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Palm Lake Resort, Ballina
North Expansion Site
120 North Creek Road, Ballina

AMENDED Traffic Impact Assessment

Client: Palmlake Works Pty Ltd
Project No: BE150074
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Prepared by:	Agnieszka Szewczak / Dale Kleimeyer
Position:	Senior Traffic Engineer
Signed:	
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Approved by:	Dale Kleimeyer
Position:	Principal Traffic Engineer
Signed:	
Date:	6 June 2019

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Coote Burchills Engineering Pty Ltd ACN: 166 942 365

Level 2, 26 Marine Parade SOUTHPORT QLD 4215
PO Box 3766, Australia Fair SOUTHPORT QLD 4215
Telephone: +61 7 5509 6400 Facsimile: +61 7 5509 6411 Email: admin@burchills.com.au

Executive Summary

Track Changes Made 6 June 2019

This report has been prepared to assess the traffic implications and requirements associated with an amended development application for DA2018/321 over Lot 11 DP1245510 – 120 North Creek Rd, Ballina. The *Development application involves the staged erection of a seniors housing development under the State Environmental Planning Policy (Housing for Seniors or People with a Disability 2004) – comprising 77 self-care dwellings, associated car parking, infrastructure works and site filling."*

The development footprint includes a new access driveway intersecting North Creek Road. The layout has been designed to allow a typical Ballina Shire Council (BSC) HRV and Refuse vehicle to service the site. Swept path assessment has demonstrated that HRV and Refuse vehicles are able to enter / exit the site in a forward gear.

The NSW Household Travel survey established that 20% of trips by seniors involve active transport, primarily walking. The report details recommendations for a pathway network within the proposed Expansion site and additional paths within the existing Palm Lake Resort.

In order to determine background traffic volumes within the existing Palm Lake Resort Ballina at the North Creek Road / Bupa Aged Car Access intersection, North Creek Road / Southern Cross Drive roundabout and North Creek Road / Corks Lane intersection peak hour traffic counts were commissioned and performed by a specialist survey company on 30th November 2017. Additionally, in order to establish Senior Housing trip rates and internal trip distribution, traffic counts were undertaken at the 4 entry / exit points to the existing Palm Lake Resort Ballina senior housing located to the west from the proposed development between Thursday 7th March 2019 and Sunday 10th March 2019 inclusive.

Background traffic has been assumed to grow at an annual rate of 2.8% along North Creek Road as per information provided by the Ballina Shire Council. In 2036, following construction of North Creek bridge, it has been forecasted that the traffic volumes along North Creek Road in the vicinity of the site will increase to 15,864 vehicles per day as supplied by Ballina Shire Council.

The proposal when ultimately completed, will generate up to 28 vehicles per hour during morning peak and 31 vehicles per hour during evening peak hour. As detailed in the traffic report, 90% of all development traffic from the Expansion site are expected to be distributed directly to North Creek Road via a new access driveway intersecting North Creek Road and the remaining 10% development trips via the existing Bupa Aged Care Access Road. It is recommended Leases for the dwellings within the Expansion site should reflect that the new access onto North Creek road is the legal point of access.

A concrete footpath is provided along the western site boundary of the expansion site access driveway and proposed frontage works in North Creek Road connecting to the existing path along North Creek Road. Internal paths linking the residential units with the existing Community Centre in Palm Lake Resort are also recommended plus an additional 20 car spaces. Construction of the new

paths and car spaces within the existing Palm Lake Resort are recommended as part of Stage 1 construction of the Expansion site

A SIDRA analysis demonstrates that North Creek Road / Corks Lane intersection as well as North Creek Road / Bupa Care Access intersection, in 2032 with proposed and committed developments traffic superimposed, is expected to operate within its theoretical operational capacity with minimal queueing and delays with Degree of Saturation below recommended 0.8 for priority intersections. Due to the low volume of traffic in North Creek Road, a Level of Service A is achieved for the assessed priority intersections. A road link capacity analysis for the Bupa Access road determined that with the combination of the existing traffic plus the development traffic from the expansion area, the road operates at a v/c ratio of 30% equivalent to a Level of Service A. Additional car spaces are recommended to be added to the existing Bupa Aged Care car park to alleviate the current on road cars parking along the Bupa access road.

Operation of the above intersections have been also tested for 2036 design year following North Creek bridge construction which will connect North Creek Road and provide link between Ballina and Skennars Head to the east. Based on the Turn Warrant analysis, it is recommended to upgrade Corks Lane and Bupa Care Access intersections with North Creek Road to AUL(s) and CHR(s) between 2032 and 2036. These works are not required as part of the development and are not recommended for construction due to the extended time frame that the bridge construction is anticipated to occur. Ultimately the intersection auxiliary lanes are recommended to be incorporated with the bridge construction works. Because the new site access is a driveway and not a public road, an auxiliary or passing lane is not ultimately proposed and parking restrictions on both sides of North Creek Road in the vicinity of the access driveway are ultimately recommended in the future as part of the North Creek bridge construction.

Engineering Drawings supporting the findings and conclusions are contained in the Appendices.

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1. Introduction

1.1 Background

Track Changes Made 6 June 2019

Burchills Engineering Solutions has been commissioned by Palm Lake Works Pty Ltd to prepare a Traffic Impact Assessment (TIA) report to assess the traffic implications and requirements associated with an amended development application for DA2018/321 over Lot 11 DP1245510 – 120 North Creek Rd, Ballina. The Development application involves the staged erection of a seniors housing development under the State Environmental Planning Policy *(Housing for Seniors or People with a Disability 2004)* – comprising 77 self-care dwellings, associated car parking, infrastructure works and site filling.

The development is for 77 low set detached dwellings and will form an extension to the existing resort. The expansion site 'development footprint' includes a new access driveway intersecting North Creek Road.

The primary objective of the Traffic Impact Assessment report (TIA) is to demonstrate compliance with all relevant standards, guidelines and codes. The development is located within Ballina Shire Council Local Authority in NSW.

This report considers the transportation aspects of the development proposal, in particular site access, parking, traffic generation and waste management. It concludes that the proposed site access arrangements are adequate to service the site and that there will be no material impacts associated with the development of the site onto the local road network.

1.2 Scope

This Traffic Assessment has been prepared to the following scope:

Section 2 Describes the site location and the existing road network in the vicinity of the site.

Section 3 Outlines the relevant characteristics of the proposed development including access and parking arrangements.

Section 4 Estimate the increase in traffic generated by the committed development.

Section 5 Estimate the increase in traffic generated by the proposed development.

Undertake a qualitative assessment of the relative impact of the development traffic on the surrounding road network.

Section 6 External Roadway Link Capacity Analysis

Section 7: Assess the operation of key intersections in the vicinity of the site.

Assess any proposed mitigation requirements with reference to Austroads Guide to Road Design and the Ballina Shire Council Standards with consideration to:

- Location;

- Geometry; and
- Sight distance.

Section 8: Swept path analysis including servicing, loading and waste collection.

Section 9: Presents a summary of the report and identifies the main conclusions that can be drawn from the Traffic Assessment Report.

This version of the report has been prepared to support an amended Development Application.

1.3 Extract from Pre DA-Lodgement Meeting at Ballina Shire Council

- Roads
  - A Traffic Impact Assessment will need to be submitted with the development application, which considers the suitability and the impact of the proposed development on the external road network. The TIA should consider, but not necessarily be limited to, analysis of the access points for the development and the North Creek Road/ Southern Cross Drive intersection. The TIA should have regard for the 2036 design traffic for North Creek Road. Please contact Council's Traffic Engineer (Patrick Knight) if you require more specific details.
  - The applicant will be required to include details regarding the proposed haulage route for any imported fill and the intended construction access points.
  - Road naming must comply with the NSW Addressing User Manual (AUM) and NSW Address Policy

Subsequent to the Pre-DA lodgement meeting further advice was received from Ballina Shire Council via email dated 27 November 2017 as follow:

As discussed, the following notes have been provided by our traffic engineer:

1. *Volumes on North Creek Road: the 2014 calibration volume is 2215 vpd and our 2036+ predicted volume is 15,864 vpd.*
2. *Applicant to check against the 2036+ warrant*
3. *Applicant to check turn warrants for the increased traffic on their accesses off North Creek Road*
4. *Applicant to provide SIDRA check on North Creek Rd/Southern Cross Dr roundabout*

I hope this assists with your assessment.

Regards

David Kelly
Manager - Infrastructure Planning

1.4 Statement of Facts and Contentions

Section 6 of the report includes responses to the Statement of Facts and Contentions as applicable to traffic, transport and parking.

2. Existing Conditions

Section 2 of this report details the baseline conditions in the vicinity of the site, including the existing development site, the local road infrastructure etc.

2.1 Site Location

The subject site is located in Ballina within the Ballina Shire Council (BSC) Local Government Area in north-eastern New South Wales. The site is currently unoccupied with tree vegetation present and is surrounded by retirement residential development to the west and south and by tree vegetation to the east. The location of the subject site and the surrounding road network is presented in Figure 2.1 with architectural development layout plan attached as Appendix A.

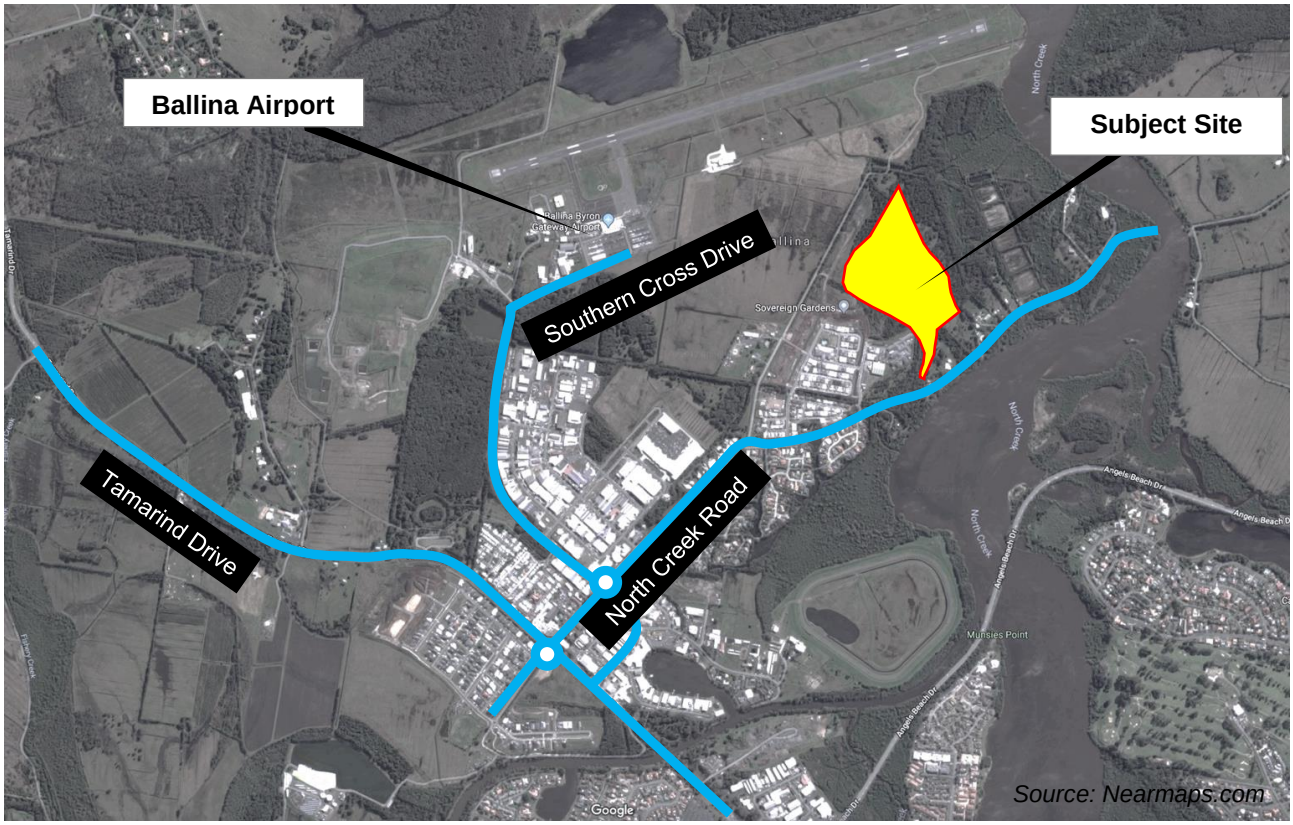


Figure 2.1 Site Location (Google Earth Extract)

Ballina is a town on the Northern Rivers region of New South Wales with almost 25,000 population (2016 Census). The town benefits from the Airport located in close proximity to the west of the proposed development site, which acts as a gateway to Byron Bay.

Byron Bay, represented by the Jonson Street, is approximately 33km to the north and Gold Coast 113km to the north of the subject site. The M1, which is part of the Pacific Highway national highway and major transport route along the central east coast of Australia, can be accessed via Tamarind Drive. Tweed Heads is some 86 km to the north.

2.2 Surrounding Road Network

The surrounding road network in the vicinity of the subject site includes Corks Lane, Bupa Aged Care Access Road and North Creek Road (Refer Figure 2.1).

The development site will be accessed via a new access driveway intersecting North Creek Road as the primary access and a small percentage of the development trips via the existing Bupa Aged Care Access Road / North Creek Road priority intersection.

2.3 Bupa Aged Care Access Road

The existing Bupa Aged Care access road is a private road with a 7.5-metre-wide private access strip. It is a two (2) lane, two-way road with 30km/h speed limit. There is a footpath on both sides of the road which connects Bupa Aged Care and Palm Lake Resort residents with the existing pedestrian facilities along North Creek Road leading to Ballina. The adjoining Palm Lake Resort retirement village development consists of Community Facilities and Bowls Club and 304 retirement residential units of which 18 are still under construction and 2 are unoccupied. In summary there are 284 occupied units at the time of writing this report.

The main vehicular access will be provided via a new access driveway intersecting North Creek Road. An alternative access via Bupa Aged Care Access Road is also proposed, which will mainly facilitate trips made to community facilities and bowls club located within Palm Lake Resort. The alternative access point leading to the existing Bupa Aged Care access road is shown on proposal plan attached as Appendix A to this report.

Bupa Aged Care access road meets with North Creek Road in a form of a simple priority intersection with priority given to North Creek Road. Some 450m to the west of this intersection, North Creek Road meets with Corks Lane in a form of a priority intersection.

According to Traffic Data & Control (TDC) traffic survey data, in 2019 the AM Peak two-way traffic volumes along Bupa Access road was 38 and the PM Peak two-way traffic volume was 67. A photograph of the Bupa Aged Care Access Road section is presented below in Figure 2.2.

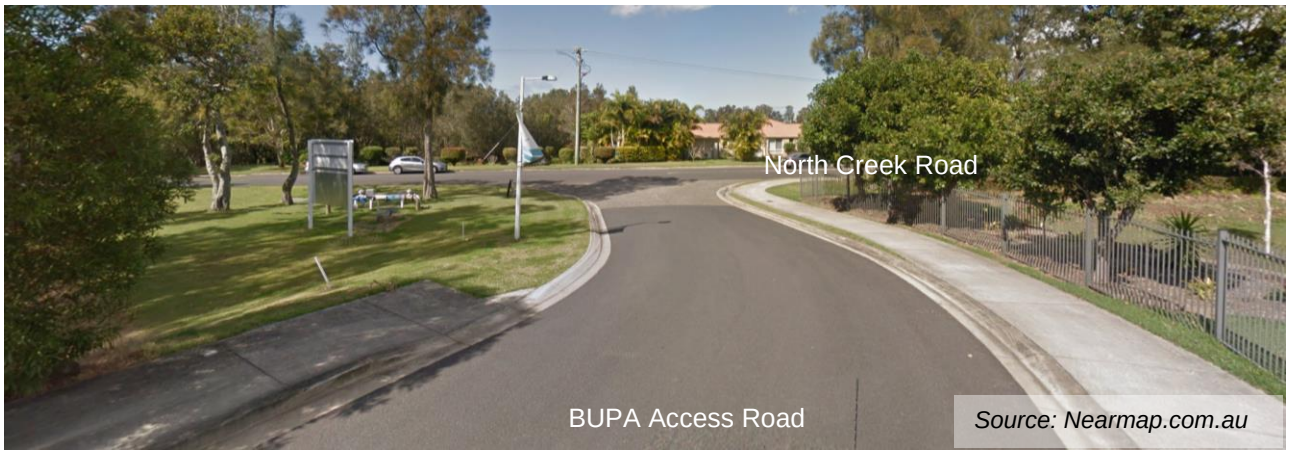


Figure 2.2 Bupa Care Access Road – Northern Approach to the Priority Intersection with North Creek Road

2.4 Corks Lane

Corks Lane links with North Creek Road in a form a simple priority intersection, where North Creek Road has priority. Corks Lane connects residential properties located on the eastern sides of Corks Lane to the North Creek Road to the south and is a no through road to the north. It is a two (2) lane, two-way road with no kerb and channel and no footpath present. However, as part of Sovereign Gardens development, Corks Lane was upgraded.

Corks Lane has a road reserve of 21 m with an eleven (11) metre pavement width. The posted speed limit of Corks Lane is 50 km/h in the vicinity of the intersection with North Creek Road.

As per TDC traffic survey data, in 2017 Corks Lane had AM Peak traffic volume of 28 vehicles and PM Peak traffic volumes of 39 vehicles (two-way flows recorded north from the Corks Lane / North Creek Road intersection).

A photograph of a section across Corks Lane is presented below in Figure 2.3.

Figure 2.3 Corks Lane – Northern Approach to the Priority Intersection with North Creek Road

2.5 North Creek Road

North Creek Road is aligned broadly west – east in the vicinity of the site linking the residential properties located on both sides of North Creek Road to Ballina town to the west. It has a pavement width of 12m along the section west from the North Creek Road / Corks Lane priority intersection. North Creek Road has a good standard footway on at least one side of the road between Bupa Care access road and Ballina town and benefits from a good standard of street lighting. In the vicinity of priority intersections with Bupa Care access road and Corks Lane intersection, uncontrolled pedestrian crossings are present. This road is subject to a 50km/h speed limit throughout.

A photograph of a section across North Creek Road is presented below in Figure 2.4.

Figure 2.4 North Creek Road – In the Vicinity to the Priority Intersection with Corks Lane

West from the Bupa Aged Care priority junction, North Creek Road is 6m wide, reducing to 4m in the vicinity of the proposed new access driveway intersection.

As per TDC traffic survey data, in 2017 North Creek Road had AM Peak traffic volume of 147 vehicles and PM Peak traffic volumes of 210 vehicles (two-way flows recorded west from the Corks Lane / North Creek Road intersection).

Ballina Shire Council provided information relating to the two-way traffic flows along North Creek Road following construction of North Creek bridge to the west of the subject site. It is forecasted that this road will carry more than 15,850 vehicles per day following construction of the bridge in 2036.

2.6 Traffic Surveys

Pre-application discussions with the Ballina Shire Council local authority identified that the implications of the proposed development on the operation of three key off-site intersections would need to be considered as part of the Traffic Impact Assessment. These junctions are:

- North Creek Road / Bupa Care access road priority junction;
- North Creek Road / Corks Lane priority intersection; and
- North Creek Road / Southern Cross Drive roundabout.

2.6.1 2017 Traffic Surveys

The above intersections were surveyed in November 2017 during AM and PM Peak Hours. The following Figure 2.5 shows the location of the intersections surveyed.

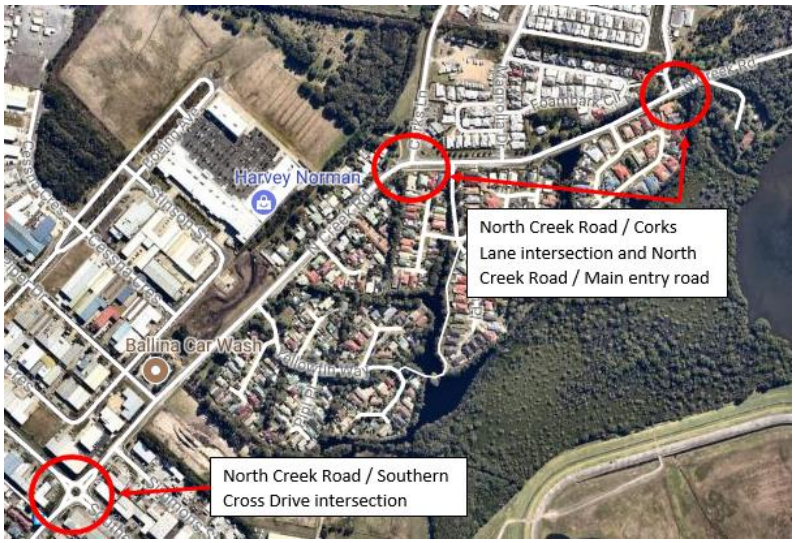


Figure 2.5 2017 Traffic Survey Locations Off-Site Junctions.

The full results are attached as Appendix B and are summarised for the weekday AM peak and the weekday PM peak at individual intersections in Figure 2.6 below.

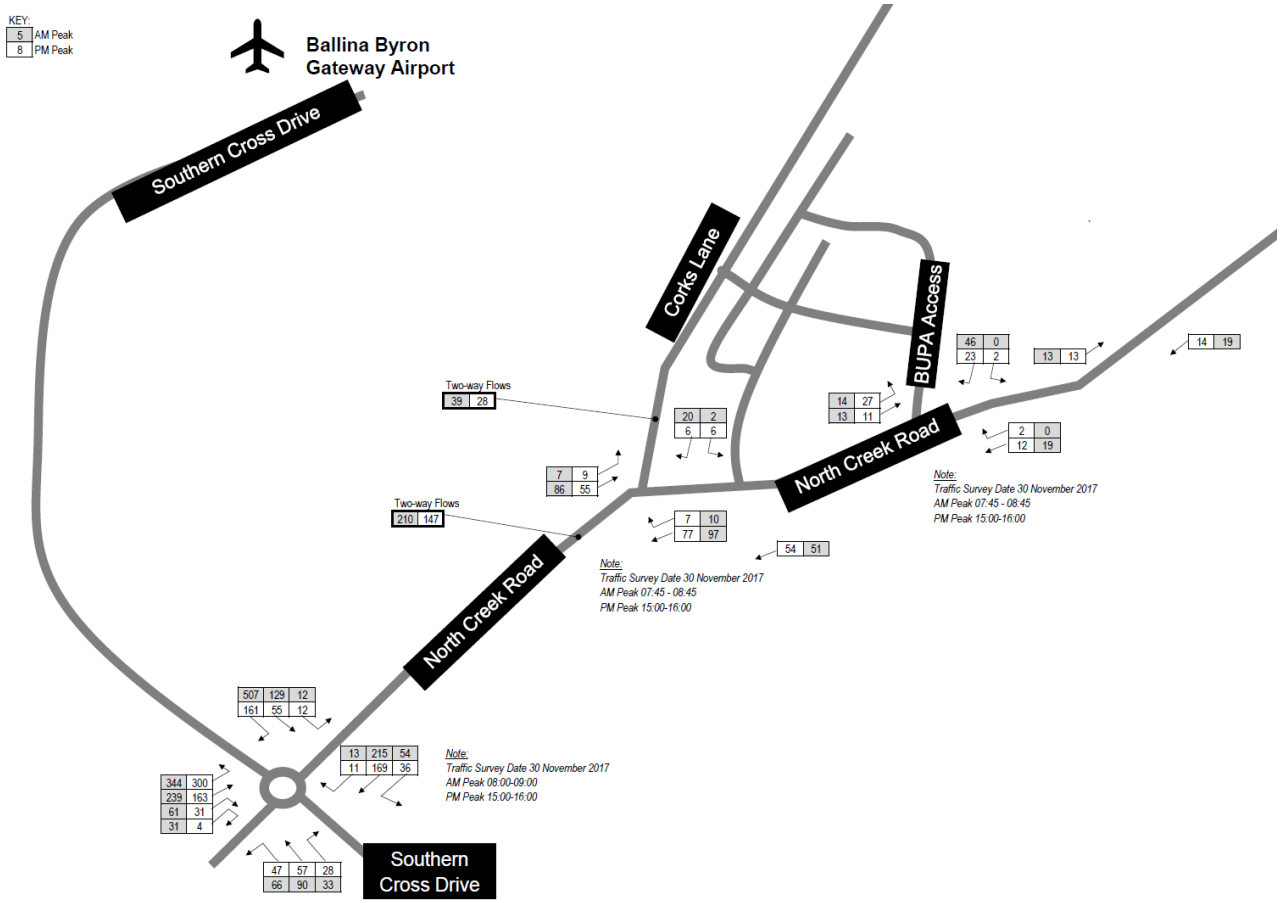


Figure 2.6 2017 Traffic Surveys Summary

In summary, AM Peak occurred between 08:00 and 09:00 and the evening peak occurred between 15:00 and 16:00.

2.6.2 2019 Traffic Surveys

During 2017 Traffic Surveys part of the Palm Lake Resort Ballina development was still under construction. As such, in and out trips along Bupa Aged Care Access road included traffic volumes associated with staff working at the construction site. In March 2019, majority of the Palm Lake Ballina Resort development was constructed with only 18 units still to be constructed in Stage 6 of development and only 2 unoccupied units from Stages 1-5 of the development.

To capture new built traffic, Automatic Traffic Counts (ATC) were undertaken between 7 March 2019 and 10 March 2019 at 4 entry / exit points to Palm Lake Resort Ballina and at the Bupa access road in the vicinity of the intersection with North Creek Road. The survey site location is shown in Figure 2.7 below.

Figure 2.7 Palm Lake Resort Ballina Retirement Village 2019 Surveys Location

It is worth to note, that retirement village development peak hour is outside the typical network peak hour. This was confirmed in the 2019 Automatic Traffic Counts. The morning peak hour at the Palm Lake Ballina Resort has been identified between 09:00 and 10:00am, whereas the evening peak was recorded between 14:00 and 15:00, which are both outside typical network peak hours (AM Peak 08:00-09:00, PM Peak 15:00-16:00). For robust assessment, the highest recorded development peak hours have been used in the assessment.

Figure 2.8 and Figure 2.9 below shows a summary of the highest morning and evening peak hour flows in and out from the Palm Lake Resort Ballina Retirement Village recorded on Thursday 7 March 2019 and Friday 8 March 2019 respectively.

Figure 2.10 and Figure 2.11 also attached as Appendix C to this report, show a summary of Saturday and Sunday peak hours flows.

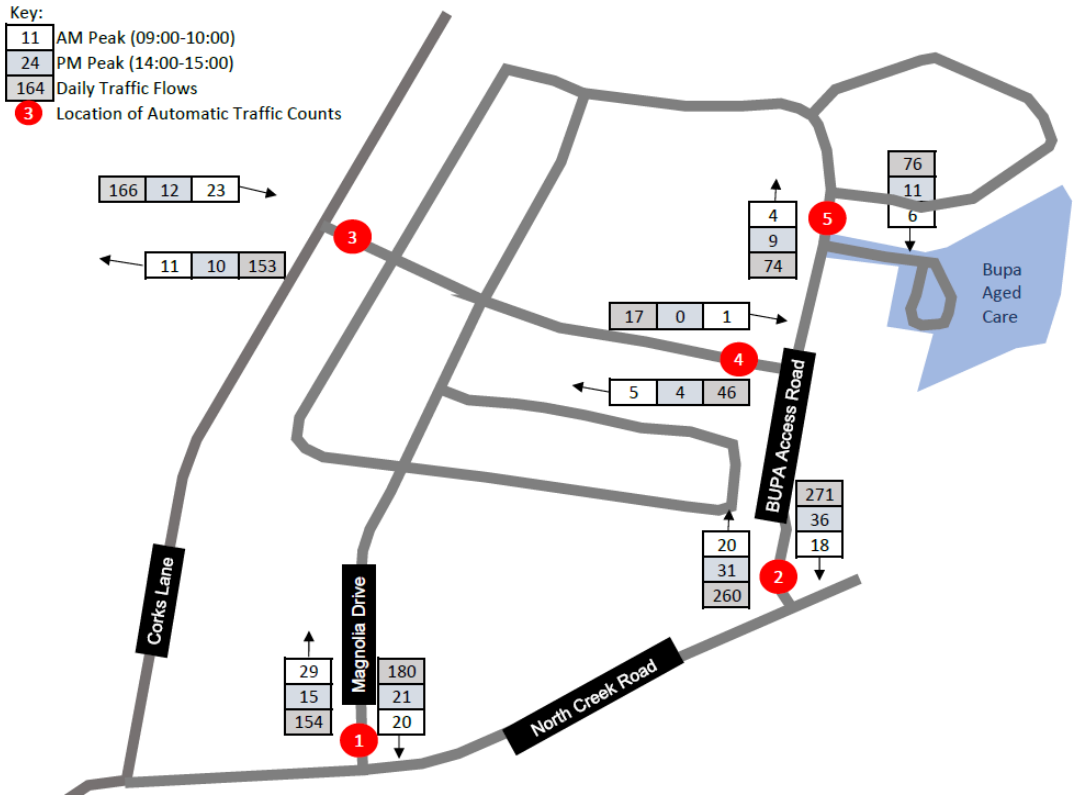


Figure 2.8 Traffic Survey Summary - 7 March 2019 Thursday (Existing Built)

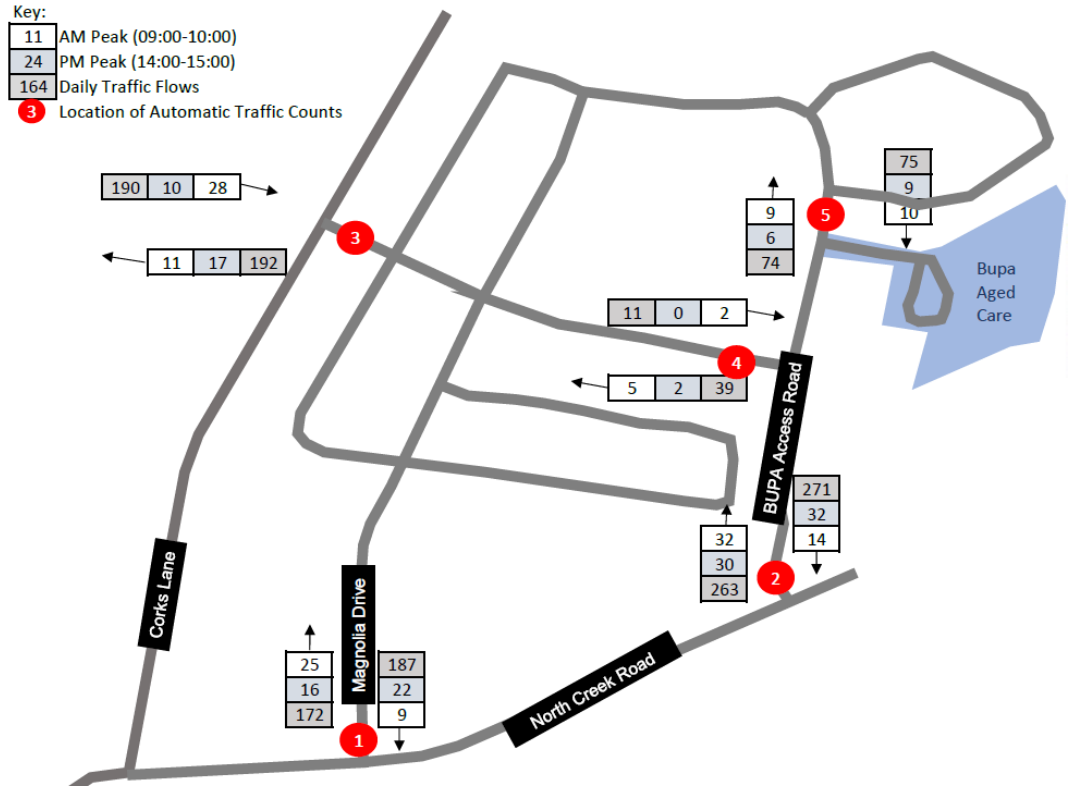


Figure 2.9 Traffic Survey Summary – 8 March 2019 Friday (Existing Built)

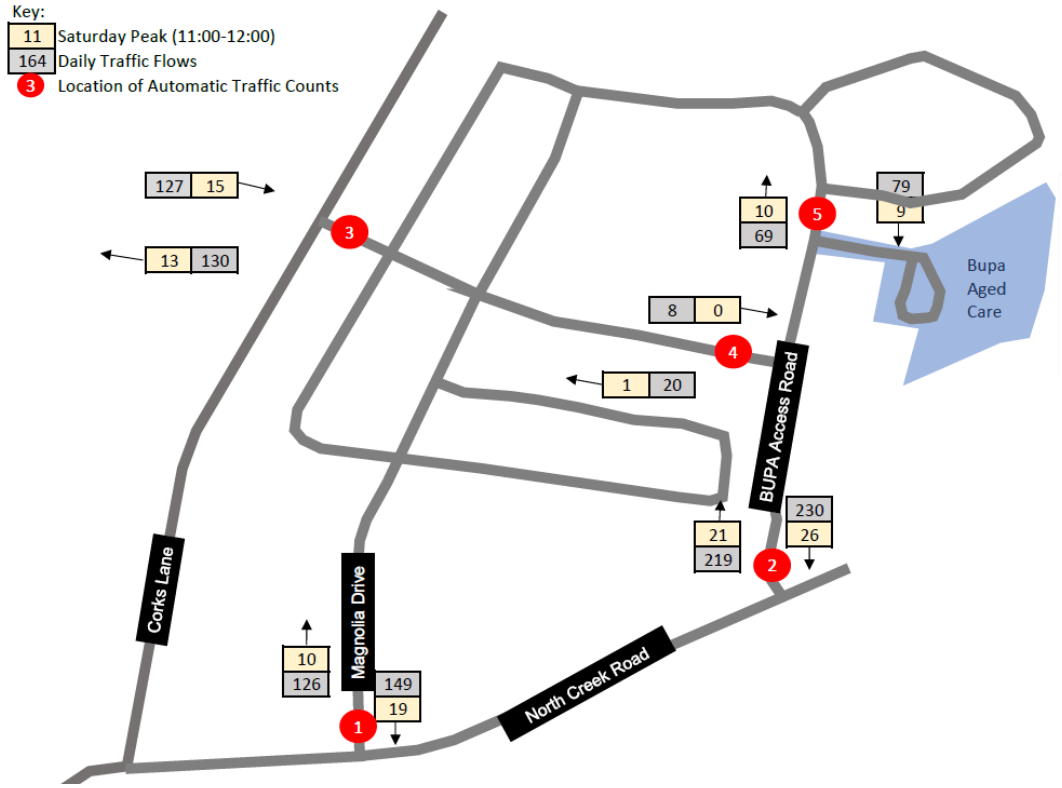


Figure 2.10 Traffic Survey Summary – 9 March 2019 Saturday (Existing Built)

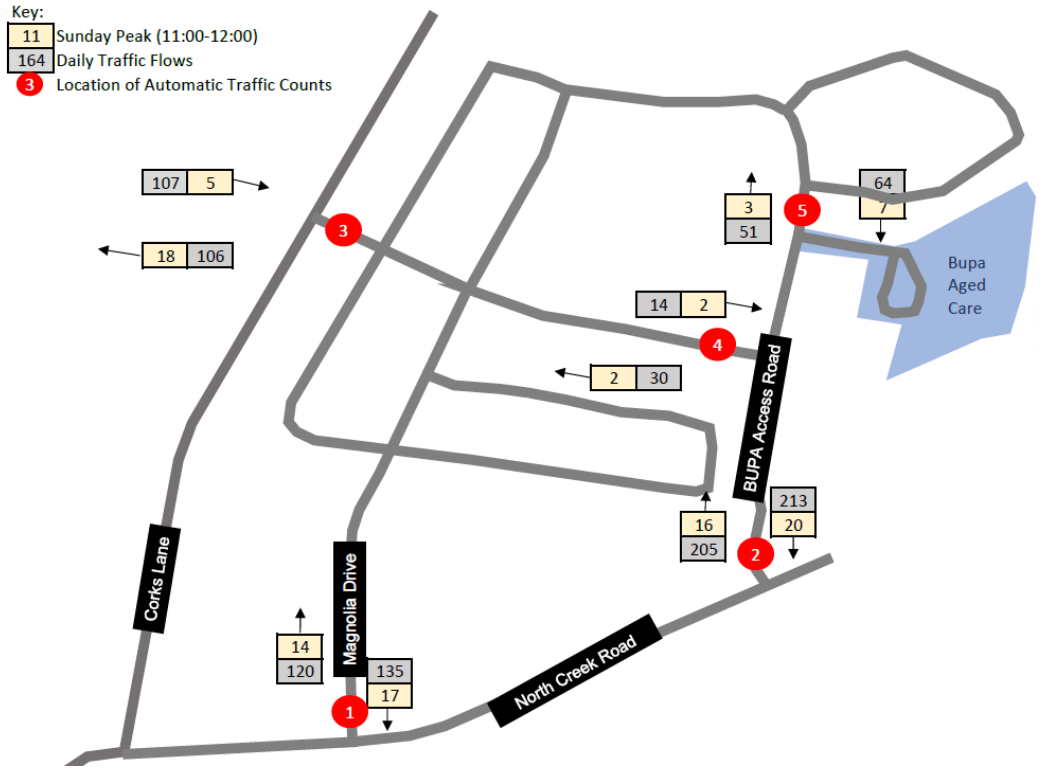


Figure 2.11 Traffic Survey Summary - 10 March 2019 Sunday (Existing Built)

2.6.3 Combined 2017 and 2019 Traffic Surveys

Given the differences between the built of the Palm Lake Resort Ballina development during 2017 and 2019 surveys, an adjustment to the 2017 traffic surveys were made in order to capture the different flows recorded at the Bupa Access Road.

In the first instance, 2017 traffic surveys flows were forecast to 2019 base year using 2.8% p.a. growth. Secondly, traffic in and out from BUPA access road recorded in 2017 has been disregarded as new more accurate 2019 traffic survey data will be used instead. In and out flows from Bupa access roads through Corks Lane / North Creek Road intersection (recorded during 2017 surveys) have been also deducted to avoid double counting. Figure 2.12 below shows a summary of the 2019 external traffic flows calculated based on the methodology described above.

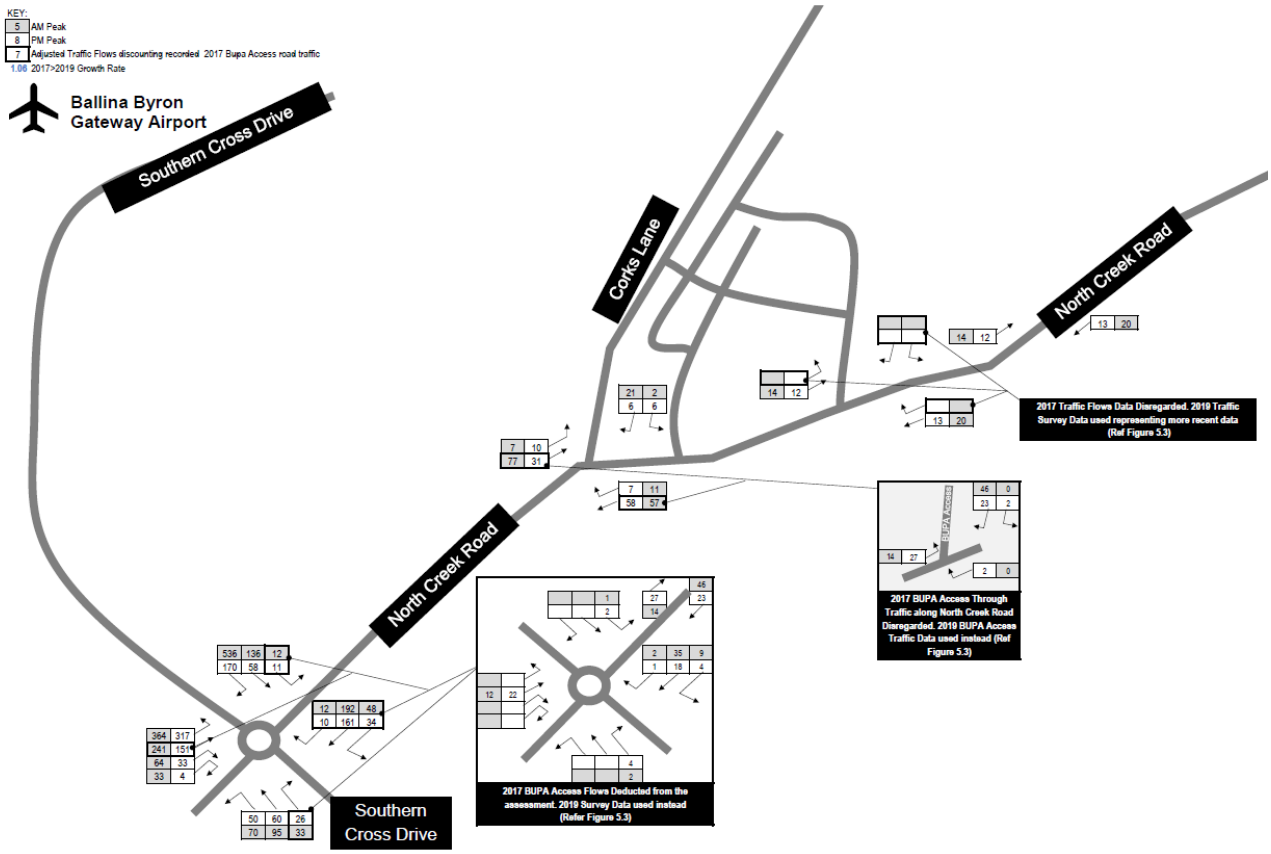


Figure 2.12 2019 Forecast External Traffic Flows (Growth from 2017 Traffic Survey and Adjusted)

2019 Thursday morning and evening peak hour traffic (refer Figure 2.8) was added to the new 2019 flows. Distribution of recorded Palm Lake Resort Ballina development and Bupa Aged Care traffic has been assigned to the network based on the historical directional % splits as recorded in the 2017 surveys. This has been presented in the Figure 2.13 below.

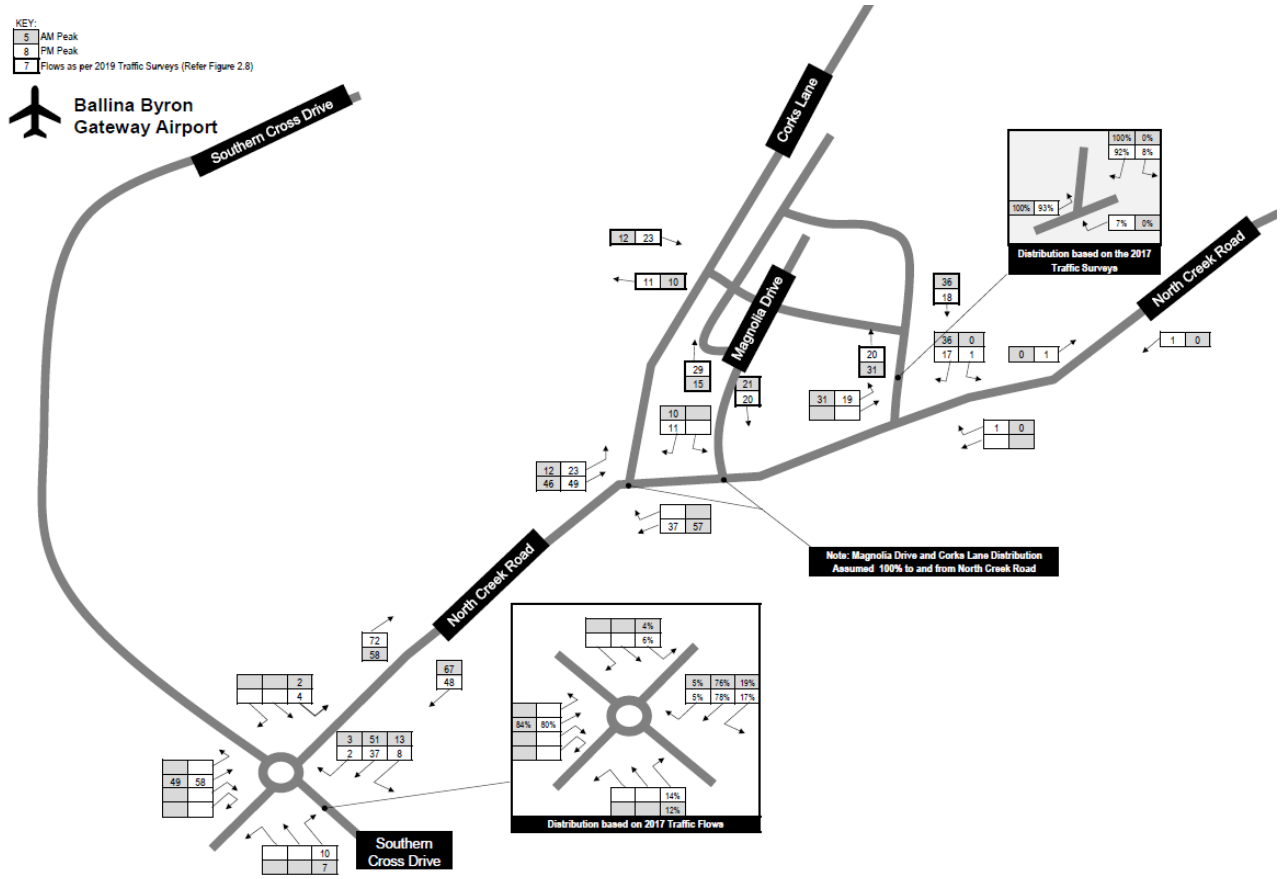


Figure 2.13 2019 Survey Traffic Flows

Figure 2.12 and Figure 2.13 have been added to identify the existing traffic flows in 2019. The resultant traffic flows in 2019 for the AM and PM peak hours is shown in Figure 2.14 below.

Figure 2.14 has been used for the intersection analysis and for future traffic flows forecast.

All traffic flow diagrams are attached as Appendix C to this report.

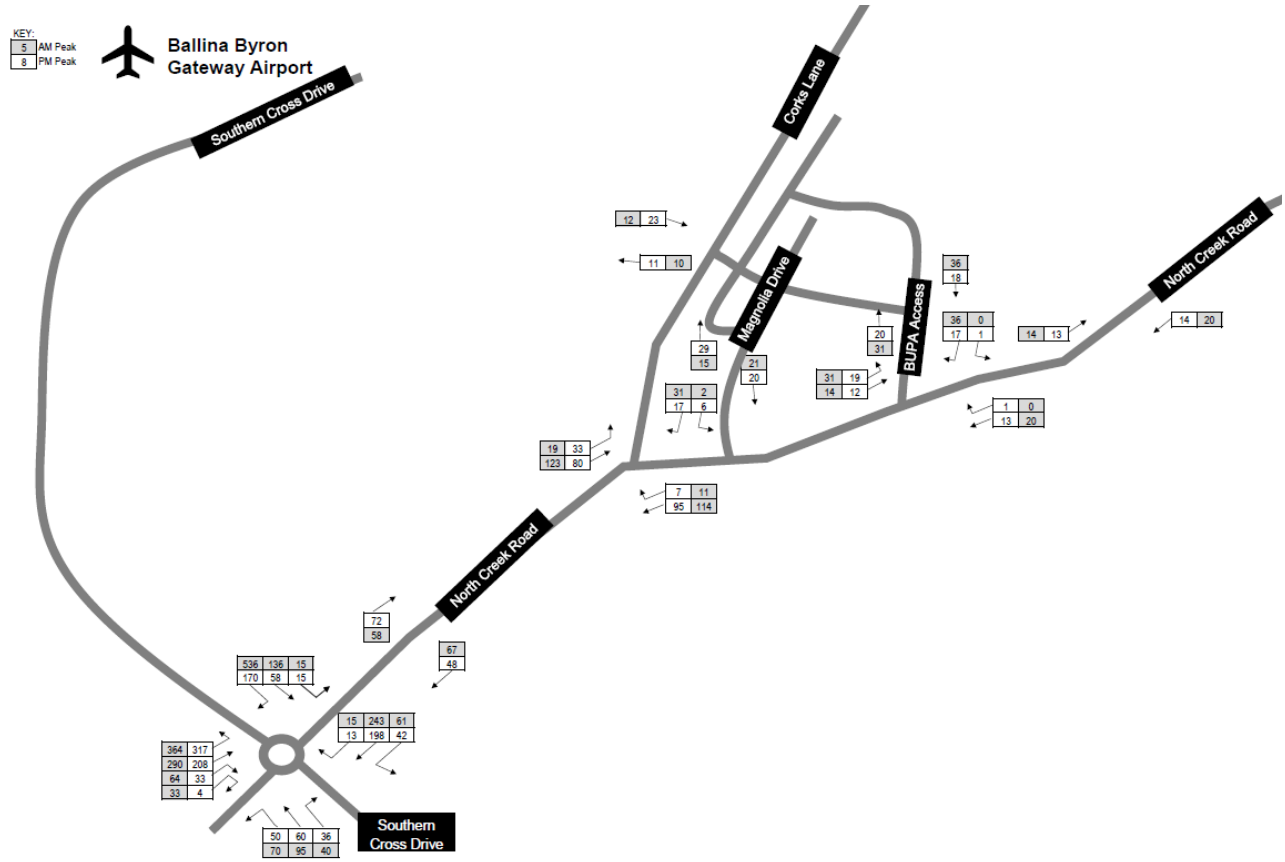


Figure 2.14 2019 Base Traffic Flows

3. Proposed Development

3.1 Development Details

The proposal consists of 77 residential retirement units for seniors housing at 120 North Creek Road in Ballina. Access to and from the proposed development onto the wider road network is provided via new access driveway with North Creek Road and the existing Bupa Aged Care access. The proposed development site layout is shown in Figure 3.1 below. A copy of the Plan of Development is contained in Appendix A.

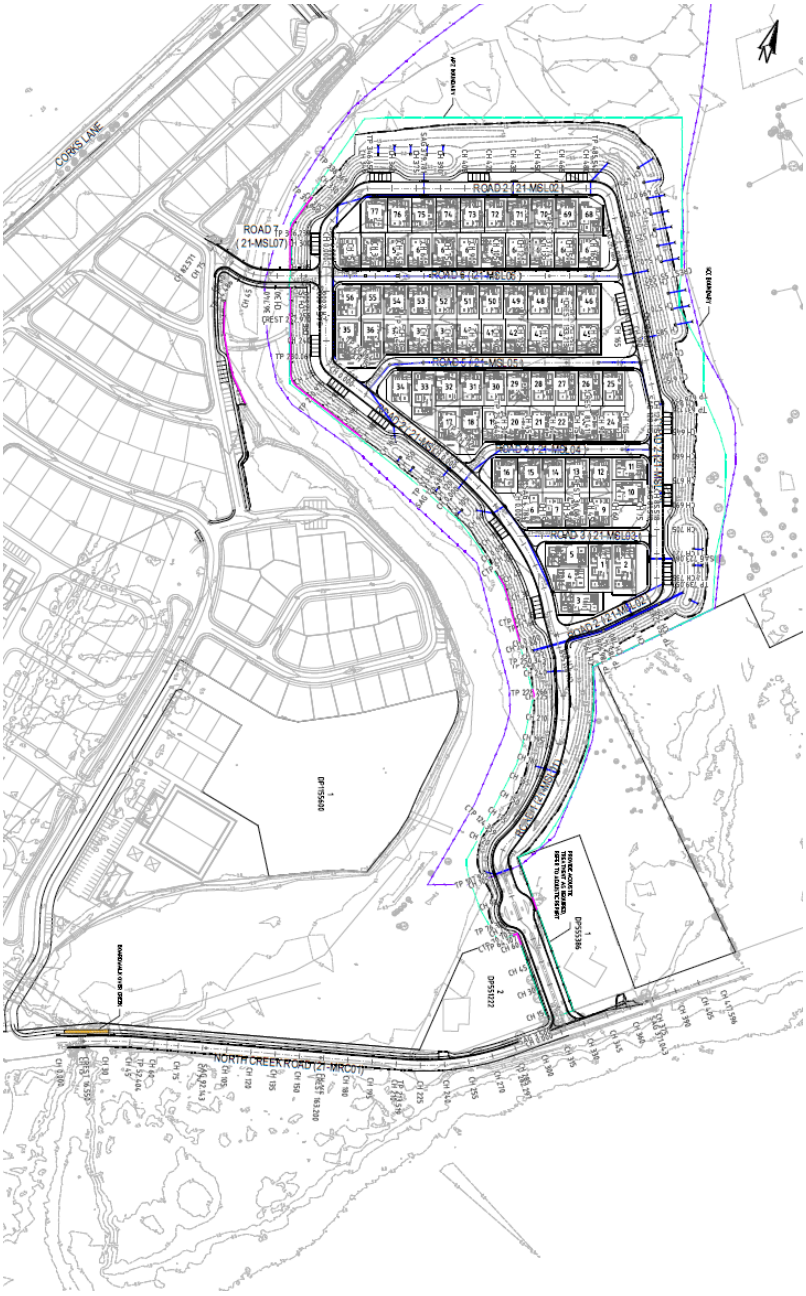


Figure 3.1 Proposed Development Layout Plan

3.2 Site Access Arrangements

Vehicular Access

Access to the wider transport network is provided via a new access driveway intersection with North Creek Road and an existing Bupa Aged Care / North Creek Road priority intersection. The majority of residents will utilise a new access driveway intersection with North Creek Road to access wider road network, but percentage of external trips will be linked trips to communal facilities therefore some external trips will be made via Bupa access road.

To ensure safety and efficiency of North Creek Road, a turn warrant assessment was conducted, which is described later in this report. The expected operation and form of the North Creek Road priority intersection are presented in Section 5.

The site access strategy is shown in Figure 3.2 below.

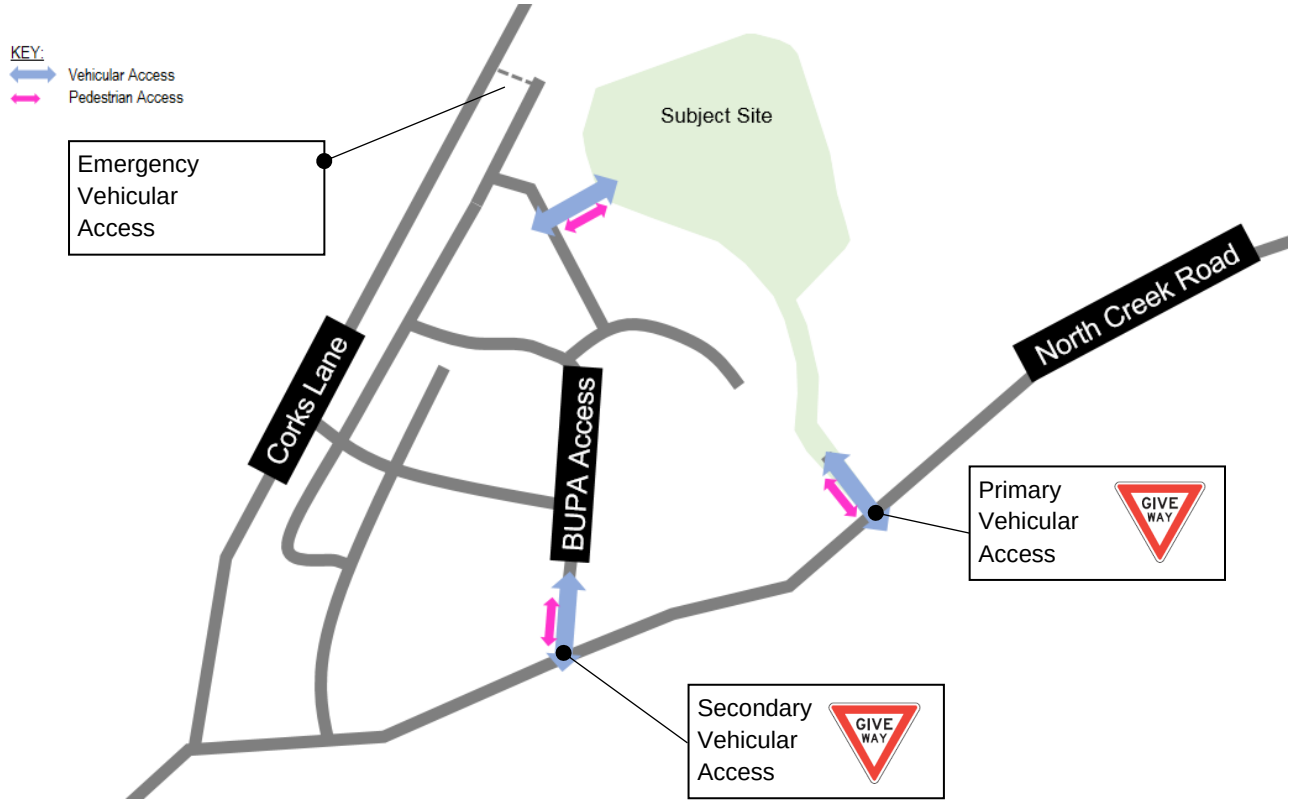


Figure 3.2 Site Access Strategy

Sight distance at both primary and secondary vehicular access points accords with the desirable requirements of the Australian/New Zealand Standards AS/NZS 2890.1:2004. The sight distance requirements at access driveway (visibility of 2.5m from give way line (drivers position) x 83m SSD) is met in both directions for the 60km/h frontage road design speed (Posted Speed 50km/hr).

Figure 3.3 below also attached as Appendix D shows the proposed Primary Vehicular Access functional layout plan pre North Creek Road bridge construction.

Figure 3.3 Site Access Arrangements

There is sufficient space 18.8 metres for 10.0 m wide driveway pavement between the existing allotments either side (Lot 2 on DP551222 and Lot 2 on DP555386). The secondary access to the proposed development site will be provided via Bupa Care access road.

In 2036 design year, the North Creek bridge will be constructed, which will provide a link between Ballina and Skennars Head to the east. Based on the Turn Warrant analysis (Refer Section 5.4), it is recommended to upgrade Corks Lane and Bupa Care Access intersections with North Creek Road to AUL(s) and CHR(s) between 2032 and 2036. These works are not required as part of the development and are not recommended for construction due to the extended time frame that the bridge construction is anticipated to occur i.e. past the 10 year design horizon. Ultimately the intersection auxiliary lanes are recommended to be incorporated with the bridge construction works. Because the new site access is a driveway and not a public road, an auxiliary or passing lane as ultimately proposed, requires parking restrictions on both sides of North Creek Road in the vicinity of the access driveway and are ultimately recommended in the future as part of the North Creek bridge construction.

Figure 3.4 below, shows the ultimate site access arrangements following the North Creek Road bridge construction, which shows that provision of the AUL(s) and CHR(s) is achievable within the existing road reserve.

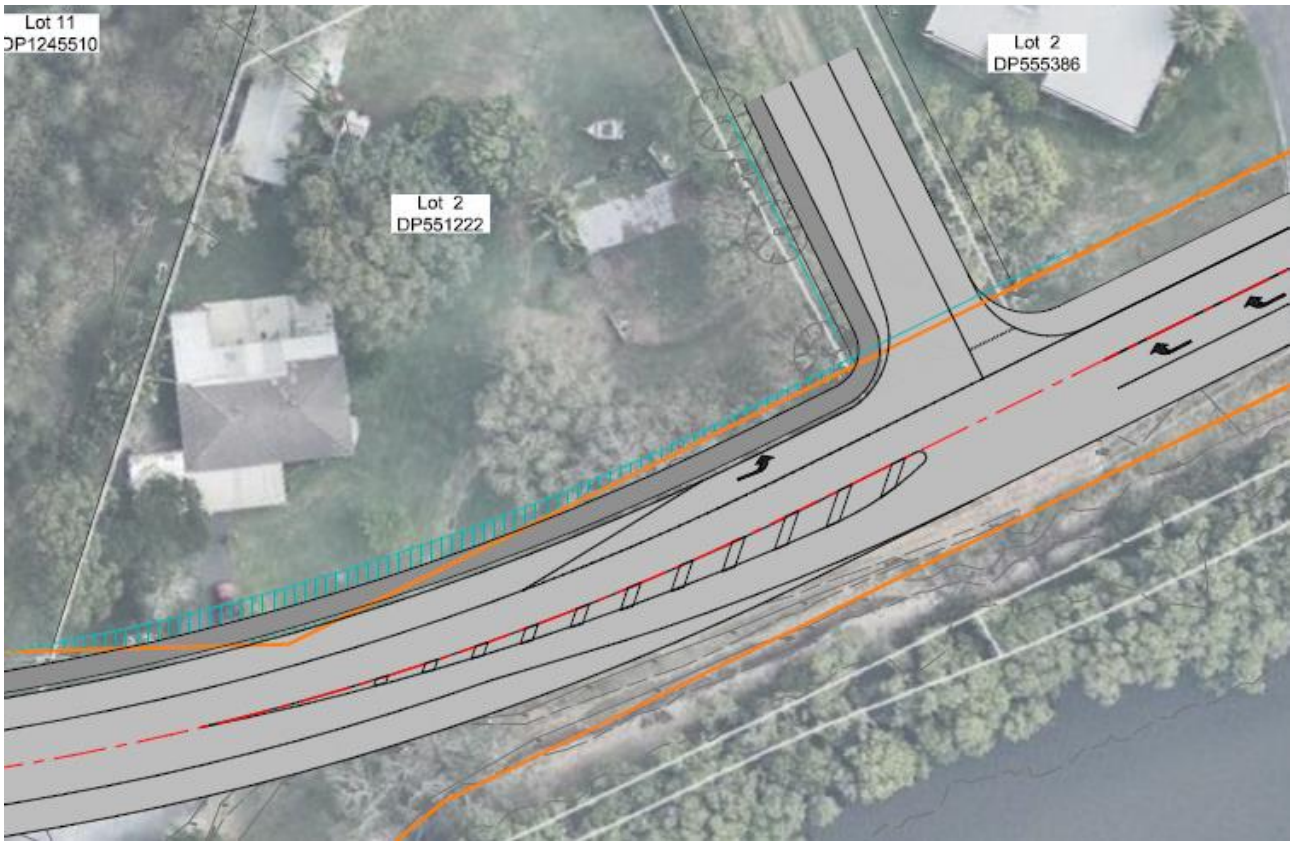


Figure 3.4 Site Access Arrangements Post North Creek Road Bridge Construction

Internal Roads

Figure 3.5 below shows an extract from NSW Development Design Specification D1 Geometric Road Design (Urban and Rural) relating to the Characteristics of Roads in Residential Subdivision Road Networks.

Road Type	Maximum Traffic Volume (vpd) [1]	Maximum Speed [2] (km/h)	Carriageway Width (m) [3][10] Min	Parking Provisions Within Road Reserve	Kerbing [4]	Footpath Requirement [15] minimum	Bicycle path Requirement	Verge Width (m) minimum (each side)	Minimum Road Reserve Width (m)
Access Street	100	40	6	Carriageway	Mountable	No	No	3	14
Local Street	2000	50	7-9	Carriageway	Mountable	Network Dependent	Network Dependent	3.5	15-17
Collector Street	3000	50	11	Carriageway	Mountable	One side [16]	Network Dependent	3.5	18
Distributor Road	3000+	60	13	Carriageway	Upright	One Side	Network Dependent	3.5	20

Figure 3.5 Characteristics of Roads in Residential Subdivision Road Networks

As can be seen in the above Figure 3.5, Access Street road type is recommended for a maximum of 100 vehicles per day traffic volumes. Based on the highest recorded daily trip rates per unit for senior housing development (refer section 5.2 – Development Traffic), this equates to the maximum 30 senior housing lots catchment for Access Street.

Figure 3.6 below shows the proposed development internal network with corresponding road catchment areas.

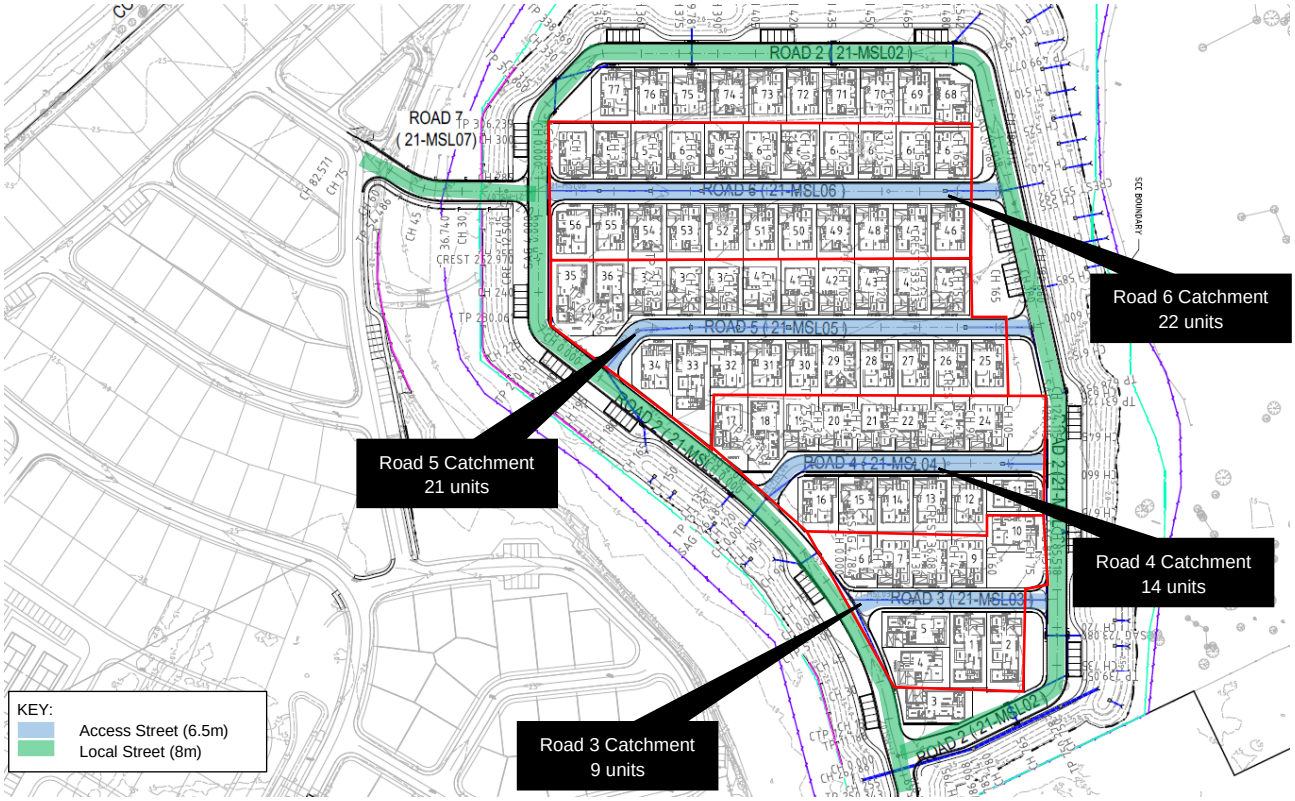


Figure 3.6 Internal Road Network

Road 2 and Road 7 highlighted on Figure 3.6 in green, will be designed as Local Street with 8m carriageway width. Based on the Road 1 catchment areas as well as desirable pedestrian lines (west and south), the footpath is provided on one side of Road 2 and Road 7 as shown in Figure 3.6.

As can be seen in the Figure 3.6 above, all Access Streets proposed at the development are below maximum allowed 100 vehicles per day volumes (30 senior housing lots).

All internal Access Streets will be private with 6.5m carriageway and verges to allow for appropriate street furniture. Access Street has no minimum footpath requirements thus will be designed as a shared zone with posted 10km/h speed limit. Example of signage that will be used to enforce this is shown in Figure 3.7 below.

Figure 3.7 Shared Zone Signage Example

Proposed 10km/h shared zone will enable vehicles and pedestrian to safely share the road space available. This can be achieved by the use of different coloured and/or textured pavement surfaces, by the use of full width flush paving between property lines and through landscaping and by introduction of raised threshold such as the one shown in Figure 3.8.

Figure 3.8 Shared Zone Raised Threshold Example

It is also recommended to introduce Threshold Treatment at the entry to the proposed retirement village, which by contrast with the adjacent roadway, will alert drivers that they are entering a driving environment that is different from the one they have just left. Example of the threshold treatments are shown in Figure 3.9 below.

Source: Guide to Traffic Management Part 8: Local Area Traffic Management, Austroads

Figure 3.9 Examples of Threshold Treatments

General traffic, as well as waste and service vehicles, will be serviced via access Road 1. This will allow for safe traffic movement and to ensure efficient waste collection within the site.

In summary, the proposed means of ingress to or egress from the development are adequate and located appropriately according to the road hierarchy. The development provides for safe and convenient movement to, from and within the site.

North Creek Road Upgrade

Due to the increased volumes along North Creek Road between the existing Bupa intersection and the proposed new access driveway, there is a requirement to upgrade this road to Collector Street standard (Refer Figure 3.3) providing half the collector road width standard along the site frontage. A new section of 7 metres wide pavement in North Creek Road is proposed that preserves the existing characteristics. The pavement involves widening the existing narrow pavement (between4-6m) extending past the existing Bupa access in an easterly direction. A 2.0-metre-wide concrete footpath is recommended on the northern side of the road. North Creek Road upgrade extends for 348 metres from the Bupa access intersection to the proposed new access driveway intersection as shown in Figure 3.10 below. The North Creek Road Upgrade works has been sourced from the Martens & Associates Pty Ltd drawing PS01-D102 Rev G as contained in Appendix D. Intersection lighting is proposed for the access driveway / north Creek road junction.

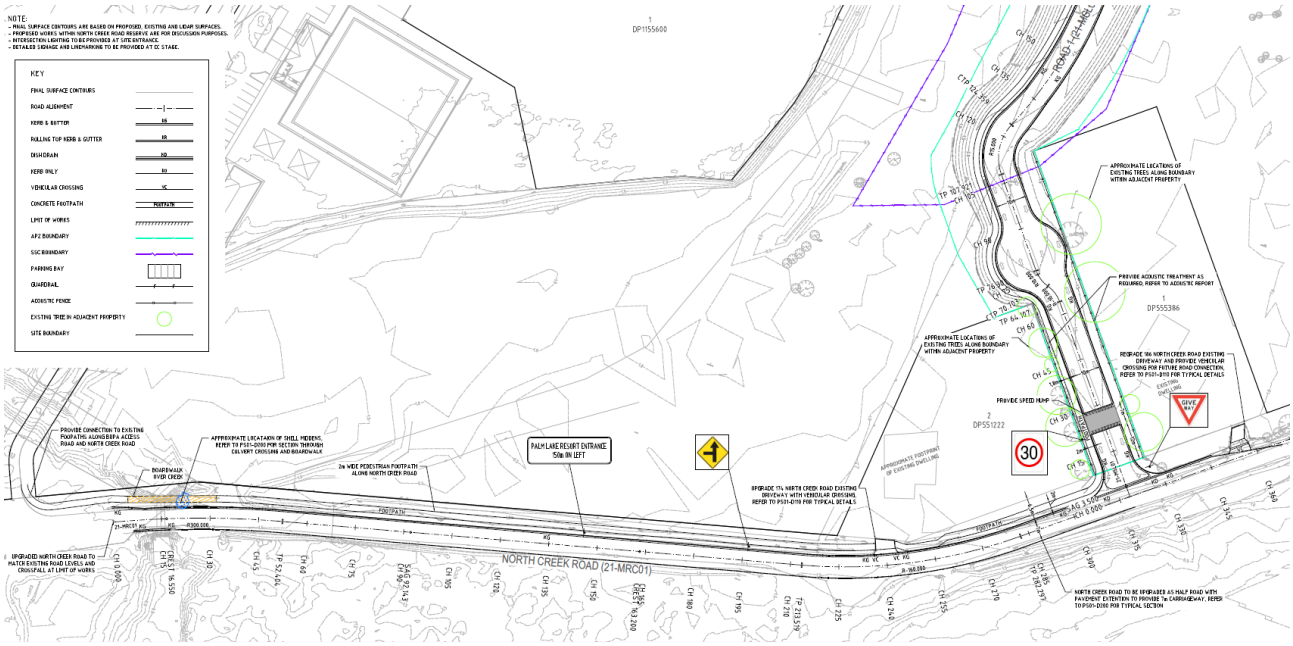


Figure 3.10 Recommended North Creek Road Upgrades

Pedestrian Access

In order to facilitate the anticipated number of pedestrians accessing the site, it is proposed to introduce a 10km/h shared zone at the internal roads. The design also includes dedicated footpaths between lots enabling direct pedestrian / cycling access to the existing Community Centre and Palm Lake Bowls to the west of the site as shown in Figure 3.11.

Additionally, it is recommended to provide a footpath on the northern side of North Creek Road between proposed Bupa Aged Care access intersection and new access driveway intersection. (refer Figure 3.10). The proposed footpath will connect with the existing pedestrian facilities along Bupa Care access and North Creek Road.

Figure 3.11 Recommended Seniors Housing Facilities for Pedestrians

Footpath connection to and along Corks Lane and Bupa Care access road will ensure appropriate pedestrian connectivity with surrounding streets located to the west of the subject site. Also refer to Martens Drawing PS01-D103B contained in Appendix D.

The majority of the leisure and retail areas (i.e. Ballina Shopping Centre) are located to the west of the site therefore the predominant walking route to and from the site will be via pedestrian facilities along North Creek Road.

Cycling Access

There are no dedicated bicycle lanes along Corks Lane, Bupa Care access road or North Creek Road, but given the low speed of the road (50km/h) and low traffic volumes, these roads are

considered adequate for cyclist to use. It is expected that cyclist will utilise North Creek Road to access Ballina Town centre.

Apart from the shared zones the internal road network is subject to 30km/h speed limit which is recommended for making cycling a safe and genuine alternative to driving a car.

Overall the layout of the development provides for the safe movement of pedestrians and cyclists within the development and to/from the development, taking into account the location of public transport and pedestrian facilities.

Public Transport

The nearest bus stop to the site is located on North Creek Road within 9-minute walk from the site (approximately 800m). This bus stops operate 664 bus service in the westbound direction and provide connection to Ballina and to Cumbalum. This service operates with around 45-minute frequency.

The above indicates that accessibility to public transport is quite limited with only one bus service in operation accessible within 9-minute walk from the site, which doesn't present residents with a genuine alternative to the use of the private car. A private bus service will service the development in accordance with SEPP Housing for seniors or people with a disability 2004.

Construction Vehicle Access

The pre-lodgement minutes requires *the applicant to include details regarding the proposed haulage route for any imported fill and the intended construction access points*.

The exact origin of imported fill is not known at this stage until competitive tenders have been called for the reclamation and haulage. All haulage is to occur along the major roads including along North Creek Road. Haulage and construction access will occur from the new North Creek Road entry. The new entry road to the Expansion site involves adequate separation from the existing development to ensure minimal disturbance occurs to the existing development. All haulage trucks used should be compliant with Ballina Shire Council requirements including covered loads. Haulage routes within the site kept watered to suppress dust and access to North Creek Road to include provisions to prevent dirt transfer to North Creek Road pavement surface.

Summary

The above identifies that the site is generally well located to enable a proportion of trips to be made to and from the site by sustainable modes of transport such as walking and cycling. Accessibility to public transport and frequency offered by services along North Creek Road are quite infrequent. The private bus service however also assists to reduce the single occupancy car journeys.

3.3 Proposed Parking Provisions

Based on the characteristic of the site, it is expected that resident parking will be provided at each individual lot. Demand for visitor parking will be accommodated by on-street parking plus the perpendicular parking bays uniformly spread throughout the site. 70 visitor car spaces are provided

in a perpendicular car parking space configuration through the site. The spaces are located uniformly throughout the development and provide for 1 space per 1.1 dwellings which is in excess of the minimum requirement of 1 visitor space per 5 dwellings and sufficient for the development.

3.4 Emergency Access

There will be two emergency accesses provided to the strategic road network.

One will be the new 8.0 metre wide access driveway connecting to North Creek Road.

The other is an emergency access from Corks Lane. Extract from the Martens & Associated Pty Ltd drawing PS01-D103 Rev B in Appendix D as per below Figure 3.12 that shows the alternative emergency vehicular access to Corks Lane.

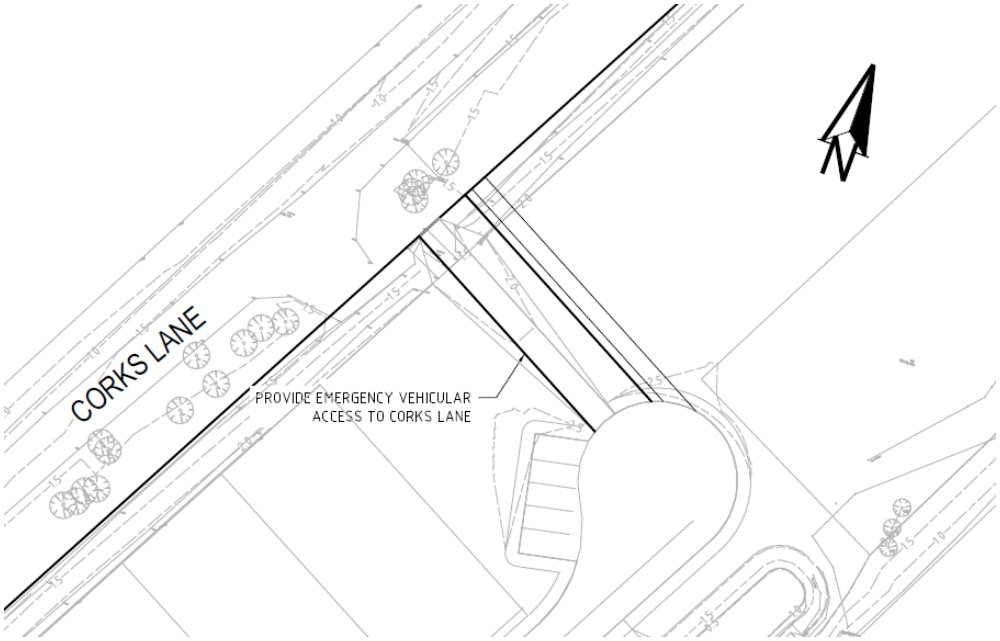


Figure 3.12 Vehicular Emergency Access from Corks Lane

The proposed emergency site access is satisfactory for the proposed development site.

4. Committed Development

Before considering the implications of the proposed development it is considered appropriate to summarise the changes in traffic flows likely to be associated with various committed development sites in the area.

The committed development site to the west of the proposed development is shown on Figure 4.1 below and discussed separately below.

Figure 4.1 Palm Lake Resort Ballina – Stage 6 - Committed Development

Stage 6 Palm Lake Resort retirement village development on land west of the subject site is proposed to comprise 18 units with points of access off the North Creek Road and Magnolia Drive.

At the time of writing this report, Stage 5 development has been already constructed but the 2 unoccupied units located to the north of the site, have been included in the assessment.

To ensure compatibility, the vehicle trip rates associated with the proposed development described in more detail in Section 5, have been used to calculate committed development trip rates. Also, due to the road configuration for Stage 6, 100% of the committed Stage 6 development trips have been assigned to North Creek Road via Magnolia Drive.

The identified committed development within Palm Lake Resort Ballina retirement village is expected to generate 7 two-way trips in the AM Peak hour and 8 two-way trips PM Peak hour.

The number of vehicle trips associated with the committed development (retirement village) and their distribution through Corks Lane / North Creek Road and Southern Cross Drive / North Creek Road intersections are shown in Figure 4.2.

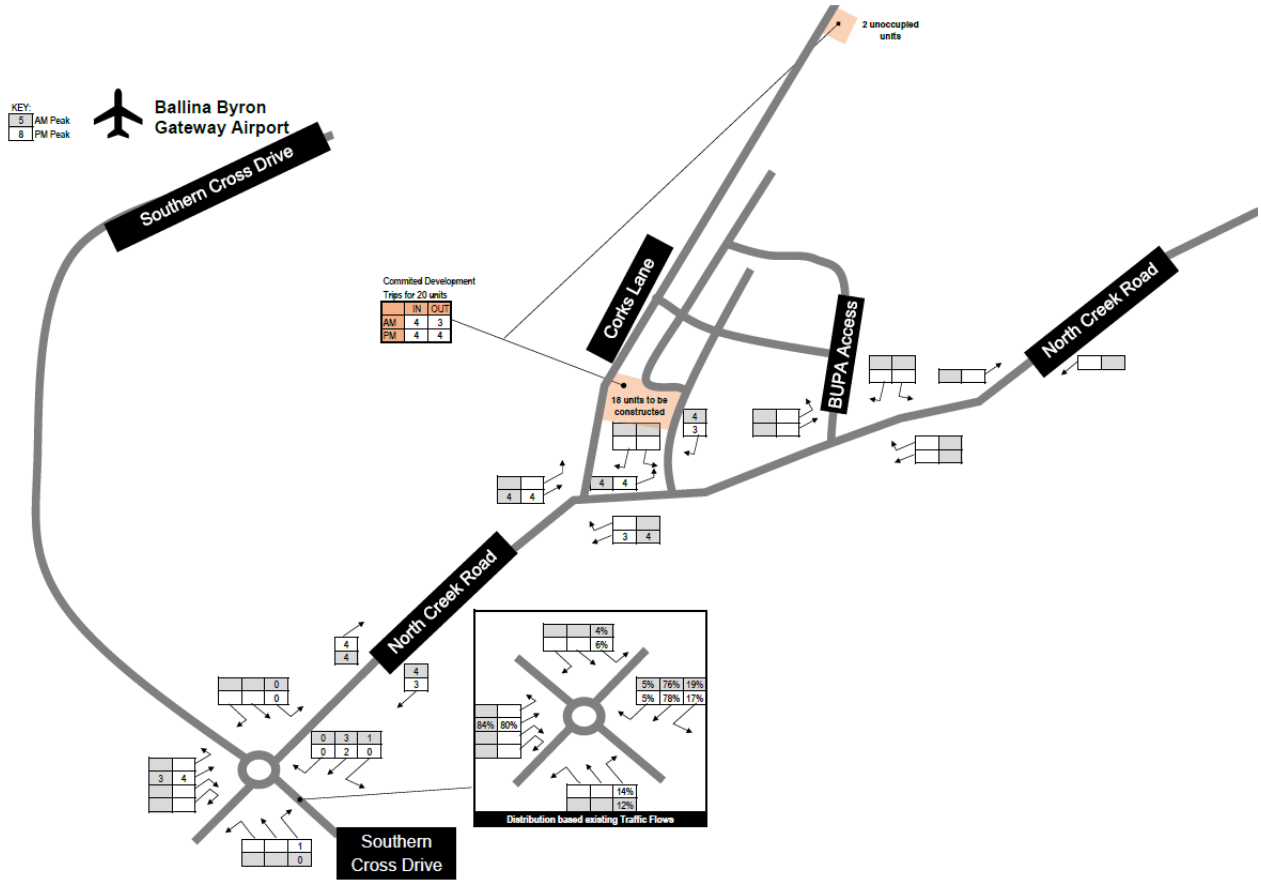


Figure 4.2 Committed Development Traffic Flows

Summary

The above has identified the number and distribution of vehicle trips associated with the committed development (retirement village) to the west of the subject site.

Figure 4.2 is also included in Appendix C, which break down the derivation of the overall trip numbers and distribution associated with the committed development site.

5. Traffic Demands

In order to assess the relative impact of the proposal on the surrounding road network, it is necessary to define the existing traffic demands on the road network and estimate future traffic demands on key intersections.

This section of the report details the existing traffic demands as defined in traffic surveys and forecasts these to the future assessment years. These volumes represent the “Pre-Development” scenario.

The traffic generated by the proposed development is estimated, along with its distribution across the surrounding road network. These volumes are added to the “Pre-Development” scenario to provide the “Post Development” traffic scenario.

5.1 Pre-Development Traffic

A traffic survey data together with recorded and published traffic generation rates have been used to establish background traffic demands. As mentioned in Section 2.6, traffic surveys have been undertaken at the following intersections:

- North Creek Road / Bupa Care access road priority intersection;
- North Creek Road / Corks Lane priority intersection; and
- North Creek Road / Southern Cross Drive roundabout.

Traffic counts used for analysis have been provided in Appendix B. The following Figure 5.1 shows a summary of the traffic survey results for the morning and evening peak hours at each approach to the Bupa Care access road / North Creek Road priority junction.

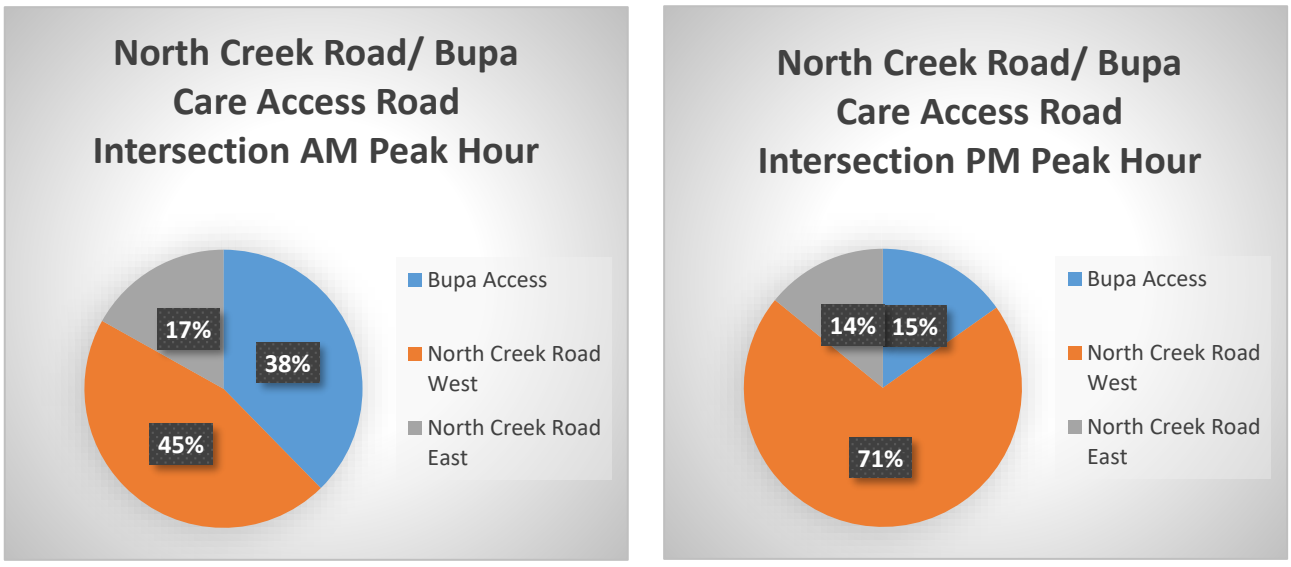


Figure 5.1 Traffic Survey Results

In the morning peak hour, the predominate travel direction is from the west travelling north towards Bupa Care access road with the opposite being true in the afternoon peak hour.

5.1.1 Background Traffic Growth Rates

Background traffic has been assumed to grow at a rate of 2.8% per annum based on the information provided by Ballina Shire Council.

The calculated compound growth factors for North Creek Road and other local roads in Ballina used in analysis are identified in Table 5.1.

Table 5.1 Traffic Growth Factors

2017 to 2019	2019 to 2022	2019 to 2032
1.057	1.086	1.432

5.1.2 Future Year Traffic Volumes

The development is expected to be completed by 2022 and the 10-year design horizon in accordance with Department of Main Roads 2017, *Guide to Traffic Impact Assessment*, is 2032.

Growth factors summarised in Table 5.1 have been applied to the 2019 traffic flows (Figure 2.14) to identify the future traffic flows in 2022 and 2032 assuming no committed development and no additional proposed development; i.e. the situation in the assessment years if there were to be no further development in the area. The resultant future traffic for the year of 2022 and 2032 AM and PM peak hours is shown in the Figure 5.2 and Figure 5.3 respectively.

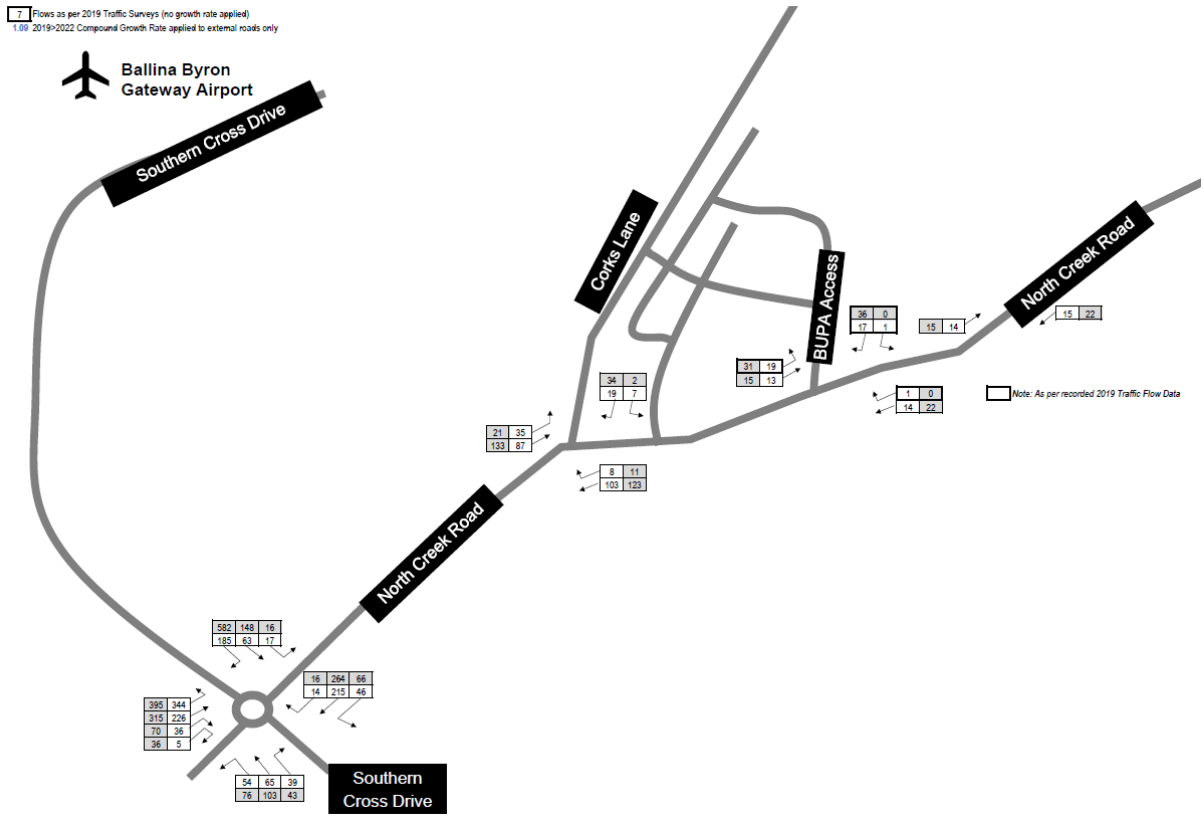


Figure 5.2 2022 Base Traffic Flows

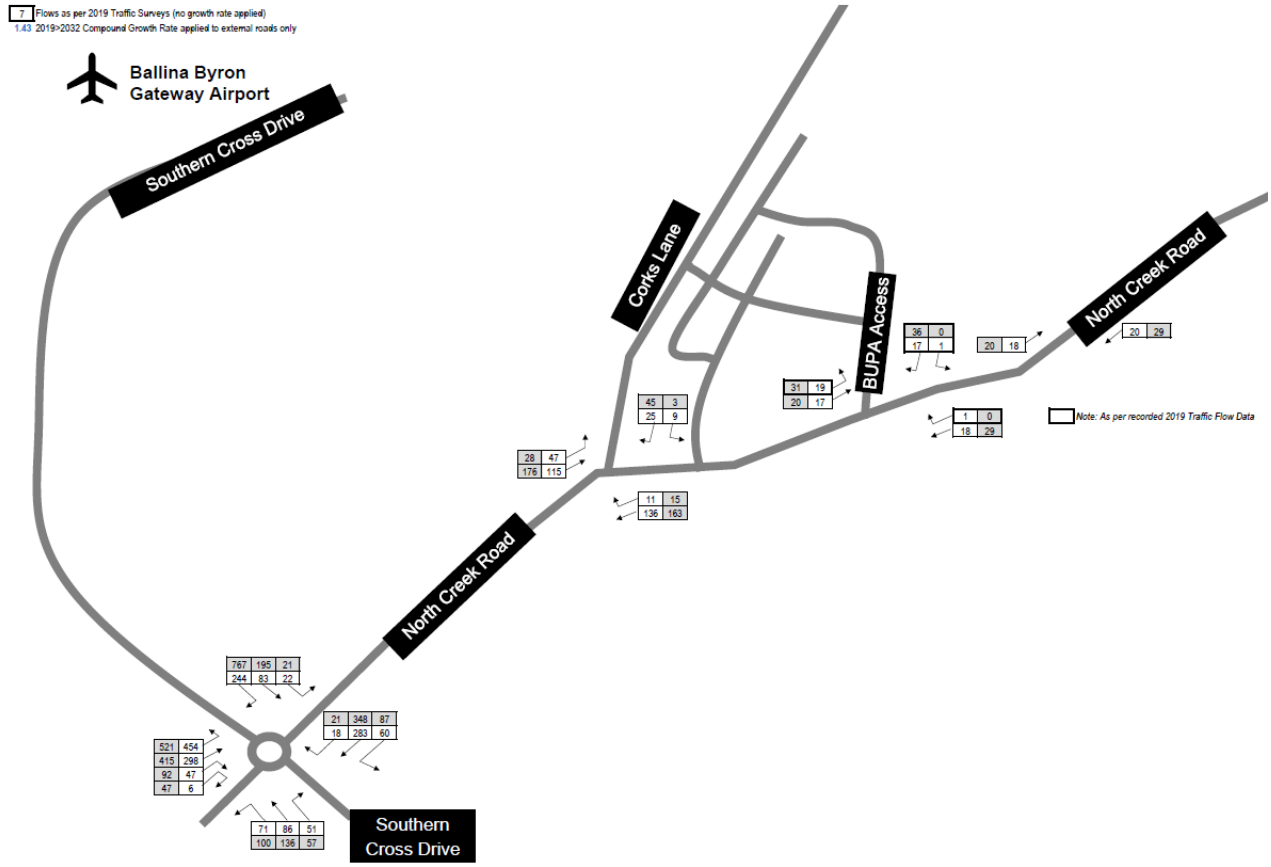


Figure 5.3 2032 Base Traffic Flows

5.1.3 Future Year Traffic Volumes with Committed Development

The traffic flows associated with the committed development sites have been identified in Section 4 of this report and have been shown within the previous Figure 4.2.

This Figure can therefore be combined with the Figure 5.2 and Figure 5.3 flows to identify the likely overall traffic flows on the road network in 2022 and 2033 should the subject of this application not come forward. This is as shown on Figure 5.4 and Figure 5.5 for 2022 and 2032 assessment year with the flows representing the reference case against which the implications of the proposed development can be assessed.

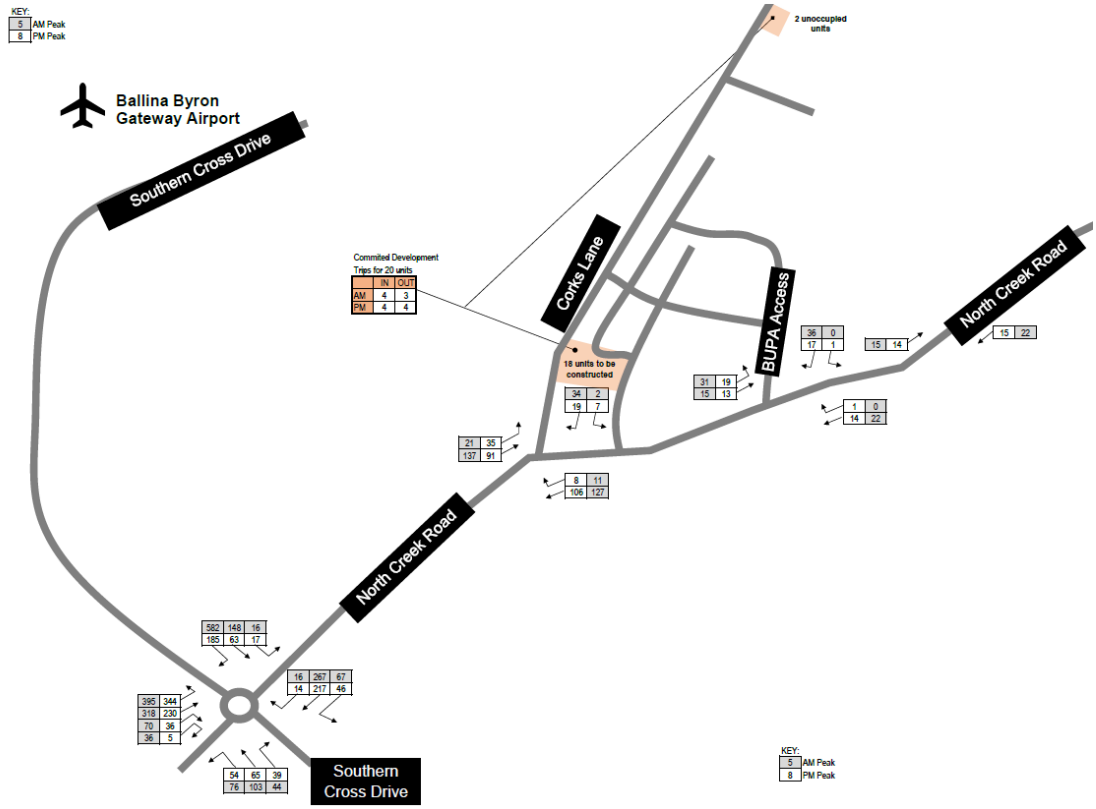


Figure 5.4 2022 'Pre-Development' Traffic Flows

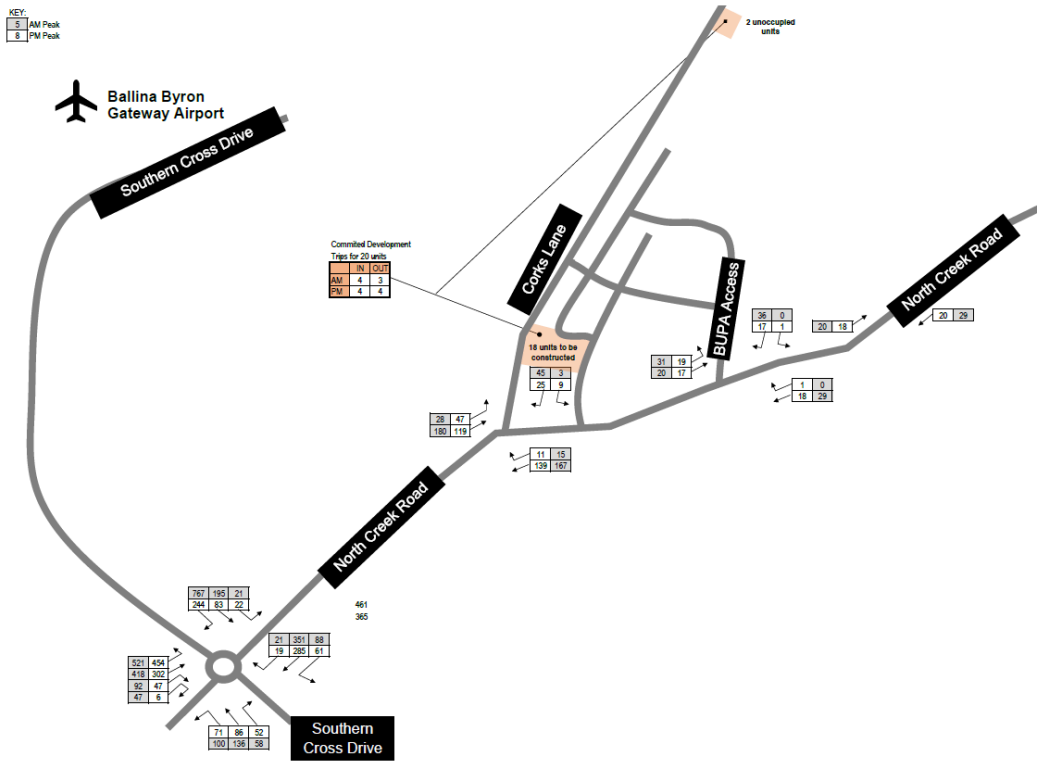


Figure 5.5 2032 'Pre-Development' Traffic Flows

5.2 Development Traffic

5.2.1 Trip Generation

AM and PM Peak and daily traffic volumes for the proposed development have been based on the following traffic generation rates:

- Traffic generation survey of an existing development similar to the proposed development in terms of its land use, scale, location (existing retirement development located to the west of the site); and
- Guide to Traffic Generating Developments Updated traffic surveys, RMS (2013).

Traffic Generation Survey of an Existing Development Similar to the Proposed Development

In order to establish retirement facility daily and peak hours trip rates, traffic counts were undertaken at the 4 entry / exit gates to Palm Lake Resort Ballina Retirement Village between 7 Mach 2019 and 10 March 2019, plus the Bupa access road intersection with North Creek road. The survey site location is shown in Figure 5.6 below.

Figure 5.6 Palm Lake Resort Ballina Retirement Village 2019 Surveys Location

Traffic survey location one, three, four and five represent all entry and exit points to the retirement village. Survey location 2 includes Palm Lake Resort Ballina Retirement Village and BUPA Aged Care traffic volumes therefore has been disregarded in the trip generation rate calculation.

Palm Lake Resort Ballina Retirement Village development includes a total of 286 retirement units. It is worth to note that during 2019 traffic surveys, 2 units were not occupied. Additionally, 6 units are located outside of the entry 1,3,4 and 5 gates, just adjacent to Bupa Aged Care facility. Subsequently, the trip rate calculation was based on the recorded arrival and departure flows at gate locations highlighted in green in Figure 5.6 above and total of 278 units built and occupied at the time of the 2019 traffic surveys. The site location, size and accessibility are considered to be the representative as the proposed development forms and extension to the existing retirement village.

It is worth to note, that retirement village development peak hour is outside the typical network peak hour. This was confirmed in the 2019 Automatic Traffic Counts, but for robust assessment the highest recorded development peak hours traffic flows have been used in the assessment.

In summary, there were 61 cars arriving and 38 cars departing from the site between 9am and 10am. During evening development peak (14:00-15:00) there were 40 cars entering and 42 exiting the site. The summary of the peak hour flows recorded at the site access to the Palm Lake Resort Ballina Retirement Village is shown in Table 5.2 below with full data attached as Appendix C to this report.

Table 5.2 Existing Palm Lake Resort Ballina Retirement Village Trip Generation Summary (Vehicles Per Hour)

Time	Number of units excluding 2 unoccupied units and 6 units outside the surveyed area	Trip generation rate per unit	Total Trips	Arrivals	Departures
AM Peak	278	0.356	99	61	38
PM Peak		0.295	82	40	42
Daily		3.155	866	440	426

Table 5.2 above identifies that the existing retirement village (consisting of 278 units) generates 866 two-way vehicle movements daily during weekday.

Guide to Traffic Generating Developments Updated traffic surveys, RMS (2013)

Weekday evening peak hour vehicle trips = 0.40 per dwelling is recommended for housing for seniors in Transport, Roads and Maritime Services; August 2013, *Guide to Traffic Generating Developments, TDT 2013/04a.*)

The above trip rate for the evening peak hour are higher than recorded PM Peak trip generation. For robust assessment, the higher trip generation has been adopted for the analysis.

In/Out Directional Split

The above trip rates provide a total two-way traffic generation rate for the proposed development. In order to assign the traffic to the access intersection and onto the local road network it is necessary to split peak hour development-generated traffic volumes into entry (IN) and exit (OUT) volumes. Directional split for the proposed development has been based on the existing 2019 traffic surveys for the Palm Lake Resort development (Refer Table 5.2).

In/Out directional split for the proposed development is summarised below:

- Morning peak hour 62% enter and 38% leave; and
- Evening peak hour 49% enter and 51% leave.

Table 5.3 below shows the proposed development trip generation based on 77 units yield for the Expansion area.

Table 5.3 Proposed Development Trip Generation Summary (Vehicles per Hour)

Time	Number of units	Trip generation rate	Total Trips	Arrivals	Departures
AM Peak	77	0.356	28	17	11
PM Peak		0.400	31	15	16
Daily		3.381*	260	132	129

**Highest recorded daily trip rate recorded on Friday 8 March 2017*

The above identifies that the proposed development is likely to generate approximately 28 additional vehicle trip movements in the AM peak hour and 31 additional vehicle trip movements in the PM peak hour. In effect, the proposed development will result in the insignificant traffic increase resulting in one additional vehicle movement every 2 minutes during AM Peak and PM Peak hours.

5.2.2 Trip Distribution

Trips generated by the proposed development are distributed directly to new internal access driveway and Bupa Care access road. Based on the shortest route assignment and location of the proposed number of lots in relation to the site access off North Creek Road and existing Bupa Aged Care access road, it has been assessed (refer Section 6) that 90% of trips generated by the proposed development will access wider road network via new access driveway directly onto North Creek Road.

Development trip distribution onto the North Creek Road / Bupa Aged Care junction and North Creek Road / new access driveway intersection as well as North Creek Road / Southern Cross Drive roundabout is based on the inherent split in the traffic surveys. The development trip distribution and assignment is shown in Figure 5.7 below.

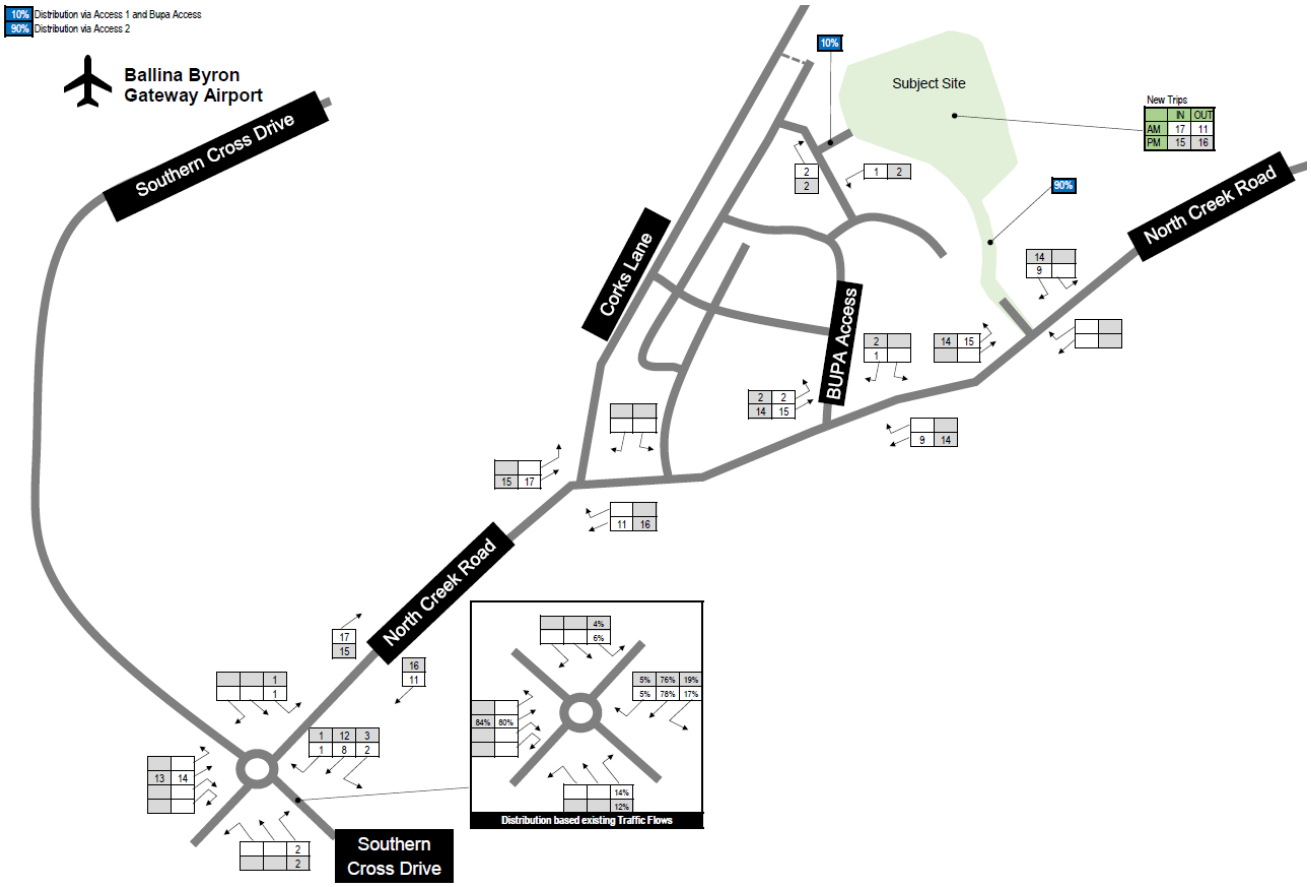


Figure 5.7 Development Peak Hour Trip Distribution and Assignment

5.3 Post Development Traffic

The development traffic (Figure 5.7) has been added to the Pre-Development traffic demands (Figure 5.4 and Figure 5.5) to provide the Post Development traffic scenarios. The Post Development traffic demands for the 2022 and 2032 design years are shown in Figure 5.8 and Figure 5.9 respectively with all traffic flow diagrams provided in Appendix C.

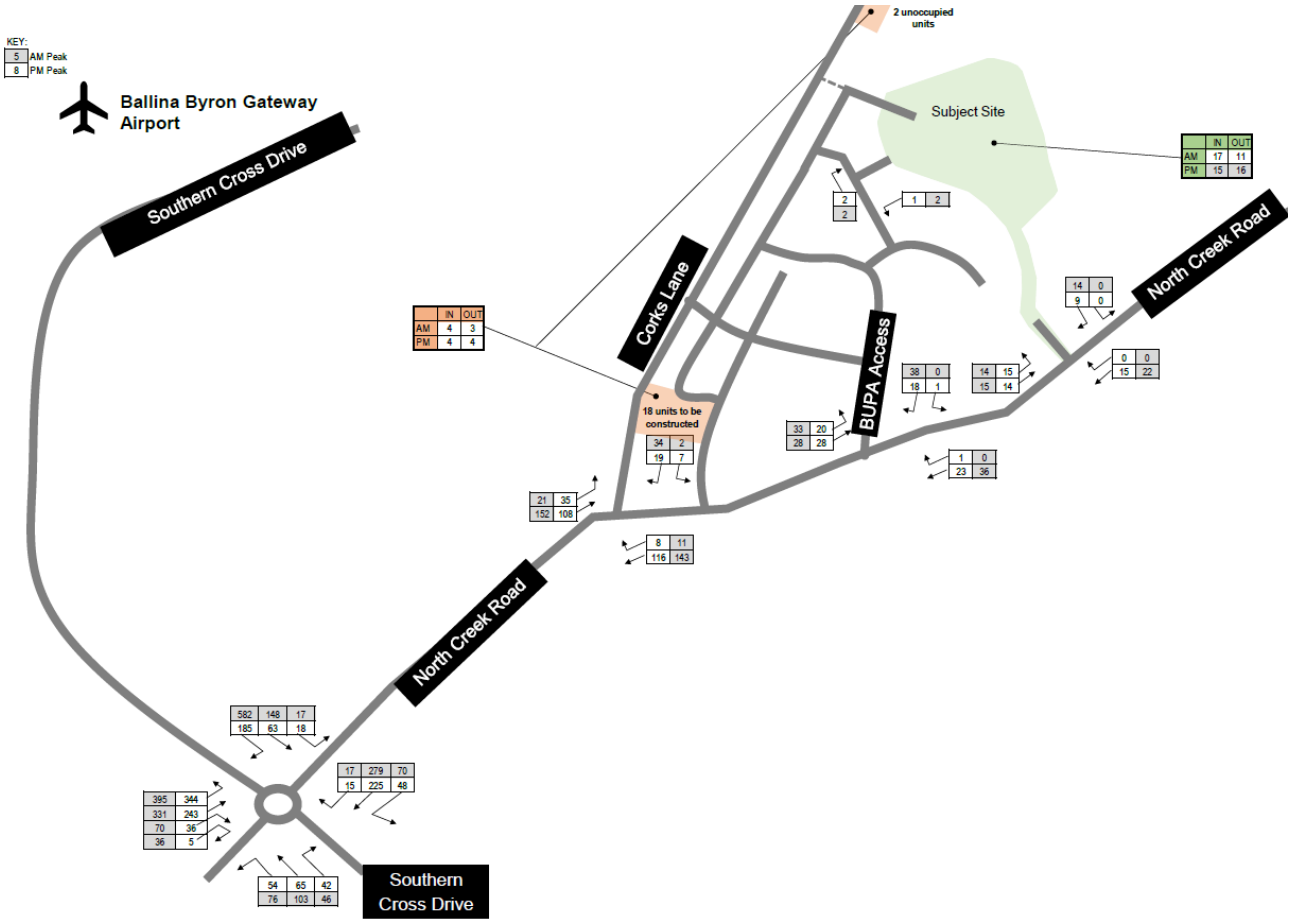


Figure 5.8 2022 'Post-Development' Peak Hour Traffic Flows

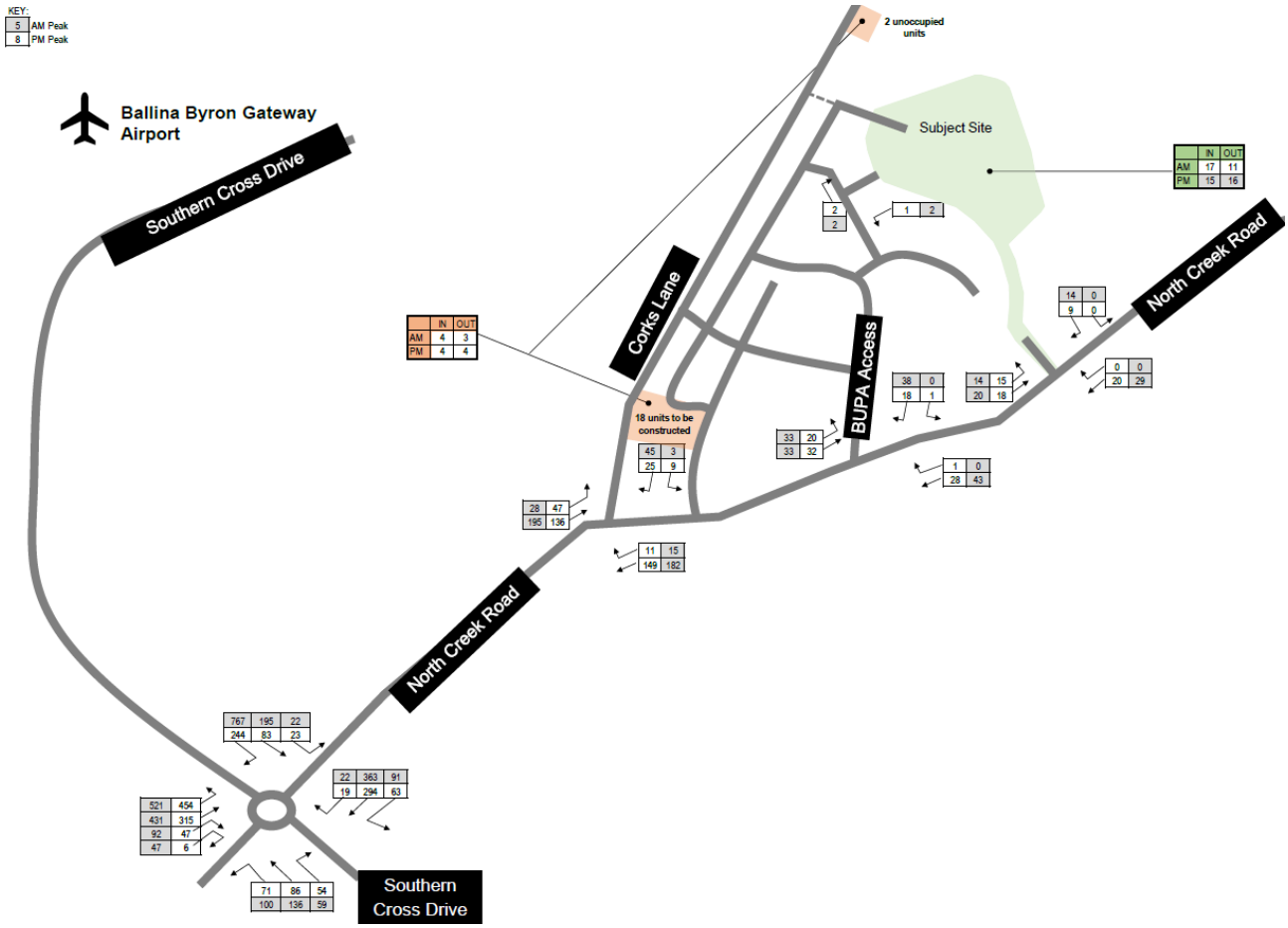


Figure 5.9 2032 'Post-Development' Peak Hour Traffic Flows

5.4 Turn Warrant

Turn warrants have been developed in relation to safety. The warrants have been developed around the relationship between traffic volumes, speed environments and accident statistics, employing a Benefit Cost Ratio (BCR) across an assumed design life.

The warrants are based on the construction of intersections on new roads, ie "greenfield" sites. For existing intersections, they provide a reference point, however, are not strictly applied as the BCRs in established locations often do not support upgrades, due to the existing physical constraints (eg. services, road reserve, drainage structures, etc). A summary of turn treatments is provided in Table 5.3.

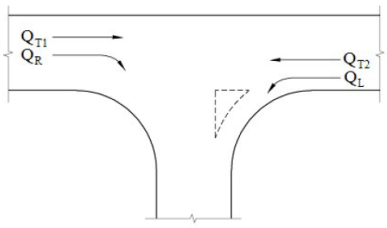
Table 5.4 Turn Lane Descriptions

Turn Treatment	Description
BAL	Basic Left Turn Lane
CHL	Channelised Left Turn Lane
AUL (s)	Shortened Auxiliary Left Turn Lane
AUL	Full Length Auxiliary Left Turn Lane
BAR	Basic Right Turn Lane
CHR (s)	Shortened Channelised Right Turn Lane
CHR	Channelised Right Turn Lane

5.4.1 Bupa Road Access

Turn Warrant assessment is based on Department of Transport and Main Roads (DTMR) Road Planning and Design Manual Edition 2: Volume 3 Supplement to Austroads Guide to Road Design Part 4A: Unsignalised Intersections August 2014. The following Figure 5.10 shows the calculation of the major road traffic volume parameters 'Qm ' and turning warrants assessment based on Figure 4A -1 Warrants – major road turn treatments – normal design domain from the DTMR - RPDM.

Figure 4A-2 - Calculation of the major road traffic volume parameter 'Q_M'



Road Type	Turn Type	Splitter Island	Q_M (veh/h)
2 Lane 2 Way	Right	No	= $Q_{T1} + Q_{T2} + Q_L$
		Yes	= $Q_{T1} + Q_{T2}$
	Left	Yes/No	= Q_{T2}
4 Lane 2 Way	Right	No	= 50% x $Q_{T1} + Q_{T2} + Q_L$
		Yes	= 50% x $Q_{T1} + Q_{T2}$
	Left	Yes/No	= 50% x Q_{T2}

Figure 5.10 Turn Warrants Qm Traffic Flow Calculation

As requested by Ballina Shire Council, turn warrant is to be undertaken for 2036 assessment year for the forecasted North Creek Road traffic volumes of 15,864 vehicles per day. The two-way peak hour traffic volumes along North Creek Road has been calculated based on the typical relationship between the hourly volume and the typical percentage of the AADT it represents as shown in Table 5.5.

Table 5.5 Typical Relationship Between Hourly Volumes and AADT

Type of Road	30th HH (%AADT)
Recreational Roads	25%
Rural Arterials	15%
Outer Urban Arterials	12%
Inner Urban Arterials	10%

(Source: Table 5.2 Typical Values of 30th HH as % AADT - DMR Road Planning and Design Manual)

As can be seen in Table 5.5, in urban areas, the percentage of the highest hour of the year in relation to the AADT is between 10% and 12%. In the absence of other information, the peak hour traffic is estimated using the 10% factor extracted from the Table 5.5 above. Consequently, turn warrant for 2036 forecasted year for 1,586 two-way peak hour traffic volumes has been undertaken.

Following construction of North Creek Bridge, it has been assumed that 60% of traffic will be travelling westbound during AM Peak with the reverse being true during PM Peak.

An estimate of the peak hour traffic passing the site is shown in the following Table 5.6.

Table 5.6 Bupa Road Access Trips Peak Hours

Traffic Volume	AM peak hour	PM peak hour
Q_{T1} (westbound)	952	635
Q_{T2} (eastbound)	635	952
Q_L (from west)	20	33
Q_R (from east)	1	0

Table 5.7 shows Traffic Volumes adopted for the calculation of Qm and the turning warrants based on Figure 5.11 as extracted from the DTMR – RPDM.

Table 5.7 Site Development Trips Peak Hours (Bupa Rd Access)

Turn Type	AM peak Hour			PM peak Hour		
	Q_M	Turning Volume	Turning Warrant.	Q_M	Turning Volume	Turning Warrant.
Left	633	Q_L = 20	AUL(s)	952	Q_L = 33	AUL(s)
Right	1,604	Q_R = 1	BAR	1,619	Q_R = 0	BAR

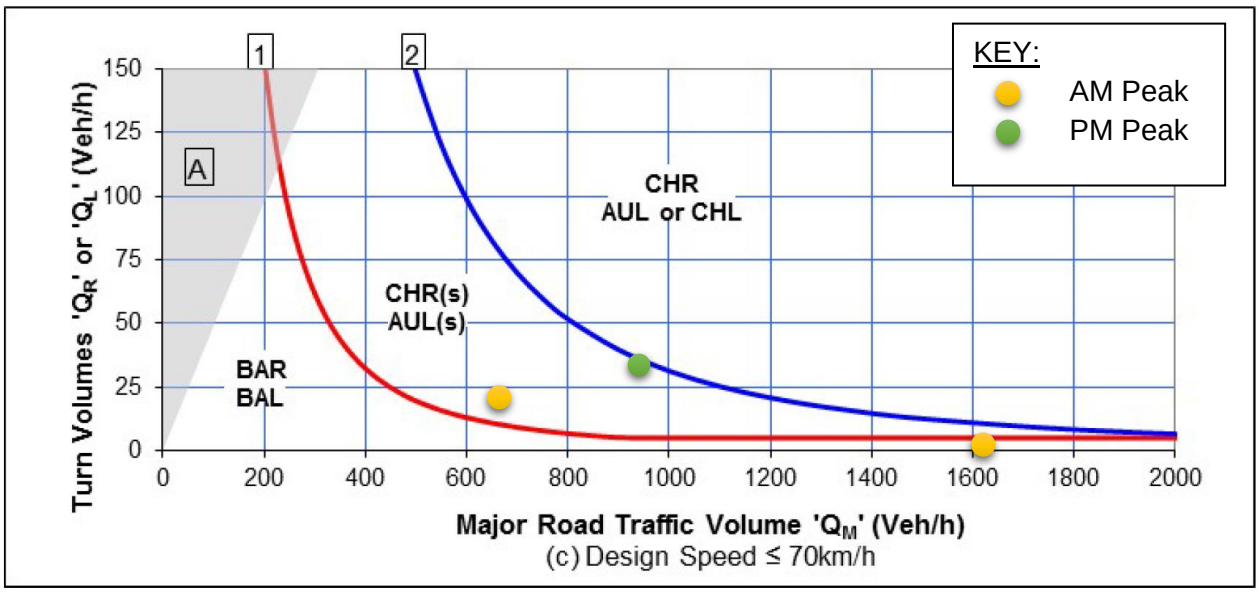


Figure 5.11 Turning Warrant Design Speed ≤ 70km/hr

As demonstrated, due to the addition of development trips, a AUL(s) turning treatment is warranted at the Bupa Road access. An example taken from Austroads Guide to Road Design Part 4A *Unsignalised and Signalised Intersections* of an AUL(s) turning treatment on a rural road is provided in Figure 5.13.

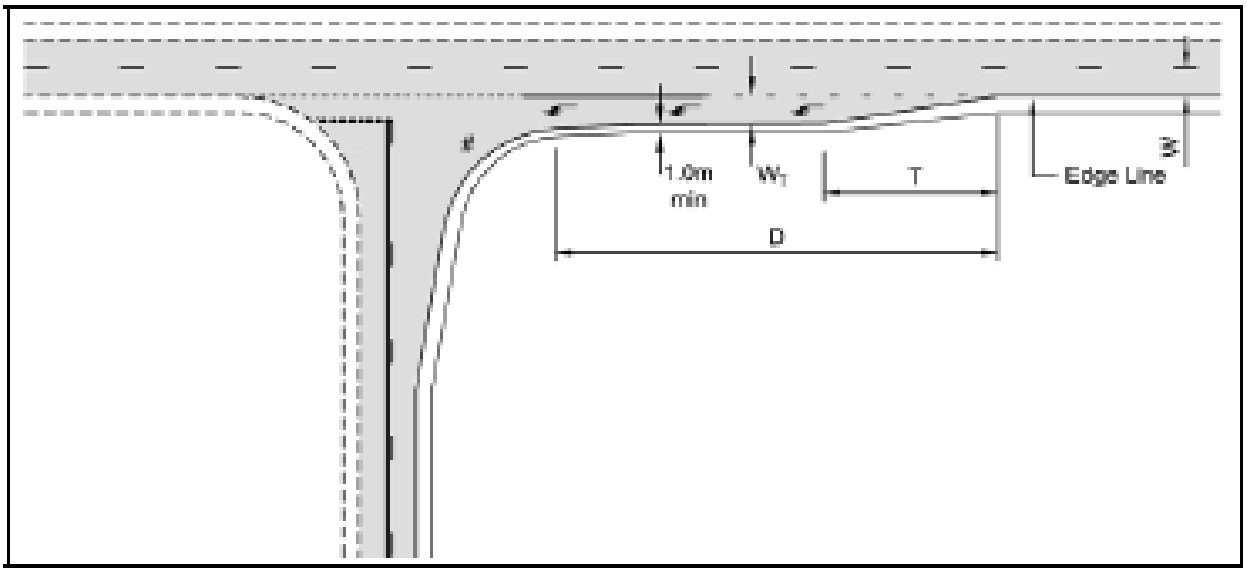


Figure 5.12 Rural AUL(S) Treatment ((Austroads Guide to Road Design Part 4A *Unsignalised and Signalised Intersections)*

To achieve the auxiliary lane function, an additional auxiliary left turn lane is ultimately required on the northern side of North Creek Road at the intersection, to be developed as part of the North Creek Road upgrade bridge crossing of North Creek and provide link between Ballina and Skennars Head

to the east in the future. However due to the extended time frame when this is to occur, the installation of the auxiliary turn lanes as part of the development is not required. Ultimately the intersection auxiliary lanes are recommended to be incorporated with the bridge construction works.

5.4.2 Corks Lane Access

An estimate of the peak hour traffic passing the site in 2036 following construction of North Creek bridge is shown in the following Table 5.8.

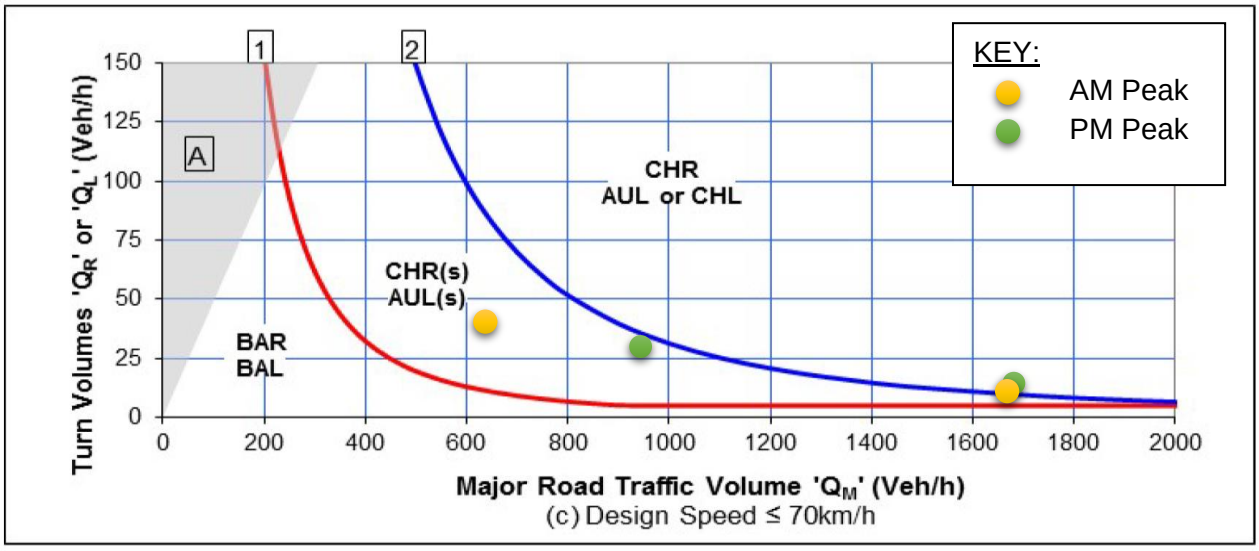
Table 5.8 Corks Lane Access Trips Peak Hours

Traffic Volume	AM peak hour	PM peak hour
Q_{T1} (westbound)	968	672
Q_{T2} (eastbound)	624	949
Q_L (from west)	47	28
Q_R (from east)	11	15

Table 5.9 shows Traffic Volume adopted for the calculation of Qm and the turning warrants based on Figure 5.13 as extracted from the DTMR – RPDM.

Table 5.9 Site Development Trips Peak Hours (Corks Lane Access)

Turn Type	AM peak Hour			PM peak Hour		
	Q_M	Turning Volume	Turning Warrant.	Q_M	Turning Volume	Turning Warrant.
Left	624	Q_L = 47	AUL(s)	949	Q_L = 28	AUL(s)
Right	1639	Q_R = 11	CHR	1649	Q_R = 15	CHR



(*) the minimum right turn treatment for multi-lane roads is a CHR(s)

Figure 5.13 Turning Warrant Design Speed ≤ 70km/hr

To achieve the auxiliary lane function, an additional auxiliary left turn lane is ultimately required on the northern side of North Creek Road at the intersection, to be developed as part of the North Creek Road upgrade bridge crossing of North Creek and provide link between Ballina and Skennars Head to the east in the future. However due to the extended time frame when this is to occur, the installation of the auxiliary turn lanes as part of the development is not required. Ultimately the intersection auxiliary lanes are recommended to be incorporated with the bridge construction works.

5.4.3 Proposed Site Access

An estimate of the peak hour traffic passing the site in 2036 following construction of North Creek bridge is shown in the following Table 5.10.

Table 5.10 Proposed Development Access Trips Peak Hours

Traffic Volume	AM peak hour	PM peak hour
Q_{T1} (westbound)	942	620
Q_{T2} (eastbound)	619	938
Q_L (from west)	15	14
Q_R (from east)	0	0

Table 5.11 shows Traffic Volume adopted for the calculation of Qm and the turning warrants based on Figure 5.12 as extracted from the DTMR – RPDM.

Table 5.11 Development Trips Peak Hours (Proposed Access)

Turn Type	AM peak Hour			PM peak Hour		
	Q_M	Turning Volume	Turning Warrant.	Q_M	Turning Volume	Turning Warrant.
Left	619	Q_L = 15	AUL(s)	938	Q_L = 14	AUL(s)
Right	1,577	Q_R = 1	BAR	1,572	Q_R = 0	BAR

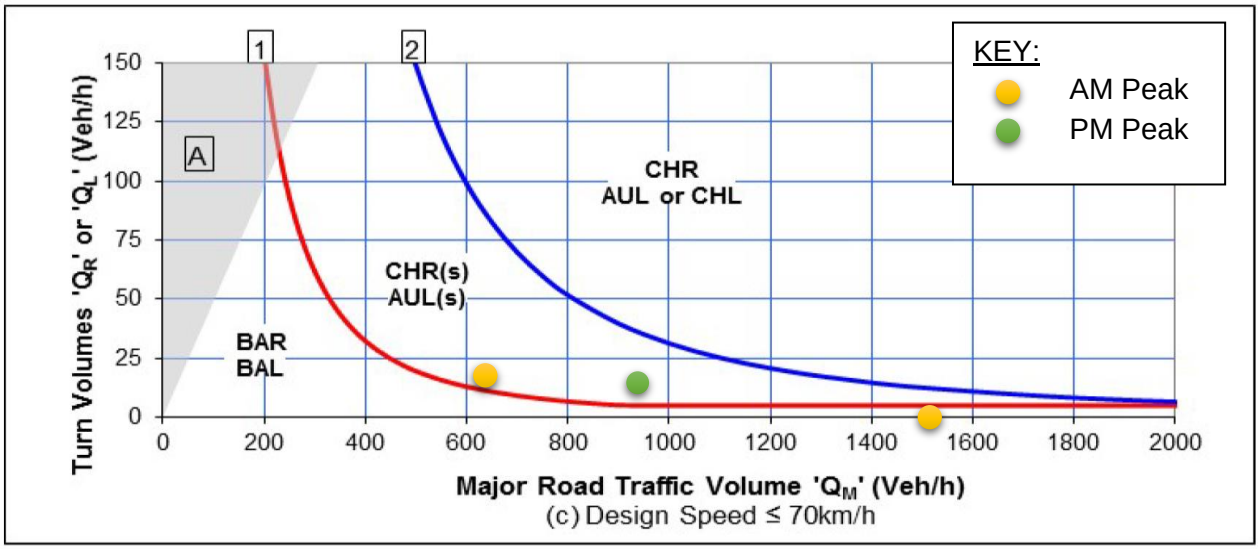


Figure 5.14 Turning Warrant Design Speed ≤ 70km/hr

The site access is a driveway and not a public road, however to achieve the auxiliary lane function, an additional auxiliary left turn lane is ultimately proposed and parking restrictions on both sides of North Creek Road in the vicinity of the access driveway are recommended to provide for a deceleration or passing lane provision to be developed as part of the North Creek Road upgrade bridge crossing of North Creek and provide link between Ballina and Skennars Head to the east in the future. However due to the extended time frame when this is to occur, the installation of these provisions as part of the development is not required. Ultimately the on-road parking restrictions are recommended to be incorporated with the bridge construction works.

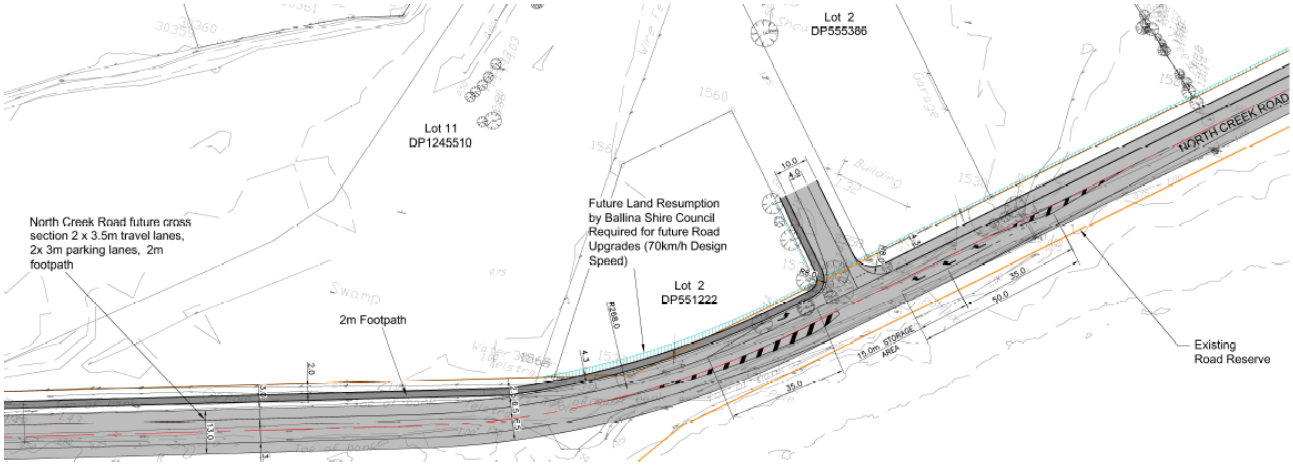


Figure 5.15 Post 2036 North Creek Rd functional Layout Design Speed ≤ 70km/hr

Refer Appendix D drawing Be150074 – Sk203 Rev G.

6. External Roadway Link Capacity Analysis

In order to help address items 26 and 27 of Council's Statement of Facts and Contentions, Palm Lake Works propose a new access driveway onto North Creek Road and a single internal crossing from the Expansion site to the existing Palm Lake Resort as shown on the master plan contained in Appendix A. This section of the report investigates the impact on traffic volumes within the internal road network within the existing Palm Lake Resort, and in particular how this additional access will affect traffic volumes along the shared Bupa access driveway.

The additional access proposed for the Expansion site will change the road hierarchy within the proposed footprint and road frontage works upgrade to North Creek Road will be required. Burchills Engineering Solutions Traffic Impact Assessment report previously identified the Bupa access will receive 90% of the generated traffic without the new proposed access driveway.

6.1 Existing and Proposed Internal Road Cross-sections

The following Figure 6.1 shows the locations and description of the internal roads considered within the existing Palm Lake Resort.

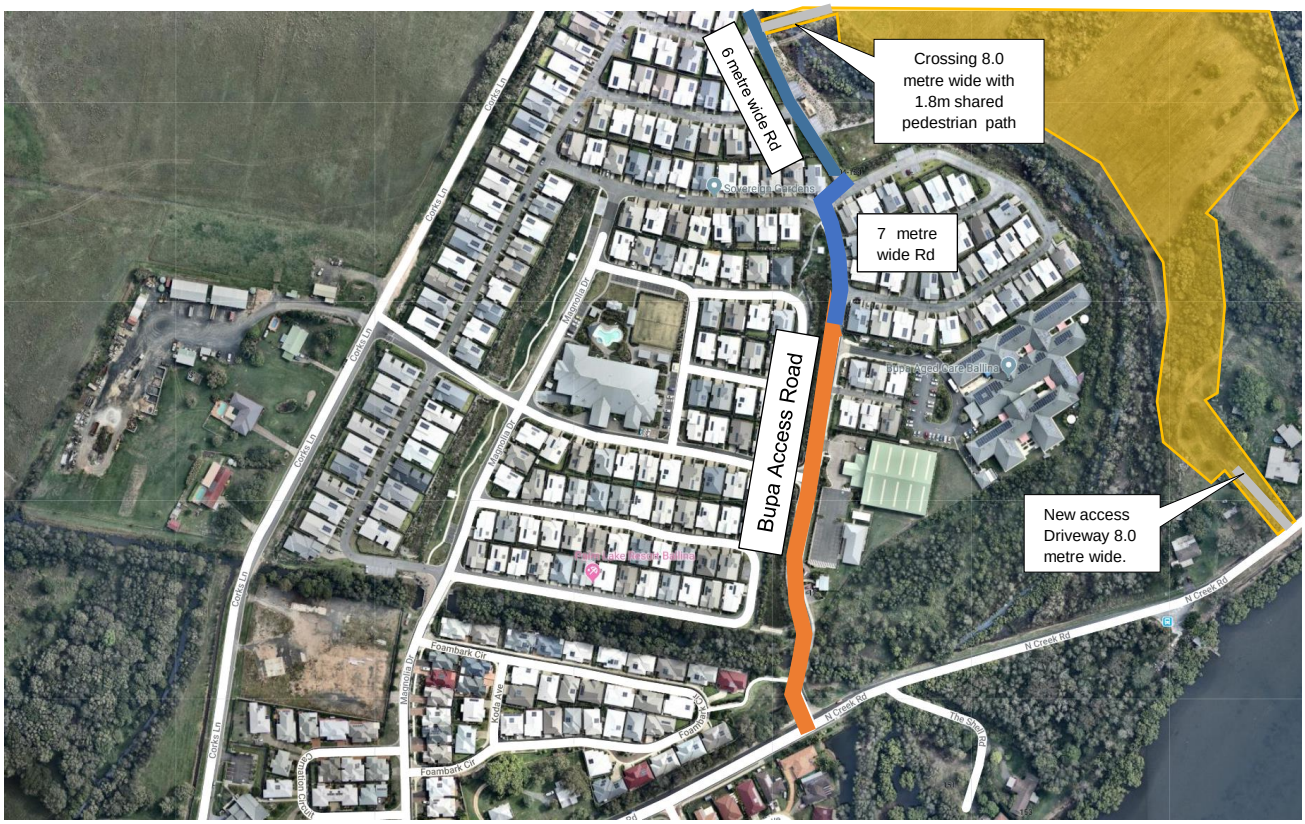


Figure 6.1 Bupa Entry Road Cross Section

6.1.1 Existing Bupa Access Road

As explained in Section 2.3, the Bupa Access Entry Road consists of a 7.0 metres wide pavement with semi mountable kerb and channel on either side and concrete footpaths adjacent to the rear of

the kerb and channel on both sides. There are no driveways with access directly onto this first section of the road. The following Figure 6.2 shows the cross section of the Bupa Entry Road up to the security gate.

Figure 6.2 Bupa Entry Road Cross Section

According to Northern Rivers - Local Government Geometric Road Design Table D1.5 Characteristics of Roads in residential Road networks a 7.0-metre-wide road is classified as a local street and Maximum Traffic volume is 2,000 vehicle per day.

6.1.2 Internal Roads - 6.0 and 7.0 Metre Wide

At the end of the kerb and channel section of the Bupa access road, a security gate with centre column for identification and gate operation exists. Beyond the security gate, the profile of the road is reversed with a shallow V profile facilitating centre drainage without kerb and channel and grassed verges with concrete footpath offset from the lane edge. There is driveway accesses to the residences along this section of the entry road up to the proposed crossing to the Expansion site. The pavement width is 7 metres along the first section.

Within the existing resort all the internal roads comprise a concrete pavement surface in a shallow V formation. Road drainage is achieved via centre underground drainage underground pipes connected to gully grates in the middle of the road coincident with the road centreline. At the verge along the edge of the roads a grassed surface filter exists between the concrete road edge and the concrete footpath where the footpath exists.

As noted above for the 7.0-metre-wide Bupa access driveway, according to Northern Rivers -Local Government Geometric Road Design Table D1.5, Characteristics of Roads in Residential Road Networks a 7.0-metre-wide road is classified as a local street and maximum traffic volume is 2,000 vehicle per day.

For the 6.0-metre-wide road pavement, the road is classified as an access street with a maximum traffic volume is 100 vehicles per day. There is no pedestrian footpath required for the 6.0 metre street.

6.1.3 Expansion Area 8.0 Metre Wide Roads

Within the Expansion site, perimeter roads and the entry road are proposed as 8.0 metre wide. The 8.0-metre-wide roads are classified as Local street with a capacity of 2,000 vehicles per day.

6.2 Travel Time Analysis

Item 27 of the Ballina Shire Council Contentions states that numerous vehicles regularly park over the footpath / road on the Bupa Access road and this reduces the efficiency and safety for vehicle and pedestrians. The following Figure 6.3 shows the master plan for the proposed Expansion site and travel distances to North Creek Road and reference points A, and C are identified to quantify travel times.

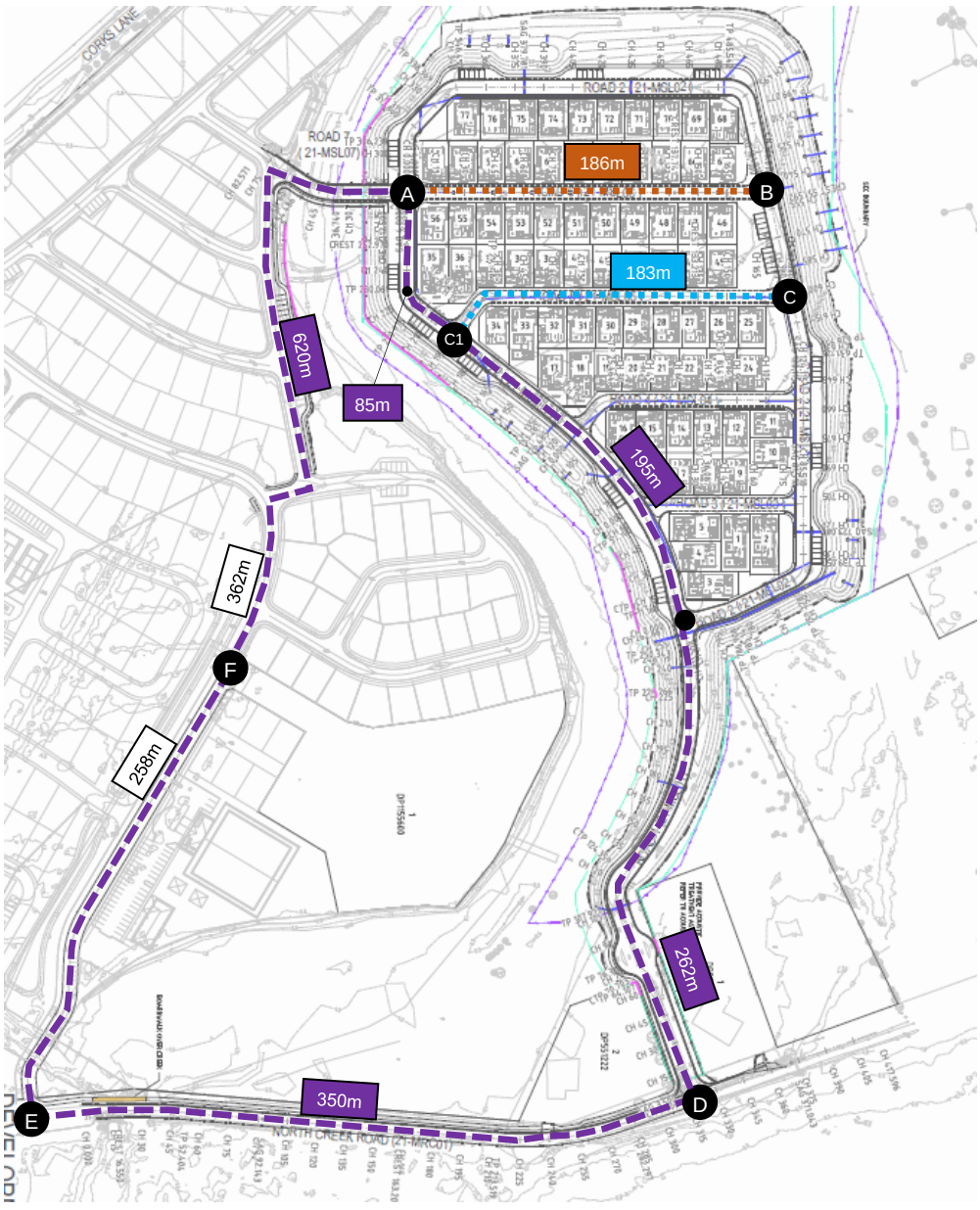


Figure 6.3 Master Plan Expansion Site with New Proposed Access Driveway

To assess the effectiveness of the proposed new driveway onto North Creek Road, an estimate of travel times for the two alternate routes is shown with the various distances measured as follows:

- Existing Entry to Point A = 620m (258m at 30km/h speed and 362m at 10km/h speed);
- Proposed Entry to Point A = 542m (542m at 30km/h speed);
- Distance Between Existing Entry and Proposed Entry = 350m along North Creek Road (at 50km/h speed);
- Distance from Point A to Point B = 186m (186m at 10km/h); and
- Distance from Point A to Point C = 268m (85m at 30km/h and 183m at 10km/h).

The existing speed limit along North Creek Road is 50km/hr. To estimate travel times for comparison purposes, the site is separated into three locations in Figure 6.2. The following Table 6.1 shows the travel distances and times for the Bupa access compared to the proposed new access driveway for the Expansion area.

Table 6.1 Travel Distance and Times Comparison between the Two Access Points

Origin / Destination from Bupa Access Intersection with North Creek Rd							
Access Driveway	Distance along internal circulation St (m)	Travel time at 30km/hr (mins)	Distance along internal access St (m)	Travel time at 10km/hr incl gate (mins)	Total travel time. (mins)		
Existing Access to Point A	258	0.52	362	2.17	2.69		
Existing Access to Point B	258	0.52	548	3.29	3.80		
Existing Access to Point C	343	0.69	545	3.27	3.96		
Origin / Destination from New Intersection with North Creek Rd							
	Distance along North Creek Rd (m)	Travel time at 50 km/hr.(mins)	Distance along internal access St (m)	Travel time at 30km/hr (mins)	Distance along internal local St (m)	Travel time at 10km/hr incl gate (mins)	Total travel time. (mins)
New Access to Point A	350	0.42	542	1.08			1.50
New Access to Point B	350	0.42	542	1.08	186	1.116	2.62
New Access to Point C	350	0.42	457	0.91	183	1.098	2.43

In summary the above comparison shows there is a saving travelling through the new access compared to existing Bupa access over all the destinations / origins tested for the Expansion area. The time saving increases as the allotments are located further into the street network in the proposed Expansion Area. This is due to the increased travel speed adopted for the Expansion area due to the larger curve radii for the horizontal geometry and wider pavement, compared to the reduced road width for the 6.0 metre section of the road within the existing resort and the travel time associated with negotiating the right angle bends and delays at the intersections between the crossing to the Expansion Area and the Bupa Access road.

Allotments in close proximity to Point A are not likely to be attracted through the existing Bupa access due to the time savings travelling to the new intersection provided onto North Creek Road.

6.3 Trip Purpose Analysis

The following Figure 6.4 from Transport for NSW Bureau of Transport Statistics Household Travel Survey Report: Sydney 2012/2013 shows the Trip Purpose by Mode resulting from the travel survey.

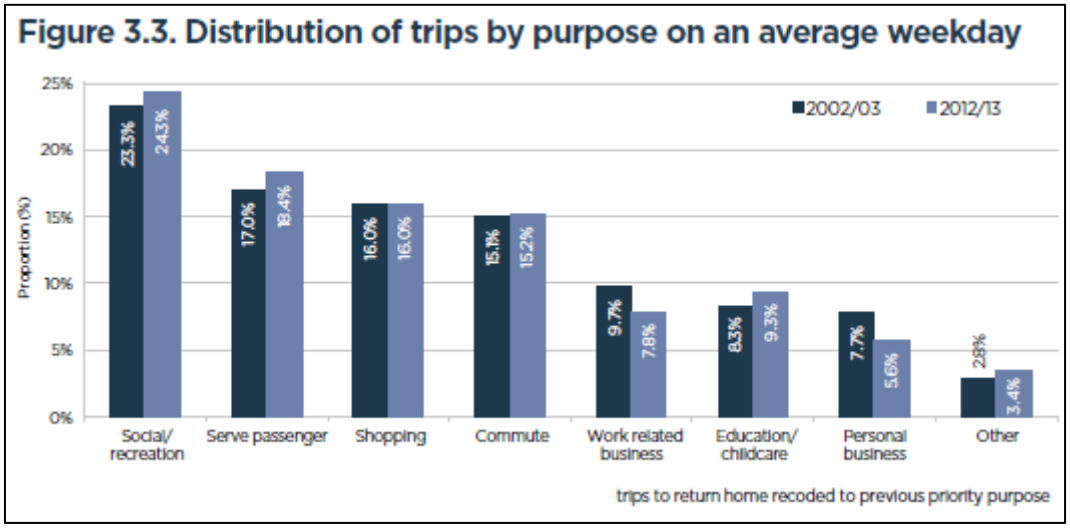


Figure 6.4 Distribution of Trips by Purpose

A proportion of the predominate trip purpose for social / recreation applies to visitor trips. Also, in the above table Work related business refers to services such as tradesperson related trips for maintenance purposes to individual households. Education / childcare trips are generally predominately for couples with children and hence do not typically represent the older demographic. Figure 6.5 from Transport for NSW Bureau of Transport Statistics Household Travel Survey Report: Sydney 2012/2013 shows the Trip Purpose by Mode and age group.

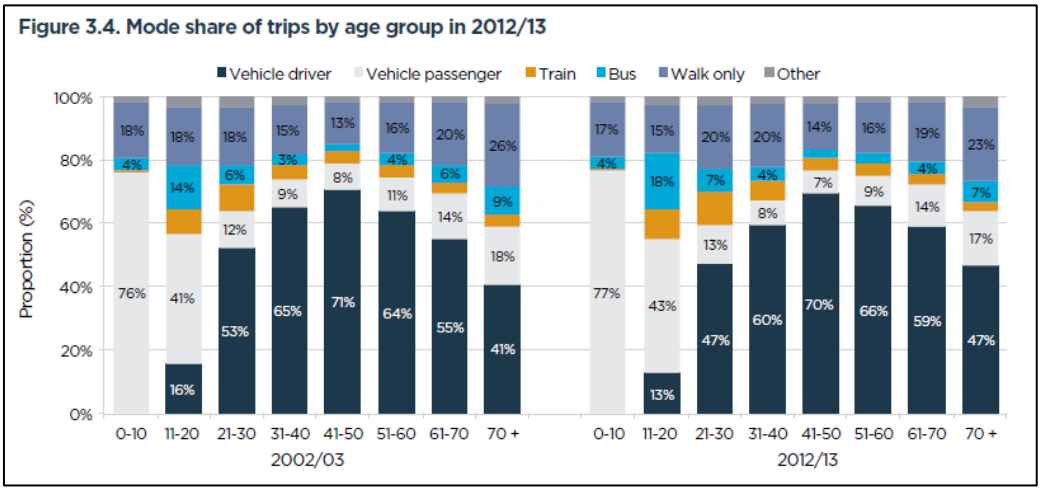


Figure 6.5 Trip Purpose by Mode and Age Group

Figure 4 extracted from Table 4.72 of the NSW Household Travel survey report defines mode share by age of driver traveller for an average week. For 61 -70 age bracket 79.7 % travel by car with the remainder primarily by walking. Note bus and train travel have been included in the car travel for the Expansion Area Trip Comparison.

The following Table 6.2 details the proportion of Trip Purpose per dwelling unit within the Expansion Area. Note the trips based two persons per unit is conservative and used as a worst case for comparison purpose between the two access driveway options.

Table 6.2 Proportion of Trip Purpose Per Unit Dwelling

Trip Purpose	Social Recreation	Passenger	Shopping	Commute	Work Related Business	Personal Business Other	other	Total
Percentage[1]	24.3%	18.4%	16.0%	15.25%	7.8%	9%	9.25%	100%
Total Ave. trips per day	0.82	0.62	0.54	0.52	0.26	0.30	0.32	3.38[2]

Notes

1. Other percentage includes the Education / Childcare Trips
2. Total trips per unit per day as per internal roads survey for 8 March 2019

The following Table 6.3 shows the proportions of each trip that are assigned to the Bupa access road.

Table 6.3 Proportions of Each Trip Purpose Within the Expansion Area That Are Assigned to the Bupa Access Driveway

Trip Assignment to access.	Social / recreation Total (%)	Passenger Total (%)	Shopping Total (%)	Commute Total (%)	Work Related Business Total (%)	Personal Business Total (%)	Other Total (%)	Total (%)
Bupa Access	(10%)[1]	(10%)[2]	10%[3]	nil[4]	10%[5]	nil%[6]	20%	
Total Trips / Unit	0.08	0.06	0.05	0	0.03	0	0.06	0.28 **(or 8% of the total number of trips generated**

Notes:

1. For the Social / Recreation trips 20 % is due to visitors who inadvertently use the Bupa entrance for visitations to units in the Expansion area or visits to the existing community Centre from the Expansion site.
2. Passengers travelling in the same car as 1 above
3. Shopping accounts for deliveries for food and meals.
4. Commute represents the shortest travel time to North Creek Road compared to the Bupa access.
5. Work related business trips include trades people and allows for maintenance visits to individual units.
6. Personal business uses the shortest route via the newly created access.

With respect to item 1 Social Recreational Trips the Expansion site has no community centre and use of the community centre within the existing resort is proposed. To accommodate the additional

catchment an additional 20 car spaces are proposed beside the community centre as shown in the following Figure 6.6.

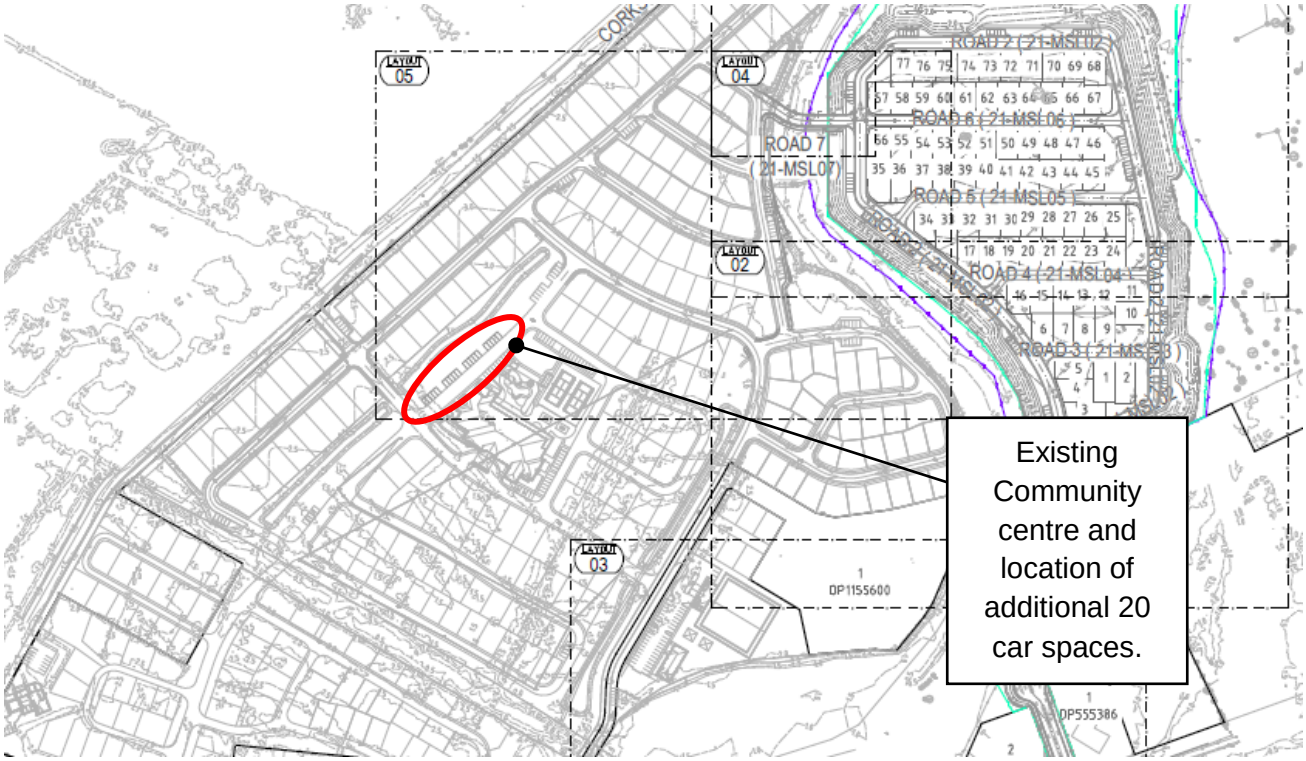


Figure 6.6 Existing Community Centre and Location of Additional 20 Car Spaces

The addition of the 20 car spaces represents about 22% of the resident population of the Expansion area which is more than enough for the anticipated use of the centre and excludes pedestrians. Including a short section of shared roadway space and a new short section of path recommended, a pedestrian path to the Community Centre is available from the Expansion site which is within an acceptable 400 metres from the culvert crossing to the Expansion site. It is recommended that the 20 car spaces and new paths as described above and detailed in Figure 3.10 *Recommended Seniors Housing Facilities for Pedestrians* are constructed as part of Stage 1

Overall from the above trip purpose and travel time analysis, 10% of trips from the Expansion area use the Existing Palm Lake Resort for internal trips or the Bupa Access road. For the purpose of the worst-case capacity assessment 10% of all trips from the Expansion area were assigned to the Bupa Access Road.

In addition to the daily vehicular trips recorded in the surveys an estimated additional 20% of trips occur through to active transport modes including walking and cycling. To minimise pedestrian trips through the Bupa access driveway, a new pedestrian path joining to the existing path along North Creek Road and alongside the new proposed access driveway is recommended.

As a further recommendation to reinforce the use of the new access provided onto North Creek Road, leases for the dwellings within the Expansion Area should identify the new access driveway onto North Creek Road as the legal point of access.

6.4 Traffic Impact on Bupa Access Road from Expansion Area

6.4.1 Existing Palm Lake Resort Internal Road Traffic Survey Data

Section 2.6.2 details a survey cordon established at each gate and at the Bupa access road / North Creek Road intersection, to record vehicles movements for the residential units and the Bupa Aged Care. The traffic surveys performed on the internal Road from Thursday 7 March to Sunday 10 March 2019. The summary of the results showed Thursday 7 March recorded the highest peak hour trips and are summarised in the following Figure 6.7. The recorded daily volumes at site 5 were 74 vehicles inbound and 76 outbound, a daily total of 150 vehicles per day. Friday 8 March recorded the highest daily traffic volumes and trip rate.

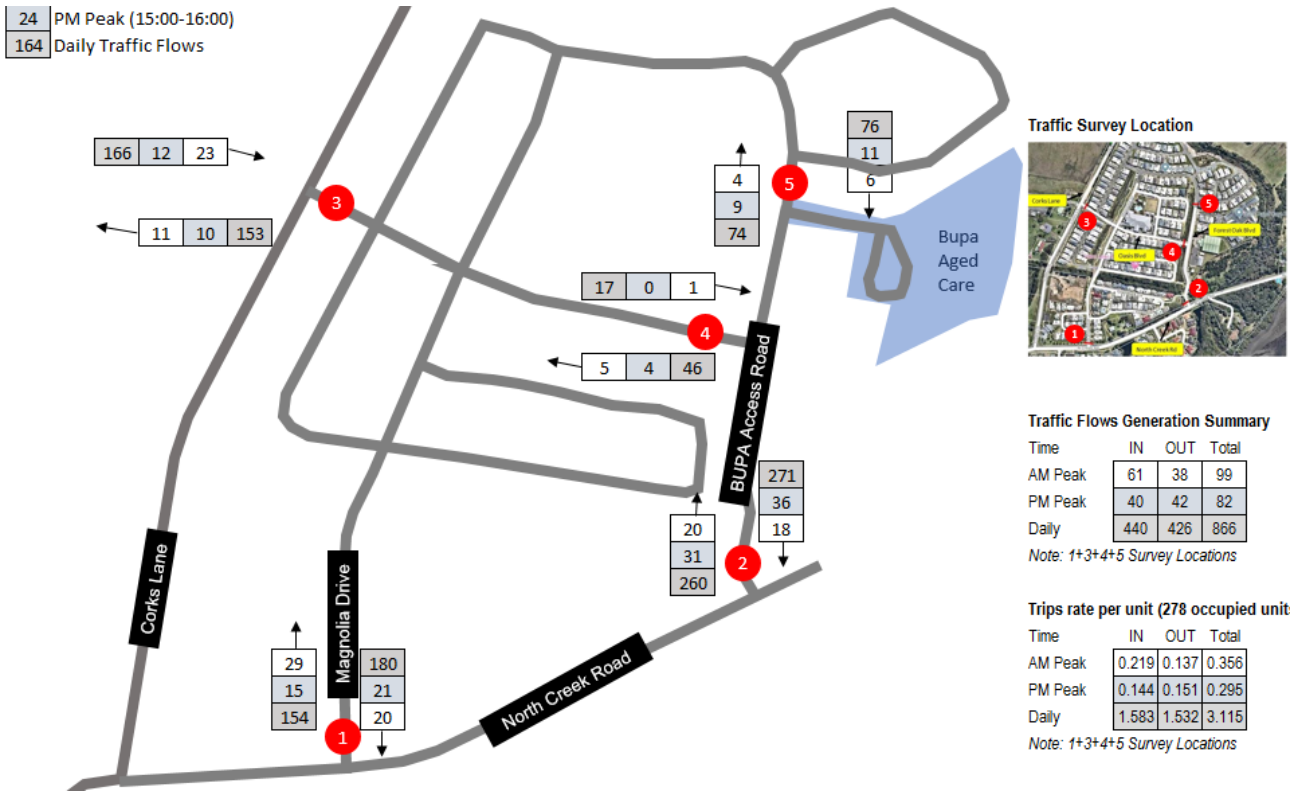


Figure 6.7 Traffic Survey Bupa Entry Road Cross Section (Reproduced from Section 2, Figure 2.8)

The total daily volume recorded for the 7 March from the cordon survey at all entry / exit points was 866 vehicles. Hence for the 278 occupied residents' units on the day of the survey, by proportion the number of units using Site 5 gate is 150/866 X 278 or 48 units. The catchment for the 48 units is shown in the following Figure 6.8.

Figure 6.8 Bupa Entry Road Vehicle Catchment

Within the catchment for the 48 units, A sub-catchment contributing to the 6-metre-wide section of road adjacent to the crossing to the Expansion area identified 12 units contributing. Trip rates are based on the daily rate recorded rate of 3.38 vehicles per day from the traffic survey of 8 March 2019. Hence the 12 units in the existing Palm Lake Resort contributing to the 6-metre-wide section of road generate 40 vehicle trips per day.

The trip purpose and travel time analysis identified up to 10% vehicles will travel to / from the Expansion area per day equivalent to 26 two-way trips per day. Hence from the addition of the 40 trips from the existing residences and the 26 trips from the Expansion area the total trips using the 6-metre-wide section of road is 66 trips, which is below the 100 trips per day capacity of the 6-metre-wide road.

Currently there is no pedestrian path beside this section of 6-metre-wide road and the threshold capacity of 100 vehicle trips per day relates to a shared arrangement with pedestrians and vehicles which is permitted due to the low speed environment and the traffic volumes. In this instance a new pedestrian path is proposed beside this section of 6-metre-wide road as per the recommendation to connect pedestrians from the Expansion area to the existing Palm Lake Resort. Hence a safer solution is achieved and this section by separating the pedestrians from the vehicular traffic.

The staging of the Expansion site construction involves the new access driveway to North Creek Road as part of stage 3 and in the interim stages 1 and 2 will gain access via the existing Palm Lake Resort and the Bupa access road. It is recommended that the new pedestrian paths beside the 6.0 metre wide road within the existing Palm Lake Resort and other new paths recommended be constructed as part of Stage 1 of the Expansion site.

6.4.2 Bupa Road Access Impact from Expansion Area Traffic

The traffic survey in March identified 260 vehicles entering and 271 leaving, a total of 531 vehicles per day using the Bupa Access Road from North Creek Road. The trip purpose and travel time

analysis identified up to 10% vehicles will travel to / from the Expansion area per day equivalent to 26 two-way trips. The trip purpose analysis identified that the majority of these trips are internal however conservatively allowing all these trips to use the Bupa Access, the total Vehicles per day using the Bupa access become 557. Since the capacity identified for the Bupa access is 2,000 vehicles per day, the forecast number of vehicles using the access is contained within the capacity of the Bupa Access road with a V/C ratio of 30% which is comfortably below the maximum capacity. A separate footpath already exists beside the Bupa access hence there is no conflict with pedestrian movement.

In the interim the additional traffic from stages 1 and 2 of the Expansion site can be accommodated within the Bupa access Road without exceeding capacity.

6.5 Response to Relevant Section of Statement of Facts and Contentions

In summary from the analysis above, the total daily traffic from the access including the traffic forecast from the expansion area is 557 vehicles per day. The Ballina Shire Council capacity for the Bupa Road classification is 2,000 vehicle per day. From site inspection and as noted in the Statement of Facts and Conventions, vehicles park within the Bupa Access road. This may involve cars parked entirely within the existing pavement or partially within the pavement and the adjoining concrete pedestrian footpath. Site observations indicate that all car parking currently occurs before the security gates. Within the Resort itself, there were no cars parked on the road.

The following figures show the on-street car parking with gate 5 in the background along the Bupa access road. Note that the cars are parked partially on the road but also partially block the footpath because the footpath is constructed against the rear of the kerb and channel.

Figure 6.9 Bupa Entry Road On-Street Car Parking

There is currently a yellow line along the edge of the Bupa access road and No Standing sign. However, since the road is private there is no policing of the delineation and signage, resulting in ineffective and undesirable outcomes as shown in the following Figure 6.10.

Figure 6.10 Bupa Entry Road Example of Ineffective Signage

The current on street parking has been identified as a result of insufficient car parking provision for the Bupa Aged Care staff. Its noted that the on-street parking occurs even though the Bupa Aged car park is unused. This is because the Bupa Aged Care car park is for guests only not staff. To alleviate this issue and provide a sustainable workable solution, additional car spaces are proposed for the Bupa Aged Care facility. The area highlighted on the following Figure 6.11 shows the proposal.

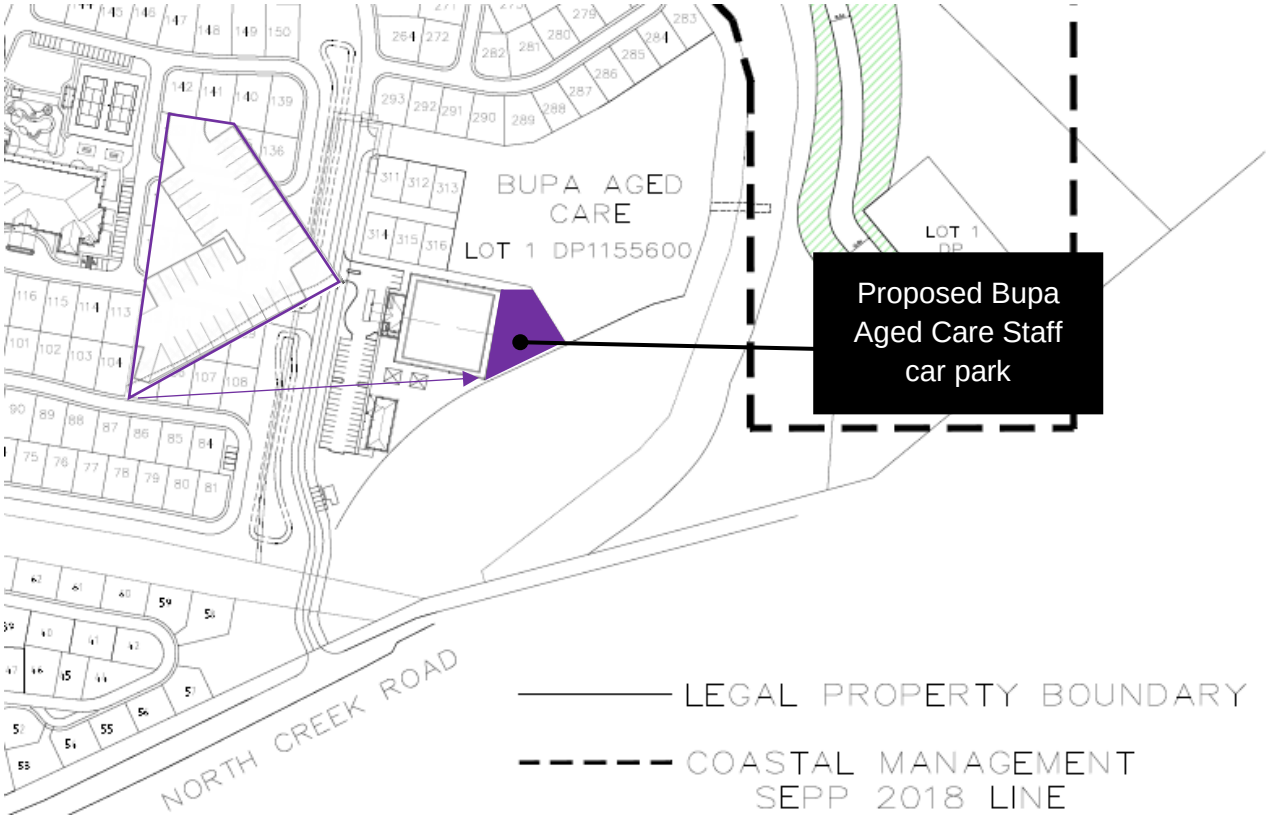


Figure 6.11 Bupa Aged Care Car Park - Proposed Car Spaces

There is space for 30 car spaces potentially with the vacant land area space available as shown by Figure 6.11. This is more than the 20 cars observed parked alongside the Bupa Access road.

Discussions between Bupa Aged Care and Palm Lake Resort in regard to this car park extension over the last 2 years have been positive and an agreement almost finalised. The layout with dimensions is shown on drawing BE150074 Sk004B in Appendix D

6.6 Response to Relevant Items in Statements of Facts and Contentions Submission

Item	Information Requested	Response
	PART A - FACTS	
	The Statutory Controls	
	Actions of the First Respondent	
35	The main issues raised in the submissions include: (a) Flooding and drainage impacts on adjoining properties (and resulting odour, mosquito breeding issues) and the surrounding area. (b) The proposal does not take into account climate change and frequency and severity of extreme weather events. The proposal only has a 100mm freeboard over the minimum fill level for the site.	

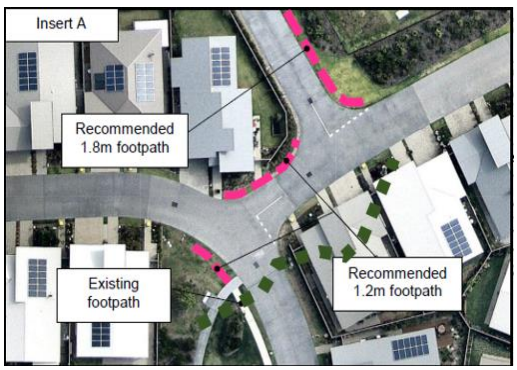
	(c) Inadequate information provided in relation to proposed development and impacts on surrounding properties (during and post construction) – filling of the "expansion" site, impacts on ground water, drainage and flooding.	
	(d) Overloading of communal facilities in existing Seniors Housing Development from proposed 156 dwellings in expansion site.	Disagree 77 units now proposed. Nearmap investigation confirmed spare car parking capacity at existing Communal Facilities. Also, an additional 20 car spaces at the existing Community Centre being provided. Vehicular, cyclist and pedestrian access available from the expansion site to the existing Community Centre.
	(e) Insufficient car parking within existing Seniors Housing Development (around communal facilities) to cater for proposed 156 dwellings in expansion site.	Disagree. As above. No impact.
	(f) Internal traffic and pedestrian impacts for the existing Seniors Housing Development from additional vehicles (pedestrians and vehicles share road space).	Agree Bupa Access Road benefits from the dedicated pedestrian facilities thus no impact. 10% of development traffic from the Expansion site allocated to the single crossing will have no impact on the existing pedestrian and vehicle traffic. Balance from the Expansion site uses the new access created onto North Creek Road.
	(g) New access should be provided off North Creek Road as existing intersection and private access road cannot cope with construction traffic and additional resident/employee traffic.	New Access created. Construction traffic impact will be mitigated via construction access off North Creek Road away from the existing residents and not using any existing roads within the Palm Lake Resort.
	(h) Impacts of construction traffic, earthworks and construction works on residents of the existing Seniors Housing Development, the surrounding environment (vegetation and tidal waterways) and surrounding locality.	Disagree. As above.
	(i) Use of sand based fill will result in construction and maintenance issues for road and pedestrian pathways (civil works defects - cracking of pavements).	Disagree – compacted sand base filling is acceptable construction material.
	(j) Concerns regarding emergency vehicles access for the existing Seniors Housing Development, proposed development, BUPA aged care facility and surrounding locality.	Disagree. New access off North Creek Road proposed providing adequate access for emergency vehicles. In addition, a new emergency access off Corks Lane provided.
	(k) The proposal does not comply with the Retirement Villages Act 1999, Section 6.	Refer 33 g above.
	(l) Existing vegetation along western creek line should be retained and there is no greenspace in the proposed development.	
	(m) The land should be preserved as wetlands.	

	(n) Inadequate information provided in relation to flora and fauna impacts resulting from the proposal. (o) The use of offset credits on other land or making a financial offset in relation to the removal of the 2.53ha of EEC Swamp Oak Flood Plain Forest does not negate the degradation of the local environment. (p) Inadequate consideration of the provisions of SEPP 62, including Healthy Estuaries for Healthy Oysters, NSW DPI 2017). (q) Non-compliance with Ballina Shire Stormwater Management Guidelines. (r) Impacts of stormwater from the proposed development on existing oyster growing areas. (s) Cumulative stormwater impacts of surrounding developments on existing oyster growing areas and other marine species. (t) Questions raised over the veracity of the submitted Stormwater Report and Plan – detaining flows, design parameters of bio-retention basins (incorrect pH), incorrect statements made regarding lawful point of discharge, flow direction and drainage. (u) Increased siltation and foetid water pooling to the east along North Creek Road has resulted from the existing Seniors Housing Development. (v) Impacts on quality of estuarine environment and oyster growing areas. (w) Proximity to the Ballina Airport and noise impacts. (x) Questions raised in relation to Developer's compliance with DA 2004/328 – insufficient street and villa numbering, non-compliance with Building Standards and conditions of consent relating to roof colour, mosquito screening and crime prevention.	
	PART B – CONTENTIONS B1 - Contentions that warrant the refusal of the application The application should be refused because:	
7.	**SEPP Housing for Seniors and People with a Disability 2004**	
vii	~~The Development Application has not been accompanied by evidence sufficient to form the requisite state of satisfaction, pursuant to clause 43 of the SEPP that the proposal will provide a bus capable of carrying at least 10 passengers to the residents of the proposed development that will:~~ ~~a) that will drop off and pick up passengers at a local centre that provides residents with access to the following:~~ ~~i. shops, bank service providers and other retail and commercial services that residents may reasonably require,~~ ~~ii. community services and recreation facilities,~~ ~~iii. iii. the practice of a general medical practitioner, and~~ ~~b) that is available both to and from the proposed development to any such local centre at least once~~	~~Agree~~ ~~Bus to be provided to service the proposed Expansion site.~~ ~~Drop off and pick up passenger area to be provided.~~ ~~Refer to Management Operational Detail document for more information about bus service.~~

	~~between 8am and 12pm each day and at least once between 12pm and 6pm each day.~~	
10	**Ballina Shire Development Control Plan 2012**	
10.3 vii	The revised Traffic Assessment report has not addressed all of the matters referred to in the letter from RMS to Council dated 1 August 2018 so that the consent authority can properly take into account the matters required by clause 104(3) of State Environmental Planning Policy (Infrastructure) 2007 and the general impacts on the locality.	Disagree A comprehensive Traffic Impact Assessment report has been provided for the proposed Expansion site to the existing Seniors Housing Development. The report addresses the following items as detailed in the RMS letter 1 August.: 1. Impact of through and turning traffic in accordance with Austroads Guide to Traffic Management Part 6 Intersections, Interchanges and Crossings and Australian Standard 2890.1 – off Street car parking. 2. Service vehicles enter and leave in a forward manner. 3. Regulatory signs will require endorsement of the Local Traffic committee. 4. Pathways provided that connect to North Creek Road where a pedestrian crossing exists for connection to bus stops. The report advises that accessibility to public transport is quite limited and a private bus service is being implemented for the residents.
~~26~~	~~**Property Access – Right of Way**~~	
~~26.1~~	~~The proposed development will result in intensification of an existing right of way on a neighbouring property.~~	~~Agree~~
~~26.2~~	~~Particulars~~	
~~i~~	~~The Traffic Impact Assessment states that the "Proposed development has the right to access the site via Bupa Car Access private road".~~	~~Agree~~
~~ii~~	~~The "Bupa Access Road" is located on Lot 1 DP 1155600, which is not within the development site and a Right of Carriageway currently exists over the "Bupa Access Road" for the benefit of Lot 2 DP 1155600 (the subject land).~~	~~Agree~~
27	**Parking and Road Safety**	
27.1	The amended Development does not consider current parking practices along the Bupa Access Road, which is an access road into the proposed development.	Disagree. Amended application has addressed this contention.
27.2	Particulars	
i	The amended Development relies on the existing Bupa Access Road as the primary access for Stages 1 and 2, where the road will be required to convey all pedestrians, vehicles and service vehicle movements. Despite the proposed construction of the new North Creek Road access road within Stage 3 of the amended Development, the	Amended application no longer relies on Bupa Access Road as primary access.

	amended Development will result in an increase in traffic along the Bupa Access Road for an indeterminate period.	
ii	It has been verified that numerous vehicles regularly park over the footpath/carriageway on the Bupa Access Road.	Agree. Discussed in this report.
iii	These parking practices significantly reduce the efficiency and safety of this route and the additional traffic loading from the amended Development (both pedestrian and vehicular) will exacerbate this safety and amenity problem.	Refer Traffic Report Nearmap investigation and site inspection confirmed that vehicles are parked illegally on the western side of the road where yellow line marking exist. Capacity of the road is sufficient for the proposed extension with additional car spaces provided for the Bupa Aged Care facility.
iv	The existing "NO PARKING" signs that are currently in place appear to be ineffective at managing the problem.	Agree. Refer traffic impact assessment for mitigation measures proposed.
v	As the Bupa Access Road is not owned by the proposed development there is little scope to address this safety concern.	Disagree Physical measures involving increased staff car spaces for the Bupa access are already being prepared.
vi	The revised Traffic Impact Assessment acknowledges the parking management issues along the Bupa Access Road and states that "The current on-street parking has been identified as a result of insufficient car parking provision for the Bupa Aged Care staff". In addressing this matter, the revised Traffic Impact Assessment proposes to provide an additional car parking area within the Palm Lake Resort allotment to alleviate Bupa staff parking on this road.	The Traffic Impact Report details traffic surveys completed on the internal roads and details the additional parking proposed.
vii	The proposal to provide additional parking to alleviate this problem is contradictory with the same section of the revised Traffic Impact Assessment which states "Its noted that the on-street parking occurs even though the Bupa Aged car park is unused". Both Google Maps aerial imagery, Council's aerial imagery, and site inspections undertaken by Council staff support the fact that cars park along this road and over the footpath, despite the Bupa designated car park not being utilised to its full capacity. Therefore, it has not been adequately demonstrated that the additional off-street car park will resolve the existing parking issue	The Bupa Aged Care car park is for guests and visitors only, not staff. A separate car park for the staff is proposed.
viii	The proposal to construct a carpark on the subject development lot to service an adjoining site and existing development requires construction work on Lot 1 DP 1155500 to ensure suitable access is available. Furthermore, this solution would require ongoing support from the landowners of Lot 1 DP 1155500 and operators of the Bupa Aged Care Facility in managing the parking habits of their staff and visitors, to ensure the pedestrian and vehicle safety of Palm Lake residents/visitors is not compromised during times of emergency and during normal operation. The proposed parking solution suggests a degree	Discussions between Bupa Aged Care and Palm Lake Resort in regard to this car park extension over the last 2 years have been positive and an agreement almost finalised. The layout with dimensions is shown on drawing BE150074 Sk004B in Appendix D

	of interconnectivity between these two properties which has not been addressed in this application.	
ix	Insufficient details have been provided in relation to the proposed car park on Lot 2 DP 1155600, with no dimensions or scale provided. The respondent cannot be satisfied that the proposed layout can be constructed to a suitable design standard	Refer Appendix D drawing BE150074 - Sk004 Rev B
28	**Traffic Generation**	
28.1	~~The proposed development relies on a Traffic Impact Assessment which contains inconsistent trip generation figures.~~	~~Disagree. In the original traffic report background traffic growth rates were adopted for the Bupa Site Access Road in and out movements, which compensate for the reduced figures used, hence the conclusions as adopted in previous report are correct. In this report the trip generation figures are based on the traffic survey results from the existing residents as detailed in the report.~~
28.2	~~Particulars~~	
i	~~The traffic generation rates contained within Figure 5.8 of the Traffic Impact Assessment do not match the calculated rates as summarised in Table 5.2.~~	~~Superseded. Trip generation rates in this report are based on the new traffic surveys obtained.~~
ii	~~Incorrect generation rates have been adopted and used for the remainder of the assessment.~~	~~Superseded. Traffic generation rates have been adopted in the revised traffic report based on the survey results.~~
iii	~~This discrepancy in the trip generation rates adopted raises concerns in regards to the overall reliability of the assessment.~~	~~Superseded.~~ ~~All analysis based on the survey results in amended report.~~
28	**Access for Heavy Rigid Vehicles**	
28.1	The amended Development design does not adequately provide for the passage of Heavy Rigid Vehicles.	Disagree. Heavy vehicle analysis documented in swept path analysis in report and also heavy vehicles recorded in traffic surveys were considered in the intersection analysis.
28.2	Particulars	
i	In relation to the proposed roundabout located on Road 2, the revised Traffic Impact Assessment states “The HRV continues in a forward gear across the Roundabout avoiding deflection from the centre island. This is an undesirable situation and the replacement of the roundabout with a “T” intersection is recommended”.	Disagree. All swept path analysis for Heavy Rigid Vehicles for all maneuvers, vehicles will be contained entirely within the road. Refer analysis contained in this report. Roundabout changed to ‘T’ junction.
ii	The submitted layout plans do not address the information contained within the TIA	Disagree Heavy Rigid Vehicles contained within the road pavement not encroaching on the verge. Internal roads have been designed as a shared space with maximum operating speed of 10km/h. This approach focuses on managing interactions between vehicles and pedestrians who are expected to share a road together with cars.

		It is worth to note that the main 8m wide access roads benefit from separated pedestrian facilities. Based on the above, the interactions between vehicles and pedestrians are managed appropriately with the low volumes of pedestrian and vehicle movement.
iii	This is a risk to residents and visitors of the proposed development – Housing for Seniors and People with a Disability.	Disagree As above the development is designed in accordance with acceptable procedures and standards.
30	**Pedestrian Footpath Link**	
30.1	The proposed development has not given adequate consideration to pedestrian safety.	Disagree As above plus this report details the location of pedestrian paths.
30.2	Particulars	
i	The proposed development will result in the majority of traffic being directed through the existing Palm Lake Resort development.	Disagree. The previous application did not contain a new access driveway and relied on the existing Bupa access driveway. This amended application contains a new access from the Expansion site onto North Creek Road. With the new access created, the majority of traffic travels directly to North Creek Road and less than 10% of Expansion Site traffic uses the Bupa access road
ii	There is a break in the pedestrian footpath along Cassia Cct between Yellowood Dr and Forest Oak Bvd. This is the primary route through which vehicles will travel to access the development. This section of road is also one of lower standard with a reduced pavement width and with no provision for pedestrian movements.	Agree However, here is opportunity to construct short footpath connecting the existing with the proposed footpath. (Refer 30.2 iv).
iii	It does not appear that there is existing space to allow for an additional footpath to be constructed at this point.	Disagree (Refer 30.2 iv)
iv	It is considered that this results in an unacceptable risk to senior pedestrians.	Disagree Footpath construction is feasible on the northern side of the road. Detail alignment subject to survey. Refer diagram below showing path alignment. 
29.	**Intersection Design**	

29.1	It has not been demonstrated that the development access intersection proposed to be constructed on North Creek Road can be designed or constructed to a standard that will allow safe and efficient operations and not prejudice the existing and future operation of North Creek Road	Refer to relevant sections in Traffic Impact Assessment report. Refer sections 3.2, 3.3 and 3.4. Drawing numbers BE150074–SK203 rev G; BE150074 SK206 Rev A; BE150074 Sk207 Rev A; PS01-D102 Rev G.
29.2	Particulars	
i	The revised Traffic Impact Assessment has incorrectly classified the new intersection as an 'access driveway' and adopted AS2890.1:2004 as the applicable design standard, resulting in a minimum sight distance requirement of 45m and a desirable gap sight distance of 69m.	North Creek Road is a low volume road with a closed catchment that terminates in a dead end and past the driveway entrance services 8 existing properties. Adjoining properties are primarily residential in nature and include a small tourist facility, fishing park and wildlife link sanctuary. Traffic survey results at the existing Bupa entrance, showed in the morning peak hour, a total 27 vehicles and in the evening peak hour a total 32 vehicles were recorded for the section of road in front of the new access position. This equates to 270 - 320 vehicles per day. The development is expected to generate 260 vehicle trips per day. Overall the development represents a similar increase to the number of daily trips that are currently using North Creek Road. From the above it can be derived that from the residences and the two businesses that exist there is a mixture of visitors, staff and residents using the road. The current posted speed is 50km/hr and the lane width is sufficient for one way only. Many of the users are familiar with the road layout and travel on a regular basis. Given the existing road width past the new access driveway and low recoded traffic volumes, the current street function is an urban access street. All new residents from the Palm Lake Resort extension are also familiar with the road layout and are therefore familiar with the location of the access point. The access is private and not open to the public. There is an entrance security gate. A speed bump is proposed before the entrance gate with 30km/hr sign posted speed limit. The low traffic volume and road environment is consistent with the use of AS2890.1. Hence for the access design and sight distances AS 2890:1 has been adopted. Burchills Engineering Solutions Drawing BE 150074 -SK206 Rev A in appendix D, details the sight line in accordance with AS2890.1:2004 Figure 3.2. Currently North Creek Road is sign posted for a speed limit of 50km/hr. For an 85th percentile design speed of 60km / hr the sight distance shown is 87 metres compared with the desirable requirement of 83 metres for the 5 sec gap in AS2890.1:2004. North of the driveway the sight distance available in North Creek Road is in excess of 200 metres. Pedestrian sight distances are achieved. There is no subdivision involved with the development or new public roads created. The existing entrances at Bupa Aged Care and Magnolia Drive are designed as Access driveways.

		The entrance at Magnolia Drive also has a similar sight distance as proposed. A review of accident data along North Creek Road in front of the existing entrances to the Bupa Aged Care and at Magnolia Drive shows no accidents recorded. Refer Appendix D road crash drawing North Creek Road, Corks Lane.
ii	The new intersection is located on a future Arterial Road and will provide access to a private road servicing 89 dwellings and should therefore be designed to an intersection standard and achieve the Safe Intersection Sight Distance requirements as defined in Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (2017). It has not been demonstrated that the proposed intersection formation can be designed to achieve adequate sight distance requirements.	The revised yield is 77 dwellings. Austroads Guide to Road Design Part 1 Introduction to Road Design Chapter I requires that Austroads *addresses a range of roads from major roads to local roads but does not include urban local access roads.* North Creek Road is currently considered as an urban local access street. Austroads Guide to Road Design Part 4A Unsignalised and Signalised Intersection Design. 3.4 Sight Distances at Property Entrances. *Desirably, sight distances at accesses should comply with sight distances requirements for intersections i.e. that approach sight distance (ASD), Safe Intersection Sight Distance (SISD) and Minimum Gap Sight Distance (MGSD) are achieved. Obtaining ASD at domestic accesses is preferable but may not always be necessary due to the familiarity with their location of the users. At other than domestic accesses, ASD will need to be provided only if adequate perception of the access is not provided through other means.* The clause advises a 'desirable' requirement not mandatory. As shown on Burchills Engineering Solutions Drawing BE 150074 -SK206 Rev A details a 3.0m X 117m Visibility Splay Sight Line (including an insert site photo showing the sight line) in Accordance with Austroads Guide to Road Design Part 4A Unsignalised and Signalised Intersections. Figure 3.3 – *Application of SISD model for minor roads intersecting on the outside of horizontal curve.* The SISD of 117 metres corresponds to an Observation time of 2.5 secs and Reaction time of 2.0 secs. The drawing also shows existing trees in the verge to be removed for the footpath construction and sight line. Austroads requires an Observation time of 3.0 seconds and the reduced time of 2.5 seconds is considered acceptable on the basis of the low traffic volumes in the closed catchment for North Creek Road and the turning volumes created from the Expansion site. Two advanced warning signs are proposed in addition to lighting for the intersection. Its noted that Table A8 in Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (2017) provides for a reduction in the Observation time to 2.0 seconds for a T intersection on a single carriageway two way road that has a traffic volume of <4000 vehicle per day. Driveway traffic

		volume is also less than 400 vehicles per day. Hence the SISD achieved is compliant. The geometry of the driveway entrance provides for curves similar to an intersection.
iii	The revised Traffic Impact Assessment does not give regard to the future upgrading of North Creek Road, when it is anticipated that the posted and design speed is likely to increase which will result in a greater sight distance requirement for any intersections.	The Traffic Impact Report refers to an email received from Ballina Shire Council that advises 2036 volume on North Creek road is 15,864 vehs per day and capacity assessment and turn lane warrants were required as detailed in the Traffic Impact Assessment Report. As per Austroads Guide to Traffic Management Part 12, the design year is 10 years past the opening, which is 3030, whereas the requirement for the 2036 analysis is past the normal design year. The report does consider the future year upgrade as shown on Drawing BE150074-SK203 Rev G contained in Appendix D. The drawing shows a future upgrade to North Creek Road comprising a 13.0 metre wide carriageway, including two parking lanes and 2.0 metre wide footpath with 3.5 metre verge on the southern side and 4.25 metre verge on the northern side. To accommodate the future higher speed limit, a larger radius horizontal curve is proposed requiring land resumption by Ballina Shire Council of Lot 1 on DP 551222 for a design speed of 70km/hr. Longer sight distances are achieved at the driveway with the larger radius curve proposed for the further road alignment. Road reserve widening along the northern side is also required.
30.	**Construction Traffic**	
30.1	The revised Traffic Impact Assessment does make any assessment of the anticipated number of vehicle movements associated with construction activities including the haulage of substantial amounts of fill onto the site	The total volume of Fill to be imported is 172,775 Solid volume
	Particulars	
i	The assessment does not quantify the type and number of heavy vehicles likely to be generated nor the times of these movements.	The source of fill is not confirmed at this stage. Providing for a 20% bulking factor the importation equates to 10365 trips loads two way volumes. For a cartage volume of 1000 m^3 per day, this equates to 50 two way trips per day along North Creek Road.
ii	The assessment does not give any consideration to the impact that the anticipated construction traffic will have on adjoining properties.	Impacts from on road haulage relate to increased traffic, noise, dust, pavement deteriorate and safety for trucks other vehicles. The impact on the adjoining properties relates to safety, noise and dust.
ii	The assessment does not give any consideration to the impact that the high number of heavy vehicles will have on the safety and efficiency of North Creek Road.	The strategy involved for the mitigate the impact of the Haulage includes: Build the upgrade road widening of North Creek Road prior to starting the haulage and seal surface with bitumen seal .The road width provided is 7 metre which is sufficient for two trucks to pass and provides separation between trucks and on-coming private cars. Enforce a speed limit for the trucks of 50km/hr by use of roadside speed measuring devises that advise actual speed. Recommend Police enforcement as

		necessary. All haulage to be carried out in accordance with Ballina Shire Council standard conditions .including covering loads and maintain unsealed surfaces with water to suppress dust or use of dust suppressants. The route of the involves a pedestrian crossing in North Creek Road with a sheltered center island. The pavement width at this location is 4.0 metres. All truck drivers to perform a site induction process that includes awareness of the roadside conditions along the route.
31	**Future Upgrade to North Creek Road**	
31.1	The proposed works within North Creek Road required as part of this development do not give consideration to future upgrade works planned for North Creek Road.	
31.2	Particulars	
i	The application proposes to undertake local widening on North Creek Road to accommodate the proposed access intersection. No assessment of the proposed road works has been undertaken	Further plans are enclosed regarding the access driveway / North Creek Road intersection geometry. Drawing Martens Drawing PS01-D102 G in Appendix D.
ii	Based on the respondent's requirements and the increased traffic associated with the development, the proposed access intersection works on North Creek Road will need to be constructed by the applicant to provide a minimum of two x 3.5m traffic lanes, plus a parking lane and verge (including concrete footpath on the northern side of North Creek Road. Concept design drawings are required to demonstrate how the proposed intersection will meet applicable design standards and how the intersection will be accommodated within the road reserve alignment. The design should also clearly demonstrate how the future upgrading can be achieved, to provide a protected right hand storage lane, when North Creek Road is extended and an assessment of any environmental impacts caused by the road works.	Constrains considered for the alignment include the following: From the edge of the existing kerb and channel the alignment is constrained to the south. Widening results in the removal of vegetation to the south of the road. This vegetation is mapped SEPP Coastal Management Wetland. There is an existing overhead power line within the road reserve along the northern road reserve boundary. Further north the foreshore is close to the road reserve. The plan prepared for the future upgrade does accommodate the future capacity and includes a parking lane on both sides. For the proposed development of the Expansion site the parking lane serves no purpose at this time. The development is remote from the road frontage with adequate supply of visitor parking on site. The road upgrade as shown on Martens plan shows the 2 X 3.5 metre lanes with 2.0 metre footpath beside the through lanes in North Creek Road for the initial upgrade. For the reasons above the parking lane is not included.
B2	**Contentions that may be resolved by conditions of consent:**	
	Nil	
B3	**Insufficient information**	
1	The contentions raised by the respondent raise substantial insufficient information matters of concern. The insufficiency of information is so great that a holistic assessment of the	~~Disagree~~ With respect to traffic Impact all relevant items included in the assessment.

	Development Application, including whether the site is suitable for development, is not possible.	

7. Operational Assessment

As agreed with the Ballina Shire Council, the operational capacity of the above intersections has been assessed for the existing 2019 scenario (Figure 2.14), the 2022 'pre-development' and 'post-development' scenarios (Figure 5.4 and Figure 5.5) and the 2032 'pre-development' and 'post-development' scenarios (Figure 5.8 and Figure 5.9).

The following intersections have been analysed for the Pre-Development and Post Development scenarios:

- North Creek Road / Southern Cross Drive roundabout;
- North Creek Road / Corks Lane intersection;
- North Creek Road / Bupa Road intersection, and
- North Creek Road / Expansion site access driveway intersection.

SIDRA outputs are attached as Appendix E to this report. The full SIDRA computer outputs can be provided on request.

It should be noted that the intersection assessments have been based on the individual intersection peak hour, with development peak hour flows superimposed. Proposed development has a different morning peak than recorded peak hours at the intersections in the vicinity of the site. The following assessment therefore provides a robust assessment of the operation of the intersections under 'post-development' scenarios and this should be taken into account when considering the assessment results.

7.1 Intersection Capacity Analysis

Capacity analysis of the surrounding intersections has been carried out utilising SIDRA INTERSECTION 8 traffic modelling software. This is an advanced micro-analytical traffic evaluation tool that employs lane-by-lane and vehicle drive models and can assess intersections within a network.

The key performance criteria considered are Degree of Saturation (DOS), Delays and Queuing. According to the Guidelines for Assessment of Road Impacts of Developments (Department of Main Roads, 2006, Ch. 6, p. 7), for priority-controlled intersection, a DOS in excess of 80% is considered over capacity, 85% for roundabouts and 90% for signalised intersections. A DOS of 90% is the recommended upper limit as above this value performance quickly deteriorates. For priority-controlled intersections, a delay up to 42 seconds is considered satisfactory and a delay greater than 56 seconds is considered over capacity (Guide to Traffic Generating Developments, Roads and Traffic Authority, 2002, Tab. 4.2). Acceptable queue lengths are determined on a site by site basis, considering available storage and interaction with other intersections.

7.1.1 North Creek Road / Southern Cross Drive Roundabout

The diagrammatic layout of the intersection as well as aerial photo of the intersection layout, are shown in the following Figure 7.1.

Figure 7.1 North Creek Road / Southern Cross Drive Roundabout Layout

Existing Performance

The results of the SIDRA modelling of this intersection identify that it operates well within its theoretical operational capacity of 90% Degree of Saturation (DoS) under the current 2019 traffic flow scenario in all peak hour periods. The maximum DoS value is 52.8% in the weekday evening peak period with an associated queue length of 32.4m (approximately 5 vehicles). The average intersection delay during AM peak is 6.6 seconds whereas during PM Peak only 9.1 seconds.

The performance summary for 2019 existing situation is presented in Table 7.1.

Table 7.1 North Creek Rd / Southern Cross Dr Roundabout Performance Summary – 2019

Approach	Morning Peak Pre-Development Existing Layout			Evening Peak Pre-Development Existing Layout		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
Southern Cross Drive (SE)	8.8	7..7	3.9	19.7	11.6	11.1
North Creek Road (NE)	18.1	6.3	9.0	35.4	10.7	21.0
Southern Cross Drive (NW)	17.2	9.1	8.0	52.8	11.0	32.4
North Creek Road (SW)	23.0	5.4	11.8	32.5	6.1	19.0
Intersection Overall	23.0	6.6	11.8	52.8	9.1	32.4

SIDRA Model Validation

Guide to Traffic Impact Assessment, Department of Transport and Main Roads 2017, Appendix A highlights that SIDRA analysis should preferably be based on default values. All SIDRA models used in the traffic impact assessment have default values and have been checked against the existing traffic conditions on local roads using Google Traffic tool. Figure 7.2 shows the typical traffic conditions on local roads in the vicinity of the site during AM and PM Peak.

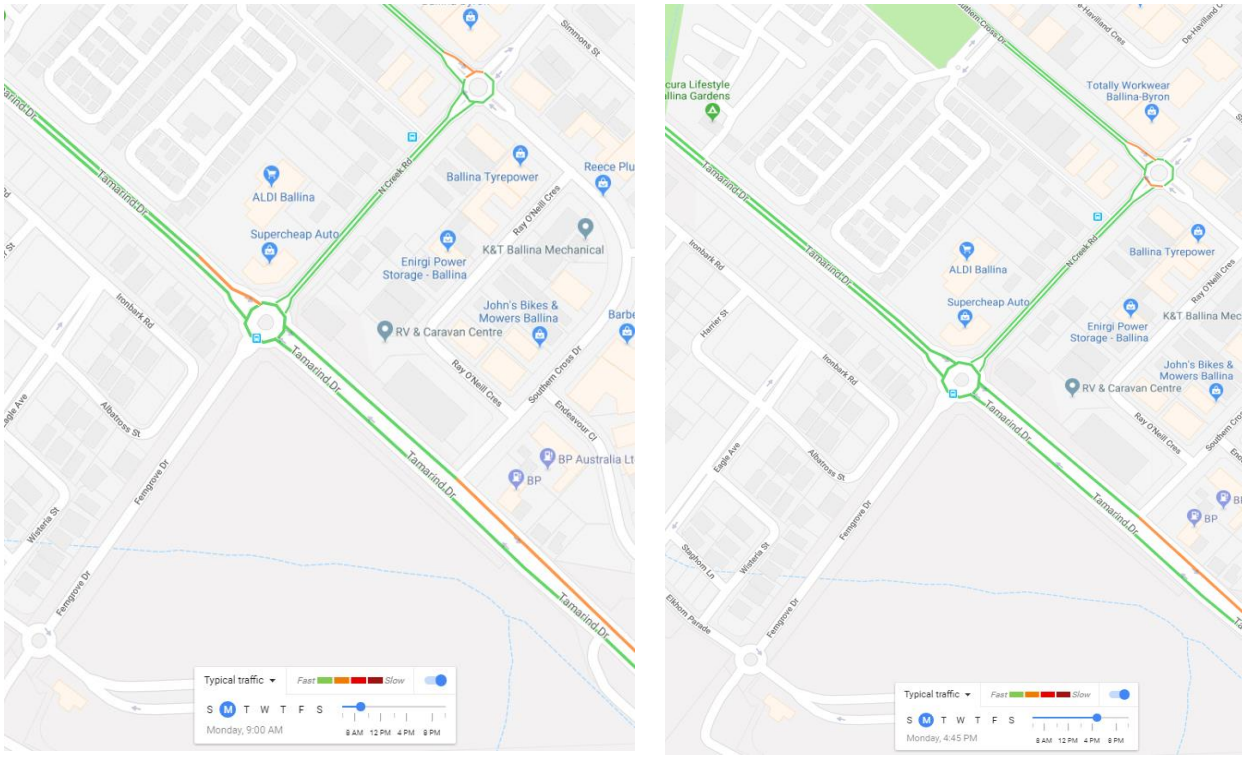


Figure 7.2 Google Traffic - Average Traffic Condition AM and PM Peak

The Google Traffic tool was used to compare the typical intersection operation and observed queues with intersection performance and queues modelled by SIDRA program, in a validation exercise.

It is worth to note that validating models against observed queue lengths and typical performance is difficult. During peak periods (when the flow/capacity ratios are high) there is a large daily variation in queue lengths even if the average flow for each time segment does not vary from day to day. The results of SIDRA analysis for base 2019 scenario together with Typical Traffic Conditions (Google Traffic) are summarised in Table 7.2 below.

Table 7.2 SIDRA Model Validation

Approach Approach	AM Peak		AM Peak	
	SIDRA DoS (%)	Google Traffic	SIDRA DoS (%)	Google Traffic
Southern Cross Drive (SE)	8.8		19.7	
North Creek Road (NE)	18.1		35.4	
Southern Cross Drive (NW)	17.2		52.8	
North Creek Road (SW)	23.0		32.5	

In general, SIDRA model results are comparable with Google Traffic average road conditions during morning and evening peak hours, therefore model is considered to be a good representation of the existing situation.

Future Performance (Existing Layout)

The SIDRA performance summaries for 2022 opening year are presented in Table 7.3 for the pre- and post-development scenarios.

Table 7.3 North Creek Road / Southern Cross Drive Performance Summary – Year 2022

Approach	Morning Peak					
	2022 Pre-Development			2022 Post Development		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
Southern Cross Drive (SE)	9.6	7.9	4.3	10.2	8.1	4.6
North Creek Road (NE)	20.3	6.5	10.3	21.1	6.5	10.8
Southern Cross Drive (NW)	19.2	9.2	9.1	19.6	9.4	9.4
North Creek Road (SW)	25.1	5.5	13.2	25.4	5.5	13.4
Intersection Overall	25.1	6.7	13.2	25.4	6.8	13.4
	Evening Peak					
Southern Cross Drive (SE)	23.9	12.8	14.1	24.7	13.1	14.7
North Creek Road (NE)	42.5	12.1	27.3	44.7	12.5	29.8
Southern Cross Drive (NW)	59.6	12.3	43.6	60.7	12.6	45.8
North Creek Road (SW)	36.0	6.2	21.7	36.3	6.2	21.9
Intersection Overall	59.6	10.0	43.6	60.7	10.2	45.8

The results show that the intersection is expected to operate within acceptable limits at the opening year of the proposed development. The development trips are expected to have a minimal impact on the roundabout during AM Peak with DoS increasing by 0.3% to 25.4%, during PM Peak DoS is expected to increase slightly from 59.6% to 60.7%. During evening peak, the delay on North Creek Road increased by 0.5s.

Table 7.4 below shows intersection performance for 2032 assessment year for the pre-and post-development scenarios.

Table 7.4 North Creek Road / Southern Cross Drive Performance Summary – Year 2032

Approach	Morning Peak					
	2032 Pre-Development			2032 Post Development		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
Southern Cross Drive (SE)	14.8	9.2	7.3	15.1	9.3	7.5
North Creek Road (NE)	29.1	7.3	16.1	30.0	7.3	16.7
Southern Cross Drive (NW)	27.6	10.0	14.5	28.1	10.1	14.8
North Creek Road (SW)	34.7	5.8	18.2	34.8	5.8	20.3
Intersection Overall	34.7	7.4	20.4	34.8	7.4	20.3
	Evening Peak					
Southern Cross Drive (SE)	52.4	27.8	41.4	53.7	29.6	43.4
North Creek Road (NE)	86.7	54.4	133.9	89.8	61.3	154.0
Southern Cross Drive (NW)	92.5	31.6	189.0	94.2	35.5	210.4
North Creek Road (SW)	50.7	6.8	34.7	51.0	6.8	34.9
Intersection Overall	92.5	25.4	189.0	94.2	28.2	210.4

The above SIDRA results indicated that allowing for traffic growth up to the 2032 assessment year, the intersection operates close to its theoretical capacity. The maximum Degree of Saturation becomes 92.5% with an associated queue length of more than 189m (approximately 27 vehicles) in the evening peak period for pre-development scenario.

With proposed development in place intersection operation operates with no material change compared to pre-development scenario. In the evening intersection operation worsens, with DoS increasing by 2.0% during PM Peak. During PM Peak overall intersection delay increase by 3.3s which is considered to be insignificant. Overall Level of Service C is maintained.

Overall, the intersection operates close to its theoretical operational capacity even without additional traffic associated with the proposed development.

7.1.2 North Creek Road / Corks Lane Intersection

The proposed development will access wider road network via an existing three-way priority intersection with the North Creek Road and an existing entrance in Corks Lane. The above intersection SIDRA assessment results are summarised in Table 7.5 below.

Figure 7.3 North Creek Road / Corks Lane Intersection Layout

Table 7.5 North Creek Road / Corks Lane Intersection Performance Summary - 2019

Approach	Morning Peak Pre-Development Existing Layout			Evening Peak Pre-Development Existing Layout		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
North Creek Road (E)	5.8	0.4	0.4	7.3	0.7	0.7
Corks Lane (N)	3.0	7.4	1.1	3.5	6.6	0.9
North Creek Road (W)	6.5	1.6	0.0	8.2	0.8	0.0
Intersection Overall	6.5	1.7	1.1	8.2	1.4	0.9

The DoS results show that the analysed intersection operates well within its theoretical capacity, with a maximum DoS of 6.5% and 8.2% on North Creek Road in the morning and evening peak hour respectively.

Table 7.6 below shows SIDRA outputs for the 2022 pre-and post-development scenarios.

Table 7.6 North Creek Road / Corks Lane Intersection Performance Summary - 2022

Approach	Morning Peak					
	2022 Pre-Development			2022 Post Development		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
North Creek Road (E)	6.4	0.5	0.4	7.0	0.4	0.4
Corks Lane (N)	3.5	7.6	1.2	3.6	7.8	1.3
North Creek Road (W)	7.2	1.6	0.0	8.2	1.4	0.0
Intersection Overall	7.2	1.7	1.2	8.2	1.5	1.3
	Evening Peak					
North Creek Road (E)	8.1	0.6	0.8	9.0	0.6	0.8
Corks Lane (N)	4.0	6.7	1.0	4.1	6.9	1.0
North Creek Road (W)	9.1	0.8	0.0	9.9	0.7	0.0
Intersection Overall	9.1	1.4	1.0	9.9	1.3	1.0

In the 2022 'pre-development' scenarios, the intersection continues operating within its theoretical capacity with a maximum DoS of 7.2% and 9.1% on North Creek Road in the morning and evening peak hour respectively. Additional traffic associated with the proposed development leads to marginal increase DoS to 9.1% in the AM Peak and 10.1% during PM Peak.

Table 7.7 below summarises SIDRA outputs for the 2032 pre and post development scenarios.

Table 7.7 North Creek Road / Corks Lane Intersection Performance Summary - 2032

Approach	Morning Peak					
	2032 Pre-Development			2032 Post Development		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
North Creek Road (E)	8.5	0.5	0.6	9.1	0.5	0.6
Corks Lane (N)	5.0	8.2	1.8	5.2	8.4	1.9
North Creek Road (W)	9.5	1.6	0.0	10.5	1.5	0.0
Intersection Overall	9.5	1.8	1.8	10.5	1.7	1.9
	Evening Peak					
North Creek Road (E)	10.8	0.7	1.1	11.6	0.7	1.2
Corks Lane (N)	5.8	7.3	1.4	6.0	7.4	1.5
North Creek Road (W)	12.0	0.8	0.0	12.8	0.8	0.0
Intersection Overall	12.0	1.5	1.4	12.8	1.4	1.5

As shown in Table 7.7, the proposed development has a marginal impact on the intersection operation in 2032 assessment year. DoS increase slightly from 9.5% to 10.6% during morning peak and from 12.0% to 12.9% during PM Peak. Based on the insignificant impact onto intersection operation as a result of the proposed development, no improvements are proposed.

7.1.3 North Creek Road / Bupa Road intersection

North Creek Road / Bupa Access Road intersection performance have been undertaken using SIDRA software. The current intersection performance (2019 traffic flows) has been summarised in Table 7.8**.** The diagrammatic layout of the intersection as well as aerial photo of the existing intersection layout, are shown in the following Figure 7.4.

Figure 7.4 North Creek Road / Bupa Access Road Intersection Layout

Table 7.8 below summarises SIDRA outputs for the 2019 scenarios.

Table 7.8 North Creek Road / Bupa Road Intersection Performance Summary – 2019

Approach	Morning Peak Pre-Development Existing Layout			Evening Peak Pre-Development Existing Layout		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
North Creek Road (E)	0.9	0.4	0.1	1.3	0.3	0..0
Bupa Access (N)	1.6	5.7	0.4	3.2	5.7	0.7
North Creek Road (W)	2.0	3.4	0.0	2.7	3.8	0.0
Intersection Overall	2.0	3.4	0.4	3.2	3.8	0.7

The existing intersection operates well within its theoretical operational capacity with a maximum DoS value of only 2.0% during the weekday AM peak hour and 3.2% during weekday PM Peak hour. The average intersection delay is 3.4s in the morning and 3.8s in the evening.

Once traffic growth is taken into account, the intersection continues to operate well within its theoretical capacity during both the AM and PM peak hour time periods in 2022. The maximum DoS

value of 3.2% occurs during the weekday PM peak and has an associated average queue length of less than one vehicle. The SIDRA results for 2022 assessment year is summarised in Table 7.9 below.

Table 7.9 North Creek Road / Bupa Road Intersection Performance Summary – 2022

Approach	Morning Peak					
	2022 Pre-Development			2022 Post Development		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
North Creek Road (E)	1.0	0.4	0.1	1.6	0.2	0.1
Bupa Access (N)	1.6	5.7	0.4	1.7	5.8	0.4
North Creek Road (W)	2.0	3.3	0.0	3.2	2.4	0.0
Intersection Overall	2.0	3.3	0.4	3.2	2.5	0.4
	Evening Peak					
North Creek Road (E)	1.4	0.2	0.0	2.3	0.2	0.1
Bupa Access (N)	3.2	5.7	0.7	3.5	5.8	0.8
North Creek Road (W)	2.8	3.7	0.0	3.7	3.0	0.0
Intersection Overall	3.2	3.7	0.7	3.7	3.0	0.8

Introduction of the proposed retirement village development doesn't have any material impact on the intersection operation. There is insignificant increase in DoS during AM Peak by 1.4%.

The SIDRA outputs for 2032 pre and post development scenario have been summarised in the following Table 7.10.

Table 7.10 North Creek Road / Bupa Road Intersection Performance Summary – 2032

Approach	Morning Peak					
	2032 Pre-Development			2032 Post Development		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
North Creek Road (E)	1.2	0.3	0.1	1.9	0.2	0.1
Bupa Access (N)	1.6	5.7	0.4	1.7	5.8	0.4
North Creek Road (W)	2.3	3.0	0.0	3.5	2.2	0.0
Intersection Overall	2.3	2.9	0.4	3.5	2.3	0.4
	Evening Peak					
North Creek Road (E)	1.8	0.2	0.2	2.7	0.1	0.1
Bupa Access (N)	3.3	5.7	5.7	3.5	5.9	0.8
North Creek Road (W)	3.1	3.1	3.4	4.1	2.8	0.0
Intersection Overall	3.3	3.3	3.3	4.1	2.8	0.8

The DoS results show that the intersection is forecast to operate well within its theoretical capacity in the AM and PM peak hours of the '2032 Pre-development' and 2032 'Post-development'

scenarios. The maximum DoS of 4.2% on Bupa Access in the '2032 Post-development PM Peak scenario.

No improvements are proposed at this intersection as the development has insignificant impact on this intersection with minimal delays and queueing. The intersection has a lot of spare capacity able to accommodate additional traffic associated with the proposed retirement village development.

7.1.4 North Creek Road / Expansion Site Access Driveway Intersection

North Creek Road / Expansion Site Access Driveway intersection performance have been undertaken using SIDRA software. The current intersection performance (2019 traffic flows) has been summarised in Table 7.11. The diagrammatic layout of the intersection as well as functional layout plan of the proposed intersection, are shown in the following Figure 7.5.

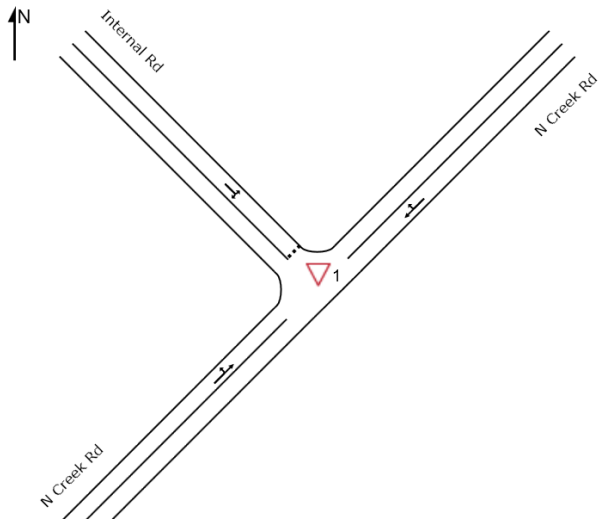


Figure 7.5 North Creek Road / Expansion Site Access Driveway Intersection Layout

SIDRA analysis highlighted that proposed intersection operates well within its theoretical capacity during both the AM and PM peak hour time periods in 2022 with proposed development in place. The SIDRA results for 2022 post development assessment year is summarised in Table 7.11 below.

Table 7.11 North Creek Road / Expansion Site Access Driveway Performance Summary – 2022

Approach	2022					
	AM Post-Development			PM Post Development		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
North Creek Road (E)	1.0	0.4	0.1	1.0	0.4	0.1
Bupa Access (N)	1.0	5.7	0.2	0.9	5.7	0.2
North Creek Road (W)	2.1	3.1	0.0	1.9	2.9	0.0
Intersection Overall	2.1	2.9	0.2	1.9	2.7	0.2

The SIDRA outputs for 2032 post development scenario have been summarised in the following Table 7.12.

Table 7.12 North Creek Road / Expansion Site Access Driveway Performance Summary – 2032

Approach	2032					
	AM Post-Development			PM Post Development		
	DOS (%)	Delay (sec)	Queue (m)	DOS (%)	Delay (sec)	Queue (m)
North Creek Road (E)	1.4	0.3	0.1	1.4	0.2	0.0
Bupa Access (N)	1.1	5.7	0.3	1.3	5.6	0.3
North Creek Road (W)	2.3	2.8	0.0	1.8	2.7	0.0
Intersection Overall	2.3	2.5	0.3	1.8	2.5	0.3

The DoS results show that the intersection is forecast to operate well within its theoretical capacity in the AM and PM peak hours of the 2032 'Post-development' scenarios. The maximum DoS of 2.3% in the '2032 Post-development AM and PM Peak scenarios.

7.1.5 Summary

The overall sustainability of the traffic operations is maintained due to the following:

- Low traffic along North Creek Road in the vicinity of the site;
- The insignificant traffic increase resulting from the proposed development; and
- Safe and convenient vehicle movement to, from and within the site is provided with one access roadway.

8. Service and Waste Collection Vehicle

8.1 Service Vehicles and Solid Waste Collection Vehicle

Figure 8.1 below shows swept path for Heavy Rigid Vehicle (HRV). Detail drawing BE150074-SK020B; *HRV Turning Path* is attached as Appendix F.

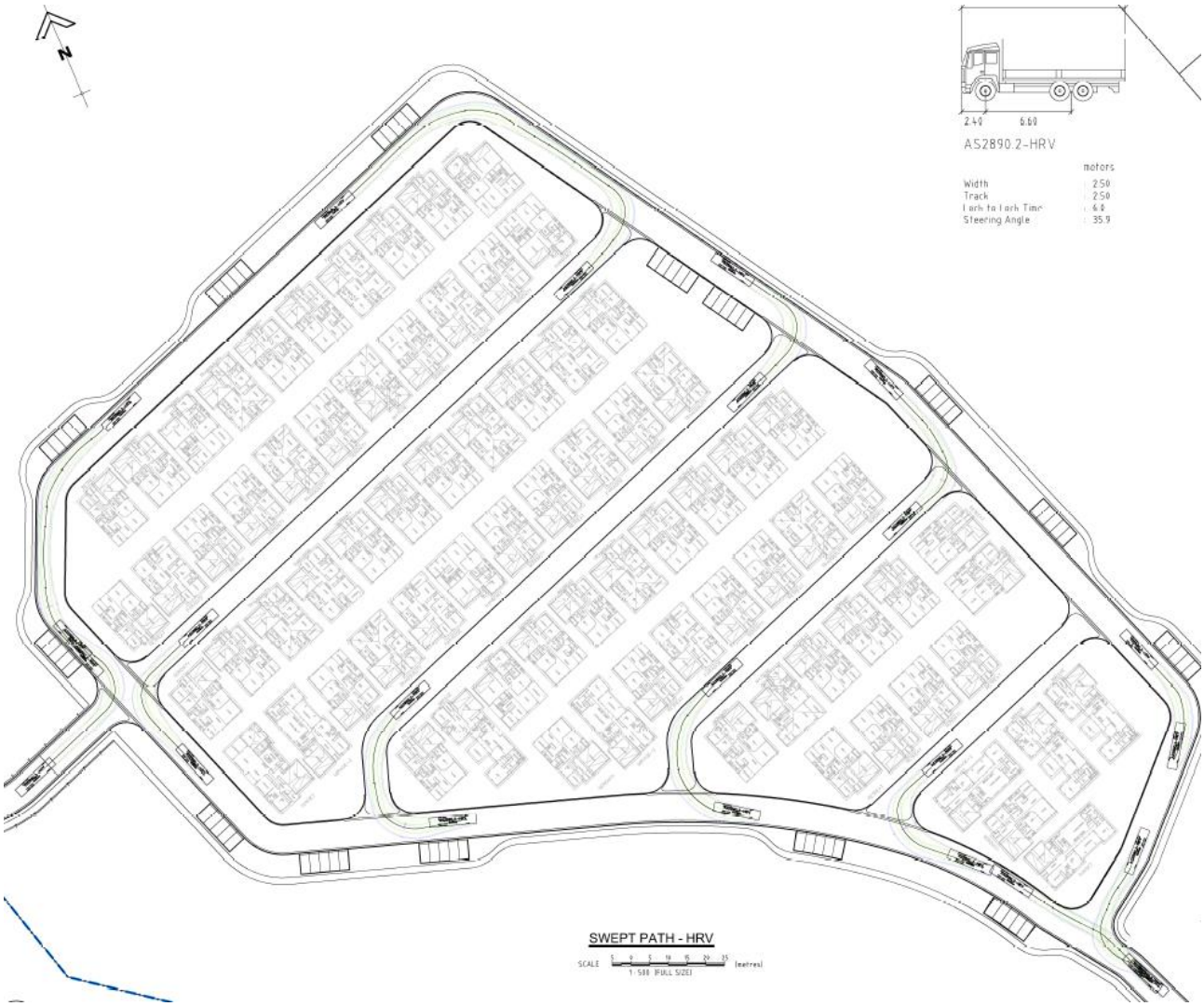


Figure 8.1 Swept Path Analysis with HRV

The swept path analysis is based on the 12.5 metre Heavy Rigid vehicle turning into the side road. The HRV crosses the westbound lane access road however given low traffic along internal roads, this is considered an acceptable solution. Refer drawing BE150074- SK020 C in Appendix F.

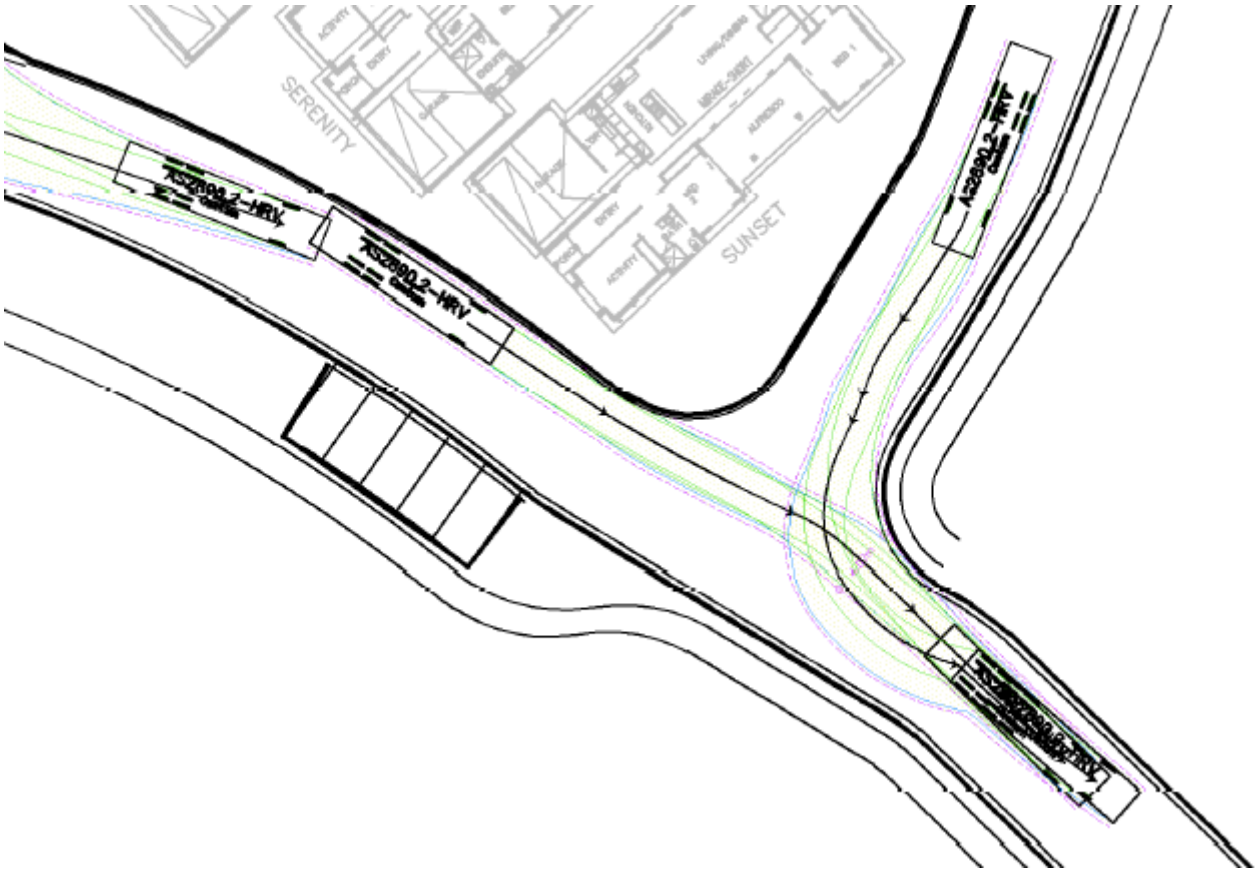


Figure 8.2 Swept Path Analysis with HRV at 'T' Junction

Swept path analysis for HRV (Drawing BE150074-SK020C; *HRV*) is attached as Appendix F to this report. The plan shows the HRV doing a turn manoeuvre utilising turning area in the southern corner of the site where the T junction is proposed. The drawing demonstrates that the service vehicle successfully manoeuvres all the other turning area.

The wheel base of the largest waste collection vehicle is smaller than the HRV adopted for the swept path analysis. The above diagrams also illustrate that the Waste Collection Vehicle will also successfully transverse the site. Swept path analysis for RCV (Drawing BE150074-SK021C; *RCV*) is attached as Appendix F

8.2 Car Parking Swept Paths

A car turning swept path analysis for B99 car was performed as shown in the following Figure 8.3 below for the car parking area.

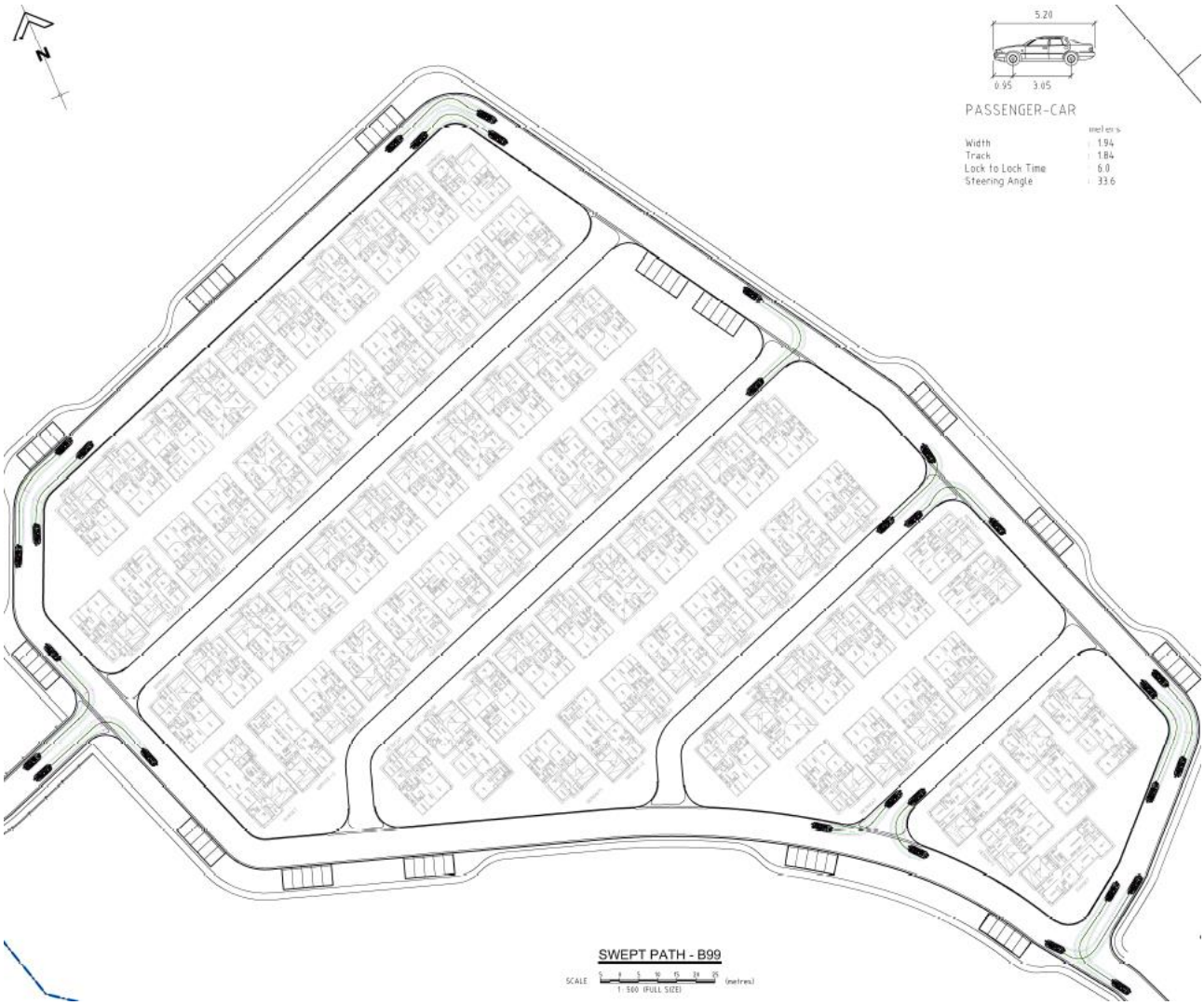


Figure 8.3 Swept Path Diagram for Turning - B99 Cars

A car turning swept path analysis for B99 car was performed as shown in the following Figure 8.4 below for the car crossing area.

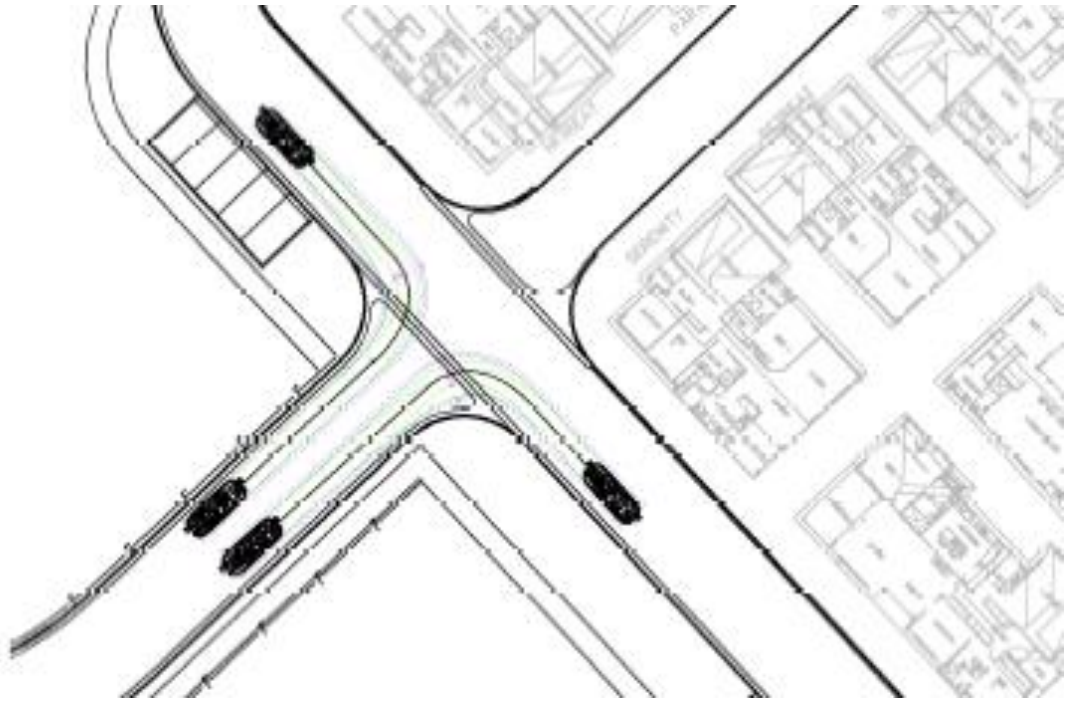


Figure 8.4 Swept Path Diagram for Crossing - B99Cars

The full swept path drawings BE150074-SK022C, B99 Car is contained in Appendix F.

Overall the combined road widths and turning radius provided are appropriate for the development.

9. Conclusions

The report examines the traffic impact associated with the development of retirement village utilizing the existing intersections along North Creek Road to access the external road network. The current proposal consists 77 residential units with a new access driveway creating an intersection onto North Creek Road for seniors housing.

Based on the traffic assessment carried out for the proposed 77 residential units, the following conclusions are made:

- The proposed development is expected to generate approximately 28-31 vehicles per hour which is not expected to significantly impact on the operation of the local road network;
- The Degree of Saturation and delays at the North Creek Road / Southern Cross Drive roundabout operate at Level of Service A in AM Peak and Level of Service C during PM Peak with proposed development in place for the opening year design of 2032;
- The proposed new access driveway road is private with 8.0 metre pavement widths, which is considered acceptable from an engineering perspective;
- A concrete footpath is provided along western site boundary of the access driveway to the Expansion site and proposed frontage works in North Creek Road connecting to the existing path along North Creek Road. Internal paths linking the residential units with the existing Community Centre in Palm Lake Resort are also recommended plus an additional 20 car spaces. Construction of the new paths and car spaces within the existing Palm Lake Resort are recommended as part of Stage 1 construction of the Expansion site;
- Internal roads will be designed as a shared space with maximum 10km/h posted speed. The site is considered to be accessible by active and sustainable modes of transport;
- The future traffic volumes along North Creek Road ultimately require an auxiliary left and right turn lane on the northern side of North Creek Road at the intersection, to be developed as part of the North Creek Road upgrade crossing of North Creek and provide link between Ballina and Skennars Head to the east. However due to the extended time frame when this is to occur in the future, the installation of the auxiliary turn lane as part of the development is not required. Ultimately the intersection auxiliary lanes are recommended to be incorporated with the bridge construction works;
- The layout has been designed to allow a typical HRV and to service the site. Swept path assessment has demonstrated that an HRV and also an RCV is able to enter / exit the site in a forward gear;
- Additional car spaces to the existing Bupa Aged Care car park are proposed to eliminate the on-street parking along the Bupa Access road; and
- Traffic from the expansion site has negligible impact on the Bupa Aged care access.

10. References

Austroads 2010, Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Austroads Inc., Sydney.

Austroads 2009, Guide to Road Design Part 4: Intersections and Crossings, Austroads Inc., Sydney.

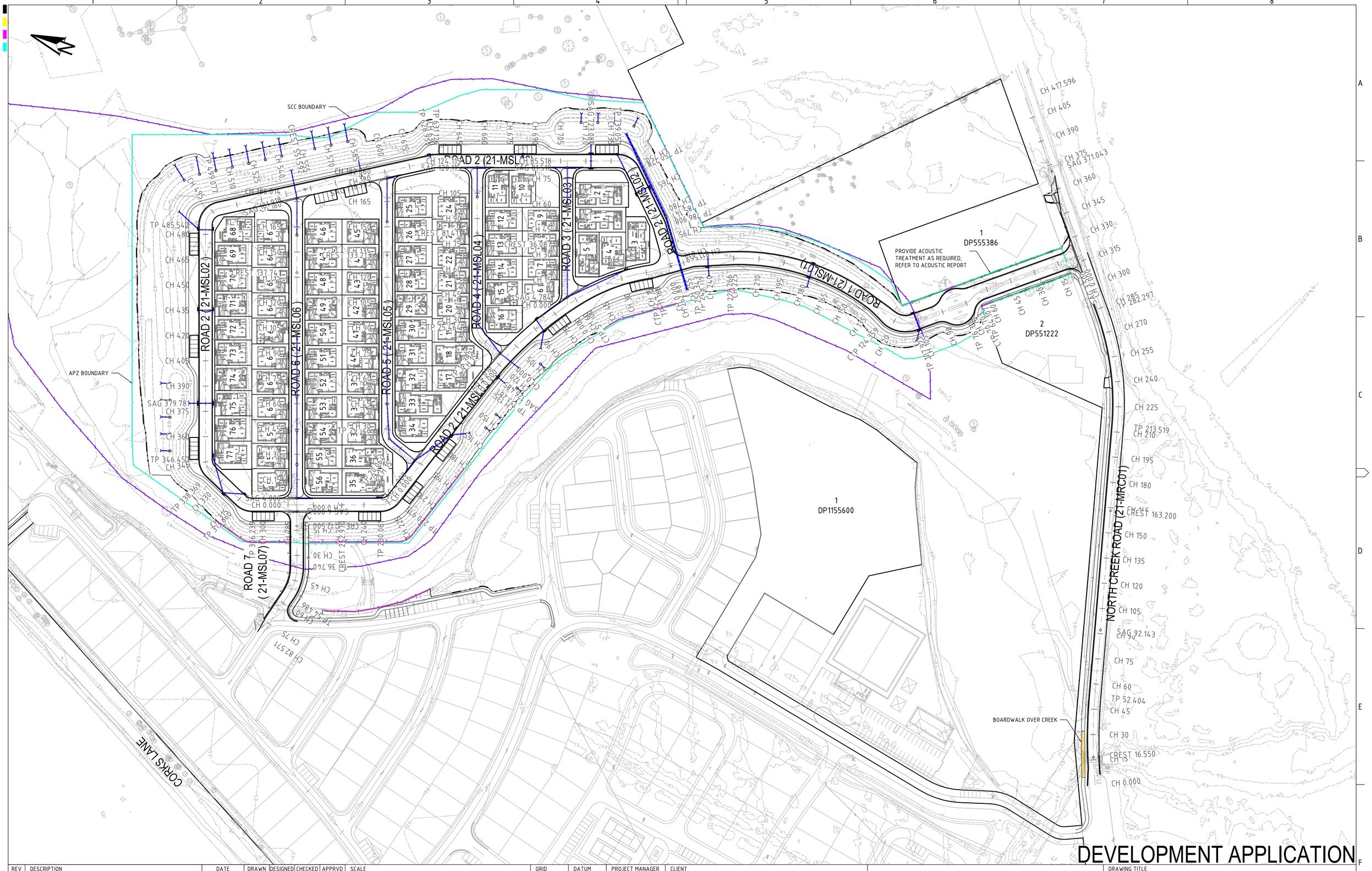
Institute of Municipal Engineering Australia – Queensland Division (IMEAQ) 1993, Queensland Streets, IMEAQ, Brisbane.

Roads and Traffic Authority 2002, Guide to Traffic Generating Developments, Roads and Traffic Authority, Sydney.

Standards Australia 2002, Parking Facilities Part 2: Off-street Commercial Vehicle Facilities, AS/NZS 2890.2:2002, Standards Australia, Sydney.

NSW Rural Fire Service Planning for Bush Fire Protection 2006 Section 4.1.3 Standards for Bush Fire Protection Measures for Residential and Rural Residential Subdivisions.

Appendix A – Site Layout



REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
G	**AMENDED AS PER OTHER CONSULTANTS FEEDBACK**	**03/06/2019**	**GM**	**AW/EZ**	**TH**	**DM**
F	AMENDED BASED ON CLIENTS INSTRUCTION	31/05/2019	GM	AW/EZ		
E	MINOR AMENDMENTS AND CLARIFICATIONS	24/05/2019	GM	AW/AVG	TH	DM
D	REVISED AS PER MEDIATION MEETING (13/05/2019)	22/05/2019	GM	AW/AVG	DG	
C	REVISED LAYOUT	09/04/2019	GM	AW/AVG	TH	DM
B	REVISED FOR SUBMISSON	27/03/2019	GM	AW/AVG	TH	DM
A	INITIAL RELEASE	22/03/2019	GM	AW/AVG	DG	

SCALE
A1 (A3) 1:1,000 (1:2,000)
0 10 20 30 40 50 60 70 80 90 100 METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

CLIENT
PALM LAKE WORKS

PROJECT NAME/PLANSET TITLE
PALM LAKE RESORT EXTENSION
ENGINEERING WORKS
120 NORTH CREEK RD, BALLINA NSW
LOT 11 DP 11245510

martens & Associates Pty Ltd
Consulting Engineers
Environment
Water
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DEVELOPMENT APPLICATION

DRAWING TITLE
DEVELOPMENT OVERVIEW PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1806905	PS01	R07	PS01-A050	G

DRAWING ID: P1806905-PS01-R07-A050

PRINTED: ---- USER: GMOSTOFA
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

Appendix B – Traffic Survey

TDC
Traffic Data & Control

SURVEY INFORMATION

Site ID:	1			
Location:	North Creek Road & Corks Lane, Ballina			
Date:	30	/ Nov	/ 2017	
Time Period 1:	06:00	to	09:00	
Time Period 2:	15:00	to	18:00	

	Primary Classes:	Secondary Classes:
1	Light Vehicles	Pedestrians
2	Trucks	None
3	Bicycles on Road	
4	None	
5	None	

Weather Conditions 1: Fine **Weather Conditions 2:** Fine

Intersection Legs:			
North	☑ Ch	Corks Ln SB
East	☑ Ch	North Creek Rd WB
South	☐ Ch	
West	☑ Ch	North Creek Rd EB

Output time interval: 15 mins

MAP

Site ID: 1

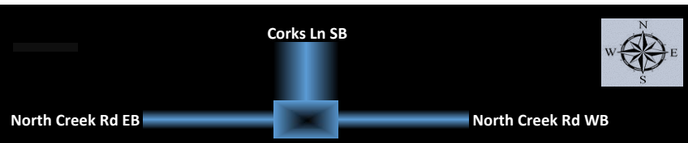
Location: North Creek Road & Corks Lane, Ballina

Date: 30-Nov-2017

Period 1 Time: 6:00 AM to 9:00 AM

Weather: Fine

Period 1 Peak Hour: 7:45 AM to 8:45 AM



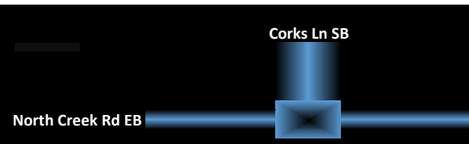
TDC Traffic Data & Control

TOTALS AND PEAKS

	Corks Ln SB										North Creek Rd WB										North Creek Rd EB										GRAND TOTAL	Corks Ln SB	North Creek Rd WB	North Creek Rd EB
	Left	Left	Left	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1	Through	Through	Through	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1	Left	Left	Left	Through	Through	Through	U-turn	U-turn	U-turn	Cross 1		TOTAL	TOTAL	TOTAL
	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Pedestrians	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Pedestrians	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Pedestrians	TOTALS	All Classes	All Classes	All Classes
Period 1 Total	24	1	0	15	13	0	0	0	0	0	151	11	7	12	0	0	0	0	0	0	42	7	1	115	12	3	1	0	0	0	415	53	181	181
Period 1 Peak Hr	6	0	0	1	5	0	0	0	0	0	69	6	2	7	0	0	0	0	0	0	5	4	0	49	6	0	0	0	0	0	160	12	84	64
06:00	0	0	0	3	0	0	0	0	0	0	4	1	1	0	0	0	0	0	0	0	4	0	0	4	1	0	0	0	0	0	**18**	3	6	9
06:15	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	12	0	0	8	0	0	0	0	0	0	**24**	2	2	20
06:30	4	0	0	4	3	0	0	0	0	0	13	0	1	1	0	0	0	0	0	0	7	0	0	12	0	0	0	0	0	0	**45**	11	15	19
06:45	7	1	0	1	2	0	0	0	0	0	6	2	0	0	0	0	0	0	0	0	11	2	1	12	3	0	0	0	0	0	**48**	11	8	29
07:00	3	0	0	1	0	0	0	0	0	0	13	0	1	2	0	0	0	0	0	0	3	0	0	9	0	1	1	0	0	0	**34**	4	16	14
07:15	3	0	0	2	0	0	0	0	0	0	7	0	1	2	0	0	0	0	0	0	0	0	0	4	0	1	0	0	0	0	**20**	5	10	5
07:30	0	0	0	1	3	0	0	0	0	0	11	1	1	0	0	0	0	0	0	0	0	1	0	4	1	0	0	0	0	0	**23**	4	13	6
07:45	0	0	0	0	1	0	0	0	0	0	21	0	2	1	0	0	0	0	0	0	1	2	0	17	0	0	0	0	0	0	**45**	1	24	20
08:00	1	0	0	1	2	0	0	0	0	0	12	1	0	4	0	0	0	0	0	0	0	1	0	8	0	0	0	0	0	0	**30**	4	17	9
08:15	4	0	0	0	1	0	0	0	0	0	12	2	0	0	0	0	0	0	0	0	3	0	0	14	3	0	0	0	0	0	**39**	5	14	20
08:30	1	0	0	0	1	0	0	0	0	0	24	3	0	2	0	0	0	0	0	0	1	1	0	10	3	0	0	0	0	0	**46**	2	29	15
08:45	1	0	0	0	0	0	0	0	0	0	26	1	0	0	0	0	0	0	0	0	0	0	0	13	1	1	0	0	0	0	**43**	1	27	15

Site ID: 1
Location: North Creek Road & Corks Lane, Ballina
Date: 30-Nov-2017
Period 2 Time: 3:00 PM to 6:00 PM
Weather: Fine

Period 2 Peak Hour: 3:00 PM to 4:00 PM



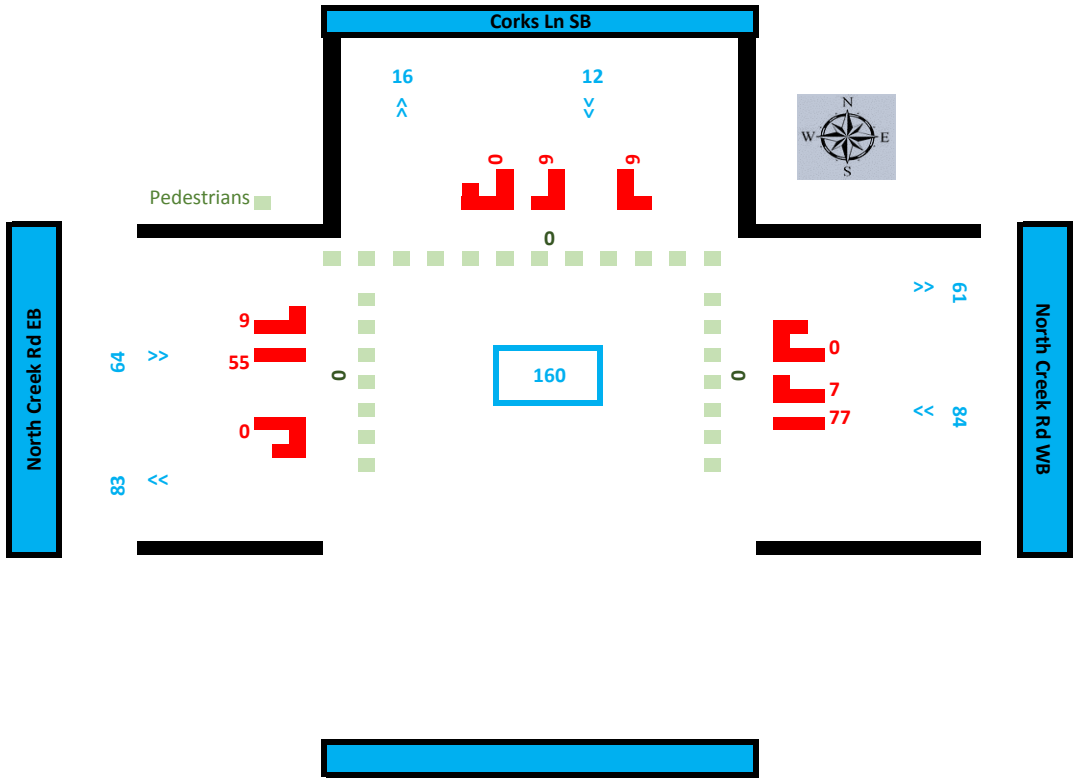
TDC Traffic Data & Control

TOTALS AND PEAKS

	Corks Ln SB			Corks Ln SB			Corks Ln SB				North Creek Rd WB			North Creek Rd WB			North Creek Rd WB				North Creek Rd EB			North Creek Rd EB				GRAND TOTAL	Corks Ln SB	North Creek Rd WB	North Creek Rd EB
	Left	Left	Left	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1	Through	Through	Through	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1	Left	Left	Left	Through	Through	Through	U-turn	U-turn	U-turn	Cross 1		TOTAL	TOTAL	TOTAL
Time Starting	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Pedestrians	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Pedestrians	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Pedestrians	TOTALS	All Classes	All Classes	All Classes
Period 2 Total	2	1	0	35	2	0	0	0	0	0	203	13	1	9	3	0	0	0	0	0	14	9	0	221	9	1	0	0	0	0	523	40	229	254
Period 2 Peak Hr	1	1	0	19	1	0	0	0	0	0	88	8	1	7	3	0	0	0	0	0	4	3	0	81	5	0	0	0	0	0	222	22	107	93
15:00	1	1	0	15	0	0	0	0	0	0	37	2	0	6	2	0	0	0	0	0	1	1	0	22	2	0	0	0	0	0	**90**	17	47	26
15:15	0	0	0	3	1	0	0	0	0	0	15	2	1	1	0	0	0	0	0	0	2	0	0	24	1	0	0	0	0	0	**50**	4	19	27
15:30	0	0	0	0	0	0	0	0	0	0	12	2	0	0	1	0	0	0	0	0	1	2	0	17	0	0	0	0	0	0	**35**	0	15	20
15:45	0	0	0	1	0	0	0	0	0	0	24	2	0	0	0	0	0	0	0	0	0	0	0	18	2	0	0	0	0	0	**47**	1	26	20
16:00	0	0	0	2	0	0	0	0	0	0	14	1	0	0	0	0	0	0	0	0	2	3	0	16	1	0	0	0	0	0	**39**	2	15	22
16:15	0	0	0	3	0	0	0	0	0	0	27	2	0	0	0	0	0	0	0	0	3	2	0	24	1	0	0	0	0	0	**62**	3	29	30
16:30	1	0	0	4	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	1	1	0	19	0	0	0	0	0	0	**40**	5	14	21
16:45	0	0	0	3	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	1	0	0	12	0	0	0	0	0	0	**27**	3	11	13
17:00	0	0	0	1	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	**43**	1	16	26
17:15	0	0	0	0	0	0	0	0	0	0	13	1	0	1	0	0	0	0	0	0	1	0	0	19	1	0	0	0	0	0	**36**	0	15	21
17:30	0	0	0	2	0	0	0	0	0	0	11	1	0	1	0	0	0	0	0	0	0	0	0	14	1	1	0	0	0	0	**31**	2	13	16
17:45	0	0	0	1	1	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	2	0	0	10	0	0	0	0	0	0	**23**	2	9	12

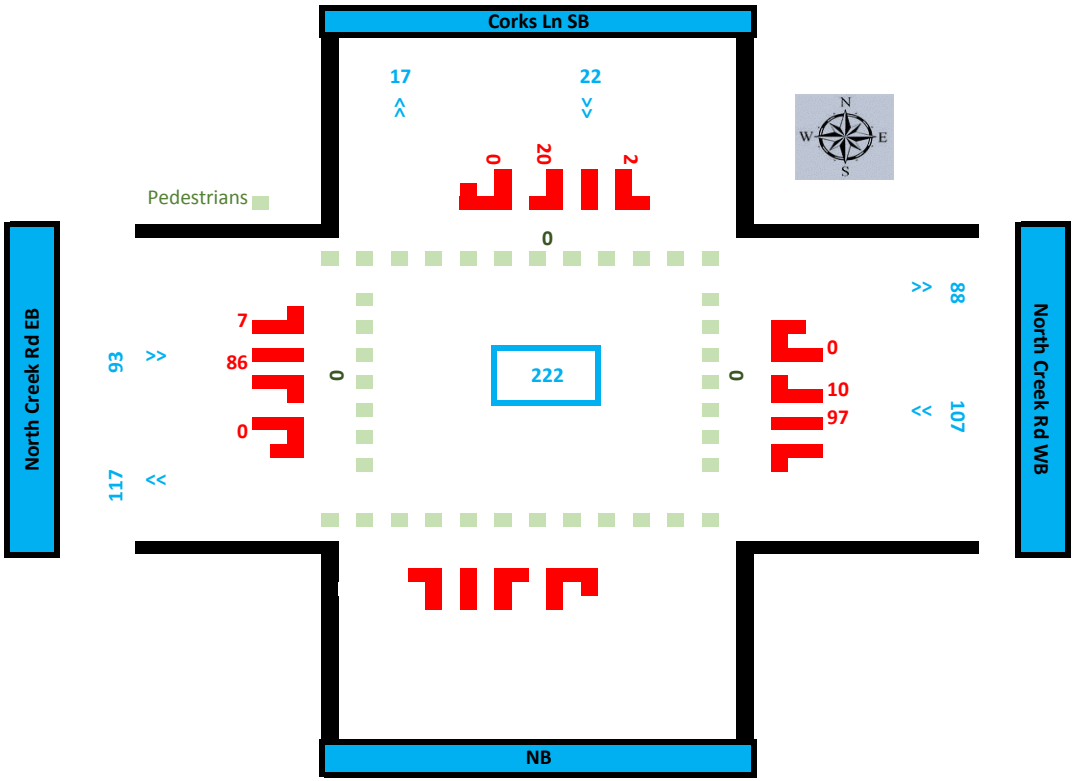
Turning Movement Count Summary

Site ID:	1
Location:	North Creek Road & Corks Lane, Ballina
Date:	30-Nov-2017
Surveyed Time:	6:00 AM to 9:00 AM
Weather:	Fine
Data for hour starting:	7:45 AM to 8:45 AM
Vehicle Class:	ALL VEHICLES



Turning Movement Count Summary

Site ID:	1
Location:	North Creek Road & Corks Lane, Ballina
Date:	30-Nov-2017
Surveyed Time:	3:00 PM to 6:00 PM
Weather:	Fine
Data for hour starting:	3:00 PM to 4:00 PM
Vehicle Class:	ALL VEHICLES



TDC
Traffic Data & Control

SURVEY INFORMATION

Site ID:	2
Location:	North Creek Road & Bupa Aged Care Access, Ballina
Date:	30 / Nov / 2017
Time Period 1:	06:00 to 09:00
Time Period 2:	15:00 to 18:00

	Primary Classes:	Secondary Classes:
1	Light Vehicles	Pedestrians
2	Trucks	None
3	Bicycles on Road	
4	None	
5	None	

Weather Conditions 1: Fine **Weather Conditions 2:** Fine

Intersection Legs:

North	☑ Ch	Bupa Aged Care Access SB
East	☑ Ch	North Creek Rd WB
South	☐ Ch	
West	☑ Ch	North Creek Rd EB

Output time interval: 15 mins

MAP

Site ID: 2

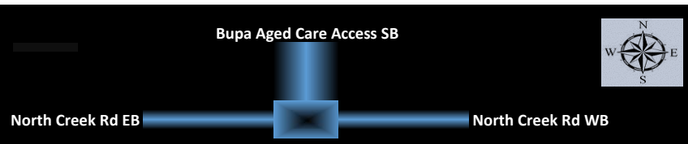
Location: North Creek Road & Bupa Aged Care Access, Ballina

Date: 30-Nov-2017

Period 1 Time: 6:00 AM to 9:00 AM

Weather: Fine

Period 1 Peak Hour: 7:45 AM to 8:45 AM



TDC Traffic Data & Control

TOTALS AND PEAKS

Period 1 Total	2	0	0	43	4	0	0	0	0	2	13	6	0	2	0	0	0	0	0	2	77	15	1	12	6	0	1	0	0	0	182	49	21	112
Period 1 Peak Hr	2	0	0	21	2	0	0	0	0	0	8	4	0	2	0	0	0	0	0	0	26	1	0	6	5	0	0	0	0	0	77	25	14	38

	Bupa Aged Care Access SB	Bupa Aged Care Access SB	Bupa Aged Care Access SB	Bupa Aged Care Access SB	Bupa Aged Care Access SB	Bupa Aged Care Access SB	Bupa Aged Care Access SB	Bupa Aged Care Access SB	Bupa Aged Care Access SB	Bupa Aged Care Access SB	North Creek Rd WB	North Creek Rd WB	North Creek Rd WB	North Creek Rd WB	North Creek Rd WB	North Creek Rd WB	North Creek Rd WB	North Creek Rd WB	North Creek Rd WB	North Creek Rd WB	North Creek Rd EB	North Creek Rd EB	North Creek Rd EB	North Creek Rd EB	North Creek Rd EB	North Creek Rd EB	North Creek Rd EB	North Creek Rd EB	North Creek Rd EB	GRAND TOTAL	Bupa Aged Care Access SB	North Creek Rd WB	North Creek Rd EB
	Left	Left	Left	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1	Through	Through	Through	Right	Right	Right	U-turn	U-turn	U-turn	Cross 1	Left	Left	Left	Through	Through	Through	U-turn	U-turn	U-turn	Cross 1		TOTAL	TOTAL	TOTAL
Time Starting	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Pedestrians	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Pedestrians	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Light Vehicles	Trucks	Bicycles on Road	Pedestrians	TOTALS	All Classes	All Classes	All Classes
06:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	1	0	0	0	0	0	0	**5**	1	0	4
06:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	**6**	0	1	5
06:30	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	10	2	1	3	0	0	0	0	0	0	**19**	2	1	16
06:45	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	13	9	0	0	0	0	1	0	0	0	**27**	3	1	23
07:00	0	0	0	7	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	**18**	7	2	9
07:15	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	**8**	3	0	5
07:30	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	**7**	2	1	4
07:45	1	0	0	5	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	0	0	1	0	0	0	0	0	0	**18**	6	4	8
08:00	0	0	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	1	0	0	0	0	0	**15**	8	0	7
08:15	0	0	0	1	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	7	1	0	2	1	0	0	0	0	0	**17**	1	5	11
08:30	1	0	0	8	1	0	0	0	0	0	1	2	0	2	0	0	0	0	0	0	9	0	0	0	3	0	0	0	0	0	**27**	10	5	12
08:45	0	0	0	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	6	1	0	1	0	0	0	0	0	0	**15**	6	1	8

Site ID: 2

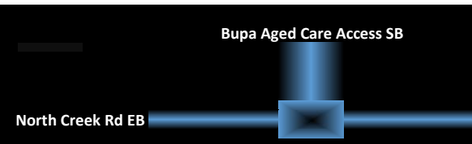
Location: North Creek Road & Bupa Aged Care Access, Ballina

Date: 30-Nov-2017

Period 2 Time: 3:00 PM to 6:00 PM

Weather: Fine

Period 2 Peak Hour: 3:00 PM to 4:00 PM



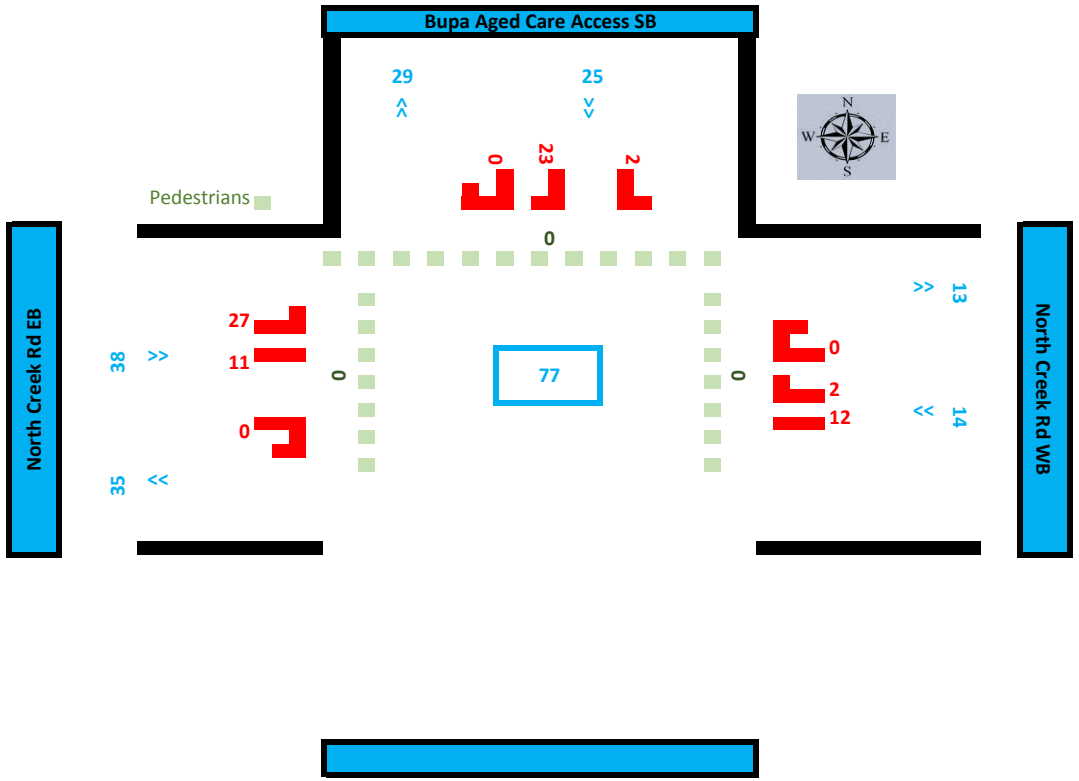
TDC Traffic Data & Control

TOTALS AND PEAKS

	Bupa Aged Care Access SB Left Light Vehicles	Bupa Aged Care Access SB Left Trucks	Bupa Aged Care Access SB Left Bicycles on Road	Bupa Aged Care Access SB Right Light Vehicles	Bupa Aged Care Access SB Right Trucks	Bupa Aged Care Access SB Right Bicycles on Road	Bupa Aged Care Access SB U-turn Light Vehicles	Bupa Aged Care Access SB U-turn Trucks	Bupa Aged Care Access SB U-turn Bicycles on Road	Bupa Aged Care Access SB Cross 1 Pedestrians	North Creek Rd WB Through Light Vehicles	North Creek Rd WB Through Trucks	North Creek Rd WB Through Bicycles on Road	North Creek Rd WB Right Light Vehicles	North Creek Rd WB Right Trucks	North Creek Rd WB Right Bicycles on Road	North Creek Rd WB U-turn Light Vehicles	North Creek Rd WB U-turn Trucks	North Creek Rd WB U-turn Bicycles on Road	North Creek Rd WB Cross 1 Pedestrians	North Creek Rd EB Left Light Vehicles	North Creek Rd EB Left Trucks	North Creek Rd EB Left Bicycles on Road	North Creek Rd EB Through Light Vehicles	North Creek Rd EB Through Trucks	North Creek Rd EB Through Bicycles on Road	North Creek Rd EB U-turn Light Vehicles	North Creek Rd EB U-turn Trucks	North Creek Rd EB U-turn Bicycles on Road	North Creek Rd EB Cross 1 Pedestrians	GRAND TOTAL TOTALS	Bupa Aged Care Access TOTAL All Classes	North Creek Rd WB TOTAL All Classes	North Creek Rd EB TOTAL All Classes
Period 2 Total	0	0	0	75	5	1	0	0	0	0	23	7	0	1	0	0	0	0	0	2	36	1	0	27	7	0	0	0	0	0	183	81	31	71
Period 2 Peak Hr	0	0	0	43	2	1	0	0	0	0	15	4	0	0	0	0	0	0	0	2	14	0	0	9	4	0	0	0	0	0	92	46	19	27
Time Starting																																		
15:00	0	0	0	27	1	0	0	0	0	0	6	1	0	0	0	0	0	0	0	1	4	0	0	1	1	0	0	0	0	0	**41**	28	7	6
15:15	0	0	0	5	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	3	1	0	0	0	0	0	**14**	7	1	6
15:30	0	0	0	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	4	0	0	2	0	0	0	0	0	0	**10**	2	2	6
15:45	0	0	0	9	0	0	0	0	0	0	7	2	0	0	0	0	0	0	0	1	4	0	0	3	2	0	0	0	0	0	**27**	9	9	9
16:00	0	0	0	7	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	1	0	1	0	0	0	0	0	0	**15**	9	1	5
16:15	0	0	0	10	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	10	0	0	4	1	0	0	0	0	0	**28**	11	2	15
16:30	0	0	0	5	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	**12**	5	3	4
16:45	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	**3**	1	0	2
17:00	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	0	0	0	0	0	**10**	5	0	5
17:15	0	0	0	1	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	1	0	0	4	1	0	0	0	0	0	**10**	1	3	6
17:30	0	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	**8**	2	2	4
17:45	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	**5**	1	1	3

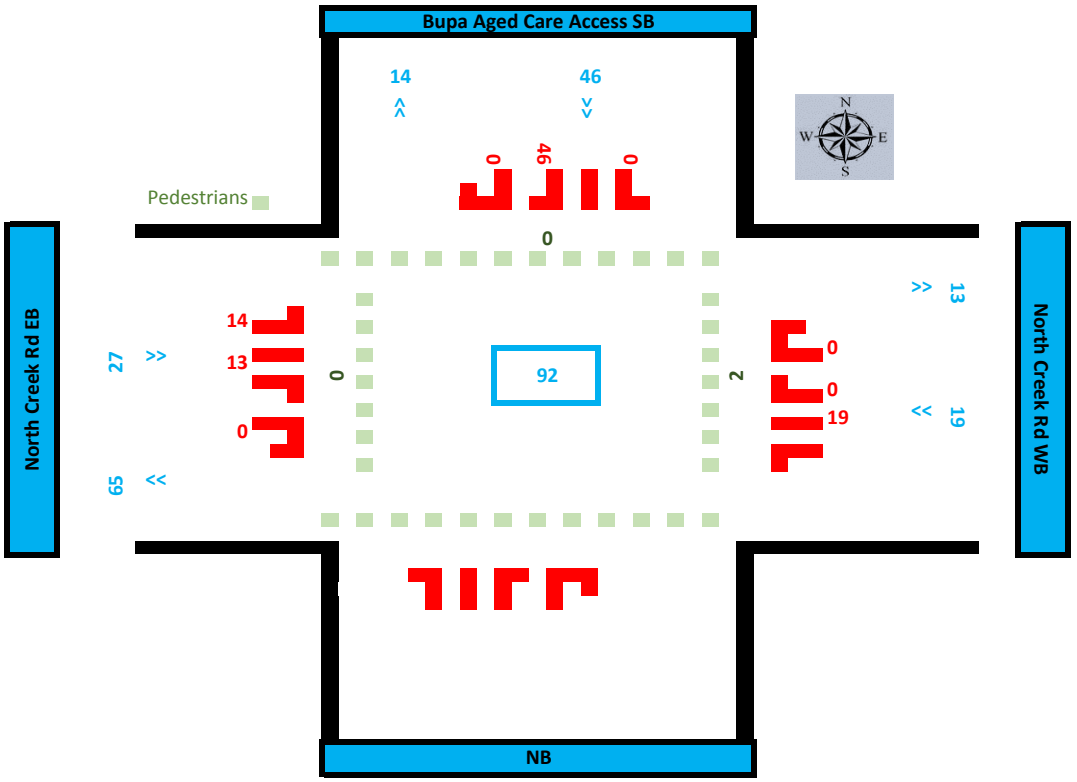
Turning Movement Count Summary

Site ID:	2
Location:	North Creek Road & Bupa Aged Care Access, Ballina
Date:	30-Nov-2017
Surveyed Time:	6:00 AM to 9:00 AM
Weather:	Fine
Data for hour starting:	7:45 AM to 8:45 AM
Vehicle Class:	ALL VEHICLES



Turning Movement Count Summary

Site ID:	2
Location:	North Creek Road & Bupa Aged Care Access, Ballina
Date:	30-Nov-2017
Surveyed Time:	3:00 PM to 6:00 PM
Weather:	Fine
Data for hour starting:	3:00 PM to 4:00 PM
Vehicle Class:	ALL VEHICLES



TDC
Traffic Data & Control

SURVEY INFORMATION

Site ID:	3
Location:	North Creek Road & Southern Cross Drive, Ballina
Date:	30 / Nov / 2017
Time Period 1:	06:00 to 09:00
Time Period 2:	15:00 to 18:00

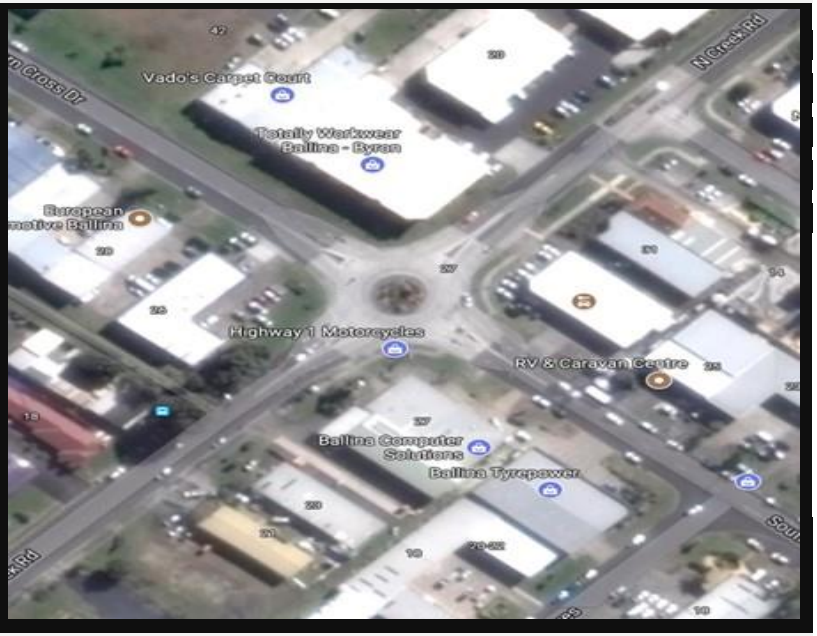
	Primary Classes:	Secondary Classes:
1	Light Vehicles	Pedestrians
2	Trucks	None
3	Bicycles on Road	
4	None	
5	None	

Weather Conditions 1: Fine
Weather Conditions 2: Moderate showers

Intersection Legs:		
North	☑ Ch	Sourthern Cross Dr SB
East	☑ Ch	North Creek Rd WB
South	☑ Ch	Southern Cross Dr NB
West	☑ Ch	North Creek Rd EB

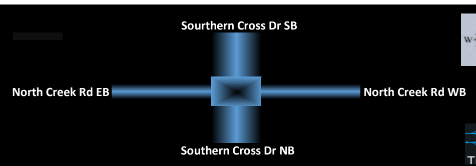
Output time interval: 15 mins

MAP



Site ID: 3
Location: North Creek Road & Southern Cross Drive, Ballina
Date: 30-Nov-2017
Period 1 Time: 6:00 AM to 9:00 AM
Weather: Fine

Period 1 Peak Hour: 8:00 AM to 9:00 AM



TOTALS AND PEAKS

Southern Cross Dr SB

Time Starting	Left Light Vehicles	Left Trucks	Left Bicycles on Road	Through Light Vehicles	Through Trucks	Through Bicycles on Road	Right Light Vehicles	Right Trucks	Right Bicycles on Road	U-turn Light Vehicles	U-turn Trucks	U-turn Bicycles on Road	Cross 1 Pedestrians
Period 1 Total	21	0	3	111	21	4	300	80	0	1	0	0	1
Period 1 Peak Hr	11	0	1	50	5	0	145	16	0	1	0	0	0
06:00	1	0	0	2	2	0	5	1	0	0	0	0	0
06:15	0	0	0	4	0	0	4	4	0	0	0	0	1
06:30	0	0	0	3	7	0	15	4	0	0	0	0	0
06:45	0	0	0	6	2	0	30	17	0	0	0	0	0
07:00	2	0	1	16	2	0	29	11	0	0	0	0	0
07:15	2	0	1	8	2	2	19	9	0	0	0	0	0
07:30	1	0	0	11	1	0	24	12	0	0	0	0	0
07:45	4	0	0	11	0	2	29	6	0	0	0	0	0
08:00	2	0	0	9	2	0	31	2	0	0	0	0	0
08:15	3	0	0	13	0	0	34	6	0	0	0	0	0
08:30	2	0	0	14	2	0	45	4	0	1	0	0	0
08:45	4	0	1	14	1	0	35	4	0	0	0	0	0

North Creek Rd WB

Time Starting	Left Light Vehicles	Left Trucks	Left Bicycles on Road	Through Light Vehicles	Through Trucks	Through Bicycles on Road	Right Light Vehicles	Right Trucks	Right Bicycles on Road	U-turn Light Vehicles	U-turn Trucks	U-turn Bicycles on Road	Cross 1 Pedestrians
Period 1 Total	81	5	0	301	56	0	20	2	2	1	0	0	5
Period 1 Peak Hr	36	0	0	146	23	0	10	1	0	1	0	0	0
06:00	3	2	0	10	0	0	0	0	0	0	0	0	1
06:15	1	1	0	19	3	0	1	0	0	0	0	0	0
06:30	6	0	0	19	4	0	3	1	0	0	0	0	1
06:45	3	1	0	18	8	0	0	0	0	0	0	0	0
07:00	9	0	0	31	3	0	0	0	1	0	0	0	1
07:15	7	0	0	13	6	0	1	0	1	0	0	0	2
07:30	4	1	0	20	5	0	1	0	0	0	0	0	0
07:45	12	0	0	25	4	0	4	0	0	0	0	0	0
08:00	10	0	0	36	2	0	2	0	0	0	0	0	0
08:15	9	0	0	39	11	0	4	0	0	1	0	0	0
08:30	9	0	0	29	6	0	3	0	0	0	0	0	0
08:45	8	0	0	42	4	0	1	1	0	0	0	0	0

Southern Cross Dr NB

Time Starting	Left Light Vehicles	Left Trucks	Left Bicycles on Road	Through Light Vehicles	Through Trucks	Through Bicycles on Road	Right Light Vehicles	Right Trucks	Right Bicycles on Road	U-turn Light Vehicles	U-turn Trucks	U-turn Bicycles on Road	Cross 1 Pedestrians
Period 1 Total	86	13	0	230	12	7	100	5	0	2	2	0	24
Period 1 Peak Hr	40	7	0	53	4	0	27	1	0	1	1	0	13
06:00	1	1	0	33	3	0	10	0	0	0	0	0	0
06:15	5	1	0	33	2	1	7	0	0	0	0	0	5
06:30	2	0	0	30	0	2	11	0	0	0	0	0	2
06:45	6	2	0	33	0	1	14	3	0	0	0	0	1
07:00	11	1	0	14	1	1	6	0	0	0	1	0	0
07:15	7	1	0	12	1	0	5	1	0	0	0	0	1
07:30	6	0	0	11	0	0	11	0	0	0	0	0	2
07:45	8	0	0	11	1	2	9	0	0	1	0	0	0
08:00	4	2	0	13	0	0	5	0	0	0	0	0	7
08:15	10	1	0	11	1	0	9	0	0	0	0	0	0
08:30	10	4	0	16	1	0	5	1	0	1	1	0	4
08:45	16	0	0	13	2	0	8	0	0	0	0	0	2

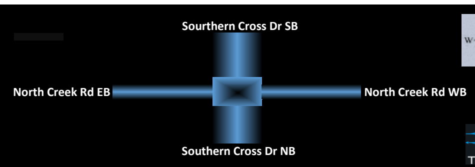
North Creek Rd EB

Time Starting	Left Light Vehicles	Left Trucks	Left Bicycles on Road	Through Light Vehicles	Through Trucks	Through Bicycles on Road	Right Light Vehicles	Right Trucks	Right Bicycles on Road	U-turn Light Vehicles	U-turn Trucks	U-turn Bicycles on Road	Cross 1 Pedestrians
Period 1 Total	687	49	0	355	37	0	52	5	0	5	0	0	17
Period 1 Peak Hr	276	24	0	147	16	0	27	4	0	4	0	0	15
06:00	23	1	0	14	3	0	0	0	0	0	0	0	0
06:15	36	1	0	29	2	0	0	0	0	0	0	0	0
06:30	51	5	0	26	3	0	1	0	0	0	0	0	0
06:45	94	3	0	43	3	0	4	0	0	0	0	0	0
07:00	39	4	0	20	2	0	3	0	0	1	0	0	0
07:15	55	2	0	15	1	0	5	0	0	0	0	0	0
07:30	44	5	0	15	2	0	4	0	0	0	0	0	1
07:45	69	4	0	46	5	0	8	1	0	0	0	0	1
08:00	62	5	0	24	6	0	6	1	0	1	0	0	6
08:15	76	2	0	44	5	0	5	1	0	1	0	0	0
08:30	66	5	0	40	3	0	4	1	0	0	0	0	9
08:45	72	12	0	39	2	0	12	1	0	2	0	0	0

Totals

Time Starting	GRAND TOTAL (TOTALS)	Southern Cross Dr SB TOTAL (All Classes)	North Creek Rd WB TOTAL (All Classes)	Southern Cross Dr NB TOTAL (All Classes)	North Creek Rd EB TOTAL (All Classes)
Period 1 Total	2656	541	468	457	1190
Period 1 Peak Hr	1078	229	217	134	498
06:00	**115**	11	15	48	41
06:15	**154**	12	25	49	68
06:30	**193**	29	33	45	86
06:45	**291**	55	30	59	147
07:00	**209**	61	44	35	69
07:15	**176**	43	28	27	78
07:30	**178**	49	31	28	70
07:45	**262**	52	45	32	133
08:00	**225**	46	50	24	105
08:15	**286**	56	64	32	134
08:30	**273**	68	47	39	119
08:45	**294**	59	56	39	140

Site ID: 3
Location: North Creek Road & Southern Cross Drive, Ballina
Date: 30-Nov-2017
Period 2 Time: 3:00 PM to 6:00 PM
Weather: Moderate showers
Period 2 Peak Hour: 3:00 PM to 4:00 PM



TOTALS AND PEAKS

Time Starting	Southern Cross Dr SB Left Light Vehicles	Southern Cross Dr SB Left Trucks	Southern Cross Dr SB Left Bicycles on Road	Southern Cross Dr SB Through Light Vehicles	Southern Cross Dr SB Through Trucks	Southern Cross Dr SB Through Bicycles on Road	Southern Cross Dr SB Right Light Vehicles	Southern Cross Dr SB Right Trucks	Southern Cross Dr SB Right Bicycles on Road	Southern Cross Dr SB U-turn Light Vehicles	Southern Cross Dr SB U-turn Trucks	Southern Cross Dr SB U-turn Bicycles on Road	Southern Cross Dr SB Cross 1 Pedestrians
Period 2 Total	26	0	0	295	6	7	1132	39	0	1	0	0	0
Period 2 Peak Hr	12	0	0	122	2	5	489	18	0	1	0	0	0
15:00	3	0	0	27	0	2	130	5	0	0	0	0	0
15:15	2	0	0	45	0	0	114	4	0	0	0	0	0
15:30	3	0	0	21	1	2	124	5	0	0	0	0	0
15:45	4	0	0	29	1	1	121	4	0	1	0	0	0
16:00	6	0	0	36	0	1	125	4	0	0	0	0	0
16:15	3	0	0	16	0	0	97	5	0	0	0	0	0
16:30	3	0	0	28	1	0	104	3	0	0	0	0	0
16:45	0	0	0	35	1	0	123	5	0	0	0	0	0
17:00	0	0	0	20	1	0	63	1	0	0	0	0	0
17:15	0	0	0	16	1	0	52	1	0	0	0	0	0
17:30	1	0	0	12	0	0	40	1	0	0	0	0	0
17:45	1	0	0	10	0	1	39	1	0	0	0	0	0

Time Starting	North Creek Rd WB Left Light Vehicles	North Creek Rd WB Left Trucks	North Creek Rd WB Left Bicycles on Road	North Creek Rd WB Through Light Vehicles	North Creek Rd WB Through Trucks	North Creek Rd WB Through Bicycles on Road	North Creek Rd WB Right Light Vehicles	North Creek Rd WB Right Trucks	North Creek Rd WB Right Bicycles on Road	North Creek Rd WB U-turn Light Vehicles	North Creek Rd WB U-turn Trucks	North Creek Rd WB U-turn Bicycles on Road	North Creek Rd WB Cross 1 Pedestrians
Period 2 Total	126	8	1	565	28	1	24	0	0	1	0	0	0
Period 2 Peak Hr	47	6	1	195	19	1	13	0	0	0	0	0	0
15:00	12	1	0	64	7	0	3	0	0	0	0	0	0
15:15	16	3	0	38	5	0	2	0	0	0	0	0	0
15:30	10	1	1	45	2	0	4	0	0	0	0	0	0
15:45	9	1	0	48	5	1	4	0	0	0	0	0	0
16:00	16	1	0	46	1	0	2	0	0	0	0	0	0
16:15	14	1	0	72	4	0	2	0	0	0	0	0	0
16:30	11	0	0	62	0	0	3	0	0	0	0	0	0
16:45	4	0	0	36	0	0	2	0	0	0	0	0	0
17:00	11	0	0	49	1	0	2	0	0	0	0	0	0
17:15	7	0	0	40	1	0	0	0	0	1	0	0	0
17:30	11	0	0	41	2	0	0	0	0	0	0	0	0
17:45	5	0	0	24	0	0	0	0	0	0	0	0	0

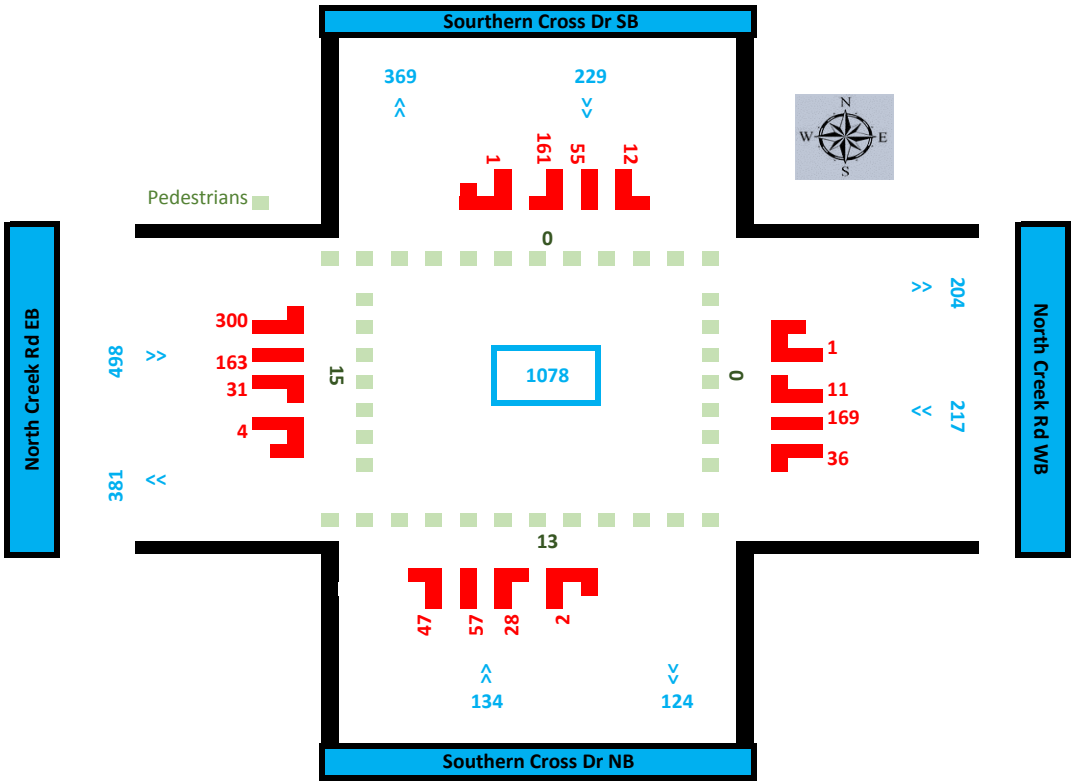
Time Starting	Southern Cross Dr NB Left Light Vehicles	Southern Cross Dr NB Left Trucks	Southern Cross Dr NB Left Bicycles on Road	Southern Cross Dr NB Through Light Vehicles	Southern Cross Dr NB Through Trucks	Southern Cross Dr NB Through Bicycles on Road	Southern Cross Dr NB Right Light Vehicles	Southern Cross Dr NB Right Trucks	Southern Cross Dr NB Right Bicycles on Road	Southern Cross Dr NB U-turn Light Vehicles	Southern Cross Dr NB U-turn Trucks	Southern Cross Dr NB U-turn Bicycles on Road	Southern Cross Dr NB Cross 1 Pedestrians
Period 2 Total	164	7	0	143	10	3	100	2	0	4	0	0	0
Period 2 Peak Hr	62	4	0	83	7	0	32	1	0	2	0	0	0
15:00	18	0	0	20	4	0	6	0	0	1	0	0	0
15:15	15	2	0	20	0	0	7	0	0	0	0	0	0
15:30	15	2	0	22	0	0	8	1	0	1	0	0	0
15:45	14	0	0	21	3	0	11	0	0	0	0	0	0
16:00	17	1	0	18	0	0	9	0	0	1	0	0	0
16:15	12	1	0	11	1	1	13	0	0	1	0	0	0
16:30	14	0	0	11	0	0	9	0	0	0	0	0	0
16:45	10	0	0	5	0	0	4	0	0	0	0	0	0
17:00	16	1	0	6	1	1	7	0	0	0	0	0	0
17:15	10	0	0	2	1	0	15	1	0	0	0	0	0
17:30	9	0	0	3	0	0	7	0	0	0	0	0	0
17:45	14	0	0	4	0	1	4	0	0	0	0	0	0

Time Starting	North Creek Rd EB Left Light Vehicles	North Creek Rd EB Left Trucks	North Creek Rd EB Left Bicycles on Road	North Creek Rd EB Through Light Vehicles	North Creek Rd EB Through Trucks	North Creek Rd EB Through Bicycles on Road	North Creek Rd EB Right Light Vehicles	North Creek Rd EB Right Trucks	North Creek Rd EB Right Bicycles on Road	North Creek Rd EB U-turn Light Vehicles	North Creek Rd EB U-turn Trucks	North Creek Rd EB U-turn Bicycles on Road	North Creek Rd EB Cross 1 Pedestrians
Period 2 Total	631	65	0	565	32	0	102	4	0	56	0	0	2
Period 2 Peak Hr	310	34	0	224	15	0	58	3	0	31	0	0	2
15:00	77	11	0	43	4	0	20	2	0	7	0	0	0
15:15	81	10	0	45	1	0	18	0	0	6	0	0	1
15:30	78	7	0	60	7	0	9	1	0	9	0	0	1
15:45	74	6	0	76	3	0	11	0	0	9	0	0	0
16:00	94	5	0	58	5	0	10	1	0	7	0	0	0
16:15	65	5	0	48	3	0	11	0	0	3	0	0	0
16:30	43	10	0	46	4	0	5	0	0	6	0	0	0
16:45	34	4	0	32	0	0	7	0	0	5	0	0	0
17:00	26	1	0	38	1	0	4	0	0	2	0	0	0
17:15	18	2	0	52	2	0	4	0	0	1	0	0	0
17:30	19	0	0	31	2	0	3	0	0	0	0	0	0
17:45	22	4	0	36	0	0	0	0	0	1	0	0	0

Time Starting	GRAND TOTAL TOTALS	Southern Cross Dr SB TOTAL All Classes	North Creek Rd WB TOTAL All Classes	Southern Cross Dr NB TOTAL All Classes	North Creek Rd EB TOTAL All Classes
Period 2 Total	4148	1506	754	433	1455
Period 2 Peak Hr	1797	649	282	191	675
15:00	**467**	167	87	49	164
15:15	**434**	165	64	44	161
15:30	**439**	156	63	49	171
15:45	**457**	161	68	49	179
16:00	**464**	172	66	46	180
16:15	**389**	121	93	40	135
16:30	**363**	139	76	34	114
16:45	**307**	164	42	19	82
17:00	**252**	85	63	32	72
17:15	**227**	70	49	29	79
17:30	**182**	54	54	19	55
17:45	**167**	52	29	23	63

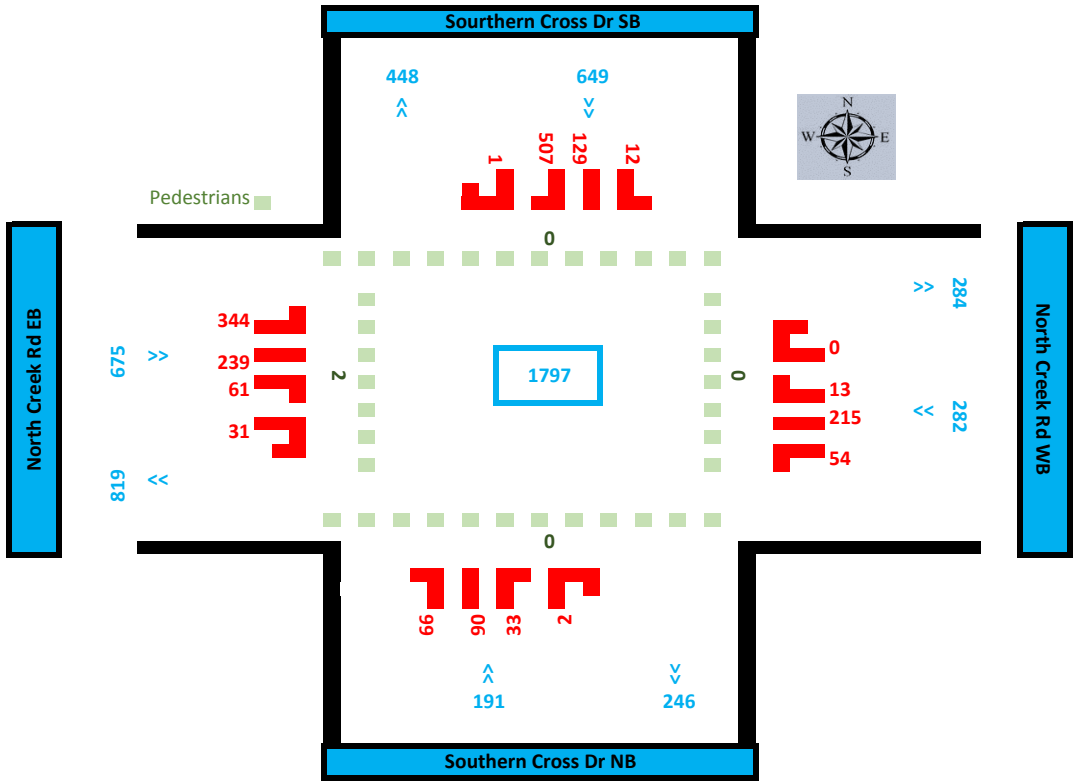
Turning Movement Count Summary

Site ID:	3
Location:	North Creek Road & Southern Cross Drive, Ballina
Date:	30-Nov-2017
Surveyed Time:	6:00 AM to 9:00 AM
Weather:	Fine
Data for hour starting:	8:00 AM to 9:00 AM
Vehicle Class:	ALL VEHICLES



Turning Movement Count Summary

Site ID:	3
Location:	North Creek Road & Southern Cross Drive, Ballina
Date:	30-Nov-2017
Surveyed Time:	3:00 PM to 6:00 PM
Weather:	Moderate showers
Data for hour starting:	3:00 PM to 4:00 PM
Vehicle Class:	ALL VEHICLES



Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - # 1 Ballina Retirement Village
Description - # 1 main entrance - Magnolia Drive just north of North Creek Rd

Direction - Northbound

Summary Table
Site 1.01
Date Thursday, 7 March 2019
Direction - Northbound

Time	Total Cars
AM Peak (09:00-10:00)	29
PM Peak (14:00-15:00)	15
24h Flows	154

Thursday, 7 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	1	1	0	0	12	-
0445	1	1	0	0	16.4	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	1	1	0	0	9.3	-
0630	0	0	0	0	-	-
0645	4	4	0	0	7.9	-
0700	0	0	0	0	-	-
0715	1	0	1	0	8.5	-
0730	3	3	0	0	9.4	-
0745	2	2	0	0	7.8	-
0800	4	4	0	0	8.8	-
0815	2	1	1	0	10.4	-
0830	7	7	0	0	10.1	-
0845	7	7	0	0	11.5	-
0900	6	6	0	0	12.7	-
0915	6	6	0	0	8.6	-
0930	8	7	1	0	12.7	-
0945	9	8	1	0	10.1	-
1000	2	2	0	0	8.2	-
1015	7	5	2	0	11.3	-
1030	1	1	0	0	6.2	-
1045	3	3	0	0	12.4	-
1100	3	2	1	0	10.4	-
1115	3	3	0	0	11.3	-
1130	5	4	1	0	12.6	-
1145	6	6	0	0	11.7	-
1200	3	2	1	0	12.9	-
1215	1	0	1	0	5	-
1230	6	5	1	0	10.3	-
1245	5	5	0	0	8.2	-
1300	1	1	0	0	11.9	-
1315	0	0	0	0	-	-
1330	3	3	0	0	11.2	-
1345	1	1	0	0	11.2	-
1400	6	6	0	0	9.7	-
1415	4	4	0	0	13.5	-
1430	2	2	0	0	11.8	-
1445	3	3	0	0	9.2	-
1500	3	3	0	0	12.3	-
1515	4	3	1	0	10.3	-
1530	2	2	0	0	11.1	-
1545	3	2	1	0	11.7	-
1600	1	1	0	0	23.1	-
1615	2	2	0	0	9.2	-
1630	1	1	0	0	8.8	-
1645	1	1	0	0	6.8	-
1700	1	1	0	0	12.2	-
1715	0	0	0	0	-	-
1730	1	1	0	0	8.8	-
1745	1	1	0	0	6.2	-
1800	2	2	0	0	14.2	-
1815	1	1	0	0	5.8	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	1	1	0	0	13.8	-
1930	2	2	0	0	15.2	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	1	1	0	0	12.1	-
07-09	**26**	**24**	**2**	**0**	**10**	**14.2**
09-16	**106**	**95**	**11**	**0**	**10.9**	**14.9**
16-18	**8**	**8**	**0**	**0**	**10.5**	**-**
00-00	**154**	**141**	**13**	**0**	**10.8**	**14.6**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	2	0	2
0500	0	0	0
0600	5	0	5
0700	6	3	9
0800	20	10	30
0900	29	20	49
1000	13	17	30
1100	17	22	39
1200	15	20	35
1300	5	12	17
1400	15	21	36
1500	12	9	21
1600	5	22	27
1700	3	14	17
1800	3	5	8
1900	3	2	5
2000	0	2	2
2100	0	0	0
2200	0	0	0
2300	1	1	2
Total	154	180	334

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - # 1 Ballina Retirement Village
Description - # 1 main entrance - Magnolia Drive just north of North Creek Rd

Direction - Southbound

Summary Table

Site	1.01
Date	Thursday, 7 March 2019
Direction - Southbound	

Time	Total Cars
AM Peak (09:00-10:00)	20
PM Peak (14:00-15:00)	21
24h Flows	180

Thursday, 7 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	1	1	0	0	15.5	-
0745	2	2	0	0	10.9	-
0800	4	4	0	0	12.7	-
0815	3	2	1	0	13.4	-
0830	1	1	0	0	16.8	-
0845	2	2	0	0	16.8	-
0900	6	6	0	0	16.3	-
0915	4	4	0	0	12.3	-
0930	7	7	0	0	18.3	-
0945	3	3	0	0	13.8	-
1000	2	2	0	0	12.5	-
1015	2	2	0	0	17.7	-
1030	5	5	0	0	13.5	-
1045	8	8	0	0	15.9	-
1100	3	3	0	0	15.3	-
1115	9	9	0	0	14.2	-
1130	3	2	1	0	17	-
1145	7	7	0	0	13.1	-
1200	7	7	0	0	15.6	-
1215	3	3	0	0	14.9	-
1230	6	6	0	0	15.5	-
1245	4	4	0	0	12.6	-
1300	4	3	1	0	14.2	-
1315	5	5	0	0	14.3	-
1330	1	1	0	0	15.4	-
1345	2	2	0	0	13.6	-
1400	6	6	0	0	16.3	-
1415	5	4	1	0	17.4	-
1430	3	3	0	0	14.4	-
1445	7	7	0	0	13.8	-
1500	1	1	0	0	18.6	-
1515	2	2	0	0	17.3	-
1530	4	4	0	0	15.8	-
1545	2	2	0	0	16.1	-
1600	7	7	0	0	14.7	-
1615	2	2	0	0	14.1	-
1630	8	8	0	0	13.9	-
1645	5	5	0	0	15.6	-
1700	8	8	0	0	15.7	-
1715	5	5	0	0	13	-
1730	1	1	0	0	14.4	-
1745	0	0	0	0	-	-
1800	5	5	0	0	14.2	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	1	1	0	0	18.8	-
1915	0	0	0	0	-	-
1930	1	1	0	0	15.4	-
1945	0	0	0	0	-	-
2000	2	2	0	0	15.1	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	1	1	0	0	15.6	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**13**	**12**	**1**	**0**	**13.8**	**18.5**
09-16	**121**	**118**	**3**	**0**	**15.1**	**18.6**
16-18	**36**	**36**	**0**	**0**	**14.6**	**18.3**
00-00	**180**	**176**	**4**	**0**	**14.9**	**18.5**

Hour Start	SB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	0
0600	0
0700	3
0800	10
0900	20
1000	17
1100	22
1200	20
1300	12
1400	21
1500	9
1600	22
1700	14
1800	5
1900	2
2000	2
2100	0
2200	0
2300	1
Total	180

Ballina Retirement Village Automatic Report

TDC
Traffic Data & Control

Site Name - #2 Retirement Village
Description - Forest Oak Blvd just north of North Creek Rd

Direction - Northbound

Summary Table
Site 2.01
Date Thursday, 7 March 2019
Direction - Northbound

Time	Total Cars
AM Peak (09:00-10:00)	20
PM Peak (14:00-15:00)	31
24h Flows	260

Thursday, 7 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	1	1	0	0	29.1	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	1	1	0	0	23.9	-
0545	1	1	0	0	26.8	-
0600	4	4	0	0	26.7	-
0615	3	3	0	0	29.2	-
0630	5	5	0	0	29.4	-
0645	7	7	0	0	26.2	-
0700	3	3	0	0	29.1	-
0715	1	1	0	0	30.6	-
0730	2	1	1	0	22.5	-
0745	4	4	0	0	23.3	-
0800	5	4	1	0	25.5	-
0815	1	1	0	0	23.6	-
0830	6	6	0	0	20.9	-
0845	8	7	1	0	25.2	-
0900	5	4	1	0	25.2	-
0915	5	4	1	0	26.9	-
0930	5	5	0	0	21.3	-
0945	5	5	0	0	26.3	-
1000	7	7	0	0	22.6	-
1015	2	2	0	0	25.4	-
1030	5	5	0	0	27.3	-
1045	10	10	0	0	22.6	-
1100	2	1	1	0	22.9	-
1115	7	6	1	0	24.2	-
1130	5	5	0	0	24.3	-
1145	6	6	0	0	23.7	-
1200	3	3	0	0	25.7	-
1215	6	6	0	0	23.8	-
1230	4	4	0	0	27	-
1245	7	7	0	0	23.9	-
1300	10	8	2	0	25.5	-
1315	3	2	1	0	18.6	-
1330	6	6	0	0	24.8	-
1345	5	4	1	0	24.3	-
1400	7	7	0	0	25.9	-
1415	5	5	0	0	25.3	-
1430	8	8	0	0	23	-
1445	11	11	0	0	25.6	29.8
1500	6	5	0	1	22.1	-
1515	4	3	1	0	20.9	-
1530	6	6	0	0	24.9	-
1545	5	5	0	0	22.3	-
1600	2	2	0	0	30.6	-
1615	2	2	0	0	20.4	-
1630	7	7	0	0	25.2	-
1645	5	5	0	0	28.8	-
1700	3	3	0	0	28.4	-
1715	3	3	0	0	26.9	-
1730	5	5	0	0	28.3	-
1745	1	1	0	0	23.7	-
1800	1	1	0	0	22.1	-
1815	2	2	0	0	33.3	-
1830	0	0	0	0	-	-
1845	2	2	0	0	26.9	-
1900	0	0	0	0	-	-
1915	2	2	0	0	24.6	-
1930	1	1	0	0	22.8	-
1945	1	1	0	0	24.3	-
2000	1	1	0	0	28.6	-
2015	1	1	0	0	23.9	-
2030	0	0	0	0	-	-
2045	1	1	0	0	28.5	-
2100	1	1	0	0	28	-
2115	1	1	0	0	26.7	-
2130	2	2	0	0	27.3	-
2145	3	3	0	0	22.6	-
2200	1	1	0	0	26.2	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**30**	**27**	**3**	**0**	**24.5**	**28.1**
09-16	**160**	**150**	**9**	**1**	**24.2**	**27.7**
16-18	**28**	**28**	**0**	**0**	**26.9**	**31**
00-00	**260**	**247**	**12**	**1**	**25**	**29**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	1	0	1
0500	2	0	2
0600	19	6	25
0700	10	17	27
0800	20	14	34
0900	20	18	38
1000	24	21	45
1100	20	27	47
1200	20	10	30
1300	24	31	55
1400	31	36	67
1500	21	31	52
1600	16	14	30
1700	12	17	29
1800	5	5	10
1900	4	4	8
2000	3	8	11
2100	7	6	13
2200	1	6	7
2300	0	0	0
Total	260	271	531

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #2 Retirement Village
Description - Forest Oak Blvd just north of North Creek Rd

Direction - Southbound

Summary Table
Site 2.01
Date Thursday, 7 March 2019
Direction - Southbound

Time	Total Cars
AM Peak (09:00-10:00)	18
PM Peak (14:00-15:00)	36
24h Flows	271

Thursday, 7 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	1	1	0	0	23	-
0615	0	0	0	0	-	-
0630	3	1	1	1	25.5	-
0645	2	2	0	0	19.8	-
0700	4	3	1	0	19.2	-
0715	6	6	0	0	22.2	-
0730	2	1	1	0	20	-
0745	5	5	0	0	20.5	-
0800	1	0	1	0	18.7	-
0815	1	1	0	0	20.5	-
0830	8	5	2	1	20.6	-
0845	4	4	0	0	19.1	-
0900	2	2	0	0	19.6	-
0915	3	3	0	0	21.3	-
0930	11	10	1	0	20.2	24.8
0945	2	2	0	0	20.8	-
1000	6	5	1	0	20.8	-
1015	4	4	0	0	20.1	-
1030	5	5	0	0	20	-
1045	6	6	0	0	20.6	-
1100	8	8	0	0	19.9	-
1115	10	7	3	0	20.5	-
1130	4	3	1	0	19.4	-
1145	5	5	0	0	22.2	-
1200	2	2	0	0	20	-
1215	4	2	2	0	18.4	-
1230	2	2	0	0	19.4	-
1245	2	2	0	0	19.7	-
1300	14	11	3	0	21.4	24.1
1315	11	8	3	0	20.7	23.1
1330	2	2	0	0	16.7	-
1345	4	3	1	0	18.1	-
1400	16	14	2	0	20.6	24.3
1415	6	5	1	0	21.3	-
1430	8	7	1	0	21.1	-
1445	6	6	0	0	21.8	-
1500	14	14	0	0	22.2	27
1515	5	5	0	0	21.1	-
1530	7	7	0	0	22.7	-
1545	5	4	1	0	21.3	-
1600	1	1	0	0	25.4	-
1615	3	3	0	0	23.7	-
1630	6	6	0	0	23.2	-
1645	4	2	2	0	20.5	-
1700	7	7	0	0	21.1	-
1715	5	3	2	0	20.2	-
1730	3	3	0	0	19.2	-
1745	2	2	0	0	30.8	-
1800	1	1	0	0	27.3	-
1815	0	0	0	0	-	-
1830	3	3	0	0	22.9	-
1845	1	1	0	0	27.7	-
1900	2	2	0	0	23.9	-
1915	2	1	1	0	24.4	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	5	5	0	0	25.5	-
2015	0	0	0	0	-	-
2030	3	3	0	0	28.5	-
2045	0	0	0	0	-	-
2100	5	5	0	0	24.8	-
2115	1	1	0	0	24.1	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	3	3	0	0	27.9	-
2215	1	1	0	0	26.3	-
2230	2	2	0	0	28.9	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**31**	**25**	**5**	**1**	**20.4**	**24.8**
09-16	**174**	**154**	**20**	**0**	**20.8**	**24.1**
16-18	**31**	**27**	**4**	**0**	**22.1**	**26.5**
00-00	**271**	**238**	**31**	**2**	**21.5**	**25.2**

Hour Start	SB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	0
0600	6
0700	17
0800	14
0900	18
1000	21
1100	27
1200	10
1300	31
1400	36
1500	31
1600	14
1700	17
1800	5
1900	4
2000	8
2100	6
2200	6
2300	0
Total	271

Ballina Retirement Village Automatic Report

Site Name - #3 Retirement Village
Description - Oasis Blvd just east of Corks Lane

TDC Traffic Data & Control

Direction - Eastbound

Summary Table

Site	3.01
Date	Thursday, 7 March 2019
Direction - Eastbound	

Time	Total Cars
AM Peak (09:00-10:00)	23
PM Peak (14:00-15:00)	12
24h Flows	166

Thursday, 7 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	1	1	0	0	22.2	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	1	1	0	0	18.1	-
0600	2	1	1	0	12	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	1	1	0	0	14.1	-
0700	2	2	0	0	11.7	-
0715	5	4	1	0	13.8	-
0730	3	3	0	0	15.6	-
0745	2	2	0	0	16.8	-
0800	4	4	0	0	15.7	-
0815	9	8	1	0	13.6	-
0830	6	6	0	0	12.7	-
0845	7	6	1	0	14	-
0900	5	5	0	0	13.2	-
0915	5	5	0	0	16.4	-
0930	8	7	1	0	14.3	-
0945	5	4	1	0	16.5	-
1000	1	1	0	0	14.2	-
1015	5	4	1	0	13.1	-
1030	3	3	0	0	15.4	-
1045	6	4	2	0	17.3	-
1100	9	8	1	0	13.6	-
1115	3	3	0	0	17.3	-
1130	4	3	1	0	17.4	-
1145	2	2	0	0	13.4	-
1200	1	1	0	0	19	-
1215	5	5	0	0	15.5	-
1230	3	3	0	0	15.6	-
1245	4	4	0	0	19.3	-
1300	12	10	2	0	14.5	20.2
1315	2	1	1	0	18.2	-
1330	3	2	1	0	13.4	-
1345	0	0	0	0	-	-
1400	1	1	0	0	10	-
1415	3	2	1	0	19	-
1430	3	2	1	0	14.4	-
1445	5	3	2	0	13.9	-
1500	4	4	0	0	12.1	-
1515	3	3	0	0	15.2	-
1530	3	2	1	0	14.5	-
1545	1	1	0	0	13.5	-
1600	3	2	1	0	14.2	-
1615	2	2	0	0	17.8	-
1630	1	1	0	0	14.5	-
1645	2	2	0	0	11.3	-
1700	0	0	0	0	-	-
1715	3	1	2	0	15.5	-
1730	0	0	0	0	-	-
1745	1	1	0	0	17.8	-
1800	1	1	0	0	14.6	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	1	1	0	0	16.1	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**38**	**35**	**3**	**0**	**14**	**17.6**
09-16	**109**	**93**	**16**	**0**	**15.1**	**18.8**
16-18	**12**	**9**	**3**	**0**	**14.9**	**18.7**
00-00	**166**	**143**	**23**	**0**	**14.9**	**18.2**

Hour Start	EB	WB	Total
0000	1	0	1
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	1	0	1
0600	3	3	6
0700	12	2	14
0800	26	7	33
0900	23	11	34
1000	15	15	30
1100	18	18	36
1200	13	20	33
1300	17	12	29
1400	12	10	22
1500	11	18	29
1600	8	17	25
1700	4	5	9
1800	2	2	4
1900	0	7	7
2000	0	3	3
2100	0	2	2
2200	0	1	1
2300	0	0	0
Total	166	153	319

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #3 Retirement Village
Description - Oasis Blvd just east of Corks Lane

Direction - Westbound

Summary Table

Site	3.01
Date	Thursday, 7 March 2019
Direction - Westbound	

Time	Total Cars
AM Peak (09:00-10:00)	11
PM Peak (14:00-15:00)	10
24h Flows	153

Thursday, 7 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	1	0	1	0	12.5	-
0645	2	0	2	0	17.1	-
0700	0	0	0	0	-	-
0715	1	1	0	0	14.2	-
0730	0	0	0	0	-	-
0745	1	0	1	0	10	-
0800	1	0	0	1	18	-
0815	4	3	0	1	16.7	-
0830	1	1	0	0	14.9	-
0845	1	1	0	0	15.3	-
0900	0	0	0	0	-	-
0915	6	6	0	0	14.9	-
0930	2	2	0	0	14.3	-
0945	3	2	1	0	15.1	-
1000	7	7	0	0	15.8	-
1015	5	5	0	0	16	-
1030	2	2	0	0	13	-
1045	1	0	1	0	15.8	-
1100	3	3	0	0	10.8	-
1115	6	6	0	0	13.5	-
1130	6	6	0	0	17.1	-
1145	3	3	0	0	16.1	-
1200	6	5	0	1	17.4	-
1215	4	4	0	0	15.7	-
1230	5	5	0	0	15.9	-
1245	5	5	0	0	20.3	-
1300	5	5	0	0	15.2	-
1315	4	4	0	0	13.6	-
1330	0	0	0	0	-	-
1345	3	3	0	0	13.2	-
1400	1	1	0	0	20.9	-
1415	3	2	0	1	13.6	-
1430	3	1	2	0	12.2	-
1445	3	2	1	0	16	-
1500	4	4	0	0	14.9	-
1515	4	3	1	0	13.7	-
1530	4	4	0	0	15.2	-
1545	6	5	1	0	13.9	-
1600	7	5	2	0	16.1	-
1615	5	4	1	0	16.5	-
1630	4	4	0	0	12.8	-
1645	1	1	0	0	9.6	-
1700	4	4	0	0	14.6	-
1715	0	0	0	0	-	-
1730	0	0	0	0	-	-
1745	1	1	0	0	15.7	-
1800	0	0	0	0	-	-
1815	1	1	0	0	14.1	-
1830	0	0	0	0	-	-
1845	1	1	0	0	14.7	-
1900	2	2	0	0	13.2	-
1915	1	1	0	0	15.9	-
1930	1	1	0	0	16.5	-
1945	3	3	0	0	13	-
2000	0	0	0	0	-	-
2015	1	1	0	0	14.9	-
2030	1	1	0	0	15.4	-
2045	1	1	0	0	21.1	-
2100	1	1	0	0	13.1	-
2115	1	1	0	0	14	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	1	1	0	0	19.3	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**9**	**6**	**1**	**2**	**15.5**	**-**
09-16	**104**	**95**	**7**	**2**	**15.2**	**18.6**
16-18	**22**	**19**	**3**	**0**	**15**	**17.8**
00-00	**153**	**135**	**14**	**4**	**15.2**	**18.5**

Hour Start	WB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	0
0600	3
0700	2
0800	7
0900	11
1000	15
1100	18
1200	20
1300	12
1400	10
1500	18
1600	17
1700	5
1800	2
1900	7
2000	3
2100	2
2200	1
2300	0
Total	153

Ballina Retirement Village Automatic Report

Site Name - #4 Retirement Village
Description - at Gated entry on Oasis Blvd

Direction - Eastbound

Summary Table

Site	4.01
Date	Thursday, 7 March 2019
Direction - Eastbound	

Time	Total Cars
AM Peak (09:00-10:00)	1
PM Peak (14:00-15:00)	0
24h Flows	17

Thursday, 7 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	1	1	0	0	3.9	-
0715	0	0	0	0	-	-
0730	0	0	0	0	-	-
0745	0	0	0	0	-	-
0800	1	0	1	0	5.8	-
0815	0	0	0	0	-	-
0830	0	0	0	0	-	-
0845	0	0	0	0	-	-
0900	1	1	0	0	5.2	-
0915	0	0	0	0	-	-
0930	0	0	0	0	-	-
0945	0	0	0	0	-	-
1000	1	1	0	0	4.7	-
1015	0	0	0	0	-	-
1030	0	0	0	0	-	-
1045	1	0	1	0	7.3	-
1100	2	1	1	0	7.2	-
1115	1	0	1	0	5.7	-
1130	1	1	0	0	6	-
1145	0	0	0	0	-	-
1200	0	0	0	0	-	-
1215	0	0	0	0	-	-
1230	0	0	0	0	-	-
1245	1	1	0	0	2.7	-
1300	0	0	0	0	-	-
1315	0	0	0	0	-	-
1330	1	0	1	0	6.2	-
1345	2	0	2	0	6.1	-
1400	0	0	0	0	-	-
1415	0	0	0	0	-	-
1430	0	0	0	0	-	-
1445	0	0	0	0	-	-
1500	0	0	0	0	-	-
1515	0	0	0	0	-	-
1530	0	0	0	0	-	-
1545	1	1	0	0	5.2	-
1600	0	0	0	0	-	-
1615	0	0	0	0	-	-
1630	3	1	2	0	5.6	-
1645	0	0	0	0	-	-
1700	0	0	0	0	-	-
1715	0	0	0	0	-	-
1730	0	0	0	0	-	-
1745	0	0	0	0	-	-
1800	0	0	0	0	-	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**2**	**1**	**1**	**0**	**4.9**	**-**
09-16	**12**	**6**	**6**	**0**	**5.8**	**7.8**
16-18	**3**	**1**	**2**	**0**	**5.6**	**-**
00-00	**17**	**8**	**9**	**0**	**5.7**	**7.5**

Hour Start	EB	WB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	0	0	0
0700	1	0	1
0800	1	7	8
0900	1	5	6
1000	2	3	5
1100	4	6	10
1200	1	3	4
1300	3	8	11
1400	0	4	4
1500	1	5	6
1600	3	1	4
1700	0	2	2
1800	0	1	1
1900	0	1	1
2000	0	0	0
2100	0	0	0
2200	0	0	0
2300	0	0	0
Total	17	46	63

Ballina Retirement Village Automatic Report

Site Name - #4 Retirement Village
Description - at Gated entry on Oasis Blvd

Direction - Westbound

Thursday, 7 March 2019

Summary Table

Site 4.01
Date Thursday, 7 March 2019
Direction - Westbound

Time	Total Cars
AM Peak (09:00-10:00)	5
PM Peak (14:00-15:00)	4
24h Flows	46

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	0	0	0	0	-	-
0745	0	0	0	0	-	-
0800	1	1	0	0	6.2	-
0815	2	1	1	0	10.4	-
0830	1	1	0	0	8	-
0845	3	3	0	0	10	-
0900	0	0	0	0	-	-
0915	1	1	0	0	12.9	-
0930	3	3	0	0	9.4	-
0945	1	1	0	0	8.5	-
1000	1	1	0	0	7.5	-
1015	0	0	0	0	-	-
1030	1	1	0	0	13.5	-
1045	1	1	0	0	12	-
1100	1	1	0	0	8.7	-
1115	3	3	0	0	8.6	-
1130	2	2	0	0	5.5	-
1145	0	0	0	0	-	-
1200	0	0	0	0	-	-
1215	1	1	0	0	9.4	-
1230	0	0	0	0	-	-
1245	2	2	0	0	10.3	-
1300	0	0	0	0	-	-
1315	4	3	1	0	11.2	-
1330	1	1	0	0	10.1	-
1345	3	3	0	0	11	-
1400	1	1	0	0	12.8	-
1415	0	0	0	0	-	-
1430	3	2	1	0	11.9	-
1445	0	0	0	0	-	-
1500	1	1	0	0	6.7	-
1515	2	2	0	0	10.2	-
1530	2	2	0	0	9.6	-
1545	0	0	0	0	-	-
1600	0	0	0	0	-	-
1615	0	0	0	0	-	-
1630	0	0	0	0	-	-
1645	1	0	1	0	14.6	-
1700	1	1	0	0	10.3	-
1715	0	0	0	0	-	-
1730	0	0	0	0	-	-
1745	1	1	0	0	10.1	-
1800	0	0	0	0	-	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	1	1	0	0	7.4	-
1900	0	0	0	0	-	-
1915	1	1	0	0	13.5	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**7**	**6**	**1**	**0**	**9.3**	**-**
09-16	**34**	**32**	**2**	**0**	**10**	**13.5**
16-18	**3**	**2**	**1**	**0**	**11.7**	**-**
00-00	**46**	**42**	**4**	**0**	**10**	**13.5**

Hour Start	WB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	0
0600	0
0700	0
0800	7
0900	5
1000	3
1100	6
1200	3
1300	8
1400	4
1500	5
1600	1
1700	2
1800	1
1900	1
2000	0
2100	0
2200	0
2300	0
Total	46

Ballina Retirement Village Automatic Report

Site Name - #5 Retirement Village
Description - at gated entry on Forest Oak Blvd

Direction - Northbound

Summary Table
Site 5.01
Date Thursday, 7 March 2019
Direction - Northbound

Time	Total Cars
AM Peak (09:00-10:00)	4
PM Peak (14:00-15:00)	9
24h Flows	74

Thursday, 7 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	0	0	0	0	-	-
0745	1	1	0	0	8	-
0800	1	0	1	0	14.6	-
0815	0	0	0	0	-	-
0830	0	0	0	0	-	-
0845	0	0	0	0	-	-
0900	0	0	0	0	-	-
0915	2	2	0	0	10.5	-
0930	2	2	0	0	14.4	-
0945	0	0	0	0	-	-
1000	2	2	0	0	15.6	-
1015	0	0	0	0	-	-
1030	1	1	0	0	13.7	-
1045	6	6	0	0	14	-
1100	2	2	0	0	12	-
1115	1	1	0	0	11.1	-
1130	2	2	0	0	12.8	-
1145	2	2	0	0	8.7	-
1200	1	1	0	0	12.3	-
1215	3	3	0	0	9.5	-
1230	1	1	0	0	15.4	-
1245	1	1	0	0	15.4	-
1300	4	4	0	0	14.5	-
1315	1	1	0	0	12	-
1330	4	4	0	0	13.9	-
1345	2	2	0	0	12.7	-
1400	3	3	0	0	12.1	-
1415	1	1	0	0	14.3	-
1430	2	2	0	0	16.7	-
1445	3	3	0	0	13.6	-
1500	1	1	0	0	10.1	-
1515	2	2	0	0	11.1	-
1530	3	3	0	0	15.2	-
1545	3	3	0	0	12.3	-
1600	1	1	0	0	12.2	-
1615	0	0	0	0	-	-
1630	4	4	0	0	12.1	-
1645	1	1	0	0	16.1	-
1700	2	2	0	0	21.1	-
1715	2	2	0	0	11.9	-
1730	2	2	0	0	12	-
1745	1	1	0	0	9.2	-
1800	0	0	0	0	-	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	2	2	0	0	10.8	-
1900	0	0	0	0	-	-
1915	1	1	0	0	12.4	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	1	1	0	0	14.6	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**2**	**1**	**1**	**0**	**11.3**	**-**
09-16	**55**	**55**	**0**	**0**	**13.1**	**17**
16-18	**13**	**13**	**0**	**0**	**13.5**	**17.8**
00-00	**74**	**73**	**1**	**0**	**13**	**16.7**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	0	4	4
0700	1	8	9
0800	1	9	10
0900	4	6	10
1000	9	8	17
1100	7	4	11
1200	6	5	11
1300	11	11	22
1400	9	11	20
1500	9	6	15
1600	6	2	8
1700	7	1	8
1800	2	0	2
1900	1	1	2
2000	0	0	0
2100	0	0	0
2200	1	0	1
2300	0	0	0
Total	74	76	150

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #5 Retirement Village
Description - at gated entry on Forest Oak Blvd

Direction - Southbound

Summary Table
Site 5.01
Date Thursday, 7 March 2019
Direction - Southbound

Time	Total Cars
AM Peak (09:00-10:00)	6
PM Peak (14:00-15:00)	11
24h Flows	76

Thursday, 7 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	1	0	1	0	6.4	-
0615	1	1	0	0	9.6	-
0630	0	0	0	0	-	-
0645	2	0	2	0	9	-
0700	2	0	2	0	7.2	-
0715	4	2	2	0	9.3	-
0730	0	0	0	0	-	-
0745	2	2	0	0	11.5	-
0800	1	0	1	0	9.8	-
0815	1	1	0	0	6.7	-
0830	5	1	4	0	7.9	-
0845	2	0	2	0	7.6	-
0900	2	1	1	0	11.2	-
0915	2	0	2	0	9.9	-
0930	2	0	2	0	8.5	-
0945	0	0	0	0	-	-
1000	3	1	2	0	10.1	-
1015	1	0	1	0	7	-
1030	1	0	1	0	13.2	-
1045	3	2	0	1	7.4	-
1100	2	0	2	0	10.4	-
1115	2	0	2	0	10	-
1130	0	0	0	0	-	-
1145	0	0	0	0	-	-
1200	1	0	1	0	7.5	-
1215	2	0	2	0	11.6	-
1230	1	0	1	0	10.6	-
1245	1	1	0	0	6.7	-
1300	3	3	0	0	10.2	-
1315	3	0	3	0	10	-
1330	1	0	1	0	11.3	-
1345	4	0	4	0	10	-
1400	4	3	1	0	9.1	-
1415	4	1	3	0	8.3	-
1430	1	0	1	0	8.9	-
1445	2	1	1	0	11.7	-
1500	1	0	1	0	9.7	-
1515	1	0	1	0	13.3	-
1530	3	0	3	0	9.5	-
1545	1	0	1	0	9.9	-
1600	0	0	0	0	-	-
1615	0	0	0	0	-	-
1630	2	0	2	0	10.2	-
1645	0	0	0	0	-	-
1700	1	0	1	0	11.3	-
1715	0	0	0	0	-	-
1730	0	0	0	0	-	-
1745	0	0	0	0	-	-
1800	0	0	0	0	-	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	1	0	1	0	8.7	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**17**	**6**	**11**	**0**	**8.6**	**11.3**
09-16	**51**	**13**	**37**	**1**	**9.7**	**12.5**
16-18	**3**	**0**	**3**	**0**	**10.5**	**-**
00-00	**76**	**20**	**55**	**1**	**9.4**	**11.9**

Hour Start	SB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	0
0600	4
0700	8
0800	9
0900	6
1000	8
1100	4
1200	5
1300	11
1400	11
1500	6
1600	2
1700	1
1800	0
1900	1
2000	0
2100	0
2200	0
2300	0
Total	76

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - # 1 Ballina Retirement Village
Description - # 1 main entrance - Magnolia Drive just north of North Creek Rd

Direction - Northbound

Summary Table

Site	1.01
Date	Friday, 8 March 2019
Direction - Northbound	

Time	Total Cars
AM Peak (09:00-10:00)	25
PM Peak (14:00-15:00)	16
24h Flows	172

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	2	2	0	0	16.2	-
0645	2	2	0	0	20.5	-
0700	0	0	0	0	-	-
0715	2	2	0	0	17.6	-
0730	2	2	0	0	14.7	-
0745	2	1	1	0	9.4	-
0800	4	4	0	0	11.4	-
0815	3	2	1	0	9.3	-
0830	3	3	0	0	12.2	-
0845	4	4	0	0	11.8	-
0900	4	4	0	0	14.9	-
0915	7	6	1	0	11.1	-
0930	3	3	0	0	10.8	-
0945	11	10	1	0	8.9	11.6
1000	7	5	2	0	9.2	-
1015	4	4	0	0	9.8	-
1030	1	0	1	0	8.2	-
1045	9	7	1	1	11.8	-
1100	6	6	0	0	12.6	-
1115	2	2	0	0	7.6	-
1130	5	5	0	0	8.8	-
1145	3	3	0	0	14.6	-
1200	6	5	1	0	11.6	-
1215	3	2	1	0	10.4	-
1230	2	2	0	0	10.7	-
1245	9	9	0	0	11.1	-
1300	5	5	0	0	10.3	-
1315	2	2	0	0	8.5	-
1330	4	4	0	0	10	-
1345	1	1	0	0	9.2	-
1400	2	1	1	0	10.3	-
1415	3	3	0	0	7.6	-
1430	3	3	0	0	12.7	-
1445	8	7	1	0	12.3	-
1500	3	2	1	0	10.6	-
1515	5	3	2	0	11.5	-
1530	2	2	0	0	11.2	-
1545	5	4	1	0	15.5	-
1600	1	1	0	0	8.4	-
1615	4	4	0	0	7.3	-
1630	1	1	0	0	14.7	-
1645	1	1	0	0	13.7	-
1700	1	1	0	0	20.5	-
1715	0	0	0	0	-	-
1730	3	2	1	0	9.9	-
1745	2	2	0	0	16.9	-
1800	0	0	0	0	-	-
1815	2	2	0	0	7	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	1	1	0	0	9.2	-
1930	0	0	0	0	-	-
1945	1	0	1	0	17.3	-
2000	1	1	0	0	13.5	-
2015	0	0	0	0	-	-
2030	1	1	0	0	21.4	-
2045	1	1	0	0	17.6	-
2100	0	0	0	0	-	-
2115	1	1	0	0	17.1	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	1	1	0	0	18.3	-
2230	1	1	0	0	16.8	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**20**	**18**	**2**	**0**	**12**	**17**
09-16	**125**	**110**	**14**	**1**	**11**	**15.7**
16-18	**13**	**12**	**1**	**0**	**11.6**	**17.4**
00-00	**172**	**153**	**18**	**1**	**11.5**	**16.9**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	1	1
0500	0	0	0
0600	4	1	5
0700	6	7	13
0800	14	13	27
0900	25	9	34
1000	21	11	32
1100	16	18	34
1200	20	21	41
1300	12	23	35
1400	16	22	38
1500	15	16	31
1600	7	21	28
1700	6	11	17
1800	2	4	6
1900	2	7	9
2000	3	0	3
2100	1	0	1
2200	2	2	4
2300	0	0	0
Total	172	187	359

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - # 1 Ballina Retirement Village
Description - # 1 main entrance - Magnolia Drive just north of North Creek Rd

Direction - Southbound

Summary Table

Site	1.01
Date	Friday, 8 March 2019
Direction - Southbound	

Time	Total Cars
AM Peak (09:00-10:00)	9
PM Peak (14:00-15:00)	22
24h Flows	187

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile		Hour Start	SB
0000	0	0	0	0	-	-		0000	0
0015	0	0	0	0	-	-		0100	0
0030	0	0	0	0	-	-		0200	0
0045	0	0	0	0	-	-		0300	0
0100	0	0	0	0	-	-		0400	1
0115	0	0	0	0	-	-		0500	0
0130	0	0	0	0	-	-		0600	1
0145	0	0	0	0	-	-		0700	7
0200	0	0	0	0	-	-		0800	13
0215	0	0	0	0	-	-		0900	9
0230	0	0	0	0	-	-		1000	11
0245	0	0	0	0	-	-		1100	18
0300	0	0	0	0	-	-		1200	21
0315	0	0	0	0	-	-		1300	23
0330	0	0	0	0	-	-		1400	22
0345	0	0	0	0	-	-		1500	16
0400	0	0	0	0	-	-		1600	21
0415	0	0	0	0	-	-		1700	11
0430	1	1	0	0	15.6	-		1800	4
0445	0	0	0	0	-	-		1900	7
0500	0	0	0	0	-	-		2000	0
0515	0	0	0	0	-	-		2100	0
0530	0	0	0	0	-	-		2200	2
0545	0	0	0	0	-	-		2300	0
0600	0	0	0	0	-	-		Total	187
0615	0	0	0	0	-	-			
0630	1	1	0	0	11.6	-			
0645	0	0	0	0	-	-			
0700	0	0	0	0	-	-			
0715	1	0	1	0	12.6	-			
0730	3	3	0	0	18	-			
0745	3	3	0	0	13.3	-			
0800	5	4	1	0	12.7	-			
0815	2	2	0	0	14.1	-			
0830	3	3	0	0	11.4	-			
0845	3	3	0	0	13.7	-			
0900	0	0	0	0	-	-			
0915	4	4	0	0	15.4	-			
0930	0	0	0	0	-	-			
0945	5	5	0	0	16.7	-			
1000	2	2	0	0	18.1	-			
1015	7	7	0	0	18.2	-			
1030	1	1	0	0	9.6	-			
1045	1	1	0	0	13.9	-			
1100	6	6	0	0	12.6	-			
1115	5	5	0	0	16.5	-			
1130	4	3	1	0	10.3	-			
1145	3	3	0	0	13	-			
1200	4	4	0	0	16.8	-			
1215	10	10	0	0	14.2	-			
1230	5	5	0	0	13.7	-			
1245	2	2	0	0	21.6	-			
1300	2	2	0	0	16.3	-			
1315	7	7	0	0	15.5	-			
1330	7	6	1	0	10.4	-			
1345	7	7	0	0	15.5	-			
1400	3	3	0	0	11.2	-			
1415	10	10	0	0	16.8	-			
1430	6	6	0	0	14.9	-			
1445	3	3	0	0	12	-			
1500	2	2	0	0	11.6	-			
1515	2	2	0	0	12.2	-			
1530	6	5	0	1	12.9	-			
1545	6	6	0	0	15.8	-			
1600	4	4	0	0	17.2	-			
1615	5	5	0	0	18	-			
1630	6	6	0	0	16.2	-			
1645	6	6	0	0	15.3	-			
1700	6	6	0	0	13.2	-			
1715	1	1	0	0	15.3	-			
1730	2	2	0	0	14.8	-			
1745	2	2	0	0	18.4	-			
1800	1	1	0	0	17.5	-			
1815	2	2	0	0	17.8	-			
1830	0	0	0	0	-	-			
1845	1	1	0	0	16	-			
1900	3	2	1	0	14.9	-			
1915	1	1	0	0	13.5	-			
1930	2	2	0	0	17.5	-			
1945	1	1	0	0	10.9	-			
2000	0	0	0	0	-	-			
2015	0	0	0	0	-	-			
2030	0	0	0	0	-	-			
2045	0	0	0	0	-	-			
2100	0	0	0	0	-	-			
2115	0	0	0	0	-	-			
2130	0	0	0	0	-	-			
2145	0	0	0	0	-	-			
2200	0	0	0	0	-	-			
2215	1	1	0	0	18	-			
2230	1	1	0	0	22.2	-			
2245	0	0	0	0	-	-			
2300	0	0	0	0	-	-			
2315	0	0	0	0	-	-			
2330	0	0	0	0	-	-			
2345	0	0	0	0	-	-			
07-09	**20**	**18**	**2**	**0**	**13.7**	**17.5**			
09-16	**120**	**117**	**2**	**1**	**14.7**	**18.7**			
16-18	**32**	**32**	**0**	**0**	**15.9**	**18.7**			
00-00	**187**	**181**	**5**	**1**	**14.9**	**18.5**			

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #2 Retirement Village
Description - Forest Oak Blvd just north of North Creek Rd

Direction - Northbound

Summary Table

Site	2.01
Date	Friday, 8 March 2019
Direction - Northbound	

Time	Total Cars
AM Peak (09:00-10:00)	32
PM Peak (14:00-15:00)	30
24h Flows	263

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	1	1	0	0	29.2	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	1	1	0	0	23.1	-
0545	2	2	0	0	28.4	-
0600	3	3	0	0	30.3	-
0615	2	2	0	0	27.6	-
0630	7	7	0	0	29.2	-
0645	9	8	1	0	27.5	-
0700	2	2	0	0	32.5	-
0715	2	2	0	0	27.4	-
0730	2	2	0	0	28.1	-
0745	7	6	1	0	27.2	-
0800	2	1	0	1	73.4	-
0815	3	2	1	0	25.9	-
0830	2	2	0	0	25.9	-
0845	5	5	0	0	25.5	-
0900	7	7	0	0	27.4	-
0915	7	5	2	0	24.9	-
0930	6	6	0	0	20.5	-
0945	12	11	1	0	23.6	26.6
1000	9	9	0	0	23.6	-
1015	5	5	0	0	22.1	-
1030	7	6	1	0	25	-
1045	5	5	0	0	25.8	-
1100	4	4	0	0	21.9	-
1115	2	2	0	0	23.9	-
1130	1	1	0	0	28.6	-
1145	6	6	0	0	22.3	-
1200	7	6	1	0	22.6	-
1215	4	3	1	0	25.5	-
1230	4	3	1	0	23.4	-
1245	9	8	1	0	23.9	-
1300	3	3	0	0	23.2	-
1315	7	7	0	0	23.8	-
1330	1	1	0	0	31.4	-
1345	4	4	0	0	28.1	-
1400	7	7	0	0	24.1	-
1415	4	4	0	0	23.7	-
1430	10	10	0	0	25.5	-
1445	9	9	0	0	27	-
1500	6	5	0	1	26	-
1515	5	4	1	0	24.1	-
1530	10	9	1	0	25.6	-
1545	4	4	0	0	25.7	-
1600	7	7	0	0	25	-
1615	3	3	0	0	27.9	-
1630	7	7	0	0	26	-
1645	2	2	0	0	27.6	-
1700	2	2	0	0	26.8	-
1715	2	2	0	0	26	-
1730	3	3	0	0	23.1	-
1745	1	1	0	0	25.6	-
1800	1	1	0	0	24.8	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	4	4	0	0	17.7	-
1900	3	2	1	0	21.2	-
1915	2	2	0	0	25.9	-
1930	0	0	0	0	-	-
1945	1	1	0	0	28.8	-
2000	0	0	0	0	-	-
2015	1	1	0	0	32.4	-
2030	1	1	0	0	32.3	-
2045	1	1	0	0	27.2	-
2100	1	1	0	0	27.2	-
2115	1	1	0	0	27.9	-
2130	0	0	0	0	-	-
2145	4	4	0	0	25.4	-
2200	1	1	0	0	29.6	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**25**	**22**	**2**	**1**	**30.8**	**30.1**
09-16	**165**	**154**	**10**	**1**	**24.5**	**28.8**
16-18	**27**	**27**	**0**	**0**	**25.8**	**30**
00-00	**263**	**247**	**14**	**2**	**25.6**	**29.9**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	1	1	2
0500	3	1	4
0600	21	3	24
0700	13	18	31
0800	12	18	30
0900	32	14	46
1000	26	32	58
1100	13	27	40
1200	24	18	42
1300	15	22	37
1400	30	32	62
1500	25	21	46
1600	19	18	37
1700	8	18	26
1800	5	7	12
1900	6	4	10
2000	3	4	7
2100	6	8	14
2200	1	5	6
2300	0	0	0
Total	263	271	534

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #2 Retirement Village
Description - Forest Oak Blvd just north of North Creek Rd

Direction - Southbound

Summary Table
Site 2.01
Date Friday, 8 March 2019
Direction - Southbound

Time	Total Cars
AM Peak (09:00-10:00)	14
PM Peak (14:00-15:00)	32
24h Flows	271

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile		Hour Start	SB
0000	0	0	0	0	-	-		0000	0
0015	0	0	0	0	-	-		0100	0
0030	0	0	0	0	-	-		0200	0
0045	0	0	0	0	-	-		0300	0
0100	0	0	0	0	-	-		0400	1
0115	0	0	0	0	-	-		0500	1
0130	0	0	0	0	-	-		0600	3
0145	0	0	0	0	-	-		0700	18
0200	0	0	0	0	-	-		0800	18
0215	0	0	0	0	-	-		0900	14
0230	0	0	0	0	-	-		1000	32
0245	0	0	0	0	-	-		1100	27
0300	0	0	0	0	-	-		1200	18
0315	0	0	0	0	-	-		1300	22
0330	0	0	0	0	-	-		1400	32
0345	0	0	0	0	-	-		1500	21
0400	0	0	0	0	-	-		1600	18
0415	0	0	0	0	-	-		1700	18
0430	0	0	0	0	-	-		1800	7
0445	1	1	0	0	25.1	-		1900	4
0500	0	0	0	0	-	-		2000	4
0515	0	0	0	0	-	-		2100	8
0530	0	0	0	0	-	-		2200	5
0545	1	1	0	0	25.6	-		2300	0
0600	0	0	0	0	-	-		Total	271
0615	1	1	0	0	23.4	-			
0630	0	0	0	0	-	-			
0645	2	0	2	0	18.7	-			
0700	5	5	0	0	22.9	-			
0715	6	5	0	1	22.2	-			
0730	2	2	0	0	18	-			
0745	5	5	0	0	22.1	-			
0800	3	2	1	0	23.9	-			
0815	1	0	0	1	16	-			
0830	6	6	0	0	19.9	-			
0845	8	8	0	0	18.5	-			
0900	4	3	1	0	21.3	-			
0915	3	3	0	0	20.2	-			
0930	5	5	0	0	21.6	-			
0945	2	2	0	0	19.4	-			
1000	10	8	2	0	19.6	-			
1015	5	4	1	0	21.5	-			
1030	5	4	1	0	21	-			
1045	12	12	0	0	20.5	24.5			
1100	5	5	0	0	19.5	-			
1115	6	5	1	0	19.6	-			
1130	7	7	0	0	18.9	-			
1145	9	8	1	0	19.1	-			
1200	11	11	0	0	21.2	24.8			
1215	3	1	2	0	18	-			
1230	2	0	2	0	25.1	-			
1245	2	1	1	0	20.9	-			
1300	5	4	1	0	22.6	-			
1315	9	8	1	0	21.3	-			
1330	3	3	0	0	20.2	-			
1345	5	5	0	0	19.7	-			
1400	12	12	0	0	21.9	25.8			
1415	5	4	1	0	20.9	-			
1430	9	8	1	0	21	-			
1445	6	6	0	0	22.3	-			
1500	12	11	1	0	23.1	26.6			
1515	5	5	0	0	21.7	-			
1530	2	2	0	0	22.3	-			
1545	2	1	1	0	18.8	-			
1600	2	2	0	0	21.2	-			
1615	3	3	0	0	19.5	-			
1630	7	7	0	0	23.1	-			
1645	6	6	0	0	23.1	-			
1700	9	9	0	0	22.1	-			
1715	5	5	0	0	22.1	-			
1730	4	4	0	0	21.1	-			
1745	0	0	0	0	-	-			
1800	2	2	0	0	23.7	-			
1815	1	1	0	0	22.7	-			
1830	2	2	0	0	25.3	-			
1845	2	2	0	0	5.5	-			
1900	1	1	0	0	22.2	-			
1915	2	2	0	0	22.5	-			
1930	0	0	0	0	-	-			
1945	1	1	0	0	28.3	-			
2000	4	2	2	0	27.2	-			
2015	0	0	0	0	-	-			
2030	0	0	0	0	-	-			
2045	0	0	0	0	-	-			
2100	8	8	0	0	26.2	-			
2115	0	0	0	0	-	-			
2130	0	0	0	0	-	-			
2145	0	0	0	0	-	-			
2200	3	3	0	0	25.5	-			
2215	1	1	0	0	27.4	-			
2230	1	1	0	0	25.2	-			
2245	0	0	0	0	-	-			
2300	0	0	0	0	-	-			
2315	0	0	0	0	-	-			
2330	0	0	0	0	-	-			
2345	0	0	0	0	-	-			
07-09	**36**	**33**	**1**	**2**	**20.8**	**25.6**			
09-16	**166**	**148**	**18**	**0**	**20.9**	**24.5**			
16-18	**36**	**36**	**0**	**0**	**22.1**	**25.6**			
00-00	**271**	**246**	**23**	**2**	**21.4**	**25.6**			

Ballina Retirement Village Automatic Report

Site Name - #3 Retirement Village
Description - Oasis Blvd just east of Corks Lane

TDC Traffic Data & Control

Direction - Eastbound

Summary Table

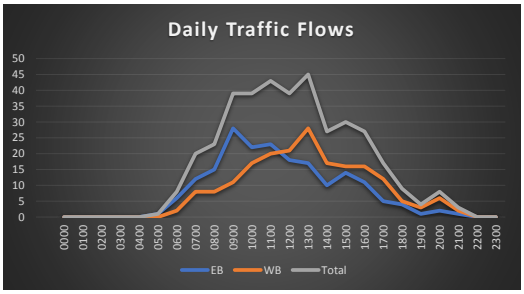
Site	3.01
Date	Friday, 8 March 2019
Direction - Eastbound	

Time	Total Cars
AM Peak (09:00-10:00)	28
PM Peak (14:00-15:00)	10
24h Flows	190

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	1	0	1	0	15.8	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	3	2	1	0	15.7	-
0645	3	3	0	0	16.9	-
0700	4	3	1	0	14.2	-
0715	3	3	0	0	18.9	-
0730	2	2	0	0	15.1	-
0745	3	2	1	0	14.6	-
0800	3	3	0	0	16.9	-
0815	4	3	1	0	17.8	-
0830	5	5	0	0	16.2	-
0845	3	3	0	0	16.1	-
0900	12	10	2	0	15	18.8
0915	4	4	0	0	15.8	-
0930	8	7	1	0	17.3	-
0945	4	4	0	0	16.9	-
1000	8	6	2	0	14.3	-
1015	6	5	1	0	17.3	-
1030	4	2	1	1	20	-
1045	4	3	1	0	16.5	-
1100	3	3	0	0	18.3	-
1115	5	4	1	0	17.3	-
1130	5	3	1	1	14.8	-
1145	10	9	1	0	17.9	-
1200	7	7	0	0	17	-
1215	5	2	3	0	14.2	-
1230	2	1	1	0	12.8	-
1245	4	3	1	0	16.3	-
1300	4	3	0	1	16.1	-
1315	7	7	0	0	16.9	-
1330	2	2	0	0	13.9	-
1345	4	4	0	0	15.3	-
1400	1	1	0	0	15.9	-
1415	4	3	1	0	15.3	-
1430	2	2	0	0	19.8	-
1445	3	2	1	0	14.6	-
1500	4	4	0	0	15.4	-
1515	3	2	1	0	15.8	-
1530	3	3	0	0	13.9	-
1545	4	4	0	0	18.4	-
1600	2	2	0	0	16.1	-
1615	4	4	0	0	20.2	-
1630	2	2	0	0	16.6	-
1645	3	3	0	0	17.1	-
1700	1	1	0	0	16.8	-
1715	1	1	0	0	18	-
1730	0	0	0	0	-	-
1745	3	3	0	0	15.8	-
1800	3	3	0	0	17.4	-
1815	0	0	0	0	-	-
1830	1	1	0	0	13.2	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	1	1	0	0	13.4	-
2000	2	2	0	0	22.3	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	1	1	0	0	18.8	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**27**	**24**	**3**	**0**	**16.3**	**19.8**
09-16	**132**	**110**	**19**	**3**	**16.2**	**19.6**
16-18	**16**	**16**	**0**	**0**	**17.5**	**20.8**
00-00	**190**	**163**	**24**	**3**	**16.4**	**19.8**

Hour Start	EB	WB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	1	0	1
0600	6	2	8
0700	12	8	20
0800	15	8	23
0900	28	11	39
1000	22	17	39
1100	23	20	43
1200	18	21	39
1300	17	28	45
1400	10	17	27
1500	14	16	30
1600	11	16	27
1700	5	12	17
1800	4	5	9
1900	1	3	4
2000	2	6	8
2100	1	2	3
2200	0	0	0
2300	0	0	0
Total	190	192	382



Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #3 Retirement Village
Description - Oasis Blvd just east of Corks Lane

Direction - Westbound

Summary Table

Site	3.01
Date	Friday, 8 March 2019
Direction - Westbound	

Time	Total Cars
AM Peak (09:00-10:00)	11
PM Peak (14:00-15:00)	17
24h Flows	192

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	2	1	1	0	16.8	-
0700	3	2	1	0	15.3	-
0715	4	3	1	0	15.4	-
0730	1	1	0	0	17.2	-
0745	0	0	0	0	-	-
0800	1	1	0	0	22.2	-
0815	0	0	0	0	-	-
0830	1	1	0	0	14.3	-
0845	6	3	1	2	14.1	-
0900	2	2	0	0	17.4	-
0915	3	2	1	0	15.1	-
0930	2	1	1	0	13.5	-
0945	4	4	0	0	14.6	-
1000	5	2	3	0	16.1	-
1015	5	4	1	0	15.6	-
1030	2	2	0	0	14.9	-
1045	5	5	0	0	17.9	-
1100	5	4	1	0	15.7	-
1115	5	5	0	0	19	-
1130	6	6	0	0	16.4	-
1145	4	4	0	0	16.1	-
1200	6	5	1	0	17.7	-
1215	5	5	0	0	17.1	-
1230	3	3	0	0	15.9	-
1245	7	7	0	0	16.5	-
1300	7	7	0	0	18.7	-
1315	7	7	0	0	16.5	-
1330	6	6	0	0	15.8	-
1345	8	7	1	0	14.8	-
1400	3	3	0	0	18.4	-
1415	10	8	2	0	16	-
1430	1	1	0	0	21	-
1445	3	3	0	0	16.3	-
1500	6	6	0	0	15.1	-
1515	6	6	0	0	16.5	-
1530	3	3	0	0	16.8	-
1545	1	1	0	0	17.7	-
1600	6	5	1	0	15.2	-
1615	7	6	1	0	13.5	-
1630	2	2	0	0	19.1	-
1645	1	1	0	0	17.4	-
1700	4	4	0	0	13.7	-
1715	3	3	0	0	17.6	-
1730	3	3	0	0	12.8	-
1745	2	2	0	0	17.7	-
1800	1	0	1	0	14.9	-
1815	2	2	0	0	19.4	-
1830	2	2	0	0	14.6	-
1845	0	0	0	0	-	-
1900	2	2	0	0	16.4	-
1915	0	0	0	0	-	-
1930	1	0	1	0	8.2	-
1945	0	0	0	0	-	-
2000	1	1	0	0	19.5	-
2015	1	1	0	0	21.3	-
2030	2	2	0	0	9.5	-
2045	2	2	0	0	19.1	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	2	2	0	0	19.6	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**16**	**11**	**3**	**2**	**15.4**	**20.5**
09-16	**130**	**119**	**11**	**0**	**16.4**	**20**
16-18	**28**	**26**	**2**	**0**	**15.1**	**18.6**
00-00	**192**	**171**	**19**	**2**	**16.2**	**20**

Hour Start	WB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	0
0600	2
0700	8
0800	8
0900	11
1000	17
1100	20
1200	21
1300	28
1400	17
1500	16
1600	16
1700	12
1800	5
1900	3
2000	6
2100	2
2200	0
2300	0
Total	192

Ballina Retirement Village Automatic Report

Site Name - #4 Retirement Village
Description - at Gated entry on Oasis Blvd

Direction - Eastbound

Summary Table

Site	4.01
Date	Friday, 8 March 2019
Direction - Eastbound	

Time	Total Cars
AM Peak (09:00-10:00)	2
PM Peak (14:00-15:00)	0
24h Flows	11

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	0	0	0	0	-	-
0745	1	0	1	0	7.4	-
0800	0	0	0	0	-	-
0815	0	0	0	0	-	-
0830	0	0	0	0	-	-
0845	0	0	0	0	-	-
0900	0	0	0	0	-	-
0915	1	0	1	0	4.2	-
0930	0	0	0	0	-	-
0945	1	1	0	0	3.7	-
1000	2	2	0	0	6.7	-
1015	0	0	0	0	-	-
1030	0	0	0	0	-	-
1045	0	0	0	0	-	-
1100	1	1	0	0	3.5	-
1115	0	0	0	0	-	-
1130	0	0	0	0	-	-
1145	0	0	0	0	-	-
1200	1	0	1	0	4	-
1215	0	0	0	0	-	-
1230	0	0	0	0	-	-
1245	0	0	0	0	-	-
1300	0	0	0	0	-	-
1315	0	0	0	0	-	-
1330	0	0	0	0	-	-
1345	0	0	0	0	-	-
1400	0	0	0	0	-	-
1415	0	0	0	0	-	-
1430	0	0	0	0	-	-
1445	0	0	0	0	-	-
1500	0	0	0	0	-	-
1515	0	0	0	0	-	-
1530	1	1	0	0	12.3	-
1545	1	0	1	0	9.7	-
1600	0	0	0	0	-	-
1615	0	0	0	0	-	-
1630	1	0	1	0	5.1	-
1645	0	0	0	0	-	-
1700	1	1	0	0	6.2	-
1715	0	0	0	0	-	-
1730	0	0	0	0	-	-
1745	0	0	0	0	-	-
1800	0	0	0	0	-	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**1**	**0**	**1**	**0**	**7.4**	**-**
09-16	**8**	**5**	**3**	**0**	**6.3**	**-**
16-18	**2**	**1**	**1**	**0**	**5.7**	**-**
00-00	**11**	**6**	**5**	**0**	**6.3**	**10.2**

Hour Start	EB	WB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	1	1
0500	0	0	0
0600	0	0	0
0700	1	2	3
0800	0	6	6
0900	2	5	7
1000	2	8	10
1100	1	5	6
1200	1	0	1
1300	0	3	3
1400	0	2	2
1500	2	4	6
1600	1	0	1
1700	1	1	2
1800	0	1	1
1900	0	0	0
2000	0	0	0
2100	0	1	1
2200	0	0	0
2300	0	0	0
Total	11	39	50

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #4 Retirement Village
Description - at Gated entry on Oasis Blvd

Direction - Westbound

Summary Table

Site	4.01
Date	Friday, 8 March 2019
Direction - Westbound	

Time	Total Cars
AM Peak (09:00-10:00)	5
PM Peak (14:00-15:00)	2
24h Flows	39

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	1	1	0	0	14.8	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	2	2	0	0	11.8	-
0730	0	0	0	0	-	-
0745	0	0	0	0	-	-
0800	2	2	0	0	11.5	-
0815	0	0	0	0	-	-
0830	1	1	0	0	8.9	-
0845	3	3	0	0	11.6	-
0900	1	1	0	0	10.5	-
0915	0	0	0	0	-	-
0930	2	2	0	0	10.1	-
0945	2	2	0	0	12.1	-
1000	1	1	0	0	11.1	-
1015	2	2	0	0	9.4	-
1030	2	2	0	0	9	-
1045	3	3	0	0	9.6	-
1100	2	2	0	0	13	-
1115	2	2	0	0	9.8	-
1130	0	0	0	0	-	-
1145	1	1	0	0	15.3	-
1200	0	0	0	0	-	-
1215	0	0	0	0	-	-
1230	0	0	0	0	-	-
1245	0	0	0	0	-	-
1300	0	0	0	0	-	-
1315	0	0	0	0	-	-
1330	1	1	0	0	12.7	-
1345	2	2	0	0	11	-
1400	0	0	0	0	-	-
1415	0	0	0	0	-	-
1430	2	1	1	0	11.2	-
1445	0	0	0	0	-	-
1500	1	1	0	0	10	-
1515	1	1	0	0	12.2	-
1530	2	2	0	0	13.2	-
1545	0	0	0	0	-	-
1600	0	0	0	0	-	-
1615	0	0	0	0	-	-
1630	0	0	0	0	-	-
1645	0	0	0	0	-	-
1700	1	1	0	0	8.6	-
1715	0	0	0	0	-	-
1730	0	0	0	0	-	-
1745	0	0	0	0	-	-
1800	1	1	0	0	12.1	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	1	1	0	0	7.8	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**8**	**8**	**0**	**0**	**11.3**	**-**
09-16	**27**	**26**	**1**	**0**	**11**	**14.5**
16-18	**1**	**1**	**0**	**0**	**8.6**	**-**
00-00	**39**	**38**	**1**	**0**	**11.1**	**14.2**

Hour Start	WB
0000	0
0100	0
0200	0
0300	0
0400	1
0500	0
0600	0
0700	2
0800	6
0900	5
1000	8
1100	5
1200	0
1300	3
1400	2
1500	4
1600	0
1700	1
1800	1
1900	0
2000	0
2100	1
2200	0
2300	0
Total	39

Ballina Retirement Village Automatic Report

TDC
Traffic Data & Control

Site Name - #5 Retirement Village
Description - at gated entry on Forest Oak Blvd

Direction - Northbound

Summary Table
Site 5.01
Date Friday, 8 March 2019
Direction - Northbound

Time	Total Cars
AM Peak (09:00-10:00)	9
PM Peak (14:00-15:00)	6
24h Flows	74

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	1	1	0	0	7.4	-
0730	0	0	0	0	-	-
0745	1	1	0	0	12.1	-
0800	0	0	0	0	-	-
0815	1	1	0	0	12.2	-
0830	0	0	0	0	-	-
0845	1	1	0	0	17.3	-
0900	1	1	0	0	15.5	-
0915	2	2	0	0	12	-
0930	1	1	0	0	9.8	-
0945	5	5	0	0	12.5	-
1000	1	1	0	0	12.9	-
1015	3	3	0	0	10.1	-
1030	2	2	0	0	13.3	-
1045	0	0	0	0	-	-
1100	0	0	0	0	-	-
1115	2	2	0	0	12.3	-
1130	1	1	0	0	9.3	-
1145	1	1	0	0	11.7	-
1200	2	2	0	0	15.3	-
1215	2	2	0	0	10	-
1230	2	2	0	0	12.8	-
1245	2	1	1	0	16.1	-
1300	1	1	0	0	12.7	-
1315	4	4	0	0	13.2	-
1330	1	1	0	0	13.6	-
1345	0	0	0	0	-	-
1400	1	1	0	0	14.9	-
1415	1	1	0	0	16.2	-
1430	2	2	0	0	18.4	-
1445	2	2	0	0	13.3	-
1500	3	3	0	0	17.5	-
1515	2	2	0	0	12.6	-
1530	4	4	0	0	10.8	-
1545	2	2	0	0	14.9	-
1600	3	3	0	0	11.5	-
1615	1	1	0	0	14.7	-
1630	2	2	0	0	14.7	-
1645	0	0	0	0	-	-
1700	0	0	0	0	-	-
1715	1	1	0	0	12.4	-
1730	3	3	0	0	12.1	-
1745	1	1	0	0	16.1	-
1800	2	2	0	0	13.1	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	1	1	0	0	11.6	-
1900	2	2	0	0	11.8	-
1915	1	1	0	0	11.2	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	1	1	0	0	12.5	-
2030	1	1	0	0	15.3	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	1	1	0	0	13.2	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**4**	**4**	**0**	**0**	**12.3**	**-**
09-16	**50**	**49**	**1**	**0**	**13.2**	**16.5**
16-18	**11**	**11**	**0**	**0**	**13.1**	**16.5**
00-00	**74**	**73**	**1**	**0**	**13.1**	**16.2**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	1	1
0600	0	1	1
0700	2	8	10
0800	2	10	12
0900	9	10	19
1000	6	8	14
1100	4	4	8
1200	8	2	10
1300	6	9	15
1400	6	9	15
1500	11	1	12
1600	6	6	12
1700	5	2	7
1800	3	1	4
1900	3	2	5
2000	2	1	3
2100	1	0	1
2200	0	0	0
2300	0	0	0
Total	74	75	149

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #5 Retirement Village
Description - at gated entry on Forest Oak Blvd

Direction - Southbound

Summary Table

Site	5.01
Date	Friday, 8 March 2019
Direction - Southbound	

Time	Total Cars
AM Peak (09:00-10:00)	10
PM Peak (14:00-15:00)	9
24h Flows	75

Friday, 8 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	1	0	1	0	12.7	-
0600	0	0	0	0	-	-
0615	1	0	1	0	9.3	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	1	1	0	0	6.4	-
0715	5	2	3	0	8.4	-
0730	0	0	0	0	-	-
0745	2	0	2	0	9.6	-
0800	0	0	0	0	-	-
0815	0	0	0	0	-	-
0830	7	2	5	0	6.9	-
0845	3	1	2	0	9.4	-
0900	2	1	1	0	4.9	-
0915	4	1	3	0	7.7	-
0930	1	0	1	0	8.4	-
0945	3	0	3	0	8.9	-
1000	2	1	1	0	10.5	-
1015	1	1	0	0	3	-
1030	2	0	2	0	10.9	-
1045	3	0	3	0	11.3	-
1100	2	2	0	0	8.1	-
1115	2	1	1	0	10.2	-
1130	0	0	0	0	-	-
1145	0	0	0	0	-	-
1200	1	0	1	0	7.6	-
1215	1	0	1	0	7.1	-
1230	0	0	0	0	-	-
1245	0	0	0	0	-	-
1300	1	0	1	0	9.9	-
1315	3	2	1	0	7	-
1330	3	2	1	0	9.4	-
1345	2	1	1	0	11.6	-
1400	2	0	2	0	8.4	-
1415	1	0	1	0	7.7	-
1430	4	0	4	0	10.1	-
1445	2	1	1	0	7.3	-
1500	0	0	0	0	-	-
1515	1	0	1	0	9.4	-
1530	0	0	0	0	-	-
1545	0	0	0	0	-	-
1600	0	0	0	0	-	-
1615	2	0	2	0	7.7	-
1630	1	0	1	0	10.3	-
1645	3	1	2	0	9.8	-
1700	1	0	1	0	12.9	-
1715	0	0	0	0	-	-
1730	1	1	0	0	9.5	-
1745	0	0	0	0	-	-
1800	0	0	0	0	-	-
1815	0	0	0	0	-	-
1830	1	0	1	0	8.3	-
1845	0	0	0	0	-	-
1900	1	0	1	0	4.2	-
1915	1	0	1	0	10.2	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	1	0	1	0	11.1	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**18**	**6**	**12**	**0**	**8**	**11.8**
09-16	**43**	**13**	**30**	**0**	**8.8**	**11.6**
16-18	**8**	**2**	**6**	**0**	**9.7**	**-**
00-00	**75**	**21**	**54**	**0**	**8.7**	**11.6**

Hour Start	SB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	1
0600	1
0700	8
0800	10
0900	10
1000	8
1100	4
1200	2
1300	9
1400	9
1500	1
1600	6
1700	2
1800	1
1900	2
2000	1
2100	0
2200	0
2300	0
Total	75

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - # 1 Ballina Retirement Village
Description - # 1 main entrance - Magnolia Drive just north of North Creek Rd

Direction - Northbound

Summary Table

Site 1.01
Date Saturday, 9 March 2019
Direction - Northbound

Time	Total Cars
Saturday Peak	10
24h Flows	126

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	1	0	1	0	11	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	1	1	0	0	8.9	-
0630	2	2	0	0	16.4	-
0645	3	3	0	0	12	-
0700	0	0	0	0	-	-
0715	1	1	0	0	12.6	-
0730	1	1	0	0	15.2	-
0745	2	2	0	0	16	-
0800	2	2	0	0	14.4	-
0815	4	3	1	0	11.2	-
0830	3	3	0	0	8.6	-
0845	3	3	0	0	13.7	-
0900	3	3	0	0	8.3	-
0915	6	6	0	0	11.8	-
0930	5	5	0	0	10	-
0945	2	2	0	0	12.6	-
1000	3	3	0	0	11.3	-
1015	5	4	1	0	9.9	-
1030	8	7	1	0	12.3	-
1045	5	5	0	0	8.8	-
1100	2	1	1	0	11	-
1115	3	3	0	0	11.5	-
1130	3	3	0	0	8	-
1145	2	2	0	0	6.9	-
1200	1	1	0	0	14	-
1215	0	0	0	0	-	-
1230	3	3	0	0	12.6	-
1245	2	2	0	0	10.2	-
1300	6	5	1	0	11.4	-
1315	0	0	0	0	-	-
1330	0	0	0	0	-	-
1345	3	2	1	0	7.5	-
1400	0	0	0	0	-	-
1415	1	0	1	0	10.2	-
1430	1	1	0	0	12.5	-
1445	4	4	0	0	5.8	-
1500	1	0	1	0	9	-
1515	3	3	0	0	10.8	-
1530	1	1	0	0	12.8	-
1545	2	2	0	0	12.8	-
1600	2	2	0	0	12.1	-
1615	1	1	0	0	11	-
1630	0	0	0	0	-	-
1645	3	3	0	0	9	-
1700	2	2	0	0	8.7	-
1715	0	0	0	0	-	-
1730	4	3	1	0	11.2	-
1745	3	3	0	0	16	-
1800	4	3	1	0	13.3	-
1815	1	1	0	0	13.8	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	3	1	2	0	8.8	-
1945	1	1	0	0	16	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	1	1	0	0	7.3	-
2045	0	0	0	0	-	-
2100	1	0	1	0	11.6	-
2115	1	1	0	0	10.1	-
2130	1	1	0	0	15.3	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**16**	**15**	**1**	**0**	**12.5**	**15.9**
09-16	**75**	**68**	**7**	**0**	**10.4**	**14.6**
16-18	**15**	**14**	**1**	**0**	**11.5**	**14.7**
00-00	**126**	**112**	**14**	**0**	**11.1**	**14.9**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	1	2	3
0500	0	0	0
0600	6	2	8
0700	4	2	6
0800	12	11	23
0900	16	15	31
1000	21	9	30
1100	10	19	29
1200	6	20	26
1300	9	10	19
1400	6	10	16
1500	7	8	15
1600	6	9	15
1700	9	14	23
1800	5	5	10
1900	4	11	15
2000	1	0	1
2100	3	1	4
2200	0	1	1
2300	0	0	0
Total	126	149	275

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - # 1 Ballina Retirement Village
Description - # 1 main entrance - Magnolia Drive just north of North Creek Rd

Direction - Southbound

Summary Table

Site	1.01
Date	Saturday, 9 March 2019
Direction - Southbound	

Time	Total Cars
Saturday Peak	19
24h Flows	149

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile		Hour Start	SB
0000	0	0	0	0	-	-		0000	0
0015	0	0	0	0	-	-		0100	0
0030	0	0	0	0	-	-		0200	0
0045	0	0	0	0	-	-		0300	0
0100	0	0	0	0	-	-		0400	2
0115	0	0	0	0	-	-		0500	0
0130	0	0	0	0	-	-		0600	2
0145	0	0	0	0	-	-		0700	2
0200	0	0	0	0	-	-		0800	11
0215	0	0	0	0	-	-		0900	15
0230	0	0	0	0	-	-		1000	9
0245	0	0	0	0	-	-		1100	19
0300	0	0	0	0	-	-		1200	20
0315	0	0	0	0	-	-		1300	10
0330	0	0	0	0	-	-		1400	10
0345	0	0	0	0	-	-		1500	8
0400	1	1	0	0	14.9	-		1600	9
0415	1	0	1	0	7.4	-		1700	14
0430	0	0	0	0	-	-		1800	5
0445	0	0	0	0	-	-		1900	11
0500	0	0	0	0	-	-		2000	0
0515	0	0	0	0	-	-		2100	1
0530	0	0	0	0	-	-		2200	1
0545	0	0	0	0	-	-		2300	0
0600	0	0	0	0	-	-		Total	149
0615	0	0	0	0	-	-			
0630	1	1	0	0	12.7	-			
0645	1	1	0	0	14.3	-			
0700	0	0	0	0	-	-			
0715	0	0	0	0	-	-			
0730	1	1	0	0	15	-			
0745	1	1	0	0	11.4	-			
0800	2	2	0	0	13.8	-			
0815	2	2	0	0	17.3	-			
0830	1	1	0	0	12.8	-			
0845	6	6	0	0	15.1	-			
0900	5	5	0	0	18.4	-			
0915	2	2	0	0	15.8	-			
0930	4	4	0	0	11.8	-			
0945	4	4	0	0	15.8	-			
1000	3	3	0	0	21	-			
1015	2	2	0	0	18.1	-			
1030	2	2	0	0	16.1	-			
1045	2	2	0	0	15.1	-			
1100	3	2	1	0	11	-			
1115	4	4	0	0	13.1	-			
1130	5	5	0	0	13.1	-			
1145	7	6	1	0	11.9	-			
1200	5	5	0	0	15.8	-			
1215	5	5	0	0	14.7	-			
1230	6	6	0	0	16	-			
1245	4	4	0	0	16	-			
1300	2	2	0	0	15.3	-			
1315	3	3	0	0	13.7	-			
1330	4	4	0	0	16.5	-			
1345	1	1	0	0	17.9	-			
1400	2	2	0	0	14.1	-			
1415	1	1	0	0	15.9	-			
1430	3	2	1	0	12.4	-			
1445	4	4	0	0	15	-			
1500	2	2	0	0	11.5	-			
1515	4	4	0	0	16.6	-			
1530	0	0	0	0	-	-			
1545	2	2	0	0	14.4	-			
1600	1	1	0	0	16.5	-			
1615	1	1	0	0	18.8	-			
1630	5	5	0	0	14.4	-			
1645	2	2	0	0	17	-			
1700	3	3	0	0	20.5	-			
1715	4	4	0	0	13	-			
1730	3	3	0	0	18.2	-			
1745	4	4	0	0	14.2	-			
1800	3	3	0	0	16.5	-			
1815	1	1	0	0	10.3	-			
1830	0	0	0	0	-	-			
1845	1	1	0	0	15.3	-			
1900	4	3	1	0	14.2	-			
1915	3	2	1	0	12.6	-			
1930	2	2	0	0	17.5	-			
1945	2	2	0	0	14	-			
2000	0	0	0	0	-	-			
2015	0	0	0	0	-	-			
2030	0	0	0	0	-	-			
2045	0	0	0	0	-	-			
2100	1	1	0	0	11.4	-			
2115	0	0	0	0	-	-			
2130	0	0	0	0	-	-			
2145	0	0	0	0	-	-			
2200	1	1	0	0	14.7	-			
2215	0	0	0	0	-	-			
2230	0	0	0	0	-	-			
2245	0	0	0	0	-	-			
2300	0	0	0	0	-	-			
2315	0	0	0	0	-	-			
2330	0	0	0	0	-	-			
2345	0	0	0	0	-	-			
07-09	**13**	**13**	**0**	**0**	**14.8**	**18**			
09-16	**91**	**88**	**3**	**0**	**14.9**	**19.3**			
16-18	**23**	**23**	**0**	**0**	**15.9**	**19.5**			
00-00	**149**	**143**	**6**	**0**	**14.9**	**19.2**			

Ballina Retirement Village Automatic Report

Site Name - #2 Retirement Village
Description - Forest Oak Blvd just north of North Creek Rd

Direction - Northbound

Summary Table
Site 2.01
Date Saturday, 9 March 2019
Direction - Northbound

Time	Total Cars
Saturday Peak	21
24h Flows	219

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	1	1	0	0	24.3	-
0530	0	0	0	0	-	-
0545	1	1	0	0	32.4	-
0600	4	3	1	0	27.8	-
0615	5	5	0	0	27.8	-
0630	4	4	0	0	28.9	-
0645	8	8	0	0	30.4	-
0700	1	0	1	0	23.2	-
0715	1	1	0	0	25.9	-
0730	2	2	0	0	22	-
0745	1	1	0	0	20.1	-
0800	1	1	0	0	26.4	-
0815	2	1	1	0	22.5	-
0830	5	5	0	0	23.9	-
0845	3	3	0	0	26.9	-
0900	5	4	1	0	27.4	-
0915	4	4	0	0	26.5	-
0930	5	5	0	0	25.5	-
0945	10	10	0	0	26.5	-
1000	6	6	0	0	24.2	-
1015	4	4	0	0	28.8	-
1030	2	2	0	0	26.8	-
1045	5	5	0	0	26.1	-
1100	5	5	0	0	23.9	-
1115	7	7	0	0	23.9	-
1130	4	4	0	0	27.3	-
1145	5	5	0	0	22.8	-
1200	7	7	0	0	24.8	-
1215	6	6	0	0	28.2	-
1230	4	4	0	0	29.2	-
1245	6	5	1	0	24.6	-
1300	4	4	0	0	28.2	-
1315	1	1	0	0	21.3	-
1330	7	7	0	0	24.4	-
1345	8	8	0	0	27.6	-
1400	3	3	0	0	28	-
1415	7	7	0	0	26.1	-
1430	8	8	0	0	27.5	-
1445	5	5	0	0	26.7	-
1500	5	5	0	0	28.1	-
1515	4	4	0	0	25.5	-
1530	3	3	0	0	28.9	-
1545	2	2	0	0	21.5	-
1600	4	4	0	0	25.3	-
1615	1	1	0	0	27.3	-
1630	3	3	0	0	25.1	-
1645	4	4	0	0	26.7	-
1700	4	4	0	0	19	-
1715	2	2	0	0	26.2	-
1730	1	1	0	0	27.6	-
1745	1	1	0	0	23.2	-
1800	1	1	0	0	24.4	-
1815	2	2	0	0	27.6	-
1830	0	0	0	0	-	-
1845	1	1	0	0	26.4	-
1900	0	0	0	0	-	-
1915	1	1	0	0	12.4	-
1930	1	1	0	0	31.1	-
1945	2	2	0	0	15.2	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	1	1	0	0	28	-
2100	1	1	0	0	30.1	-
2115	1	1	0	0	28.9	-
2130	5	5	0	0	27.7	-
2145	1	1	0	0	21.1	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	1	1	0	0	28	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**16**	**14**	**2**	**0**	**24.1**	**27.5**
09-16	**142**	**140**	**2**	**0**	**26.2**	**30.6**
16-18	**20**	**20**	**0**	**0**	**24.5**	**27.5**
00-00	**219**	**214**	**5**	**0**	**26.1**	**30.4**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	1	1
0500	2	0	2
0600	21	6	27
0700	5	16	21
0800	11	10	21
0900	24	19	43
1000	17	17	34
1100	21	26	47
1200	23	18	41
1300	20	20	40
1400	23	24	47
1500	14	22	36
1600	12	13	25
1700	8	12	20
1800	4	4	8
1900	4	4	8
2000	1	4	5
2100	8	8	16
2200	1	6	7
2300	0	0	0
Total	219	230	449

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #2 Retirement Village
Description - Forest Oak Blvd just north of North Creek Rd

Direction - Southbound

Summary Table
Site 2.01
Date Saturday, 9 March 2019
Direction - Southbound

Time	Total Cars
Saturday Peak	26
24h Flows	230

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	1	1	0	0	23.5	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	1	1	0	0	22.2	-
0615	2	1	1	0	26	-
0630	2	1	1	0	15.5	-
0645	1	1	0	0	24.2	-
0700	4	4	0	0	20.7	-
0715	6	5	1	0	21.1	-
0730	3	3	0	0	22.8	-
0745	3	3	0	0	20.6	-
0800	1	1	0	0	18.1	-
0815	4	4	0	0	23.7	-
0830	2	0	2	0	16.5	-
0845	3	2	1	0	17.6	-
0900	3	2	1	0	24	-
0915	5	4	0	1	19.4	-
0930	6	6	0	0	22.3	-
0945	5	5	0	0	19.7	-
1000	3	3	0	0	24.5	-
1015	1	1	0	0	16.9	-
1030	6	6	0	0	19	-
1045	7	6	1	0	21.1	-
1100	6	6	0	0	21.7	-
1115	8	6	2	0	22.7	-
1130	7	7	0	0	21.7	-
1145	5	5	0	0	21	-
1200	6	6	0	0	23.4	-
1215	3	3	0	0	20.2	-
1230	3	3	0	0	23.8	-
1245	6	5	1	0	20.8	-
1300	7	6	1	0	23.9	-
1315	4	4	0	0	25.9	-
1330	5	5	0	0	22	-
1345	4	4	0	0	24.4	-
1400	1	1	0	0	24.4	-
1415	14	14	0	0	24.5	29.7
1430	5	5	0	0	24.3	-
1445	4	4	0	0	23.7	-
1500	12	12	0	0	24.7	28.2
1515	3	3	0	0	23.1	-
1530	2	2	0	0	20.1	-
1545	5	5	0	0	20.9	-
1600	5	5	0	0	22.6	-
1615	2	2	0	0	21	-
1630	2	2	0	0	22.9	-
1645	4	4	0	0	21.6	-
1700	5	5	0	0	19.4	-
1715	5	5	0	0	22.9	-
1730	1	0	1	0	18.6	-
1745	1	1	0	0	21.9	-
1800	1	1	0	0	25.4	-
1815	0	0	0	0	-	-
1830	1	1	0	0	22.9	-
1845	2	2	0	0	24.1	-
1900	1	1	0	0	22.2	-
1915	2	2	0	0	15.9	-
1930	0	0	0	0	-	-
1945	1	1	0	0	4.7	-
2000	4	3	1	0	25.3	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	5	5	0	0	24.8	-
2115	2	2	0	0	24.4	-
2130	1	1	0	0	24.5	-
2145	0	0	0	0	-	-
2200	1	1	0	0	26.1	-
2215	2	2	0	0	26.7	-
2230	1	1	0	0	29.2	-
2245	2	2	0	0	22.8	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**26**	**22**	**4**	**0**	**20.7**	**23.4**
09-16	**146**	**139**	**6**	**1**	**22.6**	**26.5**
16-18	**25**	**24**	**1**	**0**	**21.6**	**26.8**
00-00	**230**	**215**	**14**	**1**	**22.3**	**26.3**

Hour Start	SB
0000	0
0100	0
0200	0
0300	0
0400	1
0500	0
0600	6
0700	16
0800	10
0900	19
1000	17
1100	26
1200	18
1300	20
1400	24
1500	22
1600	13
1700	12
1800	4
1900	4
2000	4
2100	8
2200	6
2300	0
Total	230

Ballina Retirement Village Automatic Report

Site Name - #3 Retirement Village
Description - Oasis Blvd just east of Corks Lane

TDC
Traffic Data & Control

Direction - Eastbound

Summary Table

Site 3.01
Date Saturday, 9 March 2019
Direction - Eastbound

Time	Total Cars
Saturday Peak	15
24h Flows	127

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	1	1	0	0	16.1	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	1	1	0	0	16	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	1	1	0	0	15.2	-
0715	2	1	1	0	18.6	-
0730	3	3	0	0	16.4	-
0745	0	0	0	0	-	-
0800	6	5	1	0	17.6	-
0815	2	2	0	0	14.2	-
0830	1	1	0	0	24.1	-
0845	6	6	0	0	15.1	-
0900	3	3	0	0	15.2	-
0915	6	5	1	0	17.6	-
0930	3	2	1	0	14.2	-
0945	1	1	0	0	18.8	-
1000	2	2	0	0	14.1	-
1015	3	3	0	0	13.7	-
1030	4	4	0	0	19.4	-
1045	4	4	0	0	15.9	-
1100	1	1	0	0	13.2	-
1115	2	1	1	0	14.7	-
1130	8	6	2	0	15.4	-
1145	4	3	1	0	19.2	-
1200	2	2	0	0	19.2	-
1215	5	5	0	0	18.1	-
1230	2	2	0	0	12.2	-
1245	3	2	1	0	8.4	-
1300	8	8	0	0	17.3	-
1315	1	0	1	0	20	-
1330	1	1	0	0	20.3	-
1345	4	4	0	0	15.3	-
1400	1	1	0	0	18	-
1415	1	0	1	0	12.4	-
1430	0	0	0	0	-	-
1445	4	4	0	0	14.9	-
1500	0	0	0	0	-	-
1515	2	2	0	0	26.2	-
1530	0	0	0	0	-	-
1545	3	3	0	0	12.7	-
1600	2	2	0	0	19.3	-
1615	2	2	0	0	20.1	-
1630	1	1	0	0	16.2	-
1645	3	3	0	0	15.3	-
1700	2	2	0	0	16.3	-
1715	0	0	0	0	-	-
1730	1	1	0	0	18.4	-
1745	2	2	0	0	17.3	-
1800	2	2	0	0	13.7	-
1815	4	4	0	0	17.5	-
1830	0	0	0	0	-	-
1845	2	2	0	0	14.9	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	1	1	0	0	7.5	-
1945	1	1	0	0	21.6	-
2000	0	0	0	0	-	-
2015	1	1	0	0	20.9	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	2	2	0	0	16.1	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**21**	**19**	**2**	**0**	**16.7**	**22.9**
09-16	**78**	**69**	**9**	**0**	**16.2**	**20.7**
16-18	**13**	**13**	**0**	**0**	**17.4**	**22.2**
00-00	**127**	**116**	**11**	**0**	**16.4**	**20.8**

Hour Start	EB	WB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	1	1	2
0600	1	0	1
0700	6	1	7
0800	15	4	19
0900	13	7	20
1000	13	5	18
1100	15	13	28
1200	12	20	32
1300	14	16	30
1400	6	7	13
1500	5	8	13
1600	8	9	17
1700	5	19	24
1800	8	7	15
1900	2	4	6
2000	1	4	5
2100	2	4	6
2200	0	1	1
2300	0	0	0
Total	127	130	257

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #3 Retirement Village
Description - Oasis Blvd just east of Corks Lane

Direction - Westbound

Summary Table
Site 3.01
Date Saturday, 9 March 2019
Direction - Westbound

Time	Total Cars
Saturday Peak	13
24h Flows	130

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	1	0	1	0	10.8	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	1	1	0	0	18.9	-
0745	0	0	0	0	-	-
0800	0	0	0	0	-	-
0815	2	2	0	0	17	-
0830	2	2	0	0	17.1	-
0845	0	0	0	0	-	-
0900	1	1	0	0	20.3	-
0915	4	4	0	0	15.6	-
0930	1	1	0	0	11.8	-
0945	1	1	0	0	13.1	-
1000	1	1	0	0	15.1	-
1015	1	1	0	0	14.8	-
1030	3	3	0	0	18.3	-
1045	0	0	0	0	-	-
1100	4	4	0	0	15.2	-
1115	4	4	0	0	16.6	-
1130	2	2	0	0	17.4	-
1145	3	2	1	0	17.7	-
1200	3	3	0	0	13	-
1215	7	6	1	0	18.8	-
1230	3	3	0	0	17	-
1245	7	5	2	0	14.2	-
1300	3	2	1	0	15	-
1315	4	4	0	0	11.9	-
1330	5	5	0	0	16.2	-
1345	4	4	0	0	12.1	-
1400	4	4	0	0	18.4	-
1415	1	1	0	0	19.6	-
1430	1	1	0	0	14	-
1445	1	1	0	0	20.5	-
1500	1	1	0	0	11.6	-
1515	5	5	0	0	19	-
1530	0	0	0	0	-	-
1545	2	2	0	0	16.5	-
1600	1	1	0	0	19.5	-
1615	1	1	0	0	14	-
1630	1	1	0	0	16.6	-
1645	6	6	0	0	16.6	-
1700	1	1	0	0	20.7	-
1715	3	3	0	0	16	-
1730	5	5	0	0	16.4	-
1745	10	9	1	0	17	-
1800	3	3	0	0	14.5	-
1815	2	2	0	0	19.8	-
1830	0	0	0	0	-	-
1845	2	2	0	0	19.4	-
1900	2	1	1	0	22.1	-
1915	2	2	0	0	15	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	1	1	0	0	15.2	-
2015	2	2	0	0	17.3	-
2030	1	1	0	0	16.2	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	4	4	0	0	12.6	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	1	1	0	0	14	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**5**	**5**	**0**	**0**	**17.4**	**-**
09-16	**76**	**71**	**5**	**0**	**16**	**20.4**
16-18	**28**	**27**	**1**	**0**	**16.8**	**20.6**
00-00	**130**	**122**	**8**	**0**	**16.3**	**20.3**

Hour Start	WB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	1
0600	0
0700	1
0800	4
0900	7
1000	5
1100	13
1200	20
1300	16
1400	7
1500	8
1600	9
1700	19
1800	7
1900	4
2000	4
2100	4
2200	1
2300	0
Total	130

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #4 Retirement Village
Description - at Gated entry on Oasis Blvd

Direction - Eastbound

Summary Table

Site	4.01
Date	Saturday, 9 March 2019
Direction - Eastbound	

Time	Total Cars
Saturday Peak	0
24h Flows	8

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	0	0	0	0	-	-
0745	0	0	0	0	-	-
0800	0	0	0	0	-	-
0815	0	0	0	0	-	-
0830	0	0	0	0	-	-
0845	0	0	0	0	-	-
0900	0	0	0	0	-	-
0915	0	0	0	0	-	-
0930	1	1	0	0	11.9	-
0945	0	0	0	0	-	-
1000	2	2	0	0	13	-
1015	0	0	0	0	-	-
1030	1	1	0	0	10.4	-
1045	0	0	0	0	-	-
1100	0	0	0	0	-	-
1115	0	0	0	0	-	-
1130	0	0	0	0	-	-
1145	0	0	0	0	-	-
1200	0	0	0	0	-	-
1215	0	0	0	0	-	-
1230	0	0	0	0	-	-
1245	0	0	0	0	-	-
1300	0	0	0	0	-	-
1315	0	0	0	0	-	-
1330	1	0	1	0	6.4	-
1345	0	0	0	0	-	-
1400	0	0	0	0	-	-
1415	0	0	0	0	-	-
1430	0	0	0	0	-	-
1445	0	0	0	0	-	-
1500	0	0	0	0	-	-
1515	0	0	0	0	-	-
1530	0	0	0	0	-	-
1545	0	0	0	0	-	-
1600	0	0	0	0	-	-
1615	0	0	0	0	-	-
1630	2	0	2	0	6.4	-
1645	0	0	0	0	-	-
1700	0	0	0	0	-	-
1715	1	0	1	0	6.8	-
1730	0	0	0	0	-	-
1745	0	0	0	0	-	-
1800	0	0	0	0	-	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**0**	**0**	**0**	**0**	**-**	**-**
09-16	**5**	**4**	**1**	**0**	**10.9**	**-**
16-18	**3**	**0**	**3**	**0**	**6.5**	**-**
00-00	**8**	**4**	**4**	**0**	**9.3**	**-**

Hour Start	EB	WB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	0	0	0
0700	0	0	0
0800	0	3	3
0900	1	4	5
1000	3	2	5
1100	0	1	1
1200	0	0	0
1300	1	3	4
1400	0	2	2
1500	0	2	2
1600	2	2	4
1700	1	0	1
1800	0	0	0
1900	0	0	0
2000	0	0	0
2100	0	0	0
2200	0	1	1
2300	0	0	0
Total	8	20	28

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #4 Retirement Village
Description - at Gated entry on Oasis Blvd

Direction - Westbound

Summary Table
Site 4.01
Date Saturday, 9 March 2019
Direction - Westbound

Time	Total Cars
Saturday Peak	1
24h Flows	20

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile		Hour Start	WB
0000	0	0	0	0	-	-		0000	0
0015	0	0	0	0	-	-		0100	0
0030	0	0	0	0	-	-		0200	0
0045	0	0	0	0	-	-		0300	0
0100	0	0	0	0	-	-		0400	0
0115	0	0	0	0	-	-		0500	0
0130	0	0	0	0	-	-		0600	0
0145	0	0	0	0	-	-		0700	0
0200	0	0	0	0	-	-		0800	3
0215	0	0	0	0	-	-		0900	4
0230	0	0	0	0	-	-		1000	2
0245	0	0	0	0	-	-		1100	1
0300	0	0	0	0	-	-		1200	0
0315	0	0	0	0	-	-		1300	3
0330	0	0	0	0	-	-		1400	2
0345	0	0	0	0	-	-		1500	2
0400	0	0	0	0	-	-		1600	2
0415	0	0	0	0	-	-		1700	0
0430	0	0	0	0	-	-		1800	0
0445	0	0	0	0	-	-		1900	0
0500	0	0	0	0	-	-		2000	0
0515	0	0	0	0	-	-		2100	0
0530	0	0	0	0	-	-		2200	1
0545	0	0	0	0	-	-		2300	0
0600	0	0	0	0	-	-		Total	20
0615	0	0	0	0	-	-			
0630	0	0	0	0	-	-			
0645	0	0	0	0	-	-			
0700	0	0	0	0	-	-			
0715	0	0	0	0	-	-			
0730	0	0	0	0	-	-			
0745	0	0	0	0	-	-			
0800	0	0	0	0	-	-			
0815	0	0	0	0	-	-			
0830	1	1	0	0	9.9	-			
0845	2	2	0	0	10.2	-			
0900	1	1	0	0	11.3	-			
0915	1	1	0	0	10.9	-			
0930	1	1	0	0	7.9	-			
0945	1	1	0	0	11	-			
1000	0	0	0	0	-	-			
1015	2	2	0	0	12	-			
1030	0	0	0	0	-	-			
1045	0	0	0	0	-	-			
1100	0	0	0	0	-	-			
1115	0	0	0	0	-	-			
1130	1	1	0	0	7.6	-			
1145	0	0	0	0	-	-			
1200	0	0	0	0	-	-			
1215	0	0	0	0	-	-			
1230	0	0	0	0	-	-			
1245	0	0	0	0	-	-			
1300	2	2	0	0	11.1	-			
1315	0	0	0	0	-	-			
1330	0	0	0	0	-	-			
1345	1	1	0	0	7.5	-			
1400	1	1	0	0	9	-			
1415	1	1	0	0	10.4	-			
1430	0	0	0	0	-	-			
1445	0	0	0	0	-	-			
1500	1	1	0	0	13.8	-			
1515	0	0	0	0	-	-			
1530	0	0	0	0	-	-			
1545	1	1	0	0	9.5	-			
1600	1	1	0	0	11.4	-			
1615	0	0	0	0	-	-			
1630	0	0	0	0	-	-			
1645	1	1	0	0	9.5	-			
1700	0	0	0	0	-	-			
1715	0	0	0	0	-	-			
1730	0	0	0	0	-	-			
1745	0	0	0	0	-	-			
1800	0	0	0	0	-	-			
1815	0	0	0	0	-	-			
1830	0	0	0	0	-	-			
1845	0	0	0	0	-	-			
1900	0	0	0	0	-	-			
1915	0	0	0	0	-	-			
1930	0	0	0	0	-	-			
1945	0	0	0	0	-	-			
2000	0	0	0	0	-	-			
2015	0	0	0	0	-	-			
2030	0	0	0	0	-	-			
2045	0	0	0	0	-	-			
2100	0	0	0	0	-	-			
2115	0	0	0	0	-	-			
2130	0	0	0	0	-	-			
2145	0	0	0	0	-	-			
2200	0	0	0	0	-	-			
2215	1	1	0	0	15.1	-			
2230	0	0	0	0	-	-			
2245	0	0	0	0	-	-			
2300	0	0	0	0	-	-			
2315	0	0	0	0	-	-			
2330	0	0	0	0	-	-			
2345	0	0	0	0	-	-			
07-09	**3**	**3**	**0**	**0**	**10.1**	-			
09-16	**14**	**14**	**0**	**0**	**10.4**	**12.9**			
16-18	**2**	**2**	**0**	**0**	**10.4**	-			
00-00	**20**	**20**	**0**	**0**	**10.6**	**12.9**			

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #5 Retirement Village
Description - at gated entry on Forest Oak Blvd

Direction - Northbound

Summary Table
Site 5.01
Date Saturday, 9 March 2019
Direction - Northbound

Time	Total Cars
Saturday Peak	10
24h Flows	69

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	1	1	0	0	6.4	-
0730	0	0	0	0	-	-
0745	0	0	0	0	-	-
0800	0	0	0	0	-	-
0815	1	1	0	0	12.4	-
0830	2	2	0	0	9.6	-
0845	1	1	0	0	13.4	-
0900	1	1	0	0	15.6	-
0915	0	0	0	0	-	-
0930	0	0	0	0	-	-
0945	3	3	0	0	10.3	-
1000	3	3	0	0	11.5	-
1015	0	0	0	0	-	-
1030	1	1	0	0	13	-
1045	1	1	0	0	14.8	-
1100	4	4	0	0	12.1	-
1115	2	2	0	0	11.9	-
1130	2	2	0	0	11.9	-
1145	2	2	0	0	14.3	-
1200	6	6	0	0	13.9	-
1215	2	2	0	0	13.2	-
1230	3	3	0	0	15.3	-
1245	2	2	0	0	13.8	-
1300	1	1	0	0	11.9	-
1315	0	0	0	0	-	-
1330	0	0	0	0	-	-
1345	1	1	0	0	10.3	-
1400	1	1	0	0	16.3	-
1415	2	2	0	0	12.6	-
1430	1	1	0	0	11.9	-
1445	1	1	0	0	12.9	-
1500	1	1	0	0	15.2	-
1515	4	4	0	0	15.7	-
1530	3	3	0	0	16.3	-
1545	1	1	0	0	16.8	-
1600	2	2	0	0	11.3	-
1615	1	1	0	0	12.9	-
1630	1	1	0	0	11.5	-
1645	2	2	0	0	15.5	-
1700	4	4	0	0	12.8	-
1715	0	0	0	0	-	-
1730	0	0	0	0	-	-
1745	1	1	0	0	13	-
1800	0	0	0	0	-	-
1815	1	1	0	0	13.5	-
1830	1	1	0	0	13	-
1845	1	1	0	0	12.7	-
1900	0	0	0	0	-	-
1915	1	1	0	0	8.1	-
1930	0	0	0	0	-	-
1945	1	1	0	0	12.4	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**5**	**5**	**0**	**0**	**10.3**	-
09-16	**48**	**48**	**0**	**0**	**13.5**	**16.5**
16-18	**11**	**11**	**0**	**0**	**12.9**	**16.6**
00-00	**69**	**69**	**0**	**0**	**13.1**	**15.8**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	0	4	4
0700	1	8	9
0800	4	7	11
0900	4	8	12
1000	5	8	13
1100	10	9	19
1200	13	7	20
1300	2	1	3
1400	5	9	14
1500	9	6	15
1600	6	3	9
1700	5	3	8
1800	3	4	7
1900	2	2	4
2000	0	0	0
2100	0	0	0
2200	0	0	0
2300	0	0	0
Total	69	79	148

Ballina Retirement Village Automatic Report

TDC
Traffic Data & Control

Site Name - #5 Retirement Village
Description - at gated entry on Forest Oak Blvd

Direction - Southbound

Summary Table

Site	5.01
Date	Saturday, 9 March 2019
Direction - Southbound	

Time		Total Cars
Saturday Peak		9
24h Flows		79

Saturday, 9 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	2	0	2	0	9.7	-
0615	0	0	0	0	-	-
0630	1	1	0	0	6.2	-
0645	1	0	1	0	6.2	-
0700	0	0	0	0	-	-
0715	4	2	2	0	9.1	-
0730	1	0	1	0	8.5	-
0745	3	1	2	0	7.2	-
0800	1	0	1	0	8.6	-
0815	5	2	3	0	8.5	-
0830	1	0	1	0	10.8	-
0845	0	0	0	0	-	-
0900	1	1	0	0	10.1	-
0915	2	1	1	0	7.1	-
0930	2	0	2	0	11.4	-
0945	3	1	2	0	9.3	-
1000	1	0	1	0	6.5	-
1015	0	0	0	0	-	-
1030	4	1	3	0	8.6	-
1045	3	2	1	0	9.9	-
1100	2	0	2	0	8.3	-
1115	4	2	2	0	10.8	-
1130	1	1	0	0	9.6	-
1145	2	1	1	0	9.3	-
1200	4	1	3	0	8.3	-
1215	0	0	0	0	-	-
1230	2	0	2	0	11.4	-
1245	1	0	1	0	6	-
1300	0	0	0	0	-	-
1315	0	0	0	0	-	-
1330	1	0	1	0	11.1	-
1345	0	0	0	0	-	-
1400	1	0	1	0	9.9	-
1415	2	2	0	0	9.1	-
1430	4	1	3	0	9.5	-
1445	2	1	1	0	12.6	-
1500	1	0	1	0	9.4	-
1515	1	1	0	0	2.2	-
1530	2	1	1	0	8.7	-
1545	2	0	2	0	8.2	-
1600	2	0	2	0	11.5	-
1615	0	0	0	0	-	-
1630	0	0	0	0	-	-
1645	1	0	1	0	8.1	-
1700	1	1	0	0	5	-
1715	2	1	1	0	10.4	-
1730	0	0	0	0	-	-
1745	0	0	0	0	-	-
1800	1	0	1	0	11.4	-
1815	0	0	0	0	-	-
1830	1	0	1	0	10.5	-
1845	2	1	1	0	8.9	-
1900	0	0	0	0	-	-
1915	2	2	0	0	11.5	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**15**	**5**	**10**	**0**	**8.6**	**10.7**
09-16	**48**	**17**	**31**	**0**	**9.2**	**11.7**
16-18	**6**	**2**	**4**	**0**	**9.5**	**-**
00-00	**79**	**28**	**51**	**0**	**9.2**	**11.3**

Hour Start	SB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	0
0600	4
0700	8
0800	7
0900	8
1000	8
1100	9
1200	7
1300	1
1400	9
1500	6
1600	3
1700	3
1800	4
1900	2
2000	0
2100	0
2200	0
2300	0
Total	79

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - # 1 Ballina Retirement Village
Description - # 1 main entrance - Magnolia Drive just north of North Creek Rd

Direction - Northbound

Summary Table

Site 1.01
Date Sunday, 10 March 2019
Direction - Northbound

Time	Total Cars
Sunday Peak	14
24h Flows	120

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	1	1	0	0	12.5	-
0630	0	0	0	0	-	-
0645	1	1	0	0	16.1	-
0700	5	4	1	0	14	-
0715	1	1	0	0	9.2	-
0730	2	2	0	0	16.8	-
0745	3	3	0	0	17.9	-
0800	3	3	0	0	14.4	-
0815	5	5	0	0	14.9	-
0830	7	7	0	0	15.5	-
0845	3	3	0	0	12.5	-
0900	2	2	0	0	14.5	-
0915	2	2	0	0	14	-
0930	9	9	0	0	14.9	-
0945	7	7	0	0	14.3	-
1000	0	0	0	0	-	-
1015	6	6	0	0	13.6	-
1030	3	2	1	0	16.2	-
1045	2	2	0	0	13.8	-
1100	4	4	0	0	16.8	-
1115	6	6	0	0	19.1	-
1130	2	2	0	0	15.9	-
1145	2	1	1	0	9	-
1200	3	3	0	0	7.6	-
1215	3	3	0	0	10.4	-
1230	2	2	0	0	10.5	-
1245	1	1	0	0	12.3	-
1300	1	0	1	0	6.4	-
1315	2	2	0	0	15.1	-
1330	3	3	0	0	9.7	-
1345	4	4	0	0	13.9	-
1400	2	2	0	0	11.8	-
1415	2	2	0	0	8.9	-
1430	2	2	0	0	9.2	-
1445	1	1	0	0	11.5	-
1500	0	0	0	0	-	-
1515	3	2	1	0	11.3	-
1530	3	2	1	0	14.3	-
1545	0	0	0	0	-	-
1600	1	1	0	0	11.5	-
1615	3	2	1	0	12.5	-
1630	1	1	0	0	7.3	-
1645	0	0	0	0	-	-
1700	2	2	0	0	7.3	-
1715	2	2	0	0	8.5	-
1730	1	1	0	0	10.6	-
1745	0	0	0	0	-	-
1800	1	1	0	0	9.3	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	1	0	1	0	12.8	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**29**	**28**	**1**	**0**	**14.8**	**18.3**
09-16	**77**	**72**	**5**	**0**	**13.5**	**17.8**
16-18	**10**	**9**	**1**	**0**	**9.8**	-
00-00	**120**	**112**	**8**	**0**	**13.5**	**17.6**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	1	1
0400	0	0	0
0500	0	0	0
0600	2	1	3
0700	11	4	15
0800	18	13	31
0900	20	10	30
1000	11	17	28
1100	14	17	31
1200	9	11	20
1300	10	11	21
1400	7	10	17
1500	6	11	17
1600	5	15	20
1700	5	5	10
1800	1	4	5
1900	0	4	4
2000	1	0	1
2100	0	1	1
2200	0	0	0
2300	0	0	0
Total	120	135	255

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - # 1 Ballina Retirement Village
Description - # 1 main entrance - Magnolia Drive just north of North Creek Rd

Direction - Southbound

Summary Table

Site	1.01
Date	Sunday, 10 March 2019
Direction - Southbound	

Time	Total Cars
Saturday Peak	17
24h Flows	135

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	1	1	0	0	19.4	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	1	1	0	0	11	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	1	1	0	0	16.1	-
0745	3	3	0	0	17.3	-
0800	4	4	0	0	14	-
0815	3	2	1	0	15.6	-
0830	3	3	0	0	9.2	-
0845	3	3	0	0	15.1	-
0900	2	2	0	0	13.9	-
0915	0	0	0	0	-	-
0930	6	6	0	0	16.2	-
0945	2	2	0	0	13.9	-
1000	6	6	0	0	16.8	-
1015	4	4	0	0	14.8	-
1030	2	2	0	0	12	-
1045	5	5	0	0	14.8	-
1100	4	4	0	0	18	-
1115	7	7	0	0	16	-
1130	3	3	0	0	18.7	-
1145	3	3	0	0	11.3	-
1200	5	5	0	0	13.9	-
1215	3	3	0	0	15.3	-
1230	2	2	0	0	13.7	-
1245	1	1	0	0	13.9	-
1300	3	3	0	0	11.3	-
1315	0	0	0	0	-	-
1330	3	3	0	0	16.9	-
1345	5	5	0	0	16.3	-
1400	1	1	0	0	16.7	-
1415	3	3	0	0	19.1	-
1430	3	3	0	0	21.5	-
1445	3	3	0	0	15.8	-
1500	4	4	0	0	13.2	-
1515	0	0	0	0	-	-
1530	4	4	0	0	16.1	-
1545	3	3	0	0	14.3	-
1600	1	1	0	0	21	-
1615	4	4	0	0	16.7	-
1630	2	2	0	0	14	-
1645	8	8	0	0	16.3	-
1700	1	1	0	0	16.8	-
1715	1	1	0	0	12.3	-
1730	2	2	0	0	15.2	-
1745	1	1	0	0	18.5	-
1800	1	1	0	0	15.9	-
1815	3	3	0	0	13.7	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	1	1	0	0	16.2	-
1915	2	2	0	0	16.7	-
1930	0	0	0	0	-	-
1945	1	1	0	0	12.9	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	1	1	0	0	14.4	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**17**	**16**	**1**	**0**	**14.3**	**17.5**
09-16	**87**	**87**	**0**	**0**	**15.5**	**20.4**
16-18	**20**	**20**	**0**	**0**	**16.2**	**18.9**
00-00	**135**	**134**	**1**	**0**	**15.4**	**19.2**

Hour Start	SB
0000	0
0100	0
0200	0
0300	1
0400	0
0500	0
0600	1
0700	4
0800	13
0900	10
1000	17
1100	17
1200	11
1300	11
1400	10
1500	11
1600	15
1700	5
1800	4
1900	4
2000	0
2100	1
2200	0
2300	0
Total	135

Ballina Retirement Village Automatic Report

TDC
Traffic Data & Control

Site Name - #2 Retirement Village
Description - Forest Oak Blvd just north of North Creek Rd

Direction - Northbound

Summary Table

Site	2.01
Date	Sunday, 10 March 2019
Direction - Northbound	

Time	Total Cars
Sunday Peak	16
24h Flows	205

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	2	2	0	0	26.8	-
0600	3	3	0	0	31.6	-
0615	3	3	0	0	24.6	-
0630	7	6	1	0	25.9	-
0645	9	8	1	0	31.1	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	1	1	0	0	22.9	-
0745	2	1	1	0	18.6	-
0800	1	1	0	0	24.5	-
0815	3	3	0	0	24.5	-
0830	0	0	0	0	-	-
0845	4	4	0	0	24.8	-
0900	4	3	1	0	24.4	-
0915	6	6	0	0	28.2	-
0930	7	7	0	0	26.9	-
0945	2	2	0	0	23.1	-
1000	3	3	0	0	25.8	-
1015	3	3	0	0	23.2	-
1030	5	5	0	0	29.4	-
1045	6	5	0	1	22.5	-
1100	4	4	0	0	24.9	-
1115	2	1	1	0	27.5	-
1130	6	6	0	0	24.5	-
1145	4	3	0	1	23.4	-
1200	3	2	1	0	28.9	-
1215	4	4	0	0	25.5	-
1230	3	3	0	0	29.4	-
1245	6	6	0	0	29.3	-
1300	1	1	0	0	29.5	-
1315	6	6	0	0	27	-
1330	8	8	0	0	25.6	-
1345	3	3	0	0	24.7	-
1400	7	7	0	0	24.9	-
1415	6	6	0	0	27.9	-
1430	12	12	0	0	26	31.2
1445	8	8	0	0	26.8	-
1500	5	3	0	2	19.3	-
1515	5	5	0	0	25.9	-
1530	1	1	0	0	23.3	-
1545	6	6	0	0	26.8	-
1600	2	2	0	0	29.3	-
1615	3	3	0	0	27.2	-
1630	2	2	0	0	26.6	-
1645	3	3	0	0	16.9	-
1700	0	0	0	0	-	-
1715	0	0	0	0	-	-
1730	2	2	0	0	26.7	-
1745	3	3	0	0	24.6	-
1800	2	2	0	0	21.8	-
1815	2	1	1	0	22.5	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	2	2	0	0	19.5	-
1915	2	1	1	0	25.7	-
1930	1	1	0	0	25.5	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	1	1	0	0	23.8	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	2	2	0	0	24.1	-
2115	1	1	0	0	30.3	-
2130	2	2	0	0	25.1	-
2145	3	3	0	0	26.5	-
2200	0	0	0	0	-	-
2215	1	1	0	0	25.4	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**11**	**10**	**1**	**0**	**23.4**	**25.9**
09-16	**136**	**129**	**3**	**4**	**25.9**	**29.8**
16-18	**15**	**15**	**0**	**0**	**24.8**	**29.4**
00-00	**205**	**193**	**8**	**4**	**25.9**	**30.1**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	1	1
0400	0	0	0
0500	2	1	3
0600	22	2	24
0700	3	15	18
0800	8	10	18
0900	19	16	35
1000	17	16	33
1100	16	20	36
1200	16	13	29
1300	18	18	36
1400	33	22	55
1500	17	20	37
1600	10	16	26
1700	5	15	20
1800	4	7	11
1900	5	4	9
2000	1	4	5
2100	8	8	16
2200	1	5	6
2300	0	0	0
Total	205	213	418

Ballina Retirement Village Automatic Report

Site Name - #2 Retirement Village
Description - Forest Oak Blvd just north of North Creek Rd

Direction - Southbound

Summary Table

Site	2.01
Date	Sunday, 10 March 2019
Direction - Southbound	

Time	Total Cars
Sunday Peak	20
24h Flows	213

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	1	1	0	0	23.8	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	1	1	0	0	22.4	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	1	0	1	0	20.9	-
0645	1	1	0	0	22.7	-
0700	5	5	0	0	22.4	-
0715	3	3	0	0	23	-
0730	5	5	0	0	22.1	-
0745	2	1	1	0	20.5	-
0800	1	1	0	0	16.4	-
0815	5	4	1	0	20.1	-
0830	2	2	0	0	21.4	-
0845	2	2	0	0	21.2	-
0900	1	1	0	0	15.8	-
0915	9	9	0	0	21.7	-
0930	4	4	0	0	19.5	-
0945	2	2	0	0	22.6	-
1000	3	3	0	0	24.4	-
1015	5	5	0	0	16.4	-
1030	1	1	0	0	23.8	-
1045	7	5	2	0	23.5	-
1100	2	1	1	0	25.1	-
1115	4	3	1	0	24.3	-
1130	7	7	0	0	20.8	-
1145	7	7	0	0	21	-
1200	7	7	0	0	20.6	-
1215	0	0	0	0	-	-
1230	4	4	0	0	20.7	-
1245	2	2	0	0	19.8	-
1300	8	7	1	0	24.1	-
1315	3	3	0	0	22.8	-
1330	3	3	0	0	21.6	-
1345	4	4	0	0	23.5	-
1400	7	6	1	0	21.3	-
1415	7	7	0	0	24.1	-
1430	2	2	0	0	22.4	-
1445	6	6	0	0	26.1	-
1500	8	8	0	0	23.4	-
1515	6	6	0	0	23.6	-
1530	3	3	0	0	19.9	-
1545	3	3	0	0	24.1	-
1600	4	3	0	1	18	-
1615	5	5	0	0	23.5	-
1630	4	4	0	0	21	-
1645	3	3	0	0	20.7	-
1700	8	7	1	0	20.3	-
1715	5	5	0	0	21.5	-
1730	2	2	0	0	22.6	-
1745	0	0	0	0	-	-
1800	3	3	0	0	20.1	-
1815	1	1	0	0	22.4	-
1830	2	2	0	0	21.6	-
1845	1	1	0	0	18.2	-
1900	1	0	1	0	17.9	-
1915	0	0	0	0	-	-
1930	2	1	1	0	23.6	-
1945	1	1	0	0	26	-
2000	3	3	0	0	26.2	-
2015	1	1	0	0	33.7	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	3	3	0	0	21.2	-
2115	0	0	0	0	-	-
2130	3	3	0	0	24.6	-
2145	2	2	0	0	24.5	-
2200	3	3	0	0	26.1	-
2215	2	1	1	0	25.5	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**25**	**23**	**2**	**0**	**21.4**	**25.4**
09-16	**125**	**119**	**6**	**0**	**22.3**	**26.1**
16-18	**31**	**29**	**1**	**1**	**21**	**23.4**
00-00	**213**	**199**	**13**	**1**	**22.2**	**25.9**

Hour Start	SB
0000	0
0100	0
0200	0
0300	1
0400	0
0500	1
0600	2
0700	15
0800	10
0900	16
1000	16
1100	20
1200	13
1300	18
1400	22
1500	20
1600	16
1700	15
1800	7
1900	4
2000	4
2100	8
2200	5
2300	0
Total	213

Ballina Retirement Village Automatic Report

Site Name - #3 Retirement Village
Description - Oasis Blvd just east of Corks Lane

TDC
Traffic Data & Control

Direction - Eastbound

Summary Table

Site	3.01
Date	Sunday, 10 March 2019
Direction - Eastbound	

Time	Total Cars
Sunday Peak	5
24h Flows	107

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	1	1	0	0	16.5	-
0615	0	0	0	0	-	-
0630	2	2	0	0	16	-
0645	1	1	0	0	15.6	-
0700	1	1	0	0	14.7	-
0715	2	2	0	0	15.6	-
0730	1	1	0	0	8.4	-
0745	3	3	0	0	17.5	-
0800	3	3	0	0	13.1	-
0815	4	4	0	0	14.1	-
0830	7	7	0	0	16.1	-
0845	0	0	0	0	-	-
0900	5	4	1	0	10.4	-
0915	7	7	0	0	16.2	-
0930	1	1	0	0	21.9	-
0945	5	5	0	0	12.7	-
1000	7	6	1	0	13.2	-
1015	1	1	0	0	16	-
1030	4	4	0	0	12.1	-
1045	3	2	1	0	16.3	-
1100	1	1	0	0	18.5	-
1115	1	1	0	0	16.7	-
1130	2	2	0	0	18.9	-
1145	1	1	0	0	11.7	-
1200	1	1	0	0	15.8	-
1215	4	3	1	0	17.3	-
1230	2	2	0	0	21.1	-
1245	2	2	0	0	21.9	-
1300	3	3	0	0	16.8	-
1315	2	2	0	0	17	-
1330	1	0	1	0	10.4	-
1345	2	2	0	0	15	-
1400	1	1	0	0	18	-
1415	3	3	0	0	14.2	-
1430	0	0	0	0	-	-
1445	1	1	0	0	16.1	-
1500	0	0	0	0	-	-
1515	0	0	0	0	-	-
1530	2	2	0	0	14.4	-
1545	3	3	0	0	16.7	-
1600	0	0	0	0	-	-
1615	0	0	0	0	-	-
1630	4	3	1	0	15.1	-
1645	0	0	0	0	-	-
1700	1	1	0	0	13	-
1715	2	2	0	0	12.8	-
1730	3	3	0	0	15.2	-
1745	3	3	0	0	17.1	-
1800	0	0	0	0	-	-
1815	2	2	0	0	15.1	-
1830	1	1	0	0	16.4	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	1	1	0	0	16.5	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**21**	**21**	**0**	**0**	**15**	**18.3**
09-16	**65**	**60**	**5**	**0**	**15.3**	**19.2**
16-18	**13**	**12**	**1**	**0**	**15.1**	**18.2**
00-00	**107**	**101**	**6**	**0**	**15.2**	**18.5**

Hour Start	EB	WB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	0	0
0600	4	0	4
0700	7	2	9
0800	14	4	18
0900	18	7	25
1000	15	13	28
1100	5	18	23
1200	9	9	18
1300	8	15	23
1400	5	8	13
1500	5	6	11
1600	4	8	12
1700	9	7	16
1800	3	3	6
1900	0	6	6
2000	0	0	0
2100	1	0	1
2200	0	0	0
2300	0	0	0
Total	107	106	213

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #3 Retirement Village
Description - Oasis Blvd just east of Corks Lane

Direction - Westbound

Summary Table
Site 3.01
Date Sunday, 10 March 2019
Direction - Westbound

Time	Total Cars
Sunday Peak	18
24h Flows	106

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	1	1	0	0	19.6	-
0730	1	1	0	0	15.2	-
0745	0	0	0	0	-	-
0800	2	2	0	0	9.6	-
0815	0	0	0	0	-	-
0830	1	1	0	0	14.6	-
0845	1	1	0	0	14.5	-
0900	3	3	0	0	15.4	-
0915	2	2	0	0	13.1	-
0930	0	0	0	0	-	-
0945	2	2	0	0	16.1	-
1000	1	1	0	0	16.7	-
1015	5	5	0	0	14.8	-
1030	3	3	0	0	17.6	-
1045	4	3	1	0	14.8	-
1100	5	5	0	0	15	-
1115	6	5	0	1	13.9	-
1130	3	3	0	0	15	-
1145	4	4	0	0	16.5	-
1200	5	5	0	0	15.3	-
1215	1	1	0	0	10.6	-
1230	2	2	0	0	14.4	-
1245	1	1	0	0	15.8	-
1300	6	6	0	0	17.4	-
1315	4	4	0	0	18.4	-
1330	2	2	0	0	16.5	-
1345	3	3	0	0	16	-
1400	2	2	0	0	17.7	-
1415	3	3	0	0	18.8	-
1430	2	2	0	0	13.6	-
1445	1	1	0	0	14.4	-
1500	0	0	0	0	-	-
1515	2	1	1	0	12.3	-
1530	3	3	0	0	16.9	-
1545	1	0	1	0	13.7	-
1600	3	3	0	0	15.9	-
1615	2	2	0	0	16.8	-
1630	3	3	0	0	13.4	-
1645	0	0	0	0	-	-
1700	2	2	0	0	16.2	-
1715	1	1	0	0	13	-
1730	3	2	1	0	11.9	-
1745	1	1	0	0	14.4	-
1800	0	0	0	0	-	-
1815	2	1	1	0	14.5	-
1830	0	0	0	0	-	-
1845	1	1	0	0	21.9	-
1900	1	1	0	0	12.9	-
1915	1	1	0	0	11.9	-
1930	3	3	0	0	10.8	-
1945	1	1	0	0	10.2	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**6**	**6**	**0**	**0**	**13.9**	-
09-16	**76**	**72**	**3**	**1**	**15.7**	**18.8**
16-18	**15**	**14**	**1**	**0**	**14.5**	**18.4**
00-00	**106**	**100**	**5**	**1**	**15.2**	**18.7**

Hour Start	WB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	0
0600	0
0700	2
0800	4
0900	7
1000	13
1100	18
1200	9
1300	15
1400	8
1500	6
1600	8
1700	7
1800	3
1900	6
2000	0
2100	0
2200	0
2300	0
Total	106

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #4 Retirement Village
Description - at Gated entry on Oasis Blvd

Direction - Eastbound

Summary Table

Site	4.01
Date	Sunday, 10 March 2019
Direction - Eastbound	

Time	Total Cars
Sunday Peak	2
24h Flows	14

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	0	0	0	0	-	-
0745	0	0	0	0	-	-
0800	0	0	0	0	-	-
0815	0	0	0	0	-	-
0830	0	0	0	0	-	-
0845	0	0	0	0	-	-
0900	0	0	0	0	-	-
0915	0	0	0	0	-	-
0930	1	1	0	0	10	-
0945	0	0	0	0	-	-
1000	0	0	0	0	-	-
1015	0	0	0	0	-	-
1030	0	0	0	0	-	-
1045	0	0	0	0	-	-
1100	0	0	0	0	-	-
1115	0	0	0	0	-	-
1130	1	0	1	0	8.8	-
1145	1	0	1	0	4.4	-
1200	0	0	0	0	-	-
1215	0	0	0	0	-	-
1230	0	0	0	0	-	-
1245	0	0	0	0	-	-
1300	0	0	0	0	-	-
1315	0	0	0	0	-	-
1330	3	2	1	0	6.8	-
1345	0	0	0	0	-	-
1400	0	0	0	0	-	-
1415	0	0	0	0	-	-
1430	0	0	0	0	-	-
1445	0	0	0	0	-	-
1500	0	0	0	0	-	-
1515	0	0	0	0	-	-
1530	0	0	0	0	-	-
1545	0	0	0	0	-	-
1600	0	0	0	0	-	-
1615	0	0	0	0	-	-
1630	0	0	0	0	-	-
1645	0	0	0	0	-	-
1700	0	0	0	0	-	-
1715	2	2	0	0	12.4	-
1730	5	4	1	0	8.2	-
1745	1	1	0	0	3.6	-
1800	0	0	0	0	-	-
1815	0	0	0	0	-	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**0**	**0**	**0**	**0**	**-**	**-**
09-16	**6**	**3**	**3**	**0**	**7.3**	**-**
16-18	**8**	**7**	**1**	**0**	**8.6**	**-**
00-00	**14**	**10**	**4**	**0**	**8**	**13.5**

Hour Start	EB	WB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	1	1
0400	0	0	0
0500	0	0	0
0600	0	1	1
0700	0	1	1
0800	0	0	0
0900	1	4	5
1000	0	2	2
1100	2	2	4
1200	0	5	5
1300	3	8	11
1400	0	1	1
1500	0	1	1
1600	0	0	0
1700	8	1	9
1800	0	2	2
1900	0	0	0
2000	0	0	0
2100	0	1	1
2200	0	0	0
2300	0	0	0
Total	14	30	44

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #4 Retirement Village
Description - at Gated entry on Oasis Blvd

Direction - Westbound

Summary Table

Site 4.01
Date Sunday, 10 March 2019
Direction - Westbound

Time	Total Cars
Sunday Peak	2
24h Flows	30

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile		Hour Start	WB
0000	0	0	0	0	-	-		0000	0
0015	0	0	0	0	-	-		0100	0
0030	0	0	0	0	-	-		0200	0
0045	0	0	0	0	-	-		0300	1
0100	0	0	0	0	-	-		0400	0
0115	0	0	0	0	-	-		0500	0
0130	0	0	0	0	-	-		0600	1
0145	0	0	0	0	-	-		0700	1
0200	0	0	0	0	-	-		0800	0
0215	0	0	0	0	-	-		0900	4
0230	0	0	0	0	-	-		1000	2
0245	0	0	0	0	-	-		1100	2
0300	0	0	0	0	-	-		1200	5
0315	0	0	0	0	-	-		1300	8
0330	0	0	0	0	-	-		1400	1
0345	1	1	0	0	15.4	-		1500	1
0400	0	0	0	0	-	-		1600	0
0415	0	0	0	0	-	-		1700	1
0430	0	0	0	0	-	-		1800	2
0445	0	0	0	0	-	-		1900	0
0500	0	0	0	0	-	-		2000	0
0515	0	0	0	0	-	-		2100	1
0530	0	0	0	0	-	-		2200	0
0545	0	0	0	0	-	-		2300	0
0600	0	0	0	0	-	-		Total	30
0615	0	0	0	0	-	-			
0630	1	1	0	0	8.4	-			
0645	0	0	0	0	-	-			
0700	1	1	0	0	8.1	-			
0715	0	0	0	0	-	-			
0730	0	0	0	0	-	-			
0745	0	0	0	0	-	-			
0800	0	0	0	0	-	-			
0815	0	0	0	0	-	-			
0830	0	0	0	0	-	-			
0845	0	0	0	0	-	-			
0900	1	1	0	0	8.5	-			
0915	2	2	0	0	9.5	-			
0930	1	1	0	0	8.3	-			
0945	0	0	0	0	-	-			
1000	1	1	0	0	6.5	-			
1015	1	1	0	0	15.8	-			
1030	0	0	0	0	-	-			
1045	0	0	0	0	-	-			
1100	2	2	0	0	13.7	-			
1115	0	0	0	0	-	-			
1130	0	0	0	0	-	-			
1145	0	0	0	0	-	-			
1200	1	1	0	0	12.9	-			
1215	0	0	0	0	-	-			
1230	2	2	0	0	13.3	-			
1245	2	2	0	0	10.2	-			
1300	0	0	0	0	-	-			
1315	0	0	0	0	-	-			
1330	4	4	0	0	10.8	-			
1345	4	4	0	0	9.4	-			
1400	0	0	0	0	-	-			
1415	0	0	0	0	-	-			
1430	1	1	0	0	16.9	-			
1445	0	0	0	0	-	-			
1500	0	0	0	0	-	-			
1515	1	1	0	0	7.6	-			
1530	0	0	0	0	-	-			
1545	0	0	0	0	-	-			
1600	0	0	0	0	-	-			
1615	0	0	0	0	-	-			
1630	0	0	0	0	-	-			
1645	0	0	0	0	-	-			
1700	0	0	0	0	-	-			
1715	1	1	0	0	12.9	-			
1730	0	0	0	0	-	-			
1745	0	0	0	0	-	-			
1800	0	0	0	0	-	-			
1815	0	0	0	0	-	-			
1830	1	1	0	0	12.6	-			
1845	1	1	0	0	15.7	-			
1900	0	0	0	0	-	-			
1915	0	0	0	0	-	-			
1930	0	0	0	0	-	-			
1945	0	0	0	0	-	-			
2000	0	0	0	0	-	-			
2015	0	0	0	0	-	-			
2030	0	0	0	0	-	-			
2045	0	0	0	0	-	-			
2100	0	0	0	0	-	-			
2115	0	0	0	0	-	-			
2130	1	1	0	0	8	-			
2145	0	0	0	0	-	-			
2200	0	0	0	0	-	-			
2215	0	0	0	0	-	-			
2230	0	0	0	0	-	-			
2245	0	0	0	0	-	-			
2300	0	0	0	0	-	-			
2315	0	0	0	0	-	-			
2330	0	0	0	0	-	-			
2345	0	0	0	0	-	-			
07-09	**1**	**1**	**0**	**0**	**8.1**	-			
09-16	**23**	**23**	**0**	**0**	**10.9**	**13.8**			
16-18	**1**	**1**	**0**	**0**	**12.9**	-			
00-00	**30**	**30**	**0**	**0**	**11.1**	**14.6**			

Ballina Retirement Village Automatic Report

TDC Traffic Data & Control

Site Name - #5 Retirement Village
Description - at gated entry on Forest Oak Blvd

Direction - Northbound

Summary Table
Site 5.01
Date Sunday, 10 March 2019
Direction - Northbound

Time	Total Cars
Sunday Peak	3
24h Flows	51

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	1	1	0	0	11.7	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	0	0	0	0	-	-
0745	1	1	0	0	11.6	-
0800	0	0	0	0	-	-
0815	0	0	0	0	-	-
0830	0	0	0	0	-	-
0845	1	1	0	0	12.5	-
0900	1	1	0	0	20.9	-
0915	1	1	0	0	12.7	-
0930	0	0	0	0	-	-
0945	4	4	0	0	14.9	-
1000	1	1	0	0	8.4	-
1015	0	0	0	0	-	-
1030	2	2	0	0	16	-
1045	0	0	0	0	-	-
1100	1	1	0	0	15.6	-
1115	0	0	0	0	-	-
1130	0	0	0	0	-	-
1145	2	2	0	0	12.9	-
1200	1	1	0	0	14.5	-
1215	2	2	0	0	18.5	-
1230	1	1	0	0	13.3	-
1245	3	3	0	0	14.9	-
1300	2	2	0	0	18.2	-
1315	0	0	0	0	-	-
1330	1	1	0	0	13.8	-
1345	0	0	0	0	-	-
1400	1	1	0	0	5.4	-
1415	2	2	0	0	14.5	-
1430	2	2	0	0	15.1	-
1445	2	2	0	0	14.8	-
1500	0	0	0	0	-	-
1515	2	2	0	0	12.2	-
1530	0	0	0	0	-	-
1545	2	2	0	0	15.2	-
1600	1	1	0	0	19.7	-
1615	0	0	0	0	-	-
1630	2	2	0	0	10.5	-
1645	1	1	0	0	13.5	-
1700	0	0	0	0	-	-
1715	2	2	0	0	9.8	-
1730	1	1	0	0	14.2	-
1745	2	2	0	0	14.7	-
1800	0	0	0	0	-	-
1815	1	1	0	0	13.1	-
1830	0	0	0	0	-	-
1845	0	0	0	0	-	-
1900	1	1	0	0	11.6	-
1915	1	1	0	0	14.5	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	1	1	0	0	13.3	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	1	1	0	0	9.5	-
2130	1	1	0	0	10.3	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**2**	**2**	**0**	**0**	**12**	**-**
09-16	**33**	**33**	**0**	**0**	**14.7**	**17.8**
16-18	**9**	**9**	**0**	**0**	**13**	**-**
00-00	**51**	**51**	**0**	**0**	**13.9**	**16.7**

Hour Start	NB	SB	Total
0000	0	0	0
0100	0	0	0
0200	0	0	0
0300	0	0	0
0400	0	0	0
0500	0	1	1
0600	1	1	2
0700	1	6	7
0800	1	8	9
0900	6	8	14
1000	3	7	10
1100	3	7	10
1200	7	5	12
1300	3	5	8
1400	7	5	12
1500	4	0	4
1600	4	3	7
1700	5	6	11
1800	1	2	3
1900	2	0	2
2000	1	0	1
2100	2	0	2
2200	0	0	0
2300	0	0	0
Total	51	64	115

Ballina Retirement Village Automatic Report

Site Name - #5 Retirement Village
Description - at gated entry on Forest Oak Blvd

Direction - Southbound

Summary Table
Site 5.01
Date Sunday, 10 March 2019
Direction - Southbound

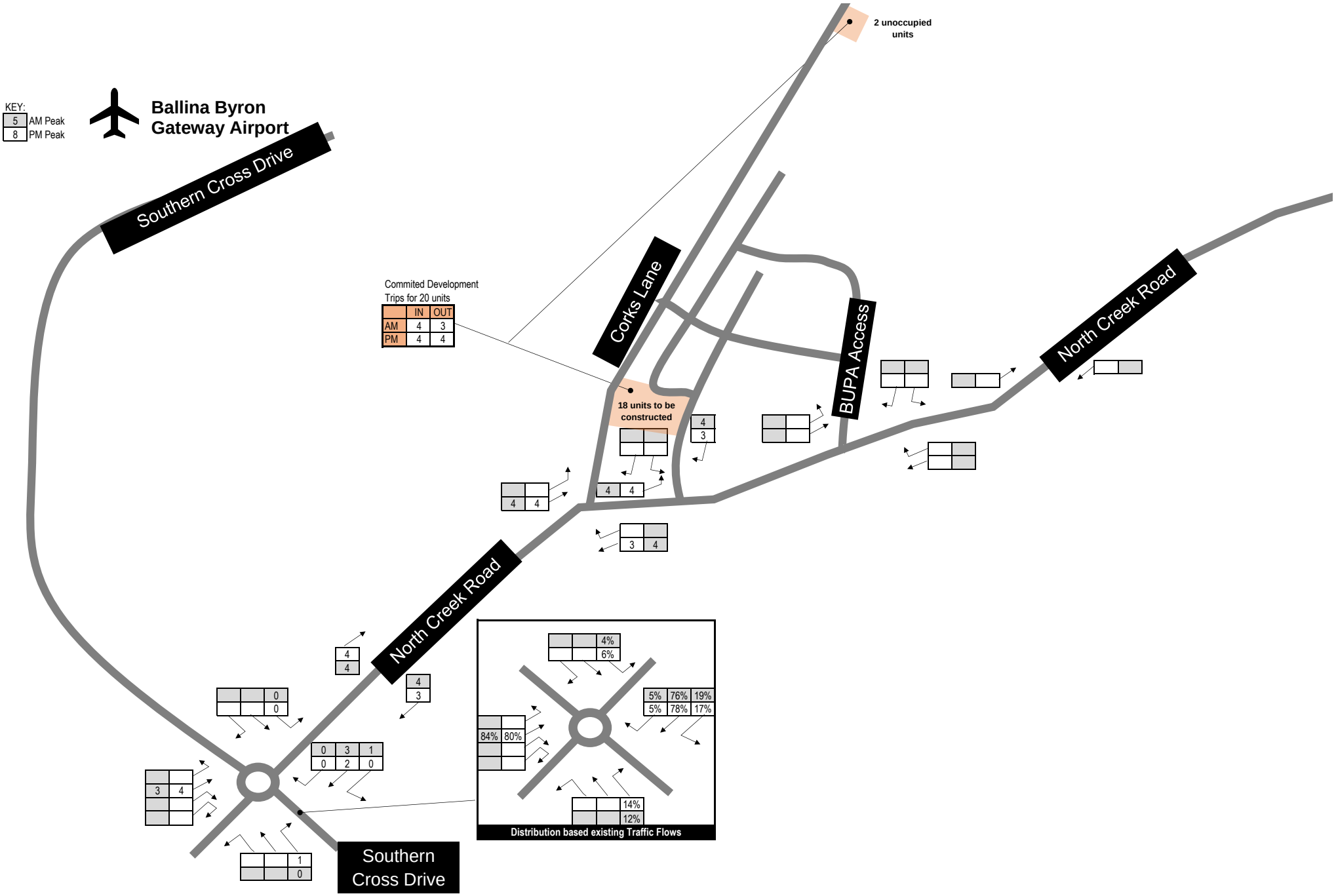
Time	Total Cars
Sunday Peak	7
24h Flows	64

Sunday, 10 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	1	0	1	0	6.3	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	1	0	1	0	8.3	-
0700	2	1	1	0	8.9	-
0715	0	0	0	0	-	-
0730	3	1	2	0	10.3	-
0745	1	0	1	0	8.4	-
0800	1	0	1	0	6.9	-
0815	3	2	1	0	7.9	-
0830	2	1	1	0	9.2	-
0845	2	1	1	0	10.7	-
0900	0	0	0	0	-	-
0915	6	2	4	0	11	-
0930	2	1	1	0	6.2	-
0945	0	0	0	0	-	-
1000	2	0	2	0	8.9	-
1015	3	2	1	0	6.3	-
1030	0	0	0	0	-	-
1045	2	1	1	0	7.7	-
1100	0	0	0	0	-	-
1115	2	2	0	0	10	-
1130	2	0	2	0	10.7	-
1145	3	1	2	0	14.1	-
1200	2	2	0	0	10	-
1215	0	0	0	0	-	-
1230	1	0	1	0	9.3	-
1245	2	1	1	0	11.2	-
1300	1	0	1	0	8.4	-
1315	1	0	1	0	5	-
1330	2	1	1	0	8.8	-
1345	1	0	1	0	11.6	-
1400	2	1	1	0	10.9	-
1415	1	1	0	0	13.3	-
1430	1	0	1	0	11.8	-
1445	1	0	1	0	9.7	-
1500	0	0	0	0	-	-
1515	0	0	0	0	-	-
1530	0	0	0	0	-	-
1545	0	0	0	0	-	-
1600	2	0	2	0	7.1	-
1615	0	0	0	0	-	-
1630	1	0	1	0	9.6	-
1645	0	0	0	0	-	-
1700	1	0	1	0	8.9	-
1715	4	3	1	0	7.8	-
1730	1	0	1	0	6.4	-
1745	0	0	0	0	-	-
1800	0	0	0	0	-	-
1815	1	0	1	0	6	-
1830	1	0	1	0	9.6	-
1845	0	0	0	0	-	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**14**	**6**	**8**	**0**	**9.1**	**12.2**
09-16	**37**	**15**	**22**	**0**	**9.9**	**12.4**
16-18	**9**	**3**	**6**	**0**	**7.8**	**-**
00-00	**64**	**24**	**40**	**0**	**9.3**	**12.1**

Hour Start	SB
0000	0
0100	0
0200	0
0300	0
0400	0
0500	1
0600	1
0700	6
0800	8
0900	8
1000	7
1100	7
1200	5
1300	5
1400	5
1500	0
1600	3
1700	6
1800	2
1900	0
2000	0
2100	0
2200	0
2300	0
Total	64

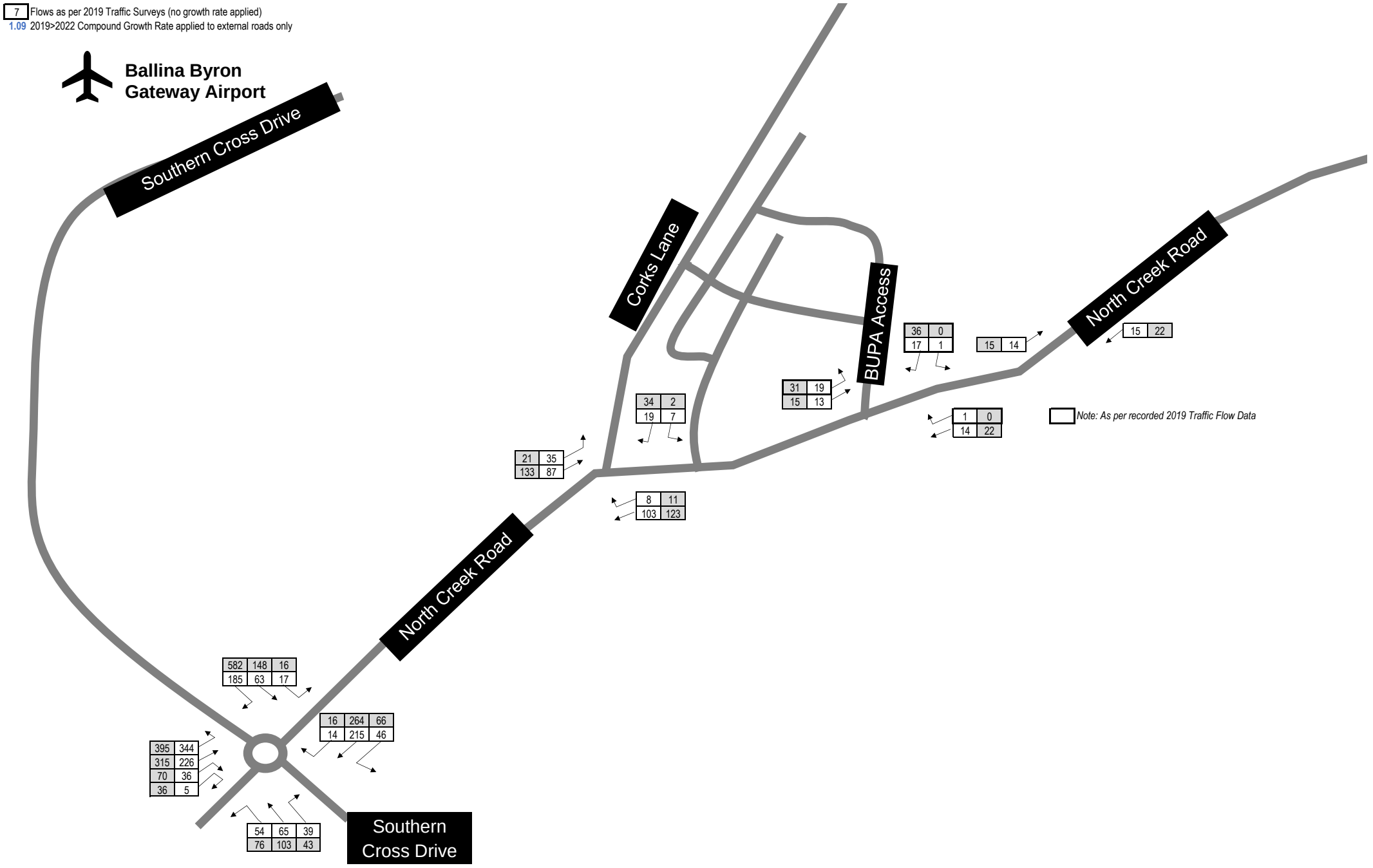
Appendix C – Traffic Flow Diagrams



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 4.2 - Committed Development Traffic Flows

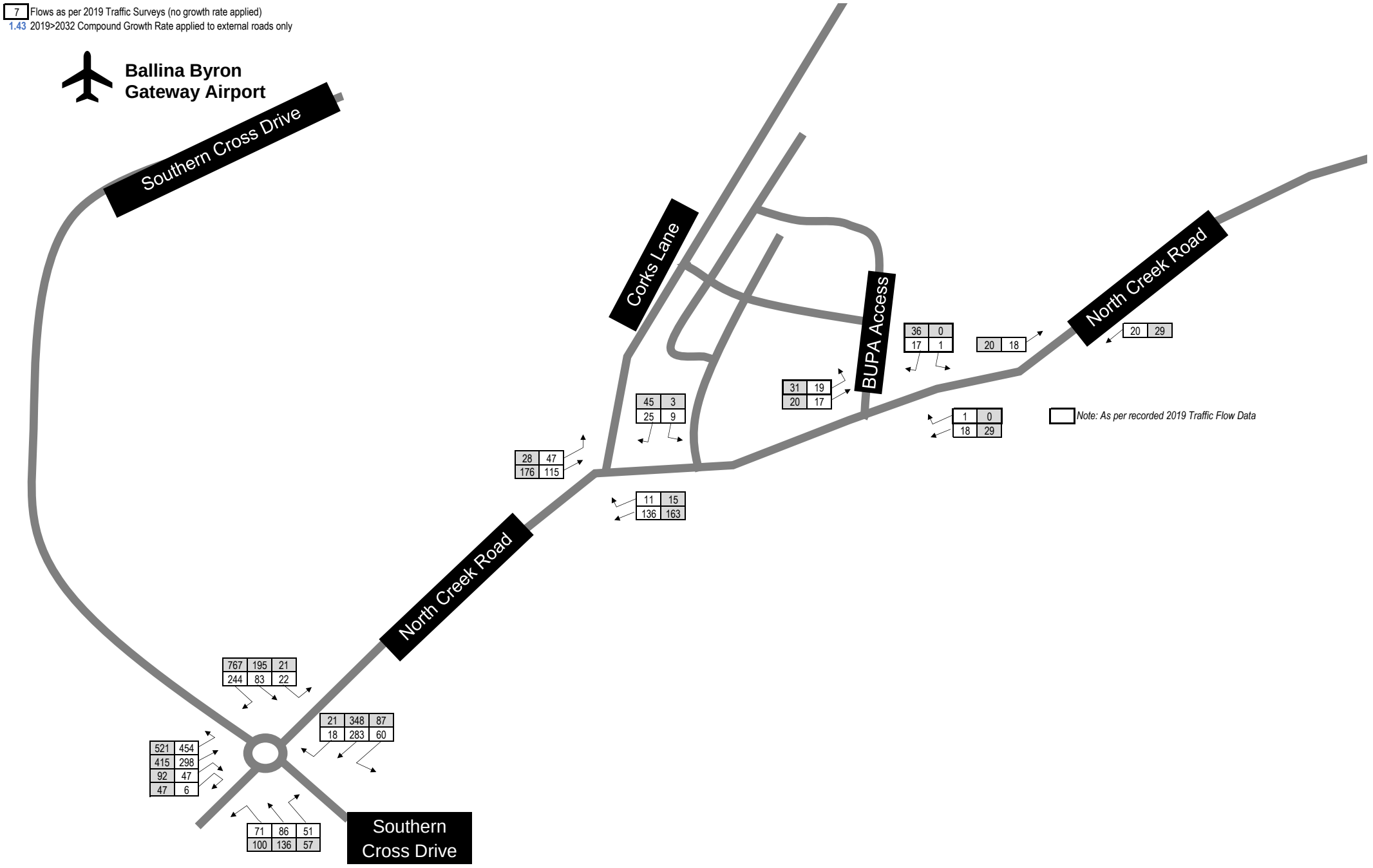
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lakes Resort, Ballina (LMF)

Figure 5.2 - 2022 Base Traffic Flows

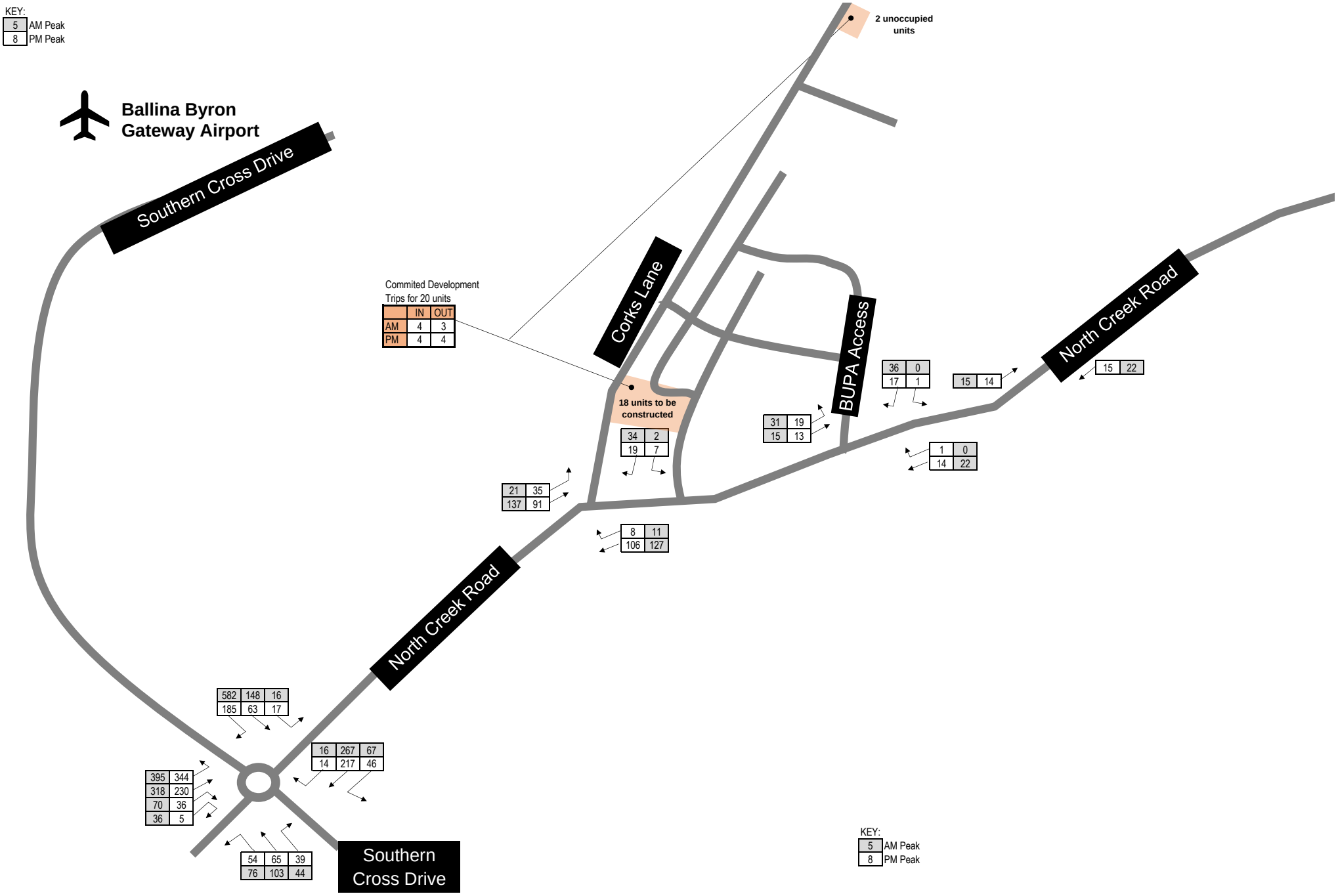
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 5.3 - 2032 Base Traffic Flows

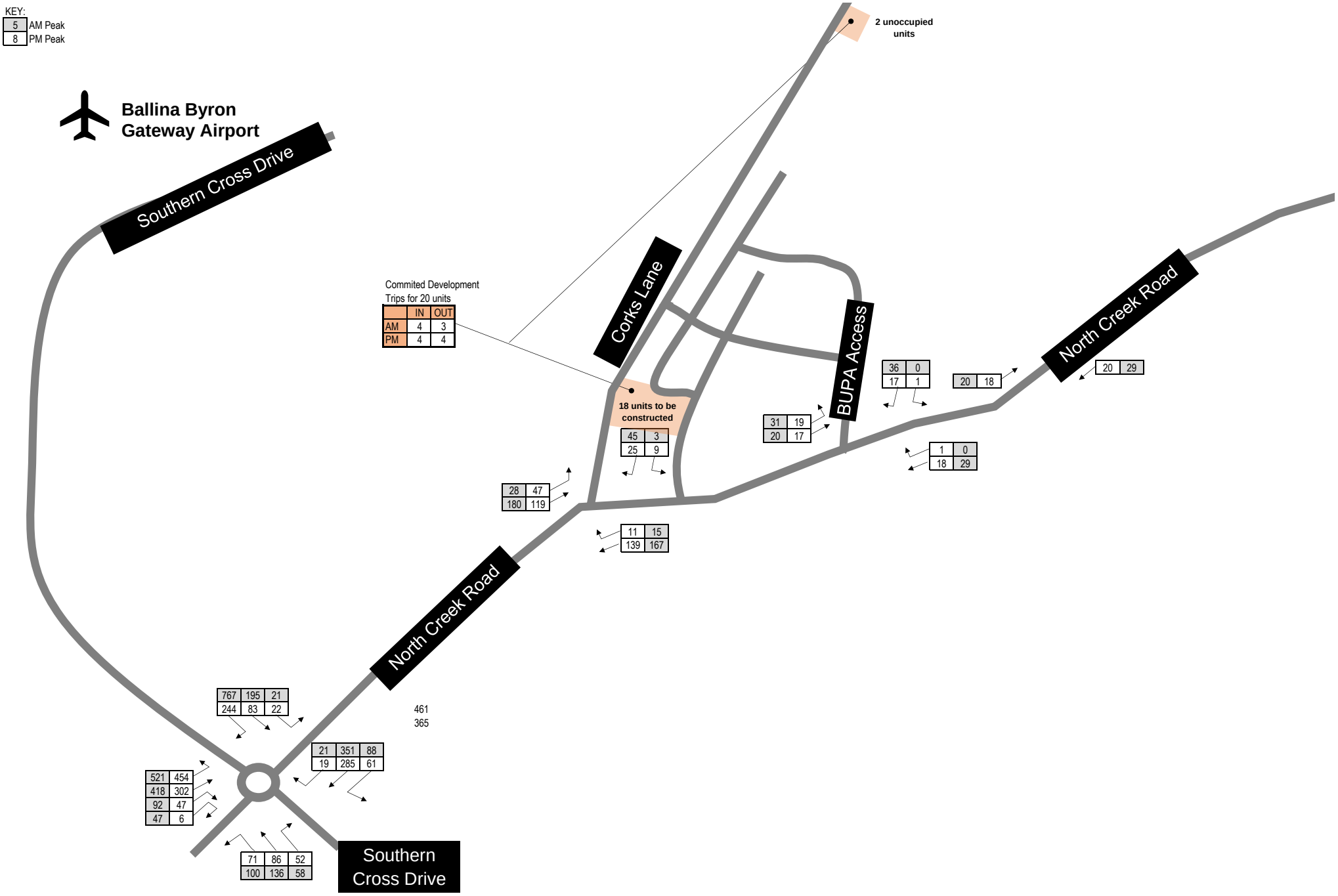
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 5.4 - 2022 'Pre-development' Traffic Flows

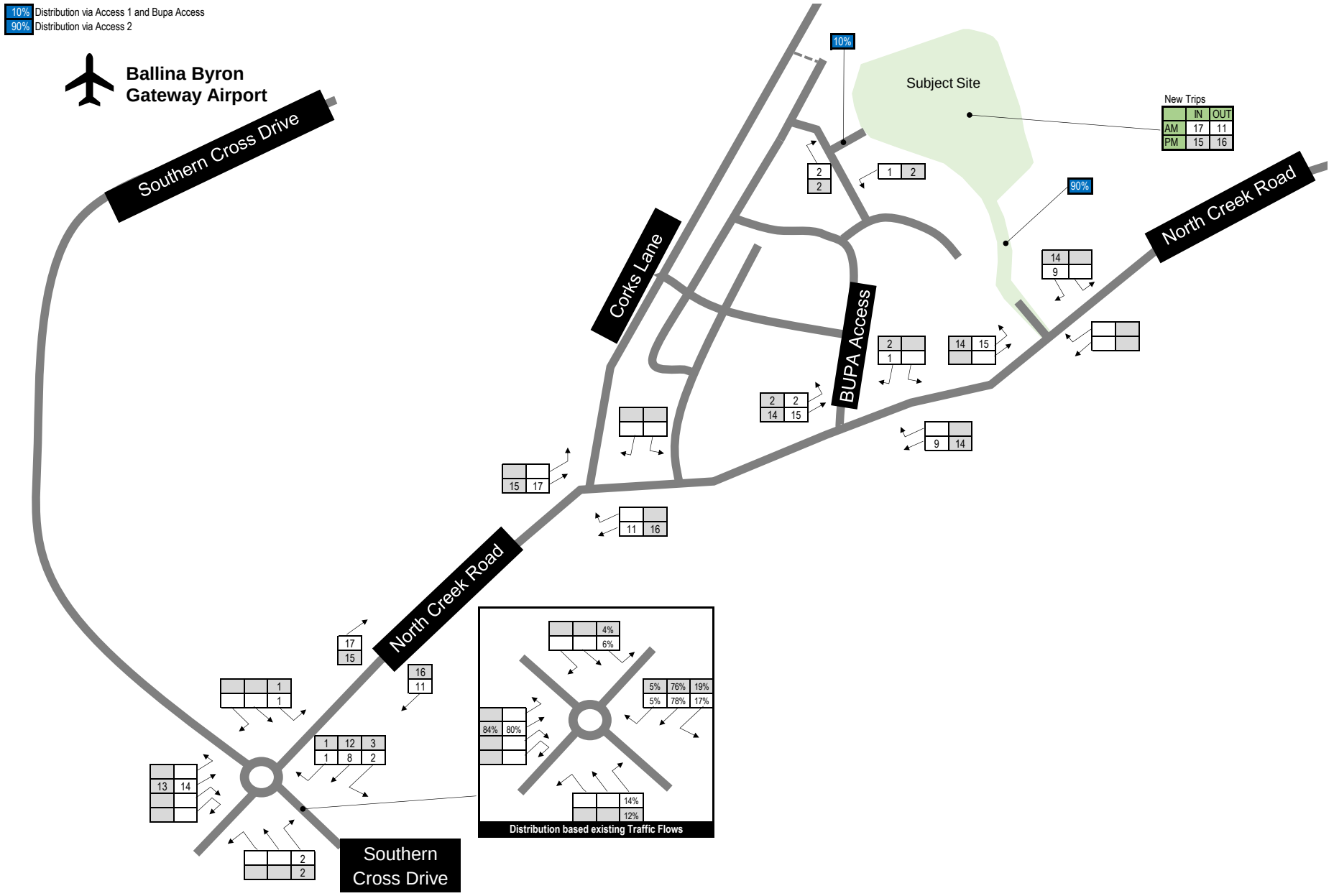
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 5.5 - 2032 'Pre-development' Traffic Flows

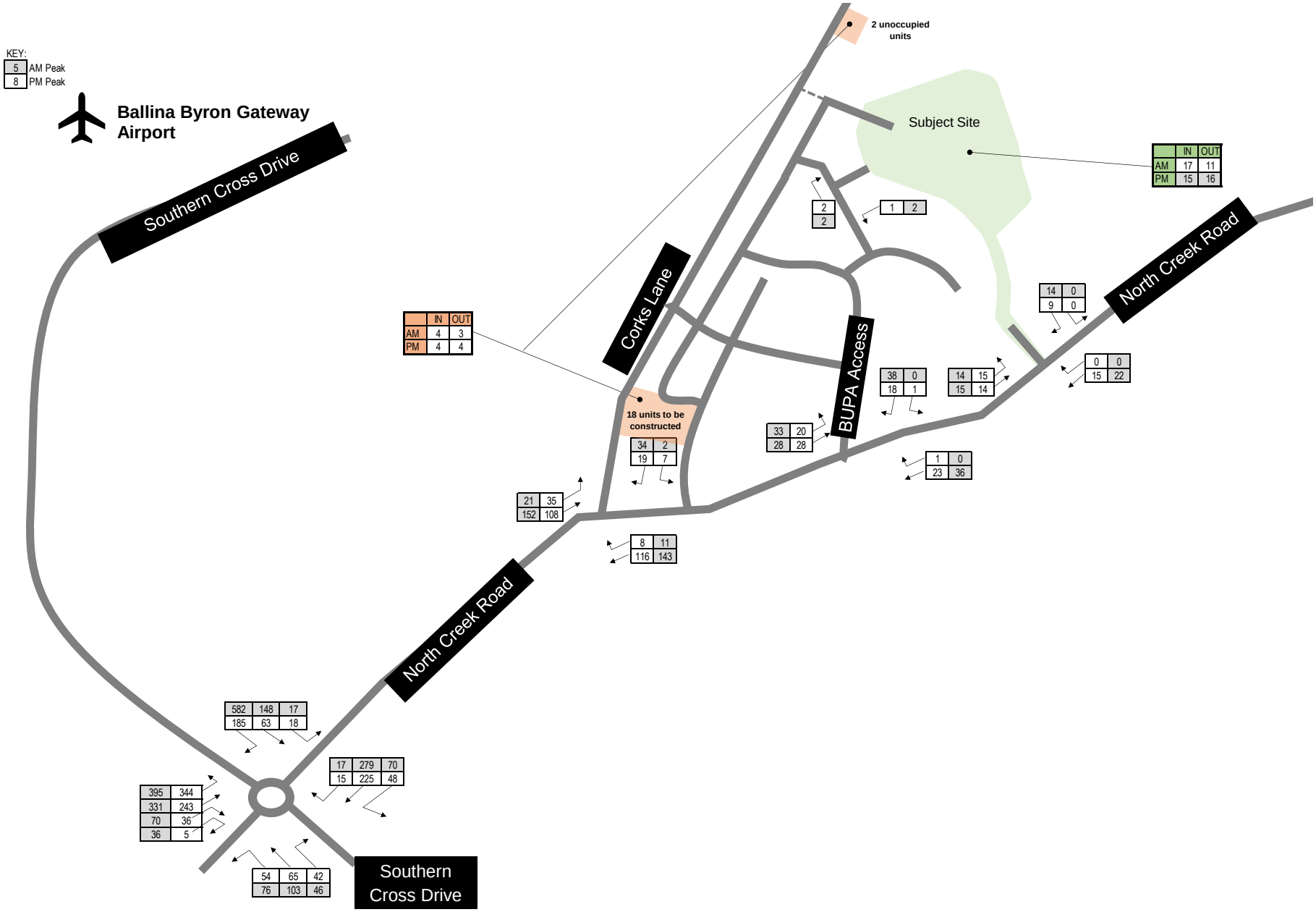
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 5.7 Development Trip Distribution and Assignment

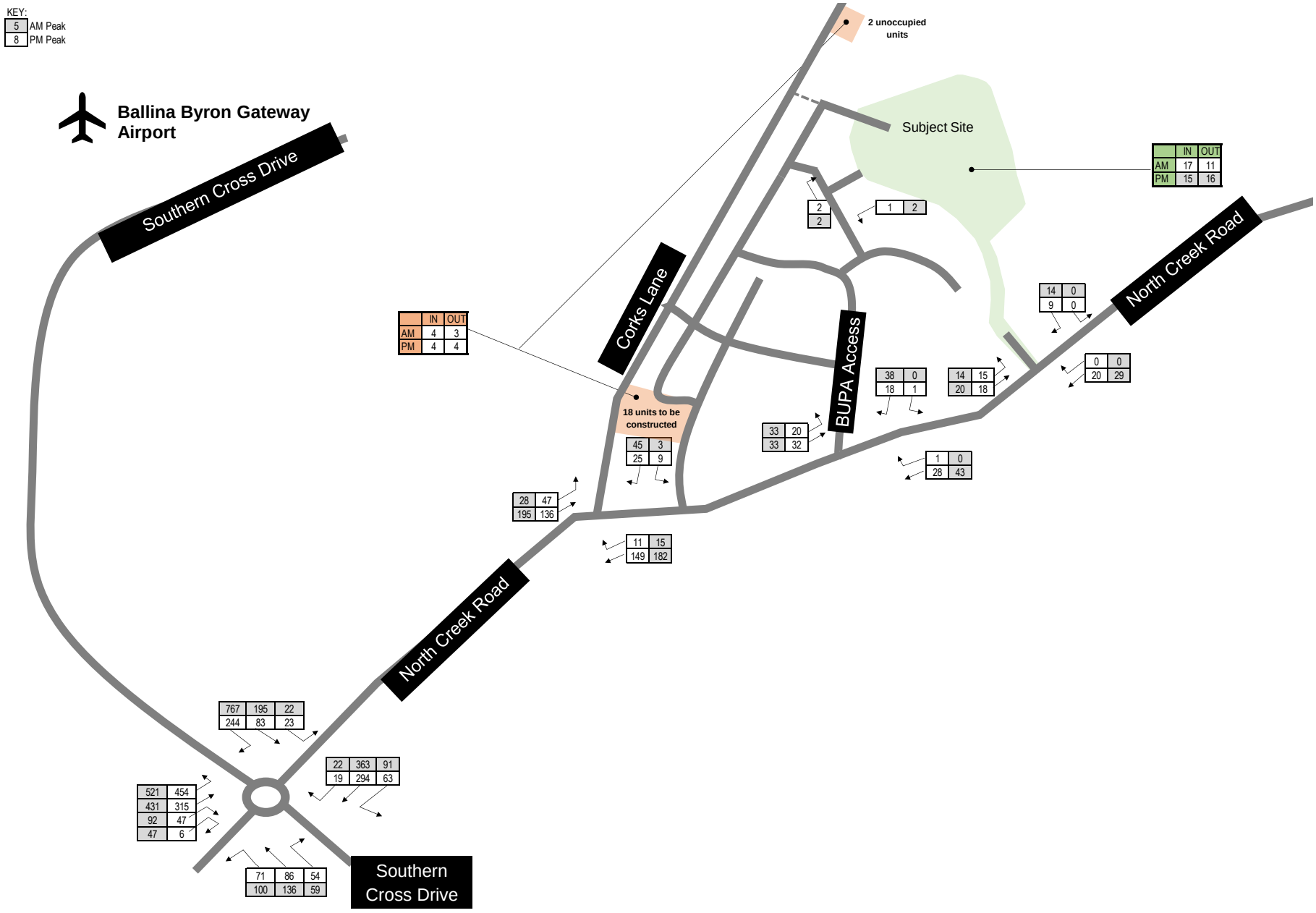
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 5.8 - 2022 'Post-development' Traffic Flows

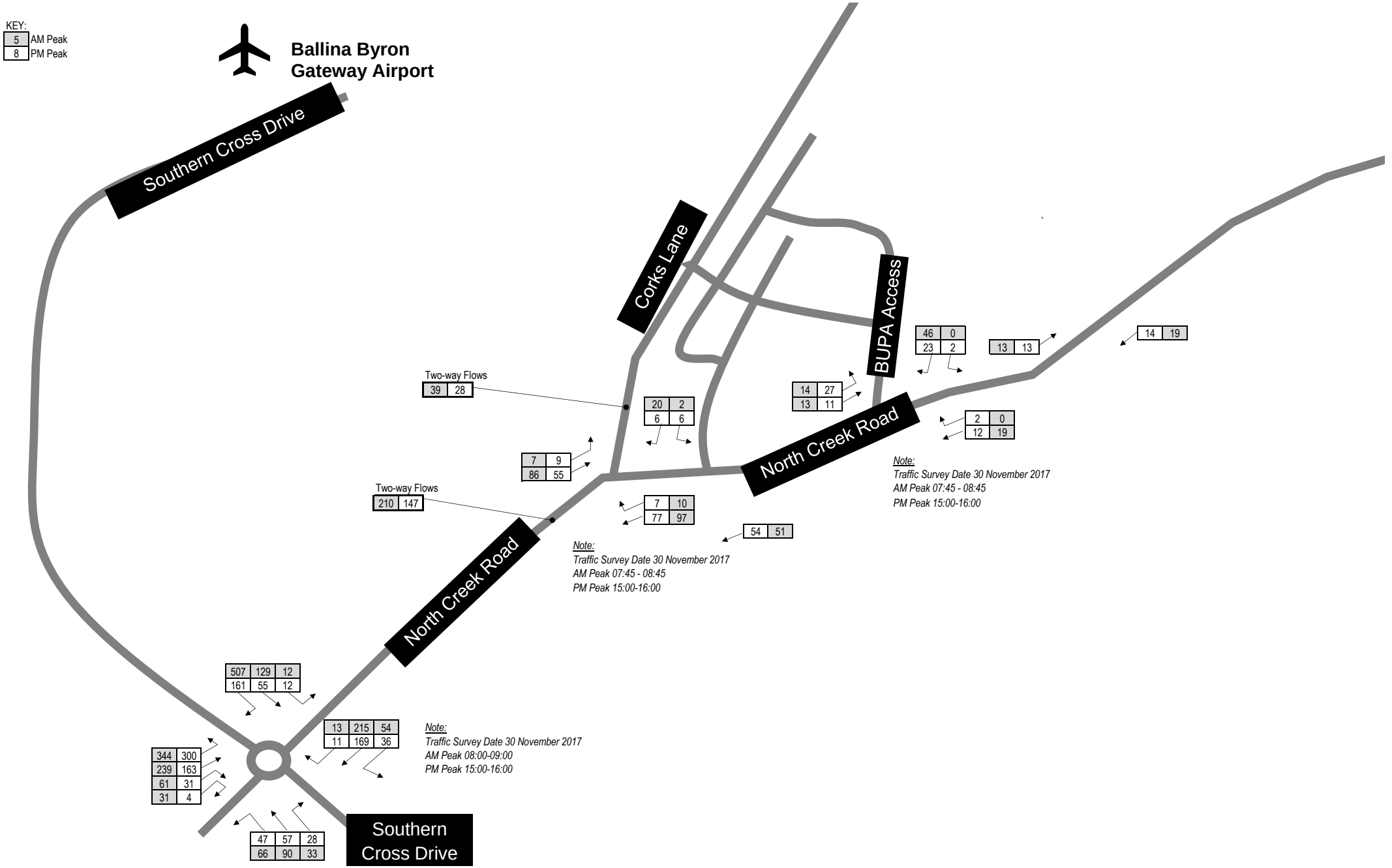
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 5.9 - 2032 'Post-development' Traffic Flows

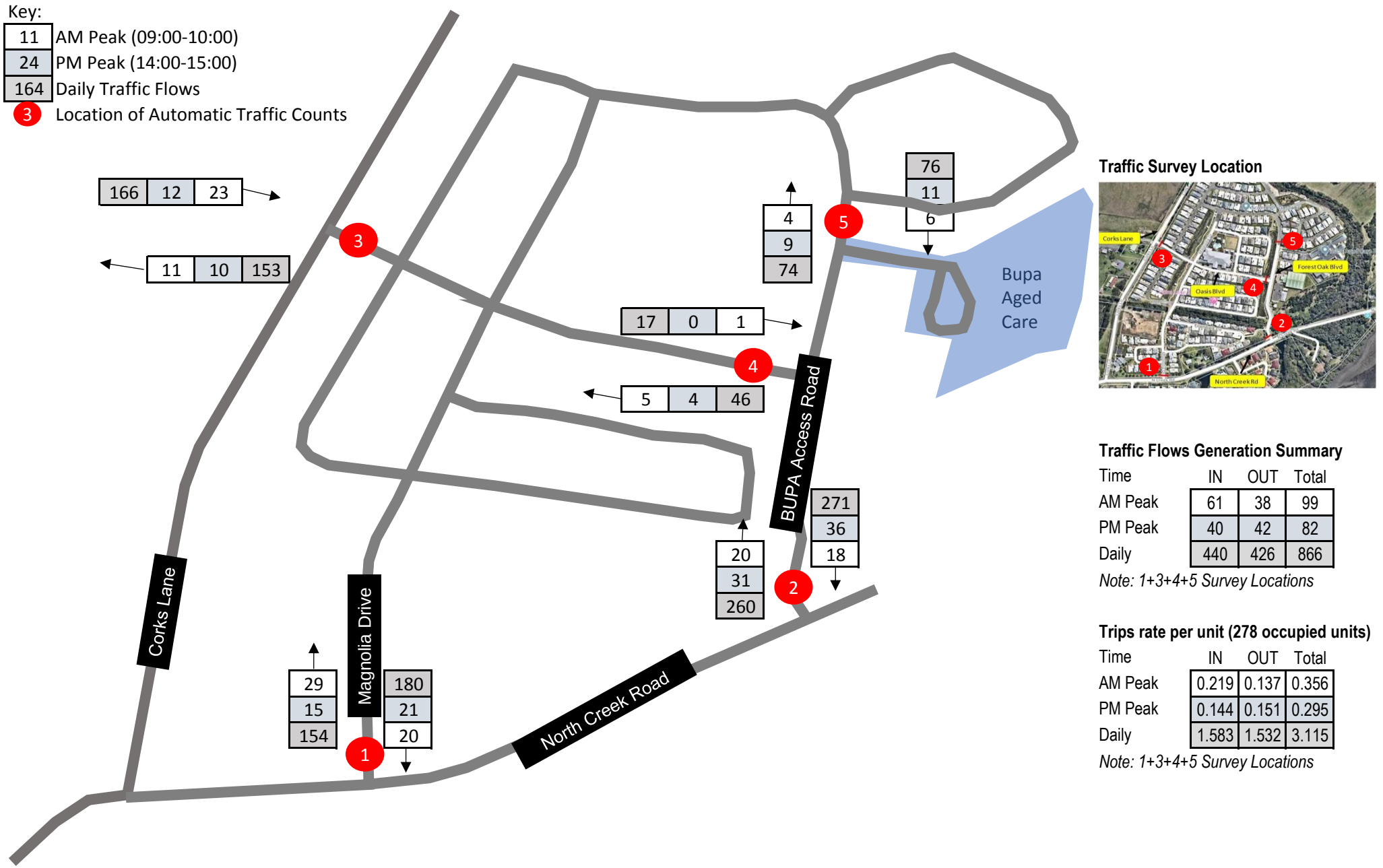
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 2.6 - 2017 Surveyed Traffic Flows

BURCHILLS ENGINEERING SOLUTIONS



Traffic Survey Location

Traffic Flows Generation Summary

Time	IN	OUT	Total
AM Peak	61	38	99
PM Peak	40	42	82
Daily	440	426	866

Note: 1+3+4+5 Survey Locations

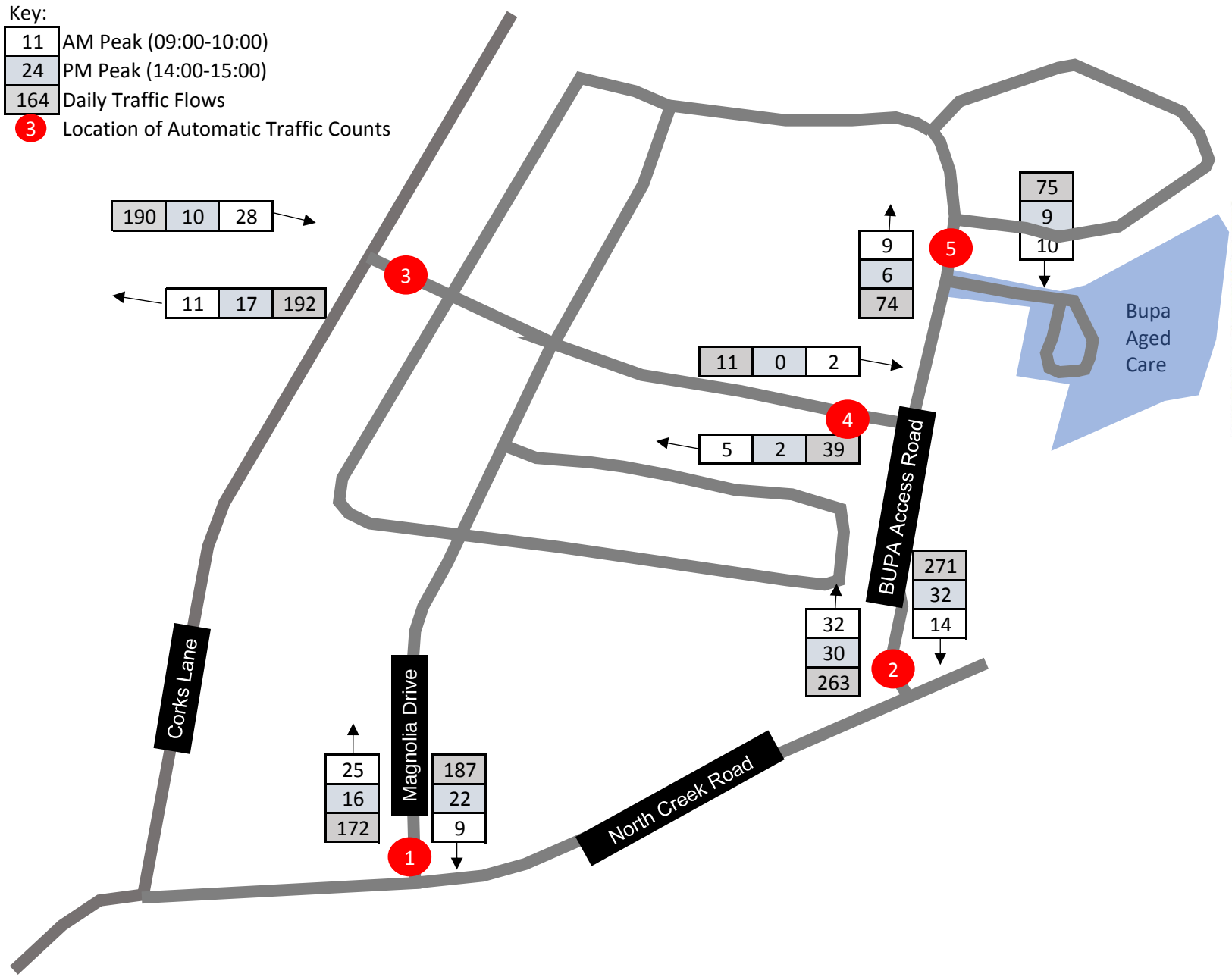
Trips rate per unit (278 occupied units)

Time	IN	OUT	Total
AM Peak	0.219	0.137	0.356
PM Peak	0.144	0.151	0.295
Daily	1.583	1.532	3.115

Note: 1+3+4+5 Survey Locations

Figure 2.8 - Traffic Survey Summary - 7th March 2019 Thursday (Existing Built)

BURCHILLS ENGINEERING SOLUTIONS



Traffic Survey Location

Traffic Flows Generation Summary

Time	IN	OUT	Total
AM Peak	67	32	99
PM Peak	34	48	82
Daily	475	465	940

Note: 1+3+4+5 Survey Locations

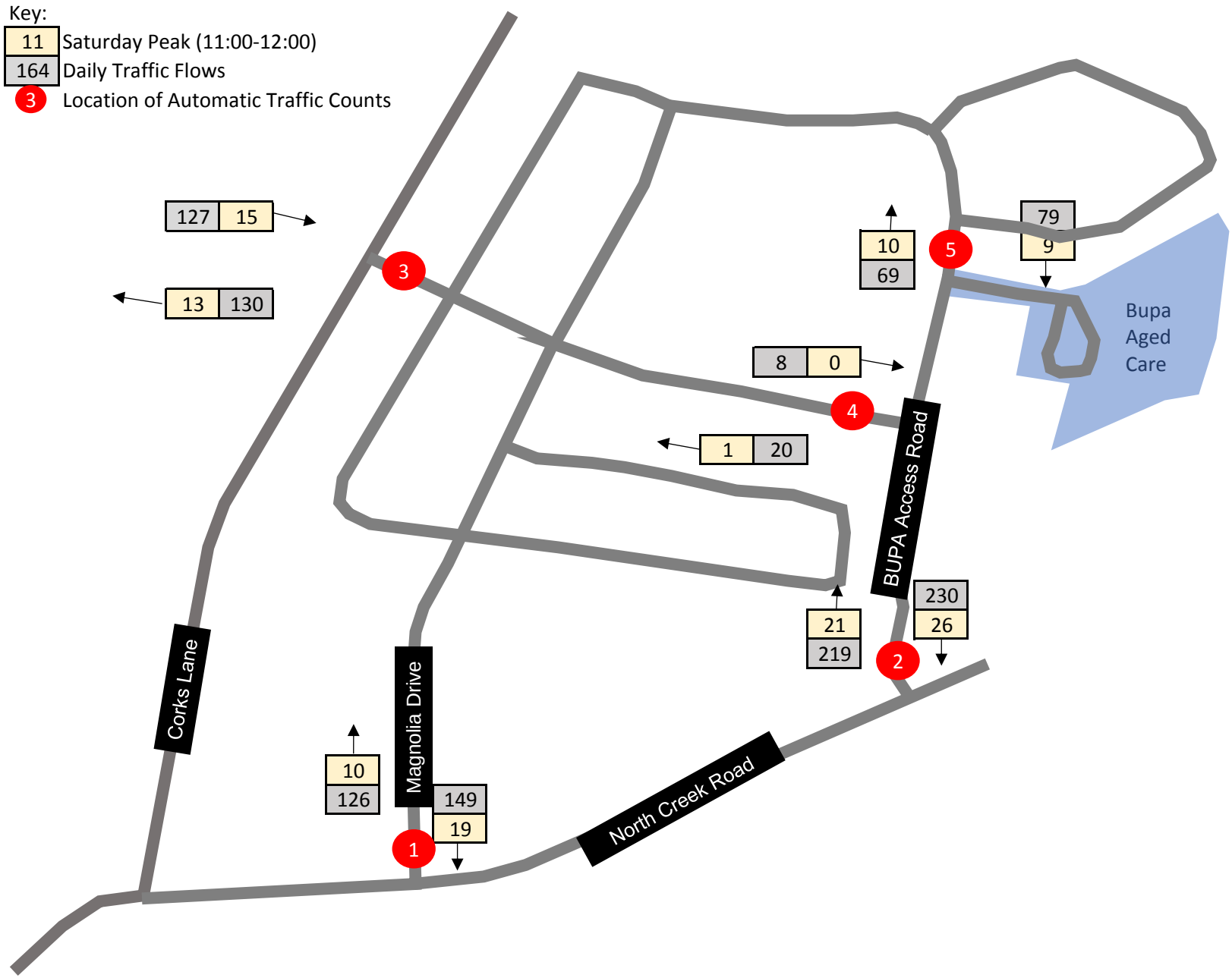
Trips rate per unit (278 occupied units)

Time	IN	OUT	Total
AM Peak	0.241	0.115	0.356
PM Peak	0.122	0.173	0.295
Daily	1.709	1.673	3.381

Note: 1+3+4+5 Survey Locations

Figure 2.9 - Traffic Survey Summary - 8th March 2019 Friday (Existing Built)

BURCHILLS ENGINEERING SOLUTIONS



Traffic Survey Location

Traffic Flows Generation Summary

Time	IN	OUT	Total
Saturday Peak	36	41	77
Daily	342	366	708

Note: 1+3+4+5 Survey Locations

Trips rate per unit (278 occupied units)

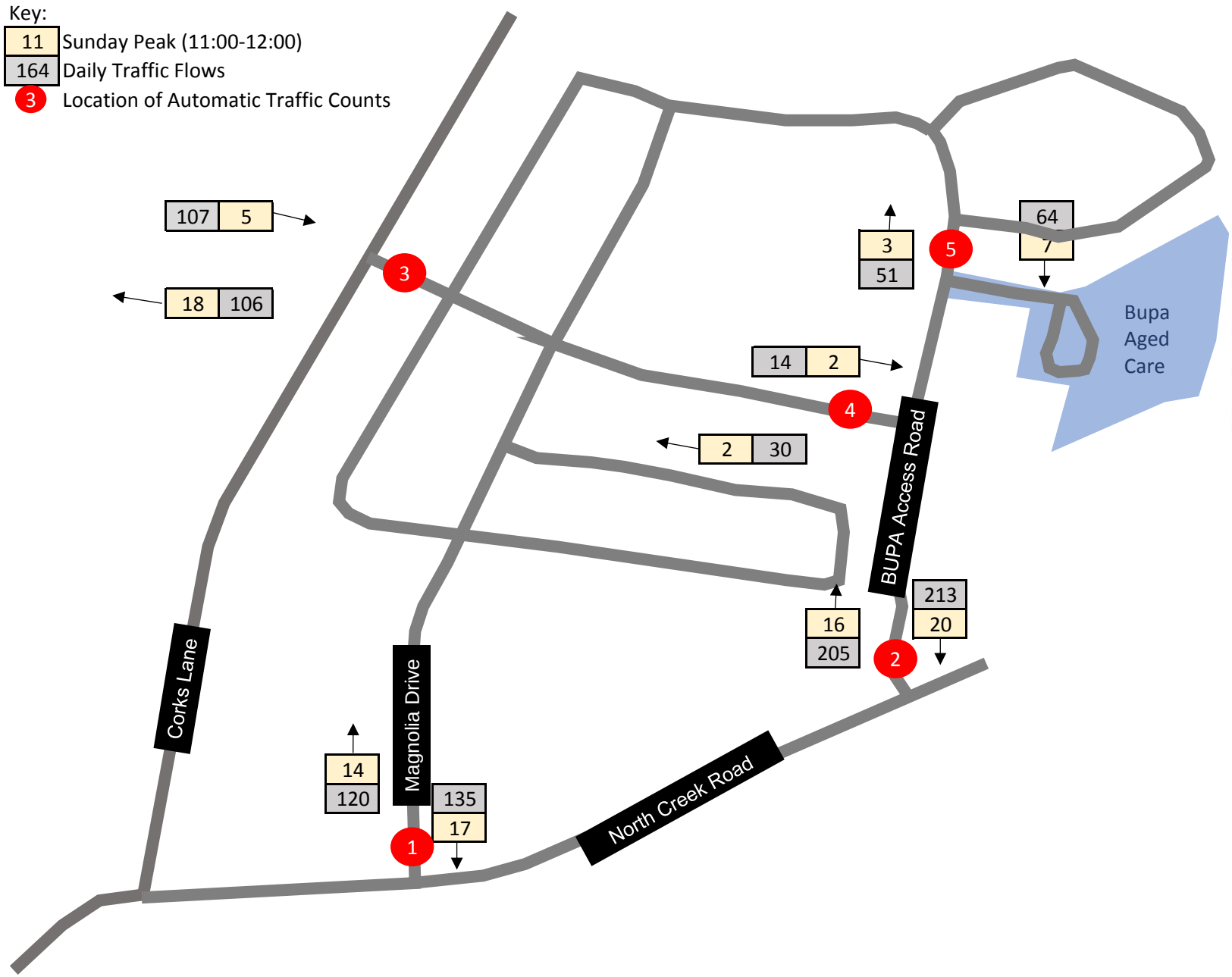
Time	IN	OUT	Total
Saturday Peak	0.129	0.147	0.277
Daily	1.230	1.317	2.547

Note: 1+3+4+5 Survey Locations

BE150074_Palm Lakes Resort, Ballina (LMF)

Figure 2.10 - Traffic Survey Summary - 9th March 2019 Saturday (Existing Built)

BURCHILLS ENGINEERING SOLUTIONS



Traffic Survey Location

Traffic Flows Generation Summary

Time	IN	OUT	Total
Sunday Peak	24	44	68
Daily	308	319	627

Note: 1+3+4+5 Survey Locations

Trips rate per unit (278 occupied units)

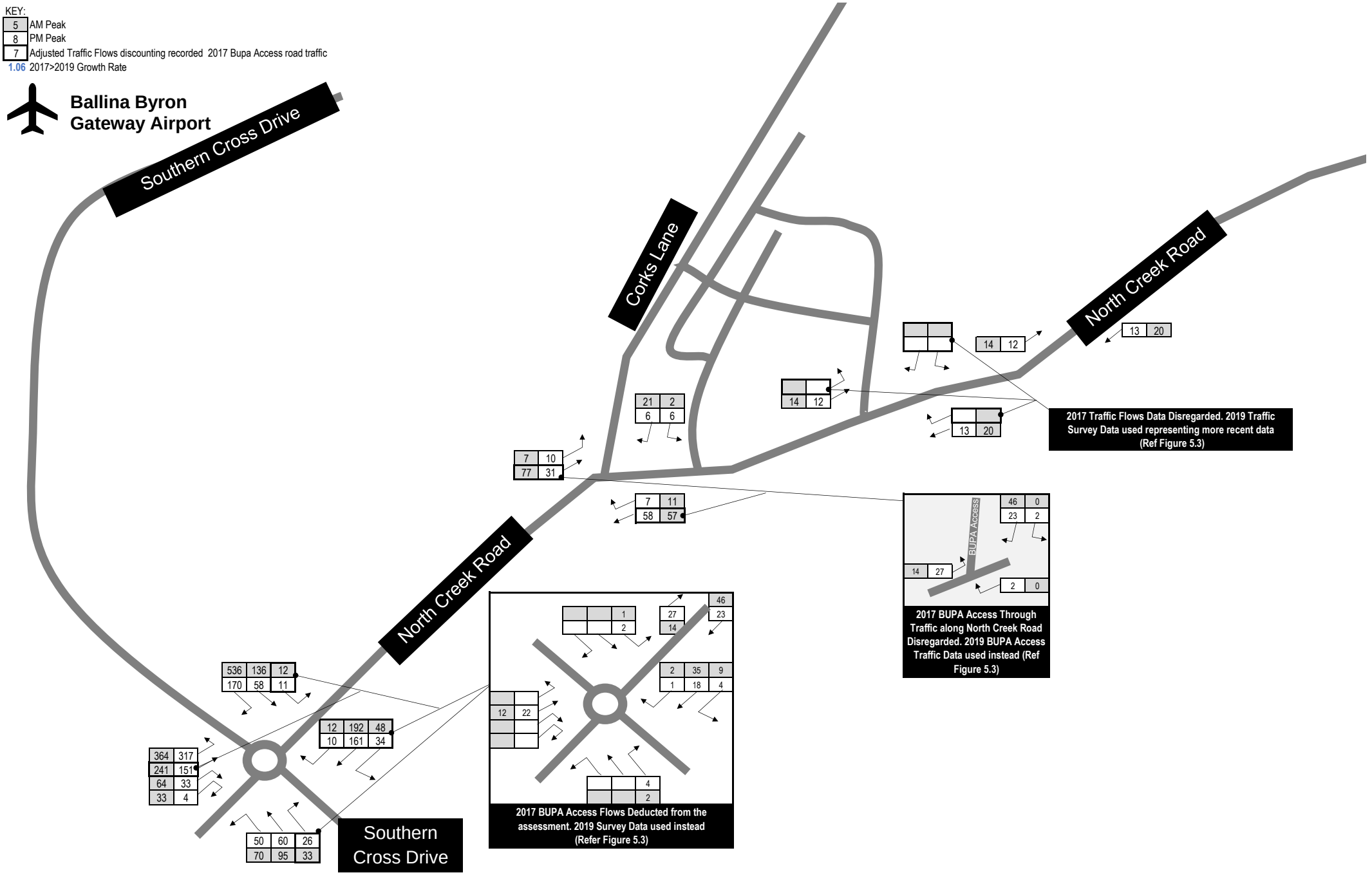
Time	IN	OUT	Total
Sunday Peak	0.086	0.158	0.245
Daily	1.108	1.147	2.255

Note: 1+3+4+5 Survey Locations

BE150074_Palm Lakes Resort, Ballina (LMF)

Figure 2.11 - Traffic Survey Summary - 10th March 2019 Sunday (Existing Built)

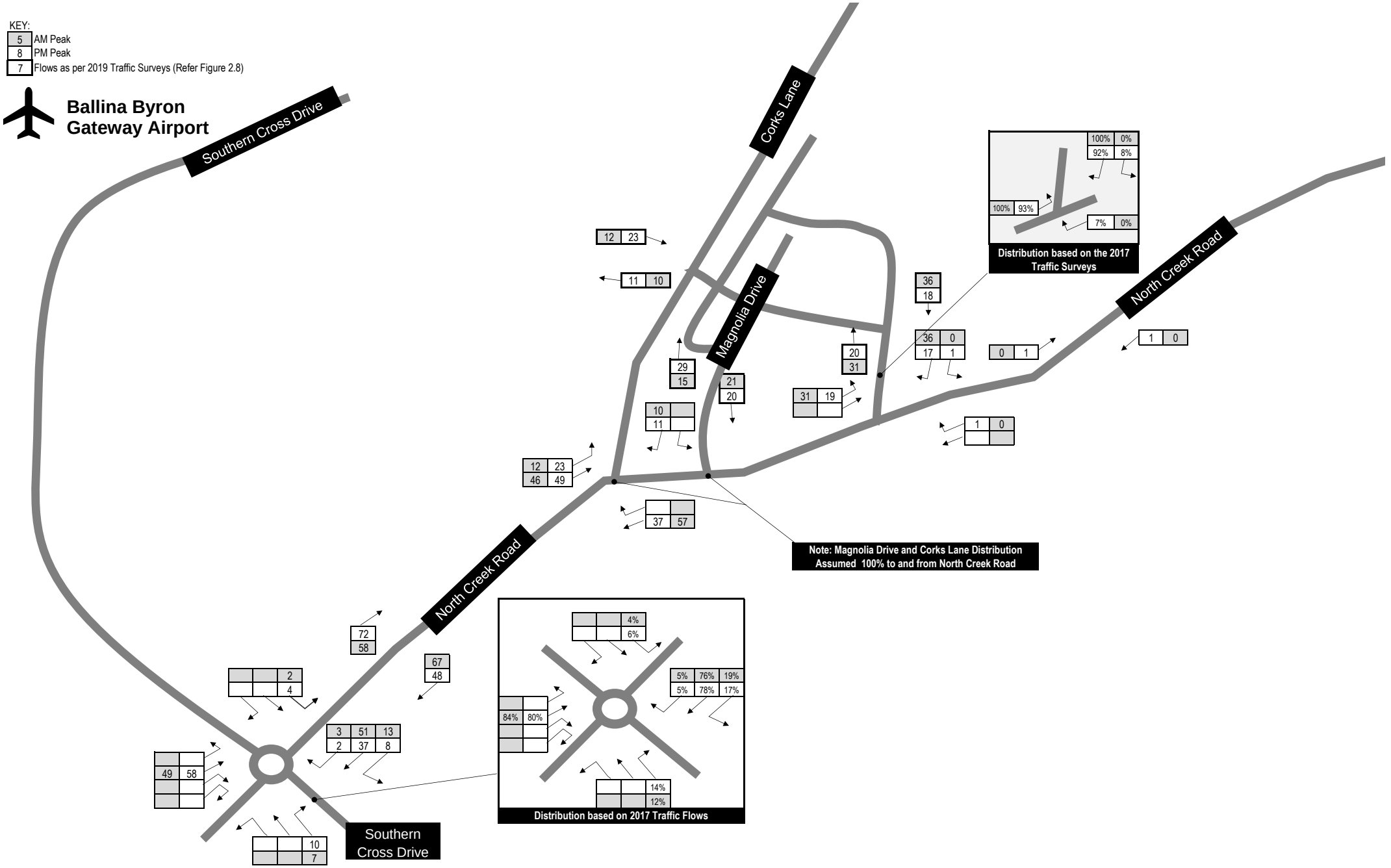
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 2.12 - 2019 External Traffic Flows (Growth from 2017 Traffic Survey and Adjusted)

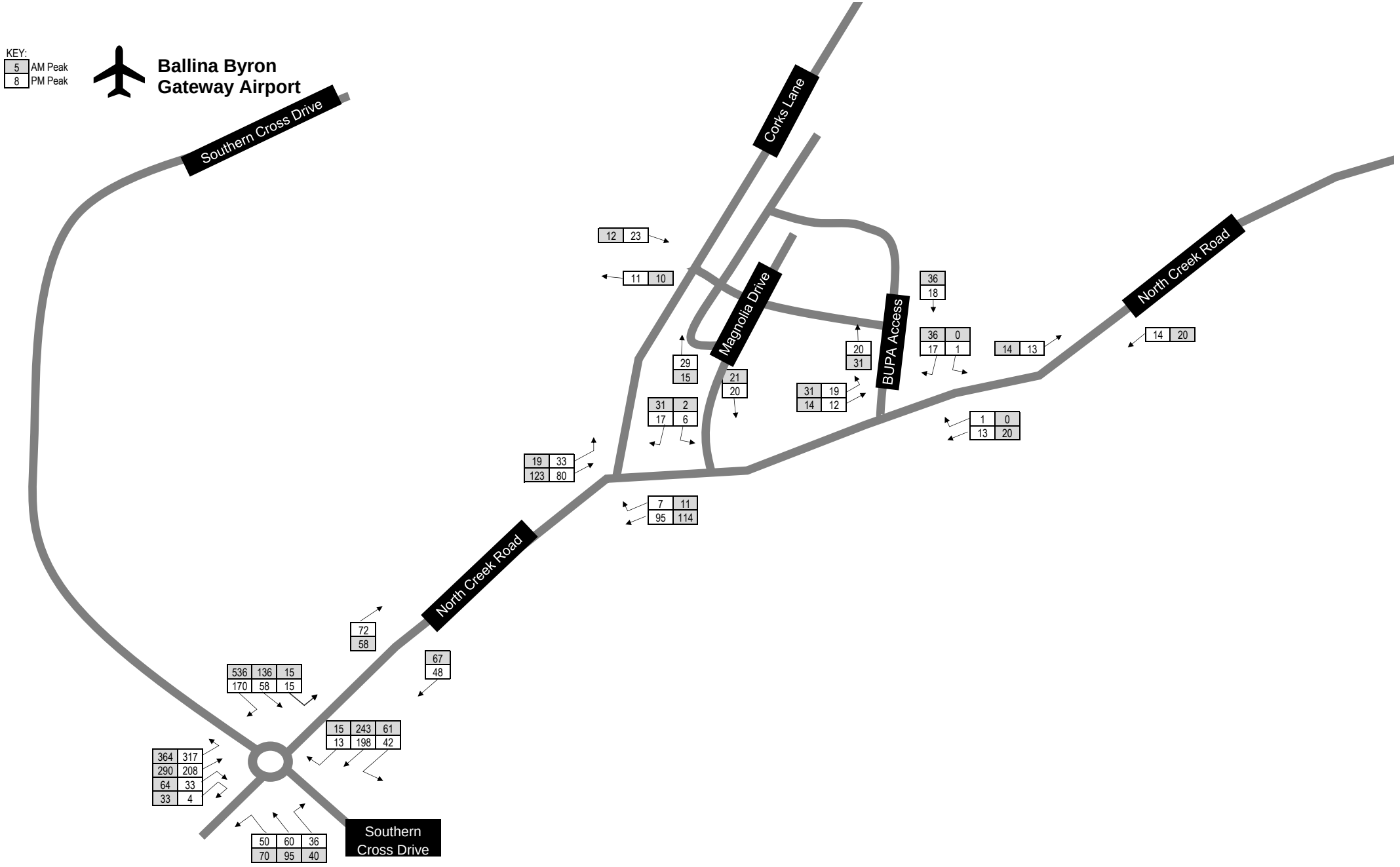
BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 2.13 - 2019 Built Development Flows as per 7th March 2019 Traffic Survey

BURCHILLS ENGINEERING SOLUTIONS



BE150074_Palm Lake Resort, Ballina (LMF)

Figure 2.14 - 2019 Adjusted Traffic Flows (2019 Base + 2019 Built Development Flows)

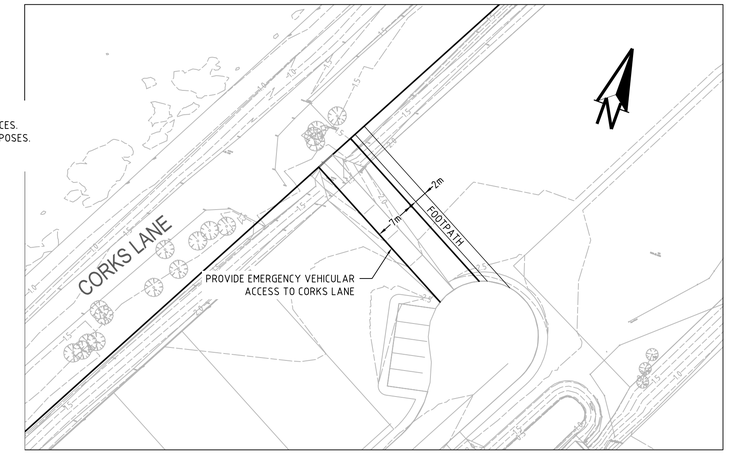
BURCHILLS ENGINEERING SOLUTIONS

Appendix D – Functional Layout Plans

NOTE:
- FINAL SURFACE CONTOURS ARE BASED ON PROPOSED, EXISTING AND LIDAR SURFACES.
- PROPOSED WORKS WITHIN NORTH CREEK ROAD RESERVE ARE FOR DISCUSSION PURPOSES.
- INTERSECTION LIGHTING TO BE PROVIDED AT SITE ENTRANCE.
- DETAILED SIGNAGE AND LINEMARKING TO BE PROVIDED AT CC STAGE.

KEY

- FINAL SURFACE CONTOURS
- ROAD ALIGNMENT
- KERB & GUTTER (KG)
- ROLLING TOP KERB & GUTTER (KR)
- DISH DRAIN (KD)
- KERB ONLY (KO)
- VEHICULAR CROSSING (VC)
- CONCRETE FOOTPATH (FOOTPATH)
- LIMIT OF WORKS
- APZ BOUNDARY
- SSC BOUNDARY
- PARKING BAY
- GUARDRAIL (F F)
- ACOUSTIC FENCE
- EXSTING TREE IN ADJACENT PROPERTY
- SITE BOUNDARY



ROAD 7 (21-MSL07)
CH 82.571
CH 75
CH 60
TP 54.486
CH 45
TP 36.740
CH 30
CH 15
CREST 12.500
CH 255
CREST 252.970
CH 240
TP 230.06
CH 225
TP 220.975
CH 210
CH 195
CH 180
CH 165
CH 150
TP 306.239
CH 300
CH 285
CH 270
CH 0.000
SAG 4.000
R30.000
R10.000
21-MSL06
21-MSL05
ROAD 2 (21-MSL02)
FOOTPATH
1.8m
1.2m
LIMIT OF ROADWORKS, PROVIDE SMOOTH CONNECTION TO ROAD IN EXISTING PALM LAKE RESORT DEVELOPMENT
PROVIDE GUARD RAIL ALONG BRIDGE
PROVIDE GUARD RAIL ALONG WALL
RELOCATED PARKING BAY. PROVIDE SMOOTH CONNECTION TO ROAD IN EXISTING PALM LAKE RESORT DEVELOPMENT
PROVIDE 20 ADDITIONAL PARKING SPACES FOR EXISTING PALM LAKE RESORT CLUBHOUSE
PROVIDE PEDESTRIAN FOOTPATH CONNECTION WITHIN EXISTING PALM LAKE DEVELOPMENT TO LINK PROPOSED DEVELOPMENT WITH EXISTING PALM LAKE RESORT CLUBHOUSE
EXISTING PEDESTRIAN FOOTPATH
TP 313.850
TP 29.146
TP 20.064
77
76
75
60
59
58
57
56
55
54
53
38
36
35
34
33

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**AMENDED AS PER OTHER CONSULTANTS FEEDBACK**	**03/06/2019**	**GM**	**AW/EZ**	**TH**	**DM**
A	AMENDED BASED ON CLIENTS INSTRUCTION	31/05/2019	GM	AW/EZ		

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID | DATUM | PROJECT MANAGER: TH

CLIENT: PALM LAKE WORKS

PROJECT NAME/PLANSET TITLE
PALM LAKE RESORT EXTENSION
ENGINEERING WORKS
120 NORTH CREEK RD, BALLINA NSW
LOT 11 DP 1124550

martens & Associates Pty Ltd
Consulting Engineers
Environment
Water
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
ROADWORKS PLAN
(LAYOUT 5 & 6)

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1806905	PS01	R07	PS01-D103	B

DRAWING ID: P1806905-PS01-R07-D103

PRINTED ---- USER: GMOSTOFA
A1 / A3 LANDSCAPE (A1LC_v02.0.01)

NOTE:
- FINAL SURFACE CONTOURS ARE BASED ON PROPOSED, EXISTING AND LIDAR SURFACES.
- PROPOSED WORKS WITHIN NORTH CREEK ROAD RESERVE ARE FOR DISCUSSION PURPOSES.
- INTERSECTION LIGHTING TO BE PROVIDED AT SITE ENTRANCE.
- DETAILED SIGNAGE AND LINEMARKING TO BE PROVIDED AT CC STAGE.

KEY

- FINAL SURFACE CONTOURS
- ROAD ALIGNMENT
- KERB & GUTTER (KG)
- ROLLING TOP KERB & GUTTER (KR)
- DISH DRAIN (KD)
- KERB ONLY (KO)
- VEHICULAR CROSSING (VC)
- CONCRETE FOOTPATH (FOOTPATH)
- LIMIT OF WORKS
- APZ BOUNDARY
- SSC BOUNDARY
- PARKING BAY
- GUARDRAIL (F)
- ACOUSTIC FENCE
- EXSTING TREE IN ADJACENT PROPERTY
- SITE BOUNDARY

1 DP1155600

ROAD 1 (21-MSL01)

CH 180, CH 165, CH 150, CH 135, CH 120, CH 90, CH 75, CH 60, CH 45, CH 30, CH 15, CH 0.000

CTP 124.359, TP 107.921, TP 76.304, CTP 70.103, TP 64.107

R150.000, R15.000, R10.000

APPROXIMATE LOCATIONS OF EXISTING TREES ALONG BOUNDARY WITHIN ADJACENT PROPERTY

PROVIDE ACOUSTIC TREATMENT AS REQUIRED, REFER TO ACOUSTIC REPORT

1 DP555386

APPROXIMATE LOCATIONS OF EXISTING TREES ALONG BOUNDARY WITHIN ADJACENT PROPERTY

REGRADE 186 NORTH CREEK ROAD EXISTING DRIVEWAY AND PROVIDE VEHICULAR CROSSING FOR FUTURE ROAD CONNECTION, REFER TO PS01-D110 FOR TYPICAL DETAILS

EXISTING DWELLING

PROVIDE SPEED HUMP

2 DP551222

APPROXIMATE FOOTPRINT OF EXISTING DWELLING

30

GIVE WAY

PROVIDE CONNECTION TO EXISTING FOOPATHS ALONG BUPA ACCESS ROAD AND NORTH CREEK ROAD

APPROXIMATE LOCATAION OF SHELL MIDDENS, REFER TO PS01-D200 FOR SECTION THROUGH CULVERT CROSSING AND BOARDWALK

BOARDWALK OVER CREEK

2m WIDE PEDESTRIAN FOOTPATH ALONG NORTH CREEK ROAD

PALM LAKE RESORT ENTRANCE 150m ON LEFT

UPGRADE 174 NORTH CREEK ROAD EXISTING DRIVEWAY WITH VEHICULAR CROSSING, REFER TO PS01-D110 FOR TYPICAL DETAILS

UPGRADED NORTH CREEK ROAD TO MATCH EXISTING ROAD LEVELS AND CROSSFALL AT LIMIT OF WORKS

NORTH CREEK ROAD (21-MRC01)

CH 0.000, CREST CH 15 16.550, CH 30, CH 45, TP 52.404, CH 60, CH 75, SAG CH 90 92.143, CH 105, CH 120, CH 135, CH 150, CREST CH 165 163.200, CH 180, CH 195, CH 210, TP 213.519, CH 225, CH 240, CH 255, CH 270, CH 285 TP 282.297, CH 300, CH 315, CH 330, CH 345, CH 360

SAG 3.500, CH 0.000

NORTH CREEK ROAD TO BE UPGRADED AS HALF ROAD WITH PAVEMENT EXTENTION TO PROVIDE 7m CARRIAGEWAY, REFER TO PS01-D200 FOR TYPICAL SECTION

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
G	**AMENDED AS PER OTHER CONSULTANTS FEEDBACK**	**03/06/2019**	**GM**	**AW/EZ**	**TH**	**DM**
F	AMENDED BASED ON CLIENTS INSTRUCTION	31/05/2019	GM	AW/EZ		
E	MINOR AMENDMENTS AND CLARIFICATIONS	24/05/2019	GM	AW/AVG	TH	DM
D	REVISED AS PER MEDIATION MEETING (13/05/2019)	22/05/2019	GM	AW/AVG	DG	
C	REVISED LAYOUT	09/04/2019	GM	AW/AVG	TH	DM
B	REVISED FOR SUBMISSON	27/03/2019	GM	AW/AVG	TH	DM
A	INITIAL RELEASE	22/03/2019	GM	AW/AVG	DG	

SCALE: A1 (A3) 1:500 (1:1,000) — 0 5 10 15 20 25 30 35 40 45 50 METRES

PRINTED: ----- USER: QMOSTOFA

A1 / A3 LANDSCAPE (A1LC_v02.0.01)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

CLIENT: PALM LAKE WORKS

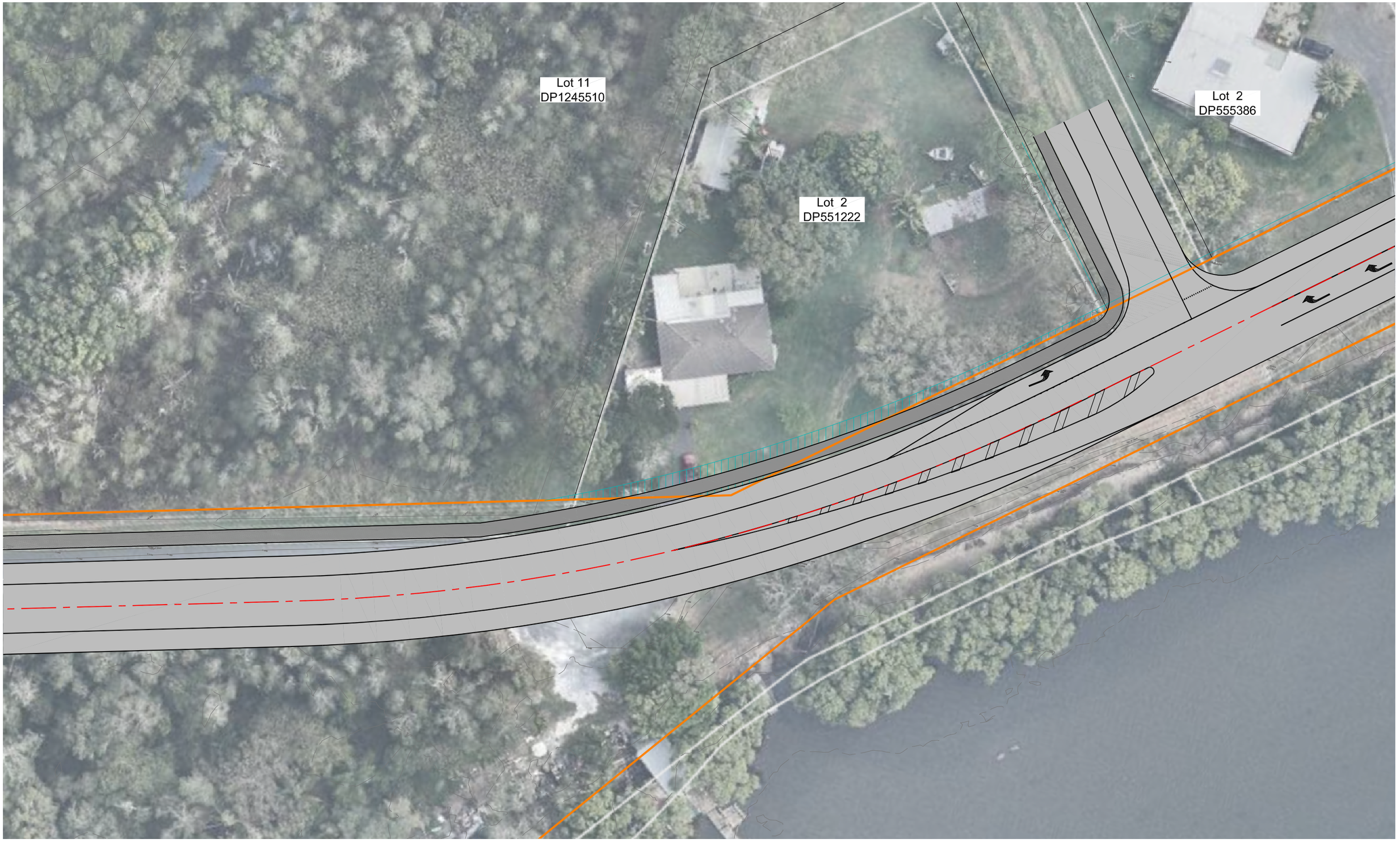
PROJECT NAME/PLANSET TITLE: PALM LAKE RESORT EXTENSION
ENGINEERING WORKS
120 NORTH CREEK RD, BALLINA NSW
LOT 11 DP 11245510

martens & Associates Pty Ltd
Consulting Engineers
Environment
Water
Geotechnical
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE: ROADWORKS PLAN (LAYOUT 3)

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1806905	PS01	R07	PS01-D102	G

DRAWING ID: P1806905-PS01-R07-D102



Prepared for : PALM LAKE WORKS PTY LTD

Designer : JAMES DAVIES

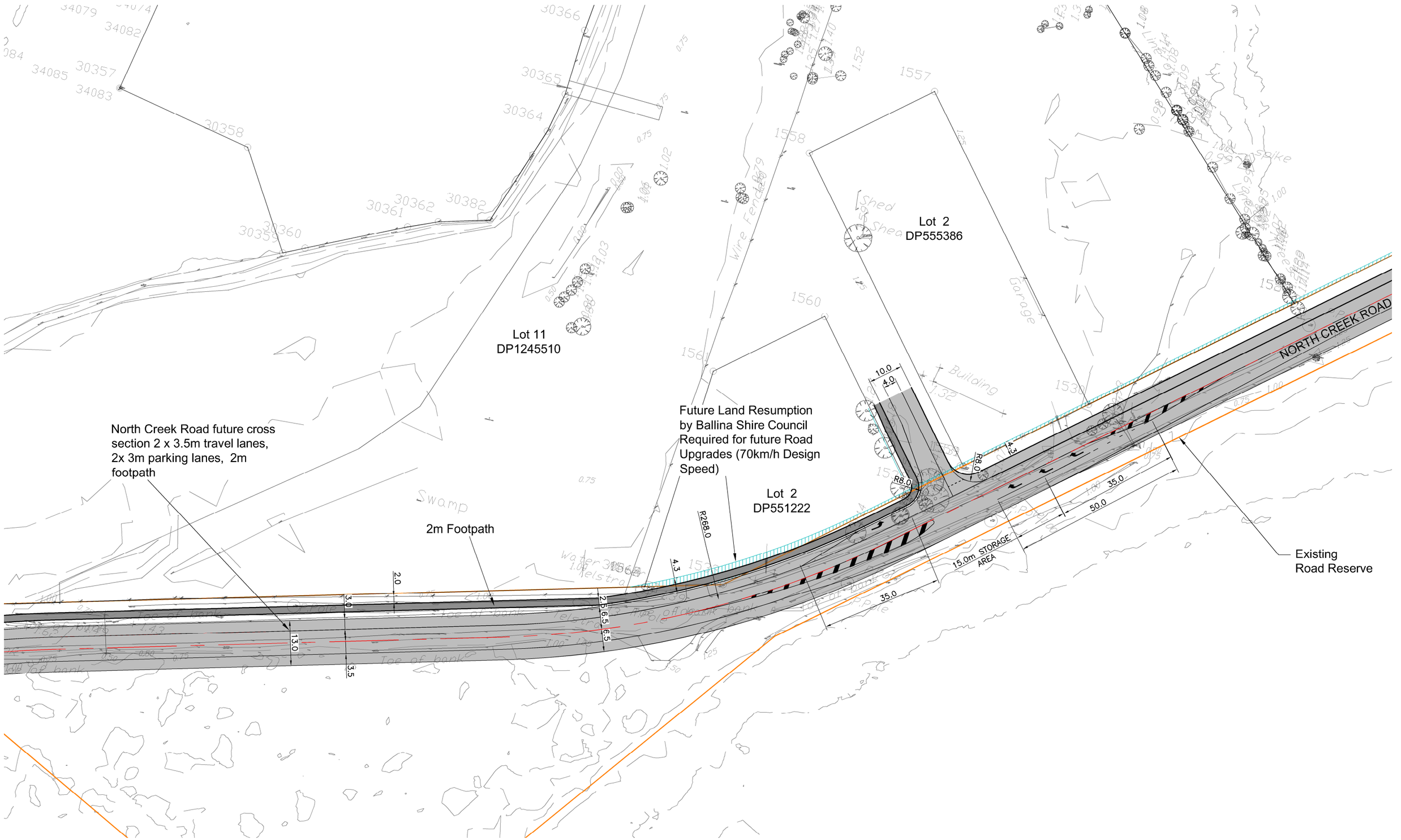
Date : 04/06/2019

PALM LAKE RESORT, BALLINA
PROPOSED NORTH CREEK ROAD UPGRADES - LOCAL ROAD STANDARD
Scale 1:1000

BE150074 - SK207 Rev A

BURCHILLS
ENGINEERING SOLUTIONS

Level 2, Connaught Centre
26 Marine Parade, Southport QLD 4215
PO Box 3766, Australia Fair, Southport QLD 4215
Phone: +61 7 5509 6400
Fax: +61 7 5509 6411
Email: admin@burchills.com.au
Coote Burchills Engineering Pty Ltd
ABN 76 166 942 365



Prepared for : PALM LAKE WORKS PTY LTD

Designer : AGA SZEWCZAK

Date : 04/06/2019

PALM LAKE RESORT, BALLINA
PROPOSED NORTH CREEK ROAD UPGRADES - ULTIMATE DISTRIBUTOR ROAD STANDARD
Scale 1:1000

BE150074 - SK203 Rev G

BURCHILLS
ENGINEERING SOLUTIONS

Level 2, Connaught Centre
26 Marine Parade, Southport QLD 4215
PO Box 3766, Australia Fair, Southport QLD 4215
Phone: +61 7 5509 6400
Fax: +61 7 5509 6411
Email: admin@burchills.com.au
Coote Burchills Engineering Pty Ltd
ABN 76 166 942 365

3.0m VISIBILITY SPLAY SIGHT LINE

3.0 m X 117m Visibility Splay Sight Line in Accordance with Austroads Guide to Road Design Part 4A Unsignalised and Signalised Intersections. Figure 3.3 - Application of SISD model for minor roads intersecting on the outside of horizontal curve. Corresponds to Observation time of 2.5 secs and Reaction time of 2.0 secs.

Remove trees. Refer to Martens and Associates drawing PS01-B302

2.5 X 86m Visibility Splay Sight line in Accordance with AS2890.1:2004 (Minimum Desirable 5 sec gap - 83 m for 60km/hr design speed).

SSID

SSID

Prepared for : PALM LAKE WORKS PTY LTD

Designer : JAMES DAVIES

Date : 04/06/2019

PALM LAKE RESORT, BALLINA
PROPOSED NORTH CREEK ROAD UPGRADES - LOCAL ROAD STANDARD
Scale 1:1000

BE150074 - SK206 Rev A

BURCHILLS ENGINEERING SOLUTIONS

Level 2, Connaught Centre
26 Marine Parade, Southport QLD 4215
PO Box 3766, Australia Fair, Southport QLD 4215
Phone: +61 7 5509 6400
Fax: +61 7 5509 6411
Email: admin@burchills.com.au
Coote Burchills Engineering Pty Ltd
ABN 76 166 942 365

NUMBER OF CAR SPACES = 32

CAR PARK LAYOUT PLAN

SCALE 1 0 1 2 3 4 5 (metres)
1 : 100 (FULL SIZE)

NOTE :
PARKING BAY LENGTH ALLOWS FOR 600mm OVERHANG OVER KERB

PLOTTED: 05.06.2019 at 09:56 FILENAME: P:\2015\BE150074_Palm Lakes Resort Ballina (LMP)\Civil\Arcd\Sketch\BE150074-SK004-B.dwg

PALM LAKE RESORT
BALLINA
CORKS LANE

FOR

PALM LAKE RESORTS

A1 ORIGINAL SIZE BEFORE REDUCTION

VER.	DESCRIPTION	APPR.	DATE
B	CARPARK DIMENSIONS ADDED		04-06-19
A	ORIGINAL ISSUE		23-06-16

BURCHILLS ENGINEERING SOLUTIONS
Level 8, Australia Fair Tower
42 Marine Parade, Southport QLD 4215
PO Box 3766, Australia Fair, Southport QLD 4215
Phone: +61 7 5509 6400
Fax: +61 7 5509 6411
Email: admin@burchills.com.au
Coote Burchills Engineering Pty Ltd
ABN 76 166 942 365

PROJECT:
PALM LAKE RESORT
BALLINA

DRAWING TITLE :
CAR PARK
LAYOUT PLAN

DEVEL. APPLIC. No. : -	DATE : 04-06-19
PROJECT LEADER : LUCAS FAULKNER	
DESIGNER : GABRIEL PUMNUT	
DRAFTSPERSON : GABRIEL PUMNUT	
CHECKED : -	

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365
RPEQ No. :

SCALE : AS NOTED	DATUM : AHD	FULL SIZE : A1
PROJECT No.: BE150074	DRAWING No. : SK004	VERSION: B

CORKS LANE

CORKS LANE

MAGNOLIA DRIVE

NORTH CREEK ROAD

NORTH CREEK ROAD

NORTH CREEK

PIPER DRIVE

1142749

845107

1142307

0 30 60 90 120 150 m

Palm Lakes Resort, Ballina

Road Crashes - Corks Lane and North Creek Road

N

Location of the site within the Ballina Shire

Legend

Crash Severity

- Property Damage Only
- Moderate Injury / Hospitalisation
- Fatal

Project: BE150074

Date: June 2019

Scale: 1:5,500 at A3

Projection: GDA 94/MGA Zone 56

Data Sources: NSW Department of Finance, Services and Information (2018), NSW Centre for Road Safety (2019), Google (2019)

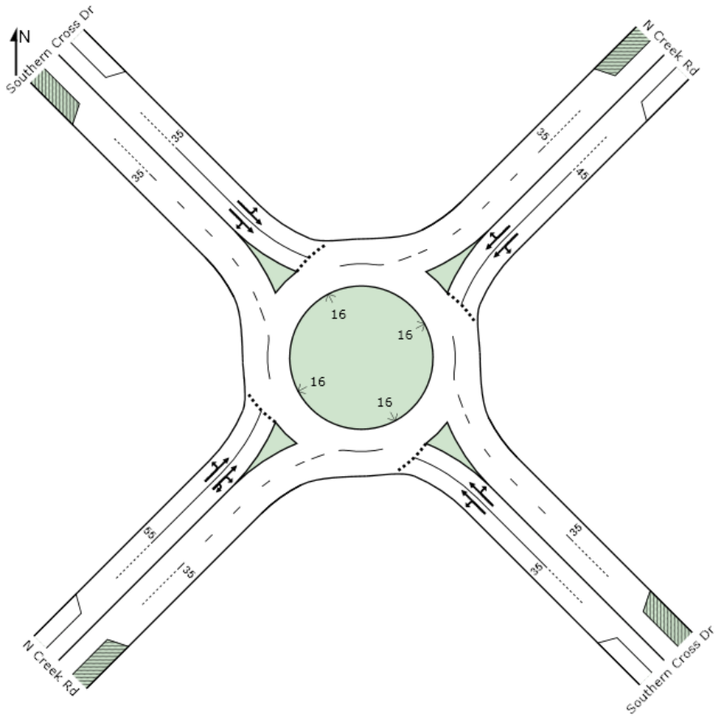
BURCHILLS ENGINEERING SOLUTIONS

FOR

Palm Lake Works

Appendix E – SIDRA Results

Junction 1 – North Creek Road / Southern Cross Roundabout 2019 Base



Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2019 Base Adjusted AM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	53	15.0	0.064	7.3	LOS A	0.3	2.7	0.57	0.63	0.57	52.3
22	T1	63	7.0	0.088	6.4	LOS A	0.5	3.9	0.55	0.62	0.55	52.9
23	R2	38	4.0	0.088	10.5	LOS B	0.5	3.9	0.55	0.62	0.55	52.7
Approach		154	9.0	0.088	7.7	LOS A	0.5	3.9	0.56	0.62	0.56	52.6
NorthEast: N Creek Rd												
24	L2	44	0.0	0.060	6.5	LOS A	0.3	2.3	0.51	0.58	0.51	53.2
25	T1	208	14.0	0.181	6.1	LOS A	1.1	9.0	0.51	0.56	0.51	53.6
26	R2	14	9.0	0.181	10.1	LOS B	1.1	9.0	0.51	0.56	0.51	53.4
Approach		266	11.4	0.181	6.3	LOS A	1.1	9.0	0.51	0.56	0.51	53.5
NorthWest: Southern Cross Dr												
27	L2	16	0.0	0.057	6.6	LOS A	0.3	2.2	0.51	0.57	0.51	52.9
28	T1	61	9.0	0.172	6.4	LOS A	1.1	8.0	0.50	0.61	0.50	52.9
29	R2	179	10.0	0.172	10.2	LOS B	1.1	8.0	0.50	0.65	0.50	51.6
Approach		256	9.1	0.172	9.1	LOS A	1.1	8.0	0.50	0.64	0.50	52.0
SouthWest: N Creek Rd												
30	L2	334	8.0	0.230	5.0	LOS A	1.6	11.8	0.34	0.50	0.34	53.6
31	T1	219	10.0	0.211	5.3	LOS A	1.4	10.6	0.36	0.50	0.36	54.1
32	R2	35	13.0	0.211	9.5	LOS A	1.4	10.6	0.36	0.50	0.36	53.7
32u	U	4	0.0	0.211	11.3	LOS B	1.4	10.6	0.36	0.50	0.36	55.1
Approach		592	9.0	0.230	5.4	LOS A	1.6	11.8	0.35	0.50	0.35	53.8
All Vehicles		1267	9.5	0.230	6.6	LOS A	1.6	11.8	0.44	0.56	0.44	53.2

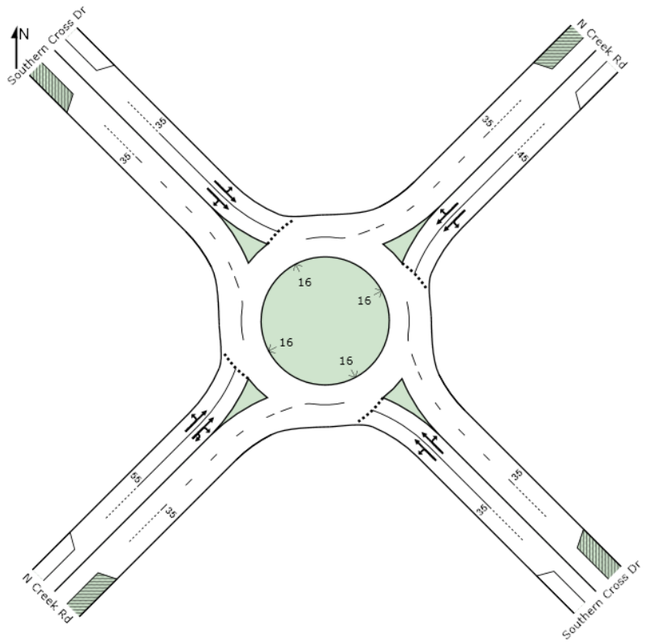
Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2019 Base Adjusted PM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	74	6.0	0.140	11.7	LOS B	0.9	6.8	0.85	0.83	0.85	49.4
22	T1	100	8.0	0.197	10.3	LOS B	1.5	11.1	0.88	0.81	0.88	50.9
23	R2	42	3.0	0.197	14.3	LOS B	1.5	11.1	0.88	0.81	0.88	50.8
Approach		216	6.3	0.197	11.6	LOS B	1.5	11.1	0.87	0.82	0.87	50.3
NorthEast: N Creek Rd												
24	L2	64	11.0	0.132	12.0	LOS B	0.8	6.2	0.81	0.83	0.81	49.1
25	T1	256	9.0	0.354	10.2	LOS B	2.8	21.0	0.90	0.85	0.90	51.6
26	R2	16	0.0	0.354	13.9	LOS B	2.8	21.0	0.90	0.85	0.90	51.7
Approach		336	9.0	0.354	10.7	LOS B	2.8	21.0	0.88	0.85	0.88	51.1
NorthWest: Southern Cross Dr												
27	L2	16	10.0	0.176	8.4	LOS A	1.0	7.6	0.65	0.70	0.65	51.7
28	T1	143	9.0	0.528	8.3	LOS A	4.6	32.4	0.68	0.72	0.69	52.5
29	R2	564	0.0	0.528	11.8	LOS B	4.6	32.4	0.77	0.79	0.80	50.9
Approach		723	2.0	0.528	11.0	LOS B	4.6	32.4	0.75	0.77	0.77	51.2
SouthWest: N Creek Rd												
30	L2	383	10.0	0.325	5.6	LOS A	2.5	19.0	0.49	0.55	0.49	53.0
31	T1	305	6.0	0.293	5.3	LOS A	2.3	16.6	0.45	0.54	0.45	53.5
32	R2	67	5.0	0.293	9.5	LOS A	2.3	16.6	0.45	0.54	0.45	53.3
32u	U	35	0.0	0.293	11.4	LOS B	2.3	16.6	0.45	0.54	0.45	54.4
Approach		791	7.6	0.325	6.1	LOS A	2.5	19.0	0.47	0.55	0.47	53.3
All Vehicles		2065	5.7	0.528	9.1	LOS A	4.6	32.4	0.68	0.70	0.68	51.9

Junction 1 – North Creek Road / Southern Cross Roundabout
2022 'Pre-development'



Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2022 Com-development AM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	57	15.0	0.071	7.6	LOS A	0.4	3.1	0.60	0.65	0.60	52.0
22	T1	68	7.0	0.096	6.7	LOS A	0.6	4.3	0.58	0.63	0.58	52.8
23	R2	38	4.0	0.096	10.8	LOS B	0.6	4.3	0.58	0.63	0.58	52.6
Approach		163	9.1	0.096	7.9	LOS A	0.6	4.3	0.59	0.64	0.59	52.5
NorthEast: N Creek Rd												
24	L2	48	0.0	0.068	6.7	LOS A	0.4	2.6	0.53	0.60	0.53	53.1
25	T1	228	14.0	0.203	6.2	LOS A	1.3	10.3	0.54	0.58	0.54	53.5
26	R2	15	9.0	0.203	10.3	LOS B	1.3	10.3	0.54	0.58	0.54	53.3
Approach		292	11.4	0.203	6.5	LOS A	1.3	10.3	0.54	0.58	0.54	53.4
NorthWest: Southern Cross Dr												
27	L2	18	0.0	0.064	6.8	LOS A	0.3	2.5	0.53	0.58	0.53	52.8
28	T1	66	9.0	0.192	6.6	LOS A	1.2	9.1	0.53	0.63	0.53	52.8
29	R2	195	10.0	0.192	10.3	LOS B	1.2	9.1	0.53	0.67	0.53	51.5
Approach		279	9.1	0.192	9.2	LOS A	1.2	9.1	0.53	0.65	0.53	51.9
SouthWest: N Creek Rd												
30	L2	362	8.0	0.251	5.0	LOS A	1.8	13.2	0.36	0.51	0.36	53.5
31	T1	242	10.0	0.235	5.3	LOS A	1.6	12.0	0.38	0.50	0.38	54.0
32	R2	38	13.0	0.235	9.6	LOS A	1.6	12.0	0.38	0.50	0.38	53.6
32u	U	5	0.0	0.235	11.3	LOS B	1.6	12.0	0.38	0.50	0.38	55.0
Approach		647	9.0	0.251	5.5	LOS A	1.8	13.2	0.37	0.51	0.37	53.7
All Vehicles		1381	9.5	0.251	6.7	LOS A	1.8	13.2	0.46	0.57	0.46	53.1

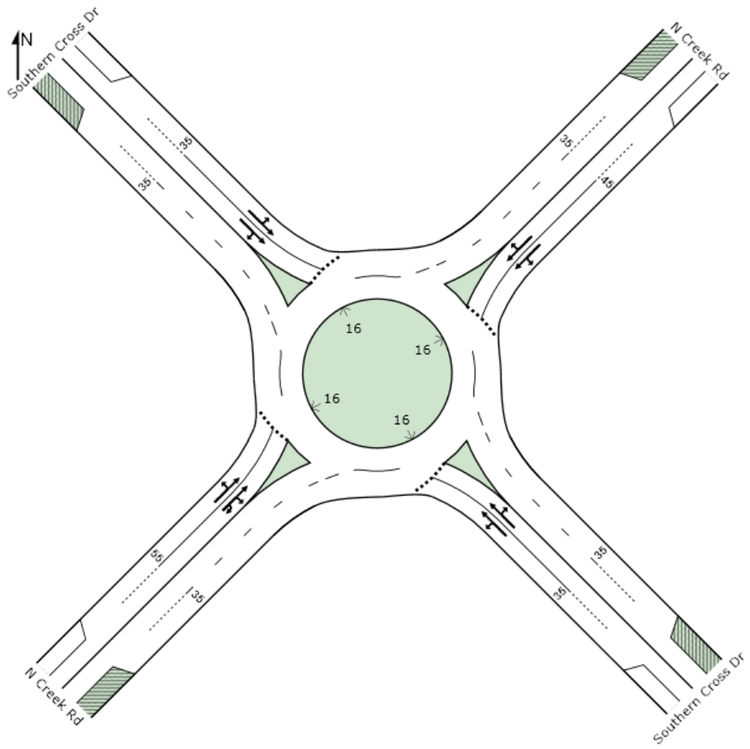
Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2022 Com-development PM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	80	6.0	0.171	13.1	LOS B	1.2	8.6	0.89	0.87	0.89	48.5
22	T1	108	8.0	0.239	11.5	LOS B	1.9	14.1	0.94	0.86	0.94	50.1
23	R2	46	3.0	0.239	15.5	LOS B	1.9	14.1	0.94	0.86	0.94	50.0
Approach		235	6.3	0.239	12.8	LOS B	1.9	14.1	0.92	0.86	0.92	49.5
NorthEast: N Creek Rd												
24	L2	71	11.0	0.158	13.0	LOS B	1.0	7.6	0.85	0.87	0.85	48.4
25	T1	281	9.0	0.425	11.7	LOS B	3.6	27.3	0.96	0.92	1.00	50.6
26	R2	17	0.0	0.425	15.4	LOS B	3.6	27.3	0.96	0.92	1.00	50.6
Approach		368	9.0	0.425	12.1	LOS B	3.6	27.3	0.94	0.91	0.97	50.2
NorthWest: Southern Cross Dr												
27	L2	17	10.0	0.198	8.8	LOS A	1.2	8.7	0.68	0.73	0.68	51.4
28	T1	156	9.0	0.596	9.0	LOS A	6.2	43.6	0.73	0.76	0.76	52.0
29	R2	613	0.0	0.596	13.2	LOS B	6.2	43.6	0.84	0.87	0.96	49.9
Approach		785	2.0	0.596	12.3	LOS B	6.2	43.6	0.82	0.84	0.91	50.4
SouthWest: N Creek Rd												
30	L2	416	10.0	0.360	5.7	LOS A	2.9	21.7	0.53	0.57	0.53	52.9
31	T1	335	6.0	0.326	5.4	LOS A	2.6	19.2	0.49	0.55	0.49	53.4
32	R2	74	5.0	0.326	9.6	LOS A	2.6	19.2	0.49	0.55	0.49	53.2
32u	U	38	0.0	0.326	11.5	LOS B	2.6	19.2	0.49	0.55	0.49	54.3
Approach		862	7.6	0.360	6.2	LOS A	2.9	21.7	0.51	0.56	0.51	53.2
All Vehicles		2251	5.7	0.596	10.0	LOS A	6.2	43.6	0.73	0.75	0.77	51.3

Junction 1 – North Creek Road / Southern Cross Roundabout
2022 'Post-development'



Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2022 Post-development AM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	57	15.0	0.073	7.8	LOS A	0.4	3.2	0.61	0.65	0.61	51.9
22	T1	68	7.0	0.104	6.7	LOS A	0.6	4.7	0.59	0.64	0.59	52.6
23	R2	45	4.0	0.104	10.9	LOS B	0.6	4.7	0.59	0.64	0.59	52.5
Approach		171	8.9	0.104	8.2	LOS A	0.6	4.7	0.60	0.65	0.60	52.4
NorthEast: N Creek Rd												
24	L2	51	0.0	0.071	6.7	LOS A	0.4	2.8	0.54	0.60	0.54	53.0
25	T1	239	14.0	0.213	6.2	LOS A	1.4	10.9	0.54	0.58	0.54	53.5
26	R2	16	9.0	0.213	10.3	LOS B	1.4	10.9	0.54	0.58	0.54	53.3
Approach		305	11.4	0.213	6.5	LOS A	1.4	10.9	0.54	0.59	0.54	53.4
NorthWest: Southern Cross Dr												
27	L2	19	0.0	0.065	6.9	LOS A	0.3	2.6	0.55	0.60	0.55	52.7
28	T1	66	9.0	0.196	6.8	LOS A	1.2	9.4	0.55	0.64	0.55	52.7
29	R2	195	10.0	0.196	10.5	LOS B	1.2	9.4	0.55	0.68	0.55	51.4
Approach		280	9.1	0.196	9.4	LOS A	1.2	9.4	0.55	0.66	0.55	51.8
SouthWest: N Creek Rd												
30	L2	362	8.0	0.254	5.1	LOS A	1.8	13.4	0.38	0.51	0.38	53.5
31	T1	259	10.0	0.249	5.4	LOS A	1.7	13.0	0.40	0.51	0.40	54.0
32	R2	38	13.0	0.249	9.6	LOS A	1.7	13.0	0.40	0.51	0.40	53.5
32u	U	5	0.0	0.249	11.4	LOS B	1.7	13.0	0.40	0.51	0.40	55.0
Approach		664	9.0	0.254	5.5	LOS A	1.8	13.4	0.38	0.51	0.38	53.7
All Vehicles		1420	9.5	0.254	6.8	LOS A	1.8	13.4	0.48	0.57	0.48	53.1

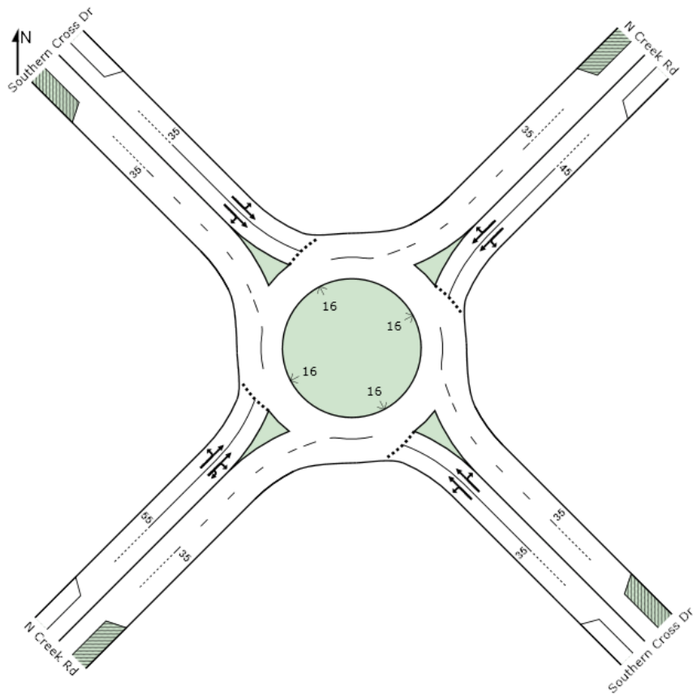
Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2022 Post-development PM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	80	6.0	0.175	13.4	LOS B	1.2	8.8	0.90	0.88	0.90	48.3
22	T1	108	8.0	0.248	11.8	LOS B	2.0	14.7	0.95	0.87	0.95	49.8
23	R2	48	3.0	0.248	15.7	LOS B	2.0	14.7	0.95	0.87	0.95	49.8
Approach		237	6.3	0.248	13.1	LOS B	2.0	14.7	0.93	0.87	0.93	49.3
NorthEast: N Creek Rd												
24	L2	75	11.0	0.168	13.1	LOS B	1.1	8.2	0.86	0.87	0.86	48.4
25	T1	296	9.0	0.450	12.2	LOS B	4.0	30.1	0.97	0.95	1.05	50.2
26	R2	18	0.0	0.450	16.0	LOS B	4.0	30.1	0.97	0.95	1.05	50.3
Approach		388	9.0	0.450	12.6	LOS B	4.0	30.1	0.95	0.93	1.01	49.9
NorthWest: Southern Cross Dr												
27	L2	18	10.0	0.202	9.0	LOS A	1.2	9.0	0.70	0.74	0.70	51.3
28	T1	156	9.0	0.607	9.2	LOS A	6.5	45.8	0.74	0.78	0.78	51.8
29	R2	613	0.0	0.607	13.6	LOS B	6.5	45.8	0.86	0.89	1.00	49.7
Approach		786	2.0	0.607	12.6	LOS B	6.5	45.8	0.83	0.86	0.95	50.1
SouthWest: N Creek Rd												
30	L2	416	10.0	0.363	5.8	LOS A	2.9	21.9	0.53	0.57	0.53	52.9
31	T1	351	6.0	0.339	5.4	LOS A	2.8	20.1	0.50	0.55	0.50	53.4
32	R2	74	5.0	0.339	9.6	LOS A	2.8	20.1	0.50	0.55	0.50	53.2
32u	U	38	0.0	0.339	11.5	LOS B	2.8	20.1	0.50	0.55	0.50	54.2
Approach		878	7.6	0.363	6.2	LOS A	2.9	21.9	0.51	0.56	0.51	53.2
All Vehicles		2289	5.8	0.607	10.2	LOS B	6.5	45.8	0.74	0.76	0.79	51.1

Junction 1 – North Creek Road / Southern Cross Roundabout
2032 'Pre-development'



Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2032 Com-development AM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	75	15.0	0.108	9.0	LOS A	0.6	5.0	0.70	0.73	0.70	51.0
22	T1	91	7.0	0.148	7.7	LOS A	1.0	7.3	0.69	0.70	0.69	52.1
23	R2	55	4.0	0.148	11.8	LOS B	1.0	7.3	0.69	0.70	0.69	52.0
Approach		220	9.0	0.148	9.2	LOS A	1.0	7.3	0.69	0.71	0.69	51.7
NorthEast: N Creek Rd												
24	L2	64	0.0	0.097	7.5	LOS A	0.6	3.9	0.61	0.66	0.61	52.5
25	T1	300	14.0	0.291	7.0	LOS A	2.1	16.1	0.65	0.66	0.65	53.0
26	R2	20	9.0	0.291	11.0	LOS B	2.1	16.1	0.65	0.66	0.65	52.8
Approach		384	11.4	0.291	7.3	LOS A	2.1	16.1	0.64	0.66	0.64	52.9
NorthWest: Southern Cross Dr												
27	L2	23	0.0	0.092	7.6	LOS A	0.5	3.8	0.61	0.65	0.61	52.3
28	T1	87	9.0	0.276	7.5	LOS A	1.9	14.5	0.63	0.69	0.63	52.4
29	R2	257	10.0	0.276	11.1	LOS B	1.9	14.5	0.65	0.73	0.65	51.1
Approach		367	9.1	0.276	10.0	LOS B	1.9	14.5	0.64	0.71	0.64	51.5
SouthWest: N Creek Rd												
30	L2	478	8.0	0.347	5.4	LOS A	2.7	20.2	0.47	0.54	0.47	53.1
31	T1	318	10.0	0.324	5.7	LOS A	2.4	18.2	0.48	0.55	0.48	53.6
32	R2	49	13.0	0.324	10.0	LOS A	2.4	18.2	0.48	0.55	0.48	53.2
32u	U	6	0.0	0.324	11.7	LOS B	2.4	18.2	0.48	0.55	0.48	54.6
Approach		852	9.0	0.347	5.8	LOS A	2.7	20.2	0.47	0.55	0.47	53.3
All Vehicles		1823	9.5	0.347	7.4	LOS A	2.7	20.2	0.57	0.62	0.57	52.7

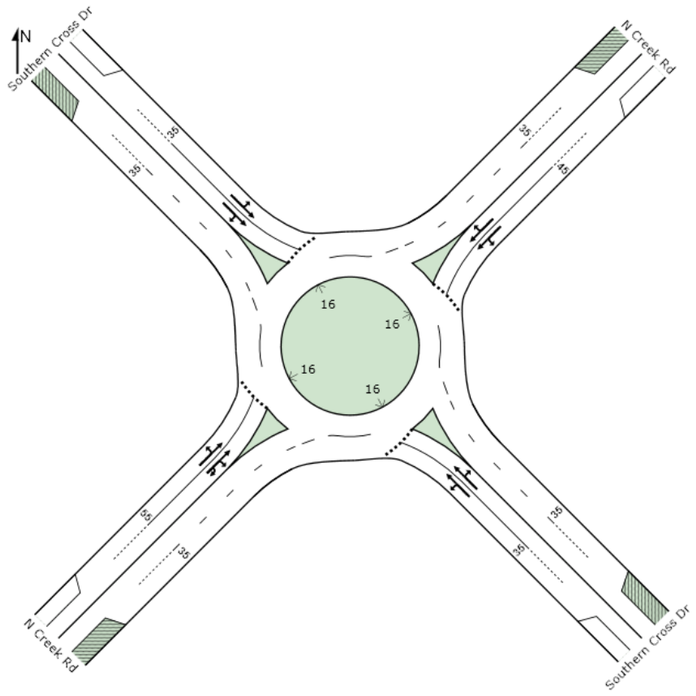
Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2032 Com-development PM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	105	6.0	0.383	24.9	LOS C	3.0	22.0	1.00	1.04	1.10	41.9
22	T1	143	8.0	0.524	28.1	LOS C	5.6	41.4	1.00	1.12	1.33	41.0
23	R2	61	3.0	0.524	31.9	LOS C	5.6	41.4	1.00	1.12	1.33	40.9
Approach		309	6.3	0.524	27.8	LOS C	5.6	41.4	1.00	1.09	1.25	41.3
NorthEast: N Creek Rd												
24	L2	93	11.0	0.309	19.5	LOS B	2.2	16.8	0.99	1.00	0.99	44.6
25	T1	369	9.0	0.867	62.5	LOS E	17.8	133.9	1.00	1.66	2.64	29.9
26	R2	22	0.0	0.867	66.0	LOS E	17.8	133.9	1.00	1.66	2.64	29.9
Approach		484	9.0	0.867	54.4	LOS D	17.8	133.9	1.00	1.53	2.32	31.9
NorthWest: Southern Cross Dr												
27	L2	22	10.0	0.308	10.7	LOS B	2.0	14.8	0.81	0.85	0.81	50.1
28	T1	205	9.0	0.925	16.4	LOS B	26.9	189.0	0.86	1.05	1.26	47.1
29	R2	807	0.0	0.925	36.0	LOS D	26.9	189.0	1.00	1.59	2.50	38.3
Approach		1035	2.0	0.925	31.6	LOS C	26.9	189.0	0.97	1.47	2.22	40.0
SouthWest: N Creek Rd												
30	L2	548	10.0	0.507	6.4	LOS A	4.6	34.7	0.68	0.65	0.68	52.4
31	T1	440	6.0	0.453	5.9	LOS A	4.1	29.8	0.62	0.61	0.62	52.9
32	R2	97	5.0	0.453	10.1	LOS B	4.1	29.8	0.62	0.61	0.62	52.7
32u	U	49	0.0	0.453	12.0	LOS B	4.1	29.8	0.62	0.61	0.62	53.7
Approach		1135	7.6	0.507	6.8	LOS A	4.6	34.7	0.65	0.63	0.65	52.7
All Vehicles		2963	5.7	0.925	25.4	LOS C	26.9	189.0	0.85	1.12	1.53	42.3

Junction 1 – North Creek Road / Southern Cross Roundabout
2032 'Post-development'



Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2032 Post-development AM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	75	15.0	0.110	9.2	LOS A	0.6	5.1	0.70	0.73	0.70	50.9
22	T1	91	7.0	0.153	7.8	LOS A	1.0	7.6	0.70	0.71	0.70	52.1
23	R2	58	4.0	0.153	11.9	LOS B	1.0	7.6	0.70	0.71	0.70	51.9
Approach		223	8.9	0.153	9.3	LOS A	1.0	7.6	0.70	0.72	0.70	51.6
NorthEast: N Creek Rd												
24	L2	66	0.0	0.101	7.5	LOS A	0.6	4.1	0.61	0.66	0.61	52.5
25	T1	311	14.0	0.302	7.0	LOS A	2.1	16.8	0.66	0.66	0.66	52.9
26	R2	20	9.0	0.302	11.0	LOS B	2.1	16.8	0.66	0.66	0.66	52.8
Approach		397	11.4	0.302	7.3	LOS A	2.1	16.8	0.65	0.66	0.65	52.9
NorthWest: Southern Cross Dr												
27	L2	25	0.0	0.095	7.8	LOS A	0.5	3.9	0.63	0.66	0.63	52.2
28	T1	87	9.0	0.284	7.6	LOS A	2.0	15.0	0.65	0.70	0.65	52.3
29	R2	257	10.0	0.284	11.3	LOS B	2.0	15.0	0.66	0.73	0.66	51.1
Approach		369	9.1	0.284	10.2	LOS B	2.0	15.0	0.66	0.72	0.66	51.4
SouthWest: N Creek Rd												
30	L2	478	8.0	0.349	5.4	LOS A	2.7	20.4	0.47	0.55	0.47	53.1
31	T1	335	10.0	0.339	5.8	LOS A	2.5	19.2	0.49	0.55	0.49	53.6
32	R2	49	13.0	0.339	10.0	LOS B	2.5	19.2	0.49	0.55	0.49	53.1
32u	U	6	0.0	0.339	11.7	LOS B	2.5	19.2	0.49	0.55	0.49	54.6
Approach		868	9.0	0.349	5.8	LOS A	2.7	20.4	0.48	0.55	0.48	53.3
All Vehicles		1858	9.5	0.349	7.4	LOS A	2.7	20.4	0.58	0.63	0.58	52.6

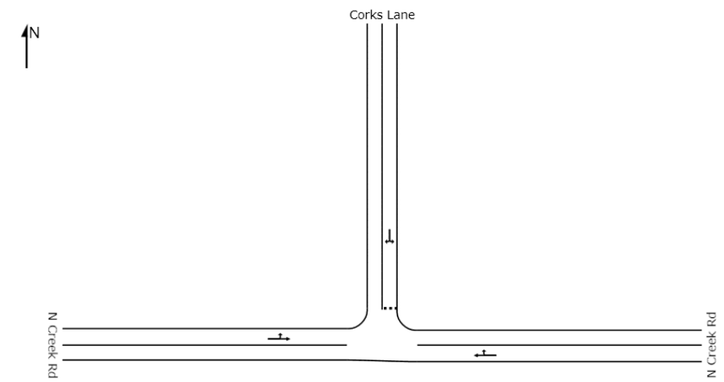
Site: 1 [N Creek Rd / Southern Cross Dr Rdb 2032 Post-development PM]

N Creek Rd / Southern Cross Dr Rdb
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Southern Cross Dr												
21	L2	105	6.0	0.393	26.5	LOS C	3.1	22.9	1.00	1.04	1.12	41.2
22	T1	143	8.0	0.542	30.6	LOS C	6.0	44.0	1.00	1.14	1.39	39.9
23	R2	63	3.0	0.542	34.4	LOS C	6.0	44.0	1.00	1.14	1.39	39.8
Approach		312	6.3	0.542	30.0	LOS C	6.0	44.0	1.00	1.11	1.30	40.3
NorthEast: N Creek Rd												
24	L2	97	11.0	0.324	19.6	LOS B	2.3	17.6	1.00	1.00	1.00	44.5
25	T1	384	9.0	0.903	72.4	LOS E	21.0	157.5	1.00	1.79	2.96	27.7
26	R2	23	0.0	0.903	75.9	LOS E	21.0	157.5	1.00	1.79	2.96	27.7
Approach		504	9.0	0.903	62.4	LOS E	21.0	157.5	1.00	1.64	2.58	29.8
NorthWest: Southern Cross Dr												
27	L2	23	10.0	0.315	10.9	LOS B	2.0	15.3	0.82	0.86	0.82	50.0
28	T1	205	9.0	0.945	18.2	LOS B	30.6	215.1	0.87	1.09	1.36	46.1
29	R2	807	0.0	0.945	41.7	LOS D	30.6	215.1	1.00	1.73	2.81	36.3
Approach		1036	2.0	0.945	36.3	LOS D	30.6	215.1	0.97	1.58	2.48	38.1
SouthWest: N Creek Rd												
30	L2	548	10.0	0.511	6.5	LOS A	4.6	35.0	0.69	0.65	0.69	52.4
31	T1	456	6.0	0.467	6.0	LOS A	4.2	31.0	0.63	0.61	0.63	52.9
32	R2	97	5.0	0.467	10.1	LOS B	4.2	31.0	0.63	0.61	0.63	52.6
32u	U	49	0.0	0.467	12.0	LOS B	4.2	31.0	0.63	0.61	0.63	53.7
Approach		1151	7.6	0.511	6.8	LOS A	4.6	35.0	0.66	0.63	0.66	52.6
All Vehicles		3002	5.8	0.945	28.7	LOS C	30.6	215.1	0.86	1.18	1.68	40.7

Junction 2 – North Creek Road / Corks Lane intersection
2019 Base



Site: 1 [N Creek Rd / Corks Ln 2019 Base Adjusted AM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	100	8.0	0.058	0.0	LOS A	0.0	0.4	0.04	0.04	0.04	59.4
6	R2	7	0.0	0.058	5.8	LOS A	0.0	0.4	0.04	0.04	0.04	57.2
Approach		107	7.5	0.058	0.4	NA	0.0	0.4	0.04	0.04	0.04	59.3
North: Corks Lane												
7	L2	6	0.0	0.030	5.8	LOS A	0.1	1.1	0.26	0.56	0.26	52.7
9	R2	18	83.0	0.030	8.0	LOS A	0.1	1.1	0.26	0.56	0.26	48.8
Approach		24	61.3	0.030	7.4	LOS A	0.1	1.1	0.26	0.56	0.26	49.8
West: N Creek Rd												
10	L2	35	6.0	0.065	5.6	LOS A	0.0	0.0	0.00	0.17	0.00	56.5
11	T1	84	11.0	0.065	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	58.4
Approach		119	9.5	0.065	1.6	NA	0.0	0.0	0.00	0.17	0.00	57.8
All Vehicles		251	13.7	0.065	1.7	NA	0.1	1.1	0.04	0.15	0.04	57.5

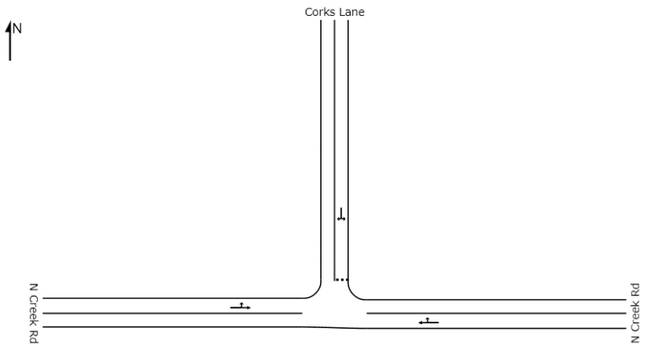
Site: 1 [N Creek Rd / Corks Ln 2019 Base Adjusted PM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	120	8.0	0.073	0.1	LOS A	0.1	0.7	0.06	0.05	0.06	59.4
6	R2	12	30.0	0.073	6.5	LOS A	0.1	0.7	0.06	0.05	0.06	55.6
Approach		132	9.9	0.073	0.7	NA	0.1	0.7	0.06	0.05	0.06	59.0
North: Corks Lane												
7	L2	2	50.0	0.035	6.7	LOS A	0.1	0.9	0.31	0.61	0.31	50.8
9	R2	33	5.0	0.035	6.6	LOS A	0.1	0.9	0.31	0.61	0.31	52.1
Approach		35	7.7	0.035	6.6	LOS A	0.1	0.9	0.31	0.61	0.31	52.0
West: N Creek Rd												
10	L2	20	43.0	0.082	6.0	LOS A	0.0	0.0	0.00	0.08	0.00	55.8
11	T1	129	6.0	0.082	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.5
Approach		149	11.0	0.082	0.8	NA	0.0	0.0	0.00	0.08	0.00	59.0
All Vehicles		316	10.2	0.082	1.4	NA	0.1	0.9	0.06	0.13	0.06	58.1

Junction 2 – North Creek Road / Corks Lane intersection
2022 'Pre-development'



Site: 1 [N Creek Rd / Corks Ln 2022 Com-development AM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	112	8.0	0.064	0.0	LOS A	0.1	0.4	0.04	0.04	0.04	59.4
6	R2	8	0.0	0.064	5.9	LOS A	0.1	0.4	0.04	0.04	0.04	57.2
Approach		120	7.4	0.064	0.5	NA	0.1	0.4	0.04	0.04	0.04	59.3
North: Corks Lane												
7	L2	7	0.0	0.035	5.8	LOS A	0.1	1.2	0.28	0.56	0.28	52.6
9	R2	20	83.0	0.035	8.3	LOS A	0.1	1.2	0.28	0.56	0.28	48.7
Approach		27	60.7	0.035	7.6	LOS A	0.1	1.2	0.28	0.56	0.28	49.7
West: N Creek Rd												
10	L2	37	6.0	0.072	5.6	LOS A	0.0	0.0	0.00	0.16	0.00	56.6
11	T1	96	11.0	0.072	0.0	LOS A	0.0	0.0	0.00	0.16	0.00	58.4
Approach		133	9.6	0.072	1.6	NA	0.0	0.0	0.00	0.16	0.00	57.9
All Vehicles		280	13.7	0.072	1.7	NA	0.1	1.2	0.04	0.15	0.04	57.5

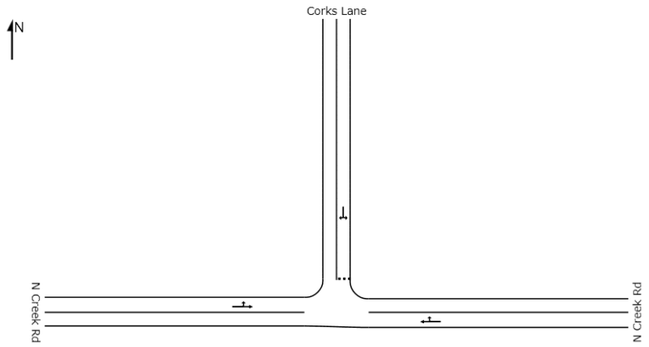
Site: 1 [N Creek Rd / Corks Ln 2022 Com-development PM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	134	8.0	0.081	0.1	LOS A	0.1	0.8	0.06	0.05	0.06	59.4
6	R2	12	30.0	0.081	6.6	LOS A	0.1	0.8	0.06	0.05	0.06	55.6
Approach		145	9.8	0.081	0.6	NA	0.1	0.8	0.06	0.05	0.06	59.1
North: Corks Lane												
7	L2	2	50.0	0.040	6.8	LOS A	0.1	1.0	0.33	0.62	0.33	50.7
9	R2	36	5.0	0.040	6.7	LOS A	0.1	1.0	0.33	0.62	0.33	52.0
Approach		38	7.5	0.040	6.7	LOS A	0.1	1.0	0.33	0.62	0.33	52.0
West: N Creek Rd												
10	L2	22	43.0	0.091	6.0	LOS A	0.0	0.0	0.00	0.08	0.00	55.8
11	T1	144	6.0	0.091	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59.5
Approach		166	10.9	0.091	0.8	NA	0.0	0.0	0.00	0.08	0.00	59.0
All Vehicles		349	10.1	0.091	1.4	NA	0.1	1.0	0.06	0.12	0.06	58.2

Junction 2 – North Creek Road / Corks Lane intersection
2022 'Post-development'



Site: 1 [N Creek Rd / Corks Ln 2022 Post-development AM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	124	8.0	0.071	0.0	LOS A	0.1	0.4	0.04	0.04	0.04	59.5
6	R2	8	0.0	0.071	6.0	LOS A	0.1	0.4	0.04	0.04	0.04	57.2
Approach		133	7.5	0.071	0.4	NA	0.1	0.4	0.04	0.04	0.04	59.3
North: Corks Lane												
7	L2	7	0.0	0.036	5.9	LOS A	0.1	1.3	0.31	0.57	0.31	52.4
9	R2	20	83.0	0.036	8.6	LOS A	0.1	1.3	0.31	0.57	0.31	48.5
Approach		27	60.7	0.036	7.9	LOS A	0.1	1.3	0.31	0.57	0.31	49.5
West: N Creek Rd												
10	L2	37	6.0	0.083	5.6	LOS A	0.0	0.0	0.00	0.14	0.00	56.8
11	T1	117	11.0	0.083	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	58.6
Approach		154	9.8	0.083	1.4	NA	0.0	0.0	0.00	0.14	0.00	58.2
All Vehicles		314	13.3	0.083	1.5	NA	0.1	1.3	0.04	0.14	0.04	57.8

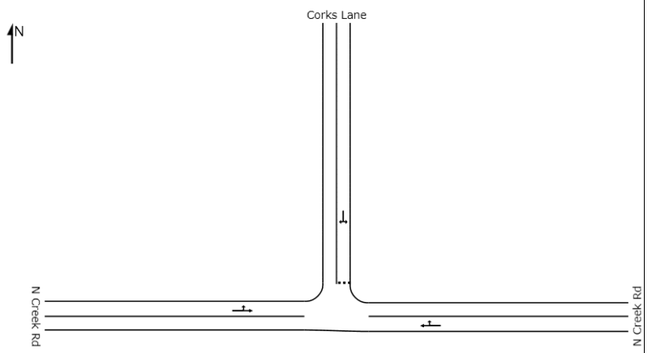
Site: 1 [N Creek Rd / Corks Ln 2022 Post-development PM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	154	8.0	0.092	0.1	LOS A	0.1	0.8	0.06	0.04	0.06	59.5
6	R2	12	30.0	0.092	6.7	LOS A	0.1	0.8	0.06	0.04	0.06	55.7
Approach		165	9.5	0.092	0.6	NA	0.1	0.8	0.06	0.04	0.06	59.2
North: Corks Lane												
7	L2	2	50.0	0.041	6.9	LOS A	0.1	1.0	0.35	0.63	0.35	50.6
9	R2	36	5.0	0.041	6.9	LOS A	0.1	1.0	0.35	0.63	0.35	51.9
Approach		38	7.5	0.041	6.9	LOS A	0.1	1.0	0.35	0.63	0.35	51.8
West: N Creek Rd												
10	L2	22	43.0	0.101	6.0	LOS A	0.0	0.0	0.00	0.07	0.00	55.9
11	T1	163	6.0	0.101	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.6
Approach		185	10.4	0.101	0.7	NA	0.0	0.0	0.00	0.07	0.00	59.1
All Vehicles		388	9.8	0.101	1.3	NA	0.1	1.0	0.06	0.11	0.06	58.3

Junction 2 – North Creek Road / Corks Lane intersection
2032 'Pre-development'



Site: 1 [N Creek Rd / Corks Ln 2032 Com-development AM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	146	8.0	0.085	0.1	LOS A	0.1	0.6	0.05	0.04	0.05	59.4
6	R2	12	0.0	0.085	6.0	LOS A	0.1	0.6	0.05	0.04	0.05	57.1
Approach		158	7.4	0.085	0.5	NA	0.1	0.6	0.05	0.04	0.05	59.2
North: Corks Lane												
7	L2	9	0.0	0.050	5.9	LOS A	0.2	1.8	0.33	0.58	0.33	52.1
9	R2	26	83.0	0.050	9.0	LOS A	0.2	1.8	0.33	0.58	0.33	48.3
Approach		36	61.0	0.050	8.2	LOS A	0.2	1.8	0.33	0.58	0.33	49.3
West: N Creek Rd												
10	L2	49	6.0	0.095	5.6	LOS A	0.0	0.0	0.00	0.17	0.00	56.6
11	T1	125	11.0	0.095	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	58.4
Approach		175	9.6	0.095	1.6	NA	0.0	0.0	0.00	0.17	0.00	57.9
All Vehicles		368	13.7	0.095	1.8	NA	0.2	1.8	0.05	0.16	0.05	57.4

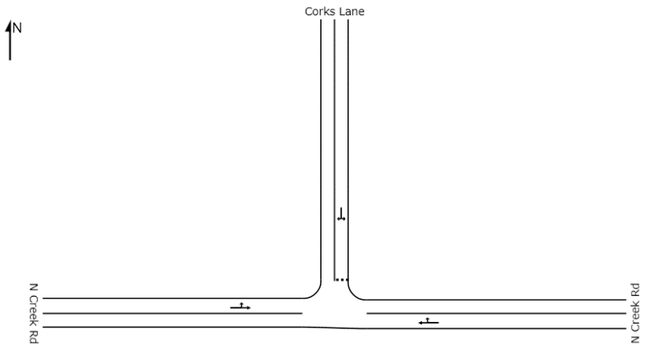
Site: 1 [N Creek Rd / Corks Ln 2032 Com-development PM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Avera Spee km
East: N Creek Rd												
5	T1	176	8.0	0.108	0.1	LOS A	0.2	1.1	0.08	0.05	0.08	59
6	R2	16	30.0	0.108	6.9	LOS A	0.2	1.1	0.08	0.05	0.08	55
Approach		192	9.8	0.108	0.7	NA	0.2	1.1	0.08	0.05	0.08	59
North: Corks Lane												
7	L2	3	50.0	0.058	7.1	LOS A	0.2	1.4	0.39	0.66	0.39	50
9	R2	47	5.0	0.058	7.3	LOS A	0.2	1.4	0.39	0.66	0.39	51
Approach		51	7.8	0.058	7.3	LOS A	0.2	1.4	0.39	0.66	0.39	51
West: N Creek Rd												
10	L2	29	43.0	0.120	6.0	LOS A	0.0	0.0	0.00	0.08	0.00	55
11	T1	189	6.0	0.120	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	59
Approach		219	11.0	0.120	0.8	NA	0.0	0.0	0.00	0.08	0.00	59
All Vehicles		461	10.1	0.120	1.5	NA	0.2	1.4	0.07	0.13	0.07	58

Junction 2 – North Creek Road / Corks Lane intersection
2032 'Post-development'



Site: 1 [N Creek Rd / Corks Ln 2032 Post-development AM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	159	8.0	0.092	0.1	LOS A	0.1	0.6	0.05	0.04	0.05	59.4
6	R2	12	0.0	0.092	6.1	LOS A	0.1	0.6	0.05	0.04	0.05	57.2
Approach		171	7.5	0.092	0.5	NA	0.1	0.6	0.05	0.04	0.05	59.2
North: Corks Lane												
7	L2	9	0.0	0.052	6.0	LOS A	0.2	1.9	0.36	0.59	0.36	51.9
9	R2	26	83.0	0.052	9.4	LOS A	0.2	1.9	0.36	0.59	0.36	48.1
Approach		36	61.0	0.052	8.5	LOS A	0.2	1.9	0.36	0.59	0.36	49.1
West: N Creek Rd												
10	L2	49	6.0	0.106	5.6	LOS A	0.0	0.0	0.00	0.15	0.00	56.7
11	T1	146	11.0	0.106	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	58.6
Approach		196	9.7	0.106	1.4	NA	0.0	0.0	0.00	0.15	0.00	58.1
All Vehicles		402	13.3	0.106	1.7	NA	0.2	1.9	0.05	0.14	0.05	57.6

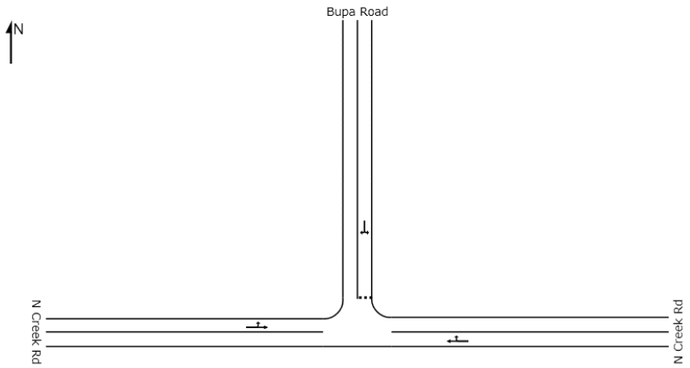
Site: 1 [N Creek Rd / Corks Ln 2032 Post-development PM]

N Creek Rd / Corks Ln
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	195	8.0	0.118	0.1	LOS A	0.2	1.2	0.08	0.05	0.08	59.4
6	R2	16	30.0	0.118	7.0	LOS A	0.2	1.2	0.08	0.05	0.08	55.6
Approach		211	9.7	0.118	0.7	NA	0.2	1.2	0.08	0.05	0.08	59.1
North: Corks Lane												
7	L2	3	50.0	0.061	7.2	LOS A	0.2	1.5	0.41	0.68	0.41	50.2
9	R2	47	5.0	0.061	7.5	LOS A	0.2	1.5	0.41	0.68	0.41	51.5
Approach		51	7.8	0.061	7.5	LOS A	0.2	1.5	0.41	0.68	0.41	51.4
West: N Creek Rd												
10	L2	29	43.0	0.129	6.0	LOS A	0.0	0.0	0.00	0.07	0.00	55.8
11	T1	207	6.0	0.129	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.5
Approach		237	10.6	0.129	0.8	NA	0.0	0.0	0.00	0.07	0.00	59.1
All Vehicles		498	9.9	0.129	1.4	NA	0.2	1.5	0.07	0.12	0.07	58.2

Junction 3 – North Creek Road / Bupa Road intersection
2019 Base



Site: 1 [N Creek Rd / Bupa Access Rd 2019 Base Adjusted AM]

N Creek Rd /Bupa Access Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	14	33.0	0.009	0.0	LOS A	0.0	0.1	0.02	0.04	0.02	59.4
6	R2	1	0.0	0.009	5.5	LOS A	0.0	0.1	0.02	0.04	0.02	57.2
Approach		15	30.6	0.009	0.4	NA	0.0	0.1	0.02	0.04	0.02	59.2
North: Internal Rd												
7	L2	1	0.0	0.016	5.6	LOS A	0.0	0.4	0.10	0.57	0.10	53.4
9	R2	18	9.0	0.016	5.7	LOS A	0.0	0.4	0.10	0.57	0.10	52.4
Approach		19	8.5	0.016	5.7	LOS A	0.0	0.4	0.10	0.57	0.10	52.5
West: N Creek Rd												
10	L2	20	4.0	0.020	5.6	LOS A	0.0	0.0	0.00	0.36	0.00	54.6
11	T1	13	45.0	0.020	0.0	LOS A	0.0	0.0	0.00	0.36	0.00	56.2
Approach		33	19.9	0.020	3.4	NA	0.0	0.0	0.00	0.36	0.00	55.2
All Vehicles		66	19.0	0.020	3.4	NA	0.0	0.4	0.03	0.35	0.03	55.2

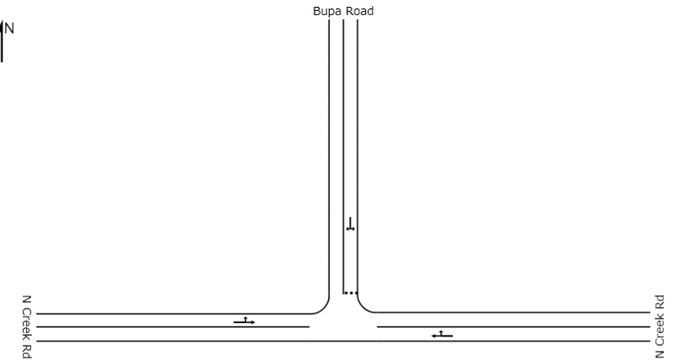
Site: 1 [N Creek Rd / Bupa Access Rd 2019 Base Adjusted PM]

N Creek Rd / Bupa Access Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	21	21.0	0.013	0.0	LOS A	0.0	0.0	0.01	0.03	0.01	59.6
6	R2	1	0.0	0.013	5.6	LOS A	0.0	0.0	0.01	0.03	0.01	57.4
Approach		22	20.0	0.013	0.3	NA	0.0	0.0	0.01	0.03	0.01	59.5
North: Internal Rd												
7	L2	1	0.0	0.032	5.6	LOS A	0.1	0.7	0.12	0.57	0.12	53.3
9	R2	38	4.0	0.032	5.7	LOS A	0.1	0.7	0.12	0.57	0.12	52.6
Approach		39	3.9	0.032	5.7	LOS A	0.1	0.7	0.12	0.57	0.12	52.6
West: N Creek Rd												
10	L2	33	0.0	0.027	5.5	LOS A	0.0	0.0	0.00	0.40	0.00	54.7
11	T1	15	31.0	0.027	0.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.1
Approach		47	9.6	0.027	3.8	NA	0.0	0.0	0.00	0.40	0.00	55.1
All Vehicles		108	9.7	0.032	3.8	NA	0.1	0.7	0.05	0.39	0.05	55.0

Junction 3 – North Creek Road / Bupa Road intersection
2022 'Pre-development'



Site: 1 [N Creek Rd / Bupa Access Rd 2022 Com-development AM]

N Creek Rd / Internal Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	15	33.0	0.010	0.0	LOS A	0.0	0.1	0.02	0.04	0.02	59.4
6	R2	1	0.0	0.010	5.5	LOS A	0.0	0.1	0.02	0.04	0.02	57.2
Approach		16	30.8	0.010	0.4	NA	0.0	0.1	0.02	0.04	0.02	59.3
North: Internal Rd												
7	L2	1	0.0	0.016	5.6	LOS A	0.1	0.4	0.10	0.57	0.10	53.4
9	R2	18	9.0	0.016	5.7	LOS A	0.1	0.4	0.10	0.57	0.10	52.4
Approach		19	8.5	0.016	5.7	LOS A	0.1	0.4	0.10	0.57	0.10	52.5
West: N Creek Rd												
10	L2	20	4.0	0.020	5.6	LOS A	0.0	0.0	0.00	0.35	0.00	54.7
11	T1	14	45.0	0.020	0.0	LOS A	0.0	0.0	0.00	0.35	0.00	56.3
Approach		34	20.7	0.020	3.3	NA	0.0	0.0	0.00	0.35	0.00	55.3
All Vehicles		68	19.6	0.020	3.3	NA	0.1	0.4	0.03	0.34	0.03	55.4

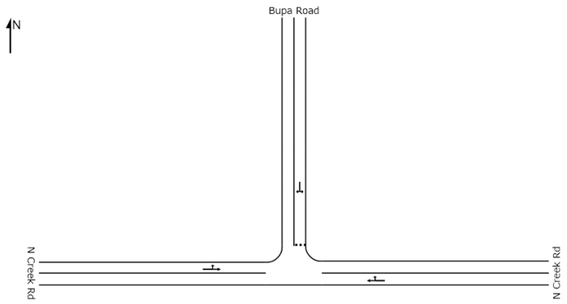
Site: 1 [N Creek Rd / Bupa Rd 2022 Com-development PM]

N Creek Rd / Internal Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	23	21.0	0.014	0.0	LOS A	0.0	0.0	0.01	0.03	0.01	59.7
6	R2	1	0.0	0.014	5.6	LOS A	0.0	0.0	0.01	0.03	0.01	57.4
Approach		24	20.1	0.014	0.2	NA	0.0	0.0	0.01	0.03	0.01	59.6
North: Internal Rd												
7	L2	1	0.0	0.032	5.6	LOS A	0.1	0.7	0.12	0.57	0.12	53.3
9	R2	38	4.0	0.032	5.7	LOS A	0.1	0.7	0.12	0.57	0.12	52.6
Approach		39	3.9	0.032	5.7	LOS A	0.1	0.7	0.12	0.57	0.12	52.6
West: N Creek Rd												
10	L2	33	0.0	0.028	5.5	LOS A	0.0	0.0	0.00	0.40	0.00	54.7
11	T1	16	31.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach		48	10.1	0.028	3.7	NA	0.0	0.0	0.00	0.40	0.00	55.2
All Vehicles		112	10.1	0.032	3.7	NA	0.1	0.7	0.05	0.38	0.05	55.1

Junction 3 – North Creek Road / Bupa Road intersection
2022 'Post-development'



Site: 1 [N Creek Rd / Bupa Access Rd 2022 Post-development AM]

N Creek Rd / Internal Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	26	33.0	0.017	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.6
6	R2	1	0.0	0.017	5.6	LOS A	0.0	0.1	0.01	0.02	0.01	57.4
Approach		27	31.7	0.017	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.6
North: Internal Rd												
7	L2	1	0.0	0.017	5.6	LOS A	0.1	0.4	0.15	0.57	0.15	53.3
9	R2	19	9.0	0.017	5.8	LOS A	0.1	0.4	0.15	0.57	0.15	52.3
Approach		20	8.5	0.017	5.8	LOS A	0.1	0.4	0.15	0.57	0.15	52.4
West: N Creek Rd												
10	L2	22	4.0	0.034	5.6	LOS A	0.0	0.0	0.00	0.24	0.00	55.5
11	T1	32	45.0	0.034	0.0	LOS A	0.0	0.0	0.00	0.24	0.00	57.1
Approach		54	28.1	0.034	2.3	NA	0.0	0.0	0.00	0.24	0.00	56.4
All Vehicles		101	25.2	0.034	2.4	NA	0.1	0.4	0.03	0.25	0.03	56.4

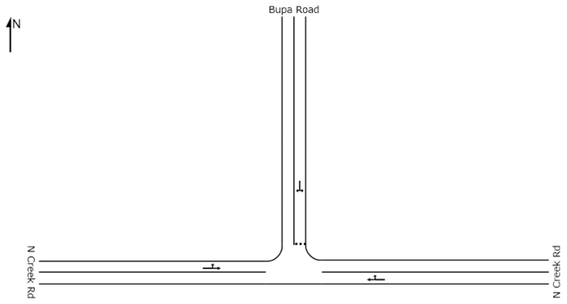
Site: 1 [N Creek Rd / Bupa Access Rd 2022 Post-development PM]

N Creek Rd / Internal Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	40	21.0	0.024	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.8
6	R2	1	0.0	0.024	5.6	LOS A	0.0	0.1	0.01	0.02	0.01	57.5
Approach		41	20.5	0.024	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.7
North: Internal Rd												
7	L2	1	0.0	0.035	5.6	LOS A	0.1	0.8	0.17	0.57	0.17	53.2
9	R2	40	4.0	0.035	5.8	LOS A	0.1	0.8	0.17	0.57	0.17	52.5
Approach		41	3.9	0.035	5.8	LOS A	0.1	0.8	0.17	0.57	0.17	52.5
West: N Creek Rd												
10	L2	35	0.0	0.039	5.5	LOS A	0.0	0.0	0.00	0.30	0.00	55.4
11	T1	33	31.0	0.039	0.0	LOS A	0.0	0.0	0.00	0.30	0.00	56.8
Approach		67	15.0	0.039	2.9	NA	0.0	0.0	0.00	0.30	0.00	56.1
All Vehicles		149	13.5	0.039	2.9	NA	0.1	0.8	0.05	0.30	0.05	56.0

Junction 3 – North Creek Road / Bupa Road intersection 2032 'Pre-development'



Site: 1 [N Creek Rd / Bupa Access Rd 2032 Com-development AM]

N Creek Rd / Bupa Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	19	33.0	0.012	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	59.5
6	R2	1	0.0	0.012	5.6	LOS A	0.0	0.1	0.01	0.03	0.01	57.3
Approach		20	31.3	0.012	0.3	NA	0.0	0.1	0.01	0.03	0.01	59.4
North: Internal Rd												
7	L2	1	0.0	0.016	5.6	LOS A	0.1	0.4	0.11	0.57	0.11	53.3
9	R2	18	9.0	0.016	5.7	LOS A	0.1	0.4	0.11	0.57	0.11	52.4
Approach		19	8.5	0.016	5.7	LOS A	0.1	0.4	0.11	0.57	0.11	52.4
West: N Creek Rd												
10	L2	20	4.0	0.023	5.6	LOS A	0.0	0.0	0.00	0.31	0.00	55.0
11	T1	18	45.0	0.023	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	56.6
Approach		38	23.4	0.023	3.0	NA	0.0	0.0	0.00	0.31	0.00	55.7
All Vehicles		77	21.8	0.023	2.9	NA	0.1	0.4	0.03	0.30	0.03	55.8

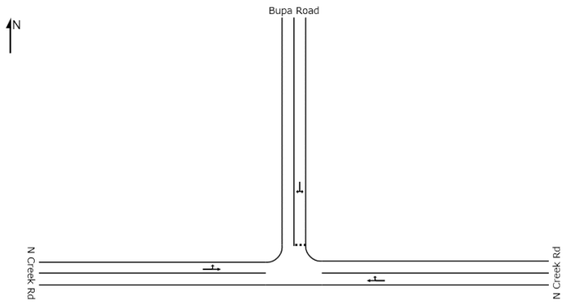
Site: 1 [N Creek Rd / Bupa Access Rd 2032 Com-development PM]

N Creek Rd / Bupa Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	31	21.0	0.018	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.7
6	R2	1	0.0	0.018	5.6	LOS A	0.0	0.1	0.01	0.02	0.01	57.5
Approach		32	20.3	0.018	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.7
North: Bupa Road												
7	L2	1	0.0	0.033	5.6	LOS A	0.1	0.8	0.14	0.57	0.14	53.3
9	R2	38	4.0	0.033	5.7	LOS A	0.1	0.8	0.14	0.57	0.14	52.5
Approach		39	3.9	0.033	5.7	LOS A	0.1	0.8	0.14	0.57	0.14	52.6
West: N Creek Rd												
10	L2	33	0.0	0.031	5.5	LOS A	0.0	0.0	0.00	0.36	0.00	55.0
11	T1	21	31.0	0.031	0.0	LOS A	0.0	0.0	0.00	0.36	0.00	56.4
Approach		54	12.2	0.031	3.4	NA	0.0	0.0	0.00	0.36	0.00	55.6
All Vehicles		124	11.6	0.033	3.3	NA	0.1	0.8	0.05	0.34	0.05	55.5

Junction 3 – North Creek Road / Bupa Road intersection 2032 'Post-development'



Site: 1 [N Creek Rd / Bupa Access Rd 2032 Post-development AM]

N Creek Rd / Bupa Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	31	33.0	0.020	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.7
6	R2	1	0.0	0.020	5.6	LOS A	0.0	0.1	0.01	0.02	0.01	57.4
Approach		32	31.9	0.020	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.6
North: Internal Rd												
7	L2	1	0.0	0.017	5.7	LOS A	0.1	0.4	0.16	0.57	0.16	53.2
9	R2	19	9.0	0.017	5.9	LOS A	0.1	0.4	0.16	0.57	0.16	52.3
Approach		20	8.5	0.017	5.9	LOS A	0.1	0.4	0.16	0.57	0.16	52.3
West: N Creek Rd												
10	L2	22	4.0	0.037	5.6	LOS A	0.0	0.0	0.00	0.23	0.00	55.6
11	T1	36	45.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	57.3
Approach		58	29.3	0.037	2.1	NA	0.0	0.0	0.00	0.23	0.00	56.6
All Vehicles		109	26.3	0.037	2.3	NA	0.1	0.4	0.03	0.23	0.03	56.6

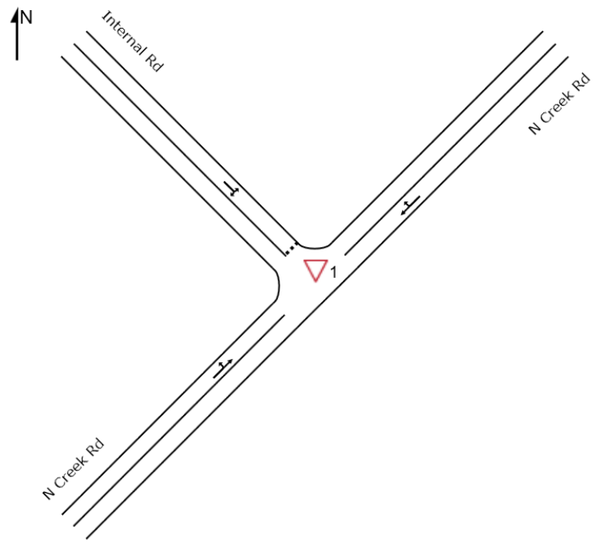
Site: 1 [N Creek Rd / Bupa Access Rd 2032 Post-development PM]

N Creek Rd / Internal Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: N Creek Rd												
5	T1	47	21.0	0.028	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	59.8
6	R2	1	0.0	0.028	5.7	LOS A	0.0	0.1	0.01	0.01	0.01	57.6
Approach		48	20.5	0.028	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.8
North: Bupa Road												
7	L2	1	0.0	0.036	5.7	LOS A	0.1	0.8	0.18	0.57	0.18	53.2
9	R2	40	4.0	0.036	5.9	LOS A	0.1	0.8	0.18	0.57	0.18	52.4
Approach		41	3.9	0.036	5.9	LOS A	0.1	0.8	0.18	0.57	0.18	52.5
West: N Creek Rd												
10	L2	35	0.0	0.042	5.5	LOS A	0.0	0.0	0.00	0.29	0.00	55.5
11	T1	37	31.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.29	0.00	57.0
Approach		72	16.0	0.042	2.7	NA	0.0	0.0	0.00	0.29	0.00	56.3
All Vehicles		161	14.3	0.042	2.7	NA	0.1	0.8	0.05	0.28	0.05	56.2

Junction 4 – North Creek Road / Proposed access intersection
2022 'Post-development'



Site: 1 [N Creek Rd / Expansion site Access Rd 2022 Post-development AM]

N Creek Rd / Internal Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: N Creek Rd												
5	T1	16	33.0	0.010	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	59.5
6	R2	1	0.0	0.010	5.5	LOS A	0.0	0.1	0.01	0.04	0.01	57.2
Approach		17	30.9	0.010	0.4	NA	0.0	0.1	0.01	0.04	0.01	59.3
NorthWest: Internal Rd												
7	L2	1	0.0	0.010	5.6	LOS A	0.0	0.2	0.10	0.57	0.10	53.4
9	R2	12	9.0	0.010	5.7	LOS A	0.0	0.2	0.10	0.57	0.10	52.4
Approach		13	8.3	0.010	5.7	LOS A	0.0	0.2	0.10	0.57	0.10	52.5
SouthWest: N Creek Rd												
10	L2	19	4.0	0.021	5.6	LOS A	0.0	0.0	0.00	0.33	0.00	54.8
11	T1	15	45.0	0.021	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	56.4
Approach		34	21.9	0.021	3.1	NA	0.0	0.0	0.00	0.33	0.00	55.5
All Vehicles		63	21.6	0.021	2.9	NA	0.0	0.2	0.02	0.30	0.02	55.8

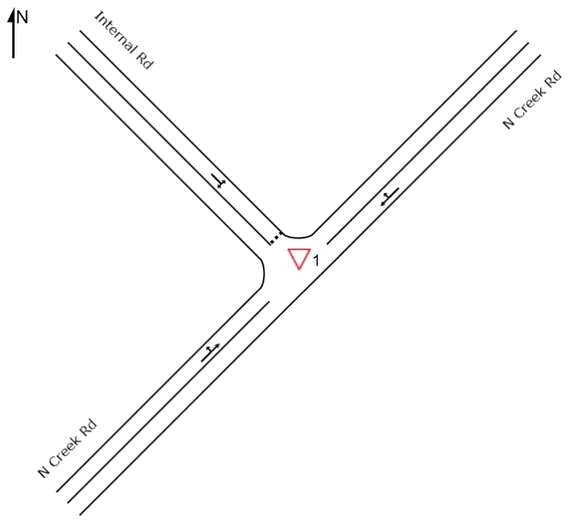
Site: 1 [N Creek Rd / Expansion site Access Rd 2022 Post-development PM]

N Creek Rd / Internal Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: N Creek Rd												
5	T1	23	21.0	0.014	0.0	LOS A	0.0	0.0	0.01	0.03	0.01	59.7
6	R2	1	0.0	0.014	5.5	LOS A	0.0	0.0	0.01	0.03	0.01	57.4
Approach		24	20.1	0.014	0.2	NA	0.0	0.0	0.01	0.03	0.01	59.6
NorthWest: Internal Rd												
7	L2	1	0.0	0.015	5.6	LOS A	0.0	0.3	0.11	0.57	0.11	53.4
9	R2	17	4.0	0.015	5.7	LOS A	0.0	0.3	0.11	0.57	0.11	52.6
Approach		18	3.8	0.015	5.7	LOS A	0.0	0.3	0.11	0.57	0.11	52.7
SouthWest: N Creek Rd												
10	L2	17	0.0	0.019	5.5	LOS A	0.0	0.0	0.00	0.31	0.00	55.4
11	T1	16	31.0	0.019	0.0	LOS A	0.0	0.0	0.00	0.31	0.00	56.9
Approach		33	15.0	0.019	2.9	NA	0.0	0.0	0.00	0.31	0.00	56.1
All Vehicles		75	14.0	0.019	2.7	NA	0.0	0.3	0.03	0.28	0.03	56.3

Junction 4 – North Creek Road / Proposed access intersection
2032 'Post-development'



Site: 1 [N Creek Rd / Expansion site Access Rd 2032 Post-development AM]

N Creek Rd / Bupa Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: N Creek Rd												
5	T1	21	33.0	0.014	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	59.6
6	R2	1	0.0	0.014	5.6	LOS A	0.0	0.1	0.01	0.03	0.01	57.3
Approach		22	31.4	0.014	0.3	NA	0.0	0.1	0.01	0.03	0.01	59.5
NorthWest: Internal Rd												
7	L2	1	0.0	0.011	5.6	LOS A	0.0	0.3	0.11	0.57	0.11	53.3
9	R2	12	9.0	0.011	5.7	LOS A	0.0	0.3	0.11	0.57	0.11	52.4
Approach		13	8.3	0.011	5.7	LOS A	0.0	0.3	0.11	0.57	0.11	52.5
SouthWest: N Creek Rd												
10	L2	19	4.0	0.023	5.6	LOS A	0.0	0.0	0.00	0.29	0.00	55.1
11	T1	19	45.0	0.023	0.0	LOS A	0.0	0.0	0.00	0.29	0.00	56.7
Approach		38	24.5	0.023	2.8	NA	0.0	0.0	0.00	0.29	0.00	55.9
All Vehicles		73	23.8	0.023	2.5	NA	0.0	0.3	0.02	0.26	0.02	56.3

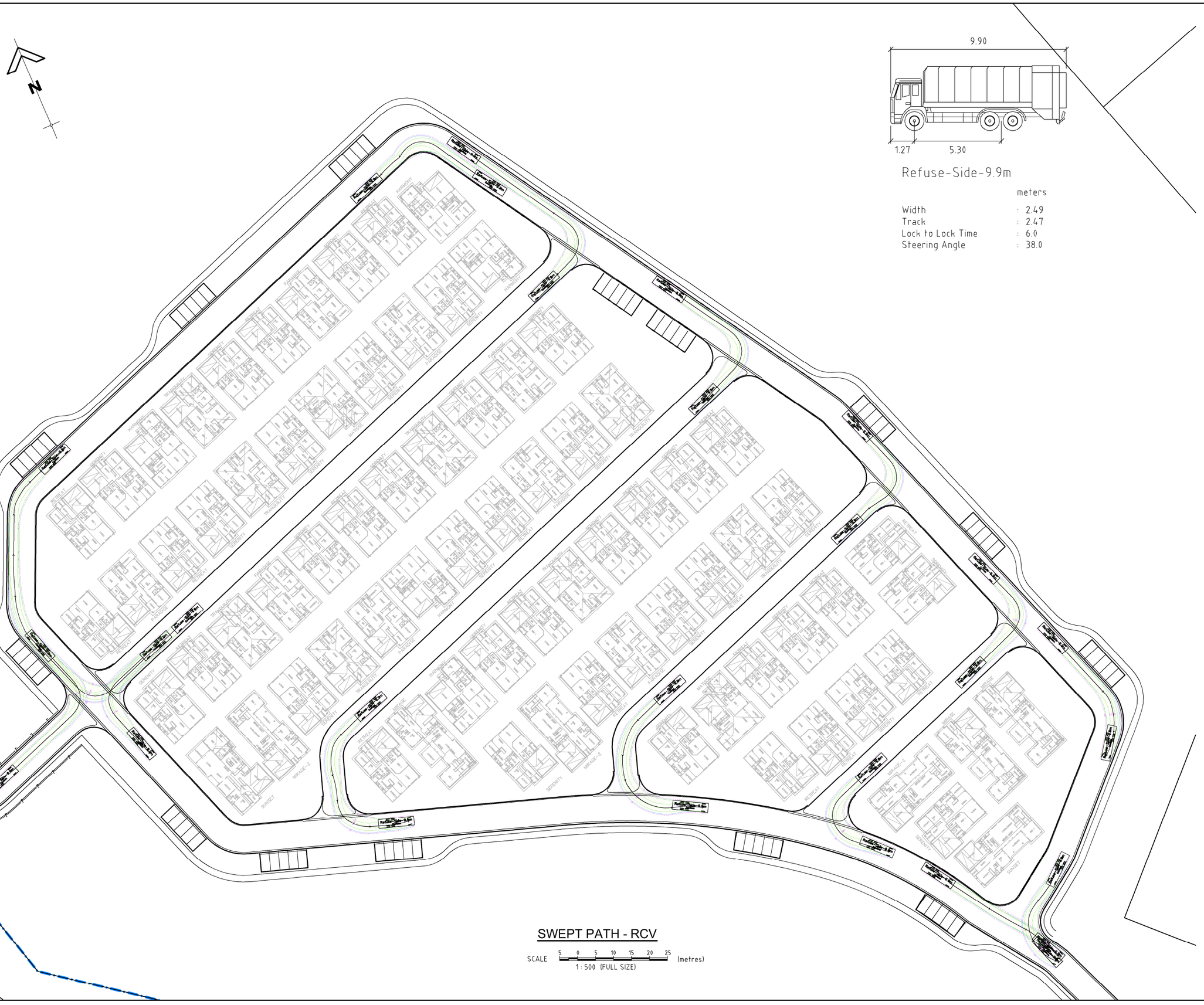
Site: 1 [N Creek Rd / Expansion Site Access Rd 2032 post-development PM]

N Creek Rd / Internal Rd
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	Demand Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: N Creek Rd												
5	T1	31	21.0	0.018	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	59.7
6	R2	1	0.0	0.018	5.6	LOS A	0.0	0.0	0.01	0.02	0.01	57.5
Approach		32	20.3	0.018	0.2	NA	0.0	0.0	0.01	0.02	0.01	59.7
NorthWest: Bupa Road												
7	L2	1	0.0	0.015	5.6	LOS A	0.0	0.3	0.13	0.57	0.13	53.3
9	R2	17	4.0	0.015	5.7	LOS A	0.0	0.3	0.13	0.57	0.13	52.6
Approach		18	3.8	0.015	5.7	LOS A	0.0	0.3	0.13	0.57	0.13	52.6
SouthWest: N Creek Rd												
10	L2	17	0.0	0.022	5.5	LOS A	0.0	0.0	0.00	0.26	0.00	55.7
11	T1	21	31.0	0.022	0.0	LOS A	0.0	0.0	0.00	0.26	0.00	57.2
Approach		38	17.2	0.022	2.5	NA	0.0	0.0	0.00	0.26	0.00	56.5
All Vehicles		87	15.6	0.022	2.3	NA	0.0	0.3	0.03	0.24	0.03	56.7

Appendix F – Vehicle Swept Path Drawings



PALM LAKE RESORT
BALLINA
CORKS LANE

FOR

PALM LAKE RESORTS

A1 ORIGINAL SIZE BEFORE REDUCTION

VER.	DESCRIPTION	APPR.	DATE
C	LAYOUT AMENDED		04-06-19
B	LAYOUT AMENDED		03-04-19
A	ORIGINAL ISSUE		22-03-19

BURCHILLS ENGINEERING SOLUTIONS

Level 8, Australia Fair Tower
42 Marine Parade, Southport QLD 4215
PO Box 3766, Australia Fair, Southport QLD 4215
Phone: +61 7 5509 6400
Fax: +61 7 5509 6411
Email: admin@burchills.com.au
Coote Burchills Engineering Pty Ltd
ABN 76 166 942 365

PROJECT:
PALM LAKE RESORT
BALLINA

DRAWING TITLE :
SWEPT PATH - RCV

DEVEL. APPLIC. No. : -	DATE : 04-06-19
PROJECT LEADER : LUCAS FAULKNER	
DESIGNER : DEAN HARDWICK	
DRAFTSPERSON : YVONNE BLOOMFIELD	
CHECKED : -	

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

RPEQ No. :

SCALE : AS NOTED	DATUM : AHD	FULL SIZE : A1
PROJECT No.: BE150074	DRAWING No. : SK021	VERSION: C

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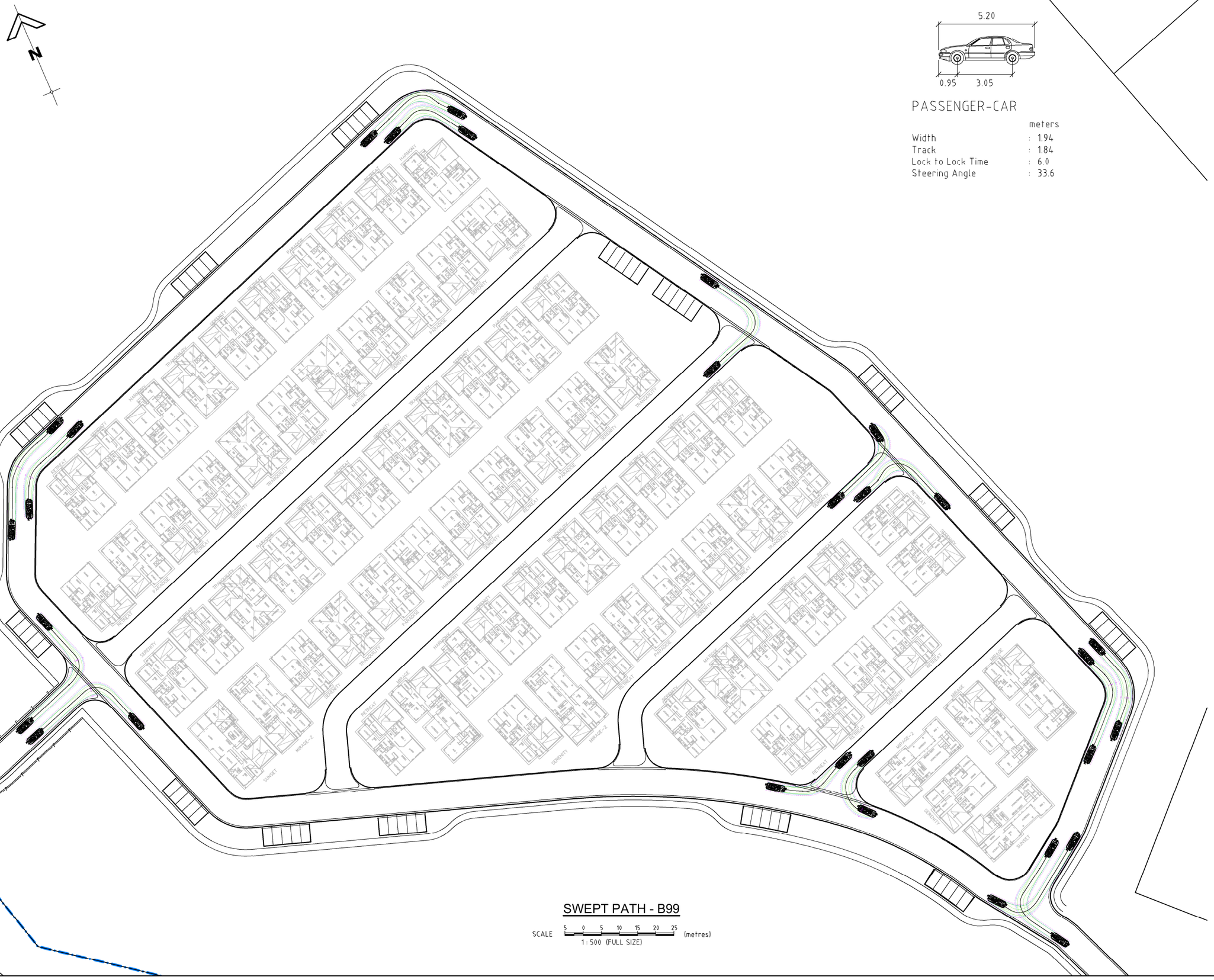

SWEPT PATH - B99

SCALE 5 0 5 10 15 20 25 (metres)
1 : 500 (FULL SIZE)

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PALM LAKE RESORT
BALLINA
CORKS LANE

FOR

PALM LAKE RESORTS

A1 ORIGINAL SIZE BEFORE REDUCTION

VER.	DESCRIPTION	APPR.	DATE
C	LAYOUT AMENDED		04-06-19
B	LAYOUT AMENDED		03-04-19
A	ORIGINAL ISSUE		22-03-19

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BURCHILLS ENGINEERING SOLUTIONS
Level 8, Australia Fair Tower
42 Marine Parade, Southport QLD 4215
PO Box 3766, Australia Fair, Southport QLD 4215
Phone: +61 7 5509 6400
Fax: +61 7 5509 6411
Email: admin@burchills.com.au
Coote Burchills Engineering Pty Ltd
ABN 76 166 942 365

PROJECT:
PALM LAKE RESORT
BALLINA

DRAWING TITLE :
SWEPT PATH - B99

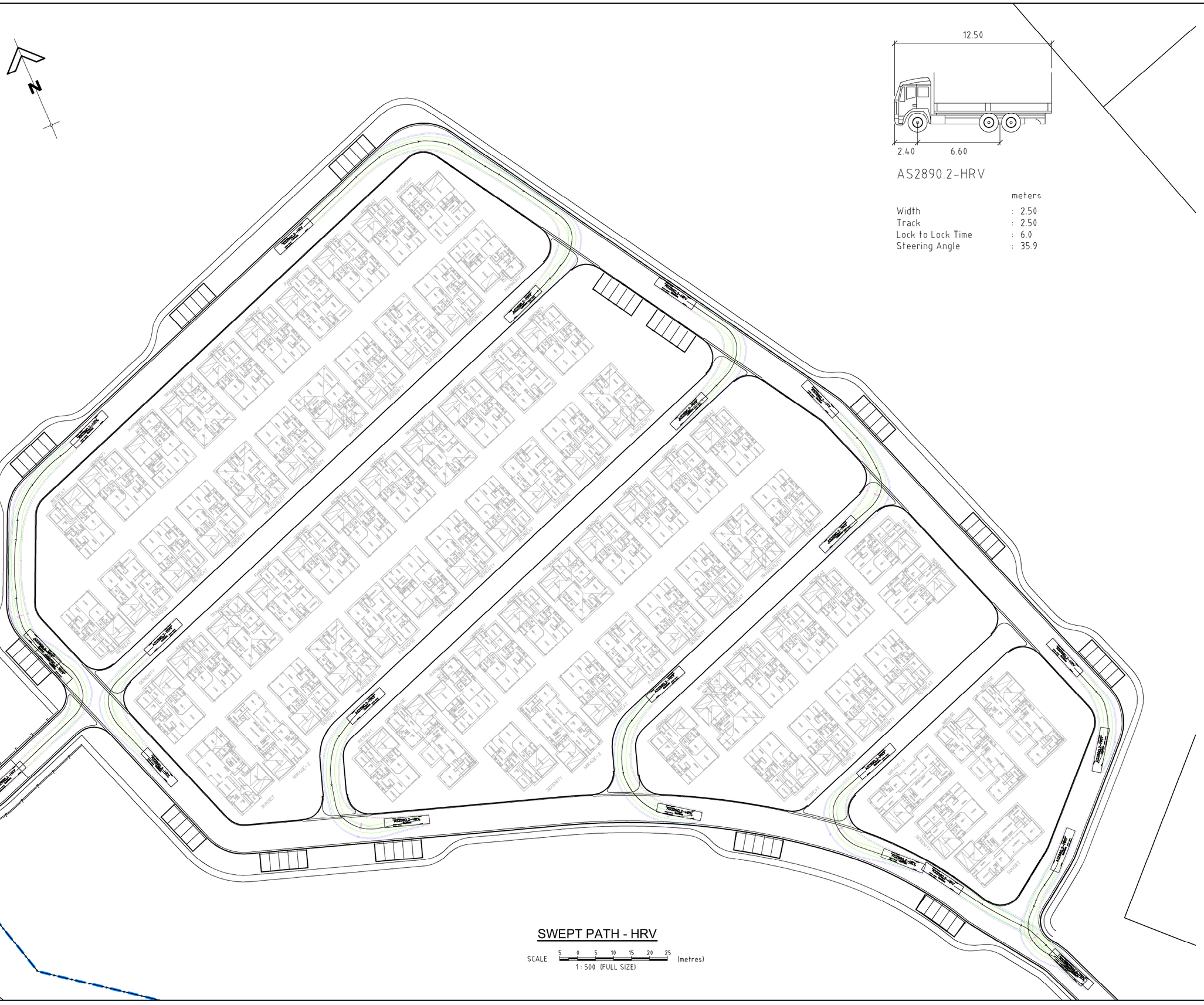
DEVEL. APPLIC. No. : -	DATE : 04-06-19
PROJECT LEADER : LUCAS FAULKNER	
DESIGNER : DEAN HARDWICK	
DRAFTSPERSON : YVONNE BLOOMFIELD	
CHECKED : -	

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

RPEQ No. :

SCALE : AS NOTED	DATUM : AHD	FULL SIZE : A1

PROJECT No.:	DRAWING No. :	VERSION:
BE150074	SK022	C



PALM LAKE RESORT
BALLINA
CORKS LANE

FOR

PALM LAKE RESORTS

A1 ORIGINAL SIZE BEFORE REDUCTION

VER.	DESCRIPTION	APPR.	DATE
C	LAYOUT AMENDED		04-06-19
B	LAYOUT AMENDED		03-04-19
A	ORIGINAL ISSUE		22-03-19

BURCHILLS ENGINEERING SOLUTIONS
Level 8, Australia Fair Tower
42 Marine Parade, Southport QLD 4215
PO Box 3766, Australia Fair, Southport QLD 4215
Phone: +61 7 5509 6400
Fax: +61 7 5509 6411
Email: admin@burchills.com.au
Coote Burchills Engineering Pty Ltd
ABN 76 166 942 365

PROJECT:
PALM LAKE RESORT
BALLINA

DRAWING TITLE :
SWEPT PATH - HRV

DEVEL. APPLIC. No. : -	DATE : 04-06-19
PROJECT LEADER : LUCAS FAULKNER	
DESIGNER : DEAN HARDWICK	
DRAFTSPERSON : YVONNE BLOOMFIELD	
CHECKED : -	

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

RPEQ No. :

SCALE : AS NOTED	DATUM : AHD	FULL SIZE : A1

PROJECT No.:	DRAWING No. :	VERSION:
BE150074	SK020	C

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