



TRAFFIC & PARKING ASSESSMENT

MULTIPLE DWELLING RESIDENTIAL DEVELOPMENT

**LOT 1 IN DP 349727
26 - 61 NIKKO ROAD, WARNERVALE**

PREPARED FOR: KINGSTON PROPERTY FUND NO. 2 P/L

AMENDED MAY 2019

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Date 21st May 2019**Disclaimer**

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1. INTRODUCTION

Intersect Traffic Pty Ltd has been engaged by Kingston Property Fund No. 2 Pty Ltd to prepare a traffic and parking assessment report for a proposed multiple dwelling residential development on Lot 1 in DP 349727, 26 – 61 Nikko Road, Warnervale.

The site has frontage to Nikko Road and Kanowna Road, Warnervale and currently contains a dilapidated shed / residence. The proposal involves the demolition of the shed and the construction of 60 new town houses / villas on the existing lot. A single unformed driveway from Nikko Road currently provides vehicular access to the subject site. The proposal provides four new public roads and 63 vehicular accesses from the two existing road frontages and the four new public roads. The development concept plans are shown in **Attachment A**.

This report is required to support a development application to Central Coast Council and allow the Council to assess the proposal in respect of its impact on the local and state road network.

This report presents the findings of the traffic assessment and includes the following;

1. An outline of the existing situation near the site.
2. An assessment of the traffic impacts of the proposed development including the predicted traffic generation and its impact on existing road and intersection capacities.
3. Reviews parking, public transport, pedestrian and cycle way requirements for the proposed development, including assessment against Council and RMS standards and requirements.
4. Presentation of conclusions and recommendations.

2. SITE DESCRIPTION

The subject site is shown in **Figure 1** below. It is located on the south-eastern side of Nikko Road and the northern side of Kanowna Road, Warnervale approximately 600 metres northeast of Warnervale Road and the Warnervale railway station.



Figure 1 – Site Location

The site has a land title of Lot 1 in DP 349727 and is addressed as 26 - 61 Nikko Road, Warnervale. The site has a total area of 35,962 m² and is zoned R2 Low Density Residential and E3 – Environmental Management, pursuant to the Wyong LEP (2013).

The site has frontage to Nikko Road and Kanowna Road and currently has one existing vehicular access servicing the existing dwelling on the site.

Photographs 1 & 2 below show the site and access from Kanowna Road and the site and development from Nikko Road respectively.



Photograph 1 - Site and existing development from Kanowna Road



Photograph 2 - Site and existing access from Nikko Road

3. EXISTING ROAD NETWORK

3.1 Warnervale Road / Albert Warner Drive

Warnervale Road runs east west and connects to Sparks Road to the east. Warnervale Road connects to Albert Warner Drive at the railway crossing just west of Nikko Road and continues west to Sparks Road to the west. Under a functional road hierarchy Warnervale Road functions as a local collector road connecting Sparks Road, residential areas in Warnervale, the railway station and Nikko Road. It is under the care and control of the Central Coast Council. Near the site, it has a sealed carriageway and provides a single lane of travel in each direction. To the east of Nikko Road, the road generally has a sealed width of approximately 7 metres with grassed, gravel or sealed shoulders of variable width with some kerb and gutter.

A 50 km/h speed zoning exists in Warnervale Road and at the time of inspection the road was observed to be in fair to poor condition. Albert Warner Drive, west of the railway line, is similar in construction to Warnervale Road. **Photograph 4** shows Warnervale Road near the site



Photograph 3 - Warnervale Road east of Nikko Road

3.2 Nikko Road

Nikko Road is a 900-metre-long residential street that runs from Warnervale Road at the Warnervale railway station northeast to a dead-end turning area. Under a functional road hierarchy Nikko Road is a local road and is therefore under the care and control of the Central Coast Council. Near the site, it provides a single lane of travel in each direction. The road has a variable sealed width of between 4.5 metres and 7 metres with grassed and / or gravel shoulders of variable width and table drains.

A 50 km/h speed zoning exists in Nikko Road and at the time of inspection the road was observed to be in fair to poor condition. **Photograph 5** shows Nikko Road adjacent to the site.



Photograph 4 - Nikko Road near the site

3.3 Kanowna Road

Kanowna Road is a 290-metre-long residential street that runs from Nikko Road west to a dead-end turning area. Its southern side is completely developed, currently with 12 dwellings. Under a functional road hierarchy Kanowna Road is a local road and is therefore under the care and control of the Central Coast Council. Near the site, it provides a single lane of travel in each direction. The road has a sealed width of approximately 5.5 metres with grassed and / or gravel shoulders of variable width and table drains. A 50 km/h speed zoning exists in Kanowna Road and at the time of inspection the road was observed to be in fair condition. **Photograph 5** shows Kanowna Road adjacent to the site and residential dwellings opposite the development.



Photograph 5 - Kanowna Road adjacent to the site

4. ROAD NETWORK IMPROVEMENTS

Recent upgrading of Sparks Road between Virginia Road and Hiawatha Road (east of Virginia Road) has been undertaken by the NSW Roads and Maritime Services to improve intersections at the new Warnervale Town Centre and Minnesota Road including the provision of traffic signals. This work has included off road infrastructure for pedestrians and cyclists.

Further Wyong Council have previously advised that the intersection of Warnervale Road and Virginia Road is to be upgraded to a roundabout associated with DA/664/2014. It would also be expected that Council would require the upgrading of both Nikko Road and Kanowna Road as part of this development so that they complied with their normal requirements for urban development within the Central Coast Council Wyong DCP (2013).

Many other residential subdivisions are proposed in and around Warnervale Road at present resulting in the upgrade of Warnervale Road to urban residential road construction. Other improvements to the local road network may be undertaken in the future in line with Central Coast Council's and NSW Roads and Maritime Services Works Programs.

5. TRAFFIC VOLUMES

As part of this traffic assessment, Intersect Traffic undertook traffic data collection via manual traffic counts during the AM (29 June 2017) and PM (28 June 2017) peak hour traffic periods at the T-intersection of Warnervale Road and Nikko Road for assessment of current traffic conditions near the proposed development. The peak hour periods for the intersection count were 8.00 am – 9.00 am in the morning and 3.00 pm – 4.00 pm in the evening being determined from previous manual traffic counts at nearby intersections. The 2017 peak hour traffic volume data tally sheets collected as part of this assessment are provided within **Attachment B**.

To estimate the 2027 traffic without this development these counts have been increased using a 1% per annum background traffic growth for Nikko Road while a 5% per annum background traffic growth for Warnervale Road has been adopted due to the strong development growth in the area. The 2017 and projected 2027 AM and PM peak hour traffic volumes are presented in **Table 1** below.

Table 1 – 2017 and Predicted 2027 peak hour traffic volumes

Road	Section	2017		2027	
		AM (vtph)	PM (vtph)	AM (vtph)	PM (vtph)
Warnervale Road	West of Nikko Road	183	162	298	264
Warnervale Road	East of Nikko Road	210	197	342	321
Nikko Road	North of Warnervale Road	71	73	78	81

The maximum peak hour traffic volumes adopted for this assessment are therefore as follows;

- ◆ Warnervale Road - 2017 – 210 vtpm two way & 2027– 342 vtpm two way and
- ◆ Nikko Road - 2017 – 73 vtpm two way & 2027– 85 vtpm two way.

6. ROAD CAPACITY

The capacity of the road network is generally determined by the capacity of intersections. However, RMS' *RTA's Guide to Traffic Generating Developments* provides some guidance on mid-block capacities and likely levels of service.

For urban roads *Table 4.3 and 4.4* of the RMS' *RTA's Guide to Traffic Generating Developments*, reproduced below, provides some guidance on mid-block capacities and likely levels of service.

Table 4.3
Typical mid-block capacities for urban roads with interrupted flow

Type of Road	One-Way Mid-block Lane Capacity (pcu/hr)	
Median or inner lane:	Divided Road	1,000
	Undivided Road	900
Outer or kerb lane:	With Adjacent Parking Lane	900
	Clearway Conditions	900
	Occasional Parked Cars	600
4 lane undivided:	Occasional Parked Cars	1,500
	Clearway Conditions	1,800
4 lane divided:	Clearway Conditions	1,900

Table 4.4
Urban road peak hour flows per direction

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Source: - RTA's Guide to Traffic Generating Developments (2002)

A desirable level of service on an urban road is generally considered to be a level of service (LoS) C or better. Noting, a LoS D on a single lane of flow occurs when mid-block traffic volumes exceed 900 vtp, the one way one lane mid-block traffic volume threshold for a LoS C is 900 vtp. This means the two-way two-lane mid-block traffic volume threshold for a LoS C for Warnervale Road, Nikko Road and Kanowna Road is 1,800 vtp.

Therefore, it is considered that Warnervale Road, Nikko Road and Kanowna Road near the site have a two-way mid-block road capacity of 1,800 vtp. However, Nikko Road and Kanowna Road as local residential streets have an environmental capacity goal of a maximum of 300 vtp (Table 4.6 of *RTA's Guide to Traffic Generating Developments (2002)*) therefore traffic volumes on Nikko Road and Kanowna Road should ideally remain below 300 vtp to ensure a suitable level of residential amenity remains in the street.

7. ALTERNATE TRANSPORT MODES

Public transport in the area is provided in the form of buses and trains. The Warnervale train station is located approximately 700 metres walking distance from the centre of the site. The intersection of Warnervale Road and Nikko Road adjacent to the Warnervale railway station is shown in **Photograph 6** below.



Photograph 6 – Warnervale Railway Station

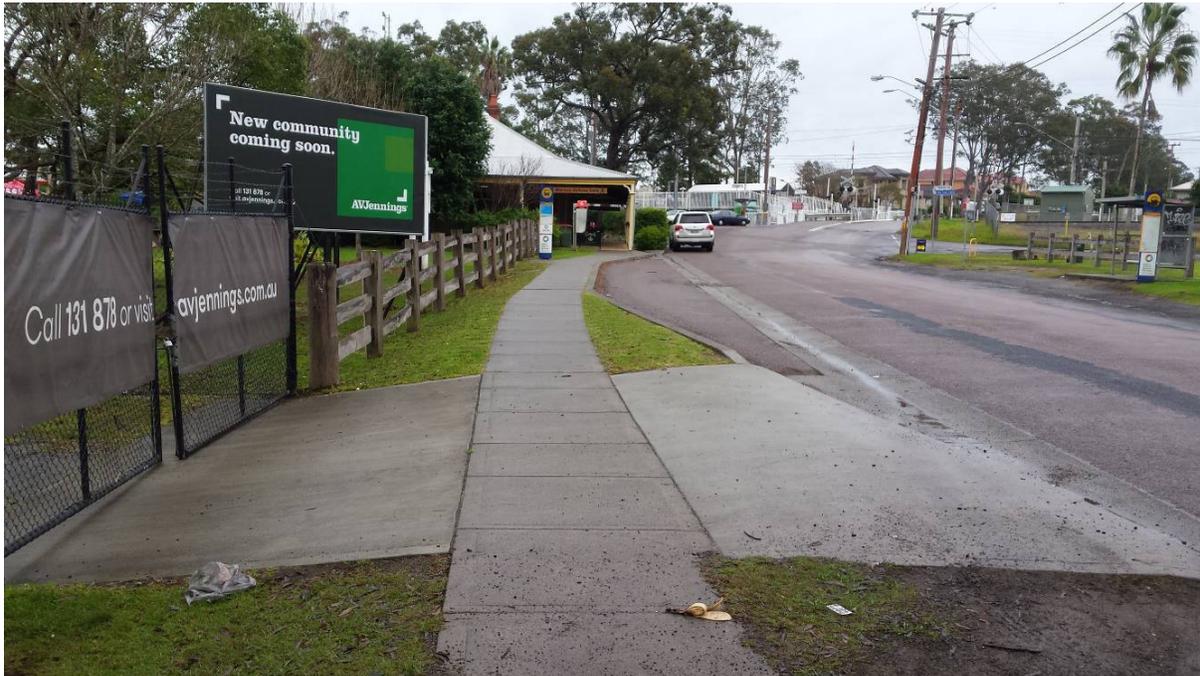
Bus services are provided by Busways and Coastal Liner bus companies travelling frequently 7 days a week. Bus routes 11 and 78 travel along Warnervale Road past Nikko Road providing convenient public transport access either directly or via connection to other bus and train services. Access is provided to many nearby railway stations facilitating train travel north towards Newcastle and beyond and south towards Gosford and Sydney.

Access to local areas and shopping centres including Lake Haven Shopping Centre and Westfield Tuggerah is facilitated as well. Route maps for these public bus services are provided within **Attachment C**. School bus services (Routes 2119, 2120 and 2152) also provide a convenient morning pick up and afternoon drop off service in Warnervale Road for students during school terms.

Bus stops are provided within convenient walking distance approximately 700 metres south of the site with **Photograph 7** showing the nearby bus stops on Warnervale Road opposite and adjacent to its intersection with Nikko Road.

Footpaths are predominately grass or non-existent in Nikko Road and Kanowna Road, with pedestrians needing to utilise the road shoulders in some locations. However, a 1.2-metre-wide concrete footpath exists along the southern side of Warnervale Road from opposite Nikko Road and runs east for a length of approximately 300 metres as can be seen in **Photograph 7** and **Photograph 8** below. North-west of the site pedestrian crossing facilities are provided within the signalised intersection of Warnervale Road, the unnamed road to the south and the private school access road. Short lengths of 2.5-metre-wide concrete shared pathways are provided on either side of Warnervale Road adjoining this intersection for future connections to other areas. On road cycleways and off-road shared pathways exist along the roadway fronting the school. **Photograph**

9 shows the cycleway and pedestrian transport facilities in and around the school access at its intersection with Warnervale Road. Current pedestrian traffic volumes on these footpaths are however low outside of school periods.



Photograph 7 – Bus stops – Warnervale Road opposite and adjacent to Nikko Road.



Photograph 8 – Footpath – Warnervale Road east of Nikko Road.



Photograph 9 – Pedestrian / cycleway facilities – within the vicinity of Lakes Grammar

8. DEVELOPMENT PROPOSAL

The proposed development involves the construction of a multiple dwelling housing development containing 60 new residential units on Lot 1 in DP 349727, 26 – 61 Nikko Road, Warnervale. The site has frontage to Nikko Road and Kanowna Road, Warnervale and currently contains a dilapidated shed / residence. The proposal involves the demolition of the shed and the construction of 60 new dwellings on the existing lot. A single unformed driveway from Nikko Road currently provides vehicular access to the subject site. The proposal provides four new public roads and 63 vehicular accesses from the two existing road frontages and the new public roads. The development concept plans are shown in **Attachment A**.

Specifically, the development consists of the following;

- ◆ Demolition of the existing shed on the site;
- ◆ Construction of:
 - Fifty-seven (57) four-bedroom dwellings; and
 - Three (3) three-bedroom dwellings.
- ◆ Construction of four new public roads and a residue lot for future development;
- ◆ Upgrading of Nikko Road and Kanowna Road along the site frontage as required to comply with Central Coast Council's Wyong DCP requirements for urban roads;
- ◆ Construction of 63 vehicular accesses;
- ◆ At least one hundred and twenty (120) on-site car parking spaces with each dwelling having at least a single garage and a stacked car park in front of the garage or a double garage; and
- ◆ Construction of drainage and landscaping.

All construction will be to Central Coast Council's (Wyong DCP) standards. The development concept plans are shown in **Attachment A**.



9. TRAFFIC GENERATION

The RMS' *Guide to Traffic Generating Development's* and the RMS *Technical Direction TDT 2013/04* provides specific advice on the traffic generation potential of various land uses.

Regarding low density residential dwellings, the following advice is provided within the TDT for regional areas.

Rates:

Daily vehicle trips = Average 7.4 per dwelling in regional areas.

PM peak (1) hour = 0.78 per dwelling in regional areas. (Maximum 0.9)

AM peak (1) hour = 0.71 per dwelling in regional areas. (Maximum 0.85)

Therefore, the additional traffic generated by the proposed subdivision can be calculated as:

$$\begin{aligned} \text{Daily trips} &= 60 \times 7.4 \text{ vtpd} \\ &= \mathbf{444 \text{ vtpd}.} \end{aligned}$$

$$\begin{aligned} \text{PM peak hour trips} &= 60 \times 0.9 \text{ vtpd} \\ &= \mathbf{54 \text{ vtpd}.} \end{aligned}$$

$$\begin{aligned} \text{AM peak hour trips} &= 60 \times 0.85 \text{ vtpd} \\ &= \mathbf{51 \text{ vtpd}.} \end{aligned}$$

These peak hour traffic generation values have been adopted in this assessment for the AM and PM peak hour periods.

This traffic needs to be distributed through the road network and the following likely development distribution has been adopted for this assessment.

- ◆ In the AM, peak 80 % of traffic is outbound and 20 % of traffic is inbound;
- ◆ In the PM peak 20 % of traffic is inbound and 80 % of traffic is outbound; and
- ◆ In both the AM and PM peaks traffic will have to and from origin / destinations 70 % east and 30 % west.

The resulting trip distribution is presented diagrammatically in **Figure 2** below;

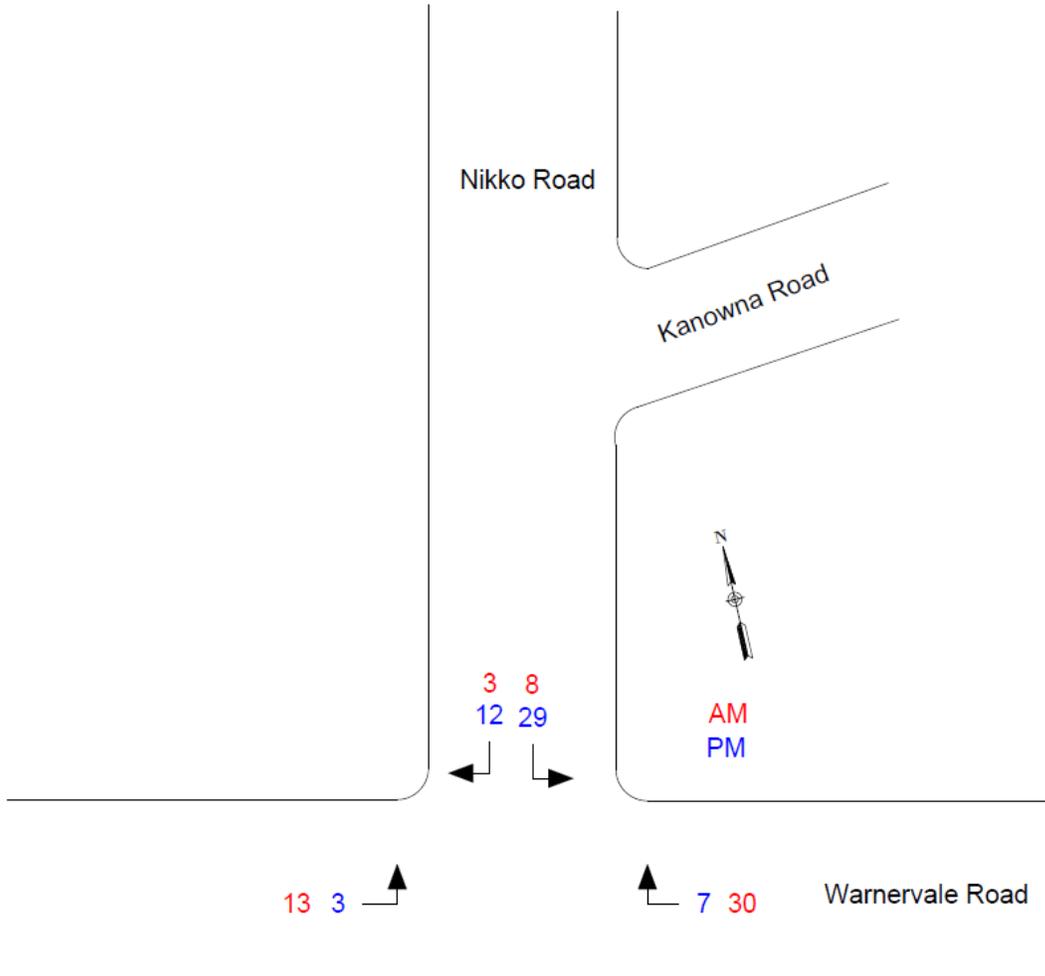


Figure 2 – Development Trip Distribution



10. TRAFFIC IMPACTS

10.1 Road Network Capacity

This assessment determined in **Section 5** of this report that Warnervale Road currently has peak hour traffic volumes in the order of 210 vtpm which could be expected to increase up to 342 vtpm in 2027 and Nikko Road currently has peak hour traffic volumes in the order of 73 vtpm which could be expected to increase up to 81 vtpm in 2027. **Section 6** of this report determined that the likely 'LoS C' mid-block two-way capacity of Warnervale Road and Nikko Road is in the order of 1,800 vtpm. This indicates that Warnervale Road and Nikko Road are operating within their technical two-way mid-block capacities during peak traffic periods. This was confirmed by observation on site.

Section 9 of this report determined that the proposed residential development is likely to generate approximately an additional (see Figure 2);

- ◆ 51 vtpm and 54 vtpm in the AM and PM peaks respectively in Nikko Road;
- ◆ 36 vtpm and 38 vtpm in the AM and PM peaks respectively in Warnervale Road east; and
- ◆ 15 vtpm and 16 vtpm in the AM and PM peak respectively in Warnervale Road west.

The addition of this traffic onto the 2017 traffic volumes determined in **Section 5** will not result in the capacity thresholds for the local road network determined in **Section 6** to be reached. Further, consideration of likely 2027 traffic volumes indicates the mid-block traffic capacity thresholds are still not reached as demonstrated in **Table 2** below

Table 2 - Road Capacity Assessment – post development

Road	Section	2017		2027		Road Capacity	Development Traffic	
		AM (vtpm)	PM (vtpm)	AM (vtpm)	PM (vtpm)		AM	PM
Warnervale Road	West of Nikko Road	198	178	313	280	1800	15	16
Warnervale Road	East of Nikko Road	246	235	378	359	1800	36	38
Nikko Road	North of Warnervale Road	122	127	129	135	300	51	54

As such the proposal, will not adversely impact on the mid-block traffic flows on the local road network both post development and through to 2027 with the addition of the relevant background traffic growths of 1 % per annum for Nikko Road and 5 % per annum for Warnervale Road respectively.

Further traffic volumes on Nikko Road and Kanowna Road will remain below 300 vtpm therefore even with the proposed development traffic the environmental capacity goals for a residential street are not reached. Therefore, the proposal will not adversely impact on the residential amenity of existing residents in these roads.

10.2 Intersection Capacity

In assessing intersection performance, it is noted that at the intersection of Warnervale Road and Nikko Road post development traffic volumes will likely have maximum peak hour volumes of 380 vtpm and 144 vtpm, respectively. The intersection at Nikko Road and Kanowna Road and the intersections of the two new subdivision roads with these roads will also have less traffic than the traffic volumes on Nikko Road.

The traffic volumes at the existing Warnervale Road and the Nikko Road intersection, the existing Nikko Road and Kanowna Road intersection and at all of the new intersections created by the development are below the major and minor road flow thresholds respectively contained in the below table, taken from Austroads *Guide to Traffic Management – Part 6 – Intersections*,

Interchanges & Crossings (2009,) for which the guide states a detailed analysis to demonstrate adequate capacity is available is unlikely to be necessary as uninterrupted flow conditions would prevail.

Major road type ¹	Major road flow (vph) ²	Minor road flow (vph) ³
Two-lane	400	250
	500	200
	650	100
Four-lane	1000	100
	1500	50
	2000	25

Notes:

1. Major road is through road (i.e. has priority).
2. Major road flow includes all major road traffic with priority over minor road traffic.
3. Minor road design volumes include through and turning volumes.

Source: - *Austrroads Guide to Traffic Management Part 6 Intersections, Interchanges and Crossings (2009)*.

Therefore, all the intersections created by the development would operate with uninterrupted flow conditions post development and the existing intersections of Warnervale Road / Nikko Road and Nikko Road / Kanowna Road as constructed would meet Austrroads requirements.

It is therefore concluded that no further intersection analysis is considered necessary and the development will not adversely impact on the efficiency of the local road network.

10.3 Access

Under *Austrroads Guide to Road Design Part 4A – Unsignalised and Signalised Intersections (2009)* new intersections within a 50 km/h speed zone should provide the following minimum sight distance;

- ◆ Safe Intersection Sight Distance (SISD) – 90 metres; and
- ◆ Approach Sight Distance (ASD) – 50 metres.

By observation on site and due to the relatively flat terrain in the area as well as the straight alignment of all roads it is considered that these sight distance criteria would be met at the proposed subdivision access road locations. This would however need to be confirmed at the detailed design stage for the intersections.

Access to and within the development is to meet the requirements of Central Coast Council's Central Coast Council's, *Wyong Shire Council's Development Control Plan (DCP) No. 13 – Part 2 Development Provisions Chapter 2.11 Parking and Access* which predominately requires compliance with Australian Standard *AS2890.1 – 2004 Parking facilities – Part 1 Off-street car parking*. **Table 3** below describes the specific standard element, dimension / category, reference to Australian Standard *AS2890.1 – 2004 Parking facilities – Part 1 Off-street car parking*, application and whether the development plans comply. The table is also utilised for **Section 10.3** in relation to internal transport and parking.

Table 3 – Parking and Access Assessment – Wyong DCP (2013).

Wyong Shire Council's DCP 13 Part 2 - Development Provisions Chapter 2.11 Parking and Access				
Standard Element	Dimension (min)	AS Reference	Application	Compliance
*Sight distance for access driveways	45 metres	Section 2, Figure 3.2	All road accesses (50km/h)	√
Parking user class	1A	Section 2, Table 1.1	Residential turnover rate application	√
Access facility category	1	Section 2, Table 3.1	Access 1 - 4 dwellings	√
*Driveway access width	3.0 metres	Section 2, Table 3.2, Cat 1	Access 1 - 4 dwellings	√
*Internal Circulation Width	5.8 metres	Section 2, Figure 2.2, Cl 1A	Two way access to 4 villas	√
Apron widths for enclosed garages	7.0 metres	Section 2, Figure 5.4	Single garage doorway width 2.4 metres	√
Queuing Capacity	1 vehicles (6m)	Section 2, Table 3.3	2 cars in access to 4 villas	√
Car space widths	2.4 metres - 90 ⁰	Section 2, Figure 2.2, Cl 1A	Garage and stacked parking spaces	√
Car space lengths	5.4 metres - 90 ⁰	Section 2, Figure 2.2, Cl 1A	Garage and stacked parking spaces	√

The following information is noted.

*By observation on site and due to the relatively flat terrain in the area as well as the straight alignment of Nikko Road, Kanowna Road and internal subdivision roads it is considered that these sight distance criteria would be met at the proposed vehicular access locations. This would however need to be confirmed at the detailed design stage of the vehicular accesses. The sight distance for driveways near intersections maybe less than the minimum requirement of 45 metres, however as the practical speed environment of 30 km/h or less will occur for vehicles negotiating corners at intersections the likely sight distances are considered adequate.

*Driveway access widths appear to comply in most instances however some appear by scale to be slightly deficient. These need to be adjusted to be a minimum of 3.0 metres in width.

*Whilst the internal driveway width for the 4 villas (dwellings 301 – 312) is 4.0 metres wide Clause 3.2.2 of Australian Standard *AS2890.1 – 2004 Parking facilities – Part 1 Off-street car parking* states that consideration be given for widths down to 3.0 metres for low volume (Category 1) circulation driveways and as a guide, 30 or more movements in a peak hour (in and out combined) would usually require two vehicles to pass on the driveway. On long driveways passing opportunities should be provided at least every 30 metres. This would require at least one passing opportunity mid-way along the internal driveway. One passing area in the driveway has been provided therefore, in relation to circulation and passing width of the driveway it is considered the driveway complies with Australian Standard *AS2890.1 – 2004 Parking facilities – Part 1 Off-street car parking*.

Overall it is concluded that these dimensions for the proposed vehicular access to the site, internal circulation widths, queuing capacity, apron access to garages and carpark space dimensions would comply with Central Coast Council's *Wyong Shire Council's Development Control Plan (DCP) No. 13 – Part 2 Development Provisions Chapter 2.11 Parking and Access* and Australian Standard *AS2890.1 – 2004 Parking facilities – Part 1 Off-street car parking* subject to driveway widths being suitable.

Overall it is considered that the proposed subdivision access and driveway arrangements constructed to Central Coast Council requirements are suitable for the scale of the development and the road environment around the site.

10.4 On-site car parking

The quantity of on-site car parking provision needs to be in accordance with Central Coast Council's *Wyong Shire Council's Development Control Plan (DCP) 2013 – Part 2 Development Provisions Chapter 2.11 Parking and Access* while the design of the on-site car parking needs to be in accordance with Australian Standard *AS2890.1 – 2004 Parking facilities – Part 1 Off-street car parking*.

Wyong DCP 2013 requires:

- ◆ 1 space per dwelling if 3 or less bedrooms;
- ◆ 2 spaces per dwelling if 4 or more bedrooms; with
- ◆ At least one fully enclosed garage carpark is required for new dwelling houses in urban areas

Each dwelling has a double garage or at least 1 garage parking space and 1 stacked parking space in front of the garage with a minimum parking dimension of 5.5 metres by 2.4 metres within the boundary of the dwelling property and therefore complies.

Overall it is concluded that the proposed on-site car parking supply and layout is suitable and compliant with *Wyong Shire Council's Development Control Plan (DCP) 2013 – Part 2 Development Provisions Chapter 2.11 Parking and Access* and Australian Standard *AS2890.1 – 2004 Parking facilities – Part 1 Off-street car parking*.

10.5 Pedestrian & Cycleway Facilities

It is likely that the proposed development as a residential development will generate some pedestrian and cycle traffic and a nexus would exist to provide suitable pedestrian and cycle infrastructure as required by Wyong Shire Council's subdivision standards.

It is noted from Figure 5 of Chapter 6.5 Warnervale South of Wyong Council's DCP 2013 (reproduced as **Figure 3** below) that a shared path along the southern side of Warnervale Road and an on-road cycleway along the northern side of Warnervale Road is required for this area. A shared path is also required along Nikko Road from Warnervale Road to Kanowna Road, Kanowna Road from Nikko Road to its dead-end and from the dead-end south to create a loop back to Warnervale Road. This infrastructure within the frontage of the site will need to be accommodated in road design plans for the development. These facilities would benefit future residents of the development particularly as they extend with further development in the area.

Contribution to external facilities aside from immediate connections would be more appropriately dealt with by S94 developer contributions or a voluntary planning agreement to ensure a fair and reasonable contribution is made to these facilities.

10.6 Public Transport Facilities

The proposed development is likely to generate some additional public transport usage particularly regarding school bus services. It is however unlikely given the scale of the development and the adequacy of the existing service that the additional demand would be enough to require any changes to the existing service.

It is therefore concluded that the existing public transport service is considered satisfactory to cater for the additional demand from the proposed residential subdivision though additional seats and shelters could be provided to benefit future residents of the development.

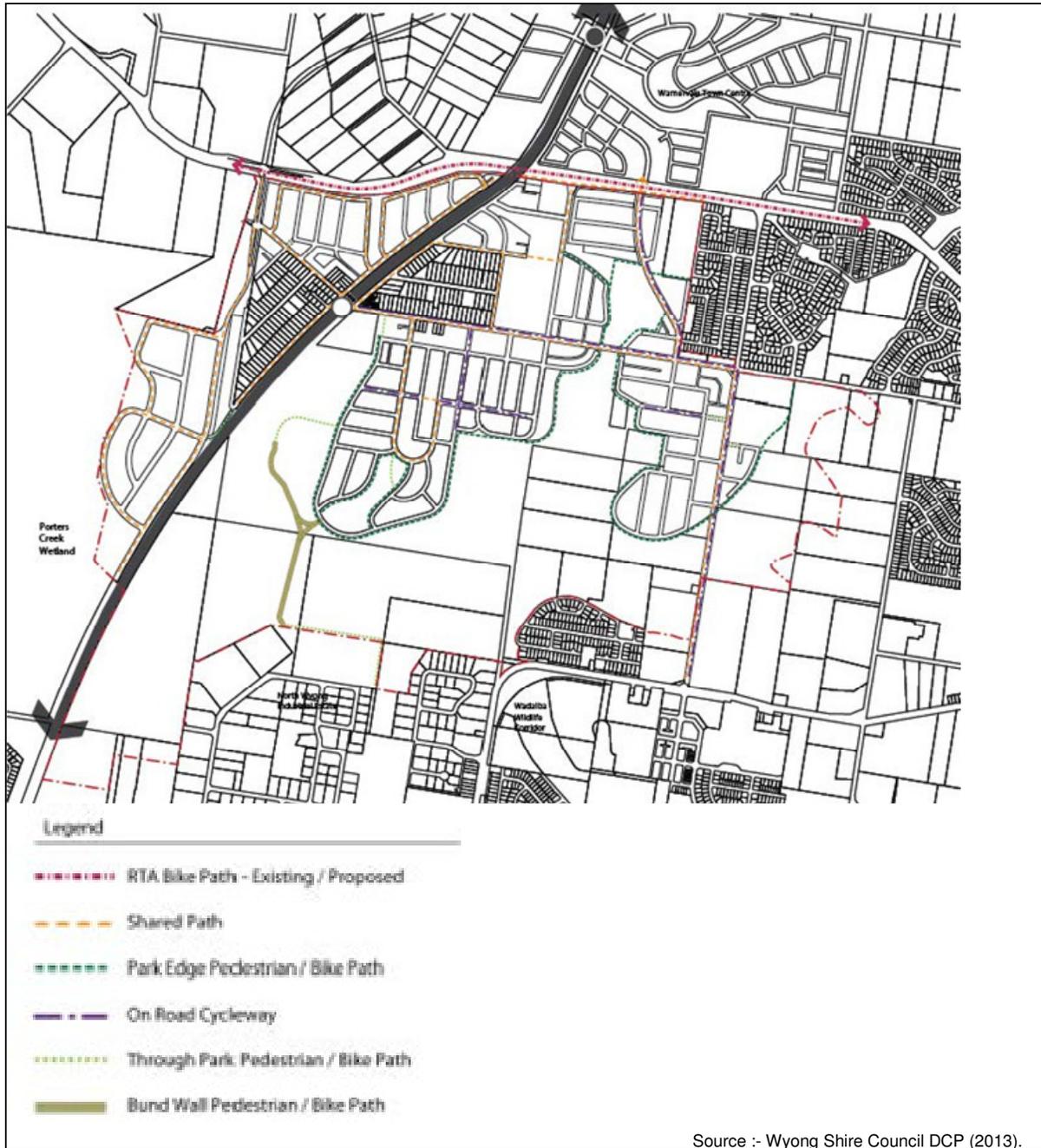


Figure 2 – Cycleway Plan – Warnervale South

11. CONCLUSIONS

This traffic and parking assessment of a proposed multiple dwelling residential development on Lot 1 in DP 349727, 26 – 61 Nikko Road, Warnervale has concluded the following:

- ◆ The proposed development is only likely to generate an additional 54 vtpd on Nikko Road and the local road network during the weekday PM peak traffic periods or 444 vtpd.
- ◆ The local road network around the site has sufficient spare capacity to cater for the development.
- ◆ The proposed development does not adversely impact on the local road network.
- ◆ The existing intersections Warnervale Road / Nikko Road and Nikko Road / Kanowna Road and all the new intersections created by the development will operate with uninterrupted flow conditions post development.
- ◆ With Central Coast Council likely to require upgrading of Nikko Road and Kanowna Road along the site frontage of the development the existing road network will be suitable to cater for the proposed development.
- ◆ The proposed vehicular access to and within the site is suitable and would comply with Wyong Shire Council's Development Control Plan (DCP) 2013 – Part 2 Development Provisions Chapter 2.11 Parking and Access and Australian Standard *AS2890.1 – 2004 Parking facilities – Part 1 Off-street car parking*.
- ◆ The proposed on-site car parking supply and layout is suitable and would comply with Wyong Shire Council's Development Control Plan (DCP) 2013 – Part 2 Development Provisions Chapter 2.11 Parking and Access and Australian Standard *AS2890.1 – 2004 Parking facilities – Part 1 Off-street car parking*.
- ◆ The development will generate additional pedestrian and cycle traffic and appropriate infrastructure should be provided within the frontage of the development in accordance with Central Coast Council's (Wyong Shire Council) subdivision requirements and the provisions identified in Figure 5 of Chapter 6.5 Warnervale South within Wyong Shire Council's DCP 2013.
- ◆ Contribution to external pedestrian and cycle facilities aside from immediate connections would be more appropriately dealt with by S94 developer contributions or a voluntary planning agreement to ensure a fair and reasonable contribution is made to these facilities.
- ◆ The site is suitably serviced by public transport (buses) provided by Busways Central Coast and Coast Liner bus companies. This existing public transport service is considered satisfactory to cater for the additional demand from the proposed residential development though additional seats and shelters could be provided to benefit future residents of the development.

12. RECOMMENDATION

Having carried out this traffic impact assessment for the proposed multiple dwelling residential development on Lot 1 in DP 349727, 26 – 61 Nikko Road, Warnervale it is recommended that the proposal can be supported from a traffic perspective as it will not adversely impact on the local and state road network and would comply with the requirements of Central Coast Council, Australian Standards, Austroads and NSW Roads and Maritime Services.


JR Garry BE (Civil), Masters of Traffic
Director
Intersect Traffic Pty Ltd

ATTACHMENT A

DEVELOPMENT PLANS

ATTACHMENT B

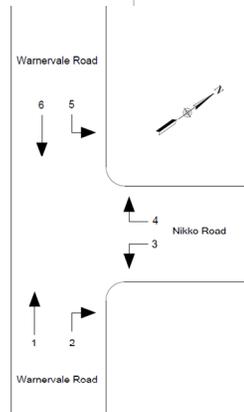
TRAFFIC DATA

Date	29/06/2017					
Day	Thursday					
Time	8:00am - 9:00am					
Weather	Overcast					
Conducted by:	Peter					



MOVEMENT	1	2	3	4	5	6
8:00 - 8:15	25	9	9	5	1	13
8:15 - 8:30	37	3	5	3	3	29
8:30 - 8:45	15	7	6	1	4	15
8:45 - 9:00	12	3	7	4	1	15
SUM	89	22	27	13	9	72
PEAK	89	22	27	13	9	72

Leg	PHT (vph)
Warnervale Road NW	183
Warnervale Road SE	210
Nikko Road	71

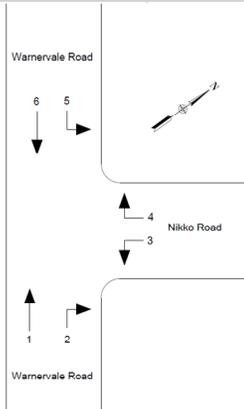


Date	28/06/2017					
Day	Wednesday					
Time	3.00 pm - 4.00 pm					
Weather	Overcast					
Conducted by:	Peter					



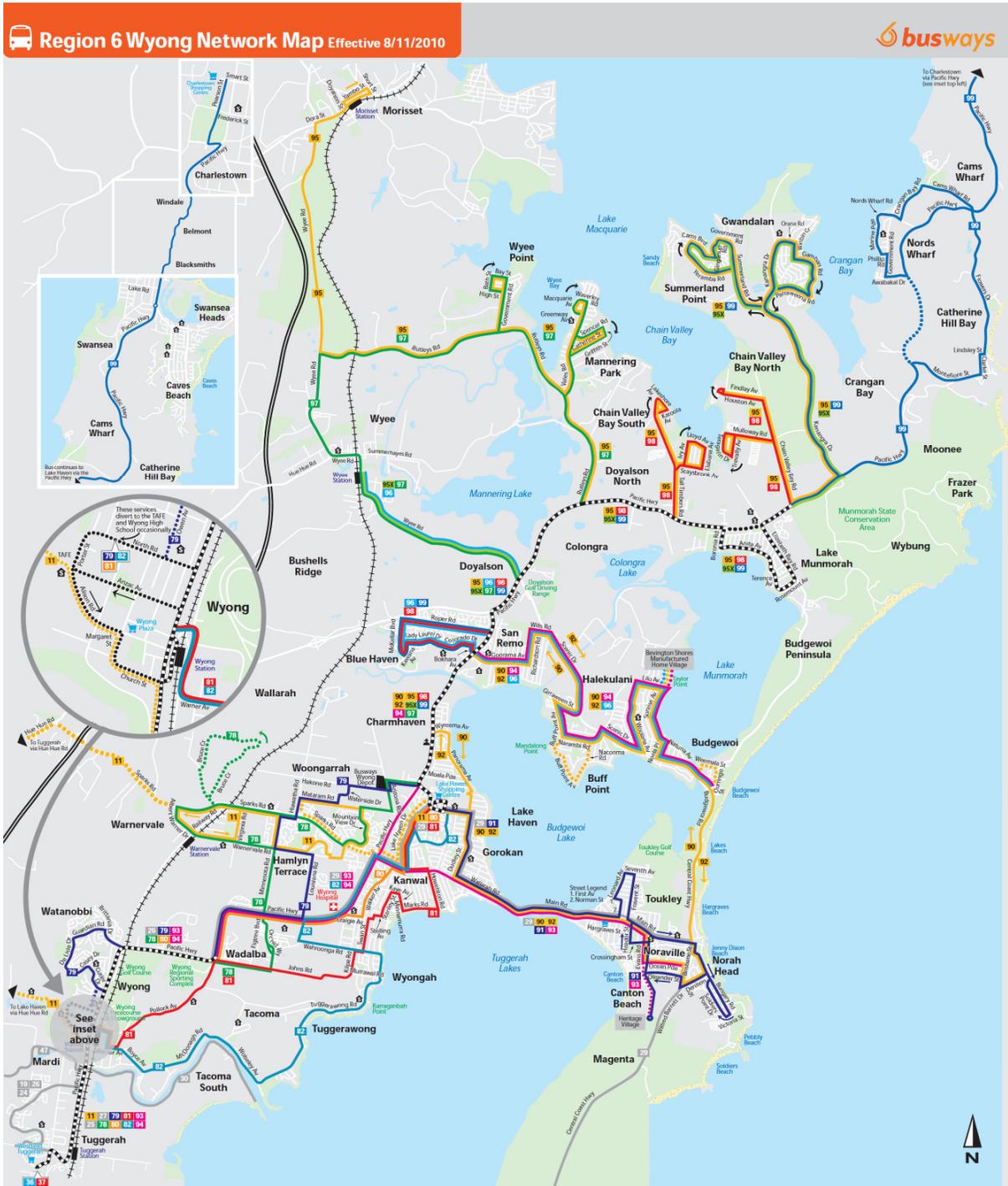
MOVEMENT	1	2	3	4	5	6
3:00 - 3:15	23	9	7	2	3	18
3:15 - 3:30	13	7	6	2	1	8
3:30 - 3:45	25	5	6	2	4	15
3:45 - 4:00	24	5	9	3	2	17
SUM	85	26	28	9	10	58
PEAK	85	26	28	9	10	58

Leg	PHT (vph)
Warnervale Road NW	162
Warnervale Road SE	197
Nikko Road	73



ATTACHMENT C

BUS ROUTE MAPS



- 11** Warnervale - Woongarah (occasional trips to Wyong/Tuggerah)
- 78** Wyong - Tuggerah - Lake Haven via Warnervale Station & Wadalba
- 79** Wyong - Tuggerah - Lake Haven via Watanobbi & Louisiana Rd
- 80** Wyong - Tuggerah - Lake Haven via Wyong Hospital & Walker Av
- 81** Wyong - Tuggerah - Lake Haven via Pollock Av & Johns Rd
- 82** Wyong - Tuggerah - Lake Haven via Wyongah & Tacoma
- 90** Lake Haven - Toukley - Norville - Budgewoi - Buff Point - San Remo (anti-clockwise loop)
- 91** Lake Haven, Toukley, Norville & Norah Head

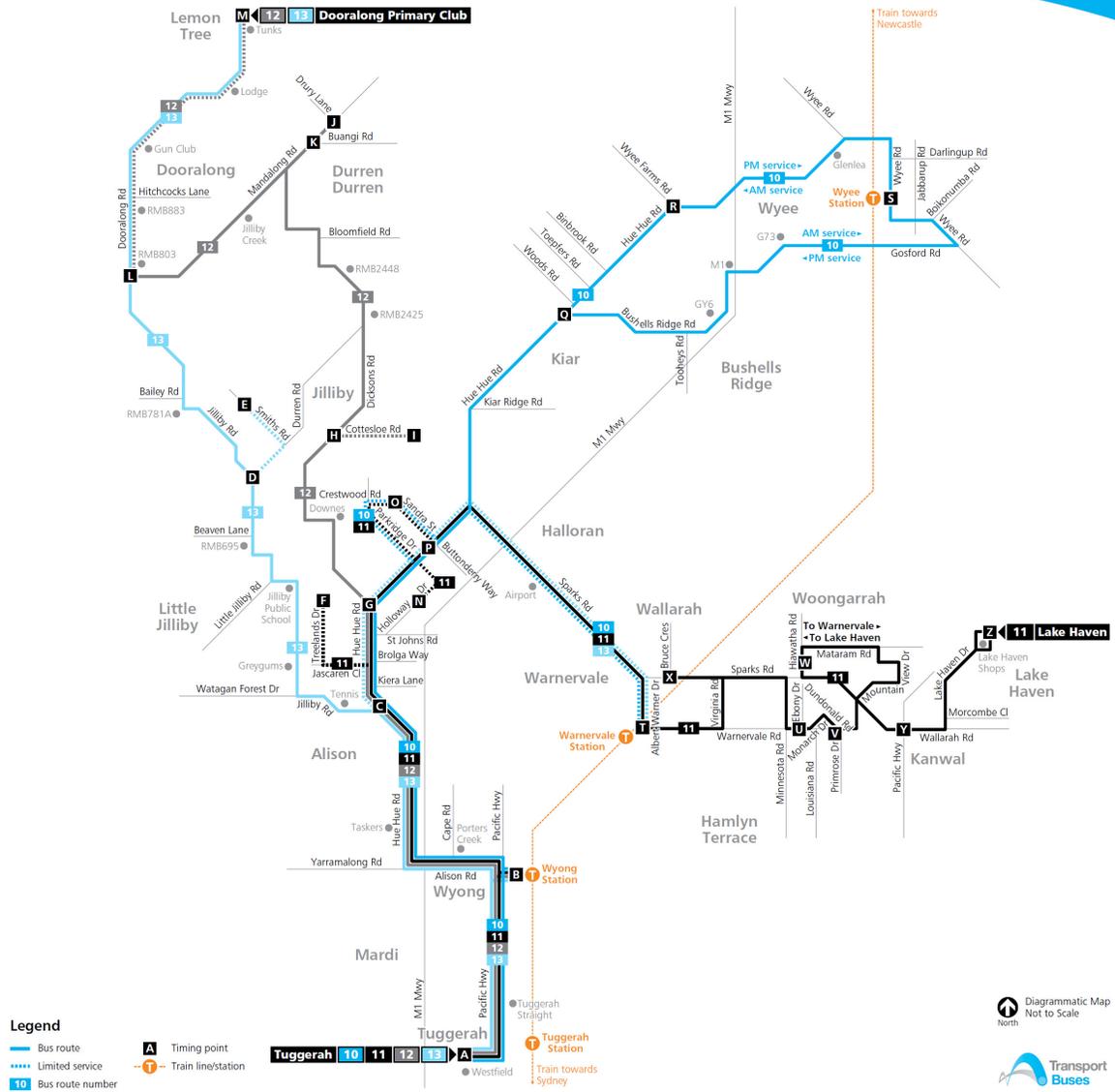
- 92** Lake Haven - San Remo - Buff Point - Budgewoi - Norville - Toukley (clockwise loop)
- 93** Wyong - Tuggerah - Norville via Toukley
- 94** Wyong - Tuggerah - Budgewoi via San Remo
- 95** Lake Haven - Gwandalan - Lake Munmorah - Morisset
- 95X** Lake Haven - Gwandalan - Lake Munmorah - Wyee
- 96** Wyee - Blue Haven - San Remo - Budgewoi
- 97** Lake Haven - Wyee - Mannering Park
- 98** Lake Haven - Blue Haven - Chain Valley Bay
- 99** Lake Haven - Blue Haven - Gwandalan - Swansea - Charlestown

Legend

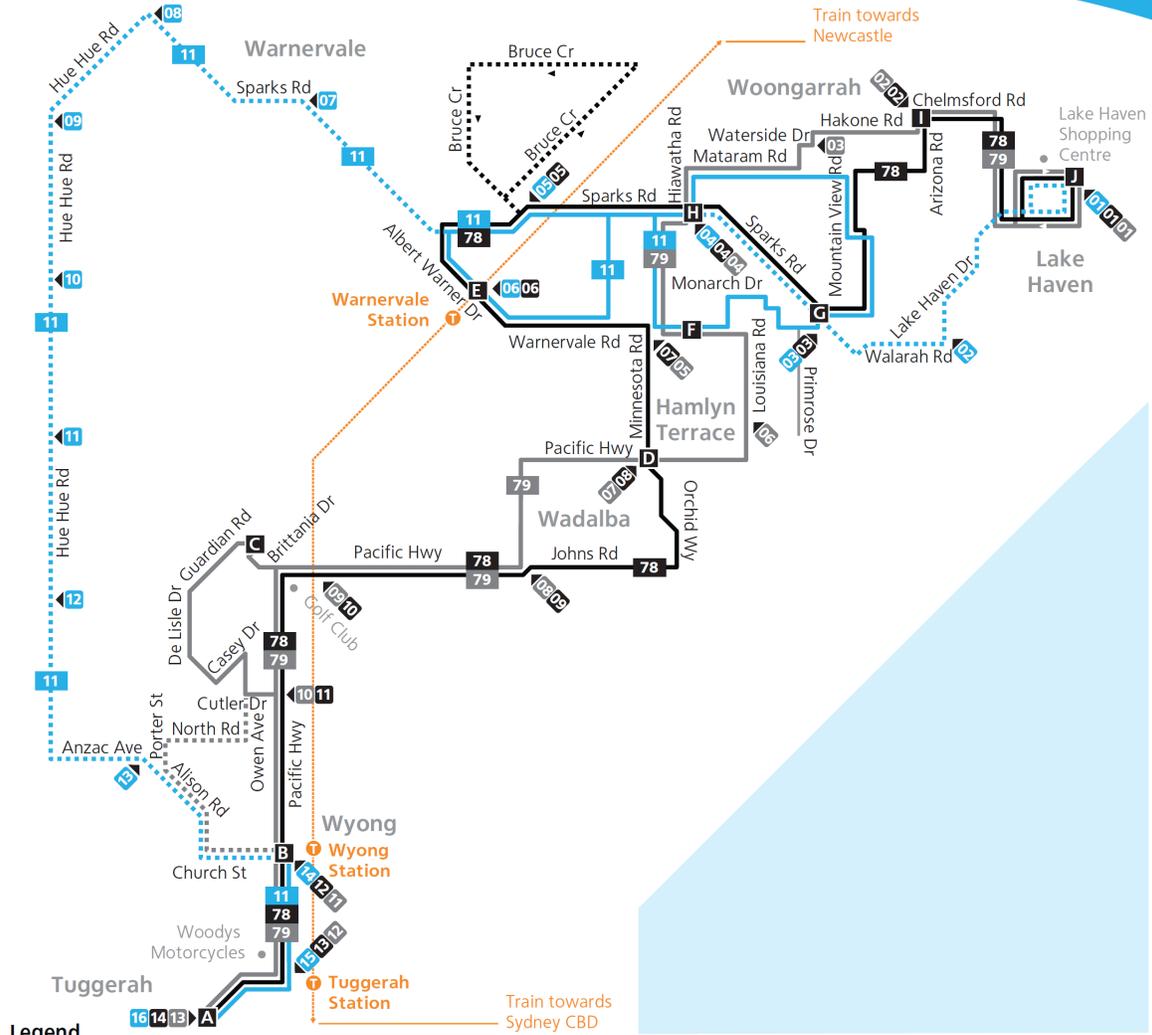
- Shopping Centres
- Churches
- Hospitals
- Schools
- Occasional trips
- Common route
- Bus routes operated by other operators

Bus route map

10, 11, 12, 13



Bus route map **11, 78, 79** 



- Legend**
-  Bus route
 -  Bus route number
 -  Timing point
 -  Section point
 -  Train line/station
 -  North
 -  Diagrammatic Map Not to Scale



