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Traffic Impact Assessment

171 Forest Way, Belrose NSW 2085

April 2022

Type of Assessment: Traffic Impact Assessment

Site Location: 171 Forest Way, Belrose NSW 2085

Prepared for: BELROSE RB1 Pty Ltd

Prepared by: APEX Engineers

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1. INTRODUCTION

APEX Engineers were engaged by BELROSE RB1 Pty Ltd to provide a Traffic Impact Assessment as a part of the development application for the proposed seniors' housing development at 171 Forest Way in Belrose.

This report is structured into the following sections:

- Section 2 Describes the existing transport conditions in the locality and provides an overview of the proposed development;
- Section 3 Assesses the statutory parking provision requirements applicable for the subject development;
- Section 4 Reviews the proposed on-site car parking design against the relevant Australian Standard requirements;
- Section 5 Provides an estimate of the peak period traffic impact anticipated to be generated by the proposed development and outlines the requirements for the basic left turn vehicle access arrangement for the site; and
- Section 6 Provides the summary and conclusions of the study.

2. BACKGROUND AND EXISTING CONDITIONS

2.1 Site Description and Local Road Network

The subject site is located at 171 Forest Way in Belrose, within a predominantly residential area. The site currently includes a single residential dwelling with vehicle access provided off Forest Way (in left in/left out fashion) via two driveways. At the immediate site frontage, Forest Way (an arterial road connecting Mona Vale Road to the north with Warringah Road to the south) includes a divided carriageway (through a landscaped median) with three lanes in each direction. A posted speed limit of 70 km/hr applies to traffic in both directions.

Figure 1 highlights the site location from an aerial perspective.

Figure 2 illustrates Forest Way as seen at the site frontage.

Figure 1: Location of the Subject Site

Figure 2: Forest Way at the Site Frontage

2.2 Details of the Proposed Development

The subject proposal involves the demolition of existing dwelling/structures and construction of a seniors' housing development, incorporating 35 x self-contained units (12 x 2-bedroom units + 22 x 3-bedroom units and 1 x 4-bedroom units). The proposal also includes 72 on-site car parking spaces (which include 23 double garages and 26 open car spaces), 1 ambulance space and 1 small rigid vehicle space.

2.3 Public Transport Service Accessibility

The local area was assessed for available public transport services that were both easily accessible from the subject site and provide viable alternative options to private trips. This assessment identified that the site lies within comfortable walking distance to a number of bus routes, as listed below.

- Bus route 193 - Warringah Mall to Austlink via Frenchs Forest Sydney. Service operates daily.
- Bus route 260 - Terrey Hills to North Sydney Sydney. Service operates Monday to Friday.
- Bus route 270 - Terrey Hills to City via Austlink Business Park, Frenchs Forest and Forestville. Service operates daily.
- Bus route 282 (circular route) - Chatswood to Belrose via East Roseville, Forestville, Frenchs Forest and Davidson. Service operates daily.
- Bus route 283 (circular route) - Chatswood to Belrose via East Roseville, Forestville, Frenchs Forest and Davidson. Service operates daily.
- Bus route 284 - Chatswood to Duffys Forest via East Roseville, Forestville, Frenchs Forest, Belrose and Terrey Hills. Service operates daily.

As per the above, several bus services can be accessed within the close vicinity (within <10-minute walking distance) of the subject site. These routes provide coverage to much of the Sydney region including major destinations such as Sydney City, Terrey Hills, Forestville, Frenchs Forest and Chatswood.

Figure 3 provides the public transport map for the subject site area, outlining the coverage of the above-listed services.

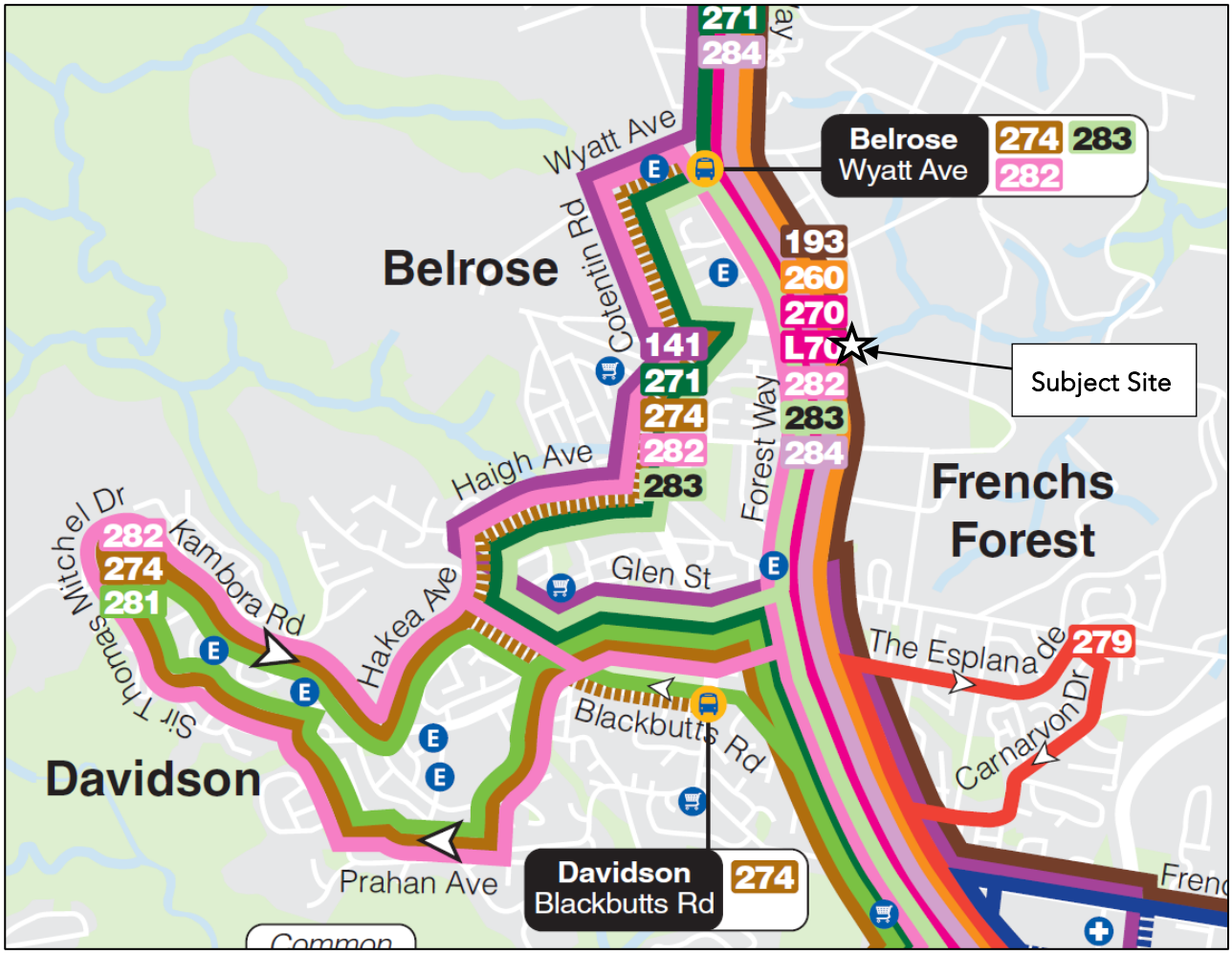


Figure 3: Public Transport Map for the Site Vicinity

It is noted that all the above-mentioned bus services operate along Forest Way, at the site frontage. As such, the southbound services are accessible from the bus stop (Stop ID: 208541) located ~100m from the subject site (1-minute walk). Figure 4 shows the accessible footpath available at the site frontage, which provides pedestrian access to the bus stop servicing southbound routes on Forest Way.

The northbound services operating on Forest Way can be accessed by the pedestrians using the bus stop on the opposite side of Forest Way, located approximately 430m (5-minute walk) from the subject site. This involves the use of the nearest signalised pedestrian crossing located at the Forest Way/Perentie Road/Hews Parade intersection, approx. 400m (5-minute walk) south of the subject site.

It is noted that the users who access the site from the south along Forest Way can use bus services 282 and 283, which include circular routes within the site vicinity. These services turn left out of Forest Way onto Glen Street and enter Forest Way again from further north by turning right from Wyatt Avenue (see Figure 3). Therefore, these services ultimately travel south past the site on Forest Way – which enables the users to get off at the bus stop that is located ~100m from the subject site (1-minute walk), thus avoiding the need to cross Forest Way.

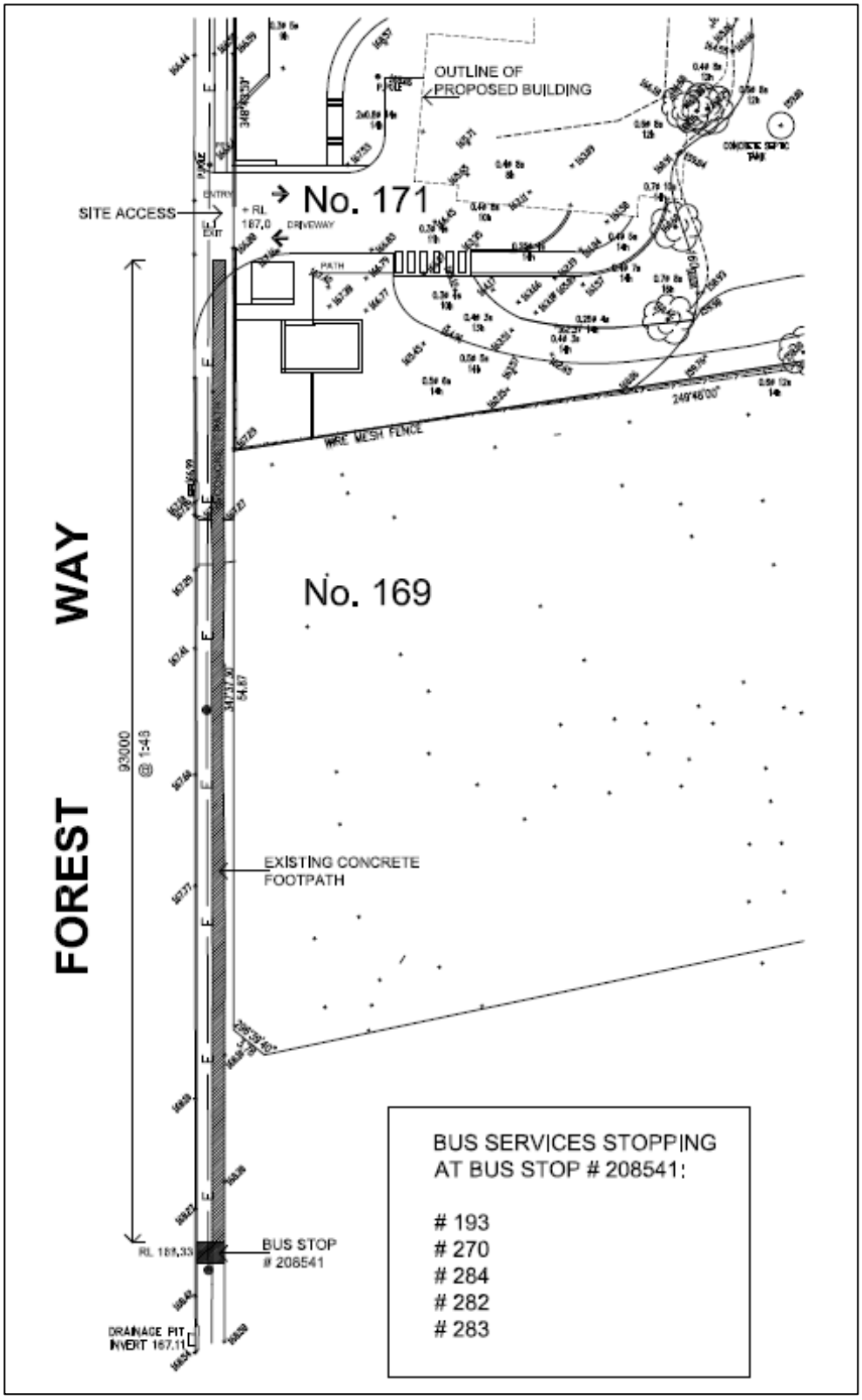


Figure 4: Accessible Footpath connecting to the nearest Bus Stop

3. CAR PARKING PROVISION REQUIREMENTS

The car parking provision requirements for the proposed development were determined in accordance with the following two policies (for comparison purposes):

1. Schedule 17 (car parking provisions) of the Warringah Local Environmental Plan (2000); and
2. State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.

Schedule 17 (car parking provisions) of the Warringah Local Environmental Plan (2000)

In relation to 'housing for older people or people with a disability', the above policy provides the parking provision requirements as outlined in Figure 5.

Note that clause 29 imposes the following requirements as to parking—

Hostel or residential care facility—

1 space per 10 beds plus

1 space per 2 employees on duty at any one time plus

1 ambulance space

AND

0.5 spaces per bedroom where the application is made by a person other than the Department of Housing or a local government or community housing provider, or

1 space per 5 dwellings where the application is made by, or is made by a person jointly with, the Department of Housing or a local government or community housing provider

Visitor parking—

In the case of development that comprises less than 8 dwellings and is not situated on a clearway, no visitor parking is required

In the case of development that comprises 8 or more dwellings or is situated on a clearway, visitor parking is required

Figure 5: Parking Provision Requirements as per Schedule 17 of the WLEP (2000)

Application of the above parking rate to the proposed development which includes zero employees and 94 bedrooms (across 35 units), and noting this application is made by a person other than the Department of Housing or a local government or a community housing provider, the following on-site parking provision requirement is obtained:

1 Ambulance space + 57 resident spaces (rounded up) + 7 visitor parking spaces (based on a rate of 1 space per 5 units)

The proposed development provides 1 ambulance space and 72 on-site car parking spaces (which includes 13 visitor car spaces), thus satisfying the above-identified parking provision requirement.

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004

In relation to self-contained dwellings, Division 4 of the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 document stipulates a requirement of 0.5 car spaces for each bedroom where the development application is made by a person other than a social housing provider.

Applying the above rate to the proposed development with 94 bedrooms (across 35 units) leads to the following parking provision requirement:

47 car spaces

The proposed development provides 72 on-site car parking spaces, thus satisfying the above-identified parking provision requirement.

4. CAR PARKING DESIGN REVIEW

This section provides a review of the proposed on-site car parking areas against the requirements outlined in the Australian Standards (AS 2890 series). This section shall be read in conjunction with the complete site layout plans submitted as a part of the Development Application.

The following list summarises the proposed on-site car parking inventory:

- Lower ground level – 4 open visitor car spaces.
- Level 2 – 30 car spaces (includes 9 double garages + 12 open car spaces out of which 4 are disability accessible and 5 are allocated to visitors).
- Level 6 – 22 car spaces (includes 8 double garages + 6 open car spaces out of which 4 are disability accessing and 4 are allocated to visitors).
- Level 7 – 16 car spaces (6 double garages + 4 open car spaces all of which are allocated for visitors and 2 are disability accessible) and 2 small rigid vehicle bays, one for an ambulance and the other for loading.
- A turning area for an SRV is provided within the ground level – this area is expected to be used by the waste collection vehicle.

4.1 Open Regular Car Spaces

The proposed open regular car spaces can be categorised under user class 1A (residential/domestic parking) in AS 2890.1:2004. The minimum dimensional requirements stipulated in the AS 2890.1:2004 for user class 1A car spaces are - 2.4m width, 5.4m length and 5.8m aisle width*. The proposed car spaces comply with the above-identified minimum dimensions.

*where the aisle opposite the car spaces include a vertical obstruction, an additional 300mm has been provided to the aisle width (total aisle width of 6.1m).

4.2 Double Garages

The parking user class for the proposed double garages, as per AS 2890.1:2004, is user class 1A (residential/domestic parking). User class 1A car spaces are required to be 2.4m

wide by 5.4m long. AS 2890.1 stipulates the following requirement in relation to the design of double garages which includes a single door for all car spaces:

The spaces shall be contiguous with the end spaces having a minimum width between the centre-line of the space and the end wall or obstruction of 1.5 m to allow clearance for door opening, and the door width shall be the space width times the number of spaces (in metres).

As per the above, both car spaces within each double garage should be designed at 2.7m width (2.4m minimum width for the car space + 300mm door opening clearance) – this implies that the internal width of each double garage should be 5.4m minimum. Also, the length of each double garage car space should be a minimum of 5.4m, with an aisle width of 5.8m minimum behind each space. Additionally, the minimum door width requirement for each double garage is 4.8m (i.e., 2 car spaces at 2.4m minimum width requires a 4.8m wide garage door).

All proposed double garages comply with the above-identified minimum dimensional requirements.

4.3 Disability Accessible Car Spaces

The disability accessible parking spaces shall be designed in accordance with AS 2890.6:2009, as follows;

- The disability accessible car parking space should be designed at 2.4m width and 5.4m length (with a minimum aisle width of 5.8m behind the car space);
- A shared space of equal dimensions shall be provided adjacent to the car parking space (one shared space can be located in between two accessible car spaces); and
- Both the car parking space and the shared space should include appropriate line-markings. The shared space should include a bollard in order to prevent motorists from parking at this location.

All the proposed disability accessible car spaces comply with the above-identified dimensional and layout requirements.

4.4 Lateral Clearances

At blind aisles (end of an aisle), AS 2890.1 requires the aisle to be extended by an additional 1m in order to allow reverse exit manoeuvres by the vehicles parked in the corner spaces. This required 1m extension is available within the proposed design.

When car spaces are located adjacent to vertical obstructions (>150mm high), a further 300mm clearance is required for the car space width for door opening. This requirement has been satisfied at the relevant car spaces.

4.5 Headroom Clearance

For all the proposed car parking areas in Levels 2 and 6, the design vehicle is a disability accessible vehicle. Based on AS 2890.6 this vehicle requires a headroom of 2.5m minimum above the car space. Also, a minimum headroom clearance of 2.2m is required along the path of the vehicle to and from the car spaces (including along the ramps). Accordingly, provision has been made for a minimum headroom clearance of 2.2m throughout the path of vehicles and 2.5m above the car spaces.

For the proposed car parking area in Level 7, the design vehicle is a small rigid vehicle (SRV). Based on AS 2890.2, an SRV requires a headroom clearance of 3.5m. Therefore, the Level 7 parking area includes a 3.5m headroom clearance.

4.6 Gradients within Parking Modules

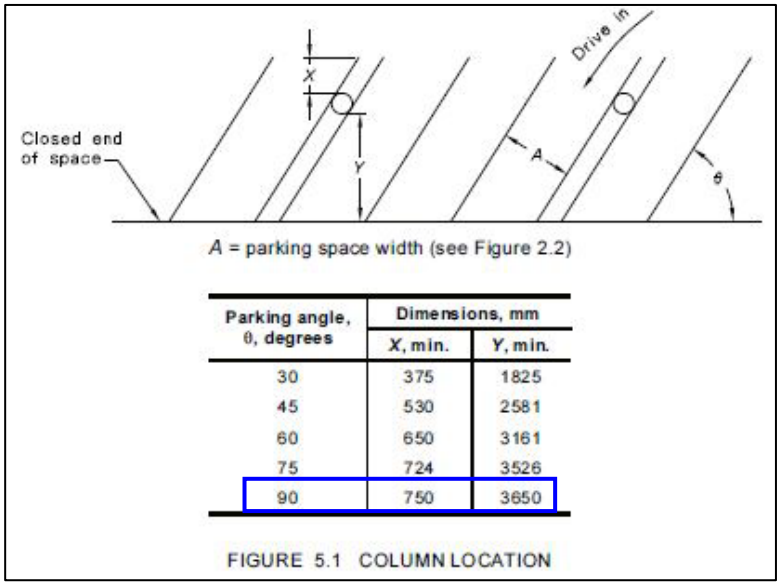
AS 2890.1 stipulates that parking modules, at maximum, should have a grade of 1 in 16 (measured in any direction other than parallel to the angle of parking). In addition, AS 2890.6 stipulates that the disability accessible car parking space and the shared area shall not exceed the grade of 1:40 in any direction. The proposed grades in the car parking areas comply with the above requirements.

4.7 Small Rigid Vehicle Spaces

Level 7 includes 2 SRV spaces (one for an ambulance and the other for servicing). Based on AS 2890.2, SRV loading bays should be designed at 3.5m width and 6.4m length. The proposed SRV spaces within Level 7 comply with these dimensional requirements.

4.8 Column Positioning

Level 2 car park includes columns between car spaces. The column positioning requirements of AS 2890.1:2004 are outlined in the extracted figure below (Figure 6). Since the car parking spaces are proposed at 90-degree angles, the proposed columns shall include Xmin dimension of 750mm and Ymin dimension of 3650mm.



Parking angle, θ, degrees	Dimensions, mm	
	X, min.	Y, min.
30	375	1825
45	530	2581
60	650	3161
75	724	3526
90	750	3650

FIGURE 5.1 COLUMN LOCATION

Figure 6: Column Positioning Requirements (AS2890.1)

The proposed columns between car spaces in Level 2 comply with the Xmin dimension of 750mm and Ymin dimension of 3650mm.

4.9 Ramp Width and Grade

Level 7 car park includes a one-way ramp into Level 6 car park. AS 2890.1-2004 states the grade requirements for straight ramps at private or residential car parks as follows:

(i) Longer than 20 m—1 in 5 (20%) maximum.

(ii) Up to 20 m long—1 in 4 (25%) maximum. The allowable 20 m maximum length shall include any parts of grade change transitions at each end that exceed 1 in 5 (20%).

(iii) A stepped ramp comprising a series of lengths each exceeding 1 in 5 (20%) grade shall have each two lengths separated by a grade of not more than 1 in 8 (12½%) and at least 10 m long.

Furthermore, where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5 percent) for a summit grade change, or greater than 1:6.7 (15 percent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.

The length of the proposed ramp is less than 20m (for sections exceeding 20% grade) and it includes a maximum grade of 25% - thus complying with the AS 2890.1 requirements. This 25% graded section of the ramp includes 2m lengths of transition sections (graded at 12.5%) on either end, thus complying with the grade transition requirements.

The minimum ramp width requirement, for one-way straight sections, as per AS 2890.1:2004 is 3m. Additionally, AS 2890.1 also stipulates:

> *Where there is to be a kerb or barrier higher than 150 mm and closer than 300 mm from one edge of the roadway or ramp, the roadway or ramp shall be widened to provide a minimum of 300 mm clearance to the obstruction. If there is to be a high kerb or barrier on both sides, the width increase shall be sufficient to provide 300 mm on both sides.*

Accordingly, the proposed one-way ramp is designed at 3.6m width (3m ramp width + 300mm clearance on either side).

4.10 Circulation / Vehicle Conflicts

The proposed vehicle access to the site is categorised under access category 2 (1A facility, 25-100 car spaces, frontage road arterial). Therefore, the entry/exit combined access points should provide at least 6m width. As such, the proposed access driveway at the site boundary is designed at >6m width for a length of >10m, which satisfies the above-identified requirement. Section 5 provides more information in relation to the proposed access design for the site.

AS 2890.1 also recommends the provision of a passing bay for driveways longer than 30m. The section of the driveway towards the Level 2 car park is longer than 30m. As such, a passing bay has been provided on this driveway to enable 2 vehicles travelling in opposite directions to pass each other.

4.11 Vehicle Manoeuvrability Assessment

Swept path assessments were carried out to demonstrate the manoeuvrability levels of SRVs within the site. Figures 7-9 illustrate the results of the swept paths for SRVs (the template of the SRV has been developed in accordance with the dimensions provided in AS 2890.2). It is noted that the Blue and Cyan colour lines in the swept paths indicate the front and rear tyre tracks of the vehicle, respectively, while the Black colour of the swept paths indicate the vehicle body envelop (the Green arrows indicate the centreline of the vehicle travel path while the Red lines indicate the 300mm body clearance envelop for the vehicle).

As can be seen, a typical SRV can be conveniently accommodated within the proposed servicing areas. This vehicle can manoeuvre within the site and exit the site in forward gear without requiring any additional correctional manoeuvres.

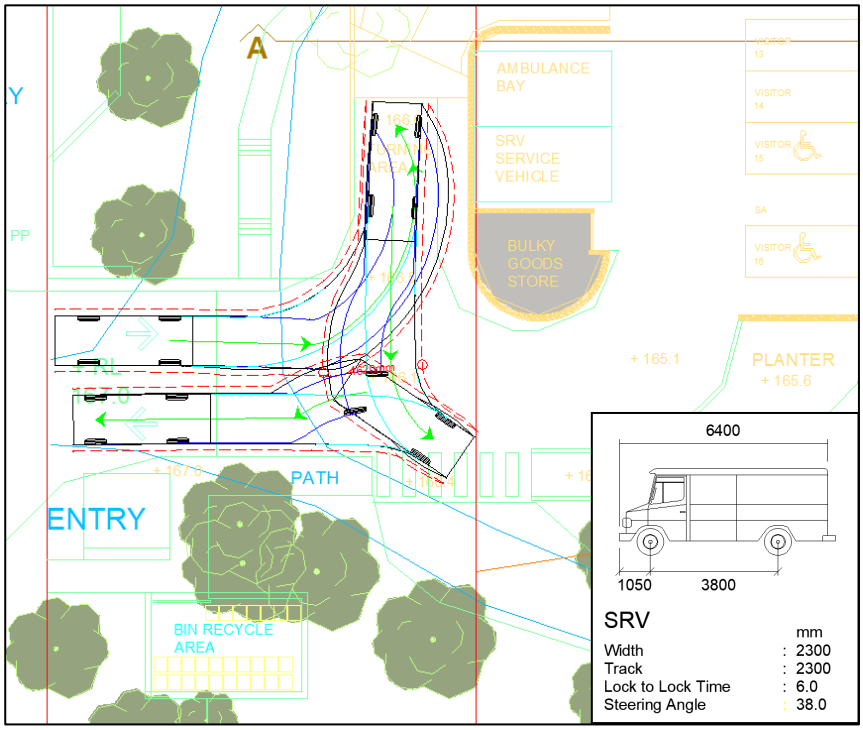


Figure 7: Waste Collection SRV using the Proposed Turning Area

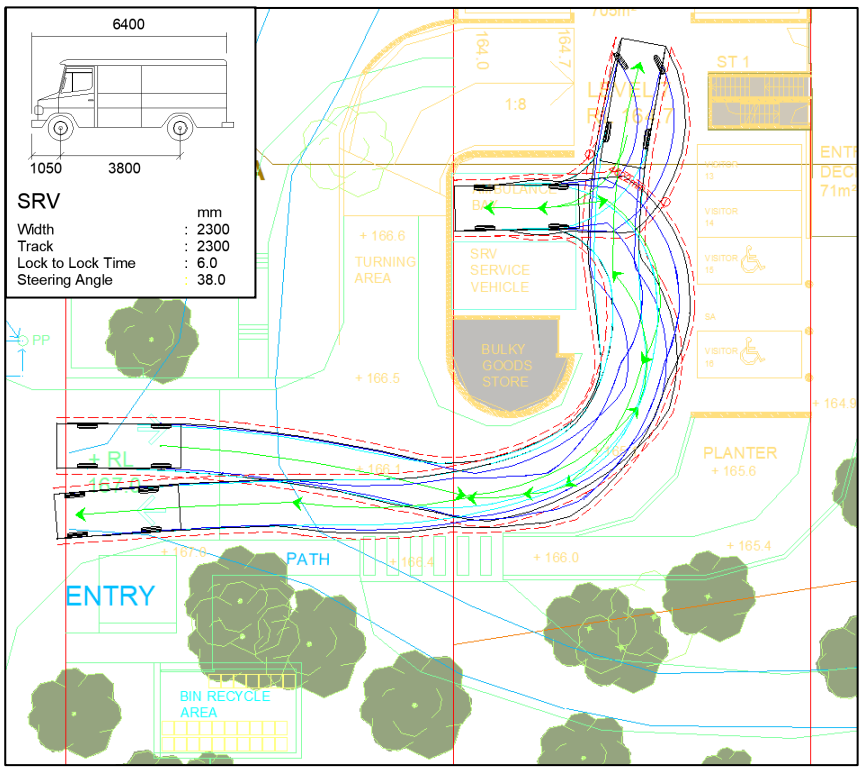


Figure 8: SRV Swept Path for the Proposed Ambulance Space

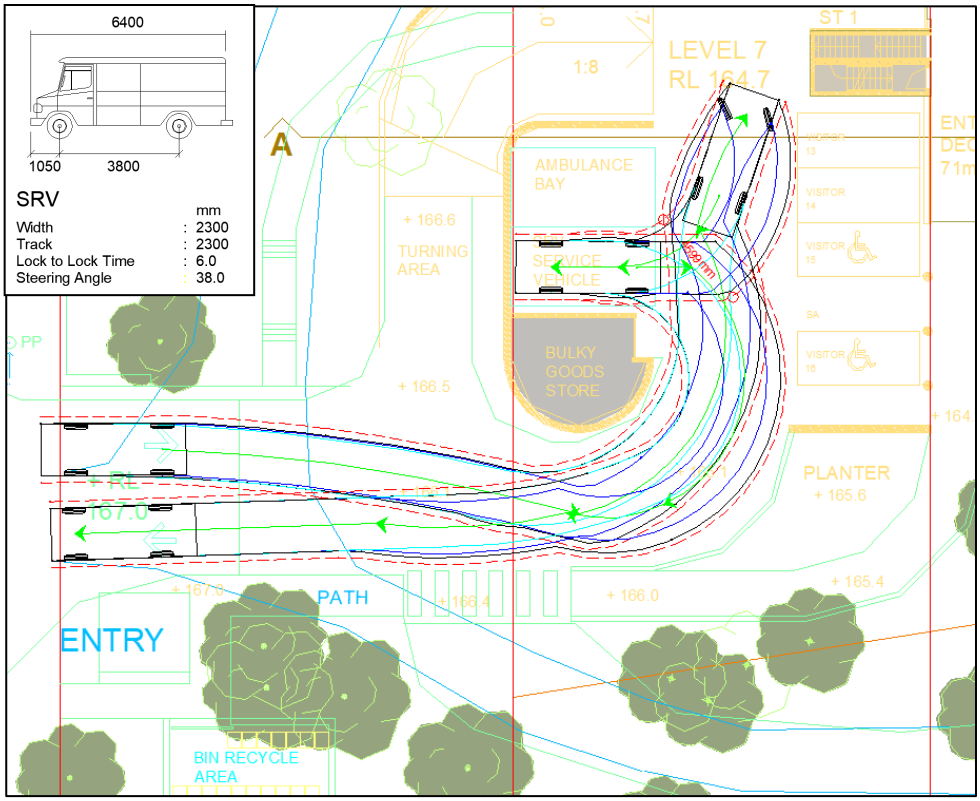


Figure 9: SRV Swept Path for the Proposed Servicing Space

5. TRAFFIC IMPACT ASSESSMENT

The *Guide to Traffic Generating Developments (RMS, 2002)* provides the following daily and evening peak hour vehicle trip rates in relation to housing for aged and disabled persons:

- Daily vehicle trips = 1 - 2 per dwelling
- Evening peak hour vehicle trips = 0.1 - 0.2 per dwelling.

In addition, the RMS Guide states the following in relation to the above trip rates:

These figures at the lower end of the above rates are based on research conducted by the Authority. This research concentrates on subsidised developments (often run by religious organisations). Generation rates of resident funded developments are often greater, as indicated at the higher end of the range.

In line with the above description, this study has adopted the upper limits of the identified daily and evening peak hour vehicle trip rates. Notwithstanding the traffic generating potential of the existing residential dwelling at the subject site, applying the above trips rates to the proposed development which seeks to provide 35 units, leads to the trip generation levels shown in Table 1.

Table 1: Anticipated Traffic Generation Potential of the Proposal

Period	RMS Trip Rate (upper limit)	Number of Dwellings	Number of Trips
Evening peak hour	0.2 per dwelling	35	7 trips
Daily	2 per dwelling		70 trips

5.1 Required Left Turn Treatment

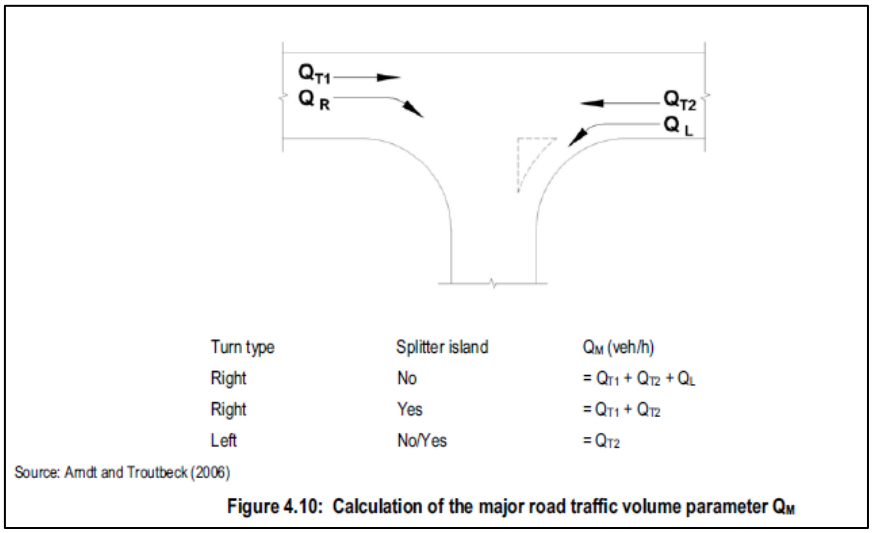
Traffic volume surveys were undertaken as a first step, to determine the required left turn treatment for the section of Forest Way at the site frontage, through which vehicle access to the subject site is proposed.

This traffic survey considered only the southbound lanes of Forest Way at the site frontage and was carried out on a typical weekday (outside the lockdown periods), between 6am to 9am and 4pm to 7pm. Figure 10 presents the traffic survey findings for the peak hours identified during the AM and the PM periods. The full survey results are presented in Appendix A of this report.

	Approach	MB 1 - 171 Forest Way, Belrose (South bound Only)									Grand Total
		LANE 1			LANE 2			LANE 3			
		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00	59	9	68	561	75	636	619	19	638	**1,342**
PM	16:45 to 17:45	104	6	110	697	37	734	744	7	751	**1,595**

Figure 10: Peak Hour Summary of the Traffic Survey Results

Based on the peak hour traffic survey results presented in **Figure 10** and traffic generations established for the subject proposal, the required left turn treatment has been chosen based on the warrants presented in *Austroads Guide to Road Design – Part 4A: Signalised and Unsignalised Intersections*. **Figure 11** (extracted from the Austroads Guide) illustrates how the flows are calculated for turn treatment.



Turn type	Splitter island	Q_M (veh/h)
Right	No	$= Q_{T1} + Q_{T2} + Q_L$
Right	Yes	$= Q_{T1} + Q_{T2}$
Left	No/Yes	$= Q_{T2}$

Source: Arndt and Troutbeck (2006)

Figure 4.10: Calculation of the major road traffic volume parameter Q_M

Figure 11: Traffic Flow Volume Parameters for Turn Treatments

- Based on the traffic generation calculation presented earlier in this section, the Q_L parameter which reflects the number of left-turning vehicles (i.e., the vehicles entering the site) in the peak hour, is = **7 veh/hr**
- Based on the peak hour traffic survey results presented in **Figure 6**, the Q_M parameter which reflects the major road traffic volume* is = **110 veh/hr (for the PM peak hour period) and 68 veh/hr (for the AM peak hour period)**

** to remain conservative, this study has assumed 100% in trips during the PM peak period and has compared this against the scenario where the same level of in trips occur during the AM peak period. Based on AustRoads Guide, Q_M is simply the worst-case peak-hour flows, with each vehicle counted as one unit (not using equivalent passenger car units). Also, Q_M is reflective of the traffic volume in the closest through lane to the turning movement. In this case, Q_M is therefore the number of vehicles on Lane 1 (refer to **Figure 9**) during the relevant peak hour period.*

Figure 12 illustrates the turn treatment recommendation determined through warrants presented in *Austroads Guide to Road Design – Part 4A: Signalised and Unsignalised Intersections.*

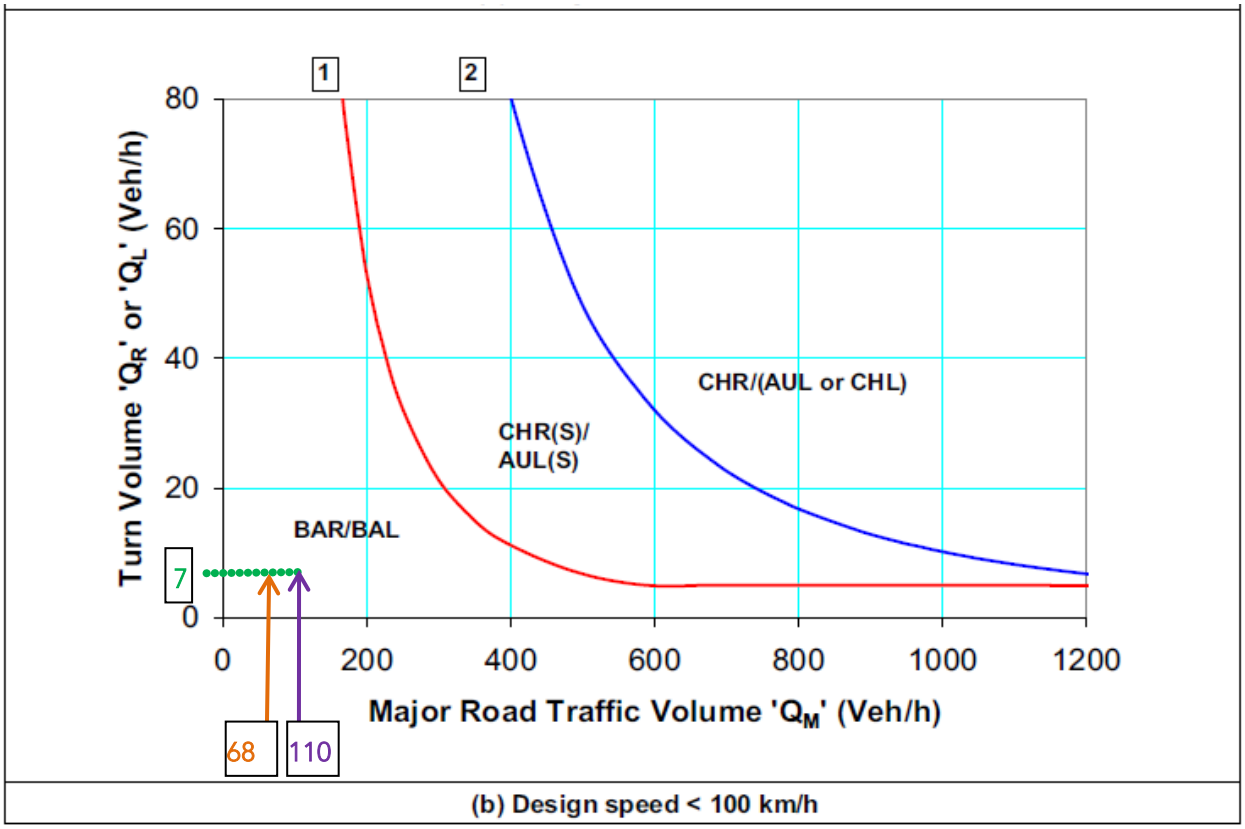


Figure 12: Turn Treatment Recommendation

As per the above assessment, it is evident that the turn treatment required for the proposed development is BAL (basic left turn lane).

Based on the *Austroads Guide to Road Design – Part 4A: Signalised and Unsignalised Intersections*, a single radius left-turn without tapers was identified as a suitable turn treatment for the proposal, considering the low-speed environment*.

*low-speed roads are identified in the AustRoads Guide to Road Design (Part 6: Roadside Design Safety and Barriers) as roads with speed limits at ≤ 70 km/h. Forest Way includes a speed limit of 70 km/h.

The proposed access point has been designed to allow for 2 SRVs to enter and exit the site simultaneously using the kerbside lane of Forest Way. The width of the southbound kerbside lane on Forest Way was measured to be approximately 3m, based on high-resolution aerial imagery.

Figure 13 illustrates the swept paths for the above scenario (note that the SRV template is based on the dimensions specified in AS 2890.2). It is noted that the Blue and Cyan colour lines in the swept paths indicate the front and rear tyre tracks of the vehicle, respectively, while the Black colour of the swept paths indicate the vehicle body envelop (the Green arrows indicate the centreline of the vehicle travel path while the Red lines indicate the 300mm body clearance envelop for the vehicle). The swept paths were simulated using a speed of 5 km/h and without the 'turn wheels from stop' option.

It is evident from this swept path result that the proposed access treatment can sufficiently accommodate the simultaneous movements of SRVs (which use the kerbside lane on Forest Way).

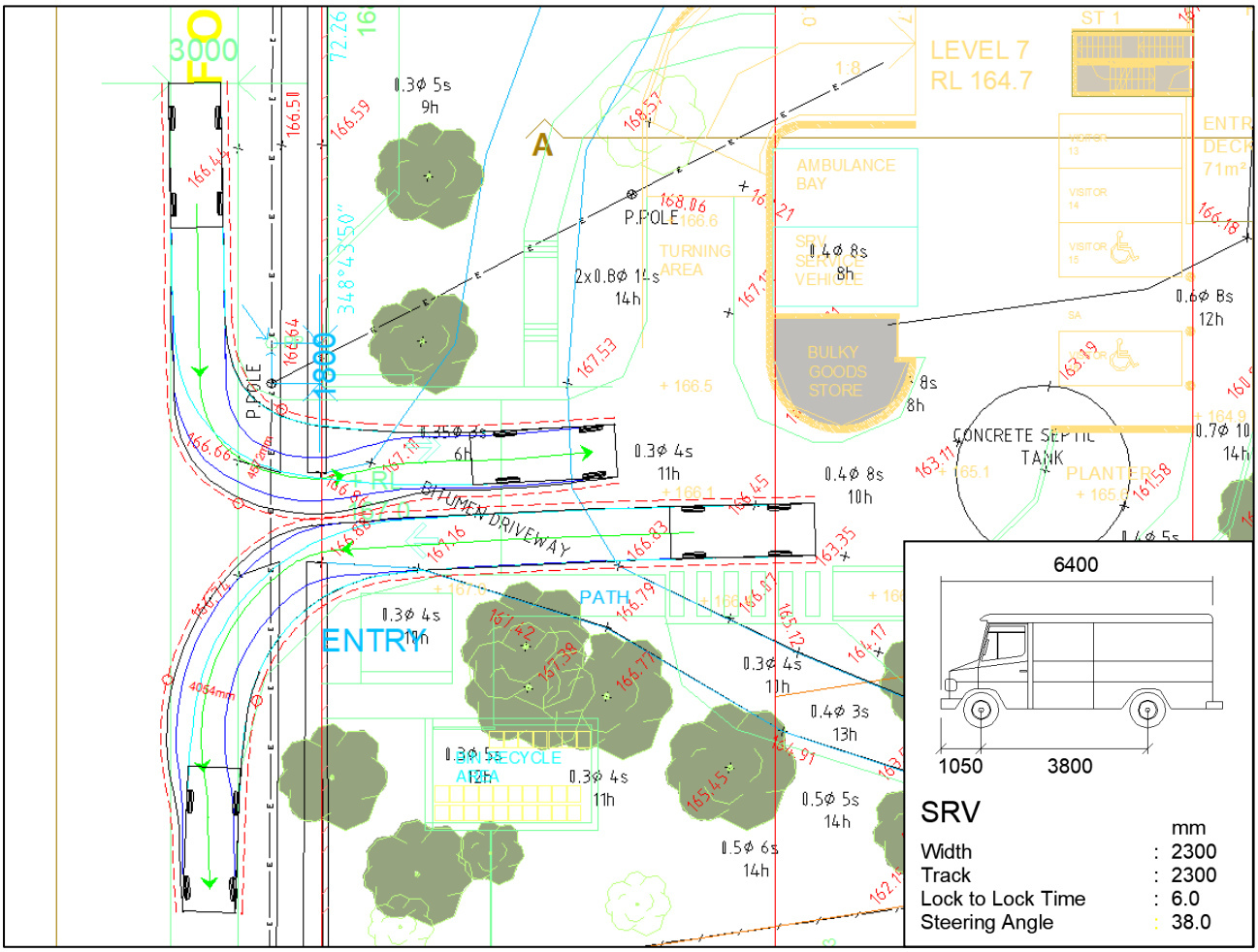


Figure 13: Swept Paths of 2 SRVs using the Site Access Simultaneously

6. CONCLUSIONS

APEX Engineers were engaged by BELROSE RB1 Pty Ltd to provide a Traffic Impact Assessment as a part of the development application for the proposed seniors' housing development at 171 Forest Way in Belrose.

The subject site is serviced by a number of bus routes that operate along Forest Way. These bus routes can be accessed from bus stops located within 450m walking distance (<6-minute walk) of the subject site.

A parking provision assessment was undertaken in accordance with: (1) Schedule 17 (car parking provisions) of the Warringah Local Environmental Plan (2000), and (2) State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004. The proposed car parking provision of 72 car spaces (and 2 SRV spaces) satisfies the minimum parking provisions as identified based on both the above policies.

The proposed car parking design was also assessed with reference to AS 2890.1, AS 2890.2 and AS 2890.6. It was found that the proposed design was generally compliant with the relevant design requirements. The swept path tests carried out reveal sufficient manoeuvrability conditions for SRV using the proposed loading spaces.

The daily and peak hour trip generations for the proposed development were determined from the trip rates stipulated in the *Guide to Traffic Generating Developments (RMS, 2002)*. Using the rates offered within this guide, a peak hour rate of 7 trips and a daily trip rate of 70 trips was established. This number of trips are considered minimal and are unlikely to eventuate into any noticeable impacts.

A turn treatment for vehicle access off Forest Way was determined through warrants presented in *Austroads Guide to Road Design – Part 4A: Signalised and Unsignalised Intersections*. It was identified that the site should provide a BAL turn treatment. The proposed turn treatment is capable of accommodating the simultaneous movements of SRVs using the kerbside lane of Forest Way for entry into and exit out of the site.

APPENDIX A: DETAILED TRAFFIC SURVEY RESULTS

Client	APEX Engineers
Location	MB 1 - 171 Forest Way, Belrose
Date	Tue, 22nd June 2021
Survey Time	06:00-09:00 & 16:00-19:00 (6 hrs)
Description	Classified Lane by Lane Vehicle Counts Surveys

MATRIX Traffic and Transport Data

[Location]
MB 1 - 171 Forest Way, Belrose

Client	APEX Engineers
Location	MB 1 - 171 Forest Way, Belrose
Date	Tue, 22nd June 2021
Survey Time	06:00-09:00 & 16:00-19:00 (6 hrs)
Description	Classified Lane by Lane Vehicle Counts Surveys

[15mins interval]

Approach	MB 1 - 171 Forest Way, Belrose (South bound Only)								
	LANE 1			LANE 2			LANE 3		
	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
6:00 to 6:15	4	3	**7**	77	17	**94**	54	6	**60**
6:15 to 6:30	11	2	**13**	87	15	**102**	78	3	**81**
6:30 to 6:45	12	4	**16**	143	33	**176**	138	14	**152**
6:45 to 7:00	13	5	**18**	117	25	**142**	146	15	**161**
7:00 to 7:15	7	7	**14**	118	18	**136**	112	6	**118**
7:15 to 7:30	12	1	**13**	104	25	**129**	117	3	**120**
7:30 to 7:45	12	9	**21**	128	16	**144**	129	4	**133**
7:45 to 8:00	18	4	**22**	150	14	**164**	158	2	**160**
8:00 to 8:15	14	2	**16**	138	19	**157**	134	8	**142**
8:15 to 8:30	16	2	**18**	144	17	**161**	148	2	**150**
8:30 to 8:45	10	3	**13**	135	22	**157**	168	3	**171**
8:45 to 9:00	19	2	**21**	144	17	**161**	169	6	**175**
AM Total	**148**	**44**	**192**	**1,485**	**238**	**1,723**	**1,551**	**72**	**1,623**
16:00 to 16:15	11	3	**14**	176	9	**185**	164	1	**165**
16:15 to 16:30	19	1	**20**	169	5	**174**	164	2	**166**
16:30 to 16:45	19	4	**23**	167	5	**172**	149	6	**155**
16:45 to 17:00	28	0	**28**	177	14	**191**	179	4	**183**
17:00 to 17:15	32	3	**35**	183	10	**193**	202	0	**202**
17:15 to 17:30	24	1	**25**	184	3	**187**	179	1	**180**
17:30 to 17:45	20	2	**22**	153	10	**163**	184	2	**186**
17:45 to 18:00	13	2	**15**	158	4	**162**	142	2	**144**
18:00 to 18:15	15	1	**16**	145	2	**147**	100	0	**100**
18:15 to 18:30	13	2	**15**	104	6	**110**	99	1	**100**
18:30 to 18:45	11	2	**13**	101	2	**103**	73	0	**73**
18:45 to 19:00	12	1	**13**	98	5	**103**	78	1	**79**
PM Total	**217**	**22**	**239**	**1,815**	**75**	**1,890**	**1,713**	**20**	**1,733**

[Hourly Summary]

Approach	MB 1 - 171 Forest Way, Belrose (South bound Only)									Grand Total
	LANE 1			LANE 2			LANE 3			
	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
6:00 to 7:00	40	14	54	424	90	514	416	38	454	1,022
6:15 to 7:15	43	18	61	465	91	556	474	38	512	1,129
6:30 to 7:30	44	17	61	482	101	583	513	38	551	1,195
6:45 to 7:45	44	22	66	467	84	551	504	28	532	1,149
7:00 to 8:00	49	21	70	500	73	573	516	15	531	1,174
7:15 to 8:15	56	16	72	520	74	594	538	17	555	1,221
7:30 to 8:30	60	17	77	560	66	626	569	16	585	1,288
7:45 to 8:45	58	11	69	567	72	639	608	15	623	1,331
8:00 to 9:00	59	9	68	561	75	636	619	19	638	1,342
AM Total	**148**	**44**	**192**	**1,485**	**238**	**1,723**	**1,551**	**72**	**1,623**	**3,538**
16:00 to 17:00	77	8	85	689	33	722	656	13	669	1,476
16:15 to 17:15	98	8	106	696	34	730	694	12	706	1,542
16:30 to 17:30	103	8	111	711	32	743	709	11	720	1,574
16:45 to 17:45	104	6	110	697	37	734	744	7	751	1,595
17:00 to 18:00	89	8	97	678	27	705	707	5	712	1,514
17:15 to 18:15	72	6	78	640	19	659	605	5	610	1,347
17:30 to 18:30	61	7	68	560	22	582	525	5	530	1,180
17:45 to 18:45	52	7	59	508	14	522	414	3	417	998
18:00 to 19:00	51	6	57	448	15	463	350	2	352	872
PM Total	**217**	**22**	**239**	**1,815**	**75**	**1,890**	**1,713**	**20**	**1,733**	**3,862**

[Peak Hr Summary]

	Approach	MB 1 - 171 Forest Way, Belrose (South bound Only)									Grand Total
		LANE 1			LANE 2			LANE 3			
		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	8:00 to 9:00	59	9	68	561	75	636	619	19	638	1,342
PM	16:45 to 17:45	104	6	110	697	37	734	744	7	751	1,595

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