Traffix Group

Traffic Engineering Assessment

Proposed Rezoning Application

500 Burwood Highway, Vermont South

Prepared for
Pan Australian Investment Pty Ltd

October 2021

G22764R-03D

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Document Control

Our Reference: G22764R-03C

Issue No.	Type	Date	Prepared By	Approved By
A	Draft	22/02/2021	Martin O'Shea	Fiona Banh
B	FINAL	02/03/2021	Martin O'Shea	Fiona Banh
C	FINAL	16/08/2021	Martin O'Shea	Fiona Banh
D	FINAL	08/10/2021	Martin O'Shea	Fiona Banh

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1. Introduction

Traffix Group has been engaged by Pan Australia Investment Group Pty Ltd to prepare a traffic impact assessment report associated with the rezoning application of 500 Burwood Highway, Vermont South.

2. Proposal

Planning Scheme Amendments

The proposal is for amendments to the City of Whitehorse Planning Scheme that apply to the site. Specifically, this planning scheme amendment seeks to give effect to the following (as detailed within Planning Scheme Amendment Report, prepared by Tract Consultants):

- Rezone the land from Public Use Zone - Schedule 4 (PUZ4) to Residential Growth Zone (RGZ).
- Apply a Design and Development Overlay (DDO).
- Revise the extent of the Heritage Overlay (HO23).
- Apply a Significant Landscape Overlay (SLO).
- Apply an Environmental Audit Overlay (EAO).

Indicative Development Yield

The planning scheme amendments are proposed to facilitate the development of residential dwellings over the subject site in the form of various apartment buildings, townhouses and a private internal road network.

The final design and development yield is yet to be finalised and would be based on building massing and mix of dwelling types. However, for the purpose of our assessment of traffic impacts a development yield of 290 dwellings has been adopted.

The current concept plan identifies an indicative development yield of:

- 245 Apartments, including:
  - 55 one-bedroom,
  - 172 two-bedroom, and
  - 18 three-bedroom.
- 45 Townhouses, including:
  - 32 three-bedroom, and
  - 13 four-bedroom.

No commercial uses are anticipated, however, some communal indoor spaces may be provided with an ancillary operation for the dwellings without any influence on traffic or car parking generation (i.e. resident access only).

Car Parking

Car parking for the development will be provided on-site at rates that accord with the minimum requirements of the Planning Scheme (Clause 52.06-5).

Car parking for the apartments will be provided within secure basement car parking areas. Car parking for the townhouses typically provided within attached garages.

Provision for at grade visitor car parking would be included along the internal road network.

Vehicle Access Arrangements

Detailed plans identifying the detailed configuration of internal vehicle access, layout of car parking and loading and waste collection arrangements are yet to be developed. These plans would be prepared as part of a town planning application following the rezoning of the subject land.

The concept plans provided within the Draft DDO identify the proposed vehicle access arrangements to the site. Two separate access points to Burwood Highway have been identified, including:

- Left-in/Left-out connection from the existing service road, located towards the site's north-eastern corner, and
- Left-in/left-out connection located midway along the site's frontage to Burwood Highway.

The above connections take advantage of the existing infrastructure and lane configurations along Burwood Highway. Further discussions regarding these arrangements is provided at Section 3.2 of this report.

Each access location would be upgraded to provide a connection not dissimilar from a typical local road standard. Any works within these locations would be subject to review and approval from Department of Transport (DoT) and Council.

The internal road network would be subject to a detailed review at the formal application stages and would be expected to satisfy the requirements/objectives of Clause 52.06 and Clause 56.06 as required. The internal road network will be private only.

As a minimum all internal accessways would be expected to provide for components that ensure the objectives of Clause 56.06 are satisfied, including:

- Carriageway configuration that will accommodate anticipated traffic volumes(i.e. 5.5m two-way carriageway),
- on-street car parking in accordance with the objectives of Clause 56.06, and
- accommodate the relevant service and emergency vehicles.

The indicative internal road layout and proposed vehicle access locations is provided in the following figure. Each of the connections to Burwood Highway will be restricted to left-in/left-out movements only.

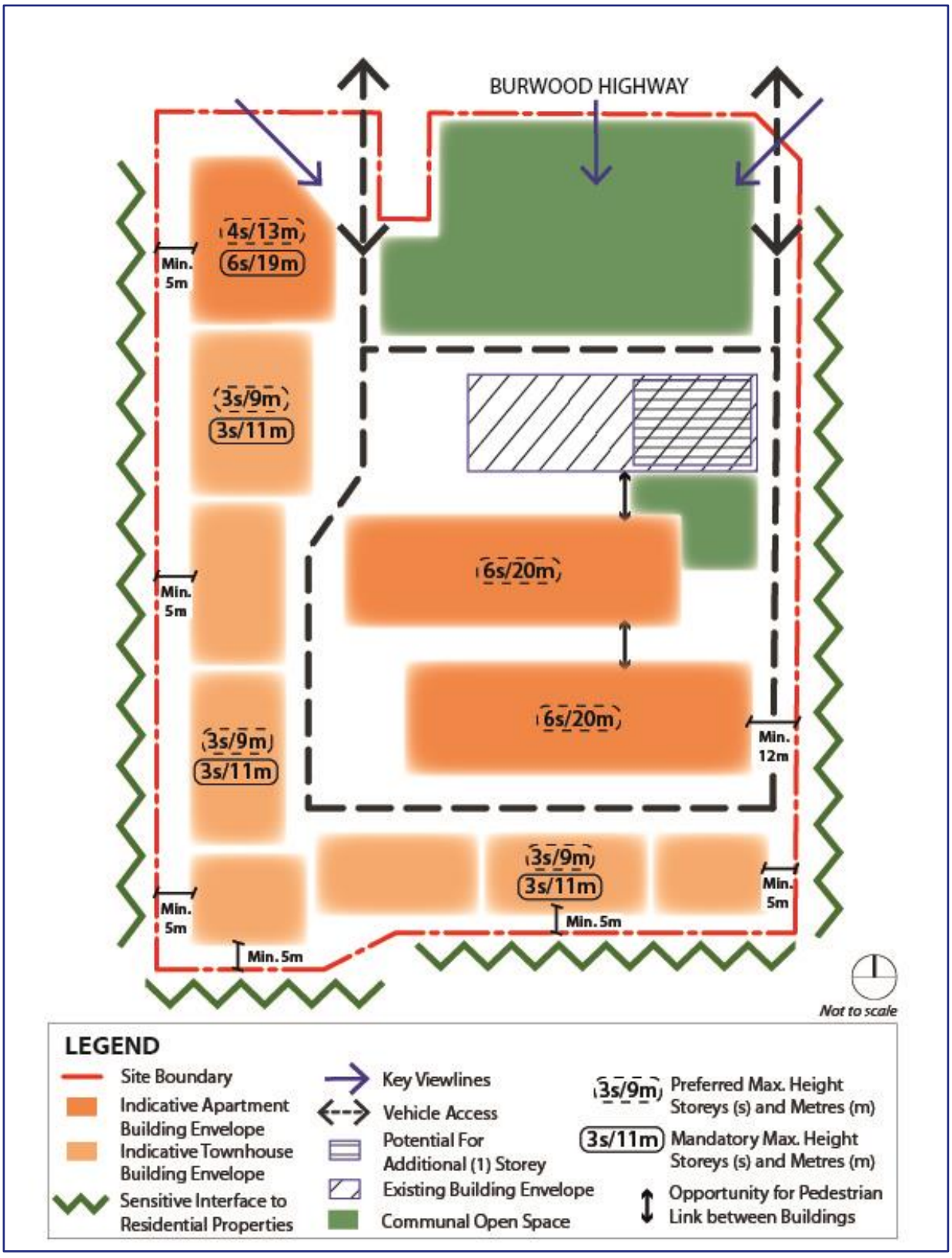

Figure 1: Concept Plan – Development Plan Overlay Draft

3. Existing Conditions

3.1. Subject Site

The subject site is located on the south side of Burwood Road, approximately 50m east of Hartland Road. A locality plan and aerial photograph of the site are presented in Figure 2 and Figure 3, respectively.

The site is rectangular in shape, with a total area of approximately 2.58ha. The site has a frontage to Burwood Highway of approximately 140m.

The site currently accommodates:

- A series of buildings leased by 'ARRB Group'. The site accommodates a total of 11 buildings with associated car parking accessed via a network of internal roads.

  Vehicle access is provided via a double-width crossover to Burwood Highway which facilitates left-in/left-out access only. A second crossover (double width) provides access to the service road and is located towards the site's north-east corner.

- Two double-storey dwellings within the north-west corner.

  Vehicle access is provided via a single width crossover to Burwood Highway.

The site is located within a Public Use Zone – Schedule 4 (Transport). A land use zoning map is provided at Figure 4. Land use in the vicinity of the site is generally a mixture of residential, commercial and public uses.

The site is located approximately 70m south of Vermont South Shopping Centre, which is defined as a Category 3 Neighbourhood Activity Centre under the Whitehorse City Council *Neighbourhood Activity Centre Urban Design Guide*. This activity centre includes a supermarket, restaurants and other daily services such as a post office and medical services.

Other significant uses in the nearby area include:

- **Victoria Grange Retirement Village**, located adjacent to the site's eastern boundary,
- **Livingstone Primary School**, located approximately 750m north-west of the site, and
- **Tally Ho Business Park**, located on Burwood Highway 1.6km to the west of the site.

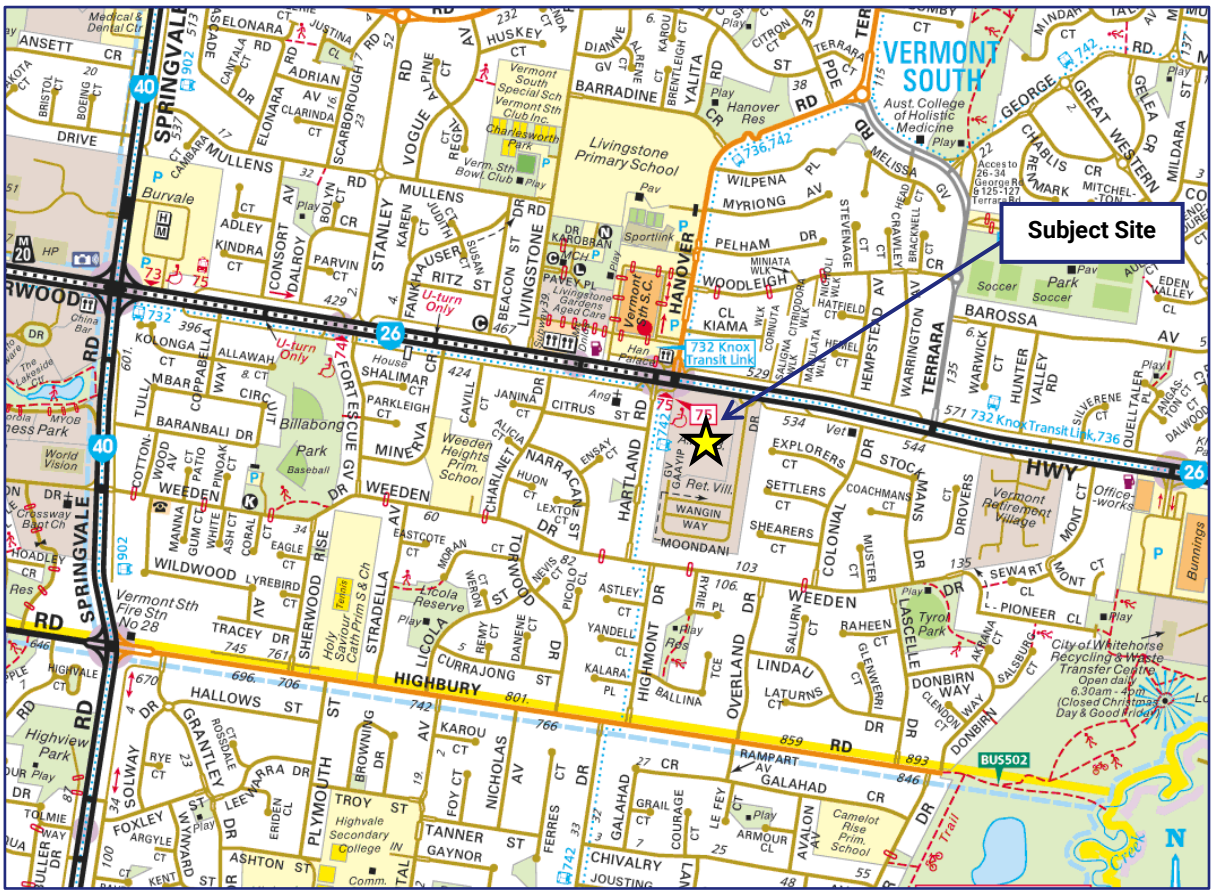

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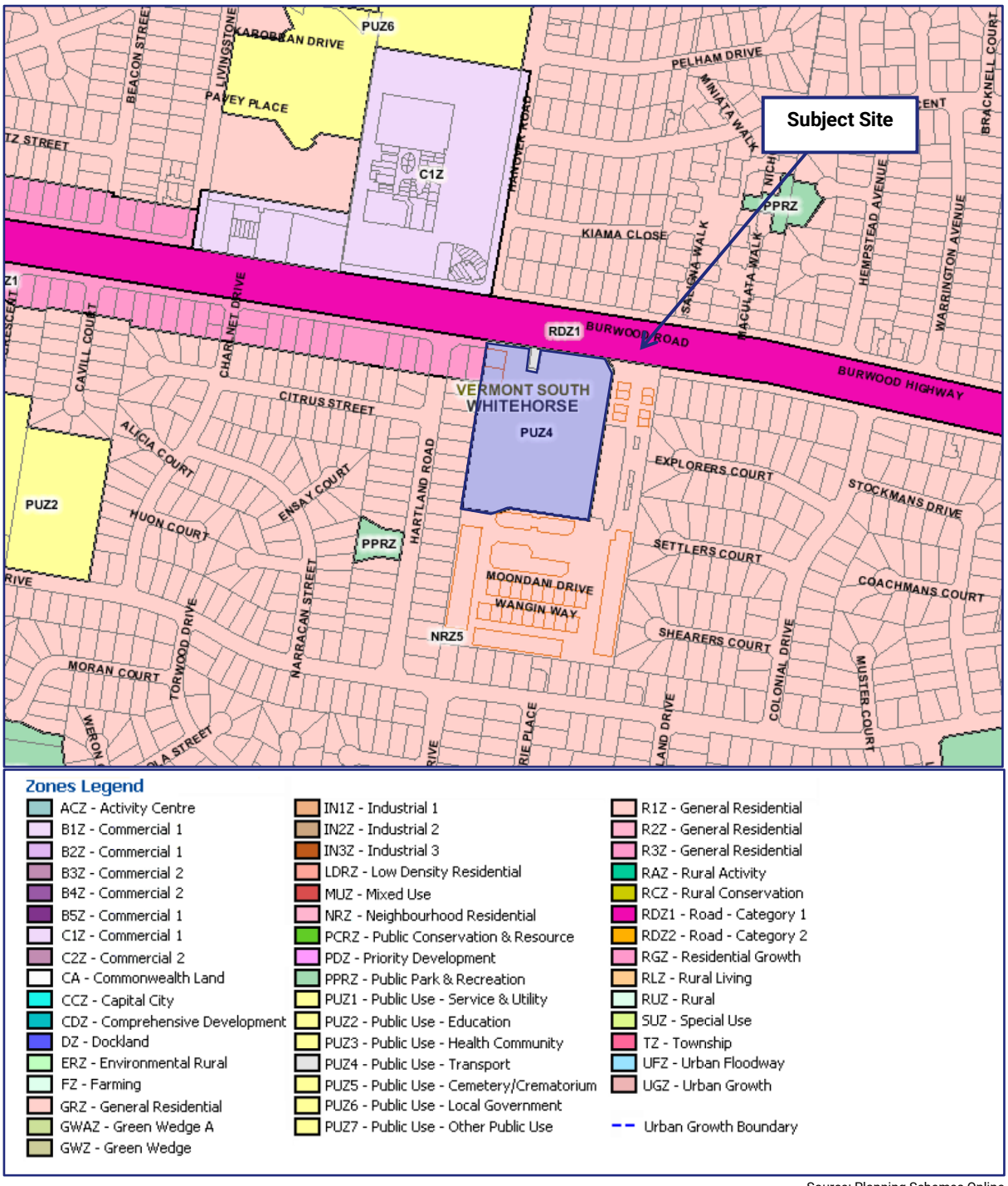
Figure 2: Locality Plan

Source: Nearmap

Figure 3: Aerial Photograph



Source: Planning Schemes Online

Figure 4: Land Use Zoning Map

3.2. Road Network

Burwood Highway is a declared arterial road and a Road Zone Category 1 under the Planning Scheme and is aligned in an east-west direction.

In the vicinity of the site, Burwood Highway provides 3 lanes of traffic in each direction, which are separated by a central median strip. A service lane is generally provided on each side of the road which accommodates on-street parking.

A bus lane is provided at the traffic signals (Burwood Hwy/Hanover Rd intersection) for access to the Vermont South bus terminal, located approximately 250m west of the site.

A posted speed limit of 80km/h applies to Burwood Highway.

Moondani Drive is a private road that extends in a north-south direction from Burwood Highway until it bends around in an east-west direction. In the vicinity of the site, Moondani Drive provides access to the Victoria Grange Residential Community and has a gate which restricts access to the public.

A service road provides access to Moondani Drive from Burwood Highway. This service road also provides vehicle access to the subject site.

Hartland Road is a 'Collector Road' under the City of Whitehorse Register of Roads and is aligned in a north-south direction. In the vicinity of the site, Hartland Road provides a single through traffic lane and a shared parking/bicycle lane in each direction.

The default urban speed limit of 50km/h applies to Hartland Road.

An aerial photograph that identifies the road network along the site's frontage is provided in Figure 5.

3.3. Existing Traffic Conditions

Traffix Group has undertaken traffic surveys in combination with collected SCATS data to determine the existing traffic conditions of the surrounding road network.

Turning movement counts were undertaken on Tuesday 1st August, 2017 between 7:30am-9:30am and 4:30pm-6:30pm to establish the commuter peak hours.

The following locations were surveyed:

- Intersection between Burwood Highway & Hartland Road,
- Intersection between Burwood Highway & Hanover Road, and
- Primary Site Access and Burwood Highway.

The results from the turning movement counts and SCATS data for the AM Peak (8am-9am) and PM Peak (5:15pm-6:15pm) are summarised in Figure 6.

Source: Nearmap

Figure 5: Road Network Adjacent to Site

Source: Nearmap

Figure 6: Existing Peak Traffic Conditions (8am-9am & 5:15pm-6:15pm)

2017 Survey Comparison

As a result of the Covid-19 restrictions, we are unable to undertake updated traffic surveys that would provide relevant results to the assessment. To provide some comparison to conditions in early 2020 (prior to Covid-19 restrictions being implemented) Scats data for the intersection has been reviewed.

A summary of the intersection volumes during this period compared to the 2017 surveys is provided below for comparative purposes.

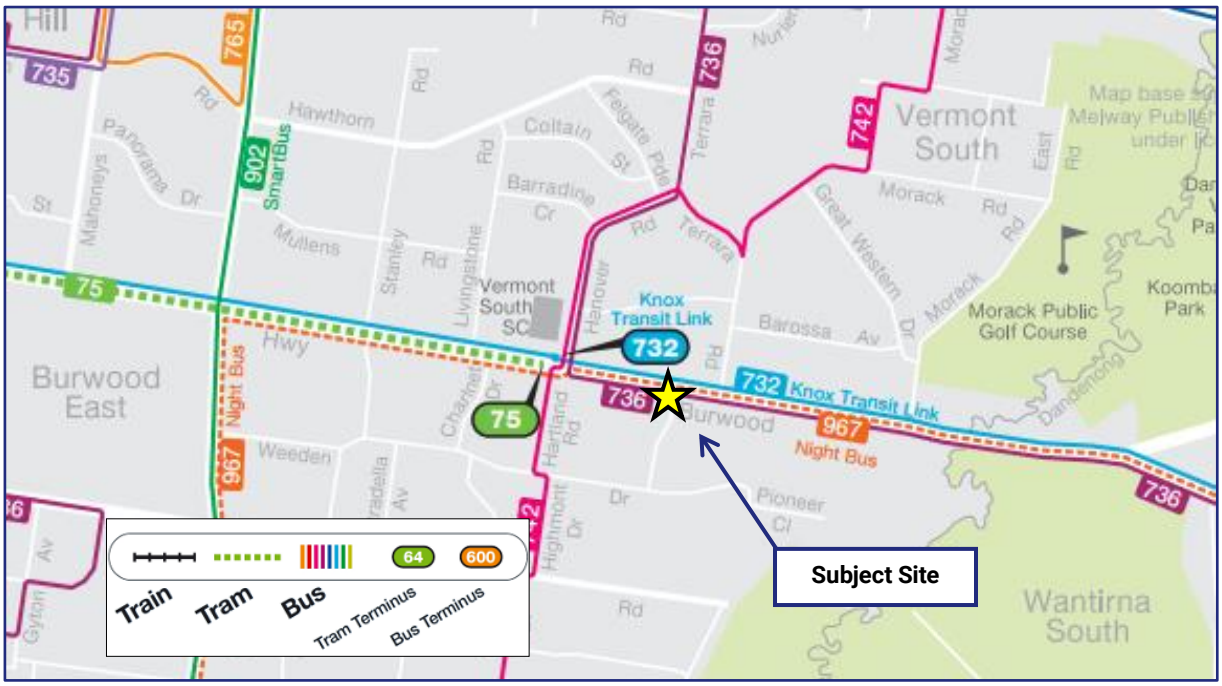
The results show higher volumes in 2017 than during the 2019 and 2020 conditions. Accordingly, we are satisfied that the 2017 survey data provides an appropriate representation of base traffic conditions in this location.

Table 1: Traffic Survey Comparison

Traffic Surveys	AM Peak Hour
Original Surveys (Tuesday 1st August, 2017)	6,049 veh/hr
Tuesday 6 August 2019	5,790 veh/hr
Tuesday 11 February 2020	6,007 veh/hr

3.4. Public Transport

The site is served by a number of public transport services, including bus and tram routes. The available public transport services within close proximity of the site are shown in Figure 7 and detailed in Table 2.



Source: Public Transport Victoria, ptv.vic.gov.au

Figure 7: Public Transport Map

Table 2: Public Transport Services

Service	Between	Via
Vermont South Terminus – approx. 150m west of the site		
Bus Route 732	Box Hill Station & Upper Ferntree Gully Station	Vermont South, Knox City & Mountain Gate
Bus Route 967 (Night Bus)	Glen Waverley & Ferntree Gully Loop	Burwood Highway & Bayswater
Tram Route 75	Etihad Station Docklands & Vermont South	Burwood, Hawthorn, Richmond & City
Hanover Street – approx. 100m north of the site		
Bus Route 736	Mitcham & Blackburn	Vermont South, Glen Waverley & Forest Hill
Bus Route 742	Eastland & Chadstone	Vermont South, Glen Waverley & Oakleigh

4. Traffic Impact Assessment

4.1. Traffic Generation

The RTA Guide to Traffic Generating Developments (2002) (RTA Guide) sets out traffic generation rates based on survey data collected in New South Wales for a range of land uses. This guide is referred to in the AustRoads Guide which is used by Department of Transport, and is generally regarded as the standard for metropolitan development characteristics.

The RTA Guide sets out the following relevant traffic generation rates for medium density residential development:

Smaller Units (one and two bedrooms):

- *Daily vehicle trips = 4 – 5 per dwelling per day*
- *Weekday peak hour vehicle trips = 0.4 – 0.5 per dwelling per day*

Larger Units (three or more bedrooms)

- *Daily vehicle trips = 5 – 6.5 per dwelling per day*
- Weekday *peak hour vehicle trips = 0.5 – 0.65 per dwelling per day*

The adopted traffic generation has been undertaken based on the indicative development yield and based on the distribution between larger and smaller dwellings. Accordingly, we have conservatively adopted a traffic generation rate of 6 vehicle trip ends per dwelling per day with 0.6 vehicle trips per dwelling during the peak hours.

Application of these rates to the yield of 290 dwellings results in traffic impacts of:

- 1,740 vehicle trip ends per day, and
- 174 vehicle trip ends during each of the AM and PM peak hours.

4.2. Traffic Distribution Peak Hours

The surrounding arterial road network is highly connective, with direct access to Eastlink in the east and Springvale Road in the west. Due to the layout of Burwood Highway, all exiting traffic will be restricted to left-out movements only.

Based on our experience and having regard to the site's locality, the following traffic distribution assumptions have been adopted:

- AM Peak Hour: 80% exiting (139 veh/hour) and 20% entering (35 veh/hour).
- PM Peak Hour: 30% exiting (52 veh/hour) and 70% entering (121 veh/hour).
- Traffic Directional Split
  - 60% to/from west,
  - 35% to/from Eastlink (East), and
  - 5% to/from north (Hanover Road).

In addition, we note that the residential development is to be accessible via two crossovers which either connects directly to Burwood Highway in the east or via Moondani Drive to Burwood Highway in the west.

Due to the close proximity to the major signalised intersection, it has been assumed that during peak hours traffic travelling eastbound or northbound must first U-turn at the signalised U-turn lane approximately 300m west of the site (opposite service station). Outside of peak hours when queuing and through traffic volumes are lower, traffic may use the existing right-turn lanes provided at Hanover Road.

Based on the preceding assumptions, Figure 8 below shows the distribution of additional traffic on the surrounding road network during the AM and PM peak hours as a result of the proposed development.

Figure 9 below shows the additional traffic volumes on the surrounding road network during the AM and PM peak hours as a result of the proposed development

Figure 8: Adopted Traffic Distribution – Proposed Development

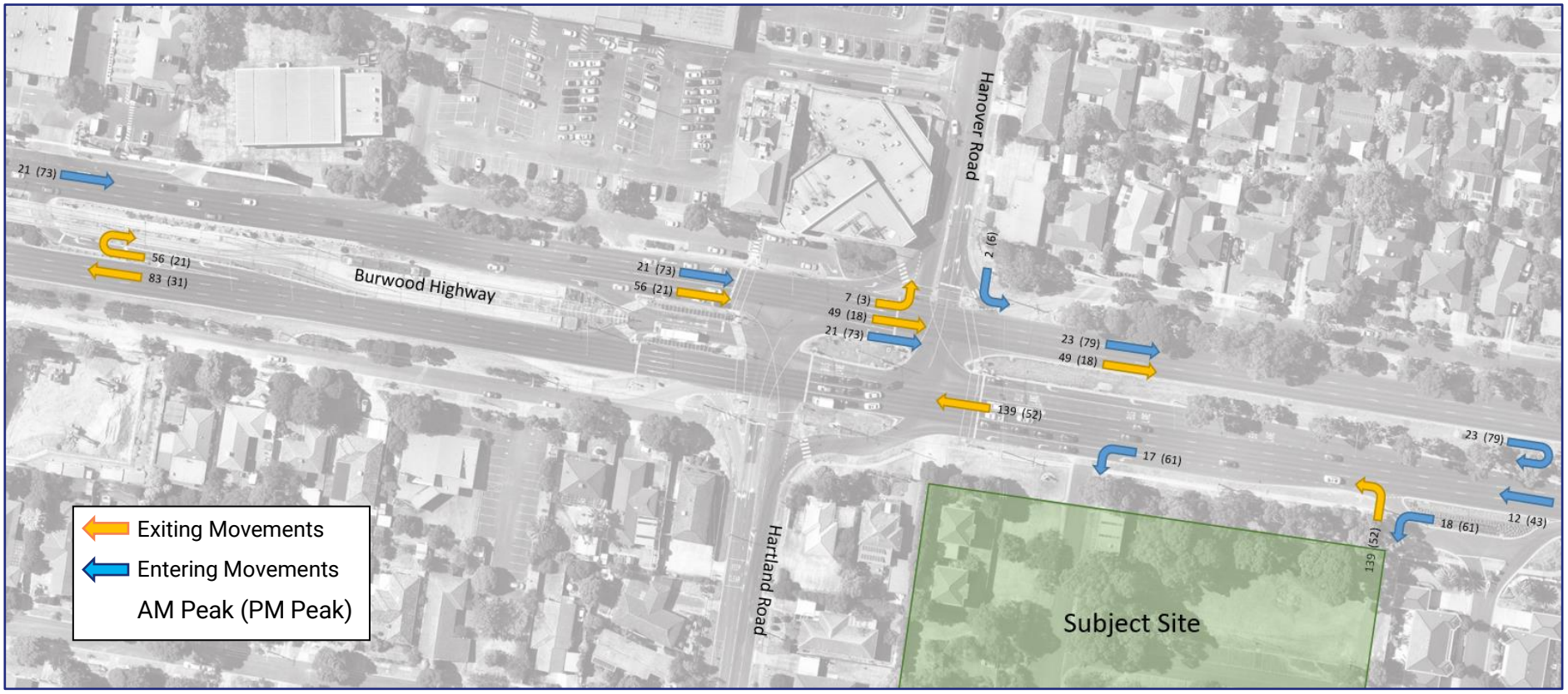


Figure 9: AM and PM Peak Hour Additional Traffic Generated by Proposed Development

4.3. Capacity Analysis and Assessments

A comparison of the traffic impacts over various movements on the nearby traffic signals and other intersections is provided within the following table. These values are based on the existing conditions previously presented at Section 3.3 and development traffic impacts detailed in Figure 9.

Table 3: Indicative Traffic Impacts on Specific Movements

Intersection	Movement/Leg	Existing Movement	Development Movements	Increase %
Burwood Highway/Hanover Road	Eastbound Through	1,842 (AM) 2,854 (PM)	70 (AM) 91 (PM)	3.8% 3.2%
	Westbound Through	2,732 (AM) 1,525 (PM)	139 (AM) 52 (PM)	5.1% 3.4%
	Eastbound Left-Turn	232 (AM) 299 (PM)	7 (AM) 3 (PM)	3.0% 1.0%
	Southbound Left-Turn	71 (AM) 186 (PM)	2 (AM) 6 (PM)	2.8% 3.2%
Signalised U-Turn/Burwood Highway (300m west of site)	Eastbound Through	1,796 (AM) 2,867 (PM)	21 (AM) 73 (PM)	1.2% 2.5%
	Westbound U-turn/ Right-turn	70 (AM) 62 (PM)	45 (AM) 17 (PM)	80.0% 33.9%
Unsignalised U-Turn/ Burwood Highway (300m east of site)	Westbound Through	3,093 (AM) 1,767 (PM)	12 (AM) 43 (PM)	0.4% 2.4%
	Eastbound U-turn/ Right-turn	N/A N/A	23 (AM) 79 (PM)	N/A N/A

The above table identifies that for the various movements through the signalised intersection between Burwood Highway/Hanover Road, the increase for any particular movement as a result of the proposed development will be between 0.4-5.1%.

Department of Transport general guidelines for the assessment of traffic impacts for new developments identifies the need to undertake detailed intersection analyses relates to the level of additional traffic generated to a nearby intersection. If a proposal generates an increase of 10% of existing vehicle movements to any one movement, then consideration should be given to undertaking a detailed analysis of that intersection.

As demonstrated above, the indicative yield associated with the rezoning will not result in impacts greater than 10% and as such, we are satisfied that detailed analysis of the signalised intersection between Burwood Highway/Hanover Road is not warranted in association with this rezoning application. Furthermore, the traffic impacts through these intersections are

associated with through movements or left-turns. These movements will have the least impact on the operation of this intersection.

The critical movements that will be impacted by the proposed development relate to the U-turn opportunities located to the east and the west of the site. Separate discussion of each location is provided as follows.

4.3.1. Signalised U-turn Movement – West of Site

A Sidra model for the existing U-turn intersection has been prepared by Traffix Group. An image of the adopted intersection layout is presented in the figure below.

The analysis assumes that this intersection will operate under a linked scenario to the more critical intersection between Burwood Highway/Hanover Road. That is, the green time associated with eastbound through movements will coincide with phasing of these traffic signals and has not been varied as a result of the U-turn movements.

The assessment identified that whist the queuing of vehicles within the U-turn lane would increase as a result of the proposed development (peak queue of 4 cars increased to 8 cars during the AM peak hour), the queue would be fully stored within the lane and not result in any impacts to the westbound through traffic. Specifically, the U-turn lane has an overall length of 81m, including 60m of clear storage capacity clear of the taper (storage capacity for approximately 9 cars).

Importantly, the level of service for this intersection would remain as Level of Service A, noting that this location has minimal impact on the overall through traffic capacity of Burwood Highway in comparison to the nearby signals at Hanover Road.

The impacts during the PM peak hour are limited to 21 additional movement only and as such significantly less impact on the queuing storage.

Based on our investigations, we are satisfied that the traffic impacts associated with the rezoning can be accommodated at this U-turn location/intersection.

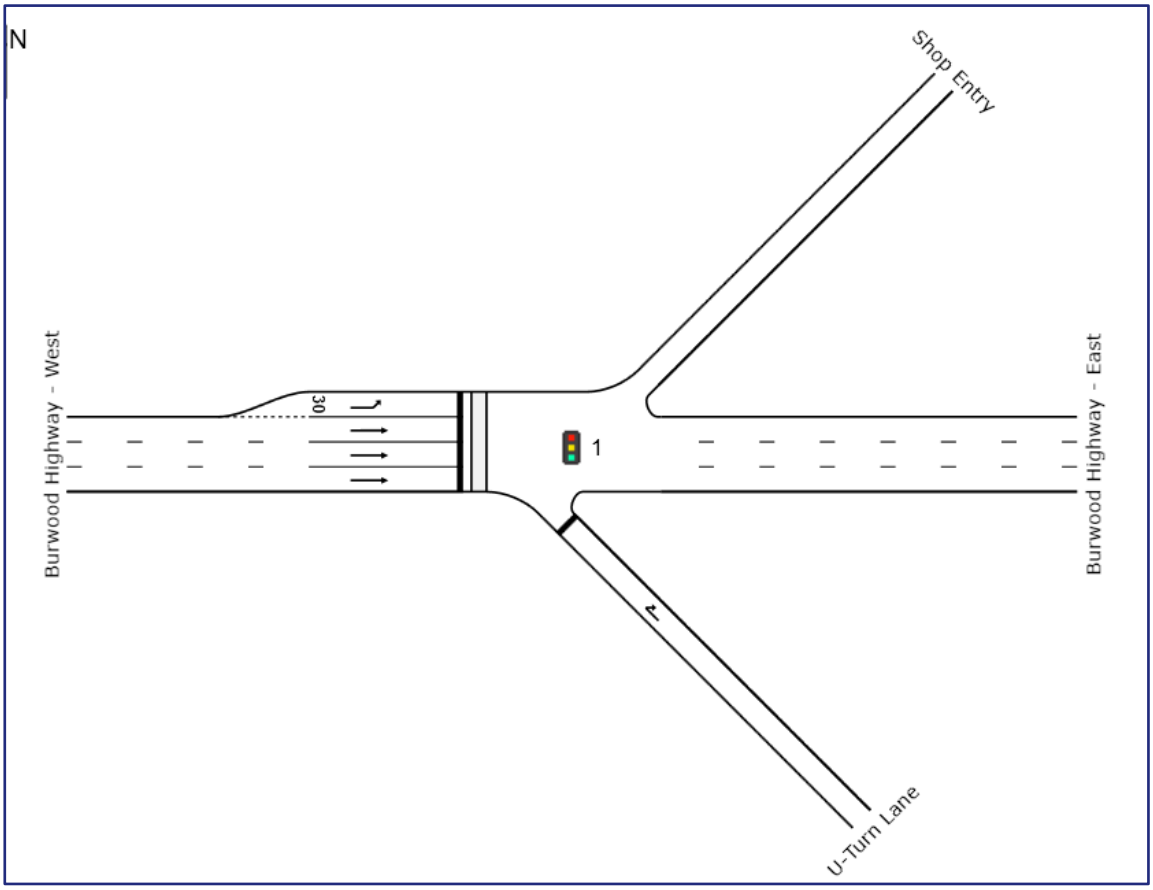


Figure 10: Sidra Intersection Layout

LANE SUMMARY

Site: 101 [AM - Existing]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 138 seconds (Site User-Given Phase Times)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: U-turn Lane													
Lane 1	74	0.0	318	0.232	100	56.7	LOS A	4.2	29.5	Full	500	0.0	0.0
Approach	74	0.0		0.232		56.7	LOS A	4.2	29.5				
West: Burwood Highway - West													
Lane 1	59	2.0	1353	0.044	100	11.6	LOS A	1.1	8.0	Short	30	0.0	NA
Lane 2	607	2.0	1307[1]	0.465	100	8.4	LOS A	16.4	117.1	Full	500	0.0	0.0
Lane 3	642	2.0	1381	0.465	100	8.7	LOS A	17.9	127.1	Full	500	0.0	0.0
Lane 4	642	2.0	1381	0.465	100	8.7	LOS A	17.9	127.1	Full	500	0.0	0.0
Approach	1949	2.0		0.465		8.7	LOS A	17.9	127.1				
Intersection	2023	1.9		0.465		10.4	LOS A	17.9	127.1				

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on degree of saturation per lane.
Intersection and Approach LOS values are based on worst degree of saturation for any lane.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Figure 11: Sidra Lane Summary – Existing Conditions

LANE SUMMARY

Site: 101 [AM - Post Dev]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 138 seconds (Site User-Given Phase Times)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
SouthEast: U-turn Lane													
Lane 1	133	0.0	318	0.417	100	59.0	LOS A	7.9	55.4	Full	500	0.0	0.0
Approach	133	0.0		0.417		59.0	LOS A	7.9	55.4				
West: Burwood Highway - West													
Lane 1	59	2.0	1353	0.044	100	11.6	LOS A	1.1	8.0	Short	30	0.0	NA
Lane 2	614	2.0	1307[1]	0.470	100	8.5	LOS A	16.7	119.1	Full	500	0.0	0.0
Lane 3	649	2.0	1381	0.470	100	8.7	LOS A	18.2	129.4	Full	500	0.0	0.0
Lane 4	649	2.0	1381	0.470	100	8.7	LOS A	18.2	129.4	Full	500	0.0	0.0
Approach	1972	2.0		0.470		8.7	LOS A	18.2	129.4				
Intersection	2104	1.9		0.470		11.9	LOS A	18.2	129.4				

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on degree of saturation per lane.
Intersection and Approach LOS values are based on worst degree of saturation for any lane.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Figure 12: Sidra Lane Summary – Post Development Conditions

4.3.2. Unsignalised U-turn Movement – East of Site

The unsiglanised U-turn lane located towards the east of the site is configured with an auxiliary lane of approximately 120m, including a 30m taper.

Based on the existing 80km/h speed limit along Burwood Highway, this lane configuration exceeds the minimum requirements for 108m (allowing for 5-6% downgrade) under *AustRoads Guide to Road Design Part 4A: Unsignalised and Signalised* Intersections. The overall length effectively provides for adequate storage for 3 cars at any time within the U-turn lane above the default deceleration requirements.

The turn lane typically serves as an entry access location for dwellings located on the southern service road and those dwellings accessed via Colonial Drive.

Whilst surveys of the existing turning movements at this location were not completed by Traffix Group, we are satisfied that the traffic impacts associated with the proposed development can be readily accommodated. Specifically:

- During the AM peak hour when the maximum level of westbound movements occur along Burwood Highway, the proposed development is expected to result in an increase of 23 additional movements for the U-turn (conservatively excludes any of the existing 13 entry movements that occurred during the AM peak hours at the site).

  This level of traffic equates to an average of 1 additional movement every 2.6 minutes and will not result in any significant increases in the queuing and delays associated with this movement.

  Accordingly, we are satisfied that the existing infrastructure associated with this u-turn lane is adequate.

- During the PM peak hour a reduced level of westbound movements occur along Burwood Highway (approximately 55% of the PM peak traffic volumes). During this period the development is expected to result in an increase of 79 additional movements for the U-turn (conservatively excludes any existing entry movements that occurred during the PM peak hours at the site).

  This level of traffic equates to an average of 1 additional movement every 55 seconds. Based on the reduced westbound through movements at this time (1,776 veh/hour), and the nearby traffic signals (that are expected to provide regular gaps in through traffic flows, we are satisfied that this level of traffic can be accommodated.

4.3.3. Left-in/Left-out Analysis

As part of preliminary assessments Council has raised concern regarding the ability for vehicles to undertake left-out movements from the site.

Whilst left-out movements are typically not assessed, noting that they have minimal impact on the operation of the wider road network, we have reviewed the previously collected video survey data (August 2017) for gap analysis and note the following observations of traffic conditions along Burwood Highway adjacent to the site:

- AM Peak Period
  - Limited clear gaps in the traffic stream with a capacity for around 10-15 clear movements when considering gaps in moving traffic only.
  - Left-out entry traffic will be reliant on courtesy gaps being provided within the queued conditions along Burwood Highway. In this regard, observations of the video data identified queued conditions beyond the site access and service road exit on average ever 120-150 seconds (in line with the phasing of traffic signals at Hanover Road).

    We anticipate that during each queued condition approx. 3 cars would be able to be absorbed into the kerbside lane of Burwood Highway. This arrangement would enable in the order 72-90 vehicles to be accommodated at each access point as a result of the courtesy gaps.

    If required 'Keep Clear' line marking could be introduced across the exit of the service road and at the site access in order to encourage through traffic along Burwood Highway to provide for the required courtesy gaps.
- PM Peak Period
  - Ample gaps in traffic available noting the significant directional bias in traffic along Burwood Highway results in significantly lower westbound movements during the PM peak hour.

Overall, we are satisfied that the additional traffic associated with the residential dwellings to be provided in association with the rezoning application can be accommodated by the nearby road network without any adverse impacts.

5. Internal Road Network Assessment

The internal local roads will accommodate traffic volumes less than 2,000 vehicle per day consistent with the function of Access Street – Level 1, Access Place and Access Lane roads. This is evident as the overall traffic generation associated with the site is expected to be no more than 1,740 vehicles per day.

The hierarchy and design of the internal road network would be addressed in detail as part of the DDO and formal town planning application plans.

The internal road network will be private and would be designed in order to accommodate:

- Two-way traffic at critical locations.
- Local Traffic Management devices as necessary.
- Service vehicles, including suitable private waste collection vehicles and loading vehicles associated with the dwellings.
- Suitable emergency vehicles including MFB vehicles and ambulances.
- On-street car parking (where appropriate).

The above matters would be addressed at the detailed design stage.

In regards to the general layout of the internal road network, the alignment identified ensures that no dead-end roads are provided which represents the preferred outcome and ensures comfortable circulation as required.

6. Car Parking Requirements

Each residential dwelling and allotment will provide off-street parking to accommodate resident demands in accordance with the requirements of Clause 52.06 of the Planning Scheme to the satisfaction of the Responsible Authority.

Under Clause 52.06-5 the following car parking requirements apply for dwellings on the site, noting that the site is located within the PPTN Area.

	Column A	Column B	Column C
Dwelling	1	1	To each one or two bedroom dwelling, plus
	2	2	To each three or more bedroom dwelling (with studies or studios that are separate rooms counted as a bedrooms) plus
	1	0	For visitors to every 5 dwellings for developments of 5 or more dwellings

Figure 13: Clause 52.06 – Dwelling Parking Requirements

Whilst visitor car parking is not required, Clause 52.06-10 identifies various decision guidelines, including:

> ***Clause 52.06-10 Decision guidelines***
>
> *Before deciding that a plan prepared under Clause 52.06-8 is satisfactory the responsible authority must consider, as appropriate:*
>
> - *The relevant standards of Clauses 56.06-2, 56.06-4, 56.06-5, 56.06-7 and 56.06-8 for residential developments with accessways longer than 60 metres or serving 16 or more dwellings.*

Clause 56.06 typically requires that on-street parking is available at *'1 hard standing verge parking space per 2 lots'*.

Further guidance regarding the visitor car parking demands is available via Clause 52.06 of the Planning Scheme, which sets out a car parking requirement of 1 space to each 5 dwellings for developments of 5 or more dwellings for sites not located within the PPTN Area.

6.1. Empirical Review - Visitor Parking

Further empirical data that addresses 'the likely demand' for visitor car parking is provided as follows.

Traffix Group Case Study – Pier 1 and 9 Apartment Buildings

Visitor parking generation surveys were undertaken by Traffix Group two apartment complexes at McLeod Road, Patterson Lakes. The investigation sites included:

- Pier 9 Apartments

The Pier 9 Apartments are located to the north-east of the Cove Hotel on McLeod Road. The development includes the following features:

  - 48 x two-bedroom apartments (1 car)
  - 8 x two-bedroom apartments (2 car)
  - 9 x three-bedroom apartments (2 car)
  - 9 visitor car spaces (open)
  - 19 surplus secure car parking spaces for residents (equates to approx. 0.4 car spaces per two-bedroom apartment)

- Pier 1 Apartments

  The Pier One Apartments are located in an apartment building located on the north-west corner of the intersection of Pier one Drive and McLeod Road. The development scheme includes:

  - 56 x two-bedroom apartments (1 car)
  - 8 x three-bedroom apartments (2 car)
  - 13 visitor car spaces (secure)

In order to ascertain the on-site demands car parking occupancy surveys were completed at hourly intervals over the following times:

- 7am-10pm Tuesday 11th February, 2020
- 7am-10pm Saturday 15th February, 2020
- 7am-10pm Thursday 20th February, 2020

These surveys were undertaken by a survey person that accessed each of the sites and recorded the occupancy of individual car parking spaces.

On-site surveys were supplemented with video cameras that recorded all pedestrian movements to the pedestrian entry to each review site across the nominated survey times. The video surveys were reviewed with a high level of attention to determine any car parking demands that may have occurred off-site.

For the majority of pedestrian movements, it was evident that the demand was either:

- pedestrian only (i.e. resident walking dog, going for walk or accessing the Cove Hotel), or
- associated with a parked car (for example, a pedestrian observed to access a vehicle in an adjacent carpark).

On the limited occasions where it wasn't clear whether a pedestrian movement was associated with a pedestrian only movement, a conservative approach was adopted (i.e. it was assumed that pedestrian demand was associated with off-site car parking).

The surveys identified visitor parking demands as follows (included on-site and off-site demands):

- Pier 9 Apartments – peak demands between 0.17-0.215 cars per apartment
- Pier 1 Apartments - peak demands between 0.17-0.2 cars per apartment

Traffix Group Case Study – 1142 Nepean Highway, Highett

Visitor parking generation surveys were undertaken by Traffix Group of an apartment building at 1142 Nepean Highway, Highett.

The site consists of 78 dwellings, including 4 x three-bedroom, 61 x two-bedroom and 13 x one-bedroom apartments across three buildings. Eighty (80) car parking spaces are provided on-site, resulting in a shortfall in parking of two resident spaces and 15 visitor spaces compared to Clause 52.06 rates.

The survey was undertaken 3:00pm to 9:00pm on Wednesday 3rd September 2014. It involved recording the time, direction (entering or exiting) and type (resident or visitor) of each person observed to enter the site over the survey period.

For the purposes of the survey, anyone observed to drive into the site was assumed to be a resident (noting the lack of on-site visitor parking), and anyone parking on-street was assumed to be a visitor. Walk-ups were also recorded. It was observed that some people entering the site after parking on-street may have been residents, and this may lead to a higher estimate than actual visitor parking demands.

The survey identified a peak visitor demand of 0.13 car spaces per dwelling, which occurred around 6:30pm.

Cardno Case Study – 127-147 Beach Street, Beacon Cove

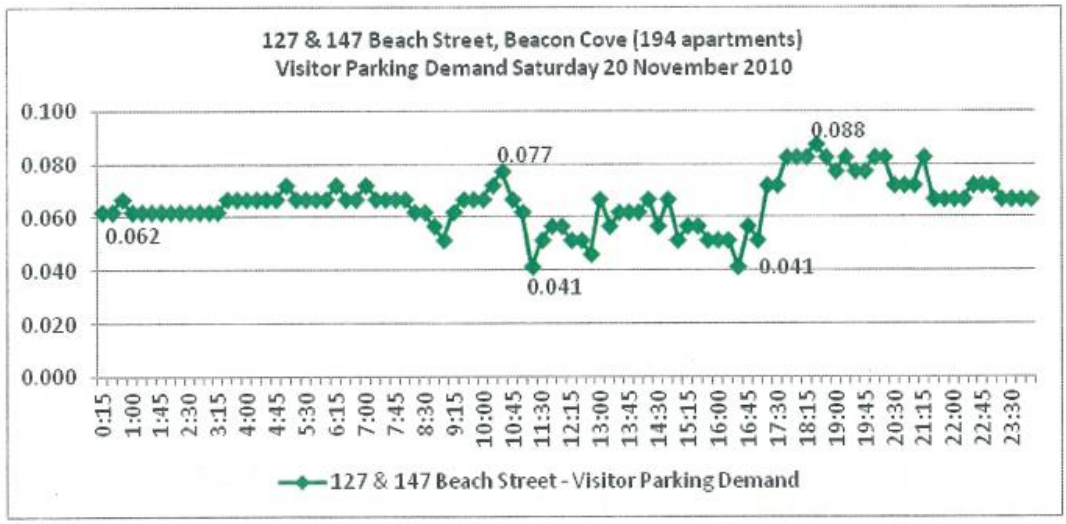
Cardno undertook car parking surveys of 127 and 147 Beach Street, Beacon Cove over a 42 hour period from 6am Friday 19 November 2010 to Midnight Saturday 20 November 2010.

These surveys identified visitor demands of up to 0.10 spaces per dwelling during weekends or evening, with lower demands of around 0.036 spaces per dwelling during business hours.

Graphs identifying the visitor car parking rates recorded by Cardno during the various surveys are detailed in the following figures.

Figure 6-1 Weekday Visitor Parking Demand (Friday)

Figure 6-2 Weekend Visitor Parking Demand (Saturday)



Source: Cardno Beacon Cove Surveys

Summary

Overall, we are satisfied that the visitor car parking demands for the development will be:

- 0.1-0.2 car spaces to each apartment, and
- 0.2 car spaces to each townhouse

Visitor parking can be accommodated on-street within the carriageway of the internal roads or within basement car parking areas (to be detailed as part of any formal planning application).

The provision of car parking will be subject to the relevant planning requirements and Council requirements, which are to be determined at the detailed design stage.

7. Conclusions

Having undertaken a traffic engineering assessment associated with the rezoning application for the site 500 Burwood Highway, Vermont South, we are satisfied that:

a) traffic impacts associated with the rezoning application can be accommodated by the nearby road network based on the impacts associated with 290 dwellings,

b) vehicle access to the site via the service road (left-in/left-out) and existing vehicle crossover (left-in only) are acceptable, with detailed design of the vehicle access interfaces to be undertaken to the satisfaction of Department of Transport as part of the DDO and detailed design stages,

c) all relevant vehicles will be able to adequately access the site including service and emergency vehicles,

d) the detailed traffic engineering requirements in relation to the design of the internal road network and car parking can be suitably addressed at the town planning application stage,

e) the likely volume on the proposed internal road network will be consistent with the traffic volumes detailed in Clause 56 of the Planning Scheme,

f) each future dwelling will be able to provide adequate parking for residents in accordance with the requirements of Clause 52.06 of the Planning Scheme,

g) adequate car parking for visitors will be available within the property boundaries in accordance with the relevant Planning Scheme requirements noting we are of the opinion that a provision of 0.2 car spaces per dwelling will be adequate to accommodate all demands on-site, and

h) there are no traffic engineering reasons why the proposed rezoning to Residential Growth Zone of the site at 500 Burwood Highway, Vermont South, should not be approved.