# Traffic Impact Assessment

## Multi Storey Mixed-use Development

## 481 - 487 Swift Street, Albury NSW

## Report 5 July 2023

Prepared by
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**Document Control**

| Version | Date | Issue | Author | Reviewed | Approved |
|---|---|---|---|---|---|
| Draft | 21/2/2023 | A | PJM | MR (Joss) | PJM |
| Draft | 4/05/2023 | B | PJM | MR (Joss) | PJM |
| Final | 4/07/2023 | C | PJM | MR (Joss) | PJM |
| Final | 5/07/2023 | D | PJM | MR (Joss) | PJM |

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## 1. Executive Summary

This report provides an assessment of the traffic impacts of a proposed site redevelopment for the construction of a multi storey mixed-use development at 481-487 (Lot 20 DP780123 & Lot 1 DP912511) Swift Street, Albury NSW.

The site is located on the corner of Swift Street and Arnolds Lane. The Site is situated within the Albury CBD and located in the B3 Commercial Core Zone, pursuant to the *Albury Local Environmental Plan 2010* (ALEP2010). The subject land is currently occupied by three single storey dwelling houses with a total area of 2,023m$^2$. It is proposed to demolish the existing houses construct a seven-storey mixed-use development consisting of a ground floor commercial tenancies and levels 1-6 comprising a total of 32 residential apartments. The proposed development will provide 6 ground floor parking spaces (including one assessable space and space for bicycle lockers/hangers) for commercial use and 52 basement parking spaces for residential and visitor use.

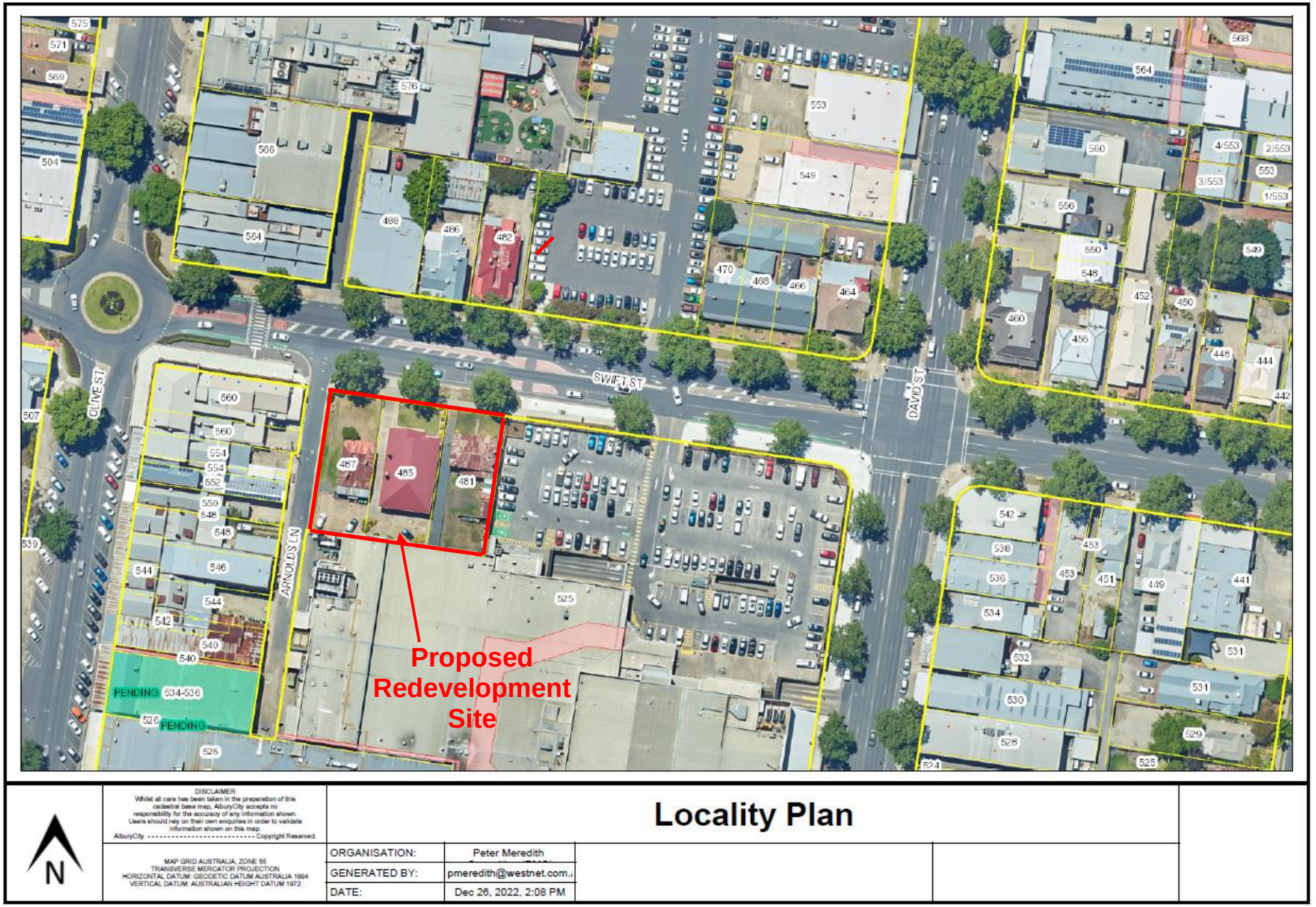
This report investigates the traffic and parking impacts on Swift Street and Arnolds Lane and the wider road network arising from development of the site. This includes assessment of access driveways and the key intersection of Swift Street and Arnolds Lane.

The report concludes that the additional traffic generated by the proposed development (29 vehicle trips per hour in the peak period) will have no significant adverse impacts on the surrounding road network, the key intersection of Swift Street and Arnolds Lane or access driveways.

It is concluded that the proposed development will provide adequate parking to cater for the peak demand with no significant adverse impact expected to on-street parking in the surrounding road network and adequate provision for persons with a disability and other service/delivery vehicles.

Access to the site via separate entry and exit driveways from Swift Street and Arnolds Lane, as well as the parking and internal manoeuvring areas, meets the minimum requirements of AS2890.

## 1.1 Locality Plan



## 1.3 General Arrangement Plans

Swift Street

5.10
Plan - Level Basement
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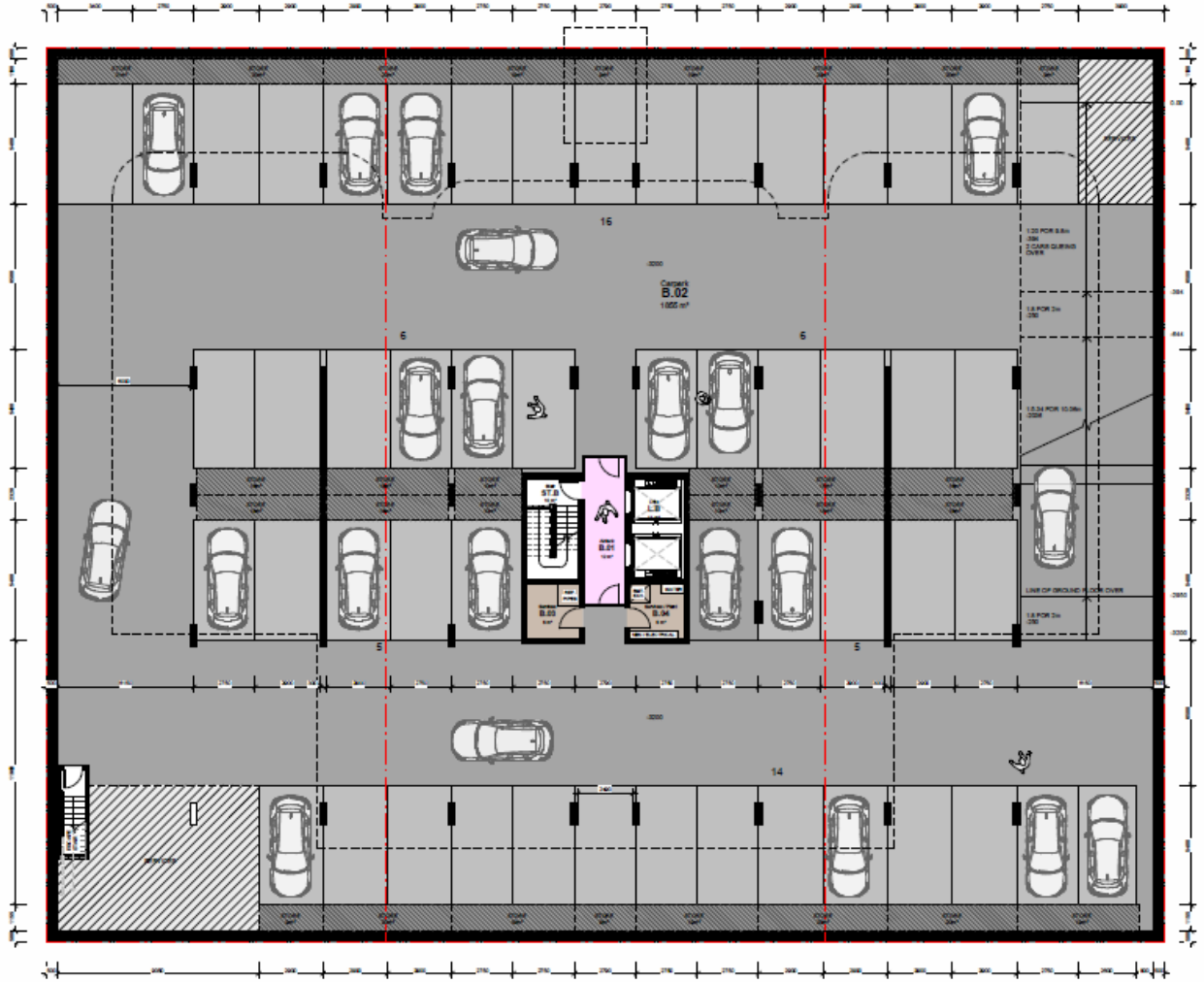
Arnolds Lane

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5.11
Plan - Level Ground
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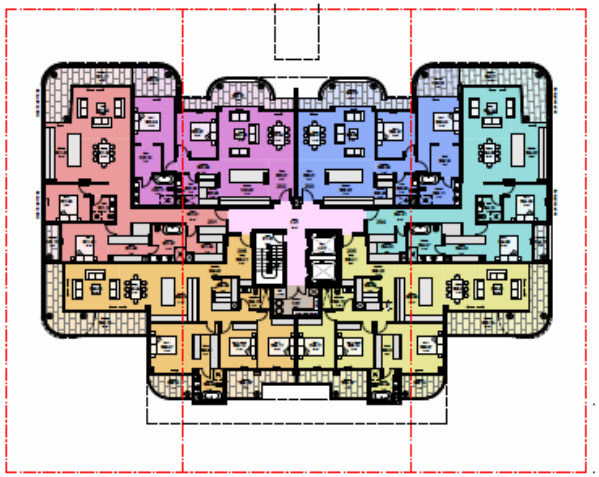
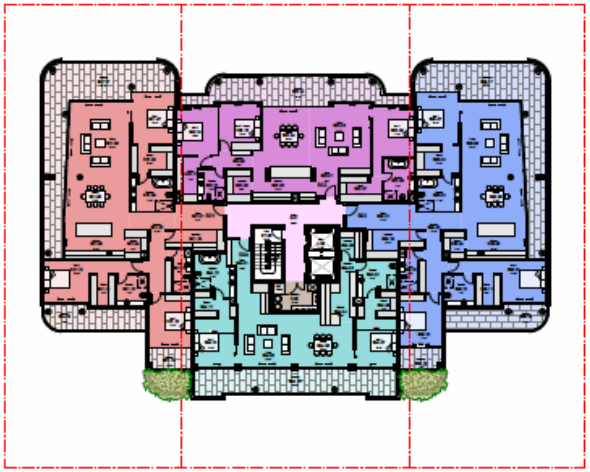
# 03.3 SEPP 65 DESIGN QUALITY PRINCIPLES
## Principle 3: Density

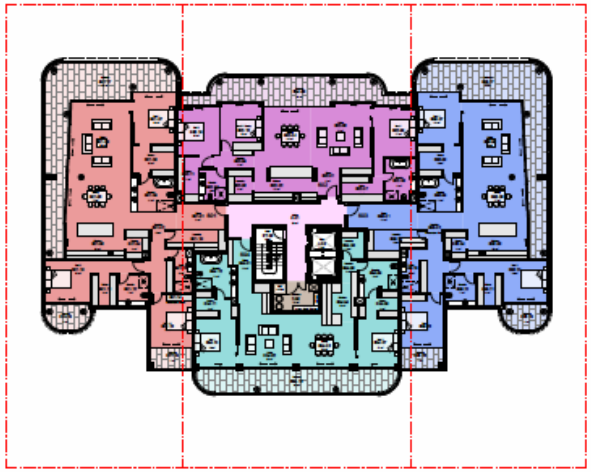
Podium Level 1



Levels 2-4



Level 5



Level 6

Schedule 1 Design quality principles
Principle 3: Density

*Good design achieves a high level of amenity for residents and each apartment, resulting in a density appropriate to the site and its context. Appropriate densities are consistent with the area's existing or projected population. Appropriate densities can be sustained by existing or proposed infrastructure, public transport, access to jobs, community facilities and the environment.*

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The planned density and use of the site is consistent with the desired future character and density of Albury and is supported by the proximity to retail, commercial, medical, recreational, and public transport facilities whilst complying with LEP and DCP controls.

DEVELOPMENT SUMMARY:

| | |
|---|---|
| Site Area: | 2,023 m² |
| Maximum GBA (Gross Building Area): | 6,069m² |
| Maximum Zoned FSR (Floor Space Ratio): | 3.0 |
| Proposed GBA (Gross Building Area): | 6,014m² |
| Proposed FSR (Floor Space Ratio): | 2.97 |
| Ground Floor Commercial/retail/Residential Entry and Foyer and facilities. | 948m² |
| Residential apartments Levels 1 to 6 including Roof Amenities / Foyer | 5,066m² |

APARTMENT MIX: 32 Total no. Apartments

| | |
|---|---|
| 17 no. 2 bed apartments | 53% |
| 1 no. 2 bed penthouse apartment | 3% |
| 11 no. 3 bed apartments | 34% |
| 3 no. 3 bed penthouse apartment | 9% |

The proposed apartment mix provides a choice of 2 and 3 bedroom apartments to satisfy the expected market demand.

The Commercial/retail component is appropriate to the high level of amenity that will be provided with the local context and proximity to other facilities and services.

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5.30
Elevation - North
1:200


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Elevation - West
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### 1.3 Site Characteristics

| | |
|---|---|
| **Address** | 481-487 Swift Street, Albury |
| **Road Hierarchy** | Swift Street single lane two-way divided carriageway and Arnolds Lane single lane two-way carriageway |
| **Proposed Use** | Mixed-use retail/commercial and medium density residential. Consisting of ground floor commercial tenancies and levels 1-6 comprising a total of 32 residential apartments. |
| **Access** | Swift Street to residential basement car parking.<br>Arnolds Lane to retail/commercial ground level car parking. |
| **Parking** | • 52 basement parking spaces for residential and visitor use;<br>• 6 ground floor parking spaces (including one assessable space and space for bicycle lockers/hangers) for commercial use. |
| **Existing Traffic Volumes** | **Swift Street**<br>West bound peak AM 286vph PM 457vph<br>East bound peak AM 183vph PM 266vph<br>**Arnolds Lane**<br>North and south bound peak AM 6vph PM 6vph |
| **Traffic Generation** | The RTA Guide includes a traffic generation figure for retail/commercial and medium density residential AM & PM peak 29vph and 210 vpd |

### 1.4 Recommendations

- Albury City Council concurs with the proposed on-site car parking and access arrangements for the mixed-use development;

- Albury City Council concurs alterations to the parking lane blister median on the pedestrian refuge in Swift Street to facilitate access to the residential basement car park driveway;

- Albury City Council concurs with the removal of a large street tree to facilitate access to the residential basement car park driveway;

- Albury City Council waiver the shortfall of 5 parking spaces for the residential apartments;

- Albury City Council waiver the shortfall of 12 parking spaces for the retail/commercial section of the development.

## 2. Introduction

Peter Meredith Consulting has been engaged to prepare a report assessing the traffic impacts of a proposed mixed-use development consisting of a ground floor retail/commercial tenancy and 6 levels of residential apartments. The apartments consist of 18 two-bedroom dwellings and 14 three-bedroom dwellings at 481-487 Swift Street, Albury NSW.

The site is located on the SE corner of Swift Street and Arnolds Lane. To facilitate the construction of the new mixed-use development, the three existing buildings will be demolished.

Access to the new mixed-use development ground floor retail/commercial tenancy is via a 5.8m wide entrance located on Arnolds Lane and access to the residential apartment's car park is via a 6.0m wide driveway on Swift Street. Deliveries will be via Arnolds Lane. The new Swift Street access driveway will operate as left-in and left-out only. The proposed development will provide 6 ground floor parking spaces (including one assessable space and space for bicycle lockers/hangers) for commercial use and 52 basement parking spaces for residential and visitor use.

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The Traffic Impact Assessment Report (TIAR) investigates the potential traffic impacts a new mixed-use development on the on existing traffic operations of Swift Street and Arnolds.

The assessment uses existing traffic movement data, on-site observations and traffic generating development figures.

### 2.1 Documentation

The documentation and information provided by Marin Reid from Joss Constructions for this assessment includes:

- Architectural Design Report Issue D of the proposed mixed-use development prepared by CohenLeigh Architects 27/06/2023;
- Planning advice report for the proposed development prepared by Willow Tree Planning 15 December 2022

### 2.2 References

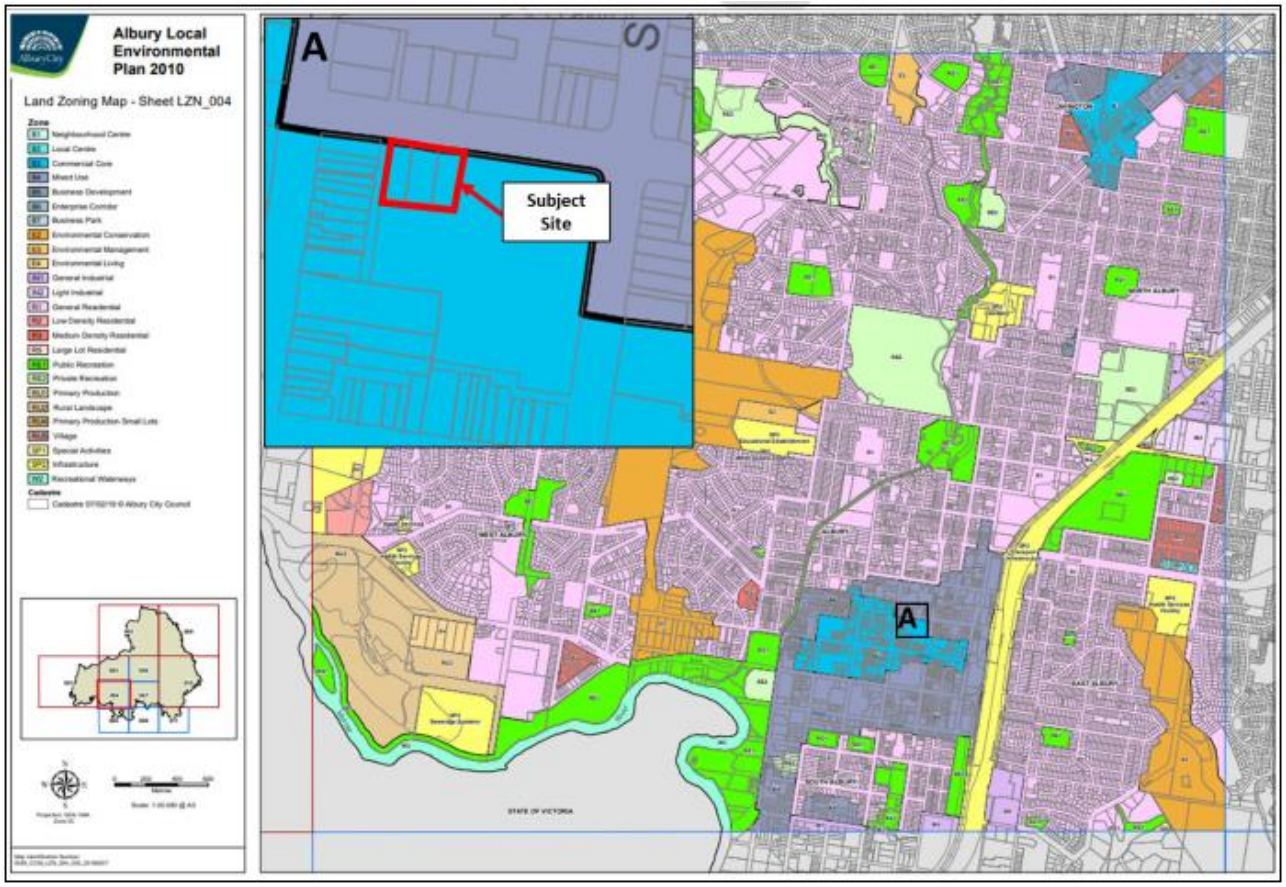
References used in the preparation of this assessment include the following:

- *Austroads Guide to Road Design (AGRD) Part 4A: Unsignalised and Signalised Intersections.*
- *RMS supplement to Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*
- *RTA Guide to Traffic Generating Developments Version 2.2 October 2002*
- *AS2890.1 parking facilities Part 1: Off-street Car Parking*
- *Albury City Council Development Control Plan 2010 (DCP2010) and Local Environmental Plan 2010 (LEP2010)*

## 3. Existing Conditions

### 3.1 Land Use

The Site is identified as 481-487 Swift Street, Albury and is described as Lot 20 DP780123 and Lot 1 DP912511. The Site comprises of two (2) allotments, containing a total site area of approximately 2,023m2. The Site is situated within the Albury CBD and is in the B3 Commercial Core Zone, pursuant to the *Albury Local Environmental Plan 2010* (ALEP2010). The Site comprises a corner allotment, with a primary frontage to Swift Street, along the northern boundary, and a secondary frontage to Arnolds Lane. Primary access to the Site is afforded for pedestrians from Swift Street and vehicles from Arnolds Lane.




### 3.2 Road Network

#### Swift Street

Swift Street forms the northern boundary of the development site. Swift Street is classified as a local road and is under the management of Albury City Council. Swift Street runs east-west across the Albury CBD between Young Street and Kiewa Street, providing access to properties and through access across the northern part of the CBD. The Albury Railway Station is located approximately 1km from the site, with bus services running from David Street to the east of the development site.

Adjacent to the development site Swift Street has a road reserve width measured at approximately 30.2m between property lines and consists of the following characteristics:

- A divided east-west carriageway with a sealed width of 9.3m each between kerbs with a varying width dividing median with breaks to allow access to the SS&A and Myer public car parking areas and Arnolds Lane;
- The carriageways consist of line marked traffic lanes of 4.2m and 2.3m parallel parking lanes on each side with 1.5m wide bicycle lanes between the parking and the kerb;
- A dedicated right and left turn lane are provided at the Myer Car Park entrance driveway;
- The existing 2.8m wide painted chevron median installed across the intersection of Swift Street and Arnolds Lane provides a right turn lane and commercial vehicle reversing area for Arnolds Lane for both cars and delivery vehicles. Truck Reversing warning signage is in place on both approaches to Arnolds Lane to warn motorists;
- The intersection of Swift Street and David Street is controlled by traffic signal and the intersection of Swift Street and Olive Street is controlled by a single lane roundabout;
- Pedestrian crossing facilities include a marked threshold Pedestrian Crossing to the west near Olive Street and a mid-block Pedestrian Refuge;
- Nature strips of 5.1m on both sides;
- Concrete footpaths 1.9m wide on both sides of Swift Street between Olive and David Streets;
- Time restricted 2P parking on both sides of Swift Street and with No Stopping zones at car parking driveways, pedestrian facilities, and intersection approaches;
- Posted speed limit is 50km/h.

Photo 1: Swift Street west bound towards Olive Street. Shows pedestrian refuge, parallel parking, and bicycle lane.


Photo 2: Swift Street east bound towards David Street. Shows painted chevron median at the intersection of Arnolds Lane.

Photo 3: Swift Street pedestrian crossing between Olive Street and Arnolds Lane.

**Arnolds Lane**

Arnolds Lane forms the western boundary of the development site. Arnolds Lane is classified as a local road and is under the management of Albury City Council. Arnolds Lane is a no through road and provides rear access for parking and deliveries to commercial and retail business fronting Olive Street and major produce deliveries to the Woolworths Supermarket in the Myer Complex. Semi-trailer and tray truck deliveries in Arnolds Lane are undertaken by reversing across the traffic lanes in Swift Street. The painted chevron median is installed across the intersection of Arnolds Lane and Swift Street to facilitate right turns and reversing manoeuvres into Arnolds Lane. Truck Reversing warning signage is in place on both approaches to Arnolds Lane to warn motorists. Woolworths management have advised that there are two semi-trailer delivers per day, one in the morning between 6am and 8am and one in the afternoon between 3pm and 5pm. There are also 3 to 4 rigid body deliveries per day.

Adjacent to the development site Arnolds Lane has a road reserve width measured at approximately 6.7m between property lines and consists of the following characteristics:

- Single carriageway with a sealed width of 6.1m each between kerbs;
- Parking restrictions are in place on both sides of Arnolds Lane and a No Parking zone is installed up to the Safeway loading dock and a Loading zone is installed for the remainder of the laneway.
- Posted speed limit is 50km/h.


Photo 4: Arnolds Lane south bound towards end

Photo 5: Example of tray delivery truck driving on chevron median to reverse into Arnolds Lane


Photo 6: Tray truck delivering in Arnolds Lane after completing reversing manoeuvrer

## 3.3 Existing Traffic

### Swift Street

Existing mid-block traffic data for Swift Street between Olive Street and David Street from 1 to 14 February 2023 was provided by Albury City Council. The results of the traffic counts are shown in tables in Appendix A. A summary of the average daily traffic (ADT) and morning and evening peak hour traffic volumes (vph) in each direction and speed profile are listed in the Table 3.1 below:

**Table 3.1 ADT, AM and PM peak traffic volumes**

| Swift Street | ADT 5-day week | AM peak 8.00 to 9.00 | PM peak 4.00 to 5.00 | 85th % speed In both directions. |
|---|---|---|---|---|
| **Between Olive Street and David Street February 2023** | | | | |
| **East bound** | 2988vpd | 183vph | 266vph | 39.4km/h |
| **West bound** | 4621vpd | 286vph | 457vph | |

The intersection of Swift Street and Arnolds Lane is adjacent to the development site, and it is considered a key intersection because proposed access to the ground level retail/commercial car park in Arnolds Lane may have an impact on the operations of this intersection. Therefore, as part of this investigation, turning movement counts were undertaken at the intersection of Swift Street and Arnolds Lane adjacent to the development site in February 2023 and will be used in the traffic impact assessment.

The turning movement counts covered the morning and evening peak periods that coincide with the peak traffic times during February 2023 traffic counts. The results of the manual traffic counts are shown in Figure *Manual peak hour (one day) directional traffic counts at intersections are common traffic engineering practice (refer to AGTM Part 3- Traffic Studies and Analysis, Appendix A) which gives accurate directional traffic volumes that cannot be achieved with mid-block traffic counts.*

A summary of the peak hours turning movements for the intersection are shown in Figure 1 below

**Figure 1: Summary of existing AM and PM peak hour turning movements at intersection of Swift Street and Arnolds Lane**


### 3.4 Pedestrians and Cyclists

Swift Street has a high flow of pedestrians crossing between the Myer shopping complex and the SS&A public car park. There is a network of existing concrete footpaths along both sides of Swift Street adjacent to the proposed development and there is an existing adequate network of footpaths that link the development to other parking facilities, bus stops and other commercial and retail centres. Listed below are pedestrian facilities on Swift Street that allows pedestrians to cross roads safely:

- A pedestrian phase on all legs of the traffic signals at the Swift Street and David Street;
- A marked pedestrian crossing with a raised threshold on Swift Street to the west of the development site between Olive Street and Arnolds Lane;
- Pedestrian crossing points on the roundabout at the intersection of Swift Street and Olive Street;
- A pedestrian refuge mid-block between Olive Street and David Street with a wide centre median and kerb blisters that links the SS&A and Myer public car parking.

*Refer to the Locality Plan in Section 1.1 for details.*

There are kerb side marked on-road cycle lanes at 1.5m wide along both sides of Swift Street between David Street and Olive Street.

### 3.5 Existing On street Parking

On street car parking in this section of Swift Street is parallel at 2.4m wide and is located between the edge of the bicycle lane and traffic lane. Parking is time restricted to 2 hours. *Refer to the Locality Plan in Section 1.1 for details.*

### 3.6 Deliveries in Arnolds Lane

Arnolds Lane is a no through road and provides rear access for parking and deliveries to commercial and retail business fronting Olive Street and major produce deliveries to the Woolworth Supermarket in the Myer Complex. Woolworths management have advised that there are two semi-trailer delivers per day, one in the morning between 6am and 8am and one in the afternoon between 3pm and 5pm. There are also 3 to 4 rigid body delivers per day.

Semi-trailer deliveries in Arnolds Lane are undertaken by reversing across both traffic lanes in Swift Street. Traffic is block in both directions when this is occurring. Truck Reversing warning signage is in place on both approaches to Arnolds Lane to warn motorists. Smaller tray truck deliveries drive onto the 2.8m wide chevron median that is installed across the intersection of Arnolds Lane and reverse into the laneway *(refer to Photos 5 and 6).*

## 4. Proposed Development

The proposed mixed-use development at 481-487 Swift Street Albury consists of the following elements:

- Demolition of the existing buildings (3);
- Basement car parking for 52 spaces for residential and visitor use;
- Ground floor parking for 6 spaces retail/commercial use, bicycle parking (including 1 accessible parking space) and bin storage;
- Ground floor construction of retail/commercial area, including entry lobby/lounge area, meeting room, lifts, stairs, and toilets;
- Six storeys of residential apartments consisting of 18 two-bedroom units and 14 three-bedroom units;
- The retail/commercial access to the site and car park is proposed via a 5.8m wide gated entrance on Arnolds Lane;
- Access to the basement residential car park is via a 6.0m driveway on Swift Street. Access will be left-in and left out only;
- Loading and unloading of goods to the retail/commercial section will be via the ground floor car park in Arnolds Lane;
- Waste management is centrally located via a core waste chute room on all levels finishing at the ground level where additional bin storage is provided as well as waste collection truck access off Arnolds Lane.

## 5. Parking Requirement

Parking requirements for the proposed development depends on the land use. The Albury DCP 2010 Part 17 off-street car parking specifies the following number of car parking spaces for the retail/commercial and residential apartment buildings sections of the mixed-use development as:

- **Retail/commercial premises:** < 3000m² GFA 1 car space per 40m² GFA. >3000m² GFA 1 car space per 30m² GFA.

- **Residential flat building:** 1 car space per 1- or 2-bedroom dwelling. 2 car spaces per 3 or more-bedroom dwelling. 2 designated visitor space per 1-4 dwellings. 3 designated visitor spaces per 5-8 dwellings. More than 8 dwellings - 3 designated visitor spaces plus 1 visitor space for every 3 or part thereof additional dwellings.

### 5.1 Retail / Commercial

By applying the above rates, the car parking requirement for the retail/commercial premises section of the development is calculated as:

- 735m² GFA /40 = 18.38 say **18 spaces** are required

The development proposes **6 retail/commercial parking spaces** giving a shortfall of 12 spaces. The development is in an accessible location within the Albury CBD and is also in proximity of four long to medium term public carparks (Wilson Street multi- deck, SS&A Club carpark, Myer complex and David Street). In addition, the development is close to public transport facilities with bus stops in David Street and QEII square. It is anticipated that commuting clients and staff will have public transport opportunities and if driving will have multiple destinations and may likely not require parking to visit the proposed future retail/commercial businesses. It is concluded that the shortfall of 12 spaces will have no significate impact on parking demand and it is requested that Albury City Council waiver the shortfall of 12 parking spaces for the retail/commercial section of the development.

### 5.2 Residential Flat Building

By applying the above rates, the parking requirement for the residential flat building section of the development is calculated as:

- 18 two-bedroom dwellings = 1 x 18 = **18 resident spaces**
- 14 three-bedroom dwellings = 2 x 14 = **28 resident spaces**
- For 32 dwellings, visitor spaces calculate at 3 spaces + (32 – 8) /3 = 8 + 3 = **11 visitor spaces**
- **46 resident spaces** and **11 visitor spaces** are required totalling **57 carparking spaces** for the residential section of the mixed-use development

The proposed development is providing **52 residential/visitor parking spaces**. There is adequate parking for residents and visitors, however there is a short fall of five (5) visitor parking spaces in the basement carpark in accordance with Albury DCP 2010. It is anticipated that because of the accessible location of the apartments

within the Albury CBD car ownership and parking demand is likely to be reduced thus reducing the number of spaces required for some of the apartments, particularly visitor parking spaces.

It is concluded that the shortfall of 5 spaces will have no significant impact on parking demand and it is requested that Albury City Council waiver the shortfall of 5 parking spaces for the residential apartments.

The parking rate for people with disabilities is in accordance with the *National construction Code of Australia 2011 (NCC2011) Table D3.5 car parking numbers for people with a disability* which specifies 1 space per 50 car parking spaces for the commercial/retail section for a Class 6: (a shop or other building for the sale of goods by retail or the supply of services direct to the public) up to 1000 spaces or for a Class 5: (an office building used for professional or commercial purposes). One accessible parking space is being provided in the ground floor car park.

The residential apartment building section classified as Class 2: (a building containing 2 or more sole-occupancy units each being a separate dwelling) no parking for people with a disability is required.

The proposed development meets the disable parking requirements with the provision of one accessible space.

Car parking bay dimensions for the 90-degree on-site car park are provided in accordance with the dimensions shown in *AS2890.1 parking facilities Part 1: Off-street Car Parking* and disability parking bay dimensions are in accordance with the dimensions shown in *AS/NZS 2890.6 2009 Parking Facilities Part 6: Off-street parking for people with disabilities.*

### 5.3 Bicycle and Motorcycle Parking

Bicycle hangers with locks for approximately 10 bicycles is provide in the ground floor car parking area. Standing space for one motorcycle is also provided in the same area as the bicycle parking. The bicycle and motorcycle parking provided meets the requirements of Albury DCP 2010.

## 6. Future Traffic Growth

### 6.1 Traffic Generation

Traffic generation levels for the proposed mixed-use development are established using the rates suggested in the *RTA Guide to Traffic Generating Developments.* The amount of traffic generated depends on the land use.

#### 6.1.1 Retail/commercial use

The RTA Guide includes traffic generation figures for Office and Commercial (section 3.5), defining these premises as: *Computers, High Tech, Health, Finance, Banking, Insurance, Accountancy, Management and Legal business.* The RTA guide also includes traffic generation figures for Retail, defining these premises as Shopping Centres (section 3.6).

It is not anticipated that the retail/commercial section of the mixed-use development will be used as a shopping centre. It's expected that the types of businesses in retail/commercial section of the mixed-use development will be commercial, and the traffic generation figures given in the RTA guide for Office and Commercial premises will be used.

- Evening peak hour vehicle trips = 2.0 per 100m$^2$ gross floor area;
- Daily vehicle trips = 10 per 100m$^2$ gross floor area.

By applying the above rate to the 735m$^2$ gross floor area the retail/commercial section could generate:

- Peak hour vehicle trips = 735/100 x 2 = 14.7 say **15 vehicles per hour**
- Daily vehicle trips = 735/100 x 10 = 73.5 say **74 vehicles per day**

#### 6.1.2 Residential flat building

The RTA Guide includes traffic generation figures for medium density residential flat buildings (Section 3.3.2) for metropolitan sub-regional centres as:

**Smaller units up to two bedrooms**

- Peak hour vehicle trips = 0.4-0.5 per dwelling;
- Daily vehicle trips = 4–5 per dwelling

**Lager units up to three bedrooms**

- Peak hour vehicle trips = 0.5-0.65 per dwelling;
- Daily vehicle trips = 5.0-6.5 per dwelling

By applying the above rates to the proposed 4 two-bedroom residential flats could generate:

- Peak hour vehicle trips = 4 x 0.4 = 1.6 say **2 vehicles per hour**
- Daily vehicle trips = 4 x 4 = **16 vehicles per day**

By applying the above rates to the proposed 24 three-bedroom residential flats could generate:

- Peak hour vehicle trips = 24 x 0.5 = 1**2 vehicles per hour**
- Daily vehicle trips = 24 x 5 = **120 vehicles per day**

The total traffic generated by the proposed mixed-use development is 15vph + 2vph + 12vph = **29 vehicles per hour** during peak periods and **210 daily vehicle trips**.

### 6.2 Traffic Distribution

Traffic generated by the development will be distributed throughout the network depending on origin/destination and route choices and management of vehicles onsite. This can be estimated by assessing likely origins and destinations based on land use traffic flows. Of the total trips generated by the mixed-use development the following assumptions are made to the distribution to generated traffic:

### 6.2.1 Basement residential car park Swift Street

It is assumed that 100% (14vph) would be expected to be outbound (left-out only) in the AM peak, as residents leave for work etc and return in the PM peak left -in-only).

It is concluded that the very low volume of additional traffic generated by the proposed residential section of the development will have no significant impact on the existing traffic operations of Swift Street.

### 6.2.2 Ground floor retail/commercial car park Arnolds Lane

During the AM peak it is anticipated that there will be a 50/50 split of 15 vph entering Arnolds Lane by turning right (7vph) and left (8vph) from Swift Street to access the retail/commercial car park. The opposite applies in the PM peak, when staff leave work.

It is concluded that the very low volume of additional traffic generated by the proposed retail/commercial section of the development will have no significant impact on the existing traffic operations of the intersection of Swift Street and Arnolds Lane.

**Figure 2: Additional AM and PM peak hour turning movements at intersection Swift Street and Arnolds Lane**

## 7. Impacts & Mitigating Works

The impacts of the proposed mixed-use development are primarily related to:

- The low speed turning manoeuvres at the residential access driveway on Swift Street;
- The low speed turning manoeuvres at the retail/commercial access driveway in Arnolds Lane;
- The minor increase in traffic at the intersection of Arnolds Lane and Swift Street during peak periods.

The impacts are quantified below, and appropriate mitigating works are recommended, if required.

### 7.1 Swift Street Residential Access Driveway

Under *AS2890.1-2004 Off-Street Car Parking*, the proposed development is considered User Class 2 (long term – full opening, all doors). For a User Class 2 facility with 25 to 100 off-street parking spaces accessed from a local road, AS2890.1-2004 requires a minimum of a single entry and exit access driveway with a width of between 6.0-9.0m (noting that if separate entry and exit driveways are provided, each should be a minimum width of 3.0m). The proposed development provides a separate entry (left-in and left-out only) driveway on Swift Street with a minimum width of 6.0m, and therefore meets the requirements. The driveway ramp has been designed as a stepped ramp comprising a series of lengths and is in are in accordance with the criteria in *AS2890.1 Clause 2.5.3 Circulation roadway and ramp grades.*

The proposed 6.0m wide two lane two-way residential access driveway to the basement car park access in Swift Street will be constructed 0.8m from the eastern boundary of the development site. Access will be left-in and left-out only. The location of this driveway will result in the loss of a large street tree and one on-street parallel parking space. The parking space can be recovered with the proposed removal of two existing driveways serving the existing buildings.

In addition, to facilitate left-in access to the driveway the parking lane blister median on the pedestrian refuge will have to be altered to allow a smooth manoeuvre into the driveway. It is proposed to reduce the length of the blister median so that the traffic lane edge tapers to a narrow radius at the end as shown on Photo 7 below and like the blister median on the opposite side of Swift Street.

#### 7.1.1 Sight distance

The minimum safe driveway access sight distance as set out in *Section 3.2.4 Sight distance at access driveway exits, in AS2890.1 parking facilities Part 1: Off-street Car Parking* requires clear visibility along the road frontage of a minimum 45m for a 50 km/h road speed. Existing inter-visible clear sight-distances of over 60 metres on the west bound approach to the proposed access driveway at Swift Street satisfies these criteria *(Refer to Photo 8 below).* A sight triangle of 2.5m x 2.0m should be design on the exit side of the proposed driveway.

It is determined that the very low volume of 14vph generated from the residential basement car park will have no significant effect on the existing peak hour traffic flows on Swift Street or the surrounding street network.


Photo 7: Proposed alterations to the blister median on the pedestrian refuge

Photo 8: Swift Street looking east from the proposed access driveway

## 7.2 Arnolds Lane Retail/commercial Access

Under *AS2890.1-2004 Off-Street Car Parking*, the proposed development is considered User Class 2 (long term – full opening, all doors). For a User Class 2 facility with <25 off-street parking spaces accessed from a local road, AS2890.1-2004 requires a minimum of a single entry and exit access driveway with a width of between 3.0 to 5.5m (noting that if separate entry and exit driveways are provided, each should be a minimum width of 3.0m). The proposed development provides a separate entry (left-in and right-out only) driveway on Arnolds Lane with a minimum width of 5.8m, and therefore meets the requirements.

It is anticipated that deliveries to the retail/commercial tenancies will be by smaller tray trucks. The existing practice for smaller tray truck deliveries in Arnolds Lane is for the operator to drive onto the 2.8m wide chevron median that is installed across the intersection of Arnolds Lane and carry out a reversing manoeuvre into the laneway. The west bound traffic lane was blocked when this is occurring, and it was observed this manoeuvre took approximately 5 seconds. There will be occasional disruptions to motorists trying to exit the retail commercial ground floor car park when large delivery vehicles are reversing in the laneway. This is regarded as a reasonable situation for motorists to deal with considering the traffic use on this type of CBD access laneway.

It is concluded that the existing 2.8m wide painted chevron median right turn lane will continue to operate efficiently, and the additional traffic generated (15vph) by the proposed retail/commercial section of the development will have no significant impact on the existing traffic operations of the intersection of Swift Street and Arnolds Lane.

### 7.2.1 Sight distance

Swift Street and Arnolds Lane have an urban speed limit of 50km/h. The Safe Intersection Sight Distance (SISD) is the minimum sight distance which should be provided on the major road at any intersection. The minimum SISD as set out in the *AGRD Part 4A: Section 3 Sight Distance, Table 3.2* for design speeds of 50km/h is 97m.

An inter-visible sight distances of over 100m for Swift Street on the east and west bound approach to the intersection of Arnolds Lane was measured in accordance with *AGRD Part 4A: Section 3 Sight Distance, Figure 3.2 with a 3m offset.* It was observed that there are some low tree branches on the west bound approach and that to improve sight lines the low branches should be removed.

The results indicate that the measured SISD of 100m for the east and west bound approaches to Southside Avenue meets the AGRD Part 4A requirements for SISD. *Refer Photos 9 and 10 below.*


Photo 9: Arnolds Lane intersection looking west along Swift Street

Photo 10: Arnolds Lane intersection looking east along Swift Street. Also shows low tree branches restricting sight lines.

### 7.3 Traffic Management Plan

A Construction Traffic Management Plan, which will utilise Austroads, and Council guidelines will be developed for all roads adjacent and to the development construction site. The Construction Traffic Management Plan shall be produced in accordance with TfNSW Traffic Control at Worksites 2022 Version 6.1 after an appropriate risk assessment has been carried out. In addition, to comply with Council standards, the Construction Traffic Management Plan should address periodic and dust control of the development site. Temporary traffic control arrangements may be required on Swift Street and Arnolds Lane along the frontages of the development site during the peak stages of construction traffic activity and on days when deliveries by oversize vehicles may be required.

## 8. Conclusions and Recommendations

**It is concluded that:**

- The location of the new left-in/left-out residential basement car park access driveway in Swift Street allows for the safe manoeuvring of traffic at Swift Street and the additional low volumes (14vph) of traffic generated by the residential section of the mixed-use development will have no significant impact on the existing traffic operations of Swift Street;

- The location of the new retail/commercial car park entrance in Arnolds Lane allows for the safe manoeuvring of traffic from Arnolds Lane;

- The additional low volumes (15vph) of traffic generated by the proposed retail/commercial section of the mixed-use development will have no significant impact on the existing traffic right turn facilities and delivery vehicle operations at the intersection of Swift Street and Arnolds Lane;

- The widths and gradients of both the residential car park access driveway and the retail/commercial entrance meet the requirements of AS2890.1-2004 Off-Street Car Parking;

- Car parking bay dimensions for the 90-degree on-site car parks are provided in both car parks and are in accordance AS2890.1 parking facilities Part 1: Off-street Car Parking and AS/NZS 2890.6 2009 Parking Facilities Part 6: Off-street parking for people with disabilities.

- Car parking numbers for people with a disability has been provided and is in accordance with National construction Code of Australia 2011 (NCC2011) Table D3.5

- Sight distance criteria is meet for both the Swift Street access driveway and the intersection of Swift Street and Arnolds Lane;

- The alteration to the parking lane blister median on the pedestrian refuge in Swift Street will help to facilitate a smooth left-in manoeuvre into the residential basement car park driveway;

- The shortfall of 12 spaces in the retail/commercial car park will have no significate impact on the parking demand for this section of the mixed-use development because the accessible location of the

development within the Albury CBD and the proximity of four long/medium term public carparks (Wilson Street multi- deck, SS&A Club carpark, Myer complex and David Street) and public transport facilities on David Street and QEII square allows for other parking options. In addition, clients and staff also have public transport opportunities for commuting and if driving they also have multiple destinations which will not require parking at the proposed future retail/commercial businesses;

- It is concluded that the shortfall of five visitor spaces in the residential basement car park will have no significate impact on parking demand because the accessible location of the apartments within the Albury CBD is expected to reduce car ownership and parking demand.

**It is recommended that:**

- Albury City Council concurs with the proposed on-site car parking and access arrangements for the mixed-use development;

- Albury City Council concurs alterations to the parking lane blister median on the pedestrian refuge in Swift Street to facilitate access to the residential basement car park driveway;

- Albury City Council concurs with the removal of a large street tree to facilitate access to the residential basement car park driveway;

- Albury City Council waiver the shortfall of 5 parking spaces for the residential apartments;

- Albury City Council waiver the shortfall of 12 parking spaces for the retail/commercial section of the development.

# Appendix A

Traffic Classifier Data

Profile:

| | |
|---|---|
| **Filter time:** | **9:50 Wednesday, 1 February 2023 => 9:57 Tuesday, 14 February 2023 (13.0055)** |
| **Included classes:** | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 |
| **Speed range:** | 10 - 160 km/h. |
| **Direction:** | North, East, South, West (bound), P = East, Lane = 0-16 |
| **Separation:** | Headway > 0 sec, Span 0 - 100 metre |
| **Name:** | Default Profile |
| **Scheme:** | Vehicle classification (AustRoads94) |
| **Units:** | Metric (metre, kilometre, m/s, km/h, kg, tonne) |
| **In profile:** | Vehicles = 35010 / 35092 (99.77%) |

## Weekly Vehicle Counts (Virtual Week)

**VirtWeeklyVehicle-48**

| | |
|---|---|
| **Site:** | Swift Street.0.1EW |
| **Description:** | **Swift Street - Between Olive Street and David Street** |
| **Filter time:** | **9:50 Wednesday, 1 February 2023 => 9:57 Tuesday, 14 February 2023** |
| **Scheme:** | Vehicle classification (AustRoads94) |
| **Filter:** | Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16) |

| | Mon | Tue | Wed | Thu | Fri | Sat | Sun | Averages 1 - 5 | Averages 1 - 7 |
|---|---|---|---|---|---|---|---|---|---|
| Hour | | | | | | | | | |
| 0000-0100 | 4.0 | 4.0 | 2.0 | 13.5 | 8.0 | 13.5 | 16.0 | 6.8 | 9.2 |
| 0100-0200 | 0.5 | 1.0 | 2.0 | 1.5 | 3.0 | 12.5 | 10.0 | 1.6 | 4.5 |
| 0200-0300 | 0.5 | 0.5 | 1.0 | 5.0 | 2.0 | 8.0 | 4.5 | 1.9 | 3.2 |
| 0300-0400 | 1.5 | 0.5 | 0.0 | 2.5 | 1.5 | 2.5 | 5.5 | 1.3 | 2.2 |
| 0400-0500 | 3.0 | 6.0 | 5.0 | 3.0 | 3.5 | 1.5 | 0.0 | 4.0 | 3.0 |
| 0500-0600 | 20.0 | 22.0 | 25.0 | 25.5 | 20.0 | 6.5 | 1.5 | 22.2 | 16.6 |
| 0600-0700 | 34.0 | 36.0 | 39.0 | 36.0 | 43.5 | 12.5 | 4.0 | 37.6 | 28.5 |
| 0700-0800 | 40.0 | 78.0 | 88.0 | 87.0 | 87.5 | 46.0 | 19.0 | 74.8 | 61.8 |
| 0800-0900 | 108.5 | 186.0 | 207.0 | 202.0 | 223.5 | 114.0 | 37.5 | 183.0 | 150.0 |
| 0900-1000 | 170.0 | 173.5 | 115.0 | 246.0 | 264.5 | 215.5 | 72.5 | 193.8 | 179.6 |
| 1000-1100 | 200.0 | 296.0 | 188.5 | 286.5 | 321.0 | 297.0 | 156.5 | 254.2 | 245.8 |
| 1100-1200 | 161.0 | 303.0 | 292.5 | 285.5 | 340.0 | 333.0 | 190.5 | 273.4 | 269.8 |
| 1200-1300 | 194.0 | 311.0 | 280.5 | 305.0 | 313.5 | 337.0 | 192.5 | 277.4 | 273.5 |
| 1300-1400 | 133.5 | 284.0 | 275.0 | 284.0 | 303.5 | 299.5 | 139.5 | 252.9 | 242.6 |
| 1400-1500 | 132.5 | 244.0 | 281.0 | 282.5 | 292.0 | 234.5 | 130.5 | 246.7 | 226.9 |
| 1500-1600 | 169.5 | 252.0 | 270.0 | 277.5 | 285.0 | 139.0 | 100.0 | 250.7 | 210.3 |
| 1600-1700 | 195.0 | 269.0 | 272.5 | 303.5 | 293.5 | 95.5 | 81.5 | 266.4 | 211.7 |
| 1700-1800 | 163.0 | 312.0 | 260.0 | 297.0 | 248.5 | 78.0 | 97.5 | 249.9 | 200.0 |
| 1800-1900 | 82.5 | 151.0 | 153.5 | 208.0 | 171.0 | 80.5 | 55.5 | 153.4 | 127.2 |
| 1900-2000 | 54.5 | 113.0 | 87.0 | 119.5 | 124.0 | 70.0 | 44.5 | 98.1 | 85.5 |
| 2000-2100 | 27.5 | 74.0 | 77.5 | 73.0 | 81.5 | 55.0 | 30.5 | 65.9 | 58.8 |
| 2100-2200 | 25.5 | 50.0 | 35.5 | 46.0 | 68.0 | 45.0 | 21.5 | 44.4 | 41.0 |
| 2200-2300 | 6.5 | 15.0 | 13.0 | 17.5 | 37.5 | 24.5 | 9.5 | 18.2 | 17.8 |
| 2300-2400 | 4.5 | 7.0 | 10.5 | 7.5 | 16.5 | 13.5 | 6.5 | 9.4 | 9.6 |
| Totals | | | | | | | | | |
| 0700-1900 | 1749.5 | 2859.5 | 2683.5 | 3064.5 | 3143.5 | 2269.5 | 1273.0 | 2676.7 | 2399.2 |
| 0600-2200 | 1891.0 | 3132.5 | 2922.5 | 3339.0 | 3460.5 | 2452.0 | 1373.5 | 2922.7 | 2613.0 |
| 0600-0000 | 1902.0 | 3154.5 | 2946.0 | 3364.0 | 3514.5 | 2490.0 | 1389.5 | 2950.4 | 2640.5 |
| 0000-0000 | 1931.5 | 3188.5 | 2981.0 | 3415.0 | 3552.5 | 2534.5 | 1427.0 | 2988.1 | 2679.3 |
| AM Peak | 1000 | 1100 | 1100 | 1000 | 1100 | 1100 | 1100 | | |
| | 200.0 | 303.0 | 292.5 | 286.5 | 340.0 | 333.0 | 190.5 | | |

**Profile:**

| | |
|---|---|
| **Filter time:** | **9:53 Wednesday, 1 February 2023 => 9:50 Tuesday, 14 February 2023 (12.9984)** |
| **Included classes:** | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 |
| **Speed range:** | 10 - 160 km/h. |
| **Direction:** | North, East, South, West (bound), P = East, Lane = 0-16 |
| **Separation:** | Headway > 0 sec, Span 0 - 100 metre |
| **Name:** | Default Profile |
| **Scheme:** | Vehicle classification (AustRoads94) |
| **Units:** | Metric (metre, kilometre, m/s, km/h, kg, tonne) |
| **In profile:** | Vehicles = 56861 / 56916 (99.90%) |

## Weekly Vehicle Counts (Virtual Week)

**VirtWeeklyVehicle-50**

| | |
|---|---|
| **Site:** | Swift Street.0.1WE |
| **Description:** | **Swift Street- Between David Street and Olive Street** |
| **Filter time:** | **9:53 Wednesday, 1 February 2023 => 9:50 Tuesday, 14 February 2023** |
| **Scheme:** | Vehicle classification (AustRoads94) |
| **Filter:** | Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16) |

| | Mon | Tue | Wed | Thu | Fri | Sat | Sun | Averages 1 - 5 | Averages 1 - 7 |
|---|---|---|---|---|---|---|---|---|---|
| Hour | | | | | | | | | |
| 0000-0100 | 1.5 | 2.0 | 1.0 | 6.0 | 3.5 | 10.5 | 12.0 | 3.0 | 5.5 |
| 0100-0200 | 1.0 | 1.0 | 1.0 | 3.0 | 2.5 | 7.5 | 8.0 | 1.8 | 3.6 |
| 0200-0300 | 1.5 | 1.5 | 1.0 | 1.5 | 4.0 | 8.0 | 4.0 | 2.0 | 3.2 |
| 0300-0400 | 2.0 | 3.0 | 3.0 | 1.0 | 1.5 | 2.0 | 5.5 | 2.0 | 2.5 |
| 0400-0500 | 9.0 | 11.0 | 7.0 | 5.0 | 11.5 | 2.5 | 4.0 | 8.9 | 7.2 |
| 0500-0600 | 23.0 | 27.5 | 23.0 | 31.0 | 26.5 | 4.0 | 2.5 | 26.6 | 19.4 |
| 0600-0700 | 55.0 | 60.0 | 41.0 | 41.5 | 53.0 | 29.5 | 8.5 | 51.1 | 41.2 |
| 0700-0800 | 111.0 | 127.0 | 115.0 | 129.0 | 130.0 | 69.0 | 36.0 | 123.2 | 101.5 |
| 0800-0900 | 278.0 | 273.5 | 288.0 | 292.5 | 301.0 | 174.5 | 61.0 | 286.4 | 234.5 |
| 0900-1000 | 279.5 | 220.0 | 164.5 | 326.0 | 299.5 | 300.5 | 189.0 | 257.9 | 254.1 |
| 1000-1100 | 333.0 | 291.0 | 249.0 | 365.0 | 437.5 | 441.0 | 333.0 | 340.0 | 354.5 |
| 1100-1200 | **408.0** | 279.0 | **402.0** | **446.0** | **490.5** | **540.0** | 280.5 | **419.1** | **416.4** |
| 1200-1300 | 423.5 | 436.0 | 264.0 | 460.5 | 319.5 | 552.0 | 223.5 | 374.6 | 378.6 |
| 1300-1400 | 280.0 | 412.0 | 356.0 | 269.0 | 450.5 | 526.5 | 199.5 | 347.0 | 351.9 |
| 1400-1500 | 385.0 | 394.0 | 431.5 | 401.5 | 464.0 | 450.0 | 174.5 | 417.6 | 385.2 |
| 1500-1600 | 401.0 | 250.0 | 443.0 | **465.5** | **473.0** | 408.5 | 163.5 | 423.9 | 381.5 |
| 1600-1700 | **468.0** | 466.0 | **464.0** | 423.5 | 466.5 | 323.0 | 136.0 | **456.7** | **386.8** |
| 1700-1800 | 418.0 | **487.0** | 451.5 | 232.0 | 355.5 | 297.0 | 218.5 | 377.9 | 340.9 |
| 1800-1900 | 265.0 | 243.0 | 247.0 | 221.0 | 289.5 | 239.0 | 173.5 | 254.2 | 239.5 |
| 1900-2000 | 159.0 | 141.0 | 166.5 | 220.0 | 229.5 | 211.5 | 136.5 | 187.9 | 183.6 |
| 2000-2100 | 113.5 | 124.0 | 142.5 | 144.5 | 166.0 | 148.5 | 116.0 | 139.7 | 137.4 |
| 2100-2200 | 64.0 | 105.0 | 80.5 | 94.0 | 106.0 | 127.0 | 57.0 | 88.2 | 89.4 |
| 2200-2300 | 11.0 | 9.0 | 20.0 | 18.5 | 32.0 | 40.0 | 13.0 | 19.1 | 21.4 |
| 2300-2400 | 8.5 | 8.0 | 7.0 | 11.0 | 25.5 | 30.5 | 8.5 | 12.4 | 14.6 |
| Totals | | | | | | | | | |
| 0700-1900 | 4050.0 | 3878.5 | 3875.5 | 4031.5 | 4477.0 | 4321.0 | 2188.5 | 4078.5 | 3825.3 |
| 0600-2200 | 4441.5 | 4308.5 | 4306.0 | 4531.5 | 5031.5 | 4837.5 | 2506.5 | 4545.3 | 4276.9 |
| 0600-0000 | 4461.0 | 4325.5 | 4333.0 | 4561.0 | 5089.0 | 4908.0 | 2528.0 | 4576.9 | 4312.9 |
| 0000-0000 | 4499.0 | 4371.5 | 4369.0 | 4608.5 | 5138.5 | 4942.5 | 2564.0 | 4621.1 | 4354.4 |
| AM Peak | 1100 | 1000 | 1100 | 1100 | 1100 | 1100 | 1000 | | |
| | 408.0 | 291.0 | 402.0 | 446.0 | 490.5 | 540.0 | 333.0 | | |

# Speed Statistics

**SpeedStat-53**

| | |
|---|---|
| **Site:** | Swift Street.0.1EW Swift Street.0.1WE |
| **Description:** | **Multiple sites - See Header sheet for site descriptions.** |
| **Filter time:** | **9:50 Wednesday, 1 February 2023 => 9:57 Tuesday, 14 February 2023** |
| **Scheme:** | Vehicle classification (AustRoads94) |
| **Filter:** | Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16) |

**Vehicles** = 91871
**Posted speed limit** = 60 km/h, Exceeding = 19 (0.021%), Mean Exceeding = 65.83 km/h
**Maximum** = 89.6 km/h, **Minimum** = 10.0 km/h, **Mean** = 33.1 km/h
**85% Speed** = 39.42 km/h, **95% Speed** = 43.38 km/h, **Median** = 33.12 km/h
**20 km/h Pace** = 23 - 43, **Number in Pace** = 81505 (88.72%)
**Variance** = 40.20, **Standard Deviation** = 6.34 km/h

**Speed Bins (Partial days)**

| Speed | Bin | Below | Above | Energy | vMult | n * vMult |
|---|---|---|---|---|---|---|
| 0 - 10 | 0 0.000% | 0 0.000% | 91871 100.0% | 0.00 | 0.00 | 0.00 |
| 10 - 20 | 2244 2.443% | 2244 2.443% | 89627 97.56% | 0.00 | 0.00 | 0.00 |
| 20 - 30 | 25130 27.35% | 27374 29.80% | 64497 70.20% | 0.00 | 0.00 | 0.00 |
| 30 - 40 | 52590 57.24% | 79964 87.04% | 11907 12.96% | 0.00 | 0.00 | 0.00 |
| 40 - 50 | 11425 12.44% | 91389 99.48% | 482 0.525% | 0.00 | 0.00 | 0.00 |
| 50 - 60 | 463 0.504% | 91852 100.0% | 19 0.021% | 0.00 | 0.00 | 0.00 |
| 60 - 70 | 16 0.017% | 91868 100.0% | 3 0.003% | 0.00 | 0.00 | 0.00 |
| 70 - 80 | 2 0.002% | 91870 100.0% | 1 0.001% | 0.00 | 0.00 | 0.00 |
| 80 - 90 | 1 0.001% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 90 - 100 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 100 - 110 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 110 - 120 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 120 - 130 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 130 - 140 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 140 - 150 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 150 - 160 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 160 - 170 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 170 - 180 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 180 - 190 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |
| 190 - 200 | 0 0.000% | 91871 100.0% | 0 0.000% | 0.00 | 0.00 | 0.00 |