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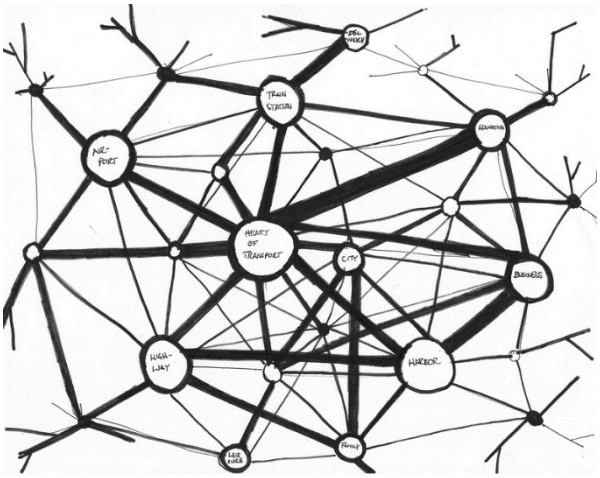
TRAFFIC AND PARKING IMPACT STATEMENT

235-237 MARSDEN ROAD CARLINGFORD (PLANNING PROPOSAL RESIDENTIAL DEVELOPMENT)



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1. INTRODUCTION

This Practice has been engaged by Gaiset Pty. Ltd. to prepare a traffic impact assessment associated with a Planning Proposal for a residential development located within at 235 – 237 Marsden Road, Carlingford.

The Proposal seeks to amend Parramatta LEP 2011 with respect to the 12,884m^2 site to facilitate the accommodation of a series of residential buildings containing 48 dwellings. Vehicular access to the site is proposed to be provided to / from the Marsden Road southbound travel lanes with site access movements being restricted to left in / left out only.

This report assesses and documents likely transportation impacts resulting from the Planning Proposal and recommends, where appropriate, treatments to ameliorate such impacts. In this regard, this assessment focuses on the following issues:

- Describes the site and provides details of the Planning Proposal;
- Assesses existing road network conditions within the vicinity of the site including traffic volumes and general traffic safety;
- Identifies vehicular traffic likely to be generated by the Planning Proposal;
- Compares the traffic generating capability of the Proposal with the current nursery business currently accommodating the site; and
- Assesses the ability of the surrounding road network to accommodate the traffic generating potential of the Proposal.

Reference has been made in this report to the following documents:

- The Roads & Maritime Services' *Guide to Traffic Generating Developments* and *Technical Direction TDT 2013/04a*;
- Parramatta City Council's *Parramatta Development Control Plan 2011* (DCP 2011); and
- Parramatta City Council's *Parramatta Local Environmental Plan 2011* (LEP 2011).

The report should be read in conjunction with the Planning Proposal plans prepared by Architex.

2. SITE DETAILS

2.1 Site Location

The site comprises a parcel of land located on the north-eastern side of Marsden Road, approximately 80m to the south-east of Tomah Street, Carlingford. The site location is shown overleaf within a neighbourhood and aerial context by **Figures 1** and **2** respectively.

2.2 Site Description

The site provides a street address of 235 – 237 Marsden Road, Carlingford. The site forms an irregularly shaped parcel of land providing an approximate frontage of 145m to Marsden Road. The site extends to the north-east away from Marsden Road approximately 90m and 180m along its north-western and south-eastern boundaries respectively. The total site area is 12,884m^2.

2.3 Existing Use

The central portion of the site accommodates the existing Swane's Nursery business comprising the following:

- A showroom building providing an approximate floor area of 550m^2;
- An office building providing an approximate floor area of 30m^2; and
- A greenhouse building providing an approximate floor area of 300m^2.

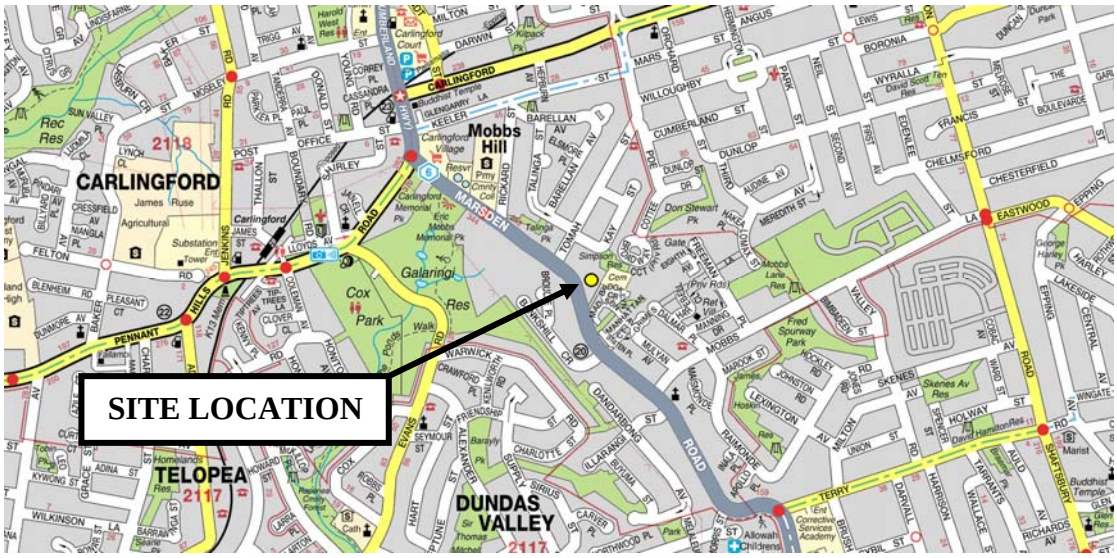
The abovementioned site structures are largely centrally located within the site and attached to one another.

The south-western portion of the site accommodates a passenger vehicle parking area capable of accommodating in the order of 25 vehicles as well as a heavy vehicle servicing area. The nursery parking and servicing area is accessed via separated ingress and egress driveways connecting with Marsden Road approximately 30m and 60m to the south of the western site corner respectively. These driveways facilitate unrestricted turning movements to / from Marsden Road.

The north-eastern portion of the nursery site is generally occupied by outdoor plant and material display areas.

In addition to the nursery business, the subject site also accommodates two detached residential dwellings located within the southern and western corners of the site. The dwelling in the western corner is serviced by a single width access driveway connecting with Marsden Road, facilitating unrestricted turning movements to / from the site. The dwelling in the southern corner is serviced by an unformed access road abutting the eastern site boundary, servicing the adjoining Carlingford Anglican Cemetery, which also facilitates unrestricted access to / from Marsden Road.

FIGURE 1
SITE LOCATION WITHIN A NEIGHBOURHOOD CONTEXT



Source: UBD's Australian City Streets – Version 4

FIGURE 2
SITE LOCATION WITHIN AN AERIAL CONTEXT

Source: Google Earth

2.4 Surrounding Uses

The following land-uses surround the site:

- A residential townhouse development is located to the north-west, fronting and accessed via Marsden Road;

- Detached residential dwellings are located to the north, fronting and accessed via Kay Street;

- Carlingford Anglican Cemetery is located to the north-east, being serviced by an unformed access road running along the south-eastern boundary, connecting with Marsden Road;

- A cluster housing / townhouse development located further to the south-east fronting and accessed via Madison Avenue and brock Crescent; and

- Detached residential dwellings are located to the south-west on the opposite side and access via Marsden Road.

3. STRATEGIC CONTEXT

A number of strategic planning documents at both State and Local Government level have been prepared to guide land use and transport decision for the Parramatta Local Government Area. A brief description of these documents and their core principles are outlined in the following sub-sections of this report.

3.1 A Plan for Growing Sydney

'A Plan for Growing Sydney' was finalised in December 2014 by the NSW Department of Planning and Environment and is the current metropolitan strategy for the Sydney region (hereafter referred to as the 'Metropolitan Strategy'). The State Government's overarching vision is for Sydney to be:

1) A competitive economy with world-class services and transport;

2) A city of housing choice with homes that meet our needs and lifestyles;

3) A great place to live with communities that are strong, healthy and well connected; and

4) A sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources.

To achieve these goals, a number of directions and action areas have been formulated. Those particularly relevant to the nature of the subject proposal and its location are detailed below.

Goal 1: A Competitive economy with world-class services and transport

Direction 1.2: Grow Greater Parramatta - Sydney's Second CBD

Direction 1.2 recognises the role of Greater Parramatta as Sydney's western CBD of metropolitan significance, and seeks to grow that significance. The core elements for growing Greater Parramatta include:

- Integrating the precincts within Greater Parramatta and connecting the centre to the wider community and other centres through the proposed Parramatta light rail; and

- Encouraging growth across a range of employment types.

Direction 1.7: Grow strategic centres – providing more jobs closer to home

Direction 1.7 acknowledges the importance of Sydney's 'strategic centres', being *"areas of intense, mixed economic and social activity that are built around the transport network and feature major public investment in services such as hospitals and education and sports facilities"*. The Metropolitan Strategy reinforces Greater Parramatta as a Strategic Centre.

Goal 2: Sydney's Housing Choices

The Metropolitan Strategy recognises the need to accelerate housing supply to meet a growing population. The Strategy forecasts that some 664,000 new homes will be required over the next 20 years to accommodate an anticipated increase in population of 1.6 million people through metropolitan Sydney, with about 900,000 of this increase expected to reside in Western Sydney.

Direction 2.1: Accelerate housing supply across Sydney

Direction 2.1, in particular Action 2.1.1, suggests that the goal of increasing housing supply and addressing housing affordability and choice requires government to, among other things, target locations which deliver homes closer to jobs. The Strategy suggests that the most suitable areas for significant urban renewal are those best connect to employment and include areas:

- In and around centres that are close to jobs and are serviced by public transport services that are frequent and capable of moving large number of people; and

- In and around 'strategic centres'.

Goal 3: Sydney's Great Place to Live

Goal 3 advocates Sydney as a great place to live by creating places that are vibrant, well connected with an interesting street life and improved public domain. The strategy suggests that liveability will be Sydney's competitive advantage, developing thriving centres and investment.

Direction 3.1: Revitalise existing suburbs

The following extract from the Metropolitan Strategy distils the principles of Direction 3.1:

> *"A city which makes it easy for residents to get to jobs, services and recreation is a more attractive place to live. By putting more housing in or near centres on the public transport network, residents can take advantage of the shops, cinemas, cafes, restaurants, and health and education services that are already available".*

3.2 Long Term Transport Masterplan

The Long Term Transport Master Plan for NSW identifies current challenges facing the NSW transport system and identifies planned actions to address those challenges in an overarching strategy for which subsequent detailed transport plans are to be based.

It includes actions including the WestConnex project, pinch point and corridors programs.

Detailed Modal Delivery Plans will also be prepared to compliment the Long Term Transport MasterPlan, including specific plans for walking, cycling, ferry, light rail, bus, road and rail travel modes which are expected to expand on the goals and actions included in the Master Plan.

3.3 Parramatta Economic Development Strategy 2011-2016

The Parramatta Economic Development Strategy 2011-2016 (the 'Economic Development Strategy') was adopted by Council in November, 2011 and was prepared in response to the employment goals contained in the metropolitan strategy current at the time. The prevailing strategy established a goal for the creation of 280,000 net additional jobs in Western Sydney by 2036, including 27,000 jobs in the Parramatta CBD and 7000 in Westmead.

The Economic Development Strategy establishes 6 priority areas to achieve the employment creation targets, broken down into 20 strategies. These are summarised below:

Priority Area	**Strategies**
A. Identity	A1. Establishing a competitive identity A2. Broadening the city's media profile A3. Holding an annual business forum and broadening engagement activity
B. Business	B4. Helping build sectoral specialisations in 4 primary employment precincts B5. Attracting new firms to Parramatta B6. Building capacity for innovation B7. Supporting small business and start ups
C. Labour	C8. Raising skill levels and aligning them to the needs of industry C9. Attracting and retaining talent C10. Ensuring diversity for employment C.11 Addressing unemployment
D. Property	D12. Activating the CBD property market D13. Planning for three specialist employment precincts D14. Attracting capital to Parramatta
E. Amenity	E15. Improving safety E16. Activating lanes, retail precincts and riverbank E17. Growing the leisure/tourism product offering
F. Infrastructure	F18. Improving transport infrastructure F19. Improving internet speeds and connectivity F20. Strengthening professional networks and partnerships

3.4 Parramatta Section 94 Plan

Development contributions paid to Council will be applied towards meeting the cost of the provision or augmentation of new public facilities throughout the Local Government Area. The planned infrastructure provision is identified within Parramatta Section 94A Development Contribution Plan (Amendment No. 4). This Plan however does not include any notable infrastructure with respect to roads, pedestrians and cyclists in the immediate vicinity of the subject site.

4. DESCRIPTION OF PROPOSAL

4.1 Built Form

The Proposal seeks to amend Parramatta LEP 2011 with respect to the 12,884m^2 site as follows:

- Amend the site's existing R2 Low Density Residential zoning to R3 Medium Density Residential to allow for medium density residential development; and

- Amend the site's floor space ratio and building height controls to allow for a variety of building envelopes throughout the site.

The Proposal involves the demolition of existing site structures and the construction of the following:

- 37 attached three bedroom villas and 11 attached four bedroom townhouses,

On-site vehicular parking will be provided to support the development yield in accordance with the relevant requirements of the Parramatta City Council's DCP 2011, being located both at-grade and within basement parking areas totalling 94 in total comprising 82 resident parking spaces and 12 visitor spaces .

4.2 Site Access Arrangements

Vehicular access to the site is proposed a separated ingress and egress driveways connecting to the Marsden Road southbound travel lanes, located approximately 40m to the north-western of the southern corner of the site. These driveways are proposed to be separated by a triangular island and splayed to restrict site ingress and egress movements to left in / left out from / to Marsden Road.

The restricted site access arrangements are proposed to be supplemented by appropriate 'No Left Turn' signage facing northbound Marsden Road traffic flow and 'Left Turn Only' signage facing traffic exiting the site.

5. EXISTING TRANSPORT CONDITIONS

5.1 Surrounding Road Network

Marsden Road performs a State Road function under the care and control of the Roads & Maritime Services. It provides a north-south arterial function between Pennant Hills Road at Carlingford in the north and Victoria Road at Melrose Park in the south, intersecting with both under traffic signal control. Marsden Road also provides an important connection to Stewart Street and Rutledge Street (via Lawson Street and Brush Road), which provide arterial functions to the west linking with Kissing Point Road and Silverwater Road and to the east linking with Blaxland Road.

Marsden Road provides a pavement width of 13m in the immediate vicinity of the site, accommodating two through travel lanes in each direction. Kerb-side parking is restricted by sign posted and line marked clearway conditions. Traffic flow is governed by a sign posted speed limit of 60km/h.

Marsden Road forms a T-junction with Tomah Street approximately 60m to the north-west of the subject site, operating under Stop signage control with Marsden Road forming the priority route.

Tomah Street performs a local access function under the care and control of Parramatta City Council, connecting abutting residential development and lower order access streets with Marsden Road in the south-west and Pennant Parade in the north-east. Tomah Street provides a 12m wide pavement providing one through lane of traffic in each direction in conjunction with parallel parking along both kerb alignments. Traffic flow is governed by a sign posted speed limit of 50km/h.

Marsden Road forms a T-junction with Bankshill Crescent approximately 150m to the south of the subject site, operating under Give Way signage control with Marsden Road forming the priority route.

Bankshill Crescent performs a local access cul-de-sac function under the care and control of Parramatta City Council, linking abutting residential dwellings with Marsden Road. Bankshill Crescent provides a 7.5m wide pavement providing one through lane of traffic in each direction in conjunction with parallel parking along both alignments.

Further to the south, Marsden Road forms a T-junction with Mobs Lane, operating under traffic signal control. Mobbs Lane performs an east-west collector road function connecting Marsden Road in the west with Midson Road and Eastwood Avenue to the east, with which it intersects under traffic signal control. Mobbs Lane provides an 11m wide pavement providing one through lane of traffic in each direction in conjunction with parallel parking along both alignments.

5.2 Traffic Volumes

This Practice has commissioned weekday morning and evening peak period traffic surveys of Marsden Road immediately adjoining the subject site in order to obtain an accurate indication of existing traffic conditions. Traffic surveys were undertaken between 7.00am – 9.00am and 4.00pm – 6.00pm on Wednesday the 8th of June 2016 on a lane by lane basis.

Figure 3 illustrates the surveyed peak hour (8.00am – 9.00am and 5.00pm – 6.00pm) traffic flows within Marsden Road, whilst more detailed summaries are available upon request.

FIGURE 3
EXISTING WEEKDAY PEAK HOUR TRAFFIC VOLUMES
MARSDEN ROAD, ADJACENT TO NO. 235 - 237

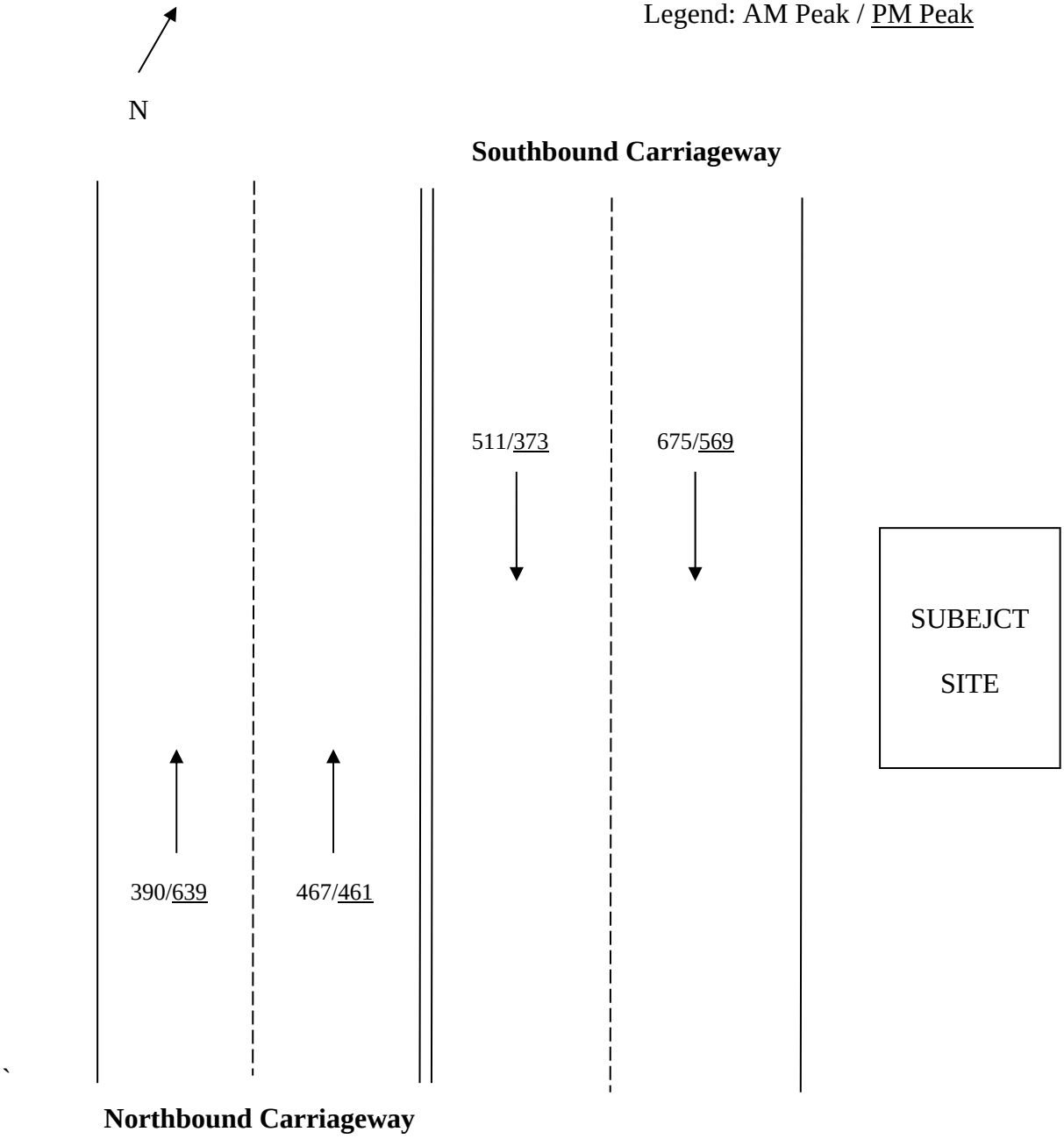


Figure 3 indicates the following:

- Marsden Road accommodates somewhat tidal traffic flow during peak periods with southbound flow dominating during the morning peak and northbound flow dominating during the evening peak; and

- Marsden Road accommodates directional traffic flows during peak periods of approximately 850 – 1,200 vehicles per hour.

5.3 Marsden Road Route Level of Service

In order to undertake an assessment of the operational performance of Marsden Road, reference is made to the Roads & Maritime Services' *Guide to Traffic Generating Developments*. This publication indicates that a four lane carriageway accommodating directional traffic flows of between 850 – 1,200 vehicles per hour provides a level of service 'B'. Such a level service is in the zone of stable flow where drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream.

With respect to the above, it has been observed that motorists are able to enter and exit the subject site, adjoining sites and uncontrolled intersecting local roads with a good level of efficiency.

5.4 Public Transport & Non Car Travel

5.4.1 Train

The site is located approximately 1.2km walking distance to the east of Carlingford Railway Station, located on the corner of Pennant Hills Road and Jenkins Road. Carlingford Railway Station is the northern-most station on the T6 Line within the Sydney Trains Network, providing connectivity to Clyde Railway Station to the south. Services on the T6 Line provide a 30 minute frequency during weekday peak periods, extending to 60 minutes at other times.

The T1 Line within the Sydney Trains Network provides high frequency services between the Blue Mountains (and beyond) and Hornsby (and beyond). The T1 Line also links with other Lines within the Sydney Trains Network at Blacktown, Parramatta, Granville, Lidcombe, Strathfield and The City.

Further to the above existing rail services, the NSW Government has recently committed to construction a light rail network between Westmead and Strathfield, which will link with the existing T6 Line in the vicinity of Camelia.

5.4.2 Bus

The following bus stops are located within 700m walking distance of the subject site:

- Stops are located on both sides of Pennant Parade immediately to the north of Tomah Street;

- Stops are located on both sides of Marsden Road, immediately to the south of Mobbs Lane; and

- Stops are located on both sides of Pennant Hills Road, to the west of Marsden Road.

The stops within Pennant Parade and Pennant Hills Road service Route m54, which operates between Parramatta and Macquarie Park. Route m54 provides a service frequency of 10 minutes during weekday peaks, 15 minutes during weekday business periods and 20 minutes during other periods.

The stops within Marsden Road service Route 521, which operates between Parramatta and Eastwood. Route 521 provides a service frequency of 60 minutes during most periods, with the exception of weekday peaks when the frequency increases to 30 minutes.

In conjunction with servicing Route m54, the stops within Pennant Hills Road service the following routes:

- Route 513 operates between Carlingford and Meadowbank. Route 513 provides a service frequency of 30 minutes during weekday peaks and 60 minutes during weekday business periods; and

- Route 546 operates between Parramatta and Epping. Route 546 provides a service frequency of 30 minutes during weekday peaks and 60 minutes during other periods.

5.4.3 Bicycle Routes

An existing east-west primarily on-road bicycle route exists between Parramatta in the west to Epping in the east. This route comprises Pennant Hills Road (an off-road shared path), Keeler Street, Pennant Parade and Willoughby Street, located approximately 700m to the north and north-east of the site.

Parramatta City Council also plans to establish a new off road north-south bicycle route between Carlingford Railway Station and Rydalmere, which is to run along the eastern alignment of the T6 Railway Line and link with the abovementioned existing on-road route.

5.4.4 Pedestrian Infrastructure

Pedestrian access to / from the site is to be provided via Marden Road. Marsden Road provides path footpaths along both sides in the vicinity of the site. Further, the following pedestrian access and mobility infrastructure is provided in the vicinity of the site:

- A footpath is provided along the north-western side of Tomah Street;

- Pedestrian refuges (via the provision of roundabout slitter islands) are provided over all approaches to the junction of Pennant Parade and Willoughby Street;

- A mid-block signalised pedestrian crossing is provided over Marsden Road to the north-west of Rickard Street;

- Signalised pedestrian crossings are provided over the southern and western approaches at the junction of Pennant Hills Road and Marsden Road; and

- Signalised pedestrian crossings are provided over all approaches at the junction of Marsden Road and Mobbs Lane.

6. TRAFFIC GENERATION & IMPACTS

6.1 Existing Traffic Generation

Section 2.3 of this report presents that the subject site currently accommodates two detached residential dwellings and a retail nursery business.

In order to estimate the traffic generating capacity of the existing site development, reference is made to the Roads & Maritime Services' *Guide to Traffic Generating Developments*. This publication states the following with respect to the existing site uses, based on rates surveys of various existing developments throughout NSW:

- Detached residential dwellings – 0.85 weekday peak hour vehicle trips per dwelling; and

- Plant nurseries – 57 weekend peak hour vehicle trips plus 0.7 vehicles per $100m^2$ of site area.

Application of the above residential traffic generation rate to the existing detached dwellings results in an existing weekday peak hour traffic generation of two vehicle trips during weekday commuter peak periods.

Application of the above plant nursery traffic generation rate to the existing nursery site component (whereby the nursery site area is estimated to be $11,000m^2$) results in an existing weekend peak hour traffic generation in the order of 130 vehicle trips. The weekday commuter peak hour traffic generation of the nursery business has been observed to be significantly lower, being primarily generated by the movement of limited staff to and from the site. Based on a maximum staffing level of 10 employees, it could be expected that the nursery could generate in the order of 10 vehicle trips to and from the site during weekday commuter peak periods.

The existing weekday commuter peak hour traffic generation of the site is therefore estimated to be in the order of 12 vehicle trips, increasing to approximately 130 trips during weekend midday retail peak periods.

6.2 Projected Traffic Generation

Section 3 of this report presents that the subject proposal involves the provision of 37 three bedroom and 11 four bedroom medium density residential dwellings.

The Roads & Maritime Services specifies the following maximum average weekday commuter peak hour traffic generation rates for medium density residential developments:

- 0. 65 vehicle trips per three bedroom or more per dwelling;

Application of the above average traffic generation rates the subject proposal results in a projected weekday commuter peak hour traffic generating capacity of approximately 24 vehicle trips to and from the site. For the purposes of this

assessment and in order to generate an absolute worst case scenario, a similar traffic generation is projected to occur during weekend midday peak periods.

6.3 Trip Generation and Distribution Discussion

The previous analysis indicates that the subject proposal is expected to generate an additional 12 weekday commuter peak hour vehicle trips to and from the site, over and above that currently capable of being generated by the existing site development. On face value, such a level of additional traffic, averaging at approximately one additional peak hour vehicle movement every five minutes, would not have any unreasonable impacts on the surrounding road network.

It is however expected that the change in land use will result in an alteration to the assignment of traffic to and from the site during commuter peak periods. Employment generating uses such as nurseries typically result in an inbound / outbound split during the morning / evening peak period associated with the movement of employees to and from the site whilst the reverse condition is expected to prevail associated with the proposed residential land-use. Residential uses conversely typically result in an approximate 20% / 80% inbound / outbound split during the morning peak period with the revers condition prevailing during the evening peak.

Table 1 provides a summary of the above trip assignment associated with the existing and proposed development yields.

TABLE 1
SUMMARY OF EXISTING AND PROPOSED WEEKDAY COMMUTER PEAK TRAFFIC GENERATION AND TRIP ASSIGNMENT CHARACTERISTICS

	AM Peak Hour Trips	PM Peak Hour Trips
Existing Development Scenario		
Inbound	10	2
Outbound	2	10
Total	12	12
Proposed Development Scenario		
Inbound	2	22
Outbound	22	2
Total	24	24
Change		
Inbound	-8	+20
Outbound	+20	-8
Total	+12	+12

Table 1 indicates that the subject proposal is expected to result in approximately 12 additional vehicle movements to and from the subject site during weekday commuter peak hours.

Further, it is to be acknowledged that the proposed residential land-use is likely to result in a significant reduction in the traffic generating ability of the site, compared to the existing primary nursery site use. **Table 1** provides a summary of the above trip assignment associated with the existing and proposed development yields (whereby both the nursery and residential land-uses are expected to evenly distribute vehicle trips during weekend periods as inbound and outbound trips).

TABLE 2 SUMMARY OF EXISTING AND PROPOSED WEEKEND MIDDAY PEAK HOUR TRAFFIC GENERATION AND TRIP ASSIGNMENT CHARACTERISTICS	
Existing Development Scenario	
Inbound	65
Outbound	65
Total	130
Proposed Development Scenario	
Inbound	12
Outbound	12
Total	24
Change	
Inbound	-53
Outbound	-53
Total	-106

Table 2 indicates that it is expected that the proposed residential development use is expected to generate in the order of 106 fewer vehicle movements to and from the site during weekend midday peak periods.

6.4 Trip Assignment

In order to gauge the impact of the traffic generation and distribution associated with the Proposal, an assessment of the likely assignment of traffic is required to be undertaken. This involves distributing the traffic generated by the site along the major approach routes before it dissipates throughout the general road network.

The trip assignment of vehicles to and from the site is however to be limited to left in / left out movements by virtue of the restricted site access arrangements. In this regard, vehicles approaching the site from the south will be required to utilise the adjoining local road network to the east of the site to access the southbound Marsden Road travel lanes and thence the subject site.

There are a number of routes available for northbound Marsden Road traffic to circulate around to access the southbound Marsden Road travel lanes with the most likely route comprising a right turn to Mobbs Lane, left turn to Midson Road, left turn to Boronia Avenue, right turn to Ryde Street, left turn to Willoughby Street, left turn to Pennant Parade, right turn to Tomah Street and thence a left turn to Marsden Road and thence the site. The somewhat circuitous nature of this route is likely that motorists approaching the site from the south are likely to travel via routes other than Marsden Road in order to approach the site locally from the north via Marsden Road,

such as Evans Road or Adderton Road to the west or Blaxland Road or Shaftsbury Road / Midson Road to the east.

A similar situation is expected to occur for vehicles exiting the site and wishing to access Pennant Hills Road to the north. These vehicles will exit the site to the Marsden Road southbound travel lanes via a left turn, thence turn left into Mobbs Lane and utilise Midson Road to access Carlingford Road which in turn connects with Pennant Hills Road as required. Alternatively, if motorists are wishing to exit the site to the west, they can travel via Marden Road southbound travel lanes to access Stewart Street, which connects with Kissing Point Road and thence James Ruse Drive.

6.5 Projected Traffic Impacts

The previous discussion indicates that the proposal is likely to generate in the order of 4 left turn ingress and 20 left turn egress movements during the weekday morning commuter peak period and 20 left turn ingress and 4 left turn egress movements during the weekday evening commuter peak period. These movements are to occur from and to the existing Marsden Road southbound kerb-side travel lane which provides an existing weekday morning and evening peak hour traffic demand of 675 and 569 vehicles respectively.

Site ingress left turn movements are to occur in in a priority arrangement. Whilst it is noted that these movements have the potential to somewhat delay trailing through southbound vehicle movements within Marsden Road, such trailing through vehicles are capable of overtaking decelerating vehicles accessing the site via the southbound centre travel lane. The proliferation of developments abutting Marsden Road increases the propensity of vehicles travelling within the kerb-side travel lanes of decelerating to access developments therefore increasing the general awareness of motorists to such activity and decreasing the likelihood of any unreasonable rear end conflicts.

Site egress left turn movements are to occur within gaps in the Marsden Road southbound travel lanes. Regular and extended gaps have been observed to occur within the southbound Marsden Road travel lanes associated with the operation of mid-block pedestrian signals to the west of Rickard Street and at Pennant Hills Road. These signals effectively punctuate southbound traffic flow allowing motorists to undertake left turn movements from development abutting the eastern side of Marsden Road and indeed, intersecting local roads such as Tomah Street. Motorists are accordingly projected to be able to undertake left turn egress movements from the site in an efficient manner.

The safety of site egress movements is generally considered to be a factor of the provision of sight distance between the frontage road and the site access driveway. Whilst Marsden Road provides a somewhat variable vertical and horizontal alignment in the vicinity of the subject site, observations have indicated that the proposed site access location provides a sight distance exceeds 160m to the north along Marsden Road towards Tomah Street.

Such a level of sight distance satisfactorily excess the minimum requirements for private vehicle access driveways connecting with a 60km/h frontage road specified by the Australian Standard for *Parking Facilities Part 1: Off-Street Car Parking* (AS2890.1-2004).

Further, the available sight distance along Marsden Road also satisfies the minimum Safe Intersection Sight Distance (SISD) requirements specified by Ausroads' *Guide to Road Design*, thereby indicating that the available sight distance provision along Marsden Road ensures that motorists are able to exit the subject site in a safe manner.

In consideration of this and the abovementioned discussion, the proposal is not expected to result in any unreasonable impacts on the safety and efficiency of the surrounding road network.

6.6 Projected Traffic Benefits

The proposal is expected to result in a number of benefits to the existing levels of safety and efficiency of the surrounding road network as follows:

- Right turn movements between the site and Marsden Road will be eliminated under the subject proposal;

- The proposal results in the rationalisation of the existing site access arrangements from three to one driveway; and

- The proposal is likely to result in a significant reduction in the traffic generating ability of the site during weekend retail peak periods.

7. CONCLUSION

This Practice has undertaken an assessment of the potential traffic related impacts resulting from a Planning Proposal seeking to amend Parramatta City Centre LEP 2011 to allow for the development of medium density residential buildings within a 12,884m^2 parcel of land providing a street address of 235 – 237 Marsden Road, Carlingford. Based on the findings of this assessment, the following is now concluded:

- The Proposal involves the redevelopment of the existing primarily retail nursery development to accommodate a series of medium density residential buildings comprising 48 dwellings and 94 car parking spaces with provision for visitors accounting for 12 of these spaces ;

- Vehicular access to the site is to be provided via a single access driveway connecting with Marsden Road, designed to restrict site access and egress movements to left in / left out movements only;

- The road network surrounding the subject site currently provides motorists with a good level of service and is capable of accommodating additional demands during peak weekday;

- The residential development is capable of generating up to approximately 24 weekday commuter peak hour vehicle trips to and from the site;

- Such a traffic generation represents an increase of approximately 12 vehicle trips over and above that generated by the existing site uses during weekday commuter peak periods;

- The expected level of additional traffic, representing one additional vehicle movement every five minutes during weekday commuter peaks) is not projected to result in any unreasonable impacts on the overall level of safety and efficiency of adjoining public road traffic flow;

- The proposed site access arrangements are projected to allow motorists to access and exit the site in a safe and efficient manner;

- The proposal is expected to result in a number of benefits to the existing levels of safety and efficiency of the surrounding road network as follows:

    - Right turn movements between the site and Marsden Road will be eliminated under the subject proposal;
    - The proposal results in the rationalisation of the existing site access arrangements from three to one driveway; and
    - The proposal is likely to result in a significant reduction in the traffic generating ability of the site during weekend retail peak periods.

It is our view that there are no traffic related issues associated with the Planning Proposal which would prevent this Practice from recommending the Proposal for approval.