TRAFFIC IMPACT REPORT

Proposed Residential Development

5 Rynan Avenue, Edmondson Park

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1. Introduction

Neilly Davies Consulting Engineers was approached by KMT Constructions Pty Ltd c/o Joshua Farkash & Associates Pty. Ltd, for a proposed development at 5 Rynan Ave in Edmondson Park to prepare a Traffic Report to be submitted as part of its Development Application to Liverpool City Council. The said document aims to conduct a research and report on the possible impact of a proposed multi-unit, multi-storey development at the same address to the existing traffic conditions of Rynan Avenue and its connecting road networks.

2. The Development Proposal

The property at 5 Rynan Avenue is located on a patch of wide rectangular land at the south-west corner of the T-Junction between Rynan Avenue and Camden Valley Way. It is bounded by a newly developed subdivision on the west and 15 Rynan Avenue on the south. See aerial view of the property in Figure 1 below:

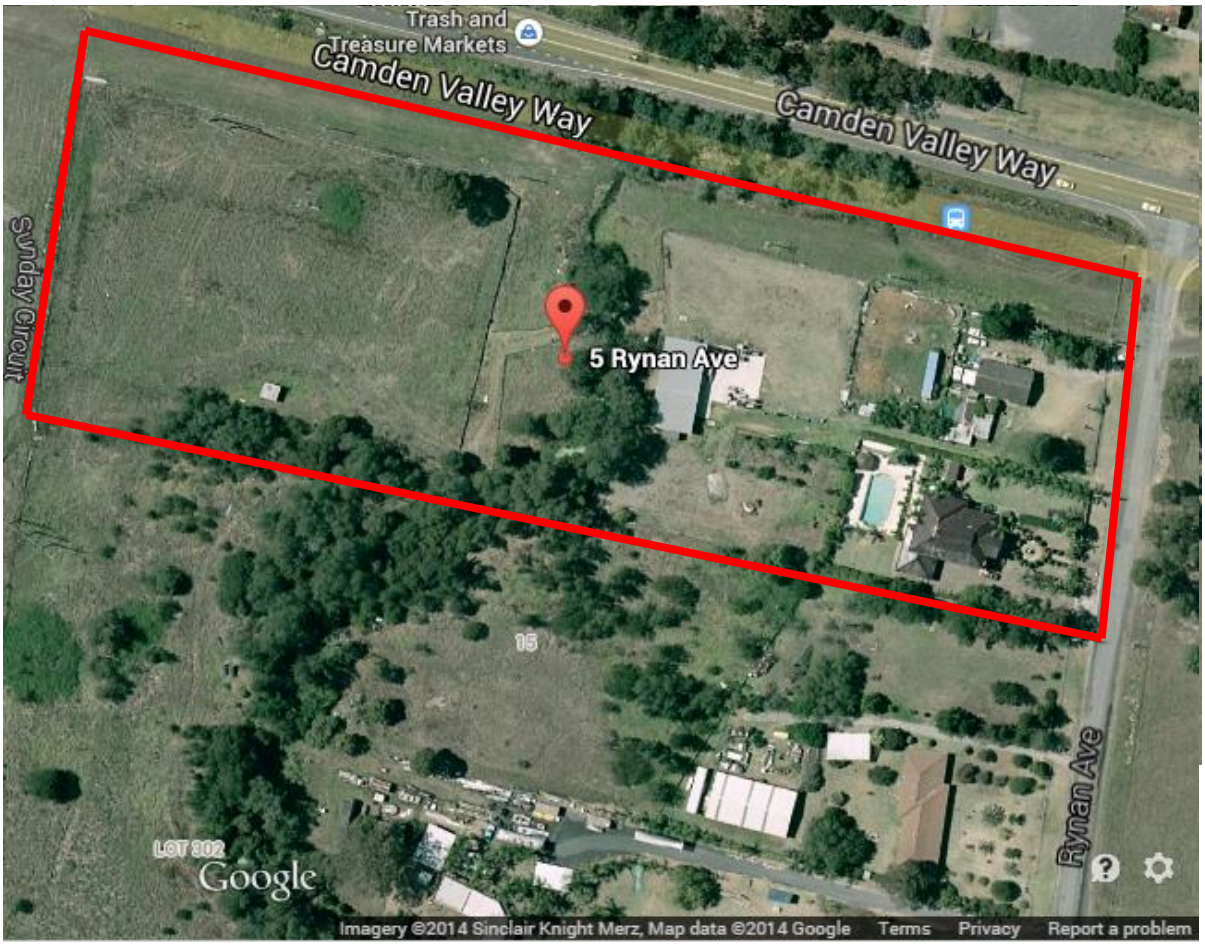

Figure 1: Aerial view of the site

The existing property at 5 Rynan Avenue appears to be comprising of some medium sized structures, most probably used for residential purposes. Isolated buildings have been noted including an outdoor swimming pool located at the rear of one of the bigger buildings. All of these will be demolished as part of the new development and the whole site will be excavated to make room for the proposed basement car parking as can be seen on the proposed site plane below.

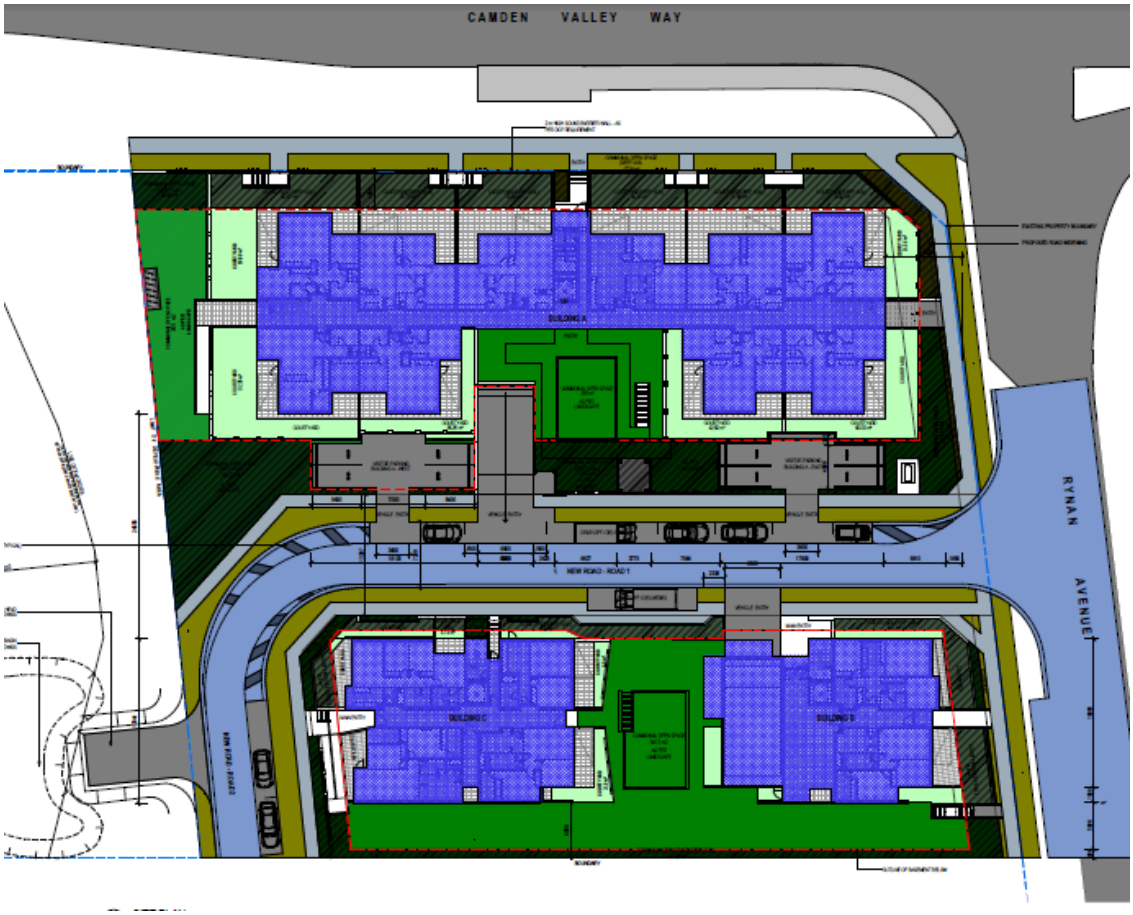

Figure 2: Architect's Proposed Site Plan

Based on the concepts provided by the architects from Joshua Farkash & Associates Pty. Ltd, the proposed development will comprise of three separate block of buildings. Building A will have its own basement car parking while a common basement car park area will be shared by Buildings B

and C. The development will purely be residential with a total of 82 apartment units having two bedrooms in each unit.

Aside from the apartment blocks, a roadway coming from Rynan Avenue will also be constructed to provide main access for all blocks. Both car park entries will be located along this newly constructed road.

Although the development is fairly large, it will only cover about half of the whole of 5 Rynan Avenue and a large portion of the land will remain undeveloped.

3. Surrounding Road Network (Road Hierarchy)

5 Rynan Avenue is located at the corner lot located south-west of the intersection of Camden Valley Way and Rynan Ave. The longer side of the development is bounded by the West bound lane of Camden Valley Way which was separated from the East Bound lane by an unpaved dirt island. Majority of the lands along the West Bound lane of Camden Valley Way is either newly developed or under development as evidence of wide expanse of open fields is still present. Easily obtainable data shows future subdivisions and road networks are to be laid out in this area in the near foreseeable future.

The East Bound lane of Camden Valley Way has more developed areas with notable examples such as the William Carey Christian School located directly to the North of the proposed development.

Camden Valley Way can be considered a major road as it connects the town of Camden to the Sydney Metro. It is mostly a four-lane road, with two lanes each way connected to Hume Highway after about 3 kilometres towards the East. It also intersects Cowpasture Road to the West of the proposed development and then runs parallel to Hume Motorway until the town of Narellan where it changes name to Camden Bypass.

Rynan Avenue on the other hand is a short road measuring about 600 metres and connects Camden Valley Way to the oval road of Jardine Drive. For most parts, Rynan Avenue is a two lane road which widens only near the intersection to Camden Valley Way.

A map has been attached in Figure 3 below for easier referencing.

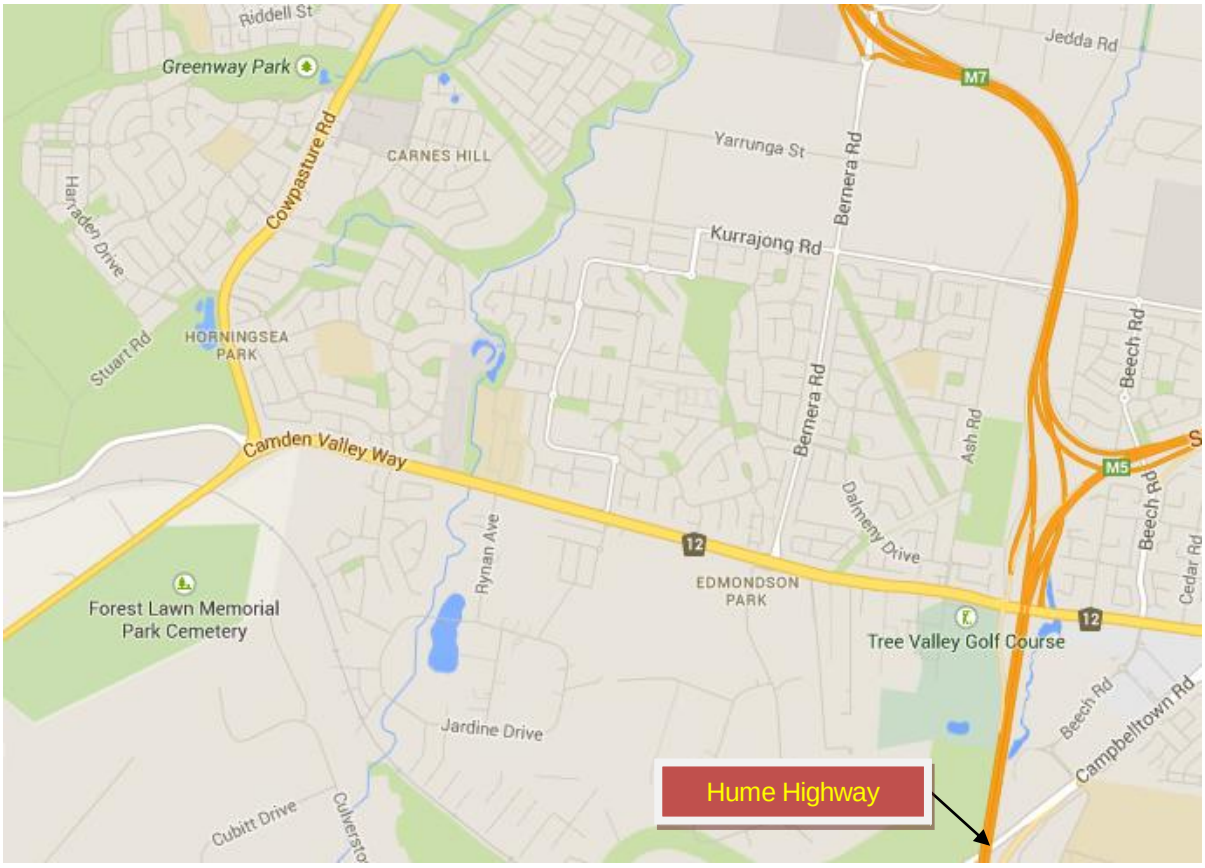

Figure 3: Road Network surrounding Rynan Ave (Map data © 2014 Google)

Aside from the above mentioned roads, various streets and small roads are also within near proximity of the proposed development, with the majority of these roads connected to the East bound lane of Camden Valley Way.

Since Rynan Avenue is a minor road speed limit can be considered to be at 40-50 kph while Camden Valley Way has an established speed limit of 70kph in the immediate vicinity. There are three lanes on the westbound stretch of Camden Valley Way (immediately adjacent to the

proposed building), with one of the lanes exclusive for buses and turning vehicles. The lane immediately adjacent to the development is a short bus lane that merges into the main lanes after a few metres. The eastbound stretch of Camden Valley Way consists of only two lanes. There is no on-street parking permitted for both Camden Valley Way and Rynan Avenue.

The existing traffic controls which apply to the road network in the vicinity of the site are:

- 70 km/h SPEED LIMIT which applies to Camden Valley Way
- 50 km/h SPEED LIMIT which applies to all other local roads in the area
- TRAFFIC SIGNALS at the T-Junction where Rynan Ave meets Camden Valley Way
- CENTRAL MEDIAN ISLAND for majority of Camden Valley Way

4. Public Transportation Network

According to data provided by NSW Transportation Information, the train network within the proximity to the proposed development at 5 Rynan Avenue is the stations of Casula and Glenfield which are both around 7 kilometres to the East. Casula Station can be accessed via Casula Road and Glenfield Station is accessible by Railway Parade. Car parks are available at both stations.

Figure 4: Car park area and access to Casula Station

Multiple bus stops can also be found along Camden Valley Way, with the nearest bus stop adjacent and across the street from the development. The bus routes serving the area are found to be 851, 852, 855, 856, 857, 864 and 867. Table 1 below shows the different routes and their respective start/finish stops.

No.	Route
851	Liverpool to Carnes Hill (Cowpasture Rd) via Prestons
852	Liverpool to Carnes Hill (Greenway Dr) via Prestons and Horningsea Park
855	Liverpool to Austral via Churchill Gardens and Prestons
856	Liverpool to Bringelly via Churchill Gardens and Prestons
857	Liverpool to Narellan via Churchill Gardens and Prestons
864	Glenfield to Carnes Hill via Horningsea Park
867	Glenfield to Prestons via Braidwood Drive

Table 1: Bus Routes near 5 Rynan Avenue

5. Traffic Data

The required data has been provided by the RMS counting station 85019 located along Camden Valley Way south of Heath Road to assess the current volume of vehicles passing through the vicinity of the proposed development. The count includes traffic in both directions and is summarised in Table 2 below:

			2012 AVERAGE DAILY TRAFFIC		
		Direction	All Days	Weekdays	Weekends
85019	CAMDEN VALLEY WAY	Northbound	10,900	12,400	8,300
			(343)	(190)	(101)
		Southbound	10,600	11,900	8,400
			(342)	(187)	(101)

Table 2: Camden Valley Way Traffic Volume

The table clearly shows that Camden Valley Way is only catering to a maximum average of 12,400 vehicles each day. The low amount of vehicles can be attributed to the fact that majority of the areas especially on one side of Camden Valley Way are still undeveloped. Moreover, since the road also runs parallel to Hume Motorway, which is a major road network, it can be assumed that majority of road users would be using the motorway instead of Camden Valley Way.

Another data counting device, numbered 62001, located to the East of the development along Hume Highway just before its connection to Camden Valley Way (Cross Roads – East of Box Road) also yielded some traffic volume data shown in Table 3 below:

			2012 AVERAGE DAILY TRAFFIC		
		Direction	All Days	Weekdays	Weekends
62001	HUME HIGHWAY	Northbound	20,800	22,600	17,700
			(358)	(197)	(103)
		Southbound	23,800	25,800	20,600
			(358)	(197)	(103)

Table 3: Hume Highway Traffic Volume

The data for Hume Highway can be seen as significantly larger than the previous data obtained for Camden Valley Way. The volume of vehicles passing along this counter is almost twice the number of vehicles passing along Camden Valley Way.

It is however worth mentioning that the traffic counter's location is just before the major intersection between the major roads of Hume Highway, Hume Motorway (M31) and Westlink M7. If we consider this, it clearly shows that a large number of motorists would be diverted into these other roads with only half going straight to Camden Valley Way.

Figure 5 on the next page shows the location of the counters used in this report.

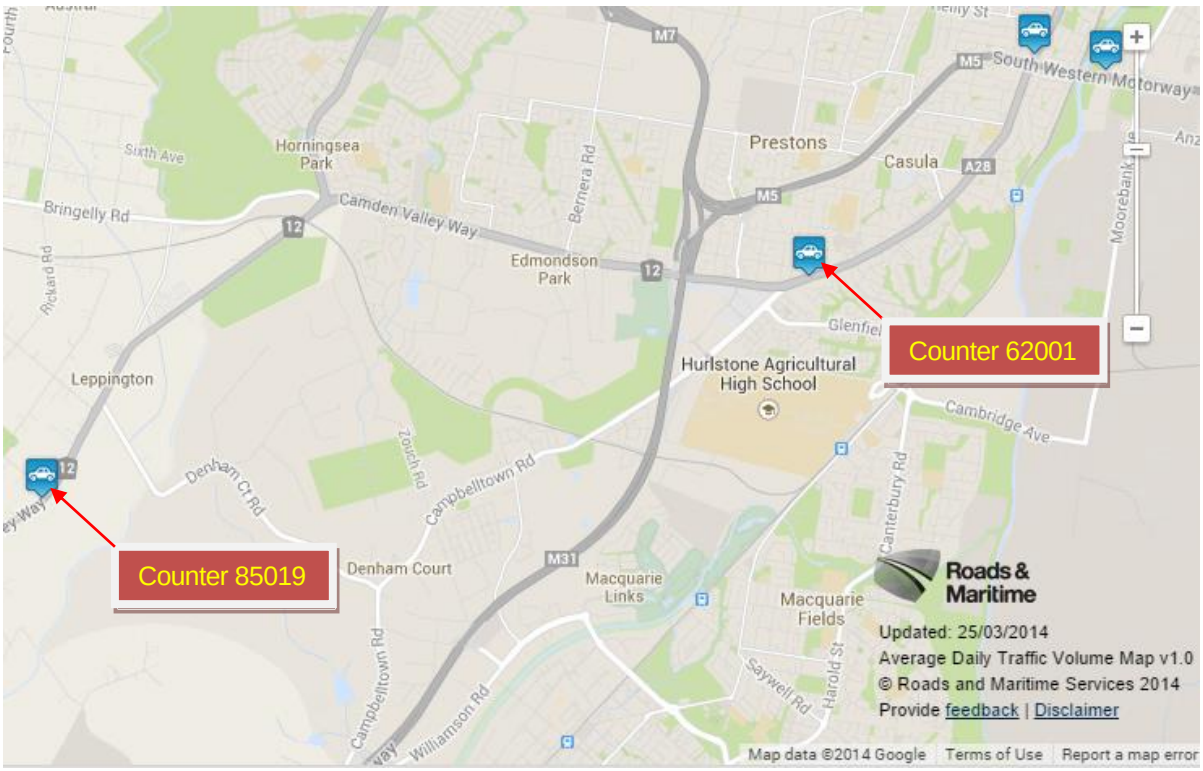

Figure 5: Location of Traffic Counters

6. Project Traffic Generation

An indication of the traffic generation potential of the development proposal is provided by reference to the former Roads and Traffic Authority's publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)*. The RTA Guidelines are based on extensive surveys of a wide range of land uses and nominates the following traffic generation rates which are applicable to the development proposal:

- For high density residential flat buildings located in metropolitan sub regional centre peak hour vehicle trips are equal to 0.29 trips per unit. This rate includes visitors, staff, service / delivery and on-street movements such as taxis and pick-up / set-down activities.

Application of the above traffic generation rates to the aforementioned 82 residential apartments outlined in the development proposal yields a traffic generation potential of approximately 24 vehicle trips per hour during commuter peak periods.

The existing property in 5 Rynan Avenue comprises of what appears to be two or three single dwelling houses. The same RTA Guideline nominates the following rate to be applied:

- For dwelling houses, peak hour vehicle trips are equal to 0.85 per dwelling. This rate is based on surveys in areas where new residential subdivisions are being built and where public transport is often limited. As the proposed development has an established public transport system within near proximity, the actual rate can be lower.

Application of the above traffic generation rate to the existing conditions in 5 Rynan Avenue yields an existing rate of approximately 3 vehicle trips per hour during commuter peak periods.

In comparison, the proposed development will definitely yield an increase in the traffic generation potential of the area adding approximately 21 more vehicle trips during peak hours.

7. Parking Implications

- **On street car park restrictions:**

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site are illustrated on Figure 5 and comprise:

- NO STOPPING restrictions along the Camden Valley Way site frontage
- NO PARKING restrictions along both sides of Camden Valley Way including the entire site frontage
- NO STOPPING restrictions along the Rynan Avenue site frontage (assumed as it is only a two lane traffic)
- NO PARKING restrictions along both sides of Camden Valley Way including the entire site frontage (assumed as it is only a two lane traffic)
- BUS ZONES at regular intervals along both sides of the Camden Valley Way.

- UNIDENTIFIED restrictions or provisions along the proposed access road to the buildings.

- **Off-street car park provisions:**

According to the Liverpool City Council Development Control Plan 2008 – Part 1, Number 20 – Carparking and Access, the proposed development falls under **Table 13 - Multi dwelling housing and residential flat buildings** as the development is not located within Liverpool City Centre.

As per the table, the minimum car parking required is computed as follows:

- 1.5 spaces per medium dwelling or 2 bedrooms
- 1 visitor car space for every 4 dwellings or part thereof

Accordingly, the development is also required to provide disabled car parking as mandated by **Table 12 – Disabled Car Parking Provision** which requires the following spaces:

- 2 per 100 spaces for Community, Recreation, Accommodation or Education

The proposed residential development, as per the drawings provided by the architects from Joshua Farkash & Associates Pty. Ltd, will have 82 apartment units, each with 2 bedrooms. Thus to meet Liverpool City Council DCP requirements, there will need to be a minimum of 143.5 or 144 car parking spaces provided. The breakdown of which is as follows:

- 123 spaces for residential units
- 20.5 spaces for visitors

As the plans indicate adaptable units, the disabled car parking provisions have been included in the spaces required for residential units.

The total number of car parking spaces considered in the design proposal at the moment is 142; two car park spaces short of what is required.

-Local access road design:

As aforementioned, a proposed road will be connected to Rynan Avenue to give access to motorists entering the proposed development. As Rynan Avenue is a very quiet road with not much road use, there is minimum chance of potential conflict with high speed traffic. Furthermore, the presence and usage of traffic signals at the intersection of Rynan Avenue and Camden Valley Way would also help maintain appropriate speeds for safe turnings.

Minimum sight distance at domestic access driveway exit for frontage road with maximum speed limit of 50kph as explained in AS2890.1 clause 3.2.4 is 40 m. the provided driveway located about 50m away from the intersection and sight distance complies with code requirements. The required site distance and road frontage which needs to be kept clear of permanent obstructions has been illustrated in Appendix- C of this report. As it is shown, edge of frontage roads adjoining the access driveway should be kept clear of permanent obstruction such as trees or walls. Plans of the proposed development have been prepared by the architects from Joshua Farkash & Associates Pty. Ltd and are attached as Appendix A and Civil design plans prepared by Diversi Consulting are attached as Appendix D. From the civil design provided, the wide entry / exit connection of the proposed road to Rynan Ave ensured that sightlines are maintained and safer merging is more feasible.

In addition the width of the local road is 6m which is sufficient for two way road with one specific area reserved for delivery parking. On street parking should be however be prohibited along other portions of the local road. As it has been illustrated in the civil drawings in Appendix D, the width of the road has been maintained throughout the curve and thus it poses very minimal risk for two vehicles simultaneously travelling around the bend. As a general precaution, it is recommended to install a traffic mirror at the road curve to provide adequate visibility between the cars leaving or entering the onsite car park and cars approaching to the road curve.

Specification of the onsite car parks located in front of building including isle width and car park space size comply with requirements of AS2890 standard and as it is shown in Appendix-C cars have enough manoeuvre spaces and can enter and exit the car park in front direction however it is

recommended to remove the planter boxes at the sides of car park spaces adjoining the building to give them enough space for reverse turning.

8. Analysis, Discussion and Recommendation

Street parking on Camden Valley Way is not permitted as it is a major road network with no stopping at both sides allowed except for buses on established bus stops. Likewise, street parking along Rynan Avenue may also not be permitted and unadvisable as the Avenue is a narrow two-lane catering for two-way traffic.

However, it is most likely that the development will not have any major impact on the existing traffic conditions. As of the most recent traffic data, Camden Valley Way is only servicing a relatively low number of vehicles passing through it each hour. The intersection of Rynan Ave and Camden Valley Way which serves as the main exit point from the development into the main traffic is also governed by traffic lights which regulate the amount of vehicles merging in to the major road. Moreover, the near proximity of an eastern intersection to major roads such as Westlink M7, South Western Motorway M5 and Hume Motorway M31 going to greater Sydney Metro would definitely ease up the traffic volume of Camden Valley Way after about 3 kilometres.

As mentioned previously, Rynan Ave is a very low traffic road which currently caters to single detached dwelling houses. The proposed development would therefore have no major impact on this road.

It is also unlikely that there will be any problems with the proposed road servicing the main entry of the residential buildings because of the following:

- The main purpose of the proposed road is to service the entry points of the residential building. As the proposed road will still revert back to Rynan Ave, it is not feasible to be used as an alternate route even though it is open for public use. Non-resident motorists who will use this road will have to travel approximately an extra 200 metres only to go back to Rynan Ave upon exiting.

- Based on AUSTROADS Guide to Traffic Engineering*: Roadway Capacity*, a two lane road such as this will have a volume capacity of around 900 vehicles per hour for clearway conditions and around 600 vehicles per hour for when occasional parking is permitted. Since the proposed residential development only adds 21 additional peak hour trips, the proposed road would be adequate.
- Due to the expected low amount of vehicles passing this road, it can be classified as a residential laneway and having a 6m carriageway would give enough clearance. A 6m carriageway can accommodate two vehicles passing side by side as shown in Appendix C.
- For future expansions of the Edmondson Park area, it is recommended that the proposed road will be restricted to a left in, left out scenario and a median be built along Rynan Ave to facilitate this.

A variety of public transportation options are also available in the area. Casula and Glenfield railway stations are both within 10 minutes' drive of the development. There are also buses in the area that usually starts or end in Liverpool CBD. It is therefore quite likely that prospective residents and owners of the development will prefer to utilise these methods of transport rather than driving to and from their homes every day. It is still however very important to consider designing a wide entry way into the property to achieve a safer and quicker way of entering the property and so that the lowest possible impact to traffic may be achieved.

Like previously mentioned, the proposed development is short of just two car parking spaces. This shortage can be considered as minimal due to the following considerations:

1. The total number of car parking space required is 143.5 or only 1.5 of a space more than what has been provided.
2. The residential units will have a total number of 123 spaces. Given that the number of proposed residential units is 82, it can be understood that not all units will have 2 car parking space allotments. Therefore, based on the demand, the development can consider reducing residential car parking space by 1 and allotting this space dedicated for visitors. There is also a possibility that the residents who have 2 car parking spaces will use one of their own spaces for their visitors.

3. The proposed access road has a road width of 7.2 metres not including shoulders. In the unlikely scenario that there is a shortage in car parking, on-street parking may be allowed on some areas of this new road. As it would cater mostly to the residents' use, it would not impact on the existing traffic conditions of the adjoining road network and the large width of the road suggests ample room for passing cars.
4. Considering that the development is taking place on a relatively flat land, it is also fairly easy to use the unpaved lands located to the west of the proposed development for temporary parking.
5. The near proximity to bus stops and the considerable distance to the city attract people who are inclined to take public transport instead of using their own vehicles.

If you have any queries or need further clarifications, please do not hesitate to contact this office.

Appendices

Appendix A – Plans of the Proposed Development at Rynan Ave, Edmondson Park

Appendix B – Excerpt from Liverpool City Council DCP – Car Parking and Access Section

Appendix C – Sight distances and turning template on plans

Appendix D – Proposed Civil Engineering design drawings

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Traffic Map and data are from RMS' interactive map and website.

Casula Station photograph was taken from Wikipedia where it was published for public use by the user ***Wykymania*** *under the terms of the Creative Commons Attribution-Share Alike 3.0 Unported license.*

The development site plan was taken from the designer's drawings.