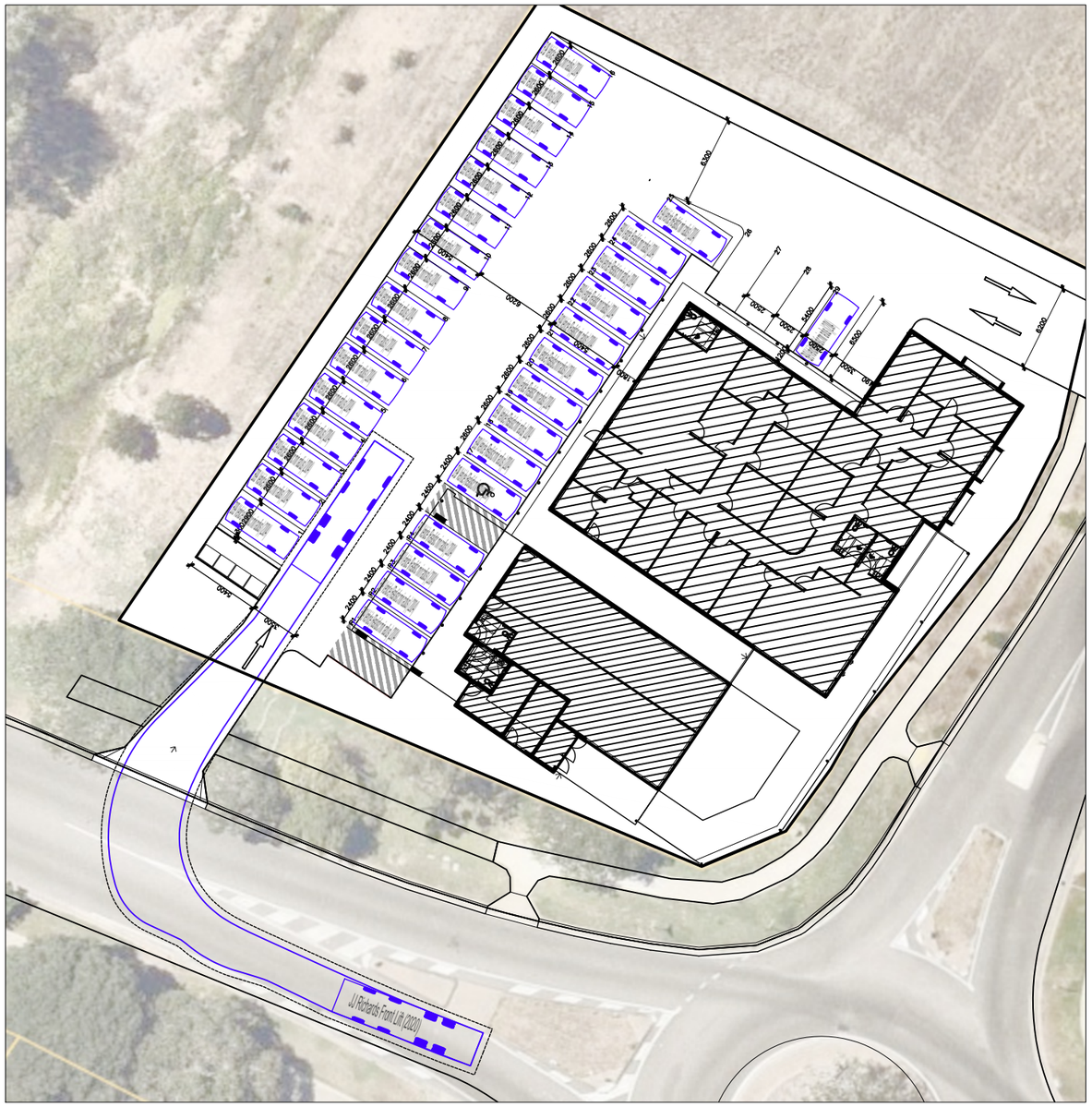
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE QLD 4000
P.O. BOX 12015, BRISBANE QLD 4003

T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

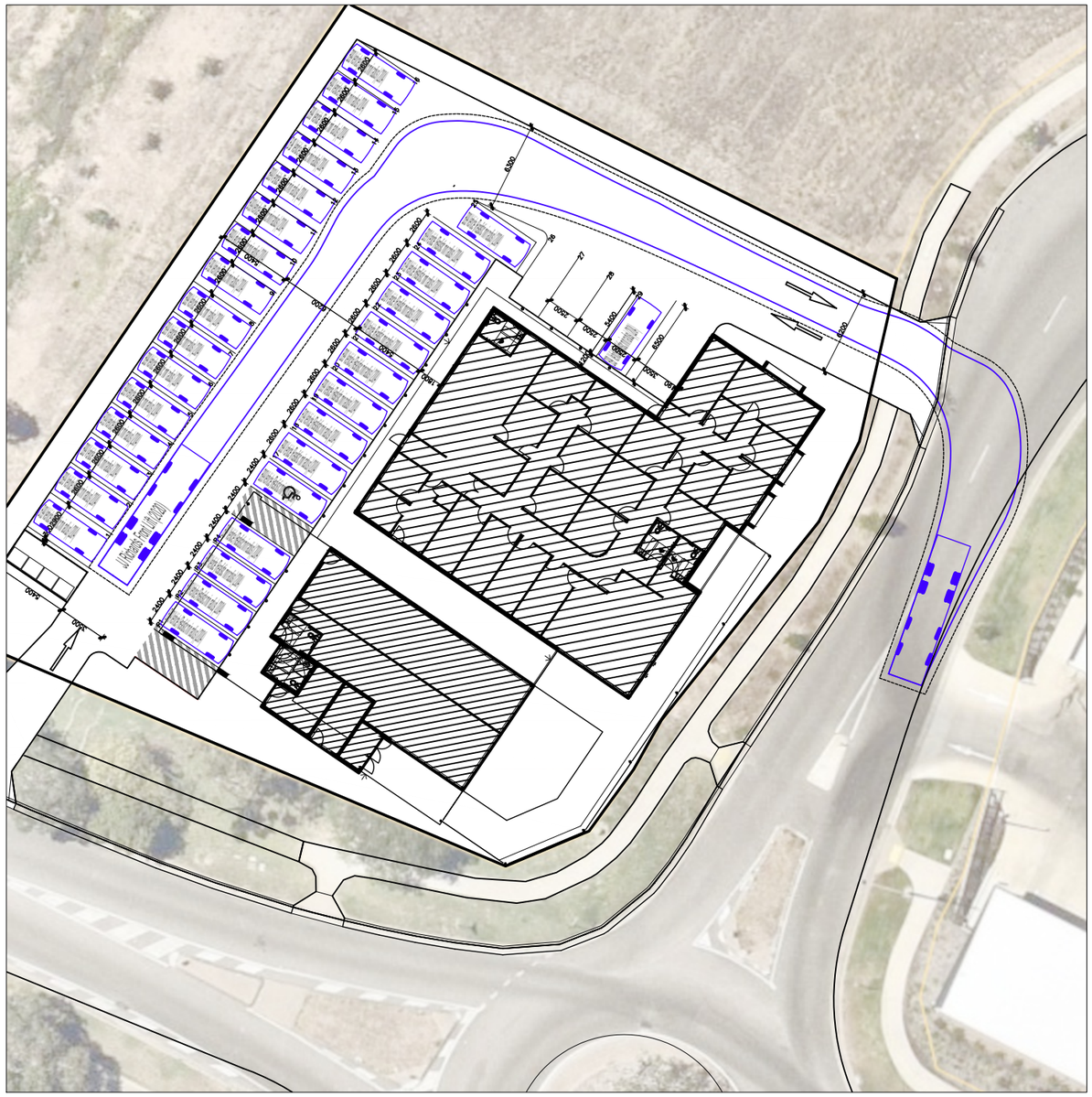
PROJECT
16 POOLE WAY, BUSHLAND BEACH

DRAWING TITLE
SWEPT PATH ANALYSIS
- 6.4m SMALL RIGID VEHICLE

PROJECT NUMBER	ORIGINAL SIZE
25BRT0474	A3
DRAWING NUMBER	REVISION
25BRT0474-01	B
DATE	SHEET
18 Dec 2025	1 OF 1

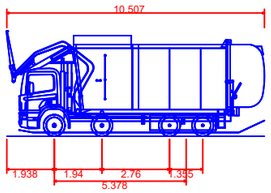


RCV INGRESS



RCV EGRESS

VEHICLE PROFILES



JJ Richards Front Lift (2020)

Overall Length	10.507m
Overall Width	2.490m
Overall Body Height	4.300m
Min Body Ground Clearance	0.150m
Track Width	2.490m
Lock-to-lock time	5.00s
Curb to Curb Turning Radius	10.800m
Design Speed Forward	5.0km/h
Clearance Envelope	0.500m

PRELIMINARY ADVICE ONLY

9 April 2026

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
B	09.04.2026	REVISED ARCHITECTURAL BASE	JH	MGr	MGr
A	18.12.2025	ORIGINAL ISSUE	JH	MGr	MGr

SCALE 0 4 8 12 16 20m

SCALE 1:400 AT ORIGINAL SIZE

NORTH

CLIENT

D&V PROPERTY INVESTMENTS PTY LTD

Colliers International Engineering & Design

ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE QLD 4000
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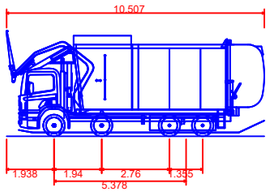
PROJECT: **16 POOLE WAY, BUSHLAND BEACH**

DRAWING TITLE: **SWEPT PATH ANALYSIS** - FRONT LIFT REFUSE COLLECTION VEHICLE (RCV)

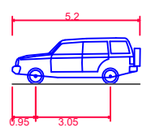
PROJECT NUMBER	25BRT0474
ORIGINAL SIZE	A3
DRAWING NUMBER	25BRT0474-02
REVISION	B
DATE	9 Apr 2026
SHEET	1 OF 1

STANDING RCV & B99 PASSING

VEHICLE PROFILES



JJ Richards Front Lift (2020)	
Overall Length	10.507m
Overall Width	2.490m
Overall Body Height	4.300m
Min Body Ground Clearance	0.150m
Track Width	2.490m
Lock-to-lock time	5.00s
Curb to Curb Turning Radius	10.800m
Design Speed Forward	5.0km/h
Clearance Envelope	0.500m



B99 Vehicle (Realistic min radius) (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m
Design Speed Forward	5.0km/h
Clearance Envelope	0.300m

PRELIMINARY ADVICE ONLY

9 April 2026

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
B	09.04.2026	REVISED ARCHITECTURAL BASE	JH	MGr	MGr
A	18.12.2025	ORIGINAL ISSUE	JH	MGr	MGr

SCALE 0 1 2 3 4 5m

SCALE 1:100 AT ORIGINAL SIZE

NORTH

CLIENT

D&V PROPERTY INVESTMENTS PTY LTD

Colliers International Engineering & Design

ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE QLD 4000
P.O. BOX 12015, BRISBANE QLD 4003

T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

PROJECT: **16 POOLE WAY, BUSHLAND BEACH**

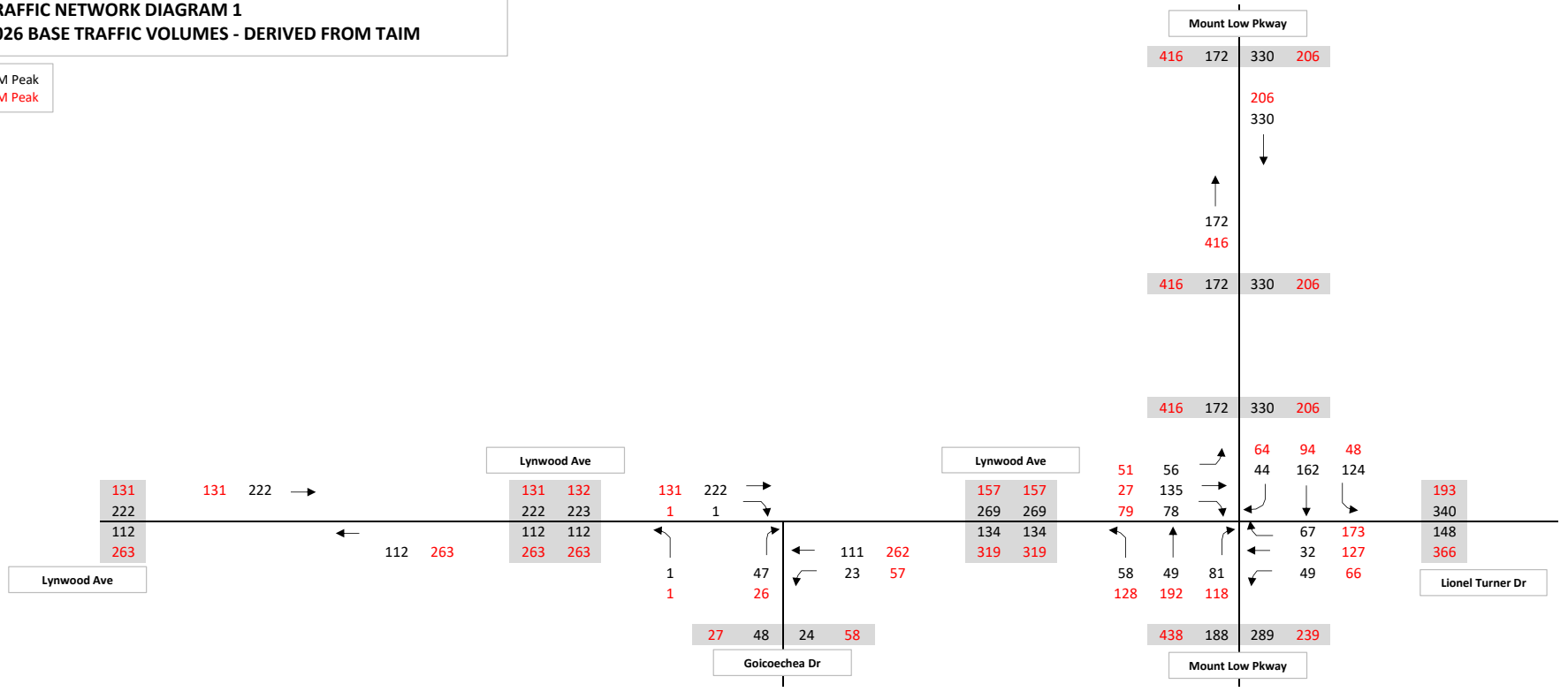
DRAWING TITLE: **SWEPT PATH ANALYSIS** - REFUSE COLLECTION VEHICLE (RCV) & B99 PASSENGER VEHICLE PASSING

PROJECT NUMBER	ORIGINAL SIZE
25BRT0474	A3
DRAWING NUMBER	REVISION
25BRT0474-03	B
DATE	SHEET
9 Apr 2026	1 OF 1

Appendix C Network Diagrams

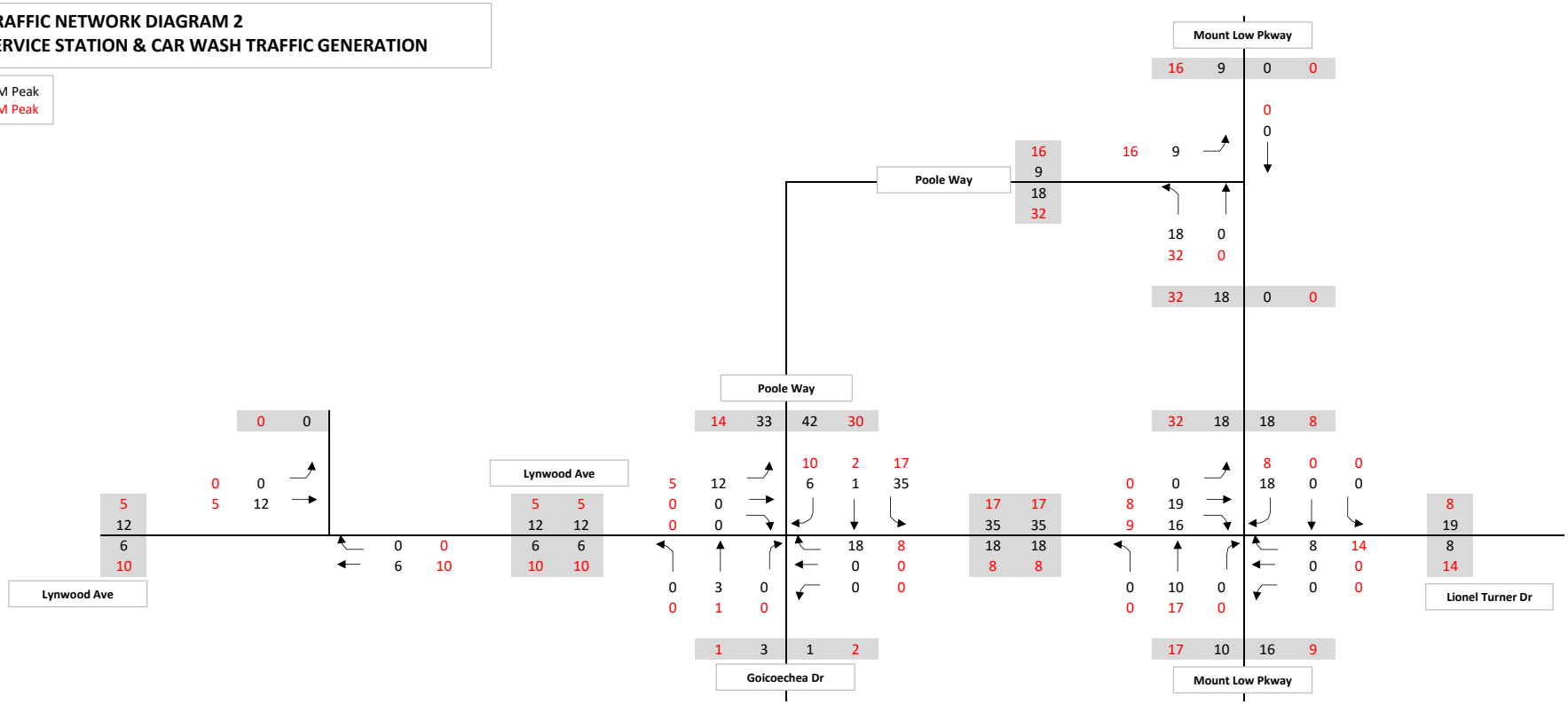
TRAFFIC NETWORK DIAGRAM 1
2026 BASE TRAFFIC VOLUMES - DERIVED FROM TAIM

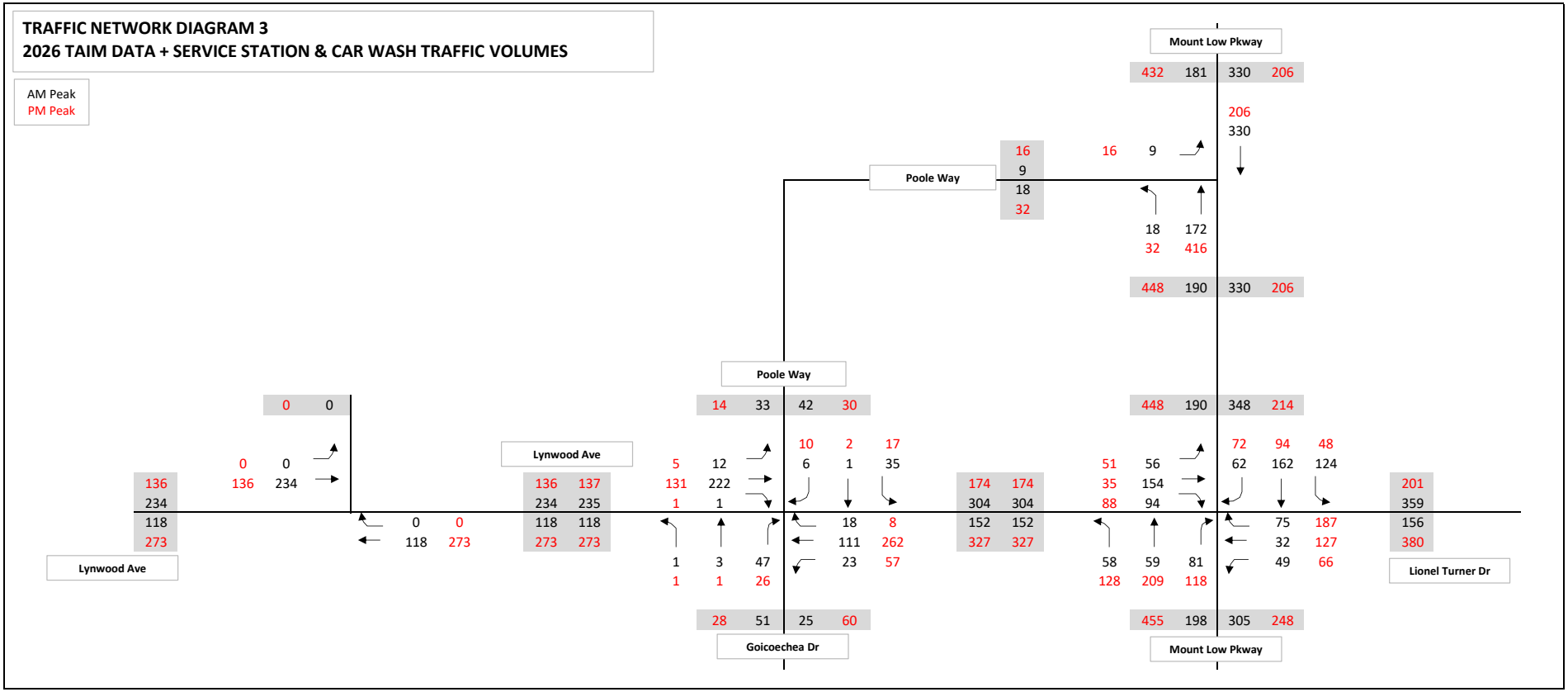
AM Peak
PM Peak

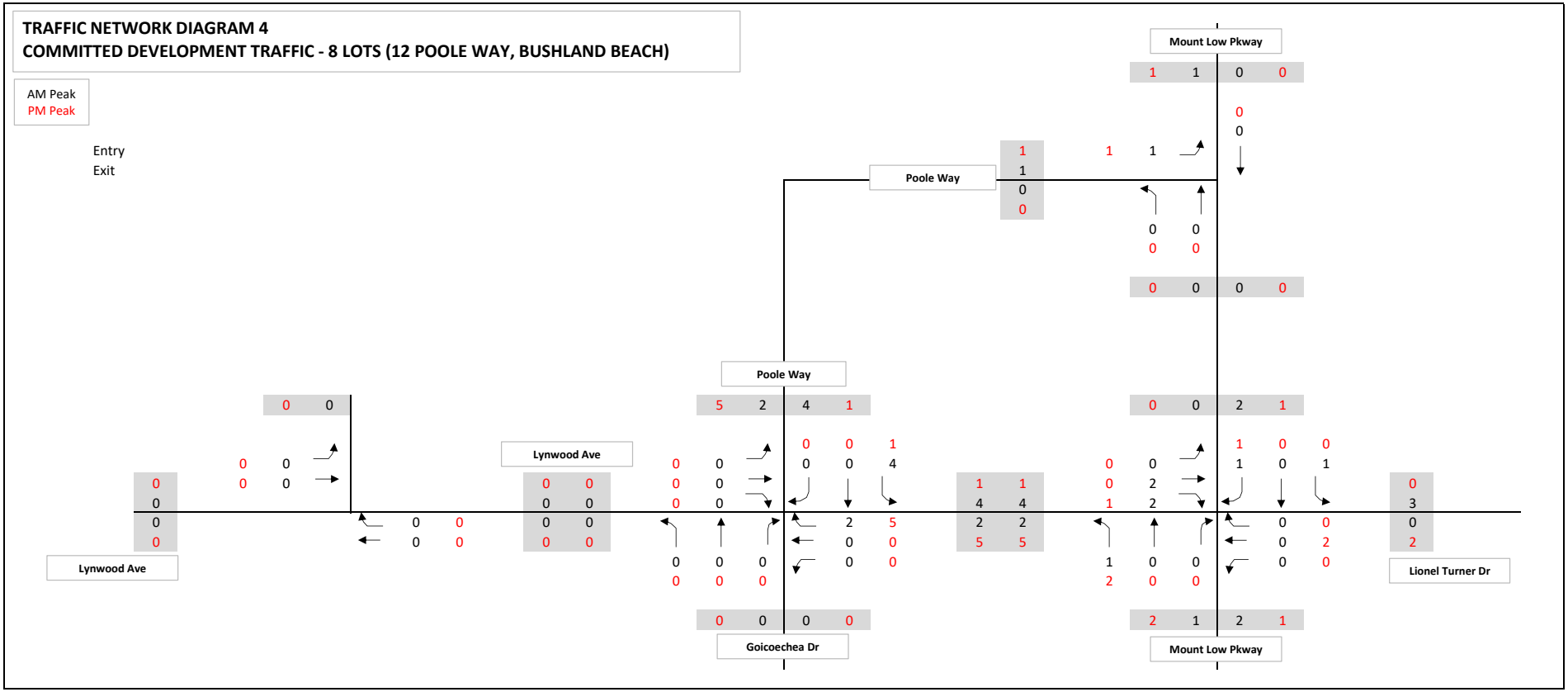


TRAFFIC NETWORK DIAGRAM 2
SERVICE STATION & CAR WASH TRAFFIC GENERATION

AM Peak
PM Peak

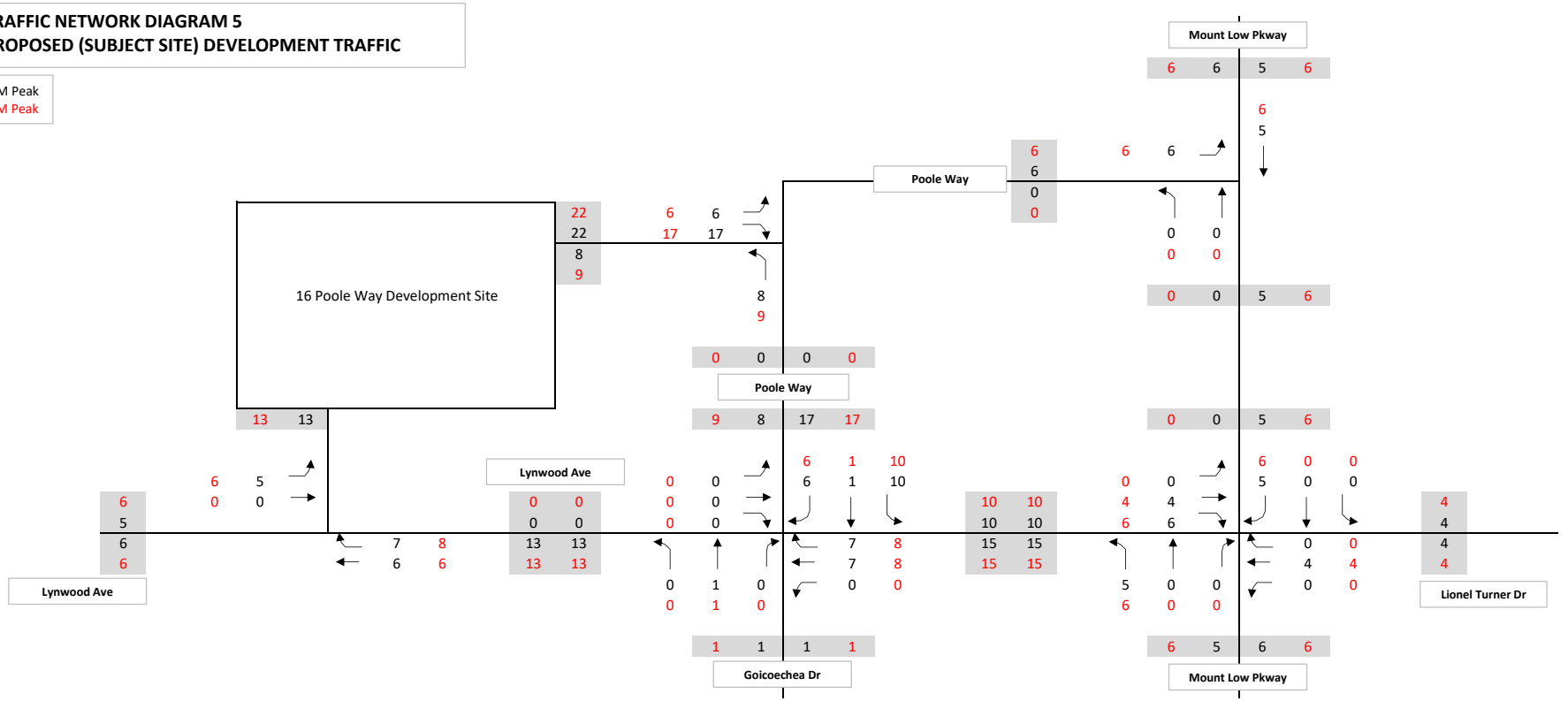


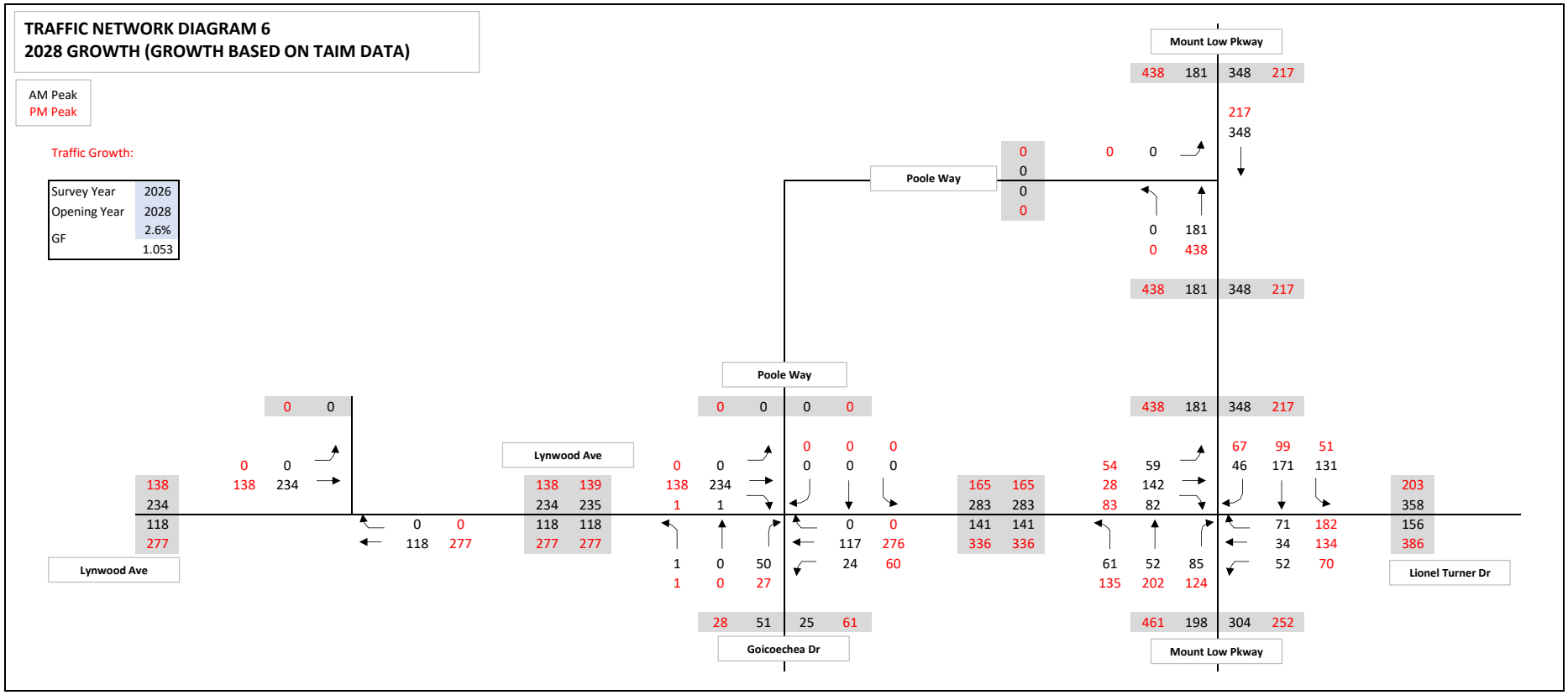


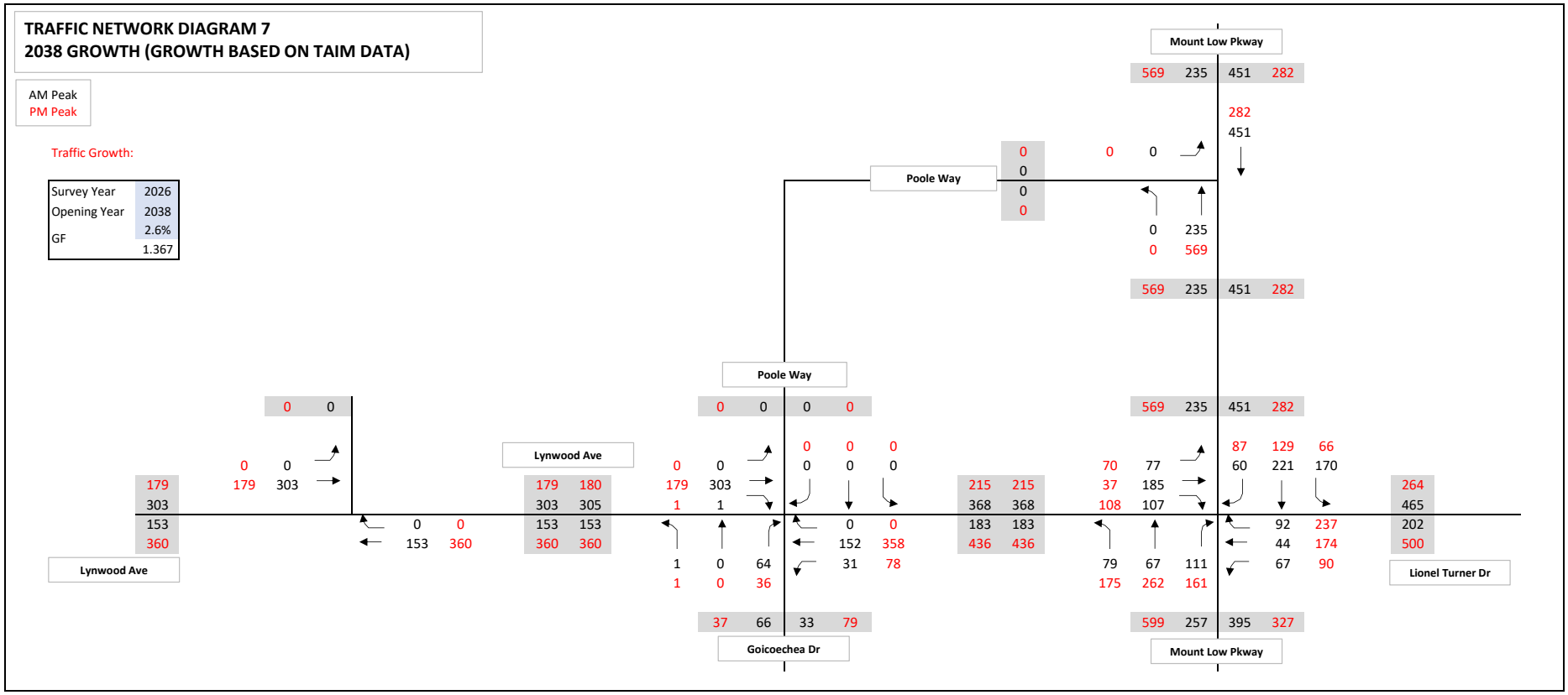


TRAFFIC NETWORK DIAGRAM 5
PROPOSED (SUBJECT SITE) DEVELOPMENT TRAFFIC

AM Peak
PM Peak

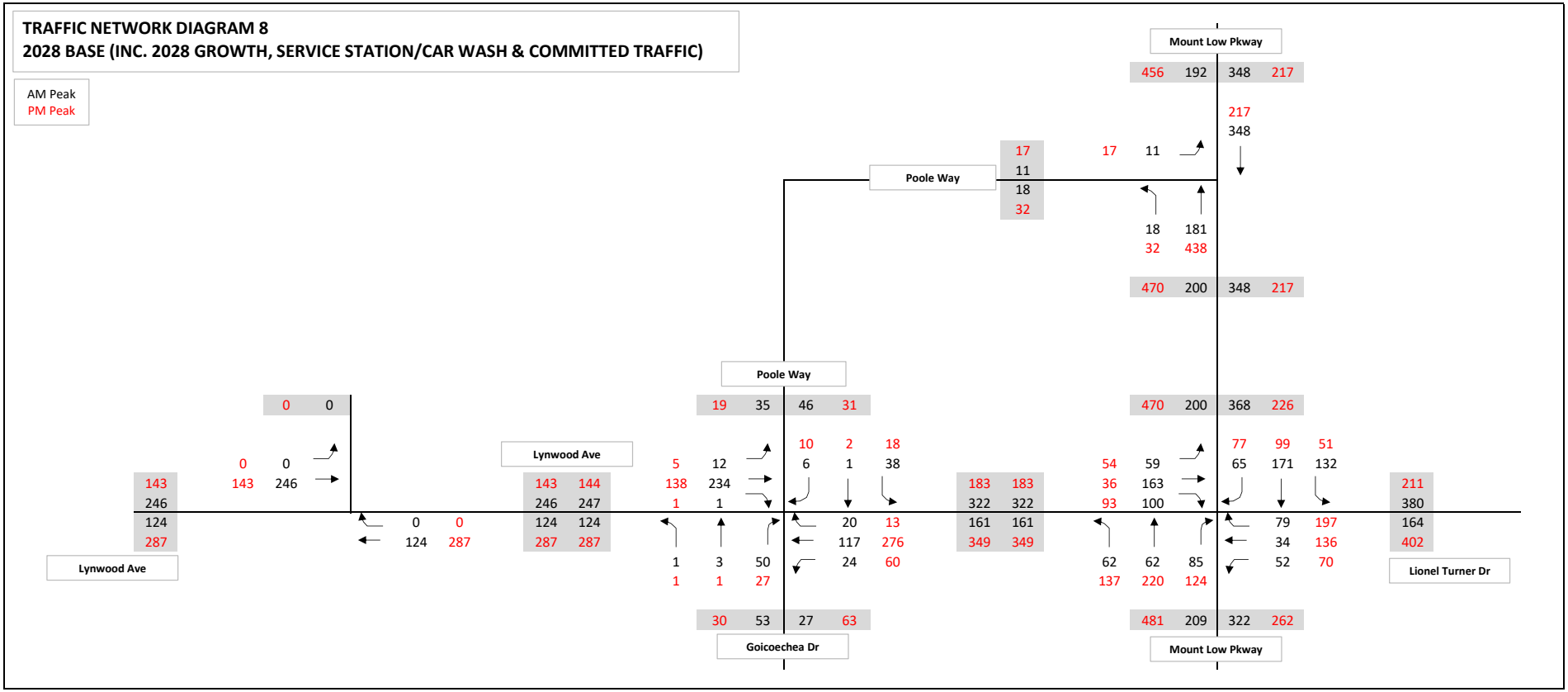






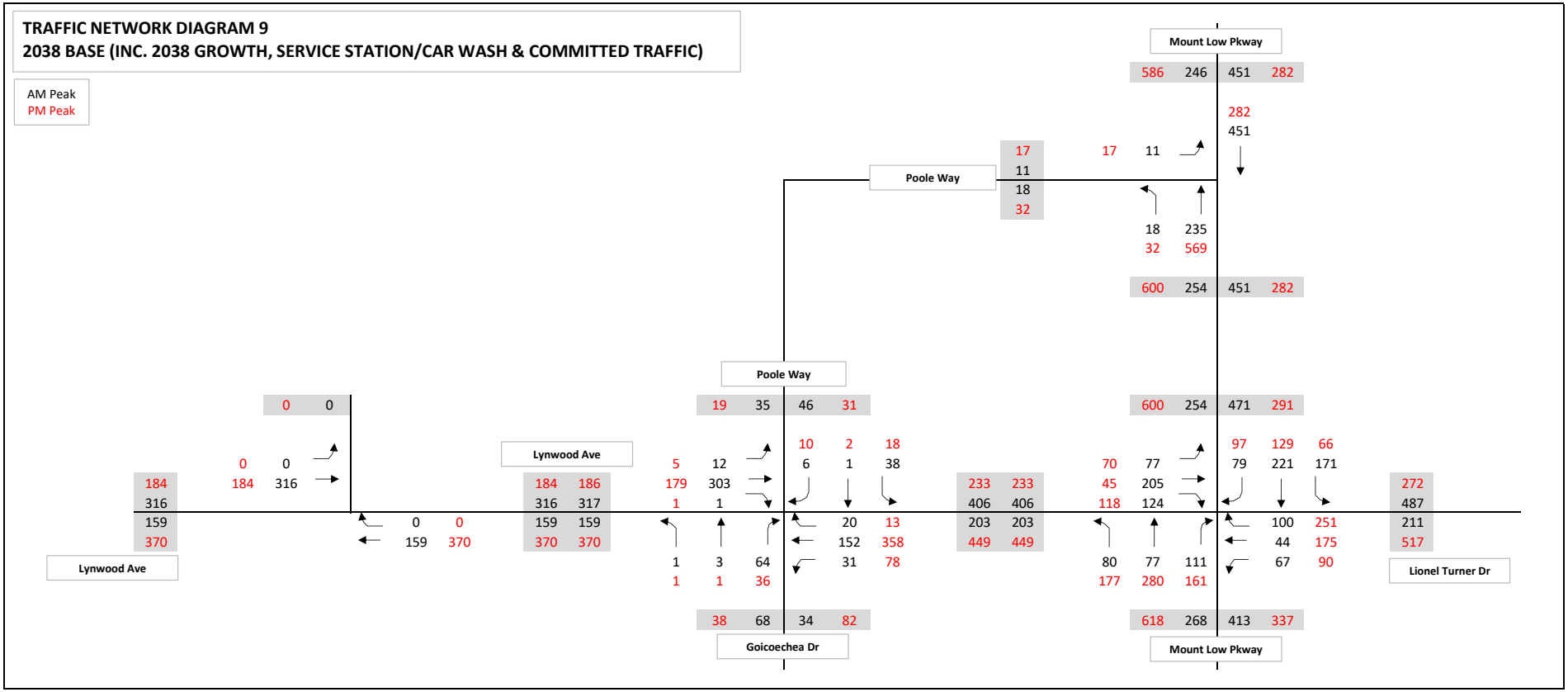
TRAFFIC NETWORK DIAGRAM 8
2028 BASE (INC. 2028 GROWTH, SERVICE STATION/CAR WASH & COMMITTED TRAFFIC)

AM Peak
PM Peak



TRAFFIC NETWORK DIAGRAM 9
2038 BASE (INC. 2038 GROWTH, SERVICE STATION/CAR WASH & COMMITTED TRAFFIC)

AM Peak
PM Peak



TRAFFIC NETWORK DIAGRAM 10
2028 DEVELOPMENT SCENARIO (INC. 2028 BASE & DEVELOPMENT TRAFFIC)

AM Peak
PM Peak

TRAFFIC NETWORK DIAGRAM 11
2028 DEVELOPMENT SCENARIO (INC. 2038 BASE & DEVELOPMENT TRAFFIC)

AM Peak
PM Peak

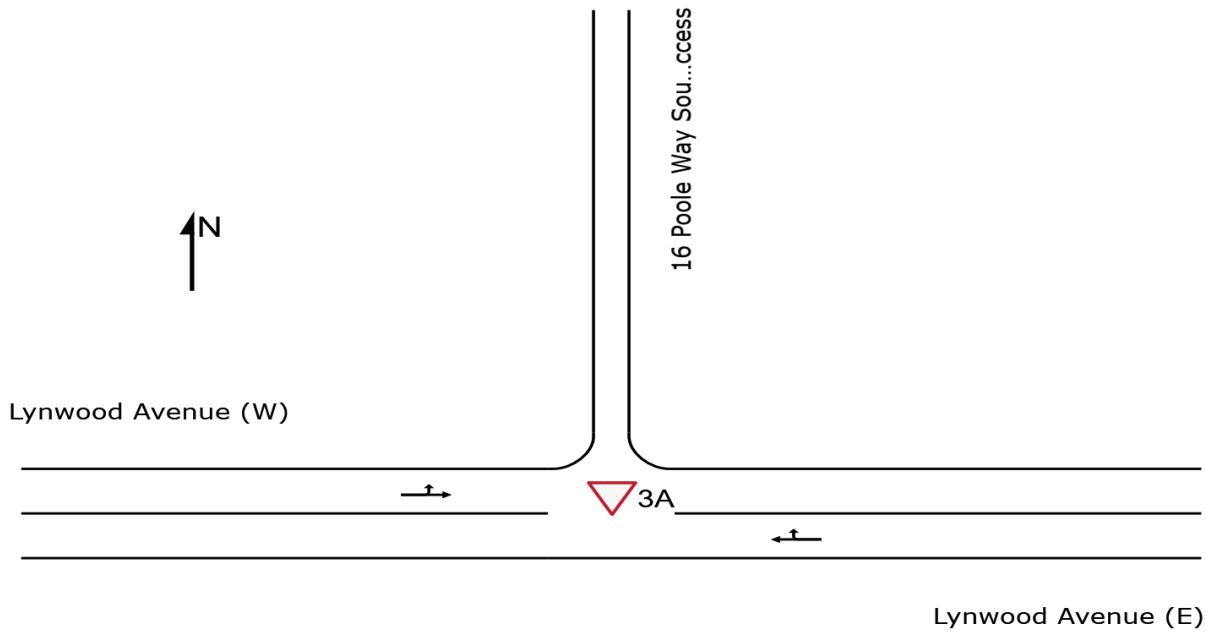
Appendix D SIDRA Outputs

SITE LAYOUT

Site: [3A] Site 3 - AM - 2028 Development - Lynwood Avenue / 16 Poole Way Southern Access (2026 Base (Current Conditions))

New Site
Site Category: (None)
Give-Way (Two-Way)
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: [3A] Site 3 - AM - 2028 Development - Lynwood Avenue / 16 Poole Way Southern Access (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Lynwood Avenue (E)															
5	T1	All MCs	137	3.0	137	3.0	0.071	0.1	LOS A	0.1	0.4	0.05	0.05	0.05	59.5
6	R2	All MCs	7	0.0	7	0.0	0.071	6.4	LOS A	0.1	0.4	0.05	0.05	0.05	56.9
Approach			144	2.8	144	2.8	0.071	0.4	NA	0.1	0.4	0.05	0.05	0.05	59.4
West: Lynwood Avenue (W)															
10	L2	All MCs	5	0.0	5	0.0	0.127	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
11	T1	All MCs	259	3.0	259	3.0	0.127	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			264	2.9	264	2.9	0.127	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			408	2.9	408	2.9	0.127	0.2	NA	0.1	0.4	0.02	0.03	0.02	59.6

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.
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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MOVEMENT SUMMARY

Site: [3A (3)] Site 3 - PM - 2028 Development - Lynwood Avenue / 16 Poole Way Southern Access (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Lynwood Avenue (E)															
5	T1	All MCs	308	3.0	308	3.0	0.154	0.0	LOS A	0.1	0.5	0.02	0.02	0.02	59.8
6	R2	All MCs	8	0.0	8	0.0	0.154	5.7	LOS A	0.1	0.5	0.02	0.02	0.02	57.1
Approach			317	2.9	317	2.9	0.154	0.2	NA	0.1	0.5	0.02	0.02	0.02	59.7
West: Lynwood Avenue (W)															
10	L2	All MCs	6	0.0	6	0.0	0.075	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	57.3
11	T1	All MCs	151	3.0	151	3.0	0.075	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach			157	2.9	157	2.9	0.075	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.6
All Vehicles			474	2.9	474	2.9	0.154	0.2	NA	0.1	0.5	0.01	0.02	0.01	59.7

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.
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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MOVEMENT SUMMARY

Site: [3A (2)] Site 3 - AM - 2038 Development - Lynwood Avenue / 16 Poole Way Southern Access (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Lynwood Avenue (E)															
5	T1	All MCs	174	3.0	174	3.0	0.089	0.1	LOS A	0.1	0.5	0.05	0.05	0.05	59.6
6	R2	All MCs	7	0.0	7	0.0	0.089	6.7	LOS A	0.1	0.5	0.05	0.05	0.05	56.9
Approach			181	2.9	181	2.9	0.089	0.4	NA	0.1	0.5	0.05	0.05	0.05	59.5
West: Lynwood Avenue (W)															
10	L2	All MCs	5	0.0	5	0.0	0.162	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.4
11	T1	All MCs	333	3.0	333	3.0	0.162	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			338	3.0	338	3.0	0.162	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			519	2.9	519	2.9	0.162	0.2	NA	0.1	0.5	0.02	0.02	0.02	59.7

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.
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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MOVEMENT SUMMARY

Site: [3A (4)] Site 3 - PM - 2038 Development - Lynwood Avenue / 16 Poole Way Southern Access (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Lynwood Avenue (E)															
5	T1	All MCs	395	3.0	395	3.0	0.195	0.0	LOS A	0.1	0.5	0.02	0.02	0.02	59.8
6	R2	All MCs	8	0.0	8	0.0	0.195	5.8	LOS A	0.1	0.5	0.02	0.02	0.02	57.2
Approach			403	2.9	403	2.9	0.195	0.1	NA	0.1	0.5	0.02	0.02	0.02	59.7
West: Lynwood Avenue (W)															
10	L2	All MCs	6	0.0	6	0.0	0.096	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	57.3
11	T1	All MCs	194	3.0	194	3.0	0.096	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.8
Approach			200	2.9	200	2.9	0.096	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles			603	2.9	603	2.9	0.195	0.2	NA	0.1	0.5	0.01	0.02	0.01	59.7

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.
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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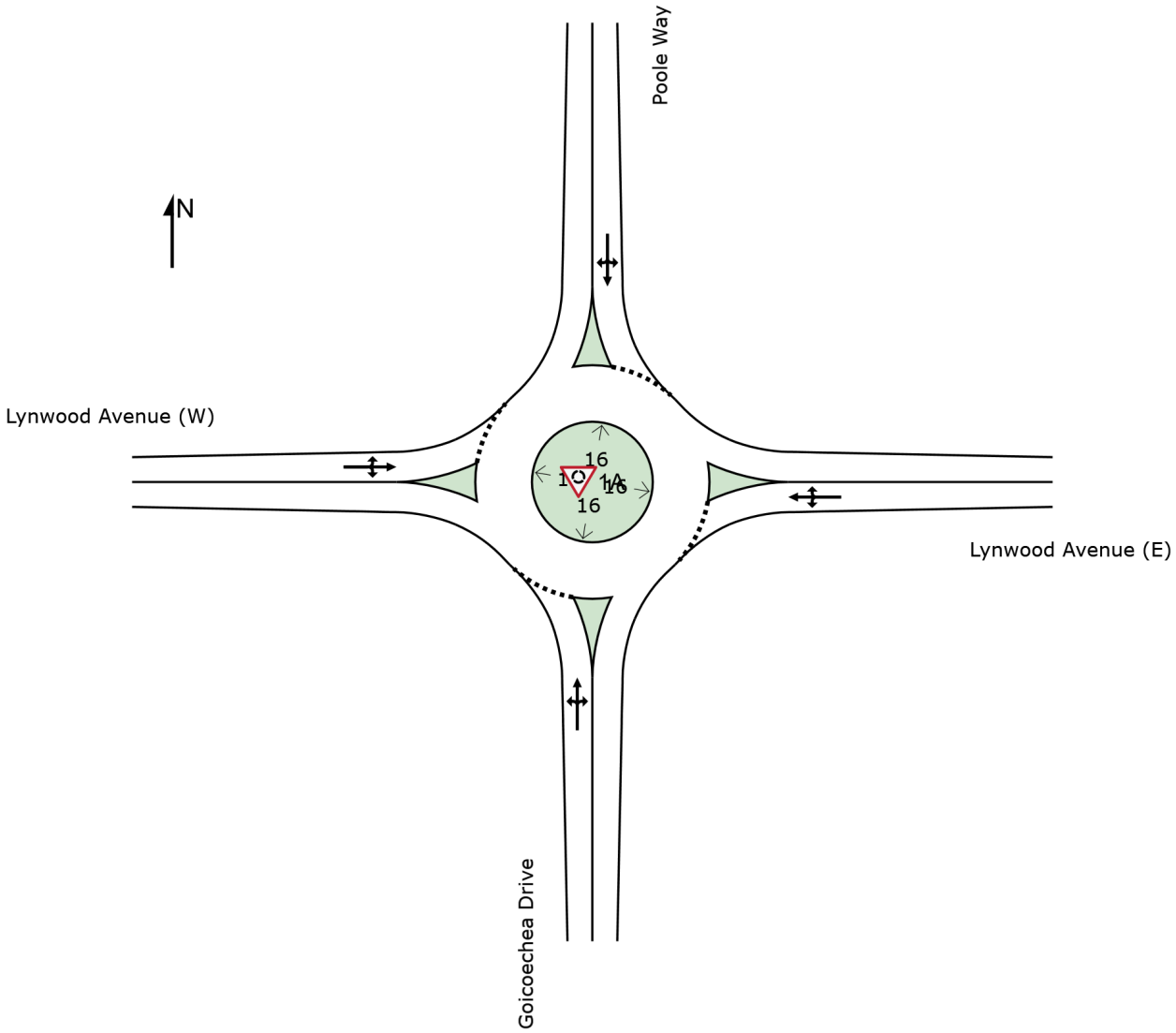
SITE LAYOUT

Site: [1A] Site 1 - AM - 2026 Base - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Lynwood Avenue / Goicoechea Drive / Poole Way
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: [1A] Site 1 - AM - 2026 Base - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.046	4.8	LOS A	0.2	1.5	0.29	0.61	0.29	50.7
2	T1	All MCs	3	3.0	3	3.0	0.046	5.0	LOS A	0.2	1.5	0.29	0.61	0.29	51.1
3	R2	All MCs	49	3.0	49	3.0	0.046	9.2	LOS A	0.2	1.5	0.29	0.61	0.29	50.3
Approach			54	3.0	54	3.0	0.046	8.8	LOS A	0.2	1.5	0.29	0.61	0.29	50.4
East: Lynwood Avenue (E)															
4	L2	All MCs	24	3.0	24	3.0	0.103	4.1	LOS A	0.6	4.1	0.06	0.46	0.06	53.7
5	T1	All MCs	117	3.0	117	3.0	0.103	4.4	LOS A	0.6	4.1	0.06	0.46	0.06	54.1
6	R2	All MCs	19	3.0	19	3.0	0.103	8.5	LOS A	0.6	4.1	0.06	0.46	0.06	53.2
Approach			160	3.0	160	3.0	0.103	4.8	LOS A	0.6	4.1	0.06	0.46	0.06	54.0
North: Poole Way															
7	L2	All MCs	37	3.0	37	3.0	0.043	5.5	LOS A	0.2	1.5	0.43	0.57	0.43	52.7
8	T1	All MCs	1	3.0	1	3.0	0.043	5.7	LOS A	0.2	1.5	0.43	0.57	0.43	53.1
9	R2	All MCs	6	3.0	6	3.0	0.043	9.9	LOS A	0.2	1.5	0.43	0.57	0.43	52.2
Approach			44	3.0	44	3.0	0.043	6.1	LOS A	0.2	1.5	0.43	0.57	0.43	52.6
West: Lynwood Avenue (W)															
10	L2	All MCs	13	3.0	13	3.0	0.187	4.5	LOS A	1.0	7.4	0.23	0.43	0.23	53.3
11	T1	All MCs	234	3.0	234	3.0	0.187	4.7	LOS A	1.0	7.4	0.23	0.43	0.23	53.7
12	R2	All MCs	1	3.0	1	3.0	0.187	8.8	LOS A	1.0	7.4	0.23	0.43	0.23	52.9
Approach			247	3.0	247	3.0	0.187	4.7	LOS A	1.0	7.4	0.23	0.43	0.23	53.7
All Vehicles			505	3.0	505	3.0	0.187	5.3	LOS A	1.0	7.4	0.20	0.47	0.20	53.3

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.

MOVEMENT SUMMARY

Site: [1B] Site 1 - AM - 2028 Base - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.049	4.8	LOS A	0.2	1.6	0.30	0.61	0.30	50.7
2	T1	All MCs	3	3.0	3	3.0	0.049	5.1	LOS A	0.2	1.6	0.30	0.61	0.30	51.0
3	R2	All MCs	53	3.0	53	3.0	0.049	9.2	LOS A	0.2	1.6	0.30	0.61	0.30	50.3
Approach			57	3.0	57	3.0	0.049	8.9	LOS A	0.2	1.6	0.30	0.61	0.30	50.3
East: Lynwood Avenue (E)															
4	L2	All MCs	25	3.0	25	3.0	0.109	4.1	LOS A	0.6	4.4	0.06	0.47	0.06	53.7
5	T1	All MCs	123	3.0	123	3.0	0.109	4.4	LOS A	0.6	4.4	0.06	0.47	0.06	54.1
6	R2	All MCs	21	3.0	21	3.0	0.109	8.5	LOS A	0.6	4.4	0.06	0.47	0.06	53.2
Approach			169	3.0	169	3.0	0.109	4.8	LOS A	0.6	4.4	0.06	0.47	0.06	53.9
North: Poole Way															
7	L2	All MCs	40	3.0	40	3.0	0.046	5.6	LOS A	0.2	1.6	0.44	0.57	0.44	52.7
8	T1	All MCs	1	3.0	1	3.0	0.046	5.8	LOS A	0.2	1.6	0.44	0.57	0.44	53.1
9	R2	All MCs	6	3.0	6	3.0	0.046	10.0	LOS A	0.2	1.6	0.44	0.57	0.44	52.2
Approach			47	3.0	47	3.0	0.046	6.2	LOS A	0.2	1.6	0.44	0.57	0.44	52.6
West: Lynwood Avenue (W)															
10	L2	All MCs	13	3.0	13	3.0	0.198	4.5	LOS A	1.1	8.0	0.24	0.43	0.24	53.3
11	T1	All MCs	246	3.0	246	3.0	0.198	4.8	LOS A	1.1	8.0	0.24	0.43	0.24	53.7
12	R2	All MCs	1	3.0	1	3.0	0.198	8.9	LOS A	1.1	8.0	0.24	0.43	0.24	52.8
Approach			260	3.0	260	3.0	0.198	4.8	LOS A	1.1	8.0	0.24	0.43	0.24	53.7
All Vehicles			534	3.0	534	3.0	0.198	5.4	LOS A	1.1	8.0	0.21	0.47	0.21	53.3

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.

MOVEMENT SUMMARY

Site: [1D] Site 1 - AM - 2028 Development - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.051	4.9	LOS A	0.2	1.7	0.32	0.61	0.32	50.7
2	T1	All MCs	4	2.2	4	2.2	0.051	5.2	LOS A	0.2	1.7	0.32	0.61	0.32	51.0
3	R2	All MCs	53	3.0	53	3.0	0.051	9.3	LOS A	0.2	1.7	0.32	0.61	0.32	50.2
Approach			58	2.9	58	2.9	0.051	8.9	LOS A	0.2	1.7	0.32	0.61	0.32	50.3
East: Lynwood Avenue (E)															
4	L2	All MCs	25	3.0	25	3.0	0.123	4.2	LOS A	0.7	5.0	0.09	0.47	0.09	53.5
5	T1	All MCs	131	2.8	131	2.8	0.123	4.4	LOS A	0.7	5.0	0.09	0.47	0.09	53.9
6	R2	All MCs	28	2.2	28	2.2	0.123	8.5	LOS A	0.7	5.0	0.09	0.47	0.09	53.0
Approach			184	2.8	184	2.8	0.123	5.0	LOS A	0.7	5.0	0.09	0.47	0.09	53.7
North: Poole Way															
7	L2	All MCs	51	2.4	51	2.4	0.064	5.6	LOS A	0.3	2.3	0.44	0.58	0.44	52.5
8	T1	All MCs	2	1.5	2	1.5	0.064	5.8	LOS A	0.3	2.3	0.44	0.58	0.44	52.9
9	R2	All MCs	13	1.5	13	1.5	0.064	10.0	LOS A	0.3	2.3	0.44	0.58	0.44	52.1
Approach			65	2.2	65	2.2	0.064	6.5	LOS A	0.3	2.3	0.44	0.58	0.44	52.4
West: Lynwood Avenue (W)															
10	L2	All MCs	13	3.0	13	3.0	0.200	4.6	LOS A	1.1	8.1	0.26	0.43	0.26	53.2
11	T1	All MCs	246	3.0	246	3.0	0.200	4.8	LOS A	1.1	8.1	0.26	0.43	0.26	53.6
12	R2	All MCs	1	3.0	1	3.0	0.200	8.9	LOS A	1.1	8.1	0.26	0.43	0.26	52.7
Approach			260	3.0	260	3.0	0.200	4.8	LOS A	1.1	8.1	0.26	0.43	0.26	53.6
All Vehicles			567	2.8	567	2.8	0.200	5.5	LOS A	1.1	8.1	0.23	0.48	0.23	53.1

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.

MOVEMENT SUMMARY

Site: [1C] Site 1 - AM - 2038 Base - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.063	5.0	LOS A	0.3	2.2	0.34	0.62	0.34	50.5
2	T1	All MCs	3	3.0	3	3.0	0.063	5.3	LOS A	0.3	2.2	0.34	0.62	0.34	50.9
3	R2	All MCs	67	3.0	67	3.0	0.063	9.4	LOS A	0.3	2.2	0.34	0.62	0.34	50.1
Approach			72	3.0	72	3.0	0.063	9.2	LOS A	0.3	2.2	0.34	0.62	0.34	50.1
East: Lynwood Avenue (E)															
4	L2	All MCs	33	3.0	33	3.0	0.136	4.1	LOS A	0.8	5.7	0.07	0.46	0.07	53.8
5	T1	All MCs	160	3.0	160	3.0	0.136	4.4	LOS A	0.8	5.7	0.07	0.46	0.07	54.2
6	R2	All MCs	21	3.0	21	3.0	0.136	8.5	LOS A	0.8	5.7	0.07	0.46	0.07	53.3
Approach			214	3.0	214	3.0	0.136	4.7	LOS A	0.8	5.7	0.07	0.46	0.07	54.0
North: Poole Way															
7	L2	All MCs	40	3.0	40	3.0	0.050	6.1	LOS A	0.3	1.8	0.50	0.60	0.50	52.5
8	T1	All MCs	1	3.0	1	3.0	0.050	6.3	LOS A	0.3	1.8	0.50	0.60	0.50	52.8
9	R2	All MCs	6	3.0	6	3.0	0.050	10.5	LOS B	0.3	1.8	0.50	0.60	0.50	52.0
Approach			47	3.0	47	3.0	0.050	6.7	LOS A	0.3	1.8	0.50	0.60	0.50	52.4
West: Lynwood Avenue (W)															
10	L2	All MCs	13	3.0	13	3.0	0.256	4.6	LOS A	1.5	11.0	0.29	0.44	0.29	53.1
11	T1	All MCs	319	3.0	319	3.0	0.256	4.9	LOS A	1.5	11.0	0.29	0.44	0.29	53.5
12	R2	All MCs	1	3.0	1	3.0	0.256	9.0	LOS A	1.5	11.0	0.29	0.44	0.29	52.6
Approach			333	3.0	333	3.0	0.256	4.9	LOS A	1.5	11.0	0.29	0.44	0.29	53.5
All Vehicles			665	3.0	665	3.0	0.256	5.4	LOS A	1.5	11.0	0.24	0.48	0.24	53.2

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.

MOVEMENT SUMMARY

Site: [1E] Site 1 - AM - 2038 Development - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.066	5.1	LOS A	0.3	2.3	0.36	0.62	0.36	50.5
2	T1	All MCs	4	2.2	4	2.2	0.066	5.4	LOS A	0.3	2.3	0.36	0.62	0.36	50.9
3	R2	All MCs	67	3.0	67	3.0	0.066	9.5	LOS A	0.3	2.3	0.36	0.62	0.36	50.1
Approach			73	3.0	73	3.0	0.066	9.2	LOS A	0.3	2.3	0.36	0.62	0.36	50.1
East: Lynwood Avenue (E)															
4	L2	All MCs	33	3.0	33	3.0	0.151	4.2	LOS A	0.9	6.4	0.10	0.46	0.10	53.6
5	T1	All MCs	167	2.9	167	2.9	0.151	4.4	LOS A	0.9	6.4	0.10	0.46	0.10	54.0
6	R2	All MCs	28	2.2	28	2.2	0.151	8.5	LOS A	0.9	6.4	0.10	0.46	0.10	53.1
Approach			228	2.8	228	2.8	0.151	4.9	LOS A	0.9	6.4	0.10	0.46	0.10	53.8
North: Poole Way															
7	L2	All MCs	51	2.4	51	2.4	0.068	6.1	LOS A	0.4	2.5	0.51	0.61	0.51	52.3
8	T1	All MCs	2	1.5	2	1.5	0.068	6.3	LOS A	0.4	2.5	0.51	0.61	0.51	52.7
9	R2	All MCs	13	1.5	13	1.5	0.068	10.4	LOS B	0.4	2.5	0.51	0.61	0.51	51.8
Approach			65	2.2	65	2.2	0.068	7.0	LOS A	0.4	2.5	0.51	0.61	0.51	52.2
West: Lynwood Avenue (W)															
10	L2	All MCs	13	3.0	13	3.0	0.259	4.7	LOS A	1.6	11.2	0.30	0.44	0.30	53.1
11	T1	All MCs	319	3.0	319	3.0	0.259	4.9	LOS A	1.6	11.2	0.30	0.44	0.30	53.4
12	R2	All MCs	1	3.0	1	3.0	0.259	9.0	LOS A	1.6	11.2	0.30	0.44	0.30	52.6
Approach			333	3.0	333	3.0	0.259	4.9	LOS A	1.6	11.2	0.30	0.44	0.30	53.4
All Vehicles			699	2.9	699	2.9	0.259	5.5	LOS A	1.6	11.2	0.26	0.48	0.26	53.1

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.

MOVEMENT SUMMARY

Site: [1F] Site 1 - PM - 2026 Base - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.028	5.5	LOS A	0.1	1.0	0.42	0.63	0.42	50.4
2	T1	All MCs	1	3.0	1	3.0	0.028	5.8	LOS A	0.1	1.0	0.42	0.63	0.42	50.7
3	R2	All MCs	27	3.0	27	3.0	0.028	9.9	LOS A	0.1	1.0	0.42	0.63	0.42	49.9
Approach			29	3.0	29	3.0	0.028	9.6	LOS A	0.1	1.0	0.42	0.63	0.42	50.0
East: Lynwood Avenue (E)															
4	L2	All MCs	60	3.0	60	3.0	0.220	4.2	LOS A	1.3	9.5	0.09	0.43	0.09	53.9
5	T1	All MCs	276	3.0	276	3.0	0.220	4.4	LOS A	1.3	9.5	0.09	0.43	0.09	54.3
6	R2	All MCs	8	3.0	8	3.0	0.220	8.5	LOS A	1.3	9.5	0.09	0.43	0.09	53.4
Approach			344	3.0	344	3.0	0.220	4.4	LOS A	1.3	9.5	0.09	0.43	0.09	54.2
North: Poole Way															
7	L2	All MCs	18	3.0	18	3.0	0.027	4.9	LOS A	0.1	0.9	0.32	0.55	0.32	52.4
8	T1	All MCs	2	3.0	2	3.0	0.027	5.1	LOS A	0.1	0.9	0.32	0.55	0.32	52.8
9	R2	All MCs	11	3.0	11	3.0	0.027	9.3	LOS A	0.1	0.9	0.32	0.55	0.32	51.9
Approach			31	3.0	31	3.0	0.027	6.4	LOS A	0.1	0.9	0.32	0.55	0.32	52.3
West: Lynwood Avenue (W)															
10	L2	All MCs	5	3.0	5	3.0	0.105	4.3	LOS A	0.6	4.0	0.15	0.42	0.15	53.7
11	T1	All MCs	138	3.0	138	3.0	0.105	4.5	LOS A	0.6	4.0	0.15	0.42	0.15	54.1
12	R2	All MCs	1	3.0	1	3.0	0.105	8.6	LOS A	0.6	4.0	0.15	0.42	0.15	53.2
Approach			144	3.0	144	3.0	0.105	4.5	LOS A	0.6	4.0	0.15	0.42	0.15	54.0
All Vehicles			548	3.0	548	3.0	0.220	4.9	LOS A	1.3	9.5	0.14	0.45	0.14	53.8

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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MOVEMENT SUMMARY

Site: [1G] Site 1 - PM - 2028 Base - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.030	5.6	LOS A	0.1	1.0	0.43	0.63	0.43	50.3
2	T1	All MCs	1	3.0	1	3.0	0.030	5.9	LOS A	0.1	1.0	0.43	0.63	0.43	50.7
3	R2	All MCs	28	3.0	28	3.0	0.030	10.0	LOS B	0.1	1.0	0.43	0.63	0.43	49.9
Approach			31	3.0	31	3.0	0.030	9.7	LOS A	0.1	1.0	0.43	0.63	0.43	49.9
East: Lynwood Avenue (E)															
4	L2	All MCs	63	3.0	63	3.0	0.234	4.2	LOS A	1.4	10.3	0.09	0.44	0.09	53.9
5	T1	All MCs	291	3.0	291	3.0	0.234	4.4	LOS A	1.4	10.3	0.09	0.44	0.09	54.3
6	R2	All MCs	14	3.0	14	3.0	0.234	8.5	LOS A	1.4	10.3	0.09	0.44	0.09	53.4
Approach			367	3.0	367	3.0	0.234	4.5	LOS A	1.4	10.3	0.09	0.44	0.09	54.2
North: Poole Way															
7	L2	All MCs	19	3.0	19	3.0	0.028	4.9	LOS A	0.1	0.9	0.33	0.55	0.33	52.4
8	T1	All MCs	2	3.0	2	3.0	0.028	5.2	LOS A	0.1	0.9	0.33	0.55	0.33	52.8
9	R2	All MCs	11	3.0	11	3.0	0.028	9.3	LOS A	0.1	0.9	0.33	0.55	0.33	51.9
Approach			32	3.0	32	3.0	0.028	6.4	LOS A	0.1	0.9	0.33	0.55	0.33	52.3
West: Lynwood Avenue (W)															
10	L2	All MCs	5	3.0	5	3.0	0.112	4.3	LOS A	0.6	4.3	0.17	0.42	0.17	53.6
11	T1	All MCs	145	3.0	145	3.0	0.112	4.6	LOS A	0.6	4.3	0.17	0.42	0.17	54.0
12	R2	All MCs	1	3.0	1	3.0	0.112	8.7	LOS A	0.6	4.3	0.17	0.42	0.17	53.1
Approach			152	3.0	152	3.0	0.112	4.6	LOS A	0.6	4.3	0.17	0.42	0.17	54.0
All Vehicles			581	3.0	581	3.0	0.234	4.9	LOS A	1.4	10.3	0.14	0.45	0.14	53.8

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.

MOVEMENT SUMMARY

Site: [1G (2)] Site 1 - PM - 2028 Development - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.032	5.8	LOS A	0.2	1.1	0.45	0.64	0.45	50.4
2	T1	All MCs	2	1.5	2	1.5	0.032	6.0	LOS A	0.2	1.1	0.45	0.64	0.45	50.7
3	R2	All MCs	28	3.0	28	3.0	0.032	10.1	LOS B	0.2	1.1	0.45	0.64	0.45	49.9
Approach			32	2.9	32	2.9	0.032	9.7	LOS A	0.2	1.1	0.45	0.64	0.45	50.0
East: Lynwood Avenue (E)															
4	L2	All MCs	63	3.0	63	3.0	0.252	4.2	LOS A	1.6	11.3	0.12	0.44	0.12	53.7
5	T1	All MCs	299	2.9	299	2.9	0.252	4.4	LOS A	1.6	11.3	0.12	0.44	0.12	54.1
6	R2	All MCs	22	1.9	22	1.9	0.252	8.6	LOS A	1.6	11.3	0.12	0.44	0.12	53.2
Approach			384	2.9	384	2.9	0.252	4.6	LOS A	1.6	11.3	0.12	0.44	0.12	54.0
North: Poole Way															
7	L2	All MCs	29	1.9	29	1.9	0.043	4.9	LOS A	0.2	1.5	0.33	0.56	0.33	52.4
8	T1	All MCs	3	2.0	3	2.0	0.043	5.2	LOS A	0.2	1.5	0.33	0.56	0.33	52.8
9	R2	All MCs	17	1.9	17	1.9	0.043	9.3	LOS A	0.2	1.5	0.33	0.56	0.33	51.9
Approach			49	1.9	49	1.9	0.043	6.4	LOS A	0.2	1.5	0.33	0.56	0.33	52.3
West: Lynwood Avenue (W)															
10	L2	All MCs	5	3.0	5	3.0	0.114	4.4	LOS A	0.6	4.3	0.19	0.42	0.19	53.5
11	T1	All MCs	145	3.0	145	3.0	0.114	4.6	LOS A	0.6	4.3	0.19	0.42	0.19	53.9
12	R2	All MCs	1	3.0	1	3.0	0.114	8.7	LOS A	0.6	4.3	0.19	0.42	0.19	53.0
Approach			152	3.0	152	3.0	0.114	4.6	LOS A	0.6	4.3	0.19	0.42	0.19	53.9
All Vehicles			617	2.8	617	2.8	0.252	5.0	LOS A	1.6	11.3	0.17	0.45	0.17	53.6

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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MOVEMENT SUMMARY

Site: [1H] Site 1 - PM - 2038 Base - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.042	6.1	LOS A	0.2	1.5	0.49	0.66	0.49	50.1
2	T1	All MCs	1	3.0	1	3.0	0.042	6.4	LOS A	0.2	1.5	0.49	0.66	0.49	50.4
3	R2	All MCs	38	3.0	38	3.0	0.042	10.5	LOS B	0.2	1.5	0.49	0.66	0.49	49.7
Approach			40	3.0	40	3.0	0.042	10.3	LOS B	0.2	1.5	0.49	0.66	0.49	49.7
East: Lynwood Avenue (E)															
4	L2	All MCs	82	3.0	82	3.0	0.298	4.2	LOS A	2.0	14.4	0.10	0.43	0.10	53.9
5	T1	All MCs	377	3.0	377	3.0	0.298	4.4	LOS A	2.0	14.4	0.10	0.43	0.10	54.3
6	R2	All MCs	14	3.0	14	3.0	0.298	8.5	LOS A	2.0	14.4	0.10	0.43	0.10	53.4
Approach			473	3.0	473	3.0	0.298	4.5	LOS A	2.0	14.4	0.10	0.43	0.10	54.2
North: Poole Way															
7	L2	All MCs	19	3.0	19	3.0	0.029	5.2	LOS A	0.1	1.0	0.38	0.56	0.38	52.3
8	T1	All MCs	2	3.0	2	3.0	0.029	5.4	LOS A	0.1	1.0	0.38	0.56	0.38	52.6
9	R2	All MCs	11	3.0	11	3.0	0.029	9.6	LOS A	0.1	1.0	0.38	0.56	0.38	51.8
Approach			32	3.0	32	3.0	0.029	6.7	LOS A	0.1	1.0	0.38	0.56	0.38	52.1
West: Lynwood Avenue (W)															
10	L2	All MCs	5	3.0	5	3.0	0.144	4.4	LOS A	0.8	5.8	0.20	0.42	0.20	53.5
11	T1	All MCs	188	3.0	188	3.0	0.144	4.6	LOS A	0.8	5.8	0.20	0.42	0.20	53.9
12	R2	All MCs	1	3.0	1	3.0	0.144	8.7	LOS A	0.8	5.8	0.20	0.42	0.20	53.0
Approach			195	3.0	195	3.0	0.144	4.6	LOS A	0.8	5.8	0.20	0.42	0.20	53.9
All Vehicles			739	3.0	739	3.0	0.298	4.9	LOS A	2.0	14.4	0.16	0.45	0.16	53.7

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.

MOVEMENT SUMMARY

Site: [1H (2)] Site 1 - PM - 2038 Development - Lynwood Avenue / Goicoechea Drive / Poole Way (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Goicoechea Drive / Poole Way
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Goicoechea Drive															
1	L2	All MCs	1	3.0	1	3.0	0.044	6.3	LOS A	0.2	1.6	0.51	0.67	0.51	50.0
2	T1	All MCs	2	1.5	2	1.5	0.044	6.5	LOS A	0.2	1.6	0.51	0.67	0.51	50.4
3	R2	All MCs	38	3.0	38	3.0	0.044	10.7	LOS B	0.2	1.6	0.51	0.67	0.51	49.6
Approach			41	2.9	41	2.9	0.044	10.3	LOS B	0.2	1.6	0.51	0.67	0.51	49.7
East: Lynwood Avenue (E)															
4	L2	All MCs	82	3.0	82	3.0	0.317	4.2	LOS A	2.2	15.6	0.13	0.43	0.13	53.7
5	T1	All MCs	385	2.9	385	2.9	0.317	4.5	LOS A	2.2	15.6	0.13	0.43	0.13	54.1
6	R2	All MCs	22	1.9	22	1.9	0.317	8.6	LOS A	2.2	15.6	0.13	0.43	0.13	53.2
Approach			489	2.9	489	2.9	0.317	4.6	LOS A	2.2	15.6	0.13	0.43	0.13	54.0
North: Poole Way															
7	L2	All MCs	29	1.9	29	1.9	0.045	5.2	LOS A	0.2	1.6	0.38	0.57	0.38	52.3
8	T1	All MCs	3	2.0	3	2.0	0.045	5.4	LOS A	0.2	1.6	0.38	0.57	0.38	52.6
9	R2	All MCs	17	1.9	17	1.9	0.045	9.6	LOS A	0.2	1.6	0.38	0.57	0.38	51.8
Approach			49	1.9	49	1.9	0.045	6.7	LOS A	0.2	1.6	0.38	0.57	0.38	52.1
West: Lynwood Avenue (W)															
10	L2	All MCs	5	3.0	5	3.0	0.147	4.4	LOS A	0.8	5.8	0.21	0.42	0.21	53.4
11	T1	All MCs	188	3.0	188	3.0	0.147	4.7	LOS A	0.8	5.8	0.21	0.42	0.21	53.8
12	R2	All MCs	1	3.0	1	3.0	0.147	8.8	LOS A	0.8	5.8	0.21	0.42	0.21	52.9
Approach			195	3.0	195	3.0	0.147	4.7	LOS A	0.8	5.8	0.21	0.42	0.21	53.8
All Vehicles			775	2.9	775	2.9	0.317	5.1	LOS A	2.2	15.6	0.19	0.45	0.19	53.6

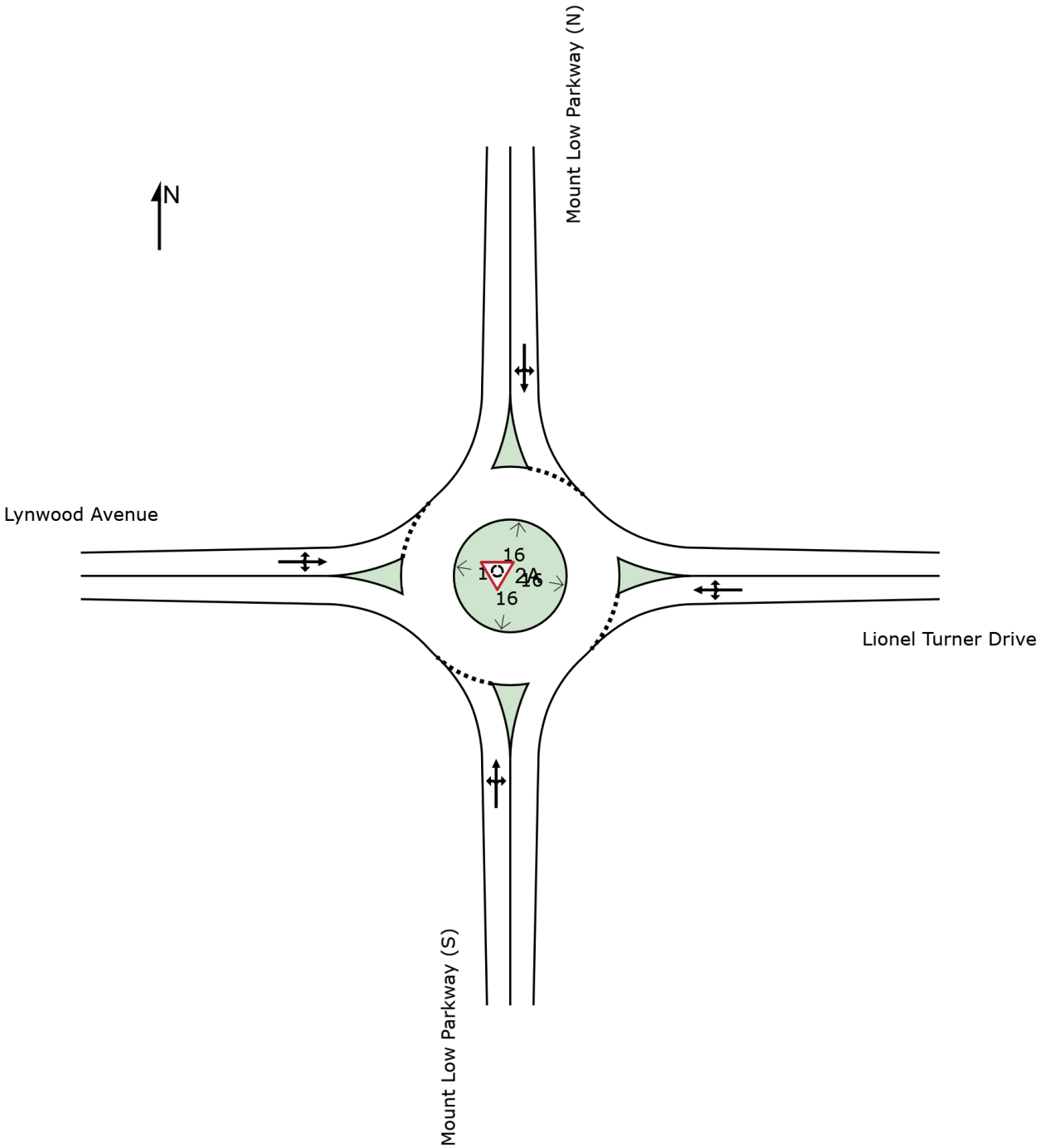
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay 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.

SITE LAYOUT

Site: [2A] Site 2 - AM - 2026 Base - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
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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Project: C:\Users\Josh.Harrison\OneDrive - Colliers International\25BRT0474 16 Poole Way, Bushland Beach - TR\06 Analysis \25BRT0474_SA_A.sipx

MOVEMENT SUMMARY

Site: [2A] Site 2 - AM - 2026 Base - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	61	3.0	61	3.0	0.185	5.1	LOS A	1.0	7.4	0.39	0.56	0.39	51.9
2	T1	All MCs	62	3.0	62	3.0	0.185	5.4	LOS A	1.0	7.4	0.39	0.56	0.39	52.3
3	R2	All MCs	85	3.0	85	3.0	0.185	9.5	LOS A	1.0	7.4	0.39	0.56	0.39	51.4
Approach			208	3.0	208	3.0	0.185	7.0	LOS A	1.0	7.4	0.39	0.56	0.39	51.8
East: Lionel Turner Drive															
4	L2	All MCs	52	3.0	52	3.0	0.168	6.0	LOS A	0.9	6.8	0.52	0.63	0.52	51.3
5	T1	All MCs	34	3.0	34	3.0	0.168	6.3	LOS A	0.9	6.8	0.52	0.63	0.52	51.7
6	R2	All MCs	79	3.0	79	3.0	0.168	10.4	LOS B	0.9	6.8	0.52	0.63	0.52	50.8
Approach			164	3.0	164	3.0	0.168	8.2	LOS A	0.9	6.8	0.52	0.63	0.52	51.2
North: Mount Low Parkway (N)															
7	L2	All MCs	131	3.0	131	3.0	0.377	6.5	LOS A	2.4	17.6	0.61	0.62	0.61	51.6
8	T1	All MCs	171	3.0	171	3.0	0.377	6.8	LOS A	2.4	17.6	0.61	0.62	0.61	52.0
9	R2	All MCs	65	3.0	65	3.0	0.377	10.9	LOS B	2.4	17.6	0.61	0.62	0.61	51.2
Approach			366	3.0	366	3.0	0.377	7.4	LOS A	2.4	17.6	0.61	0.62	0.61	51.7
West: Lynwood Avenue															
10	L2	All MCs	59	3.0	59	3.0	0.293	5.6	LOS A	1.8	12.6	0.47	0.57	0.47	51.8
11	T1	All MCs	162	3.0	162	3.0	0.293	5.8	LOS A	1.8	12.6	0.47	0.57	0.47	52.2
12	R2	All MCs	99	3.0	99	3.0	0.293	9.9	LOS A	1.8	12.6	0.47	0.57	0.47	51.4
Approach			320	3.0	320	3.0	0.293	7.0	LOS A	1.8	12.6	0.47	0.57	0.47	51.9
All Vehicles			1059	3.0	1059	3.0	0.377	7.3	LOS A	2.4	17.6	0.51	0.59	0.51	51.7

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.

MOVEMENT SUMMARY

Site: [2A (2)] Site 2 - AM - 2028 Base - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	65	3.0	65	3.0	0.197	5.2	LOS A	1.1	8.0	0.40	0.57	0.40	51.9
2	T1	All MCs	65	3.0	65	3.0	0.197	5.4	LOS A	1.1	8.0	0.40	0.57	0.40	52.2
3	R2	All MCs	89	3.0	89	3.0	0.197	9.6	LOS A	1.1	8.0	0.40	0.57	0.40	51.4
Approach			220	3.0	220	3.0	0.197	7.0	LOS A	1.1	8.0	0.40	0.57	0.40	51.8
East: Lionel Turner Drive															
4	L2	All MCs	55	3.0	55	3.0	0.181	6.2	LOS A	1.0	7.4	0.54	0.63	0.54	51.2
5	T1	All MCs	36	3.0	36	3.0	0.181	6.4	LOS A	1.0	7.4	0.54	0.63	0.54	51.6
6	R2	All MCs	83	3.0	83	3.0	0.181	10.5	LOS B	1.0	7.4	0.54	0.63	0.54	50.8
Approach			174	3.0	174	3.0	0.181	8.3	LOS A	1.0	7.4	0.54	0.63	0.54	51.1
North: Mount Low Parkway (N)															
7	L2	All MCs	139	3.0	139	3.0	0.406	6.8	LOS A	2.7	19.4	0.64	0.63	0.64	51.5
8	T1	All MCs	180	3.0	180	3.0	0.406	7.0	LOS A	2.7	19.4	0.64	0.63	0.64	51.9
9	R2	All MCs	68	3.0	68	3.0	0.406	11.1	LOS B	2.7	19.4	0.64	0.63	0.64	51.1
Approach			387	3.0	387	3.0	0.406	7.6	LOS A	2.7	19.4	0.64	0.63	0.64	51.6
West: Lynwood Avenue															
10	L2	All MCs	62	3.0	62	3.0	0.313	5.7	LOS A	1.9	13.8	0.49	0.57	0.49	51.7
11	T1	All MCs	172	3.0	172	3.0	0.313	5.9	LOS A	1.9	13.8	0.49	0.57	0.49	52.1
12	R2	All MCs	105	3.0	105	3.0	0.313	10.0	LOS B	1.9	13.8	0.49	0.57	0.49	51.3
Approach			339	3.0	339	3.0	0.313	7.1	LOS A	1.9	13.8	0.49	0.57	0.49	51.8
All Vehicles			1120	3.0	1120	3.0	0.406	7.5	LOS A	2.7	19.4	0.53	0.60	0.53	51.6

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.

MOVEMENT SUMMARY

Site: [2A (4)] Site 2 - AM - 2028 Development- Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	71	2.8	71	2.8	0.204	5.3	LOS A	1.2	8.3	0.42	0.57	0.42	51.9
2	T1	All MCs	65	3.0	65	3.0	0.204	5.5	LOS A	1.2	8.3	0.42	0.57	0.42	52.2
3	R2	All MCs	89	3.0	89	3.0	0.204	9.6	LOS A	1.2	8.3	0.42	0.57	0.42	51.4
Approach			225	2.9	225	2.9	0.204	7.1	LOS A	1.2	8.3	0.42	0.57	0.42	51.8
East: Lionel Turner Drive															
4	L2	All MCs	55	3.0	55	3.0	0.188	6.2	LOS A	1.1	7.7	0.55	0.64	0.55	51.2
5	T1	All MCs	40	2.7	40	2.7	0.188	6.5	LOS A	1.1	7.7	0.55	0.64	0.55	51.6
6	R2	All MCs	83	3.0	83	3.0	0.188	10.6	LOS B	1.1	7.7	0.55	0.64	0.55	50.7
Approach			178	2.9	178	2.9	0.188	8.3	LOS A	1.1	7.7	0.55	0.64	0.55	51.1
North: Mount Low Parkway (N)															
7	L2	All MCs	139	3.0	139	3.0	0.416	6.8	LOS A	2.8	20.0	0.65	0.64	0.65	51.4
8	T1	All MCs	180	3.0	180	3.0	0.416	7.1	LOS A	2.8	20.0	0.65	0.64	0.65	51.8
9	R2	All MCs	75	2.7	75	2.7	0.416	11.2	LOS B	2.8	20.0	0.65	0.64	0.65	51.0
Approach			394	3.0	394	3.0	0.416	7.8	LOS A	2.8	20.0	0.65	0.64	0.65	51.5
West: Lynwood Avenue															
10	L2	All MCs	62	3.0	62	3.0	0.321	5.7	LOS A	2.0	14.2	0.49	0.57	0.49	51.7
11	T1	All MCs	176	2.9	176	2.9	0.321	5.9	LOS A	2.0	14.2	0.49	0.57	0.49	52.1
12	R2	All MCs	111	2.9	111	2.9	0.321	10.0	LOS B	2.0	14.2	0.49	0.57	0.49	51.3
Approach			348	2.9	348	2.9	0.321	7.2	LOS A	2.0	14.2	0.49	0.57	0.49	51.8
All Vehicles			1145	2.9	1145	2.9	0.416	7.5	LOS A	2.8	20.0	0.54	0.60	0.54	51.6

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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MOVEMENT SUMMARY

Site: [2A (3)] Site 2 - AM - 2038 Base - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	84	3.0	84	3.0	0.264	5.6	LOS A	1.6	11.5	0.48	0.59	0.48	51.6
2	T1	All MCs	81	3.0	81	3.0	0.264	5.8	LOS A	1.6	11.5	0.48	0.59	0.48	52.0
3	R2	All MCs	117	3.0	117	3.0	0.264	9.9	LOS A	1.6	11.5	0.48	0.59	0.48	51.2
Approach			282	3.0	282	3.0	0.264	7.4	LOS A	1.6	11.5	0.48	0.59	0.48	51.5
East: Lionel Turner Drive															
4	L2	All MCs	71	3.0	71	3.0	0.255	6.9	LOS A	1.6	11.3	0.64	0.67	0.64	50.7
5	T1	All MCs	46	3.0	46	3.0	0.255	7.2	LOS A	1.6	11.3	0.64	0.67	0.64	51.1
6	R2	All MCs	105	3.0	105	3.0	0.255	11.3	LOS B	1.6	11.3	0.64	0.67	0.64	50.3
Approach			222	3.0	222	3.0	0.255	9.0	LOS A	1.6	11.3	0.64	0.67	0.64	50.6
North: Mount Low Parkway (N)															
7	L2	All MCs	180	3.0	180	3.0	0.569	9.2	LOS A	5.0	36.2	0.80	0.75	0.92	49.9
8	T1	All MCs	233	3.0	233	3.0	0.569	9.4	LOS A	5.0	36.2	0.80	0.75	0.92	50.3
9	R2	All MCs	83	3.0	83	3.0	0.569	13.6	LOS B	5.0	36.2	0.80	0.75	0.92	49.5
Approach			496	3.0	496	3.0	0.569	10.1	LOS B	5.0	36.2	0.80	0.75	0.92	50.0
West: Lynwood Avenue															
10	L2	All MCs	81	3.0	81	3.0	0.418	6.3	LOS A	2.8	20.2	0.60	0.61	0.60	51.3
11	T1	All MCs	216	3.0	216	3.0	0.418	6.6	LOS A	2.8	20.2	0.60	0.61	0.60	51.7
12	R2	All MCs	131	3.0	131	3.0	0.418	10.7	LOS B	2.8	20.2	0.60	0.61	0.60	50.9
Approach			427	3.0	427	3.0	0.418	7.8	LOS A	2.8	20.2	0.60	0.61	0.60	51.4
All Vehicles			1427	3.0	1427	3.0	0.569	8.7	LOS A	5.0	36.2	0.65	0.67	0.69	50.8

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.

MOVEMENT SUMMARY

Site: [2A (5)] Site 2 - AM - 2038 Development - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	89	2.8	89	2.8	0.272	5.6	LOS A	1.7	11.8	0.49	0.59	0.49	51.6
2	T1	All MCs	81	3.0	81	3.0	0.272	5.9	LOS A	1.7	11.8	0.49	0.59	0.49	52.0
3	R2	All MCs	117	3.0	117	3.0	0.272	10.0	LOS B	1.7	11.8	0.49	0.59	0.49	51.2
Approach			287	2.9	287	2.9	0.272	7.5	LOS A	1.7	11.8	0.49	0.59	0.49	51.5
East: Lionel Turner Drive															
4	L2	All MCs	71	3.0	71	3.0	0.263	7.0	LOS A	1.6	11.8	0.66	0.67	0.66	50.7
5	T1	All MCs	51	2.8	51	2.8	0.263	7.2	LOS A	1.6	11.8	0.66	0.67	0.66	51.1
6	R2	All MCs	105	3.0	105	3.0	0.263	11.4	LOS B	1.6	11.8	0.66	0.67	0.66	50.3
Approach			226	2.9	226	2.9	0.263	9.1	LOS A	1.6	11.8	0.66	0.67	0.66	50.6
North: Mount Low Parkway (N)															
7	L2	All MCs	180	3.0	180	3.0	0.583	9.6	LOS A	5.3	38.2	0.81	0.77	0.95	49.7
8	T1	All MCs	233	3.0	233	3.0	0.583	9.8	LOS A	5.3	38.2	0.81	0.77	0.95	50.0
9	R2	All MCs	89	2.8	89	2.8	0.583	13.9	LOS B	5.3	38.2	0.81	0.77	0.95	49.3
Approach			502	3.0	502	3.0	0.583	10.5	LOS B	5.3	38.2	0.81	0.77	0.95	49.8
West: Lynwood Avenue															
10	L2	All MCs	81	3.0	81	3.0	0.429	6.3	LOS A	2.9	21.0	0.60	0.61	0.60	51.3
11	T1	All MCs	221	2.9	221	2.9	0.429	6.6	LOS A	2.9	21.0	0.60	0.61	0.60	51.7
12	R2	All MCs	137	2.9	137	2.9	0.429	10.7	LOS B	2.9	21.0	0.60	0.61	0.60	50.9
Approach			439	2.9	439	2.9	0.429	7.8	LOS A	2.9	21.0	0.60	0.61	0.60	51.3
All Vehicles			1455	2.9	1455	2.9	0.583	8.9	LOS A	5.3	38.2	0.66	0.67	0.71	50.7

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.

MOVEMENT SUMMARY

Site: [2A (6)] Site 2 - PM - 2026 Base - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	135	3.0	135	3.0	0.522	7.9	LOS A	4.2	29.8	0.74	0.69	0.79	50.5
2	T1	All MCs	220	3.0	220	3.0	0.522	8.1	LOS A	4.2	29.8	0.74	0.69	0.79	50.9
3	R2	All MCs	124	3.0	124	3.0	0.522	12.2	LOS B	4.2	29.8	0.74	0.69	0.79	50.1
Approach			479	3.0	479	3.0	0.522	9.1	LOS A	4.2	29.8	0.74	0.69	0.79	50.6
East: Lionel Turner Drive															
4	L2	All MCs	69	3.0	69	3.0	0.379	6.0	LOS A	2.5	17.8	0.55	0.61	0.55	51.2
5	T1	All MCs	134	3.0	134	3.0	0.379	6.2	LOS A	2.5	17.8	0.55	0.61	0.55	51.5
6	R2	All MCs	197	3.0	197	3.0	0.379	10.3	LOS B	2.5	17.8	0.55	0.61	0.55	50.7
Approach			400	3.0	400	3.0	0.379	8.2	LOS A	2.5	17.8	0.55	0.61	0.55	51.1
North: Mount Low Parkway (N)															
7	L2	All MCs	51	3.0	51	3.0	0.214	5.6	LOS A	1.2	8.8	0.47	0.58	0.47	51.8
8	T1	All MCs	99	3.0	99	3.0	0.214	5.8	LOS A	1.2	8.8	0.47	0.58	0.47	52.1
9	R2	All MCs	76	3.0	76	3.0	0.214	10.0	LOS A	1.2	8.8	0.47	0.58	0.47	51.3
Approach			225	3.0	225	3.0	0.214	7.2	LOS A	1.2	8.8	0.47	0.58	0.47	51.8
West: Lynwood Avenue															
10	L2	All MCs	54	3.0	54	3.0	0.226	7.5	LOS A	1.4	9.9	0.68	0.70	0.68	50.3
11	T1	All MCs	37	3.0	37	3.0	0.226	7.8	LOS A	1.4	9.9	0.68	0.70	0.68	50.6
12	R2	All MCs	93	3.0	93	3.0	0.226	11.9	LOS B	1.4	9.9	0.68	0.70	0.68	49.9
Approach			183	3.0	183	3.0	0.226	9.8	LOS A	1.4	9.9	0.68	0.70	0.68	50.1
All Vehicles			1287	3.0	1287	3.0	0.522	8.6	LOS A	4.2	29.8	0.62	0.65	0.64	50.9

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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MOVEMENT SUMMARY

Site: [2A (7)] Site 2 - PM - 2028 Base - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	144	3.0	144	3.0	0.566	8.7	LOS A	5.0	35.7	0.78	0.74	0.88	50.0
2	T1	All MCs	232	3.0	232	3.0	0.566	9.0	LOS A	5.0	35.7	0.78	0.74	0.88	50.3
3	R2	All MCs	131	3.0	131	3.0	0.566	13.1	LOS B	5.0	35.7	0.78	0.74	0.88	49.5
Approach			506	3.0	506	3.0	0.566	10.0	LOS A	5.0	35.7	0.78	0.74	0.88	50.0
East: Lionel Turner Drive															
4	L2	All MCs	74	3.0	74	3.0	0.407	6.1	LOS A	2.7	19.6	0.57	0.62	0.57	51.1
5	T1	All MCs	143	3.0	143	3.0	0.407	6.4	LOS A	2.7	19.6	0.57	0.62	0.57	51.4
6	R2	All MCs	207	3.0	207	3.0	0.407	10.5	LOS B	2.7	19.6	0.57	0.62	0.57	50.6
Approach			424	3.0	424	3.0	0.407	8.4	LOS A	2.7	19.6	0.57	0.62	0.57	51.0
North: Mount Low Parkway (N)															
7	L2	All MCs	54	3.0	54	3.0	0.230	5.7	LOS A	1.3	9.6	0.49	0.59	0.49	51.7
8	T1	All MCs	104	3.0	104	3.0	0.230	5.9	LOS A	1.3	9.6	0.49	0.59	0.49	52.1
9	R2	All MCs	81	3.0	81	3.0	0.230	10.1	LOS B	1.3	9.6	0.49	0.59	0.49	51.2
Approach			239	3.0	239	3.0	0.230	7.3	LOS A	1.3	9.6	0.49	0.59	0.49	51.7
West: Lynwood Avenue															
10	L2	All MCs	57	3.0	57	3.0	0.246	7.8	LOS A	1.5	10.9	0.70	0.71	0.70	50.1
11	T1	All MCs	38	3.0	38	3.0	0.246	8.0	LOS A	1.5	10.9	0.70	0.71	0.70	50.5
12	R2	All MCs	98	3.0	98	3.0	0.246	12.2	LOS B	1.5	10.9	0.70	0.71	0.70	49.7
Approach			193	3.0	193	3.0	0.246	10.1	LOS B	1.5	10.9	0.70	0.71	0.70	50.0
All Vehicles			1362	3.0	1362	3.0	0.566	9.0	LOS A	5.0	35.7	0.66	0.67	0.69	50.6

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.

MOVEMENT SUMMARY

Site: [2A (9)] Site 2 - PM - 2028 Development - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	151	2.9	151	2.9	0.578	9.0	LOS A	5.2	37.4	0.80	0.75	0.91	49.8
2	T1	All MCs	232	3.0	232	3.0	0.578	9.3	LOS A	5.2	37.4	0.80	0.75	0.91	50.1
3	R2	All MCs	131	3.0	131	3.0	0.578	13.4	LOS B	5.2	37.4	0.80	0.75	0.91	49.4
Approach			513	3.0	513	3.0	0.578	10.3	LOS B	5.2	37.4	0.80	0.75	0.91	49.8
East: Lionel Turner Drive															
4	L2	All MCs	74	3.0	74	3.0	0.416	6.2	LOS A	2.8	20.2	0.59	0.63	0.59	51.0
5	T1	All MCs	147	2.9	147	2.9	0.416	6.5	LOS A	2.8	20.2	0.59	0.63	0.59	51.4
6	R2	All MCs	207	3.0	207	3.0	0.416	10.6	LOS B	2.8	20.2	0.59	0.63	0.59	50.6
Approach			428	3.0	428	3.0	0.416	8.4	LOS A	2.8	20.2	0.59	0.63	0.59	50.9
North: Mount Low Parkway (N)															
7	L2	All MCs	54	3.0	54	3.0	0.237	5.8	LOS A	1.4	10.0	0.50	0.59	0.50	51.6
8	T1	All MCs	104	3.0	104	3.0	0.237	6.0	LOS A	1.4	10.0	0.50	0.59	0.50	52.0
9	R2	All MCs	86	2.8	86	2.8	0.237	10.2	LOS B	1.4	10.0	0.50	0.59	0.50	51.2
Approach			244	2.9	244	2.9	0.237	7.4	LOS A	1.4	10.0	0.50	0.59	0.50	51.6
West: Lynwood Avenue															
10	L2	All MCs	57	3.0	57	3.0	0.260	7.9	LOS A	1.6	11.7	0.71	0.71	0.71	50.1
11	T1	All MCs	43	2.6	43	2.6	0.260	8.1	LOS A	1.6	11.7	0.71	0.71	0.71	50.4
12	R2	All MCs	104	2.8	104	2.8	0.260	12.2	LOS B	1.6	11.7	0.71	0.71	0.71	49.7
Approach			204	2.8	204	2.8	0.260	10.1	LOS B	1.6	11.7	0.71	0.71	0.71	49.9
All Vehicles			1389	2.9	1389	2.9	0.578	9.2	LOS A	5.2	37.4	0.67	0.68	0.71	50.5

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.

MOVEMENT SUMMARY

Site: [2A (8)] Site 2 - PM - 2038 Base - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	186	3.0	186	3.0	0.827	18.7	LOS B	13.4	96.1	1.00	1.11	1.66	44.2
2	T1	All MCs	295	3.0	295	3.0	0.827	18.9	LOS B	13.4	96.1	1.00	1.11	1.66	44.5
3	R2	All MCs	169	3.0	169	3.0	0.827	23.0	LOS C	13.4	96.1	1.00	1.11	1.66	43.9
Approach			651	3.0	651	3.0	0.827	19.9	LOS B	13.4	96.1	1.00	1.11	1.66	44.3
East: Lionel Turner Drive															
4	L2	All MCs	95	3.0	95	3.0	0.560	7.7	LOS A	4.7	34.0	0.73	0.70	0.78	50.0
5	T1	All MCs	184	3.0	184	3.0	0.560	8.0	LOS A	4.7	34.0	0.73	0.70	0.78	50.4
6	R2	All MCs	264	3.0	264	3.0	0.560	12.1	LOS B	4.7	34.0	0.73	0.70	0.78	49.6
Approach			543	3.0	543	3.0	0.560	9.9	LOS A	4.7	34.0	0.73	0.70	0.78	49.9
North: Mount Low Parkway (N)															
7	L2	All MCs	69	3.0	69	3.0	0.319	6.4	LOS A	2.0	14.6	0.60	0.62	0.60	51.3
8	T1	All MCs	136	3.0	136	3.0	0.319	6.6	LOS A	2.0	14.6	0.60	0.62	0.60	51.7
9	R2	All MCs	102	3.0	102	3.0	0.319	10.7	LOS B	2.0	14.6	0.60	0.62	0.60	50.8
Approach			307	3.0	307	3.0	0.319	7.9	LOS A	2.0	14.6	0.60	0.62	0.60	51.3
West: Lynwood Avenue															
10	L2	All MCs	74	3.0	74	3.0	0.382	9.7	LOS A	2.7	19.3	0.86	0.77	0.86	48.9
11	T1	All MCs	47	3.0	47	3.0	0.382	9.9	LOS A	2.7	19.3	0.86	0.77	0.86	49.3
12	R2	All MCs	124	3.0	124	3.0	0.382	14.0	LOS B	2.7	19.3	0.86	0.77	0.86	48.5
Approach			245	3.0	245	3.0	0.382	11.9	LOS B	2.7	19.3	0.86	0.77	0.86	48.8
All Vehicles			1746	3.0	1746	3.0	0.827	13.6	LOS B	13.4	96.1	0.82	0.85	1.09	47.7

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.

MOVEMENT SUMMARY

Site: [2A (10)] Site 2 - PM - 2038 Development - Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive (2026 Base (Current Conditions))

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Lynwood Avenue / Mount Low Parkway / Lionel Turner Drive
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Mount Low Parkway (S)															
1	L2	All MCs	193	2.9	193	2.9	0.845	20.2	LOS C	14.5	103.9	1.00	1.16	1.75	43.4
2	T1	All MCs	295	3.0	295	3.0	0.845	20.5	LOS C	14.5	103.9	1.00	1.16	1.75	43.7
3	R2	All MCs	169	3.0	169	3.0	0.845	24.6	LOS C	14.5	103.9	1.00	1.16	1.75	43.1
Approach			657	3.0	657	3.0	0.845	21.5	LOS C	14.5	103.9	1.00	1.16	1.75	43.5
East: Lionel Turner Drive															
4	L2	All MCs	95	3.0	95	3.0	0.571	8.0	LOS A	5.0	35.6	0.74	0.71	0.81	49.9
5	T1	All MCs	189	2.9	189	2.9	0.571	8.2	LOS A	5.0	35.6	0.74	0.71	0.81	50.2
6	R2	All MCs	264	3.0	264	3.0	0.571	12.4	LOS B	5.0	35.6	0.74	0.71	0.81	49.4
Approach			548	3.0	548	3.0	0.571	10.2	LOS B	5.0	35.6	0.74	0.71	0.81	49.8
North: Mount Low Parkway (N)															
7	L2	All MCs	69	3.0	69	3.0	0.326	6.4	LOS A	2.1	15.0	0.60	0.63	0.60	51.2
8	T1	All MCs	136	3.0	136	3.0	0.326	6.7	LOS A	2.1	15.0	0.60	0.63	0.60	51.6
9	R2	All MCs	107	2.9	107	2.9	0.326	10.8	LOS B	2.1	15.0	0.60	0.63	0.60	50.8
Approach			313	2.9	313	2.9	0.326	8.0	LOS A	2.1	15.0	0.60	0.63	0.60	51.2
West: Lynwood Avenue															
10	L2	All MCs	74	3.0	74	3.0	0.397	9.9	LOS A	2.8	20.4	0.86	0.78	0.88	48.8
11	T1	All MCs	52	2.8	52	2.8	0.397	10.1	LOS B	2.8	20.4	0.86	0.78	0.88	49.1
12	R2	All MCs	129	2.9	129	2.9	0.397	14.2	LOS B	2.8	20.4	0.86	0.78	0.88	48.4
Approach			255	2.9	255	2.9	0.397	12.1	LOS B	2.8	20.4	0.86	0.78	0.88	48.7
All Vehicles			1773	3.0	1773	3.0	0.845	14.3	LOS B	14.5	103.9	0.83	0.87	1.13	47.3

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.