BARKER RYAN STEWART

Traffic and Transport Study

Request for Planning Proposal (Planning Proposal)

1055 Bruxner Highway, Goonellabah

Prepared for: Nimble Estates Pty Ltd

August 2023

ENGINEERING
PLANNING
SURVEYING
CERTIFICATION
PROJECT MANAGEMENT

Project No.	220615
Author	JH
Checked	AN
Approved	GB

Rev No.	Status	Date	Comments
3	Final	08/10/22	FS comments 07/10/22
4	Draft	02/11/22	Issue to Nimble Estates
5	Draft	15/08/23	Address TfNSW comments and amended indicative yield
6	Final	17/08/23	Issue to TfNSW and Council

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Abbreviations

LLEP……Lismore Local Environmental Plan 2012
DCP ……Lismore Development Control Plan 2012
AS/NZS2890.1 ……Australian Standards, *'AS/NZS 2890.1:2004 Off-Street Car Parking'*
AS2890.2…… Australian Standards, *'AS 2890.2: 2018 Off-Street Commercial Vehicle Facilities'*
AS/NZS2890.6…… Australian Standards, 'AS/NZS 2890.6:2002 Off-Street Parking for People with Disabilities'
RMS Guide……Roads and Maritime Services '*Guide to Traffic Generating Developments'*

1 Executive Summary

This Traffic and Transport Study has been prepared by Barker Ryan Stewart (BRS) to accompany a Request for Planning Proposal (Planning Proposal) to amend the Lismore Local Environmental Plan 2012 (LLEP) to enable mixed use development of land referred to as 1055 Bruxner Highway, Goonellabah (the site) comprising residential, employment and public open space lands.

This report has been prepared to assess the traffic and transport implications, and parking requirements, associated with the proposed rezoning.

This report concludes that development enabled by the planning proposal can be accommodated for a staged development on the site and will not result in any unacceptable adverse impacts. Key information supporting this conclusion is summarised as follows:

- The Bruxner Highway currently runs on the northern edge of the site, with new collector roads and local roads being established within the site with access facilitated from Oliver Avenue. Note there will be no direct vehicle access from Bruxner Highway, it is proposed to provide three new intersections off Oliver Avenue to enable vehicle access to the site.

- As part of the planning proposal, land is to be dedication to TfNSW to accommodate their future road widening requirements for the programmed upgrade to Bruxner Highway. This resulted in a reduction of the indicative development yield of the site.

- The internal street hierarchy will be established based on Lismore's DCP 2012 for Local Streets, Access Places and Lanes (where relevant). This will be determined as part of the future Development Control Plan for the site.

- It is proposed to provide pedestrian and bicycle links along the length of Oliver Avenue from the Bruxner Highway in the north and to Holland Street/Taylor Road to the south. This will enable the proposed rezoned land to have pedestrian and bicycle links to an any existing or future pedestrian and bicycle paths in Bruxner Highway and Oliver Avenue to the south west of Holland Street/Taylor Road.

- Parking provision rates will be confirmed as part of the development of the DCP and will be applied for each individual development on the lots once they are created. They will generally be expected to follow Lismore DCP 2012 guidelines.

- The traffic impact of the proposed rezoning on the surrounding road network was assessed for various growth scenarios using SIDRA Intersection modelling software at the following intersections:

    - Bruxner Highway / Oliver Avenue;
    - Oliver Avenue / Holland Street; and
    - Three new proposed intersections.

- The proposed rezoning when fully developed (stages 1, 2 and 3) it is estimated to generate an additional 864 trips and 869 trips during the AM and PM peak, respectively. SIDRA intersection analysis indicates all the analysed intersections outlined above generally operate at high levels of service with acceptable average delays.

- However some modification or upgrades to its current configuration will be required at the roundabout of Bruxner Highway and Oliver Drive to cater for the 10-year growth scenarios.

- Stage 1 of the proposed rezoning would not require any modifications or improvements to the existing configurations of the intersections of Bruxner Highway and Oliver Avenue for 10-year growth scenarios until year 2033.

  Similarly, stages 1 & 2 of the proposed rezoning would not require any modifications or improvements to the existing configurations of the intersection of Bruxner Highway and Oliver Avenue for 5-year growth scenarios until year 2028. After the five year stages 1 and 2 growth (2028) scenario consideration would need to be given to upgrade the roundabout by potentially providing two lanes north bound lanes of an estimated 150m in length in Oliver Avenue leading into the roundabout to enable the Bruxner Highway and Oliver Avenue roundabout to function adequately.

- The addition of the two north bound lanes of an estimated 150m in length in Oliver Avenue leading into the roundabout would also be able to cater for the proposed stage 3 in the 10 year growth scenario.

- The intersection analysis of the proposed access roads with Oliver Drive also suggests one traffic lane in each direction is sufficient to cater for the development traffic in Oliver Avenue. These intersections can operate at an acceptable level of service as a priority controlled (sign controlled) intersections in both the post full development and 10-year growth scenario.

2 Introduction

2.1 Development Context

This Traffic and Transport Study report has been prepared by Barker Ryan Stewart to accompany a Request for Planning Proposal (Planning Proposal) to amend the Lismore Local Environmental Plan 2012 (LLEP) to enable mixed use development of land referred to as 1055 Bruxner Highway, Goonellabah (the site) comprising residential, employment and public open space lands.

The site at 1055 Bruxner Highway has an area of approximately 76ha and is located adjoining existing urban development on the eastern fringe of Goonellabah. The site comprises two allotments being Lot 42 DP868366 and Lot 1 DP957677 and benefits from frontages to the Bruxner Highway to the north and Oliver Avenue to the west. The site is currently zoned RU1 Primary Production and has been used for many years for grazing purposes and is largely cleared of vegetation except for remnant trees dispersed across the site. The property is bisected by Tucki Tucki creek with several minor watercourses feeding into it. The site is free from flooding.

The Planning Proposal seeks to amend the LLEP as follows:

- Rezone the site from RU1 Primary Production to the following mix of land use zones:
    - R1 General Residential.
    - B4 Mixed Use.
    - RE1 Public Recreation.
    - IN1 General Industrial.
- Amend the Lot Size Map (Sheet LSZ_005 and Sheet LSZ_006) to remove the current minimum lot size requirement of 40ha and 20ha and impose the following minimum lot sizes:
    - R1 zoned land: a minimum lot size of 300m2
    - B4 zoned land to the north of Tucki Tucki creek: a minimum lot size of 300m2
    - B4 zoned land to the south of Tucki Tucki creek: a minimum lot size of 1,500m2
    - IN1 zoned land: a minimum lot size of 1,500m2
- Amend the LLEP 2012 Height of Building Map (Sheet HOB_005 and Sheet HOB_006) to impose the following maximum height of building control (excluding the RE1 and IN1 zoned land):
    - B4 zoned land to the north of Tucki Tucki creek: maximum building height of 13.5m
    - R1 zoned land: maximum building height of 8.5m

Changes to the planning controls facilitate the potential development of the site to accommodate a diversity of new housing, employment, and public open space opportunities in an environmentally and socially sustainable environment.

An Indicative Layout Plan (**ILP**), informed by detailed technical investigations into the characteristics of the site and adjoining land along with available servicing and community infrastructure, confirms the capacity to accommodate urban development comprising the following:

- Approximately 332 residential and mixed-use zoned allotments capable of accommodating a variety of housing forms and densities with an estimated population of over 855 residents.
- Approximately 109 allotments zoned industrial and mixed use capable of supporting a variety of employment generating and service activities with an associated potential 2,614 direct jobs.
- Provision of over 14ha of the site to open space comprising land zoned and utilised for public recreation along with riparian corridors and landscape buffers.

2.1.1 Residential Land

The proposed residential zoned land has the capacity to facilitate approximately 332 allotments ranging in size from 200m^2 to 600m^2 to accommodate low density detached housing and various forms of multi-dwelling accommodation.

2.1.2 Employment Land

The proposed employment land comprising industrial zoned land (23 hectares), mixed business zoned land (2.4 hectares) and local centre zoned land (5,000m^2).

2.1.3 Open Space Land

The proposed open space on the site being reserved as RE1 Public Recreation will comprise of dedicated riparian corridors and a local open space amounting to approximately 14ha of land. This will also be benefited by the proposed landscape buffers.

2.1.4 Traffic and Transport Matters

Relating to traffic and transport matters, the Bruxner Highway currently runs through the site, with new collector roads and local roads being established within the site with access facilitated from Oliver Avenue. Note there will be no direct vehicle access from Bruxner Highway. Moreover, it is to be considered as part of the catchment for a potential Casino to Murwillumbah public transport corridor, in active discussion with TfNSW. It will also form part of the consideration for Lismore City Council's Strategic Road Review.

2.2 Purpose of Report

The purpose of this report is to assess and address traffic, access, car parking and pedestrian and bicycle opportunities and impacts generated by the proposed development. This can be briefly outlined as follows:

- The expected traffic generation to/from the proposed development.
- The impact of the proposed development on the road network.
- Infrastructure upgrades to the road network.
- Intersection analysis based on traffic counts.
- Vehicle parking provisions.
- Access design requirements.
- Provision for pedestrians and cyclists.
- Availability of public transport.

This Traffic and Transport Study concludes that the subject site is suitable for the proposed development in relation to traffic impact, car parking provision, vehicle and pedestrian access and safety considerations.

3 Existing Conditions

3.1 Site Location

The site is located in Lismore City Council and comprises of the following lots:

- - Lot 42/DP868366 &
- - Lot 1/DP957677

The site is bound by Oliver Avenue to the west and Bruxner Highway runs through the site to the north. The site is approximately 84.6 hectares in size.

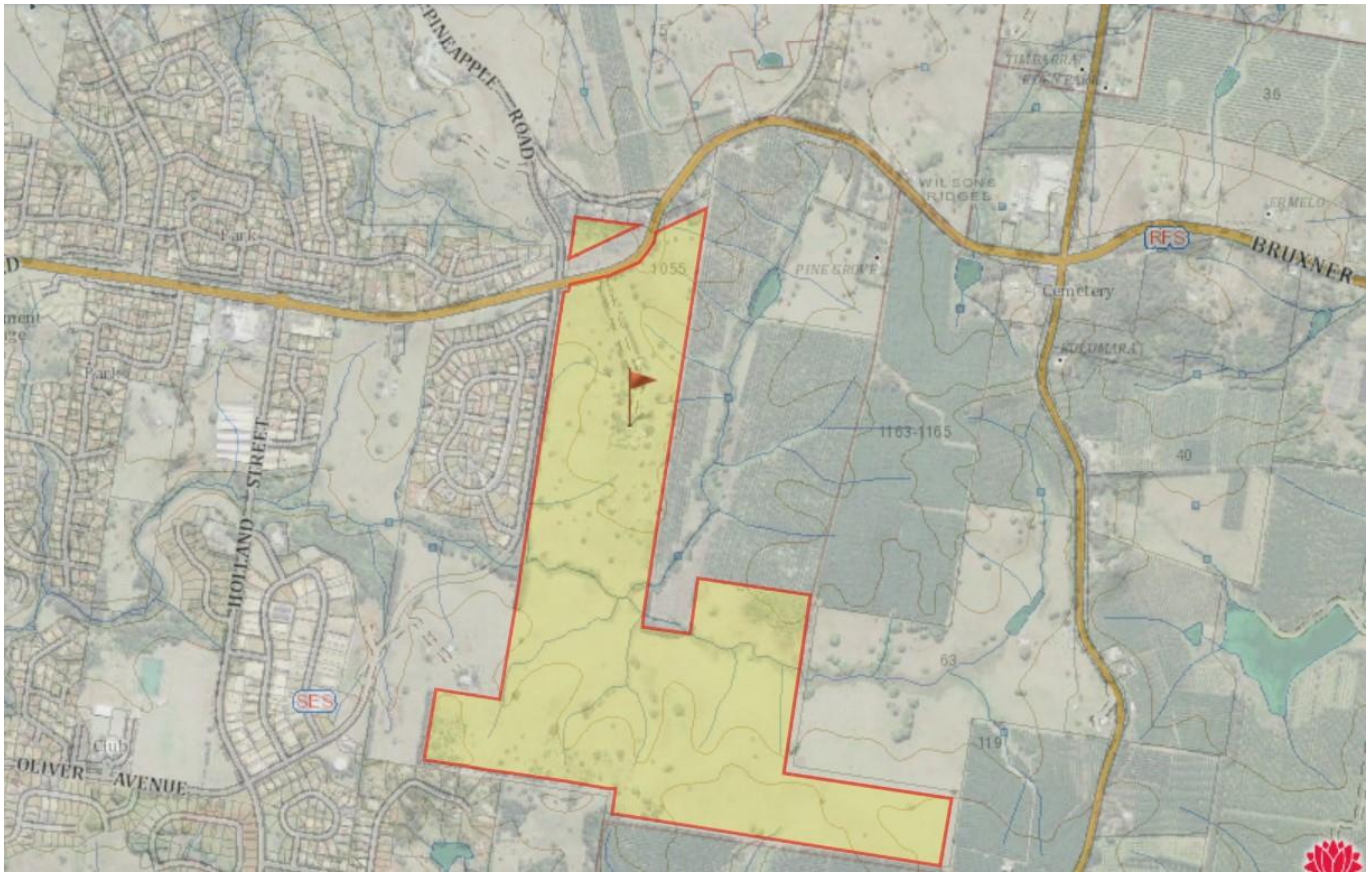


Figure 3.1: Site Location

3.2 Existing Development

The existing site is a greenfield site. It is surrounded by residential developments to the west and agricultural developments to the north, south and east.

3.3 Road Conditions

3.3.1 Existing Conditions

A schedule of the existing road conditions is outlined in *Table **3.1***.

Table 3.1: Existing Road Conditions Schedule

Road Name	Road Class	Orientation	Speed	Parking	Footpaths
Bruxner Highway	Arterial	East-West	60km/h	Not Permitted	None
Oliver Avenue	Collector	North-South	Unsigned (60km/h)	No Restrictions	None
Pineapple Road	Local	North-South	Unsigned (60km/h)	No Restrictions	None

3.3.2 Strategic Context

As part of the Lismore Strategic Road Review, prepared by TTM Consulting Pty Ltd (2013), Lismore Council has engaged separate review and investigation of the future road requirements for the Lismore urban and rural areas. Additionally, the report follows the Bruxner Highway Corridor Study (2009). The intersection of Oliver Avenue, Bruxner Highway and Pineapple Road has been suggested for an intersection upgrade within a 10Y period from 2009. In 2014, the intersection was upgraded from an unsignalized intersection to a roundabout.

3.4 Traffic Flows and Volumes

Classified intersection counts have been performed on the 1st of September 2022 for the weekday peaks between 7:30AM and 9:30AM and 3:45PM and 4:45PM at the following intersections:

- Bruxner Highway & Oliver Avenue, and
- Oliver Avenue & Taylor Road

Generally, it was observed that Bruxner Highway carried approximately 2,100vph – 2,200vph during the site peak. Near Bruxner Highway, Oliver Avenue carried some 90 vehicles per hour, and near Holland Street. Oliver Avenue carries 600vph – 650vph. Holland Street carried some 500vph – 600vph during peak. The actual surveyed turning movement counts are shown in the following Figure 3.2 to Figure 3.5.

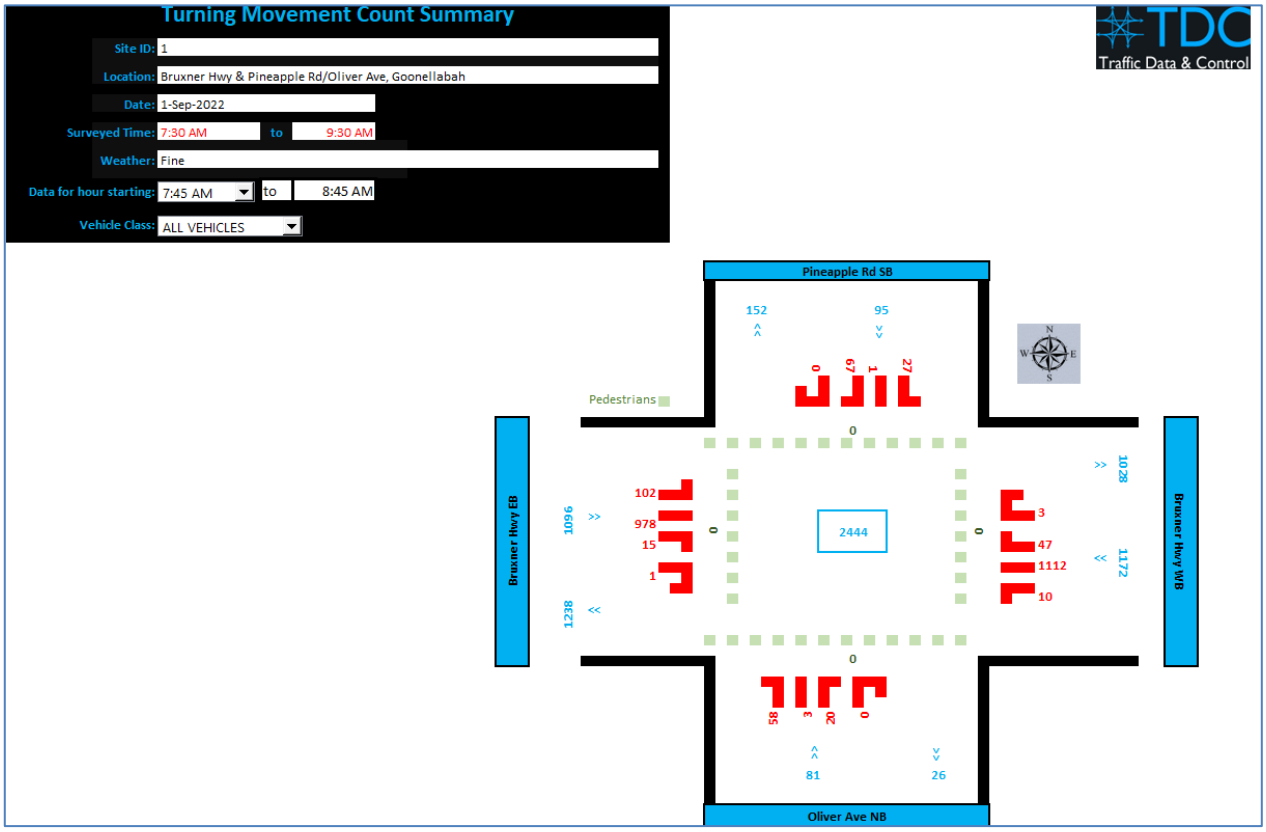


Figure 3.2: Intersection Count, Bruxner Highway/Oliver Avenue, Morning Peak

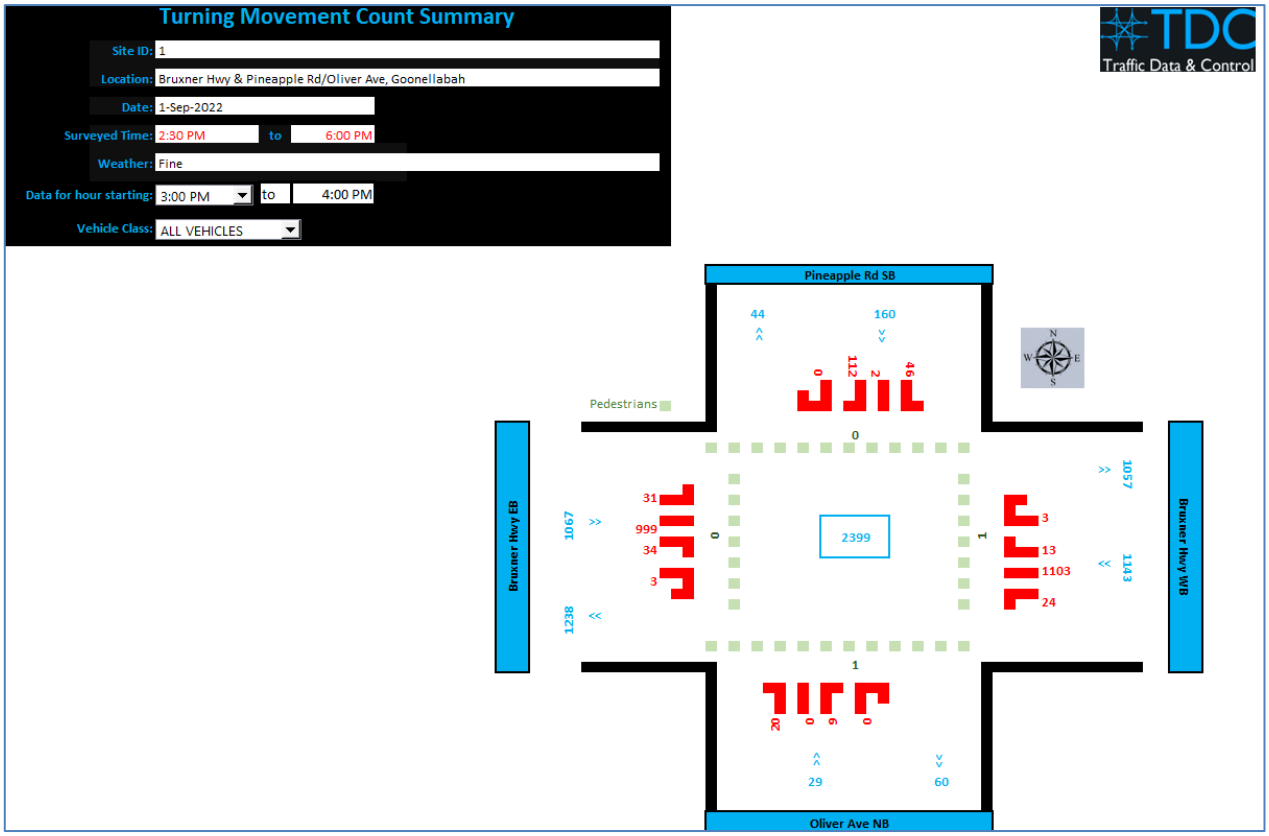


Figure 3.3: Intersection Count, Bruxner Highway/Oliver Avenue, Afternoon Peak

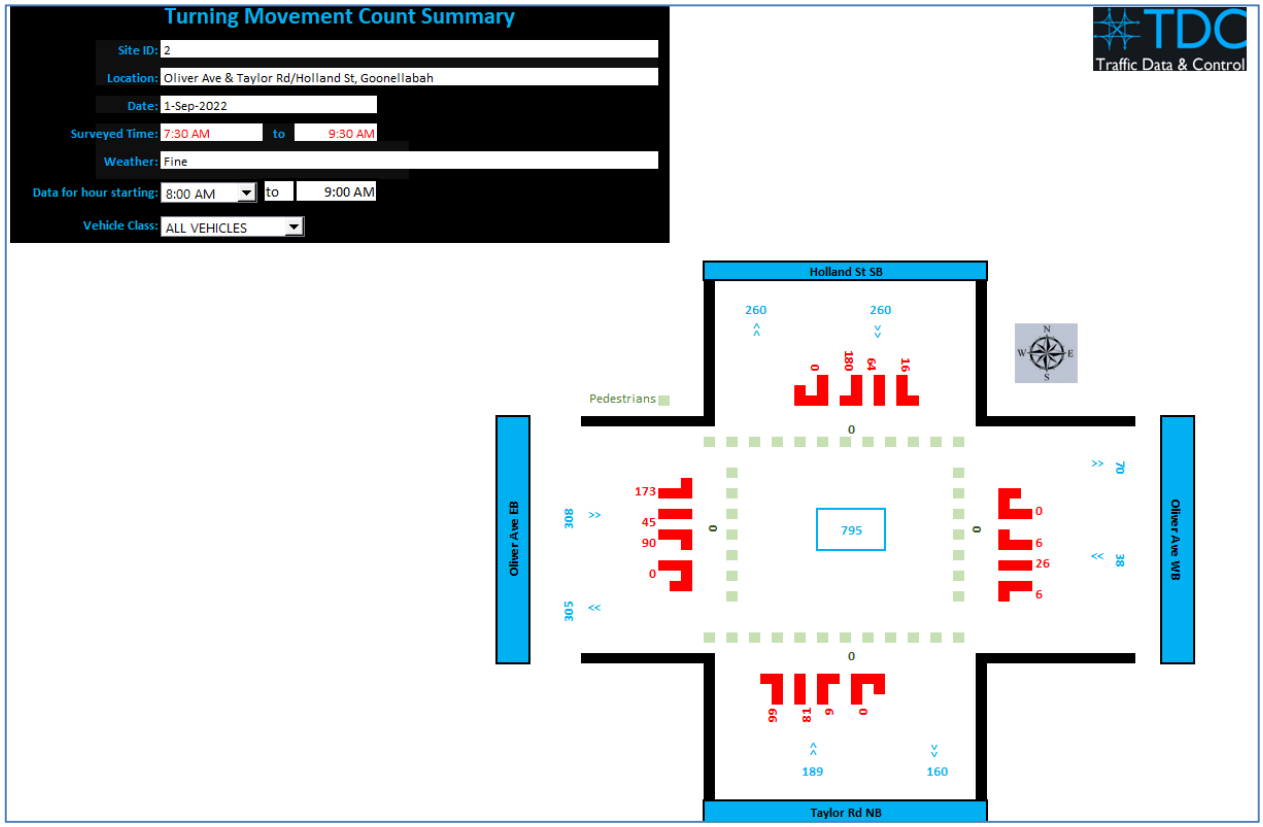


Figure 3.4: Intersection Count, Oliver Avenue/Holland St, Morning Peak

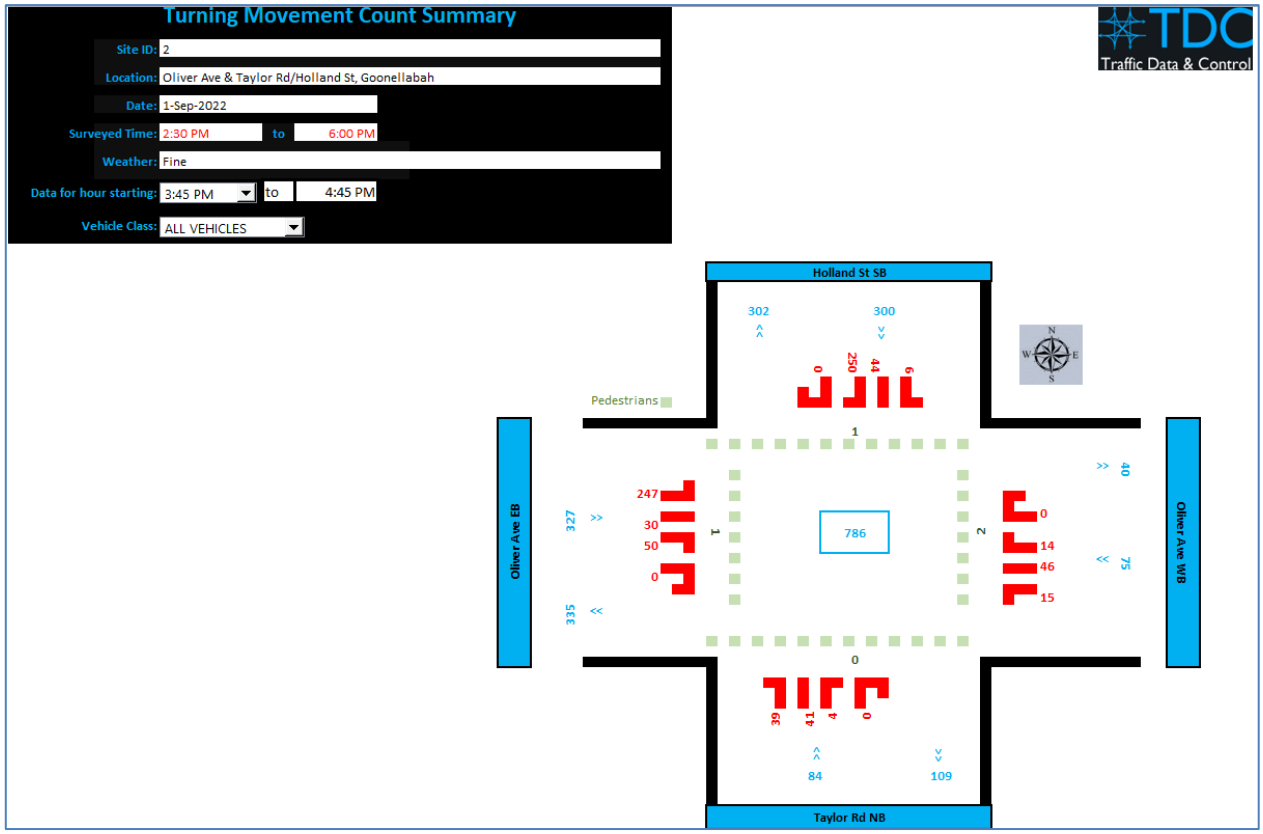


Figure 3.5: Intersection Count, Oliver Avenue/Holland St, Afternoon Peak

3.5 Public Transport, Pedestrians and Cyclists

3.5.1 Existing Public Transport, Pedestrians and Cyclists

The 661-bus route from Lismore to Ballina runs along Bruxner Highway and has a stop near the site. It runs quite infrequently with one bus every 30 minutes in morning peak, and one bus for the afternoon peak. One bus runs every hour in inter-peak and no buses run at night, after about 6:00PM.

As outlined in the road schedule above, the surrounding roads have no pedestrian pathways.

3.5.2 Strategic Context

Goonellabah is part of the catchment included in the Casino to Murwillumbah Transport Study (2013), which aims to highlight the constraints and opportunities associated with the repurposed/ revitalisation of the Casino to Murwillumbah Railway Line/ Corridor, by either establishing a passenger rail service along the existing line or using the corridor to form a bus route (as well as part-way solutions which include elements of each).

This study ultimately forms part of the Northern Rivers Regional Transport Plan, which acknowledges the requirement for improved public transport provisions:

- The region has a dispersed population and dispersed social services.
- The transport system is highly reliant on private vehicle use.
- The population is increasingly dependent, with low average socio-economic class which limits mobility.
- Largening levels of transport disadvantage exacerbate the above issue.
- Nevertheless, the Northern Rivers population is expected to continue to grow.

Ultimately, it is expected that the rail line be maintained at a minimum standard, and possibly parts of the rail corridor would instead be used to service bus routes. Generally, it can be expected that Countrylink buses are to be run at higher frequencies to facilitate future growth. The exact location of stops has yet to be determined but it can be expected that the site would be serviced by increased rail, as it is situated along the Bruxner Highway.

4 Proposed Development

4.1 Development Description

The proposed rezoning is to facilitate future low and medium density residential, industrial and business development and a local centre. Table 4.1 below summarises the proposed indicative development yield and associated facilities.

Table 4.1: Proposed Indicative Development Yield

Land Use	Indicative Yield
Residential (low density)	76 lots (refer note)
Residential (medium density)	256 lots (refer note)
Industrial	23.83 hectares
Business	2.75 hectares
Local Centre	2,500m² GLFA (1/2 of the site area)

Extracts from the proposed Indicative Development Yield and Staging Plan prepared by Barker Ryan Stewart are shown in to 4.3 below and are also attached to Appendix A.

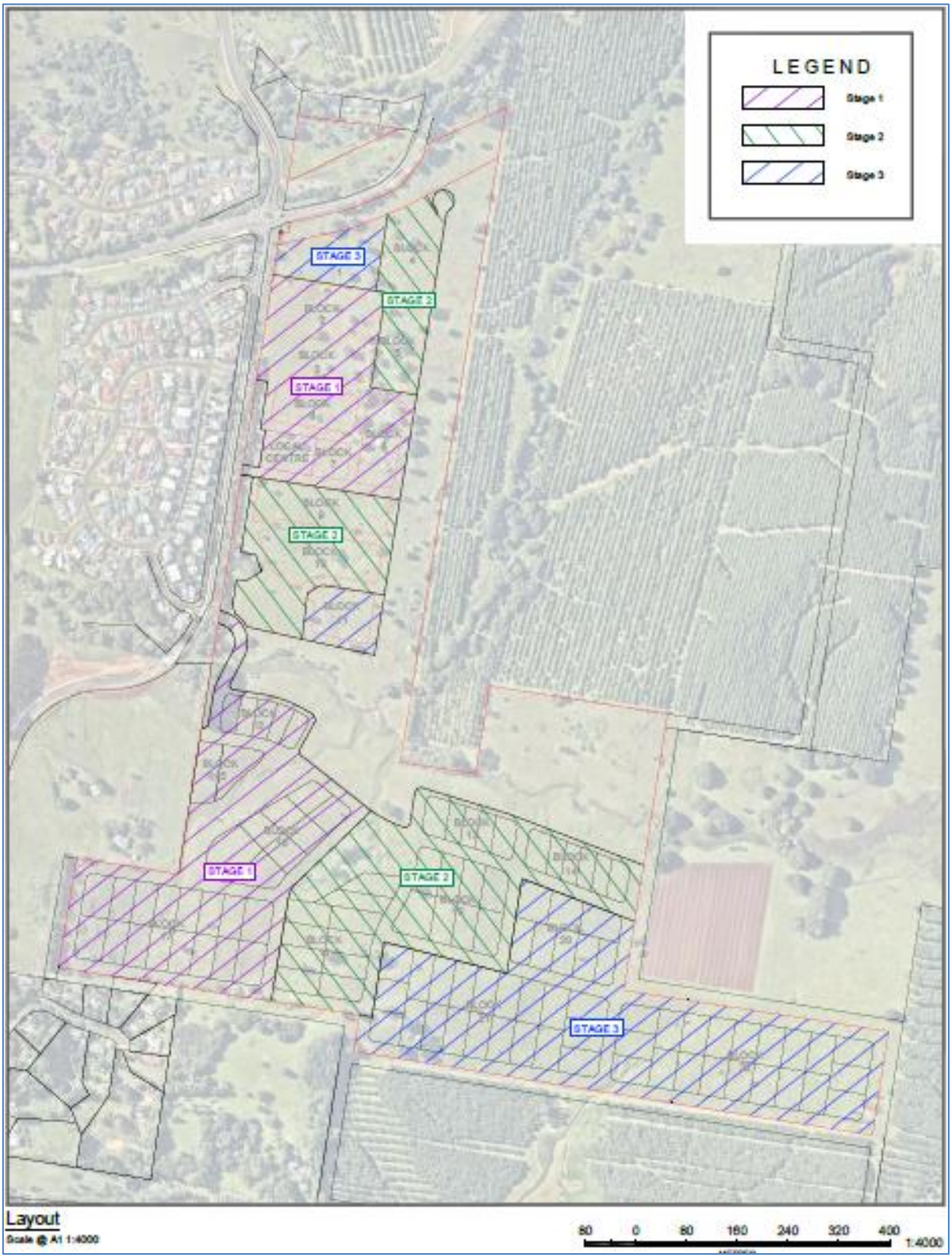


Figure 4.1: Site Location and indicative staging

Indicative Development Staging

Land use	Nominal lot area (m²) Block no.	Area (m²)	600 Low Density	200 Med Density	1500 Business	2500 Industrial	Total
Stage 1							
	2	9,824	16				16
	3	9,824	16				16
	6	7,888		39			39
	7	3,279		16			16
	8	8,047		40			40
Residential total		38,862	32	95			127
	12	8,441			5		5
	15	7,150				2	2
	16	21,170				8	8
	17	40,497				16	16
Employment total		77,258			5	26	31
	LC1	4,972					
Commercial total		4,972					
	Stage 1 total	121,092	32	95	5	26	158

Land use	Nominal lot area (m²) Block no.	Area (m²)	600 Low Density	200 Med Density	1500 Business	2500 Industrial	Total
Stage 2							
	4	8,951	14				14
	5	8,148	13				13
	9	12,739		63			63
	10	12,383		61			61
Residential total		42,221	27	124			151
	13	8,929			5		5
	14	10,130			6		6
	18	25,813				10	10
	19	21,472				8	8
	20	20,221				8	8
Employment total		86,565			11	26	37
	Stage 2 total	128,786	27	124	11	26	188

Land use	Nominal lot area (m²) Block no.	Area (m²)	600 Low Density	200 Med Density	1500 Business	2500 Industrial	Total
Stage 3							
	1	10,448	17				17
	11	7,417		37			37
Residential total		17,865	17	37			54
	21	51,768				20	20
	22	50,224				20	20
Employment total		101,992				40	40
	Stage 3 total	119,857	17	37		40	94

Figure 4.2: Indicative development staging

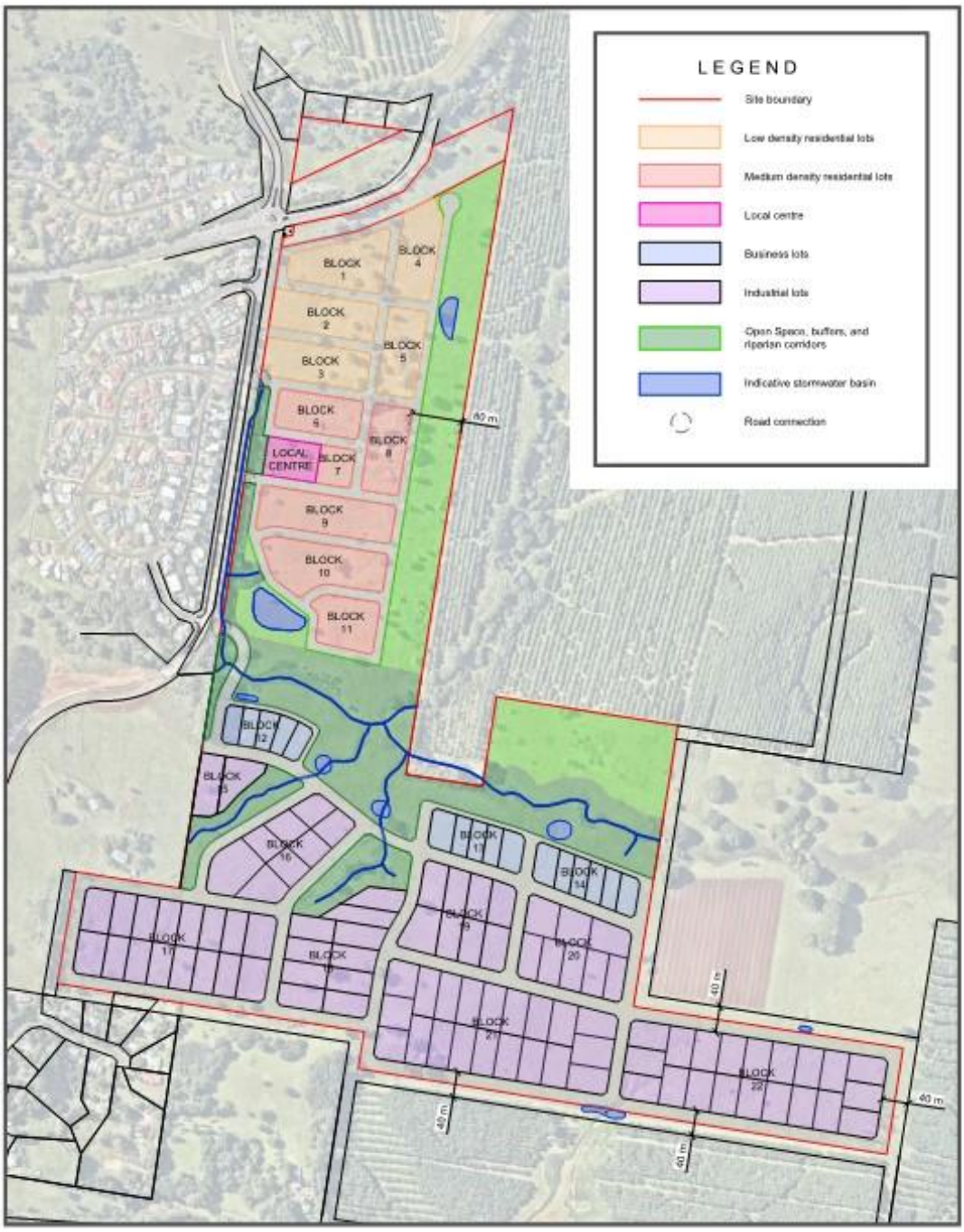


Figure 4.3: Proposed Indicative Use

Indicative Lot Yield

Land use	Block no.	Nominal lot area (m²) Stage	Area (m²)	600 Low Density	200 Med Density	Total
Residential						
	1	3	10,448	17		17
	2	1	9,824	16		16
	3	1	9,824	16		16
	4	2	8,951	14		14
	5	2	8,148	13		13
	6	1	7,888		39	39
	7	1	3,279		16	16
	8	1	8,047		40	40
	9	2	12,739		63	63
	10	2	12,383		61	61
	11	3	7,417		37	37
	Residential total		98,948	76	256	332

	Block no.	Nominal lot area (m²) Stage	Area (m²)	1500 Business	2500 Industrial	Total
Employment						
	12	1	8,441	5		5
	13	2	8,929	5		5
	14	2	10,130	6		6
	15	1	7,150		2	2
	16	1	21,170		8	8
	17	1	40,497		16	16
	18	2	25,813		10	10
	19	2	21,472		8	8
	20	3	20,221		8	8
	21	3	51,768		20	20
	22	3	50,224		20	20
	Employment total		265,815	16	92	108

Commercial			
LC1	1	4,972	
Commercial total		4,972	

Figure 4.4: Proposed Indicative lot yield.

5 Street Character, Access and Car Parking Assessment

5.1 Street Character and Access

Vehicular access will be established as a requirement when the area is to be developed following the re-zoning. Three intersections (two for residential areas access and one for the industrial area) along Oliver Avenue as shown in Figure 4.3 above would be provided. A fourth intersection will be constructed in the future through an adjoining lot owned by others to provide additional vehicular access to the industrial area. These intersections will be designed in accordance with Austroads guidelines and be suitable for the type and volume of vehicles modelled to use the intersection.

5.1.1 Residential Subdivision

The internal street hierarchy as outlined in Lismore DCP 2012 is as follows:

- Collector Street – high-capacity roads facilitation more than 3,000 vpd.
- Local Streets – residential streets facilitating between 1,000 vpd and 3,000 vpd.
- Access Places – a lower-order residential street with less than 750 vpd.
- Lanes – Two-way access to the rear of properties as required.

Their street characteristics are outlined in below:

Table 5.1: Street Class and Characteristics (Residential)

Street Type	Lane	Access Place	Local Street	Collector
Reserve Width	7.0m	14.0m	15.0m-15.5m	24.5m
Carriageway Width	6.0m	6.0m	7.0m-8.5m	16.5m (or 12.0m if cycleways are on footpaths)
Active Transport Provisions	No	No	No	Footpaths to be included. Cycleways either on footpath or 1.5m clearance on carriageway, either side.
Target Speed Environment	10km/h	20km/h	20km/h	40km/h
Intersection Spacing	80.0m	80.0m	100.0m	120.0m

At the formation of the Development Control Plan the approved road network hierarchy will be established. The detailed design and construction of the roads will form part of the development application(s) for the residential subdivision.

Note that the road network design should be such that, either by positioning lots or by altering bus routes, that at least 85% of lots are within a safe 5-minute walking time from an existing or proposed bus route where possible.

5.1.2 Industrial Subdivisions

Similarly, industrial street hierarchy is outlined in below. Lanes are not appropriate for industrial developments due to the high volume of commercial vehicles expected.

Table 5.2: Street Class and Characteristics (Industrial)

Street Type	Access Place	Local Street	Collector
Reserve Width	18.0m	20.0m	20.0m
Carriageway Width	9.5m	12.0m	13.0m
Active Transport Provisions	3.0m footpath on one side, on-road cycle lane	3.0m footpaths on both sides, on-road cycle lane	3.5m footpaths on both sides Dedicated cycle lane
Target Speed Environment	10km/h	40km/h	60km/h

At the formation of the Development Control Plan the approved road network hierarchy will be established. The detailed design and construction of the roads will form part of the development application(s) for the industrial subdivision.

5.2 Pedestrian and Cycle Paths

As part of the proposed rezoning, new Development Control Plan and approval of the overall subdivision it is proposed to provide pedestrian and bicycle links along the length of Oliver Avenue from the Bruxner Highway in the north and to Holland Street/Taylor Road to the south.

This will enable the proposed rezoned land to have pedestrian and bicycle links to an any existing or future pedestrian and bicycle paths in Bruxner Highway and Oliver Avenue to the south west of Holland Street/Taylor Road.

5.3 Future Parking requirements

Parking provision rates will be confirmed as part of the development of the DCP and will be applied for each individual development on the lots once they are created. They will generally be expected to follow Lismore DCP 2012 guidelines and TfNSW Guide to Traffic Generating Developments 2002 (and the associated TDT 2013/04a). The proposed parking provision requirements of the Lismore DCP 2012 and TfnSW Guide are as outlined below:

5.3.1 Lismore DCP 2012

The Lismore DCP 2012 requires the following parking provisions:

- Residential Developments
  - Single dwellings – 2 car parking spaces set at least 5.5m behind the Building Line
  - Dual occupancies:
    - 1 per dwelling <125m^2
    - 2 per dwelling >125m^2
  - Multi-dwelling housing:
    - 1 space per 1 bedroom unit,
    - 1.5 spaces per 2 bedroom unit, and

        - 2 spaces per 3+ bedroom unit, and
        - 1 visitor space per 5 bedroom units

- Industrial Developments
    - Bulky Goods Premises:
        - If ≤ 400m^2 GFA, 3 spaces per 100m^2
        - If > 400m^2 GFA, 2 spaces per 100m^2
    - Business Premises (ancillary):
        - 1 space per 30m^2 for G or 1st floor
        - 1 space per 40m^2 for 2+ floor
        - Min. 2 spaces per office
    - Electricity Generating Works: 1 space per 2 employees
    - Extractive Industry: 1 space per employee
    - Industry (heavy, general and light):
        - 1 space per 100m^2 GFA or part thereof,
        - Min. 2 spaces per unit or separate leased area
    - Industry (house/ car recycling yard): 2 spaces per 2 employees, plus 1 space per 200m^2 site area
    - Landscaping material supplies: 1 space per 100m^2 display area, plus 1 space per 2 employees.
    - Rural industry: 1 space per 2 employees or 1 space per 100m^2 GFA, whichever is greater
    - Self-storage units: 1 space per 20 sheds, plus 1 space per 2 employees
    - Transport depot: 1 truck space for each truck, associated with the development, plus 1 per driver, plus 1 space per 2 onsite employees,
    - Vehicle body repair workshop: 4 spaces per work bay, plus 1 space per employee
    - Vehicle Repair Station: 4 spaces per work bay, plus 1 space per employee
    - Vehicle Sales or Hire Premises: 1.5 spaces per 200m^2 display area, plus 1 per 2 employees, plus 4 per workbay
    - Warehouse or Distribution Centre: 1 space per 300m^2

On-street parking on local roads is expected for the minimum of one side of the street for 2.5m width. For collector roads, parking should be provided on both sides.

5.3.2 RMS 'Guide to Traffic Generating Developments' 2002

Note that the RMS '*Guide to Traffic Generating Developments'* 2002 Section 5 outlines the following parking provisions:

- Residential – Regional Area
    - Single dwellings – 1 to 2 car parking spaces
    - Dual occupancies – 2 car parking spaces
    - Medium density residential flat buildings:
        - 1 space per dwelling and
        - 1 visitor space per 5 dwellings

- Commercial - 1 space /40m² GFA
- Industrial Developments:
    - Car Tyre Retail Outlets: 3 spaces per 100m^2 GFA or 3 spaces per work bay (whichever is greater)
    - Factory: 1.3 spaces per 100m^2
    - Warehouse: 1 space per 300m^2
    - Plant Nurseries: 0.5 spaces per 100m^2 GFA or 15 spaces, whichever is greater
    - Business Park:
        - 1.5 spaces per 100m^2 total GFA, or
        - 1.8 spaces per 100m^2 office GFA, and 1.2 spaces per 100m^2 industrial GFA.

5.4 Future Loading Requirements for Industrial development

5.4.1 Lismore DCP 2012

The Lismore DCP 2012 outlines the loading size requirements of different industrial developments. These are separated by spaces for size of vehicle. Standard sizes are as follows:

- 6.4m Small Rigid Vehicle (SRV)
- 8.8m Medium Rigid Vehicle (MRV)
- 12.5m Heavy Rigid Vehicle (HRV)
- 19.0m Articulated Vehicle (AV)

Note that no rates are provided for the number of loading docks with the required number assessed as part of the documentation provided with each development application, including the Traffic Impact Assessments. The loading bay provisions are reproduced below:

- Bulky Goods Premises:
  - If ≤ 1,000m^2 GFA, spaces designed for 12.5m HRVs
  - If > 1,000m^2 GFA, spaces designed for 19.0m AVs
- Extractive Industry: space for 19.0m AVs
- Industry (heavy, general and light): Spaces designed for 12.5m HRVs
- Industry (house/ car recycling yard): Spaces designed for 12.5m HRVs
- Landscaping material supplies: Spaces designed for 12.5m HRVs
- Rural industry: Spaces designed for 19.0m AVs
- Self-storage units: Spaces designed for 12.5m HRVs
- Transport depot: Spaces designed for 19.0m AVs
- Vehicle Sales or Hire Premises: Spaces designed for 19.0 AVs
- Warehouse or Distribution Centre: Spaces designed for 19.0 AVs

5.4.2 RMS 'Guide to Traffic Generating Developments' 2002

The wholesale and industrial rate for developments <8,000m^2 GFA is 1 loading bay space per 800m^2. For developments >8,000m^2, 10 spaces would be required, plus 1 space per 1,000m^2 over 8,000m^2.

6 Traffic Impact Assessment

6.1 Intersections Modelled

The traffic impact of the proposed rezoning on the surrounding road network was assessed using SIDRA Intersection modelling software. The traffic counts outlined in Section 3.4 and traffic generation estimated below in Section 6.1 were used to determine an overall traffic level for the area post-development. Based on their critical locations, the following intersections were analysed:

- Bruxner Highway / Oliver Avenue;
- Oliver Avenue / Holland Street; and
- Three new proposed intersections.

The location of these intersections and the layout of the surrounding traffic network are shown in the figure 6.1 below.

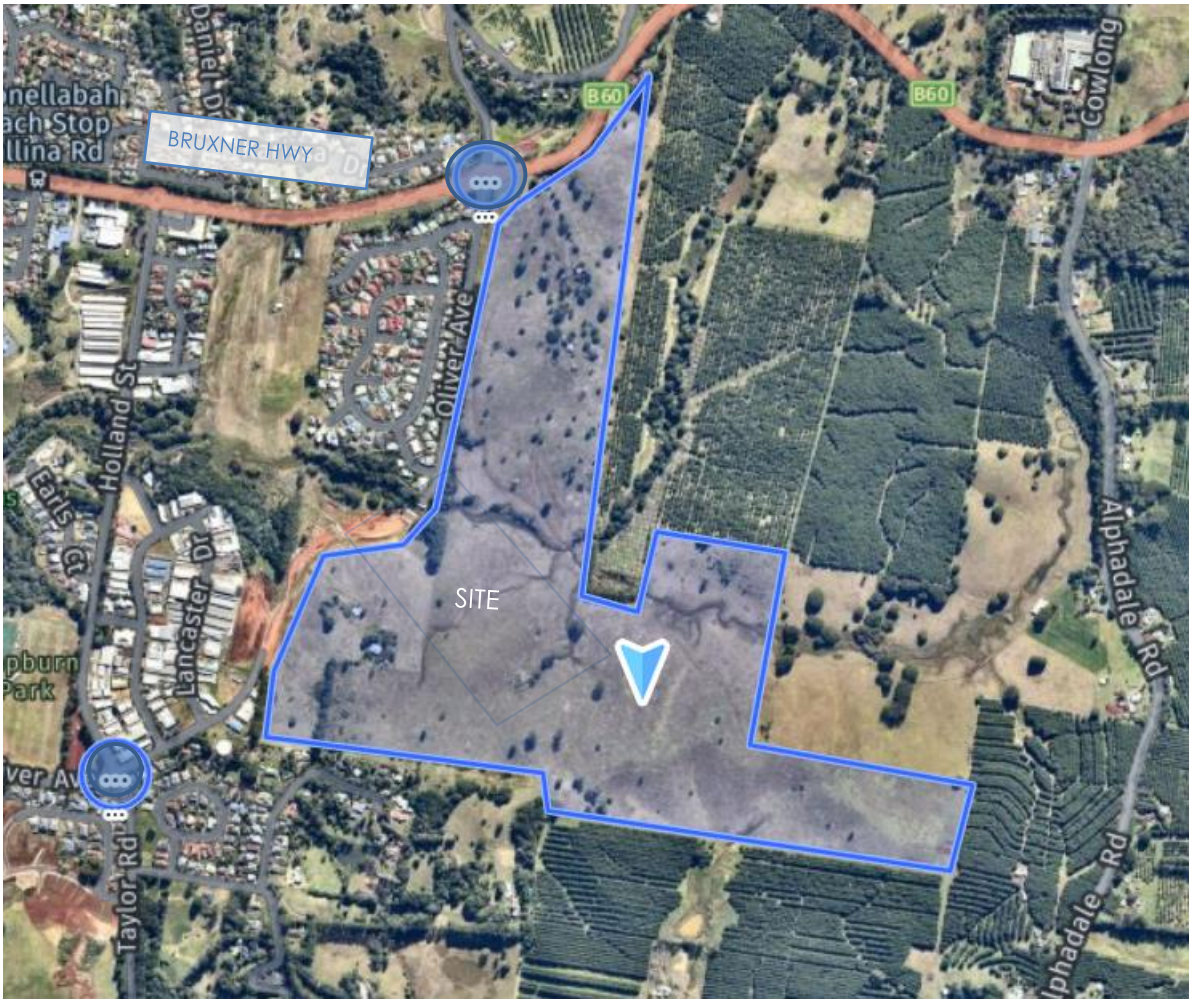


Figure 6.1: Site and critical intersections locations (source: NearMap September 2022)

6.2 Trip Generation

6.2.1 Existing Development

The existing site is a vacant land, therefore the trip generation for the existing site is nil.

6.2.2 Proposed Development

The RMS *"Technical Direction for traffic, safety and transport practitioners – operational policy, guidelines and advice' (TDT 2013/04a*) has been used to estimate trip generation potential of the site for different uses proposed as part of the rezoning. *TDT 2013/04a* suggests an average evening peak hour vehicle trip rate of 0.78 per dwelling and an average morning peak hour vehicle trip rate of 0.71 per dwelling for low density residential dwellings in regional areas.

Former RTAs Guide to Traffic Generating Developments 2002, gives trip generation rates for medium density residential developments. The trip generation rates for smaller units and flats (up to two bedrooms) are daily 4-5 trips per dwelling, and 0.4-0.5 trips per dwelling for weekday peak hours. Larger units and town houses (three or more bedrooms) generate 5.0-6.5 trips per dwelling daily and 0.5-0.65 trips per dwelling for weekday peak hours. For simplicity, 0.65 trips per dwelling for weekday peak hours have been used to estimate the trip generation potential of medium density components of the proposed rezoning.

Due to the absence of any floor space ratio for the site forming part of the Planning Proposal, the Gross Leasable Floor Area (GLFA) or Gross Floor Area (GFA) for the proposed industrial/business uses and local centre are not available and therefore the GLFA or GFA rates as outlined in *TDT 2013/04a* could not be applied to estimate the traffic generation rates.

However, in Appendix E of *TDT 2013/04a the surveyed data for different business and industrial park have been given, form where the average surveyed trips rate based on site area per hectare for non-Sydney areas has been used to calculate the trip generation potential for the industrial and business land uses. The average estimated trip rates per hectare of site area for non-Sydney area is calculated to be 18 trips per hour per hectare*.

Similarly, from Appendix F3 of *TDT 2013/04a*, the highest peak hour vehicle trips per 100m2 of GLFA surveyed in a regional area shopping centre has been used to estimate trip generation potential of the proposed local centre, which is 7.48 trips per 100m2 of GLFA. Due to the absence of floor spaces ratio, it is assumed that 1/2 of the site area for the proposed local centre could potentially be the GLFA once constructed. This takes into consideration setbacks, car parking lot, hard stand area for loading and unloading, and landscape requirements for the local centre.

The estimated trips generation potential of the proposed rezoning is summarised in Table 6.1 below:

Table 6.1: Proposed uses – trip generation

Use	Yield	AM		PM	
		Trip Generation Rate	Total Trip Generation	Trip Generation Rate	Total Trip Generation
Low Density Residential	76 lots	0.71 trips per dwelling	54 trips	0.78 trips per dwelling	59 trips
Medium Density Residential	256 lots	0.65 trips per dwelling	167 trips	0.65 trips per dwelling	167 trips
Industrial	23 Ha	18 trips per Ha	414 trips	18 trips per Ha	414 trips
Business	2.4 Ha	18 trips per Ha	43 trips	18 trips per Ha	43 trips
Local centre	2,500 m² GLFA (1/2 of the site area)	7.48per 100m² GLFA	186 trips	7.48per 100m² GLFA	186 trips
Total	**-**	**-**	**864 trips**	**-**	**869 trips**

The additional trips that could be generated by the proposed rezoning are therefore:

- AM trips = 864 trips
- PM trips = 869 trips

6.2.3 Approved and Proposed Developments

Publicly available information indicated that Lismore City Council has approved an application to create 82 residential lots in stages in the Pineapple Road Precinct, Goonellabah.

The first stage included 22 large residential lots off Richmond Hill Rd; stage two is for 15 standard residential lots accessed via Pineapple Rd and Misty Valley View; and stage three is for 45 standard residential lots.

Figure 6.2: Approved Development site (source: The Daily Telegraph and Northern Star)

It is assumed that traffic generated from stage 2 and stage 3 of the approved subdivision will use Pineapple Road to gain access. Therefore, a total of 60 residential lots will gain access via Pineapple Road. The following number of peak hour trips have been calculated, for the approved developments adjacent to the proposed rezoning site, that will impact on the intersection of Bruxner Highway and Oliver Avenue:

Table 6.2: Approved use – trip generation

Use	Yield	AM		PM	
		Trip Generation Rate	Total Trip Generation	Trip Generation Rate	Total Trip Generation
Residential	60 lots	0.71 trips per dwelling	43 trips	0.78 trips per dwelling	47 trips
Total	**-**	**-**	**43 trips**	**-**	**47 trips**

6.3 Trip Distribution and Assignment

This section outlines the methodology used to distribute and assign the trips that will be generated to the surrounding road network by the approved developments in the area and the proposed rezoning of 1055 Bruxner Highway site.

- The likely trip distribution of the additional number of residential and local centre vehicular trips from and adjacent to the development site is based on the ABS journey-to-work data for residents travelling to work from Goonellabah to the site and other areas.
- The likely trip distribution of the additional number of industrial/commercial vehicular trips from and adjacent to the development site is based on the ABS journey-to-work data for people travelling to Goonellabah for work from the site and other areas.
- The trip generation has been adjusted to mode shift target of 5% trips by public and active transport.
- For residential trips, the proportion of vehicles leaving from and arriving to the area in the AM peak hour has been assumed as an 80 percent (leaving) / 20 percent (arriving) split. During the PM peak hour, this proportion is reversed, with 80 percent arriving and 20 percent leaving the site.
- For industrial/commercial trips, the proportion of vehicles leaving from and arriving to the area in the AM peak hour has been assumed as an 80 percent (arriving) / 20 percent (leaving) split. During the PM peak hour, this proportion is reversed, with 20 percent arriving and 80 percent leaving the site.
- For Local Centre trips, the proportion of vehicles leaving from and arriving to the area has been assumed as a 50 percent (leaving) / 50 percent (arriving) split in both the AM and PM peak hours.
- Surveyed turning movements at the intersection of Oliver Avenue/ Bruxner Highway and Oliver Avenue/ Holland Street will be redistributed assuming the bridge in Oliver Avenue is complete and open to traffic.
- It is assumed that 90% of the existing trips in Oliver Avenue West, Taylor Road North and Holland Street South approaches at the intersection of Oliver Avenue and Holland Street will be redistributed via Oliver Avenue East a link between Bruxner Highway East and Oliver Avenue West and Taylor Road North.
- Base intersection models have been developed using redistributed traffic at the intersection of Oliver Avenue/ Bruxner Highway and Oliver Avenue/ Holland Street assuming the bridge in Oliver Avenue is complete and open to traffic.

- The base and development scenario models have been projected to future years using a 2.5% linear growth rate for the background traffic for Bruxner Highway through Traffic and 0.5% for local traffic movements as required by TfNSW.

- The following future scenarios have been investigated:

    - Base-case without the development traffic, projected to the year the development is complete.
    - Base-case plus development traffic including approved Pineapple Road Precinct traffic, projected to the year the development is complete.
    - Base-case without the development traffic, projected to 10 years after the year the development is complete.
    - Base-case plus the development traffic including approved Pineapple Road Precinct traffic, projected to 10 years after the year the development is complete.

The Census provides journey to work data that has been used as guide for assigning trips to the network. The following distribution patterns have been calculated using ABS Journey to Work data for Goonellabah.

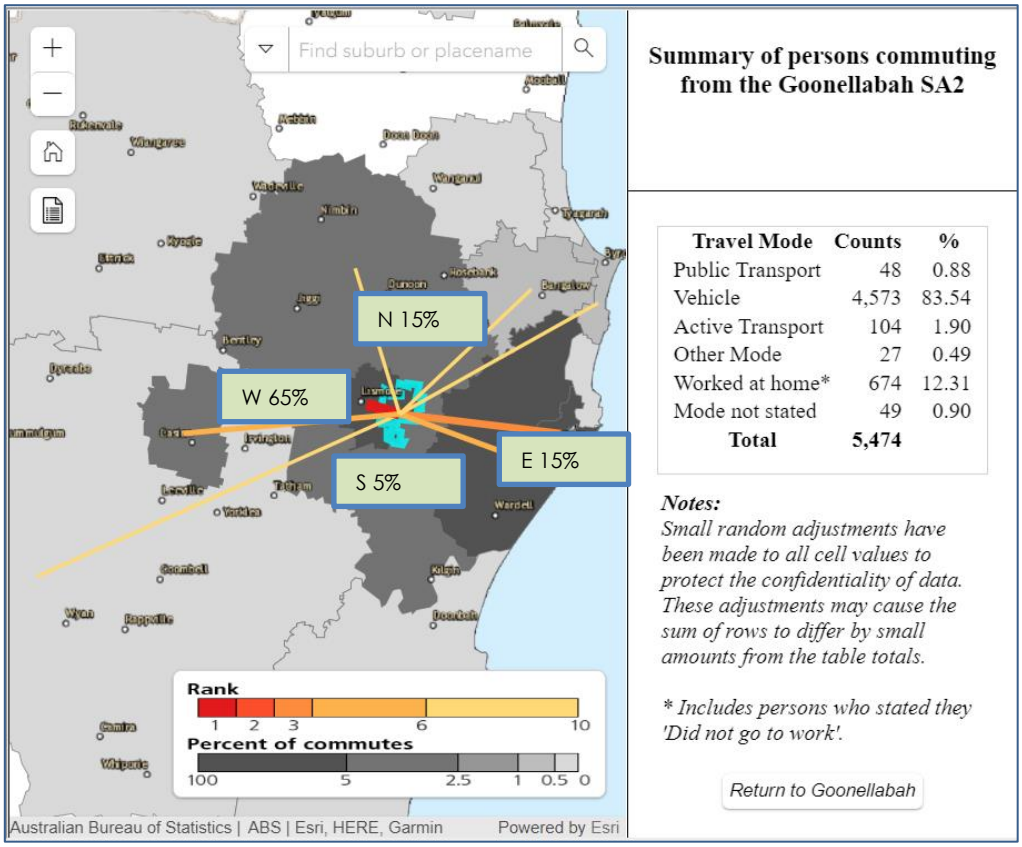


Figure 6.3: Journey to Work from Goonellabah (outgoing) (Source: Australian Bureau of Statistics)

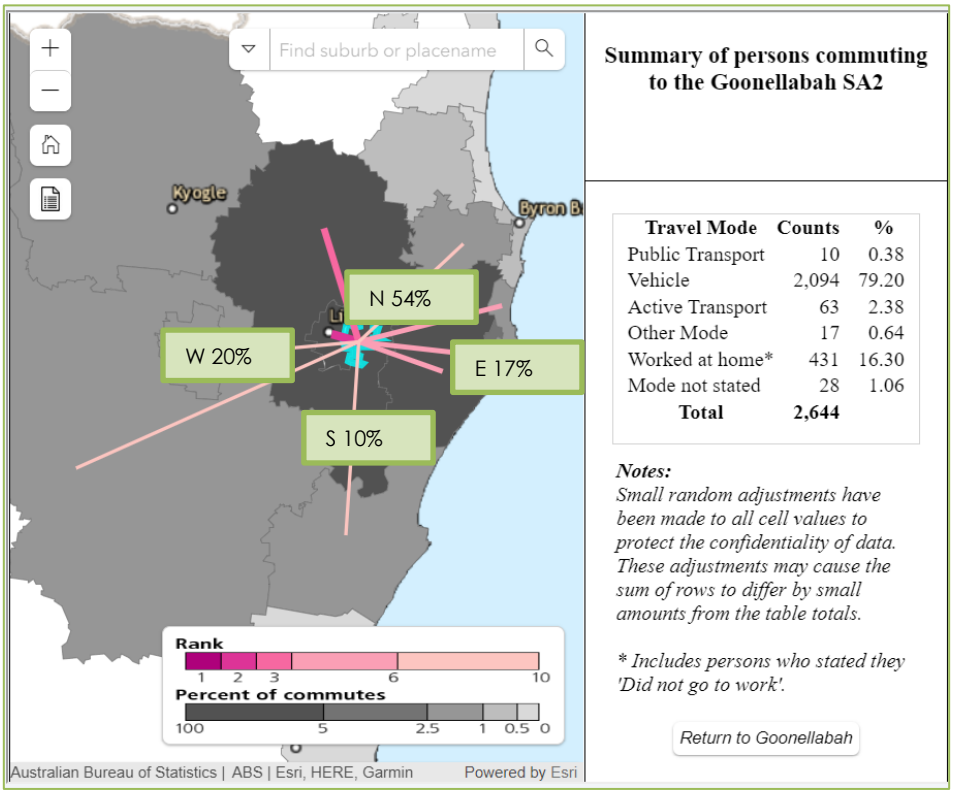


Figure 6.4: Journey to Work to Goonellabah (Incoming) (Source: Australian Bureau of Statistics)

The distribution of traffic based on the land use type and locations both for AM and PM peaks are shown the tables below.

Table 6.3: AM Peak – trip distribution.

Residential1		AM Peak							
	Trips	Inbound				Outbound			
		20%				80%			
	AM	N	E	S	W	N	E	S	W
	105	13%	15%	13%	58%	13%	15%	13%	58%
		3	3	3	12	11	13	11	49
	% of Total Trips	3%	3%	3%	12%	11%	12%	10%	47%

Residential2		AM Peak							
	Trips	Inbound				Outbound			
		20%				80%			
	AM	N	E	S	W	N	E	S	W
	105	13%	15%	13%	58%	13%	15%	13%	58%
		3	3	3	12	11	13	11	49
	% of Total Trips	3%	3%	3%	12%	11%	12%	10%	47%

Residential Pineapple Precinct		AM Peak							
	Trips	Inbound				Outbound			
		20%				80%			
	AM	N	E	S	W	N	E	S	W
	41	13%	15%	13%	58%	13%	15%	13%	58%
		1	1	1	5	4	5	4	19
	% of Total Trips	3%	3%	3%	12%	11%	12%	10%	47%

Local Centre		AM Peak							
	Trips	Inbound				Outbound			
		50%				50%			
	AM	N	E	S	W	N	E	S	W
	177	13%	15%	13%	58%	13%	15%	13%	58%
		12	14	12	51	12	14	12	51
	% of Total Trips	7%	8%	7%	29%	7%	8%	7%	29%

Industrial/Commercial		AM Peak							
	Trips	Inbound				Outbound			
		80%				20%			
	AM	N	E	S	W	N	E	S	W
	434	20%	21%	20%	40%	20%	21%	20%	40%
		69	73	68	137	17	18	17	34
	% of Total Trips	16%	17%	16%	32%	4%	4%	4%	8%

Table 6.4: PM Peak – trip distribution.

Residential1		PM Peak							
	Trips	Inbound				Outbound			
		80%				20%			
	PM	N	E	S	W	N	E	S	W
	107	13%	15%	13%	58%	13%	15%	13%	58%
		11	13	11	50	3	3	3	12
	% of Total Trips	11%	12%	10%	47%	3%	3%	3%	12%

Residential2		PM Peak							
	Trips	Inbound				Outbound			
		80%				20%			
	PM	N	E	S	W	N	E	S	W
	107	13%	15%	13%	58%	13%	15%	13%	58%
		11	13	11	50	3	3	3	12
	% of Total Trips	11%	12%	10%	47%	3%	3%	3%	12%

Residential Pineapple Precinct		PM Peak							
	Trips	Inbound				Outbound			
		80%				20%			
	PM	N	E	S	W	N	E	S	W
	45	13%	15%	13%	58%	13%	15%	13%	58%
		5	6	5	21	1	1	1	5
	% of Total Trips	11%	12%	10%	47%	3%	3%	3%	12%

Local Centre		PM Peak							
	Trips	Inbound				Outbound			
		50%				50%			
	PM	N	E	S	W	N	E	S	W
	177	13%	15%	13%	58%	13%	15%	13%	58%
		12	14	12	51	12	14	12	51
	% of Total Trips	7%	8%	7%	29%	7%	8%	7%	29%

Industrial/Commercial		PM Peak							
	Trips	Inbound				Outbound			
		20%				80%			
	PM	N	E	S	W	N	E	S	W
	434	20%	21%	20%	40%	20%	21%	20%	40%
		17	18	17	34	69	73	68	137
	% of Total Trips	4%	4%	4%	8%	16%	17%	16%	32%

The distribution of traffic based on the land use type and locations both for AM and PM peaks have been shown graphically in the figures below.

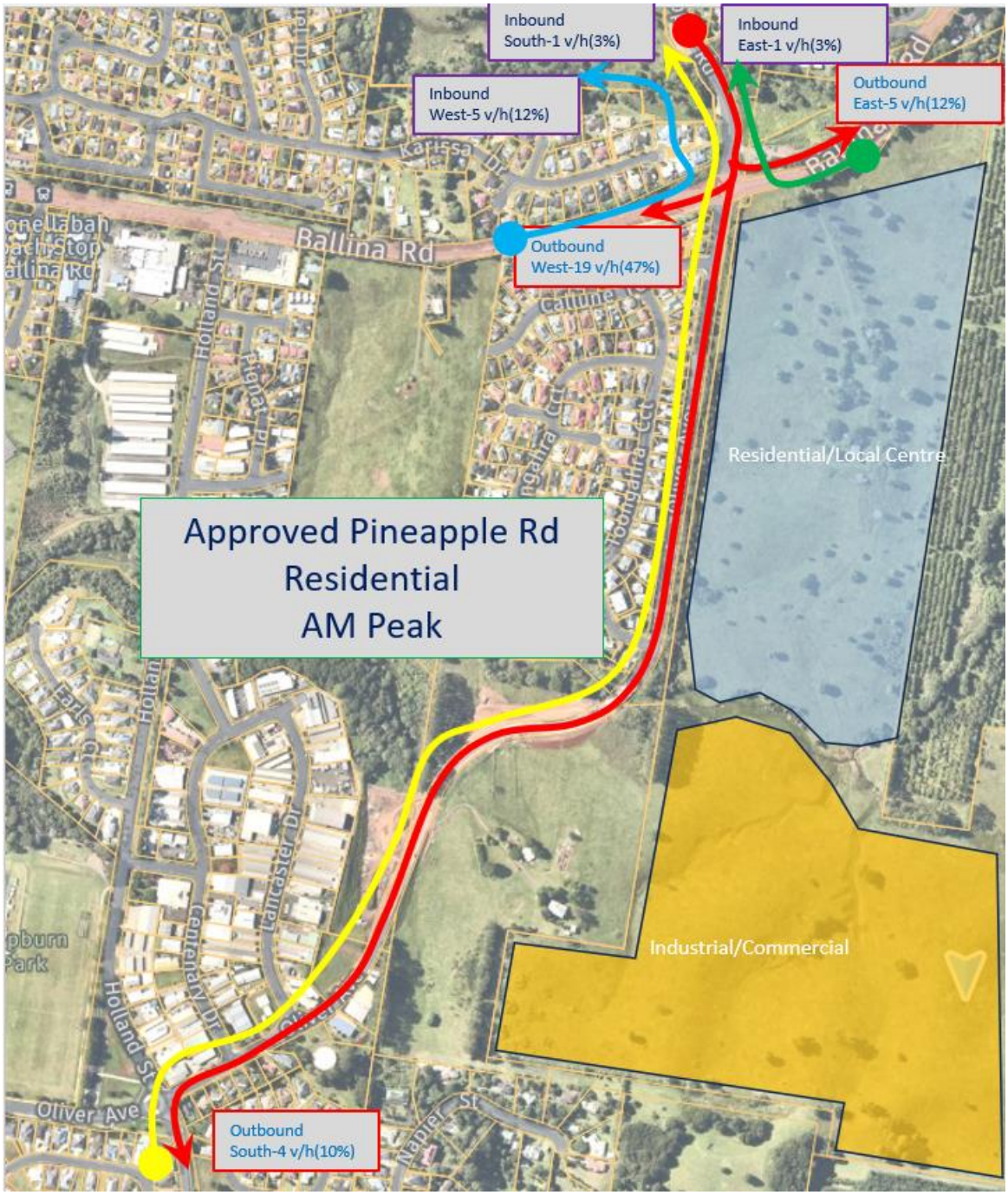


Figure 6.5: Trip Distribution Approved Pineapple Precinct AM Peak

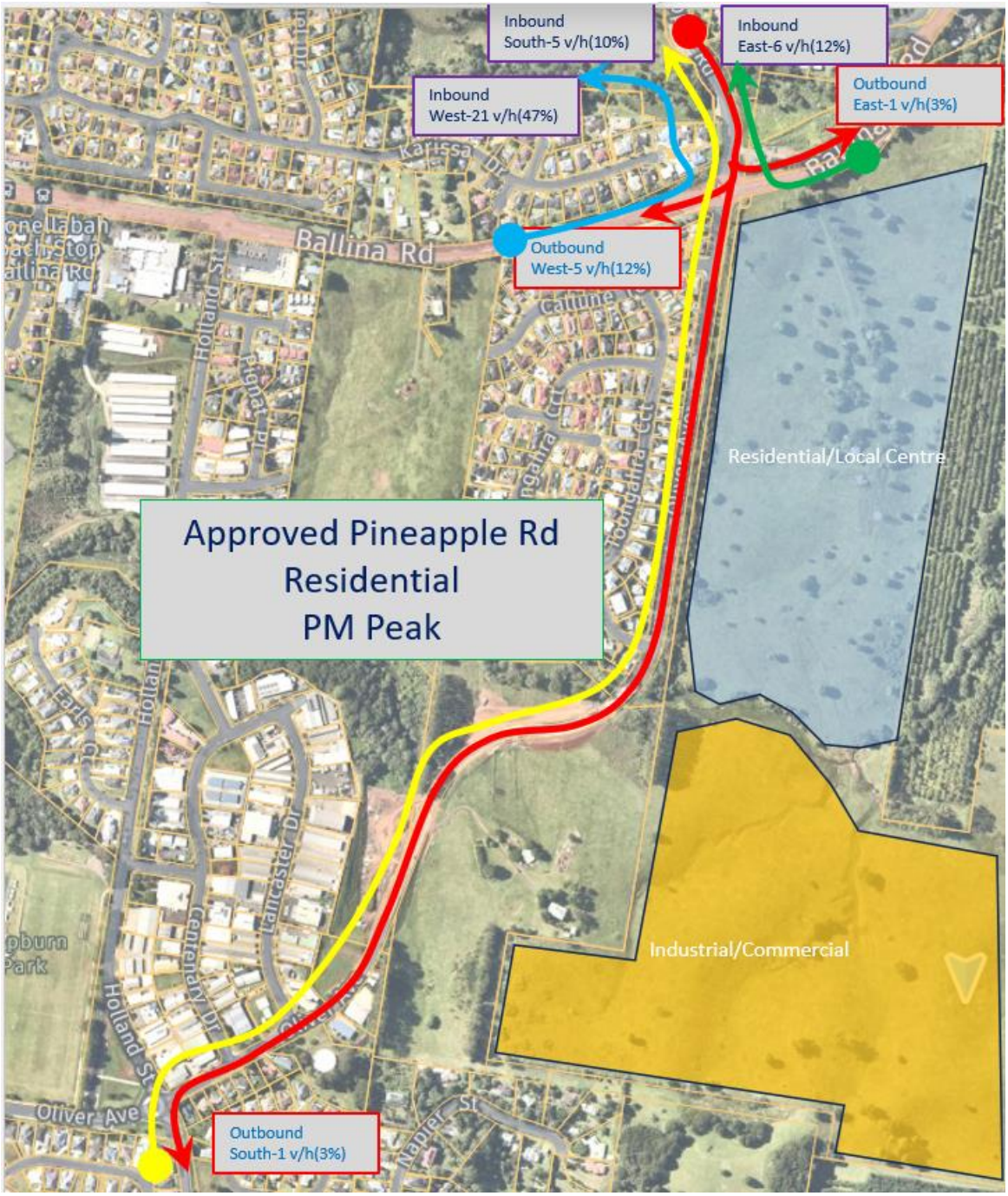


Figure 6.6: Trip Distribution Approved Pineapple Precinct PM Peak

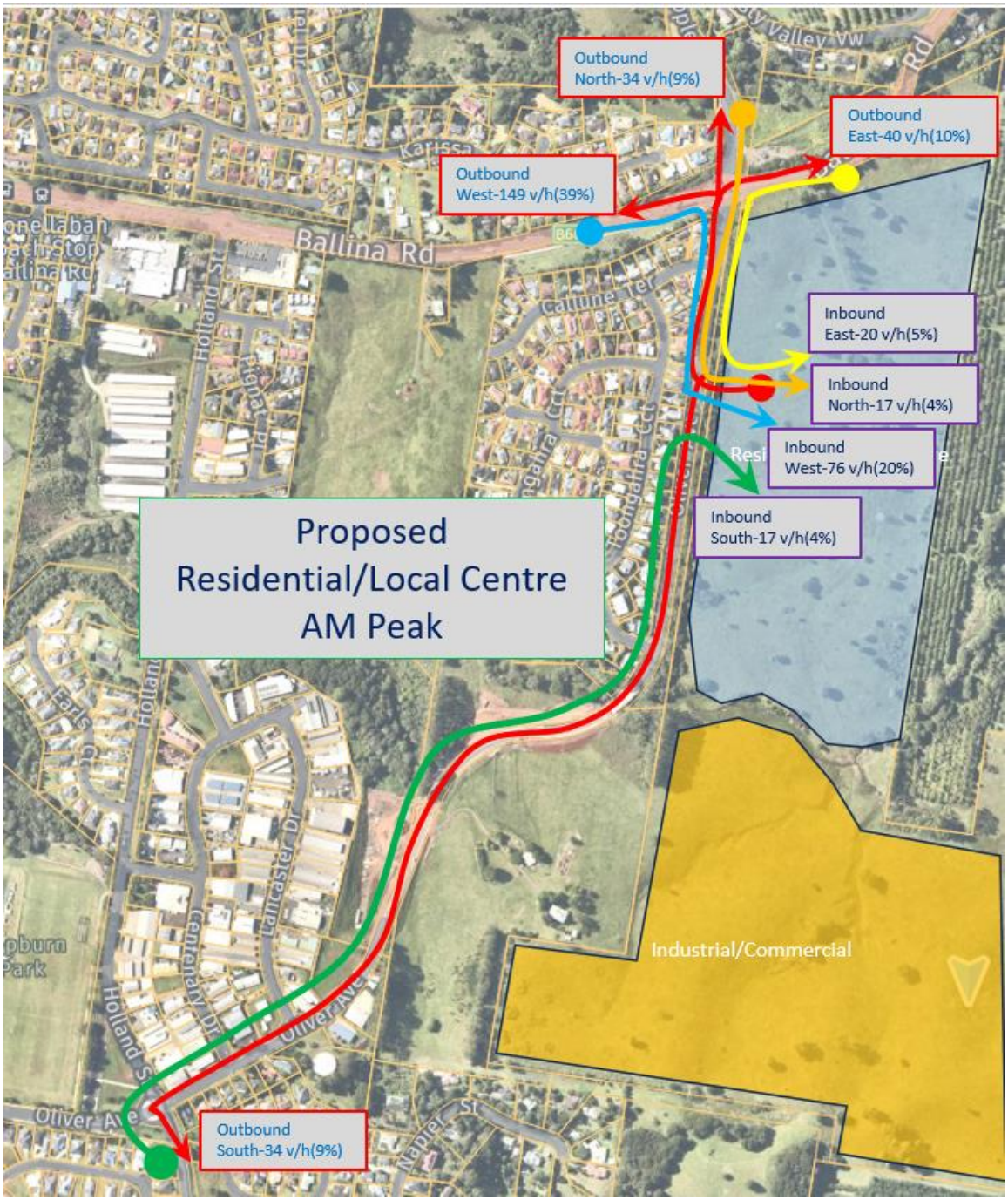


Figure 6.7: Trip Distribution Proposed Residential & Local Centre AM Peak

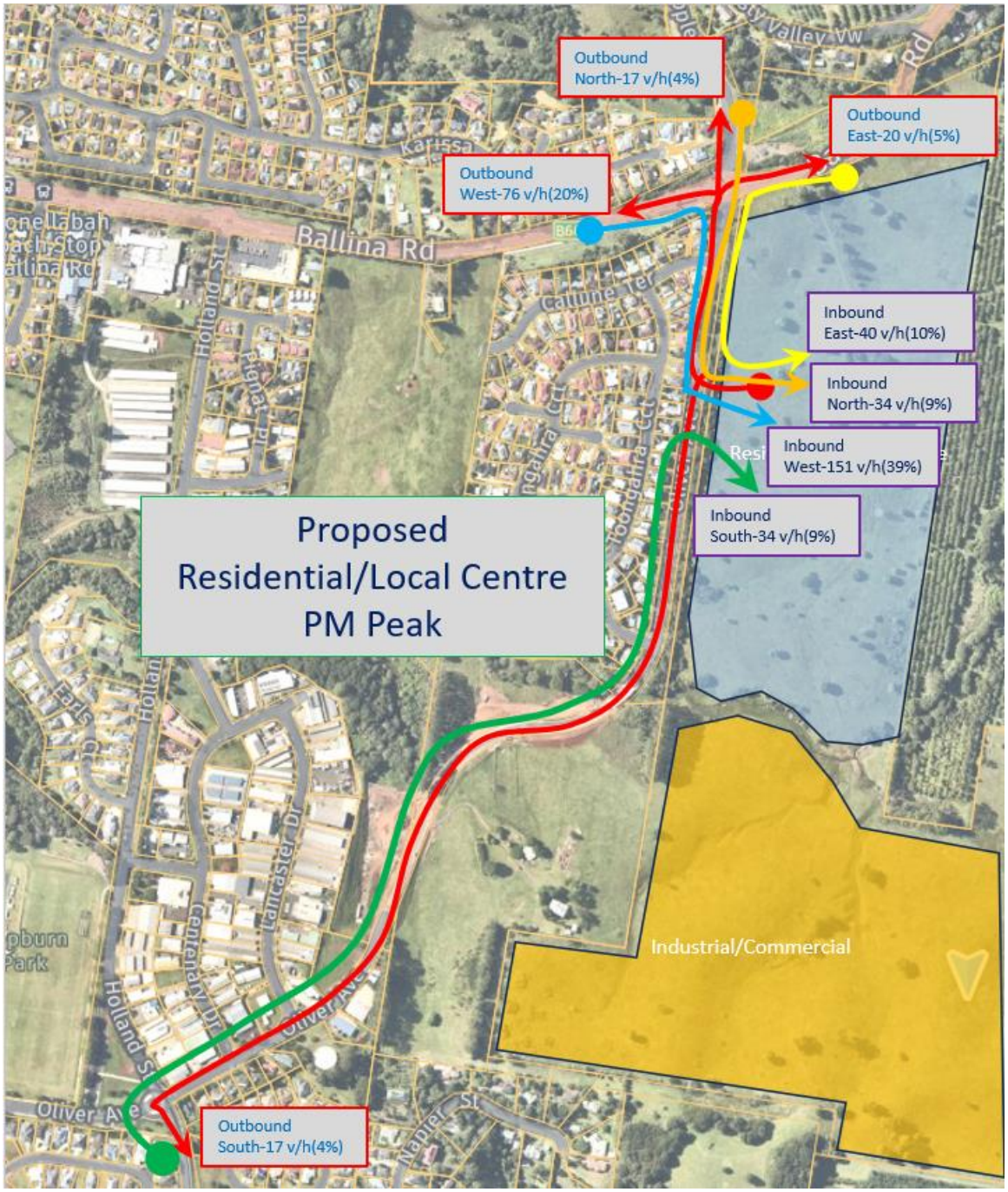


Figure 6.8: Trip Distribution Proposed Residential & Local Centre PM Peak

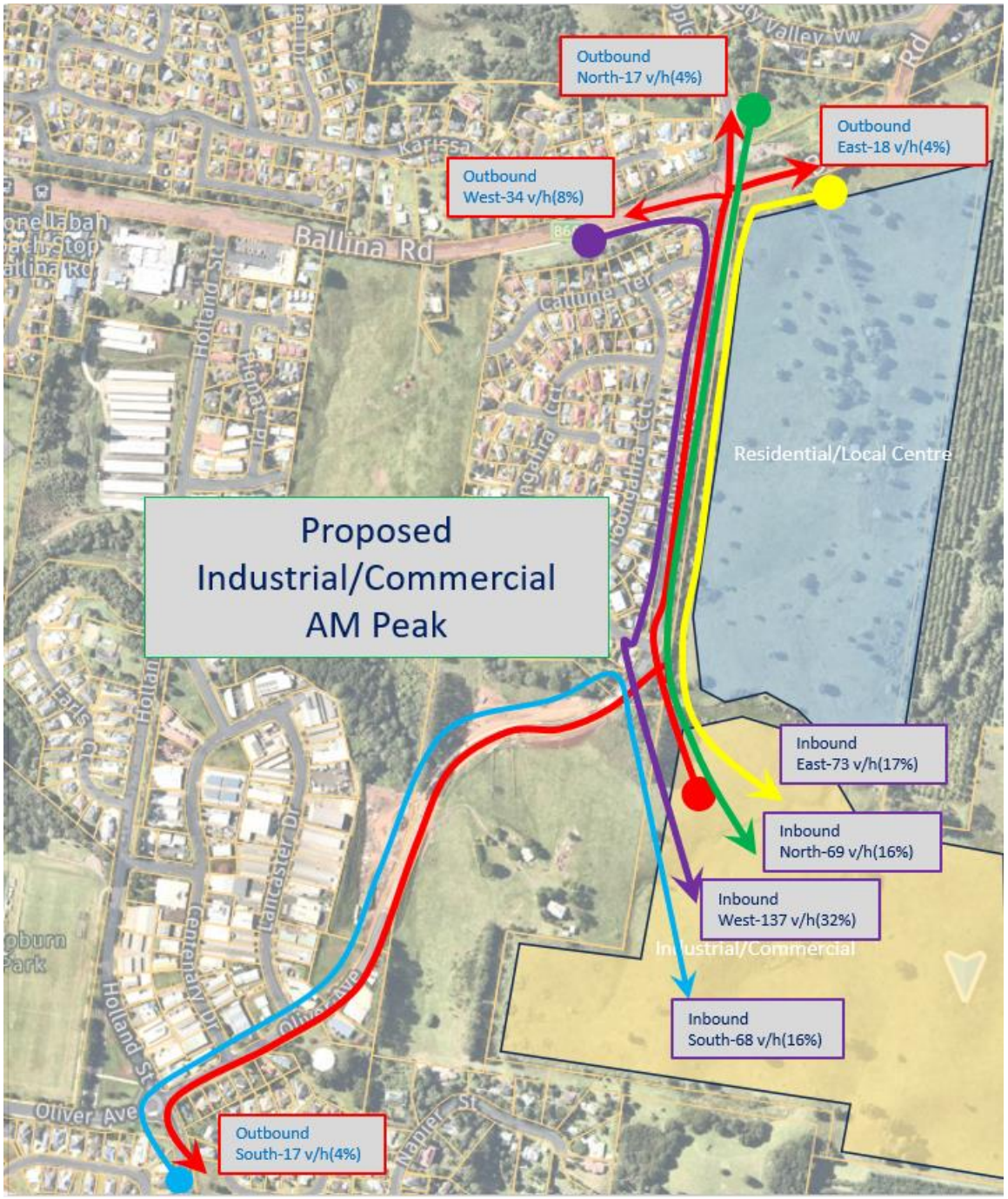


Figure 6.9: Trip Distribution Proposed Industrial & Commercial AM Peak

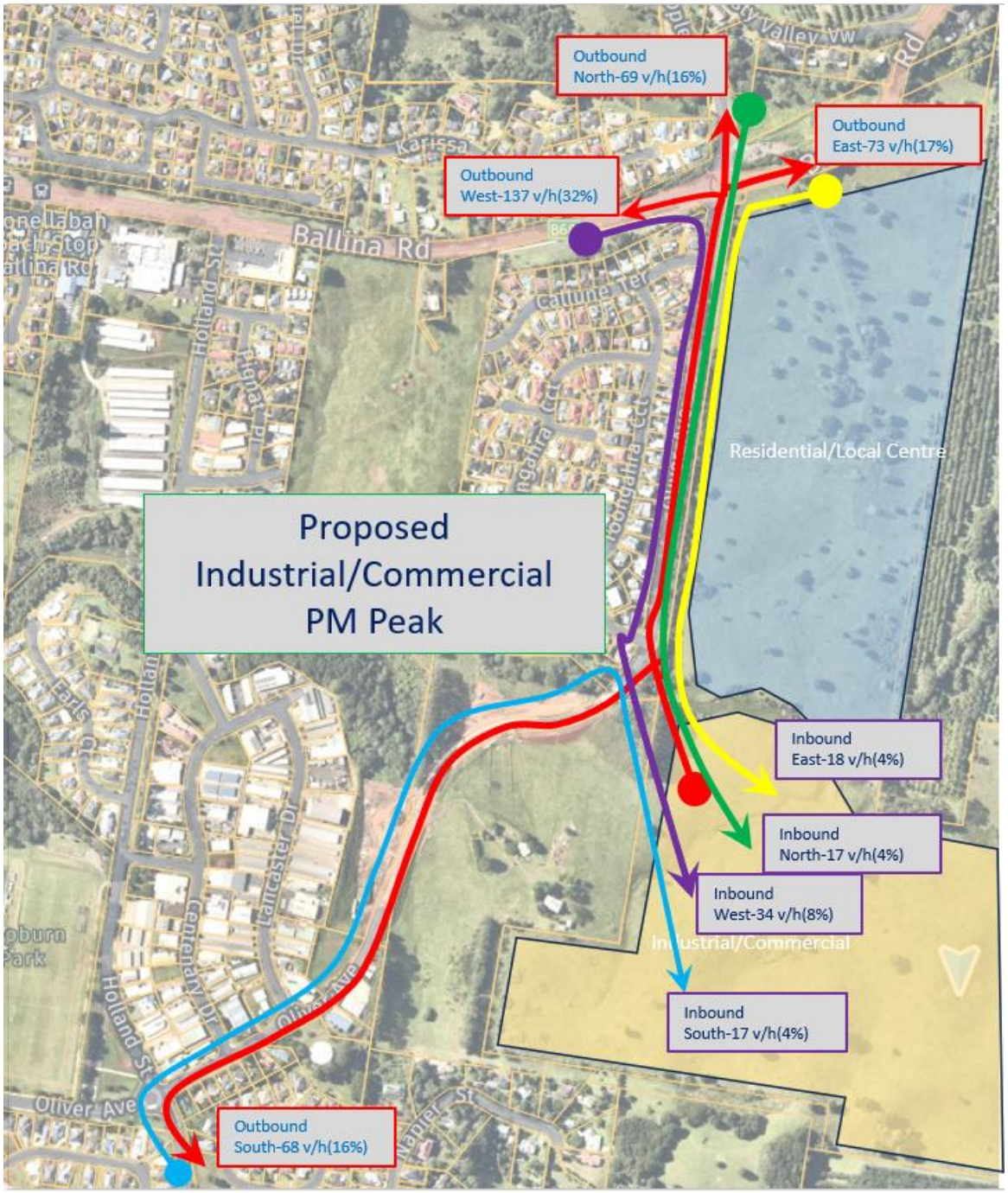


Figure 6.10: Trip Distribution Proposed Industrial & Commercial PM Peak

Consequently, with the existing trips redistributed, the trips generated by the proposed rezoning have been assigned to the surrounding network based on the methodology discussed above and using the journey to work distribution patterns as relevant to the type of land uses. The resultant traffic movements at the intersections along Oliver Avenue, including the proposed new access road intersections, have been shown in the following Figures 6.11 to 6.16 below.

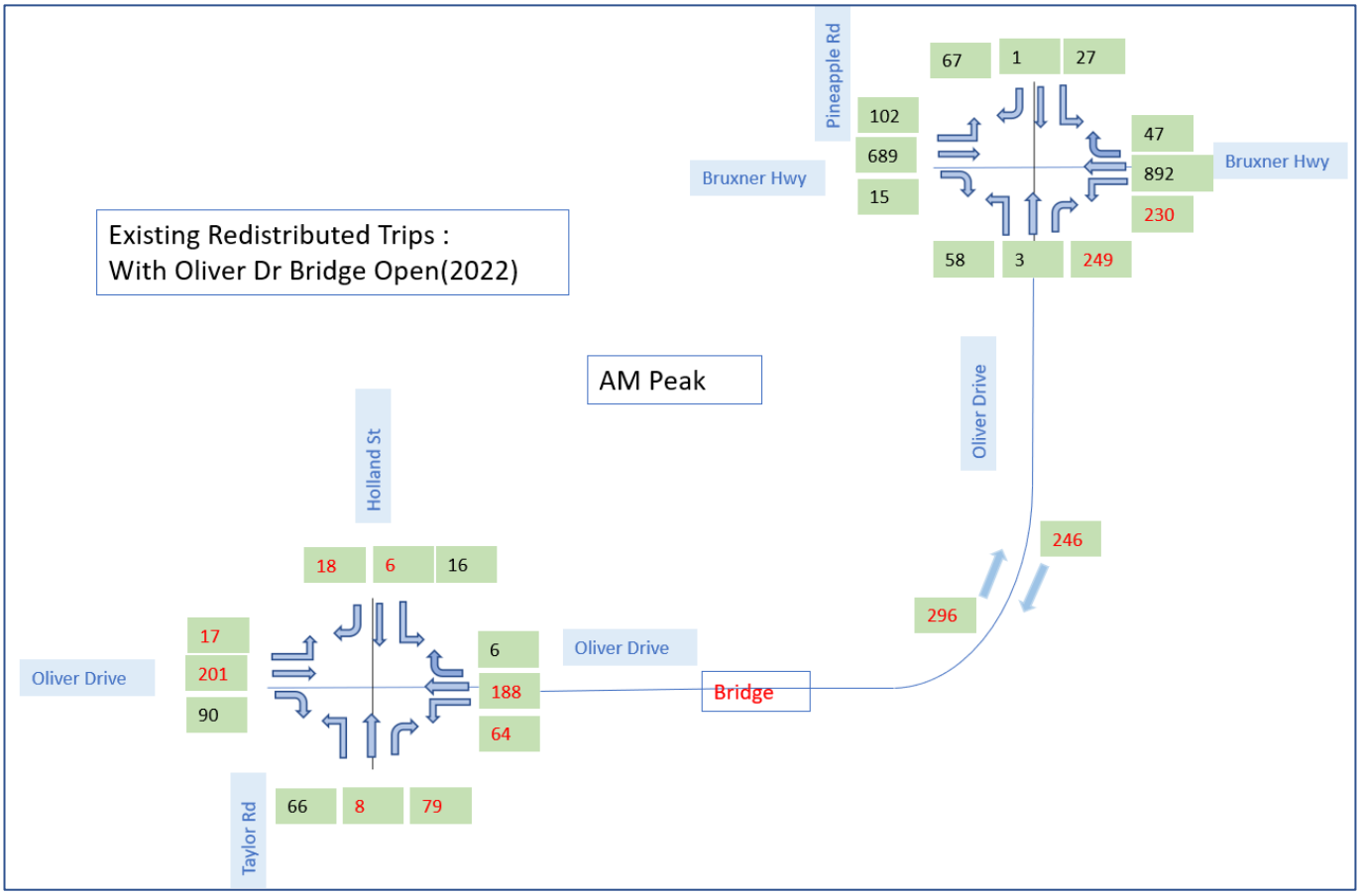


Figure 6.11: Existing redistributed trips (AM Peak)

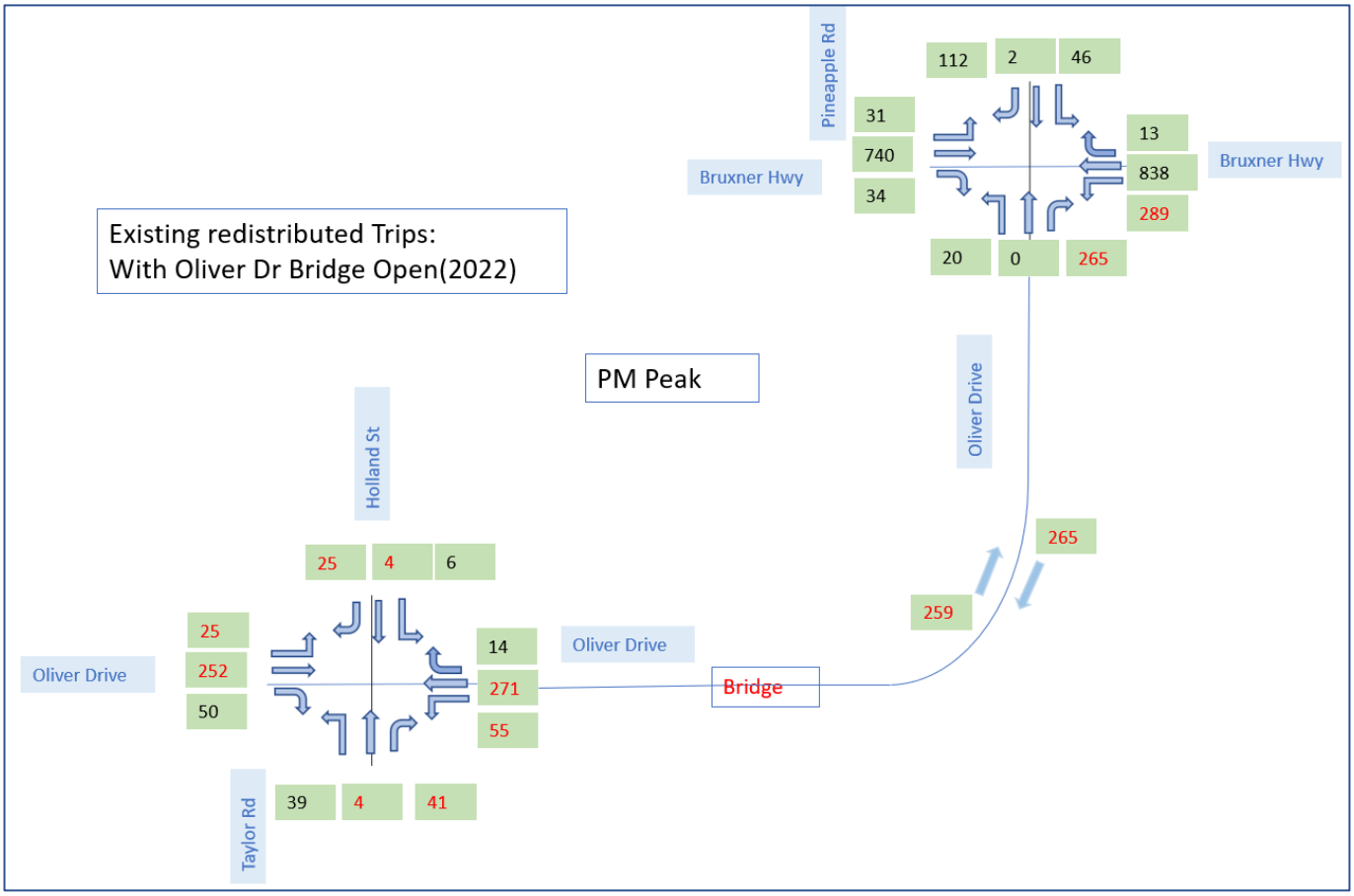


Figure 6.12: Existing redistributed trips (PM Peak)

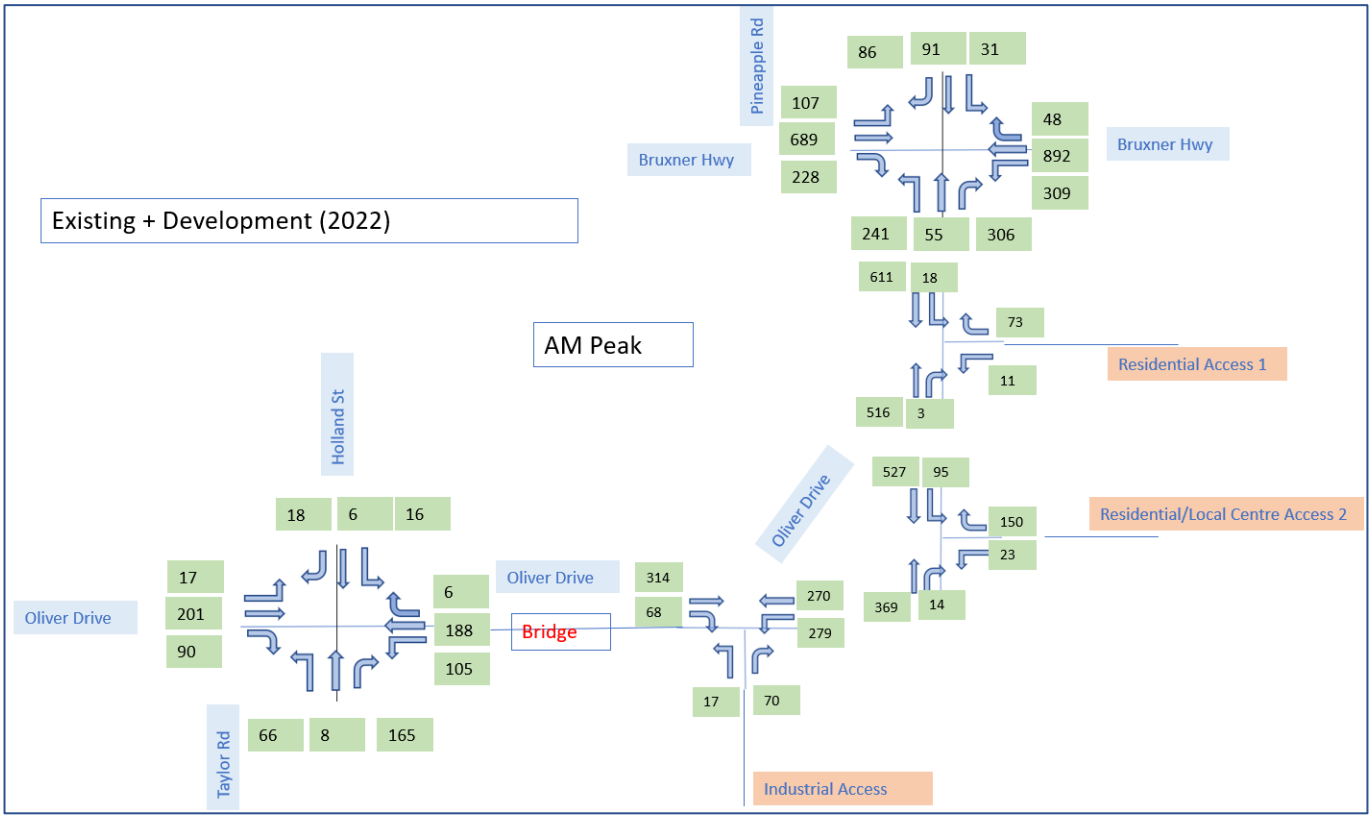


Figure 6.13: Existing + Development AM Peak (2022)

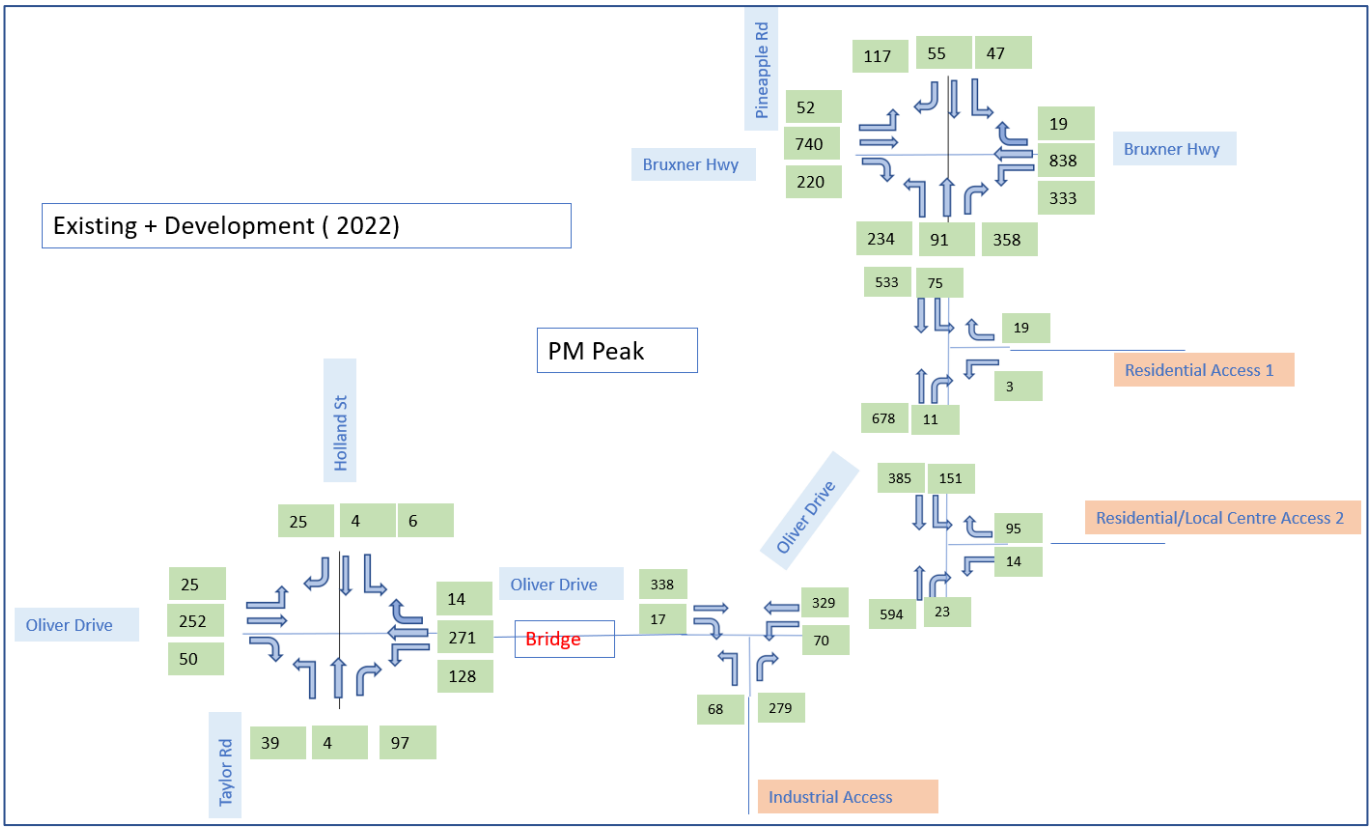


Figure 6.14: Existing + Development PM Peak (2022)

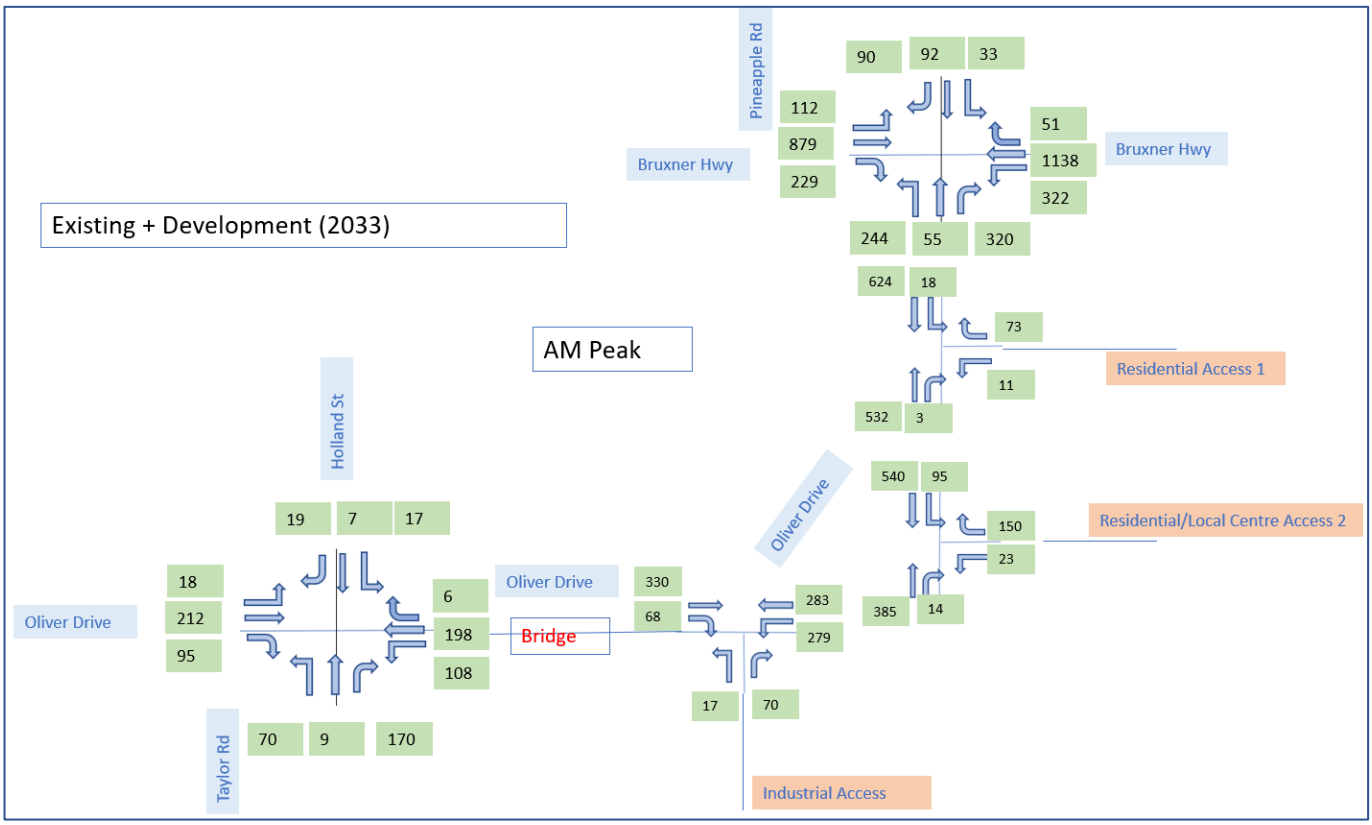


Figure 6.15: Existing + Development AM Peak (2033)

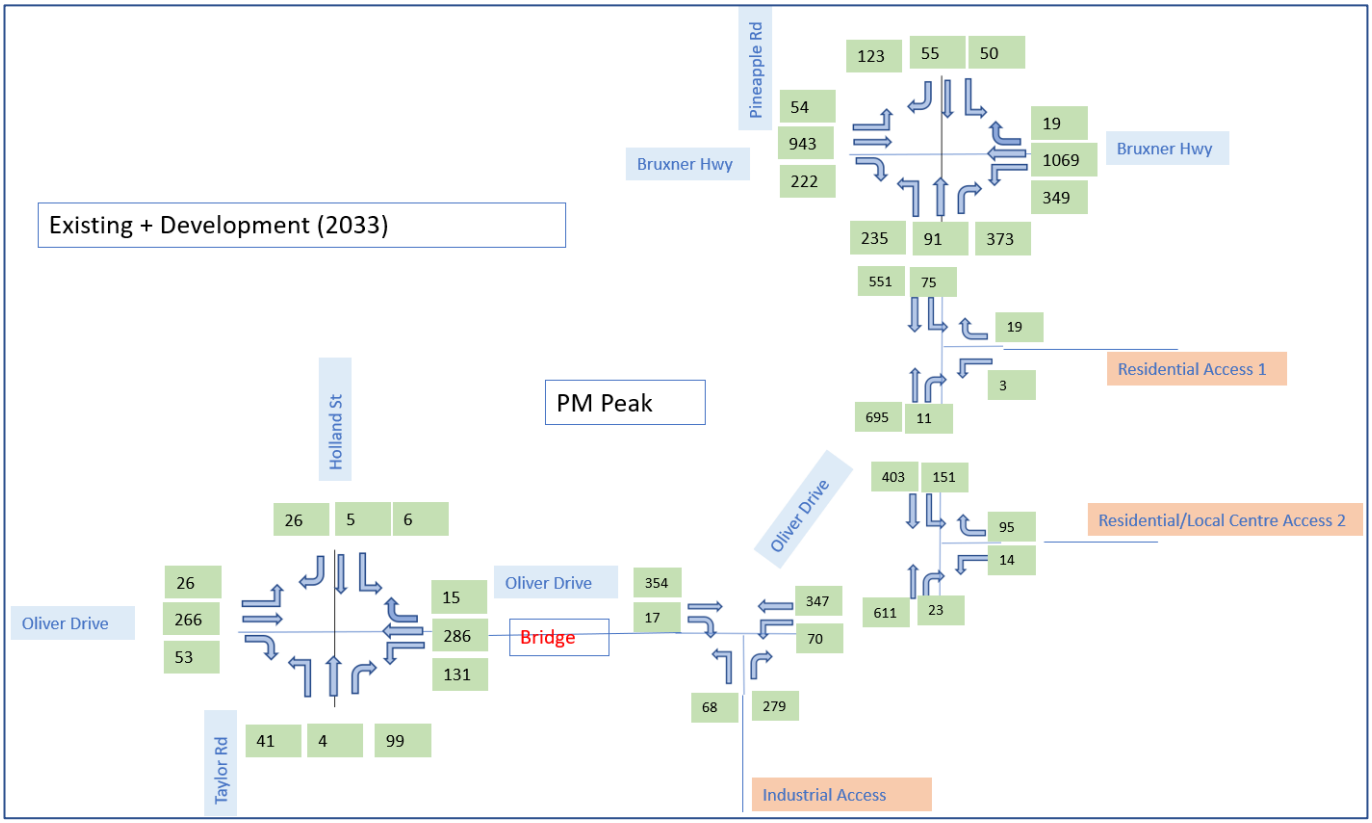


Figure 6.16: Existing + Development PM Peak (2033)

6.4 Mid-block Impact of Generated Traffic

The midblock capacity of an urban road and its relationship with the level of service has been identified in Table 4.4 of former RTA's "*Guide to Traffic Generating Developments -2002*" and stipulated below:

Table-6.5: Urban Road peak hour flows per direction

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

Source: Table 4.4: RTA's "*Guide to Traffic Generating Developments -2002*"

The proposed rezoning and construction of the new bridge in Oliver Avenue the has been projected to generate an estimated maximum of 642 veh/h in the AM peak and 714 veh/hr in the PM peak in year 2033. Such levels of traffic represent a Level of Service "C" with one traffic lane in each peak period. Therefore, the existing Oliver Avenue with one lane in each direction is capable of accommodating the proposed rezoning in a 10-year growth scenario.

6.5 Impact of Generated Traffic at Intersections

Intersection performance has been assessed using the SIDRA modelling software which uses the level of service (delay) model adopted by the Roads and Maritime Services (RMS) in NSW to assess intersection performance. Average delay is used to determine the level of service (LOS), which ranges from 'A' which is excellent service to 'F', with a LOS of 'D' being the minimum ideal performance.

The existing intersections with their current configurations as well as the proposed access road intersections with Oliver Avenue outlined at the start of Section 6 have been assessed for the year the development is complete and 10-year growth scenarios for AM and PM peak periods as per the methodology described in Section 6.3.

The differences in intersection performance between the existing, post the year the development is complete and 10-year growth scenarios are summarised in the tables below. SIDRA output reports are available in Appendix C.

Table 6.6: Bruxner Highway / Oliver Avenue SIDRA Modelling Summary

Bruxner Highway/ Oliver Avenue		Full development Stage		10-year growth scenario	
		Existing Conditions	Post Development Condition	Existing Conditions	Post Development Condition
AM	Delay (s)	7.0	19.2	8.4	52.2
	LOS	A	B	A	E
PM	Delay (s)	7.8	21.1	9.4	104.9
	LOS	A	C	A	F

Table 6.7: Oliver Avenue / Holland Street SIDRA Modelling Summary

Oliver Avenue/ Holland Street		Full development stage		10-year growth scenario	
		Existing Conditions	Post Development Condition	Existing Conditions	Post Development Condition
AM	Delay (s)	5.7	6.3	5.7	6.3
	LOS	A	A	A	A
PM	Delay (s)	5.0	5.5	5.1	5.5
	LOS	A	A	A	A

Table 6.8: Oliver Avenue / Residential Access 1 SIDRA Modelling Summary

Oliver Avenue/ Residential Access 1		Full development stage		10-year growth scenario	
		Existing Conditions	Post Development Condition	Existing Conditions	Post Development Condition
AM	Delay (s)	N/A	1.2	N/A	1.2
	LOS	N/A	A	N/A	A
PM	Delay (s)	N/A	0.5	N/A	0.8
	LOS	N/A	A	N/A	A

Table 6.9: Oliver Avenue / Residential/Local centre Access 2 SIDRA Modelling Summary

Oliver Avenue/ Residential/ Local Centre		Full development stage		10-year growth scenario	
		Existing Conditions	Post Development Condition	Existing Conditions	Post Development Condition
AM	Delay (s)	N/A	2.8	N/A	2.8
	LOS	N/A	A	N/A	A
PM	Delay (s)	N/A	2.3	N/A	2.3
	LOS	N/A	A	N/A	A

Table 6.10: Oliver Avenue / Industrial Access SIDRA Modelling Summary

Oliver Avenue/ Industrial Access		Full development stage		10-year growth scenario	
		Existing Conditions	Post Development Condition	Existing Conditions	Post Development Condition
AM	Delay (s)	N/A	3.3	N/A	3.2
	LOS	N/A	A	N/A	A
PM	Delay (s)	N/A	4.3	N/A	4.4
	LOS	N/A	A	N/A	A

As shown in the tables above, all the analysed intersections generally operate at high levels of service with acceptable average delays during the full development and 10-year growth scenarios with the additional development generated traffic except the intersection of Bruxner Highway and Oliver Avenue. This intersection is failing in the 10 year growth scenario.

The additional development generated traffic is expected to have only a minor impact on the queueing and delays experienced by motorists at the intersection of Oliver Avenue and Holland Street in the full development and future scenarios. Therefore, no modifications or improvements are required to the existing configurations of the intersections of Oliver Avenue and Holland Street.

The intersection analysis of the proposed access roads with Oliver Avenue also suggests that no more than one traffic lane in each direction is required in Oliver Avenue and no additional turn bays are required to accommodate the development traffic even in the 10-year growth scenario. These intersections can operate at an acceptable level of service as a priority controlled (sign controlled) intersections both in post development and 10-year growth scenarios.

From Table 6.6, Oliver Avenue and Bruxner Highway intersection is failing in the post development 10-year growth scenario with the PM Peak hour being the most critical. As a result, the following additional scenarios have been further analysed.

- Stage 1 and 2 of the development in year 2033
- Stage 1 and 2 of the development in year 2028
- Stage 1 of the development in year 2033
- Stage 1 of the development in year 2028

The differences in intersection performance between these scenarios are summarised in the table below:

Table 6.11: Bruxner Highway / Oliver Avenue SIDRA Modelling Summary

Bruxner Highway/ Oliver Avenue		2033		2028	
		Stage 1 + Stage 2	Stage 1 Only	Stage 1 + Stage 2	Stage 1 Only
AM	Delay (s)	26.0	14.8	17.1	11.6
	LOS	C	B	B	B
PM	Delay (s)	66.0	26.3	32.8	17.1
	LOS	E	C	C	B

From the above analysis in Table 6.11, stage 1 of the proposed rezoning would not require any modifications or improvements to the existing configurations of the Bruxner Highway and Oliver Avenue roundabout for 10-year growth scenarios until year 2033.

Similarly, stages 1 & 2 of the proposed rezoning would not require any modifications or improvements to the existing configurations of the intersection of Bruxner Highway and Oliver Avenue for 5-year growth scenarios until year 2028. After the five year stages 1 and 2 growth (2028) scenario consideration would need to be given to upgrade the roundabout by potentially providing two lanes north bound lanes of an estimated 150m in length in Oliver Avenue leading into the roundabout to enable the Bruxner Highway and Oliver Avenue roundabout to function adequately.

The addition of the two north bound lanes of an estimated 150m in length in Oliver Avenue leading into the roundabout would also be able to cater for the proposed stage 3 in the 10 year growth scenario.

6.6 Impact of Construction Traffic

The construction phase of the development will require the delivery of machinery, equipment and materials to the site by a range of heavy vehicles up to a 19 metre articulated vehicle. Access to and from the site will be restricted primarily to the major roads in the area, primarily Bruxner Highway and Oliver Avenue.

The management of construction traffic to and from the site will be provided in a separate Construction Traffic and Pedestrian Management Plan prepared as a requirement of a condition of consent at the Construction Certificate stage of any future subdivisions/developments at the site.

6.7 Consultation with Transport for NSW

6.7.1 Pre-lodgement meeting with TfNSW 26 August 2022

A meeting was held with Transport for NSW on Friday the 26th of August 2022. The following minutes of the meeting were prepared by Transport for NSW and issued on the same day:

- *LEP Making Guidelines, in particular Attachment B page 3 outlines matters for pre-lodgement consultation with TfNSW.*
  Link to Attachment B - https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/Attachment-B--Interim-Authority-and-Government-Agency-Planning-Proposal-PreLodgement-Referral-Checkl.pdf?la=en
- *TfNSW has funding committed to take the Bruxner Highway upgrade project through to Final Business Case. There is no current funding for construction.*

- *TfNSW has undertaken modelling to inform the Strategic Business Case and is able to share the base Sidra model for the intersection of Oliver Ave and Bruxner Highway with the applicant under a Deed.*
- *Applicant to undertake further modelling to identify capacity of existing roundabout to cater for the proposed development for a ten year design horizon and what, if any, intersection upgrades are required.*
- *There may be a need to model various scenarios to understand infrastructure requirements, in relation to staging of lot release, to facilitate the full development.*
- *Depending on the outcome of the modelling there may (or may not) be a need to secure infrastructure upgrades at specific staging triggers and this is best managed via a VPA.*

Next steps

1. *TfNSW to prepare the draft Deed Poll and forward to Finn with cc to Glenn, Scott and Abdun.*
2. *Signed Deed Poll to be return to TfNSW and TfNSW to share the base model.*
3. *BRS traffic consultant to prepare a scoping paper (including methodology, inputs, assumptions, scenarios, etc) for TfNSW review/agreement.*
4. *BRS to undertake traffic modelling and prepare Traffic Impact Assessment for review by TfNSW. Note it may be worthwhile meeting again for BRS to share the outcomes of the modelling prior to completing the report.*

TfNSW encourages Council and the Proponent to complete scoping of traffic and transport impacts prior to the Gateway Determination to provide certainty of infrastructure requirements and an understanding of any agreements required to support the PP.

BRS comments

In accordance with TfNSW request, we have undertaken additional modelling of various growth scenarios and prepared a Traffic and Transport Study, including our scoping, outlining the results. This will assist TfNSW in their assessment of the traffic impacts of the proposed re-zoning on the Bruxner Highway.

Please note that at the time of writing this study we did not have TfNSW's base Sidra model for the intersection of Oliver Ave and Bruxner Highway available, we therefore undertook our own traffic counts and SIDRA modelling with the outcome of our traffic impact assessment outlined in Section 6 of this report.

6.7.2 Additional comments from TfNSW dated 10 July 2023.

On 10 July 2023, TfNSW provided the following response to BRS queries (dated 20 June 2023):

TfNSW has reviewed the submitted information and provides the following advice/comment to your questions.

- *TfNSW does not have a SIDRA modelling of Bruxner Highway and Oliver Avenue roundabout available to share at this stage.*
- *2.5% linear growth rate on Bruxner Highway through movement is adopted by TfNSW for Bruxner Highway Upgrade (W2G) Project and is considered appropriate for this planning proposal for consistency. For local road movement, 0.5% linear growth rate is adopted.*
- *The SIDRA modelling inaccurately models two full length travel lanes on all approaches whilst the existing road configuration shows Bruxner Highway/Oliver Avenue/ pineapple Road are generally configured with one full length travel lane in each direction with additional turning lane and acceleration lane provided on all approaches when approaching/exiting the roundabout. Therefore, it is advised that the SIDRA modelling should be updated reflecting the existing road configuration for proper assessment.*

- *It is recommended that a scoping study or a draft TIA to be prepared and reviewed by TfNSW prior to modelling. This will help proponent stand in good stead when the TIA and SIDRA modelling are formally lodged for assessment. The scoping paper/draft TIA should identify the inputs, assumptions and methodology, including traffic data to be used, traffic generation, traffic distribution, background growth, modelling scenarios and staging options (with a view to determining infrastructure required for relevant stages of development).*

BRS comments

With respect to TfNSW comments above.

As TfNSW does not have SIDRA available we undertook SIDRA modelling for the Bruxner Highway and Oliver Avenue roundabout for the following scenarios:

- Existing
- existing + developed and
- existing + developed + 10 year growth scenarios.

A 2.5% linear growth rate on Bruxner Highway through movement and 0.5% linear growth rate for local road movement was applied to the SIDRA modelling.

The SIDRA model was re-done to take into account the existing road configuration with Bruxner Highway/Oliver Avenue/ pineapple Road being generally configured with one full length travel lane in each direction with additional turning lane and acceleration lane provided on all approaches when approaching/exiting the roundabout.

This updated Draft Traffic and Transport Study has been prepared by TfNSW's review. Section 6 Traffic Impact Assessment outlines the inputs, assumptions and methodology, including traffic data used, traffic generation, traffic distribution, background growth, modelling scenarios and staging options (with a view to determining infrastructure required for relevant stages of development).

7 Conclusion

This Traffic and Transport Study has been prepared in accordance with the requirements of the Lismore City Council DCP and the Roads and Maritime Services (RMS) 'Guide to Traffic Generating Developments' for a rezoning proposal. The proposal comprises of 332 residential lots, 23 hectares of industrial land, 2.4 hectares of business land, 5,000m² of local centre land and 14 hectares of Open Space.

The Bruxner Highway currently runs through the site, with new collector roads and local roads being established within the site with access facilitated from Oliver Avenue. Note there will be no direct vehicle access from Bruxner Highway, it is proposed to provide three new intersections off Oliver Avenue to enable vehicle access to the site.

The internal street hierarchy will be established based on Lismore's DCP 2012 for Local Streets, Access Places and Lanes (where relevant). This will be determined as part of the future Development Control Plan for the site.

It is proposed to provide pedestrian and bicycle links along the length of Oliver Avenue from the Bruxner Highway in the north and to Holland Street/Taylor Road to the south. This will enable the proposed rezoned land to have pedestrian and bicycle links to an any existing or future pedestrian and bicycle paths in Bruxner Highway and Oliver Avenue to the south west of Holland Street/Taylor Road.

The traffic impact of the proposed rezoning on the surrounding road network was assessed for various growth scenarios using SIDRA Intersection modelling software at the following intersections:

- Bruxner Highway / Oliver Avenue;
- Oliver Avenue / Holland Street;
- Three new proposed intersections

The proposed rezoning when fully developed (stages 1, 2 and 3) it is estimated to generate an additional 864 trips and 869 trips during the AM and PM peak, respectively. SIDRA intersection analysis indicates all the analysed intersections outlined above generally operate at high levels of service with acceptable average delays.

However some modification or upgrades to its current configuration will be required at the roundabout of Bruxner Highway and Oliver Drive to cater for the 10-year growth scenarios.

Stage 1 of the proposed rezoning would not require any modifications or improvements to the existing configurations of the intersections of Bruxner Highway and Oliver Avenue for 10-year growth scenarios until year 2033.

Similarly, stages 1 & 2 of the proposed rezoning would not require any modifications or improvements to the existing configurations of the intersection of Bruxner Highway and Oliver Avenue for 5-year growth scenarios until year 2028. After the five year stages 1 and 2 growth (2028) scenario consideration would need to be given to upgrade the roundabout by potentially providing two lanes north bound lanes of an estimated 150m in length in Oliver Avenue leading into the roundabout to enable the Bruxner Highway and Oliver Avenue roundabout to function adequately.

The addition of the two north bound lanes of an estimated 150m in length in Oliver Avenue leading into the roundabout would also be able to cater for the proposed stage 3 in the 10 year growth scenario.

The intersection analysis of the proposed access roads with Oliver Avenue also suggests one traffic lane in each direction is sufficient to cater for the future development traffic in Oliver Avenue. These intersections

can operate at an acceptable level of service as a priority controlled (sign controlled) intersections both in post development and 10-year growth scenario.

The Traffic and Transport Study concludes that the subject site is suitable for the proposed rezoning as a staged development in relation to the impact of traffic. The proposed re-zoning as a staged development is considered to have negligible effect on the operating outcome of the surrounding transport network.

8 References

Australian Standards, '*AS/NZS 2890.1:2004 Off-Street Car Parking*'.

Australian Standards, '*AS 2890.2:2018 Off-Street Commercial Vehicle Facilities*'.

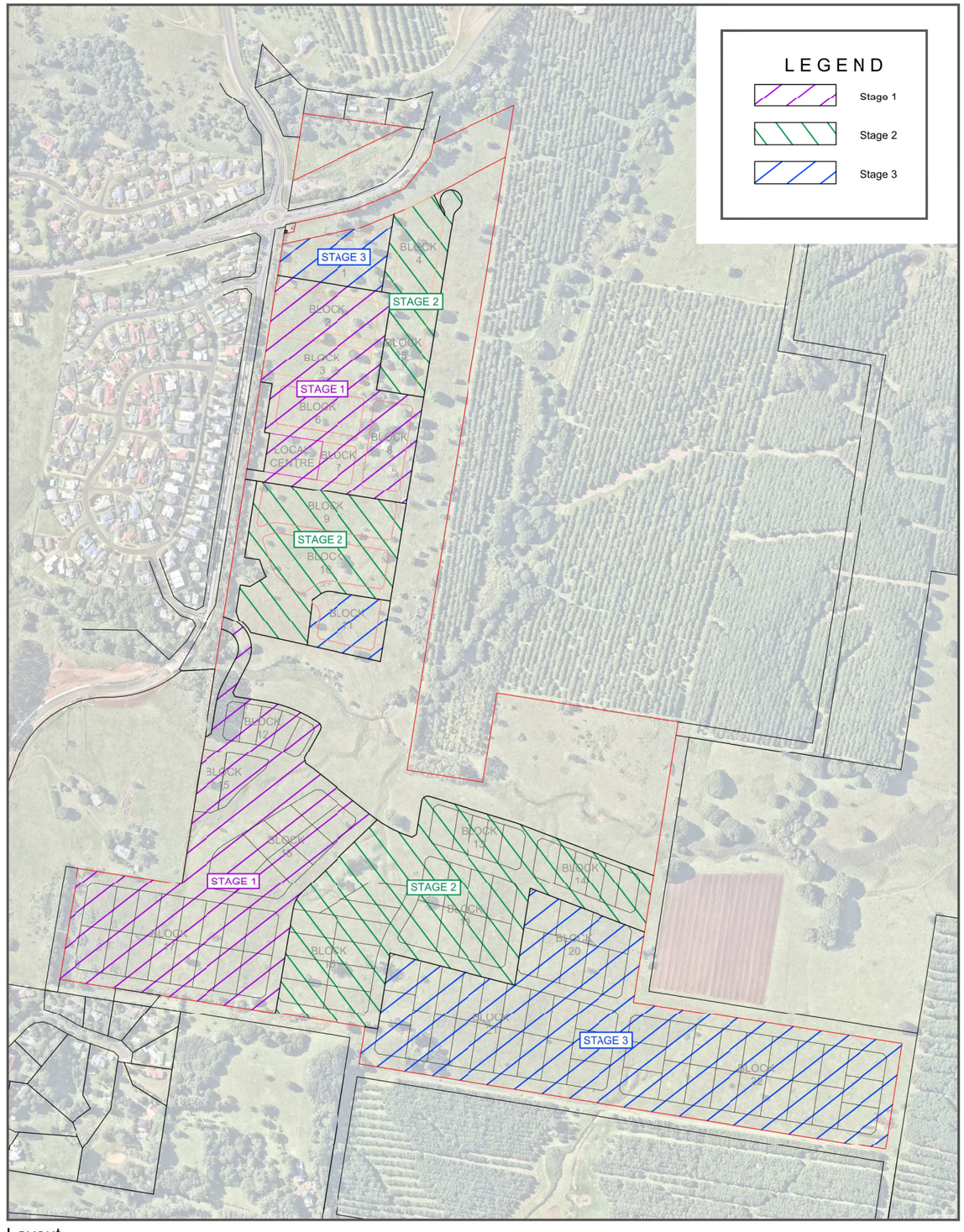
Australian Standards, 'AS/NZS 2890.6:2002 Off-Street Parking for People with Disabilities'.

Roads and Maritime Services, '*Guide to Traffic Generating Developments*' Version 2.2 dated October 2002.

NSW Department of Planning, '*SEPP (Infrastructure) 2007*'.

Lismore Development Control Plan (2012) and Land Environment Plan (2012).

Appendix A – Staging Plan and Indicative Lot Yield



Layout

Scale @ A1 1:4000

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METRES

Indicative Development Staging

Land use	Nominal lot area (m²) Block no.	Area (m²)	600 Low Density	200 Med Density	1500 Business	2500 Industrial	Total
Stage 1							
	2	9,824	16				16
	3	9,824	16				16
	6	7,888		39			39
	7	3,279		16			16
	8	8,047		40			40
Residential total		38,862	32	95			127
	12	8,441			5		5
	15	7,150				2	2
	16	21,170				8	8
	17	40,497				16	16
Employment total		77,258			5	26	31
	LC1	4,972					
Commercial total		4,972					
Stage 1 total		121,092	32	95	5	26	158

Land use	Nominal lot area (m²) Block no.	Area (m²)	600 Low Density	200 Med Density	1500 Business	2500 Industrial	Total
Stage 2							
	4	8,951	14				14
	5	8,148	13				13
	9	12,739		63			63
	10	12,383		61			61
Residential total		42,221	27	124			151
	13	8,929			5		5
	14	10,130			6		6
	18	25,813				10	10
	19	21,472				8	8
	20	20,221				8	8
Employment total		86,565			11	26	37
Stage 2 total		128,786	27	124	11	26	188

Land use	Nominal lot area (m²) Block no.	Area (m²)	600 Low Density	200 Med Density	1500 Business	2500 Industrial	Total
Stage 3							
	1	10,448	17				17
	11	7,417		37			37
Residential total		17,865	17	37			54
	21	51,768				20	20
	22	50,224				20	20
Employment total		101,992				40	40
Stage 3 total		119,857	17	37		40	94

REV	AMENDMENT	ISSUED	DATE

BARKER RYAN STEWART
SYDNEY P: 02 9659 0005
CENTRAL COAST P: 02 4325 5255
HUNTER P: 02 4966 8388
S.E. QLD P: 07 5582 6555
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ABN: 26 134 067 842

ENGINEERING | PLANNING | PROJECT MANAGEMENT | SURVEYING | CERTIFICATION

Client: Nimble Estates

PLANNING PROPOSAL
1055 BRUXNER HIGHWAY, GOONELLABAH
Indicative Staging Plan

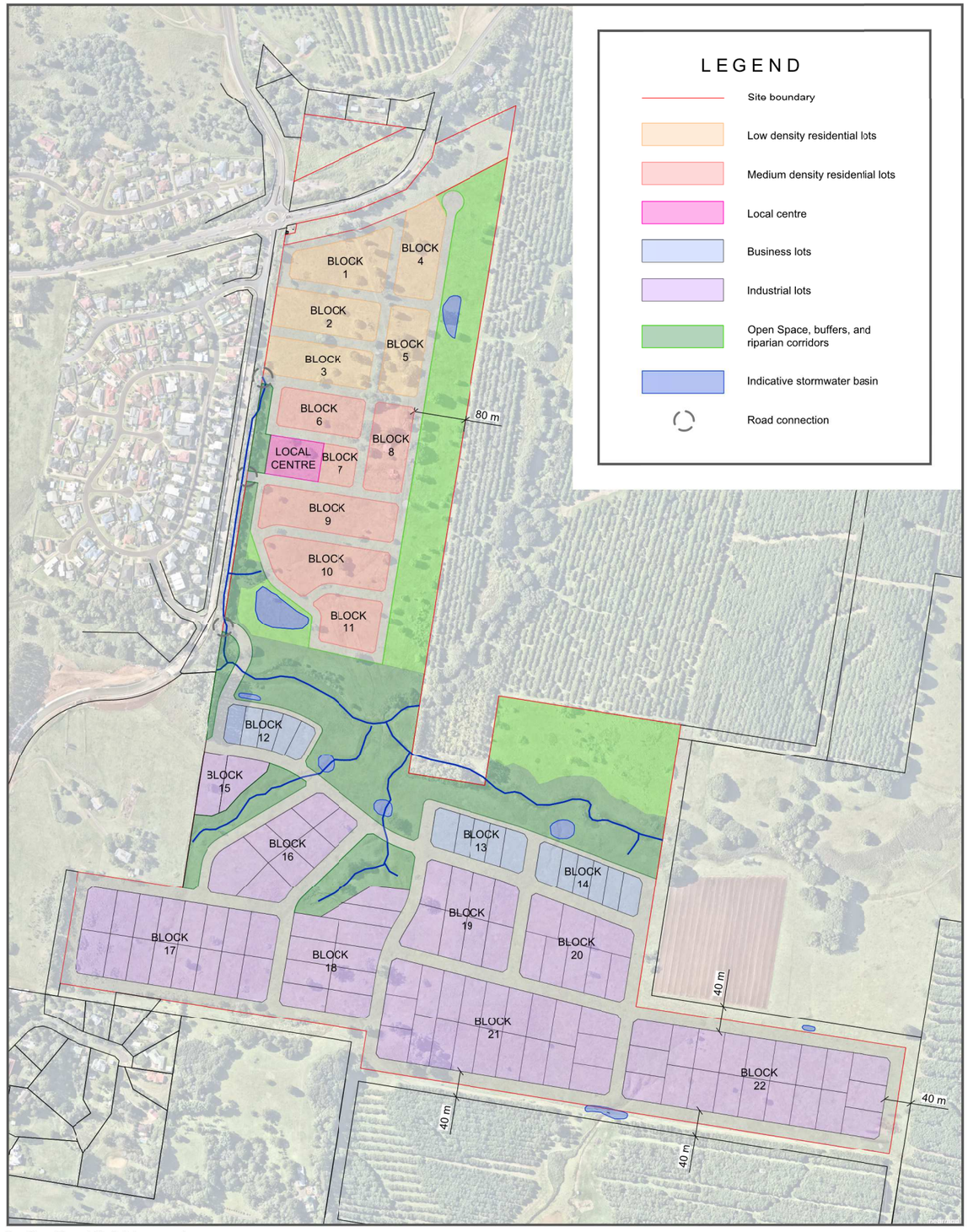
Designed: CH
Drawn: CH
Checked: CH

Scales: @A1 Plan - Horiz. - Vert. - X-Sect. - Refer Plan

Datum:

Plan No. 220615-01-300
File Ref. 200615-D008 Bruxner
REV.

File ref: 200615-D008 Bruxner Plotted: 14/06/2023 3:45 PM



Indicative Yield Layout

Scale @ A1 1:4000

80 0 80 160 240 320 400 1:4000
METRES

Indicative Lot Yield

Land use	Block no.	Stage	Nominal lot area (m²) Area (m²)	600 Low Density	200 Med Density	Total
Residential						
	1	3	10,448	17		17
	2	1	9,824	16		16
	3	1	9,824	16		16
	4	2	8,951	14		14
	5	2	8,148	13		13
	6	1	7,888		39	39
	7	1	3,279		16	16
	8	1	8,047		40	40
	9	2	12,739		63	63
	10	2	12,383		61	61
	11	3	7,417		37	37
	Residential total		98,948	76	256	332

Land use	Block no.	Stage	Nominal lot area (m²) Area (m²)	1500 Business	2500 Industrial	Total
Employment						
	12	1	8,441	5		5
	13	2	8,929	5		5
	14	2	10,130	6		6
	15	1	7,150		2	2
	16	1	21,170		8	8
	17	1	40,497		16	16
	18	2	25,813		10	10
	19	2	21,472		8	8
	20	3	20,221		8	8
	21	3	51,768		20	20
	22	3	50,224		20	20
	Employment total		265,815	16	92	108

Commercial			
	LC1	1	4,972
	Commercial total		4,972

REV	AMENDMENT	ISSUED	DATE

BARKER RYAN STEWART
ENGINEERING | PLANNING | PROJECT MANAGEMENT | SURVEYING | CERTIFICATION
SYDNEY P: 02 9659 0005
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www.brs.com.au
mail@brs.com.au
ABN: 26 134 067 842

Client: Nimble Estates

PLANNING PROPOSAL
1055 BRUXNER HIGHWAY, GOONELLABAH

Indicative Yield Plan

Designed: CH
Drawn: CH
Checked: CH

Scales: @A1 Plan - Horiz. - Vert. - X-Sect. - Refer Plan
Datum:

Plan No. 220615-01-100
File Ref. 200615-D008 Bruxner REV.

File ref: 200615-D008 Bruxner Plotted: 14/06/2023 3:45 PM

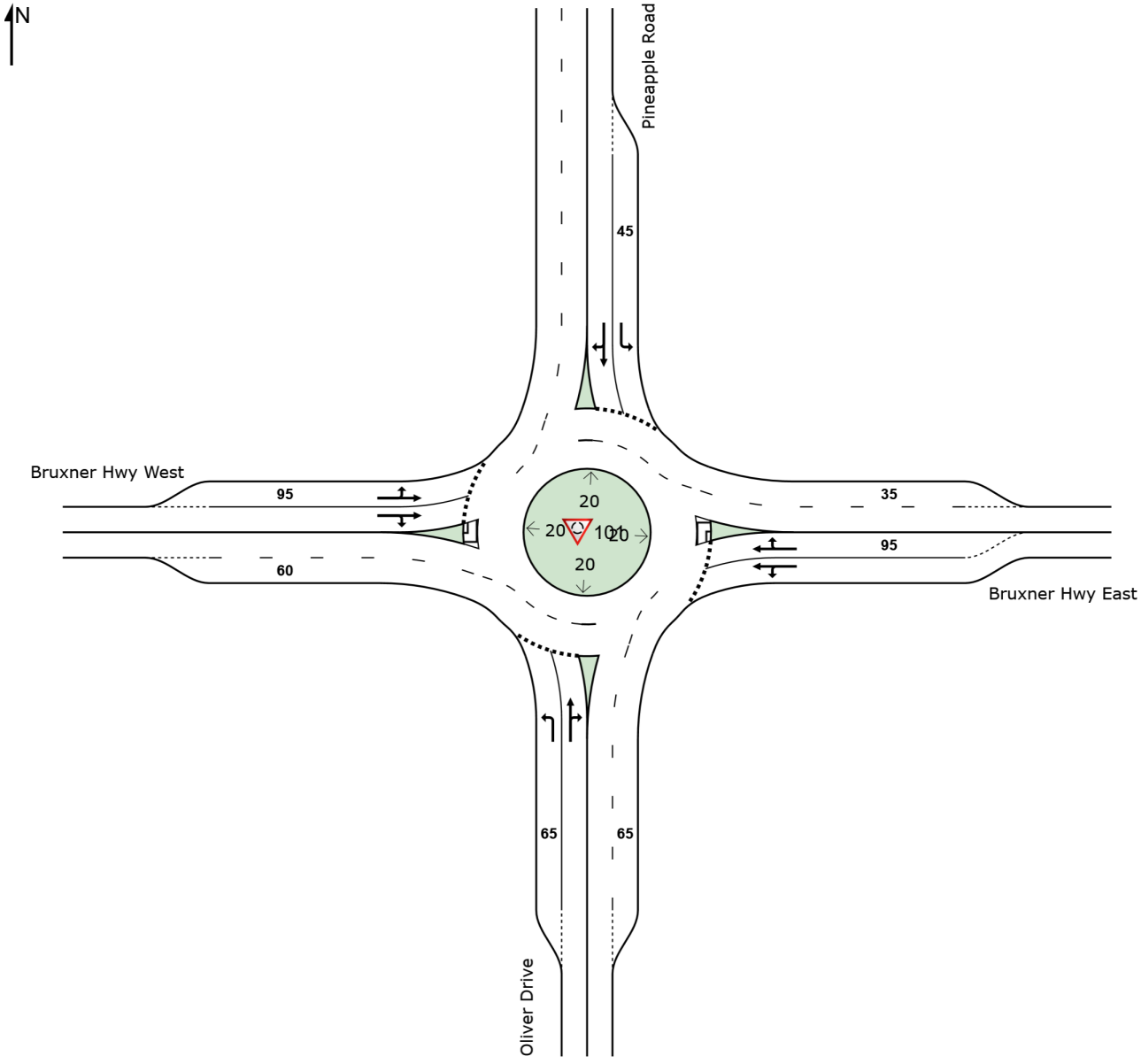
Appendix B - Traffic Network Diagrams

SITE LAYOUT

Site: 101 [Bruxner Hwy/Oliver Drive_Existing Redistributed_AM(2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

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

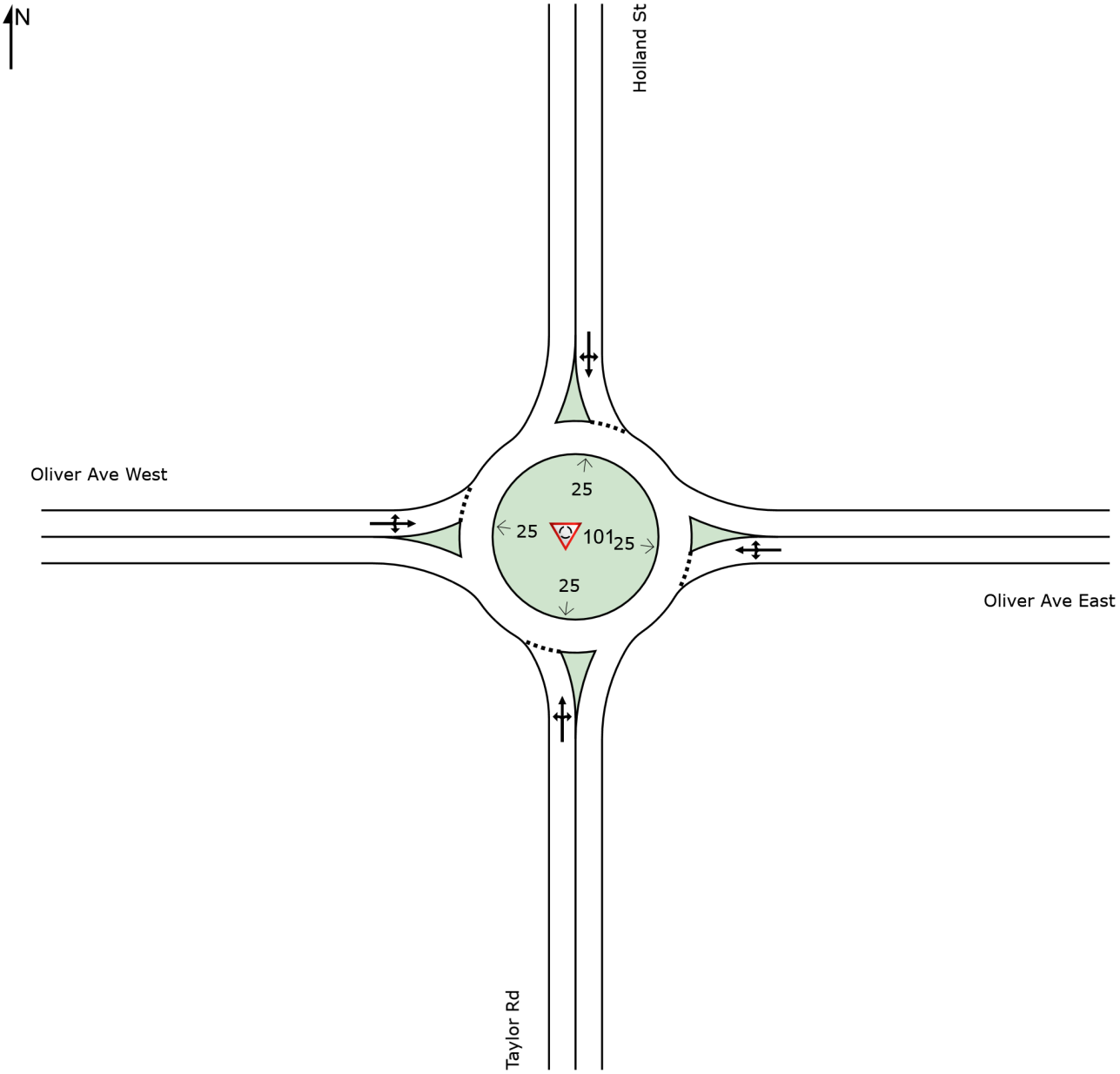


SITE LAYOUT

Site: 101 [Holland St/Oliver Drive_Existing Redistributed_AM (2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

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

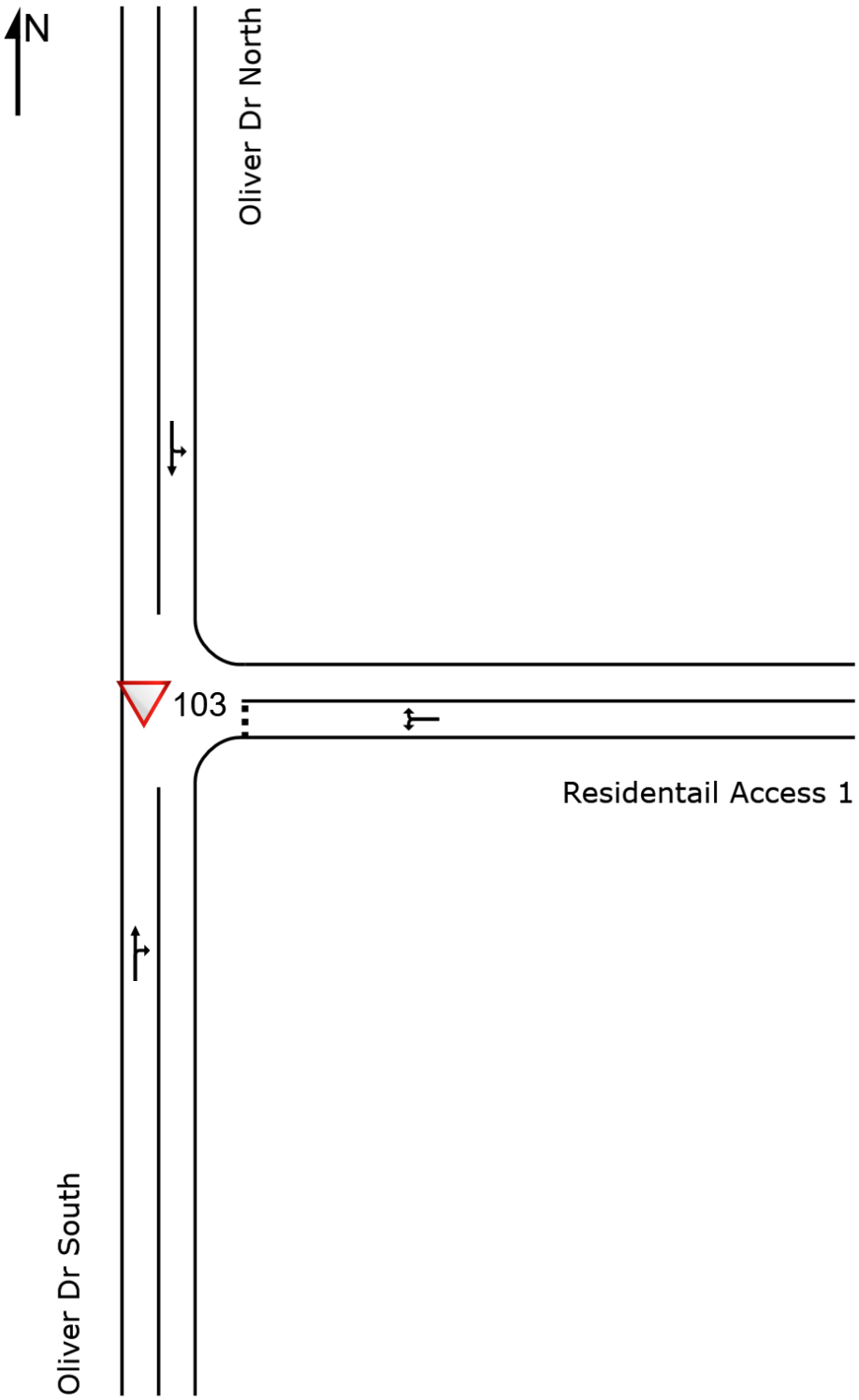


SITE LAYOUT

Site: 103 [Residentail Accees 1_AM(2022) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

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

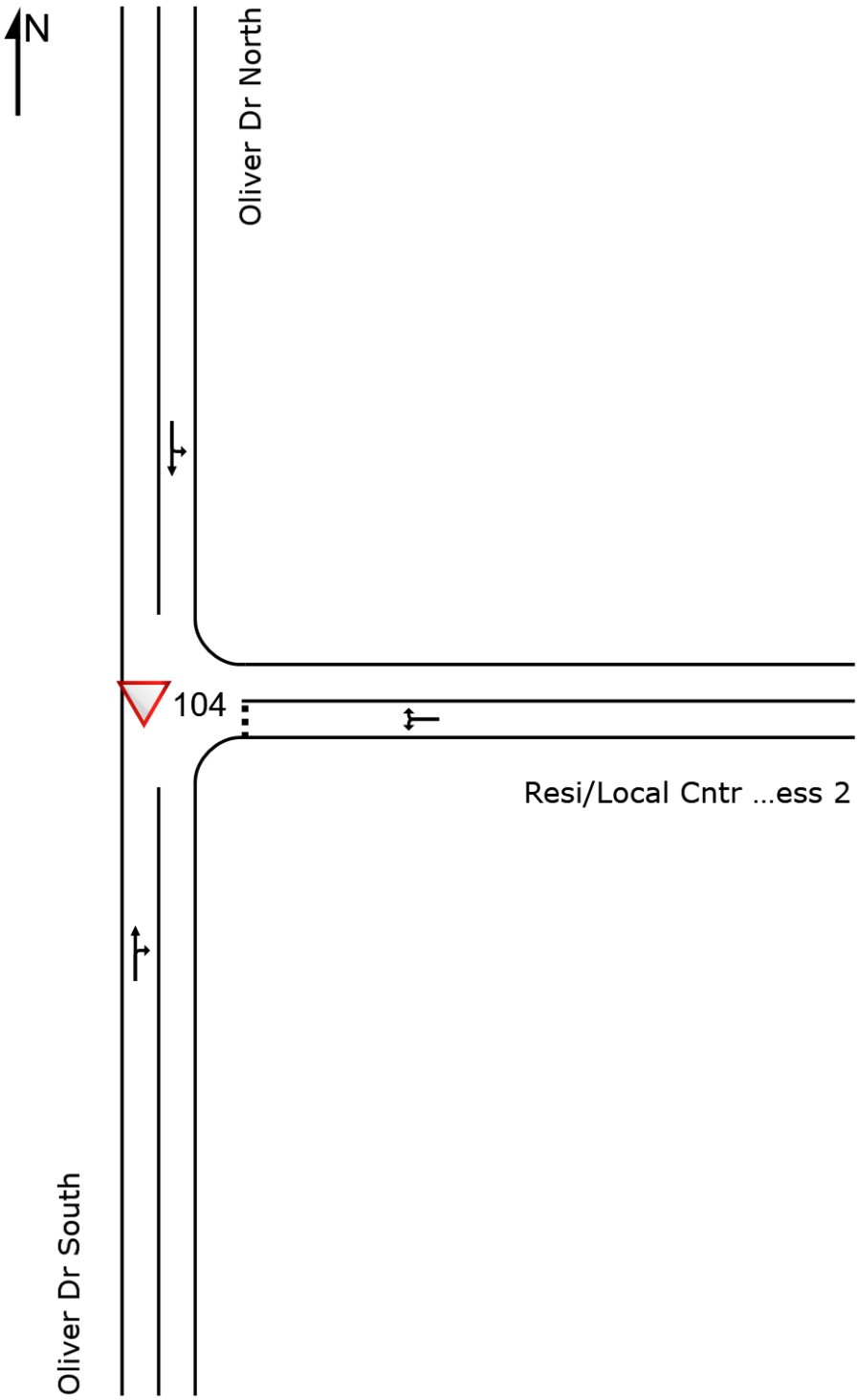


SITE LAYOUT

Site: 104 [Residentail/Local Centre Accees 2_AM(2022) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

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

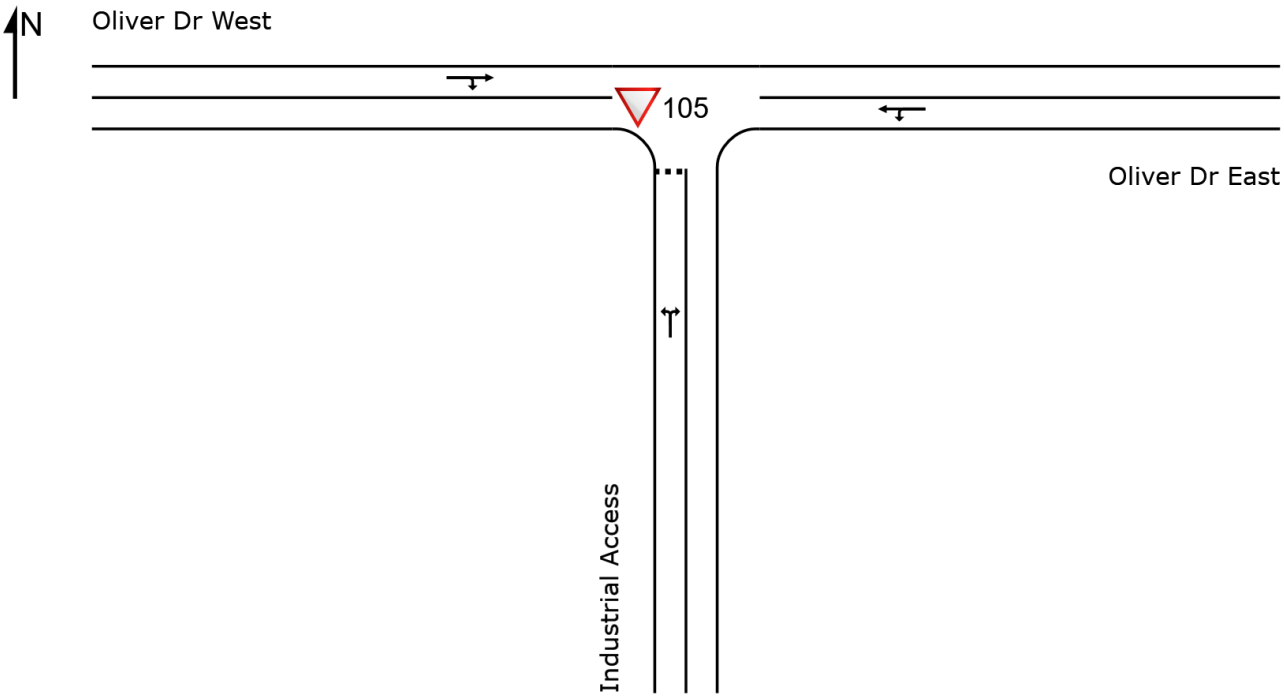


SITE LAYOUT

Site: 105 [Industrial Access_AM(2022) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

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



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Project: C:\Users\abdun.BRS\OneDrive - BARKER RYAN STEWART PTY LIMITED\Documents\Bruxner Highway\Bruxner Highway Rezoning Proposal-Revised.sip9

Appendix C - SIDRA Output Summaries

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing Redistributed_AM(2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	58	2.0	61	2.0	0.132	14.2	LOS B	0.6	4.4	0.73	0.86	0.73	50.2
2	T1	3	2.0	3	2.0	0.354	9.4	LOS A	2.2	15.6	0.81	0.92	0.81	49.7
3	R2	249	2.0	262	2.0	0.354	14.1	LOS B	2.2	15.6	0.81	0.92	0.81	49.7
Approach		310	2.0	326	2.0	0.354	14.1	LOS B	2.2	15.6	0.79	0.91	0.79	49.8
East: Bruxner Hwy East														
4	L2	230	2.0	242	2.0	0.269	4.8	LOS A	1.8	12.5	0.33	0.49	0.33	53.9
5	T1	892	2.0	939	2.0	0.592	4.9	LOS A	6.2	43.9	0.42	0.45	0.42	54.8
6	R2	47	2.0	49	2.0	0.592	9.3	LOS A	6.2	43.9	0.42	0.45	0.42	54.5
Approach		1169	2.0	1231	2.0	0.592	5.1	LOS A	6.2	43.9	0.40	0.46	0.40	54.6
North: Pineapple Road														
7	L2	27	2.0	28	2.0	0.054	12.5	LOS B	0.3	1.9	0.72	0.77	0.72	51.2
8	T1	1	2.0	1	2.0	0.097	8.4	LOS A	0.6	4.0	0.74	0.81	0.74	50.4
9	R2	67	2.0	71	2.0	0.097	13.0	LOS B	0.6	4.0	0.74	0.81	0.74	50.4
Approach		95	2.0	100	2.0	0.097	12.8	LOS B	0.6	4.0	0.74	0.79	0.74	50.6
West: Bruxner Hwy West														
10	L2	102	2.0	107	2.0	0.193	6.6	LOS A	1.1	7.9	0.57	0.64	0.57	52.9
11	T1	689	2.0	725	2.0	0.565	6.3	LOS A	5.0	35.5	0.70	0.61	0.70	53.5
12	R2	15	2.0	16	2.0	0.565	10.7	LOS B	5.0	35.5	0.71	0.61	0.71	53.3
Approach		806	2.0	848	2.0	0.565	6.5	LOS A	5.0	35.5	0.68	0.61	0.68	53.5
All Vehicles		2380	2.0	2505	2.0	0.592	7.0	LOS A	6.2	43.9	0.56	0.58	0.56	53.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_AM(2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	241	2.0	254	2.0	0.732	34.8	LOS C	7.7	55.1	1.00	1.22	1.60	39.8
2	T1	55	2.0	58	2.0	0.871	45.2	LOS D	14.6	103.9	1.00	1.47	2.22	34.0
3	R2	306	2.0	322	2.0	0.871	49.9	LOS D	14.6	103.9	1.00	1.47	2.22	34.0
Approach		602	2.0	634	2.0	0.871	43.4	LOS D	14.6	103.9	1.00	1.37	1.97	36.0
East: Bruxner Hwy East														
4	L2	309	2.0	325	2.0	0.416	8.3	LOS A	2.8	19.7	0.71	0.77	0.71	52.3
5	T1	892	2.0	939	2.0	0.868	15.0	LOS B	18.1	128.6	1.00	1.11	1.54	48.7
6	R2	48	2.0	51	2.0	0.868	19.6	LOS B	18.1	128.6	1.00	1.11	1.54	48.6
Approach		1249	2.0	1315	2.0	0.868	13.5	LOS B	18.1	128.6	0.93	1.02	1.33	49.5
North: Pineapple Road														
7	L2	31	2.0	33	2.0	0.101	16.8	LOS B	0.5	3.8	0.84	0.91	0.84	48.5
8	T1	91	2.0	96	2.0	0.366	12.6	LOS B	2.6	18.4	0.94	0.99	0.98	49.4
9	R2	86	2.0	91	2.0	0.366	16.7	LOS B	2.6	18.4	0.94	0.99	0.98	49.4
Approach		208	2.0	219	2.0	0.366	14.9	LOS B	2.6	18.4	0.93	0.98	0.96	49.3
West: Bruxner Hwy West														
10	L2	107	2.0	113	2.0	0.279	7.7	LOS A	1.7	12.3	0.69	0.74	0.69	52.2
11	T1	689	2.0	725	2.0	0.814	12.2	LOS B	14.0	99.7	0.97	0.99	1.29	50.2
12	R2	228	2.0	240	2.0	0.814	17.0	LOS B	14.0	99.7	1.00	1.02	1.36	49.7
Approach		1024	2.0	1078	2.0	0.814	12.8	LOS B	14.0	99.7	0.95	0.97	1.25	50.3
All Vehicles		3083	2.0	3245	2.0	0.871	19.2	LOS B	18.1	128.6	0.95	1.07	1.40	46.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing Redistributed_AM(2033) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	61	2.0	64	2.0	0.174	19.5	LOS B	0.9	6.4	0.82	0.91	0.82	48.4
2	T1	3	2.0	3	2.0	0.481	14.5	LOS B	3.8	26.7	0.93	1.06	1.16	46.6
3	R2	262	2.0	276	2.0	0.481	19.1	LOS B	3.8	26.7	0.93	1.06	1.16	46.6
Approach		326	2.0	343	2.0	0.481	19.2	LOS B	3.8	26.7	0.91	1.03	1.10	46.9
East: Bruxner Hwy East														
4	L2	242	2.0	255	2.0	0.330	4.9	LOS A	2.3	16.7	0.36	0.49	0.36	53.8
5	T1	1138	2.0	1198	2.0	0.727	5.5	LOS A	9.9	70.6	0.54	0.47	0.54	54.2
6	R2	50	2.0	53	2.0	0.727	9.6	LOS A	9.9	70.6	0.56	0.47	0.56	53.9
Approach		1430	2.0	1505	2.0	0.727	5.6	LOS A	9.9	70.6	0.51	0.47	0.51	54.1
North: Pineapple Road														
7	L2	28	2.0	29	2.0	0.072	16.2	LOS B	0.4	2.7	0.81	0.84	0.81	49.8
8	T1	1	2.0	1	2.0	0.131	10.2	LOS B	0.8	5.9	0.85	0.87	0.85	49.2
9	R2	71	2.0	75	2.0	0.131	14.8	LOS B	0.8	5.9	0.85	0.87	0.85	49.2
Approach		100	2.0	105	2.0	0.131	15.2	LOS B	0.8	5.9	0.84	0.86	0.84	49.4
West: Bruxner Hwy West														
10	L2	108	2.0	114	2.0	0.246	6.9	LOS A	1.5	10.5	0.61	0.67	0.61	52.7
11	T1	879	2.0	925	2.0	0.717	8.4	LOS A	9.3	65.9	0.84	0.77	0.94	52.9
12	R2	16	2.0	17	2.0	0.717	12.7	LOS B	9.3	65.9	0.86	0.78	0.97	52.6
Approach		1003	2.0	1056	2.0	0.717	8.3	LOS A	9.3	65.9	0.81	0.76	0.91	52.9
All Vehicles		2859	2.0	3009	2.0	0.727	8.4	LOS A	9.9	70.6	0.67	0.65	0.73	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_AM(2033) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	244	2.0	257	2.0	0.804	46.1	LOS D	8.6	61.5	1.00	1.29	1.85	36.4
2	T1	55	2.0	58	2.0	0.953	68.1	LOS E	19.8	141.3	1.00	1.75	3.05	28.2
3	R2	320	2.0	337	2.0	0.953	72.7	LOS F	19.8	141.3	1.00	1.75	3.05	28.2
Approach		619	2.0	652	2.0	0.953	61.8	LOS E	19.8	141.3	1.00	1.57	2.58	30.9
East: Bruxner Hwy East														
4	L2	322	2.0	339	2.0	0.486	9.2	LOS A	3.6	25.8	0.76	0.82	0.81	51.6
5	T1	1138	2.0	1198	2.0	1.070	84.9	LOS F	83.3	592.9	0.99	2.89	5.20	25.4
6	R2	51	2.0	54	2.0	1.070	91.4	LOS F	83.3	592.9	1.00	2.95	5.32	25.1
Approach		1511	2.0	1591	2.0	1.070	69.0	LOS E	83.3	592.9	0.94	2.45	4.27	28.4
North: Pineapple Road														
7	L2	33	2.0	35	2.0	0.137	22.7	LOS C	0.8	5.4	0.90	0.95	0.90	46.2
8	T1	92	2.0	97	2.0	0.491	20.7	LOS C	4.1	28.8	1.00	1.09	1.26	44.6
9	R2	90	2.0	95	2.0	0.491	24.9	LOS C	4.1	28.8	1.00	1.09	1.26	44.6
Approach		215	2.0	226	2.0	0.491	22.8	LOS C	4.1	28.8	0.98	1.07	1.21	44.8
West: Bruxner Hwy West														
10	L2	112	2.0	118	2.0	0.336	8.0	LOS A	2.2	15.4	0.73	0.77	0.73	52.0
11	T1	879	2.0	925	2.0	0.982	32.5	LOS C	39.3	279.6	0.97	1.57	2.46	39.6
12	R2	229	2.0	241	2.0	0.982	39.6	LOS D	39.3	279.6	1.00	1.67	2.69	38.3
Approach		1220	2.0	1284	2.0	0.982	31.6	LOS C	39.3	279.6	0.95	1.51	2.34	40.2
All Vehicles		3565	2.0	3753	2.0	1.070	52.2	LOS E	83.3	592.9	0.96	1.89	3.13	32.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_AM(2033) - (1+2) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	215	2.0	226	2.0	0.735	42.5	LOS D	6.9	49.1	1.00	1.23	1.66	38.4
2	T1	45	2.0	47	2.0	0.918	59.7	LOS E	16.4	116.7	1.00	1.63	2.73	30.0
3	R2	309	2.0	325	2.0	0.918	64.4	LOS E	16.4	116.7	1.00	1.63	2.73	30.1
Approach		569	2.0	599	2.0	0.918	55.7	LOS E	16.4	116.7	1.00	1.48	2.33	32.7
East: Bruxner Hwy East														
4	L2	292	2.0	307	2.0	0.439	7.6	LOS A	3.0	21.2	0.67	0.72	0.67	52.5
5	T1	1138	2.0	1198	2.0	0.967	24.5	LOS C	36.2	257.5	0.99	1.33	2.01	43.6
6	R2	51	2.0	54	2.0	0.967	29.5	LOS C	36.2	257.5	1.00	1.36	2.07	43.1
Approach		1481	2.0	1559	2.0	0.967	21.3	LOS C	36.2	257.5	0.92	1.21	1.75	45.0
North: Pineapple Road														
7	L2	33	2.0	35	2.0	0.126	21.1	LOS C	0.7	4.9	0.88	0.94	0.88	47.1
8	T1	63	2.0	66	2.0	0.378	15.1	LOS B	2.8	19.6	0.98	1.02	1.05	47.5
9	R2	90	2.0	95	2.0	0.378	19.3	LOS B	2.8	19.6	0.98	1.02	1.05	47.5
Approach		186	2.0	196	2.0	0.378	18.2	LOS B	2.8	19.6	0.96	1.00	1.02	47.4
West: Bruxner Hwy West														
10	L2	112	2.0	118	2.0	0.314	7.8	LOS A	2.0	14.1	0.70	0.75	0.70	52.1
11	T1	879	2.0	925	2.0	0.917	18.8	LOS B	24.1	171.8	0.97	1.19	1.69	46.4
12	R2	171	2.0	180	2.0	0.917	24.1	LOS C	24.1	171.8	1.00	1.24	1.80	45.6
Approach		1162	2.0	1223	2.0	0.917	18.5	LOS B	24.1	171.8	0.95	1.15	1.61	46.8
All Vehicles		3398	2.0	3577	2.0	0.967	26.0	LOS C	36.2	257.5	0.95	1.23	1.76	43.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_AM(2028) - (1+2) 6 y (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	214	2.0	225	2.0	0.660	30.4	LOS C	5.7	40.8	1.00	1.15	1.45	42.6
2	T1	45	2.0	47	2.0	0.824	34.4	LOS C	11.1	78.8	1.00	1.35	1.95	37.6
3	R2	302	2.0	318	2.0	0.824	39.1	LOS D	11.1	78.8	1.00	1.35	1.95	37.6
Approach		561	2.0	591	2.0	0.824	35.4	LOS D	11.1	78.8	1.00	1.28	1.76	39.3
East: Bruxner Hwy East														
4	L2	286	2.0	301	2.0	0.404	7.5	LOS A	2.7	19.0	0.65	0.71	0.65	52.7
5	T1	1026	2.0	1080	2.0	0.889	14.0	LOS B	20.3	144.3	0.99	1.02	1.43	49.5
6	R2	50	2.0	53	2.0	0.889	18.6	LOS B	20.3	144.3	1.00	1.03	1.46	49.2
Approach		1362	2.0	1434	2.0	0.889	12.8	LOS B	20.3	144.3	0.92	0.96	1.27	50.1
North: Pineapple Road														
7	L2	32	2.0	34	2.0	0.110	18.3	LOS B	0.6	4.2	0.85	0.92	0.85	48.1
8	T1	63	2.0	66	2.0	0.331	12.5	LOS B	2.3	16.2	0.95	0.98	0.95	49.1
9	R2	88	2.0	93	2.0	0.331	16.8	LOS B	2.3	16.2	0.95	0.98	0.95	49.1
Approach		183	2.0	193	2.0	0.331	15.6	LOS B	2.3	16.2	0.93	0.97	0.93	48.9
West: Bruxner Hwy West														
10	L2	110	2.0	116	2.0	0.289	7.6	LOS A	1.8	12.8	0.69	0.74	0.69	52.2
11	T1	793	2.0	835	2.0	0.842	13.1	LOS B	15.9	113.3	0.97	1.02	1.35	49.8
12	R2	171	2.0	180	2.0	0.842	17.9	LOS B	15.9	113.3	1.00	1.05	1.42	49.3
Approach		1074	2.0	1131	2.0	0.842	13.3	LOS B	15.9	113.3	0.94	0.99	1.29	50.0
All Vehicles		3180	2.0	3347	2.0	0.889	17.1	LOS B	20.3	144.3	0.94	1.03	1.34	47.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_AM(2028) - (1) 6 y (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	158	2.0	166	2.0	0.426	20.7	LOS C	2.8	20.2	0.92	1.01	1.07	47.5
2	T1	29	2.0	31	2.0	0.630	18.3	LOS B	6.1	43.3	1.00	1.15	1.42	44.7
3	R2	285	2.0	300	2.0	0.630	23.0	LOS C	6.1	43.3	1.00	1.15	1.42	44.7
Approach		472	2.0	497	2.0	0.630	21.9	LOS C	6.1	43.3	0.97	1.11	1.30	45.6
East: Bruxner Hwy East														
4	L2	260	2.0	274	2.0	0.366	6.6	LOS A	2.4	16.9	0.57	0.64	0.57	53.1
5	T1	1026	2.0	1080	2.0	0.806	8.6	LOS A	12.7	90.5	0.85	0.75	0.96	52.8
6	R2	50	2.0	53	2.0	0.806	13.1	LOS B	12.7	90.5	0.86	0.75	0.99	52.5
Approach		1336	2.0	1406	2.0	0.806	8.4	LOS A	12.7	90.5	0.79	0.73	0.89	52.8
North: Pineapple Road														
7	L2	32	2.0	34	2.0	0.100	17.1	LOS B	0.5	3.7	0.83	0.90	0.83	48.8
8	T1	39	2.0	41	2.0	0.251	11.2	LOS B	1.7	11.8	0.90	0.94	0.90	49.5
9	R2	88	2.0	93	2.0	0.251	15.6	LOS B	1.7	11.8	0.90	0.94	0.90	49.5
Approach		159	2.0	167	2.0	0.251	14.8	LOS B	1.7	11.8	0.89	0.93	0.89	49.4
West: Bruxner Hwy West														
10	L2	110	2.0	116	2.0	0.264	7.3	LOS A	1.6	11.5	0.66	0.71	0.66	52.4
11	T1	793	2.0	835	2.0	0.771	10.2	LOS B	11.7	83.0	0.92	0.89	1.13	52.0
12	R2	115	2.0	121	2.0	0.771	14.7	LOS B	11.7	83.0	0.95	0.91	1.18	51.6
Approach		1018	2.0	1072	2.0	0.771	10.4	LOS B	11.7	83.0	0.90	0.87	1.08	52.0
All Vehicles		2985	2.0	3142	2.0	0.806	11.6	LOS B	12.7	90.5	0.86	0.85	1.02	51.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_AM(2033) - (1) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	160	2.0	168	2.0	0.517	27.7	LOS C	3.7	26.5	0.96	1.07	1.23	44.7
2	T1	29	2.0	31	2.0	0.763	29.8	LOS C	8.8	63.0	1.00	1.28	1.78	39.3
3	R2	291	2.0	306	2.0	0.763	34.5	LOS C	8.8	63.0	1.00	1.28	1.78	39.4
Approach		480	2.0	505	2.0	0.763	31.9	LOS C	8.8	63.0	0.99	1.21	1.60	40.9
East: Bruxner Hwy East														
4	L2	266	2.0	280	2.0	0.399	6.7	LOS A	2.7	19.0	0.59	0.65	0.59	53.0
5	T1	1138	2.0	1198	2.0	0.880	11.2	LOS B	19.0	134.9	0.96	0.85	1.19	51.6
6	R2	51	2.0	54	2.0	0.880	15.6	LOS B	19.0	134.9	0.98	0.87	1.24	51.3
Approach		1455	2.0	1532	2.0	0.880	10.5	LOS B	19.0	134.9	0.89	0.82	1.08	51.8
North: Pineapple Road														
7	L2	33	2.0	35	2.0	0.116	19.4	LOS B	0.6	4.4	0.86	0.93	0.86	47.9
8	T1	39	2.0	41	2.0	0.290	12.5	LOS B	2.0	14.2	0.95	0.98	0.95	48.7
9	R2	90	2.0	95	2.0	0.290	16.9	LOS B	2.0	14.2	0.95	0.98	0.95	48.7
Approach		162	2.0	171	2.0	0.290	16.4	LOS B	2.0	14.2	0.93	0.97	0.93	48.5
West: Bruxner Hwy West														
10	L2	112	2.0	118	2.0	0.289	7.4	LOS A	1.8	12.8	0.67	0.72	0.67	52.3
11	T1	879	2.0	925	2.0	0.843	12.7	LOS B	16.0	113.9	0.97	0.99	1.32	50.3
12	R2	116	2.0	122	2.0	0.843	17.3	LOS B	16.0	113.9	1.00	1.02	1.38	49.9
Approach		1107	2.0	1165	2.0	0.843	12.6	LOS B	16.0	113.9	0.94	0.96	1.26	50.5
All Vehicles		3204	2.0	3373	2.0	0.880	14.8	LOS B	19.0	134.9	0.93	0.94	1.21	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing Redistributed_PM(2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	20	2.0	21	2.0	0.055	16.0	LOS B	0.3	2.1	0.80	0.81	0.80	49.0
2	T1	1	2.0	1	2.0	0.458	13.3	LOS B	3.8	27.3	0.95	1.02	1.09	47.2
3	R2	265	2.0	279	2.0	0.458	18.0	LOS B	3.8	27.3	0.95	1.02	1.09	47.3
Approach		286	2.0	301	2.0	0.458	17.8	LOS B	3.8	27.3	0.94	1.01	1.07	47.4
East: Bruxner Hwy East														
4	L2	289	2.0	304	2.0	0.296	5.4	LOS A	1.9	13.6	0.44	0.56	0.44	53.7
5	T1	838	2.0	882	2.0	0.617	5.3	LOS A	6.2	44.3	0.56	0.52	0.56	54.1
6	R2	13	2.0	14	2.0	0.617	9.8	LOS A	6.2	44.3	0.56	0.52	0.56	54.0
Approach		1140	2.0	1200	2.0	0.617	5.3	LOS A	6.2	44.3	0.53	0.53	0.53	54.0
North: Pineapple Road														
7	L2	46	2.0	48	2.0	0.095	12.9	LOS B	0.5	3.3	0.74	0.82	0.74	51.2
8	T1	2	2.0	2	2.0	0.168	8.5	LOS A	1.0	6.9	0.77	0.86	0.77	50.3
9	R2	112	2.0	118	2.0	0.168	13.1	LOS B	1.0	6.9	0.77	0.86	0.77	50.3
Approach		160	2.0	168	2.0	0.168	13.0	LOS B	1.0	6.9	0.76	0.85	0.76	50.5
West: Bruxner Hwy West														
10	L2	31	2.0	33	2.0	0.193	6.5	LOS A	1.1	8.1	0.57	0.61	0.57	52.7
11	T1	740	2.0	779	2.0	0.564	6.5	LOS A	5.2	37.1	0.69	0.60	0.69	53.5
12	R2	34	2.0	36	2.0	0.564	10.6	LOS B	5.2	37.1	0.72	0.60	0.72	53.2
Approach		805	2.0	847	2.0	0.564	6.7	LOS A	5.2	37.1	0.69	0.60	0.69	53.5
All Vehicles		2391	2.0	2517	2.0	0.617	7.8	LOS A	6.2	44.3	0.65	0.63	0.66	52.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_PM(2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	234	2.0	246	2.0	0.639	26.2	LOS C	5.9	41.9	1.00	1.15	1.41	43.7
2	T1	91	2.0	96	2.0	0.937	55.4	LOS E	21.2	151.0	1.00	1.72	2.87	31.2
3	R2	358	2.0	377	2.0	0.937	60.1	LOS E	21.2	151.0	1.00	1.72	2.87	31.2
Approach		683	2.0	719	2.0	0.937	47.8	LOS D	21.2	151.0	1.00	1.52	2.37	34.5
East: Bruxner Hwy East														
4	L2	333	2.0	351	2.0	0.423	8.0	LOS A	2.9	20.4	0.71	0.76	0.71	52.5
5	T1	838	2.0	882	2.0	0.783	11.0	LOS B	12.1	86.1	0.94	0.95	1.22	51.5
6	R2	19	2.0	20	2.0	0.783	15.6	LOS B	12.1	86.1	0.94	0.95	1.22	51.4
Approach		1190	2.0	1253	2.0	0.783	10.2	LOS B	12.1	86.1	0.87	0.89	1.08	51.8
North: Pineapple Road														
7	L2	47	2.0	49	2.0	0.156	18.1	LOS B	0.8	5.9	0.86	0.93	0.86	48.2
8	T1	55	2.0	58	2.0	0.373	13.3	LOS B	2.6	18.6	0.95	1.00	1.01	48.4
9	R2	117	2.0	123	2.0	0.373	17.4	LOS B	2.6	18.6	0.95	1.00	1.01	48.4
Approach		219	2.0	231	2.0	0.373	16.5	LOS B	2.6	18.6	0.93	0.99	0.98	48.4
West: Bruxner Hwy West														
10	L2	52	2.0	55	2.0	0.297	8.2	LOS A	1.9	13.5	0.74	0.78	0.74	51.8
11	T1	740	2.0	779	2.0	0.868	16.0	LOS B	18.0	127.8	0.96	1.11	1.48	48.0
12	R2	220	2.0	232	2.0	0.868	21.4	LOS C	18.0	127.8	1.00	1.17	1.63	46.9
Approach		1012	2.0	1065	2.0	0.868	16.8	LOS B	18.0	127.8	0.95	1.10	1.47	47.9
All Vehicles		3104	2.0	3267	2.0	0.937	21.1	LOS C	21.2	151.0	0.93	1.11	1.48	45.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing Redistributed_PM(2033) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	21	2.0	22	2.0	0.072	20.1	LOS C	0.4	2.8	0.86	0.88	0.86	47.8
2	T1	1	2.0	1	2.0	0.614	21.0	LOS C	6.0	43.0	1.00	1.16	1.44	43.1
3	R2	280	2.0	295	2.0	0.614	25.7	LOS C	6.0	43.0	1.00	1.16	1.44	43.1
Approach		302	2.0	318	2.0	0.614	25.3	LOS C	6.0	43.0	0.99	1.14	1.40	43.4
East: Bruxner Hwy East														
4	L2	304	2.0	320	2.0	0.350	5.6	LOS A	2.4	17.1	0.48	0.57	0.48	53.5
5	T1	1069	2.0	1125	2.0	0.771	5.9	LOS A	10.2	72.4	0.74	0.57	0.74	53.3
6	R2	14	2.0	15	2.0	0.771	10.3	LOS B	10.2	72.4	0.75	0.57	0.75	53.1
Approach		1387	2.0	1460	2.0	0.771	5.8	LOS A	10.2	72.4	0.68	0.57	0.68	53.4
North: Pineapple Road														
7	L2	49	2.0	52	2.0	0.132	17.6	LOS B	0.7	4.9	0.83	0.91	0.83	49.6
8	T1	2	2.0	2	2.0	0.229	10.6	LOS B	1.4	10.3	0.88	0.94	0.88	49.0
9	R2	118	2.0	124	2.0	0.229	15.2	LOS B	1.4	10.3	0.88	0.94	0.88	49.0
Approach		169	2.0	178	2.0	0.229	15.8	LOS B	1.4	10.3	0.86	0.93	0.86	49.2
West: Bruxner Hwy West														
10	L2	33	2.0	35	2.0	0.247	6.7	LOS A	1.5	10.8	0.61	0.64	0.61	52.5
11	T1	943	2.0	993	2.0	0.720	8.5	LOS A	9.5	67.4	0.82	0.75	0.91	52.9
12	R2	36	2.0	38	2.0	0.720	12.4	LOS B	9.5	67.4	0.86	0.77	0.96	52.5
Approach		1012	2.0	1065	2.0	0.720	8.6	LOS A	9.5	67.4	0.82	0.75	0.90	52.9
All Vehicles		2870	2.0	3021	2.0	0.771	9.4	LOS A	10.2	72.4	0.77	0.71	0.85	51.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_PM(2033) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	235	2.0	247	2.0	1.075	177.0	LOS F	27.3	194.6	1.00	2.10	4.14	15.8
2	T1	91	2.0	96	2.0	1.588	572.2	LOS F	131.7	937.7	1.00	4.59	10.58	5.9
3	R2	373	2.0	393	2.0	1.588	576.8	LOS F	131.7	937.7	1.00	4.59	10.58	5.9
Approach		699	2.0	736	2.0	1.588	441.8	LOS F	131.7	937.7	1.00	3.75	8.42	7.4
East: Bruxner Hwy East														
4	L2	349	2.0	367	2.0	0.471	8.7	LOS A	3.4	24.2	0.74	0.80	0.77	51.9
5	T1	1069	2.0	1125	2.0	0.996	39.3	LOS D	45.8	326.1	1.00	1.80	2.95	37.0
6	R2	19	2.0	20	2.0	0.996	43.9	LOS D	45.8	326.1	1.00	1.80	2.95	37.0
Approach		1437	2.0	1513	2.0	0.996	31.9	LOS C	45.8	326.1	0.94	1.56	2.42	39.8
North: Pineapple Road														
7	L2	50	2.0	53	2.0	0.185	19.8	LOS B	1.0	7.2	0.89	0.94	0.89	47.7
8	T1	55	2.0	58	2.0	0.438	15.8	LOS B	3.3	23.2	0.98	1.05	1.14	46.9
9	R2	123	2.0	129	2.0	0.438	19.9	LOS B	3.3	23.2	0.98	1.05	1.14	46.9
Approach		228	2.0	240	2.0	0.438	18.9	LOS B	3.3	23.2	0.96	1.03	1.08	47.0
West: Bruxner Hwy West														
10	L2	54	2.0	57	2.0	0.303	7.0	LOS A	1.9	13.6	0.64	0.68	0.64	52.4
11	T1	943	2.0	993	2.0	0.885	13.1	LOS B	19.7	140.4	0.94	0.95	1.28	50.0
12	R2	222	2.0	234	2.0	0.885	18.0	LOS B	19.7	140.4	1.00	1.00	1.41	49.1
Approach		1219	2.0	1283	2.0	0.885	13.8	LOS B	19.7	140.4	0.94	0.95	1.28	49.9
All Vehicles		3583	2.0	3772	2.0	1.588	104.9	LOS F	131.7	937.7	0.95	1.74	3.12	22.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_PM(2028) - (1+2)6y (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	176	2.0	185	2.0	0.655	36.3	LOS D	6.0	42.4	1.00	1.17	1.47	39.5
2	T1	63	2.0	66	2.0	1.092	153.5	LOS F	43.7	311.3	1.00	2.57	5.13	17.2
3	R2	337	2.0	355	2.0	1.092	158.2	LOS F	43.7	311.3	1.00	2.57	5.13	17.2
Approach		576	2.0	606	2.0	1.092	120.4	LOS F	43.7	311.3	1.00	2.14	4.01	20.6
East: Bruxner Hwy East														
4	L2	331	2.0	348	2.0	0.422	7.7	LOS A	2.8	20.2	0.68	0.74	0.68	52.6
5	T1	964	2.0	1015	2.0	0.864	13.4	LOS B	17.6	125.6	1.00	1.03	1.43	49.8
6	R2	19	2.0	20	2.0	0.864	18.0	LOS B	17.6	125.6	1.00	1.03	1.43	49.7
Approach		1314	2.0	1383	2.0	0.864	12.1	LOS B	17.6	125.6	0.92	0.96	1.24	50.5
North: Pineapple Road														
7	L2	49	2.0	52	2.0	0.168	19.0	LOS B	0.9	6.5	0.87	0.93	0.87	48.1
8	T1	44	2.0	46	2.0	0.378	13.7	LOS B	2.7	19.0	0.96	1.01	1.03	48.0
9	R2	121	2.0	127	2.0	0.378	17.9	LOS B	2.7	19.0	0.96	1.01	1.03	48.0
Approach		214	2.0	225	2.0	0.378	17.3	LOS B	2.7	19.0	0.94	0.99	0.99	48.0
West: Bruxner Hwy West														
10	L2	53	2.0	56	2.0	0.297	7.6	LOS A	1.9	13.2	0.69	0.73	0.69	52.1
11	T1	851	2.0	896	2.0	0.866	14.0	LOS B	17.6	125.7	0.95	1.02	1.36	49.4
12	R2	191	2.0	201	2.0	0.866	19.0	LOS B	17.6	125.7	1.00	1.08	1.49	48.5
Approach		1095	2.0	1153	2.0	0.866	14.6	LOS B	17.6	125.7	0.95	1.01	1.35	49.4
All Vehicles		3199	2.0	3367	2.0	1.092	32.8	LOS C	43.7	311.3	0.94	1.19	1.76	39.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_PM(2028) - (1)6y (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	121	2.0	127	2.0	0.446	25.8	LOS C	3.2	23.1	0.98	1.05	1.16	44.3
2	T1	38	2.0	40	2.0	0.891	58.2	LOS E	16.4	116.8	1.00	1.58	2.54	30.4
3	R2	310	2.0	326	2.0	0.891	62.9	LOS E	16.4	116.8	1.00	1.58	2.54	30.4
Approach		469	2.0	494	2.0	0.891	52.9	LOS E	16.4	116.8	1.00	1.45	2.19	33.0
East: Bruxner Hwy East														
4	L2	313	2.0	329	2.0	0.379	7.0	LOS A	2.5	17.5	0.61	0.68	0.61	53.1
5	T1	964	2.0	1015	2.0	0.807	9.5	LOS A	13.1	93.0	0.90	0.83	1.08	52.6
6	R2	19	2.0	20	2.0	0.807	14.1	LOS B	13.1	93.0	0.90	0.83	1.08	52.4
Approach		1296	2.0	1364	2.0	0.807	8.9	LOS A	13.1	93.0	0.83	0.79	0.97	52.7
North: Pineapple Road														
7	L2	49	2.0	52	2.0	0.152	18.0	LOS B	0.8	5.8	0.85	0.92	0.85	48.7
8	T1	29	2.0	31	2.0	0.317	11.8	LOS B	2.1	15.0	0.93	0.97	0.93	48.9
9	R2	121	2.0	127	2.0	0.317	16.1	LOS B	2.1	15.0	0.93	0.97	0.93	48.9
Approach		199	2.0	209	2.0	0.317	16.0	LOS B	2.1	15.0	0.91	0.96	0.91	48.8
West: Bruxner Hwy West														
10	L2	53	2.0	56	2.0	0.273	7.3	LOS A	1.7	12.1	0.67	0.71	0.67	52.2
11	T1	851	2.0	896	2.0	0.797	11.0	LOS B	13.0	92.6	0.94	0.91	1.17	51.6
12	R2	135	2.0	142	2.0	0.797	15.4	LOS B	13.0	92.6	0.99	0.95	1.26	51.0
Approach		1039	2.0	1094	2.0	0.797	11.4	LOS B	13.0	92.6	0.93	0.91	1.15	51.5
All Vehicles		3003	2.0	3161	2.0	0.891	17.1	LOS B	16.4	116.8	0.89	0.94	1.22	47.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_PM(2033) -(1+2) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	177	2.0	186	2.0	0.828	74.3	LOS F	9.5	67.9	1.00	1.36	2.04	28.5
2	T1	63	2.0	66	2.0	1.386	399.8	LOS F	92.3	657.3	1.00	3.82	8.53	8.1
3	R2	343	2.0	361	2.0	1.386	404.5	LOS F	92.3	657.3	1.00	3.82	8.53	8.1
Approach		583	2.0	614	2.0	1.386	303.7	LOS F	92.3	657.3	1.00	3.08	6.56	10.2
East: Bruxner Hwy East														
4	L2	338	2.0	356	2.0	0.443	7.9	LOS A	3.0	21.3	0.70	0.75	0.70	52.4
5	T1	1069	2.0	1125	2.0	0.957	24.2	LOS C	32.9	234.0	1.00	1.37	2.08	43.6
6	R2	19	2.0	20	2.0	0.957	28.8	LOS C	32.9	234.0	1.00	1.37	2.08	43.5
Approach		1426	2.0	1501	2.0	0.957	20.4	LOS C	32.9	234.0	0.93	1.22	1.75	45.4
North: Pineapple Road														
7	L2	50	2.0	53	2.0	0.179	19.6	LOS B	1.0	6.9	0.88	0.94	0.88	47.9
8	T1	44	2.0	46	2.0	0.403	14.6	LOS B	2.9	20.6	0.97	1.03	1.08	47.4
9	R2	123	2.0	129	2.0	0.403	18.8	LOS B	2.9	20.6	0.97	1.03	1.08	47.4
Approach		217	2.0	228	2.0	0.403	18.1	LOS B	2.9	20.6	0.95	1.01	1.03	47.5
West: Bruxner Hwy West														
10	L2	54	2.0	57	2.0	0.297	7.0	LOS A	1.9	13.2	0.64	0.68	0.64	52.4
11	T1	943	2.0	993	2.0	0.868	12.4	LOS B	17.8	126.9	0.94	0.93	1.24	50.6
12	R2	192	2.0	202	2.0	0.868	17.0	LOS B	17.8	126.9	1.00	0.97	1.36	49.9
Approach		1189	2.0	1252	2.0	0.868	12.9	LOS B	17.8	126.9	0.94	0.92	1.23	50.6
All Vehicles		3415	2.0	3595	2.0	1.386	66.0	LOS E	92.3	657.3	0.94	1.42	2.34	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Bruxner Hwy/Oliver Drive_Existing +Development_PM(2033) -(1) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Drive														
1	L2	121	2.0	127	2.0	0.512	31.4	LOS C	3.8	27.1	1.00	1.09	1.26	42.3
2	T1	38	2.0	40	2.0	1.038	122.0	LOS F	31.2	222.0	1.00	2.18	4.17	20.1
3	R2	317	2.0	334	2.0	1.038	126.7	LOS F	31.2	222.0	1.00	2.18	4.17	20.1
Approach		476	2.0	501	2.0	1.038	102.1	LOS F	31.2	222.0	1.00	1.90	3.43	23.1
East: Bruxner Hwy East														
4	L2	320	2.0	337	2.0	0.404	7.1	LOS A	2.7	19.0	0.63	0.69	0.63	52.9
5	T1	1069	2.0	1125	2.0	0.888	12.9	LOS B	20.1	143.1	1.00	0.97	1.37	50.2
6	R2	19	2.0	20	2.0	0.888	17.5	LOS B	20.1	143.1	1.00	0.97	1.37	50.1
Approach		1408	2.0	1482	2.0	0.888	11.6	LOS B	20.1	143.1	0.91	0.90	1.20	50.8
North: Pineapple Road														
7	L2	50	2.0	53	2.0	0.175	20.7	LOS C	1.0	6.8	0.88	0.94	0.88	47.8
8	T1	29	2.0	31	2.0	0.364	13.8	LOS B	2.5	18.1	0.96	1.01	1.02	47.6
9	R2	123	2.0	129	2.0	0.364	18.2	LOS B	2.5	18.1	0.96	1.01	1.02	47.6
Approach		202	2.0	213	2.0	0.364	18.2	LOS B	2.5	18.1	0.94	0.99	0.98	47.7
West: Bruxner Hwy West														
10	L2	54	2.0	57	2.0	0.297	7.4	LOS A	1.9	13.3	0.68	0.71	0.68	52.2
11	T1	943	2.0	993	2.0	0.868	13.8	LOS B	18.0	128.4	0.95	1.00	1.33	49.8
12	R2	135	2.0	142	2.0	0.868	18.5	LOS B	18.0	128.4	1.00	1.05	1.45	49.0
Approach		1132	2.0	1192	2.0	0.868	14.1	LOS B	18.0	128.4	0.94	0.99	1.32	49.8
All Vehicles		3218	2.0	3387	2.0	1.038	26.3	LOS C	31.2	222.0	0.94	1.09	1.56	42.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Holland St/Oliver Drive_Existing Redistributed_AM (2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Taylor Rd														
1	L2	66	2.0	69	2.0	0.140	4.7	LOS A	0.8	5.4	0.41	0.60	0.41	37.3
2	T1	8	2.0	8	2.0	0.140	4.7	LOS A	0.8	5.4	0.41	0.60	0.41	37.0
3	R2	79	2.0	83	2.0	0.140	10.0	LOS A	0.8	5.4	0.41	0.60	0.41	34.9
Approach		153	2.0	161	2.0	0.140	7.4	LOS A	0.8	5.4	0.41	0.60	0.41	36.0
East: Oliver Ave East														
4	L2	64	2.0	67	2.0	0.209	4.2	LOS A	1.2	8.5	0.31	0.44	0.31	41.5
5	T1	188	2.0	198	2.0	0.209	4.2	LOS A	1.2	8.5	0.31	0.44	0.31	40.2
6	R2	6	2.0	6	2.0	0.209	9.5	LOS A	1.2	8.5	0.31	0.44	0.31	37.7
Approach		258	2.0	272	2.0	0.209	4.4	LOS A	1.2	8.5	0.31	0.44	0.31	40.5
North: Holland St														
7	L2	16	2.0	17	2.0	0.041	5.4	LOS A	0.2	1.5	0.49	0.60	0.49	37.1
8	T1	6	2.0	6	2.0	0.041	5.4	LOS A	0.2	1.5	0.49	0.60	0.49	36.8
9	R2	18	2.0	19	2.0	0.041	10.7	LOS B	0.2	1.5	0.49	0.60	0.49	34.1
Approach		40	2.0	42	2.0	0.041	7.8	LOS A	0.2	1.5	0.49	0.60	0.49	35.7
West: Oliver Ave West														
10	L2	17	2.0	18	2.0	0.241	4.1	LOS A	1.5	10.6	0.30	0.49	0.30	39.8
11	T1	201	2.0	212	2.0	0.241	4.1	LOS A	1.5	10.6	0.30	0.49	0.30	39.4
12	R2	90	2.0	95	2.0	0.241	9.4	LOS A	1.5	10.6	0.30	0.49	0.30	37.1
Approach		308	2.0	324	2.0	0.241	5.7	LOS A	1.5	10.6	0.30	0.49	0.30	38.7
All Vehicles		759	2.0	799	2.0	0.241	5.7	LOS A	1.5	10.6	0.33	0.50	0.33	38.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Holland St/Oliver Drive_Existing+Development_AM (2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Taylor Rd														
1	L2	66	2.0	69	2.0	0.219	4.8	LOS A	1.3	9.0	0.43	0.63	0.43	36.1
2	T1	8	2.0	8	2.0	0.219	4.8	LOS A	1.3	9.0	0.43	0.63	0.43	35.8
3	R2	165	2.0	174	2.0	0.219	10.1	LOS B	1.3	9.0	0.43	0.63	0.43	33.9
Approach		239	2.0	252	2.0	0.219	8.5	LOS A	1.3	9.0	0.43	0.63	0.43	34.6
East: Oliver Ave East														
4	L2	105	2.0	111	2.0	0.241	4.2	LOS A	1.5	10.4	0.33	0.45	0.33	41.4
5	T1	188	2.0	198	2.0	0.241	4.2	LOS A	1.5	10.4	0.33	0.45	0.33	40.1
6	R2	6	2.0	6	2.0	0.241	9.5	LOS A	1.5	10.4	0.33	0.45	0.33	37.6
Approach		299	2.0	315	2.0	0.241	4.4	LOS A	1.5	10.4	0.33	0.45	0.33	40.5
North: Holland St														
7	L2	16	2.0	17	2.0	0.044	5.9	LOS A	0.2	1.7	0.55	0.63	0.55	36.5
8	T1	6	2.0	6	2.0	0.044	5.9	LOS A	0.2	1.7	0.55	0.63	0.55	36.2
9	R2	18	2.0	19	2.0	0.044	11.2	LOS B	0.2	1.7	0.55	0.63	0.55	33.6
Approach		40	2.0	42	2.0	0.044	8.3	LOS A	0.2	1.7	0.55	0.63	0.55	35.1
West: Oliver Ave West														
10	L2	17	2.0	18	2.0	0.270	4.7	LOS A	1.7	12.0	0.43	0.55	0.43	38.6
11	T1	201	2.0	212	2.0	0.270	4.7	LOS A	1.7	12.0	0.43	0.55	0.43	38.3
12	R2	90	2.0	95	2.0	0.270	9.9	LOS A	1.7	12.0	0.43	0.55	0.43	36.1
Approach		308	2.0	324	2.0	0.270	6.2	LOS A	1.7	12.0	0.43	0.55	0.43	37.6
All Vehicles		886	2.0	933	2.0	0.270	6.3	LOS A	1.7	12.0	0.40	0.54	0.40	37.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Holland St/Oliver Drive_Existing Redistributed_AM (2033) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Taylor Rd														
1	L2	70	2.0	74	2.0	0.150	4.8	LOS A	0.8	5.8	0.42	0.60	0.42	37.2
2	T1	9	2.0	9	2.0	0.150	4.8	LOS A	0.8	5.8	0.42	0.60	0.42	36.9
3	R2	83	2.0	87	2.0	0.150	10.1	LOS B	0.8	5.8	0.42	0.60	0.42	34.9
Approach		162	2.0	171	2.0	0.150	7.5	LOS A	0.8	5.8	0.42	0.60	0.42	36.0
East: Oliver Ave East														
4	L2	67	2.0	71	2.0	0.221	4.3	LOS A	1.3	9.1	0.32	0.45	0.32	41.4
5	T1	198	2.0	208	2.0	0.221	4.3	LOS A	1.3	9.1	0.32	0.45	0.32	40.1
6	R2	6	2.0	6	2.0	0.221	9.5	LOS A	1.3	9.1	0.32	0.45	0.32	37.6
Approach		271	2.0	285	2.0	0.221	4.4	LOS A	1.3	9.1	0.32	0.45	0.32	40.3
North: Holland St														
7	L2	17	2.0	18	2.0	0.045	5.5	LOS A	0.2	1.7	0.51	0.61	0.51	37.0
8	T1	7	2.0	7	2.0	0.045	5.5	LOS A	0.2	1.7	0.51	0.61	0.51	36.7
9	R2	19	2.0	20	2.0	0.045	10.8	LOS B	0.2	1.7	0.51	0.61	0.51	34.0
Approach		43	2.0	45	2.0	0.045	7.9	LOS A	0.2	1.7	0.51	0.61	0.51	35.6
West: Oliver Ave West														
10	L2	18	2.0	19	2.0	0.256	4.2	LOS A	1.6	11.4	0.31	0.49	0.31	39.7
11	T1	212	2.0	223	2.0	0.256	4.2	LOS A	1.6	11.4	0.31	0.49	0.31	39.3
12	R2	95	2.0	100	2.0	0.256	9.4	LOS A	1.6	11.4	0.31	0.49	0.31	37.0
Approach		325	2.0	342	2.0	0.256	5.7	LOS A	1.6	11.4	0.31	0.49	0.31	38.6
All Vehicles		801	2.0	843	2.0	0.256	5.7	LOS A	1.6	11.4	0.35	0.51	0.35	38.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Holland St/Oliver Drive_Existing+Development_AM (2033) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Taylor Rd														
1	L2	70	2.0	74	2.0	0.231	4.9	LOS A	1.3	9.6	0.45	0.64	0.45	36.0
2	T1	9	2.0	9	2.0	0.231	4.9	LOS A	1.3	9.6	0.45	0.64	0.45	35.7
3	R2	170	2.0	179	2.0	0.231	10.2	LOS B	1.3	9.6	0.45	0.64	0.45	33.9
Approach		249	2.0	262	2.0	0.231	8.5	LOS A	1.3	9.6	0.45	0.64	0.45	34.5
East: Oliver Ave East														
4	L2	108	2.0	114	2.0	0.254	4.3	LOS A	1.6	11.1	0.34	0.46	0.34	41.2
5	T1	198	2.0	208	2.0	0.254	4.3	LOS A	1.6	11.1	0.34	0.46	0.34	39.9
6	R2	6	2.0	6	2.0	0.254	9.6	LOS A	1.6	11.1	0.34	0.46	0.34	37.4
Approach		312	2.0	328	2.0	0.254	4.4	LOS A	1.6	11.1	0.34	0.46	0.34	40.3
North: Holland St														
7	L2	17	2.0	18	2.0	0.049	6.1	LOS A	0.3	1.9	0.57	0.64	0.57	36.3
8	T1	7	2.0	7	2.0	0.049	6.1	LOS A	0.3	1.9	0.57	0.64	0.57	36.0
9	R2	19	2.0	20	2.0	0.049	11.4	LOS B	0.3	1.9	0.57	0.64	0.57	33.5
Approach		43	2.0	45	2.0	0.049	8.4	LOS A	0.3	1.9	0.57	0.64	0.57	34.9
West: Oliver Ave West														
10	L2	18	2.0	19	2.0	0.287	4.7	LOS A	1.8	13.0	0.44	0.55	0.44	38.5
11	T1	212	2.0	223	2.0	0.287	4.7	LOS A	1.8	13.0	0.44	0.55	0.44	38.1
12	R2	95	2.0	100	2.0	0.287	10.0	LOS A	1.8	13.0	0.44	0.55	0.44	36.0
Approach		325	2.0	342	2.0	0.287	6.3	LOS A	1.8	13.0	0.44	0.55	0.44	37.5
All Vehicles		929	2.0	978	2.0	0.287	6.3	LOS A	1.8	13.0	0.42	0.55	0.42	37.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Holland St/Oliver Drive_Existing Redistributed_PM (2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Taylor Rd														
1	L2	39	2.0	41	2.0	0.083	5.2	LOS A	0.4	3.1	0.46	0.62	0.46	37.1
2	T1	4	2.0	4	2.0	0.083	5.2	LOS A	0.4	3.1	0.46	0.62	0.46	36.8
3	R2	41	2.0	43	2.0	0.083	10.4	LOS B	0.4	3.1	0.46	0.62	0.46	34.7
Approach		84	2.0	88	2.0	0.083	7.7	LOS A	0.4	3.1	0.46	0.62	0.46	35.9
East: Oliver Ave East														
4	L2	55	2.0	58	2.0	0.258	4.0	LOS A	1.5	10.9	0.26	0.42	0.26	42.0
5	T1	271	2.0	285	2.0	0.258	4.0	LOS A	1.5	10.9	0.26	0.42	0.26	40.7
6	R2	14	2.0	15	2.0	0.258	9.3	LOS A	1.5	10.9	0.26	0.42	0.26	38.1
Approach		340	2.0	358	2.0	0.258	4.3	LOS A	1.5	10.9	0.26	0.42	0.26	40.8
North: Holland St														
7	L2	6	2.0	6	2.0	0.035	5.3	LOS A	0.2	1.3	0.47	0.62	0.47	35.8
8	T1	4	2.0	4	2.0	0.035	5.3	LOS A	0.2	1.3	0.47	0.62	0.47	35.5
9	R2	25	2.0	26	2.0	0.035	10.5	LOS B	0.2	1.3	0.47	0.62	0.47	33.1
Approach		35	2.0	37	2.0	0.035	9.0	LOS A	0.2	1.3	0.47	0.62	0.47	33.8
West: Oliver Ave West														
10	L2	25	2.0	26	2.0	0.241	3.9	LOS A	1.5	10.6	0.23	0.44	0.23	41.5
11	T1	252	2.0	265	2.0	0.241	3.9	LOS A	1.5	10.6	0.23	0.44	0.23	41.1
12	R2	50	2.0	53	2.0	0.241	9.2	LOS A	1.5	10.6	0.23	0.44	0.23	38.5
Approach		327	2.0	344	2.0	0.241	4.7	LOS A	1.5	10.6	0.23	0.44	0.23	40.7
All Vehicles		786	2.0	827	2.0	0.258	5.0	LOS A	1.5	10.9	0.28	0.46	0.28	39.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Holland St/Oliver Drive_Existing+Development_PM (2022) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Taylor Rd														
1	L2	39	2.0	41	2.0	0.138	5.3	LOS A	0.7	5.3	0.48	0.65	0.48	35.8
2	T1	4	2.0	4	2.0	0.138	5.3	LOS A	0.7	5.3	0.48	0.65	0.48	35.5
3	R2	97	2.0	102	2.0	0.138	10.5	LOS B	0.7	5.3	0.48	0.65	0.48	33.6
Approach		140	2.0	147	2.0	0.138	8.9	LOS A	0.7	5.3	0.48	0.65	0.48	34.3
East: Oliver Ave East														
4	L2	128	2.0	135	2.0	0.311	4.1	LOS A	2.0	14.1	0.28	0.43	0.28	41.8
5	T1	271	2.0	285	2.0	0.311	4.1	LOS A	2.0	14.1	0.28	0.43	0.28	40.5
6	R2	14	2.0	15	2.0	0.311	9.3	LOS A	2.0	14.1	0.28	0.43	0.28	38.0
Approach		413	2.0	435	2.0	0.311	4.2	LOS A	2.0	14.1	0.28	0.43	0.28	40.8
North: Holland St														
7	L2	6	2.0	6	2.0	0.037	5.6	LOS A	0.2	1.4	0.51	0.63	0.51	35.5
8	T1	4	2.0	4	2.0	0.037	5.6	LOS A	0.2	1.4	0.51	0.63	0.51	35.2
9	R2	25	2.0	26	2.0	0.037	10.8	LOS B	0.2	1.4	0.51	0.63	0.51	32.9
Approach		35	2.0	37	2.0	0.037	9.3	LOS A	0.2	1.4	0.51	0.63	0.51	33.6
West: Oliver Ave West														
10	L2	25	2.0	26	2.0	0.264	4.3	LOS A	1.7	11.9	0.34	0.47	0.34	40.3
11	T1	252	2.0	265	2.0	0.264	4.3	LOS A	1.7	11.9	0.34	0.47	0.34	39.9
12	R2	50	2.0	53	2.0	0.264	9.5	LOS A	1.7	11.9	0.34	0.47	0.34	37.5
Approach		327	2.0	344	2.0	0.264	5.1	LOS A	1.7	11.9	0.34	0.47	0.34	39.5
All Vehicles		915	2.0	963	2.0	0.311	5.5	LOS A	2.0	14.1	0.34	0.49	0.34	38.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Holland St/Oliver Drive_Existing Redistributed_PM (2033) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Taylor Rd														
1	L2	41	2.0	43	2.0	0.088	5.3	LOS A	0.5	3.3	0.48	0.62	0.48	37.0
2	T1	4	2.0	4	2.0	0.088	5.3	LOS A	0.5	3.3	0.48	0.62	0.48	36.7
3	R2	43	2.0	45	2.0	0.088	10.5	LOS B	0.5	3.3	0.48	0.62	0.48	34.6
Approach		88	2.0	93	2.0	0.088	7.8	LOS A	0.5	3.3	0.48	0.62	0.48	35.8
East: Oliver Ave East														
4	L2	58	2.0	61	2.0	0.274	4.1	LOS A	1.7	11.8	0.27	0.42	0.27	41.8
5	T1	286	2.0	301	2.0	0.274	4.1	LOS A	1.7	11.8	0.27	0.42	0.27	40.5
6	R2	15	2.0	16	2.0	0.274	9.4	LOS A	1.7	11.8	0.27	0.42	0.27	38.0
Approach		359	2.0	378	2.0	0.274	4.3	LOS A	1.7	11.8	0.27	0.42	0.27	40.6
North: Holland St														
7	L2	6	2.0	6	2.0	0.038	5.4	LOS A	0.2	1.4	0.48	0.62	0.48	35.8
8	T1	5	2.0	5	2.0	0.038	5.4	LOS A	0.2	1.4	0.48	0.62	0.48	35.5
9	R2	26	2.0	27	2.0	0.038	10.6	LOS B	0.2	1.4	0.48	0.62	0.48	33.1
Approach		37	2.0	39	2.0	0.038	9.1	LOS A	0.2	1.4	0.48	0.62	0.48	33.8
West: Oliver Ave West														
10	L2	26	2.0	27	2.0	0.256	3.9	LOS A	1.6	11.4	0.24	0.44	0.24	41.3
11	T1	266	2.0	280	2.0	0.256	3.9	LOS A	1.6	11.4	0.24	0.44	0.24	40.9
12	R2	53	2.0	56	2.0	0.256	9.2	LOS A	1.6	11.4	0.24	0.44	0.24	38.4
Approach		345	2.0	363	2.0	0.256	4.8	LOS A	1.6	11.4	0.24	0.44	0.24	40.6
All Vehicles		829	2.0	873	2.0	0.274	5.1	LOS A	1.7	11.8	0.29	0.46	0.29	39.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Holland St/Oliver Drive_Existing+Development_PM (2033) (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Taylor Rd														
1	L2	41	2.0	43	2.0	0.144	5.4	LOS A	0.8	5.6	0.50	0.66	0.50	35.7
2	T1	4	2.0	4	2.0	0.144	5.4	LOS A	0.8	5.6	0.50	0.66	0.50	35.4
3	R2	99	2.0	104	2.0	0.144	10.6	LOS B	0.8	5.6	0.50	0.66	0.50	33.6
Approach		144	2.0	152	2.0	0.144	9.0	LOS A	0.8	5.6	0.50	0.66	0.50	34.2
East: Oliver Ave East														
4	L2	131	2.0	138	2.0	0.327	4.1	LOS A	2.1	15.1	0.29	0.43	0.29	41.6
5	T1	286	2.0	301	2.0	0.327	4.1	LOS A	2.1	15.1	0.29	0.43	0.29	40.3
6	R2	15	2.0	16	2.0	0.327	9.4	LOS A	2.1	15.1	0.29	0.43	0.29	37.8
Approach		432	2.0	455	2.0	0.327	4.3	LOS A	2.1	15.1	0.29	0.43	0.29	40.6
North: Holland St														
7	L2	6	2.0	6	2.0	0.040	5.7	LOS A	0.2	1.5	0.53	0.64	0.53	35.5
8	T1	5	2.0	5	2.0	0.040	5.7	LOS A	0.2	1.5	0.53	0.64	0.53	35.2
9	R2	26	2.0	27	2.0	0.040	11.0	LOS B	0.2	1.5	0.53	0.64	0.53	32.9
Approach		37	2.0	39	2.0	0.040	9.4	LOS A	0.2	1.5	0.53	0.64	0.53	33.6
West: Oliver Ave West														
10	L2	26	2.0	27	2.0	0.279	4.3	LOS A	1.8	12.8	0.35	0.48	0.35	40.2
11	T1	266	2.0	280	2.0	0.279	4.3	LOS A	1.8	12.8	0.35	0.48	0.35	39.8
12	R2	53	2.0	56	2.0	0.279	9.6	LOS A	1.8	12.8	0.35	0.48	0.35	37.4
Approach		345	2.0	363	2.0	0.279	5.1	LOS A	1.8	12.8	0.35	0.48	0.35	39.4
All Vehicles		958	2.0	1008	2.0	0.327	5.5	LOS A	2.1	15.1	0.35	0.49	0.35	38.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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 (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 103 [Residentail Accees 1_AM(2022) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Dr South														
2	T1	516	0.0	543	0.0	0.282	0.1	LOS A	0.1	0.4	0.01	0.00	0.01	59.8
3	R2	3	0.0	3	0.0	0.282	9.8	LOS A	0.1	0.4	0.01	0.00	0.01	56.7
Approach		519	0.0	546	0.0	0.282	0.1	NA	0.1	0.4	0.01	0.00	0.01	59.8
East: Residentail Access 1														
4	L2	11	0.0	12	0.0	0.255	9.3	LOS A	0.9	6.0	0.78	0.94	0.88	42.7
6	R2	73	0.0	77	0.0	0.255	16.5	LOS C	0.9	6.0	0.78	0.94	0.88	34.8
Approach		84	0.0	88	0.0	0.255	15.5	LOS C	0.9	6.0	0.78	0.94	0.88	36.2
North: Oliver Dr North														
7	L2	18	0.0	19	0.0	0.340	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	55.7
8	T1	611	0.0	643	0.0	0.340	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		629	0.0	662	0.0	0.340	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.5
All Vehicles		1232	0.0	1297	0.0	0.340	1.2	NA	0.9	6.0	0.06	0.07	0.07	58.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 103 [Residentail Accees 1_PM(2022) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Dr South														
2	T1	678	0.0	714	0.0	0.378	0.1	LOS A	0.2	1.6	0.03	0.01	0.04	59.6
3	R2	11	0.0	12	0.0	0.378	9.5	LOS A	0.2	1.6	0.03	0.01	0.04	56.5
Approach		689	0.0	725	0.0	0.378	0.3	NA	0.2	1.6	0.03	0.01	0.04	59.5
East: Residential Access 1														
4	L2	3	0.0	3	0.0	0.078	7.8	LOS A	0.2	1.6	0.77	0.89	0.77	42.5
6	R2	19	0.0	20	0.0	0.078	17.1	LOS C	0.2	1.6	0.77	0.89	0.77	34.5
Approach		22	0.0	23	0.0	0.078	15.8	LOS C	0.2	1.6	0.77	0.89	0.77	36.0
North: Oliver Dr North														
7	L2	15	0.0	16	0.0	0.296	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	55.7
8	T1	533	0.0	561	0.0	0.296	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		548	0.0	577	0.0	0.296	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.6
All Vehicles		1259	0.0	1325	0.0	0.378	0.5	NA	0.2	1.6	0.03	0.03	0.04	59.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 103 [Residentail Accees 1_AM(2033) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Dr South														
2	T1	532	0.0	560	0.0	0.291	0.1	LOS A	0.1	0.4	0.01	0.00	0.01	59.8
3	R2	3	0.0	3	0.0	0.291	10.0	LOS B	0.1	0.4	0.01	0.00	0.01	56.7
Approach		535	0.0	563	0.0	0.291	0.1	NA	0.1	0.4	0.01	0.00	0.01	59.8
East: Residentail Access 1														
4	L2	11	0.0	12	0.0	0.267	9.5	LOS A	0.9	6.3	0.79	0.95	0.90	42.2
6	R2	73	0.0	77	0.0	0.267	17.2	LOS C	0.9	6.3	0.79	0.95	0.90	34.2
Approach		84	0.0	88	0.0	0.267	16.2	LOS C	0.9	6.3	0.79	0.95	0.90	35.6
North: Oliver Dr North														
7	L2	18	0.0	19	0.0	0.347	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	55.7
8	T1	624	0.0	657	0.0	0.347	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		642	0.0	676	0.0	0.347	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.5
All Vehicles		1261	0.0	1327	0.0	0.347	1.2	NA	0.9	6.3	0.06	0.07	0.07	57.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 103 [Residentail Accees 1_PM(2033) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Dr South														
2	T1	695	0.0	732	0.0	0.389	0.2	LOS A	0.3	1.9	0.04	0.01	0.05	59.5
3	R2	11	0.0	12	0.0	0.389	10.6	LOS B	0.3	1.9	0.04	0.01	0.05	56.4
Approach		706	0.0	743	0.0	0.389	0.3	NA	0.3	1.9	0.04	0.01	0.05	59.5
East: Residential Access 1														
4	L2	3	0.0	3	0.0	0.087	7.9	LOS A	0.3	1.8	0.80	0.90	0.80	41.6
6	R2	19	0.0	20	0.0	0.087	18.7	LOS C	0.3	1.8	0.80	0.90	0.80	33.5
Approach		22	0.0	23	0.0	0.087	17.2	LOS C	0.3	1.8	0.80	0.90	0.80	34.9
North: Oliver Dr North														
7	L2	75	0.0	79	0.0	0.340	5.6	LOS A	0.0	0.0	0.00	0.07	0.00	54.6
8	T1	551	0.0	580	0.0	0.340	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	58.9
Approach		626	0.0	659	0.0	0.340	0.7	NA	0.0	0.0	0.00	0.07	0.00	58.5
All Vehicles		1354	0.0	1425	0.0	0.389	0.8	NA	0.3	1.9	0.03	0.05	0.04	58.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 [Residentail/Local Centre Accees 2_AM(2022) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Dr South														
2	T1	369	0.0	388	0.0	0.216	0.3	LOS A	0.2	1.6	0.07	0.02	0.07	59.3
3	R2	14	0.0	15	0.0	0.216	9.3	LOS A	0.2	1.6	0.07	0.02	0.07	56.1
Approach		383	0.0	403	0.0	0.216	0.6	NA	0.2	1.6	0.07	0.02	0.07	59.2
East: Resi/Local Cntr Access 2														
4	L2	23	0.0	24	0.0	0.402	9.6	LOS A	1.6	11.5	0.75	0.97	1.01	43.8
6	R2	150	0.0	158	0.0	0.402	14.8	LOS B	1.6	11.5	0.75	0.97	1.01	41.4
Approach		173	0.0	182	0.0	0.402	14.1	LOS B	1.6	11.5	0.75	0.97	1.01	41.7
North: Oliver Dr North														
7	L2	95	0.0	100	0.0	0.338	5.6	LOS A	0.0	0.0	0.00	0.09	0.00	56.0
8	T1	527	0.0	555	0.0	0.338	0.1	LOS A	0.0	0.0	0.00	0.09	0.00	58.9
Approach		622	0.0	655	0.0	0.338	0.9	NA	0.0	0.0	0.00	0.09	0.00	58.6
All Vehicles		1178	0.0	1240	0.0	0.402	2.8	NA	1.6	11.5	0.13	0.20	0.17	56.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 [Residentail/Local Centre Accees 2_PM(2022) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Dr South														
2	T1	594	0.0	625	0.0	0.346	0.3	LOS A	0.4	3.0	0.07	0.02	0.09	59.3
3	R2	23	0.0	24	0.0	0.346	9.1	LOS A	0.4	3.0	0.07	0.02	0.09	56.1
Approach		617	0.0	649	0.0	0.346	0.6	NA	0.4	3.0	0.07	0.02	0.09	59.2
East: Resi/Local Cntr Access 2														
4	L2	14	0.0	15	0.0	0.300	8.0	LOS A	1.1	7.5	0.75	0.92	0.89	43.2
6	R2	95	0.0	100	0.0	0.300	15.9	LOS C	1.1	7.5	0.75	0.92	0.89	40.8
Approach		109	0.0	115	0.0	0.300	14.9	LOS B	1.1	7.5	0.75	0.92	0.89	41.1
North: Oliver Dr North														
7	L2	151	0.0	159	0.0	0.293	5.6	LOS A	0.0	0.0	0.00	0.17	0.00	55.0
8	T1	385	0.0	405	0.0	0.293	0.1	LOS A	0.0	0.0	0.00	0.17	0.00	58.2
Approach		536	0.0	564	0.0	0.293	1.6	NA	0.0	0.0	0.00	0.17	0.00	57.5
All Vehicles		1262	0.0	1328	0.0	0.346	2.3	NA	1.1	7.5	0.10	0.16	0.12	56.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 [Residentail/Local Centre Accees 2_AM(2033) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Dr South														
2	T1	385	0.0	405	0.0	0.225	0.3	LOS A	0.2	1.6	0.07	0.02	0.07	59.3
3	R2	14	0.0	15	0.0	0.225	9.5	LOS A	0.2	1.6	0.07	0.02	0.07	56.1
Approach		399	0.0	420	0.0	0.225	0.6	NA	0.2	1.6	0.07	0.02	0.07	59.3
East: Resi/Local Cntr Access 2														
4	L2	23	0.0	24	0.0	0.420	9.9	LOS A	1.7	12.1	0.77	0.98	1.05	43.3
6	R2	150	0.0	158	0.0	0.420	15.5	LOS C	1.7	12.1	0.77	0.98	1.05	40.9
Approach		173	0.0	182	0.0	0.420	14.8	LOS B	1.7	12.1	0.77	0.98	1.05	41.2
North: Oliver Dr North														
7	L2	95	0.0	100	0.0	0.345	5.6	LOS A	0.0	0.0	0.00	0.09	0.00	56.0
8	T1	540	0.0	568	0.0	0.345	0.1	LOS A	0.0	0.0	0.00	0.09	0.00	58.9
Approach		635	0.0	668	0.0	0.345	0.9	NA	0.0	0.0	0.00	0.09	0.00	58.6
All Vehicles		1207	0.0	1271	0.0	0.420	2.8	NA	1.7	12.1	0.13	0.20	0.17	56.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 [Residentail/Local Centre Accees 2_PM(2033) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Oliver Dr South														
2	T1	611	0.0	643	0.0	0.355	0.3	LOS A	0.5	3.2	0.07	0.02	0.09	59.3
3	R2	23	0.0	24	0.0	0.355	9.4	LOS A	0.5	3.2	0.07	0.02	0.09	56.0
Approach		634	0.0	667	0.0	0.355	0.6	NA	0.5	3.2	0.07	0.02	0.09	59.2
East: Resi/Local Cntr Access 2														
4	L2	14	0.0	15	0.0	0.317	8.3	LOS A	1.1	7.9	0.76	0.94	0.93	42.6
6	R2	95	0.0	100	0.0	0.317	16.8	LOS C	1.1	7.9	0.76	0.94	0.93	40.2
Approach		109	0.0	115	0.0	0.317	15.7	LOS C	1.1	7.9	0.76	0.94	0.93	40.5
North: Oliver Dr North														
7	L2	151	0.0	159	0.0	0.303	5.6	LOS A	0.0	0.0	0.00	0.16	0.00	55.1
8	T1	403	0.0	424	0.0	0.303	0.1	LOS A	0.0	0.0	0.00	0.16	0.00	58.2
Approach		554	0.0	583	0.0	0.303	1.6	NA	0.0	0.0	0.00	0.16	0.00	57.6
All Vehicles		1297	0.0	1365	0.0	0.355	2.3	NA	1.1	7.9	0.10	0.16	0.12	56.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [Industrial Access_AM(2022) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Industrial Access														
1	L2	17	0.0	18	0.0	0.149	6.5	LOS A	0.5	3.5	0.52	0.78	0.52	50.6
3	R2	70	0.0	74	0.0	0.149	10.3	LOS B	0.5	3.5	0.52	0.78	0.52	50.1
Approach		87	0.0	92	0.0	0.149	9.6	LOS A	0.5	3.5	0.52	0.78	0.52	50.2
East: Oliver Dr East														
4	L2	279	0.0	294	0.0	0.304	5.6	LOS A	0.0	0.0	0.00	0.30	0.00	55.7
5	T1	270	0.0	284	0.0	0.304	0.1	LOS A	0.0	0.0	0.00	0.30	0.00	57.2
Approach		549	0.0	578	0.0	0.304	2.9	NA	0.0	0.0	0.00	0.30	0.00	56.4
West: Oliver Dr West														
11	T1	314	0.0	331	0.0	0.244	1.0	LOS A	0.9	6.2	0.28	0.13	0.28	57.7
12	R2	68	0.0	72	0.0	0.244	8.6	LOS A	0.9	6.2	0.28	0.13	0.28	55.6
Approach		382	0.0	402	0.0	0.244	2.4	NA	0.9	6.2	0.28	0.13	0.28	57.4
All Vehicles		1018	0.0	1072	0.0	0.304	3.3	NA	0.9	6.2	0.15	0.28	0.15	56.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [Industrial Access_PM(2022) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Industrial Access														
1	L2	68	0.0	72	0.0	0.546	8.9	LOS A	3.2	22.4	0.65	0.97	1.06	49.0
3	R2	279	0.0	294	0.0	0.546	12.7	LOS B	3.2	22.4	0.65	0.97	1.06	48.5
Approach		347	0.0	365	0.0	0.546	11.9	LOS B	3.2	22.4	0.65	0.97	1.06	48.6
East: Oliver Dr East														
4	L2	70	0.0	74	0.0	0.217	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	57.4
5	T1	329	0.0	346	0.0	0.217	0.1	LOS A	0.0	0.0	0.00	0.10	0.00	58.9
Approach		399	0.0	420	0.0	0.217	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.7
West: Oliver Dr West														
11	T1	338	0.0	356	0.0	0.198	0.2	LOS A	0.2	1.3	0.06	0.03	0.06	59.5
12	R2	17	0.0	18	0.0	0.198	7.4	LOS A	0.2	1.3	0.06	0.03	0.06	57.2
Approach		355	0.0	374	0.0	0.198	0.5	NA	0.2	1.3	0.06	0.03	0.06	59.4
All Vehicles		1101	0.0	1159	0.0	0.546	4.3	NA	3.2	22.4	0.23	0.35	0.35	55.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [Industrial Access_AM(2033) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Industrial Access														
1	L2	17	0.0	18	0.0	0.154	6.6	LOS A	0.5	3.6	0.54	0.78	0.54	50.4
3	R2	70	0.0	74	0.0	0.154	10.6	LOS B	0.5	3.6	0.54	0.78	0.54	49.9
Approach		87	0.0	92	0.0	0.154	9.8	LOS A	0.5	3.6	0.54	0.78	0.54	50.0
East: Oliver Dr East														
4	L2	279	0.0	294	0.0	0.311	5.6	LOS A	0.0	0.0	0.00	0.29	0.00	55.8
5	T1	283	0.0	298	0.0	0.311	0.1	LOS A	0.0	0.0	0.00	0.29	0.00	57.2
Approach		562	0.0	592	0.0	0.311	2.8	NA	0.0	0.0	0.00	0.29	0.00	56.5
West: Oliver Dr West														
11	T1	330	0.0	347	0.0	0.254	1.1	LOS A	0.9	6.5	0.28	0.12	0.28	57.7
12	R2	68	0.0	72	0.0	0.254	8.8	LOS A	0.9	6.5	0.28	0.12	0.28	55.6
Approach		398	0.0	419	0.0	0.254	2.4	NA	0.9	6.5	0.28	0.12	0.28	57.4
All Vehicles		1047	0.0	1102	0.0	0.311	3.2	NA	0.9	6.5	0.15	0.27	0.15	56.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [Industrial Access_PM(2033) (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND 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	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Industrial Access														
1	L2	68	0.0	72	0.0	0.570	9.3	LOS A	3.4	23.6	0.68	1.00	1.14	48.6
3	R2	279	0.0	294	0.0	0.570	13.4	LOS B	3.4	23.6	0.68	1.00	1.14	48.1
Approach		347	0.0	365	0.0	0.570	12.6	LOS B	3.4	23.6	0.68	1.00	1.14	48.2
East: Oliver Dr East														
4	L2	70	0.0	74	0.0	0.227	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	57.4
5	T1	347	0.0	365	0.0	0.227	0.1	LOS A	0.0	0.0	0.00	0.10	0.00	59.0
Approach		417	0.0	439	0.0	0.227	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.7
West: Oliver Dr West														
11	T1	354	0.0	373	0.0	0.207	0.2	LOS A	0.2	1.4	0.06	0.03	0.06	59.5
12	R2	17	0.0	18	0.0	0.207	7.5	LOS A	0.2	1.4	0.06	0.03	0.06	57.2
Approach		371	0.0	391	0.0	0.207	0.5	NA	0.2	1.4	0.06	0.03	0.06	59.4
All Vehicles		1135	0.0	1195	0.0	0.570	4.4	NA	3.4	23.6	0.23	0.35	0.37	55.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.