ALDI Store - Dalyellup Shopping Centre

Traffic Impact Assessment

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ALDI Store - Dalyellup Shopping Centre
Traffic Impact Assessment

ALDI Stores (A Limited Partnership)

WSP
Lvl 3, Mia Yellagonga Tower 2, 5 Spring St
Perth WA 6000
PO Box 7181
Cloisters Square WA 6850

Tel: +61 8 9489 9700
Fax: +61 8 9489 9777
wsp.com

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	Name	Date	Signature
Prepared by:	Osama Hashmi	8 November 2024	
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WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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1 Introduction

WSP has been commissioned by ALDI Stores (A Limited Partnership) (the 'Client') to prepare a Transport Impact Assessment (TIA) in support of a proposal for an Aldi store at 9053 Portobello Road ('the Site') in the Shire of Capel.

This report describes the results of multi-modal transport impact and parking assessment for the proposed development and focuses on traffic operations, vehicle / pedestrian circulation and car parking. The traffic assessment also considers intersection operation at the Site access.

This report has been prepared in accordance with the Western Australia Planning Commission (WAPC) *Transport Assessment Guidelines for Developments: Volume 4 - Individual Developments (2016).*

2 Site conditions

2.1 Site Location

The Site is located to the south-west of the Norton Promenade / Portobello Road / Parade Road intersection and is bounded by Grafton Lane (north) and Portobello Road (east), as shown below (Figure 2.1).

Figure 2.1 Site Location

Source: Nearmaps (2024)

2.2 Existing and surrounding land uses

The Site is currently located on vacant land. It is located within close vicinity of the Dalyellup Shopping Centre, which itself comprises a variety of retail, food & beverage and other commercial uses.

The Town Planning Scheme and Local Planning Strategy identifies the Site and the Dalyellup Shopping Centre as a 'District Centre' and zoned under the mixed-use activity centre category R-AC3 with its primary use being 'Commercial'.

The nearby adjacent land use types include R60 'Residential', in addition to the Dalyellup District Centre Commercial development, as shown in Figure 2.2.

Figure 2.2 Surrounding Land Uses

2.3 Existing Road Network

The existing boundary road network is classified in the Main Roads Functional Hierarchy as follows:

- **Primary Distributor:** Provides for major regional and inter-regional traffic movement and carry large volumes of generally fast-moving traffic. Some are strategic freight routes and all are State Roads. They are managed by Main Roads Western Australia.
- **Distributor**: Roads that carry traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by local government.
- **Local Distributor:** 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 the local government.

The layout and classification of the roads surrounding the site is a presented in Figure 2.3.

Figure 2.3 Existing Road Network

The characteristics of the key existing roads in the vicinity of the Site are describes as follows:

- **Portobello Road** is located on the eastern side of the Site. The general road form consists of two 3.5m-wide carriageways separated by a 9.0m median (which also caters for on-street parking opportunities), within a 29.3m road reserve. It has a posted speed limit of 40km/hr near the shopping centre and is classified as a Local Distributor under the Main Roads Functional Hierarchy.
- **Grafton Lane** is located on the northern side of the Site. This lane serves the Site by providing an internal circulation road between Wicklow Boulevard and Portobello Road. It is constructed as an 8.0m single carriageway and is classified as an Access Road under the Main Roads Functional Hierarchy.

- **Mile Lane** (like Grafton Lane) is also located to the north-west of the Site. This lane serves the Site by providing connection between Grafton Lane and Norton Promenade. It is constructed as a 15.0m single carriageway and is classified as an Access Road under the Main Roads Functional Hierarchy.
- **Norton Promenade** is located to the north side of the Site. The general road form consists of two 3.5m-wide carriageways separated by a 5m median, within a 26.0m road reserve. It has a posted speed limit of 50km/hr and is classified as a Local Distributor under the Main Roads Functional Hierarchy.

2.4 Existing Public Transport Facilities

The Site is serviced by two (2) Transperth bus routes, via stops in close vicinity of the Site (Routes 842 and 843). An alternative stop location is also available to the west of the Site, on Wake Drive (Route 843).

These stops are shown in Figure 2.4, servicing the routes summarised in Table 2.1.

Figure 2.4 Local Bus Stops

Table 2.1 Existing Public Transport Services

Route	Route Description	Weekday	Saturday
842	Kennedy Street / Brittain Road	Twice daily	No service
843	Bunbury Bus Station	30 min	30 min

Bus routes 842 and 843 service the bus stops along Parade Road, approximately 330m from the Site. This frequency of bus service near the Site supports opportunities for non-car access by visitors and employees to the Site (and Dalyellup Shopping Centre).

2.5 Existing Pedestrian and Cycle Networks

Department of Transport provides information for existing cycling facilities only where specified in the *Regional Long-Term Cycle Network Plan (LTCN)*. The following map (Figure 2.5) shows the sections of designated routes that are considered to be constructed to the appropriate level of service (it does not indicate the absence of paths beyond these designated routes).

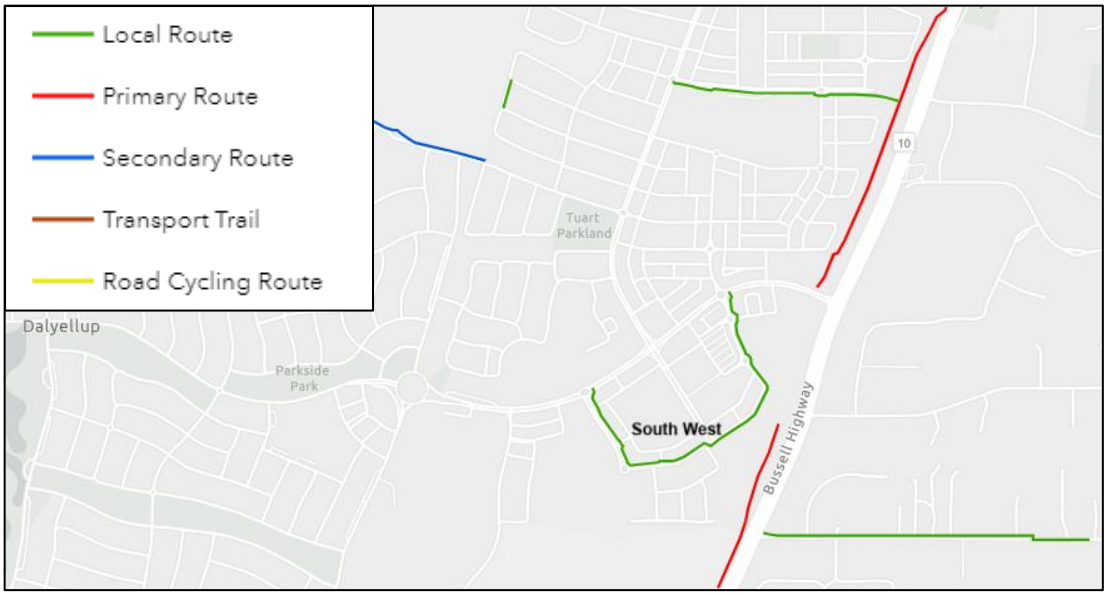

Figure 2.5 Pedestrian and Cycle Network

Source: Regional Long Term Cycle Network Plan – Existing (Department of Transport, accessed 2024)

Information regarding existing cycling paths in this area is shown in the Shire of Capel's Local Bike Plan (2016) for the key surrounding road network, as shown in Figure 2.6. Sections of this network designated as 'Developer Proposed Shared Path' have been constructed since this Plan was published, including along Portobello Road, Tiffany Centre and Wicklow Boulevard. Once competed, these works will form a comprehensive internal pedestrian/cycle network throughout the Dalyellup District Centre.

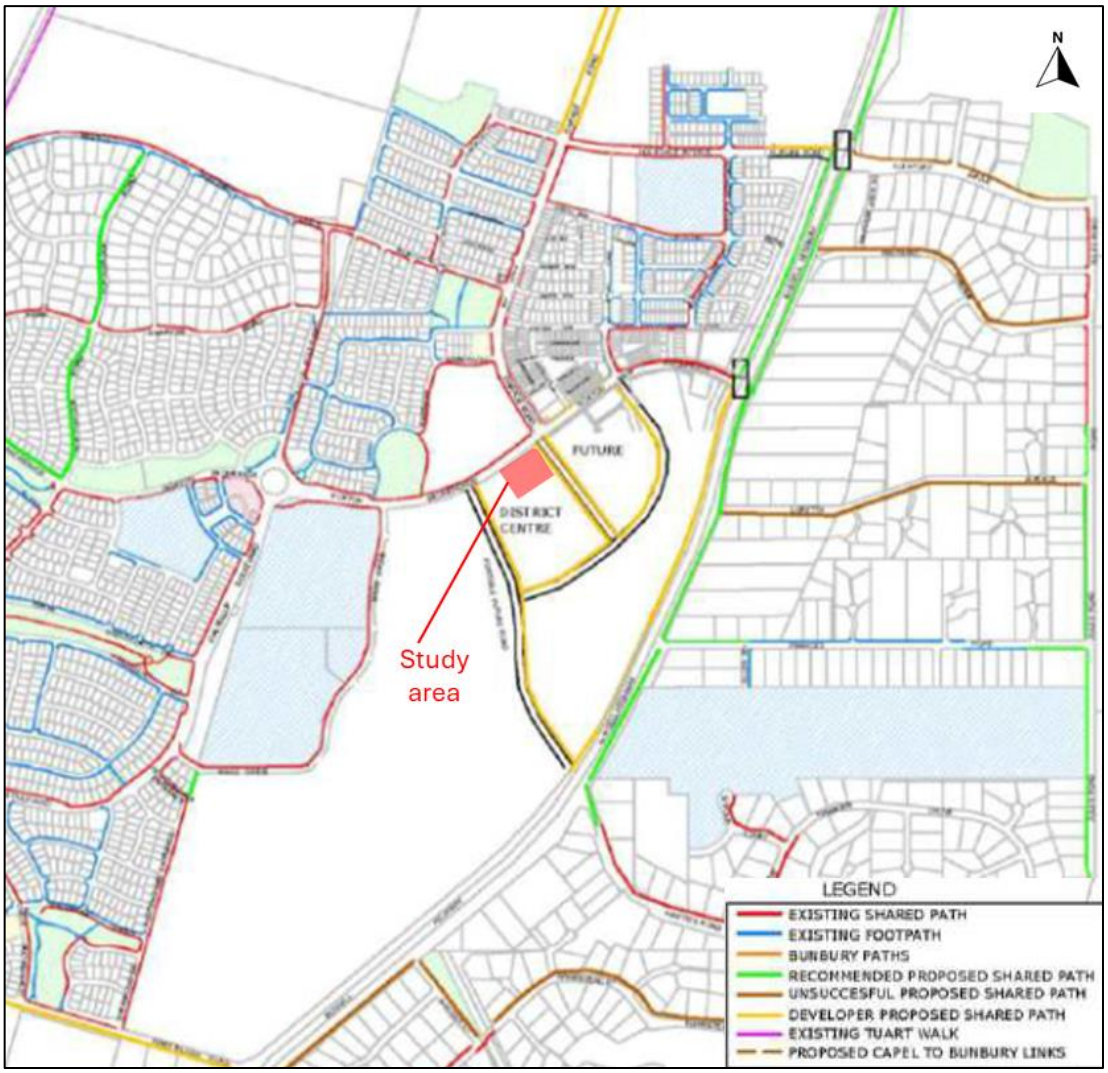

Figure 2.6 Pedestrian and Cycle Network

Source: Shire of Capel Local Bike Plan (2016)

Existing pedestrian and cycling facilities are available along Portobello Road and Norton Promenade, with crossing points and external connections at key locations (as shown in Figure 2.7). Notwithstanding, the pedestrian and cycle networks will be further developed in the future to promote other modes of transport near the Site.

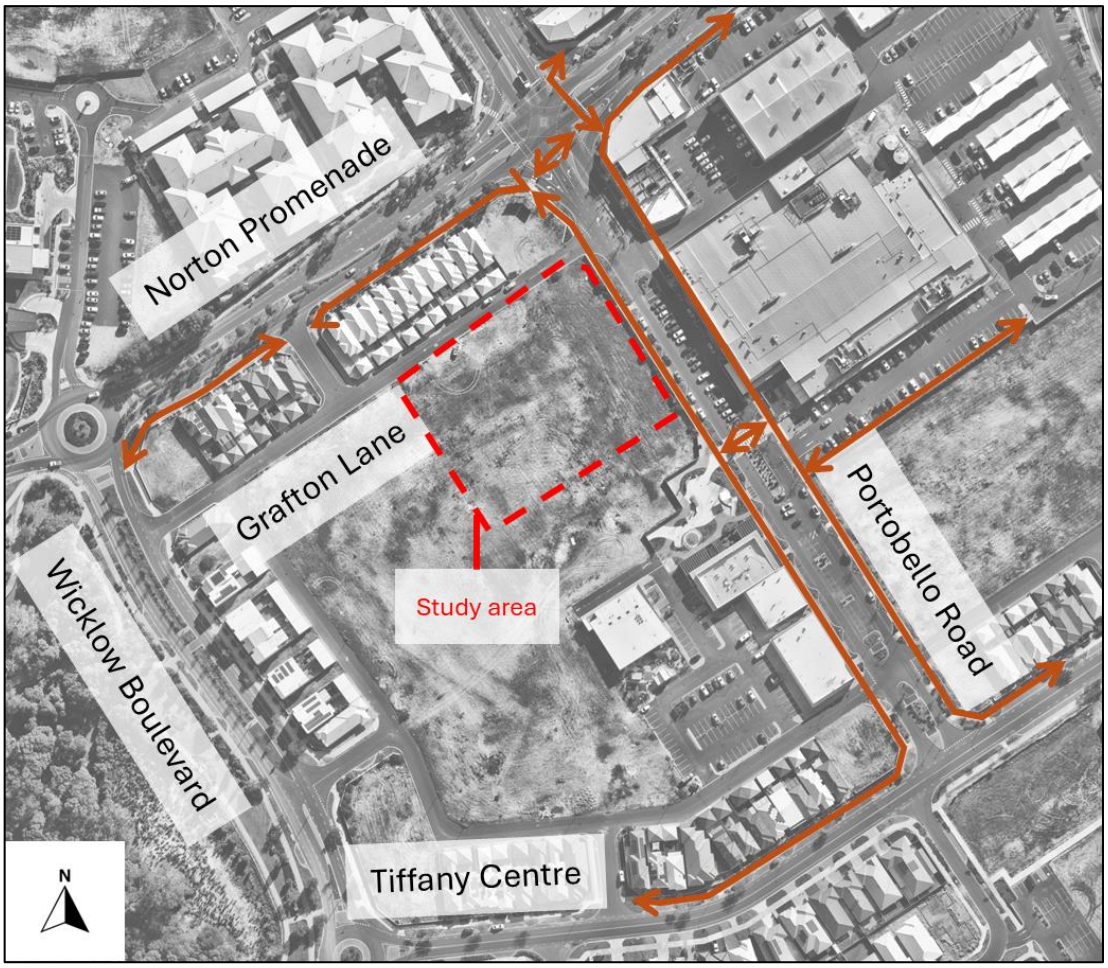

Figure 2.7 Pedestrian Connectivity to Dalyellup Shopping Centre

Connections to the surrounding network currently exist via Tiffany Centre to the Bussell Highway shared path, with at-grade crossing near Frances Road towards the Gelorup residential development, and along Norton Promenade through the surrounding Dalyellup development.

2.6 Existing Traffic Volumes

The existing traffic volumes near the Site are sourced from Main Roads WA traffic map are summarised in Table 2.2.

Table 2.2 Existing AADT Traffic Volumes

Road Name	Year	Average Weekday traffic volumes
Norton Promenade (East)	2023/2024	5,067
Norton Promenade (West)	2023 / 2024	5,335
Parade Road	2023/2024	2,885
Portobello Road	2023/2024	1,759

2.7 Changes to Surrounding Area

Future upgrades to the cycling network are defined by the DoT's *Long Term Cycle Network* which indicate improved active transport infrastructure in the vicinity of the development for a nominal 10-year horizon, as shown in Figure 2.8.

Specific timing and extent of the upgrades have not yet been determined, but the ultimate configuration would represent a significant overall improvement to strategic connectivity to and through the Dalyellup District Centre.

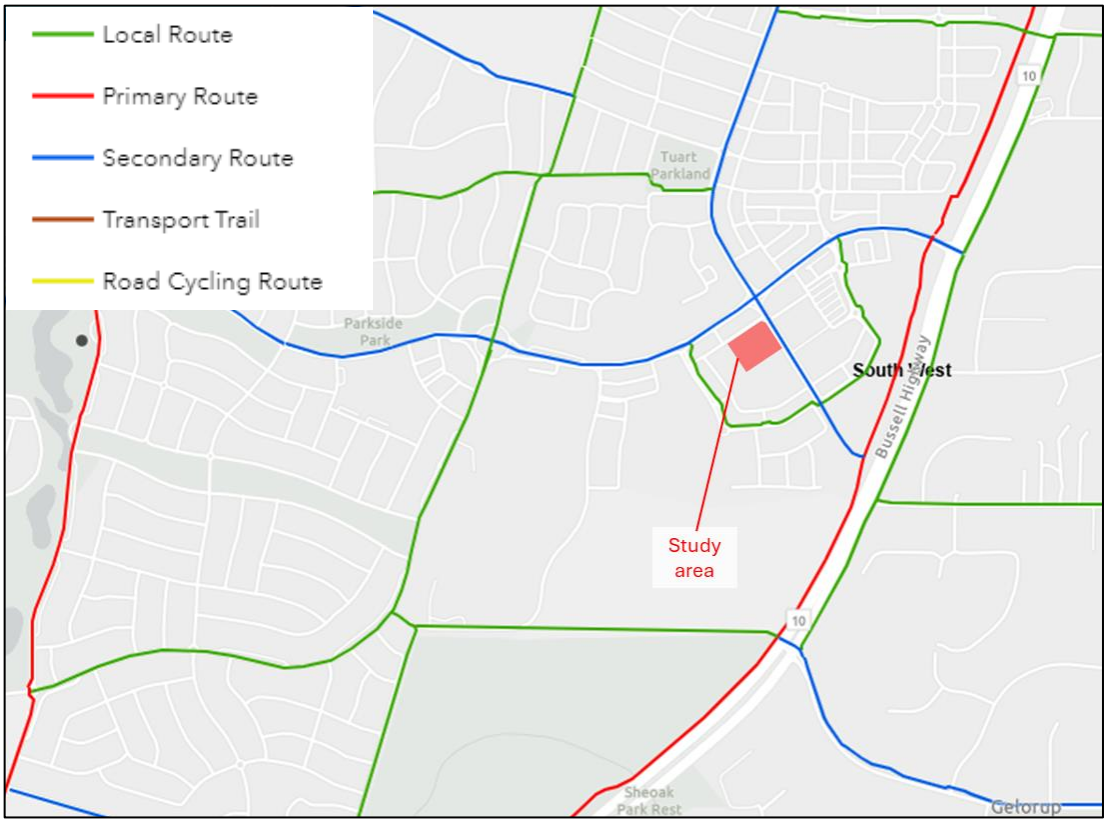

Figure 2.8 Future Bicycle Route Hierarchy in the Vicinity of the Site

Source: Regional Long Term Cycle Network Plan (Department of Transport, accessed 2024)

3 Proposed Development

3.1 Proposed Land Uses

The proposed development comprises the construction of a retail supermarket (Aldi) with a GLFA of 1,100m^2 and 85 car parking spaces (including 2 ACROD spaces for people with disabilities). A service / loading area has been provided within the Site.

While a total of 9 on-street car parking spaces will be removed as a result of the proposed access, an additional 76 spaces (85 total) are proposed on-site, to accommodate visitor parking demand. This parking supply exceeds the Shire of Capel parking requirements (see Section 3.3), ensuring that the overall provision of parking for the District Centre is not impacted.

The ground floor plan of the Site is as shown in Figure 3.1. Development plans are also provided in **Appendix A.**

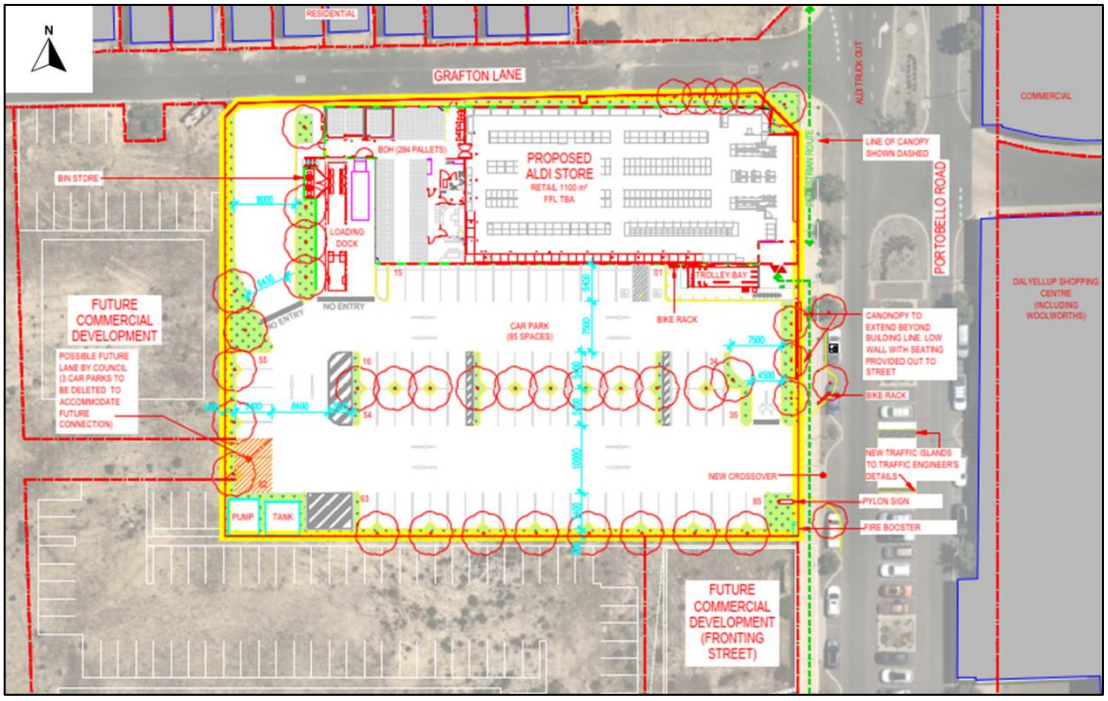

Figure 3.1 Proposed Ground Floor Layout

3.2 Access Arrangements

3.2.1 Development Access

Customer access arrangement to the Site will be via a new crossover located on Portobello Road. The configuration of this access is proposed to include the following movements:

- Left-in
- Right-in
- Left-out.

Several alternative access arrangements have been investigated, with the findings of this assessment summarised as follows (see Appendix C for additional details).

- Modification to the access location at Portobello Road would assist in aligning with customer expectations (when entering the Site) and improve legibility
- An alternative left-in/left-out treatment (LILO) would require customers to make a circuitous detour via Tiffany Centre or an un-safe U-turn manoeuvre within Portobello Road
- The Shire of Capel raised safety concerns regarding the right-turn movement out of the access crossover. Subsequent independent assessment commissioned by the Shire suggested that this risk could be mitigated if additional parking were to be removed, permitting full-movements access.

The proposed treatment allowing left-in, left-out and right-in movements is shown to mitigate all identified access issues, while limiting the impact of the access geometry on existing on-street parking supply.

The proposed access arrangement showing swept paths by customer vehicles is shown in Figure 3.2.

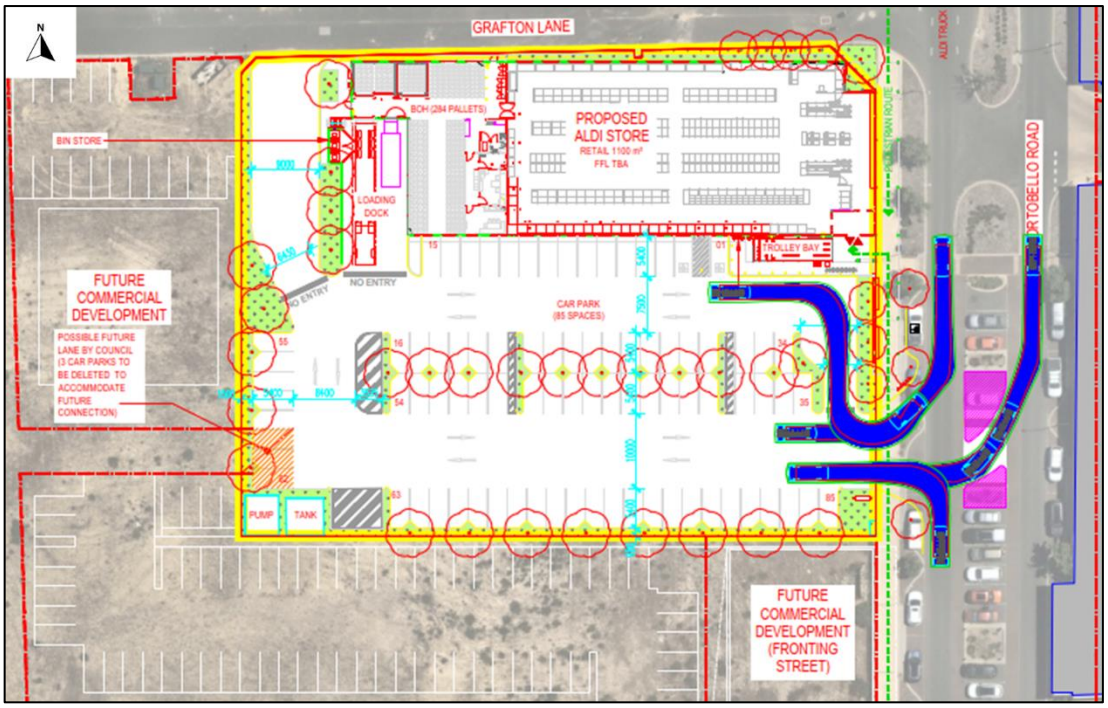

Figure 3.2 Proposed Car Park Access Arrangement

The proposed customer access arrangement is an improvement when compared to the existing operation at Portobello Road as it provides better customer connectivity when entering / exiting the Site.

The proposed pedestrian access arrangements near the Site are not considered to be negatively affected by the proposed development, with pedestrian access and circulation being consistent with the current operation, as shown in Figure 3.3.

The retained pedestrian routes still provide connection to the existing bus routes and the Dalyellup Shopping Centre. Design elements for the proposed access have been included to reinforce pedestrian priority and amenity, including differentiation of the pedestrian path and upgrades to the streetscape environment.

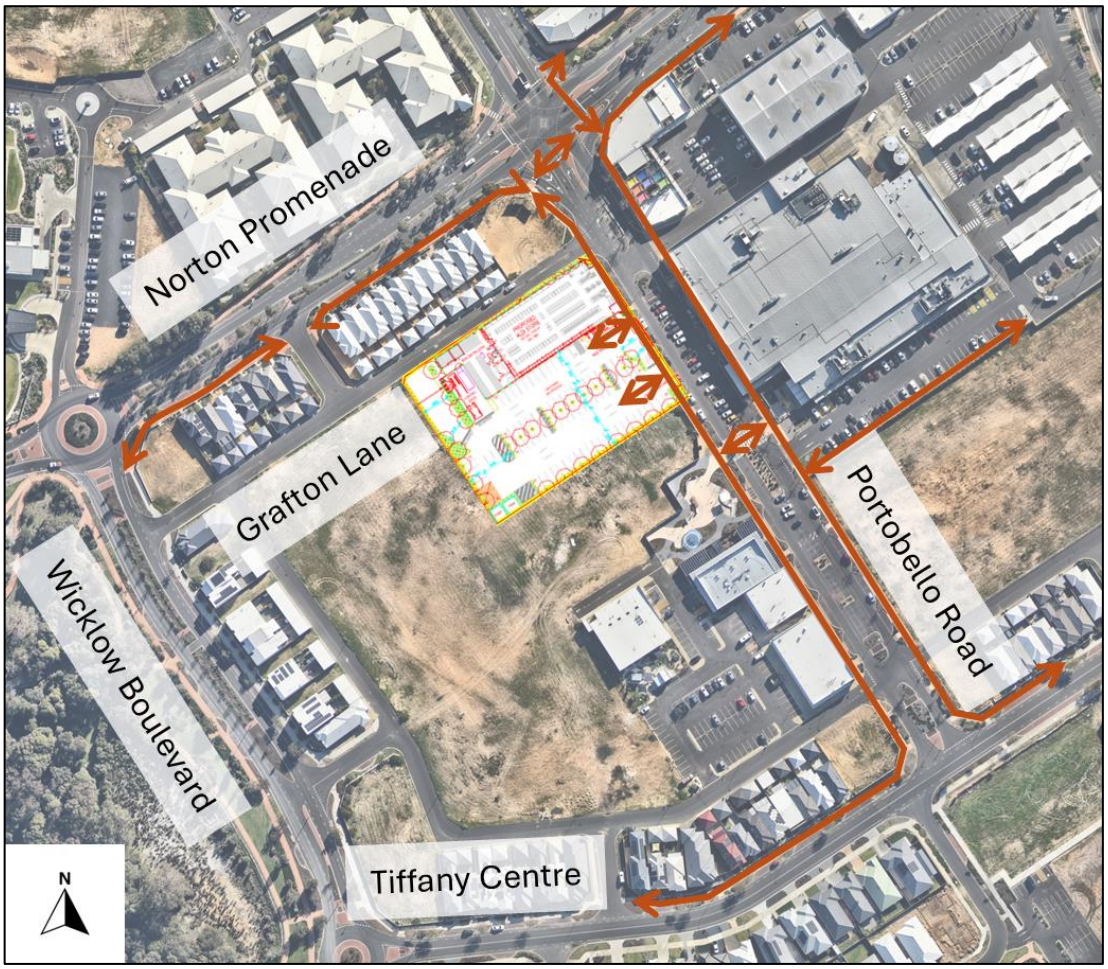

Figure 3.3 Effect of Proposal on Pedestrian Movements

3.2.2 Access Locations

A total of two (2) access points are available to facilitate traffic movements to / from the Site, including:

- Portobello Road / Site Access (customer access)
- Grafton Lane / Site Access (service vehicle inbound access)

This is shown in the following aerial image (Figure 3.4).

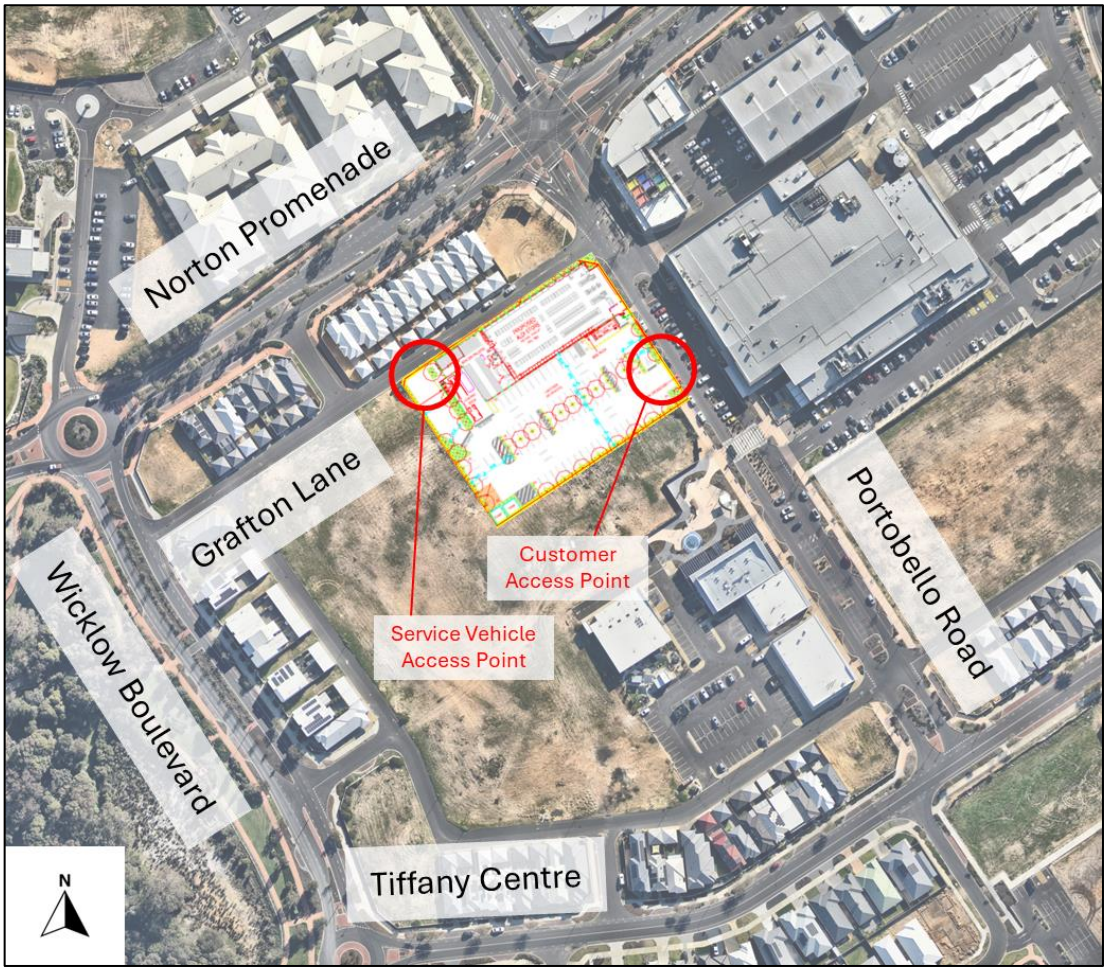

Figure 3.4 Customer and Service Vehicle Site Access Points

3.3 Car Parking

The Shire of Capel's minimum car parking requirements for Shops (Shopping Centres) as described in the Shire of Capel Local Planning Policy 6.1 – Vehicle Parking (2015) are reproduced below:

- *Shop: 1 bay per 20 square metres of NLA*

The proposed Site has a NLA of 1,100 square metres. Based on the above requirement, the total car parking required is:

- (1,100 / 20) = **55 spaces**

The Site provides **85 car parking spaces**, which exceeds these requirements by 30 spaces, capturing the 9 on-street parking bays removed to accommodate the Portobello Road access point, and a nominal surplus of 21 bays beyond the Shire of Capel's parking requirements.

3.4 Bike Parking

The Shire of Capel's minimum bicycle parking requirements for Shops (Shopping Centres) as described in the Local Planning Policy 6.1 – Vehicle Parking (2015) is reproduced below:

- *Shop: 1 space per 200 square metres NLA*

The proposed Site has a NLA of 1,100 square metres. Based on the above requirement, the total bicycle parking required is:

- 1,100 / 200 = 5.5 ~ **6 spaces**

A total of 3 bike racks are proposed, capable of accommodating up to 6 bicycles. This complies with the Shire's requirements for bicycle parking on Site. Additional bike parking is also available at the Dalyellup Shopping Centre which can assist in facilitating multi-destination trips to the District Centre.

3.5 Service Vehicle Parking

The Shire of Capel's minimum service parking requirements for Shops (Shopping Centres) as described in the Local Planning Policy 6.1 – Vehicle Parking (2015) is reproduced below:

- *Shop: 1 bay for visiting service vehicle*

Based on the above requirement, the total service parking required is:

- **1 space**

One (1) service vehicle parking space is proposed. This complies with the Shire's requirements for service vehicle parking on Site.

3.6 Provision for Service Vehicles

The introduction of the proposed loading dock / service area has been assessed using swept path analysis for the following design vehicles:

- 19.0m AV service vehicle (Aldi truck)
- 12.5m HRV service vehicle (compactor)

The outcomes of this swept analysis are shown in Figure 3.5 and Figure 3.6.

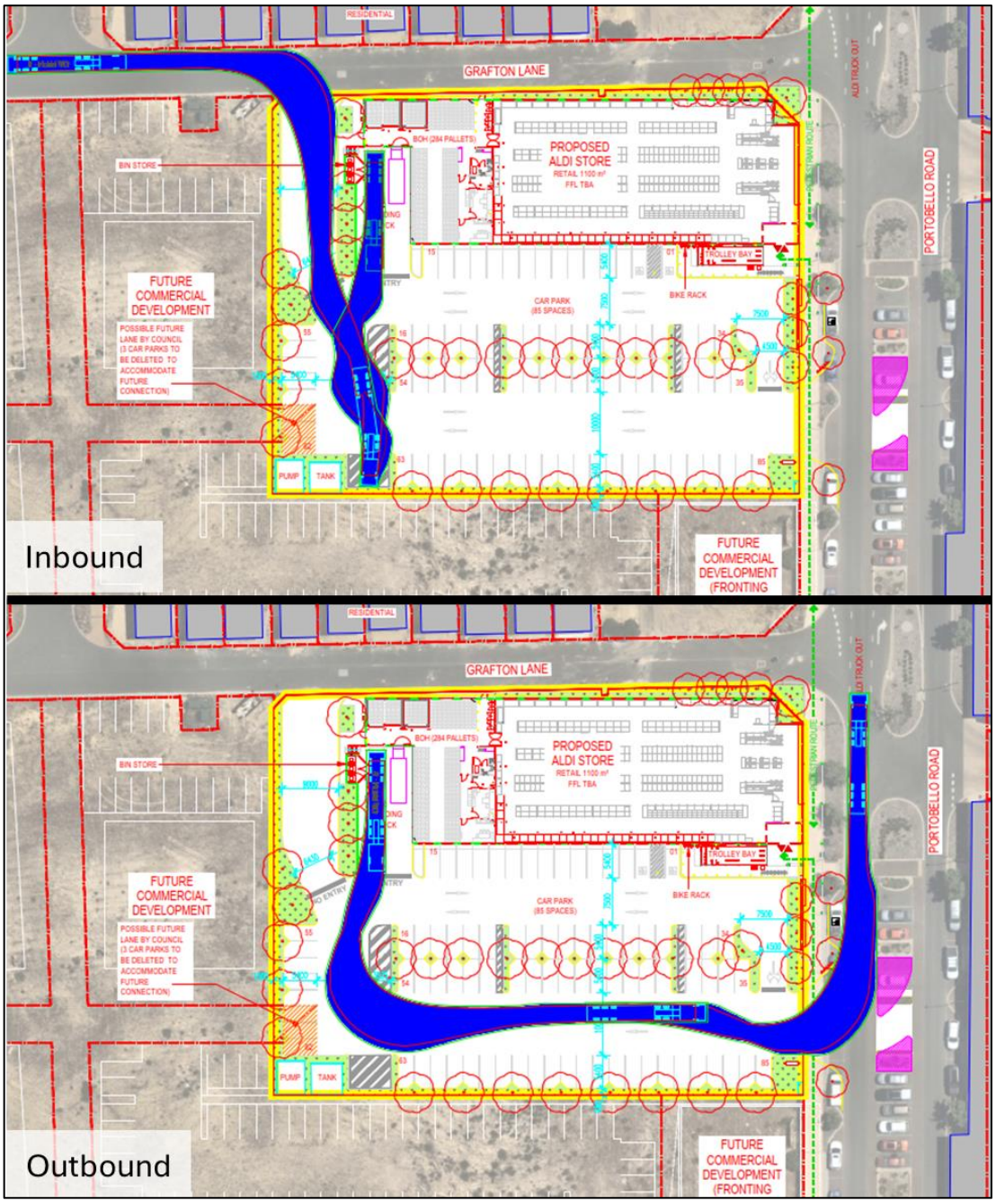

Figure 3.5 Swept Path for Aldi Delivery Truck (19.0m AV) – Inbound and Outbound

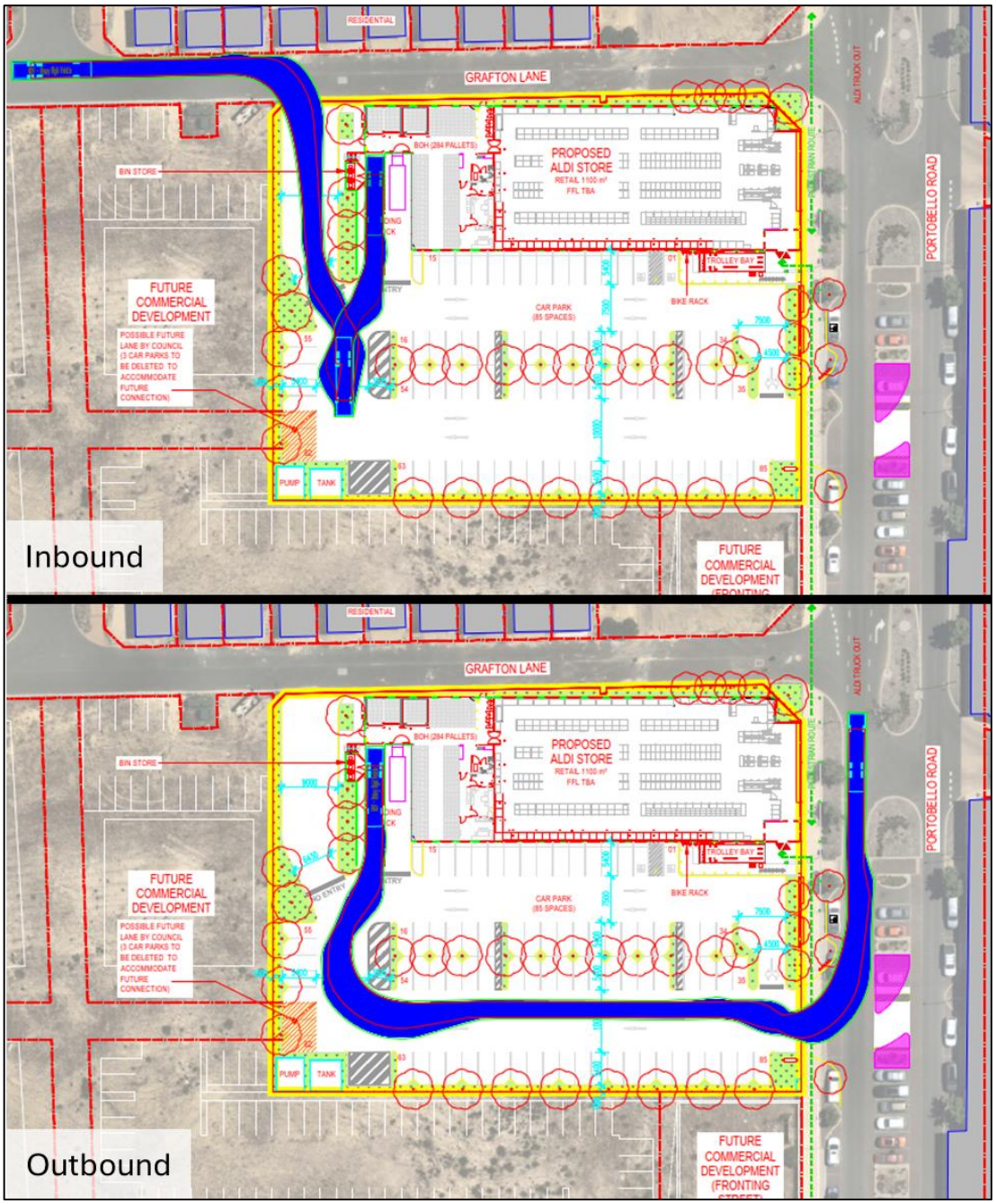

Figure 3.6 Swept Path for Delivery Truck (12.5m HRV) – Inbound and Outbound

The above swept paths show the proposed operation of the loading dock. This orientation allows for all manoeuvring to be undertaken on-site, minimising safety risk and all potential impacts on pedestrians and traffic along Portobello Road.

4 Traffic Analysis

To identify the sufficiency of the existing road network and to assess the potential requirements for modification to key intersections, WSP has completed a series of SIDRA intersection models.

These have been undertaken using the SIDRA 9.1 network package for the following access intersection:

- Portobello Road / Site Access

Peak times selected are 2:45 PM to 3:45 PM for the weekday peak (23 June 2023) and 11:15 AM to 12:15 AM for the Saturday peak (24 June 2023).

The following model scenarios have been assessed:

- 2024 background traffic (at 2% p.a. growth) + development
- 2034 background traffic (at 2% p.a. growth) + development
- Until failure + development.

4.1 Analysis Assumptions

The following assumptions for the trip generation and SIDRA assessment are summarised below:

- Vehicle movements (light and heavy) on Portobello Road were adopted from Main Roads WA traffic map.
- A review of the historical data in the vicinity of the Site shows a static growth, and this is expected to hold true in future years. As such, it is assumed that the surrounding road network will not exhibit any significant growth during peak periods over the 10-year horizon. Background traffic volumes are therefore considered to represent a reasonable estimate of future demand.
    - Nevertheless, a conservative 2% growth scenario has been included to consider the impact of regional traffic increases on access function. Any impacts identified in this scenario should not be considered as a result of the proposed development.

4.2 Trip Generation

Trip generation was calculated for the proposed development utilising trip generation rates found in the *RTA NSW trip generation rates* and *the WAPC Transport Impact Assessment Guidelines – Volumes 5*.

Table 4.1 shows the trip generation rate during the weekday PM and weekend peak.

Table 4.1 Trip Generation Rates

Land Use	Source	Unit	Weekday PM Peak	Daily	Weekend Peak
Retail (Shopping Centres)	RTA	1,100m^2	171	1,623	162

4.3 Trip Distribution and Assignment

Weekday, weekend and daily periods are assumed to have an even split for inbound and outbound movements. However, the left and right movements (into the Site) have been weighted according to the existing behaviour, road network constraints and the location of residential development.

Given the lack of substantial development to the south of the Site, the majority of movements are likely to arrive via Norton Promenade (originating both from Bussell Highway and from the Dalyellup residential development to the north). Additional residential development to the south of the Dalyellup District Centre, and potential future connections to Bussell Highway have been captured in the balance of trips (nominally 15% of the total) entering the site from the south.

The access restrictions proposed at Portobello Road ensure that all outbound movements will head north towards Norton Promenade, circulating back to Bussell Highway or to Wicklow Boulevard as needed.

The proposed distribution is shown below in Figure 4.1.

Figure 4.1 Traffic Distribution Splits

4.4 Traffic Volumes

The above assumptions create a development trip generation and distribution as shown in Figure 4.2. The existing background traffic distribution (2024) is provided in Figure 4.3 and the background (2024) + development traffic distribution are provided in Figure 4.4.

The projected background traffic (2034) + development trip generation is shown in Figure 4.5.

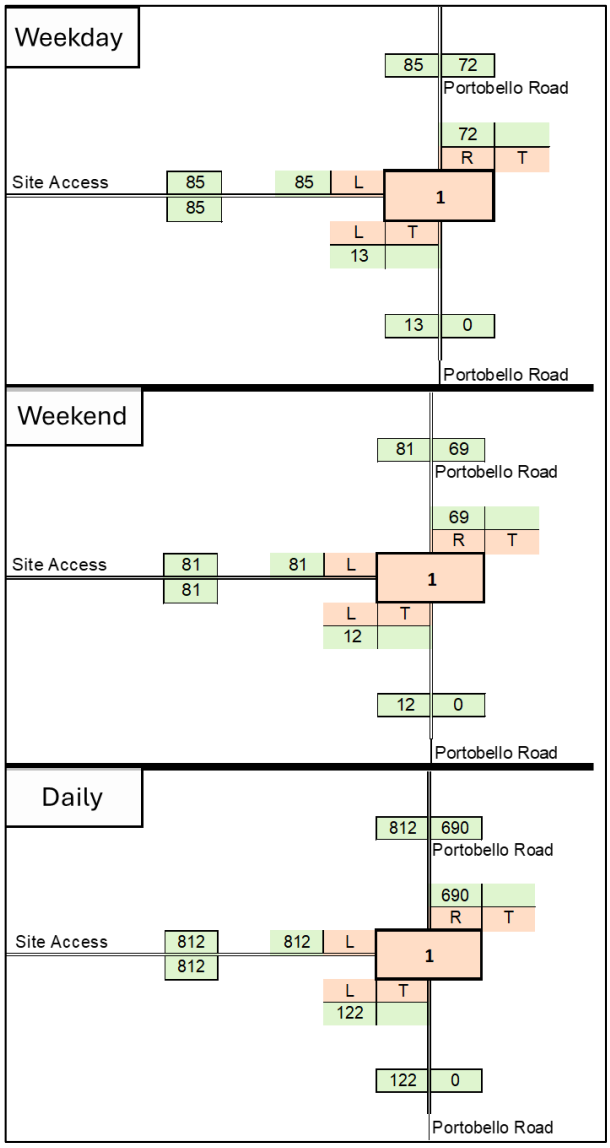

Figure 4.2 Development Traffic Distribution

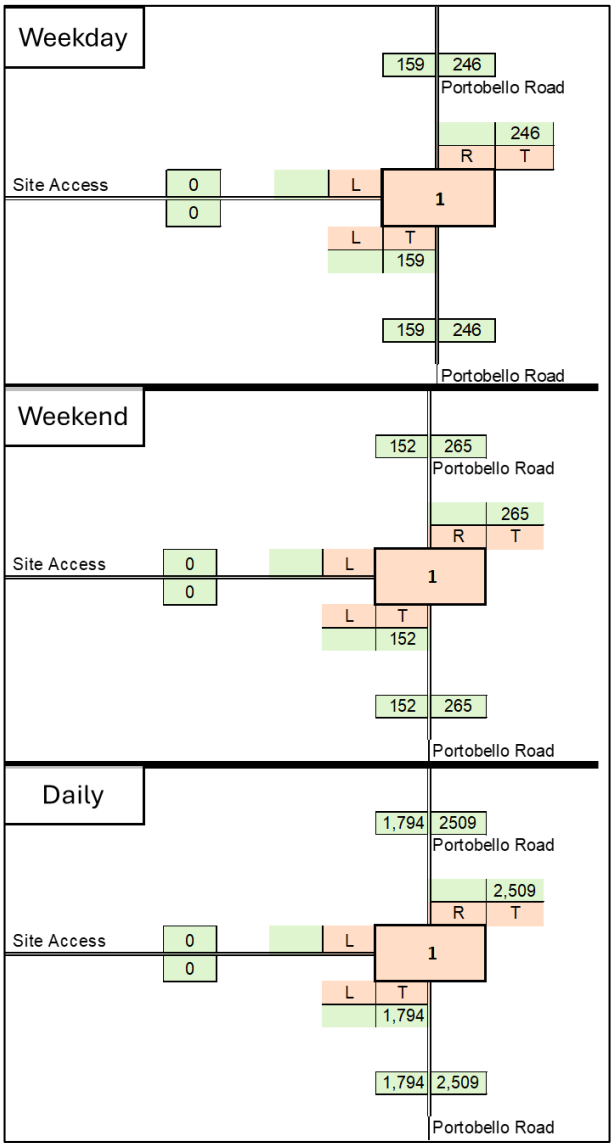

Figure 4.3 Background 2024 Traffic Distribution

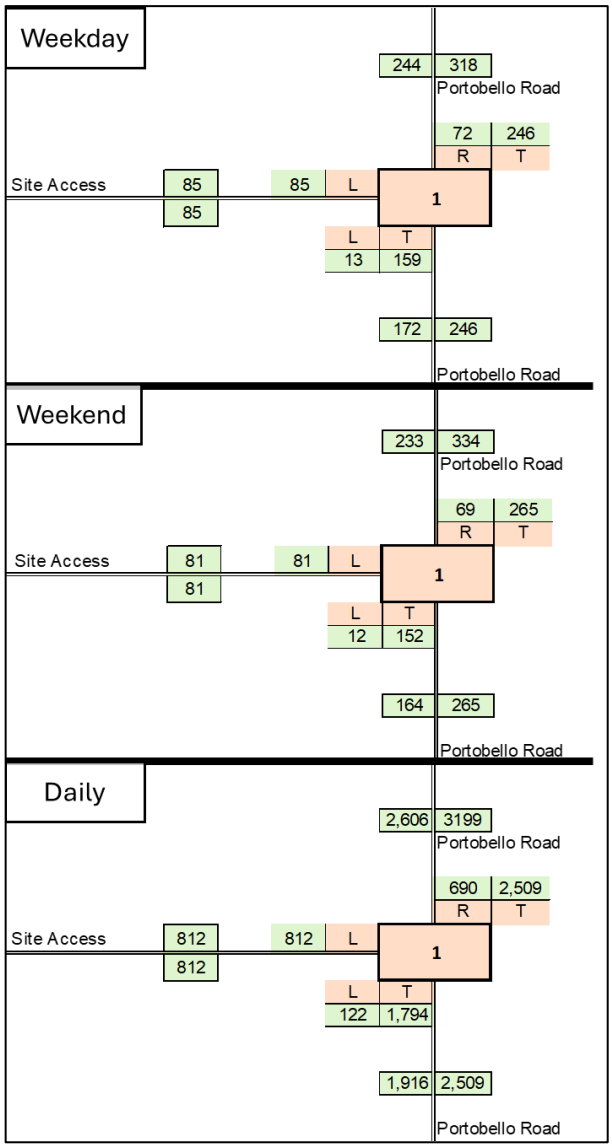

Figure 4.4 Background 2024 + Development Traffic Distribution

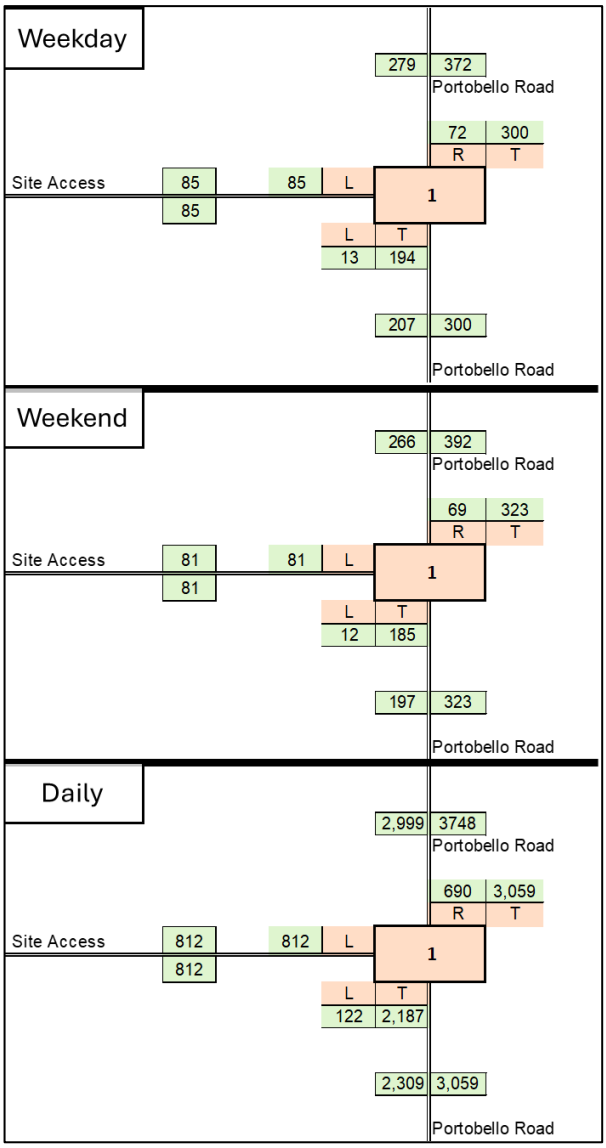

Figure 4.5 Projected 2034 Background + Development Traffic Distribution

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4.5 Intersection Performance

Analysis of the traffic impacts for the proposed development has been carried out for the following intersection:

- Portobello Road / Site Access

The identified intersection has been analysed using the 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 queues. 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 un-signalized 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 unsignalised intersection can be operating at capacity where the average delay exceeds 40 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 4.2.

Table 4.2 Level of Service (LoS) Performance Criteria

LoS	Description	Signalised intersection	Unsignalised 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

A LoS exceeding these values indicates that the approach exceeds practical capacity; users of the intersection are likely to experience unsatisfactory queueing and delays during the peak hour periods.

4.6 SIDRA Analysis

4.6.1 Portobello Road / Site Access – Eastern Access

Figure 4.6 shows the SIDRA layout as modelled for this location.

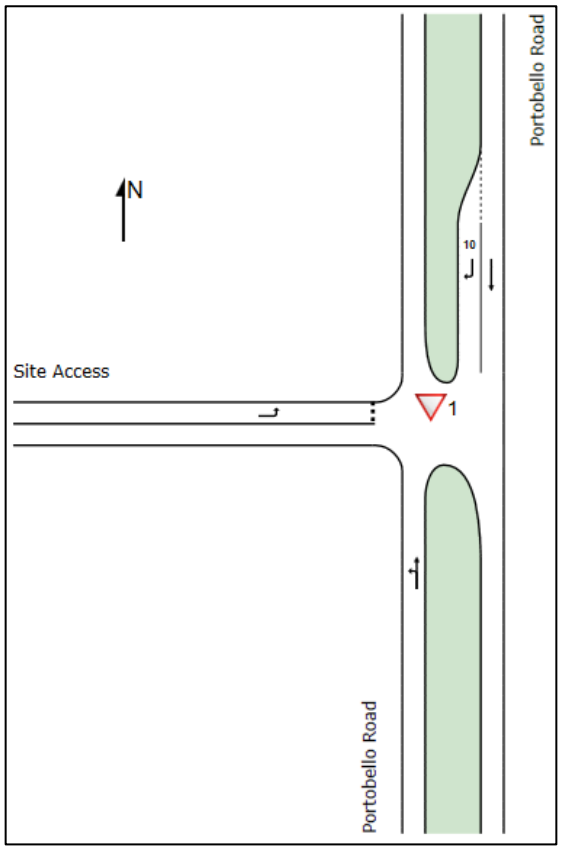


Figure 4.6 Portobello Road / Site Access – Layout

4.7 SIDRA Results

SIDRA modelling outputs have been included at **Appendix B** in full detail.

4.7.1 2024 Base + Development Scenarios

The movement summaries for the base + development scenarios (2024) are shown in Table 4.3.

Table 4.3 Summary of SIDRA Results (2024 Base and 2024 Base + Development Scenarios)

Intersection Name	Intersection Type	With Development			
		Avg Delay (s)	LoS	DoS	Queue (m)
Weekday Peak					
Portobello Road / Site Access	Give-Way	6.1	A	0.138	1.9
Weekend Peak					
Portobello Road / Site Access	Give-Way	6.1	A	0.149	1.8

It is noted that the intersection (with the development traffic) operates at a very good LoS with low DoS, queues and delays. Therefore, the development has negligible traffic impacts at the assessed intersection.

4.7.2 2034 Future + Development Scenario

The movement summaries for the future + development scenarios (2034) are shown in Table 4.4.

Table 4.4 Summary of SIDRA Results (2024 Base and 2024 Base + Development Scenarios)

Intersection Name	Intersection Type	With Development			
		Avg Delay (s)	LoS	DoS	Queue (m)
Weekday Peak					
Portobello Road / Site Access	Give-Way	6.3	A	0.168	2.0
Weekend Peak					
Portobello Road / Site Access	Give-Way	6.2	A	0.181	1.9

It is noted that the intersection (with the development traffic) operates at a very good LoS with low DoS, queues and delays. Therefore, the development has negligible traffic impacts at the assessed intersection even in 2034.

4.7.3 *Until Failure + Development Scenario*

As the road network is not fully developed, the background traffic volumes have been increased until the intersection starts to fail (failure mode in this case identified at the point where a Level of Service D is reached for the critical right-turn into the Site).

In this location, a background traffic demand of 1,130 vehicles per day in the northbound direction and 1,746 vehicles per day in the southbound direction would generate sufficient delays at the Site access to trigger this 'failure' mode. It is noted that this value (representing approximately 25,000-30,000 vehicles per day) is considered to be well in excess of the functional capacity of the road, considering its intent as a main street corridor.

As such, the proposed access on Portobello Road is not considered to have any detrimental impact on the traffic operation of the main street under any feasible future scenario.

The results of this modelling scenario are shown in Table 4.5.

Table 4.5 Summary of SIDRA Results (Until Failure Scenarios)

Intersection Name	Intersection Type	With Development			
		Avg Delay (s)	LoS	DoS	Queue (m)
Weekday Peak					
Portobello Road / Site Access	Give-Way	25.7	D	0.979	9.7
Weekend Peak					
Portobello Road / Site Access	Give-Way	26.9	D	0.650	9.7

5 Conclusion

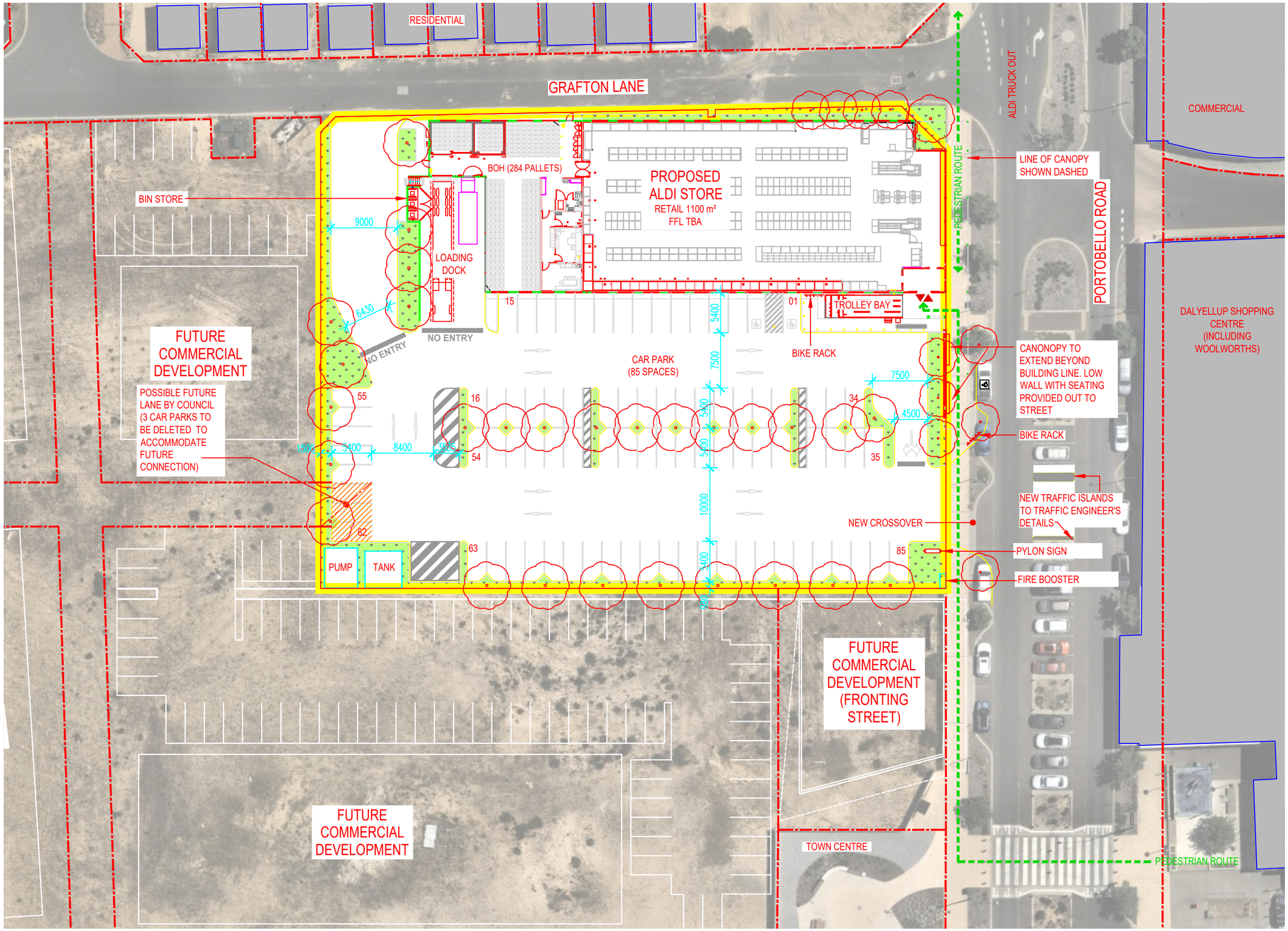
This report has been prepared in accordance with the Western Australia Planning Commission (WAPC) *Transport Assessment Guidelines for Developments: Volume 4 - Individual Development.*

The following conclusions have been made regarding the proposed development:

- The proposed development comprises a retail supermarket (Aldi Store) located adjacent to the existing Dalyellup Shopping Centre in the Dalyellup District Centre, in the Shire of Capel.
- There are two (2) proposed vehicular access points:
  - Left-in/Left-out/Right-In via Portobello Road for use by visitors and service/waste vehicle egress
  - Left-in/Right-In via Grafton Lane for service/waste vehicle ingress.
- Existing cycling and pedestrian access are provided via shared paths at Portobello Road, with additional direct connection to major roads in the north, such as Norton Promenade and Parade Road. The Department of Transport's *Long Term Cycling Network* plan identifies future upgrades near the study area.
- The Site has reasonable access to local public transport services, which can support connection to the Site via non-car modes.
- The Site provides **85 car parking spaces**, which **complies with and exceeds** the City of Capel requirements by 30 spaces. This allows those parking bays removed to construct the Portobello Road access to be incorporated into the Site in support of the wider District Centre.
- Service / delivery and waste vehicles will access the proposed loading dock from Grafton Lane. The loading dock is designed to accommodate all manoeuvring on-site, with movements into and out of the Site in a forward manner
- A range of access configurations were investigated with the proposed arrangement identified as appropriate for the Site and its surrounds. This assessment was confirmed through independent review commissioned by the Shire.
- The proposed access point has been assessed using a SIDRA model to ensure the impacts of queuing and delays do not adversely impact the operation of the adjacent road network
  - The Portobello Road was shown to operate acceptably under all reasonable scenarios. As such, there is no concern that the proposed development would have an adverse impact on the local road network.

Appendix A

Development Plans



1 — PROPOSED SITE & FLOOR PLAN
1:500

NOTES

ORIGINAL A3

REV	DATE	DESCRIPTION	DRN	CHKD
A	05.11.24	REV PLANNING	LT	TB
B	07.11.24	REV PLANNING	LT	TB

PROPERTY DESCRIPTION	AREA m²
ALDI GROSS FLOOR AREA	1505m²
ALDI NETT FLOOR AREA	1443m²
REGULAR AREA SALES	1033m²
CUSTOMER AREA–RETAIL	67m²
GENERAL AREA INFORMATION	1100m²
TOTAL STORAGE AREA	268m²
GENERAL STORAGE AREA	227m²
FREEZER STORAGE AREA	17m²
CHILLER STORAGE AREA	24m²
SIDE ROOMS AREA (AMENITIES)	75m²
OTHER INTERNAL FLOOR AREA	62m²

PROPERTY DESCRIPTION	AREA m²
ALDI SITE AREA	5465m²
EXTERNAL LAND AREA	3960m²
SITE CIRCULATION AREA	1840m²
PARKING AREA	1197m²
DELIVERY AREA	187m²
OTHER EXTERNAL LAND AREA	736m²
ALDI PARKING SPACES LAND	85
ALDI GROSS FLOOR AREA	1505m²
EXISTING BOUNDARIY	
PROPOSED ALDI BOUNDARY	
EXISTING STRUCTURES	

CLIENT
ALDI STORES

PROJECT
ALDI DALYELLUP
PORTOBELLO ROAD
DALYELLUP W.A.

DRAWING
PROPOSED SITE & FLOOR PLAN

NIELSEN ARCHITECTS
108 Mt Barker Road Stirling
South Australia 5152
p: 08 8339 8008
f: 08 8339 2004
P.O. Box 691 Stirling SA 5152
admin@nielsenarchitects.com.au
www.nielsenarchitects.com.au

SCALE	DATE	DRAWN	CHECKED
1:500	NOV 2024	DS	TB

PROJECT No	DRAWING No	STATUS	REV
2976	DA02.02	DA	B

Appendix B

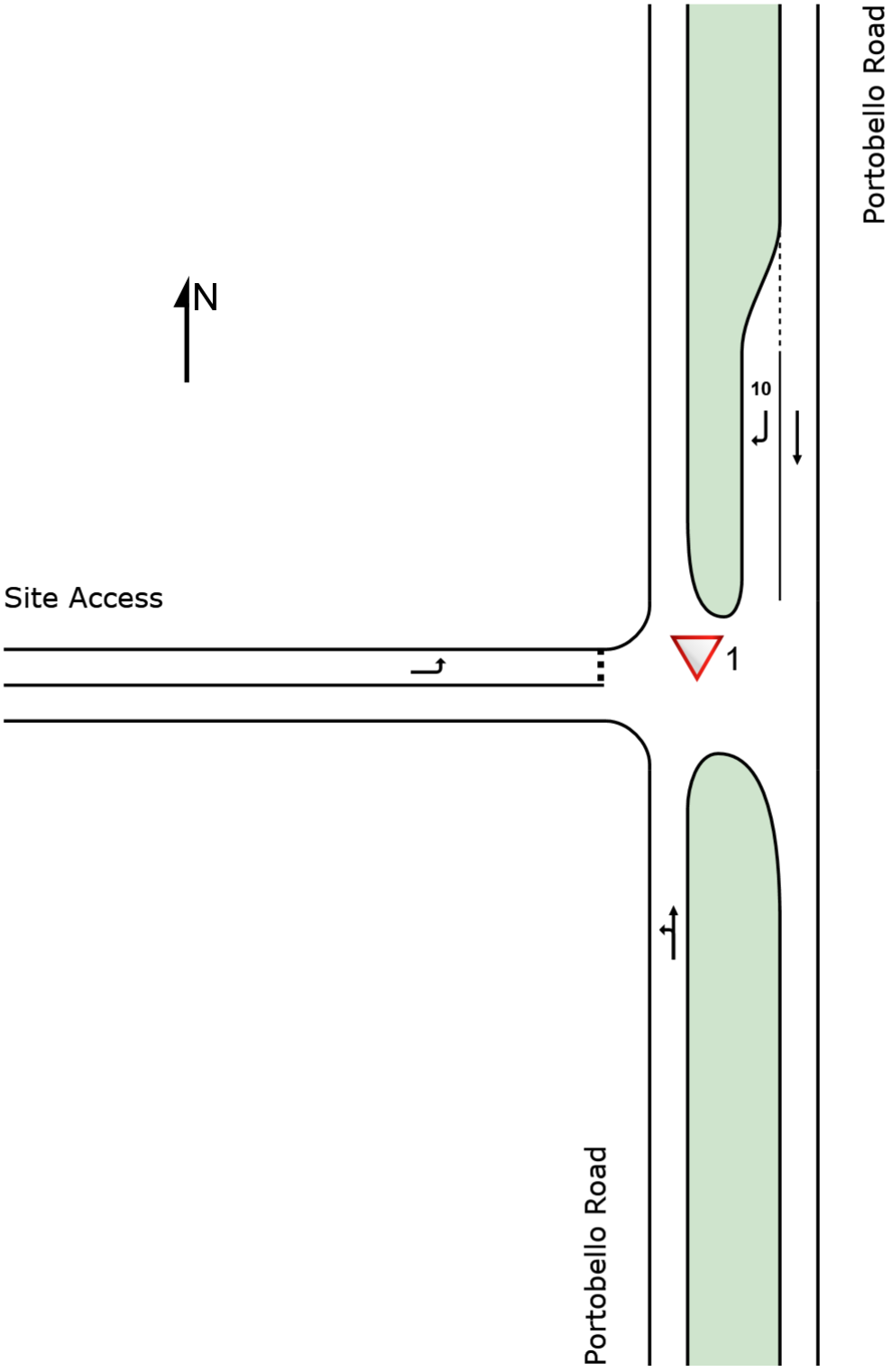
SIDRA Outputs

SITE LAYOUT

Site: 1 [Portobello Road / Site Access Ex Weekday Peak_2024 (Site Folder: 2024)]

Portobello Road / Site Access
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 1 [Portobello Road / Site Access Ex Weekday Peak_2024 (Site Folder: 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Portobello Road / Site Access
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Portobello Road															
1	L2	All MCs	14	5.0	14	5.0	0.097	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	39.5
2	T1	All MCs	167	5.0	167	5.0	0.097	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	58.6
Approach			181	5.0	181	5.0	0.097	0.4	NA	0.0	0.0	0.00	0.04	0.00	57.1
North: Portobello Road															
8	T1	All MCs	259	5.0	259	5.0	0.138	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	76	5.0	76	5.0	0.051	6.1	LOS A	0.2	1.7	0.30	0.55	0.30	29.1
Approach			335	5.0	335	5.0	0.138	1.4	NA	0.2	1.7	0.07	0.13	0.07	54.1
West: Site Access															
10	L2	All MCs	89	5.0	89	5.0	0.065	2.8	LOS A	0.3	1.9	0.27	0.50	0.27	33.6
Approach			89	5.0	89	5.0	0.065	2.8	LOS A	0.3	1.9	0.27	0.50	0.27	33.6
All Vehicles			605	5.0	605	5.0	0.138	1.3	NA	0.3	1.9	0.08	0.16	0.08	52.8

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

MOVEMENT SUMMARY

Site: 1 [Portobello Road / Site Access Ex Saturday Peak_2024 (Site Folder: 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Portobello Road / Site Access
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Portobello Road															
1	L2	All MCs	13	5.0	13	5.0	0.092	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	39.5
2	T1	All MCs	160	5.0	160	5.0	0.092	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	58.7
Approach			173	5.0	173	5.0	0.092	0.4	NA	0.0	0.0	0.00	0.04	0.00	57.2
North: Portobello Road															
8	T1	All MCs	279	5.0	279	5.0	0.149	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	73	5.0	73	5.0	0.049	6.1	LOS A	0.2	1.6	0.29	0.55	0.29	29.2
Approach			352	5.0	352	5.0	0.149	1.3	NA	0.2	1.6	0.06	0.11	0.06	54.6
West: Site Access															
10	L2	All MCs	85	5.0	85	5.0	0.062	2.8	LOS A	0.2	1.8	0.26	0.50	0.26	33.6
Approach			85	5.0	85	5.0	0.062	2.8	LOS A	0.2	1.8	0.26	0.50	0.26	33.6
All Vehicles			609	5.0	609	5.0	0.149	1.2	NA	0.2	1.8	0.07	0.15	0.07	53.3

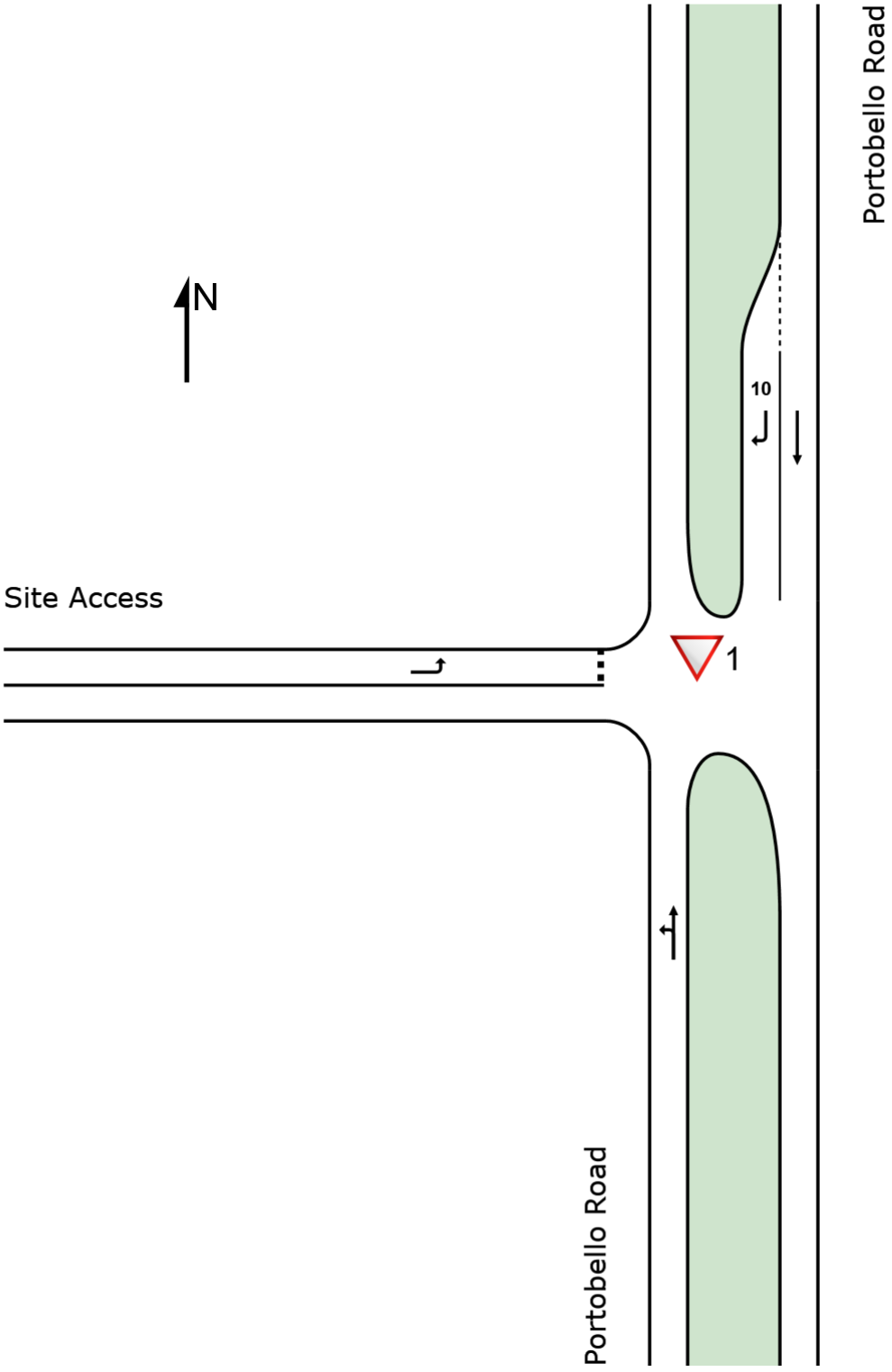
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of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

SITE LAYOUT

Site: 1 [Portobello Road / Site Access Ex Weekday Peak_2034 (Site Folder: 2034)]

Portobello Road / Site Access
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 1 [Portobello Road / Site Access Ex Weekday Peak_2034 (Site Folder: 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Portobello Road / Site Access
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Portobello Road															
1	L2	All MCs	14	5.0	14	5.0	0.117	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	39.6
2	T1	All MCs	204	5.0	204	5.0	0.117	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	58.8
Approach			218	5.0	218	5.0	0.117	0.4	NA	0.0	0.0	0.00	0.04	0.00	57.5
North: Portobello Road															
8	T1	All MCs	316	5.0	316	5.0	0.168	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	76	5.0	76	5.0	0.053	6.3	LOS A	0.2	1.7	0.33	0.57	0.33	28.8
Approach			392	5.0	392	5.0	0.168	1.2	NA	0.2	1.7	0.06	0.11	0.06	54.9
West: Site Access															
10	L2	All MCs	89	5.0	89	5.0	0.068	3.0	LOS A	0.3	2.0	0.30	0.51	0.30	33.4
Approach			89	5.0	89	5.0	0.068	3.0	LOS A	0.3	2.0	0.30	0.51	0.30	33.4
All Vehicles			699	5.0	699	5.0	0.168	1.2	NA	0.3	2.0	0.07	0.14	0.07	53.7

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

MOVEMENT SUMMARY

Site: 1 [Portobello Road / Site Access Ex Saturday Peak_2034 (Site Folder: 2034)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Portobello Road / Site Access
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Portobello Road															
1	L2	All MCs	13	5.0	13	5.0	0.111	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	39.6
2	T1	All MCs	195	5.0	195	5.0	0.111	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	58.9
Approach			207	5.0	207	5.0	0.111	0.4	NA	0.0	0.0	0.00	0.04	0.00	57.6
North: Portobello Road															
8	T1	All MCs	340	5.0	340	5.0	0.181	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	73	5.0	73	5.0	0.050	6.2	LOS A	0.2	1.6	0.32	0.56	0.32	28.9
Approach			413	5.0	413	5.0	0.181	1.1	NA	0.2	1.6	0.06	0.10	0.06	55.4
West: Site Access															
10	L2	All MCs	85	5.0	85	5.0	0.064	2.9	LOS A	0.3	1.9	0.29	0.51	0.29	33.5
Approach			85	5.0	85	5.0	0.064	2.9	LOS A	0.3	1.9	0.29	0.51	0.29	33.5
All Vehicles			705	5.0	705	5.0	0.181	1.1	NA	0.3	1.9	0.07	0.13	0.07	54.1

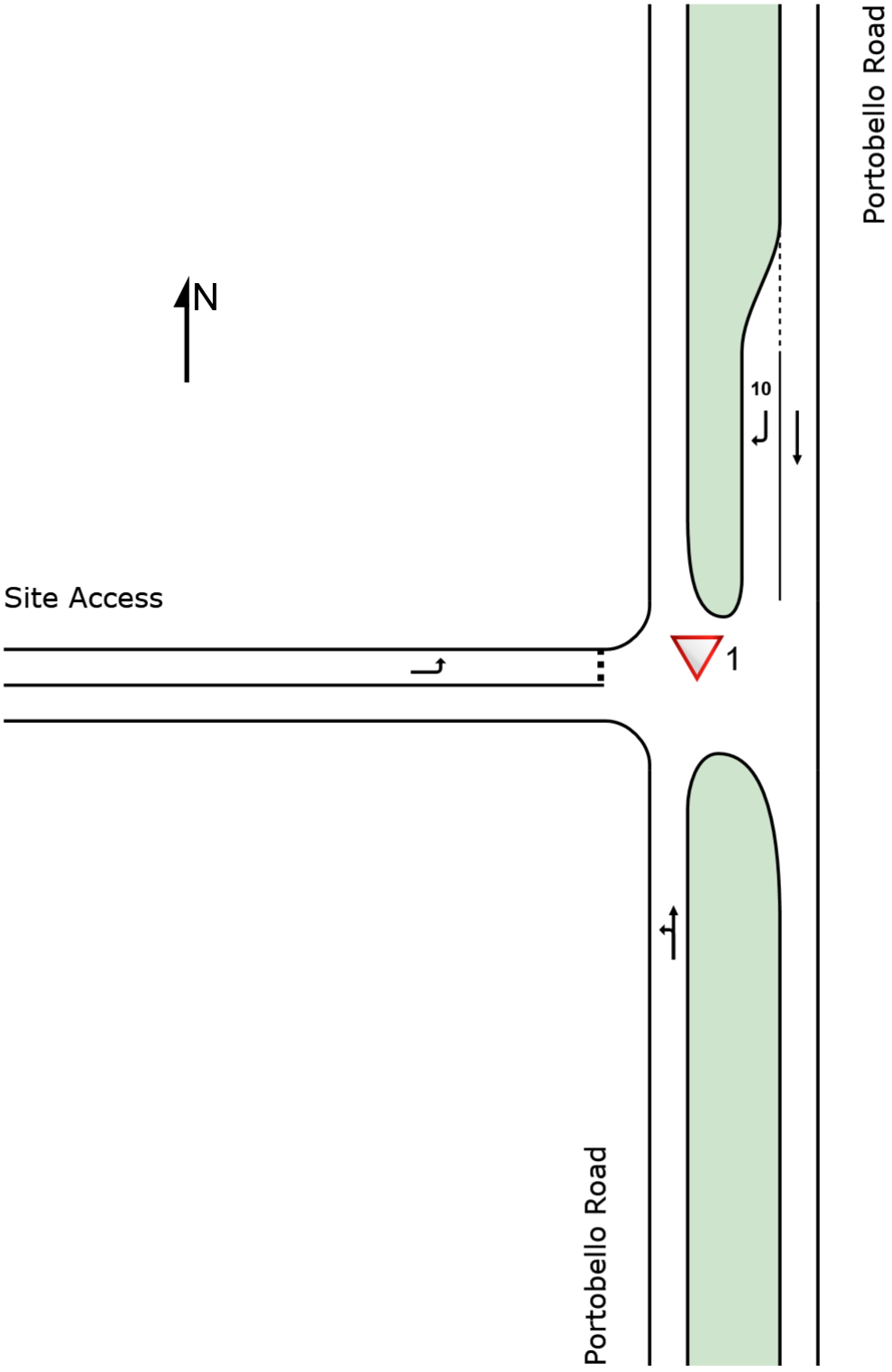
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of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

SITE LAYOUT

Site: 1 [Portobello Road / Site Access Ex Weekday Peak_Until Failure (Site Folder: Until Failure)]

Portobello Road / Site Access
Site Category: (None)
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 1 [Portobello Road / Site Access Ex Weekday Peak_Until Failure (Site Folder: Until Failure)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Portobello Road / Site Access
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Portobello Road															
1	L2	All MCs	14	5.0	14	5.0	0.642	5.7	LOS A	0.0	0.0	0.00	0.01	0.00	39.7
2	T1	All MCs	1189	5.0	1189	5.0	0.642	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	59.1
Approach			1203	5.0	1203	5.0	0.642	0.2	NA	0.0	0.0	0.00	0.01	0.00	58.8
North: Portobello Road															
8	T1	All MCs	1838	5.0	1838	5.0	0.979	1.3	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
9	R2	All MCs	76	5.0	76	5.0	0.345	25.7	LOS D	1.1	8.3	0.91	1.01	1.09	12.8
Approach			1914	5.0	1914	5.0	0.979	2.2	NA	1.1	8.3	0.04	0.04	0.04	47.8
West: Site Access															
10	L2	All MCs	89	5.0	89	5.0	0.411	22.6	LOS C	1.3	9.7	0.91	1.01	1.15	13.3
Approach			89	5.0	89	5.0	0.411	22.6	LOS C	1.3	9.7	0.91	1.01	1.15	13.3
All Vehicles			3206	5.0	3206	5.0	0.979	2.0	NA	1.3	9.7	0.05	0.05	0.06	50.0

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

MOVEMENT SUMMARY

Site: 1 [Portobello Road / Site Access Ex Saturday Peak_Until Failure (Site Folder: Until Failure)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Portobello Road / Site Access
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Portobello Road															
1	L2	All MCs	13	5.0	13	5.0	0.650	5.7	LOS A	0.0	0.0	0.00	0.01	0.00	39.7
2	T1	All MCs	1206	5.0	1206	5.0	0.650	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	59.1
Approach			1219	5.0	1219	5.0	0.650	0.2	NA	0.0	0.0	0.00	0.01	0.00	58.8
North: Portobello Road															
8	T1	All MCs	2104	5.0	2104	5.0	1.121	11.8	LOS B	0.0	0.0	0.00	0.00	0.00	20.9
9	R2	All MCs	73	5.0	73	5.0	0.350	26.9	LOS D	1.1	8.3	0.91	1.01	1.09	12.3
Approach			2177	5.0	2177	5.0	1.121	12.3	NA	1.1	8.3	0.03	0.03	0.04	20.7
West: Site Access															
10	L2	All MCs	85	5.0	85	5.0	0.415	23.8	LOS C	1.3	9.7	0.91	1.01	1.15	12.8
Approach			85	5.0	85	5.0	0.415	23.8	LOS C	1.3	9.7	0.91	1.01	1.15	12.8
All Vehicles			3481	5.0	3481	5.0	1.121	8.4	NA	1.3	9.7	0.04	0.05	0.05	26.7

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

Appendix C

Access Route Assessment

Memo

To:	Nathan Stewart; Principal Town Planner at Rowe Group
From:	Jacob Martin; Senior Principal - Transport Planning and Osama Hashmi; Traffic Engineer
Subject:	Lot 9053 - Aldi Dalyellup, Western Australia – Access Route Assessment
Our ref:	PS214079-PTH-PAM-MEM-001B
Date:	**20 September 2024**

Introduction

This Technical Memo describes the vehicle access routes entering and exiting Lot 9053, Dalyellup (the Aldi Site), considering the existing and proposed access arrangements.

Two (2) access driveway locations have been assessed for the Site, comprising a crossover located on Grafton Lane and a crossover located on Portobello Road.

Customer Vehicle Access

Several customer vehicle access routes have been assessed for the proposed Site, referencing the current road network including turn restrictions. These routes include:

1. Rear access via Grafton Lane
2. Full access via Portobello Road
3. Mitigated access via Portobello Road (LILO/right-out ban).

The representative routes are described in the following review.

Lvl 3, Mia Yellagonga Tower 2, 5 Spring St
Perth WA 6000
PO Box 7181
Cloisters Square WA 6850

Tel: +61 8 9489 9700
Fax: +61 8 9489 9777
www.wsp.com

Rear access via Grafton Lane

The existing Dalyellup District Centre Structure Plan assumes access and egress to the subject Site via Grafton Lane. This arrangement relies on rear laneway access running north to south and providing access to the Lots fronting the western side of Portobello Road.

The viability of this arrangement has been assessed in the context of two alternative approach routes from the north (reflecting the primary catchment for destination retail in the vicinity).

Route 1: Grafton Lane (inbound via Norton Promenade)

Route 2: Grafton Lane (inbound via Portobello Road)

Customer Vehicle Access Routes via Grafton Lane (Structure Plan access)

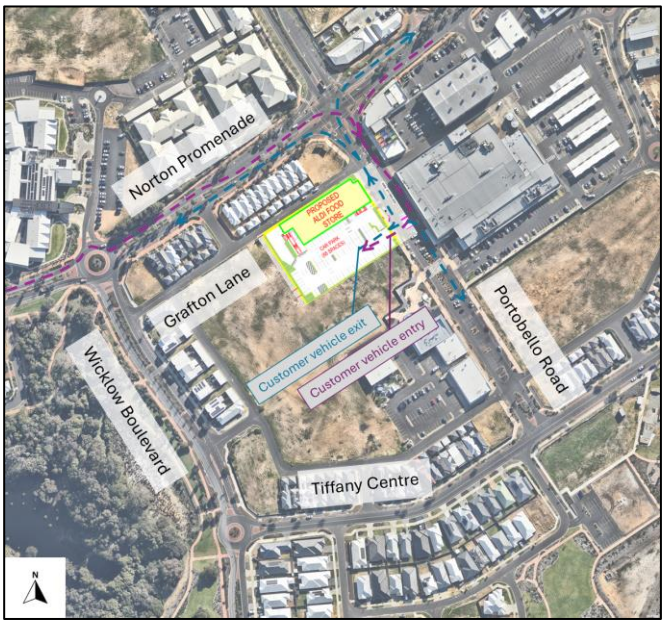
Route 1 uses the minor access provided by Wicklow Boulevard and Mile Lane to provide connection from Norton Promenade. While this route is theoretically possible, its use requires an expert knowledge of the local network and the lack of legibility is expected to deter new Aldi customers from trying to access the Site. This is because the natural approach route is via Portobello Road, which is identifiable as the 'address' of the Store. It is therefore expected that a sizeable proportion of prospective customers would arrive via Portobello Road, with no access available to Grafton Lane (due to the left-in/left-out (LILO)) turning restrictions at the Portobello Road / Grafton Lane intersection.

In this event, it is anticipated that Aldi customers would either seek on-street parking (where available), abandon their trip and go elsewhere, or make a U-turn at the existing break in the Portobello Road median (Route 2). This movement would conflict with egress movements from the Dalyellup Shopping Centre and (given its proximity to the major signalised intersection of the Norton Promenade / Portobello Road intersection) and is therefore considered to be inherently unsafe.

Shared use of the Grafton Lane crossover by both service vehicles and customer vehicles is also not recommended, due to the narrow geometry of Grafton Lane and the potential for conflict.

Full access via Portobello Road

To address the above issues, an alternative access arrangement is proposed, with direct access via Portobello Road. This alternative has been considered in two forms: left-in/left-out only (LILO) and full movement access. The representative customer vehicle access routes for these alternatives are shown below.



Configuration 1: Portobello Road – LILO (inbound/outbound) **Configuration 2:** Portobello Road – full movements

Customer Vehicle Access Routes via Portobello Road (proposed alternative)

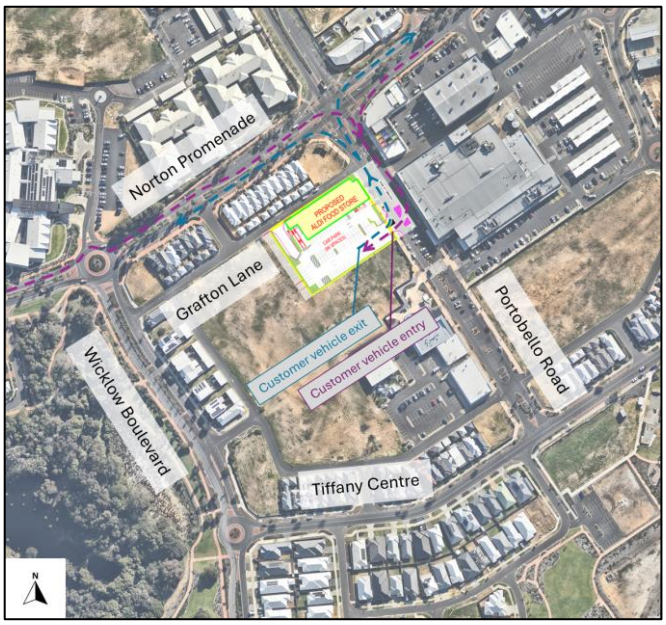
The above route assessment shows that while the legibility to the store is improved with a new Site access/egress onto Portobello Road, the LILO configuration still requires a circuitous detour via Tiffany Centre or a U-turn within Portobello Road. This suggests that the LILO access is not sufficient to address the access restrictions of the Site as it retains most of the issues of the Grafton Lane location. The LILO access also requires the removal of three (3) kerbside bays on the western side of Portobello Road.

If the Portobello Road access is provided in a full-movements form: allowing right-turn movements into and out of the Site, then these existing access constraints are fully mitigated. Access from Norton Promenade becomes straightforward and direct, with all critical inbound and outbound movements accommodated by the network. Customers will also have direct access via the frontage street without the requirement to undertake unsafe U-turn manoeuvres at the Tiffany Centre / Portobello Road intersection. This arrangement would result in the removal of a further six (6) median parking bays.

It is understood that the Shire of Capel has raised safety concerns related to customers make a right-turn outbound movement when exiting the Site. While this movement would ultimately increase the *theoretical* potential for conflict, the wide central median and distance of the access point from the pedestrian crossing are more than sufficient to allow for safe operation.

Mitigated access via Portobello Road (LILO and Right-out ban)

An alternative option has been prepared to address the above concerns, modifying the access arrangement to support left-in/left-out/right-in movements, alongside a right-out movement ban. The representative customer vehicle access route for the mitigated access is shown below:



Customer Vehicle Access Routes via Portobello Road (proposed mitigation using a right-out ban)

The Portobello Road access could be modified to only allow the right-turn movement into the Site, which retains inbound access for customers approaching the Site from Norton Promenade. This route is still direct and legible for the key retail catchment, comprising residential cells to the north and access via Bussell Highway.

The loss of the right-out movement results in some potential for circuitous egress routes for customers heading south – this is primarily a concern under the future network arrangement (as defined in the Dalyellup District Centre Structure Plan) which includes provision for connection via Wicklow Boulevard to Bussell Highway. The resulting outbound route would be via Norton Promenade, then either to Wicklow Boulevard or direct to Bussell Highway.

It is understood that the result of this mitigation measure will result in the removal of six (6) on-street car parking spaces as a result of the changes to the median parking area (as shown below). However, the proposed Aldi store would supply on-site parking over and above planning requirements to ensure no net loss of bays.

Proposed Mitigation Measure – right-out ban

Service Vehicle Access

The service vehicle access route (up to 19.0m Articulated Vehicles (AV)) is shown below. This route consists of the following:

- Service vehicles will enter from Grafton Lane, via Norton Promenade and Wicklow Boulevard
- Site access is permitted via a right-turn movement, with all manoeuvring occurring within the Lot
- Deliveries and waste collection activities take place within a controlled loading dock environment, separated from customers
- The egress route traverses the customer car park in forward manner, exiting the Site via the Portobello Road crossover
- Vehicles will turn left and return to Norton Promenade.

It is noted that the Norton Promenade intersections with Wicklow Boulevard and Portobello Road allow safe turning movements in all directions, allowing efficient servicing to the Site from the boundary road network and beyond.

Figure 0.1 Service Vehicle Access Routes

Service Vehicle Access Routes

Service vehicles exiting the Site onto Portobello Road will require the whole crossover width to turn, but sufficient driveway width is available to allow for navigation by both customer and service/delivery vehicles. The proposed driveway configuration acknowledges the needs of both trucks and customers, with painted central linemarking proposed to reinforce the customer egress route (see above).

Summary

In conclusion, key findings from this access review are as follows:

- Access to the Site via Grafton lane from the primary approach direction (via Norton Promenade) is indirect, illegible and circuitous. Alternatives exist in the network which would tend to promote unsafe U-turn manoeuvres on Portobello Road.
- Modification to the access location to Portobello Road would assist in aligning with customer expectations and improve legibility.
- A potential left-in/left-out treatment (LILO) was investigated for the Portobello Road access location, but this failed to address many of the issues.
- A full-movements access arrangement has been investigated for the Portobello Road crossover, which shows better outcomes from a connectivity perspective. The proposed Portobello Road crossover would result in the removal of nine (9) on-street bays, which would be offset against an on-site surplus of parking within the Aldi Site, to would ensure no net loss of parking.
- The Shire of Capel has raised safety concerns regarding the right-turn outbound movement out of the access crossover. An alternative treatment allowing left-in, left-out and right-in movements is shown to mitigate all identified access issues.
- Service vehicles would continue to access the Site via Grafton Lane, egressing via Portobello Road. Swept path analysis confirms that all movements can be accommodated safely.

The preferred access arrangement considering the constraints of the network, would be to construct a full-movements crossover on Portobello Road. This would provide effective connectivity to the Site without inducing circuitous and unsafe manoeuvring within local streets.

Should this arrangement not be supported by the Shire, a modified access arrangement could be constructed, in the form of a left-in/left-out/right-in access. This arrangement retains the majority of the identified benefits of the Portobello Road access location.

Jacob Martin
Senior Principal - Transport Planning