



# TRAFFIC IMPACT ASSESSMENT

## Proposed Residential Development 31 Brownleigh Vale Drive, Inverell

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1 November 2022


**Prepared for:**  
Coastal Alliance Pty Ltd

# GELÉON

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## 1.0 INTRODUCTION

### 1.1 Project Background

Geleon has been engaged by Coastal Alliance Pty Ltd (**Applicant**) to prepare a Traffic Impact Assessment to accompany a Development Application (**DA**) for a staged development including a 2-lot subdivision (stage 1) and a residential development (stage 2) ('*Manufactured Housing*' land use) at 31 Brownleigh Vale Drive, Inverell (Lot 1 on DP1152567) as shown in **Figure 1.1**. The existing 43,230m<sup>2</sup> site is currently vacant land.

The development site was the subject of a previous development approval (DA-67/2011) for a 40-lot residential subdivision, which has since lapsed.

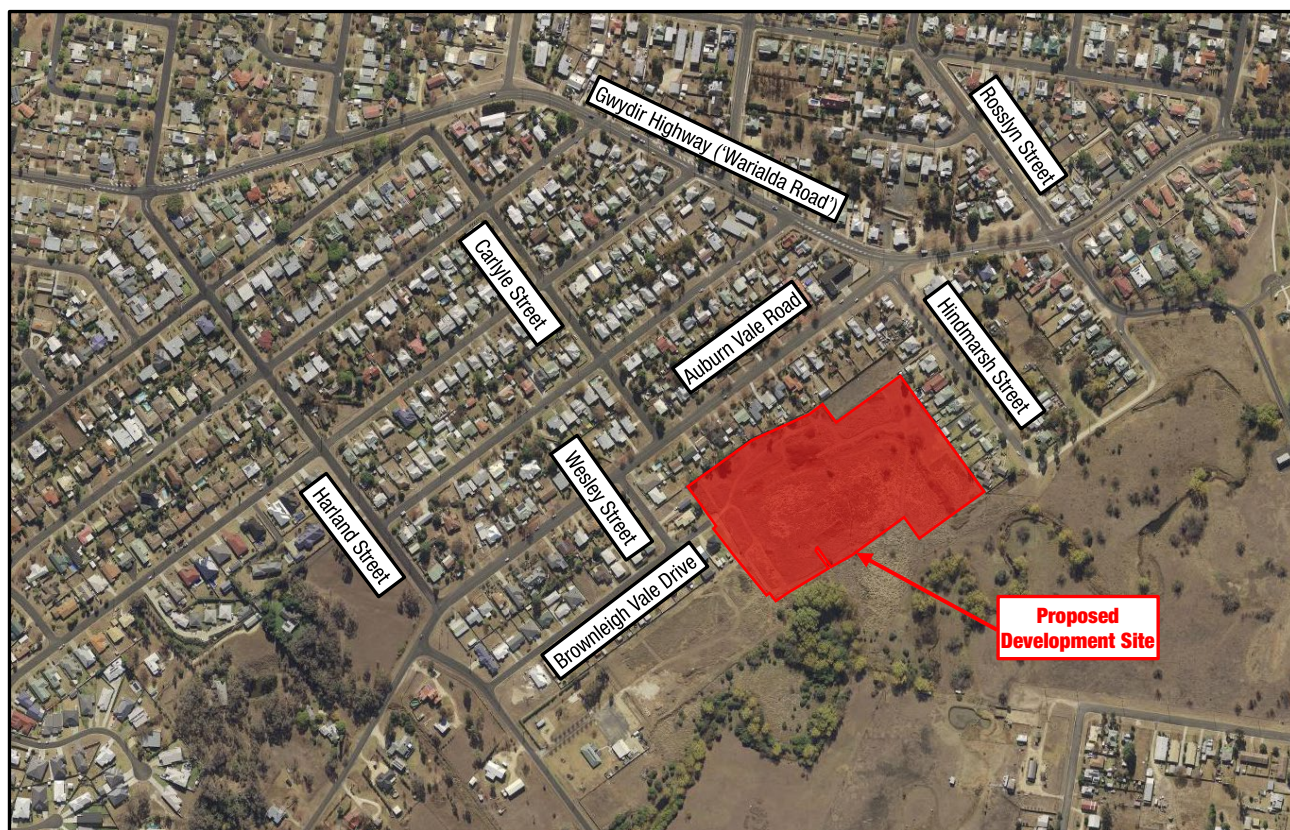


Figure 1.1 Locality Plan

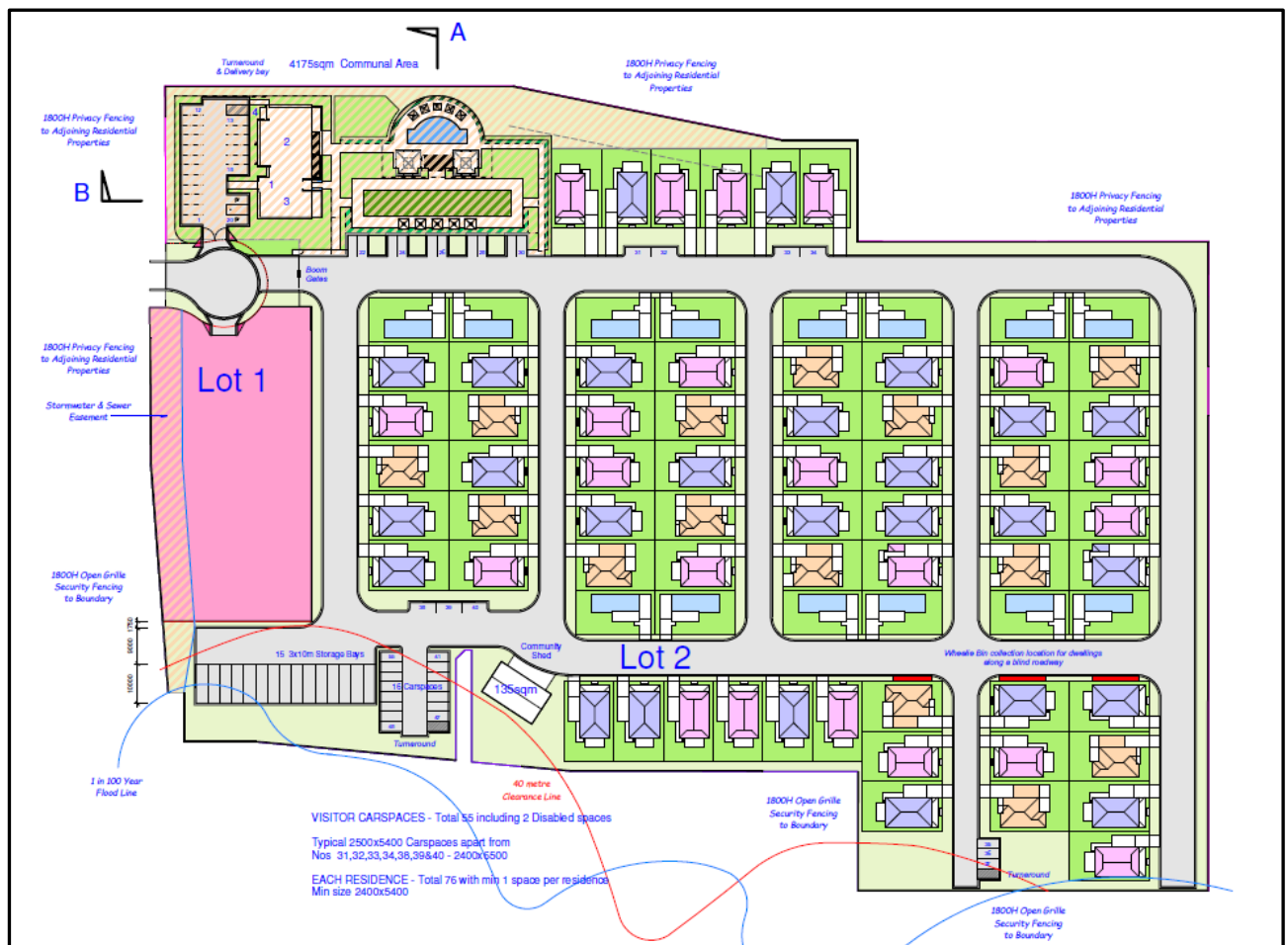
### 1.2 Development Details

The development proposes the establishment of a 2-lot subdivision (stage 1) and a Manufactured Home Estate comprising 76 manufactured home sites, community amenities, storage facilities, associated infrastructure (roads, stormwater, car parking etc.) and landscaping (stage 2). Access to and from the development is proposed via a connection to the north-eastern end of Brownleigh Vale Drive. Details of the proposed development are provided in **Table 1.2** with the proposed development layout being shown in **Figure 1.2**. Relevant plans of development have been provided in **Appendix A**.

Table 1.2 Proposed Development Details

Land Use	1-Bedroom Dwellings	2 & 3-Bedroom Units Dwellings	Total number of Dwellings
Manufactured Housing	14	62	76





## 2.0 EXISTING CONDITIONS

### 2.1 Road Network

The hierarchy of the road network surrounding the development is shown in **Table 2.1**.

**Table 2.1** Surrounding Road Network

Road Name	Jurisdiction	No. of lanes	Posted Speed Limit	Median Divided	Hierarchy
Gwydir Highway ('Warialda Road')	Transport for NSW	2 (two-way)	50km/h	No	Arterial Road
Auburn Vale Road	Inverell Shire Council	2 (two-way)	50km/h	No	Collector
Brownleigh Vale Drive	Inverell Shire Council	2 (two-way)	50km/h	No	Access Street
Wesley Street	Inverell Shire Council	2 (two-way)	50km/h	No	Access Street

#### 2.1.1 Gwydir Highway (Warialda Road)

Gwydir Highway, locally known as Warialda Road, is an arterial road under the jurisdiction of Transport for NSW. Near the subject site, Gwydir Highway is a two-lane, two-way road, comprising one lane in each direction and provides a primary east-west connection between Warialda in the west and Glen Innes in the east. Provision of informal on-street parking is partially provided on both sides of the road. A pedestrian footpath is provided along the northern side of the road. No active provision for cyclists is provided.

#### 2.1.2 Auburn Vale Road

Auburn Vale Road is an unmarked, two-lane local Council road that provides a connection between the Northern Foreshores Copeton Dam and the Gwydir Highway. Near the subject site, informal on-street parking is provided on each side of the road, however there are no footpaths present. There is also no active provision for cyclists.

#### 2.1.3 Brownleigh Vale Drive

Brownleigh Vale Drive is an unmarked, two-way Council road that will serve as the main access point for the proposed development. Brownleigh Vale Drive provides connections to Wesley Street and Harland Street. Informal on-street parking is provided on each side of the road, however there are no footpaths present. There is also no active provision for cyclists.

#### 2.1.4 Wesley Street

Wesley Street is an unmarked, two-way local Council road that provides a connection between Brownleigh Vale Drive and Auburn Vale Road. Informal on-street parking is provided on each side of the road, however there are no footpaths present. There is also no active provision for cyclists.

#### 2.1.5 Key Intersections

In addition to the surrounding road network, there are two key intersections in proximity to the proposed development that development generated traffic will utilise:

- 1) Warialda Road / Auburn Vale Road / Hindmarsh Street priority-controlled intersection, and
- 2) Auburn Vale Road / Wesley Street priority-controlled intersection



Figure 2.1.5 Key Intersections

## 2.2 Public Transport

The two closest bus stops to the development site, known as Vernon Street at Urabatta Street (Stop ID: 236012) and Borthwick Street at Waratah Street (Stop ID: 236013) are located 1.3km from the development site in opposite directions (**Figure 2.2.1**). Both bus stops are serviced by one public route (471) with a frequency of 2.5 hours between stops as shown in **Table 2.2**. Weekday services for the identified stops begin at 9:22am & 9:25am respectively, with the last service departing at 4:28pm & 4:31pm respectively, equating to a total of 3 stops throughout the day for each bus stop.

In addition, the above, bus route 471 travels along Harland Street which is located near the development site (**Figure 2.2.2**). It is understood that bus route 471 operated by Inverell Bus Service is a 'hail-and-ride' service where passengers can stand anywhere along the route and hail a bus to stop provided that it is safe to do so.

Table 2.2 Public Transport Services

Service	Bus Route	Frequency
471 (Vernon Street & Urabatta Street)	Inverell CBD to Ross Hill and Southside	2.5 hrs (9:22am – 4:28pm)
471 (Borthwick Street & Waratah Avenue)	Inverell CBD to Ross Hill and Southside	2.5 hrs (9:25am – 4:31pm)





Figure 2.2.1 Public Transport Network Surrounding the Site

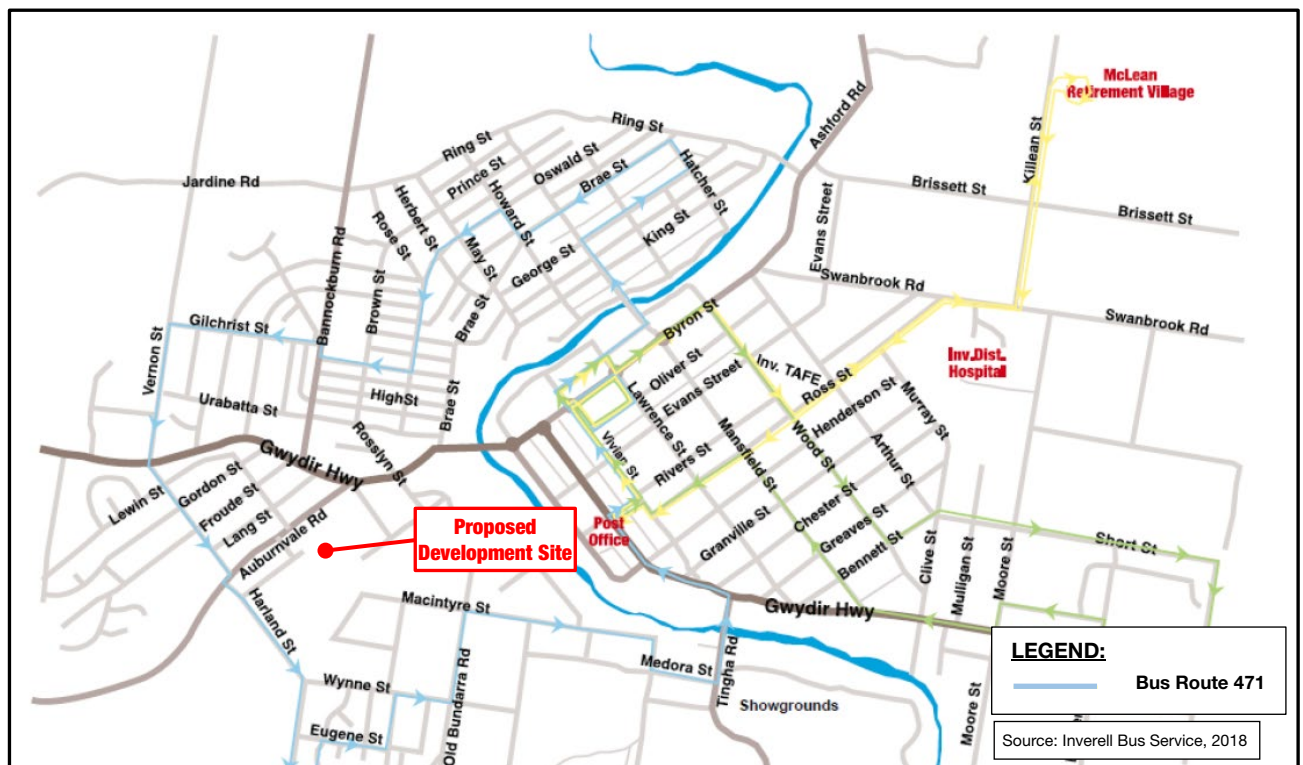


Figure 2.2.2 Inverell Bus Service Map

## 2.3 Active Transport

Near the development site, little active transport infrastructure is provided, however the level of infrastructure provided is reflective of a typical rural residential area.

## 2.4 Traffic Volumes

Traffic count data for the Warialda Road / Auburn Vale Road / Hindmarsh Street priority-controlled intersection and the Auburn Vale Road / Wesley Street priority-controlled intersection was sourced from an intersection count conducted by Traffic Data and Control (TDC) October 2022 (**Appendix B**).

Typical weekday peak periods for the intersection, as sourced from the 2022 data, are presented in **Table 2.4**. Existing 2022 AM and PM peak hour intersection traffic volumes are shown in **Figure 2.4**.

Table 2.4 Intersection Peak Periods

Intersection	AM Peak	PM Peak
Warialda Road / Auburn Vale Road / Hindmarsh Street	8:15am – 9:15am	3:15pm – 4:15pm
Auburn Vale Road / Wesley Street	8:15am – 9:15am	4:45pm – 5:45pm

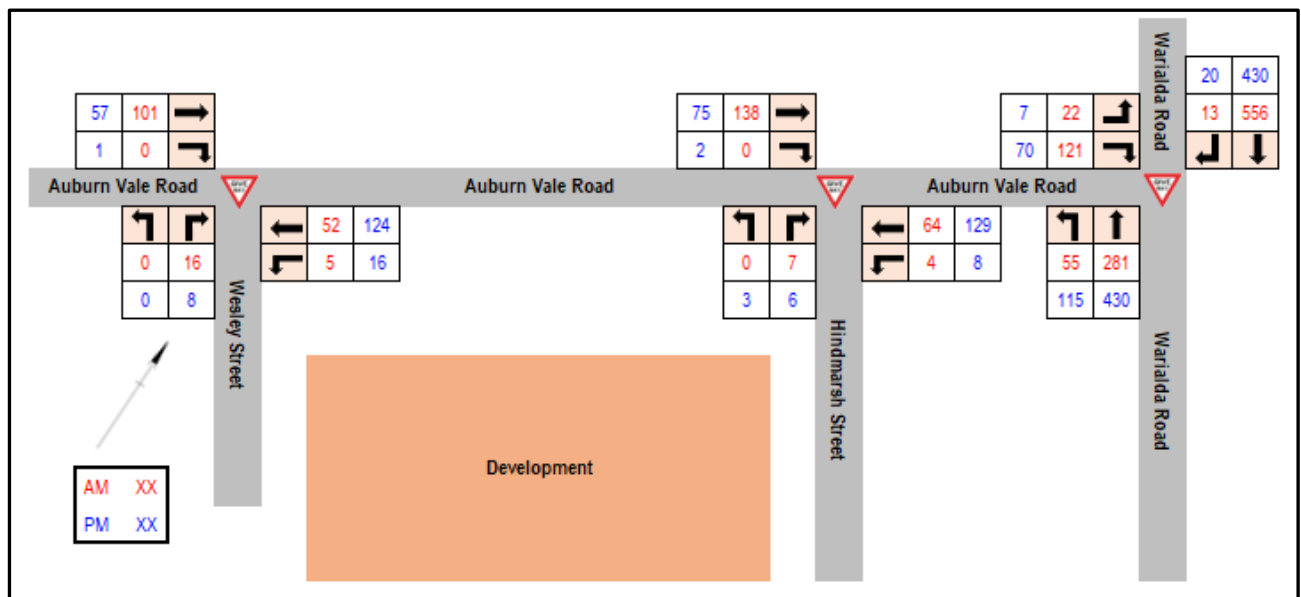


Figure 2.4 2022 Background Traffic Volumes

## 2.5 Intersection Operation

An assessment of the existing operational performance of the key intersections identified in **Section 2.1.5** has been undertaken using SIDRA 9.0 intersection analysis software.

### 2.5.1 Intersection Performance Criteria

Principal criteria against which intersection performance was assessed were as follows:

- the intersection degree of saturation (DOS), which is the ratio of maximum movement demand volume to capacity at an intersection
- Level of Service (LOS) expressed as a function of movement delay, and
- Queue lengths on intersection legs.

For the purposes of this assessment, criteria outlined in Austroads *Guide to Traffic Management Part 3: Traffic Studies and Analysis* (2017) have been adopted. Austroads suggests that for intersections, LOS and DOS are the criteria upon which performance is measured. **Table 2.5.1.1** shows the maximum degree of saturation<sup>1</sup> for various intersection types.

**Table 2.5.1.1 Maximum Degree of Saturation for Road Intersections**

Road Network Item	Maximum Degree of Saturation
Signalised Intersections	0.9
Roundabouts	0.85
Unsignalised Intersections	0.8

While DOS is an important measure of the capacity and operational performance of an intersection, several other factors are also important, in particular intersection and individual movement level of service (LOS) and delay, as well as the impact of identified vehicle queue lengths. While delay is calculated for all types of intersections it is most critical for priority or sign controlled intersections, where excessive delays to vehicle movements exiting minor side roads can lead to motorists accepting smaller gaps in the high-speed opposing traffic flows thereby increasing safety conflicts. The LOS and delay criteria adopted for this assessment have been taken from the *Sidra Intersection 8 User Guide*<sup>2</sup> and for ease of reference are summarised in **Table 2.5.1.2**.

<sup>1</sup> Austroads (November 2017), *Guide to Traffic Management Part 3: Traffic Studies and Analysis*, s.3.2.4, p.35.

<sup>2</sup> Akcelik & Associates Pty Ltd (March 2019), *Sidra Intersection 8 User Guide*, s.5.14.1, Table 5.14.3, Table 5.14.4, p.385.



Table 2.5.1.2 LOS Criteria for Road Intersections using Delay

Level of Service	Average delay per vehicle (d) in seconds		
	Signalised intersections (SIDRA)	Roundabouts (SIDRA)	Unsignalised intersections (RTA NSW)
A	$d \leq 10$	$d \leq 10$	$d < 14.5$
B	$10 < d \leq 20$	$10 < d \leq 20$	$14.5 < d < 28.5$
C	$20 < d \leq 35$	$20 < d \leq 35$	$28.5 < d < 42.5$
D	$35 < d \leq 55$	$35 < d \leq 50$	$42.5 < d < 56.5$
E	$55 < d \leq 80$	$50 < d \leq 70$	$56.5 < d < 70.5$
F	$80 < d$	$70 < d$	$70.5 < d$

For this assessment where an intersection has been analysed and the outcome from that analysis indicates a level of service of LOS C or better is achieved based on the *average delay per vehicle*, then that intersection has been deemed to perform in a satisfactory or better manner. Delays producing a LOS D or LOS E have been deemed to be excessive and are considered to increase the potential for both unsafe operation and capacity constraints of the intersection.

## 2.6 Intersection Assessment

### 2.6.1 Warialda Road / Auburn Vale Road / Hindmarsh Street

The existing intersection configuration is shown in **Figure 2.6.1.1** and the layout as modelled in SIDRA is shown in **Figure 2.6.1.2**. Due to the complexity of the intersection with the intersection of Auburn Vale Road and Hindmarsh Street located within proximity to Warialda Road, the intersection has been modelled as a network configuration. A summary of the key performance indicators is provided in **Table 2.6.1**.



Figure 2.6.1.1 Existing Warialda Road / Auburn Vale Road / Hindmarsh Street Intersection Layout



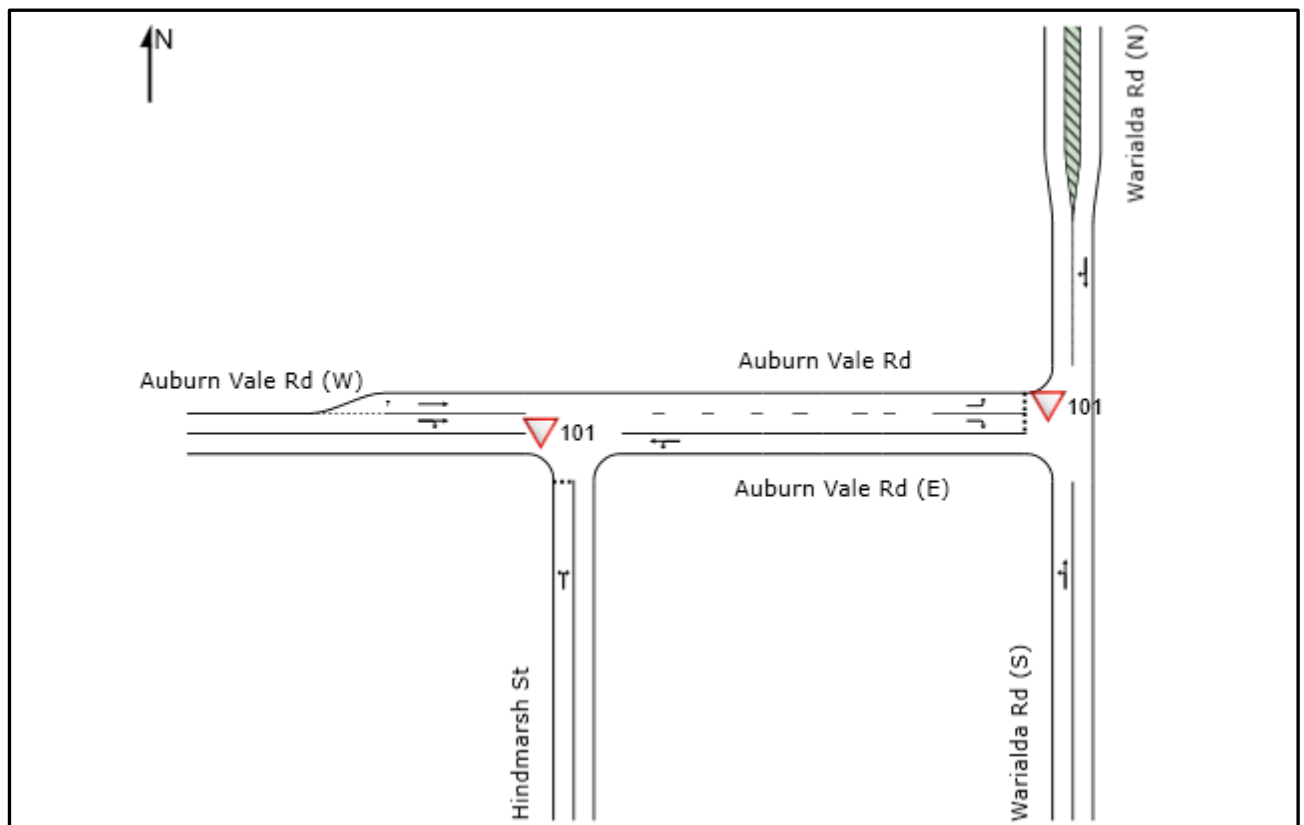


Figure 2.6.1.2 Existing Warialda Road / Auburn Vale Road / Hindmarsh Street Intersection SIDRA Layout

Table 2.6.1 2022 SIDRA Results – Existing Warialda Rd / Auburn Vale Rd / Hindmarsh St Intersection

Approach	Degree of Saturation	Average Delay (s)	Level of Service	95% Back of Queue (m)
<b>Warialda Road / Auburn Vale Road Intersection</b>				
<b>2022 AM</b>				
Warialda Road (S)	0.188	0.8	A	0.0
Warialda Road (N)	0.315	0.2	A	1.1
Auburn Vale Road (W)	0.282	8.2	A	7.2
<b>2022 PM</b>				
Warialda Road (S)	0.304	1.1	A	0.0
Warialda Road (N)	0.262	0.7	A	2.5
Auburn Vale Road (W)	0.175	8.4	A	4.0
<b>Auburn Vale Road / Hindmarsh Street Intersection</b>				
<b>2022 AM</b>				
Hindmarsh Street (S)	0.009	5.6	A	0.2
Auburn Vale Road (E)	0.037	0.1	A	0.0
Auburn Vale Road (W)	0.070	0.0	A	0.0
<b>2022 PM</b>				
Hindmarsh Street (S)	0.009	5.5	A	0.2
Auburn Vale Road (E)	0.076	0.1	A	0.0
Auburn Vale Road (W)	0.038	0.1	A	0.1

The results of the SIDRA analysis demonstrate the Warialda Road / Auburn Vale Road / Hindmarsh Street priority-controlled intersection operates within acceptable key performance indicators for a priority-controlled intersection.

SIDRA outputs for the assessment are provided in **Appendix C**.

## 2.6.2 Auburn Vale Road / Wesley Street

The existing intersection configuration is shown in **Figure 2.6.2.1** and the layout as modelled in SIDRA is shown in **Figure 2.6.2.2**. A summary of the key performance indicators is provided in **Table 2.6.2**.



Figure 2.6.2.1 Existing Auburn Vale Road / Wesley Street Intersection Layout

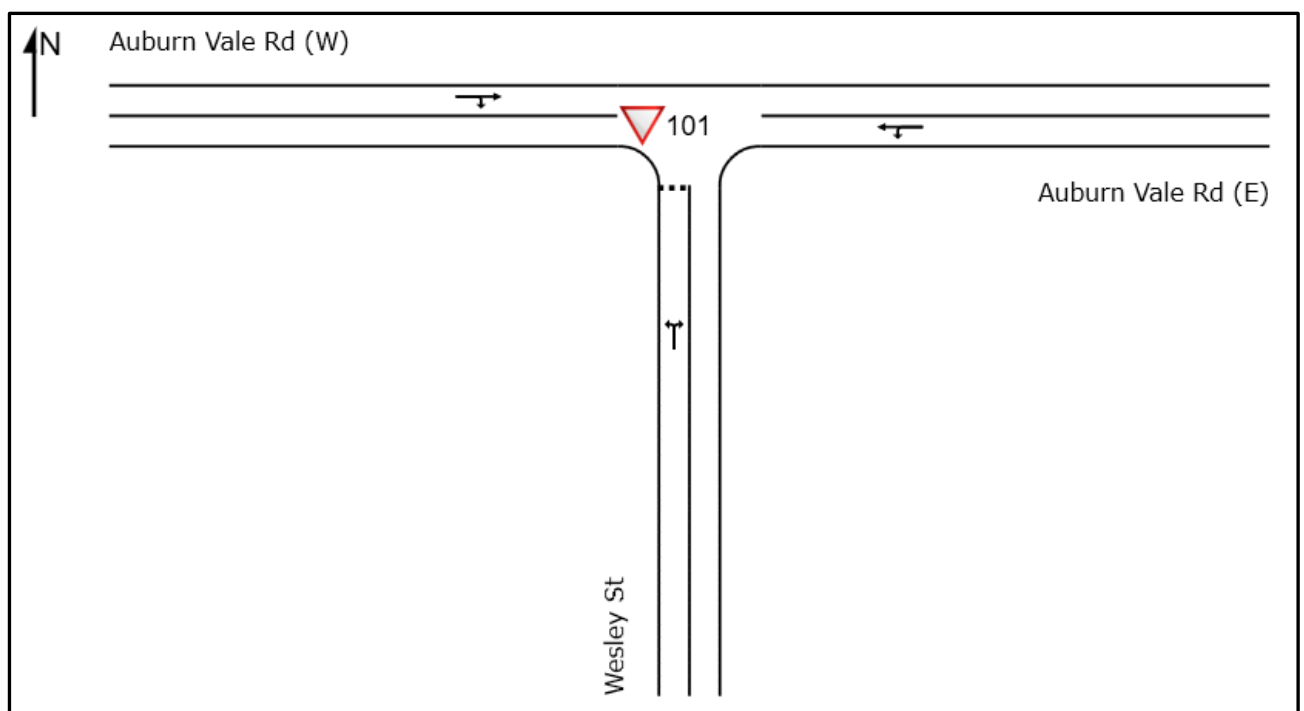


Figure 2.6.2.2 Existing Auburn Vale Road / Wesley Street Intersection SIDRA Layout

**Table 2.6.2 2022 SIDRA Results – Existing Auburn Vale Road / Wesley Street Intersection**

Approach	Degree of Saturation	Average Delay (s)	Level of Service	95% Back of Queue (m)
<b>2022 AM</b>				
Wesley Street	0.016	5.1	A	0.4
Auburn Vale Road (E)	0.031	0.4	A	0.0
Auburn Vale Road (W)	0.057	0.0	A	0.0
<b>2022 PM</b>				
Wesley Street	0.008	5.2	A	0.2
Auburn Vale Road (E)	0.076	0.5	A	0.0
Auburn Vale Road (W)	0.031	0.1	A	0.0

The results of the SIDRA analysis demonstrate the Auburn Vale Road / Wesley Street priority-controlled intersection operates within acceptable key performance indicators for a priority-controlled intersection.

SIDRA outputs for the assessment are provided in **Appendix C**.

## 3.0 TRAFFIC IMPACT ASSESSMENT

### 3.1 Traffic Generation

A review of Council's *Inverell Development Control Plan (IDCP) 2013* has not identified traffic generation rates for the proposed land uses. In lieu of Council specific traffic generation rates, traffic generation rates for the proposed development have been based on the rates for low density residential dwellings provided in the *RMS Guide to Traffic Generating Developments – Technical Direction (TDT 2013/04)*.

A summary of the expected development traffic generation is shown in **Table 3.1.1**.

**Table 3.1.1 Development Traffic Generation Rates**

Description	No. Dwellings	Peak Period	Traffic Generation Rate	Traffic Generation Volume
Manufactured Housing	76	AM Peak	0.71 trips per dwelling	54
		PM Peak	0.78 trips per dwelling	60
		Daily	7.4 trips per dwelling	563

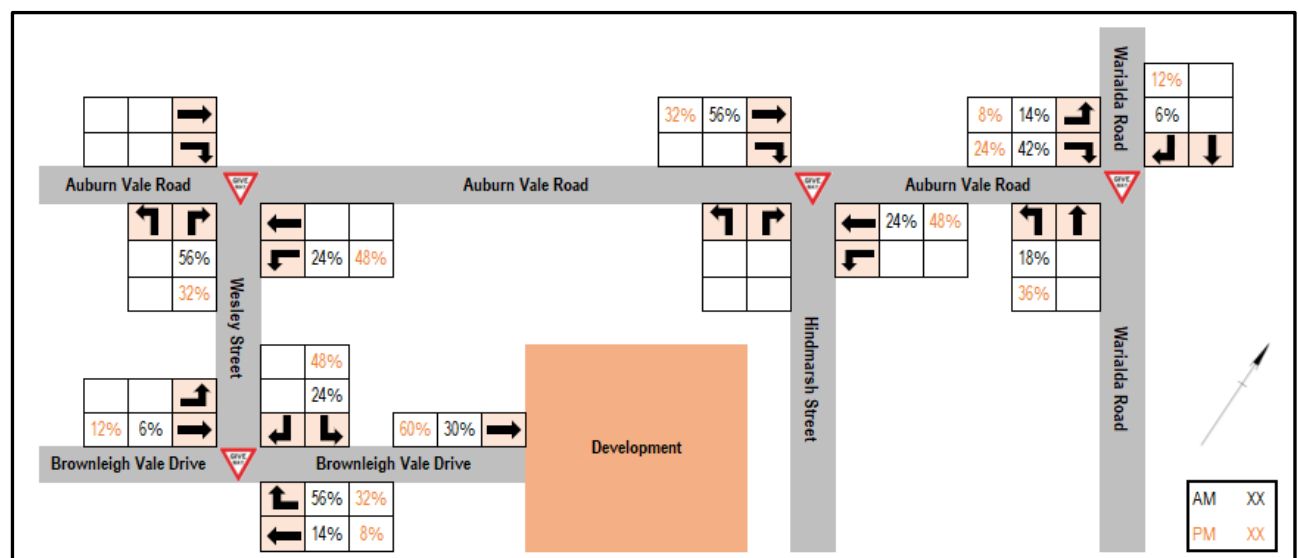
Typical IN / OUT residential trip distributions have been adopted for the AM and PM peak hours with the development IN / OUT traffic distribution provided in **Table 3.1.2**.

**Table 3.1.2 Development Traffic Generation Summary**

Description	Traffic Generation (trips)	Peak Period	IN%	IN Trips	OUT %	OUT TRIPS
Manufactured Housing	54	AM Peak	30%	16	70%	38
	60	PM Peak	60%	36	40%	24

### 3.2 Traffic Distribution

The development traffic distribution to / from the site on the surrounding road network, particularly at the key intersections identified in **Section 2.1.5** has been calculated based on the development's location to key activity generators (town centres, schools, shopping centres etc.) and existing directional splits from observed background traffic volumes for the key intersections provided in **Section 2.4**. The anticipated development traffic distribution percentages are shown in **Figure 3.2.1**, with the resultant traffic volumes shown in **Figure 3.2.2**.



**Figure 3.2.1 Development Distributions (%)**



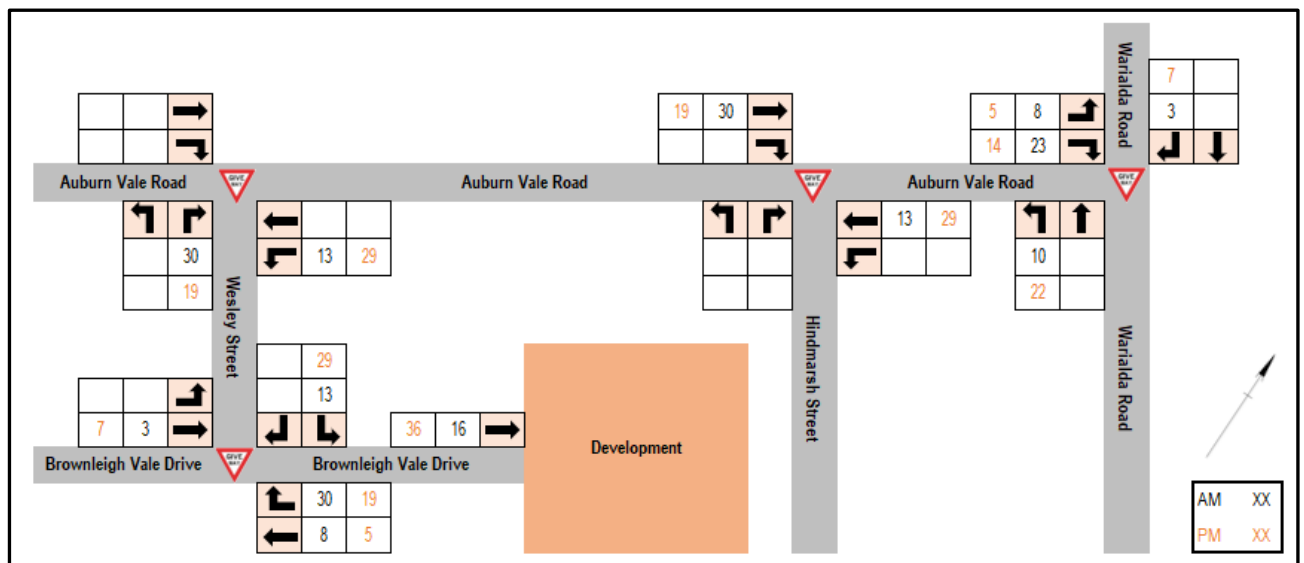


Figure 3.2.2 Development Distributions (vehicles)

### 3.3 Assessment of Traffic Impacts

#### 3.3.1 Assumptions

The following assumptions have been relied upon for the purposes of undertaking this traffic assessment:

- a conservation growth rate of 2.5% in the absence of historic traffic count data
- the year of opening for the proposed development will be 2024, and
- the 10-year design horizon will be 2034.

Based on these assumptions, the following scenarios have been analysed for the potentially affected intersection:

- 2024 – Base Case (Existing with no development)
- 2024 – Development Case (Existing with development)
- 2034 – Base Case (Existing with no development)
- 2034 – Development Case (Existing with development)

### 3.4 Base Case Traffic Volumes

Base case traffic volumes have been determined for the year of opening (2024) and the 10-year design horizon (2034) by applying the 2.5% compounding annual growth rate (CAGR) determined in **Section 2.4**, to the 2022 background traffic volumes, the results of which are presented in **Figure 3.4.1** for the year of opening (2024) and **Figure 3.4.2** for the 10-year design horizon (2034).

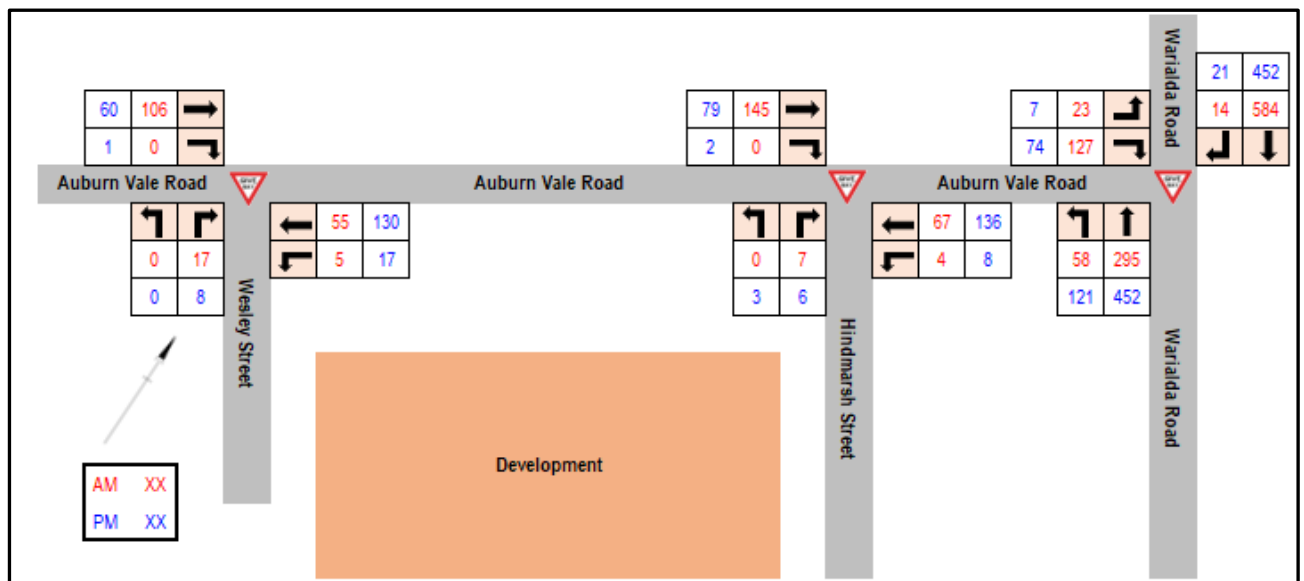


Figure 3.4.1 2024 – Base Case Traffic Volumes (Existing with no development)

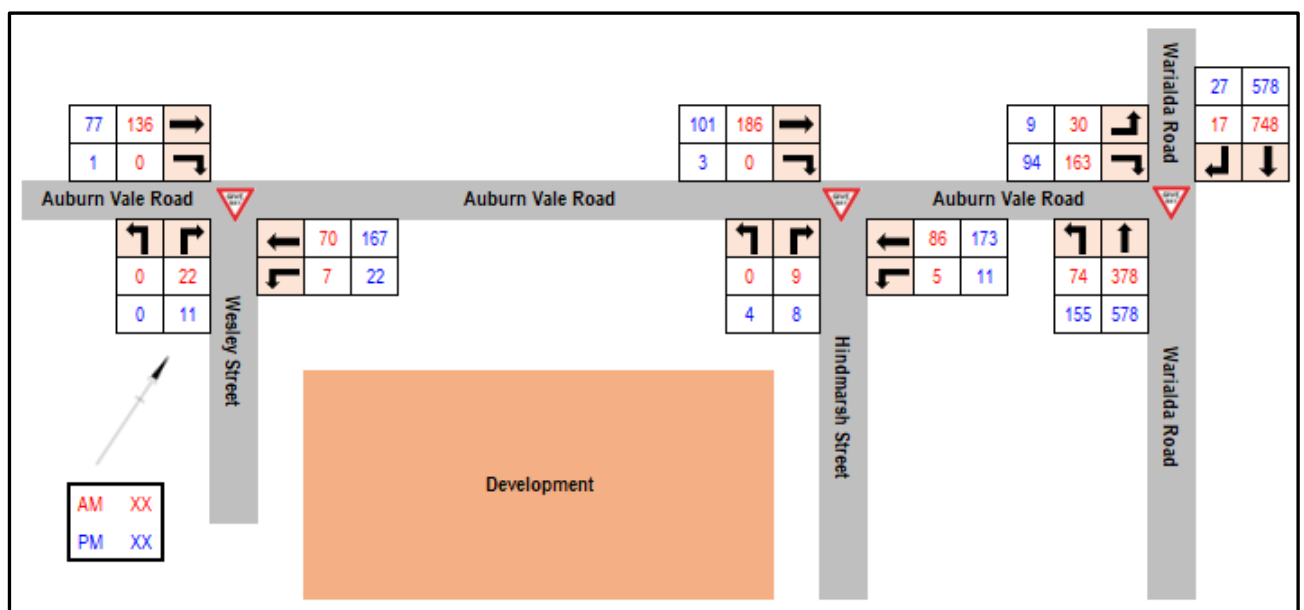


Figure 3.4.2 2034 – Base Case Traffic Volumes (Existing with no development)

### 3.5 Design Traffic Volumes

Development case traffic volumes have been calculated by adding development generated traffic to the existing (or background traffic) for the year of opening (2024) (Figure 3.5.1) and the 10-year design horizon (2034) (Figure 3.5.2).

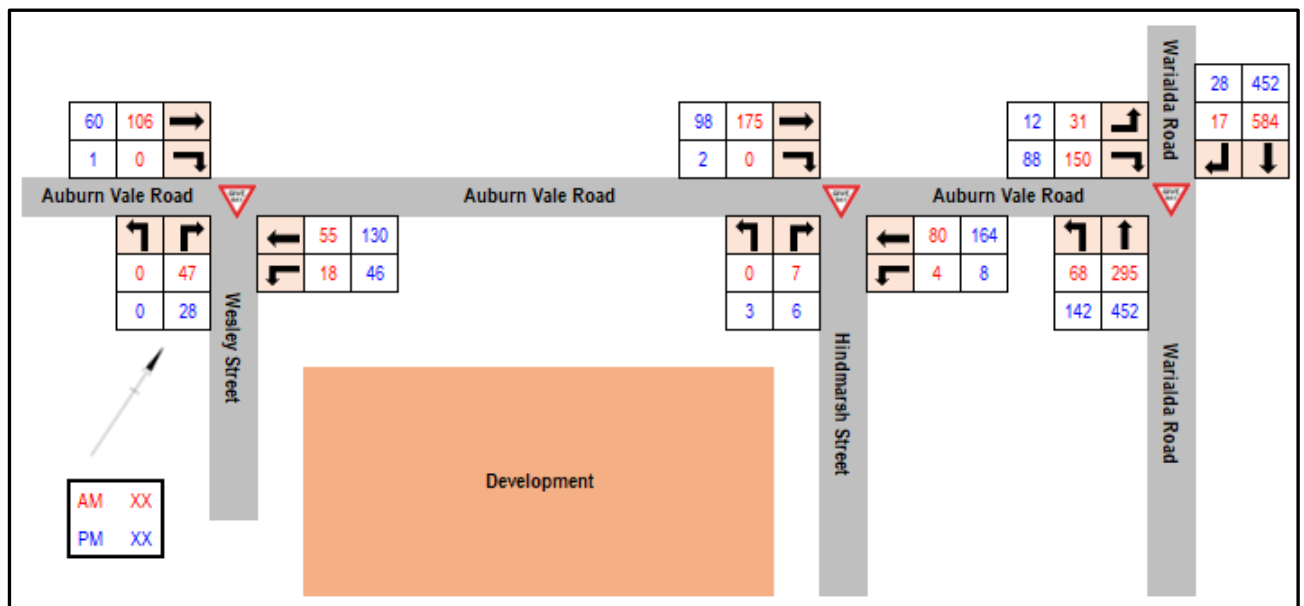


Figure 3.5.1 2024 – Development Case Traffic Volumes (Existing with development)

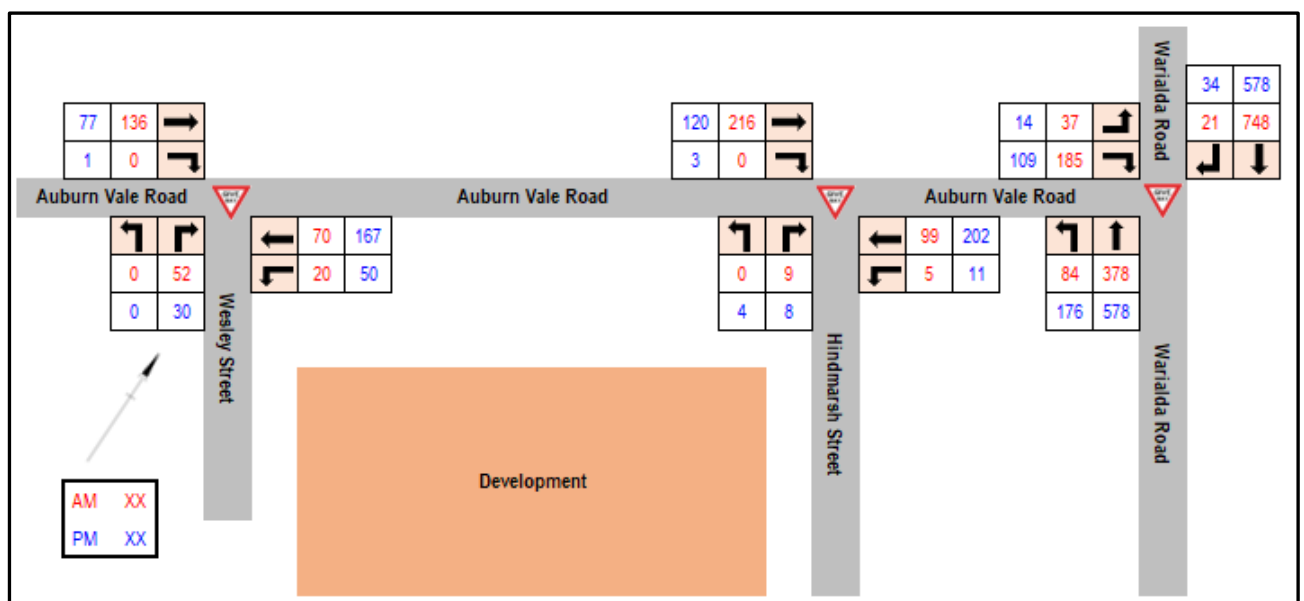


Figure 3.5.2 2034 – Development Case Traffic Volumes (Existing with development)

## 4.0 INTERSECTION ANALYSIS

Intersection analysis using SIDRA 9.0 intersection analysis software was undertaken for the key intersections identified in **Section 2.1.5** for the year of opening (2024) and 10-year design horizon (2034) background for each of the scenarios outlined in **Section 3.3.1**.

### 4.1 Warialda Road / Auburn Vale Road / Hindmarsh Street

#### 4.1.1 Year of Opening (2024)

A summary of the key performance indicators as determined by the SIDRA analysis for the Year of Opening (2024) Base Case and Development Case scenarios is presented in **Table 4.1.1** with SIDRA outputs being provided in **Appendix C**.

**Table 4.1.1** SIDRA Results – Year of Opening (2024) – Base Case vs. Development Case

Approach	Degree of Saturation (DOS)		Average Delay (s)		Level of Service (LOS)		95% Back of Queue (m)	
Warialda Road / Auburn Vale Road Intersection								
2024 AM	Base	Development	Base	Development	Base	Development	Base	Development
Warialda Road (S)	0.197	0.203	0.8	0.9	A	A	0.0	0.0
Warialda Road (N)	0.331	0.334	0.2	0.3	A	A	1.2	1.5
Auburn Vale Road (W)	0.318	0.379	9.1	9.6	A	A	8.3	10.4
2024 PM	Base	Development	Base	Development	Base	Development	Base	Development
Warialda Road (S)	0.319	0.332	1.1	1.2	A	A	0.0	0.0
Warialda Road (N)	0.276	0.285	0.8	1.0	A	A	2.9	4.0
Auburn Vale Road (W)	0.198	0.242	9.3	9.7	A	A	4.6	5.8
Auburn Vale Road / Hindmarsh Street Intersection								
2024 AM	Base	Development	Base	Development	Base	Development	Base	Development
Hindmarsh Street (S)	0.010	0.011	5.6	5.9	A	A	0.2	0.2
Auburn Vale Road (E)	0.039	0.046	0.1	0.1	A	A	0.0	0.0
Auburn Vale Road (W)	0.077	0.100	0.0	0.0	A	A	0.1	0.1
2024 PM	Base	Development	Base	Development	Base	Development	Base	Development
Hindmarsh Street (S)	0.010	0.010	5.5	5.8	A	A	0.3	0.3
Auburn Vale Road (E)	0.080	0.098	0.1	0.2	A	A	0.0	0.0
Auburn Vale Road (W)	0.040	0.048	0.1	0.1	A	A	0.1	0.1

The results of the SIDRA analysis demonstrate that the introduction of the development generated traffic at the Warialda Road / Auburn Vale Road / Hindmarsh Street priority-controlled intersection does not result in any significant net impact to the key performance indicators. In summary, the existing priority-controlled intersection will satisfactorily cater for the development traffic in the year of opening (2024) scenario.

#### 4.1.2 10-Year Design Horizon (2034)

A summary of the key performance indicators as determined by the SIDRA analysis for the 10-year design horizon (2034) Base Case and Development Case scenarios is presented in **Table 4.1.2** with SIDRA outputs being provided in **Appendix C**.



**Table 4.1.2 SIDRA Results – 10-Year Design Horizon (2034) – Base Case vs. Development Case**

Approach	Degree of Saturation (DOS)		Average Delay (s)		Level of Service (LOS)		95% Back of Queue (m)	
Warialda Road / Auburn Vale Road Intersection								
2034 AM	Base	Development	Base	Development	Base	Development	Base	Development
Warialda Road (S)	0.253	0.258	0.8	0.9	A	A	0.0	0.0
Warialda Road (N)	0.426	0.429	0.3	0.4	A	A	2.5	3.0
Auburn Vale Road (W)	0.651	0.752	19.9	23.4	B	B	17.4	17.4
2034 PM	Base	Development	Base	Development	Base	Development	Base	Development
Warialda Road (S)	0.408	0.421	1.1	1.2	A	A	0.0	0.0
Warialda Road (N)	0.364	0.377	1.4	1.8	A	A	6.3	8.2
Auburn Vale Road (W)	0.412	0.487	18.0	19.4	B	B	10.3	12.7
Auburn Vale Road / Hindmarsh Street Intersection								
2034 AM	Base	Development	Base	Development	Base	Development	Base	Development
Hindmarsh Street (S)	0.023	0.025	6.0	6.3	A	A	0.3	0.4
Auburn Vale Road (E)	0.050	0.057	0.1	0.1	A	A	0.0	0.0
Auburn Vale Road (W)	0.090	0.104	0.0	0.0	A	A	2.5	8.6
2034 PM	Base	Development	Base	Development	Base	Development	Base	Development
Hindmarsh Street (S)	0.015	0.017	5.8	6.1	A	A	0.3	0.4
Auburn Vale Road (E)	0.102	0.118	0.1	0.1	A	A	0.0	0.0
Auburn Vale Road (W)	0.060	0.077	0.2	0.1	A	A	0.1	0.2

The results of the SIDRA analysis demonstrate that the development's impact on the Warialda Road / Auburn Vale Road / Hindmarsh Street priority-controlled intersection is not significant, and the intersection will continue to operate within acceptable performance limits for priority-controlled intersections in the 10-year design horizon with development generated traffic.

## 4.2 Auburn Vale Road / Wesley Street

Intersection analysis using SIDRA 9.0 intersection analysis software was undertaken for the Auburn Vale Road / Wesley Street priority-controlled intersection for the year of opening (2024) and 10-year design horizon (2034) background for each of the scenarios outlined in **Section 3.3.1**.

### 4.2.1 Year of Opening (2024)

A summary of the key performance indicators as determined by the SIDRA analysis for the Year of Opening (2024) Base Case and Development Case scenarios is presented in **Table 4.2.1** with SIDRA outputs being provided in **Appendix C**.

**Table 4.2.1 SIDRA Results – Year of Opening (2024) – Base Case vs. Development Case**

Approach	Degree of Saturation (DOS)		Average Delay (s)		Level of Service (LOS)		95% Back of Queue (m)	
	Base	Development	Base	Development	Base	Development	Base	Development
<b>2024 AM</b>								
Wesley Street	0.017	0.046	5.1	5.2	A	A	0.4	1.0
Auburn Vale Road (E)	0.033	0.040	0.4	1.1	A	A	0.0	0.0
Auburn Vale Road (W)	0.060	0.060	0.0	0.0	A	A	0.1	0.1
<b>2024 PM</b>								
Wesley Street	0.009	0.028	5.2	5.3	A	A	0.2	0.6
Auburn Vale Road (E)	0.080	0.096	0.5	1.2	A	A	0.0	0.0
Auburn Vale Road (W)	0.033	0.033	0.1	0.1	A	A	0.1	0.1

The results of the SIDRA analysis demonstrate that the introduction of the development generated traffic at the Auburn Vale Road / Wesley Street priority-controlled intersection does not result in any significant net impact to the key performance indicators. In summary, the existing priority-controlled intersection will satisfactorily cater for the development traffic in the year of opening (2024) scenario.

## 4.2.2 10-Year Design Horizon (2034)

A summary of the key performance indicators as determined by the SIDRA analysis for the 10-year design horizon (2034) Base Case and Development Case scenarios is presented in **Table 4.2.2** with SIDRA outputs being provided in **Appendix C**.

**Table 4.2.2 SIDRA Results – 10-Year Design Horizon (2034) – Base Case vs. Development Case**

Approach	Degree of Saturation (DOS)		Average Delay (s)		Level of Service (LOS)		95% Back of Queue (m)	
	Base	Development	Base	Development	Base	Development	Base	Development
<b>2034 AM</b>								
Wesley Street	0.022	0.053	5.3	5.4	A	A	0.5	1.2
Auburn Vale Road (E)	0.042	0.049	0.4	1.0	A	A	0.0	0.0
Auburn Vale Road (W)	0.077	0.077	0.1	0.1	A	A	0.1	0.1
<b>2034 PM</b>								
Wesley Street	0.012	0.032	5.4	5.6	A	A	0.3	0.7
Auburn Vale Road (E)	0.102	0.119	0.5	1.1	A	A	0.0	0.0
Auburn Vale Road (W)	0.042	0.042	0.1	0.1	A	A	0.1	0.1

The results of the SIDRA analysis demonstrate that the development's impact on the Auburn Vale Road / Wesley Street priority-controlled intersection is not significant and the intersection will continue to operate within acceptable performance limits for priority-controlled intersections in the 10-year design horizon with development generated traffic.

## 5.0 PARKING ASSESSMENT

### 5.1 Car Parking Requirements

Car parking requirements for the development have been calculated in accordance with Council advice provided as part of preliminary development advice (**Appendix D**) for the proposed development as shown in **Table 5.1**.

**Table 5.1 Car Parking Requirements**

Land Use	Quantity	Type	Car Parking Rate	Parking Requirement
Manufactured Home Estate	76 Dwellings	Resident	1 car parking space per dwelling	76
		Visitor	16 spaces for a manufactured home estate containing more than 70 sites but not more than 105 sites	16
Total Spaces				92

In accordance with the NSW *Local Government (manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005* the development is required to provide at least one car park for People with a Disability (PWD).

### 5.2 Car Parking Provision

The development provides a total of 131 car parking spaces, including 76 residential spaces and 55 visitor spaces inclusive of two PWD car parking spaces and therefore complies with Council's preliminary development advice. The resident spaces are provided within the carports of the manufactured housing.

### 5.3 Parking and Internal Road Layout

#### 5.3.1 Parking Layout

Car parking design for the proposed development has been undertaken in accordance with Australian Standard *AS2890.1 – Parking Facilities*. **Table 5.3.1** shows design parameters for each user class in accordance with *AS2890.1*.

**Table 5.3.1 Car Parking Design Requirements**

User Class	Minimum Parking Bay Width (m)	Minimum Parking Bay Length (m)	Minimum Aisle Width (m)	Use
1A	2.4	5.4	5.8	Residents
2	2.5	5.4	5.8	Visitors
4	2.4*	5.4*	5.8	People with Disabilities

\* In addition to these parameters, a shared area is also provided adjacent to the parking space.

Other specific design parameters relating to the parking design have been developed generally in accordance with Australian Standard *AS2890.1 – Parking Facilities* as follows:

- a 1.0m extension is provided beyond the last car parking space in accordance with *AS2890.1 – Clause 2.4.2 (c)*
- where vertical obstructions are positioned adjacent the side boundary of a parking space, a 300mm clearance has been provided between the edge of the parking space and the vertical obstruction in accordance with *AS2890.1 – Clause 2.4.1 (b) (ii)*
- where the parking aisle is bounded by a vertical obstruction, the aisle width has been increased by 300mm in accordance with (*AS2890.1 – Clause 2.4.2 (d)*)
- in accordance with *AS2890.1 – Clause 5.4 (a)* the internal width of the resident garages is 3.0m, and
- the development provides turnaround bays to facilitate a turnaround manoeuvre at the end of blind aisles in accordance with *AS2890.1*.

### 5.3.2 Internal Road Layout

The internal road layout design has been undertaken generally in accordance with the requirements specified in the Australian Standards with specific design parameters as follows:

- circulation roadways have been designed generally in accordance with the requirements of *AS2890.1*
- 2.0m wide x 2.5m long pedestrian sight triangles are provided on all driveways at required locations in accordance with *AS2890.1 – Figure 3.3* and *AS2890.2 – Figure 3.4* to ensure that sight lines to pedestrians on the site frontage are maintained, and
- the Applicant is prepared to work with Council to establish a walking track / footpath between the southern boundary of the subject site to the existing footpath network at Lions Park to improve connectivity to / from the development.



## 6.0 ACCESS ASSESSMENT AND SERVICING

### 6.1 Access Arrangement

The development proposes access from Brownleigh Vale Drive, via an 18.0m diameter cul-de-sac that will connect to the end of Brownleigh Vale Drive. The proposed cul-de-sac will form part of Council's road reserve. Connecting to the cul-de-sac, will be two vehicle crossings designed in accordance with IPWEA *Standard Drawing RS-051 – Vehicle Crossings, Heavy Duty* for a 'General Wide' type vehicle crossing.

One vehicle crossing will provide access to the community centre building and comprise a width of 6.0m. The other vehicle crossing will serve as the main access into the site, connecting to the internal road network and will comprise a width of 8.5m.

### 6.2 Servicing

A review of Council's *Inverell Development Control Plan (IDCP) 2013* has not identified a service vehicle requirement for Manufactured Housing land uses. In lieu of Council specific service vehicle requirements, and considering the nature of the proposed development, servicing requirements for the site is considered to be similar to that of a residential estate, which typically allows for a Medium Rigid Vehicle (MRV) (i.e. removalist truck) to circulate the internal roadway. The MRV would stand on the roadway in front of the associated residential dwelling while servicing is being undertaken. Similar to a low-density residential estate, servicing will generally be limited to removalist activities and deliveries (i.e. groceries, etc.), which will be undertaken via the internal roadway.

A swept path assessment has been undertaken to demonstrate that an MRV can satisfactorily enter the site in a forward gear, circulate the internal roadway and exit the development in a forward gear (**Appendix E**).

For the community centre building, servicing will be limited to a standard van. As a standard van is equivalent in size to a B99 design vehicle as prescribed in *AS2890.1*, the proposed on-site community centre car park is considered sufficient to cater for a standard van on-site.

### 6.3 Refuse Collection

Refuse storage is proposed to be in wheelie bins with collection proposed to be undertaken using a 9.8m side-lift refuse collection vehicle (RCV). Similar to a low-density residential estate, each dwelling will have its own wheelie bins for the storage of waste. Refuse collection will be undertaken in a manner similar to typical residential dwellings. On collection day, residents will relocate their wheelie bin to the side of the internal roadway (**Appendix A**). Once the wheelie bins are serviced, residents will relocate their wheelie bin back into their property.

The swept path assessment provided in **Appendix E** demonstrates that a 9.8m RCV can satisfactorily enter the site in a forward gear, circulate the internal roadway and exit the development in a forward gear.

### 6.4 Manufactured Housing Transportation

The manufactured homes will be transported to site after a purchase has been affected. Sales of the homes are anticipated to occur over a period of 18-24 months depending on demand and real-estate market conditions. Transportation of the manufactured homes is expected to occur 3-4 times per month on average, with a maximum of six homes per month. It is planned that the homes will be transported to site from the north, entering Inverell Shire via the Gwydir Highway, travelling on Tingha Road and across the Macintyre River then onto Medora Street, Macintyre Street, Old Bundarra Road, Wynne Street, Harland Street and Brownleigh Vale Drive to the site.

The proposed route is shown in **Figure 6.4** with swept path sketches for key intersections along the proposed route being provided in **Appendix F**.

Specific operational details and restrictions for the transportation of the proposed manufactured homes comprises the following:

- a detailed investigation of the proposed transportation route will be undertaken prior to the first delivery and all necessary permits and approvals would be obtained from the relevant road authorities, including Council
- the maximum dimensions for the manufactured housing transportation vehicle and load are 24.9m long and 4.49m wide
- the maximum height for the manufactured housing transportation vehicle and load is 4.9m
- loads wider than 3.5m will be escorted by a pilot vehicle
- travel times will be limited to daylight hours, or any specific date and times stipulated by the relevant road authority, and
- transportation of the manufactured homes will not be via a convoy arrangement. If more than one home is delivered on the same day, the tailing vehicle will have at least a one hour separation to the front vehicle to minimise traffic delays.

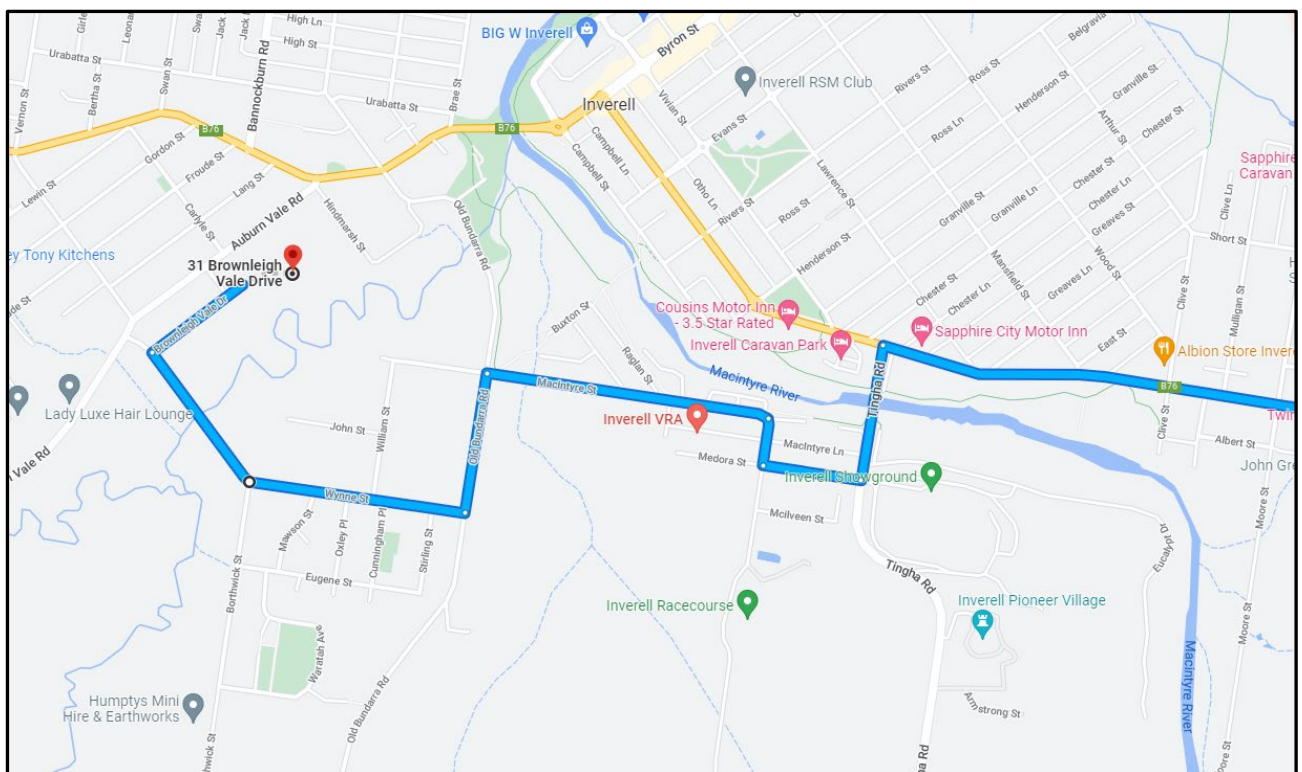


Figure 6.4 Manufactured Housing Transportation Route

On the basis of the above traffic management mitigation measures and the proposed route avoiding the Inverell town centre, amenity impacts on the general public are limited. In addition, the proposed route has sufficient geometric capacity to accommodate the ad-hoc delivery of the manufactured homes via the above specified vehicle.

## 7.0 CONCLUSIONS

### 7.1 Summary

This report presents the findings related to assessment of traffic and transport related matters for a proposed development located at 31 Brownleigh Vale Drive, Inverell.

### 7.2 Findings

The following conclusions can be drawn from the findings of this assessment:

- the development is located near Harland Street which forms part of the Inverell Bus Service route 471, and is understood to be a 'hail-and-ride' service
- it is anticipated that 54 and 60 vehicles in the AM and PM peak hours respectively, will turn into / out of Brownleigh Vale Drive from Harland Street and Auburn Vale Road via Wesley Street to access the development site
- SIDRA analysis demonstrates that the Warialda Road / Auburn Vale Road / Hindmarsh Street priority-controlled intersection operates within acceptable key performance indicators in the year of opening (2024) and 10-year design horizon (2034) scenario and does not result in any significant net impact on performance of the intersection
- SIDRA analysis demonstrates that the Auburn Vale Road / Wesley Street priority-controlled intersection operates within acceptable key performance indicators in the year of opening (2024) and 10-year design horizon (2034) scenario and does not result in any significant net impact on performance of the intersection
- based on Council advice provided as part of preliminary development advice, the total car parking requirement for the development is 92 spaces. The development provides a total of 131 car parking spaces, including 76 residential spaces and 55 visitor spaces inclusive of two PWD car parking spaces and therefore complies with Council requirements
- the layout, geometry and dimension for car parking and the internal road have been designed generally in accordance with relevant State, Council and *AS2890:2004* design requirements
- the development proposes access from Brownleigh Vale Drive, via an 18.0m diameter cul-de-sac that will connect to the end of Brownleigh Vale Drive and form part of Council's road reserve. Connecting to the cul-de-sac, within the development site will be two vehicle crossings designed in accordance with IPWEA *Standard Drawing RS-051 – Vehicle Crossings, Heavy Duty* for a 'General Wide' type vehicle crossing
- servicing for the site will be similar to that of a residential estate which typically caters for a MRV (i.e. removalist truck) to circulate the internal roadway
- the proposed refuse strategy for the site will be via roadside collection via the internal roadway. On collection day, residents will relocate their wheelie bin to the internal roadway. Once the wheelie bins are serviced, residents will relocate their wheelie bin back into their property, and
- the proposed manufactured housing transportation route has sufficient geometric capacity to accommodate the ad-hoc delivery of the manufactured homes and avoids the Inverell town centre.

Based on the presented findings, it can be concluded that the proposed development will not introduce adverse traffic or transport impacts beyond the community's reasonable expectations of that which would occur from such a development.

## 8.0 REFERENCES

- 1) Inverell Shire Council, *Inverell Development Control Plan (IDCP) (July 2013)*, Inverell.
- 2) New South Wales Government, *Local Government (manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation (2005)*, Sydney.
- 3) Austroads, *Guide to Traffic Management Part 3: Traffic Studies and Analysis*, 2017, Sydney.
- 4) Akcelik & Associates, *SIDRA Intersection User Guide for Version 8*, 8<sup>th</sup> Edition, 2018, Melbourne.
- 5) Austroads, *Guide to Traffic Management Part 12: Traffic Impacts of Developments*, 2016, Sydney.
- 6) New South Wales Government (Roads and Maritime Services), *Guide to Traffic Generating Developments - Technical Direction (TDT2013/04)*, 2014, Sydney.
- 7) New South Wales Government (Roads and Traffic Authority), *Guide to Traffic Generating Developments – Issue 2.2*, 2002, Sydney.
- 8) Australian Building Codes Board, *National Construction Code (NCC) Volume 1*, May 2019.
- 9) Standards Australia/Standards New Zealand 2004, *AS2890.1: Off-street Car Parking Facilities*.
- 10) Standards Australia/Standards New Zealand 2002, *AS2890.2: Off-street Commercial Vehicle Facilities*.
- 11) Standards Australia/Standards New Zealand 2016, *AS2890.6: Bicycle Parking*.
- 12) Standards Australia/Standards New Zealand 2009, *AS2890.6: Off-street Car Parking for People with Disabilities*.

## **APPENDIX A**

### **Plans of Development**



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***TOTAL - 76 Lots***

**TYPE A - 62 - 250sqm**  
**20m x 12.5m**

**TYPE B - 14 - 220sqm**  
**20m x 11m**

**1 - ENTRY**

## 2 - COMMUNITY AREA

### 3 - ADMIN / LOUNGE

## 4 - SERVICE

Coastal Alliance P/L

Proposed 2 Lot Subdivision  
&  
Sapphire City Lifestyle  
Village  
Lot 1 DP 1152567  
31 Brownleigh Vale Drive  
Inverell NSW

## Site Plan

Project number	Project Number
Date	May 2022
Drawn by	DM
Checked by	Checker

A1 - CA - 4

Scale 1 : 500



Miskell Concepts & Design

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AREAS

MAIN BUILDING  
354sqm

BBQ PAVILION  
24sqm

AMENITIES  
24sqm

Coastal Alliance P/L

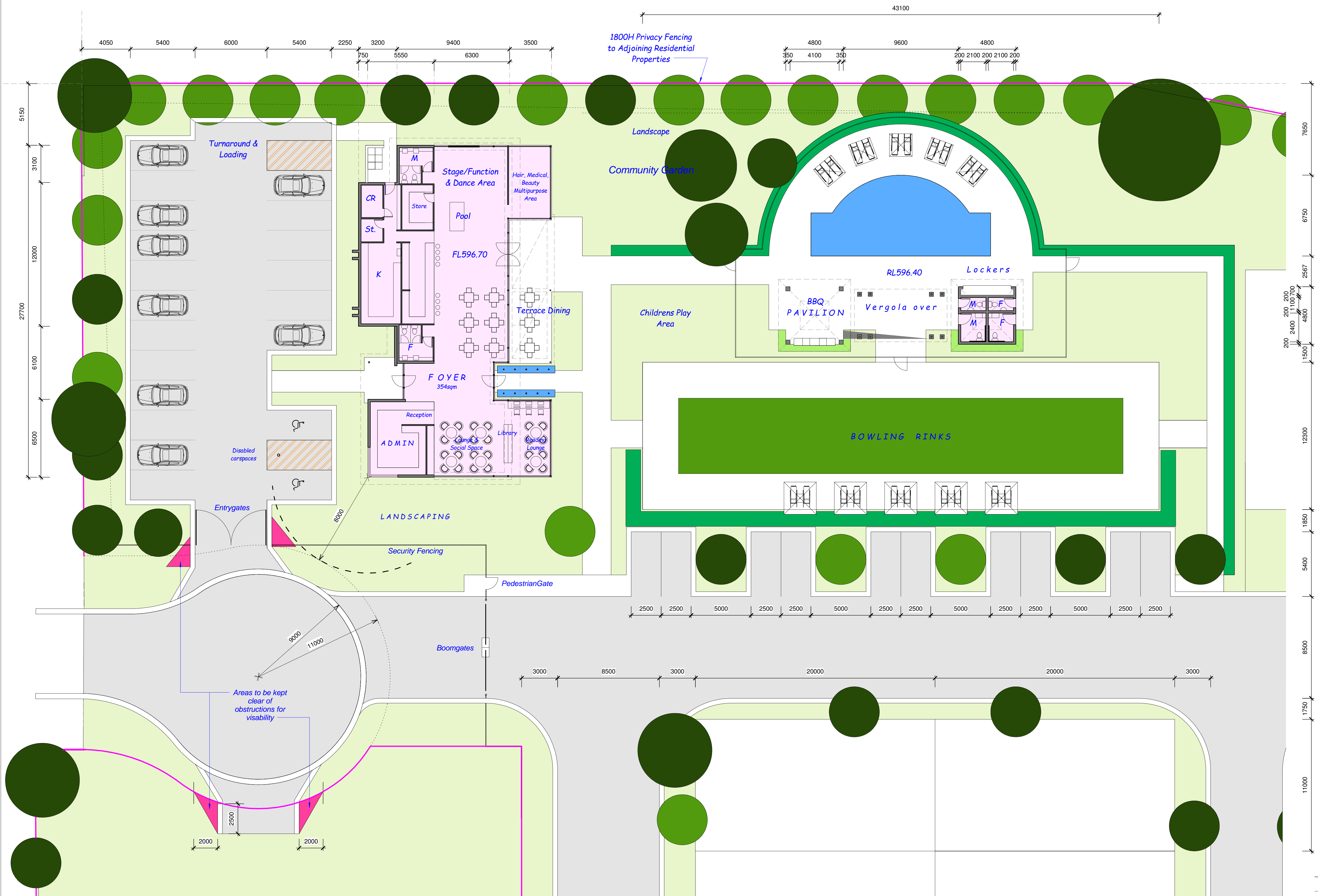
Proposed 2 Lot Subdivision  
&  
Sapphire City Lifestyle  
Village  
Lot 1 DP 1152567  
31 Brownleigh Vale Drive  
Inverell NSW

Community Precinct

Project number	Project Number
Date	May 2022
Drawn by	DM
Checked by	Checker

A1 - CA - 5

Scale 1 : 150



## **APPENDIX B**

### **Intersection Count Data**









Site ID: 3
Location: Auburn Vale Rd & Wesley St, Inverell
Date: 18-Oct-2022
Surveyed Time: 6:00 AM to 6:00 PM
Weather: Fine
AM Peak Hour: 8:15 AM to 9:15 AM
PM Peak Hour: 4:45 PM to 5:45 PM

TOTALS AND PEAKS																																					
12 Hour Totals	89	3	1	785	14	1	2	0	0	5	3	2	0	86	0	1	0	0	0	2	758	23	3	5	0	0	0	0	0	0	0	0	0	1776	895	92	789
AM Total	26	2	0	278	7	1	2	0	0	4	0	2	0	42	0	0	0	0	1	377	13	0	1	0	0	0	0	0	0	0	0	0	0	751	316	44	391
PM Total	63	1	1	507	7	0	0	0	0	1	3	0	0	44	0	1	0	0	1	381	10	3	4	0	0	0	0	0	0	0	0	0	1025	579	48	398	
AM Peak 1 hr	5	0	0	51	1	0	0	0	0	3	0	0	0	16	0	0	0	0	0	96	5	0	0	0	0	0	0	0	0	0	0	174	57	16	101		
PM Peak 1 hr	15	0	1	124	0	0	0	0	0	1	0	0	0	7	0	1	0	0	0	54	0	3	1	0	0	0	0	0	0	0	0	206	140	8	58		
Time Starting	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Auburn Vale Rd WB	Wesley St NB	Wesley St NB	Wesley St NB	Wesley St NB	Wesley St NB	Wesley St NB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	Auburn Vale Rd EB	GRAND TOTAL	Auburn Vale Rd WB	Wesley St NB	Auburn Vale Rd EB		
	Left	Heavy Vehicles (B-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (B-12)	Bicycles on Road	Light Vehicles (1-2)	Heavy Vehicles (B-12)	Bicycles on Road	Cross 1	Left	Heavy Vehicles (B-12)	Bicycles on Road	Left	Heavy Vehicles (B-12)	Bicycles on Road	Right	Heavy Vehicles (B-12)	Bicycles on Road	U-turn	Heavy Vehicles (B-12)	Bicycles on Road	Right	Heavy Vehicles (B-12)	Bicycles on Road	Right	Heavy Vehicles (B-12)	Bicycles on Road	U-turn	Heavy Vehicles (B-12)	Bicycles on Road	Cross 1	TOTAL	TOTAL	TOTAL		
06:00	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	2	4	1	
06:15	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	5	2	6	
06:30	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	5	2	9	
06:45	1	0	0	7	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	18	2	0	0	0	0	0	0	0	0	31	9	2	20	
07:00	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	8	2	2	4	
07:15	0	1	0	7	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	23	9	1	13	
07:30	0	0	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	1	0	0	0	0	0	0	0	0	0	26	10	0	16	
07:45	1	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	26	9	1	16	
08:00	1	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	34	0	0	1	0	0	0	0	0	0	0	34	10	5	19	
08:15	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	49	9	6	34	
08:30	4	0	0	9	0	0	0	0	0	2	0	0	0	0	0	0	6	0	0	0	0	21	2	0	0	0	0	0	0	0	0	0	42	13	6	23	
08:45	0	0	0	16	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	23	3	0	0	0	0	0	0	0	0	0	45	17	2	26	
09:00	1	0	0	17	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	38	18	2	18	
09:15	1	0	0	15	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	38	16	2	20	
09:30	4	0	0	18	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	21	1	0	0	0	0	0	0	0	0	0	46	23	1	22	
09:45	1	0	0	8	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	19	1	0	0	0	0	0	0	0	0	0	32	11	1	20	
10:00	1	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	18	2	0	0	0	0	0	0	0	0	0	34	12	2	20	
10:15	1	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	23	8	0	15	
10:30	3	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	37	20	1	16	
10:45	1	0	0	24	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	48	27	4	17	
11:00	2	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	20	0	0	0	0	0	0	0	0	0	0	48	27	1	20		
11:15	1	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	30	19	0	11	
11:30	1	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	28	17	0	11	
11:45	2	0	0	15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	29	18	0	11	
12:00	3	0	0	28	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	52	32	0	20	
12:15	2	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	13	2	0	0	0	0	0	0	0	0	0	39	22	2	15	
12:30	4	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	46	20	5	21	
12:45	1	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	37	13	1	23	
13:00	1	0	0	24	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	46	26	2	18	
13:15	1	0	0	16	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	12	1	0	1	0	0	0	0	0	0	0	34	18	2	14	
13:30	1	0	0	10	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	33	12	2	19	
13:45	2	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	36	16	1	19	
14:00	2	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	19	0	0	1	0	0	0	0	0	0	0	33	12	1	20	
14:15	4	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	13	1	0	0	0	0	0	0	0	0	0	29	13	2	14	
14:30	3	0	0	28	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	8	1	0	0	0	0	0	0	0	0	0	44	32	3	9	
14:45	1	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	35	17	1	17	
15:00	2	0	0	15	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	40	17	3	20	
15:15	6	0	0	15	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	36	22	5	9	
15:30	6	0	0	38	0	0	0	0	0																												

## **APPENDIX C**

### **SIDRA Outputs**

# MOVEMENT SUMMARY

Site: 101 [Warialda\_Auburn Vale\_Existing\_2022\_AM (Site Folder: Existing)]

Network: N101 [Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2022\_AM (Network Folder: Existing)]

2022 Background Traffic Volumes  
Site Category: Base Year  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Warialda Rd (S)														
1	L2	58	1.8	58	1.8	0.188	4.6	LOS A	0.0	0.0	0.00	0.09	0.00	48.9
2	T1	296	4.6	296	4.6	0.188	0.1	LOS A	0.0	0.0	0.00	0.09	0.00	49.4
Approach		354	4.2	354	4.2	0.188	0.8	NA	0.0	0.0	0.00	0.09	0.00	49.4
North: Warialda Rd (N)														
8	T1	585	2.0	585	2.0	0.315	0.1	LOS A	0.2	1.1	0.03	0.01	0.03	49.8
9	R2	14	0.0	14	0.0	0.315	6.4	LOS A	0.2	1.1	0.03	0.01	0.03	49.7
Approach		599	1.9	599	1.9	0.315	0.2	NA	0.2	1.1	0.03	0.01	0.03	49.8
West: Auburn Vale Rd														
10	L2	23	9.1	23	9.1	0.020	3.0	LOS A	0.1	0.6	0.36	0.50	0.36	45.2
12	R2	127	1.7	127	1.7	0.282	9.1	LOS A	1.0	7.2	0.72	0.89	0.84	38.9
Approach		151	2.8	151	2.8	0.282	8.2	LOS A	1.0	7.2	0.66	0.83	0.76	39.8
All Vehicles		1103	2.8	1103	2.8	0.315	1.5	NA	1.0	7.2	0.11	0.15	0.12	48.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Existing\_2022\_AM (Site Folder: Existing)]

Network: N101 [Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2022\_AM (Network Folder: Existing)]

2022 Background Traffic Volumes  
Site Category: Base Year  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Hindmarsh St														
1	L2	1	0.0	1	0.0	0.009	4.7	LOS A	0.0	0.2	0.27	0.54	0.27	44.0
3	R2	7	0.0	7	0.0	0.009	5.7	LOS A	0.0	0.2	0.27	0.54	0.27	38.9
Approach		8	0.0	8	0.0	0.009	5.6	LOS A	0.0	0.2	0.27	0.54	0.27	40.0
East: Auburn Vale Rd (E)														
4	L2	4	0.0	4	0.0	0.037	2.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.0
5	T1	67	1.6	67	1.6	0.037	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		72	1.5	72	1.5	0.037	0.1	NA	0.0	0.0	0.00	0.03	0.00	49.7
West: Auburn Vale Rd (W)														
11	T1	145	3.6	145	3.6	0.070	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
12	R2	1	0.0	1	0.0	0.070	4.8	LOS A	0.0	0.0	0.00	0.00	0.00	48.4
Approach		146	3.6	146	3.6	0.070	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		226	2.8	226	2.8	0.070	0.3	NA	0.0	0.2	0.01	0.03	0.01	49.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\50523 ZNE (31 Brownleigh Vale Dr, Inverell)\02. D&D\08. SIDRA\Warialda Rd\_Auburn Vale Rd\_Hindmarsh St.sip9

# MOVEMENT SUMMARY

Site: 101 [Warialda\_Auburn Vale\_Existing\_2022\_PM (Site Folder: Existing)]

Network: N101 [Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2022\_PM (Network Folder: Existing)]

2022 Background Traffic Volumes  
Site Category: Base Year  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Warialda Rd (S)														
1	L2	121	1.7	121	1.7	0.304	4.7	LOS A	0.0	0.0	0.00	0.11	0.00	48.6
2	T1	453	3.7	453	3.7	0.304	0.1	LOS A	0.0	0.0	0.00	0.11	0.00	49.2
Approach		574	3.3	574	3.3	0.304	1.1	NA	0.0	0.0	0.00	0.11	0.00	49.1
North: Warialda Rd (N)														
8	T1	453	3.5	453	3.5	0.262	0.3	LOS A	0.3	2.5	0.09	0.03	0.09	49.5
9	R2	21	10.0	21	10.0	0.262	8.5	LOS A	0.3	2.5	0.09	0.03	0.09	49.1
Approach		474	3.8	474	3.8	0.262	0.7	NA	0.3	2.5	0.09	0.03	0.09	49.5
West: Auburn Vale Rd														
10	L2	7	14.3	7	14.3	0.008	3.9	LOS A	0.0	0.2	0.46	0.54	0.46	44.2
12	R2	74	2.9	74	2.9	0.175	8.9	LOS A	0.6	4.0	0.71	0.84	0.71	39.1
Approach		81	3.9	81	3.9	0.175	8.4	LOS A	0.6	4.0	0.69	0.82	0.69	39.5
All Vehicles		1128	3.5	1128	3.5	0.304	1.4	NA	0.6	4.0	0.09	0.13	0.09	48.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Existing\_2022\_PM (Site Folder: Existing)]

Network: N101 [Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2022\_PM (Network Folder: Existing)]

2022 Background Traffic Volumes  
Site Category: Base Year  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %	v/c	sec		[ Veh. veh	Dist ] m				km/h
South: Hindmarsh St														
1	L2	3	0.0	3	0.0	0.009	4.9	LOS A	0.0	0.2	0.29	0.53	0.29	43.9
3	R2	6	0.0	6	0.0	0.009	5.7	LOS A	0.0	0.2	0.29	0.53	0.29	38.8
Approach		9	0.0	9	0.0	0.009	5.5	LOS A	0.0	0.2	0.29	0.53	0.29	41.4
East: Auburn Vale Rd (E)														
4	L2	8	0.0	8	0.0	0.076	2.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.0
5	T1	136	3.9	136	3.9	0.076	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		144	3.6	144	3.6	0.076	0.1	NA	0.0	0.0	0.00	0.03	0.00	49.7
West: Auburn Vale Rd (W)														
11	T1	79	5.3	79	5.3	0.038	0.0	LOS A	0.0	0.1	0.02	0.01	0.02	49.7
12	R2	2	0.0	2	0.0	0.038	5.0	LOS A	0.0	0.1	0.02	0.02	0.02	48.2
Approach		81	5.2	81	5.2	0.038	0.1	NA	0.0	0.1	0.02	0.01	0.02	49.6
All Vehicles		235	4.0	235	4.0	0.076	0.3	NA	0.0	0.2	0.02	0.04	0.02	49.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\50523 ZNE (31 Brownleigh Vale Dr, Inverell)\02. D&D\08. SIDRA\Warialda Rd\_Auburn Vale Rd\_Hindmarsh St.sip9

# MOVEMENT SUMMARY

▼ Site: 101 [Warialda\_Auburn Vale\_Existing\_2024\_AM (Site Folder: Existing)]

■ Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2024\_AM (Network Folder: Existing)]

2024 Background Traffic Volumes  
Site Category: Future Conditions 1  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Warialda Rd (S)														
1	L2	61	1.8	61	1.8	0.197	4.6	LOS A	0.0	0.0	0.00	0.09	0.00	48.9
2	T1	311	4.6	311	4.6	0.197	0.1	LOS A	0.0	0.0	0.00	0.09	0.00	49.4
Approach		372	4.2	372	4.2	0.197	0.8	NA	0.0	0.0	0.00	0.09	0.00	49.4
North: Warialda Rd (N)														
8	T1	615	2.0	615	2.0	0.331	0.1	LOS A	0.2	1.2	0.03	0.01	0.03	49.8
9	R2	14	0.0	14	0.0	0.331	6.6	LOS A	0.2	1.2	0.03	0.01	0.03	49.7
Approach		629	1.9	629	1.9	0.331	0.2	NA	0.2	1.2	0.03	0.01	0.03	49.8
West: Auburn Vale Rd														
10	L2	24	9.1	24	9.1	0.021	3.1	LOS A	0.1	0.6	0.37	0.51	0.37	45.2
12	R2	134	1.7	134	1.7	0.318	10.2	LOS A	1.2	8.3	0.75	0.92	0.91	38.0
Approach		158	2.8	158	2.8	0.318	9.1	LOS A	1.2	8.3	0.69	0.85	0.83	39.0
All Vehicles		1159	2.8	1159	2.8	0.331	1.6	NA	1.2	8.3	0.11	0.15	0.13	48.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Existing\_2024\_AM (Site Folder: Existing)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2024\_AM (Network Folder: Existing)]

2024 Background Traffic Volumes  
Site Category: Future Conditions 1  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Hindmarsh St														
1	L2	1	0.0	1	0.0	0.010	4.7	LOS A	0.0	0.2	0.28	0.54	0.28	43.9
3	R2	8	0.0	8	0.0	0.010	5.7	LOS A	0.0	0.2	0.28	0.54	0.28	38.8
Approach		9	0.0	9	0.0	0.010	5.6	LOS A	0.0	0.2	0.28	0.54	0.28	40.0
East: Auburn Vale Rd (E)														
4	L2	4	0.0	4	0.0	0.039	2.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.0
5	T1	71	1.6	71	1.6	0.039	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		75	1.5	75	1.5	0.039	0.1	NA	0.0	0.0	0.00	0.03	0.00	49.7
West: Auburn Vale Rd (W)														
11	T1	153	3.6	153	3.6	0.077	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	49.9
12	R2	1	0.0	1	0.0	0.077	4.8	LOS A	0.0	0.1	0.00	0.00	0.00	48.4
Approach		154	3.6	154	3.6	0.077	0.0	NA	0.0	0.1	0.00	0.00	0.00	49.9
All Vehicles		238	2.8	238	2.8	0.077	0.3	NA	0.0	0.2	0.01	0.03	0.01	49.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

▼ Site: 101 [Warialda\_Auburn Vale\_Existing\_2024\_PM (Site Folder: Existing)]

■ Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2024\_PM (Network Folder: Existing)]

2024 Background Traffic Volumes  
Site Category: Future Conditions 1  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Warialda Rd (S)														
1	L2	127	1.7	127	1.7	0.319	4.7	LOS A	0.0	0.0	0.00	0.11	0.00	48.6
2	T1	476	3.7	476	3.7	0.319	0.1	LOS A	0.0	0.0	0.00	0.11	0.00	49.2
Approach		603	3.3	603	3.3	0.319	1.1	NA	0.0	0.0	0.00	0.11	0.00	49.1
North: Warialda Rd (N)														
8	T1	476	3.5	476	3.5	0.276	0.4	LOS A	0.4	2.9	0.09	0.03	0.10	49.5
9	R2	22	10.0	22	10.0	0.276	8.9	LOS A	0.4	2.9	0.09	0.03	0.10	49.0
Approach		498	3.8	498	3.8	0.276	0.8	NA	0.4	2.9	0.09	0.03	0.10	49.5
West: Auburn Vale Rd														
10	L2	8	14.3	8	14.3	0.008	4.0	LOS A	0.0	0.2	0.47	0.55	0.47	44.1
12	R2	77	2.9	77	2.9	0.198	9.8	LOS A	0.6	4.6	0.74	0.87	0.77	38.3
Approach		85	3.9	85	3.9	0.198	9.3	LOS A	0.6	4.6	0.71	0.84	0.74	38.8
All Vehicles		1186	3.5	1186	3.5	0.319	1.5	NA	0.6	4.6	0.09	0.13	0.09	48.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Existing\_2024\_PM (Site Folder: Existing)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2024\_PM (Network Folder: Existing)]

2024 Background Traffic Volumes  
Site Category: Future Conditions 1  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Hindmarsh St														
1	L2	3	0.0	3	0.0	0.010	5.0	LOS A	0.0	0.3	0.30	0.53	0.30	43.9
3	R2	7	0.0	7	0.0	0.010	5.8	LOS A	0.0	0.3	0.30	0.53	0.30	38.8
Approach		10	0.0	10	0.0	0.010	5.5	LOS A	0.0	0.3	0.30	0.53	0.30	41.4
East: Auburn Vale Rd (E)														
4	L2	9	0.0	9	0.0	0.080	2.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.0
5	T1	143	3.9	143	3.9	0.080	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		152	3.6	152	3.6	0.080	0.1	NA	0.0	0.0	0.00	0.03	0.00	49.7
West: Auburn Vale Rd (W)														
11	T1	83	5.3	83	5.3	0.040	0.0	LOS A	0.0	0.1	0.02	0.01	0.02	49.6
12	R2	2	0.0	2	0.0	0.040	5.0	LOS A	0.0	0.1	0.02	0.02	0.02	48.2
Approach		85	5.2	85	5.2	0.040	0.1	NA	0.0	0.1	0.02	0.01	0.02	49.6
All Vehicles		247	4.0	247	4.0	0.080	0.3	NA	0.0	0.3	0.02	0.04	0.02	49.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



# MOVEMENT SUMMARY

Site: 101 [Warialda\_Auburn Vale\_Existing\_2034\_AM (Site Folder: Existing)]

Network: N101 [Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2034\_AM (Network Folder: Existing)]

2034 Background Traffic Volumes  
Site Category: Future Conditions 2  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]	v/c	sec		[ Veh. ]	[ Dist m ]				km/h
South: Warialda Rd (S)														
1	L2	78	1.8	78	1.8	0.253	4.7	LOS A	0.0	0.0	0.00	0.09	0.00	48.9
2	T1	398	4.6	398	4.6	0.253	0.1	LOS A	0.0	0.0	0.00	0.09	0.00	49.4
Approach		476	4.2	476	4.2	0.253	0.8	NA	0.0	0.0	0.00	0.09	0.00	49.3
North: Warialda Rd (N)														
8	T1	787	2.0	787	2.0	0.426	0.2	LOS A	0.4	2.5	0.04	0.01	0.06	49.8
9	R2	18	0.0	18	0.0	0.426	8.0	LOS A	0.4	2.5	0.04	0.01	0.06	49.5
Approach		806	1.9	806	1.9	0.426	0.3	NA	0.4	2.5	0.04	0.01	0.06	49.8
West: Auburn Vale Rd														
10	L2	31	9.1	31	9.1	0.030	3.5	LOS A	0.1	0.8	0.43	0.56	0.43	44.7
12	R2	171	1.7	171	1.7	0.651	22.9	LOS B	2.5	17.4	0.92	1.14	1.56	30.2
Approach		202	2.8	202	2.8	0.651	19.9	LOS B	2.5	17.4	0.84	1.05	1.39	31.8
All Vehicles		1484	2.8	1484	2.8	0.651	3.2	NA	2.5	17.4	0.14	0.18	0.22	47.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\50523 ZNE (31 Brownleigh Vale Dr, Inverell)\02. D&D\08. SIDRA\Warialda Rd\_Auburn Vale Rd\_Hindmarsh St.sip9

# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Existing\_2034\_AM (Site Folder: Existing)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2034\_AM (Network Folder: Existing)]

2034 Background Traffic Volumes  
Site Category: Future Conditions 2  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total HV veh/h	%				[ Veh. veh	Dist m				
South: Hindmarsh St														
1	L2	1	0.0	1	0.0	0.023	4.8	LOS A	0.0	0.3	0.33	0.57	0.33	43.6
3	R2	10	0.0	10	0.0	0.023	6.2	LOS A	0.0	0.3	0.33	0.57	0.33	38.3
Approach		11	0.0	11	0.0	0.023	6.0	LOS A	0.0	0.3	0.33	0.57	0.33	39.5
East: Auburn Vale Rd (E)														
4	L2	6	0.0	6	0.0	0.050	2.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.0
5	T1	91	1.6	91	1.6	0.050	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		96	1.5	96	1.5	0.050	0.1	NA	0.0	0.0	0.00	0.03	0.00	49.7
West: Auburn Vale Rd (W)														
11	T1	195	3.6	195	3.6	0.090	0.0	LOS A	0.3	2.5	0.00	0.00	0.00	49.9
12	R2	1	0.0	1	0.0	0.090	4.9	LOS A	0.3	2.5	0.00	0.00	0.00	48.4
Approach		197	3.6	197	3.6	0.090	0.0	NA	0.3	2.5	0.00	0.00	0.00	49.9
All Vehicles		304	2.8	304	2.8	0.090	0.3	NA	0.3	2.5	0.01	0.03	0.01	49.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\50523 ZNE (31 Brownleigh Vale Dr, Inverell)\02. D&D\08. SIDRA\Warialda Rd\_Auburn Vale Rd\_Hindmarsh St.sip9

# MOVEMENT SUMMARY

Site: 101 [Warialda\_Auburn Vale\_Existing\_2034\_PM (Site Folder: Existing)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2034\_PM (Network Folder: Existing)]

2034 Background Traffic Volumes  
Site Category: Future Conditions 2  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Warialda Rd (S)														
1	L2	163	1.7	163	1.7	0.408	4.7	LOS A	0.0	0.0	0.00	0.11	0.00	48.5
2	T1	609	3.7	609	3.7	0.408	0.2	LOS A	0.0	0.0	0.00	0.11	0.00	49.1
Approach		772	3.3	772	3.3	0.408	1.1	NA	0.0	0.0	0.00	0.11	0.00	49.0
North: Warialda Rd (N)														
8	T1	609	3.5	609	3.5	0.364	0.9	LOS A	0.9	6.3	0.13	0.03	0.18	49.1
9	R2	28	10.0	28	10.0	0.364	12.2	LOS A	0.9	6.3	0.13	0.03	0.18	48.3
Approach		637	3.8	637	3.8	0.364	1.4	NA	0.9	6.3	0.13	0.03	0.18	49.1
West: Auburn Vale Rd														
10	L2	10	14.3	10	14.3	0.013	5.0	LOS A	0.0	0.4	0.54	0.62	0.54	43.1
12	R2	99	2.9	99	2.9	0.412	19.3	LOS B	1.4	10.3	0.88	1.01	1.13	32.1
Approach		109	3.9	109	3.9	0.412	18.0	LOS B	1.4	10.3	0.85	0.97	1.08	32.8
All Vehicles		1518	3.5	1518	3.5	0.412	2.4	NA	1.4	10.3	0.12	0.14	0.15	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\50523 ZNE (31 Brownleigh Vale Dr, Inverell)\02. D&D\08. SIDRA\Warialda Rd\_Auburn Vale Rd\_Hindmarsh St.sip9

# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Existing\_2034\_PM (Site Folder: Existing)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Existing\_2034\_PM (Network Folder: Existing)]

2034 Background Traffic Volumes  
Site Category: Future Conditions 2  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist m				
South: Hindmarsh St														
1	L2	4	0.0	4	0.0	0.015	5.1	LOS A	0.0	0.3	0.34	0.55	0.34	43.7
3	R2	8	0.0	8	0.0	0.015	6.2	LOS A	0.0	0.3	0.34	0.55	0.34	38.4
Approach		13	0.0	13	0.0	0.015	5.8	LOS A	0.0	0.3	0.34	0.55	0.34	41.1
East: Auburn Vale Rd (E)														
4	L2	11	0.0	11	0.0	0.102	2.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.0
5	T1	183	3.9	183	3.9	0.102	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.7
Approach		194	3.6	194	3.6	0.102	0.1	NA	0.0	0.0	0.00	0.03	0.00	49.7
West: Auburn Vale Rd (W)														
11	T1	106	5.3	106	5.3	0.060	0.0	LOS A	0.0	0.1	0.02	0.01	0.02	49.6
12	R2	3	0.0	3	0.0	0.060	5.2	LOS A	0.0	0.1	0.02	0.02	0.02	48.2
Approach		109	5.2	109	5.2	0.060	0.2	NA	0.0	0.1	0.02	0.01	0.02	49.6
All Vehicles		316	4.0	316	4.0	0.102	0.4	NA	0.0	0.3	0.02	0.05	0.02	49.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

▼ Site: 101 [Warialda\_Auburn Vale\_Design\_2024\_AM (Site Folder: Design)]

■ Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Design\_2024\_AM (Network Folder: Design)]

2024 Design Traffic Volumes  
Site Category: Proposed Design 1  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Warialda Rd (S)														
1	L2	71	1.5	71	1.5	0.203	4.6	LOS A	0.0	0.0	0.00	0.10	0.00	48.8
2	T1	311	4.6	311	4.6	0.203	0.1	LOS A	0.0	0.0	0.00	0.10	0.00	49.3
Approach		382	4.1	382	4.1	0.203	0.9	NA	0.0	0.0	0.00	0.10	0.00	49.3
North: Warialda Rd (N)														
8	T1	615	2.0	615	2.0	0.334	0.1	LOS A	0.2	1.5	0.04	0.02	0.04	49.8
9	R2	18	0.0	18	0.0	0.334	6.7	LOS A	0.2	1.5	0.04	0.02	0.04	49.6
Approach		632	1.9	632	1.9	0.334	0.3	NA	0.2	1.5	0.04	0.02	0.04	49.8
West: Auburn Vale Rd														
10	L2	33	6.8	33	6.8	0.028	3.1	LOS A	0.1	0.8	0.37	0.52	0.37	45.2
12	R2	158	1.4	158	1.4	0.379	10.9	LOS A	1.5	10.4	0.77	0.95	1.00	37.5
Approach		191	2.3	191	2.3	0.379	9.6	LOS A	1.5	10.4	0.70	0.87	0.89	38.6
All Vehicles		1205	2.7	1205	2.7	0.379	2.0	NA	1.5	10.4	0.13	0.18	0.16	48.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Design\_2024\_AM (Site Folder: Design)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Design\_2024\_AM (Network Folder: Design)]

2024 Design Traffic Volumes  
Site Category: Proposed Design 1  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Hindmarsh St														
1	L2	1	0.0	1	0.0	0.011	4.8	LOS A	0.0	0.2	0.32	0.55	0.32	43.7
3	R2	8	0.0	8	0.0	0.011	6.0	LOS A	0.0	0.2	0.32	0.55	0.32	38.4
Approach		9	0.0	9	0.0	0.011	5.9	LOS A	0.0	0.2	0.32	0.55	0.32	39.6
East: Auburn Vale Rd (E)														
4	L2	4	0.0	4	0.0	0.046	2.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.9
5	T1	84	1.3	84	1.3	0.046	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	51.1
Approach		89	1.2	89	1.2	0.046	0.1	NA	0.0	0.0	0.00	0.03	0.00	51.0
West: Auburn Vale Rd (W)														
11	T1	184	3.0	184	3.0	0.100	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	49.9
12	R2	1	0.0	1	0.0	0.100	4.8	LOS A	0.0	0.1	0.00	0.00	0.00	48.4
Approach		185	3.0	185	3.0	0.100	0.0	NA	0.0	0.1	0.00	0.00	0.00	49.9
All Vehicles		283	2.3	283	2.3	0.100	0.2	NA	0.0	0.2	0.01	0.03	0.01	49.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



# MOVEMENT SUMMARY

Site: 101 [Warialda\_Auburn Vale\_Design\_2024\_PM (Site Folder: Design)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Design\_2024\_PM (Network Folder: Design)]

2024 Design Traffic Volumes  
Site Category: Proposed Design 1  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Warialda Rd (S)														
1	L2	150	1.5	150	1.5	0.332	4.7	LOS A	0.0	0.0	0.00	0.13	0.00	48.4
2	T1	476	3.7	476	3.7	0.332	0.1	LOS A	0.0	0.0	0.00	0.13	0.00	49.1
Approach		626	3.2	626	3.2	0.332	1.2	NA	0.0	0.0	0.00	0.13	0.00	49.0
North: Warialda Rd (N)														
8	T1	476	3.5	476	3.5	0.285	0.5	LOS A	0.5	4.0	0.12	0.04	0.13	49.3
9	R2	29	7.5	29	7.5	0.285	9.0	LOS A	0.5	4.0	0.12	0.04	0.13	48.7
Approach		505	3.7	505	3.7	0.285	1.0	NA	0.5	4.0	0.12	0.04	0.13	49.3
West: Auburn Vale Rd														
10	L2	13	8.5	13	8.5	0.014	3.9	LOS A	0.0	0.4	0.47	0.56	0.47	44.3
12	R2	92	2.4	92	2.4	0.242	10.5	LOS A	0.8	5.8	0.75	0.89	0.84	37.8
Approach		105	3.2	105	3.2	0.242	9.7	LOS A	0.8	5.8	0.72	0.85	0.79	38.5
All Vehicles		1236	3.4	1236	3.4	0.332	1.9	NA	0.8	5.8	0.11	0.15	0.12	48.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Design\_2024\_PM (Site Folder: Design)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Design\_2024\_PM (Network Folder: Design)]

2024 Design Traffic Volumes  
Site Category: Proposed Design 1  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
South: Hindmarsh St														
1	L2	3	0.0	3	0.0	0.010	5.1	LOS A	0.0	0.3	0.33	0.54	0.33	43.8
3	R2	7	0.0	7	0.0	0.010	6.1	LOS A	0.0	0.3	0.33	0.54	0.33	38.5
Approach		10	0.0	10	0.0	0.010	5.8	LOS A	0.0	0.3	0.33	0.54	0.33	41.2
East: Auburn Vale Rd (E)														
4	L2	14	0.0	14	0.0	0.098	2.0	LOS A	0.0	0.0	0.00	0.04	0.00	48.8
5	T1	173	3.2	173	3.2	0.098	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	51.1
Approach		188	2.9	188	2.9	0.098	0.2	NA	0.0	0.0	0.00	0.04	0.00	51.0
West: Auburn Vale Rd (W)														
11	T1	103	4.3	103	4.3	0.048	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	51.5
12	R2	2	0.0	2	0.0	0.048	5.1	LOS A	0.0	0.1	0.02	0.02	0.02	49.3
Approach		105	4.2	105	4.2	0.048	0.1	NA	0.0	0.1	0.01	0.01	0.01	51.5
All Vehicles		303	3.3	303	3.3	0.098	0.3	NA	0.0	0.3	0.02	0.05	0.02	50.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

Site: 101 [Warialda\_Auburn Vale\_Design\_2034\_AM (Site Folder: Design)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Design\_2034\_AM (Network Folder: Design)]

2034 Design Traffic Volumes  
Site Category: Proposed Design 2  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Warialda Rd (S)														
1	L2	88	1.6	88	1.6	0.258	4.7	LOS A	0.0	0.0	0.00	0.10	0.00	48.8
2	T1	398	4.6	398	4.6	0.258	0.1	LOS A	0.0	0.0	0.00	0.10	0.00	49.3
Approach		486	4.1	486	4.1	0.258	0.9	NA	0.0	0.0	0.00	0.10	0.00	49.3
North: Warialda Rd (N)														
8	T1	787	2.0	787	2.0	0.429	0.2	LOS A	0.4	3.0	0.05	0.02	0.07	49.7
9	R2	22	0.0	22	0.0	0.429	8.1	LOS A	0.4	3.0	0.05	0.02	0.07	49.5
Approach		809	1.9	809	1.9	0.429	0.4	NA	0.4	3.0	0.05	0.02	0.07	49.7
West: Auburn Vale Rd														
10	L2	40	7.2	40	7.2	0.037	3.5	LOS A	0.1	1.0	0.43	0.56	0.43	44.7
12	R2	196	1.4	196	1.4	0.752	27.5	LOS B	2.5	17.4	0.94	1.25	1.92	28.1
Approach		235	2.4	235	2.4	0.752	23.4	LOS B	2.5	17.4	0.85	1.13	1.67	30.0
All Vehicles		1530	2.7	1530	2.7	0.752	4.1	NA	2.5	17.4	0.16	0.21	0.29	46.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Design\_2034\_AM (Site Folder: Design)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Design\_2034\_AM (Network Folder: Design)]

2034 Design Traffic Volumes  
Site Category: Proposed Design 2  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist m				
South: Hindmarsh St														
1	L2	1	0.0	1	0.0	0.025	4.8	LOS A	0.1	0.4	0.36	0.58	0.36	43.4
3	R2	10	0.0	10	0.0	0.025	6.5	LOS A	0.1	0.4	0.36	0.58	0.36	37.8
Approach		11	0.0	11	0.0	0.025	6.3	LOS A	0.1	0.4	0.36	0.58	0.36	39.1
East: Auburn Vale Rd (E)														
4	L2	6	0.0	6	0.0	0.057	2.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.0
5	T1	104	1.4	104	1.4	0.057	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		110	1.3	110	1.3	0.057	0.1	NA	0.0	0.0	0.00	0.03	0.00	49.7
West: Auburn Vale Rd (W)														
11	T1	227	3.1	227	3.1	0.104	0.0	LOS A	1.2	8.6	0.00	0.00	0.00	49.9
12	R2	1	0.0	1	0.0	0.104	4.9	LOS A	1.2	8.6	0.00	0.00	0.00	48.4
Approach		228	3.1	228	3.1	0.104	0.0	NA	1.2	8.6	0.00	0.00	0.00	49.9
All Vehicles		350	2.4	350	2.4	0.104	0.3	NA	1.2	8.6	0.01	0.03	0.01	49.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\50523 ZNE (31 Brownleigh Vale Dr, Inverell)\02. D&D\08. SIDRA\Warialda Rd\_Auburn Vale Rd\_Hindmarsh St.sip9

# MOVEMENT SUMMARY

Site: 101 [Warialda\_Auburn Vale\_Design\_2034\_PM (Site Folder: Design)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Design\_2034\_PM (Network Folder: Design)]

2034 Design Traffic Volumes  
Site Category: Proposed Design 2  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Warialda Rd (S)														
1	L2	186	1.5	186	1.5	0.421	4.7	LOS A	0.0	0.0	0.00	0.13	0.00	48.4
2	T1	609	3.7	609	3.7	0.421	0.2	LOS A	0.0	0.0	0.00	0.13	0.00	49.0
Approach		795	3.2	795	3.2	0.421	1.2	NA	0.0	0.0	0.00	0.13	0.00	48.9
North: Warialda Rd (N)														
8	T1	609	3.5	609	3.5	0.377	1.1	LOS A	1.1	8.2	0.17	0.04	0.23	48.8
9	R2	36	7.9	36	7.9	0.377	12.5	LOS A	1.1	8.2	0.17	0.04	0.23	47.8
Approach		644	3.7	644	3.7	0.377	1.8	NA	1.1	8.2	0.17	0.04	0.23	48.8
West: Auburn Vale Rd														
10	L2	15	9.3	15	9.3	0.019	4.9	LOS A	0.1	0.5	0.53	0.63	0.53	43.3
12	R2	114	2.5	114	2.5	0.487	21.3	LOS B	1.8	12.7	0.90	1.04	1.23	31.0
Approach		129	3.3	129	3.3	0.487	19.4	LOS B	1.8	12.7	0.85	0.99	1.15	32.1
All Vehicles		1568	3.4	1568	3.4	0.487	2.9	NA	1.8	12.7	0.14	0.16	0.19	47.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\50523 ZNE (31 Brownleigh Vale Dr, Inverell)\02. D&D\08. SIDRA\Warialda Rd\_Auburn Vale Rd\_Hindmarsh St.sip9

# MOVEMENT SUMMARY

Site: 101 [Auburn Vale\_Hindmarsh\_Design\_2034\_PM (Site Folder: Design)]

Network: N101  
[Warialda\_Auburn Vale\_Hindmarsh\_Design\_2034\_PM (Network Folder: Design)]

2034 Design Traffic Volumes  
Site Category: Proposed Design 2  
Give-Way (Two-Way)  
Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h ]	[ HV % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Hindmarsh St														
1	L2	4	0.0	4	0.0	0.017	5.2	LOS A	0.1	0.4	0.38	0.57	0.38	43.5
3	R2	8	0.0	8	0.0	0.017	6.6	LOS A	0.1	0.4	0.38	0.57	0.38	38.1
Approach		13	0.0	13	0.0	0.017	6.1	LOS A	0.1	0.4	0.38	0.57	0.38	40.8
East: Auburn Vale Rd (E)														
4	L2	11	0.0	11	0.0	0.118	2.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.0
5	T1	213	3.3	213	3.3	0.118	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.8
Approach		224	3.2	224	3.2	0.118	0.1	NA	0.0	0.0	0.00	0.03	0.00	49.7
West: Auburn Vale Rd (W)														
11	T1	126	4.5	126	4.5	0.077	0.0	LOS A	0.0	0.2	0.02	0.01	0.02	49.7
12	R2	3	0.0	3	0.0	0.077	5.3	LOS A	0.0	0.2	0.02	0.02	0.02	48.2
Approach		129	4.4	129	4.4	0.077	0.1	NA	0.0	0.2	0.02	0.01	0.02	49.6
All Vehicles		366	3.5	366	3.5	0.118	0.3	NA	0.1	0.4	0.02	0.04	0.02	49.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\50523 ZNE (31 Brownleigh Vale Dr, Inverell)\02. D&D\08. SIDRA\Warialda Rd\_Auburn Vale Rd\_Hindmarsh St.sip9



# USER REPORT FOR SITE

## All Movement Classes

 **Project:** Auburn\_Wesley

**Template:** Movement Summary

 **Site:** 101 [Auburn Vale\_Wesley\_Existing\_2022\_AM (Site Folder: Existing)]

2022 Background Traffic Volumes

Site Category: Base Year

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.016	4.7	LOS A	0.1	0.4	0.21	0.54	0.21	43.9
3	R2	16	0	17	0.0	0.016	5.1	LOS A	0.1	0.4	0.21	0.54	0.21	41.6
Approach		17	0	18	0.0	0.016	5.1	LOS A	0.1	0.4	0.21	0.54	0.21	41.8
East: Auburn Vale Rd (E)														
4	L2	5	0	5	0.0	0.031	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	48.4
5	T1	52	1	55	1.9	0.031	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.7
Approach		57	1	60	1.8	0.031	0.4	NA	0.0	0.0	0.00	0.05	0.00	49.6
West: Auburn Vale Rd (W)														
11	T1	101	5	106	5.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	50.0
12	R2	1	0	1	0.0	0.057	4.7	LOS A	0.0	0.0	0.00	0.01	0.00	48.3
Approach		102	5	107	4.9	0.057	0.0	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles		176	6	185	3.4	0.057	0.7	NA	0.1	0.4	0.02	0.07	0.02	49.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## Site: 101 [Auburn Vale\_Wesley\_Existing\_2022\_PM (Site Folder: Existing)]

2022 Background Traffic Volumes

Site Category: Base Year

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.008	4.9	LOS A	0.0	0.2	0.25	0.53	0.25	43.8
3	R2	8	0	8	0.0	0.008	5.2	LOS A	0.0	0.2	0.25	0.53	0.25	41.5
Approach		9	0	9	0.0	0.008	5.2	LOS A	0.0	0.2	0.25	0.53	0.25	41.8
East: Auburn Vale Rd (E)														
4	L2	16	0	17	0.0	0.076	4.6	LOS A	0.0	0.0	0.00	0.06	0.00	48.2
5	T1	124	0	131	0.0	0.076	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	49.6
Approach		140	0	147	0.0	0.076	0.5	NA	0.0	0.0	0.00	0.06	0.00	49.5
West: Auburn Vale Rd (W)														
11	T1	57	0	60	0.0	0.031	0.0	LOS A	0.0	0.0	0.01	0.01	0.01	49.9
12	R2	1	0	1	0.0	0.031	5.0	LOS A	0.0	0.0	0.01	0.01	0.01	48.2
Approach		58	0	61	0.0	0.031	0.1	NA	0.0	0.0	0.01	0.01	0.01	49.9
All Vehicles		207	0	218	0.0	0.076	0.6	NA	0.0	0.2	0.01	0.07	0.01	49.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## Site: 101 [Auburn Vale\_Wesley\_Existing\_2024\_AM (Site Folder: Existing)]

2024 Background Traffic Volumes

Site Category: Future Conditions 1

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.017	4.7	LOS A	0.1	0.4	0.22	0.54	0.22	43.8
3	R2	16	0	18	0.0	0.017	5.1	LOS A	0.1	0.4	0.22	0.54	0.22	41.6
Approach		17	0	19	0.0	0.017	5.1	LOS A	0.1	0.4	0.22	0.54	0.22	41.7
East: Auburn Vale Rd (E)														
4	L2	5	0	6	0.0	0.033	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	48.4
5	T1	52	1	58	1.9	0.033	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.7
Approach		57	1	63	1.8	0.033	0.4	NA	0.0	0.0	0.00	0.05	0.00	49.6
West: Auburn Vale Rd (W)														
11	T1	101	5	112	5.0	0.060	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	50.0
12	R2	1	0	1	0.0	0.060	4.7	LOS A	0.0	0.1	0.00	0.01	0.00	48.3
Approach		102	5	113	4.9	0.060	0.0	NA	0.0	0.1	0.00	0.01	0.00	49.9
All Vehicles		176	6	195	3.4	0.060	0.7	NA	0.1	0.4	0.02	0.07	0.02	49.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## ▼ Site: 101 [Auburn Vale\_Wesley\_Existing\_2024\_PM (Site Folder: Existing)]

2024 Background Traffic Volumes

Site Category: Future Conditions 1

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.009	4.9	LOS A	0.0	0.2	0.25	0.54	0.25	43.7
3	R2	8	0	9	0.0	0.009	5.3	LOS A	0.0	0.2	0.25	0.54	0.25	41.4
Approach		9	0	10	0.0	0.009	5.2	LOS A	0.0	0.2	0.25	0.54	0.25	41.7
East: Auburn Vale Rd (E)														
4	L2	16	0	18	0.0	0.080	4.6	LOS A	0.0	0.0	0.00	0.06	0.00	48.2
5	T1	124	0	137	0.0	0.080	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	49.6
Approach		140	0	155	0.0	0.080	0.5	NA	0.0	0.0	0.00	0.06	0.00	49.5
West: Auburn Vale Rd (W)														
11	T1	57	0	63	0.0	0.033	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	49.9
12	R2	1	0	1	0.0	0.033	5.0	LOS A	0.0	0.1	0.01	0.01	0.01	48.2
Approach		58	0	64	0.0	0.033	0.1	NA	0.0	0.1	0.01	0.01	0.01	49.9
All Vehicles		207	0	229	0.0	0.080	0.6	NA	0.0	0.2	0.01	0.07	0.01	49.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## Site: 101 [Auburn Vale\_Wesley\_Existing\_2034\_AM (Site Folder: Existing)]

2034 Background Traffic Volumes

Site Category: Future Conditions 2

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.022	4.8	LOS A	0.1	0.5	0.25	0.55	0.25	43.7
3	R2	16	0	23	0.0	0.022	5.3	LOS A	0.1	0.5	0.25	0.55	0.25	41.4
Approach		17	0	24	0.0	0.022	5.3	LOS A	0.1	0.5	0.25	0.55	0.25	41.6
East: Auburn Vale Rd (E)														
4	L2	5	0	7	0.0	0.042	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	48.4
5	T1	52	1	74	1.9	0.042	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.7
Approach		57	1	81	1.8	0.042	0.4	NA	0.0	0.0	0.00	0.05	0.00	49.6
West: Auburn Vale Rd (W)														
11	T1	101	5	143	5.0	0.077	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	49.9
12	R2	1	0	1	0.0	0.077	4.8	LOS A	0.0	0.1	0.00	0.01	0.00	48.3
Approach		102	5	144	4.9	0.077	0.1	NA	0.0	0.1	0.00	0.01	0.00	49.9
All Vehicles		176	6	249	3.4	0.077	0.7	NA	0.1	0.5	0.03	0.07	0.03	49.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## Site: 101 [Auburn Vale\_Wesley\_Existing\_2034\_PM (Site Folder: Existing)]

2034 Background Traffic Volumes

Site Category: Future Conditions 2

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.012	5.1	LOS A	0.0	0.3	0.29	0.55	0.29	43.6
3	R2	8	0	11	0.0	0.012	5.5	LOS A	0.0	0.3	0.29	0.55	0.29	41.3
Approach		9	0	13	0.0	0.012	5.4	LOS A	0.0	0.3	0.29	0.55	0.29	41.6
East: Auburn Vale Rd (E)														
4	L2	16	0	23	0.0	0.102	4.6	LOS A	0.0	0.0	0.00	0.06	0.00	48.2
5	T1	124	0	176	0.0	0.102	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	49.6
Approach		140	0	198	0.0	0.102	0.5	NA	0.0	0.0	0.00	0.06	0.00	49.5
West: Auburn Vale Rd (W)														
11	T1	57	0	81	0.0	0.042	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	49.9
12	R2	1	0	1	0.0	0.042	5.2	LOS A	0.0	0.1	0.01	0.01	0.01	48.2
Approach		58	0	82	0.0	0.042	0.1	NA	0.0	0.1	0.01	0.01	0.01	49.9
All Vehicles		207	0	293	0.0	0.102	0.6	NA	0.0	0.3	0.02	0.07	0.02	49.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



## ▽ Site: 101 [Auburn Vale\_Wesley\_Design\_2024\_AM (Site Folder: Design)]

2024 Design Traffic Volumes

Site Category: Proposed Design 1

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.046	4.7	LOS A	0.1	1.0	0.24	0.55	0.24	43.8
3	R2	46	0	49	0.0	0.046	5.2	LOS A	0.1	1.0	0.24	0.55	0.24	41.5
Approach		47	0	50	0.0	0.046	5.2	LOS A	0.1	1.0	0.24	0.55	0.24	41.6
East: Auburn Vale Rd (E)														
4	L2	18	0	19	0.0	0.040	4.6	LOS A	0.0	0.0	0.00	0.14	0.00	47.3
5	T1	52	1	58	1.9	0.040	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	49.1
Approach		70	1	77	1.4	0.040	1.1	NA	0.0	0.0	0.00	0.14	0.00	48.8
West: Auburn Vale Rd (W)														
11	T1	101	5	112	5.0	0.060	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	49.9
12	R2	1	0	1	0.0	0.060	4.8	LOS A	0.0	0.1	0.00	0.01	0.00	48.3
Approach		102	5	113	4.9	0.060	0.0	NA	0.0	0.1	0.00	0.01	0.00	49.9
All Vehicles		219	6	240	2.8	0.060	1.5	NA	0.1	1.0	0.05	0.16	0.05	48.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## ▽ Site: 101 [Auburn Vale\_Wesley\_Design\_2024\_PM (Site Folder: Design)]

2024 Design Traffic Volumes

Site Category: Proposed Design 2

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 2 years

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.028	5.0	LOS A	0.1	0.6	0.27	0.56	0.27	43.7
3	R2	27	0	29	0.0	0.028	5.3	LOS A	0.1	0.6	0.27	0.56	0.27	41.4
Approach		28	0	30	0.0	0.028	5.3	LOS A	0.1	0.6	0.27	0.56	0.27	41.5
East: Auburn Vale Rd (E)														
4	L2	45	0	48	0.0	0.096	4.6	LOS A	0.0	0.0	0.00	0.14	0.00	47.3
5	T1	124	0	137	0.0	0.096	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	49.0
Approach		169	0	185	0.0	0.096	1.2	NA	0.0	0.0	0.00	0.14	0.00	48.8
West: Auburn Vale Rd (W)														
11	T1	57	0	63	0.0	0.033	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	49.9
12	R2	1	0	1	0.0	0.033	5.1	LOS A	0.0	0.1	0.01	0.01	0.01	48.2
Approach		58	0	64	0.0	0.033	0.1	NA	0.0	0.1	0.01	0.01	0.01	49.9
All Vehicles		255	0	279	0.0	0.096	1.4	NA	0.1	0.6	0.03	0.16	0.03	48.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## Site: 101 [Auburn Vale\_Wesley\_Design\_2034\_AM (Site Folder: Design)]

2034 Design Traffic Volumes

Site Category: Proposed Design 2

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.053	4.8	LOS A	0.2	1.2	0.28	0.57	0.28	43.7
3	R2	46	0	54	0.0	0.053	5.4	LOS A	0.2	1.2	0.28	0.57	0.28	41.4
Approach		47	0	56	0.0	0.053	5.4	LOS A	0.2	1.2	0.28	0.57	0.28	41.4
East: Auburn Vale Rd (E)														
4	L2	18	0	21	0.0	0.049	4.6	LOS A	0.0	0.0	0.00	0.12	0.00	47.5
5	T1	52	1	74	1.9	0.049	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	49.2
Approach		70	1	94	1.5	0.049	1.0	NA	0.0	0.0	0.00	0.12	0.00	49.0
West: Auburn Vale Rd (W)														
11	T1	101	5	143	5.0	0.077	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	49.9
12	R2	1	0	1	0.0	0.077	4.8	LOS A	0.0	0.1	0.00	0.01	0.00	48.3
Approach		102	5	144	4.9	0.077	0.1	NA	0.0	0.1	0.00	0.01	0.00	49.9
All Vehicles		219	6	294	2.9	0.077	1.4	NA	0.2	1.2	0.05	0.15	0.05	48.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## Site: 101 [Auburn Vale\_Wesley\_Design\_2034\_PM (Site Folder: Design)]

2034 Design Traffic Volumes

Site Category: Proposed Design 2

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 12 years

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] veh/h	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Wesley St														
1	L2	1	0	1	0.0	0.032	5.1	LOS A	0.1	0.7	0.31	0.58	0.31	43.5
3	R2	27	0	31	0.0	0.032	5.6	LOS A	0.1	0.7	0.31	0.58	0.31	41.2
Approach		28	0	33	0.0	0.032	5.6	LOS A	0.1	0.7	0.31	0.58	0.31	41.3
East: Auburn Vale Rd (E)														
4	L2	45	0	53	0.0	0.119	4.6	LOS A	0.0	0.0	0.00	0.13	0.00	47.5
5	T1	124	0	176	0.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.13	0.00	49.1
Approach		169	0	229	0.0	0.119	1.1	NA	0.0	0.0	0.00	0.13	0.00	48.9
West: Auburn Vale Rd (W)														
11	T1	57	0	81	0.0	0.042	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	49.9
12	R2	1	0	1	0.0	0.042	5.3	LOS A	0.0	0.1	0.01	0.01	0.01	48.2
Approach		58	0	82	0.0	0.042	0.1	NA	0.0	0.1	0.01	0.01	0.01	49.9
All Vehicles		255	0	344	0.0	0.119	1.3	NA	0.1	0.7	0.03	0.14	0.03	48.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\50523 ZNE (31 Brownleigh Vale Dr, Inverell)\02. D&D\08. SIDRA\Auburn\_Wesley.sip9

## **APPENDIX D**

### **Council Preliminary Development Advice**

Our Ref: s7.2.7/13  
Contact: Chris Faley

28 August 2020

PlanIt Consulting  
[LukeB@planitconsulting.com.au](mailto:LukeB@planitconsulting.com.au)

Dear Sir/Madam

**PRELIMINARY DEVELOPMENT ADVICE – PROPOSED MANUFACTURED  
HOME ESTATE – LOT 1 DP 1152567 – 31 BROWNLEIGH VALE DRIVE,  
INVERELL**

Reference is made to your letter dated 22 July 2020 requesting Council advice in respect to a proposed Manufactured Home Estate development on Lot 1 DP 1152567, 31 Brownleigh Vale Drive, Inverell.

The proposed development has been considered in the context of state planning legislation, the *Inverell Local Environmental Plan 2012*, *Inverell Development Control Plan 2013* and the physical attributes of the site.

This advice is provided on a preliminary basis, and only designed to address the broad issues. This letter cannot address all matters that will need to be considered by Council once a Development Application is lodged. This advice does not infer that development consent will be granted and that addressing the identified matters will be a pre-requisite for approval, but rather providing sufficient information to allow Council to make a merit based determination.

This letter has been prepared with specific reference to the preliminary plans and desk-top information available to Council. Council has not referenced survey data, studies or investigations of the site by other specialists which may be required to support a Development Application.

Once a Development Application is lodged there are certain statutory processes which need to be undertaken in assessing an application. These may include:

- Notification of properties in the locality;
- Advertising of the proposed development in the local newspaper; and
- Referral to specialist staff and possibly other government departments.

Based on comments and advice from either specialist staff or the public, issues may arise requiring additional information to be provided, or changes to the proposal. Depending on the level of comment from the community, it may necessitate the determination of the application by a committee or panel.



It should be noted that Planning legislation in NSW changes frequently, and sometimes without notice. Such changes can have significant impact on development outcomes including project costs, approval processes and timeframes.

## **PROPOSED DEVELOPMENT**

The proposed development is a 'Manufactured Home Estate' comprising:

- Approximately 90 manufactured home sites;
- Community amenities;
- Associated infrastructure (roads, stormwater, car parking etc.); and
- Landscaping.

It is proposed that all internal roads, servicing connections and stormwater management devices would remain private and managed under a land-lease community operation.

In addition to the Manufactured Home Estate, it is proposed to provide areas/lots for:

- Neighbourhood shop/s – approximate 600m<sup>2</sup> site area; and
- Child care centre – approximate 1,000m<sup>2</sup> site area.

Based on your letter, it is understood that the neighbourhood shop/s and child care centre are intended to serve both manufactured home estate residents and the surrounding neighbourhood. At this point in time, it is Council's opinion that the neighbourhood shop/s and child care centre are independent uses and should not be considered as components of the manufactured home estate.

Council notes that three concept sketches were submitted with the pre-lodgement advice request. For the purpose of providing pre-lodgement advice Council has only reviewed the sketch overlaying the aerial image (attached).

## **OVERVIEW OF SITE AND LOCALITY**

The site is located at 31 Brownleigh Vale Drive and has an overall area of 4.323 hectares. The land is vacant and is bordered by existing residential lots to the north, east and west and vacant land (owned by Inverell Shire Council) to the south.

The site would best be described as being a green-field site in close proximity to the Central Business District. A 40 lot residential subdivision was previously approved on this property under DA-67/2011; however, this development consent has lapsed.

The proposed subdivision has convenient access to Auburn Vale Road via Brownleigh Vale Drive and Wesley Street, all of which are bitumen sealed and maintained by Council. The site also fronts an unformed section of Borthwick Street, which connects to Hindmarsh Street.

## **PLANNING CONTROLS / LEGISLATION**

### **State Environmental Planning Policies (SEPP's)**

A review of the SEPP's indicates the following would be relevant to the proposed development.

### ***State Environmental Planning Policy No. 36 – Manufactured Home Estates***

Development for the purposes of a manufactured home estate may be carried out pursuant to this State Policy on any land on which development for the purposes of a caravan park may be carried out. Lot 1 DP 1152567 is zoned R1 General Residential under the *Inverell Local Environmental Plan 2012*. A 'Caravan Park' is permitted with consent in R1 General Residential zone. According, a 'Manufactured Home Estate' is permitted with consent under this State Policy.

Section 9 of this State Policy outlines matters that must be considered by Council in the assessment of a Development Application for a Manufactured Home Estate (e.g. services, transport services, local government regulations). In this regard, any Statement of Environmental Effects submitted with a Development Application must address these matters. At this point in time, Council has made no assessment of these matters.

### ***State Environmental Planning Policy No. 55 – Remediation of Land***

Council is unaware of any potential contamination of the site. Lot 1 DP 1152567 forms part of the larger historic Brownleigh Vale residential subdivision and has previously been approved for subdivision under DA-67/2011.

At this point in time, Council does not require a contamination study to be provided at the time of a lodgement of a Development Application.

### ***State Environmental Planning Policy No. 64 – Advertising and Signage***

It is likely that signage would be incorporated into the development, at minimum for the neighbourhood shop/s or child care centre. Any Development Application will need to address the provisions of this SEPP.

### ***State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017***

It is considered that the child care centre component of this development would be characterised as a 'Centre-Based Child Care Facility' and the provisions of this State Policy would apply. Principally, the following is of relevance to your proposal:

- Council must consult with the NSW Government where:
  - the floor area of the building or place does not comply with regulation 107 (indoor unencumbered space requirements) of the Education and Care Services National Regulations, or
  - the outdoor space requirements for the building or place do not comply with regulation 108 (outdoor unencumbered space requirements) of the Education and Care Services National Regulations.
- When assessing a Development Application, Council must take into consideration the provisions of the Child Care Planning Guideline.
- Non-discretionary development standards in relation to location, indoor or outdoor space, site area and site area and site dimensions, and colour of building materials or shade structures.

## **Inverell Local Environmental Plan 2012**

Lot 1 DP 1152567 is zoned R1 General Residential.

At this point in time, it is Council's opinion that the development is comprised of three (3) independent uses, characterised as a 'Manufactured Home Estate' (refer SEPP 36), 'Neighbourhood Shop/s' and 'Centre-based Child Care'.

These uses are 'Permitted with Consent' in the R1 General Residential zone.

### ***Clause 5.4 Controls relating to miscellaneous permissible uses***

Whilst a total area of 600m<sup>2</sup> has been nominated for neighbourhood shop/s, the total retail floor area must not exceed 200m<sup>2</sup> as per sub-clause (7).

*(7) Neighbourhood shops If development for the purposes of a neighbourhood shop is permitted under this Plan, the retail floor area must not exceed 200 square metres.*

### ***Clause 6.1 Earthworks***

Bulk earthworks plans will need to be submitted for the development, including roads, services, buildings and manufactured home sites (e.g. level building site). These earthworks must have consideration to the provisions of this clause.

### ***Clause 6.6 Essential Services***

Each dwelling site must be provided with:

- The supply of water;
- The supply of electricity;
- The disposal and management of sewage;
- Stormwater drainage or on-site conservation;
- Suitable vehicular access.

Detailed servicing plans must be submitted with the Development Application.

## **Inverell Development Control Plan 2013**

The following chapters of the Inverell Development Control Plan 2013 (IDCP 2013) are considered to apply to the development:

- Chapter 1 Introduction;
- Chapter 2 Subdivision;
- Chapter 4 Commercial and Industrial Development; and
- Chapter 5 Parking & Traffic.

### ***Chapter 1 Introduction***

Should you wish to vary a development standard (refer below), written justification must be made in accordance with Section 1.10 of the *Inverell Development Control Plan 2013*.

## **Chapter 2 Subdivision**

Council acknowledges that a manufactured home estate may be subdivided pursuant to the provisions of Section 8 of *State Environmental Planning Policy No. 36 – Manufactured Home Estates*.

Regardless, Council will still have consideration to the provisions of this chapter of IDCP 2013, including but not limited to roads, stormwater and land use conflict.

Additionally, it is Council's opinion that the proposed neighbourhood shop/s and child care facility are independent uses and do not form part of the Manufactured Home Estate. Accordingly, it is considered that these respective lots must:

- Have public road frontage, which includes suitable provision for turning of vehicles (i.e. cul-de-sac) prior to entering the Manufactured Home Estate; and
- Be connected to service mains for water and sewer (e.g. not private lines).

Further discussion in relation to roads, services and stormwater has been provided below in response to your specific questions for this development.

## **Chapter 4 Commercial and Industrial Development**

The provisions of this chapter will principally apply to the proposed neighbourhood shop/s and child care centre.

## **Chapter 5 Parking & Traffic**

This Chapter of the IDCP 2013 does not specify a rate of car parking for a manufactured home estate. Accordingly, the required parking provision will be determined by Council in consideration of the individual circumstances. At this point in time, Council considers that car parking should be provided at a rate of:

- 1 car parking space per manufactured home site; and
- Visitor parking in accordance with Sections 23 and 24 of the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005* – based on 95 manufactured home sites requires 16 visitor parking spaces inclusive of 1 disabled space.

Car parking for the neighborhood shops and child care centre must be provided at the following rates:

- Child care centre – 1 space per 4 children in attendance; and
- Shop – 1 space per 25m<sup>2</sup> gross floor area.

The above car parking rates represent a minimum standard; however, Council recommends that you give consideration to providing parking above the minimum amount, in recognition of modern trends, including vehicle ownership and lifestyle (e.g. caravans, boats, etc.). The availability and accessibility of suitable parking may have implications for the design and desirability of the development.

All car parking areas and vehicle maneuvering areas must be designed for vehicles to enter and exit in a forward direction. All roads will need to be designed for the maximum size vehicle accessing the site (e.g. garbage truck, fire engine).

## Specific Questions

Council has provided responses to the specific questions made in the letter dated 22 July 2020.

**1. *Does Council consider this scale and type of development is suited / achieves the strategic intent of the area?***

At this point in time, Council has not formed an opinion on the suitability of the scale and type of this development within the area. This will be considered as part of the merit based assessment of a Development Application, including consideration of any submissions received in response to public exhibition. However, your attention is drawn to Planning Priority 4 of the Inverell Local Strategic Planning Statement 2036, which is to "Deliver diverse housing choice that reinforces our unique character". A number of Actions have been identified within the Inverell Local Strategic Planning Statement 2036 to support the Planning Priority, which includes "supporting the availability of an appropriate housing supply by responding to changing housing needs, as well as household and demographic changes".

**2. *What is Council's position on the potential for a second access point to be achieved over Council land to connect the development (via an extension of the internal road) to Hindmarsh Street in the east? If possible, what requirements/information would be required to facilitate lodgement of a development application with this second access point proposed (ie. land owners consent, construction level detail plans, etc).***

Council would consider the access arrangement, including secondary access points, on merit and based on sufficient justification. Any connection of the development site to Hindmarsh Street to the east will require the use of the unformed section of Borthwick Street (not adjoining Council reserves).

A Traffic Impact Assessment will be required for the Development Application, prepared in accordance with AustRoads and RMS guidelines, which must address:

- Primary access point and any secondary access points for the development site;
- Expected number of vehicle movements generated by the development;
- Current traffic counts for the existing road network;
- Current and future intersection volumes, including potential wait times and queuing of vehicles;
- Any required upgrades to the road network (e.g. unformed road connecting the development site to Hindmarsh Street) or intersections (e.g. Auburn Vale Road, Hindmarsh Street and Gwydir Highway/Warialda Road intersections); and
- Preliminary engineering drawings for the any identified upgrades.

Council considers that the above Traffic Impact Assessment will be required regardless of the final access configuration.

**3. Can Council confirm any potential issues with sewer capacity and connection for the development?**

At this point in time, Council has not identified any potential issues with sewer capacity or connection of this development.

Should a detailed site plan (lot/dwelling layout, levels) and a preliminary servicing plan (refer Clause 6.6 of the Inverell LEP 2012) be provided Council would be happy to undertake a further review of sewer and other service arrangements.

**4. Are there any perceived or actual environmental impacts that the Council considers require consideration prior to lodgement? (Noting the proximity of the development to Spring Creek).**

As you are aware, the Statement of Environmental Effects submitted with a Development Application must indicate the environmental impacts associated with the development. In this regard, it will be necessary for you to identify environmental impacts and potential mitigation measures. For your assistance, and in no particular order of importance, Council would generally consider the following impacts as part of the Development Application assessment:

- |                                       |                                       |
|---------------------------------------|---------------------------------------|
| • Context & Setting                   | • Other Land Resources                |
| • Construction                        | • Water                               |
| • Public Domain                       | • Soils                               |
| • Utilities                           | • Air & Microclimate                  |
| • Heritage                            | • Flora & Fauna                       |
| • Waste                               | • Energy                              |
| • Noise & Vibration                   | • Natural Hazards / Flood / Bush Fire |
| • Cumulative Impacts                  | • Site Design & Internal Design       |
| • Safety, Security & Crime Prevention | • Economic Impact in the Locality     |
| • Lighting                            | • Climate Change                      |
| • Site Design & Internal Design       | • Access, Transport & Traffic         |
| • Social Impacts in the Locality      |                                       |

**5. Stormwater management is proposed along the southern boundary, does Council have any concerns/comments in relation to this?**

Council has made no assessment of the existing drainage regime or the possible drainage issues relating to the proposal. As per Section 2.10 of IDCP 2013:

- Piped (minor systems) are to be provided to control stormwater flows under normal operating conditions with an Average Rainfall Interval (ARI) of up to two years for residential subdivision – This standard would apply with the majority of the site; and
- Overland (major) systems are to be provided to control stormwater flows under normal operating conditions with an ARI of up to 100 years in all subdivisions – This standard would apply to the stormwater management along the southern boundary.

In this regard preliminary stormwater engineering plans and calculations will be required for any Development Application.

**6. Does Council have any feedback on preferred location/requirements for waste/garbage removal from the site?**

If Council's waste and recycling service is intended to be used for this development, then the internal road access must meet pavement quality, turn and lift requirements for Council's waste/recycling collection vehicle dimensions. Ultimately, the provision of the service would be subject to Council inspection of the completed works and signing of an indemnity agreement. Alternatively, you may wish to investigate an alternative waste and recycling arrangement for the manufactured home estate, which can be submitted for Council's consideration.

**7. Are there any identified issues with proposed road location/layout?**

Council provides the following comments in relation to the road location/layout:

- The main (central) road generally follows the alignment of the sewer main through the site. Where the road intersects with the unformed section of Borthwick Street, a central intersection may be a better outcome than a road located directly behind Hindmarsh Street properties;
- The neighbourhood shop/s and child care centre should have frontage to a public road; and
- A public cul-de-sac should be provided at the connection point/s of the Manufactured Home Estate to the road network. At minimum this will require the construction and dedication of a cul-de-sac at the north-east end of Brownleigh Vale Drive.

Council would be happy to discuss the road layout in further detail, including whether consideration has been given to the central road being a public road.

**8. Are there any known or potential contamination/soils issues with the site?**

Refer to previous comments in relation to *State Environmental Planning Policy No. 55 – Remediation of Land* in relation to contamination.

Council has insufficient information in relation to other potential soil issues; however, it is recommended that you undertake geotechnical investigations as the soil conditions will influence the design, construction and cost associated with the development, e.g. roads, footings, etc.

**9. Perimeter landscaping is considered to achieve the intent of the relevant Local government regulation. Does Council have any additional comments on landscaping outcomes?**

While Council has no policy relating to landscaping for proposed developments, in this instance, Council considers the landscaping treatment of the site to be an important component of the overall development. Landscaping concept plans will be required with the Development Application documentation. The plans would need to show at minimum, location, numbers and species of trees, mature height of trees, surface treatments (turf, paving and ground covers) and fencing treatments.



**10. Council officer's comments are sought in relation to the associated land uses and the community amenities with regard to suitability, location and size etc.**

As discussed above, it is Council's opinion that the proposed neighbourhood shop and child care facility are independent uses and do not form part of the Manufactured Home Estate.

As per the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005*, at least 10 percent of the manufactured home estate must be reserved for community amenities.

Council notes that your letter references the provision of communal gardens and recreational services (pool, bowling greens, mens shed). These types of uses/activities would generally be considered community amenities; however, Council is unable to comment on suitability or location at this point in time.

**11. Noting that a comprehensive town planning report will be provided, what other specialist reports are considered essential for your assessment of the development application?**

Based on this preliminary advice, the following reports/studies have been identified and are recommended:

- Traffic impact assessment;
- Stormwater engineering plans and calculations;
- Servicing strategy; and
- Geotechnical investigations.

Please note the above studies have been identified based on this preliminary advice only. Additional studies may be required following a merit based assessment of a Development Application, comments from other specialist staff or agencies, and community consultation.

Furthermore, Council has not undertaken a detailed review of the neighbourhood shop or child care centre components of this development. It is recommended that you undertake your own review of these components for any relevant studies/reports (e.g. acoustic, child care regulations, Building Code of Australia).

**12. Are there any other general comments/concerns that Council officers may have in relation to the development?**

Survey

At the time of providing this advice the exact levels of the site and road were unknown. Understanding the site levels (in relation to AHD), adjoining property levels, Spring Creek and road levels will be important for the design of the project as these levels will impact on stormwater drainage, road gradients, retaining walls, cut and fill etc.

Electricity and Telecommunications (NBN)

Council has made no investigation of electricity or telecommunication services (NBN) for this development. It is recommended that you undertake your own early investigations in relation to these services to identify any potentially significant costs and/or delays for the development.

### Development Servicing Plan No. 1

Council has not undertaken a detailed review of water and sewer contributions payable; however, for your information Council's water and sewer contributions under Development Servicing Plan No. 1 for the 2020/2021 financial year, based on 1 equivalent tenement (e.g. standard residential lot) are:

- Water Contribution - \$12,055.00 and
- Sewer Contribution - \$3,910.00.

*(Example: Water Contribution \$12,055 x 10 equivalent tenements/lots = \$120,550.00)*

### **CONCLUSION**

Overall, a manufactured home estate, neighbourhood shop/s and child care centre are permissible uses within the R1 General Residential zone. It is Council's opinion that the neighbourhood shop/s and child care centre are independent uses, separate to the manufactured home estate, and the development should be designed on this basis.

This preliminary advice is intended to provide broad comment on the concept development and the issues which Council considers need to be addressed in a Development Application. Other issues may arise depending on the final design of the development and input from other specialists.

Council has a strong commitment to assisting in the preparation of Development Applications by taking an active role in the pre-application process, and Council staff are available to provide you with additional assistance, comment or advice during the design of the development. Additionally, Council staff would be happy to meet with you and undertake a joint site inspection, should you be in Inverell.

Should you wish to arrange a further meeting with Council staff, please contact Mr. Chris Faley (67288251) to arrange an appropriate time.

Yours faithfully



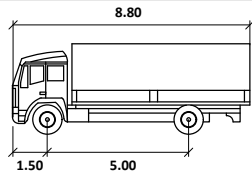
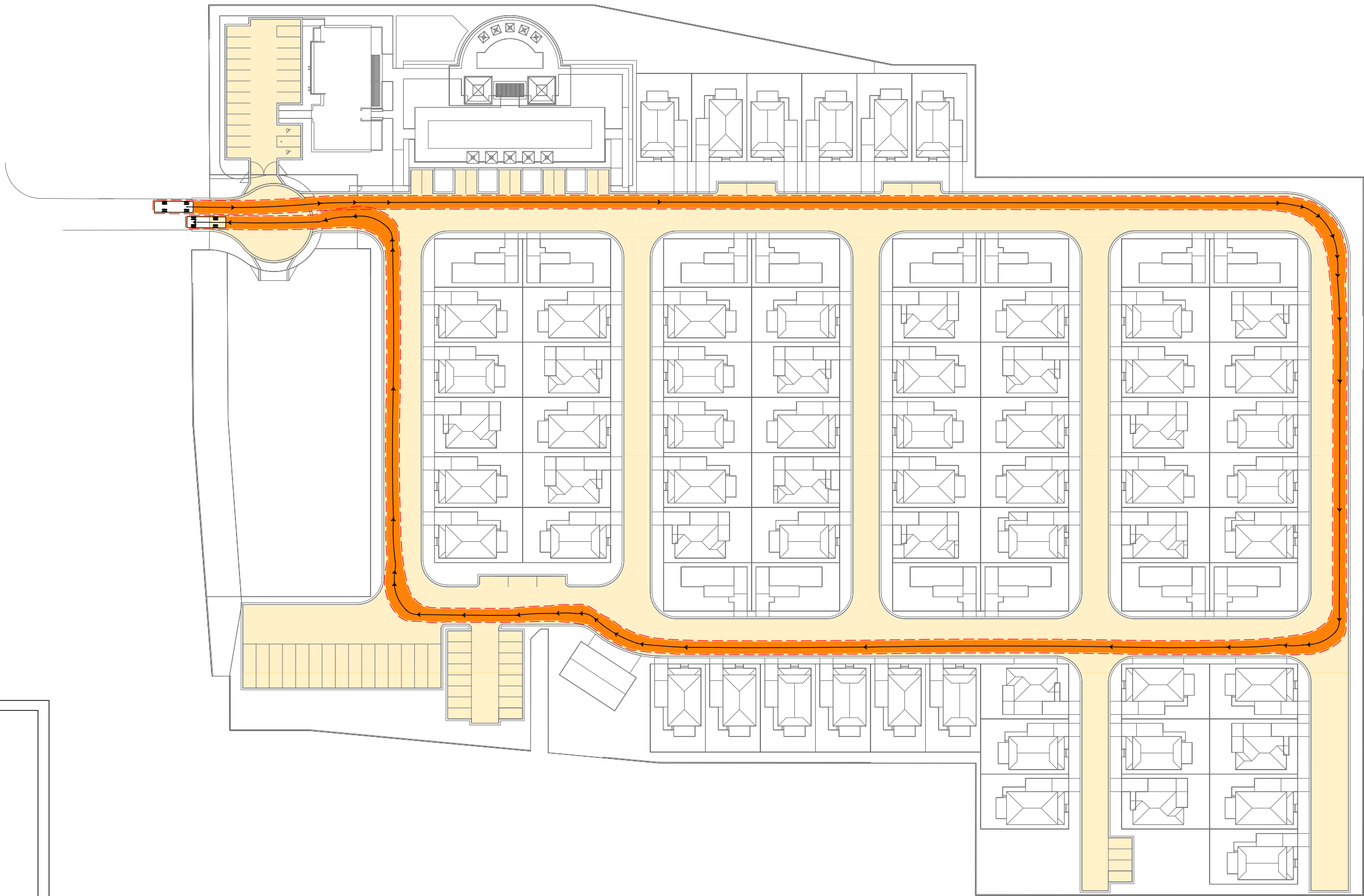
**CHRIS FALEY**  
**DEVELOPMENT SERVICES COORDINATOR**



## **APPENDIX E**

### **Swept Path Assessment**





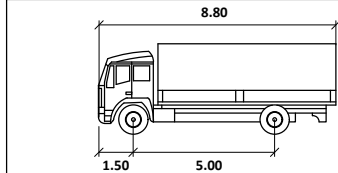
**8.8m MEDIUM RIGID VEHICLE**  
Width : 2.50m  
Track : 2.50m  
Lock to Lock Time : 6.0s  
Steering Angle : 38.7°

**LEGEND**  
Vehicle Swept Path Forward Envelope  
Vehicle Swept Path Reverse Envelope  
Vehicle Body Clearance (300mm)

**GELEON**  
ABN 53 143 670 071  
Suite 12, Level 1, 3029 The Boulevard  
Emerald Lakes, Carrara  
PO Box 454 Nerang Qld 4211  
tel +61 7 5594 4473

0 5 10 15 20m




31 BROWNLEIGH VALE DRIVE INVERELL PROPOSED RESIDENTIAL DEVELOPMENT		Project No. 50523	Issue Date 10/05/22
SWEPT PATH ASSESSMENT 8.8m MEDIUM RIGID VEHICLE CIRCULATION MANOEUVRE THROUGHOUT DEVELOPMENT SITE		Drawing No. 50523-SP001-C	
		Series No.	1 of 4

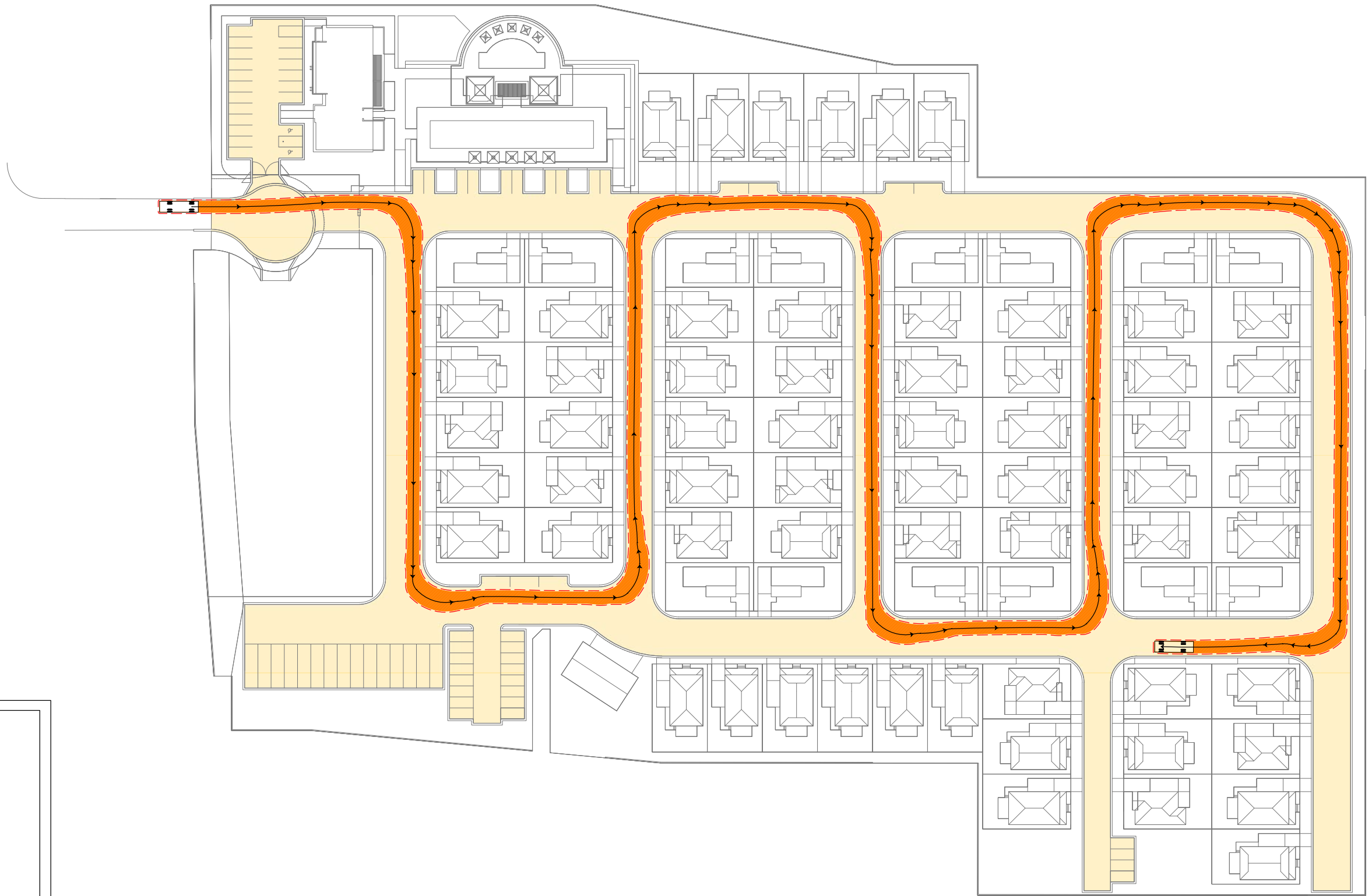


8.8m MEDIUM RIGID VEHICLE

Width : 2.50m  
Track : 2.50m  
Lock to Lock Time : 6.0s  
Steering Angle : 38.7°

LEGEND

- Vehicle Swept Path Forward Envelope 
- Vehicle Swept Path Reverse Envelope 
- Vehicle Body Clearance (300mm) 



**GELEON**

ABN 53 143 670 071  
Suite 12, Level 1, 3029 The Boulevard  
Emerald Lakes, Carrara  
PO Box 454 Nerang Qld 4211  
tel +61 7 5594 4473

0 5 10 15 20m

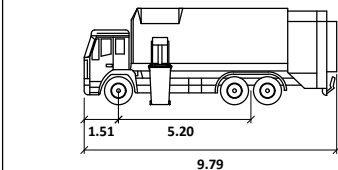
31 BROWNLEIGH VALE DRIVE INVERELL  
PROPOSED RESIDENTIAL DEVELOPMENT

**SWEPT PATH ASSESSMENT**  
**8.8m MEDIUM RIGID VEHICLE**  
**CIRCULATION MANOEUVRE THROUGHOUT DEVELOPMENT SITE**

Project No.  
**50523** Issue Date  
**10/05/22**

Drawing No.  
**50523-SP002-C**

Series No. 2 of 4

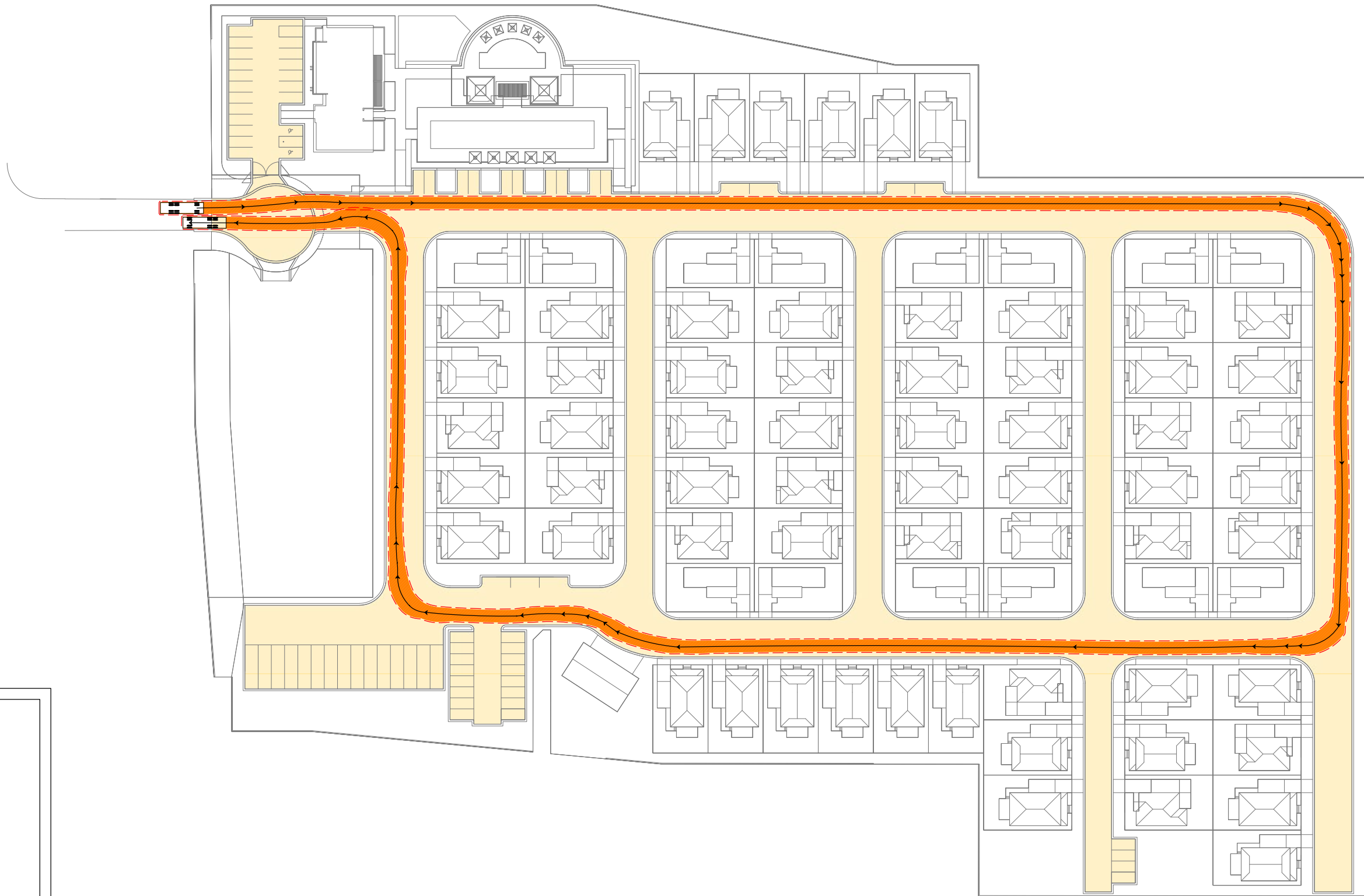


**9.8m REFUSE TRUCK SIDE LOADER**

Width : 2.50m  
Track : 2.50m  
Lock to Lock Time : 6.0s  
Steering Angle : 29.1°  
Turning Radius : 10.5m (kerb to kerb)

**LEGEND**

Vehicle Swept Path Forward Envelope   
Vehicle Swept Path Reverse Envelope   
Vehicle Body Clearance (300mm) 



**GELEON**

ABN 53 143 670 071  
Suite 12, Level 1, 3029 The Boulevard  
Emerald Lakes, Carrara  
PO Box 454 Nerang Qld 4211  
tel +61 7 5594 4473

0 5 10 15 20m

31 BROWNLEIGH VALE DRIVE INVERELL  
PROPOSED RESIDENTIAL DEVELOPMENT

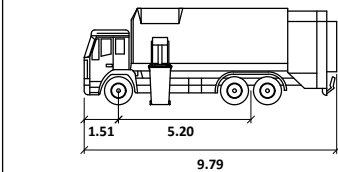
**SWEPT PATH ASSESSMENT**  
**9.8m REFUSE TRUCK SIDE LOADER**  
**CIRCULATION MANOEUVRE THROUGHOUT DEVELOPMENT SITE**

Project No.  
**50523** Issue Date  
**10/05/22**

Drawing No.  
**50523-SP003-C**

Series No. 3 of 4




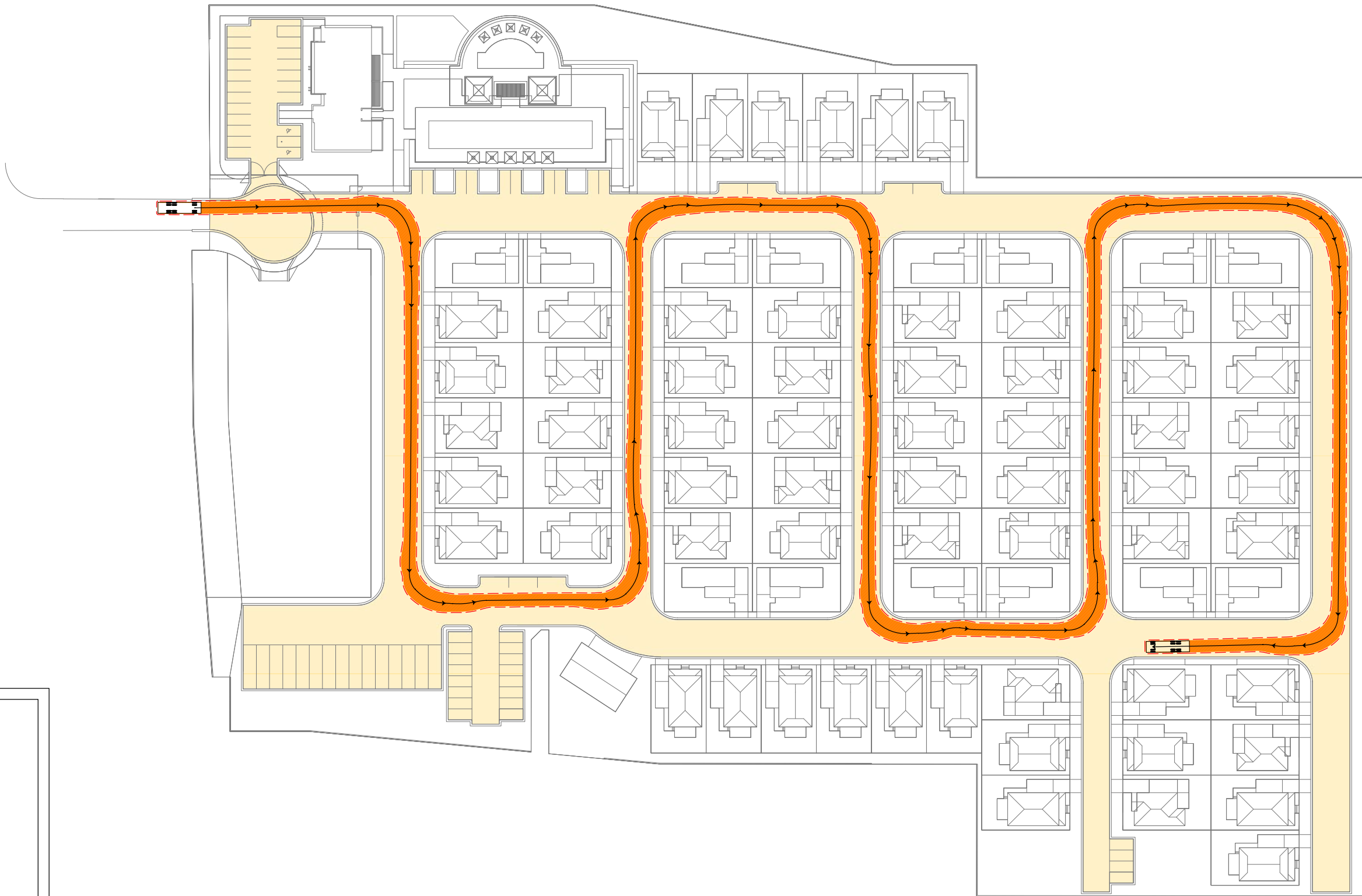


**9.8m REFUSE TRUCK SIDE LOADER**

Width : 2.50m  
Track : 2.50m  
Lock to Lock Time : 6.0s  
Steering Angle : 29.1°  
Turning Radius : 10.5m (kerb to kerb)

**LEGEND**

Vehicle Swept Path Forward Envelope   
Vehicle Swept Path Reverse Envelope   
Vehicle Body Clearance (300mm) 



**GELEON**

ABN 53 143 670 071  
Suite 12, Level 1, 3029 The Boulevard  
Emerald Lakes, Carrara  
PO Box 454 Nerang Qld 4211  
tel +61 7 5594 4473

0 5 10 15 20m

31 BROWNLEIGH VALE DRIVE INVERELL  
PROPOSED RESIDENTIAL DEVELOPMENT

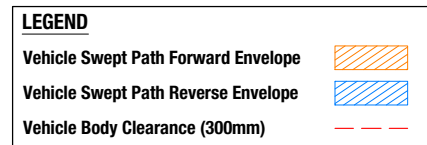
**SWEPT PATH ASSESSMENT**  
**9.8m REFUSE TRUCK SIDE LOADER**  
**CIRCULATION MANOEUVRE THROUGHOUT DEVELOPMENT SITE**

Project No. <b>50523</b>	Issue Date <b>10/05/22</b>
Drawing No. <b>50523-SP004-C</b>	
Series No. 4	of 4

## **APPENDIX F**

### **Manufactured Housing Transportation Swept Path Assessment**









**GELEON**

ABN 53 143 670 071  
Suite 12, Level 1, 3029 The Boulevard  
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PO Box 454 Nerang Qld 4211  
tel +61 7 5594 4473

0 2 4 6 8m

31 BROWNLEIGH VALE DRIVE - INVERELL  
PROPOSED RESIDENTIAL DEVELOPMENT

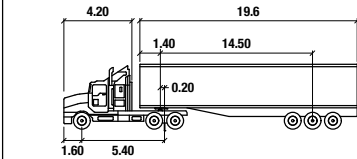
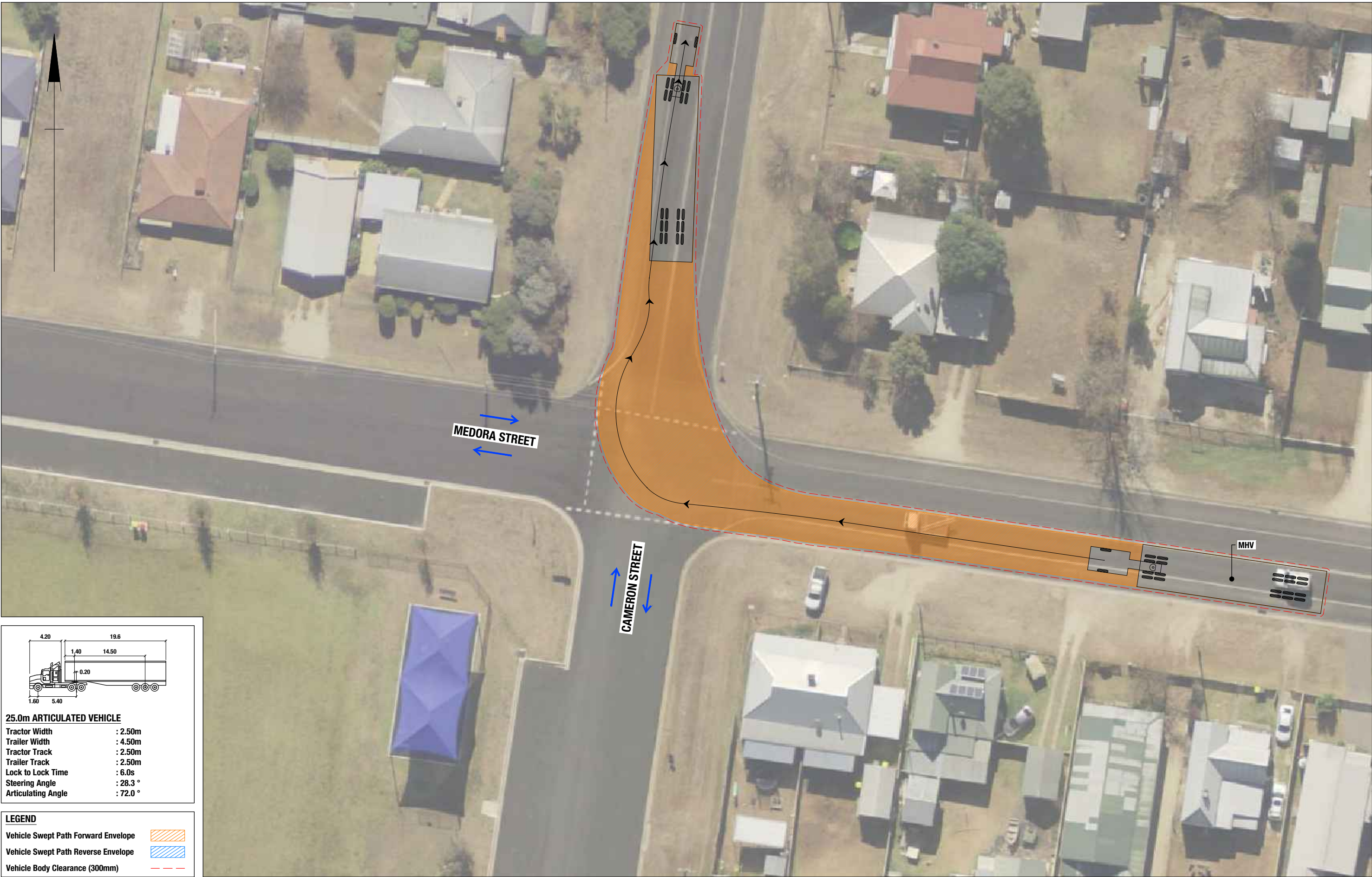
Project No.  
50523 Issue Date  
20/06/22

**SWEPT PATH ASSESSMENT**  
**25.0m MANUFACTURED HOUSING TRANSPORTATION VEHICLE**  
**RIGHT TURN INTO MEDORA STREET**

Drawing No.  
**50523-SP002-D**

Series No. 2 of 8





**25.0m ARTICULATED VEHICLE**

Tractor Width	: 2.50m
Trailer Width	: 4.50m
Tractor Track	: 2.50m
Trailer Track	: 2.50m
Lock to Lock Time	: 6.0s
Steering Angle	: 28.3 °
Articulating Angle	: 72.0 °

**LEGEND**

Vehicle Swept Path Forward Envelope	
Vehicle Swept Path Reverse Envelope	
Vehicle Body Clearance (300mm)	

**GELEON**

ABN 53 143 670 071  
Suite 12, Level 1, 3029 The Boulevard  
Emerald Lakes, Carrara  
PO Box 454 Nerang Qld 4211  
tel +61 7 5594 4473

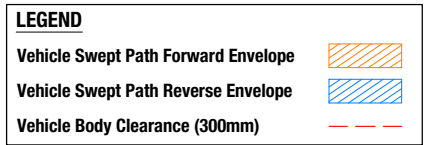
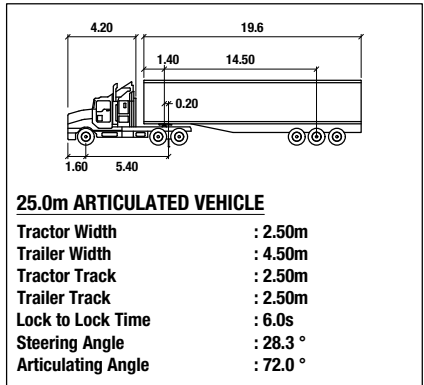
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31 BROWNLEIGH VALE DRIVE - INVERELL  
PROPOSED RESIDENTIAL DEVELOPMENT

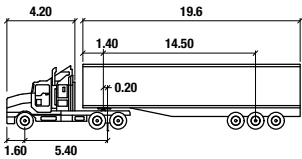
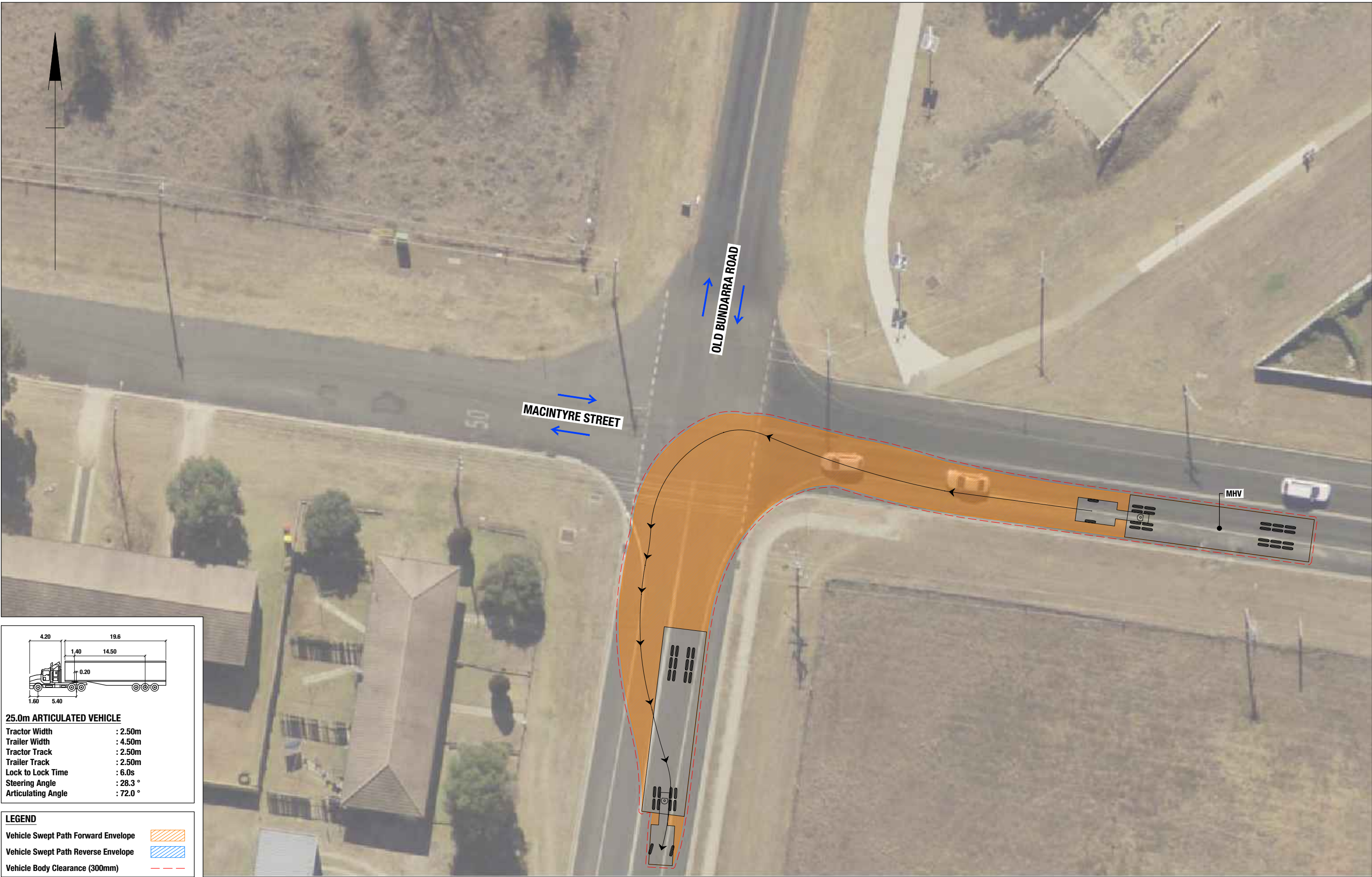
**SWEPT PATH ASSESSMENT**  
**25.0m MANUFACTURED HOUSING TRANSPORTATION VEHICLE**  
**RIGHT TURN INTO CAMERON STREET**

Project No. <b>50523</b>	Issue Date <b>20/06/22</b>
Drawing No. <b>50523-SP003-D</b>	
Series No. 3 of 8	









**25.0m ARTICULATED VEHICLE**

Tractor Width	: 2.50m
Trailer Width	: 4.50m
Tractor Track	: 2.50m
Trailer Track	: 2.50m
Lock to Lock Time	: 6.0s
Steering Angle	: 28.3 °
Articulating Angle	: 72.0 °

**LEGEND**

Vehicle Swept Path Forward Envelope	
Vehicle Swept Path Reverse Envelope	
Vehicle Body Clearance (300mm)	

**GELEON**

ABN 53 143 670 071  
Suite 12, Level 1, 3029 The Boulevard  
Emerald Lakes, Carrara  
PO Box 454 Nerang Qld 4211  
tel +61 7 5594 4473

0 2 4 6 8m

31 BROWNLEIGH VALE DRIVE - INVERELL  
PROPOSED RESIDENTIAL DEVELOPMENT

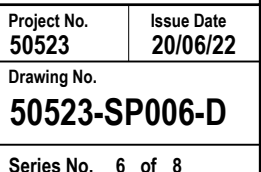
Project No.  
**50523** Issue Date  
**20/06/22**

**SWEPT PATH ASSESSMENT**  
**25.0m MANUFACTURED HOUSING TRANSPORTATION VEHICLE**  
**LEFT TURN INTO OLD BUNDARRA ROAD**

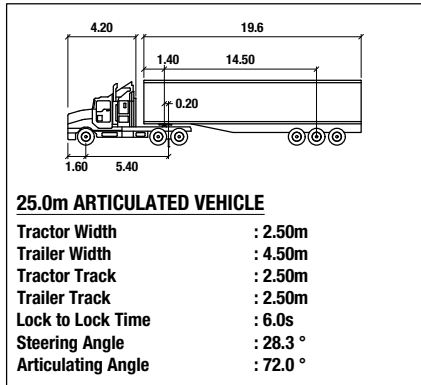
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Series No. 5 of 8



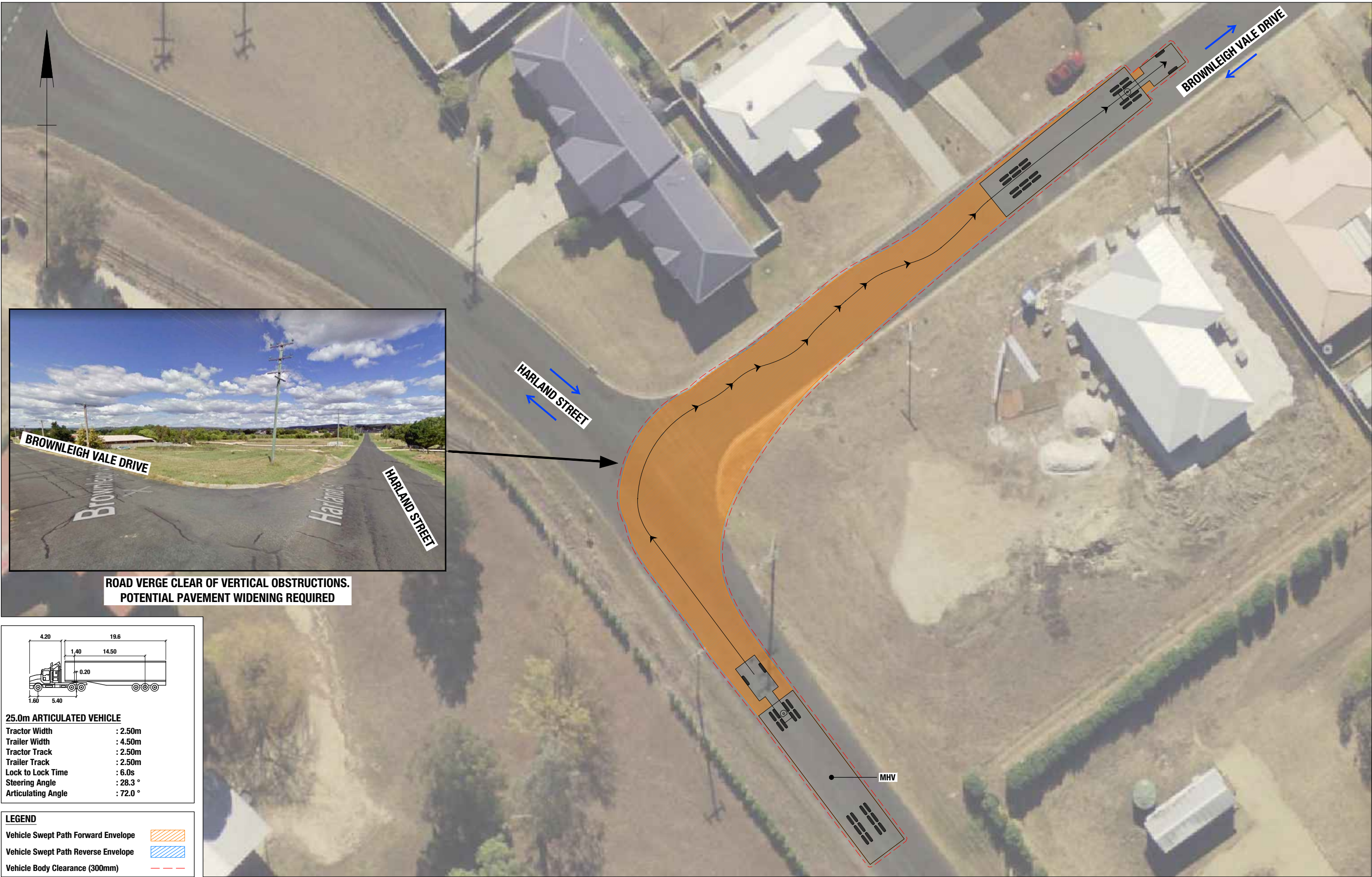






LEGEND	
Vehicle Swept Path Forward Envelope	
Vehicle Swept Path Reverse Envelope	
Vehicle Body Clearance (300mm)	





**GELEON**

ABN 53 143 670 071  
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PO Box 454 Nerang Qld 4211  
tel +61 7 5594 4473

0 2 4 6 8m

# **GELEON**

**Geleon Pty Ltd**

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