



**Part Lot 28 & Lot 36 Woodvale  
Drive, Joondalup**

Transport Impact Assessment

15/02/2023

Prepared for:

Riverswan Holdings Pty Ltd

Prepared by:

Stantec Consulting Services Inc



# TRANSPORT IMPACT ASSESSMENT

## LOT 36 WOODVALE DRIVE, JOONDALUP

<b>Revision</b>	<b>Description</b>	<b>Author</b>		<b>Quality Check</b>		<b>Independent Review</b>	
Rev A	For issue	AW		RC			
Rev B	Updated Site Plan	RR		AW		RC	



## TRANSPORT IMPACT ASSESSMENT

### LOT 36 WOODVALE DRIVE, JOONDALUP

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## 1.0 INTRODUCTION

### 1.1 BACKGROUND

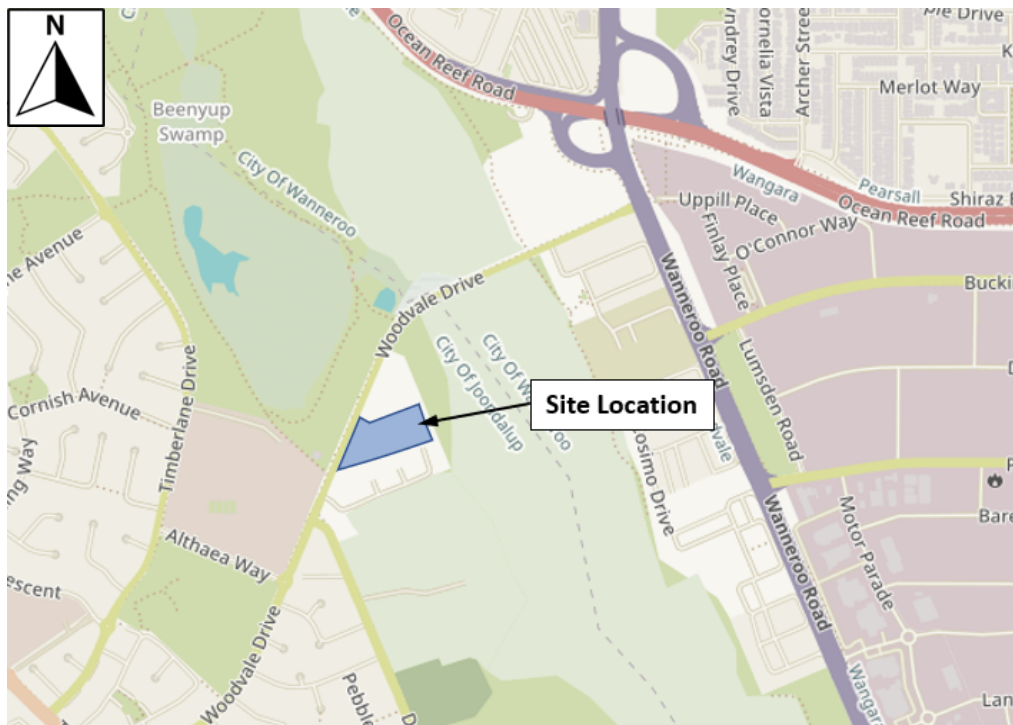
Stantec has been commissioned by Riverswan Holdings Pty Ltd (“the Client”) to prepare a Transport Impact Assessment (TIA) for the proposed scheme amendment located at Part Lot 28 & Lot 36 Woodvale Drive in the City of Joondalup, WA (the “Site”).

This TIA has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 2 – Planning Schemes, Structure Plans, and Activity Centre*.

### 1.2 SITE LOCATION

The Site is located in the suburb of Woodvale as shown in **Figure 1-1** The Site is adjacent to Woodvale Drive.

Figure 1-1 Site Location



Source: Open Street Maps 2022



# TRANSPORT IMPACT ASSESSMENT

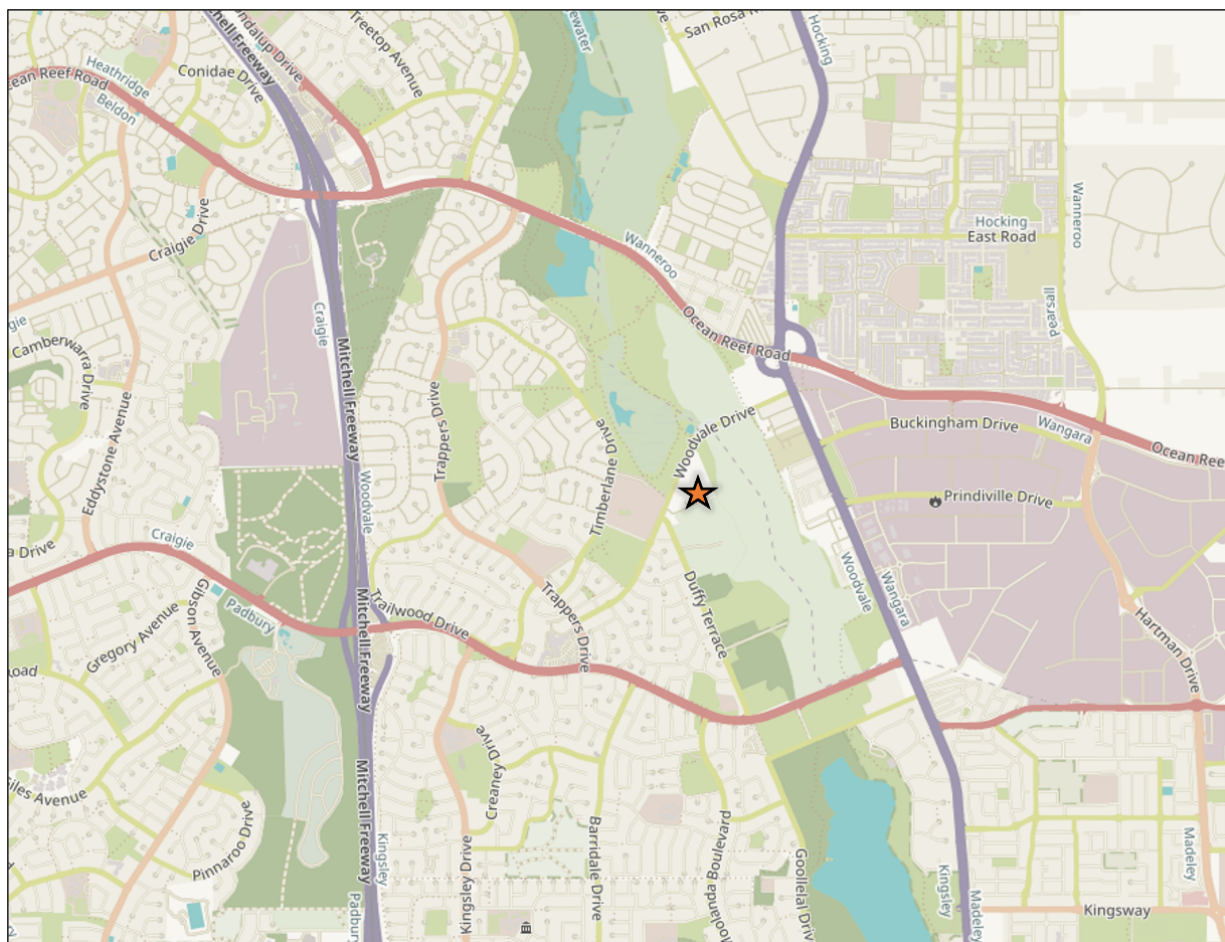
Lot 36 Woodvale Drive, Joondalup

## 2 PROPOSED SCHEME AMENDMENT

### 2.1 REGIONAL CONTEXT

The proposed development is located within the suburb of Woodvale, as shown in **Figure 2-1**.

Figure 2-1 Regional Context



Source: Open Street Maps 2023



# TRANSPORT IMPACT ASSESSMENT

Lot 36 Woodvale Drive, Joondalup

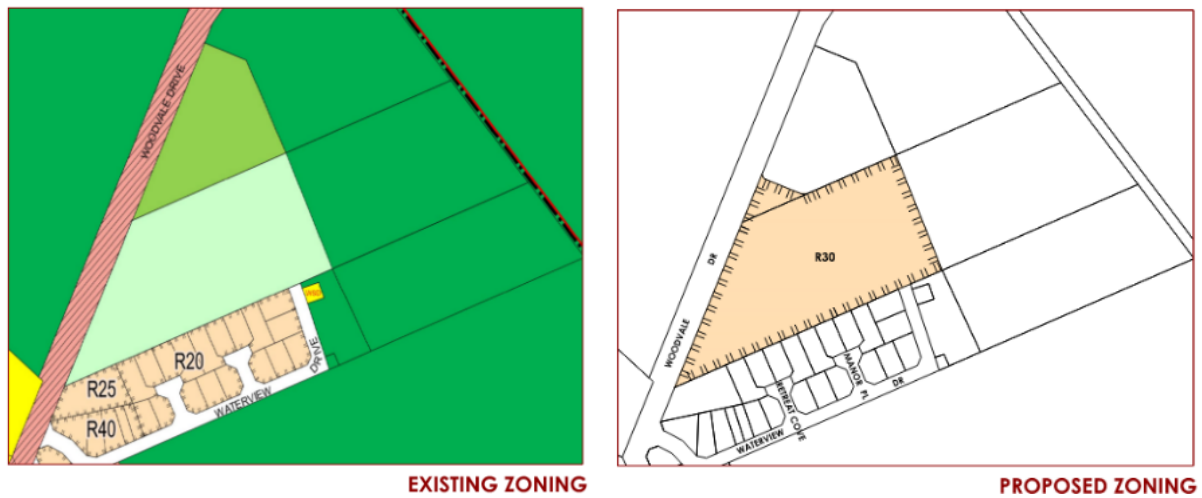
## 2.2 PROPOSED LAND USE

The Amendment to the City of Joondalup Local Planning Scheme No.3 proposes to rezone the site from 'Rural' and 'Private Community Purposes' to 'Residential' with a density coding of R30 as shown in **Figure 2-2**. A concept plan prepared for the Site consists of 38 individual residential dwelling units as shown in **Figure 2-3**. **Table 2-1** provides a summary of land uses within the proposed concept plan.

Table 2-1 Proposed Land Uses within LSP

Land Use	Total Number of Lots
Individual Residential Units	38

Figure 2-2 Proposed Scheme Amendment



- LEGEND**
- REGION SCHEME RESERVES (MRS)**
- Parks and Recreation
  - HS Public Purposes - High School
  - WSD Public Purposes - Water Authority of WA
- LOCAL SCHEME RESERVES**
- Local Road
  - Local Distributor Road
- LOCAL SCHEME ZONES**
- Residential
  - Rural
  - Private Community Purposes
- OTHER CATEGORIES**
- Scheme Area Boundary
  - Local Government Boundary
  - R Codes

Source: Burgess Design Group

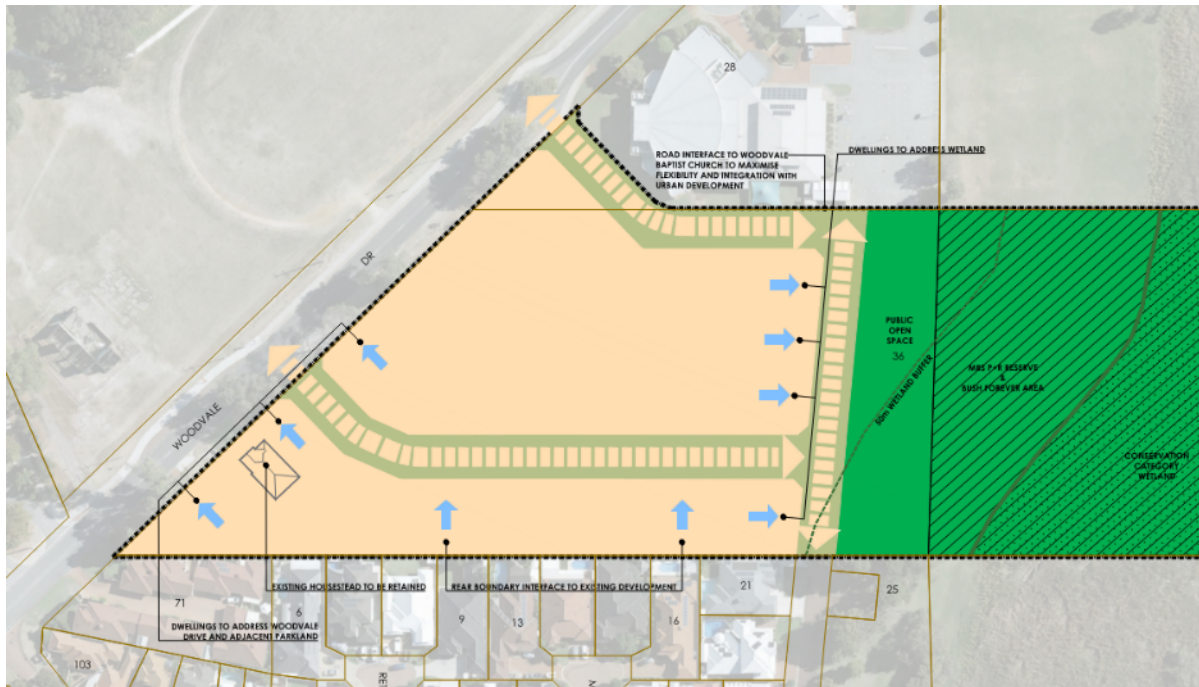




# TRANSPORT IMPACT ASSESSMENT

Lot 36 Woodvale Drive, Joondalup

Figure 2-3 Concept Plan



Source: Burgess Design Group



# TRANSPORT IMPACT ASSESSMENT

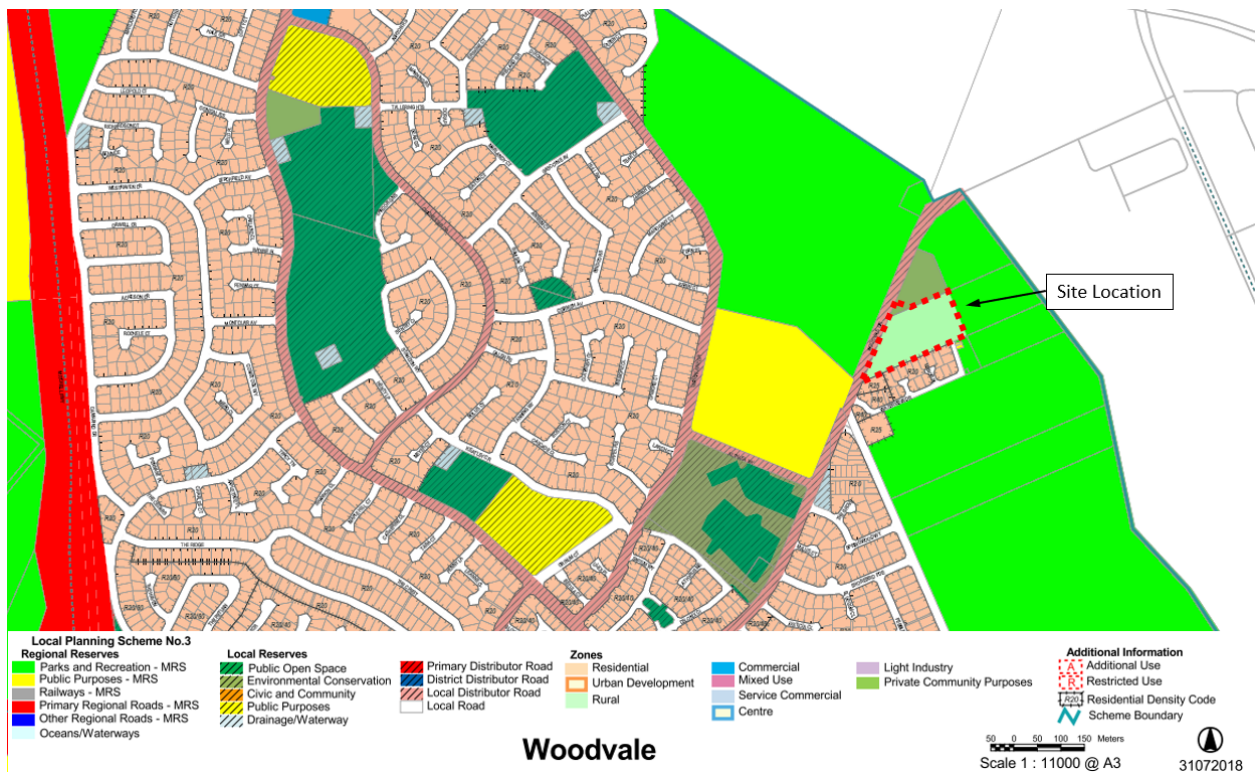
Lot 36 Woodvale Drive, Joondalup

## 3 EXISTING SITUATION

### 3.1 EXISTING LAND USES

Pursuant to the provision of the City of Joondalup Local Planning Scheme No. 3 for suburb of Woodvale, the Site is currently zoned 'Rural' and 'Private Community Purposes' as shown in **Figure 3-1**. The site is surrounded by parks and recreation to the east, residential dwellings to the south, and the Woodvale Baptist Church to the north.

Figure 3-1 Woodvale Zoning Map



Source: City of Joondalup Scheme Map - Woodvale



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### 3.2 EXISTING ROAD NETWORK

Road classifications are defined in the Main Roads Functional Hierarchy as follows:

- > **Primary Distributors (light blue):** Form the regional and inter-regional grid of MRWA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes, and all are National or State Roads WA.
- > **Regional Distributors (red):** Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government.
- > **District Distributor A (green):** These carry traffic between industrial, commercial and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining properties. They are managed by Local Government.
- > **Distributor B (dark blue):** Perform a similar function to District Distributor A but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with traffic demand more than that originally intended. District Distributor A and B roads run between land-use cells and not through them, forming a grid that would ideally be around 1.5 kilometres apart. They are managed by Local Government.
- > **Local Distributors (orange):** Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local Government.
- > **Access Roads (grey):** Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by Local Government.

The site is accessed by Woodvale Drive to the west. Woodvale Drive connects to Trappers Drive to the south and Wanneroo Road to the north. The surrounding road network is further described in **Table 3-1** and shows the hierarchy as per the Main Roads WA Road Information Mapping System, whilst **Figure 3-2** shows the road hierarchy.

Table 3-1 Road Network Classification

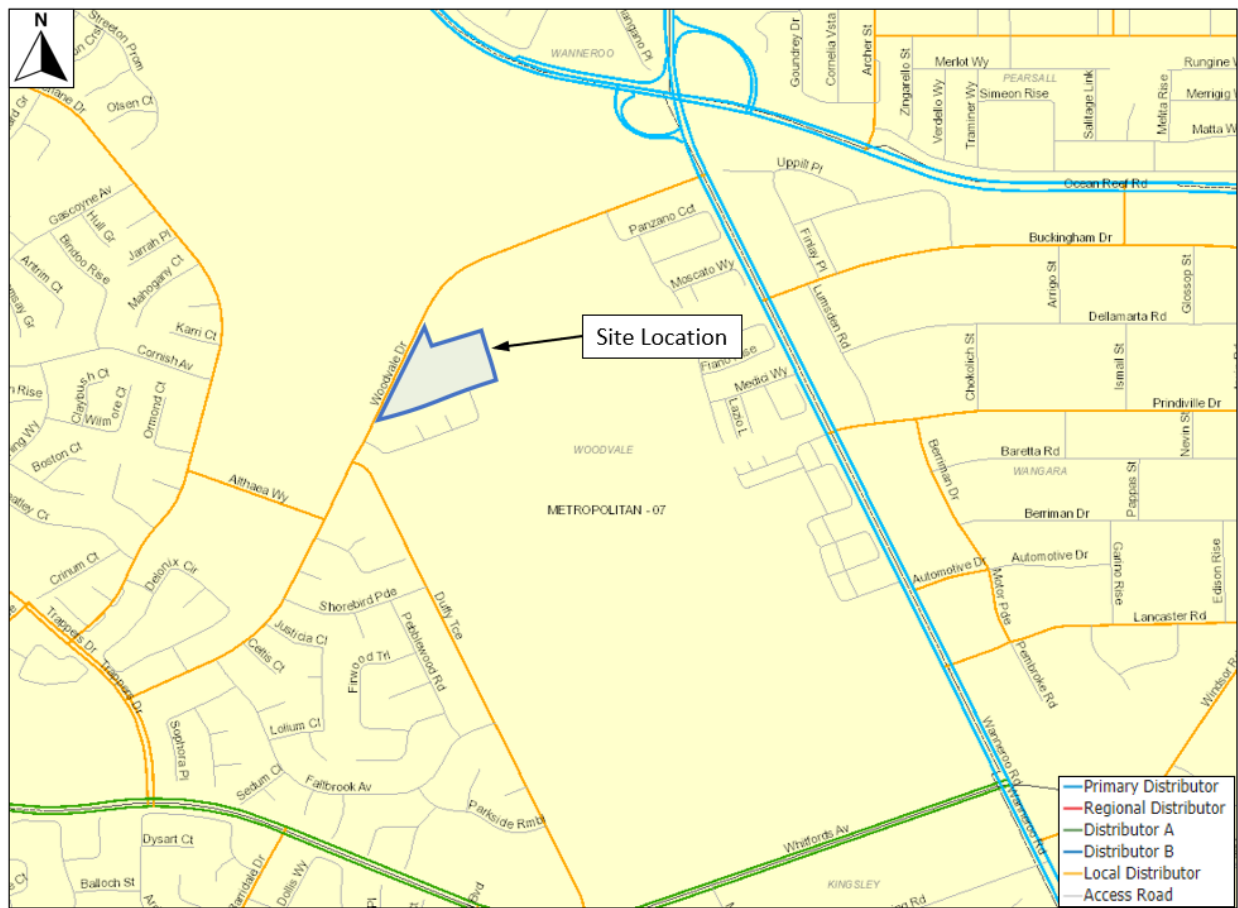
Road Names	Road Hierarchy				Road Network	
	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Speed Limit (km/h)
Woodvale Drive	Access Road	Local Government	2	1	8.4	50
Trappers Drive	Local Distributor	Local Government	1-2	2	10	50
Wanneroo Road	Primary Distributor	Main Roads WA	4	1-2	8	70



# TRANSPORT IMPACT ASSESSMENT

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Figure 3-2 Road Hierarchy Map



Source: Main Roads WA Road Information Mapping System

## 3.3 EXISTING TRAFFIC VOLUMES

Existing weekday traffic volumes were obtained from the Main Roads WA Trafficmap in the vicinity of the Site. These traffic volumes are summarised in **Table 3-2**.

Table 3-2 Existing Weekdays Traffic Volume

Road Name	Year	Daily (vpd)	AM Peak Hour (07:45 – 08:45) (vph)	PM Peak Hour (15:45 – 16:45) (vph)	Heavy Vehicle %
Woodvale Drive	2022	7,575	788	630	2%

Source: Main Roads WA Trafficmap



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## 3.4 EXISTING PUBLIC PEDESTRIAN/CYCLIST NETWORK

A footpath with a width of approximately 2.7m is located on the western side of Woodvale Drive. There are no dedicated cycling facilities within the Site itself.

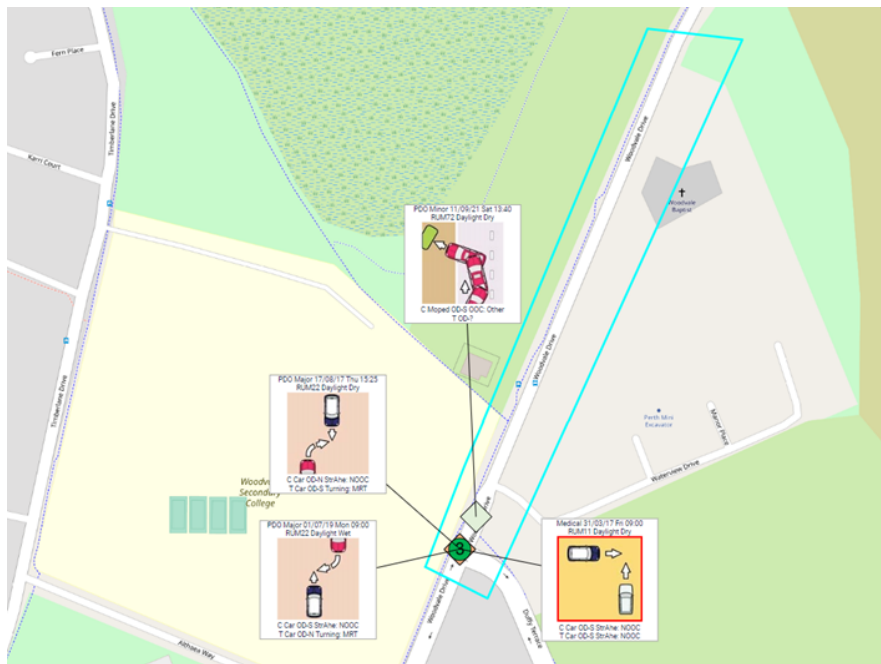
## 3.5 EXISTING PUBLIC TRANSPORT NETWORK

Bus stops for Transperth service 467 (Whitfords Station to Joondalup Station) is located in close proximity to the Site. During both the AM and PM peaks the service frequencies vary between 15-30 minutes. Outside of the AM and PM peaks, the bus services run approximately every 30 minutes.

## 3.6 CRASH ASSESSMENT

A crash assessment within the proximity of the subject site has been completed. The assessment covers all the recorded accidents in between 1 January 2017 and 31 December 2021 for the section shown in **Figure 3-3**. The midblock crash data is summarised in **Table 3-3**, while the crash data for the intersection of Woodvale Drive / Duffy Terrace is summarised in **Table 3-4**. The crash data indicates only 1 midblock crash has occurred on this section of Woodvale Drive within the past 5 years, which only resulted in minor property damage. As such, no systemic crash risks are considered to exist along this section of Woodvale Drive.

Figure 3-3 Crash Map



## TRANSPORT IMPACT ASSESSMENT

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Table 3-3 Woodvale Drive Midblock Crashes

	Fatal	Hospital	Medical	PDO Major	PDO Minor	Total
Hit object	-	-	-	-	1	1
<b>Total</b>	-	-	-	-	1	1

Table 3-4 Woodvale Dr / Duffy Tce Intersection Crashes

	Fatal	Hospital	Medical	PDO Major	PDO Minor	Total
Right Angle	-	-	1	-	-	1
Right Turn thru	-	-	-	2	-	2
<b>Total</b>	-	-	1	2	-	3

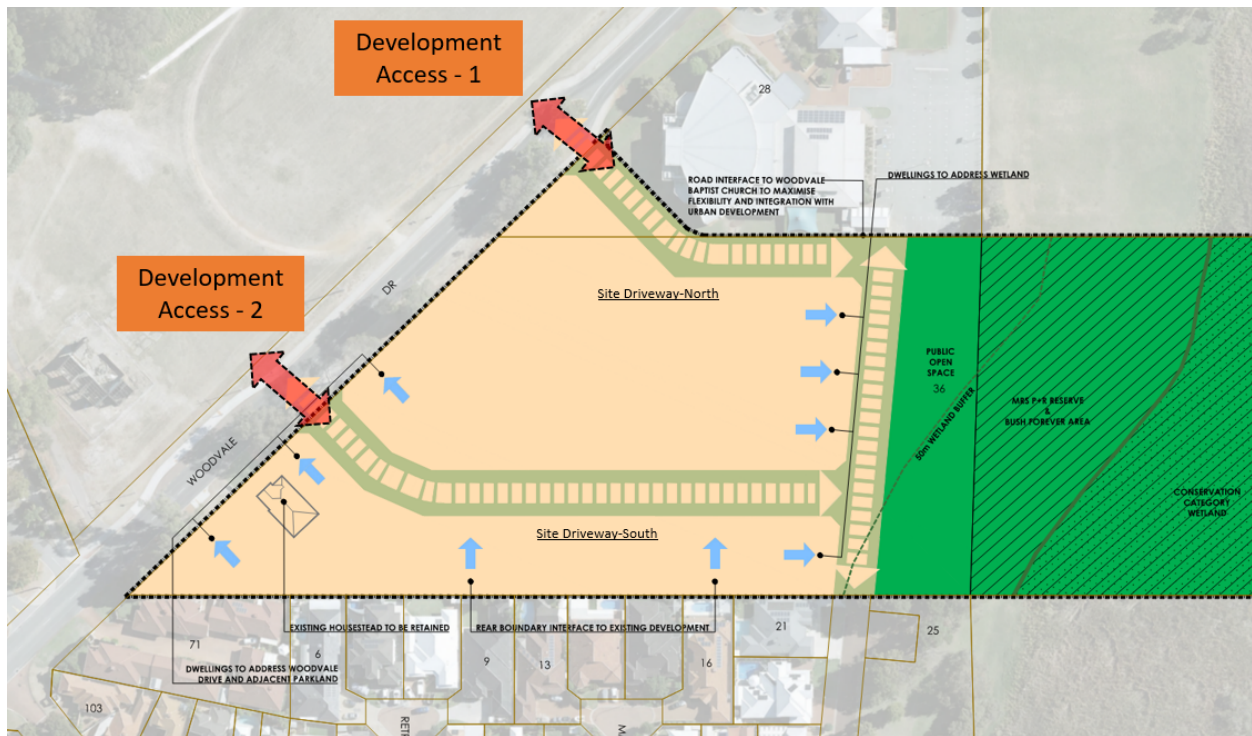


## 4 PROPOSED INTERNAL TRANSPORT NETWORK

### 4.1 INTERNAL ROAD NETWORK / ACCESS

The proposed internal road network and access locations are shown in **Figure 4-1**.

Figure 4-1 Site Access



## TRANSPORT IMPACT ASSESSMENT

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# 5 INTEGRATION WITH SURROUNDING AREA

## 5.1 SURROUNDING ATTRACTORS AND GENERATORS

The area surrounding the proposed development is primarily residential or park and recreational. Woodvale Secondary College is located almost immediately opposite the Site, while the Woodvale Baptist church is located directly north of the Site. The Site location and surrounding attractors / generators are shown in **Figure 5-1**.

Figure 5-1 Surrounding Attractors and Generators



## 5.2 ACCESSIBILITY TO SURROUNDING AREA

Woodvale Secondary College and the Woodvale Baptist Church are located within short walking distances of the Site, while access to bus service 467 is also located within short walking distance.

The 2 proposed accesses to Woodvale Drive will provide good vehicular access to the Site.





## 6 ANALYSIS OF TRANSPORT NETWORK

### 6.1 DEVELOPMENT TRAFFIC GENERATION

Trip generation rates were sourced from the Trip Generation Manual 10<sup>th</sup> Edition from the Institute of Transportation Engineers ITE based on the land uses proposed for the Scheme Amendment. **Table 6-1** below shows the trip rates for the proposed land use. **Table 6-2** shows the directional distribution and

**Table 6-3** shows the resultant trip generation.

As mentioned in the previous section, 38 individual residential units are proposed, and no future expansion is proposed on the land parcel. Trip generation for the proposed development is summarised below:

Table 6-1 Trip Generation Rate

Land Use	Source	AM Peak Rate	PM Peak Rate	Daily Rate
Residential	ITE 210	0.74 per dwelling	0.99 per dwelling	9.44 per dwelling

Table 6-2 Trip Directional Distribution

Land Use	AM Peak		PM Peak		Daily	
	In	Out	In	Out	In	Out
Residential	25%	75%	63%	37%	50%	50%

Table 6-3 Estimated Trip Generation

Land Use	Yield	AM Peak			PM Peak			Daily		
		Total	In	Out	Total	In	Out	Total	In	Out
Residential	38 dwellings	28	7	21	38	24	14	359	179	179

### 6.2 TRIP DISTRIBUTION

**Figure 6-1** shows the assumed trip distribution for the proposed development. The majority of traffic (60%) is assumed to go to/from the north via Wanneroo Road, with the remaining 40% assumed to go to/from the south via Trappers Drive.

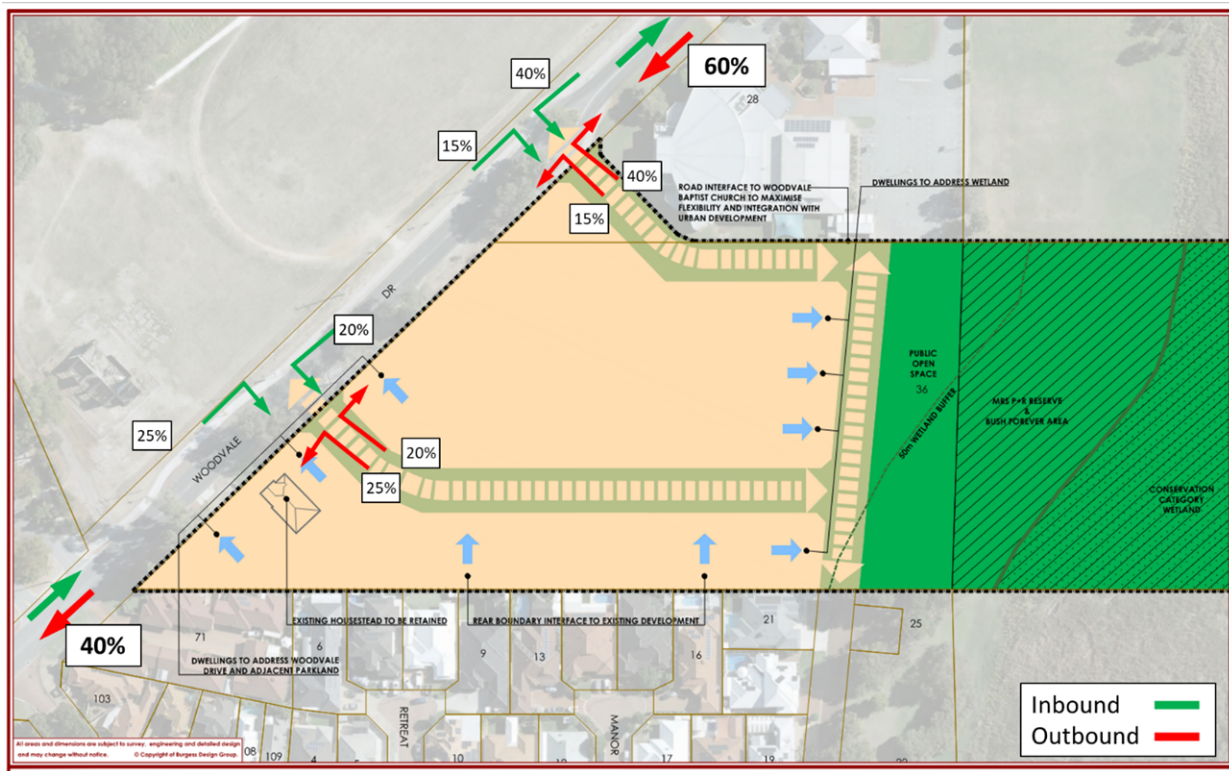


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It was also assumed that the majority of traffic going to/from the north would utilise the northern access, while traffic going to/from the south would utilise the southern traffic. The overall assumed trip distribution assumptions are shown in **Figure 6-1**.

Figure 6-1 Trip Distribution



## 6.3 BACKGROUND TRAFFIC

Background traffic data for the year 2022 was sourced from available traffic data via the Main Roads WA Trafficmap. The assumed opening year of the project is 2025. An annual growth rate of 3.0% was applied to the background (non-development) traffic volumes on Woodvale Drive for the purpose of this assessment.



## 6.4 KEY INTERSECTION ANALYSIS

### 6.4.1 SIDRA Results Definition

The proposed intersections at Woodvale Drive were analysed using SIDRA analysis program. This program calculates the performance of intersections based on input parameters, including geometry and traffic volumes. As an output SIDRA provides values for the Degree of Saturation (DOS), queue lengths, delays, level of service, and 95th Percentile Queue. These parameters are defined as follows:

- > Degree of Saturation (DOS) is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The theoretical intersection capacity is exceeded for an unsignalized intersection where  $DOS > 0.80$ .
- > 95% Queue is the statistical estimate of the queue length up to or below which 95% of all observed queues would be expected.
- > Average Delay is the average of all travel time delays for vehicles through the intersection. An unsignalized intersection can be operating at capacity where the average delay exceeds 55 seconds for any movement; and
- > Level of Service (LOS) is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. The different levels of service can generally be described as shown in **Table 6-4**.

Table 6-4 Level of Service (LoS) Performance Criteria

LOS	Description	Signalised Intersection	Unsignalized Intersection
A	Free-flow operations (best condition)	≤10 sec	≤10 sec
B	Reasonable free-flow operations	10-20 sec	10-15 sec
C	At or near free-flow operations	20-35 sec	15-25 sec
D	Decreasing free-flow levels	35-55 sec	25-35 sec
E	Operations at capacity	55-80 sec	35-50 sec
F	A breakdown in vehicular flow (worst condition)	≥80 sec	≥50 sec

The detailed SIDRA outputs are provided in **Appendix B**.

### 6.4.2 Peak Hour Traffic Flows

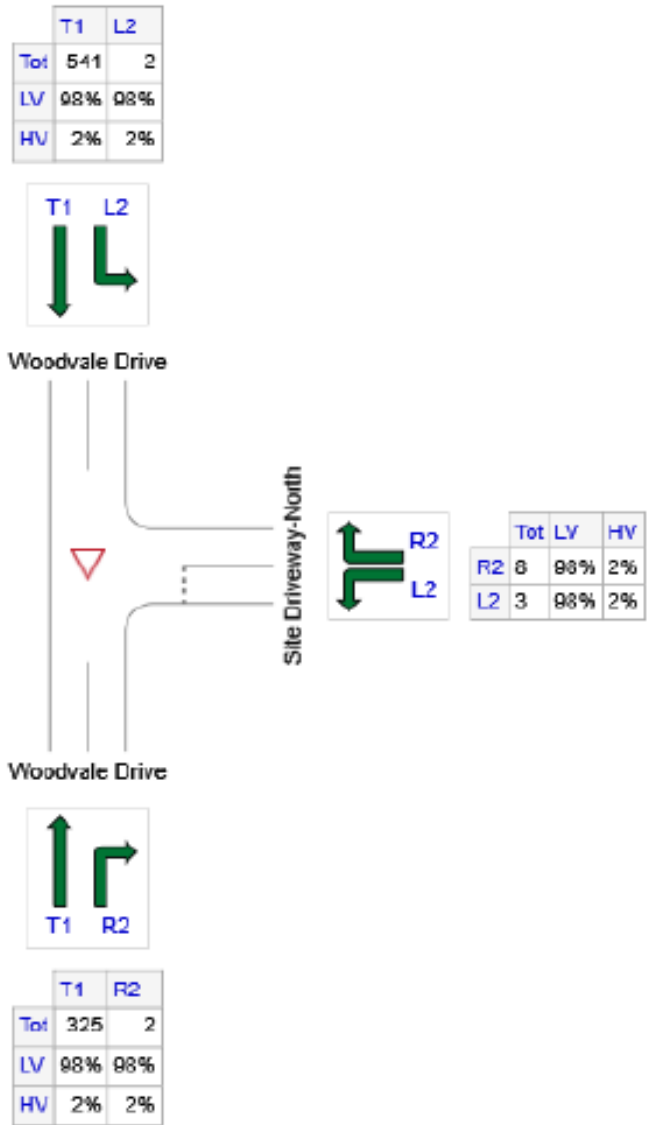
**Figure 6-2** to **Figure 6-5** show the full-build year peak hour traffic flows for both accesses to the development.



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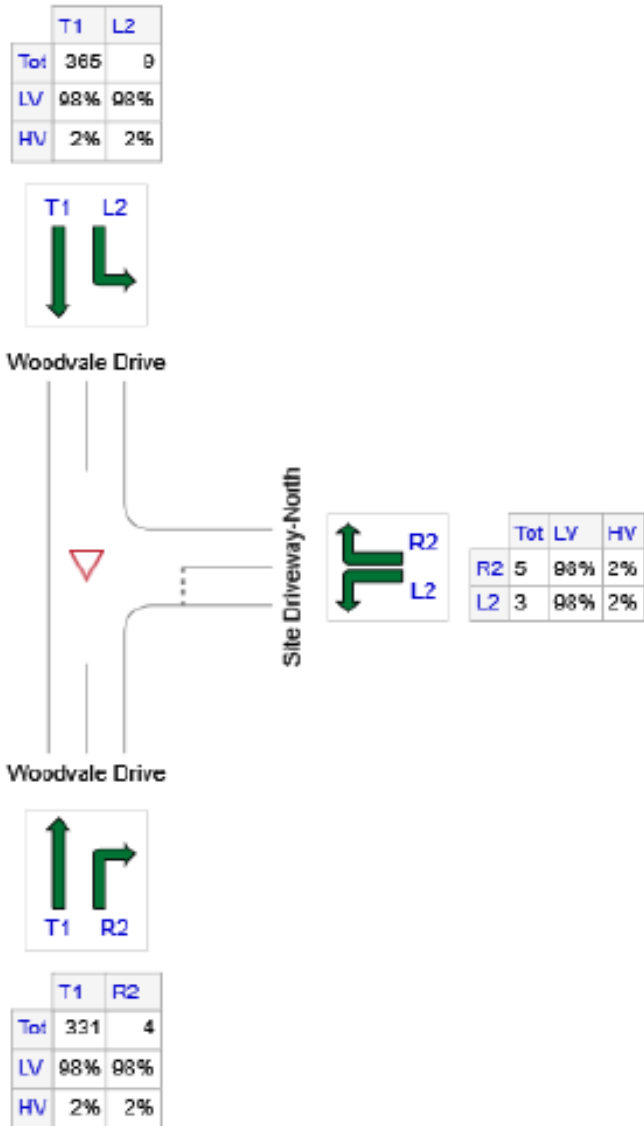
Figure 6-2 Development Access -1 – AM Peak volume



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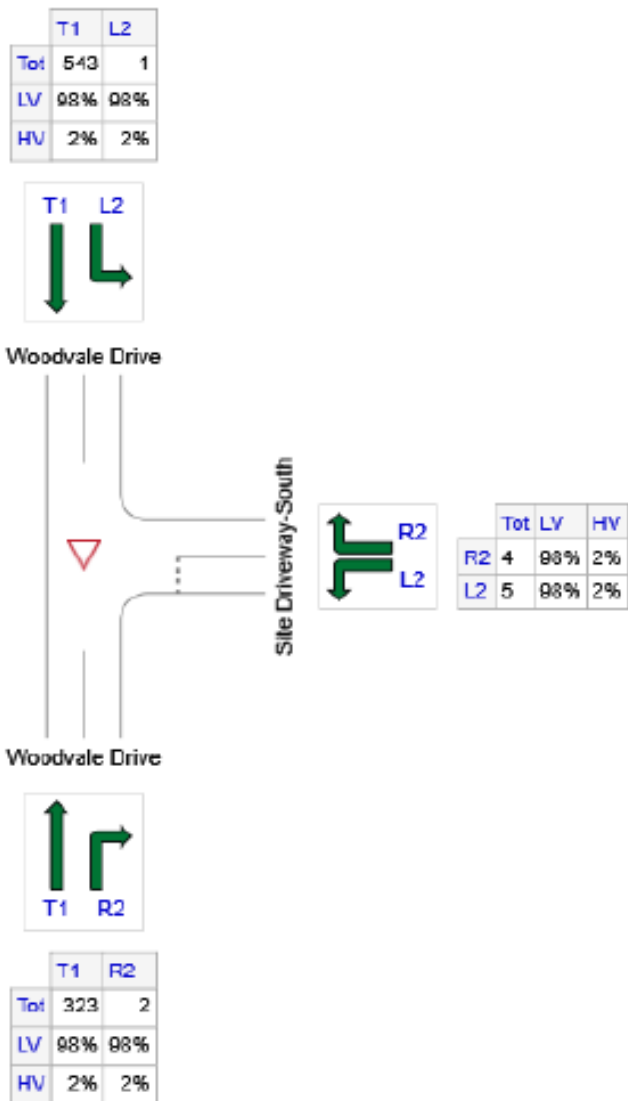
Figure 6-3 Development Access -1 – PM Peak volume



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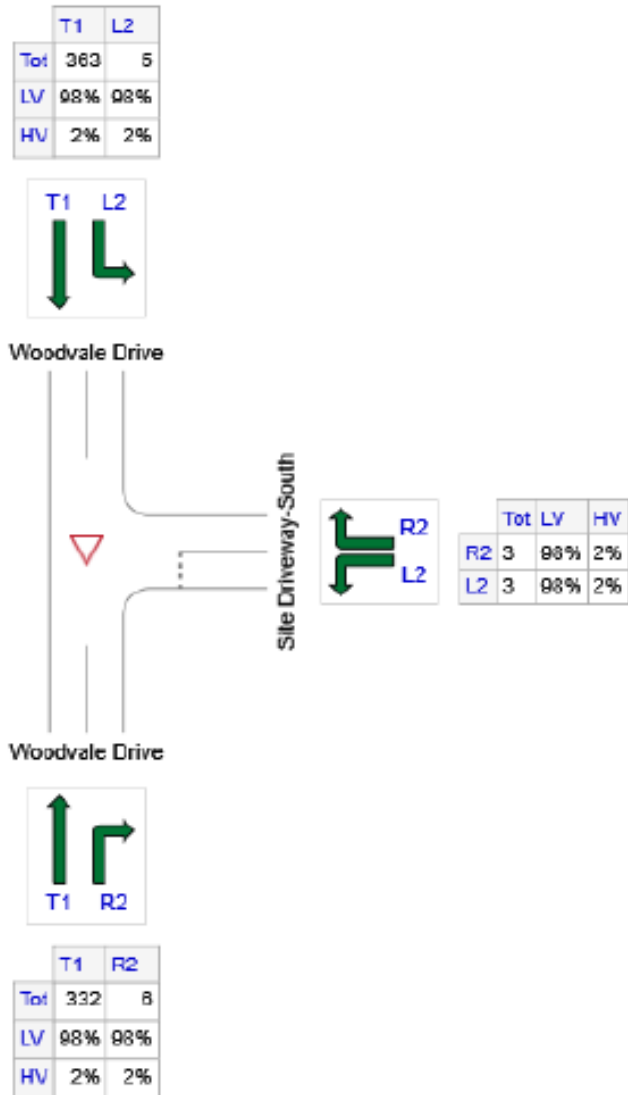
Figure 6-4 Development Access - 2 – AM Peak volume



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Figure 6-5 Development Access - 2 - PM Peak volume



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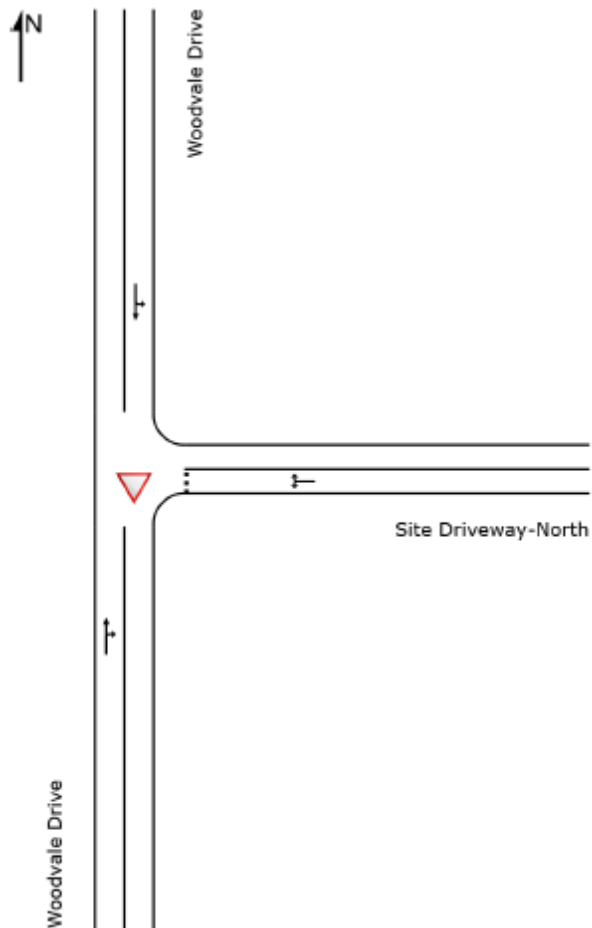
### 6.4.3 Woodvale Drive and Project Accesses

The SIDRA layouts of Woodvale Drive / Northern Access and Woodvale Drive/Southern Access are shown in

**Figure 6-6** and **Figure 6-7**. The analysis results for the intersections are presented in **Table 6-5** and **Table 6-6**.

The results show that the proposed intersections of the Woodvale Drive and project accesses would operate satisfactorily for the assessed scenarios.

Figure 6-6 Woodvale Drive/Development Access-1 SIDRA Layout

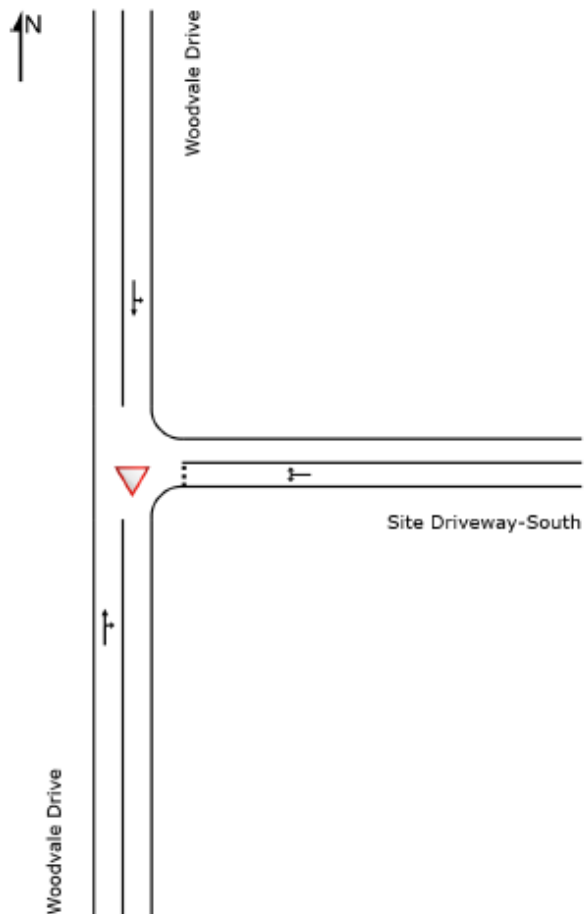




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Figure 6-7 Woodvale Drive/Development Access-2 SIDRA Layout



## TRANSPORT IMPACT ASSESSMENT

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Table 6-5 Woodvale Drive/Development Access-1 SIDRA Results

Intersection Approach		Year 2025							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
South: Woodvale Drive	T	0.174	0.0	A	0.2	0.178	0.0	A	0.3
	R	0.174	8.5	A	0.2	0.178	7.3	A	0.3
East: Site Driveway-North	L	0.022	7.9	A	0.5	0.012	6.9	A	0.3
	R	0.022	11.1	B	0.5	0.012	9.2	A	0.3
North: Woodvale Drive	L	0.287	5.6	A	0.0	0.198	5.6	A	0.0
	T	0.287	0.0	A	0.0	0.198	0.0	A	0.0
All Vehicles		0.287	0.2	A	0.5	0.198	0.2	A	0.3

Table 6-6 Woodvale Drive/Development Access-2 SIDRA Results

Intersection Approach		Year 2025							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
South: Woodvale Drive	T	0.173	0.0	A	0.2	0.181	0.0	A	0.5
	R	0.173	8.5	A	0.2	0.181	7.2	A	0.5
East: Site Driveway-South	L	0.015	7.9	A	0.3	0.008	6.8	A	0.2
	R	0.015	11.1	B	0.3	0.008	9.2	A	0.2
North: Woodvale Drive	L	0.287	5.6	A	0.0	0.194	5.6	A	0.0
	T	0.287	0.0	A	0.0	0.194	0.0	A	0.0
All Vehicles		0.287	0.2	A	0.3	0.194	0.2	A	0.5



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### 7 SUMMARY

This assessment has been prepared in accordance with the *WAPC Transport Assessment Guidelines for Developments: Volume 2 – Planning Schemes, Structure Plans, and Activity Centre*.

The following conclusions have been made regarding the proposed development:

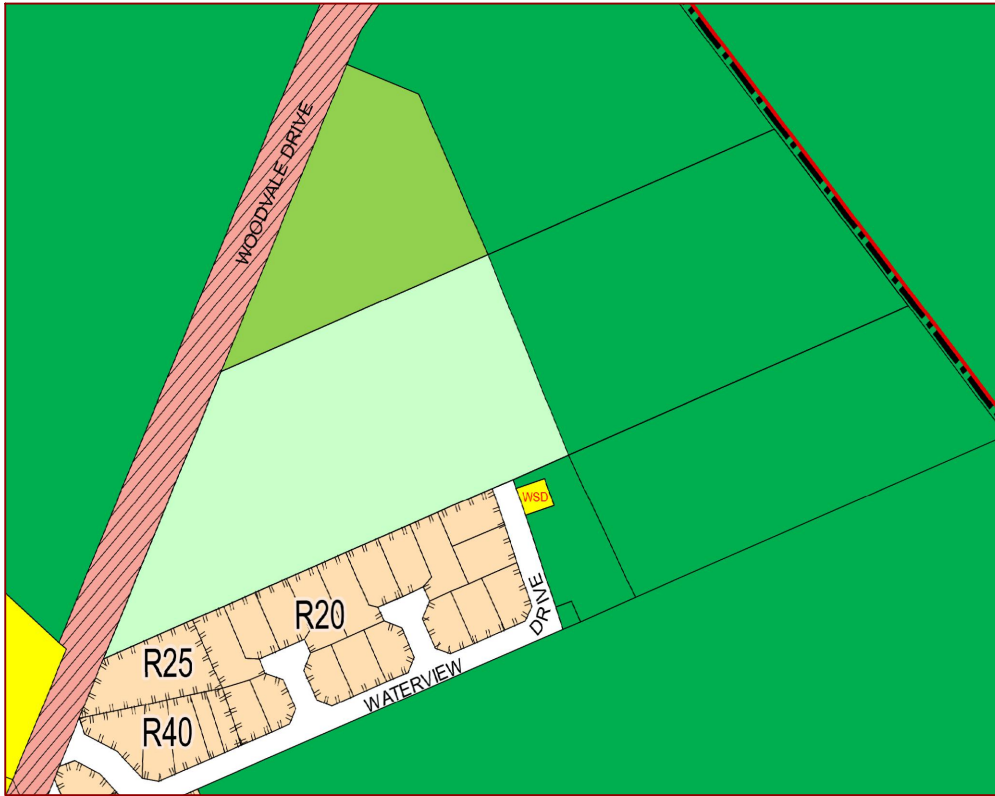
- > The concept plan proposes 38 individual residential dwelling units.
- > The Site is proposed to be accessed via two new intersections on Woodvale Drive.
- > The Site is expected to generate 28 trips during the AM peak hour and 38 trips during the PM peak hour.
- > Analysis of the proposed intersections has been undertaken using SIDRA software and the result of analysis shows that the proposed intersections will operate satisfactorily.
- > Overall, the traffic impacts associated with the proposed development will be minimal on the internal and external transport network.



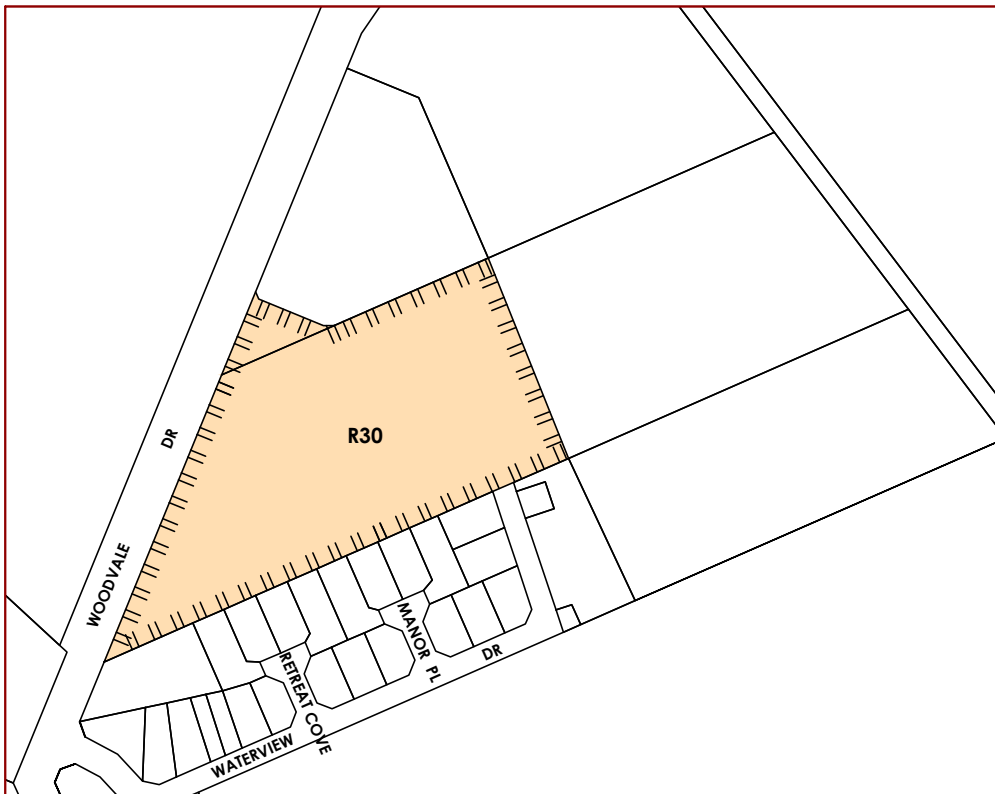
# **APPENDIX A**

## **Proposed Site Layout**





**EXISTING ZONING**



**PROPOSED ZONING**

**LEGEND**

**REGION SCHEME RESERVES (MRS)**

- Parks and Recreation
- Public Purposes - High School
- Public Purposes - Water Authority of WA

**LOCAL SCHEME RESERVES**

- Local Road
- Local Distributor Road

**LOCAL SCHEME ZONES**

- Residential
- Rural
- Private Community Purposes

**OTHER CATEGORIES**

- Scheme Area Boundary
- Local Government Boundary
- R Codes

All areas and dimensions are subject to survey, engineering and detailed design and may change without notice. © Copyright of Burgess Design Group.

**FIGURE 5**



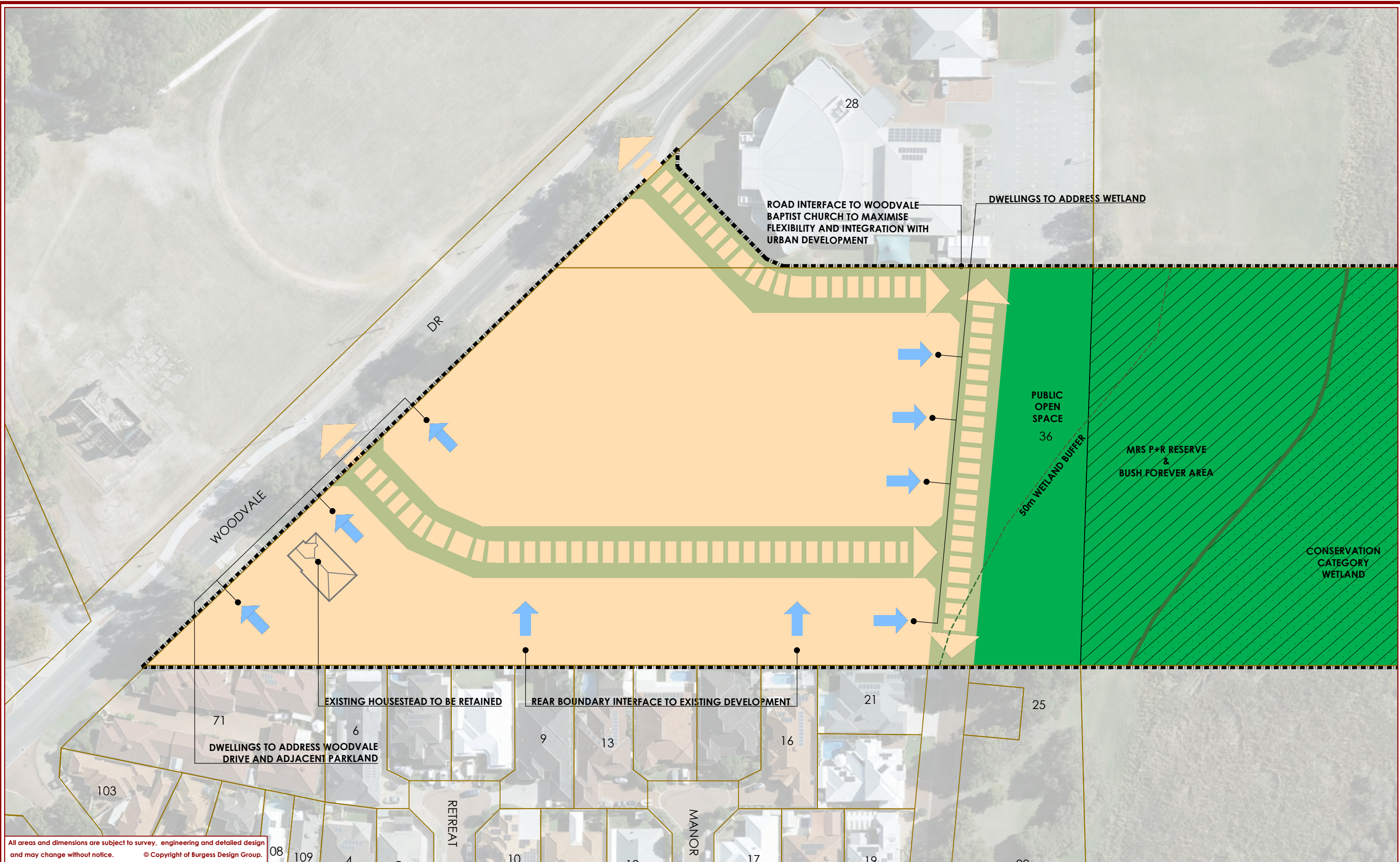
NORTH

0 25 50 75 100m

SCALE 1:4,000 (A4)

**PROPOSED SCHEME AMENDMENT  
LOCAL PLANNING SCHEME NO.3**


**WOODVALE**



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**LEGEND**

 Subject Land

**CONCEPT PLAN**  
**LOT 28 & 36 WOODVALE DRIVE**  
**WOODVALE**

# **APPENDIX B**

## **Detailed SIDRA Outputs**



# MOVEMENT SUMMARY

Site: [Development Access-1-AM (Site Folder: General)]

AM Peak

Site Category: (None)

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 % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Woodvale Drive														
2	T1	325	2.0	342	2.0	0.174	0.0	LOS A	0.0	0.2	0.01	0.00	0.01	59.8
3	R2	2	2.0	2	2.0	0.174	8.5	LOS A	0.0	0.2	0.01	0.00	0.01	54.4
Approach		327	2.0	344	2.0	0.174	0.1	NA	0.0	0.2	0.01	0.00	0.01	59.8
East: Site Driveway-North														
4	L2	3	2.0	3	2.0	0.022	7.9	LOS A	0.1	0.5	0.60	0.77	0.60	40.2
6	R2	8	2.0	8	2.0	0.022	11.1	LOS B	0.1	0.5	0.60	0.77	0.60	39.7
Approach		11	2.0	12	2.0	0.022	10.2	LOS B	0.1	0.5	0.60	0.77	0.60	39.8
North: Woodvale Drive														
7	L2	2	2.0	2	2.0	0.287	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	55.5
8	T1	541	2.0	569	2.0	0.287	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		543	2.0	572	2.0	0.287	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles		881	2.0	927	2.0	0.287	0.2	NA	0.1	0.5	0.01	0.01	0.01	59.4

Site Level of Service (LOS) Method: Delay (SIDRA). 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.



# MOVEMENT SUMMARY

Site: [Development Access-1-PM (Site Folder: General)]

AM Peak

Site Category: (None)

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 % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Woodvale Drive														
2	T1	331	2.0	348	2.0	0.178	0.0	LOS A	0.0	0.3	0.02	0.01	0.02	59.7
3	R2	4	2.0	4	2.0	0.178	7.3	LOS A	0.0	0.3	0.02	0.01	0.02	54.3
Approach		335	2.0	353	2.0	0.178	0.1	NA	0.0	0.3	0.02	0.01	0.02	59.6
East: Site Driveway-North														
4	L2	3	2.0	3	2.0	0.012	6.9	LOS A	0.0	0.3	0.47	0.66	0.47	42.5
6	R2	5	2.0	5	2.0	0.012	9.2	LOS A	0.0	0.3	0.47	0.66	0.47	41.8
Approach		8	2.0	8	2.0	0.012	8.3	LOS A	0.0	0.3	0.47	0.66	0.47	42.1
North: Woodvale Drive														
7	L2	9	2.0	9	2.0	0.198	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	55.3
8	T1	365	2.0	384	2.0	0.198	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
Approach		374	2.0	394	2.0	0.198	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		717	2.0	755	2.0	0.198	0.2	NA	0.0	0.3	0.01	0.02	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). 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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# MOVEMENT SUMMARY

Site: [Development Access-2-AM (Site Folder: General)]

AM Peak

Site Category: (None)

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 % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Woodvale Drive														
2	T1	323	2.0	340	2.0	0.173	0.0	LOS A	0.0	0.2	0.01	0.00	0.01	59.8
3	R2	2	2.0	2	2.0	0.173	8.5	LOS A	0.0	0.2	0.01	0.00	0.01	54.4
Approach		325	2.0	342	2.0	0.173	0.1	NA	0.0	0.2	0.01	0.00	0.01	59.8
East: Site Driveway-South														
4	L2	5	2.0	5	2.0	0.015	7.9	LOS A	0.0	0.3	0.54	0.71	0.54	41.3
6	R2	4	2.0	4	2.0	0.015	11.1	LOS B	0.0	0.3	0.54	0.71	0.54	40.7
Approach		9	2.0	9	2.0	0.015	9.3	LOS A	0.0	0.3	0.54	0.71	0.54	41.1
North: Woodvale Drive														
7	L2	1	2.0	1	2.0	0.287	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	55.5
8	T1	543	2.0	572	2.0	0.287	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		544	2.0	573	2.0	0.287	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles		878	2.0	924	2.0	0.287	0.2	NA	0.0	0.3	0.01	0.01	0.01	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). 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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# MOVEMENT SUMMARY

Site: [Development Access-2-PM (Site Folder: General)]

AM Peak

Site Category: (None)

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 % ]	[ Total veh/h ]	[ HV % ]				[ Veh. veh ]	[ Dist m ]				
South: Woodvale Drive														
2	T1	332	2.0	349	2.0	0.181	0.1	LOS A	0.1	0.5	0.02	0.01	0.02	59.5
3	R2	6	2.0	6	2.0	0.181	7.2	LOS A	0.1	0.5	0.02	0.01	0.02	54.1
Approach		338	2.0	356	2.0	0.181	0.2	NA	0.1	0.5	0.02	0.01	0.02	59.4
East: Site Driveway-South														
4	L2	3	2.0	3	2.0	0.008	6.8	LOS A	0.0	0.2	0.46	0.63	0.46	42.9
6	R2	3	2.0	3	2.0	0.008	9.2	LOS A	0.0	0.2	0.46	0.63	0.46	42.2
Approach		6	2.0	6	2.0	0.008	8.0	LOS A	0.0	0.2	0.46	0.63	0.46	42.5
North: Woodvale Drive														
7	L2	5	2.0	5	2.0	0.194	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	55.4
8	T1	363	2.0	382	2.0	0.194	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach		368	2.0	387	2.0	0.194	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles		712	2.0	749	2.0	0.194	0.2	NA	0.1	0.5	0.01	0.01	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). 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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