ATTACHMENTS TO

Commercial Services Committee Meeting Business Paper

4 June 2025

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Ballina Byron Gateway Airport

Ground Transport Management Plan

Ballina Shire Council

24th March 2025

Gold Coast
Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377

Brisbane
Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442

Sydney
Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

W: www.bitziosconsulting.com.au

E: admin@bitziosconsulting.com.au

Document Issue History

Report File Name	Version	Document Control		Date	Issued to
P6438.001R BBGA GTMP	001	Prepared: Reviewed: Issued	S. Tafa / M. Bitzios A. Eke M. Bitzios	04/12/2024	Brett Curtis, Brett.Curtis@ballina.nsw.gov.au
P6438.002R BBGA GTMP	002	Prepared: Reviewed: Issued:	S.Tafa M. Bitzios S. Tafa	21/03/2025	Brett Curtis, Brett.Curtis@ballina.nsw.gov.au
P6438.003R BBGA GTMP	003	Prepared: Reviewed: Issued:	S.Tafa M. Bitzios S. Tafa	24/03/2025	Brett Curtis, Brett.Curtis@ballina.nsw.gov.au

EXECUTIVE SUMMARY

Background

The Ballina Byron Gateway Airport (BBGA) caters for around 620,000 passengers a year. As the largest Council owned commercial airport in Australia, it provides a strong foundation for Ballina's economy. The airport has recently experienced strong growth which is expected to continue, with the emergence of Ballina and surrounding the north coast region as a domestic tourism destination and attractive lifestyle destination for residents.

The investigations for the GTMP focus on improving the safety and efficiency of existing airport infrastructure and to provide a future focused Master Plan that align with Council's goals.

Objectives

The purpose of the GTMP is to provide the framework needed for cost-effective and staged development of the airports ground transport infrastructure, and should meet Council's objectives as listed below:

- Describe the anticipated short and long-term development plans to meet future aviation demand
- Provide an effective graphic presentation of the anticipated short-, medium-, and long-term development of the airports ground transport infrastructure
- Establish a realistic schedule for the stage implementation of the development proposed in the plan, particularly a short-term concept suitable for progression into design development, and
- Adopt a flexible approach to the expanding ground transport infrastructure ensuring its ongoing safe, secure, reliable and efficient operation.

Existing and Future Facilities Assessment

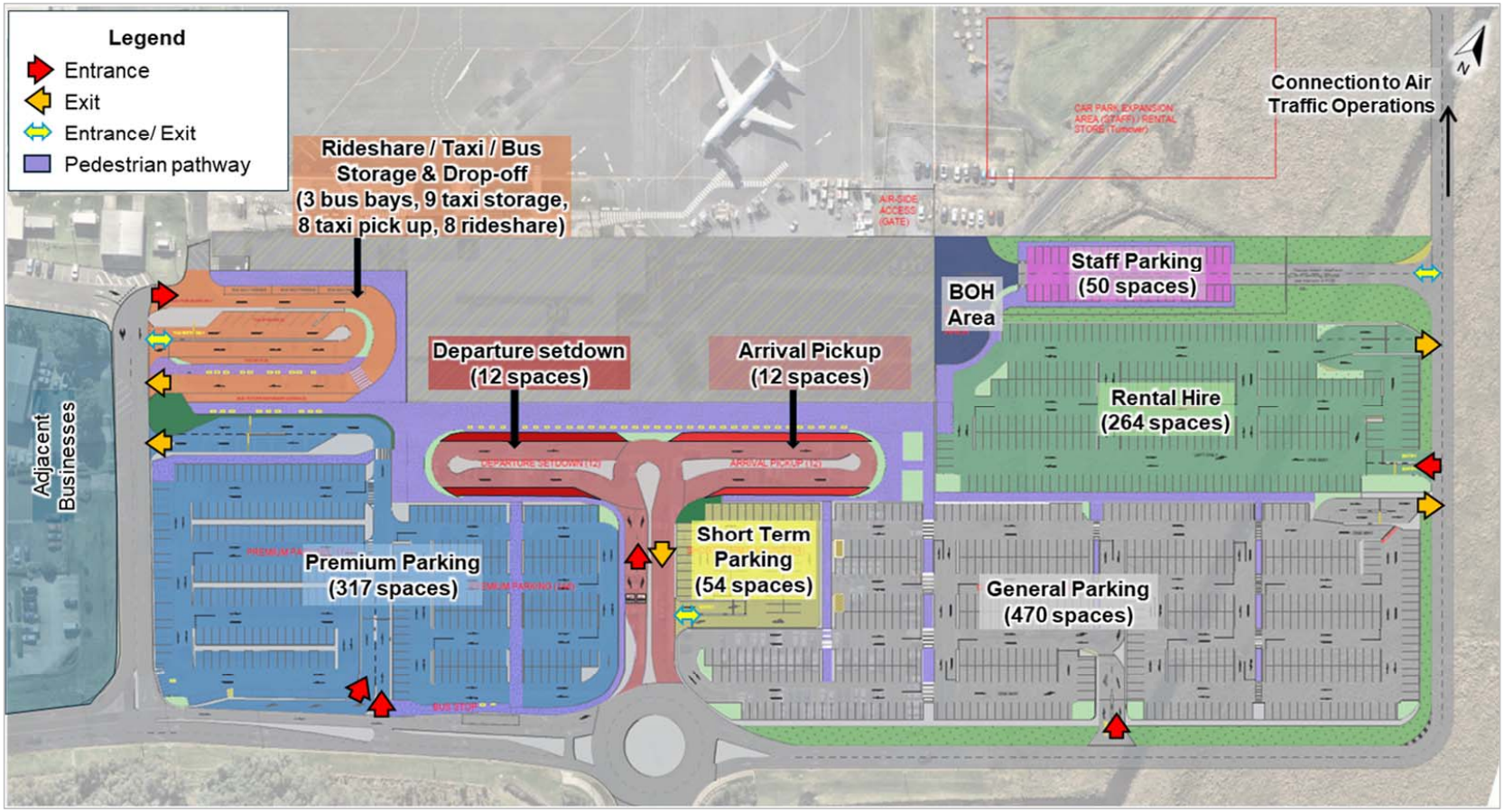
Existing and future planning strategies and related policies were reviewed to understand the issues and opportunities surrounding the site. Surveys were undertaken, and data collected was used to forecast airport growth, including patronage, parking and traffic demand. The existing study identified Premium and Taxi/Rideshare parking areas were underutilised and presented opportunities for improvement, to be aligned with Council's planned upgrades. To support assessed upgrades, the survey data was analysed in SIDRA modelling and applied a seasonal growth factor of 33% each year.

Preferred Ground Transport Master Plan

Ground transport layout options were workshopped through discussions with Council and refined over multiple iterations. Two options were recommended as part of the GTMP options analysis, which took consideration from similar sized regional airports such as Cairns, Hobart and Canberra. Each option was assessed against nine categories of the Master Plan objectives.

The preferred option is shown below and includes:

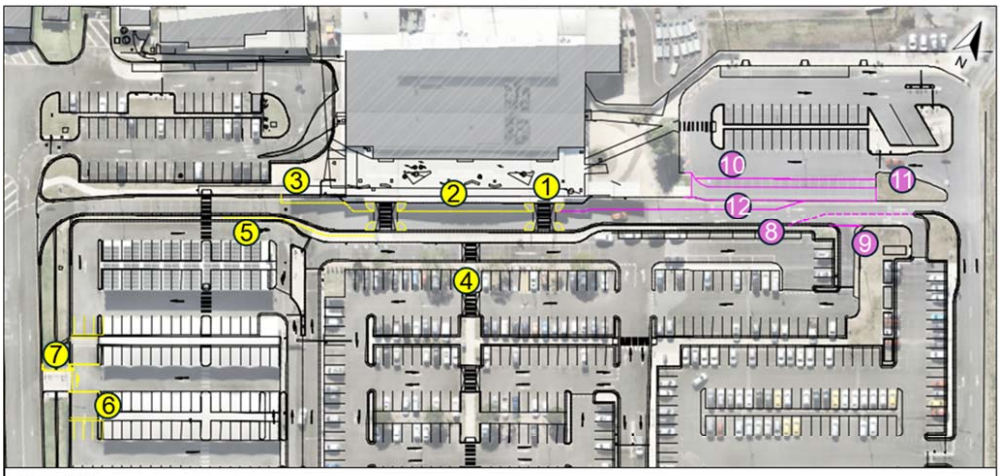
- Combined vehicle entry onto site through roundabout T-head intersection
- Separated departure and arrivals set-down and pick-up area
- Operational access is located on the west side
- Taxi and Bus storage moved away from front of house – centre bay to be used for taxi storage
- Separated taxi and Bus entry and exit
- Premium carparking allocation provides scalability
- No pedestrian conflicts with drop off and pick up area
- Separated entry and exit for Rental
- Relocation of the staff parking outlined within the future expansion area and into the new General carpark precinct
- Desire for only one point of entry / exit for each precinct
- Further operation access on the east side of general parking.



Ballina Airport Ground Transport Master Plan

Short Term Recommendations

To assist in the delivery of the proposed GTMP, short term interim options were also recommended to provide "quick-fix" solutions whilst further investigations and planning can progress. The short-term interim options are shown below.



Item 1A

1. Remove drop off zone line marking and provide as one zone
2. Provide kerb extensions at both Pedestrian Crossings
3. Provide standard PWD space drop off zone west of western crossing
4. PWD gradients from standard parking to terminal
5. Provide Fencing to reshape pedestrian desire line from premium
6. Block off parking aisle and provide 90-degree parking bays on both sides
7. Move boom gate and camera to align with vehicle exiting from centre aisle

Item 1B

Including Item 1A

8. Shorten Right turn pocket into rental
9. Remove Right turn entry facility into general
10. Convert 90-degree South facing bays in taxi area to parallel
11. Extend pedestrian pathway zone to landscaping
12. Install pickup zone to end of new rental right turn pocket

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1. INTRODUCTION

1.1 Context

Ballina Shire Council (Council) is located in Northern NSW, less than 200 kilometres south of Brisbane. The shire is serviced by the Ballina Byron Gateway Airport (BBGA), which caters for approximately 620,000 commercial passengers a year.

Bitzios has been engaged by Council to develop a Ground Transport Master Plan (GTMP) for the BBGA. The airport is a certified security-controlled and screen airport and, as the largest Council owned commercial airport in Australia, provides a strong foundation to Ballina's economy. The airport has recently experienced strong growth which is expected to continue, with the emergence of Ballina and surrounding the north coast region as a domestic tourism destination and attractive lifestyle destination for residents. The airport's location with respect to the Ballina CBD is provided in Figure 1.1.

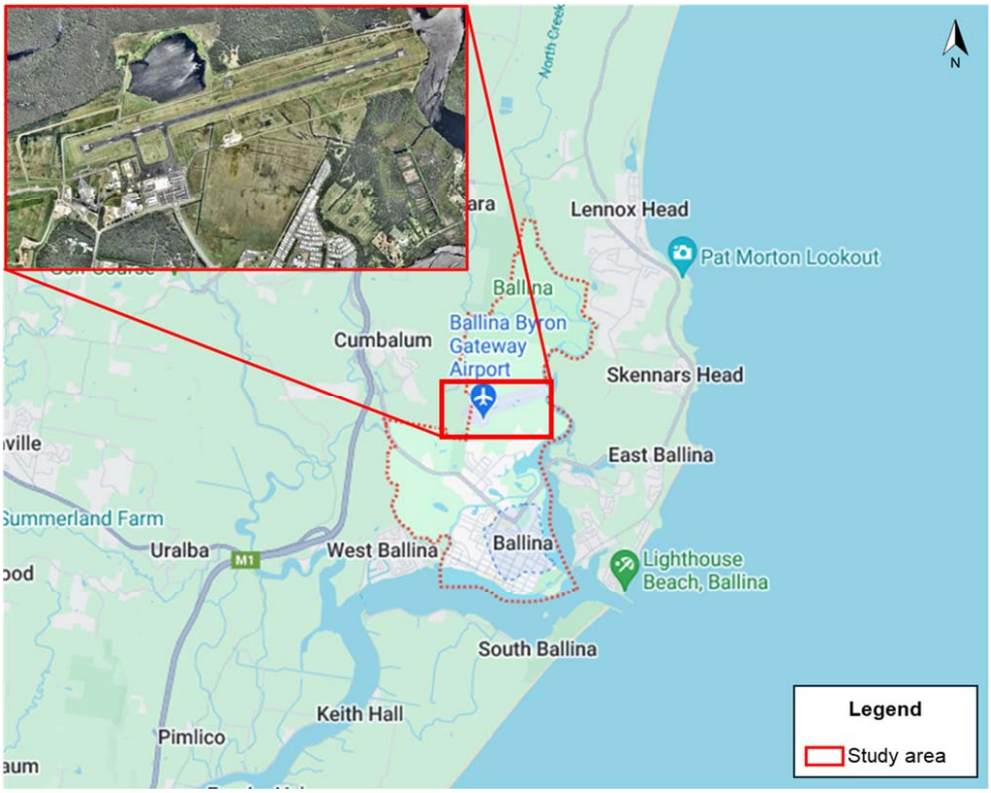


Figure 1.1: Study Area

1.2 Airport Master Plan

The airport is anticipated to grow to 1.29 million travellers by 2040, with the increase trips typically linked to tourism, and the growing popularity of hybrid remote employment which sees a work force who require access to a major airport to travel to traditional major hubs within capital cities. Terminal expansion is planned to account for the resultant increase in air traffic which will have a flow-on impact on the demand for ground transport facilities. A GTMP is required to optimise existing operations, and provide resilient infrastructure to cater for a 50% uplift in passengers over the next 20 years.

1.3 Purpose of this GTMP

The GTMP is to provide the framework needed for cost-effective and staged development of the airports ground transport infrastructure, and should meet Council's objectives as listed below:

- Describe anticipated short, and long-term development plans to meet future aviation demand,
- Provide an effective graphic presentation of the anticipated short- and long-term development of the airports ground transport infrastructure
- Establish a realistic schedule for the stage implementation of the development proposed in the plan, particularly a short-term concept suitable for progression into design development, and
- Adopt a flexible approach to the expanding ground transport infrastructure ensuring its ongoing safe, secure, reliable and efficient operation.

1.4 Contents of this GTMP

This GTMP is comprised of the following key elements:

- **Chapter 2** – Review of existing operations and relevant state / council strategic planning
- **Chapter 3** – Review of existing ground transport infrastructure including the findings of consultation with ground staff and car rental operators
- **Chapter 4** – Review and forecast of current and future year parking demand and trip generation. Car parking demand is disaggregated by parking type.
- **Chapter 5** – Overview of the design process and staging of the proposed Master Plan, including assessment against future year parking demand and intersection modelling of key intersections.
- **Chapter 6** – Summary and conclusions.

2. BACKGROUND

2.1 Existing Airport Operations

The BBGA is easily accessed by people from a number of different suburbs and states. Key features of Ballina Byron Gateway Airport are illustrated in Figure 2.1.

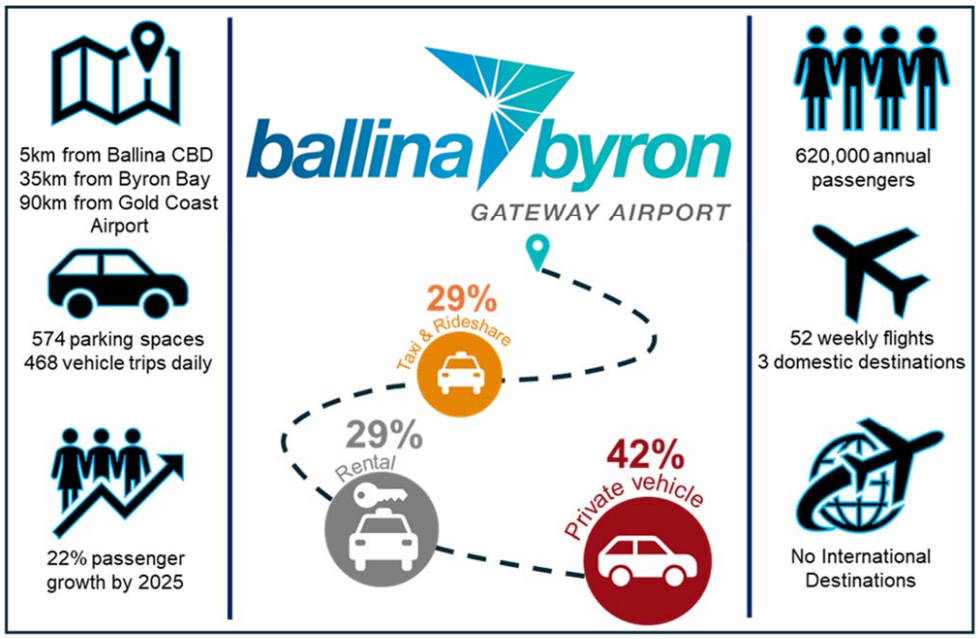
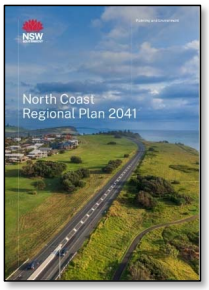


Figure 2.1: Key Features of Ballina Airport

The BBGA services flights to Sydney, Melbourne, and Newcastle; however, its highest number of flights are to Sydney. The current partnership airlines are Qantas, Jetstar, Virgin Australian. Fly Pelican previously operated flights into and out of BBGA, however, ceased operations to the airport in October 2024. On a typical day, the BBGA caters for 16 flights between 8am – 6pm, most commonly to / from Sydney.

2.2 Existing Plans and Strategies

2.2.1 North Coast Regional Plan 2041

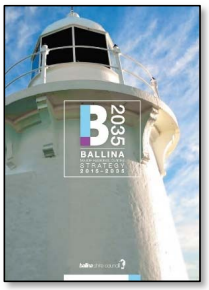


The North Coast Regional Plan (NCRP) sets a 20-year strategic land use planning framework for the region, with aims to protect and enhance the region's assets and plan for a sustainable future. Ballina Shire is recognised as a key strategic centre of the North Coast, with a strong and diverse economy forecast to continue to grow. The plan recognises the BBGA as a major support for cultural tourism in the region, and supports the plan's regional priorities for Smart, Connected and Accessible Infrastructure. In respect of transport connections, the NCRP has outlined objectives with the goal to provide a Productive and Connected region:

- Improve state and regional connectivity
- Increase active and public transport usage
- Utilise new transport technology.

No specific plans outline improvement connections for the BBGA via state-controlled roads, however, the plan recognises the need for promotion of intrastate aviation between North Coast Holiday airport destinations that include Ballina-Byron, Coffs Harbour and Port-Macquarie. This document is considered where relevant within the GTMP.

2.2.2 Ballina Major Regional Centre Strategy 2015 – 2035



The Ballina Major Regional Centre Strategy (MRCS) is a long-term regional planning strategy designed to advance and consolidate Ballina as a regional centre. It focuses on community expectations and feedback on outlining key issues, drivers of change, aspirations and ideas within the community for improvement to achieving the local vision of a '*Vibrant and Prosperous Regional Centre'*.

The Strategy promotes six key themes against four key principles:

Key Themes

- Open Space and Healthy Living
- Economic Development
- Character, Culture and Amenity
- Community Facilities and Infrastructure
- Environment
- Housing

Key Principles

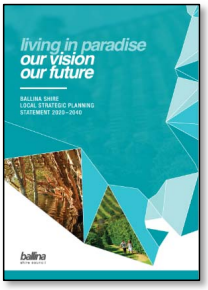
- Inclusive
- Resilient
- Sustainable
- Vibrant

Overall, three key drivers were identified with strategic responses that focus on future population growth and related BBGA infrastructure connections:

- Population Growth Potential – Prepare for the population growth that is anticipated to occur with the development of major urban growth areas. This also includes actions that enhance lifestyle opportunities and access to services and facilities for existing and future residents
- The BBGA - harness opportunities that invest in the airports infrastructure and encourage future opportunities
- Industrial Land Supply – Harness opportunities associated with the strategic location of Councils Industrial land supplies, adjacent to the BBGA and key future road infrastructure upgrades.

The MRCS provides the context required for long term planning and meeting the expectations of the community in Ballina Shire. This document will be considered where relevant in providing the GTMP.

2.2.3 Ballina Local Strategic Planning Statement 2020 - 2040



The Local Strategic Planning Statement (LSPS) is the strategic document that plans for Ballina's economic, social and environmental priorities and aligns with the North Coast Regional Plan 2036 to implement directions and actions at a local level.

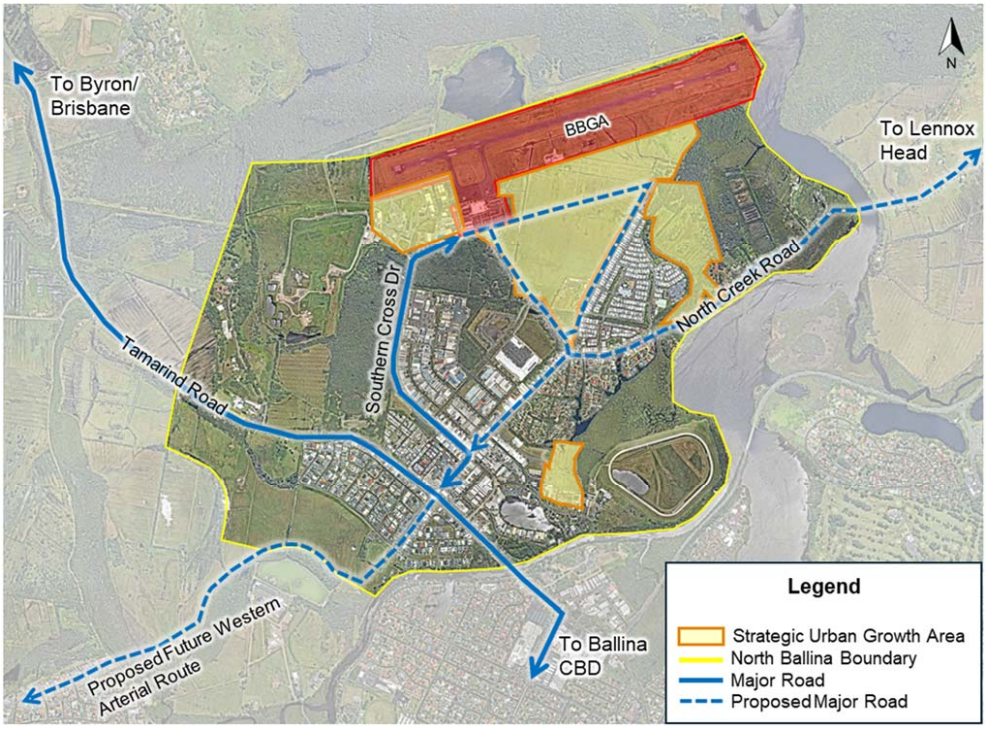
The LSPS builds on plans and goals of the:

- Ballina Shire Local Growth Management Strategy (*Superseded*)
- Ballina Shire Local Environment Plan 2012 (LEP)
- Ballina Shire Development Control Plan 2012 (DCP)
- Ballina Shire Community Strategic Plan
- Ballina Shire Delivery Operation Plan 2019.

Within the document, 14 Planned Priorities and 56 Actions include the desire for future urban development enhancement that contribute to the Shire's growth in all aspects. Within this strategy, the BBGA is identified as one of the Shire's key pieces of transport infrastructure, offering significant access and transportation opportunities for industrial, commercial and leisure activities in the area. It recognises the importance of maintaining and supporting the airport infrastructure and integrating key infrastructure surrounding it for future use.

Under the LGMS (now superseded), strategic actions to investigate a future road connection between North Ballina and Lennox Head via North Creek Road were identified as a future benefit in terms of better connectivity from North Ballina to the BBGA and Southern Cross Industrial Estate. As the Southern Cross Industrial Estate is located adjacent to the BBGA serves as primary industrial area for the region, and plans for improved air, rail and public transport infrastructure connectivity to both the Industrial Estate and the BBGA are outlined as a planned priority in this strategy also.

A map showing the proposed road connection is shown in Figure 2.2.



Source: Ballina Shire Local Growth Management Strategy 2016 (Re-made by Bitzios)

Figure 2.2: North Ballina Strategic Action Strategy Map

2.2.4 Ballina Shire Asset Management Plan 2024 – 2028

The Asset Management Plan (AMP) ensures efficient and sustainable management of a Ballina's assets including demands for assets and service levels and performance requirements to meet those service levels. Under the AMP, the Ballina Byron Gateway Airport is managed by Council assets as an important infrastructure for catering to the Shire's growth.

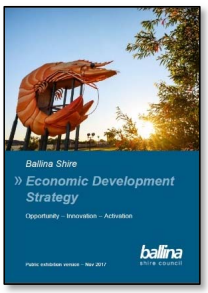
As population grows, a number of transport upgrades within the Shire are planned to maintain level of service. The AMP outlines the demographic change in population and population characteristics, particularly the service age groups and the related forecasts of demand. It is noted that no specific proposed improvements to the airport infrastructure, roads and connecting network have been identified under this strategy. Rather the strategy lists the objectives of Council's Strategic Plan and developed asset management objective related for delivering the operations. As such the Airport is only listed as an asset for preventative maintenance of both the runway and terminal.

2.2.5 Ballina Shire Delivery Program and Operational plan

The Delivery Program and Operation Plan form part of the NSW Office of Local Government's *Integrated Planning and Reporting* (IPR) Framework. A number of key elements of the framework focus on planning and reporting, of which the BBGA Master Plan is included in its 10-year focus.

Planned upgrades for improving connectivity and transport to the BBGA, aligns with the desired outcome of the Community Strategic Plan for a Prosperous Economy. Under the Delivery Program and Operational Plan, the BBGA is outlined as an operational plan activity which targets the goal "Enhance transport and other business networks". This plan provides context to planned works in Ballina with regards to the BBGA and will be considered where relevant to providing the GTMP.

2.2.6 Ballina Economic Development Strategy

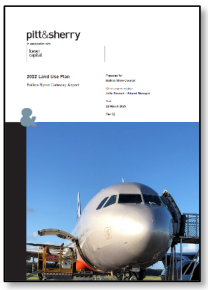


The Ballina Economic Development Strategy's purpose is to identify the key drivers of opportunity for economic development in Ballina Shire and far North Coast Region. It also identifies actions that Council can pursue to support these opportunities.

The Strategy recognises that the Shire's growth and tourism lifestyle is largely underpinned by the improvement of road connections from South-East Queensland through the Pacific Highway, as well as increasing passenger air services through the BBGA. As such, it highlights expansions to the BBGA as a driver for improved local road infrastructure, specifically for improved connections to the Southern Cross industrial Estate.

Although no specific improvements to the road infrastructure supporting the BBGA are outlined in this strategy, investigations towards the BBGA's expansion provides supporting evidence that improved parking and layout operations are needed to cater to the growth of Ballina in the future. This will be considered where relevant when providing the GTMP.

2.2.7 Ballina Byron Gateway Airport Land Use Plan 2022



The BBGA Land Use Plan (LUP) was formulated to assess the needs for the airport and understand reasonable actions to cater for the growth over the next 20 years; this included airport operations as a whole, including terminal space and passenger movement in and out of the terminal.

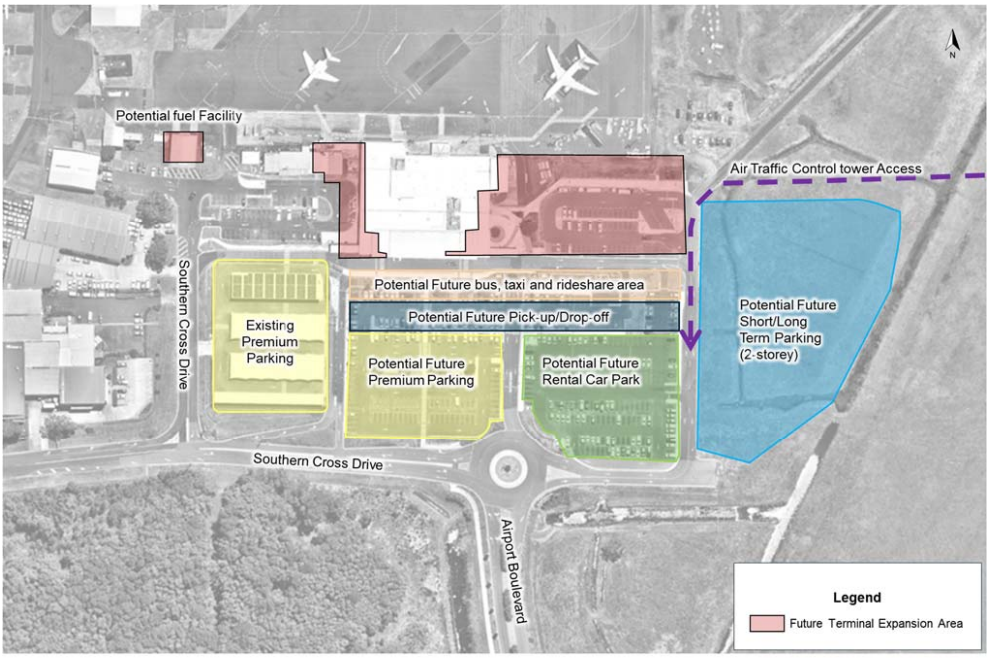
As the airport is owned and operated by Council, BBGA is not subject to statutory planning framework that requires an Airport Master Plan as per the Airports Act. However, the LUP and other planning frameworks provide support for the BBGA to better respond to the local growth in the area. General works undertaken included stakeholder consultation and engagement, assessment of existing facilities and infrastructure, constraints, trends and future growth forecasts for the entire airport as a whole. Conceptual designs and schematics were provided to highlight areas for realignment and growth.

In terms of future expansions and ground transport facilities, the following recommendations/ estimates were concluded in the LUP:

- estimated parking shortfalls for 2027 based on 5, 10 and 20 years, however no parking counts or occupancy counts were undertaken
- Rental car parking to be relocated off site
- Short Term and Long-Term parking to be segregated, realignment of parking
- Bus stop capacity to be reassessed
- Public bus integrated with Shuttle bus/taxi and ride share area, moved closer to the airport frontage
- Active transport only mentions a provision for a bicycle parking area for staff, however future pedestrian connections are not considered

- Existing taxi/ ride share area will be taken over for future terminal expansion
- Potential future short term/long term parking area expansion towards the eastern side is recommended
- Potential airport traffic control access road located directly north of future parking expansion.

Figure 2.3 shows the Ground Transport Concept Plan outlined in the LUP. Specific transport recommendations were made in the LUP which will be considered where relevant and provide the basis for providing the GTMP.



Source: BBGA Land Use Plan 2022 (remade by Bitzios)

Figure 2.3: LUP Ground Transport Concept Plan

3. EXISTING GROUND TRANSPORT INFRASTRUCTURE

3.1 Road Network

3.1.1 External Road Network

The major highway connections and surrounding external roads linking to the BBGA are shown in Figure 3.1 and Figure 3.2.

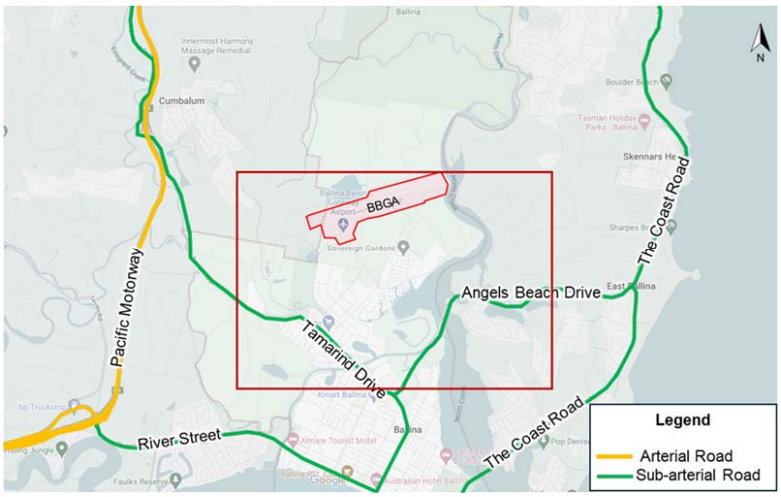


Figure 3.1: Greater External Road Network

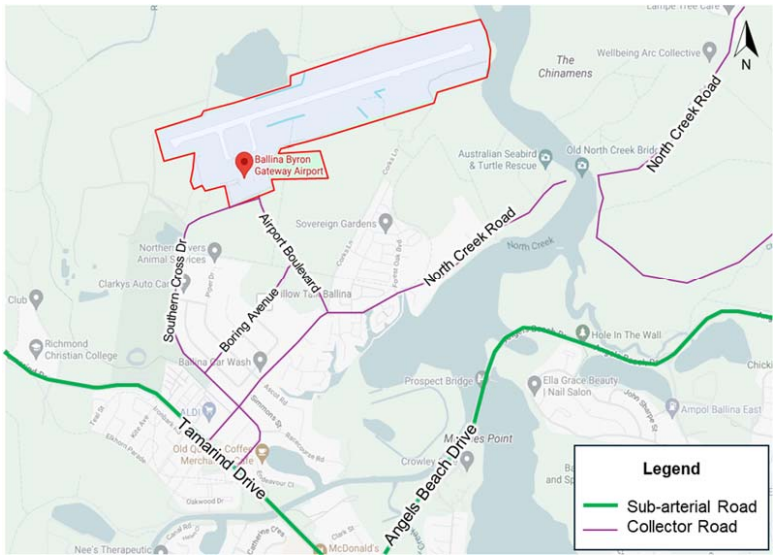


Figure 3.2: Surrounding External Road Network

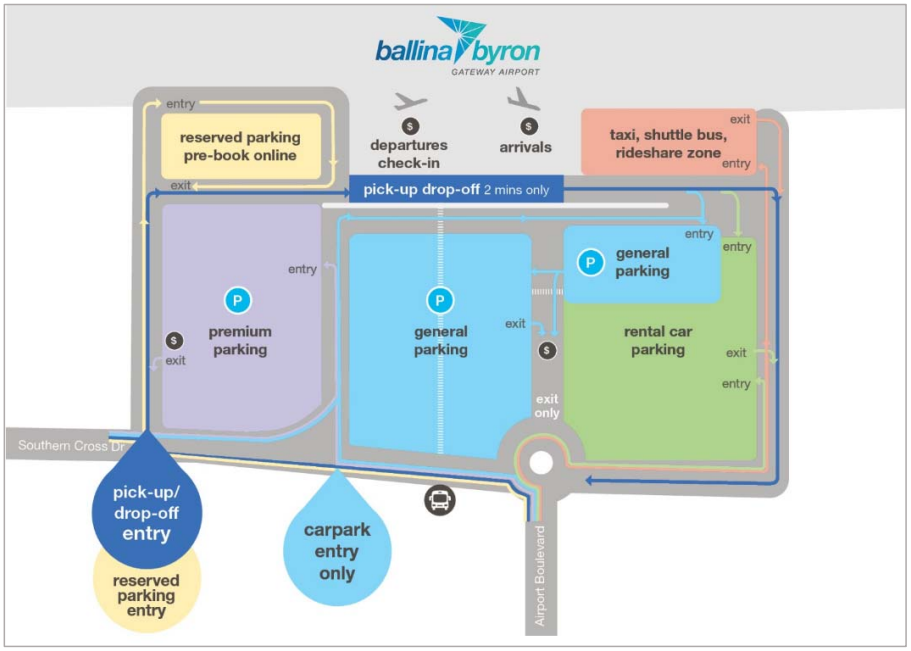
The BBGA is accessed by the local road Southern Cross Road and Airport Boulevard, further connecting to North Creek Road and Tamarind Drive. The majority of connections from the north are assumed to be accessed from Tamarind Drive off the Pacific Motorway, with other trips from Lennox Head connecting via The Coast Road and Angels Beach Drive. The details of the external road network are detailed in Table 3.1.

Table 3.1: External Road Network

Road Name	Jurisdiction	No. of lanes	Hierarchy	Posted Speed
Southern Cross Drive	Council	2	Distributor	60km/h
Airport Boulevard	Council	2	Distributor	-
Tamarind Drive	Council	2	Distributor	60km/h
River Street	Council	4	Distributor	60km/h
The Coast Road	Council	2	Arterial	80km/h
Angels Beach Drive	Council	2	Arterial	80km/h
Pacific Motorway	State	4	Arterial	100km/h

3.1.2 Ground transport layout

The current transport facilities of the BBGA are outlined in Figure 3.3.



Source: Ballina Shire Council Website

Figure 3.3: BBGA Current Facilities Layout

3.2 Public Transport

3.2.1 Bus Services

There is currently one bus stop fronting the BBGA parking area along Southern Cross Drive. Only one bus service (640) operates this stop. The bus boards at Ballina Airport and ends at Mullumbimby utilising the Old Coast Road through Ballina CBD and Byron Bay. Bus stop details are shown in Table 3.2.

Table 3.2: Bus Stop Service Details

Service	Route	Time	Frequency
640	To Ballina, Lennox Head, Byron Bay Bus Interchange and Mullumbimby	Weekday	1 hr peak
		Weekend	Every 2hrs

3.3 Active Transport

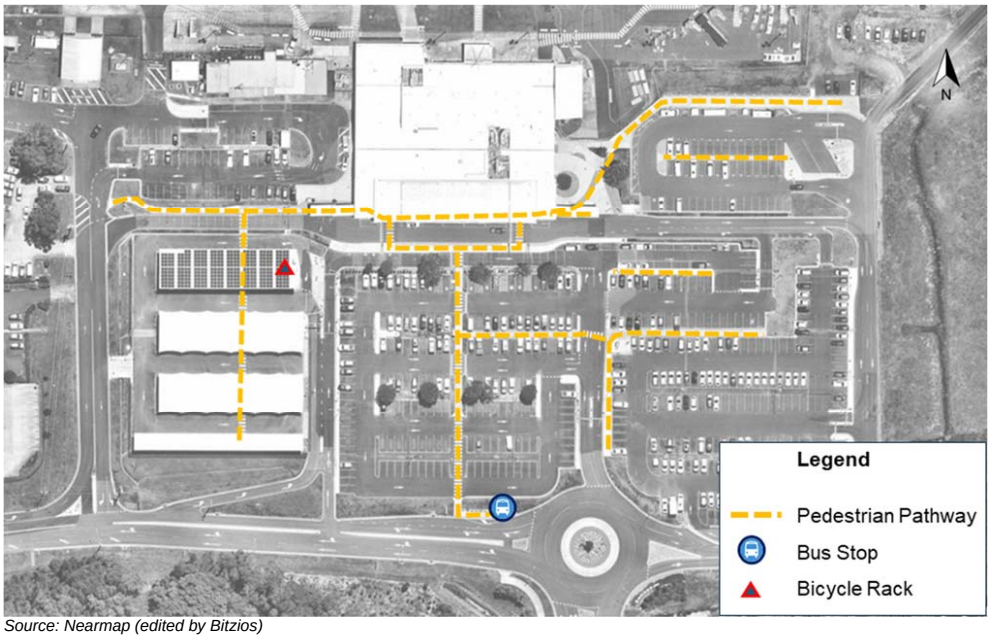
3.3.1 Bicycle access

There are limited cycle paths surrounding the BBGA and the majority of the cycle paths are on unsealed roads external to the BBGA. The site provides minimal bicycle parking, with only one parking rack located within the premium long stay car parking area.

3.3.2 Pedestrian

There is currently only one existing external footpath that connects to the BBGA frontage, of which connects directly through the carpark to the pick-up and drop-off area. Other pedestrian footpaths have been provided internally, connecting the car parking area also.

The existing pedestrian footpaths, bicycle rack and bus stop are shown in Figure 3.4.



Source: Nearmap (edited by Bitzios)

Figure 3.4: Active and Public Transport on Site

3.4 Ground Transport Facilities

3.4.1 Parking – Car Parking Supply

Parking is provided on site with the use of automated boom gates and pay station machines on site. The parking system uses plate recognition scanning for all gates within the parking area.

Car parking is provided within the following categories:

- **Premium Parking**: Used by customers with a long length of stay (i.e. more than four hours) who require parking close to the terminal.113 parking bays are provided in covered parking area and is located less than a one-minute walk from the terminal. Premium parking is offered at a flat daily rate of $30/day.

- **Short-Stay/ General parking:** Generally used by customers parking for less than four hours (64%). Parking is designed for those walking passengers into / out of the terminal, and passengers. The car park is less than a one-minute walk from the terminal, it has outdoor parking and costs $4/hour and then $2/hour for every hour after that. A daily fee of $20 is applied for all parking over 8 hours (long stay).
- **Reserved Parking:** Used by customers who want to secure a parking spot before they arrive. The parking provides a minimum of 24hrs for a flat rate of $25. The parking is located on the eastern corner of the Departure gate. Parking bookings are made online via the BBGA website.
- **Rental Parking:** Car rental is provided on-site, with rental car offices located within the airport terminal at the Arrival gate. The site includes 186 on-site car parks for rental ready vehicles which are stored separate to general parking bays,
- **Staff Parking:** Staff parking is not explicitly allocated on site, however most of staff parking is currently located at the back of the site, behind the allocated Taxi zone.

The number of car spaces supplied within each parking zone as of 2024 is outlined in Table 3.3.

Table 3.3: Car Parking Supply (2024)

Parking Area	Existing car spaces
Premium Parking	113 (including 2 PWD Bays)
Short Stay/General Parking	225 (Including 7 PWD Bays + 8 Motorbike Bays)
Reserved Parking (Online Bookings)	39
Rental Parking	186
Taxi and Rideshare	52
Staff Parking	54
Total Parking	**669**

3.4.2 Drop off/ Pick up

The passenger drop-off and pick up zone is located along the frontage of the departure and arrival gate entrance, and spans approximately 67m in length and can hold seven (7) vehicles at one time.

3.4.3 Taxi's/ Ride Share and Shuttle

A dedicated parking area is provided towards the western corner of the subject site for all taxi's, shuttle buses and ride share vehicles. Entry into the taxi area is controlled by boom gates with number plate recognition. Taxis and ride share vehicles who frequent the airport have had their number plate entered into the boom gate system by ground staff.

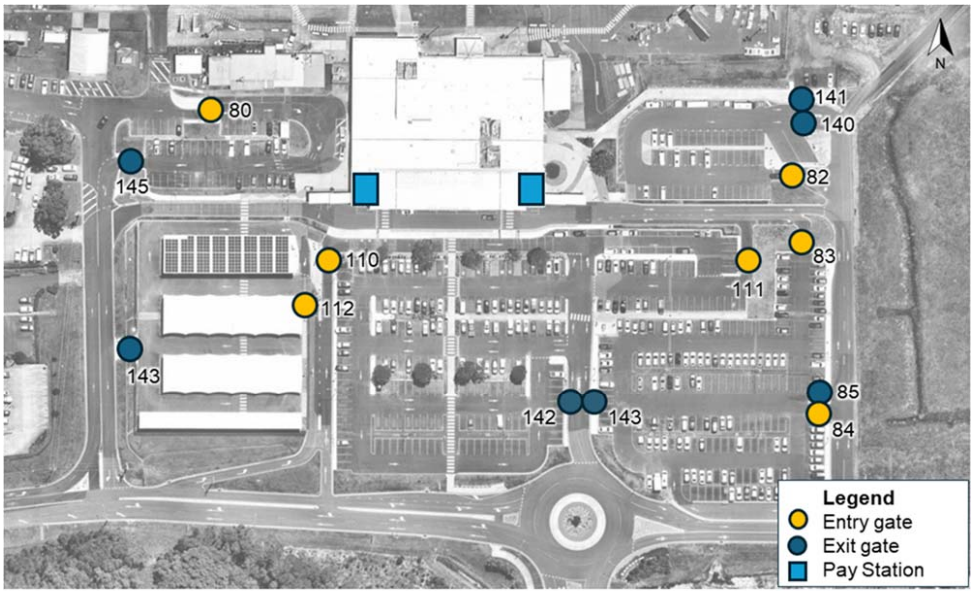
3.4.4 Freight/ Loading

A large loading zone is provided on the eastern corner of the departure gate which is accessed through the dedicated online reserved parking area.

3.4.5 Entry and Exit Operations

Existing entry and exit points into the airport are via eight (8) different boom gate access points, with number plate recognition technology. All vehicles parked on site are required to pay at the allocated pay stations inside the terminal, or by credit card at the exit gates. A review of the Contract between Council and the boom gate operator (CDS Worldwide) was also undertaken separate to this report.

The existing entry and exit gates on site are outlined in Figure 3.5.



Source: Nearmap (edited by Bitzios)

Figure 3.5: Existing Entry and Exit gates

3.5 Issues and Opportunities

3.6 Consultation

Meetings were held at the airport with relevant stakeholders to discuss the current and past issues related to ground transport and operations.

3.6.1 Ground Airport Staff

During an initial meeting, Ground Operations staff identified a number of existing issues on site. A site visit was then undertaken with ground staff to review the existing facilities and operations. A summary of issues and opportunities are outlined below and mapped in Section 3.7.

Pedestrian and driver wayfinding in and around site was identified as poor, as evidenced during the site visit. Staff identified that although there are few wayfinding signs present, additional directional signage and information signage would be beneficial for all, particularly for directing vehicles to avoid queues and safely direct pedestrians to and from the carpark.

The existing boom gates and number plate recognition technology was often confusing customers. Customer complaints with boom gate and ticket issues were generally related to operation issues on the current system, particularly at the exit where number plates were not properly recognised and staff were then required to manually operate the access.

A further issue was identified where the number plate scanner displayed the vehicle's fee on-screen prior to a driver inserting a ticket. When the screen remains static following ticket insertion, drivers become concerned that the display is relevant to the previous vehicle.

The 2-minute drop-off and pick-up zone was outlined as a major issue for the airport, as traffic was often queued out to the public road (Southern Cross Drive) at peak times. Unsafe driver behaviour at the drop-off zone was also noted, where drivers had left vehicles unattended and often parked for more than 2 minutes.

Sight lines for vehicles behind the queue were also blocked by vehicles directly in-front of them, as they could not see the open drop-off space ahead. Vehicles parked in the set-down zone obscured pedestrians entering the roadway at pedestrian crossings.

3.6.2 Ground Transport Operators

An internal survey was provided to existing ground transport operators of the BBGA. This included Uber, Taxi, Bus/ Shuttle and private limousine drivers who currently have been operating for up to 10 years at BBGA. Operators were asked a series of questions considering BBGA's strengths, weaknesses and expectations for the future. A total of 23 responses were collected, and a summary of the most common responses are listed in Table 3.4.

Table 3.4: Identified GT Operator Issues

Strengths	Weaknesses	Future Needs
▪ Location to Byron Bay ▪ Proximity to prime locations (Gold Coast, Byron etc.)	▪ Lack of shelter between rideshare/ taxi car park and terminal ▪ Rideshare/ taxi drop-off is far away from terminal entrance ▪ No dedicated taxi storage/ waiting area unless paid entry ▪ Drop off area is too small ▪ VIP drop-off distance to terminal ▪ Lack of parking ▪ Boom gate is often faulty ▪ Carpark design is poor ▪ Lack of pay stations ▪ Operator fee to drop off passenger	▪ Proper shelter for all pedestrian areas ▪ Larger terminals for drop off/pick up area ▪ Clear wayfinding signage for passengers and drivers ▪ Speed bumps to limit speeding in carpark ▪ Closer drop off area for taxi's/rideshare and private transfers

3.6.3 Car Rental (Avis)

Avis staff were consulted to provide their perspective of current issues at the BBGA. Overall, staff identified that the current operations of the car parking could be improved and help rental car pick up and return operations. The issues are listed in Table 3.5.

Table 3.5: Identified Rental Issues

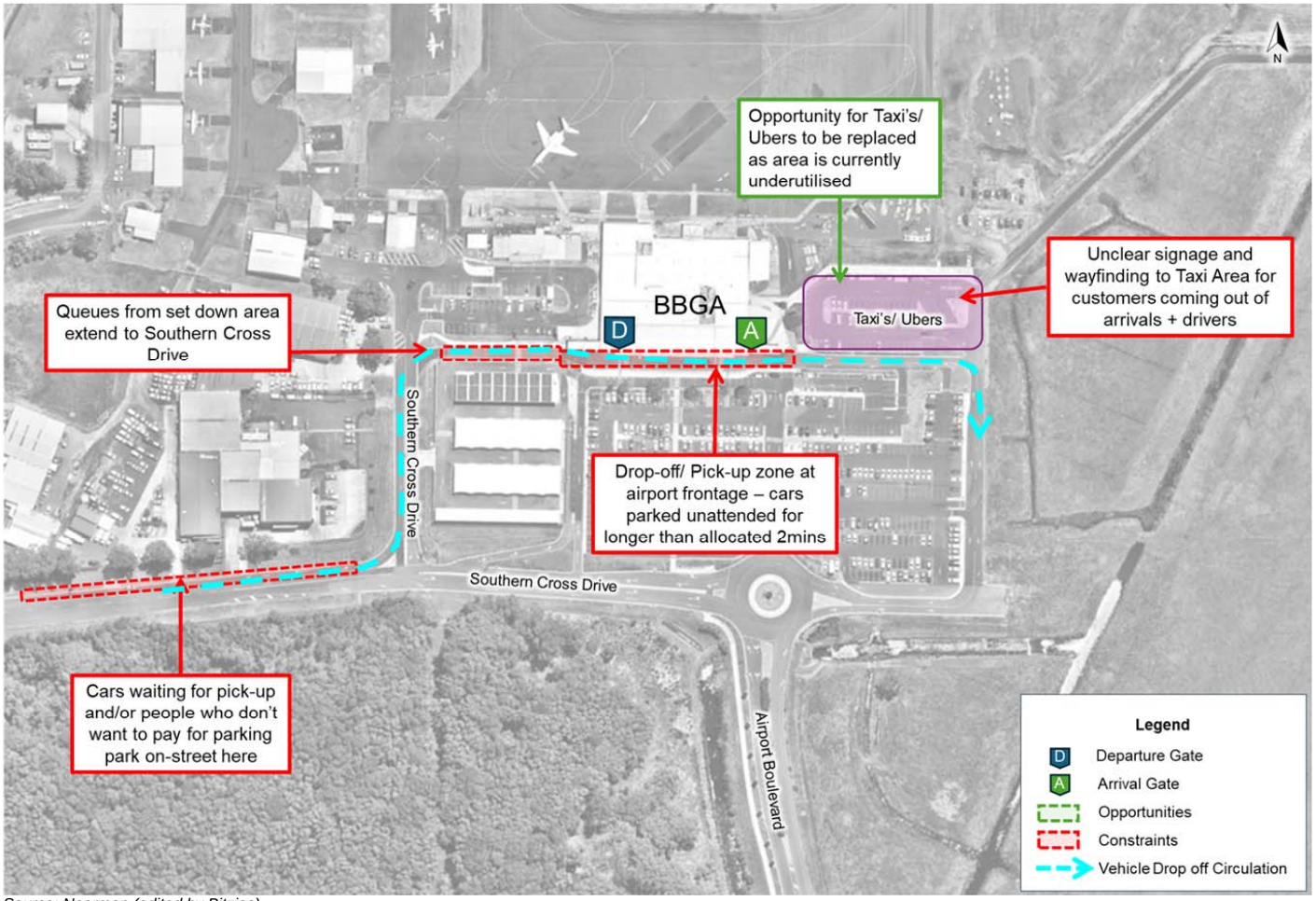
Issue	Description
Wayfinding	Customers returning vehicles often get lost – no clear direct wayfinding to rental car park area No clear separation of rental and public parking area
Limited Space	lack of space for vehicle storage – rental vehicles are often parked on-street
Staff Parking	Limited staff parking, staff are currently parking at the back of the airport
Peak Time Queues	Vehicles queueing can often block the exit
Boom Gate Entrance	Existing boom gate entrance storage space does not wholly fit one vehicle License plate recognition upon entrance often fails and Ground staff have disconnected the boom gate

3.7 Issues and Opportunities Mapping

The existing issues and opportunities have been mapped to help outline the key areas of improvement needed on site. The issues found particularly focus on:

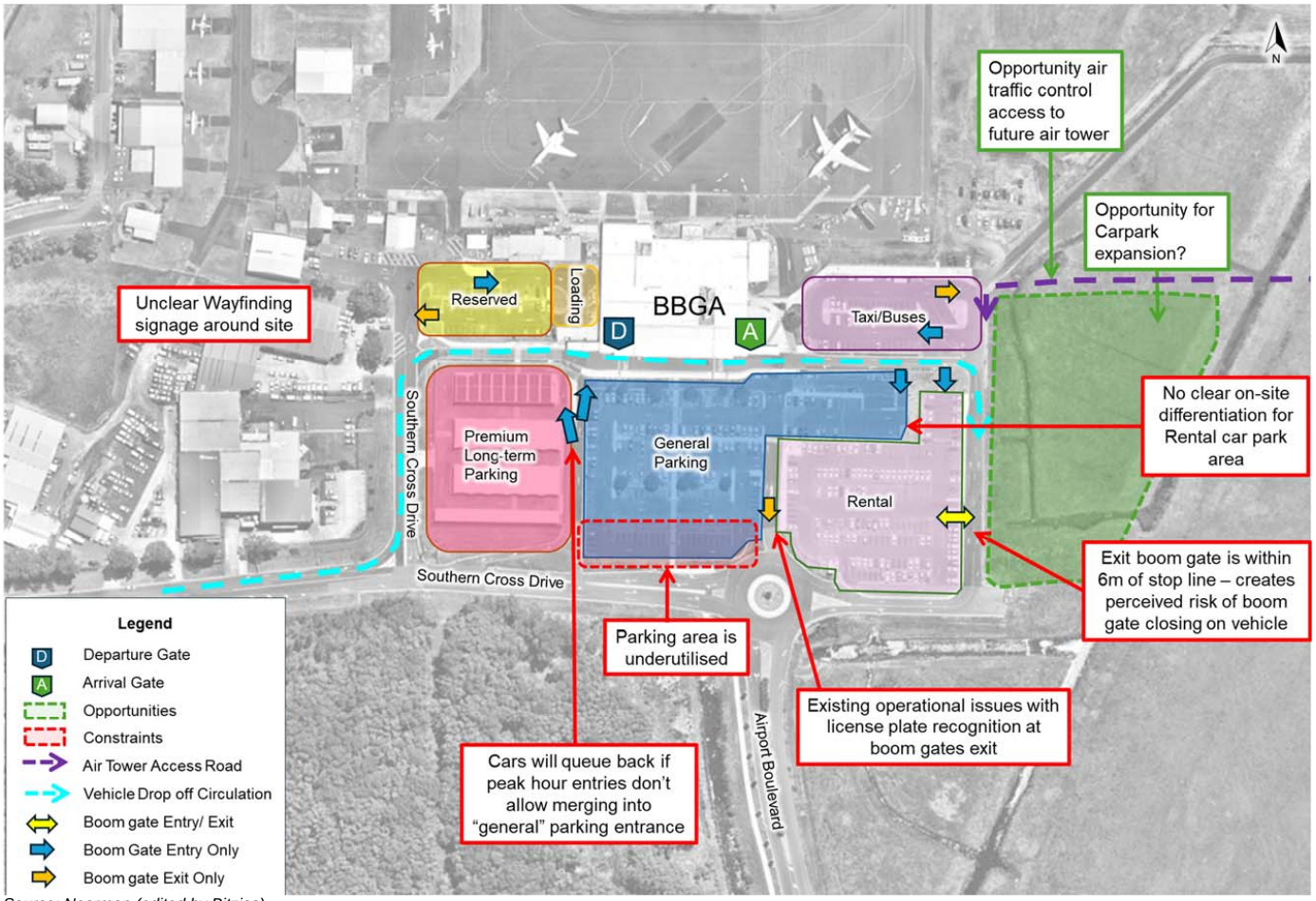
- Pick up/ Drop-off Operations (Including Taxi's, Ubers and Shuttle Buses)
- Parking Operations (Including Rental Parking and Staff Parking)
- Pedestrian Wayfinding and Pathways
- Public Transport

The issues and opportunities for the existing Drop-off/ Pick-up operations are outlined in Figure 3.6, Figure 3.7, Figure 3.8 and Figure 3.9.



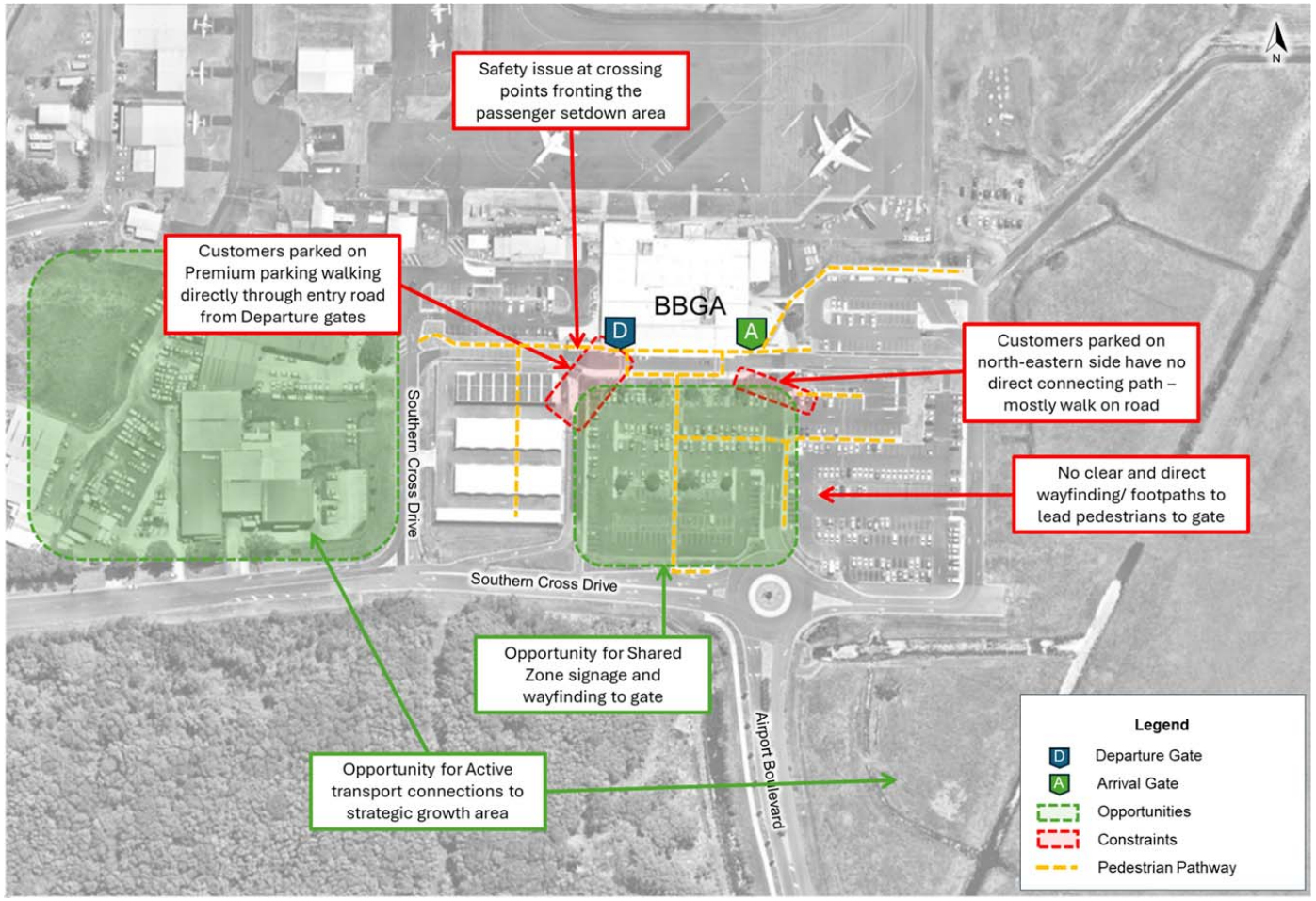
Source: Nearmap (edited by Bitzios)

Figure 3.6: Existing Drop-off/ Pick-up Issues and Opportunities



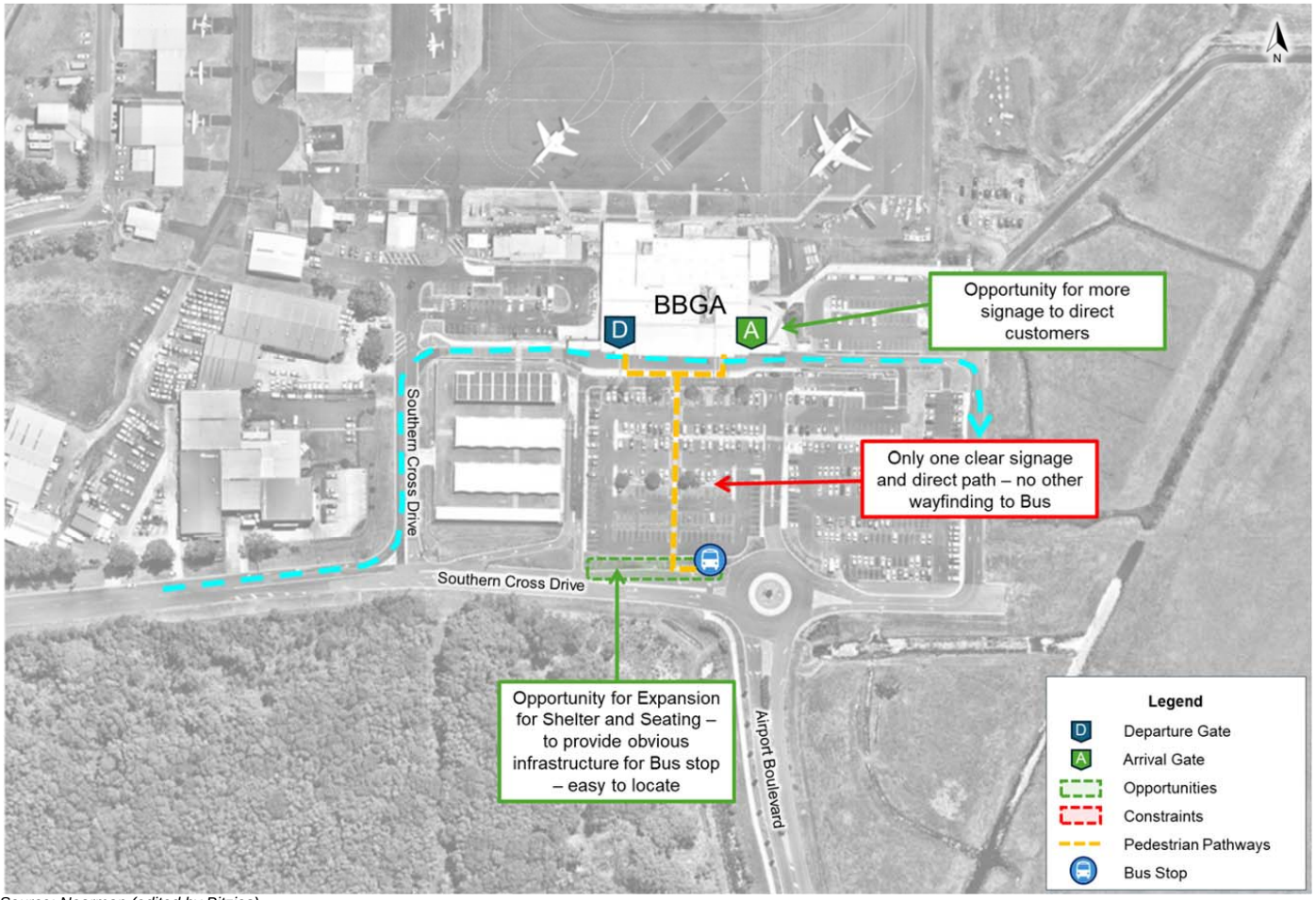
Source: Nearmap (edited by Bitzios)

Figure 3.7: Existing Issues and Opportunities for BBGA Parking Operations



Source: Nearmap (edited by Bitzios)

Figure 3.8: Issues and Opportunities for the Existing Pedestrian Facilities



Source: Nearmap (edited by Bitzios)

Figure 3.9: Issues and Opportunities for the Existing Public Transport Facilities

4. GROUND TRANSPORT DEMANDS

4.1 Existing Parking Demands

Survey parking data, undertaken on Friday 3rd May 2024, helped to identify the maximum occupancy of vehicles parked in each area. This also allowed identification of current parking demands areas underutilised. Boom-gate data was sourced from Council to determine the peak day within the BBGA's typical busiest period from December – March. Prior to the GTMP, airport staff indicated that car parking at the BBGA had regularly exceeded capacity, and therefore further boom gate data from the month of November was also included in the analysis. As a result, the 29th November 2024 was identified as the day with the highest parking turnover. This boom-gate entry / exit data was compared with entry / exit data from Friday 3rd May 2024 to yield a seasonality factor of 57% which represents the BBGA's busiest day. This seasonality factor was applied to the parking occupancy data, with results provided in Table 4.1.

Table 4.1: Parking Occupancy Per Parking Area

Parking Area	Supply	6am		9am		12pm		3pm		6pm	
		Occ	%	Occ	%	Occ	%	Occ	%	Occ	%
Premium	**113**	61	54%	71	63%	77	68%	71	63%	66	58%
General	**225**	157	70%	202	90%	226	100%	227	101%	229	102%
Online/ reserved	**39**	17	44%	25	64%	41	105%	41	105%	39	100%
Rental	**186**	186	100%	168	90%	186	100%	186	100%	168	90%
Taxi/Rideshare	**52**	16	31%	19	37%	20	38%	35	67%	6	12%
TOTAL Occupancy	**615***	**437**	**71%**	**485**	**79%**	**550**	**89%**	**560**	**91%**	**508**	**83%**

Note: Occ – Occupancy, % - Total Occupancy Percentage
**Total supply of car parking does not include Staff Parking (54 spaces). Overall total Parking is 669 spaces.*

A breakdown of maximum occupancy per parking area during the surveyed time period is shown in Figure 4.1 to Figure 4.5.

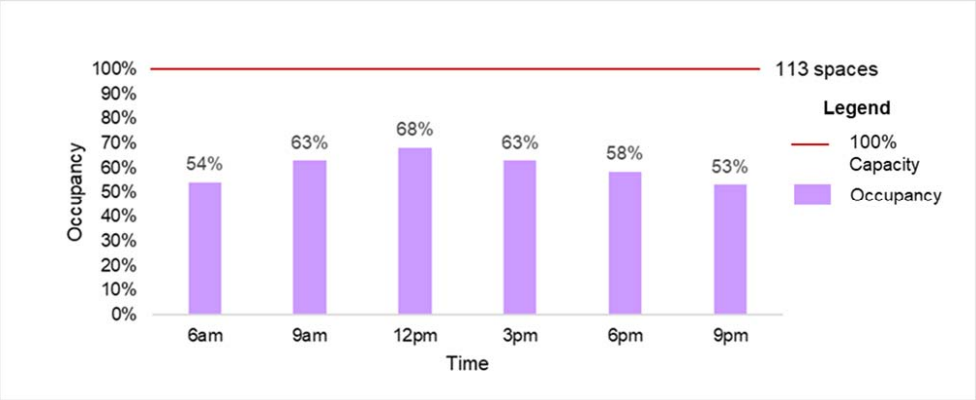


Figure 4.1: Premium Parking Occupancy

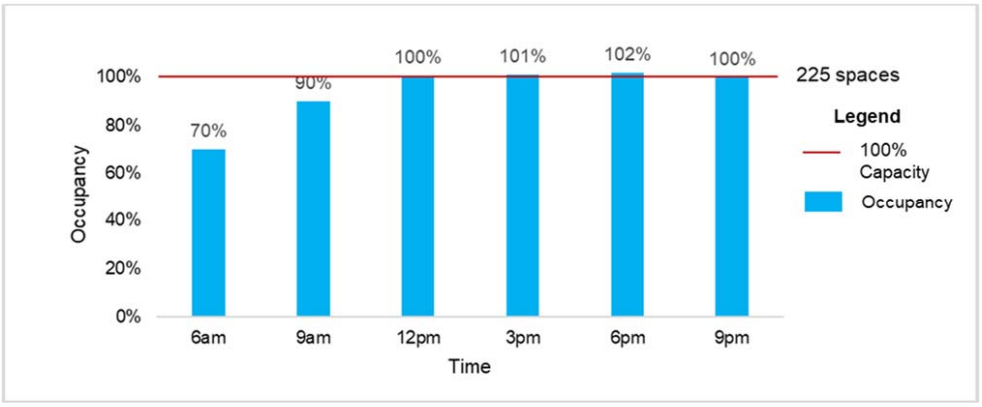


Figure 4.2: General Parking Occupancy

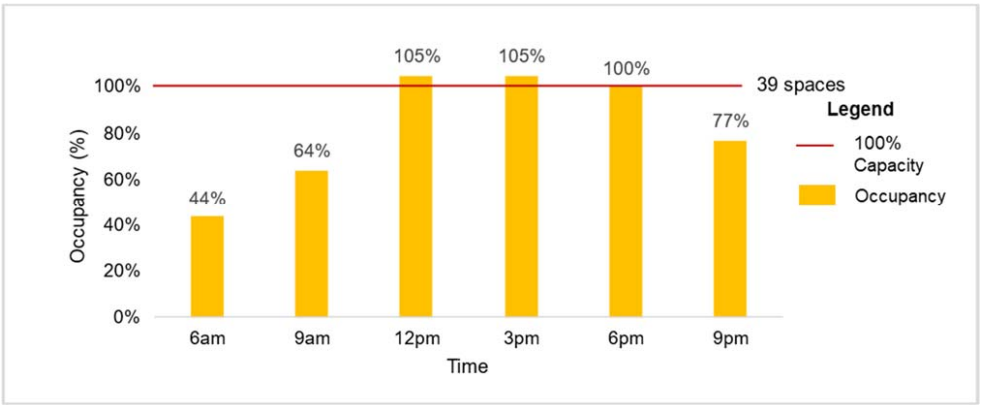


Figure 4.3: Reserved Parking Occupancy

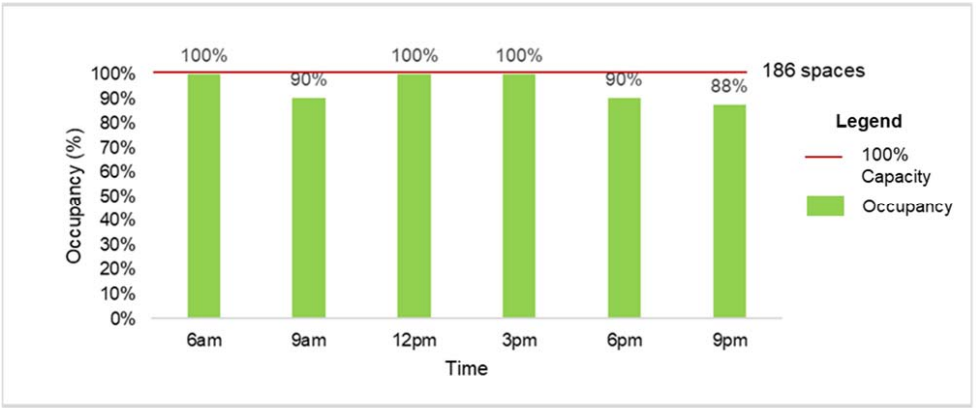


Figure 4.4: Rental Parking Occupancy

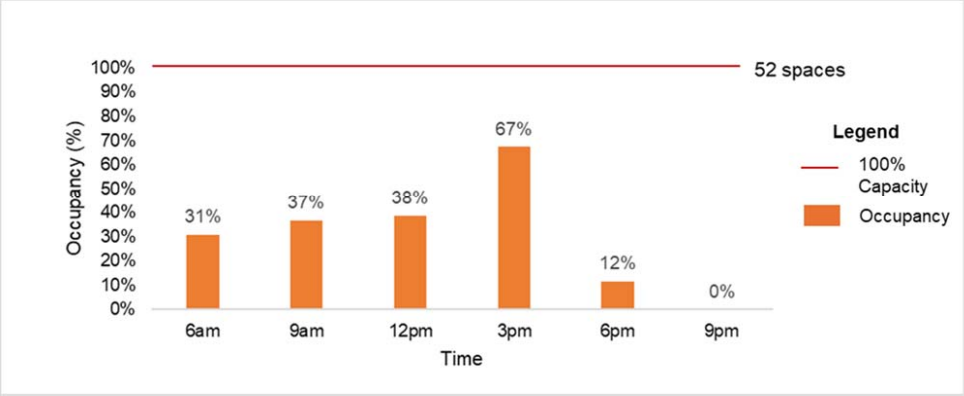


Figure 4.5: Taxi and Rideshare Parking Occupancy

Consistent with most regional airports, car rental operators have the majority of their fleet (100%) on-site from 6am – 9am. This occupancy reduces after the first arrival of the day at 8:40am.

Premium parking (32%), and Taxi and Rideshare parking (33%) was found to be underutilised.

As a whole, the survey data showed that out of the total 615 car parking spaces (excluding staff parking), a maximum of 91% (560 car parks) is occupied from 12pm to 3pm. This leaves a total of 55 car parking spaces under-utilised on site during the peak hour period. From 6am to 12pm, only a maximum of 79% (485 car parks) are utilised, leaving 130 car parks under-utilised for half a day.

4.2 Survey Volumes

Survey counts were undertaken by Traffic Data and Control (TDC) on Friday 3rd May 2024 on site, and at five (5) key intersections listed as follows:

- Intersection 1 - Airport Boulevard / Southern Cross Drive
- Intersection 2 – Southern Cross Drive / Carpark Access
- Intersection 3 – Southern Cross Drive / East Access
- Intersection 4 – Southern Cross Drive / Drop-off Entry
- Intersection 5 – Southern Cross Drive / Eastern Entry Exit Intersection

Figure 4.6 shows the surveyed intersections.

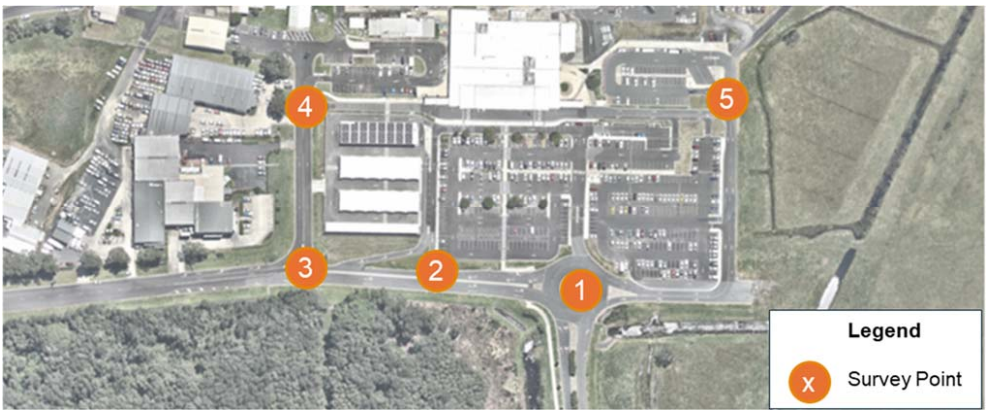


Figure 4.6: Survey Locations

Details of the survey collection are provided in Table 4.2.

Table 4.2: Survey Collection Details

Survey	Duration	Details
Video Based movement counts	6am – 9pm (15 minute intervals)	▪ Modes: light vehicles, heavy vehicles, buses, cyclists, pedestrians
Parking Occupancy survey	6am – 9pm (3 hour snapshots)	▪ By Parking Area
Passenger Survey	6am – 9pm (Every vehicle)	▪ Collecting vehicle type (car, taxi, uber, mini-bus, coach, public bus) ▪ # pax entering vehicle and parking duration ▪ # pax exiting vehicle and parking duration
Boom gate Data	6am – 9pm (every vehicle)	▪ Every vehicle timestamped on survey day ▪ Plus two-week Number pate data matching at each boom gate for duration of stay profile analysis

Pax – passengers
 # - total number of passengers

4.3 Future Year Parking Demands

Future ground transport demand is assumed to be directly correlated to anticipated air transport demand. As such, the accuracy of future year trip generation and parking demand is dependent on the accuracy of future year passenger forecasts. Forecasting future year traffic growth and car parking demand is also dependent on several assumptions including mode share, trip origin / trip destination constraints and influence of competing trip generators. Key assumptions specific to the BBGA include:

- Growth in ground transport demand will be proportional to growth in passengers
- Mode share will remain consistent in future year scenarios
  - Road network conditions / parking supply are not anticipated to reduce car mode share
- Planned growth of the nearby Coffs Harbour Airport and Gold Coast Airport are not anticipated to change the origin of passengers using Ballina Airport.

4.3.1 Growth Rates

The anticipated growth in annual passengers is provided in Table 4.3. It is noted that the growth rate is relevant for each 5-year period (i.e. year 2034 growth rate obtained from comparison of 2029 to 2034 passenger forecast).

Table 4.3: Anticipated Growth Rates

Year	Annual Passenger Forecast	Compounding Growth Rate per Annum
2024	620,000	-
2029	957,684	9%
2034	1,057,361	2%
2039	1,167,411	2%
2044	1,288,917	2%

The BBGA is anticipated to experience strong growth over the next 5 years, before slowing in the 15-year period from 2029 – 2044.

4.3.2 Future Year Parking Demand

This growth rate has been applied to demand including rental car, taxis, long-stay parking and trip generation. The resultant peak period (by use) parking demand is provided in Table 4.4.

Table 4.4: Peak Period Parking Demand

Year	Premium Parking (12pm)	General Parking (6pm)	Online Reserved (12pm)	Rental (6am)	Taxi / Rideshare (3pm)	Total Demand
2024	77	229	41	186	35	**568**
2029	119	353	64	287	54	**877**
2034	132	390	71	317	60	**970**
2039	146	431	79	350	67	**1073**
2044	162	476	88	387	74	**1187**

4.3.3 Future Year Traffic Demand

The airport is anticipated to generate 681 AM peak hour trips and 1,825 PM peak hour trips in the design year 2044.

4.4 Future Year Trip Generation

Consistent with the methodology described in Section 4.3.1, a seasonality factor of 57% was applied to the survey data.

The growth rate was also applied to trip generation. The impact on BBGA trip generation in the identified peak hours of 7:30am-8:30am and 3:30pm-4:30pm is provided in Table 4.5.

Table 4.5: Peak Period Traffic Generation

Year	AM IN	AM OUT	PM IN	PM OUT
2024	176	168	566	359
2029	270	260	871	552
2034	294	287	962	610
2039	330	318	1,063	674
2044	365	351	1,175	775

4.5 Queuing and Intersection Modelling

The existing setdown facility in 2024 shows extensive queuing extending over 200m back from the first bay. Whilst this is partially a function of vehicles idling within the setdown area, this queuing fundamentally derived from a shortage of setdown spaces (seven currently provided). Queuing is exacerbated during periods where there are multiple flights arriving / departing within an hour. The planned growth of the airport will likely see additional flights depart / arrive during these peak hours.

Exacerbation of this queuing will likely result in the use of the verge as an alternative location for pick-up / set-down on Southern Cross Drive or Airport Boulevard. Increased pedestrian movements to these areas, combined with vehicles decelerating / stopping within the travel lane will increase the risk of crashes.

The intersection modelling demonstrates that all external intersections are anticipated to operate well within acceptable performance parameters in the 20 year design horizon (2044). Queuing does note extend between intersections and all movements perform with a Level of Service A. A summary of intersection modelling results, and detailed outputs from the SIDRA Intersection modelling software is provided in **Appendix C**.

5. GROUND TRANSPORT MASTER PLAN

5.1 Preliminary (Short Term) Improvements

The GTMP is designed to cater for transport demands out to a design year of 2044 (20-year design horizon). The full extent of the recommended Master Plan layout is not necessarily required to address short-term transport concerns. As such, a suite of cost-effective, short-term improvements were devised to ameliorate identified ground transport issues. These short-term improvements have been recommended to increase the current user safety and maximise traffic efficiency on site without large scale and expensive changes. The recommended improvements are as follows:

- Removal of the existing drop-off zone individual parking bay line marking, to be provided as one connected drop-off zone, with an extended concrete walkway
- Provision of kerb extensions on both sides of pedestrian crossings along drop-off zone
- Provision of a dedicated PWD drop-off zone west of the western pedestrian crossing
- Investigation of gradient change for PWD parking bays fronting the drop-off zone
- Provision of fencing on eastern corner of premium parking area to reshape pedestrian desire line
- Shortened right turn pocket into the rental
- Removal of the right turn entry access into the general parking area
- Conversion of existing parking bays at the taxi area from 90-degrees South facing bays to parallel bays for a taxi drop off/ pick up zone.

A concept of the proposed short term interim solutions are provided in **Attachment B.**

5.2 Master Plan Design Process

Layout options for BBGA were developed with consideration to similarly sized regional airports including Cairns, Hobart and Canberra. In particular, Canberra Airport's separation of pedestrian and vehicular movements, and Cairns Airport's pick-up / drop-off facility and the primacy of Hobart Airport's car rental parking area were identified as key elements to be incorporated into the design of the BBGA Master Plan.

The options developed for the airport were designed and assessed based on the following components and associated objectives outlined in Table 5.1.

Table 5.1: Master Plan Concept Evaluation Components and Objectives

Component	Objective
Safety	▪ Reduce the risk of vehicle conflict through considered design ▪ Minimise conflict points between traffic and pedestrians
Circulation and Efficiency	▪ Provide a network that is intuitive and supports the separation of trip types, accompanied by sufficient wayfinding ▪ Develop a resilient network that can accommodate disruption
Parking	▪ Maximise parking provision to accommodate the future-year needs of the BBGA, minimizing external impacts ▪ Ensure scalability and flexibility of parking ▪ Provide staff parking in an area that is accessed by a safe and continuous pathway ▪ Providing a parking system that supports the efficient regulation of short-term and long-term visitors to the airport
Security	▪ Separation between FoH, BoH and ancillary uses ▪ Provide physical separation between the terminal and vehicles
Operational	▪ Provide ground-side servicing areas for goods drop-off and refuse collection that are separated from the passenger experience
Pick-up/Drop-off	▪ Maximise pick-up/drop-off queuing space ▪ Separation of departures and arrivals ▪ Provide adequate circulation to reduce likelihood of vehicles waiting in set-down bays
Rental	▪ Provide rental car spaces close to the terminal to allow operators to efficiently process customers ▪ Provide a rental car turnover space to allow operators to service vehicles
Buses	▪ Provide a premium public and private bus stop facility, close to the terminal and supported by covered walkways to the terminal
Taxi / Rideshare	▪ Separation between operators and regular passenger vehicles ▪ Provision of a taxi / rideshare area that is clearly signed to allow passengers to quickly identify where to find operators.

5.3 Options Comparison

5.3.1 Overview

Two layout options were developed for the BBGA, with Council providing two additional sub-options which were taken into consideration to further refine these options. Following the outcomes of the evaluation, the identified preferred option was refined in consultation with Council over multiple iterations to achieve the previously mentioned criteria in Table 5.1.

Main features of each option are provided below and shown in Figure 5.1 and Figure 5.2 respectively.

5.3.2 Option 1: Separated Departure and Arrival Entry

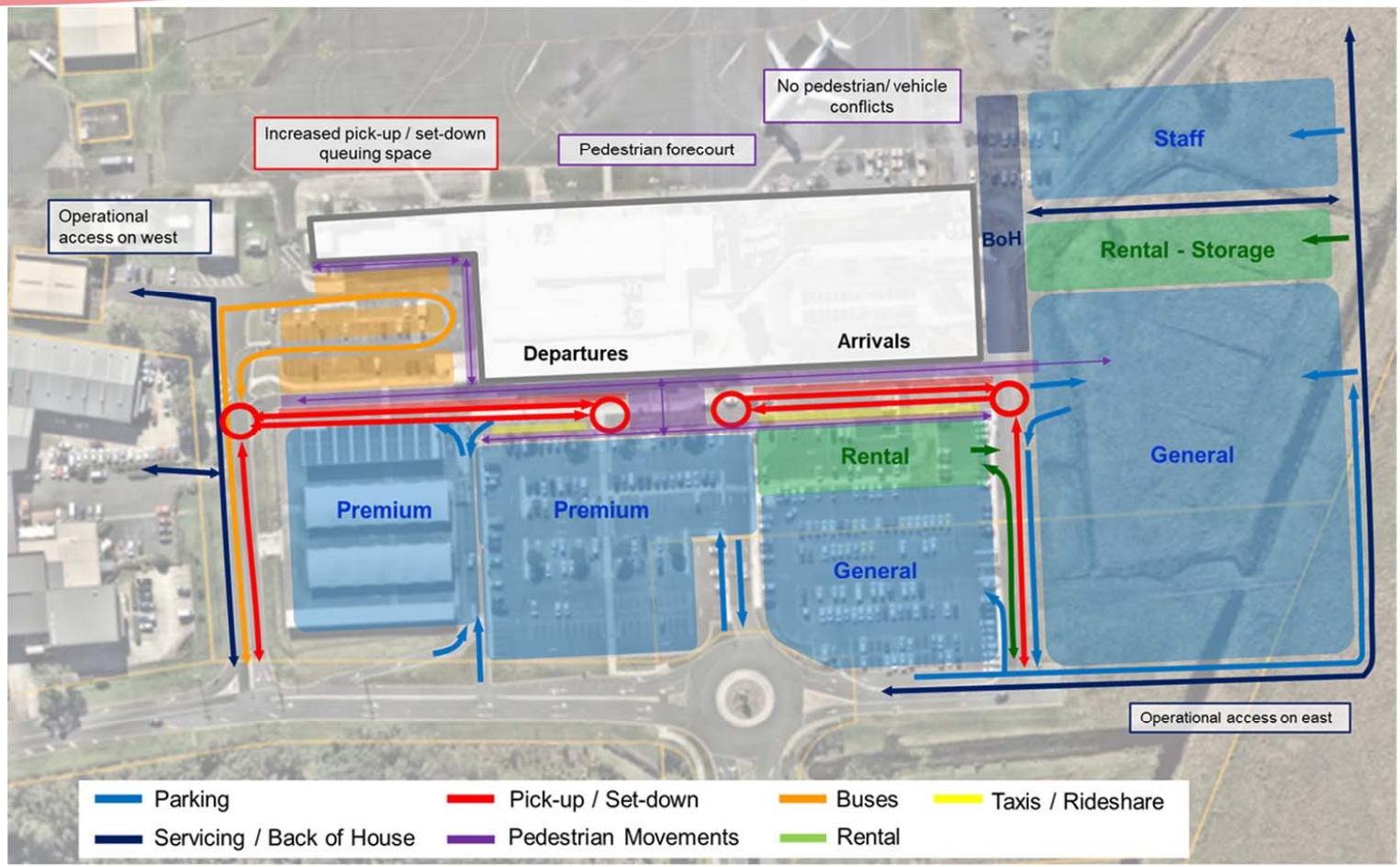
The main features of the proposed option are as follows:

- Separated pickup and set-down areas, with increased queuing space
- Two separate entrance/ exit points for departures and arrivals areas
- Operational access is located on the west side, away from front of house
- New general parking area located on proposed expansion
- Increased rental storage on the proposed expansion area
- One main pedestrian forecourt
- No pedestrian/ vehicle conflicts
- Further operational access on the east side of general parking.

5.3.3 Option 2: T-head Intersection

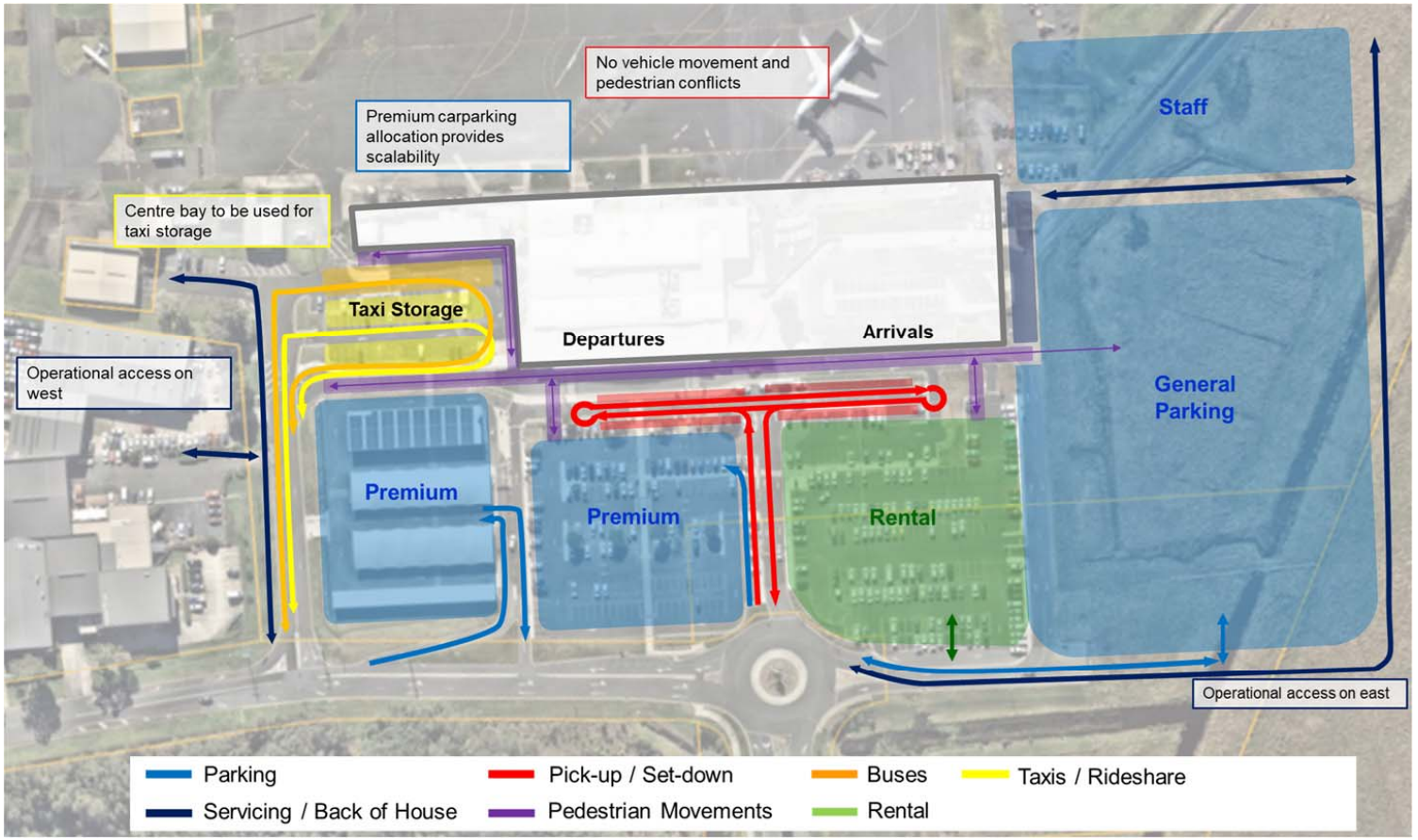
The main features of the proposed option is outlined as follows:

- Combined vehicle entry onto site through T-head intersection
- Separated departure and arrivals set-down and pick-up area
- Operational access is located on the west side
- Taxi and Bus storage moved away from front of house – centre bay to be used for taxi storage
- Separated taxi and Bus entry and exit
- Premium carparking allocation provides scalability
- No pedestrian conflicts with drop off and pick up area
- Separated entry and exit for Rental
- Further operation access on the east side of general parking.



Source: Nearmap (edited by Bitzios)

Figure 5.1: Option 1 – Separated Departure and Arrival Entry



Source: Nearmap (edited by Bitzios)

Figure 5.2: Option 2 – T-head Intersection

5.3.4 Options Assessment

Each option was assessed against the criteria provided in Table 5.1 and identified across four categories being Achieved, Partially Achieved, Could be Achieved or Not Achieved. The outcomes of this assessment are provided Table 5.2.

Table 5.2: Options Assessment

Objective	Option 1	Option 2
Safety		
Reduce risk of vehicle conflict	Partly achieved	Achieved
Minimise traffic / pedestrian conflict points	Partly achieved	Achieved
Circulation and Efficiency		
Intuitive network which separates trip types	Not achieved	Achieved
Resilient network which offers redundancies	Achieved	Partly achieved
Parking		
Maximise parking provision	Achieved	Achieved
Scalability and flexibility	Achieved	Achieved
Accessibility of staff parking	Achieved	Achieved
Regulation of short-term and long-term visitors	Could be achieved	Could be achieved
Security		
Separation of FoH, BoH and ancillary uses	Achieved	Achieved
Physical separation of terminal from public vehicles	Achieved	Achieved
Operational		
Separation of groundside servicing from public	Achieved	Achieved
Pick-up / Drop-off		
Maximise queuing space	Achieved	Partly achieved
Separation of departures / arrivals	Achieved	Could be achieved
Provide adequate circulation to reduce overstays	Achieved	Achieved
Rental		
Proximity to terminal	Achieved	Achieved
Provision of turnover space	Achieved	Could be achieved
Buses		
Premium public and private bus stop facility	Achieved	Achieved
Taxi / Rideshare		
Separation of operators from public vehicles	Not achieved	Achieved
Proximity to terminal supplemented by signage	Achieved	Achieved

Based on the above, and through consultation with Council, Option 2 was identified as the preferred option as it provided a more intuitive network and also greater opportunities to separate and manage the various transport components.

5.4 Preferred Option Refinement

Following evaluation by the broader project team, a number of refinements were made to Option 2 which included:

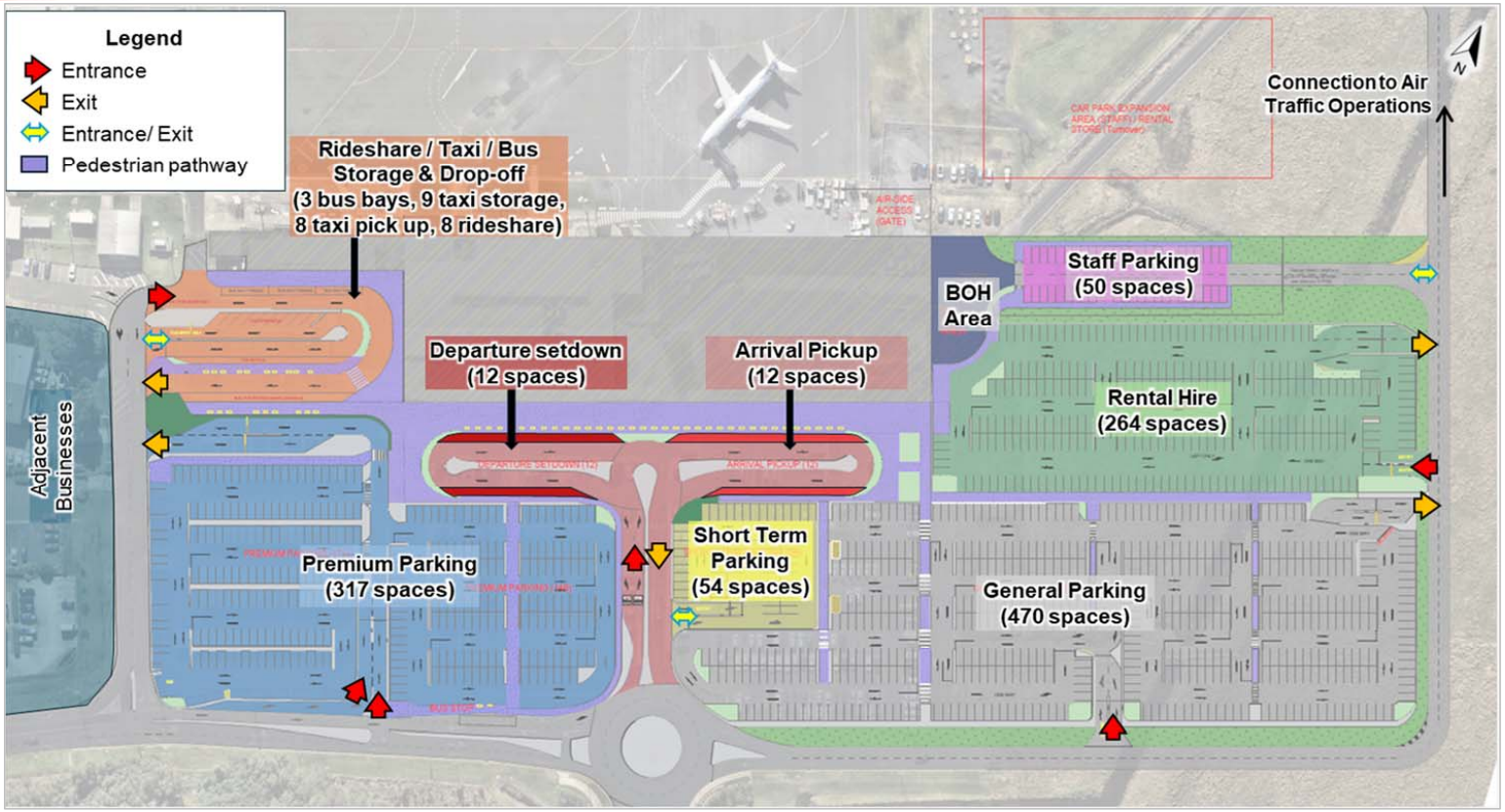
- Relocation of the staff parking outlined within the future expansion area and into the new General carpark precinct
- Desire for only a single (one) point of entry / exit for each precinct but providing sufficient operational capacity.
- Incorporating an internal roundabout at the T-head intersection servicing the departures and arrivals.

Final refinements were updated, which resulted in the final option layout, as shown in Figure 5.3 (see overleaf).

The resultant Master Plan is shown in **Appendix A**.

It is noted that the proposed Master Plan is designed to be modular, with medians separating the car rental and standard parking able to be moved as to reallocate car spaces to each parking type should future year demand deviate from what is forecast.

Additional aspects such as wayfinding, signage and airport plans to be provided in later stages as part of detailed design and construction plans.



Source: Nearmap Aerial with Bitzios Concept Design, 2024

Figure 5.3: Finalised Option 2 Layout Concept

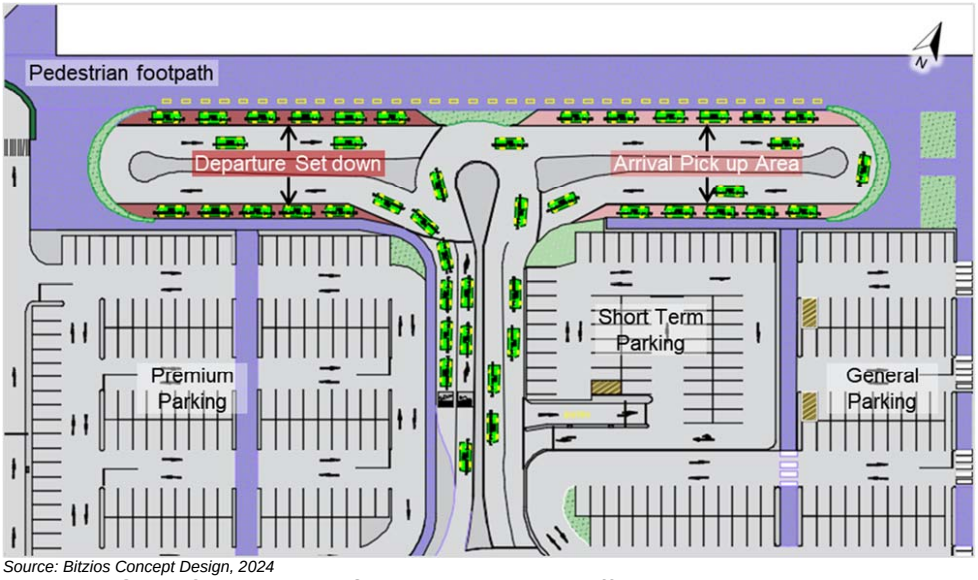
5.5 Preferred Master Plan Performance

5.5.1 Queuing Assessment

An origin – destination survey was undertaken to determine existing queuing constraints within setdown area. The queueing analysis showed that a typical kerbside pick-up vehicle would be parked within the setdown area for 2 minutes 45 seconds, with a maximum of 9 minutes 17 seconds. The maximum time spent waiting to enter the setdown area was 2 minutes 35 seconds.

Traffic survey data showed that, under typical operations, 120 vehicles enter the setdown area during the PM peak hour. Based on anticipated growth in passenger numbers, it is likely that 251 vehicles will enter the setdown area during the peak hour in the design year 2044.

The recommended Master Plan option shows a total of 24 setdown spaces. Pursuant to the AustRoads Guide to Traffic Management: Traffic Theory Concepts, queuing has been calculated based on the 24 spaces and a service rate of 2 minutes 45 seconds. This found that under the proposed Master Plan, the proposed setdown area would result in a 98th percentile queue of five vehicles (waiting to enter setdown spaces) during the peak period from 4:00pm – 5:00pm. This queue can be accommodated within the 54m space between the Southern Cross Drive / Airport Boulevard roundabout and the setdown area. Figure 5.4 shows a simulation of vehicle queuing within the T-head intersection when all 24 setdown spaces are utilized.



Source: Bitzios Concept Design, 2024

Figure 5.4: GTMP Concept Plan - Queuing Area at Drop-off area

The proposed setdown area can therefore cater for the anticipated demand in the design year 2044 with minimal queuing. Further traffic demand management strategies can further reduce this demand / queue including:

- Signposted time-restrictions within the setdown area
- Peak period marshalling to improve the efficiency of the setdown area
- A dedicated short-term parking module within the parking supply that offers free parking for vehicles picking up / dropping off visitors (i.e. 30 minutes free parking within long-term parking area).

5.5.2 External Intersection Performance

The intersection modelling of the relevant intersections both with and without the GTMP in the 20-year design horizon 2044 demonstrated that there is no anticipated change to intersection performance following the implementation of the Master Plan. All intersections remain well within acceptable performance parameters with a Level of Service A for all movements.

5.5.3 Parking Supply

A comparison of the GTMP's parking supply based on current and forecasted demand is shown in Table 5.3.

Table 5.3: Parking Supply

Parking Area	Current Supply	2024 Peak Period Demand	2044 Forecast Demand	2044 GTMP Supply
Premium Parking	113	77	162	317
Online Reserved	39	41	88	
General Parking	225	229	476	470
Short Term Parking	-			54
Rental Parking	186	186	280*	264
Taxi and Rideshare	52	35	50*	25
Drop-off/ Pick up Parking	-	-	-	24
Staff Parking	54	-	-	50
Total	**669**	**383**	**1,056**	**1,204**

**based on proportional increase to airport patrons. Likely to be conservative.*

6. CONCLUSIONS AND NEXT STEPS

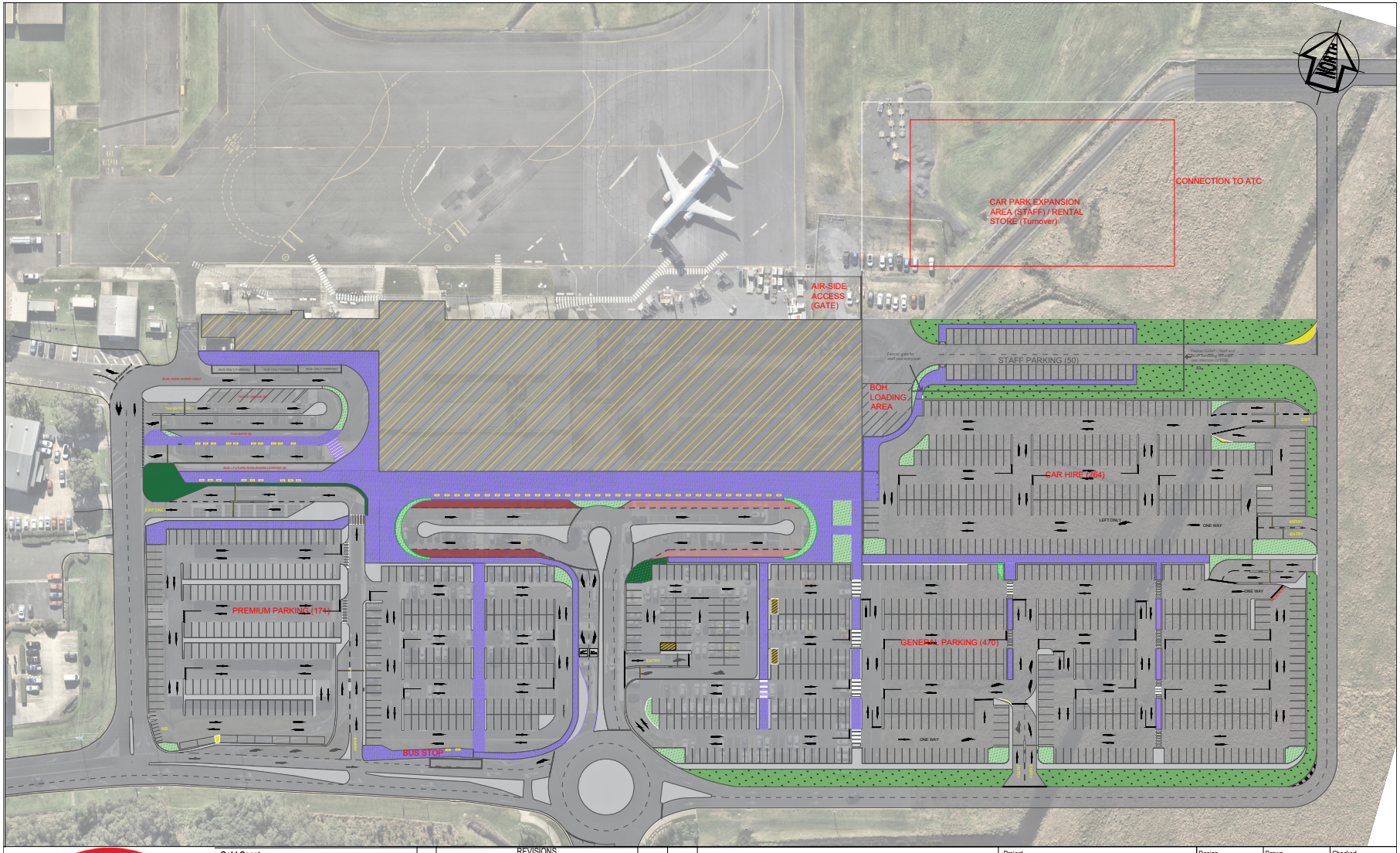
A review of the ground transport of Ballina Byron Gateway Airport demonstrated that there was a need for a comprehensive Ground Transport Master Plan to address existing issues across the groundside of the airport. These issues which include queuing from the setdown area, conflicts between vehicles and pedestrians, insufficient parking supply and read-rates / confusion at entering / exiting boom-gates are anticipated to significantly worse across the 20-year design horizon.

In devising the Master Plan, consultation was undertaken with ground staff, current transport operators and a representative car rental operator to determine the existing constraints and opportunities experience on a day-to-day basis. Year 2024 demand was determined through traffic and parking surveys. Future year traffic and parking was forecast through use of anticipated patronage numbers, and a seasonality factor taken from boom-gate entry data.

A number of regional airports were assessed to determine best practice in the design of the recommended car parking layout. Two options were developed and applied to an assessment matrix. Through this process, Option 2 was selected as the recommended layout, and then refined following feedback from Council. The recommended Master Plan layout is modular, provides adequate separation of users and increases the setdown area capacity by 17 spaces, and car parking capacity by 535 spaces.

Following the approval of the GTMP by Council, it is recommended that the BBGA look to implement the preliminary (short-term) improvements as soon as possible. It is noted that these improvements are designed to be cost-effective and can be built without disrupting the operations of the airport. Once funding is provided to implement the broader long-term Master Plan, the construction of the new car park over the current greenfield site east of the existing terminal as part of the first stage provides the redundancy to allow for the closure of the existing parking areas. It is noted that given the demand for parking at the airport exceeding the current supply, the early construction of the additional parking spaces also increases the revenue received from paid parking at the terminal.

Appendix A: GTMP Master Plan



BITZIOS consulting

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

REVISIONS

Issue	Revisions/Descriptions	Drawn	Date
001	Ballina Airport GTMP - Concept Plan	S.TA	28.08.2024
002	Ballina Airport GTMP - Concept Plan Updates	S.TA	09.09.2024
003	Ballina Airport GTMP - Finalised Concept Plan	S.TA	04.12.2024

Scale @ A4 0 10 20 30 40 50 60 1:1250

Project: Ballina Airport GTMP

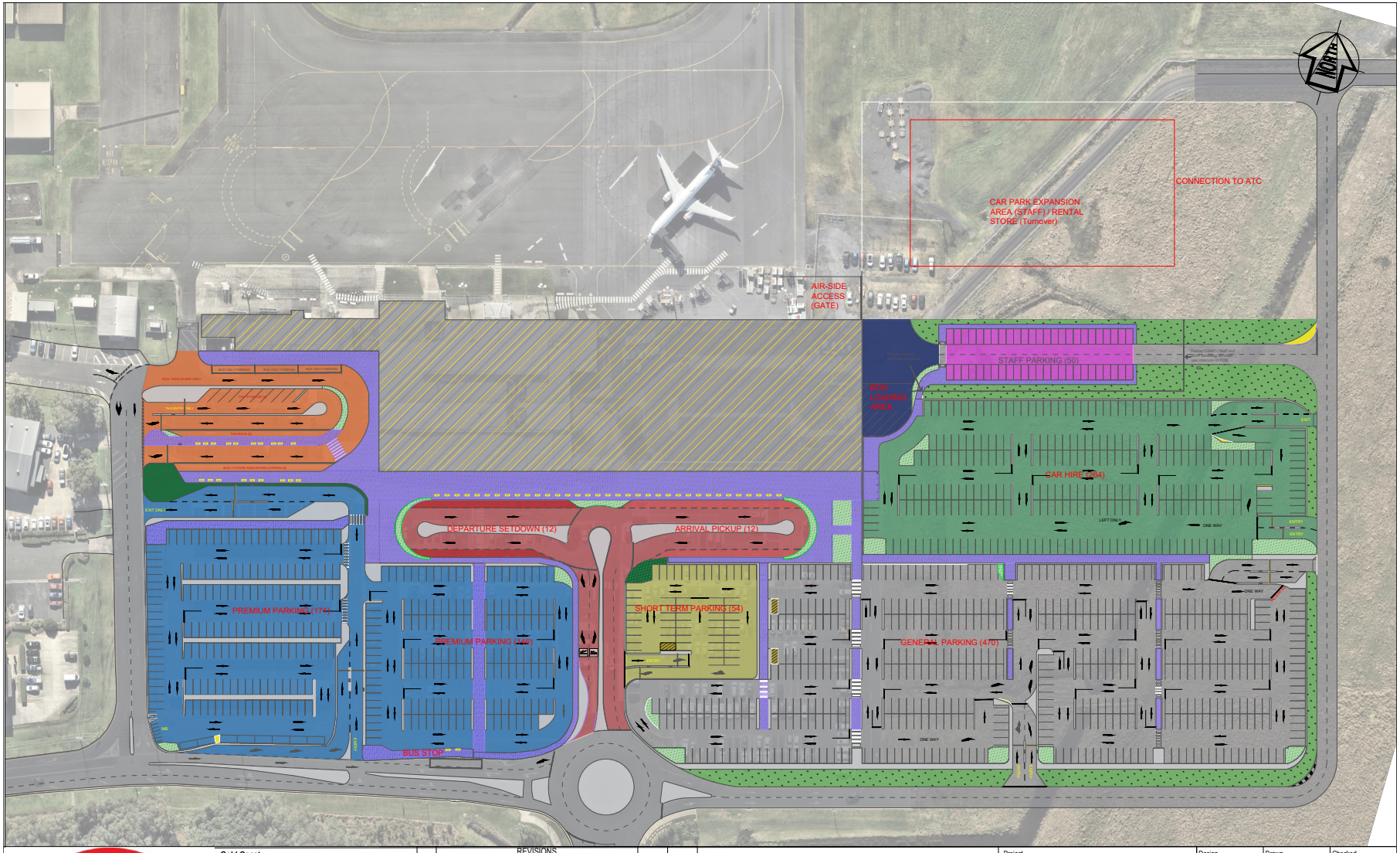
Title: GTMP Concept Plan

Design	Drawn	Checked
M.B	S.TA	A.E

CONCEPT ONLY

Date: 04.12.2024

Project Number	Sheet Number	Issue
P6438	1	002



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Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Ballina Airport GTMP - Concept Plan	S.TA	28.08.2024
002	Ballina Airport GTMP - Concept Plan Updates	S.TA	09.09.2024
003	Ballina Airport GTMP - Finalised Concept Plan	S.TA	04.12.2024

Scale @ A4 0 10 20 30 40 50 60 1:1250

Project: Ballina Airport GTMP

Title: GTMP Concept Zone Plan

Design	Drawn	Checked
M.B	S.TA	A.E

CONCEPT ONLY

Date: 04.12.2024

Project Number	Sheet Number	Issue
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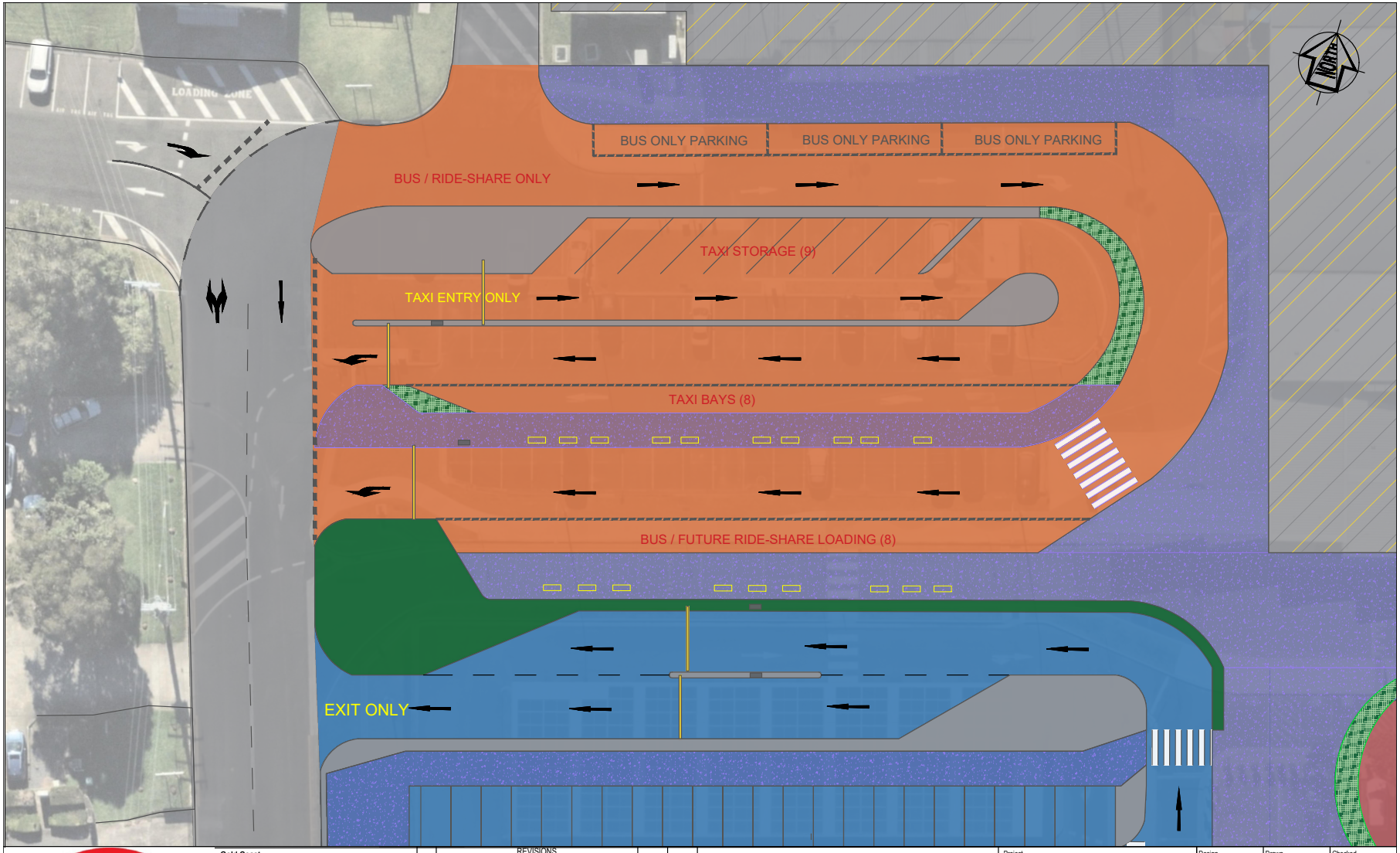

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Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Ballina Airport GTMP - Concept Plan	S.TA	28.08.2024
002	Ballina Airport GTMP - Concept Plan Updates	S.TA	09.09.2024
003	Ballina Airport GTMP - Finalised Concept Plan	S.TA	04.12.2024

Scale @ A4 0 2 4 6 8 10 12 14 1:300

Project: Ballina Airport GTMP

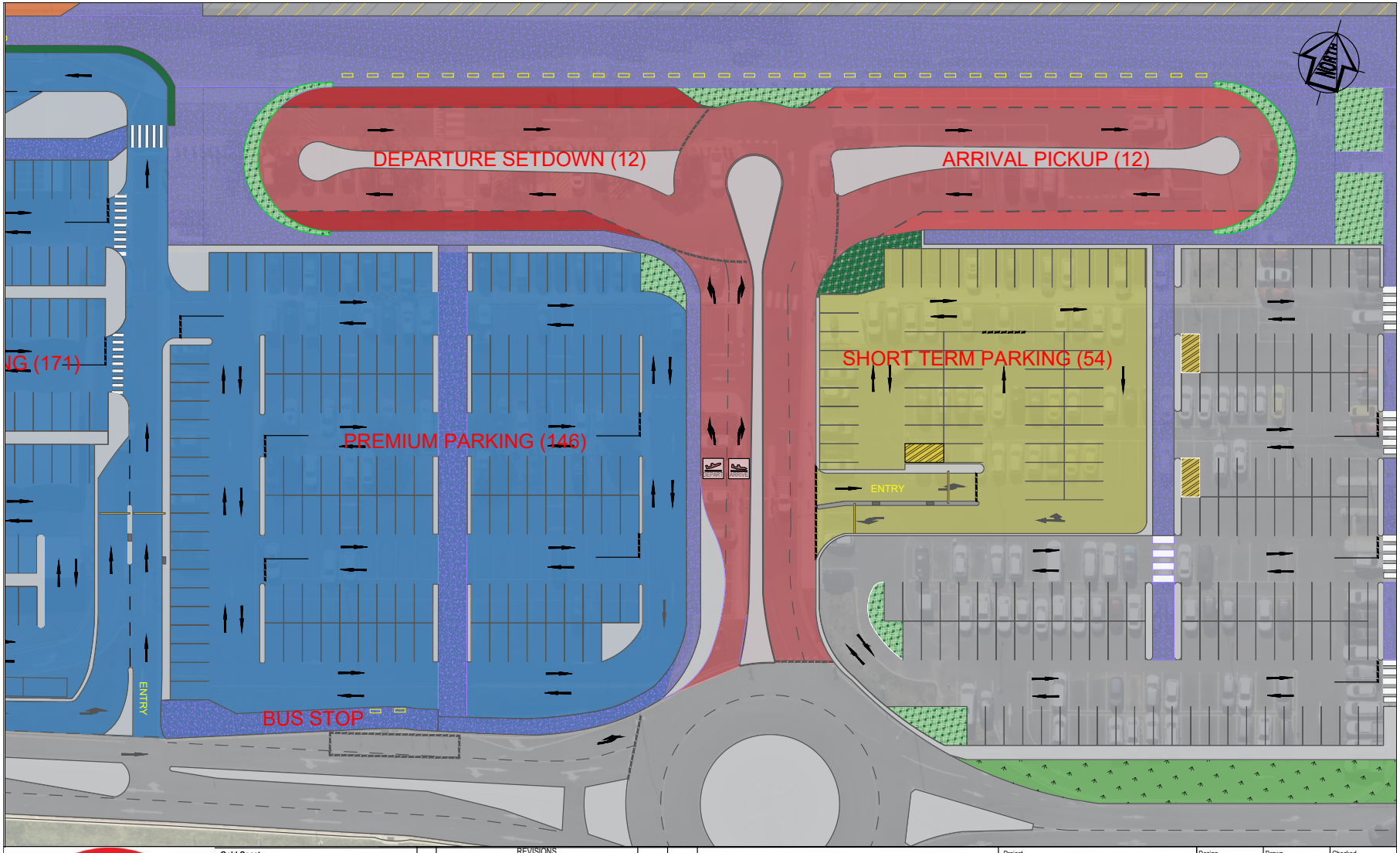
Title: GTMP Concept Plan
Taxi and Rideshare Zone

Design	Drawn	Checked
M.B	S.TA	A.E

CONCEPT ONLY

Date: 04.12.2024

Project Number	Sheet Number	Issue
P6438	3	002



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Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
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P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Ballina Airport GTMP - Concept Plan	S.TA	28.08.2024
002	Ballina Airport GTMP - Concept Plan Updates	S.TA	09.09.2024
003	Ballina Airport GTMP - Finalised Concept Plan	S.TA	04.12.2024

Scale @ A4 0 10 20 30 40 50 1:1000

Project: Ballina Airport GTMP

Title: GTMP Concept Plan
Premium Parking and Passenger
Set Down/ Pick up Zone

Design	Drawn	Checked
M.B	S.TA	A.E

CONCEPT ONLY

Date: 04.12.2024

Project Number	Sheet Number	Issue
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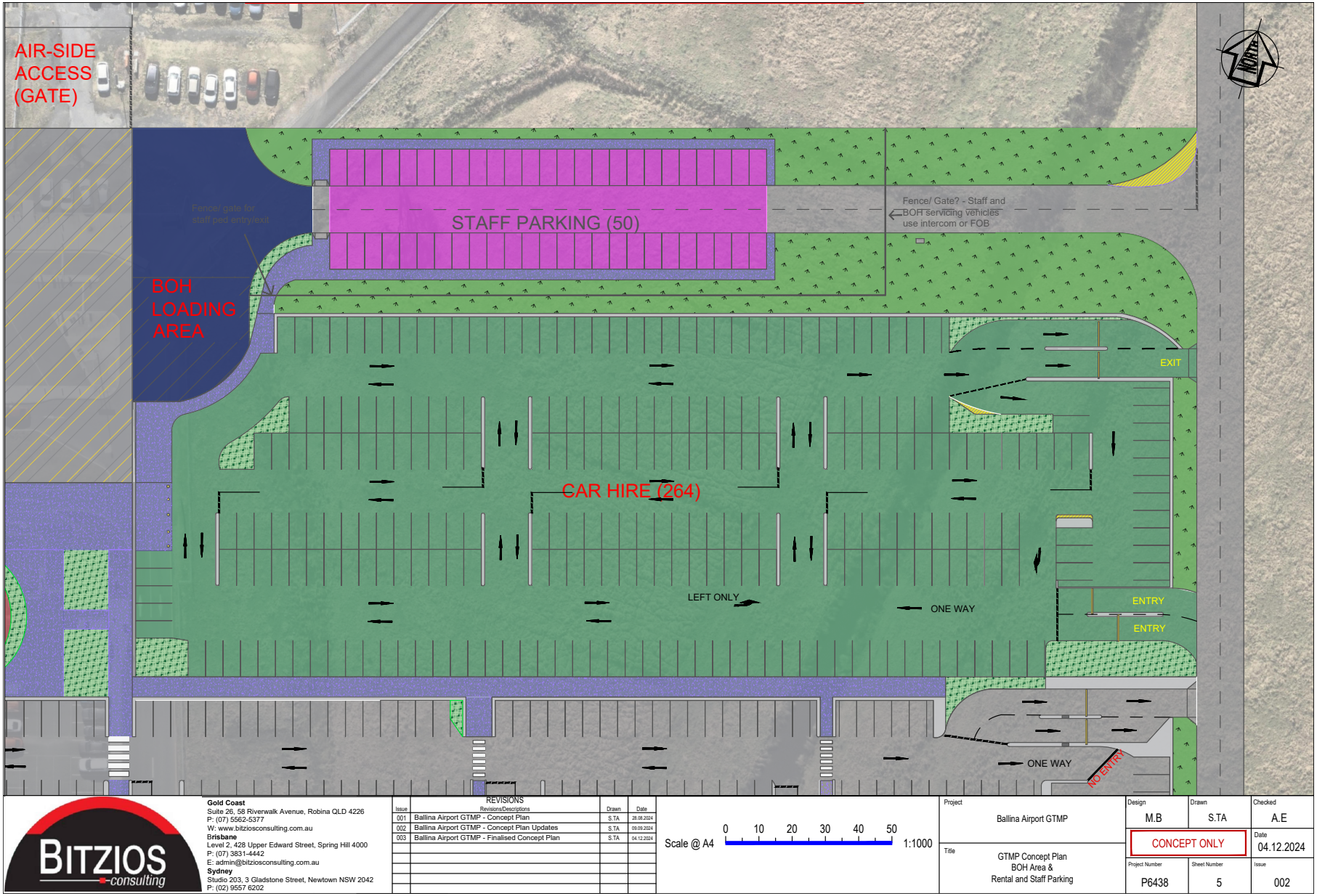

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Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
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Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Ballina Airport GTMP - Concept Plan	S.TA	28.08.2024
002	Ballina Airport GTMP - Concept Plan Updates	S.TA	09.09.2024
003	Ballina Airport GTMP - Finalised Concept Plan	S.TA	04.12.2024

Scale @ A4 0 10 20 30 40 50 1:1000

Project: Ballina Airport GTMP

Title: GTMP Concept Plan BOH Area & Rental and Staff Parking

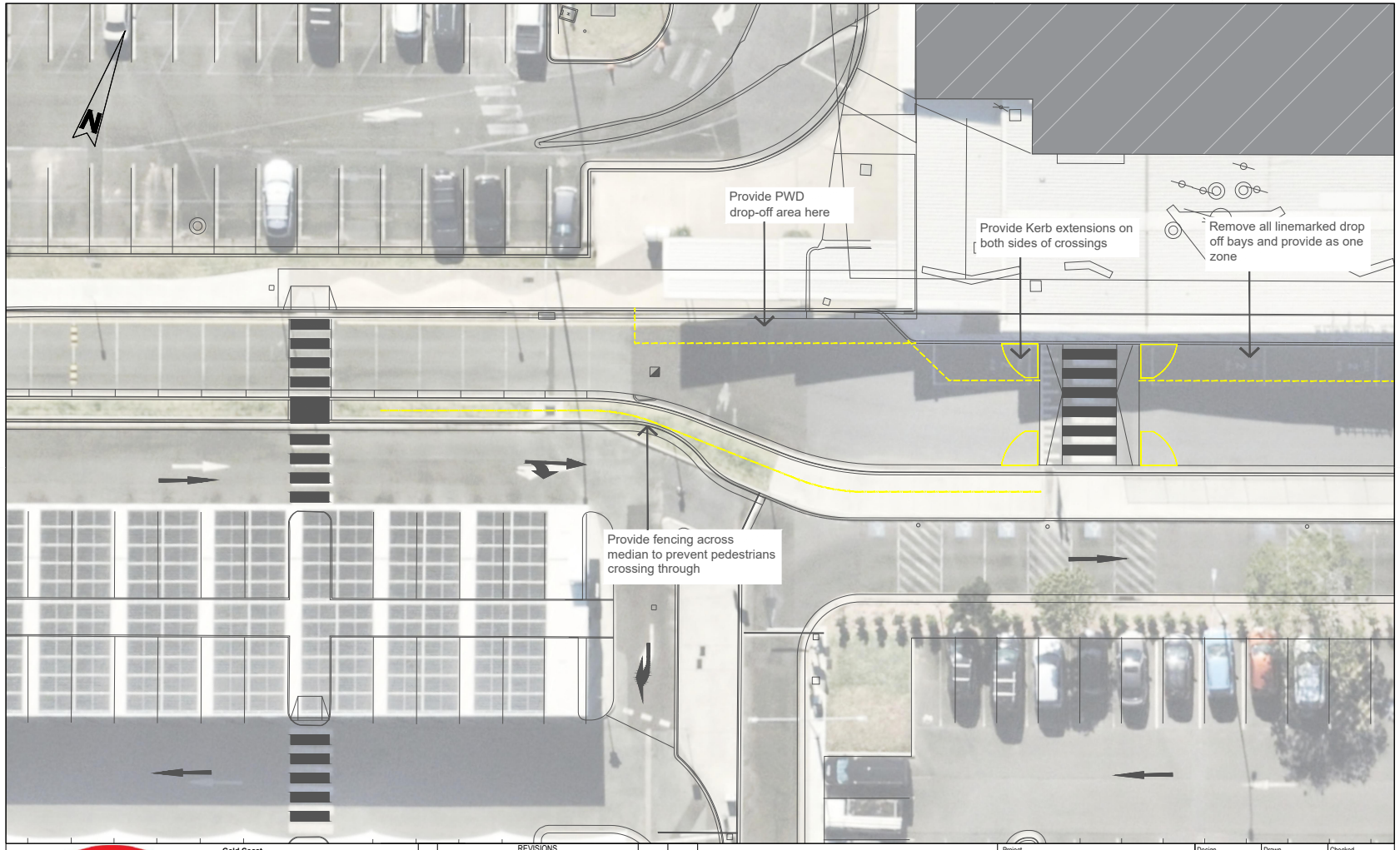
Design	Drawn	Checked
M.B	S.TA	A.E

CONCEPT ONLY

Date: 04.12.2024

Project Number	Sheet Number	Issue
P6438	5	002

Appendix B: Short Term Interim Options



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Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
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P: (02) 9557 6202

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001	Interim Options Concept	S.TA	04/12/2024

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Project: Ballina Byron GTMP

Title: Interim Options Concept

Design	Drawn	Checked
S.TA	S.TA	M.B

CONCEPT ONLY

Date: 31.01.2025

Project Number	Sheet Number	Issue
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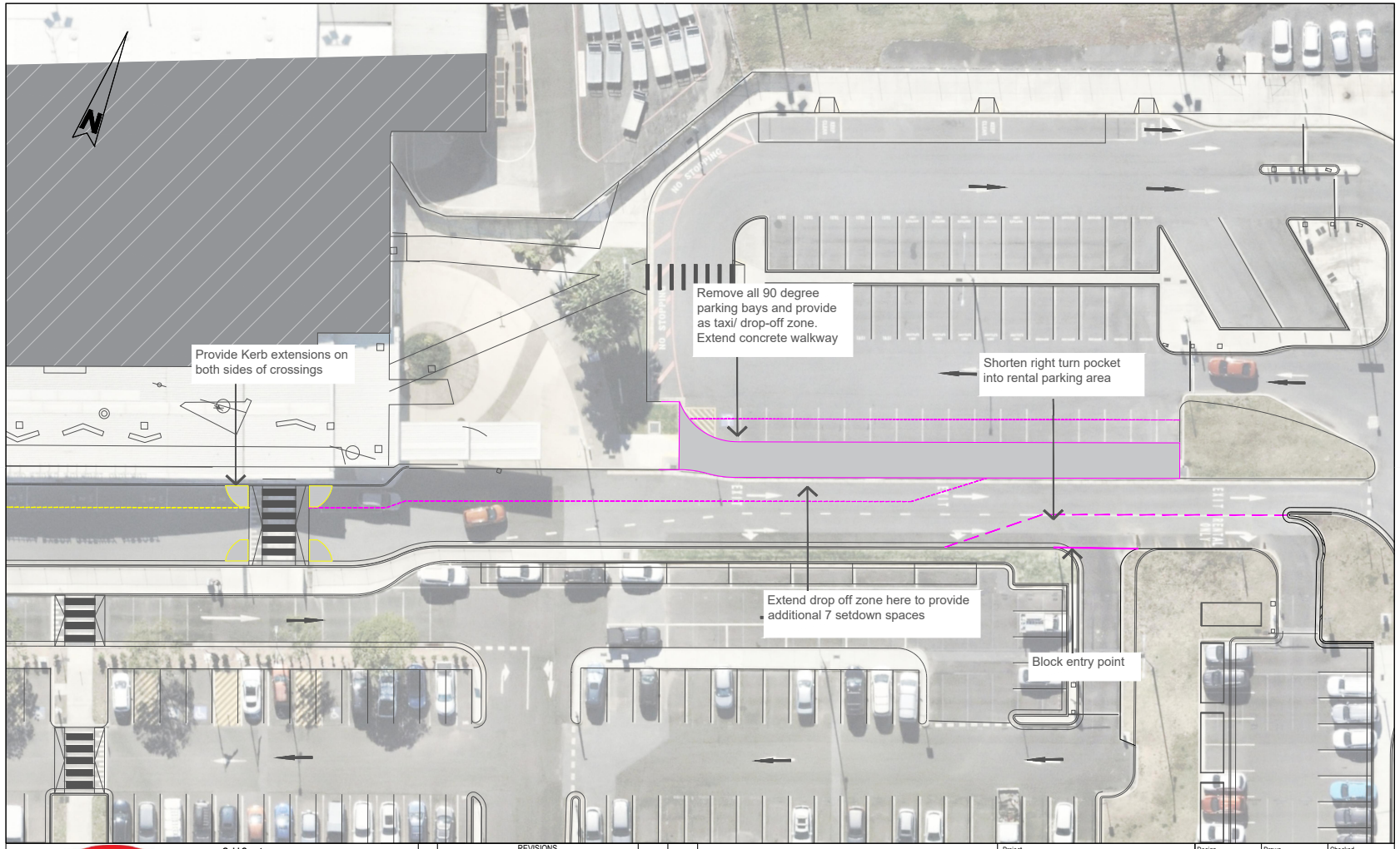

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Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	Interim Options Concept	S.TA	04/12/2024
002	Interim Options Concept - Updates	S.TA	31/01/2025

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Project: Ballina Byron GTMP

Title: Interim Options Concept

Design	Drawn	Checked
S.TA	S.TA	M.B

CONCEPT ONLY

Date: 31.01.2025

Project Number	Sheet Number	Issue
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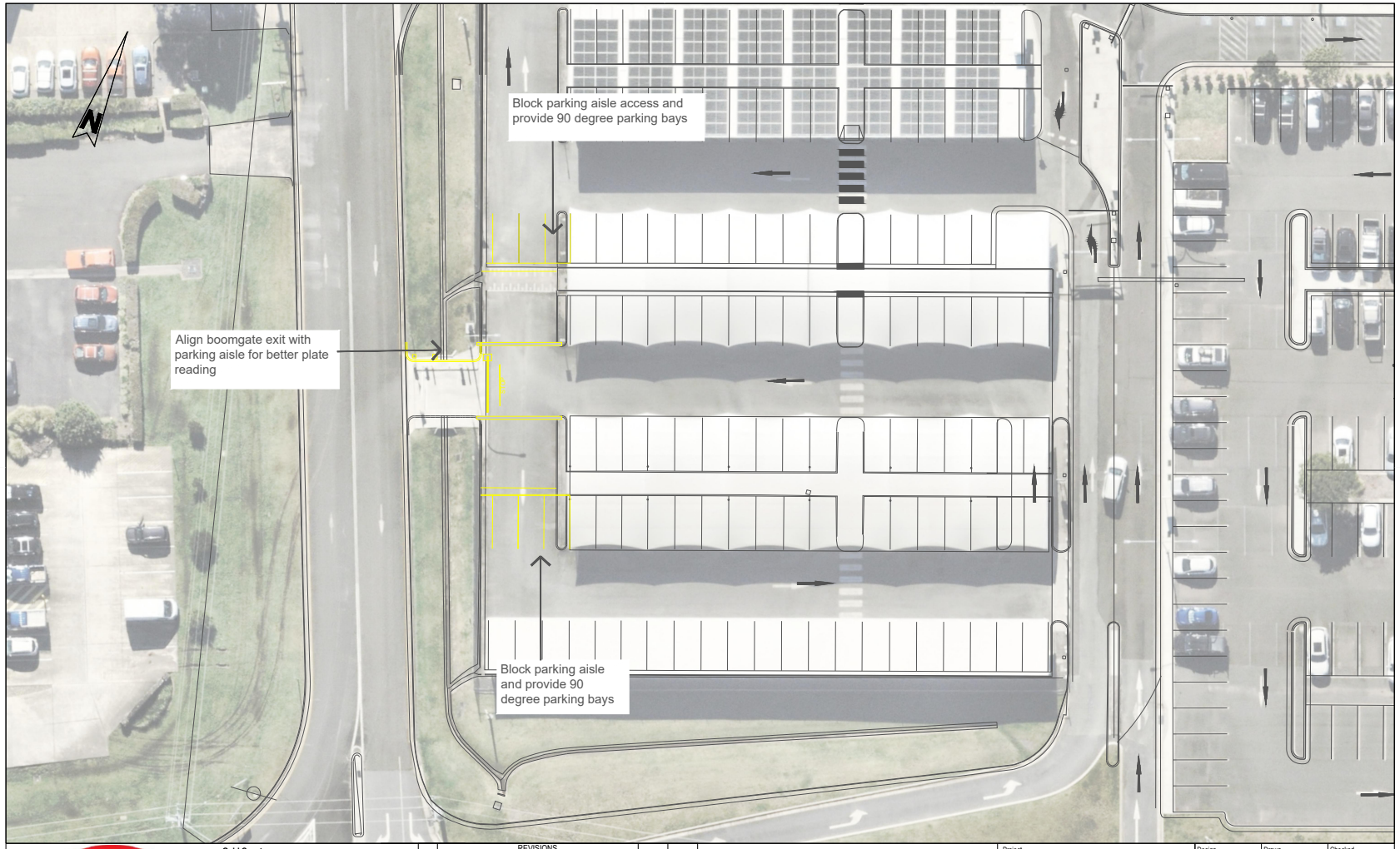

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Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
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P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
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Project: Ballina Byron GTMP	Design: S.TA	Drawn: S.TA	Checked: M.B
Title: Interim Options Concept	CONCEPT ONLY		Date: 31.01.2025
	Project Number: P6438	Sheet Number: 3	Issue: 001

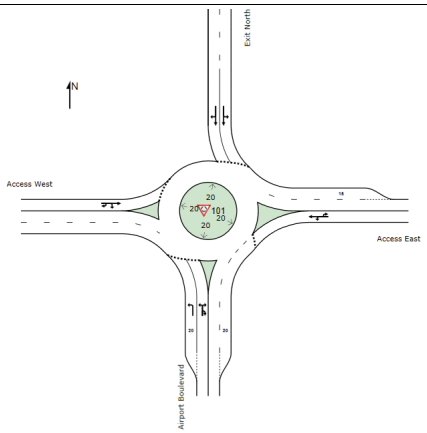
Appendix C: SIDRA Results

Base Modelling

Intersection 1: Airport Boulevard Airport / Southern Cross Drive Roundabout

The assessed SIDRA intersection layout and results summaries are shown below.

Table 1: Intersection 1 – Airport Boulevard / Southern Cross Drive Roundabout

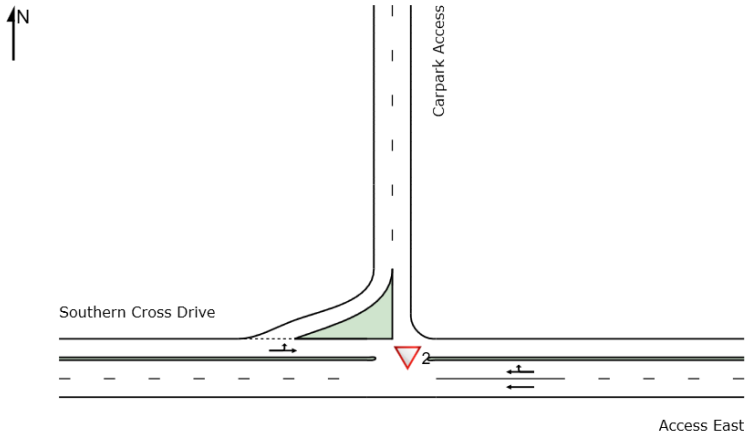


Design Year	AM Peak				PM Peak			
	DOS	Avg. Delay (s)	LOS	95% Queue	DOS	Avg. Delay (s)	LOS	95% Queue
2024 Background								
Airport Boulevard (S)	0.02	7	A	1	0.03	8	A	1
Access East (E)	0.14	0	A	5	0.30	1	A	13
Exit North (N)	0.01	2	A	0	0.05	2	A	2
Southern Cross Drive (W)	0.04	7	A	1	0.05	7	A	2
2029 Seasonal (5 Years)								
Airport Boulevard (S)	0.03	7	A	1	0.05	9	A	2
Access East (E)	0.21	1	A	8	0.50	1	A	25
Exit North (N)	0.02	2	A	1	0.08	2	A	3
Southern Cross Drive (W)	0.05	7	A	2	0.08	7	A	3
2034 Seasonal (10 Years)								
Airport Boulevard (S)	0.03	7	A	1	0.06	9	A	3
Access East (E)	0.24	1	A	10	0.54	2	A	30
Exit North (N)	0.03	2	A	1	0.08	2	A	3
Southern Cross Drive (W)	0.06	7	A	2	0.09	7	A	4
2044 Seasonal (20 Years)								
Airport Boulevard (S)	0.04	7	A	2	0.08	10	A	4
Access East (E)	0.30	1	A	13	0.68	3	A	50
Exit North (N)	0.03	2	A	1	0.11	3	A	4
Southern Cross Drive (W)	0.07	7	A	3	0.11	7	A	5

Intersection 2: Southern Cross Drive/ Carpark Access Intersection

The assessed SIDRA intersection layout and results summaries are shown in the table below.

Table 2: Intersection 2: Southern Cross Drive / Carpark Access Intersection

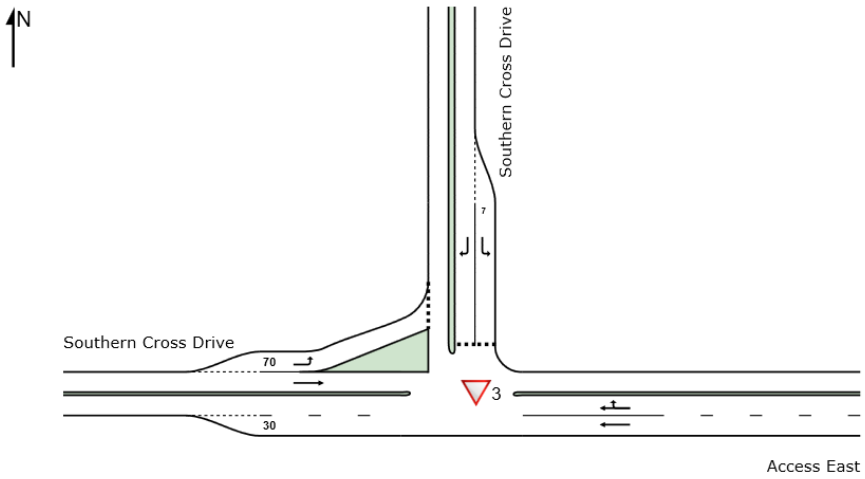


Design Year	AM Peak				PM Peak			
	DOS	Avg. Delay (s)	LOS	95% Queue	DOS	Avg. Delay (s)	LOS	95% Queue
2024 Background								
Southern Cross Drive (W)	0.05	0	NA	0	0.10	0	NA	0
Southern Cross Drive (E)	0.04	2	NA	0	0.06	2	NA	0
2029 Seasonal (5 Years)								
Southern Cross Drive (W)	0.07	0	NA	1	0.15	0	NA	1
Southern Cross Drive (E)	0.07	2	NA	0	0.10	2	NA	0
2034 Seasonal (10 Years)								
Southern Cross Drive (W)	0.08	0	NA	1	0.17	0.1	NA	1
Southern Cross Drive (E)	0.07	2	NA	0	0.11	2	NA	0
2044 Seasonal (20 Years)								
Southern Cross Drive (W)	0.10	0	NA	1	0.21	0	NA	1
Southern Cross Drive (E)	0.09	2	NA	0	0.13	2	NA	0

Intersection 3: Southern Cross Drive / East Access

The assessed SIDRA intersection layout and results summaries are shown in the table below.

Table 3: Southern Cross Drive / East Access Intersection layout

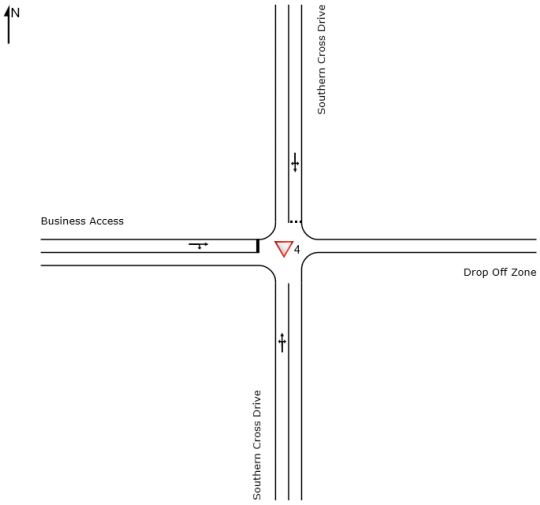


Design Year	AM Peak				PM Peak			
	DOS	Avg. Delay (s)	LOS	95% Queue	DOS	Avg. Delay (s)	LOS	95% Queue
2024 Background								
Southern Cross Drive (E)	0.08	1	NA	1	0.16	2	NA	4
Airport Access (N)	0.01	4	A	0	0.07	6	A	2
Southern Cross Drive (W)	0.09	4	A	3	0.16	4	A	5
2029 Seasonal (5 Years)								
Southern Cross Drive (E)	0.12	1	NA	2	0.26	2	NA	7
Airport Access (N)	0.03	5	A	1	0.18	11	B	4
Southern Cross Drive (W)	0.13	4	A	4	0.26	4	A	9
2034 Seasonal (10 Years)								
Southern Cross Drive (E)	0.12	1	NA	2	0.30	2	NA	8
Airport Access (N)	0.03	5	A	1	0.23	13	B	6
Southern Cross Drive (W)	0.15	4	A	5	0.29	4	B	10
2044 Seasonal (20 Years)								
Southern Cross Drive (E)	0.16	1	NA	3	0.35	2	NA	11
Airport Access (N)	0.05	7	A	1	0.42	24	C	11
Southern Cross Drive (W)	0.18	4	A	6	0.36	4	A	13

Intersection 4: Southern Cross Drive Drop-off Entry Intersection

The assessed SIDRA intersection layout and results summaries are shown in the table below.

Table 4: Southern Cross Drive Drop-off Entry Intersection

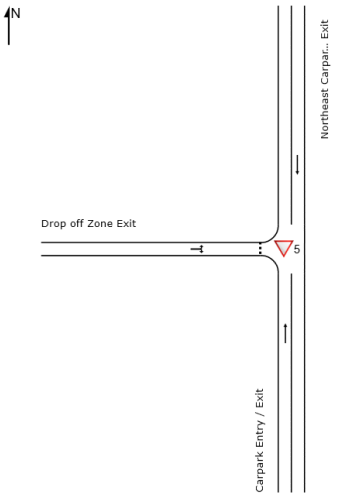


Design Year	AM Peak				PM Peak			
	DOS	Avg. Delay (s)	LOS	95% Queue	DOS	Avg. Delay (s)	LOS	95% Queue
2024 Background								
Airport Access (S)	0.09	2	NA	0	0.18	3	NA	0
Premium Car Park Access (N)	0.01	2	A	0	0.02	2	A	1
Vehicular Crossover (W)	0.01	8	A	0	0.01	7	A	0
2029 Seasonal (5 Years)								
Airport Access (S)	0.14	2	NA	0	0.27	3	A	0
Premium Car Park Access (N)	0.02	2	A	1	0.04	3	A	1
Vehicular Crossover (W)	0.02	8	A	1	0.01	9	A	0
2034 Seasonal (10 Years)								
Airport Access (S)	0.15	2	NA	0	0.30	3	NA	0
Premium Car Park Access (N)	0.02	2	A	0	0.04	3	A	1
Vehicular Crossover (W)	0.02	9	A	0	0.02	9	A	0
2044 Seasonal (20 Years)								
Airport Access (S)	0.19	2	NA	0	0.37	3	NA	0
Premium Car Park Access (N)	0.03	3	A	1	0.06	4	A	1
Vehicular Crossover (W)	0.03	10	A	1	0.02	11	B	1

Intersection 5: Eastern Entry Exit Intersection

The assessed SIDRA intersection layout and results summaries are shown in the table below.

Table 5: Intersection 5 – Eastern Entry Exit Intersection



Design Year	AM Peak				PM Peak			
	DOS	Avg. Delay (s)	LOS	95% Queue	DOS	Avg. Delay (s)	LOS	95% Queue
2024 Background								
Eastern Roadway (S)	0.01	0	NA	0	0.02	0	NA	0
Northeast Carpark Entry / Exit (N)	0.01	0	NA	0	0.03	0	NA	0
Drop-off Zone Exit (W)	0.10	3	A	3	0.26	3	A	7
2029 Seasonal (5 Years)								
Eastern Roadway (S)	0.02	0	NA	0	0.03	0	NA	0
Northeast Carpark Entry / Exit (N)	0.01	0	NA	0	0.04	0	NA	0
Drop-off Zone Exit (W)	0.17	3	A	0	0.41	4	A	14
2034 Seasonal (10 Years)								
Eastern Roadway (S)	0.02	0	NA	0	0.04	0	NA	0
Northeast Carpark Entry / Exit (N)	0.02	0	NA	0	0.04	0	NA	0
Drop-off Zone Exit (W)	0.18	3	A	5	0.46	4	A	16
2044 Seasonal (20 Years)								
Eastern Roadway (S)	0.03	0	NA	0	0.04	0	NA	0
Northeast Carpark Entry / Exit (N)	0.03	0	NA	0	0.05	0	NA	0
Drop-off Zone Exit (W)	0.23	3	A	6	0.60	5	A	33

With Master Plan Modelling

SIDRA Intersection 9.1 was used to develop models to assess the impact of the forecasted traffic on the key intersections to ensure that the recommended Master Plan does not result in unacceptable traffic impacts.

The below tables summarise the impact of the recommended Master Plan at the assessed intersections intersection in the AM and PM peak period.

Table 6: Airport Boulevard / Southern Cross Drive – GTMP SIDRA Output Summary

Design Year	AM Peak				PM Peak			
	DOS	Avg. Delay (s)	LOS	95% Queue	DOS	Avg. Delay (s)	LOS	95% Queue
2044 Base								
Airport Boulevard (S)	0.04	7	A	2	0.08	10	A	4
Access East (E)	0.30	1	A	13	0.68	3	A	50
Exit North (N)	0.03	2	A	1	0.11	3	A	4
Southern Cross Drive (W)	0.07	7	A	3	0.11	7	A	5
2044 GTMP								
Airport Boulevard (S)	0.04	8	A	2	0.08	10	A	3
Access East (E)	0.17	2	A	7	0.50	6	A	25
Setdown Area (N)	0.10	3	A	4	0.25	4	A	11
Southern Cross Drive (W)	0.17	5	A	7	0.30	5	A	15

Table 7: Southern Cross Drive / Car Park Access – GTMP SIDRA Output Summary

Design Year	AM Peak				PM Peak			
	DOS	Avg. Delay (s)	LOS	95% Queue	DOS	Avg. Delay (s)	LOS	95% Queue
2044 Base								
Southern Cross Drive (W)	0.10	0	NA	1	0.21	0	NA	1
Southern Cross Drive (E)	0.09	2	NA	0	0.13	2	NA	0
2044 GTMP								
Southern Cross Drive (W)	0.08	0	NA	0	0.16	0	NA	0
Southern Cross Drive (E)	0.21	0	NA	0	0.35	0	NA	0

Table 8: Western Airport Access – GTMP SIDRA Output Summary

Design Year	AM Peak				PM Peak			
	DOS	Avg. Delay (s)	LOS	95% Queue	DOS	Avg. Delay (s)	LOS	95% Queue
2044 Base								
Southern Cross Drive (E)	0.16	1	NA	3	0.35	2	NA	11
Airport Access (N)	0.05	7	A	1	0.42	24	C	11
Southern Cross Drive (W)	0.18	4	A	6	0.36	4	A	13
2044 GTMP								
Southern Cross Drive (E)	0.12	1	NA	2	0.26	2	NA	7
Airport Access (N)	0.03	5	A	1	0.18	11	B	4
Southern Cross Drive (W)	0.14	4	A	4	0.26	4	A	9

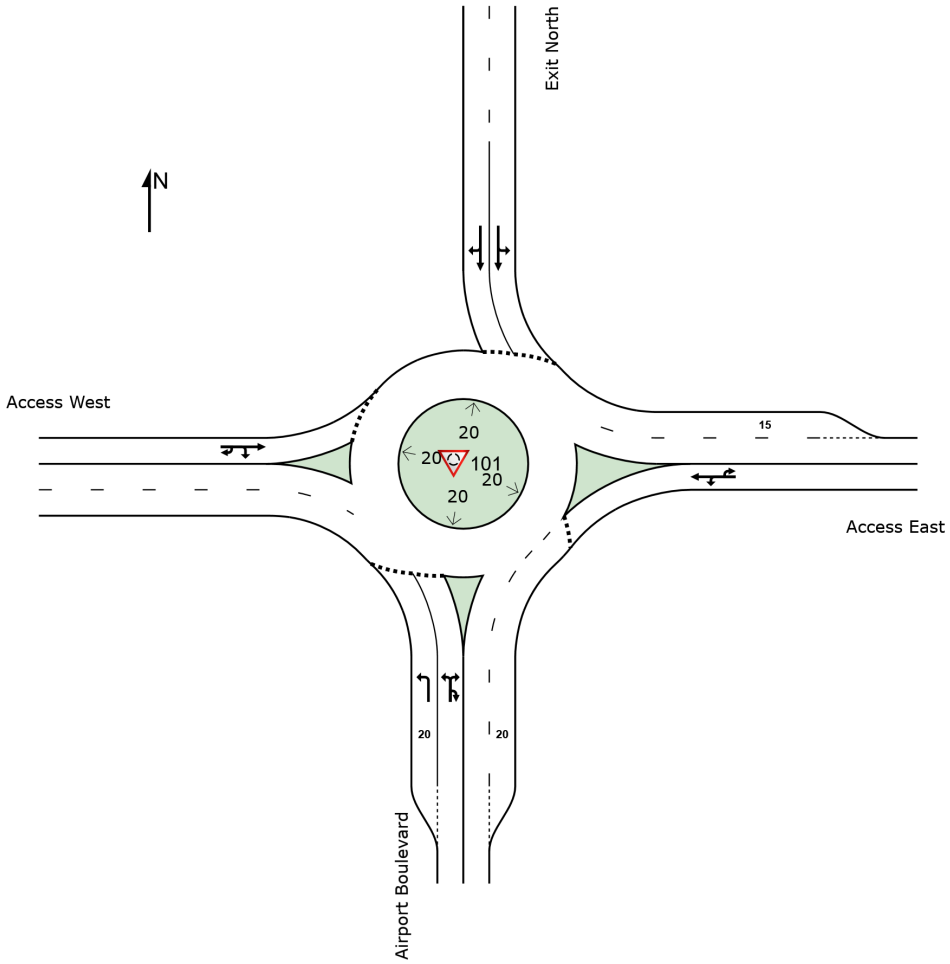
SIDRA Movement Summaries

SITE LAYOUT

Site: 101 [2024 AM Seasonal (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Created: Wednesday, 4 December 2024 1:21:10 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2024 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	25	16.7	25	16.7	0.015	4.9	LOS A	0.1	0.6	0.29	0.50	0.29	52.6
3	R2	All MCs	13	8.3	13	8.3	0.015	9.4	LOS A	0.1	0.5	0.30	0.57	0.30	36.9
3u	U	All MCs	1	0.0	1	0.0	0.015	11.3	LOS B	0.1	0.5	0.30	0.57	0.30	50.8
Approach			39	13.5	39	13.5	0.015	6.5	LOS A	0.1	0.6	0.29	0.53	0.29	46.1
East: Access East															
4	L2	All MCs	59	0.0	59	0.0	0.135	0.5	LOS A	0.7	4.9	0.16	0.06	0.16	38.6
5	T1	All MCs	131	2.4	131	2.4	0.135	0.2	LOS A	0.7	4.9	0.16	0.06	0.16	38.6
6u	U	All MCs	1	0.0	1	0.0	0.135	4.0	LOS A	0.7	4.9	0.16	0.06	0.16	29.7
Approach			191	1.7	191	1.7	0.135	0.3	LOS A	0.7	4.9	0.16	0.06	0.16	38.5
North: Exit North															
7	L2	All MCs	1	0.0	1	0.0	0.004	0.9	LOS A	0.0	0.1	0.20	0.09	0.20	29.7
8	T1	All MCs	8	0.0	8	0.0	0.014	0.3	LOS A	0.1	0.4	0.18	0.24	0.18	37.9
9	R2	All MCs	16	0.0	16	0.0	0.014	3.2	LOS A	0.1	0.4	0.17	0.31	0.17	37.3
Approach			25	0.0	25	0.0	0.014	2.1	LOS A	0.1	0.4	0.17	0.28	0.17	37.1
West: Access West															
11	T1	All MCs	28	0.0	28	0.0	0.035	4.9	LOS A	0.2	1.3	0.08	0.54	0.08	37.7
12	R2	All MCs	13	25.0	13	25.0	0.035	9.0	LOS A	0.2	1.3	0.08	0.54	0.08	51.3
12u	U	All MCs	7	0.0	7	0.0	0.035	10.8	LOS B	0.2	1.3	0.08	0.54	0.08	52.2
Approach			48	6.5	48	6.5	0.035	6.8	LOS A	0.2	1.3	0.08	0.54	0.08	42.4
All Vehicles			303	3.8	303	3.8	0.135	2.3	LOS A	0.7	4.9	0.17	0.21	0.17	39.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2024 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	35	0.0	35	0.0	0.026	5.3	LOS A	0.1	1.0	0.45	0.53	0.45	52.9
3	R2	All MCs	22	0.0	22	0.0	0.026	10.2	LOS B	0.1	0.9	0.46	0.63	0.46	36.4
3u	U	All MCs	4	0.0	4	0.0	0.026	12.2	LOS B	0.1	0.9	0.46	0.63	0.46	49.7
Approach			61	0.0	61	0.0	0.026	7.6	LOS A	0.1	1.0	0.45	0.58	0.45	45.1
East: Access East															
4	L2	All MCs	95	0.0	95	0.0	0.293	0.9	LOS A	1.8	12.5	0.32	0.13	0.32	38.2
5	T1	All MCs	292	0.4	292	0.4	0.293	0.6	LOS A	1.8	12.5	0.32	0.13	0.32	38.3
6u	U	All MCs	1	0.0	1	0.0	0.293	4.5	LOS A	1.8	12.5	0.32	0.13	0.32	29.5
Approach			387	0.3	387	0.3	0.293	0.7	LOS A	1.8	12.5	0.32	0.13	0.32	38.2
North: Exit North															
7	L2	All MCs	3	0.0	3	0.0	0.012	1.2	LOS A	0.1	0.4	0.26	0.12	0.26	29.6
8	T1	All MCs	33	0.0	33	0.0	0.046	0.4	LOS A	0.2	1.6	0.23	0.25	0.23	37.9
9	R2	All MCs	46	0.0	46	0.0	0.046	3.3	LOS A	0.2	1.6	0.22	0.31	0.22	37.3
Approach			82	0.0	82	0.0	0.046	2.1	LOS A	0.2	1.6	0.23	0.28	0.23	37.2
West: Access West															
11	T1	All MCs	37	0.0	37	0.0	0.050	4.9	LOS A	0.3	1.9	0.13	0.55	0.13	37.5
12	R2	All MCs	22	0.0	22	0.0	0.050	8.8	LOS A	0.3	1.9	0.13	0.55	0.13	51.8
12u	U	All MCs	12	0.0	12	0.0	0.050	10.9	LOS B	0.3	1.9	0.13	0.55	0.13	51.8
Approach			71	0.0	71	0.0	0.050	7.1	LOS A	0.3	1.9	0.13	0.55	0.13	43.2
All Vehicles			601	0.2	601	0.2	0.293	2.4	LOS A	1.8	12.5	0.30	0.25	0.30	39.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2029 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	39	18.9	39	18.9	0.026	5.3	LOS A	0.1	1.0	0.37	0.53	0.37	52.3
3	R2	All MCs	20	15.8	20	15.8	0.026	10.0	LOS A	0.1	1.0	0.38	0.60	0.38	36.8
3u	U	All MCs	1	0.0	1	0.0	0.026	11.7	LOS B	0.1	1.0	0.38	0.60	0.38	50.6
Approach			60	17.5	60	17.5	0.026	7.0	LOS A	0.1	1.0	0.38	0.55	0.38	45.7
East: Access East															
4	L2	All MCs	91	0.0	91	0.0	0.213	0.6	LOS A	1.2	8.4	0.23	0.09	0.23	38.4
5	T1	All MCs	202	2.6	202	2.6	0.213	0.4	LOS A	1.2	8.4	0.23	0.09	0.23	38.5
6u	U	All MCs	1	0.0	1	0.0	0.213	4.2	LOS A	1.2	8.4	0.23	0.09	0.23	29.6
Approach			294	1.8	294	1.8	0.213	0.5	LOS A	1.2	8.4	0.23	0.09	0.23	38.4
North: Exit North															
7	L2	All MCs	3	0.0	3	0.0	0.006	1.2	LOS A	0.0	0.2	0.26	0.14	0.26	29.6
8	T1	All MCs	14	0.0	14	0.0	0.023	0.4	LOS A	0.1	0.8	0.23	0.27	0.23	37.8
9	R2	All MCs	24	0.0	24	0.0	0.023	3.3	LOS A	0.1	0.8	0.22	0.31	0.22	37.3
Approach			41	0.0	41	0.0	0.023	2.2	LOS A	0.1	0.8	0.22	0.28	0.22	36.8
West: Access West															
11	T1	All MCs	43	0.0	43	0.0	0.054	4.9	LOS A	0.3	2.1	0.11	0.54	0.11	37.6
12	R2	All MCs	20	26.3	20	26.3	0.054	9.1	LOS A	0.3	2.1	0.11	0.54	0.11	51.1
12u	U	All MCs	12	0.0	12	0.0	0.054	10.8	LOS B	0.3	2.1	0.11	0.54	0.11	52.1
Approach			75	7.0	75	7.0	0.054	6.9	LOS A	0.3	2.1	0.11	0.54	0.11	42.5
All Vehicles			469	4.5	469	4.5	0.213	2.5	LOS A	1.2	8.4	0.23	0.24	0.23	39.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:07:00 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2029 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	55	0.0	55	0.0	0.049	6.3	LOS A	0.3	2.0	0.59	0.60	0.59	52.6
3	R2	All MCs	35	0.0	35	0.0	0.049	11.3	LOS B	0.3	1.9	0.60	0.69	0.60	36.1
3u	U	All MCs	7	0.0	7	0.0	0.049	13.4	LOS B	0.3	1.9	0.60	0.69	0.60	49.2
Approach			97	0.0	97	0.0	0.049	8.6	LOS A	0.3	2.0	0.60	0.64	0.60	44.8
East: Access East															
4	L2	All MCs	148	0.0	148	0.0	0.481	1.6	LOS A	3.6	25.1	0.49	0.25	0.49	37.9
5	T1	All MCs	451	0.7	451	0.7	0.481	1.3	LOS A	3.6	25.1	0.49	0.25	0.49	37.9
6u	U	All MCs	1	0.0	1	0.0	0.481	5.1	LOS A	3.6	25.1	0.49	0.25	0.49	29.3
Approach			600	0.5	600	0.5	0.481	1.4	LOS A	3.6	25.1	0.49	0.25	0.49	37.9
North: Exit North															
7	L2	All MCs	5	0.0	5	0.0	0.020	1.5	LOS A	0.1	0.6	0.33	0.18	0.33	29.6
8	T1	All MCs	51	0.0	51	0.0	0.075	0.7	LOS A	0.4	2.6	0.30	0.29	0.30	37.7
9	R2	All MCs	72	0.0	72	0.0	0.075	3.5	LOS A	0.4	2.6	0.29	0.33	0.29	37.2
Approach			127	0.0	127	0.0	0.075	2.3	LOS A	0.4	2.6	0.30	0.31	0.30	37.0
West: Access West															
11	T1	All MCs	58	0.0	58	0.0	0.080	5.0	LOS A	0.5	3.2	0.17	0.54	0.17	37.4
12	R2	All MCs	35	0.0	35	0.0	0.080	8.9	LOS A	0.5	3.2	0.17	0.54	0.17	51.6
12u	U	All MCs	18	0.0	18	0.0	0.080	10.9	LOS B	0.5	3.2	0.17	0.54	0.17	51.6
Approach			111	0.0	111	0.0	0.080	7.2	LOS A	0.5	3.2	0.17	0.54	0.17	43.1
All Vehicles			935	0.3	935	0.3	0.481	2.9	LOS A	3.6	25.1	0.44	0.33	0.44	39.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:07:00 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2034 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	43	19.5	43	19.5	0.029	5.4	LOS A	0.1	1.2	0.39	0.54	0.39	52.2
3	R2	All MCs	22	14.3	22	14.3	0.029	10.1	LOS B	0.1	1.1	0.40	0.60	0.40	36.7
3u	U	All MCs	1	0.0	1	0.0	0.029	11.8	LOS B	0.1	1.1	0.40	0.60	0.40	50.5
Approach			66	17.5	66	17.5	0.029	7.1	LOS A	0.1	1.2	0.40	0.56	0.40	45.7
East: Access East															
4	L2	All MCs	101	0.0	101	0.0	0.237	0.7	LOS A	1.3	9.6	0.25	0.10	0.25	38.4
5	T1	All MCs	222	2.4	222	2.4	0.237	0.4	LOS A	1.3	9.6	0.25	0.10	0.25	38.4
6u	U	All MCs	1	0.0	1	0.0	0.237	4.2	LOS A	1.3	9.6	0.25	0.10	0.25	29.6
Approach			324	1.6	324	1.6	0.237	0.5	LOS A	1.3	9.6	0.25	0.10	0.25	38.4
North: Exit North															
7	L2	All MCs	3	0.0	3	0.0	0.007	1.3	LOS A	0.0	0.2	0.27	0.15	0.27	29.6
8	T1	All MCs	16	0.0	16	0.0	0.026	0.4	LOS A	0.1	0.8	0.24	0.27	0.24	37.8
9	R2	All MCs	26	0.0	26	0.0	0.026	3.3	LOS A	0.1	0.8	0.23	0.31	0.23	37.3
Approach			45	0.0	45	0.0	0.026	2.2	LOS A	0.1	0.8	0.24	0.29	0.24	36.8
West: Access West															
11	T1	All MCs	49	0.0	49	0.0	0.061	4.9	LOS A	0.3	2.3	0.12	0.53	0.12	37.6
12	R2	All MCs	22	23.8	22	23.8	0.061	9.1	LOS A	0.3	2.3	0.12	0.53	0.12	51.2
12u	U	All MCs	13	0.0	13	0.0	0.061	10.8	LOS B	0.3	2.3	0.12	0.53	0.12	52.1
Approach			84	6.3	84	6.3	0.061	6.9	LOS A	0.3	2.3	0.12	0.53	0.12	42.3
All Vehicles			520	4.3	520	4.3	0.237	2.5	LOS A	1.3	9.6	0.24	0.24	0.24	39.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:07:00 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2034 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	60	0.0	60	0.0	0.057	6.6	LOS A	0.4	2.5	0.64	0.63	0.64	52.5
3	R2	All MCs	39	0.0	39	0.0	0.057	11.7	LOS B	0.3	2.3	0.65	0.71	0.65	36.0
3u	U	All MCs	8	0.0	8	0.0	0.057	13.8	LOS B	0.3	2.3	0.65	0.71	0.65	48.8
Approach			107	0.0	107	0.0	0.057	9.0	LOS A	0.4	2.5	0.64	0.66	0.64	44.6
East: Access East															
4	L2	All MCs	162	0.0	162	0.0	0.539	1.9	LOS A	4.3	30.0	0.55	0.30	0.55	37.8
5	T1	All MCs	497	0.6	497	0.6	0.539	1.6	LOS A	4.3	30.0	0.55	0.30	0.55	37.8
6u	U	All MCs	1	0.0	1	0.0	0.539	5.4	LOS A	4.3	30.0	0.55	0.30	0.55	29.3
Approach			660	0.5	660	0.5	0.539	1.6	LOS A	4.3	30.0	0.55	0.30	0.55	37.8
North: Exit North															
7	L2	All MCs	5	0.0	5	0.0	0.023	1.7	LOS A	0.1	0.7	0.35	0.19	0.35	29.5
8	T1	All MCs	56	0.0	56	0.0	0.084	0.8	LOS A	0.4	3.0	0.32	0.30	0.32	37.7
9	R2	All MCs	80	0.0	80	0.0	0.084	3.6	LOS A	0.4	3.0	0.31	0.34	0.31	37.2
Approach			141	0.0	141	0.0	0.084	2.4	LOS A	0.4	3.0	0.32	0.32	0.32	37.0
West: Access West															
11	T1	All MCs	63	0.0	63	0.0	0.089	5.1	LOS A	0.5	3.6	0.19	0.54	0.19	37.4
12	R2	All MCs	39	0.0	39	0.0	0.089	8.9	LOS A	0.5	3.6	0.19	0.54	0.19	51.6
12u	U	All MCs	20	0.0	20	0.0	0.089	10.9	LOS B	0.5	3.6	0.19	0.54	0.19	51.6
Approach			122	0.0	122	0.0	0.089	7.2	LOS A	0.5	3.6	0.19	0.54	0.19	43.1
All Vehicles			1031	0.3	1031	0.3	0.539	3.2	LOS A	4.3	30.0	0.48	0.37	0.48	38.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:07:00 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2044 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	54	17.6	54	17.6	0.038	5.7	LOS A	0.2	1.5	0.44	0.56	0.44	52.1
3	R2	All MCs	26	16.0	26	16.0	0.038	10.5	LOS B	0.2	1.5	0.45	0.62	0.45	36.7
3u	U	All MCs	1	0.0	1	0.0	0.038	12.1	LOS B	0.2	1.5	0.45	0.62	0.45	50.5
Approach			81	16.9	81	16.9	0.038	7.3	LOS A	0.2	1.5	0.45	0.58	0.45	45.8
East: Access East															
4	L2	All MCs	123	0.0	123	0.0	0.294	0.8	LOS A	1.8	12.7	0.29	0.12	0.29	38.3
5	T1	All MCs	272	2.7	272	2.7	0.294	0.5	LOS A	1.8	12.7	0.29	0.12	0.29	38.3
6u	U	All MCs	1	0.0	1	0.0	0.294	4.3	LOS A	1.8	12.7	0.29	0.12	0.29	29.6
Approach			396	1.9	396	1.9	0.294	0.6	LOS A	1.8	12.7	0.29	0.12	0.29	38.3
North: Exit North															
7	L2	All MCs	4	0.0	4	0.0	0.008	1.4	LOS A	0.0	0.3	0.30	0.17	0.30	29.6
8	T1	All MCs	18	0.0	18	0.0	0.032	0.5	LOS A	0.2	1.1	0.27	0.29	0.27	37.7
9	R2	All MCs	33	0.0	33	0.0	0.032	3.4	LOS A	0.2	1.1	0.26	0.33	0.26	37.2
Approach			55	0.0	55	0.0	0.032	2.3	LOS A	0.2	1.1	0.26	0.30	0.26	36.7
West: Access West															
11	T1	All MCs	59	0.0	59	0.0	0.074	5.0	LOS A	0.4	2.9	0.14	0.53	0.14	37.6
12	R2	All MCs	26	28.0	26	28.0	0.074	9.2	LOS A	0.4	2.9	0.14	0.53	0.14	51.0
12u	U	All MCs	16	0.0	16	0.0	0.074	10.9	LOS B	0.4	2.9	0.14	0.53	0.14	52.0
Approach			101	7.3	101	7.3	0.074	7.0	LOS A	0.4	2.9	0.14	0.53	0.14	42.3
All Vehicles			633	4.5	633	4.5	0.294	2.7	LOS A	1.8	12.7	0.28	0.26	0.28	39.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:07:01 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2044 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	73	0.0	73	0.0	0.082	7.5	LOS A	0.6	3.9	0.75	0.67	0.75	51.9
3	R2	All MCs	47	0.0	47	0.0	0.082	12.9	LOS B	0.5	3.6	0.75	0.74	0.75	35.6
3u	U	All MCs	9	0.0	9	0.0	0.082	15.0	LOS B	0.5	3.6	0.75	0.74	0.75	48.1
Approach			129	0.0	129	0.0	0.082	10.0	LOS B	0.6	3.9	0.75	0.70	0.75	44.1
East: Access East															
4	L2	All MCs	199	0.0	199	0.0	0.681	3.3	LOS A	7.1	50.3	0.71	0.50	0.75	37.5
5	T1	All MCs	606	0.7	606	0.7	0.681	2.9	LOS A	7.1	50.3	0.71	0.50	0.75	37.5
6u	U	All MCs	1	0.0	1	0.0	0.681	6.7	LOS A	7.1	50.3	0.71	0.50	0.75	29.1
Approach			806	0.5	806	0.5	0.681	3.0	LOS A	7.1	50.3	0.71	0.50	0.75	37.5
North: Exit North															
7	L2	All MCs	7	0.0	7	0.0	0.028	1.9	LOS A	0.1	0.9	0.38	0.23	0.38	29.5
8	T1	All MCs	67	0.0	67	0.0	0.105	0.9	LOS A	0.6	3.9	0.36	0.32	0.36	37.6
9	R2	All MCs	97	0.0	97	0.0	0.105	3.7	LOS A	0.6	3.9	0.35	0.36	0.35	37.1
Approach			172	0.0	172	0.0	0.105	2.5	LOS A	0.6	3.9	0.36	0.34	0.36	36.9
West: Access West															
11	T1	All MCs	77	0.0	77	0.0	0.109	5.1	LOS A	0.7	4.6	0.22	0.54	0.22	37.4
12	R2	All MCs	47	0.0	47	0.0	0.109	8.9	LOS A	0.7	4.6	0.22	0.54	0.22	51.5
12u	U	All MCs	24	0.0	24	0.0	0.109	11.0	LOS B	0.7	4.6	0.22	0.54	0.22	51.5
Approach			148	0.0	148	0.0	0.109	7.3	LOS A	0.7	4.6	0.22	0.54	0.22	43.0
All Vehicles			1256	0.3	1256	0.3	0.681	4.2	LOS A	7.1	50.3	0.61	0.51	0.64	38.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:07:01 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2044 AM Seasonal Masterplan (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV %]	Arrival Flows [Total veh/h	HV %]	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist m]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	9	0.0	9	0.0	0.037	5.3	LOS A	0.2	1.6	0.44	0.50	0.44	52.9
2	T1	All MCs	33	29.0	33	29.0	0.037	5.7	LOS A	0.2	1.6	0.44	0.50	0.44	52.7
3	R2	All MCs	38	11.1	38	11.1	0.037	10.3	LOS B	0.2	1.4	0.45	0.64	0.45	36.4
3u	U	All MCs	1	0.0	1	0.0	0.037	12.1	LOS B	0.2	1.4	0.45	0.64	0.45	49.7
Approach			81	16.9	81	16.9	0.037	7.9	LOS A	0.2	1.6	0.44	0.57	0.44	43.4
East: Access East															
4	L2	All MCs	58	0.0	58	0.0	0.172	1.9	LOS A	1.0	6.8	0.49	0.32	0.49	38.0
5	T1	All MCs	121	2.6	121	2.6	0.172	1.7	LOS A	1.0	6.8	0.49	0.32	0.49	38.0
6	R2	All MCs	1	0.0	1	0.0	0.172	10.3	LOS B	1.0	6.8	0.49	0.32	0.49	37.7
6u	U	All MCs	1	0.0	1	0.0	0.172	5.5	LOS A	1.0	6.8	0.49	0.32	0.49	29.4
Approach			181	1.7	181	1.7	0.172	1.8	LOS A	1.0	6.8	0.49	0.32	0.49	37.9
North: Exit North															
7	L2	All MCs	1	0.0	1	0.0	0.102	1.2	LOS A	0.5	3.8	0.34	0.27	0.34	29.3
8	T1	All MCs	83	0.0	83	0.0	0.102	0.7	LOS A	0.5	3.8	0.34	0.27	0.34	37.8
9	R2	All MCs	183	2.3	183	2.3	0.102	3.8	LOS A	0.5	3.8	0.35	0.39	0.35	36.9
Approach			267	1.6	267	1.6	0.102	2.8	LOS A	0.5	3.8	0.35	0.35	0.35	37.1
West: Access West															
10	L2	All MCs	256	0.0	256	0.0	0.164	4.4	LOS A	1.0	6.8	0.24	0.47	0.24	53.8
11	T1	All MCs	106	0.0	106	0.0	0.119	5.2	LOS A	0.7	4.8	0.25	0.51	0.25	37.6
12	R2	All MCs	26	28.0	26	28.0	0.119	9.5	LOS A	0.7	4.8	0.25	0.51	0.25	51.0
12u	U	All MCs	16	0.0	16	0.0	0.119	11.1	LOS B	0.7	4.8	0.25	0.51	0.25	52.0
Approach			404	1.8	404	1.8	0.164	5.2	LOS A	1.0	6.8	0.24	0.49	0.24	48.0
All Vehicles			934	3.0	934	3.0	0.172	4.1	LOS A	1.0	6.8	0.34	0.42	0.34	41.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 12 September 2024 4:09:47 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

MOVEMENT SUMMARY

Site: 101 [2044 PM Seasonal Masterplan (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Airport Boulevard															
1	L2	All MCs	20	0.0	20	0.0	0.075	8.4	LOS A	0.4	3.0	0.69	0.67	0.69	51.5
2	T1	All MCs	44	0.0	44	0.0	0.075	8.2	LOS A	0.5	3.3	0.69	0.67	0.69	51.6
3	R2	All MCs	57	0.0	57	0.0	0.075	12.1	LOS B	0.5	3.3	0.69	0.70	0.69	35.9
3u	U	All MCs	9	0.0	9	0.0	0.075	14.1	LOS B	0.5	3.3	0.69	0.70	0.69	48.8
Approach			131	0.0	131	0.0	0.075	10.3	LOS B	0.5	3.3	0.69	0.69	0.69	43.1
East: Access East															
4	L2	All MCs	113	0.0	113	0.0	0.458	6.3	LOS A	3.5	24.6	0.83	0.72	0.91	36.6
5	T1	All MCs	234	1.8	234	1.8	0.458	6.1	LOS A	3.5	24.6	0.83	0.72	0.91	36.6
6	R2	All MCs	1	0.0	1	0.0	0.458	14.7	LOS B	3.5	24.6	0.83	0.72	0.91	36.4
6u	U	All MCs	1	0.0	1	0.0	0.458	9.8	LOS A	3.5	24.6	0.83	0.72	0.91	28.5
Approach			348	1.2	348	1.2	0.458	6.2	LOS A	3.5	24.6	0.83	0.72	0.91	36.6
North: Exit North															
7	L2	All MCs	1	0.0	1	0.0	0.253	1.8	LOS A	1.5	10.8	0.47	0.38	0.47	29.1
8	T1	All MCs	154	0.0	154	0.0	0.253	1.3	LOS A	1.5	10.8	0.47	0.38	0.47	37.4
9	R2	All MCs	469	0.0	469	0.0	0.253	4.4	LOS A	1.5	10.8	0.48	0.46	0.48	36.7
Approach			624	0.0	624	0.0	0.253	3.6	LOS A	1.5	10.8	0.47	0.44	0.47	36.9
West: Access West															
10	L2	All MCs	453	0.0	453	0.0	0.298	4.6	LOS A	2.1	14.9	0.34	0.48	0.34	53.4
11	T1	All MCs	144	0.0	144	0.0	0.181	5.4	LOS A	1.1	7.7	0.33	0.53	0.33	37.3
12	R2	All MCs	47	0.0	47	0.0	0.181	9.3	LOS A	1.1	7.7	0.33	0.53	0.33	51.5
12u	U	All MCs	24	0.0	24	0.0	0.181	11.4	LOS B	1.1	7.7	0.33	0.53	0.33	51.5
Approach			668	0.0	668	0.0	0.298	5.4	LOS A	2.1	14.9	0.34	0.50	0.34	48.6
All Vehicles			1772	0.2	1772	0.2	0.458	5.3	LOS A	3.5	24.6	0.51	0.53	0.52	41.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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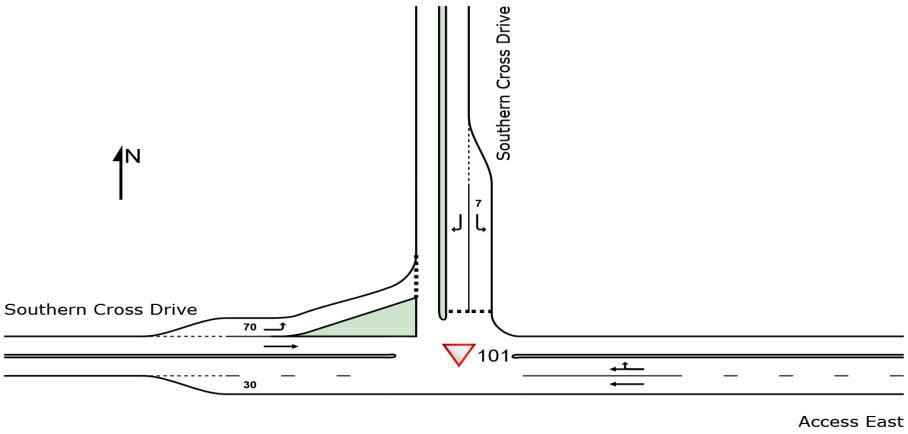
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Airport Boulevard Airport Carpark Roundabout.sip9

SITE LAYOUT

Site: 101 [2024 AM Seasonal (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Created: Wednesday, 4 December 2024 1:56:08 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2024 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	147	5.0	147	5.0	0.076	0.1	LOS A	0.2	1.1	0.06	0.10	0.06	58.9
6	R2	All MCs	26	0.0	26	0.0	0.076	5.8	LOS A	0.2	1.1	0.07	0.13	0.07	39.4
Approach			174	4.2	174	4.2	0.076	1.0	NA	0.2	1.1	0.06	0.10	0.06	54.8
North: Southern Cross Drive															
7	L2	All MCs	4	0.0	4	0.0	0.003	2.2	LOS A	0.0	0.1	0.16	0.32	0.16	37.6
9	R2	All MCs	9	11.1	9	11.1	0.012	4.1	LOS A	0.0	0.3	0.42	0.46	0.42	36.8
Approach			14	7.7	14	7.7	0.012	3.5	LOS A	0.0	0.3	0.34	0.41	0.34	37.1
West: Southern Cross Drive															
10	L2	All MCs	135	3.1	135	3.1	0.085	5.7	LOS A	0.4	2.6	0.09	0.52	0.09	37.8
11	T1	All MCs	76	4.2	76	4.2	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			211	3.5	211	3.5	0.085	3.7	LOS A	0.4	2.6	0.06	0.33	0.06	43.5
All Vehicles			398	4.0	398	4.0	0.085	2.5	NA	0.4	2.6	0.07	0.23	0.07	47.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:32:04 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2024 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	281	0.4	281	0.4	0.164	0.2	LOS A	0.6	4.1	0.11	0.16	0.11	58.3
6	R2	All MCs	94	0.0	94	0.0	0.164	5.9	LOS A	0.6	4.1	0.15	0.22	0.15	39.0
Approach			375	0.3	375	0.3	0.164	1.7	NA	0.6	4.1	0.12	0.17	0.12	51.9
North: Southern Cross Drive															
7	L2	All MCs	7	0.0	7	0.0	0.005	2.3	LOS A	0.0	0.1	0.20	0.33	0.20	37.6
9	R2	All MCs	37	2.9	37	2.9	0.067	6.7	LOS A	0.2	1.7	0.56	0.66	0.56	36.0
Approach			44	2.4	44	2.4	0.067	6.0	LOS A	0.2	1.7	0.50	0.61	0.50	36.3
West: Southern Cross Drive															
10	L2	All MCs	237	0.4	237	0.4	0.157	5.9	LOS A	0.7	4.9	0.20	0.53	0.20	37.6
11	T1	All MCs	112	0.9	112	0.9	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			348	0.6	348	0.6	0.157	4.0	LOS A	0.7	4.9	0.14	0.36	0.14	42.6
All Vehicles			767	0.5	767	0.5	0.164	3.0	NA	0.7	4.9	0.15	0.28	0.15	46.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:32:04 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2029 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	228	5.1	228	5.1	0.119	0.2	LOS A	0.3	2.0	0.08	0.11	0.08	58.8
6	R2	All MCs	42	0.0	42	0.0	0.119	5.9	LOS A	0.3	2.0	0.10	0.14	0.10	39.3
Approach			271	4.3	271	4.3	0.119	1.1	NA	0.3	2.0	0.08	0.11	0.08	54.6
North: Southern Cross Drive															
7	L2	All MCs	7	0.0	7	0.0	0.005	2.3	LOS A	0.0	0.1	0.21	0.33	0.21	37.6
9	R2	All MCs	16	20.0	16	20.0	0.029	6.4	LOS A	0.1	0.8	0.53	0.58	0.53	35.8
Approach			23	13.6	23	13.6	0.029	5.1	LOS A	0.1	0.8	0.43	0.50	0.43	36.4
West: Southern Cross Drive															
10	L2	All MCs	208	3.5	208	3.5	0.134	5.8	LOS A	0.6	4.3	0.12	0.52	0.12	37.7
11	T1	All MCs	118	4.5	118	4.5	0.062	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			326	3.9	326	3.9	0.134	3.7	LOS A	0.6	4.3	0.08	0.33	0.08	43.5
All Vehicles			620	4.4	620	4.4	0.134	2.6	NA	0.6	4.3	0.09	0.24	0.09	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:32:04 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2029 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	436	0.7	436	0.7	0.259	0.4	LOS A	1.0	7.2	0.16	0.18	0.16	58.1
6	R2	All MCs	145	0.0	145	0.0	0.259	6.2	LOS A	1.0	7.2	0.22	0.25	0.22	38.9
Approach			581	0.5	581	0.5	0.259	1.9	NA	1.0	7.2	0.17	0.20	0.17	51.7
North: Southern Cross Drive															
7	L2	All MCs	12	0.0	12	0.0	0.008	2.4	LOS A	0.0	0.2	0.26	0.35	0.26	37.5
9	R2	All MCs	58	1.8	58	1.8	0.176	12.3	LOS B	0.6	4.3	0.76	0.84	0.76	34.2
Approach			69	1.5	69	1.5	0.176	10.7	LOS B	0.6	4.3	0.67	0.76	0.67	34.7
West: Southern Cross Drive															
10	L2	All MCs	366	0.9	366	0.9	0.255	6.2	LOS A	1.2	8.6	0.28	0.54	0.28	37.4
11	T1	All MCs	174	0.6	174	0.6	0.089	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			540	0.8	540	0.8	0.255	4.2	LOS A	1.2	8.6	0.19	0.37	0.19	42.5
All Vehicles			1191	0.7	1191	0.7	0.259	3.4	NA	1.2	8.6	0.21	0.31	0.21	45.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:32:05 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2034 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	252	5.0	252	5.0	0.131	0.2	LOS A	0.3	2.2	0.08	0.11	0.08	58.8
6	R2	All MCs	46	0.0	46	0.0	0.131	6.0	LOS A	0.3	2.2	0.11	0.15	0.11	39.3
Approach			298	4.2	298	4.2	0.131	1.1	NA	0.3	2.2	0.09	0.12	0.09	54.6
North: Southern Cross Drive															
7	L2	All MCs	8	0.0	8	0.0	0.006	2.3	LOS A	0.0	0.2	0.22	0.33	0.22	37.6
9	R2	All MCs	17	18.8	17	18.8	0.033	7.0	LOS A	0.1	0.9	0.55	0.61	0.55	35.7
Approach			25	12.5	25	12.5	0.033	5.4	LOS A	0.1	0.9	0.44	0.52	0.44	36.3
West: Southern Cross Drive															
10	L2	All MCs	229	3.7	229	3.7	0.148	5.8	LOS A	0.7	4.8	0.13	0.52	0.13	37.7
11	T1	All MCs	131	4.0	131	4.0	0.069	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			360	3.8	360	3.8	0.148	3.7	LOS A	0.7	4.8	0.09	0.33	0.09	43.5
All Vehicles			683	4.3	683	4.3	0.148	2.6	NA	0.7	4.8	0.10	0.24	0.10	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:32:05 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2034 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	480	0.7	480	0.7	0.287	0.5	LOS A	1.2	8.3	0.17	0.19	0.17	58.1
6	R2	All MCs	161	0.0	161	0.0	0.287	6.3	LOS A	1.2	8.3	0.23	0.26	0.23	38.8
Approach			641	0.5	641	0.5	0.287	2.0	NA	1.2	8.3	0.19	0.21	0.19	51.6
North: Southern Cross Drive															
7	L2	All MCs	13	0.0	13	0.0	0.009	2.5	LOS A	0.0	0.2	0.27	0.36	0.27	37.5
9	R2	All MCs	63	1.7	63	1.7	0.226	15.4	LOS C	0.8	5.7	0.80	0.90	0.87	33.2
Approach			76	1.4	76	1.4	0.226	13.3	LOS B	0.8	5.7	0.72	0.81	0.77	33.8
West: Southern Cross Drive															
10	L2	All MCs	404	0.8	404	0.8	0.285	6.3	LOS A	1.4	9.9	0.31	0.55	0.31	37.4
11	T1	All MCs	192	0.5	192	0.5	0.099	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			596	0.7	596	0.7	0.285	4.3	LOS A	1.4	9.9	0.21	0.37	0.21	42.5
All Vehicles			1313	0.6	1313	0.6	0.287	3.7	NA	1.4	9.9	0.23	0.32	0.23	45.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:32:05 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2044 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	306	5.2	306	5.2	0.160	0.2	LOS A	0.4	2.8	0.10	0.12	0.10	58.8
6	R2	All MCs	56	0.0	56	0.0	0.160	6.1	LOS A	0.4	2.8	0.12	0.15	0.12	39.3
Approach			362	4.4	362	4.4	0.160	1.1	NA	0.4	2.8	0.10	0.12	0.10	54.6
North: Southern Cross Drive															
7	L2	All MCs	9	0.0	9	0.0	0.007	2.4	LOS A	0.0	0.2	0.24	0.34	0.24	37.5
9	R2	All MCs	21	20.0	21	20.0	0.051	9.0	LOS A	0.2	1.4	0.61	0.70	0.61	34.9
Approach			31	13.8	31	13.8	0.051	7.0	LOS A	0.2	1.4	0.50	0.59	0.50	35.7
West: Southern Cross Drive															
10	L2	All MCs	280	3.4	280	3.4	0.182	5.8	LOS A	0.8	6.0	0.15	0.52	0.15	37.6
11	T1	All MCs	158	4.7	158	4.7	0.083	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			438	3.8	438	3.8	0.182	3.7	LOS A	0.8	6.0	0.10	0.33	0.10	43.4
All Vehicles			831	4.4	831	4.4	0.182	2.7	NA	0.8	6.0	0.11	0.25	0.11	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:32:05 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2044 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	585	0.7	585	0.7	0.354	0.7	LOS A	1.6	10.9	0.20	0.21	0.20	58.0
6	R2	All MCs	196	0.0	196	0.0	0.354	6.6	LOS A	1.6	10.9	0.28	0.30	0.28	38.7
Approach			781	0.5	781	0.5	0.354	2.2	NA	1.6	10.9	0.22	0.23	0.22	51.5
North: Southern Cross Drive															
7	L2	All MCs	16	0.0	16	0.0	0.012	2.6	LOS A	0.0	0.3	0.30	0.38	0.30	37.4
9	R2	All MCs	77	1.4	77	1.4	0.421	27.8	LOS D	1.6	11.0	0.90	1.05	1.16	29.8
Approach			93	1.1	93	1.1	0.421	23.6	LOS C	1.6	11.0	0.80	0.93	1.02	30.9
West: Southern Cross Drive															
10	L2	All MCs	493	0.9	493	0.9	0.359	6.5	LOS A	1.9	13.2	0.37	0.57	0.37	37.3
11	T1	All MCs	234	0.5	234	0.5	0.120	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			726	0.7	726	0.7	0.359	4.4	LOS A	1.9	13.2	0.25	0.39	0.25	42.4
All Vehicles			1600	0.7	1600	0.7	0.421	4.4	NA	1.9	13.2	0.27	0.34	0.28	45.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

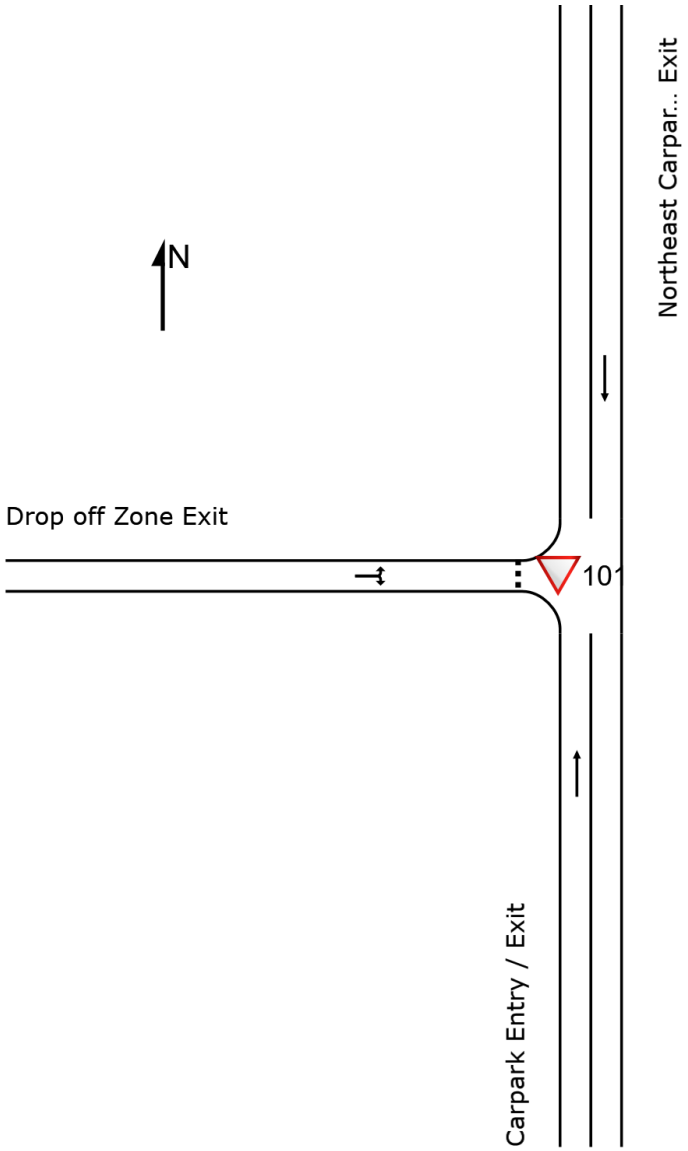
Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:32:05 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Intersection.sip9

SITE LAYOUT

Site: 101 [2024 AM Seasonal (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Created: Wednesday, 4 December 2024 1:11:01 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Eastern Entry Exit Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2024 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carpark Entry / Exit															
2	T1	All MCs	24	4.3	24	4.3	0.013	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			24	4.3	24	4.3	0.013	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
North: Northeast Carpark Entry / Exit															
8	T1	All MCs	21	5.0	21	5.0	0.011	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			21	5.0	21	5.0	0.011	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
West: Drop off Zone Exit															
10	L2	All MCs	1	0.0	1	0.0	0.104	5.6	LOS A	0.4	2.5	0.12	0.44	0.12	37.6
12	R2	All MCs	127	0.8	127	0.8	0.104	2.8	LOS A	0.4	2.5	0.12	0.44	0.12	29.1
Approach			128	0.8	128	0.8	0.104	2.9	LOS A	0.4	2.5	0.12	0.44	0.12	29.2
All Vehicles			174	1.8	174	1.8	0.104	2.1	NA	0.4	2.5	0.09	0.32	0.09	29.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 29 August 2024 11:39:08 AM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Eastern Entry Exit Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2024 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carpark Entry / Exit															
2	T1	All MCs	41	0.0	41	0.0	0.021	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			41	0.0	41	0.0	0.021	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
North: Northeast Carpark Entry / Exit															
8	T1	All MCs	47	2.2	47	2.2	0.025	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			47	2.2	47	2.2	0.025	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
West: Drop off Zone Exit															
10	L2	All MCs	8	0.0	8	0.0	0.256	5.7	LOS A	1.0	7.1	0.19	0.45	0.19	37.7
12	R2	All MCs	300	0.0	300	0.0	0.256	3.1	LOS A	1.0	7.1	0.19	0.45	0.19	29.2
Approach			308	0.0	308	0.0	0.256	3.1	LOS A	1.0	7.1	0.19	0.45	0.19	29.4
All Vehicles			397	0.3	397	0.3	0.256	2.4	NA	1.0	7.1	0.15	0.35	0.15	29.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 29 August 2024 11:39:09 AM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Eastern Entry Exit Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2029 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carpark Entry / Exit															
2	T1	All MCs	38	8.3	38	8.3	0.020	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			38	8.3	38	8.3	0.020	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
North: Northeast Carpark Entry / Exit															
8	T1	All MCs	34	9.4	34	9.4	0.018	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			34	9.4	34	9.4	0.018	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
West: Drop off Zone Exit															
10	L2	All MCs	1	0.0	1	0.0	0.166	5.7	LOS A	0.6	4.2	0.16	0.45	0.16	37.5
12	R2	All MCs	198	1.6	198	1.6	0.166	3.0	LOS A	0.6	4.2	0.16	0.45	0.16	29.1
Approach			199	1.6	199	1.6	0.166	3.0	LOS A	0.6	4.2	0.16	0.45	0.16	29.1
All Vehicles			271	3.5	271	3.5	0.166	2.2	NA	0.6	4.2	0.12	0.33	0.12	29.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 29 August 2024 11:39:09 AM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Eastern Entry Exit Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2029 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carpark Entry / Exit															
2	T1	All MCs	63	0.0	63	0.0	0.032	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			63	0.0	63	0.0	0.032	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
North: Northeast Carpark Entry / Exit															
8	T1	All MCs	74	4.3	74	4.3	0.039	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			74	4.3	74	4.3	0.039	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
West: Drop off Zone Exit															
10	L2	All MCs	14	0.0	14	0.0	0.413	5.8	LOS A	2.0	13.7	0.30	0.49	0.30	37.6
12	R2	All MCs	463	0.0	463	0.0	0.413	3.4	LOS A	2.0	13.7	0.30	0.49	0.30	29.1
Approach			477	0.0	477	0.0	0.413	3.5	LOS A	2.0	13.7	0.30	0.49	0.30	29.3
All Vehicles			614	0.5	614	0.5	0.413	2.7	NA	2.0	13.7	0.23	0.38	0.23	29.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 29 August 2024 11:39:09 AM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Eastern Entry Exit Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2034 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carpark Entry / Exit															
2	T1	All MCs	41	7.7	41	7.7	0.022	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			41	7.7	41	7.7	0.022	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
North: Northeast Carpark Entry / Exit															
8	T1	All MCs	37	8.6	37	8.6	0.020	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			37	8.6	37	8.6	0.020	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
West: Drop off Zone Exit															
10	L2	All MCs	1	0.0	1	0.0	0.183	5.7	LOS A	0.7	4.8	0.17	0.45	0.17	37.5
12	R2	All MCs	218	1.4	218	1.4	0.183	3.0	LOS A	0.7	4.8	0.17	0.45	0.17	29.1
Approach			219	1.4	219	1.4	0.183	3.0	LOS A	0.7	4.8	0.17	0.45	0.17	29.1
All Vehicles			297	3.2	297	3.2	0.183	2.2	NA	0.7	4.8	0.13	0.33	0.13	29.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 29 August 2024 11:39:10 AM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Eastern Entry Exit Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2034 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carpark Entry / Exit															
2	T1	All MCs	71	0.0	71	0.0	0.036	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			71	0.0	71	0.0	0.036	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
North: Northeast Carpark Entry / Exit															
8	T1	All MCs	81	3.9	81	3.9	0.043	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			81	3.9	81	3.9	0.043	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
West: Drop off Zone Exit															
10	L2	All MCs	16	0.0	16	0.0	0.462	5.9	LOS A	2.3	16.1	0.33	0.50	0.33	37.6
12	R2	All MCs	511	0.0	511	0.0	0.462	3.6	LOS A	2.3	16.1	0.33	0.50	0.33	29.1
Approach			526	0.0	526	0.0	0.462	3.6	LOS A	2.3	16.1	0.33	0.50	0.33	29.3
All Vehicles			678	0.5	678	0.5	0.462	2.8	NA	2.3	16.1	0.26	0.39	0.26	29.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 29 August 2024 11:39:10 AM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Eastern Entry Exit Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2044 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carpark Entry / Exit															
2	T1	All MCs	51	8.3	51	8.3	0.027	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			51	8.3	51	8.3	0.027	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
North: Northeast Carpark Entry / Exit															
8	T1	All MCs	45	9.3	45	9.3	0.025	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			45	9.3	45	9.3	0.025	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
West: Drop off Zone Exit															
10	L2	All MCs	1	0.0	1	0.0	0.228	5.7	LOS A	0.9	6.2	0.21	0.46	0.21	37.5
12	R2	All MCs	266	1.6	266	1.6	0.228	3.1	LOS A	0.9	6.2	0.21	0.46	0.21	29.0
Approach			267	1.6	267	1.6	0.228	3.1	LOS A	0.9	6.2	0.21	0.46	0.21	29.1
All Vehicles			363	3.5	363	3.5	0.228	2.3	NA	0.9	6.2	0.15	0.34	0.15	29.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 29 August 2024 11:39:10 AM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Eastern Entry Exit Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2044 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Carpark Entry / Exit															
2	T1	All MCs	85	0.0	85	0.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			85	0.0	85	0.0	0.044	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
North: Northeast Carpark Entry / Exit															
8	T1	All MCs	99	4.3	99	4.3	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	30.0
Approach			99	4.3	99	4.3	0.052	0.0	NA	0.0	0.0	0.00	0.00	0.00	30.0
West: Drop off Zone Exit															
10	L2	All MCs	18	0.0	18	0.0	0.580	6.7	LOS A	4.7	33.2	0.43	0.59	0.52	37.2
12	R2	All MCs	623	0.0	623	0.0	0.580	4.7	LOS A	4.7	33.2	0.43	0.59	0.52	28.9
Approach			641	0.0	641	0.0	0.580	4.7	LOS A	4.7	33.2	0.43	0.59	0.52	29.1
All Vehicles			825	0.5	825	0.5	0.580	3.7	NA	4.7	33.2	0.34	0.46	0.41	29.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

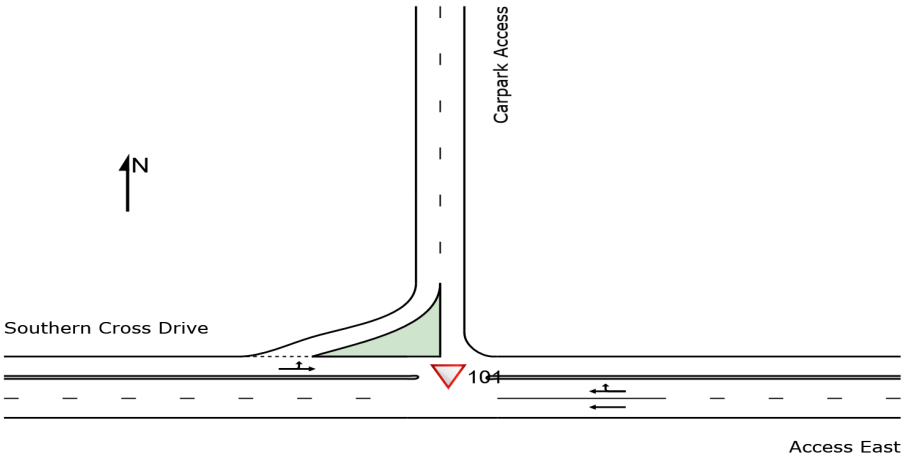
Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 29 August 2024 11:39:10 AM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Eastern Entry Exit Intersection.sip9

SITE LAYOUT

Site: 101 [2024 AM Seasonal (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Created: Wednesday, 4 December 2024 1:49:04 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2024 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	171	4.3	171	4.3	0.047	0.0	LOS A	0.0	0.3	0.01	0.03	0.01	59.7
6	R2	All MCs	7	0.0	7	0.0	0.047	5.7	LOS A	0.0	0.3	0.03	0.05	0.03	39.6
Approach			178	4.1	178	4.1	0.047	0.2	NA	0.0	0.3	0.01	0.03	0.01	58.5
West: Southern Cross Drive															
10	L2	All MCs	33	0.0	33	0.0	0.043	5.6	LOS A	0.0	0.0	0.00	0.23	0.00	56.0
11	T1	All MCs	47	6.7	47	6.7	0.043	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	57.7
Approach			80	3.9	80	3.9	0.043	2.3	NA	0.0	0.0	0.00	0.23	0.00	57.0
All Vehicles			258	4.1	258	4.1	0.047	0.9	NA	0.0	0.3	0.01	0.09	0.01	58.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:00:13 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2024 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	378	0.3	378	0.3	0.099	0.0	LOS A	0.0	0.2	0.01	0.01	0.01	59.9
6	R2	All MCs	5	0.0	5	0.0	0.099	5.6	LOS A	0.0	0.2	0.01	0.02	0.01	39.7
Approach			383	0.3	383	0.3	0.099	0.1	NA	0.0	0.2	0.01	0.01	0.01	59.5
West: Southern Cross Drive															
10	L2	All MCs	46	0.0	46	0.0	0.062	5.6	LOS A	0.0	0.0	0.00	0.22	0.00	56.2
11	T1	All MCs	73	0.0	73	0.0	0.062	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	57.9
Approach			119	0.0	119	0.0	0.062	2.2	NA	0.0	0.0	0.00	0.22	0.00	57.2
All Vehicles			502	0.2	502	0.2	0.099	0.6	NA	0.0	0.2	0.00	0.06	0.00	58.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:00:13 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2029 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	264	4.4	264	4.4	0.073	0.0	LOS A	0.1	0.5	0.02	0.03	0.02	59.7
6	R2	All MCs	12	0.0	12	0.0	0.073	5.7	LOS A	0.1	0.5	0.03	0.06	0.03	39.5
Approach			276	4.2	276	4.2	0.073	0.3	NA	0.1	0.5	0.02	0.03	0.02	58.4
West: Southern Cross Drive															
10	L2	All MCs	51	0.0	51	0.0	0.067	5.6	LOS A	0.0	0.0	0.00	0.23	0.00	56.0
11	T1	All MCs	74	7.1	74	7.1	0.067	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	57.7
Approach			124	4.2	124	4.2	0.067	2.3	NA	0.0	0.0	0.00	0.23	0.00	57.0
All Vehicles			400	4.2	400	4.2	0.073	0.9	NA	0.1	0.5	0.01	0.09	0.01	58.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:00:13 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2029 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	585	0.5	585	0.5	0.154	0.0	LOS A	0.1	0.5	0.01	0.01	0.01	59.8
6	R2	All MCs	9	0.0	9	0.0	0.154	5.7	LOS A	0.1	0.5	0.02	0.02	0.02	39.7
Approach			595	0.5	595	0.5	0.154	0.1	NA	0.1	0.5	0.01	0.01	0.01	59.4
West: Southern Cross Drive															
10	L2	All MCs	72	0.0	72	0.0	0.097	5.6	LOS A	0.0	0.0	0.00	0.21	0.00	56.2
11	T1	All MCs	114	0.0	114	0.0	0.097	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	57.9
Approach			185	0.0	185	0.0	0.097	2.2	NA	0.0	0.0	0.00	0.21	0.00	57.2
All Vehicles			780	0.4	780	0.4	0.154	0.6	NA	0.1	0.5	0.01	0.06	0.01	58.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:00:14 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2034 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	293	4.3	293	4.3	0.081	0.0	LOS A	0.1	0.6	0.02	0.03	0.02	59.7
6	R2	All MCs	13	0.0	13	0.0	0.081	5.8	LOS A	0.1	0.6	0.04	0.06	0.04	39.5
Approach			305	4.1	305	4.1	0.081	0.3	NA	0.1	0.6	0.02	0.03	0.02	58.4
West: Southern Cross Drive															
10	L2	All MCs	56	0.0	56	0.0	0.073	5.6	LOS A	0.0	0.0	0.00	0.23	0.00	56.0
11	T1	All MCs	81	6.5	81	6.5	0.073	0.0	LOS A	0.0	0.0	0.00	0.23	0.00	57.7
Approach			137	3.8	137	3.8	0.073	2.3	NA	0.0	0.0	0.00	0.23	0.00	57.0
All Vehicles			442	4.0	442	4.0	0.081	0.9	NA	0.1	0.6	0.01	0.09	0.01	58.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:00:14 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2034 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	645	0.5	645	0.5	0.169	0.0	LOS A	0.1	0.5	0.01	0.01	0.01	59.8
6	R2	All MCs	9	0.0	9	0.0	0.169	5.8	LOS A	0.1	0.5	0.02	0.02	0.02	39.7
Approach			655	0.5	655	0.5	0.169	0.1	NA	0.1	0.5	0.01	0.01	0.01	59.4
West: Southern Cross Drive															
10	L2	All MCs	80	0.0	80	0.0	0.107	5.6	LOS A	0.0	0.0	0.00	0.22	0.00	56.1
11	T1	All MCs	124	0.0	124	0.0	0.107	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	57.9
Approach			204	0.0	204	0.0	0.107	2.2	NA	0.0	0.0	0.00	0.22	0.00	57.2
All Vehicles			859	0.4	859	0.4	0.169	0.6	NA	0.1	0.5	0.01	0.06	0.01	58.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:00:14 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2044 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	356	4.4	356	4.4	0.099	0.0	LOS A	0.1	0.7	0.02	0.03	0.02	59.7
6	R2	All MCs	16	0.0	16	0.0	0.099	5.9	LOS A	0.1	0.7	0.04	0.06	0.04	39.5
Approach			372	4.2	372	4.2	0.099	0.3	NA	0.1	0.7	0.02	0.03	0.02	58.4
West: Southern Cross Drive															
10	L2	All MCs	67	0.0	67	0.0	0.089	5.6	LOS A	0.0	0.0	0.00	0.22	0.00	56.0
11	T1	All MCs	99	7.4	99	7.4	0.089	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	57.7
Approach			166	4.4	166	4.4	0.089	2.3	NA	0.0	0.0	0.00	0.22	0.00	57.0
All Vehicles			538	4.3	538	4.3	0.099	0.9	NA	0.1	0.7	0.01	0.09	0.01	58.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:00:14 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2044 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	786	0.5	786	0.5	0.206	0.0	LOS A	0.1	0.7	0.01	0.01	0.01	59.8
6	R2	All MCs	13	0.0	13	0.0	0.206	5.9	LOS A	0.1	0.7	0.02	0.02	0.02	39.7
Approach			799	0.5	799	0.5	0.206	0.1	NA	0.1	0.7	0.01	0.01	0.01	59.3
West: Southern Cross Drive															
10	L2	All MCs	97	0.0	97	0.0	0.130	5.6	LOS A	0.0	0.0	0.00	0.21	0.00	56.1
11	T1	All MCs	153	0.0	153	0.0	0.130	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	57.9
Approach			249	0.0	249	0.0	0.130	2.2	NA	0.0	0.0	0.00	0.21	0.00	57.2
All Vehicles			1048	0.4	1048	0.4	0.206	0.6	NA	0.1	0.7	0.01	0.06	0.01	58.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:00:15 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2044 AM Seasonal Masterplan (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	304	5.2	304	5.2	0.083	0.1	LOS A	0.0	0.3	0.02	0.02	0.02	59.8
6	R2	All MCs	4	0.0	4	0.0	0.083	7.7	LOS A	0.0	0.3	0.04	0.04	0.04	39.7
Approach			308	5.1	308	5.1	0.083	0.2	NA	0.0	0.3	0.02	0.02	0.02	59.4
West: Southern Cross Drive															
10	L2	All MCs	20	0.0	20	0.0	0.011	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
11	T1	All MCs	402	1.8	402	1.8	0.209	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			422	1.7	422	1.7	0.209	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
All Vehicles			731	3.2	731	3.2	0.209	0.3	NA	0.0	0.3	0.01	0.03	0.01	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 12 September 2024 4:26:10 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2044 PM Seasonal Masterplan (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Access East															
5	T1	All MCs	606	0.7	606	0.7	0.160	0.1	LOS A	0.1	0.6	0.01	0.02	0.01	59.8
6	R2	All MCs	4	0.0	4	0.0	0.160	10.3	LOS B	0.1	0.6	0.03	0.04	0.03	39.7
Approach			611	0.7	611	0.7	0.160	0.2	NA	0.1	0.6	0.02	0.02	0.02	59.6
West: Southern Cross Drive															
10	L2	All MCs	29	0.0	29	0.0	0.016	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
11	T1	All MCs	673	0.0	673	0.0	0.345	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			702	0.0	702	0.0	0.345	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.5
All Vehicles			1313	0.3	1313	0.3	0.345	0.3	NA	0.1	0.6	0.01	0.02	0.01	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

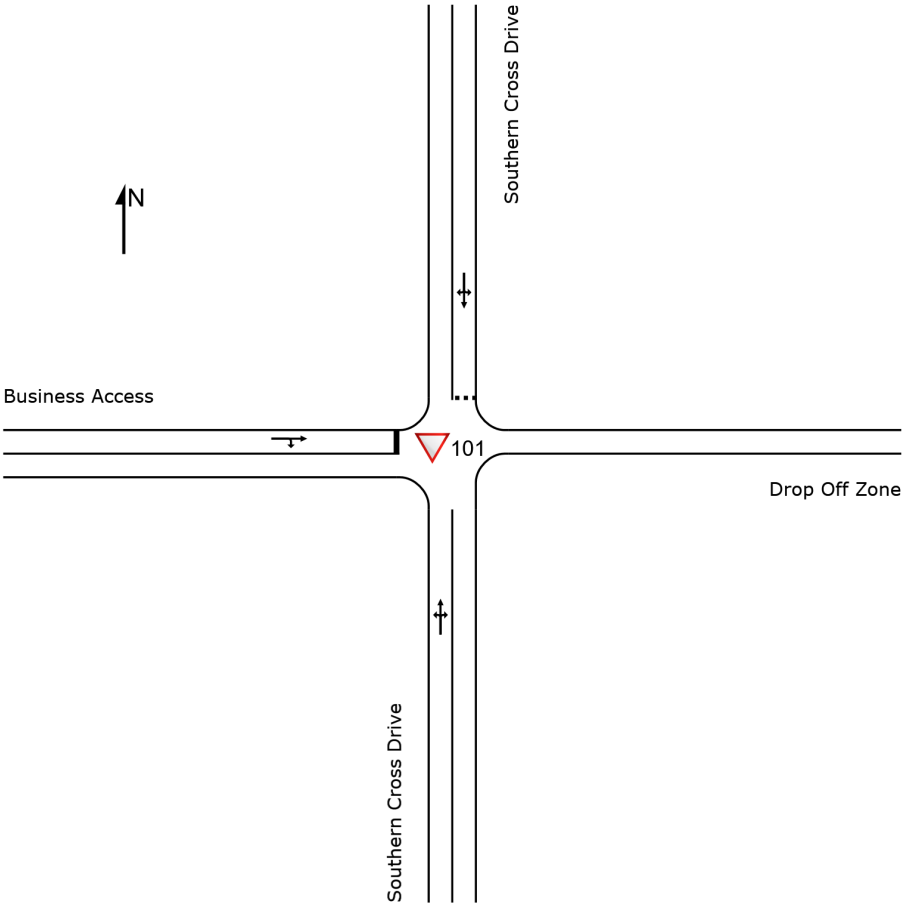
Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Thursday, 12 September 2024 4:27:29 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Carpark Access Intersection.sip9

SITE LAYOUT

Site: 101 [2024 AM Seasonal (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Created: Wednesday, 4 December 2024 1:50:17 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Drop Off Entry Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2024 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Southern Cross Drive															
1	L2	All MCs	1	0.0	1	0.0	0.089	2.0	LOS A	0.0	0.0	0.00	0.39	0.00	29.3
2	T1	All MCs	17	0.0	17	0.0	0.089	0.0	LOS A	0.0	0.0	0.00	0.39	0.00	29.4
3	R2	All MCs	147	0.0	147	0.0	0.089	2.6	LOS A	0.0	0.0	0.00	0.39	0.00	29.2
Approach			165	0.0	165	0.0	0.089	2.4	NA	0.0	0.0	0.00	0.39	0.00	29.3
North: Southern Cross Drive															
7	L2	All MCs	1	0.0	1	0.0	0.010	2.4	LOS A	0.0	0.3	0.20	0.24	0.20	29.5
8	T1	All MCs	9	33.3	9	33.3	0.010	1.4	LOS A	0.0	0.3	0.20	0.24	0.20	29.5
9	R2	All MCs	1	0.0	1	0.0	0.010	2.4	LOS A	0.0	0.3	0.20	0.24	0.20	29.4
Approach			12	27.3	12	27.3	0.010	1.6	LOS A	0.0	0.3	0.20	0.24	0.20	29.5
West: Business Access															
11	T1	All MCs	4	0.0	4	0.0	0.010	6.2	LOS A	0.0	0.3	0.28	0.97	0.28	28.5
12	R2	All MCs	4	75.0	4	75.0	0.010	9.1	LOS A	0.0	0.3	0.28	0.97	0.28	28.4
Approach			8	37.5	8	37.5	0.010	7.7	LOS A	0.0	0.3	0.28	0.97	0.28	28.4
All Vehicles			185	3.4	185	3.4	0.089	2.6	NA	0.0	0.3	0.03	0.41	0.03	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:52:04 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Drop Off Entry Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2024 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Southern Cross Drive															
1	L2	All MCs	1	0.0	1	0.0	0.175	2.0	LOS A	0.0	0.0	0.00	0.41	0.00	29.3
2	T1	All MCs	21	0.0	21	0.0	0.175	0.1	LOS A	0.0	0.0	0.00	0.41	0.00	29.4
3	R2	All MCs	304	0.0	304	0.0	0.175	2.7	LOS A	0.0	0.0	0.00	0.41	0.00	29.2
Approach			326	0.0	326	0.0	0.175	2.5	NA	0.0	0.0	0.00	0.41	0.00	29.2
North: Southern Cross Drive															
7	L2	All MCs	13	0.0	13	0.0	0.019	2.9	LOS A	0.1	0.5	0.29	0.34	0.29	29.3
8	T1	All MCs	9	0.0	9	0.0	0.019	1.7	LOS A	0.1	0.5	0.29	0.34	0.29	29.3
9	R2	All MCs	1	0.0	1	0.0	0.019	2.4	LOS A	0.1	0.5	0.29	0.34	0.29	29.2
Approach			23	0.0	23	0.0	0.019	2.4	LOS A	0.1	0.5	0.29	0.34	0.29	29.3
West: Business Access															
11	T1	All MCs	1	0.0	1	0.0	0.006	7.0	LOS A	0.0	0.1	0.38	0.87	0.38	28.4
12	R2	All MCs	4	0.0	4	0.0	0.006	7.1	LOS A	0.0	0.1	0.38	0.87	0.38	28.4
Approach			5	0.0	5	0.0	0.006	7.1	LOS A	0.0	0.1	0.38	0.87	0.38	28.4
All Vehicles			355	0.0	355	0.0	0.175	2.6	NA	0.1	0.5	0.02	0.41	0.02	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:52:04 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Drop Off Entry Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2029 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Southern Cross Drive															
1	L2	All MCs	3	0.0	3	0.0	0.138	2.0	LOS A	0.0	0.0	0.00	0.39	0.00	29.3
2	T1	All MCs	26	0.0	26	0.0	0.138	0.1	LOS A	0.0	0.0	0.00	0.39	0.00	29.4
3	R2	All MCs	228	0.0	228	0.0	0.138	2.7	LOS A	0.0	0.0	0.00	0.39	0.00	29.2
Approach			258	0.0	258	0.0	0.138	2.4	NA	0.0	0.0	0.00	0.39	0.00	29.3
North: Southern Cross Drive															
7	L2	All MCs	3	0.0	3	0.0	0.021	2.7	LOS A	0.1	0.6	0.25	0.29	0.25	29.4
8	T1	All MCs	16	33.3	16	33.3	0.021	1.8	LOS A	0.1	0.6	0.25	0.29	0.25	29.4
9	R2	All MCs	3	0.0	3	0.0	0.021	2.4	LOS A	0.1	0.6	0.25	0.29	0.25	29.3
Approach			22	23.8	22	23.8	0.021	2.0	LOS A	0.1	0.6	0.25	0.29	0.25	29.4
West: Business Access															
11	T1	All MCs	7	0.0	7	0.0	0.021	6.7	LOS A	0.1	0.6	0.37	0.97	0.37	28.4
12	R2	All MCs	7	71.4	7	71.4	0.021	10.2	LOS B	0.1	0.6	0.37	0.97	0.37	28.2
Approach			15	35.7	15	35.7	0.021	8.4	LOS A	0.1	0.6	0.37	0.97	0.37	28.3
All Vehicles			295	3.6	295	3.6	0.138	2.7	NA	0.1	0.6	0.04	0.41	0.04	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:52:04 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Drop Off Entry Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2029 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Southern Cross Drive															
1	L2	All MCs	3	0.0	3	0.0	0.272	2.1	LOS A	0.0	0.0	0.00	0.41	0.00	29.3
2	T1	All MCs	34	0.0	34	0.0	0.272	0.1	LOS A	0.0	0.0	0.00	0.41	0.00	29.4
3	R2	All MCs	471	0.0	471	0.0	0.272	2.7	LOS A	0.0	0.0	0.00	0.41	0.00	29.2
Approach			507	0.0	507	0.0	0.272	2.5	NA	0.0	0.0	0.00	0.41	0.00	29.2
North: Southern Cross Drive															
7	L2	All MCs	20	0.0	20	0.0	0.037	3.7	LOS A	0.1	0.9	0.41	0.43	0.41	29.2
8	T1	All MCs	16	0.0	16	0.0	0.037	2.5	LOS A	0.1	0.9	0.41	0.43	0.41	29.2
9	R2	All MCs	1	0.0	1	0.0	0.037	2.4	LOS A	0.1	0.9	0.41	0.43	0.41	29.1
Approach			37	0.0	37	0.0	0.037	3.2	LOS A	0.1	0.9	0.41	0.43	0.41	29.2
West: Business Access															
11	T1	All MCs	1	0.0	1	0.0	0.014	8.1	LOS A	0.0	0.3	0.48	0.90	0.48	28.1
12	R2	All MCs	7	0.0	7	0.0	0.014	8.6	LOS A	0.0	0.3	0.48	0.90	0.48	28.1
Approach			8	0.0	8	0.0	0.014	8.6	LOS A	0.0	0.3	0.48	0.90	0.48	28.1
All Vehicles			553	0.0	553	0.0	0.272	2.7	NA	0.1	0.9	0.03	0.42	0.03	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:52:05 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Drop Off Entry Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2034 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Southern Cross Drive															
1	L2	All MCs	3	0.0	3	0.0	0.152	2.0	LOS A	0.0	0.0	0.00	0.39	0.00	29.3
2	T1	All MCs	29	0.0	29	0.0	0.152	0.1	LOS A	0.0	0.0	0.00	0.39	0.00	29.4
3	R2	All MCs	252	0.0	252	0.0	0.152	2.7	LOS A	0.0	0.0	0.00	0.39	0.00	29.2
Approach			284	0.0	284	0.0	0.152	2.4	NA	0.0	0.0	0.00	0.39	0.00	29.2
North: Southern Cross Drive															
7	L2	All MCs	3	0.0	3	0.0	0.022	2.8	LOS A	0.1	0.6	0.27	0.29	0.27	29.4
8	T1	All MCs	17	31.3	17	31.3	0.022	1.9	LOS A	0.1	0.6	0.27	0.29	0.27	29.4
9	R2	All MCs	3	0.0	3	0.0	0.022	2.5	LOS A	0.1	0.6	0.27	0.29	0.27	29.3
Approach			23	22.7	23	22.7	0.022	2.1	LOS A	0.1	0.6	0.27	0.29	0.27	29.4
West: Business Access															
11	T1	All MCs	8	0.0	8	0.0	0.024	6.8	LOS A	0.1	0.7	0.38	0.96	0.38	28.3
12	R2	All MCs	8	62.5	8	62.5	0.024	10.1	LOS B	0.1	0.7	0.38	0.96	0.38	28.2
Approach			17	31.3	17	31.3	0.024	8.5	LOS A	0.1	0.7	0.38	0.96	0.38	28.3
All Vehicles			324	3.2	324	3.2	0.152	2.7	NA	0.1	0.7	0.04	0.42	0.04	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:52:05 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Drop Off Entry Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2034 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Southern Cross Drive															
1	L2	All MCs	3	0.0	3	0.0	0.300	2.1	LOS A	0.0	0.0	0.00	0.41	0.00	29.3
2	T1	All MCs	37	0.0	37	0.0	0.300	0.1	LOS A	0.0	0.0	0.00	0.41	0.00	29.3
3	R2	All MCs	519	0.0	519	0.0	0.300	2.7	LOS A	0.0	0.0	0.00	0.41	0.00	29.2
Approach			559	0.0	559	0.0	0.300	2.6	NA	0.0	0.0	0.00	0.41	0.00	29.2
North: Southern Cross Drive															
7	L2	All MCs	22	0.0	22	0.0	0.042	4.0	LOS A	0.1	1.0	0.44	0.46	0.44	29.1
8	T1	All MCs	17	0.0	17	0.0	0.042	2.8	LOS A	0.1	1.0	0.44	0.46	0.44	29.2
9	R2	All MCs	1	0.0	1	0.0	0.042	2.5	LOS A	0.1	1.0	0.44	0.46	0.44	29.0
Approach			40	0.0	40	0.0	0.042	3.4	LOS A	0.1	1.0	0.44	0.46	0.44	29.1
West: Business Access															
11	T1	All MCs	1	0.0	1	0.0	0.016	8.5	LOS A	0.1	0.4	0.51	0.91	0.51	28.0
12	R2	All MCs	8	0.0	8	0.0	0.016	9.2	LOS A	0.1	0.4	0.51	0.91	0.51	28.0
Approach			9	0.0	9	0.0	0.016	9.1	LOS A	0.1	0.4	0.51	0.91	0.51	28.0
All Vehicles			608	0.0	608	0.0	0.300	2.7	NA	0.1	1.0	0.04	0.42	0.04	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: BITZIOS CONSULTING | Licence: NETWORK / 1PC | Processed: Friday, 23 August 2024 4:52:05 PM
Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Drop Off Entry Intersection.sip9

MOVEMENT SUMMARY

Site: 101 [2044 AM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Southern Cross Drive															
1	L2	All MCs	4	0.0	4	0.0	0.185	2.0	LOS A	0.0	0.0	0.00	0.39	0.00	29.3
2	T1	All MCs	35	0.0	35	0.0	0.185	0.1	LOS A	0.0	0.0	0.00	0.39	0.00	29.4
3	R2	All MCs	306	0.0	306	0.0	0.185	2.7	LOS A	0.0	0.0	0.00	0.39	0.00	29.2
Approach			345	0.0	345	0.0	0.185	2.4	NA	0.0	0.0	0.00	0.39	0.00	29.2
North: Southern Cross Drive															
7	L2	All MCs	4	0.0	4	0.0	0.030	3.0	LOS A	0.1	0.9	0.30	0.32	0.30	29.3
8	T1	All MCs	21	35.0	21	35.0	0.030	2.3	LOS A	0.1	0.9	0.30	0.32	0.30	29.4
9	R2	All MCs	4	0.0	4	0.0	0.030	2.5	LOS A	0.1	0.9	0.30	0.32	0.30	29.2
Approach			29	25.0	29	25.0	0.030	2.5	LOS A	0.1	0.9	0.30	0.32	0.30	29.3
West: Business Access															
11	T1	All MCs	9	0.0	9	0.0	0.031	7.1	LOS A	0.1	0.9	0.44	0.98	0.44	28.2
12	R2	All MCs	9	77.8	9	77.8	0.031	12.0	LOS B	0.1	0.9	0.44	0.98	0.44	28.0
Approach			19	38.9	19	38.9	0.031	9.6	LOS A	0.1	0.9	0.44	0.98	0.44	28.1
All Vehicles			394	3.7	394	3.7	0.185	2.8	NA	0.1	0.9	0.04	0.42	0.04	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
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MOVEMENT SUMMARY

Site: 101 [2044 PM Seasonal (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Southern Cross Drive															
1	L2	All MCs	4	0.0	4	0.0	0.366	2.1	LOS A	0.0	0.0	0.00	0.41	0.00	29.2
2	T1	All MCs	45	0.0	45	0.0	0.366	0.2	LOS A	0.0	0.0	0.00	0.41	0.00	29.3
3	R2	All MCs	633	0.0	633	0.0	0.366	2.8	LOS A	0.0	0.0	0.00	0.41	0.00	29.1
Approach			682	0.0	682	0.0	0.366	2.6	NA	0.0	0.0	0.00	0.41	0.00	29.2
North: Southern Cross Drive															
7	L2	All MCs	26	0.0	26	0.0	0.059	4.8	LOS A	0.2	1.4	0.51	0.54	0.51	28.9
8	T1	All MCs	21	0.0	21	0.0	0.059	3.5	LOS A	0.2	1.4	0.51	0.54	0.51	29.0
9	R2	All MCs	1	0.0	1	0.0	0.059	2.5	LOS A	0.2	1.4	0.51	0.54	0.51	28.9
Approach			48	0.0	48	0.0	0.059	4.2	LOS A	0.2	1.4	0.51	0.54	0.51	28.9
West: Business Access															
11	T1	All MCs	1	0.0	1	0.0	0.023	9.7	LOS A	0.1	0.5	0.60	0.95	0.60	27.7
12	R2	All MCs	9	0.0	9	0.0	0.023	10.8	LOS B	0.1	0.5	0.60	0.95	0.60	27.7
Approach			11	0.0	11	0.0	0.023	10.7	LOS B	0.1	0.5	0.60	0.95	0.60	27.7
All Vehicles			741	0.0	741	0.0	0.366	2.8	NA	0.2	1.4	0.04	0.42	0.04	29.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
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Project: P:\P6438 Ballina Byron Gateway Airport GTMP\Technical\Models\P6438.001M Southern Cross Drive Drop Off Entry Intersection.sip9

Gold Coast
Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377

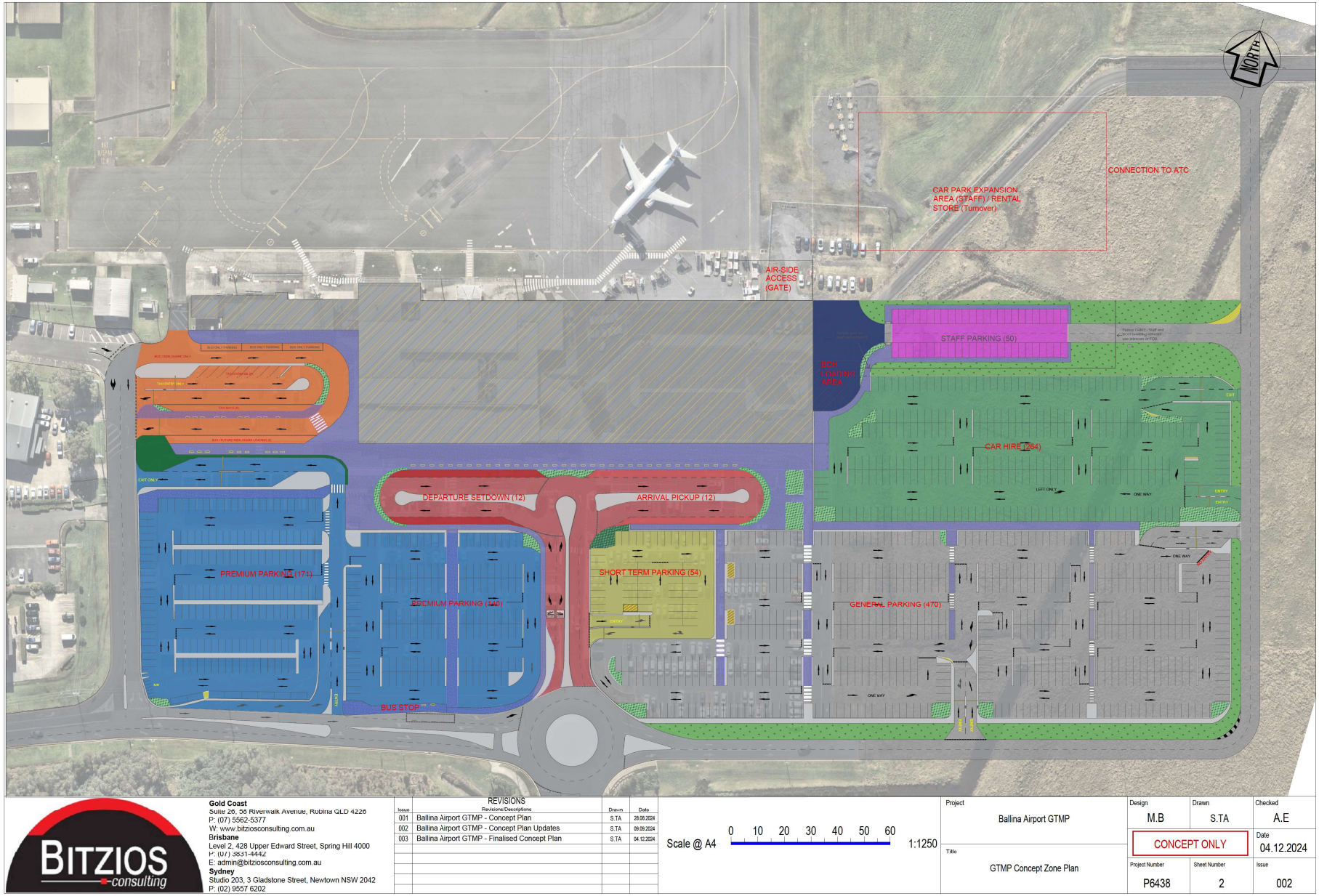
Brisbane
Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442

Sydney
Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

BITZIOS consulting
traffic engineering • transport planning

W: www.bitziosconsulting.com.au
E: admin@bitziosconsulting.com.au

5.1 Ballina Byron Gateway Airport - Ground Transport Master Plan



BITZIOS consulting

Gold Coast
Suite 26, 56 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Description	Drawn	Date
001	Ballina Airport GTMP - Concept Plan	S.TA	28.08.2024
002	Ballina Airport GTMP - Concept Plan Updates	S.TA	09.09.2024
003	Ballina Airport GTMP - Finalised Concept Plan	S.TA	04.12.2024

Scale @ A4 0 10 20 30 40 50 60 1:1250

Project	Ballina Airport GTMP		
Title	GTMP Concept Zone Plan		
Design	M.B	Drawn	S.TA
CONCEPT ONLY		Checked	A.E
Project Number	P6438	Sheet Number	2
Issue	002	Date	04.12.2024

Valuation Report

Industrial Land

HERRON TODD WHITE

1 Lancaster Drive, Goonellabah NSW 2480

As at 9 August 2022
Prepared for Lismore City Council
Our Ref JB3119552

Lismore

Herron Todd White (NAT Operations) Pty Ltd
ABN 96 632 595 692

Level 1, 105 Molesworth Street
Lismore NSW 2480
PO Box 503
Lismore NSW 2480

Telephone 02 6621 8933
northern.nsw@htw.com.au
htw.com.au

EXECUTIVE SUMMARY

INSTRUCTIONS	
Property Address	1 Lancaster Drive, Goonellabah NSW 2480.
Instructing Party	Jessica Butcher of Lismore City Council.
Prepared For	Lismore City Council.
Interest Being Valued	The interest being valued is Market Value of the unencumbered estate in fee simple in vacant possession.
Purpose of Valuation	Our valuation has been prepared for internal purposes only. Specifically we have been requested: To provide a Market Value Assessment of the Vacant Land at 1 Lancaster Drive, Goonellabah (Lot 2 DP1061931) for possible pre-sale purposes. This report has not been prepared for financial reporting purposes and does not comply with AASB 116. We will not accept any responsibility or liability for any reliance upon this valuation for such purposes or for any purpose, other than that stated herein. This report has not been prepared for mortgage security lending purposes. We will not accept any responsibility or liability for any reliance upon this valuation for such purposes or for any purpose, other than that stated herein. A copy of our instructions are attached.
Date of Inspection and Valuation	9 August 2022.
Date of Report Issue	8 September 2022.

TITLE AND STATUTORY DETAILS	
Registered Owner	The Council Of The City Of Lismore (as per attached Title Search dated 13 July 2022
Real Property Description	Lot 2 DP 1061931
Encumbrances / Title Discussion	The following encumbrances/restrictions are noted on the title search: SECOND SCHEDULE (2 NOTIFICATIONS) 1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S) 1. A common encumbrance, we have not searched the Crown Grant(s) and assume nil adverse. The above noted easements/encumbrances/restrictions have not been individually searched nor a legal opinion obtained regarding their precise impact on the land.
Statutory Assessments	$259,000 as at 1 July 2019 for Local Authority Rating purposes. $287,000 as at 1 July 2021 for Land Tax purposes.
Zoning	IN1 General Industrial Zone under the Lismore Local Environmental Plan 2012. The following overlays are applicable to the subject property: Minimum lot size - 1,500 m^2. The property is vacant land classified as Operational. The current zoning aims to provide for a wide range of industrial uses to encourage employment, minimise any adverse effect of industry on other land uses while protecting industrial land for industrial uses.

VALUATION SUMMARY	
Property Description 'As Is'	The property comprises a vacant 2,044 square metre slightly irregular shaped corner allotment, contained within an IN1 – General Industrial town planning precinct. The site has a reasonable contour that is at road height and rises to the western rear boundary.
Valuation Summary	Analysed Rate Range $/m² of total site area: $323 to $377/m² Exclusive of any applicable GST.
Market Value Range 'As Is'	**$660,000 to $770,000** **(Six Hundred and Sixty Thousand to Seven Hundred and Seventy Thousand Dollars)** *Our market value assessment is exclusive of any applicable GST. No allowance has been made for realisation expenses.* ***This valuation is subject to the assumptions and qualifications contained within and appended to this report.***

Valuer

Martin Gooley
AAPI / Certified Practising Valuer / Director
API Number: 67578
Inspected Property - Yes

Counter Signatory

Jerrard Fairhurst
Quality Assurance Director
API No.68154
Inspected Property - No

Important	All data provided in this summary is wholly reliant on and must be read in conjunction with the information provided in the attached report. It is a synopsis only designed to provide a brief overview and must not be acted on in isolation. Whilst not having inspected the subject property, the Counter Signatory, Jerrard Fairhurst, acting in the capacity as a Supervising Member, has reviewed the draft valuation report and any working papers, and based upon that review and questioning of the Primary Valuer (as appropriate), is satisfied there is a reasonable basis for the valuation process undertaken and the methodology adopted by the Primary Valuer.

ASSUMPTIONS, CONDITIONS AND LIMITATIONS	
Critical Assumptions	• This valuation report is provided subject to the definitions, assumptions, disclaimers, limitations and qualifications detailed within and annexed to this report. Reliance on this report and extension of our liability is conditional upon the reader's acknowledgement and understanding of these statements. • The subject is a Local Government owned asset, designated as 'Operational Land' and adjoins the multi-local governmental Richmond Tweed Regional Library organisation. This valuation report is undertaken on the basis of Market Value, and assumes the property is readily saleable under normal market parameters. • This report has not been prepared for the use within financial reporting and does not comply with AASB 116. • Valuation assumes vacant possession is available. • Our valuation is on a standalone basis of the subject only and excludes any benefit gained from the use of the ownership of the adjoining property 1 Lancaster Drive (2,044m^2). • The land is unimproved and undertaken on the basis that all major services are readily available for connection on-site. • The boundary appears to be set back from the south eastern intersection corner. We are unaware if this setback may be to provide for any future road realignment or intersection upgrade, although does not appear to adversely impact the site or its saleability at present. A formal search would be required to confirm.

PROPERTY DESCRIPTION

LOCATION

Locality

Goonellabah is a large, well established residential suburb located within the regional centre of Lismore City on the Far North Coast of NSW.

The suburb comprises a mixture of older style timber & fibro cement clad residences and semi-modern to modern dwellings & units primarily of brick veneer & concrete tile / metal roof construction.

There are also a number of recent residential subdivisions within the suburb that include more modern contemporary and architecturally designed homes of above average quality. Goonellabah is also home to a selection of educational facilities at primary & secondary level. These include Kadina High School and Goonellabah Public School.

There are a range of local and sub-regional shopping facilities including Goonellabah Shopping Village & East Point Shopping Centre and a number of recreational amenities such as the Goonellabah Sports & Aquatic Centre, Goonellabah RSL and various parks scattered throughout the suburb. Lismore City Council's head office is situated within Goonellabah on Oliver Avenue directly opposite the Goonellabah Sports & Aquatic Centre.

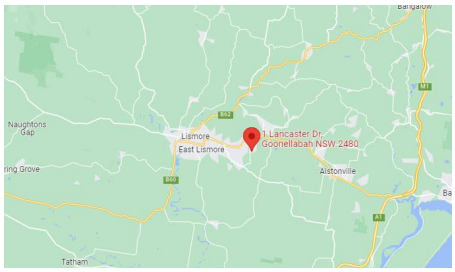
According to the ABS 2021 Census, Goonellabah has a population of 13,351.

The subject is situated within the Centenary Industrial Estate, approximately 8 kilometres east of Lismore Central Business District. Surrounding development comprises a mix of semi modern to modern industrial buildings of mixed sizes and styles. There is also a scattering of industrial strata units and storage complexes.

Situation

The property is situated on the western corner of the intersection of Lancaster Drive and Oliver Avenue

THE LAND



Source: Google Maps

Source: Google Maps

Source: SIX Maps

Source: SIX Maps

THE LAND	
Land Area	2,044 square metres.
Frontage & Depth	The subject has a curved corner frontage to Oliver Avenue and Lancaster Drive (refer attached Deposited Plan).
	The boundary appears to be set back from the intersection corner. We are unaware if this setback may be to provide for any future road realignment or intersection upgrade, although does not appear to adversely impact the site or its saleability at present. A formal search would be required to confirm.
Topography	The subject property is a sloping, irregular shaped corner allotment that is at street grade and rises to the rear; it has a gently sloping contour that falls from the rear boundary to the street.
	Overall, it provides a good building contour that will require additional cut and/or fill works to accommodate development.
Services	The following major services are available within the immediate vicinity of the subject: reticulated water, sewerage, telephone, electricity and NBN.
	Valuation assumes services connections are readily available onsite.
Road System	The property has a corner road frontage to Lancaster Drive and Oliver Avenue.
	Lancaster Drive is a bitumen sealed, two lane local road; it has grass verges and concrete kerb and gutters with kerbside parking.
	Oliver Avenue is a bitumen sealed, two lane local road; it has grass verges and concrete kerb and gutters with kerbside parking.
	We note that construction of the Lismore Employment Lands project has begun, which will include an upgraded roundabout intersection of Oliver Ave / Taylor Rd / Holland St; Oliver Avenue extension link road and limited release industrial land.
Access and Exposure	Vehicular access is easy and direct.
	The property has good exposure to vehicular traffic and good exposure to pedestrian traffic.
	We note that the Lismore Employment Lands, Oliver Avenue link road, will provide the subject with increased access and exposure.
Flooding	The land is not located within a known flood area and is not identified within the Local Authority's flood maps. A formal flood search has not, however, been undertaken and should this be an issue, then this report should be referred back to the valuer for comments.

SUBJECT SITE


Street Front - Lancaster Drive


Lancaster Drive East


Corner of Lancaster Drive and Oliver Avenue


Oliver Avenue South


Site - North East Corner


Retained South East Corner


Northern Aspect


Rear Boundary


Oliver Avenue South

SITE DESCRIPTION

General Description	The property comprises a vacant 2,044 square metre slightly irregular shaped corner allotment, contained within an IN1 – General Industrial town planning precinct. The site has a reasonable contour that is at road height and rises to the western rear boundary.
Condition	The general condition of the site is good with very light vegetation towards the rear western boundary and sparsely towards the Lancaster Dr street front.

ENVIRONMENTAL ISSUES		
Site Issues	Any indication of previous noxious or potentially contaminating use?	No
	Subject to an environmental planning overlay that could constrain land use and development?	No
	Adjoining land subject to an overlay that indicates adjoining land could be contaminated?	No
	Based on visual inspection to the extent that it is reasonably possible, are there adjoining sites that appear to or are known to have or have had noxious or potentially contaminating uses?	No
	Identified industrial processes onsite that involve the use of chemicals or hazardous materials?	No
	Identified past or present underground storage of fuels, chemicals or hazardous materials at the property?	No
	Included in the current register of contaminated sites?	No
	Do operations require environmental licensing, resource consent or equivalent?	No

Whilst our visual site inspection did not indicate any existing or historic use of the site (so far as it is reasonably identifiable) for any hazardous or potentially contaminating industrial processes or for the storage (either above or below ground) of any hazardous chemical substance, we are not environmental experts. Therefore we are unable to certify and confirm that there is no contamination of the property either beneath or above the surface of the soil or elsewhere which might affect value.

We have conducted a Contaminated Land Register search dated 01 August 2022 which is attached. The subject is not listed.

Our valuation is based upon the assumption that the property is not contaminated or impacted by environmental issues that will affect the marketability or value of the property. It should be noted that environmental matters are outside of our expertise and that this valuation has been prepared without the benefit of soil tests or any other environmental studies.

We recommend that any party who has the right to rely upon this valuation report satisfy themselves in relation to any environmental risks or contamination issues, prior to reliance upon this valuation. Should any such issues become apparent, this valuation is not to be relied upon and the report must be returned to the valuer for review and comment.

The environmental checklist has been completed subject to the limitations of our site inspection and in the absence of specialist reports. Whilst we have provided broad commentary on the above questions, we advise that these matters are outside of our area of expertise and if doubt exists, specialist advice should be sought and if relevant, referred to the valuer for comment prior to relying upon the valuation.

OCCUPANCY DETAILS	
Overview	The property is vacant. Valuation is undertaken on a vacant possession, vacant land basis.

VALUATION CONSIDERATIONS

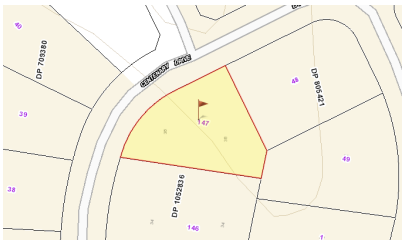
MARKET EVIDENCE	
Market Overview	• There are currently many factors at play in the market including inflationary concerns, increased speculation of interest rate rises and national/global economic volatility due to a deteriorating global environment. It remains difficult to predict how the economy and property markets will perform in the short to medium term. We caution any party authorised to rely on this report to take this uncertainty into consideration. • Industrial land and industrial assets continue to be in high demand. • Demand appears to emanate from greater macroeconomic conditions, scarcity of supply and the changing nature of business that relies upon the nature of improvements and zoning. • The recent record flood has exacerbated these conditions as users, investors, developers seek flood free locations. • Industrial market rental rates have risen in more recent times, particularly in the local area, after sustained period of rental stagnation which results in the industrial investment more attractive for investment and new development, although the signiant increase in construction cost will limit the appeal of new development. • Demand is considered strong from owner occupier and investors alike. • While demand is strong, time on market for industrial and commercial properties is still longer than similar residential markets. Due to the nature of commercial transactions and due diligence required. This valuation is on the basis of a six month selling period. • To maximise price and minimise time on market, our valuation is on the basis and assumes an effective marketing campaign from a specialist and experienced agent within the asset class with a prudent and appropriately professional marketing campaign. • Owner occupiers, investors and smaller developers are active and provide a broad scope 'likely buyer'. • The Goonellabah Industrial Estate is currently benefiting from construction of the Lismore Employment Lands Project. This project will increase access to the estate and provide superior transport links. The subjects' frontage to Oliver Avenue, which is being extended as a link road, is considered a benefit. • Part of the Lismore Employment Lands Project will include a limited industrial land expansion of the subject estate. • We caution that while market conditions of the past 2 years has been, in part, strongly fuelled by the low interest rate economy; that rising interest rates have the potential to adversely impact market conditions and prices in a similar manner. We are unable to predict how the market may respond in the future and how this may impact the subject property.

Sales Evidence We have examined market activity within the locality and have researched sales evidence provided by national sales data providers for details of comparable sales. The more relevant sales are summarised in the following schedule.

No	Address	Sale Date	Sale Price	Land Area (m²)	$/m² Land Area
1.	38 Centenary Dr, Goonellabah, NSW, 2480 Lot 147 DP 1052836.	11/04/2022	$450,000	1,961	$229

Comments: This is a sloping, hatchet shaped, inside site that is above road height. It falls from back to front from above the 160 metre contour to below the 156 metre contour. The site is contained within an IN1 General Industrial town planning precinct. The property has a single road frontage to Centenary Drive. Centenary Drive is a bitumen sealed local road. The north eastern boundary is unfenced and the rea/southern boundary abuts established industrial structures and a retaining wall. Sold without the intervention of an agent, off-market transaction.

GST status is unknown. Recorded sale price of $495,000 is assumed to be inclusive of GST. On a GST exclusive basis the sale analyses to $229/m².



Comparison: **Slightly smaller site, considered inferior overall. Sold off market. Market has continued to firm. Inferior useable frontage and topography. The subject would be expected to show a higher rate $/m² of land area.**

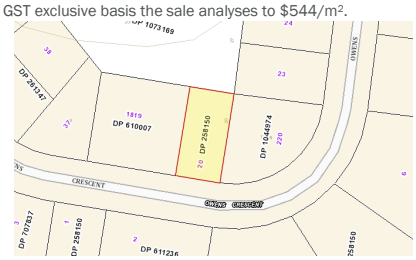
No	Address	Sale Date	Sale Price	Land Area (m²)	$/m² Land Area
2.	20 Owens Cr, Alstonville, NSW, 2477 Lot 20 DP 258150	04/03/2022	$435,000	800	$544

Comments: This is a level to gently sloping, regular shaped flood free site that is at street level and then falls from the street to the rear boundary. The site is contained within a IN1 General Industrial town planning precinct. The property has a single road frontage to Owens Crescent. Owens Crescent is a bitumen sealed local road.

The site has security fencing to the boundary.

The site had not been marketed, however was sold by a local agent during the auction sale of the adjoining property, 16-18 Owens Crescent and simultaneously purchased. Owned by a separate vendor.

Recorded sale price of $478,500 is inclusive of GST. On a GST exclusive basis the sale analyses to $544/m².



Comparison: **Significantly smaller site, considered a Superior location and on a rate $/m² of land area. Market conditions have continued to firm. The subject would be expected to show a lower rate $/m² of land area due to economies of scale and location.**

No	Address	Sale Date	Sale Price	Land Area (m²)	$/m² Land Area
3.	16 Kingsford Smith Dr, South Lismore, NSW, 2480 Lot 102 DP 1269818.	29/10/2021	$560,000	2,575	$217

Comments: The site comprises a 2,575 square metre irregular shaped internal allotment. The land is located within a limited release industrial subdivision on the fringe of the South Lismore Industrial Estate. The land is vacant and contained within an IN1 town planning precinct and within a Flood Fringe Area. The subject site has recently been filled and compacted as part of the parent parcel development and subdivision undertaken in 2019. Current RL and fill height requirements not readily available.

Sold to a local buyer, the agent reports keen interest throughout the marketing campaign with offers of $550,000 + GST from several prospects prior to the final offer and acceptance at $560,000. We are not aware of the terms and conditions of theses prior offers.

Recorded sale price of $616,000 is inclusive of GST. On a GST exclusive basis the sale analyses to $217/m².

Comparison: **Larger site, considered inferior on a rate $/m² of land area. Dated sale, sold under inferior market conditions, although was subsequently affected by the 2022 flood which is considered within our broader market considerations. The subject would be expected to show a higher rate $/m² of land area due to location, sentiment and market conditions.**

No	Address	Sale Date	Sale Price	Land Area (m²)	$/m² Land Area
4.	17-19 Russellton Dr, Alstonville, NSW, 2477 Lot 102 DP 836194.	08/06/2021	$600,000	2,072	$290

Comments: This is a sloping, irregular shaped, inside site that is above road height. It falls gently from back to front. The site is contained within an IN1 General Industrial town planning precinct. The property has a single road frontage to Russellton Drive. Russellton Drive is a bitumen sealed local road. The western boundary is security fenced and the rear boundary abuts established industrial structures and a retaining wall.

Sold without the intervention of an agent, off-market transaction.

Recorded sale price of $660,000 is inclusive of GST. On a GST exclusive basis the sale analyses to $290/m².

Comparison: **Comparable size site, considered a Superior location. Dated sale, sold under inferior market conditions where the market has continued to firm. Inferior topography. The subject would be expected to show a higher rate $/m² of land area due to economies of scale, site attributes and current market conditions.**

No	Address	Sale Date	Sale Price	Land Area (m²)	Lettable Area (m²)	Added value of Improvements	Land Component	$/m² of Land Area Land Component
5.	3 Russellton Dr, Alstonville, NSW, 2477 Lot 63 DP 800199.	26/08/2022	$785,000	956	138	$130,000	$655,000	$685

Comments: ADVISED UNDER CONTRACT - SUBJECT TO CONFIRMATION - The site is contained within a IN1 General Industrial town planning precinct. The property has a single road frontage to Russellton Drive. The property is irregular in shape is set above road level rising from the street to a cut and levelled pad site, before rising sharply up a retained embankment at the rear boundary. Russellton Drive is a bitumen sealed, industrial width local road; it has grass verges and concrete kerbing and gutters with kerbside parking.

Erected on the property is an older style, single level industrial building of simple concrete slab, metal frame and metal clad construction. The warehouse structure has a GLA of 138m2. Five bay warehouse, consisting of four open bays, two with drive-through standard height roller door access. The fifth bay is apportioned into an area providing a timber veneer and timber framed infill toilet and timber veneer and timber framed infill office. The middle bay includes a mechanical workshop drainage pit. The warehouse is surrounded by an asphalt sealed curtilage hardstand area of approximately 350m2.

The improvements are estimated to have been constructed in the early 1990's.

Apportionment of Sale: Land $655,000 ($685/m²) Improvements $130,000 ($942/m²).

Previously purchased in July 2021 for $550,000

Comparison: **Relatively modestly improved industrial land in a general more sought after industrial estate. Indicative sale due to analysed land component but also indicating the significant increase in the market over the past 12 months. This indicates a 43% increase.**

No	Address	Sale Date	Sale Price	Land Area (m²)	$/m² Land Area
6.	11 Centenary Dr, Goonellabah, NSW, 2480 Lot 19 DP 262233.	31/08/2022	$400,000	1,012	$395

Comments: **ADVISED UNDER CONTRACT – SUBJECT TO CONFIRMATION.** This is a gently sloping, slightly irregular shaped, inside site that is below road height and falls initially from the street then gently to the rear. The site is contained within an IN1 General Industrial town planning precinct. The site has a single road frontage to Centenary Drive. Centenary Drive is a bitumen sealed local road.

Marketed by a local agent, via an Expressions of Interest campaign, who advised the property received good interest, had advised initially received a higher offer that fell through before renegotiating at the current proposed sale price. Did not appear on main prominent commercial websites. RPData indicates a May 2022 listing date and an approximate 100 days on market.

Advised negotiated price of $440,000 is inclusive of GST. On a GST exclusive basis the sale analyses to $395/m².

Comparison: **Smaller site, considered inferior, although indicates rate achieved under current market conditions, relative to total land area. The subject would be expected to show a lower rate $/m² of land area despite it being superior in location as a result of economies of scale.**

Sales Conclusion

We refer the reader to our comparison comments within the above sales tables and provide a summary table below.

No	Address	Sale Date	Sale Price	Land Area (m²)	$/m² Land Area
1.	38 Centenary Dr, Goonellabah	11/04/2022	$450,000	1,961	$229
2.	20 Owens Cr, Alstonville	04/03/2022	$435,000	800	$544
3.	16 Kingsford Smith Dr, South Lismore	29/10/2021	$560,000	2,575	$217
4.	17-19 Russellton Dr, Alstonville	08/06/2021	$600,000	2,072	$290
5.	3 Russellton Dr, Alstonville	26/08/2022	# $655,000	956	#$685
6.	11 Centenary Dr, Goonellabah	31/08/2022	$400,000	1,012	$395

Analysed Land component

The sale evidence ranges in price from $400,000 to $655,000 and ranges in rate per square metre of land area from $217 to $685.

We are also aware of an off market negotiated sale within the immediate vicinity, yet to exchange, that anecdotally indicates growth of approximately 80% since mid-2020.

We have undertaken confidential discussions with leading local specialist agents, with regard to the depth of the buying market, demand, capacity and limitations of buyers within the market.

We note the dates of sale and current market conditions. In undertaking our assessment we have had due consideration to the changes in market and have made adjustments to our evidence within our calculations.

The recent interest rate rises and significant increases in construction cost are likely to soften demand. However Lismore finds itself in an unprecedented market situation.

- Recent flood event has decimated much of the retail and industrial areas of Lismore
- The market is likely to be very cautious in relation to flood prone areas and Lismore Goonellabah has a relatively limited supply of flood free land.
- The coastal industrial markets have experienced significant increases over the past 18 months, and they demonstrate land values significantly higher than Lismore and Goonellabah making Goonellabah very affordable.
- Nearby Alstonville is experiencing flow on prices due to affordability and supply issues for Byron Bay, Ballina and Mullumbimby/Billinudgel. This flow on affect appears to be materialising in several properties under contract nearby to the subject.
- The construction of the Lismore Employment Lands project has begun, which will include an upgraded roundabout intersection of Oliver Ave / Taylor Rd / Holland St; Oliver Avenue extension link road and limited release industrial land. The subject will experience increased exposure increasing its market appeal.
- Section 5.4 of the LEP allows a level of flexibility as to uses which may allow a broader use and allows more commercial/retail uses which could be sought after given the recent flood, the increased interest in flood free land and the increased exposure as a result of the Lismore Employment Lands project.

We consider it relevant to consider not only a rate per square metre but also on a quantum basis.

Sales 1 and 3 are Lismore/Goonellabah sales and the subject is superior on a rate per square metre and quantum basis.

We have had consideration to the range of total land area relative to their sale prices and the corresponding rates. As well as their respective site attributes.

Given the above issues the more recent market activity and the uncertainty as to current market conditions we provide a broader value range than would be normally be expected. We would suggest if listing for sale expressions of interest or an Auction campaign be utilised with the listing with an experienced commercial agent.

Having regard to the available sales evidence, prevailing market conditions and the attributes of the subject property, we have adopted a rate range for the subject property of $325 to $375 per square metre of land area.

Contract of Sale

We are not aware of any current contract of sale over the property.

VALUATION RATIONALE

Highest and Best Use

The subject is zoned IN1 Industrial is vacant land in a corner position with a gentle contour slightly above road it is and assumed to have access to all traditional service and as such is suitable for development for a single or multiple industrial uses.

We assume the land is unconstrained.

Selling Period

Our valuation assumes an adequate selling period, listing with local leading agents, a professional marketing campaign and an advertising budget commensurate with the value of the property.

VALUATION CALCULATIONS

Direct Comparison Method

Given the nature of the subject property, we have adopted a direct comparison approach based on a rate per square metre of land area only. Our adopted rates and our calculations are shown below:

Direct Comparison Method - Land

Sales evidence suggests a rate per square metre of land area range as follows:

Land Description	Land Area (m²)	$/m² Land	Total ($)
Low	2,044	325	664,300
High	2,044	375	766,500
Expressed as a Value Range			**$664,300 to $766,500**
Rounded for Valuation Purposes			**$660,000 to $770,000**

Valuation Conclusions

In valuing the subject property, we have relied upon the Market Approach (Direct Comparison method).

Given the more recent market activity and the uncertainty as to current market conditions we provide a broader value range than would be normally be expected.

Our adopted value range is shown below:

Valuation Summary

Direct Comparison Method (based on Land comparison)

Adopted Value Range (Excl. GST)	**$660,000 to $770,000**

Our market value range assessment is exclusive of any applicable GST.

Contract of Sale

We are not aware of any current contract of sale over the property.

ANNEXURES

Definitions, Assumptions, Qualifications & Disclaimers
Letter of Instruction
Current Title Search
Extract from Deposited Plan
Contaminated Land Search

DEFINITIONS, ASSUMPTIONS, QUALIFICATIONS & DISCLAIMERS

DEFINITIONS	
Market Value	"the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion".
Highest and Best Use	"the use of an asset that maximises its potential and that is physically possible, legally permissible and financially feasible".
'As Is'	Means a valuation that provides the current market value of the property as it currently exists rather than the value of the proposed development.
ASSUMPTIONS	
Easements	This valuation is subject to there being no other encumbrances (other than those noted within this report), which may have an adverse effect on our valuation. Should any such easement or encumbrance become apparent, we reserve the right to review our valuation.
Town Planning	We assume that planning data obtained from the relevant Local Planning Authority is accurate. In the event that a Town Planning search or any other relevant Planning document is obtained and the information therein is later found to be materially different to the town planning information detailed within the valuation, we reserve the right to amend the valuation. A Town Planning search has not been provided or obtained and therefore this valuation has been undertaken on the basis that all necessary and appropriate town planning and/or building, consents, approvals and certifications have been issued for the use of occupation of the improvements as more fully described in this report.
Market Evidence	Market data has been obtained from a range of sources, or as reported by real estate agents. As well as using such documented and generally reliable evidence or market transactions, it was also necessary to rely on hearsay evidence. Except as noted herein, a reasonable attempt has been made to verify all such information.
Environmental	It should be noted that environmental matters are beyond the scope of our expertise and as such, we would recommend that anyone relying on our valuation satisfy themselves in relation to any environmental risks or contamination issues. Should any such problem become apparent, we would reserve the right to review our valuation. In arriving at any assessment of the value of the land, a basic search of the database was undertaken on the 1/08/2022 which disclosed that the subject land is not classified. We do not accept any responsibility or liability whatsoever for the accuracy of the information contained in the search of the Contaminated Sites Database.
Asbestos Materials	We advise that the inspection of the subject property did not reveal any obvious visible asbestos containing materials to the valuer. The valuer is not qualified to conclusively determine the existence of asbestos and will not be held liable nor responsible for his/her failure to identify any asbestos containing materials and the impact which any asbestos material has on the property and its value. Should any asbestos concerns become apparent, the valuer should be consulted and reserves the right to reassess any effect on the value stated in this report. The presence of asbestos, change in community attitudes and the cost associated with dealing with its removal has the potential to reduce marketability and value of the property. The extent of this cannot be known.
QUALIFICATIONS & DISCLAIMERS	
Accuracy of Information	We advise that any objective information, data or calculations set out in the Valuation Report will be accurate so far as is reasonably expected from a qualified and experienced valuer, reflecting due skill, care and diligence. However, we have not independently verified third party information, adopted it as our own, or accepted its reliability. If any of the information provided by others and referred to in the Valuation Report is incorrect, it may have an impact on the valuation. The valuation is provided on the proviso that the reliant party accepts this risk.
API Standards	This valuation has been prepared in accordance with the Australian Property Institute (API) Professional Standards.
Condition of Improvements	Whilst we have carried out a building inspection, we have not completed a detailed structural survey, verified the condition of the plant and machinery, tested any of the services or inspected unexposed or inaccessible portions of the building. We are therefore unable to state that these are free from defect, rot or infestation. We have viewed the general state of repair of the building and have assumed that the improvements are reasonably structurally sound considering their age
Conflict of Interest	Neither the valuer, nor to the best of their knowledge, any member of this firm, has any conflict of interest, or direct, indirect or financial interest in relation to this property that is not disclosed herein.
Encroachment	We have physically identified the boundaries upon inspection and there do not appear to be any encroachments. However, we are not surveyors and no warranty can be given without the benefit of an identification survey.
Excluded Searches	The following searches have not been undertaken: Land Survey Plan, Building Survey Plan, Formal Flood, Detailed Town Planning, Local/State Road Widening, Vegetation Protection, Native Title. Our valuation assumes such searches would identify no issues that may affect the value and/or liquidity of the property. Should any person relying on the contents of this report be aware or become aware of an issue that may affect value and/or liquidity then the searches should be referred to the valuer for comment.

Goods and Services Tax (GST)	We stress we are not experts in assessment of GST. We are not privy to the financial circumstances of the owner(s), any agreements executed (or to be executed) between the parties or the previous transactions relating to the property which may impact upon the status of the property for GST. We recommend any party relying upon this valuation seek independent advice in regard to any GST liabilities which may attach to the property. All rentals, outgoings and sale prices quoted in this report are net of GST unless otherwise stated.
Land Not Affected	Unless identified within the body of this report, we assume, the land is not affected by unstable, hazardous, or toxic soil material; however, no professional expert advice has been sought in this regard. This valuation assumes that there are no problems, however, should any such issues arise; then this matter should be referred to the Valuer for further comment.
Limited Liability	Liability limited by a scheme approved under professional standards legislation.
Market Movement	This valuation is current as at the date of valuation only. The value assessed herein may change significantly and unexpectedly over a relatively short period of time (including as a result of factors that the Valuer could not reasonably have been aware of as at the date of valuation). We do not accept responsibility or liability for losses arising from such subsequent changes in value. Without limiting the generality of the above comment, we do not assume responsibility or accept liability where the valuation is relied upon after the expiration of 90 days from the date of the valuation or such earlier date if you become aware of any factors that have an effect on the valuation. However, it should be recognised that the 90 day reliance period does not guarantee the value for that period; it always remains a valuation at the date of valuation only.
No Compliance Certificate	No Compliance Certificate/Certificate of Classification has been obtained. This valuation is subject to the building(s) complying in all material respects with any restrictive covenants affecting the site. Furthermore, it is assumed that the site improvements have been built, occupied and operated in full compliance with all requirements of law, including all zoning, land-use classifications, building, planning, fire and health by-laws (including asbestos and legionnaires disease), rules, regulations, orders and codes of all authorities, and that there are no outstanding requisitions.
No Pecuniary Interest	The valuer has no pecuniary interest in the subject property either past, present or prospective at the date of preparing this report and the opinion expressed is free of any bias in this regard.
Not to be reproduced without permission	Neither the whole nor any part of this valuation or any reference thereto may be included in any published documents, circular or statement, nor published in part or full in any way, without written approval of the form and context in which it may appear.
Other Taxation Implications	Herron Todd White are not taxation experts and we provide our valuation assessment and any associated sales, rental or feasibility analysis, independent of any consideration of income tax, capital gains tax or any other property related tax implications that may be associated directly or indirectly with the subject property.
Reliance and Disclosure	The Report has been prepared for the private and confidential use by the party to whom it is addressed. This valuation is for the use of and may be relied upon only by the party/parties to whom it is addressed. No other parties are entitled to use or rely upon it and Herron Todd White does not assume any liability or responsibility to any other party who does so rely upon the valuation without the express written authority of Herron Todd White. The whole Report must be read and any failure to do so will not constitute reliance by such party asserting reliance on the Report. Neither the whole nor any part of this valuation or any reference thereto may be included in any published documents, circular or statement, nor published in part or full in any way, without the written approval from Herron Todd White including the form and context in which it may appear.
Structural Survey	This valuation report does not purport to be a site or structural survey of the land or improvements thereon, and any advice provided is not given in the capacity as an expert.

Annexure 1 Letter of Instruction

INSTRUCTION FORM – INDEPENDENT PROPERTY VALUATION

In order to proceed with the valuation please complete the required information and return this instruction form to the relevant office as detailed below.

Office:	Herron Todd White (NAT Operations) Pty Ltd
Postal address:	PO Box 503 Lismore NSW 2480
Fax:	02 6621 3554
Email:	northern.nsw@htw.com.au

1 Lancaster Drive, Goonellabah NSW 2480 (LOT 2 DP1061931)	
Purpose/Approach	Reporting Purposes (Market Value/As Is)
Reporting Contact	Lismore City Council
Type of property	Commercial-Industrial-Vacant Industrial Allotment
Servicing Office	Lismore Ph: 02 6621 8933
Access arrangements	
Contact Person	Jessica Butcher
Contact Details	**W:** 1300 878 387, **H:** (02) 6625 0452 **E:** jessica.butcher@lismore.nsw.gov.au
Contact Person	Lismore City Council
Contact Details	
Total Fee (Incl GST)	**$1,650.00**

2 Centenary Drive, Goonellabah NSW 2480 (LOT 1 DP1061931)	
Purpose/Approach	Reporting Purposes (Market Value/As Is)
Reporting Contact	Lismore City Council
Type of property	Commercial-Retail-Shop - Suburban / Regional
Servicing Office	Lismore Ph: 02 6621 8933
Access arrangements	
Contact Person	Jessica Butcher
Contact Details	**W:** 1300 878 387, **H:** (02) 6625 0452 **E:** jessica.butcher@lismore.nsw.gov.au
Contact Person	Lismore City Council
Contact Details	
Total Fee (Incl GST)	**$2,750.00**

Information required by Herron Todd White to complete the valuation include
• At this time no additional information is required
Special instructions for Herron Todd White in respect of the valuation
• PLEASE NOTE: • To be assessed as Freehold Value on a vacant Possession Basis
Upon completion of the valuation report please provide it by
• Email
Turnaround comments
We anticipate a period of 22 working days from the date of instruction and receipt of all required documentation from the client to complete the valuation. This includes inspection and finalisation of the report.

Independent Property Valuation
Quote ref EQ428462

1 Lancaster Drive, Goonellabah NSW 2480
Job No. JB3119552
Date of Valuation: 9 August 2022

INSTRUCTION FORM – INDEPENDENT PROPERTY VALUATION

Conditions of engagement for valuation services

1. **Use & Reliance**
   1. The valuation will be for the use only of the party named in the valuation report to whom it is addressed and has been prepared for the use only nominated in the valuation report and no other purpose. No responsibility will be extended to any third party (including any party who may have paid the fee) who may use or rely on the whole or any part of the valuation of the property described in the valuation report.
   2. Valuation reports may only be re-assigned within 90 days from the date of the valuation and additional charges will apply. Any re-assignment requested outside of 90 days will require an updated valuation report to be prepared in all circumstances. The fee for such an updated valuation would be commensurate with the work required. Herron Todd White reserves the right to decline any request for re-assignment. Please note some lenders prohibit valuers from re-assigning valuations to the lender and in these circumstance we can only assign valuations to these lenders when we have been instructed directly by the lender.
   3. The valuation will be current as at the date of valuation only. The value assessed may change significantly and unexpectedly over a relatively short period (including as a result of general market movements or factors specific to the particular property). We do not accept liability for losses arising from such subsequent changes in value. Without limiting the generality of the above comment, we do not assume any responsibility or accept any liability where the valuation is relied upon after the expiration of 90 days from the date of the valuation, or such earlier date if you become aware of any factors that have any effect on the valuation. However, it should be recognised that the 90 day reliance period does not guarantee the value for that period; it always remains a valuation at the date of valuation only.
   4. Neither the whole nor any part of the valuation or any reference thereto may be included in any published documents, circular or statement, nor published in any part or in full in any way, without the written approval of Herron Todd White.
   5. Herron Todd White is not operating under an Australian Financial Service Licence and the valuation will not constitute as financial product advice. Herron Todd White is not a registered tax agent and the valuation will not constitute as tax advice.
   6. Herron Todd White does not assume responsibility for any documents that do not bear an original signature.
2. **Disclosure**
   1. The Instructing Party accepts its responsibility for full disclosure of relevant information and undertakes to provide all documents in its possession that may have an effect on the service to be provided.
3. **Fee**
   1. Herron Todd White has provided this quotation on the estimate given. Herron Todd White reserves the right to amend this quotation should the estimate not reflect the current market value of the property.
   2. Herron Todd White also reserves the right to charge a fee in the event that an in-progress job is cancelled. This fee will range from -
      25% of the proposed fee amount for completion of file preparation and searches;
      50% of the proposed fee amount for completion of file preparation, searches and inspection; and
      100% of the proposed fee amount for completion of file preparation, searches, inspection and draft report.
   3. In the event of a cancellation, no drafts or working papers will be provided.
   4. Our quote assumes the provision of 2 copies however additional copies can be provided at a cost of $55.00 per copy.
   5. Herron Todd White reserves the right to add any costs incurred in the process of collecting unpaid monies to the outstanding amount. These recovery costs may include, but are not limited to, collection agency fees or commissions, legal fees, postage, couriers, dishonour fees, bank fees.
   6. The fee in this quote is only valid for 30 days from the date of the quote.
   7. Herron Todd White reserves the right to charge additional fees for costs associated with the provision of a valuation for the purposes of Family Law Settlement, Rental Determination, Arbitration or any other Court or Tribunal matter. Additional fees will be charged for matters including, but not limited to court appearances, preparation of witness statements and reports.
4. **Valuation Basis, Searches & Assumptions**
   1. The basis of the valuation will be market value which is defined as "the estimated amount for which a property should exchange between a willing buyer and willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably and without compulsion".
   2. The interest to be valued will be assumed as freehold subject to no easements, encumbrances and interests unless noted otherwise in the schedule. Herron Todd White reserves the right to qualify the valuation report accordingly.
   3. Herron Todd White will not, unless noted otherwise in the instruction, undertake any search of the title details of the property or search any Federal, State or Local Government Authorities or agencies to determine the existence of any existing or proposed interests, schemes or conditions that may impact upon the valuation of the property and therefore it is the responsibility of the instructing party to undertake their own searches in this regard. Accordingly, Herron Todd White does not accept responsibility or liability for any incorrect information contained in the valuation report because of a failure to undertake the searches.
   4. Due to time delays in obtaining certain information (eg. town planning information) Herron Todd White may rely on verbal inquiries in these circumstances and qualify the valuation report accordingly.
   5. The valuation report will not purport to be a site survey or structural survey of the land or improvements thereon, nor will any such survey be carried out. Any opinion as to the condition of the improvements is not given as an expert and should not be relied upon.
   6. The valuation report will assume that no environmental conditions affect the property and unless advised otherwise in the schedule, Herron Todd White reserves the right to qualify the valuation report accordingly.
   7. If the property is subject to a Community Management Scheme, our valuation will be assessed without knowledge of any orders against the Community Management Scheme/Body Corporate. Should any be found from formal searches, we reserve the right to amend this valuation accordingly.
   8. Herron Todd White reserves the right to qualify the valuation report when instructions are subject to assumptions.
5. **Additional Terms & Conditions Relating to Specific Valuations.**
   If Herron Todd White is instructed to provide:
   1. A valuation for **Mortgage Security Purposes** then the valuation may be relied upon for first mortgage purposes only. Unless the person or entity making the loan is an authorised deposit taking institution within the meaning of the Banking Act 1959 (including but not limited to any bank, building society or credit union), the valuation will be subject to the following "Prudent Lender" clause; "this valuation is prepared on the assumption that the Lender as referred to in the valuation report (and no other) may rely on the valuation for mortgage finance purposes and the lender has complied with its own lending guidelines as well as prudent finance industry lending practices, and has considered all prudent aspects of credit risk for any potential borrower, including the borrower's ability to service and repay any mortgage loan. Further, the valuation is prepared on the assumption that the lender is providing mortgage financing at a conservative and prudent loan to value ratio." Any mortgagee intending to rely upon the valuation must seek an express written authorisation from Herron Todd White and we will not accept any responsibility or liability for reliance upon the valuation without such an authorisation. Herron Todd White accepts no responsibility for the valuation should it be used for the purpose of securing funds through a solicitor lender who induces the lending of money on mortgage security. Herron Todd White reserves the right to qualify the valuation accordingly.
   2. A valuation for **Family Law Settlement, Rental Determination, Arbitration or Litigation** then the Instructing Party agrees to 'hold harmless' Herron Todd White and its servants and agents, and agrees that it will have no cause of action against Herron Todd White and its servants and agents, whether in contract, tort or otherwise, by reason only that the client suffered loss or damage by relying upon a valuation as an expert valuer for a Family Law Dispute, Rental Determination, Arbitration, Litigation or other dispute then the Instructing Party agrees not to sue, make demand or commence any legal proceedings whatsoever against Herron Todd White, its servants and agents in relation to the valuation. The instructing party agrees to indemnify Herron Todd White in relation to any claim brought against Herron Todd White in any way connected with the valuation by any party (including the Instructing Party).
   3. A valuation for **Insurance Purposes** then the Instructing Party accepts the valuer will not be a construction and/or structural engineering expert and therefore the value should be taken as indicative only as to what the reinstatement value of the improvements may be. A precise estimate should be provided by a construction/structural or quantity surveying expert.
   4. A **Restricted (kerbside) Valuation** then the Instructing Party accepts a restricted valuation does not involve an internal inspection of the improvements nor an inspection of external areas of the property which are not visible from the road. The Instructing Party accepts the valuer will not carried out the usual range of enquiries that a valuer is required to make by professional practice standards in determining a valuation of property, and that this is at the specific request of the Instructing Party. The Instructing Party fully understands the risks inherent in relying upon a valuation carried out in such circumstances. The Instructing Party agrees to 'hold harmless' Herron Todd White and its servants and agents, and agrees that it will have no cause of action against Herron Todd White and its servants and agents, whether in contract, tort or otherwise, by reason only that the client suffered loss or damage by relying upon a restricted valuation.
   5. A **Desktop Assessment** then the Instructing Party accepts a desktop assessment does not involve a physical inspection of the property and only provides an indication of the value of the subject property and is not a representation as to the Market Value of the subject property. The Instructing Party accepts that a desktop assessment is not, and will not, be construed to be a valuation in the same meaning as a valuation conducted in accordance with the general concepts, principles and definitions as detailed in the standards promulgated by the Australian Property Institute, which is based on an inspection of the subject property. The Instructing Party accepts that desktop assessment methodology carries with it risks which entail a degree of likely variation greater than would be expected to be produced by a valuation that came about as a result of a physical inspection. The Instructing Party agrees to 'hold harmless' Herron Todd White and its servants and agents, and agrees that it will have no cause of action against Herron Todd White and its servants and agents, whether in contract, tort or otherwise, by reason only that the client suffered loss or damage by relying upon a desktop assessment.
   6. A valuation and/or a letter for the purposes to be published in a **Prospectus / Information Memorandum** then neither the full valuation report nor any accompanying letter may be reproduced in whole or in part without prior written approval of Herron Todd White, apart from use within the agreed Prospectus / Information Memorandum. The Instructing Party agrees for Herron Todd White to disclaim within the full valuation report and any accompanying letter: (a) any liability to any party including investors in the event of an omission from, or false and misleading statements included in the Prospectus / Information Memorandum, other than in respect to our formal valuation and any accompanying letter, and (b) disclaim that the full valuation report and any accompanying letter has been prepared on the basis that the financial and other information (including market information and third party information) is accurate, reliable and complete and confirm that we have not tested the information in that respect, and (c) disclaim that the full valuation report and any accompanying letter will be strictly limited to the matters contained within those documents, and will not to be read as extending, by implication or otherwise, to any other matter in the Prospectus / Information Memorandum. Without limitation to the above, no liability will be accepted for any loss, harm, cost or damage (including special consequential or economic harm or loss) suffered as a consequence of fluctuations in the real estate market subsequent to the date of valuation, and (d) any accompanying letter that is provided will state that it must be read in conjunction with our formal valuation report and is subject to the assumptions, limitations and disclaimers contained therein, and we will refer the reader to the Instructing Party.
6. **Warranties & Indemnities**
   1. For its part and in consideration of payment of the agreed fee, Herron Todd White will make best endeavours to provide, subject to the above, the valuation services it has been commissioned to undertake by the Instructing Party in accordance with recognised principles and practices of valuation.
   2. To the extent that it is able under section 64 of the Australian Consumer Law, Herron Todd White limits its liability for breach of condition or warranty under this agreement and its liability for breach of a duty of care to the re-supply of the services or an amount equivalent to the cost of having the services supplied again.
   3. Our liability is limited by a scheme approved under Professional Standards Legislation.
   4. The entity providing the service set out in this quote is solely the entity named on this quote (with its associated ACN/ABN). No other entity forming part of or associated with the Herron Todd White Group is liable. From time to time, the associated invoice for services may be issued by another Herron Todd White entity other than the service-providing entity named on this annexure. If this occurs, no professional liability is extended to the entity named on the invoice.

HTW NSW ACT Non Residential Customer Service <nswact.non.residential@htw.com.au>

Fwd: Request for Quote
1 message

Martin Gooley <martin.gooley@htw.com.au> 13 July 2022 at 15:49
To: HTW NSW ACT Non Residential Customer Service <nswact.non.residential@htw.com.au>

Hi Team
Can we put together the detail for a quote
Regards
Martin Gooley
AAPI - Certified Practising Valuer
Director - Commercial and Going Concern Valuations

T 02 6621 8933 | M 0428 155 403
E martin.gooley@htw.com.au
Level 1, 105 Molesworth Street, Lismore, NSW, 2480
PO Box 503, Lismore, NSW, 2480

HERRON TODD WHITE | www.htw.com.au

---------- Forwarded message ---------
From: **Jessica Butcher** <jessica.butcher@lismore.nsw.gov.au>
Date: Wed, 13 Jul 2022 at 15:30
Subject: Request for Quote
To: Martin Gooley <martin.gooley@htw.com.au>

Good Afternoon,

Please note the following is confidential in nature. We have attached the Deposited Plan, section 88b and title searches for both properties.

REQUEST FOR QUOTE VALUATION OF RICHMOND TWEED REGIONAL LIBRARY BUILDING AND LAND

Richmond Tweed Regional Library has resolved to investigate:

a. the sale of vacant land adjoining the RTRL Support Services Building at Goonellabah, and
b. commercial/other development opportunities for the RTRL Support Services Building.

As the RTRL comprises Ballina, Byron, Lismore and Tweed Councils, best these tasks be undertaken by external sources.

PARTICULARS OF SCOPE

Council are seeking quotes to undertake a market valuation of the following, please provide separate figures for each number listed below:-

1. *Vacant Land at 1 Lancaster Drive, Goonellabah (Lot 2 DP1061931) (DP attached)*
2. *RTRL Support Services Building at 2 Centenary Drive, Goonellabah (Lot 1 DP1061931)- single tenanted office and storage building.*
3. *Cost to undertake both valuations at the same time (If a discount applies).*

Could you also please indicate the expected turn around time and any additional information that would be required to undertake the valuation.

If you have any questions or require any more information please call me on 0266 250 452.

Kind Regards

Jessica Butcher | Property Officer | Lismore City Council

PO Box 23A, Lismore, 2480 | **T** (02) 6625 0452 or 1300 878 387 | **www.lismore.nsw.gov.au**

Lismore City Council acknowledges the people of the Bundjalung Nation, traditional custodians of the land on which we work.

We work flexibly. If you have received an email from me outside of normal business hours, I'm sending it at a time that suits me. Unless it's urgent, I'm not expecting you to read or reply until normal business hours.

5 attachments

DP1061931.pdf
138K

DP1061931 88b.pdf
48K

1_1061931_1.pdf
3K

2_1061931_1.pdf
3K

Floor Plan Fire Evacuation.pdf
217K

Annexure 2 Current Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 2/1061931

SEARCH DATE	TIME	EDITION NO	DATE
13/7/2022	8:57 AM	1	19/11/2003

LAND

LOT 2 IN DEPOSITED PLAN 1061931
AT GOONELLABAH
LOCAL GOVERNMENT AREA LISMORE
PARISH OF LISMORE COUNTY OF ROUS
TITLE DIAGRAM DP1061931

FIRST SCHEDULE

THE COUNCIL OF THE CITY OF LISMORE

SECOND SCHEDULE (1 NOTIFICATION)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)

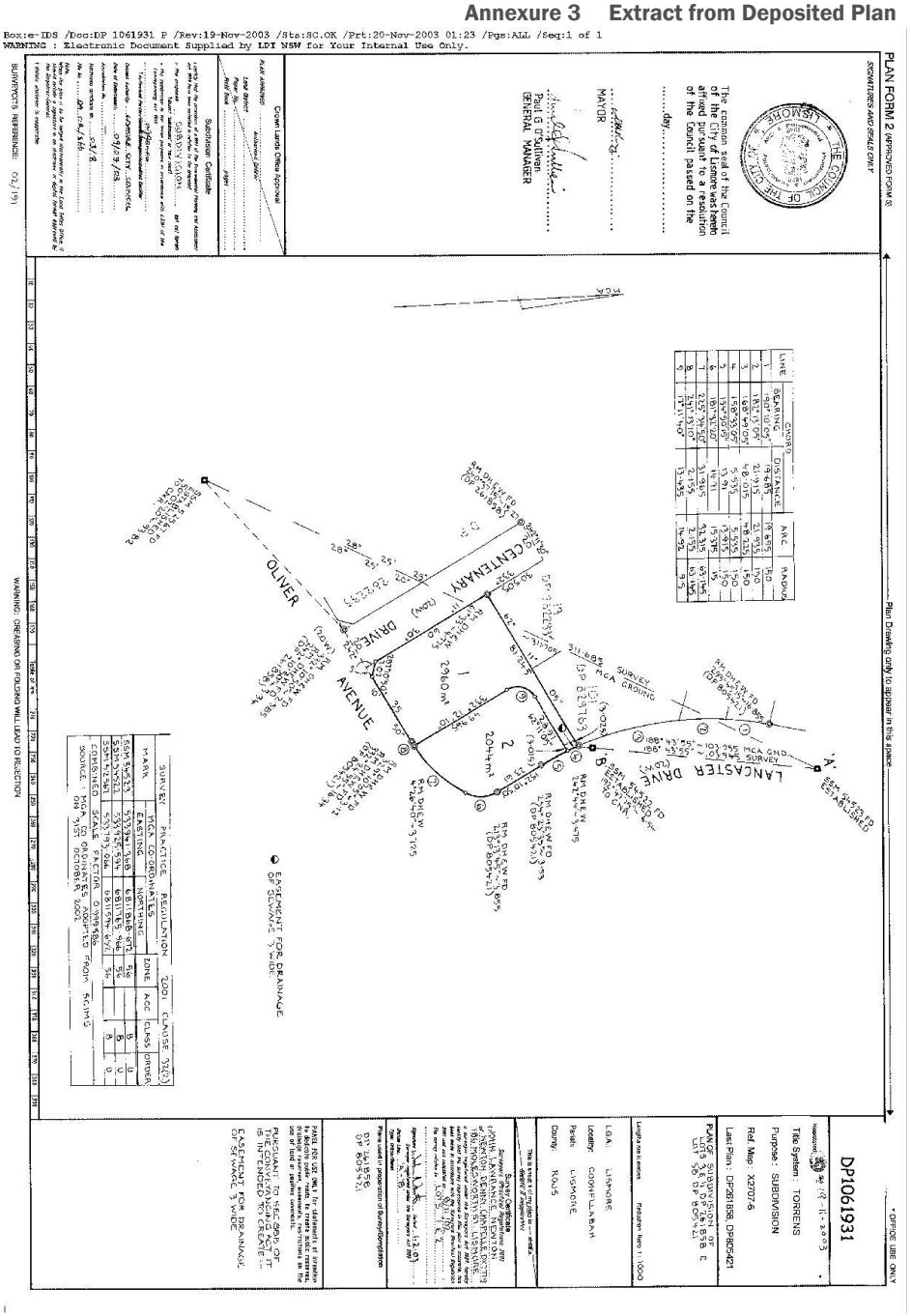
NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PRINTED ON 13/7/2022

Annexure 3 Extract from Deposited Plan

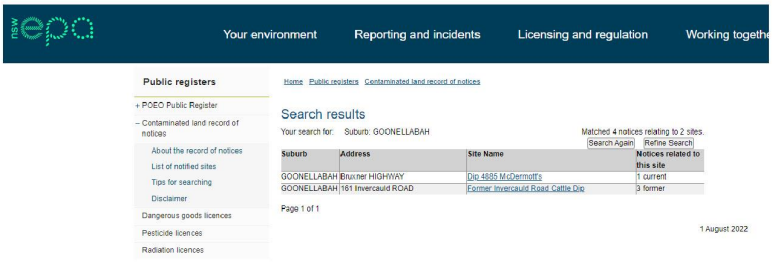


Annexure 4 Contaminated Land Search

Contaminated Land Search

The EPA Record of Notices only if the EPA has issued a regulatory notice in relation to the site under the Contaminated Land Management Act 1997.

The EPA determines whether contamination is significant enough to warrant regulation under the CLM Act. In making this decision, it considers a range of factors, including those listed in section 12 of the CLM Act.



List of NSW Contaminated Sites

The sites appearing on this 'List of NSW contaminated sites notified to the EPA' indicate that the notifiers consider that the sites are contaminated and warrant reporting to EPA. However, the contamination may or may not be significant enough to warrant regulation by the EPA. The EPA needs to review and, if necessary, obtain more information before it can make a determination as to whether the site warrants regulation. The following is a list for the local suburb the subject is located in.

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass
GOONELLABAH	Former Invercauld Road Cattle Dip	161 Invercauld ROAD	Cattle Dip	Contamination formerly regulated under the CLM Act

Source NSW EPA