# Traffic and Transport Study

Request for Planning Proposal
1055 Bruxner Highway, Goonellabah

Prepared for: Nimble Estates Pty Ltd

November 2022

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# Table of Contents

**Appendices**

Appendix A – Concept Plan

Appendix B – Traffic Network Diagrams

Appendix C – SCATS Data

Appendix D – Sidra Output Reports

**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 appropriately 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.

- 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 is expected to generate an additional 914 trips and 939 trips during the AM and PM peak, respectively. SIDRA intersection analysis indicates all the analysed intersections generally operate at high levels of service with acceptable average delays during the existing and 10-year growth scenarios with the additional development traffic. No modifications or improvements are required to the existing configurations of the intersections of Oliver Avenue with Bruxner Highway and Holland Street.

- 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 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.

# 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 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 346 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 105 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 346 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 (23.27 hectares), mixed business zoned land (2.76 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.

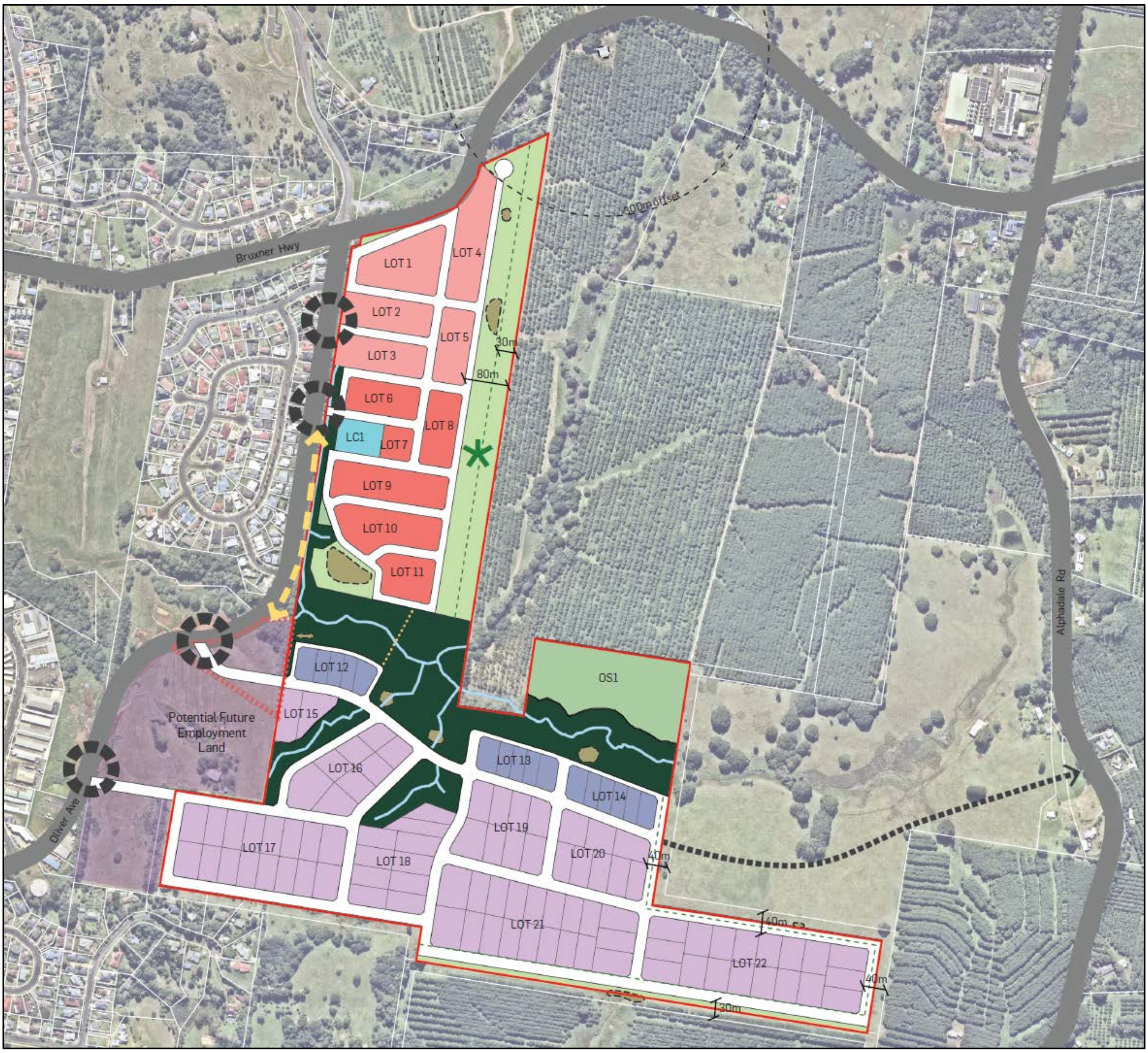



*Figure 3.1: Site Location*

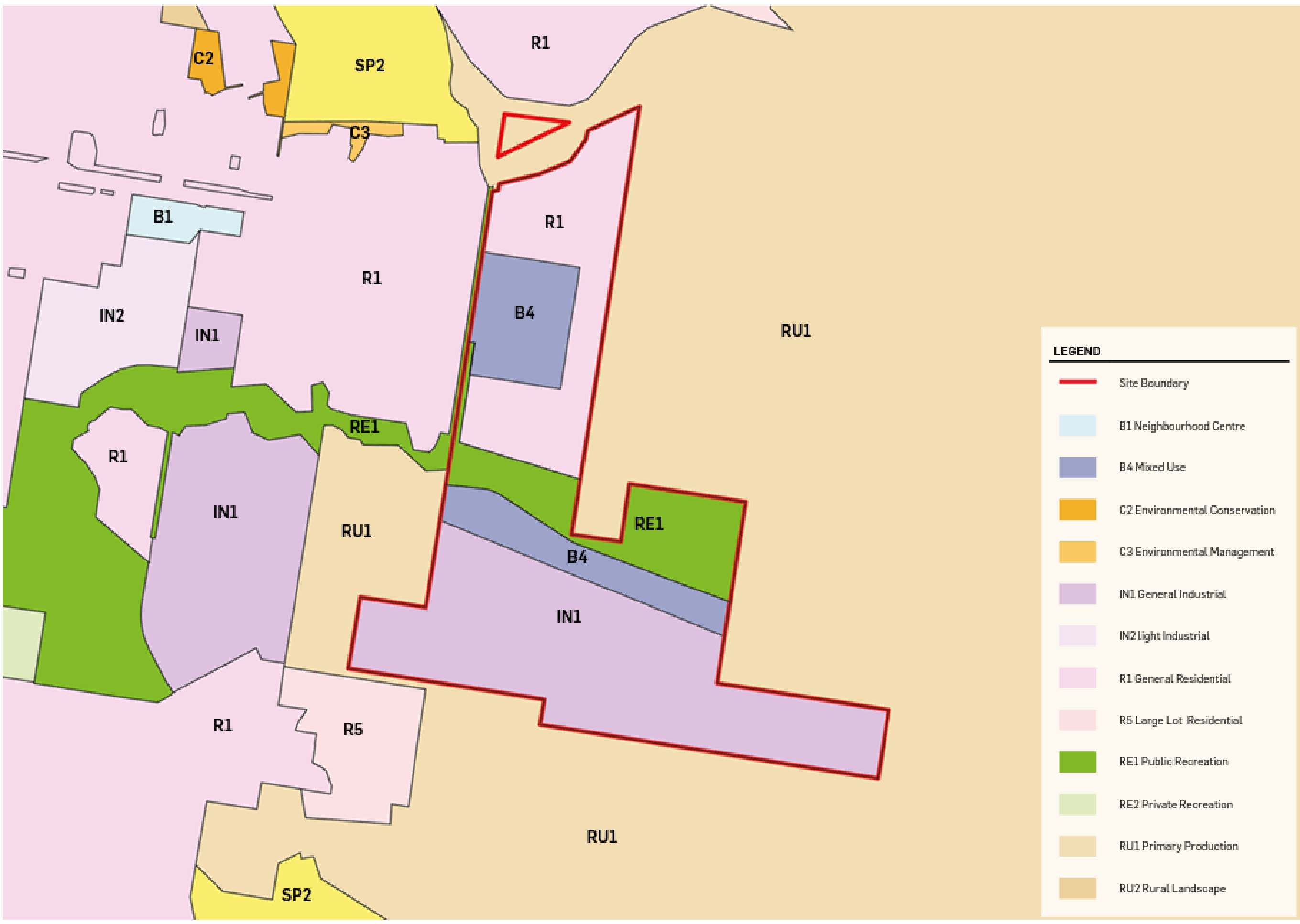



*Figure 3.2: Proposed Site Zoning*

## 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 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 3.4 to Figure 3.7.

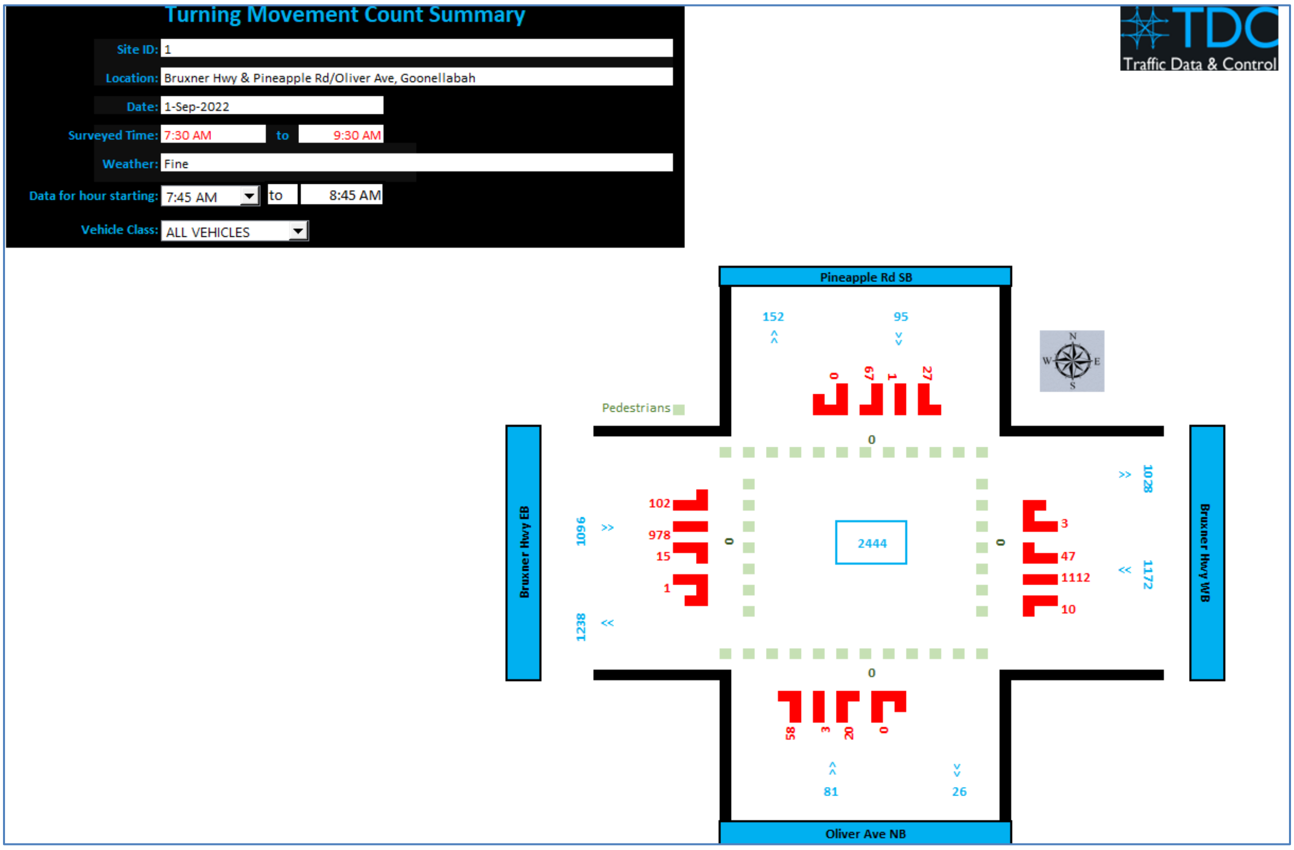



Figure 3.4: Intersection Count, Bruxner Highway/Oliver Avenue, Morning Peak

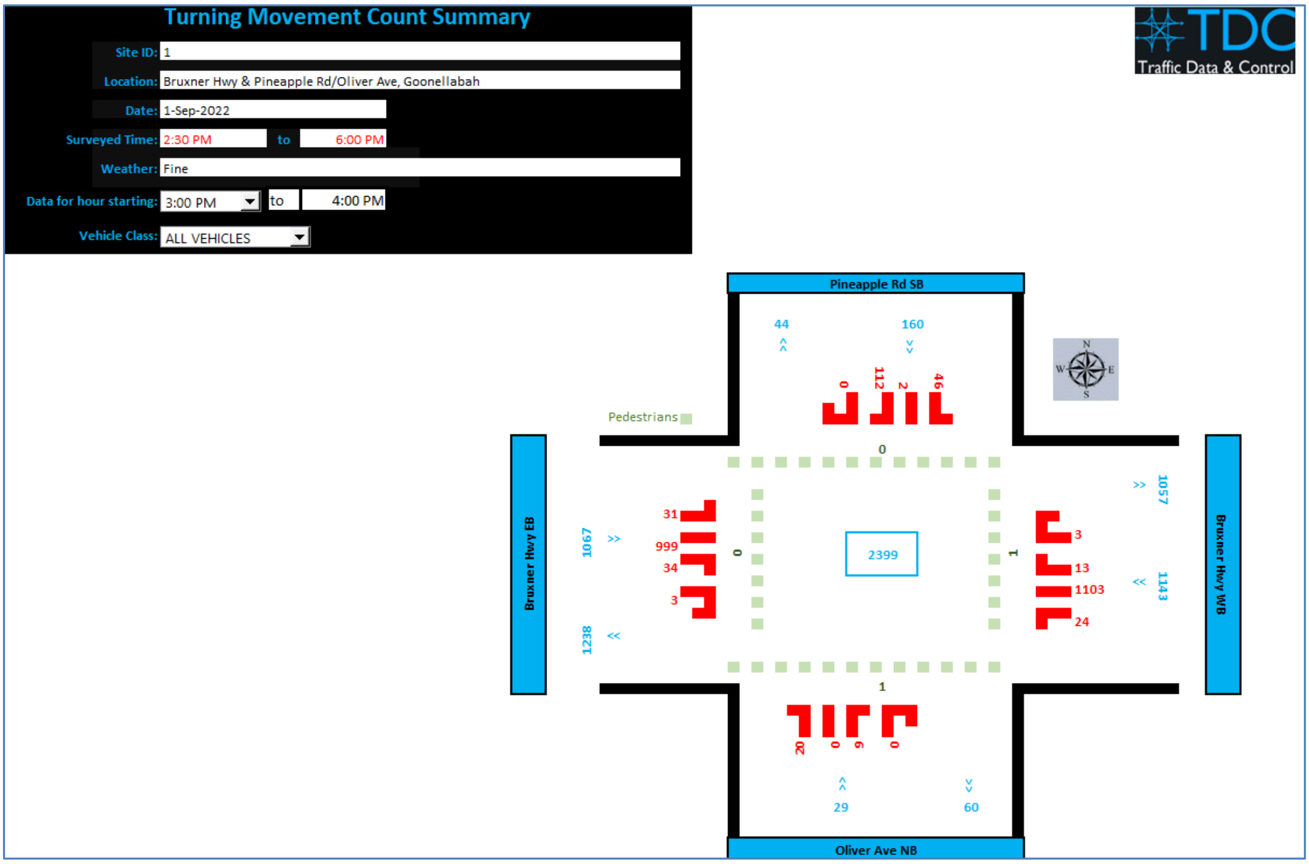



Figure 3.5: Intersection Count, Bruxner Highway/Oliver Avenue, Afternoon Peak

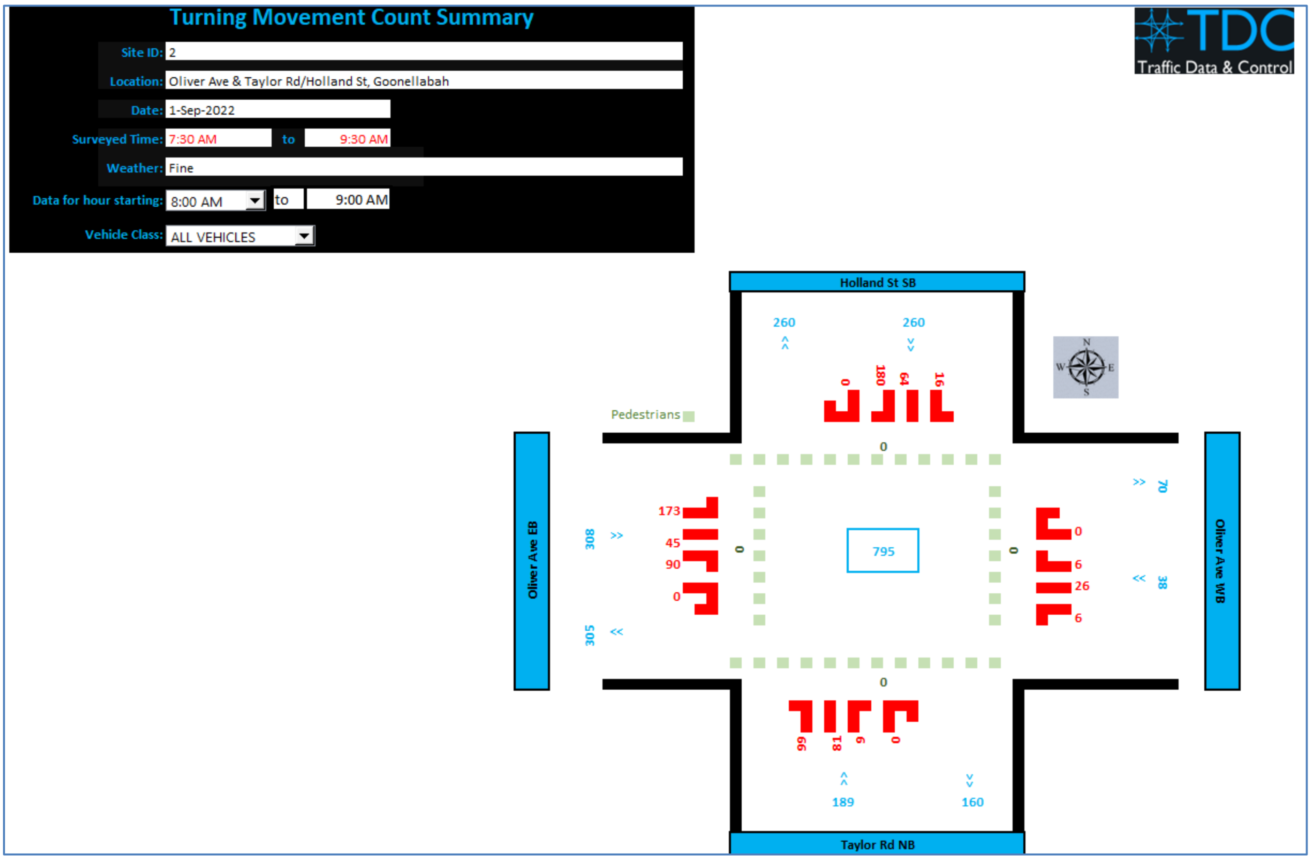



*Figure 3.6: Intersection Count, Oliver Avenue/Holland St, Morning Peak*

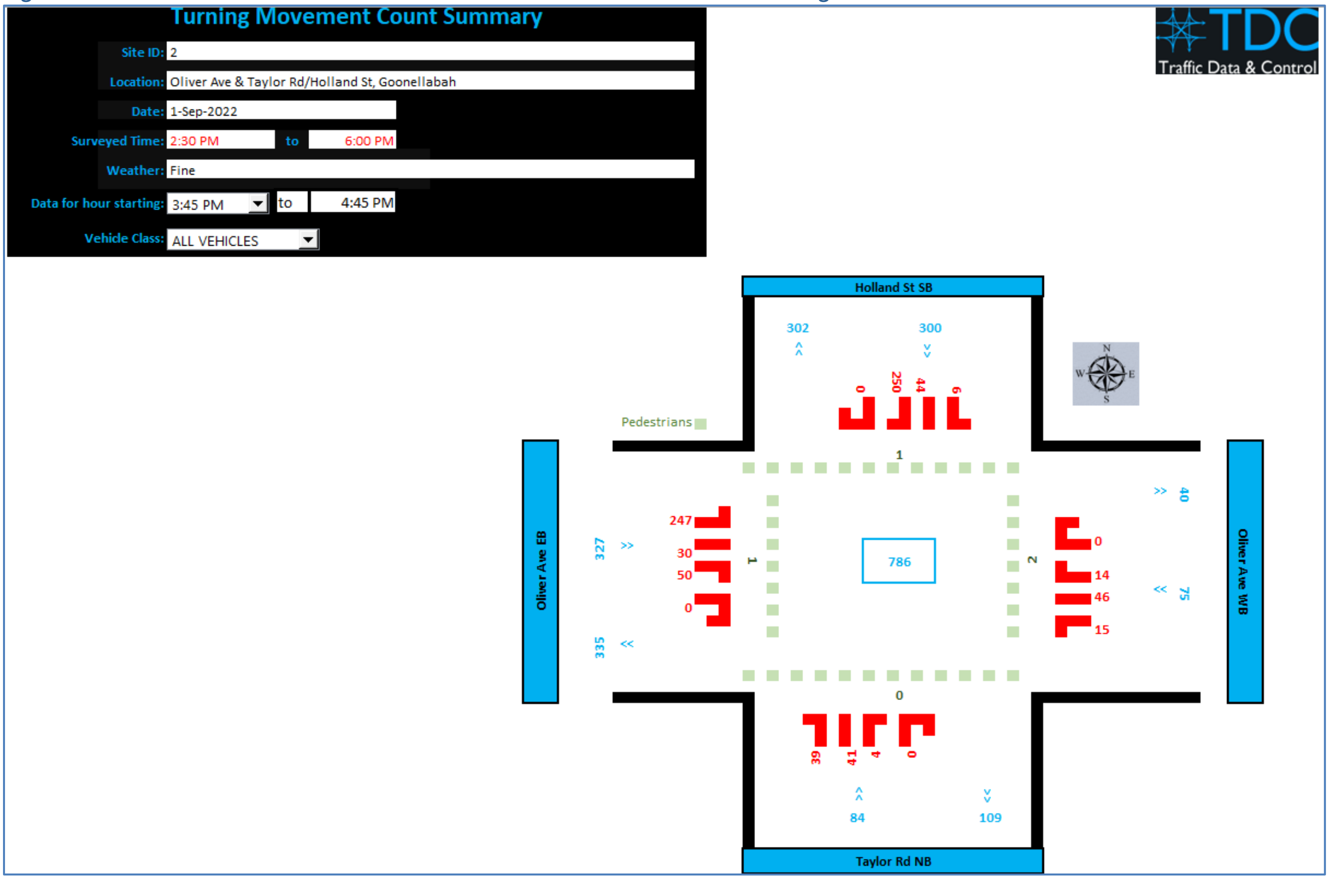


*Figure 3.7: Intersection Count, Oliver Avenue/Holland St, Afternoon Peak*

## 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 would consist of residential developments, industrial developments and open space. Table 4.1 below summarises the proposed development yield and associated facilities. The Proposed layout, as prepared by Urbis in 10 Aug 2022, is shown in Figure 4.1 below and attached to Appendix A.

*Table 4.1: Proposed Development Yield*

| Land Use | Yield |
|---|---|
| Residential | 346 lots (refer note) |
| Industrial | 23.27 hectares |
| Business | 2.76 hectares |
| Local Centre | 2,500m² GLFA<br>(1/2 of the site area) |

**Note:** This report has been prepared on the basis of 364 lots and is thus additionally conservative


*Figure 4.1: Proposed Rezoning Layout*

## 4.2 Parking Provision

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), outlined in Section 5 below.

## 4.3 Access and Circulation

Vehicular access will be established via three intersections along Oliver Avenue, circled in *Figure 4.*1 above. A fourth intersection will be constructed as part of the development of an adjoining lot owned by others. They will be designed in accordance with Austroads guidelines and be suitable for the type and volume of vehicles modelled to use the intersection.

## 4.4 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 Street Character, Access and Car Parking Assessment

## 5.1 Parking requirements

The proposed parking provision for the different uses of the site will be in accordance with the Lismore DCP 2012 as outlined below:

### 5.1.1 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.

#### 5.1.2 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 100m² GFA or 3 spaces per work bay (whichever is greater)
  - Factory: 1.3 spaces per 100m²
  - Warehouse: 1 space per 300m²
  - Plant Nurseries: 0.5 spaces per 100m² GFA or 15 spaces, whichever is greater
  - Business Park:
    - 1.5 spaces per 100m² total GFA, or
    - 1.8 spaces per 100m² office GFA, and 1.2 spaces per 100m² industrial GFA.

### 5.2 Loading Requirements

#### 5.2.1 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 ≤ 1,000m² GFA, spaces designed for 12.5m HRVs
  - If > 1,000m² 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

#### 5.2.2 RMS 'Guide to Traffic Generating Developments' 2002

The wholesale and industrial rate for developments <8,000m² GFA is 1 loading bay space per 800m². For developments >8,000m², 10 spaces would be required, plus 1 space per 1,000m² over 8,000m².

## 5.3 Street Character and Access

### 5.3.1 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 Table 5.1 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.

### 5.3.2 Industrial Subdivisions

Similarly, industrial street hierarchy is outlined in Table 5.2 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<br><br>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.

# 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.

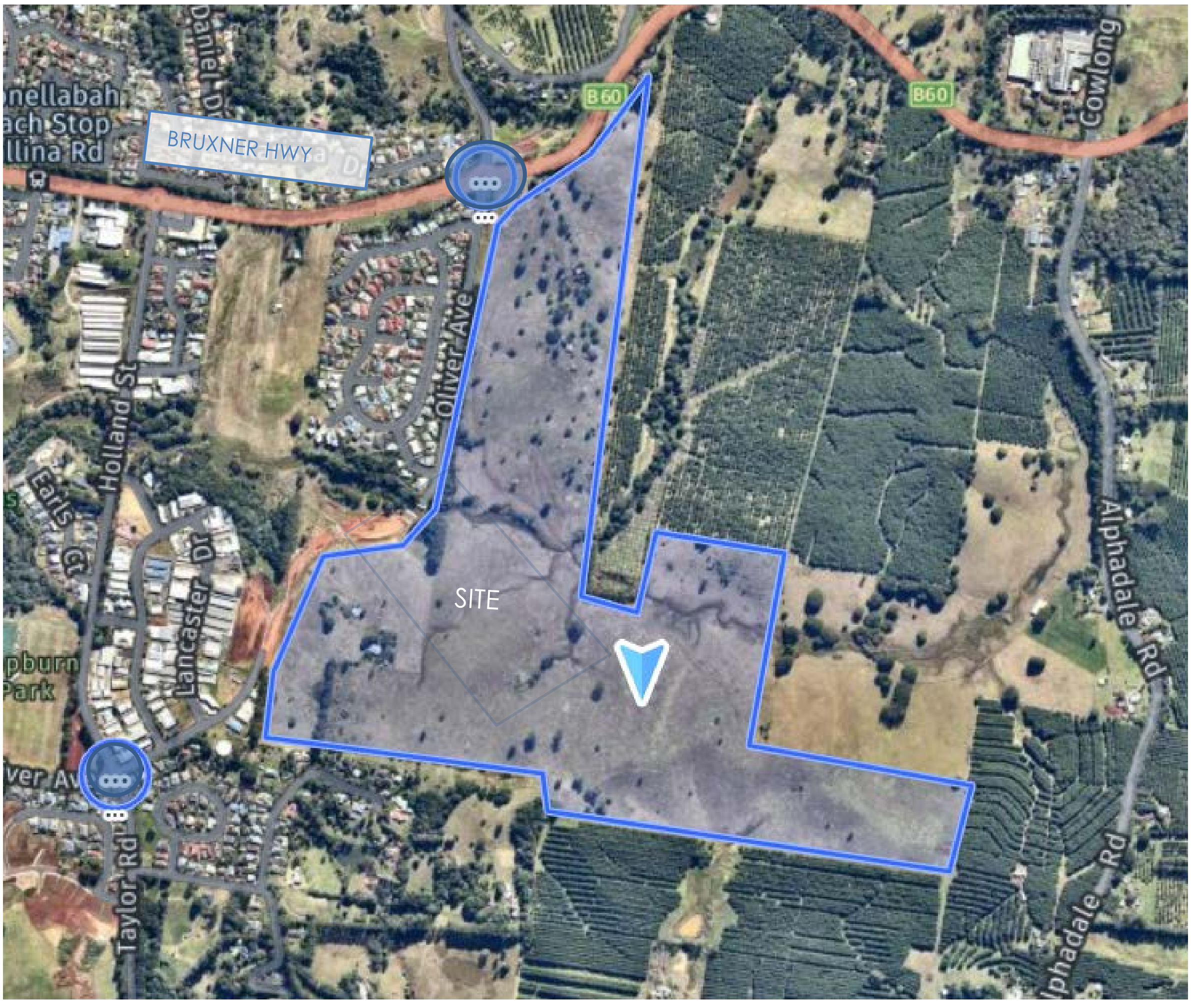



*Figure 6.1: Site and critical intersections locations (source: NearMap September 2022)*

## 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.

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 aviable 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 |
| Residential | 364 lots | 0.71 trips per dwelling | 258 trips | 0.78 trips per dwelling | 284 trips |
| Industrial | 23.27 Ha | 18 trips per Ha | 419 trips | 18 trips per Ha | 419 trips |
| Business | 2.76 Ha | 18 trips per Ha | 50 trips | 18 trips per Ha | 50 trips |
| Local centre | 2,500 m² GLFA (1/2 of the site area) | 7.48per 100m² GLFA | 187 trips | 7.48per 100m² GLFA | 187 trips |
| **Total** | **-** | **-** | **914 trips** | **-** | **940 trips** |

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

- AM trips = 914 trips
- PM trips = 940 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 at Goonellabah located in Pineapple Road Precinct. The approval is for a staged subdivision within the Pineapple Rd Precinct.

The first stage included 22 large lot residential blocks off Richmond Hill Rd; stage two would be 15 general residential lots accessed via Pineapple Rd and Misty Valley View; and stage three would be 45 general residential lots.


*Figure 6.2: Approved Development site (source: The Daily Telegraph and NortehrnStar)*

It is assumed that traffic generated from the stage 2 and stage 3 of the approved subdivision will use Pineapple Road to gain access. Therefore, a total 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 have impact on the intersection of Bruxner Highway and Oliver Avenue:

*Table 6.2: Approved use – trip generation*

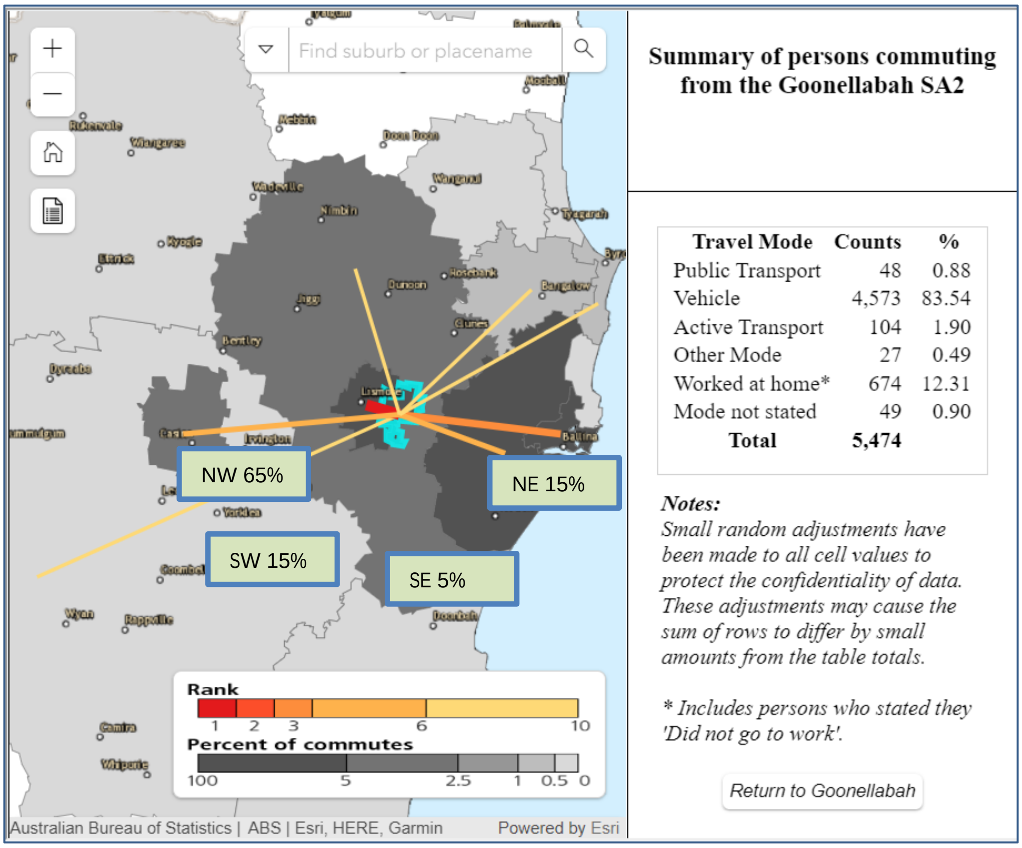
| Use | Yield | AM | | PM | |
|---|---|---|---|---|---|
| | | Trip Generation Rate | Total Trip Generation | Trip Generation Rate | Total Trip Generation |
| Residential | 60 lots | 0.71 trips per dwelling | 43 trips | 0.78 trips per dwelling | 47 trips |
| **Total** | - | - | **43 trips** | - | **47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

- The likely trip distribution of the additional number of residential and industrial/commercial vehicular trips from and adjacent to the development site is based on the ABS journey-to-work data for residents travelling to work from the Goonellabah and people travelling to Goonellabah for work.
- 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 and arriving 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 1.7% linear growth rate for the background traffic. (ref: Lismore to Bangalow Draft Corridor Strategy 2016)
- The following future scenarios have been investigated:
    - Base-case without the development traffic, projected to full development year
    - Base-case plus development traffic including approved Pineapple Road Precinct traffic, projected to full development year
    - Base-case without the development traffic, projected to 10 years after full development year
    - Base-case plus the development traffic including approved Pineapple Road Precinct traffic, projected to 10 years after full development year

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.




| Travel Mode | Counts | % |
|---|---|---|
| Public Transport | 48 | 0.88 |
| Vehicle | 4,573 | 83.54 |
| Active Transport | 104 | 1.90 |
| Other Mode | 27 | 0.49 |
| Worked at home* | 674 | 12.31 |
| Mode not stated | 49 | 0.90 |
| **Total** | **5,474** | |

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

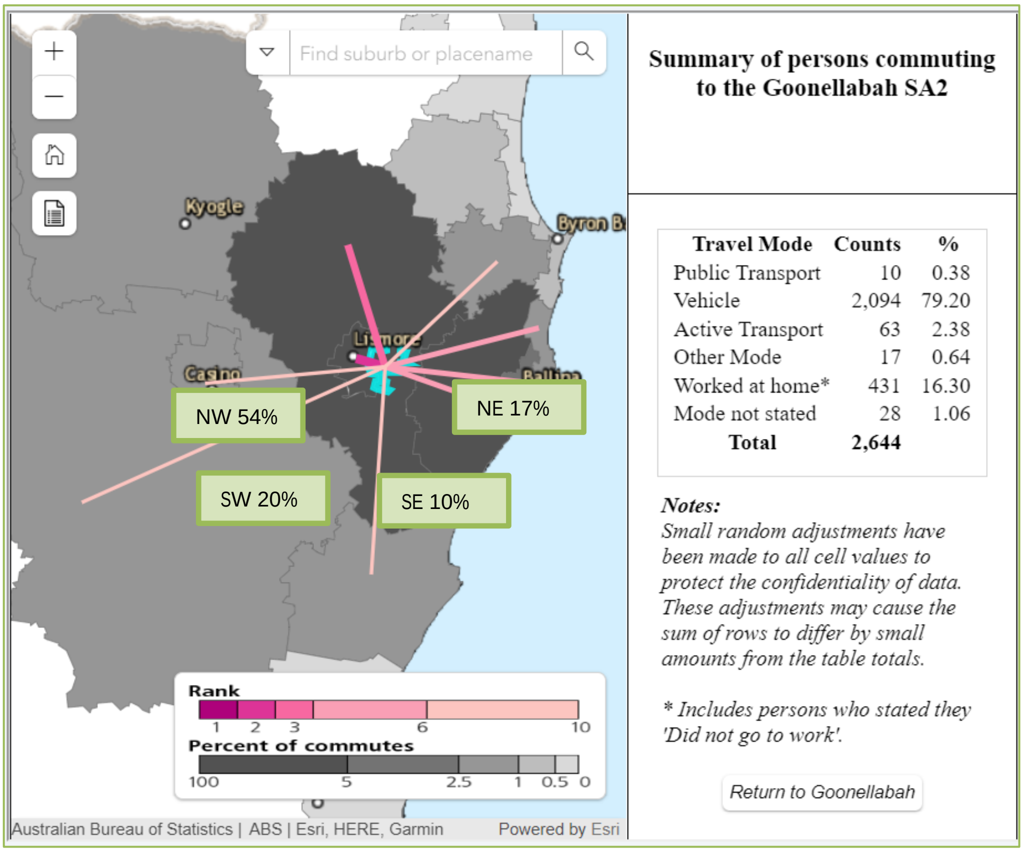



*Figure 6.4: Journey to Work to Goonellabah (Incoming) (Source: Australian Bureau of Statistics)*

Consequently, with the existing trips redistributed, the trips generated by the approved and 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 6.5 to Figure 6.14 below.

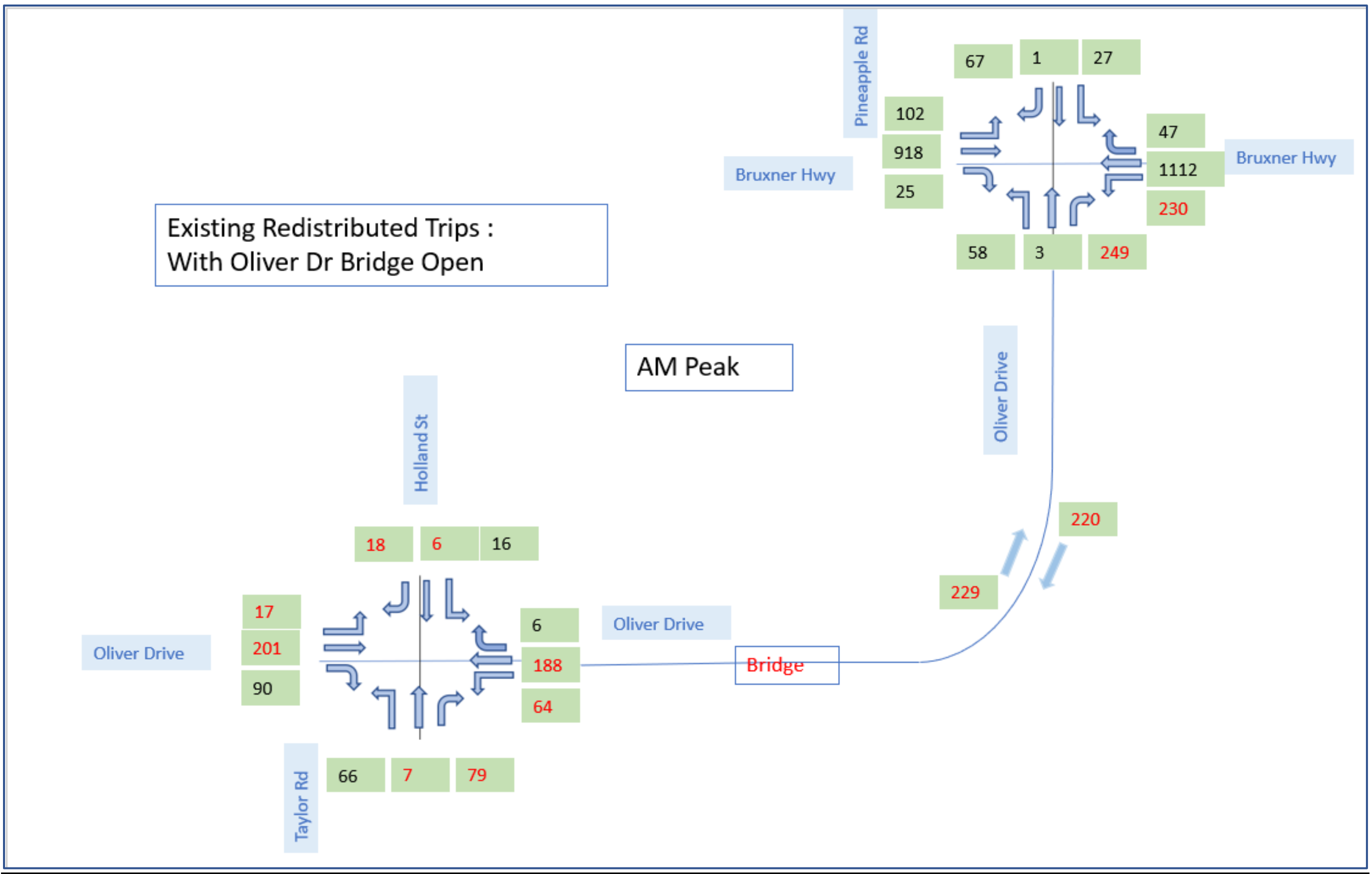



*Figure 6.5: Existing redistributed trips (AM Peak)*

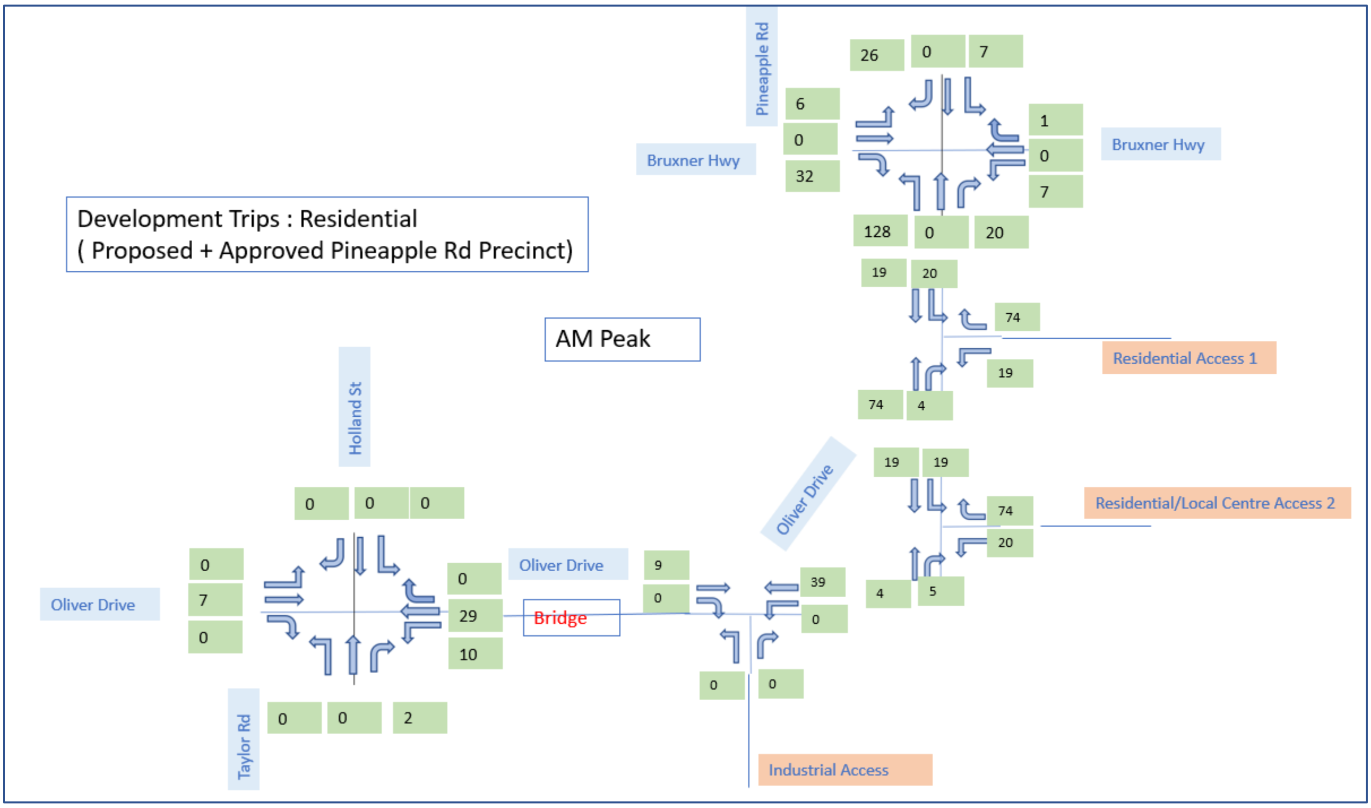


Figure 6.6: Total residential assigned trips (AM Peak)

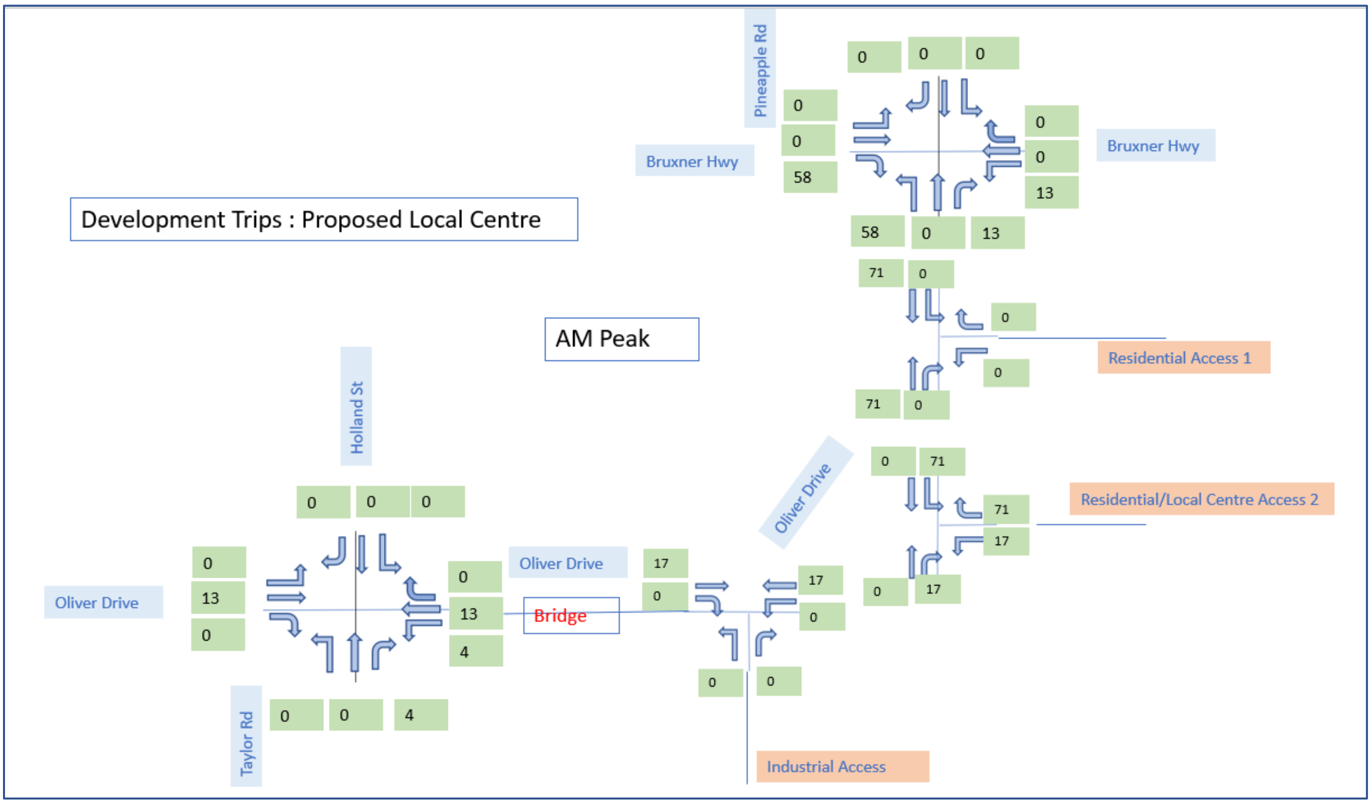



Figure 6.7: Local centre assigned trips (AM Peak)

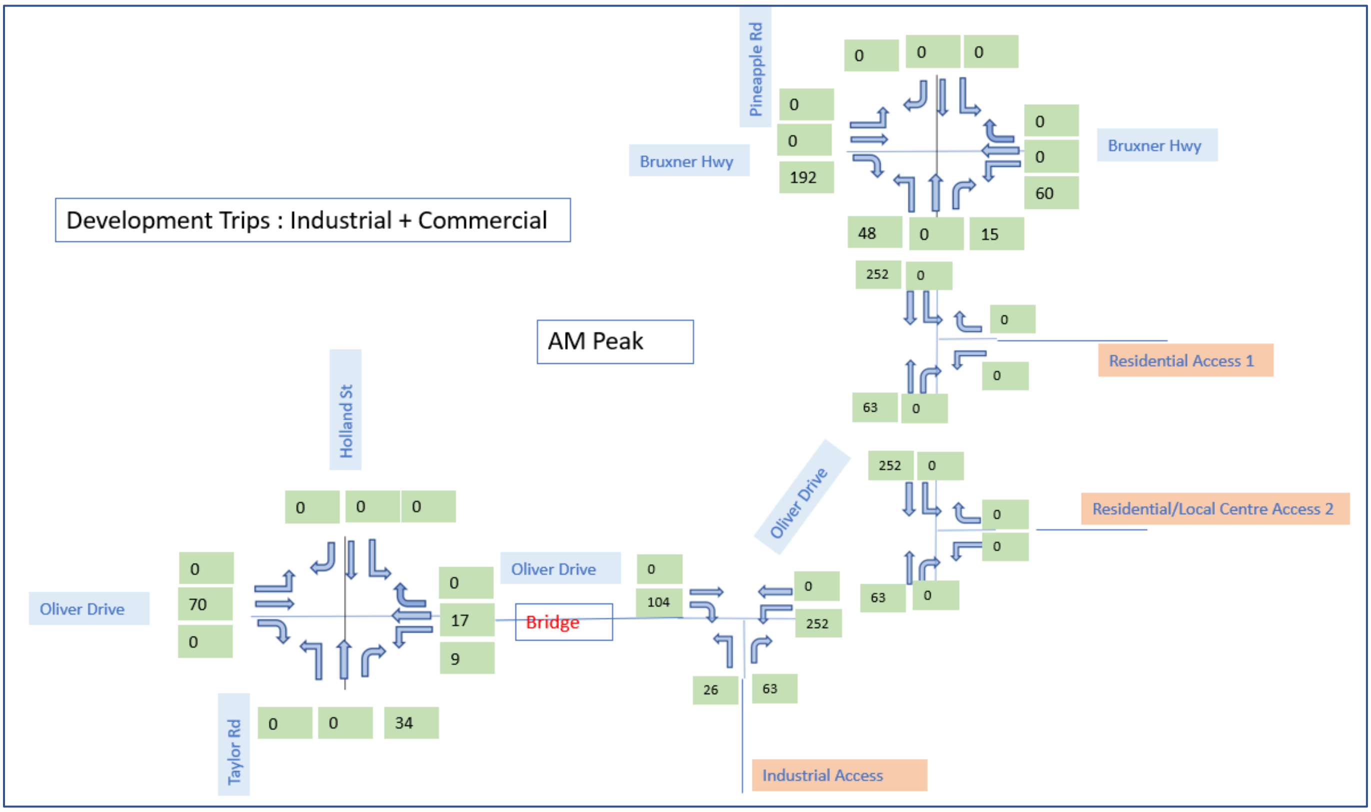



Figure 6.8: Industrial and business assigned trips (AM Peak)

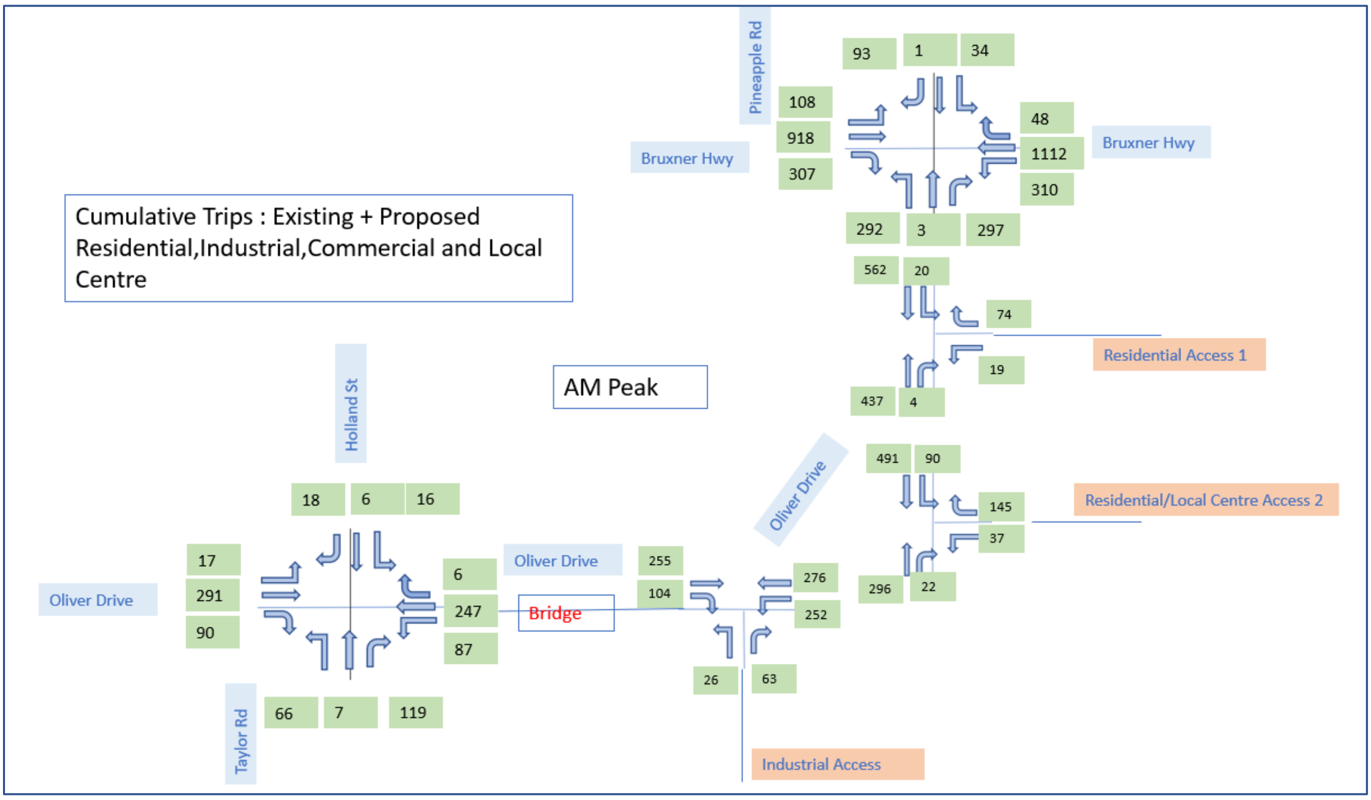


Figure 6.9: Cumulative existing and proposed assigned trips (AM Peak)

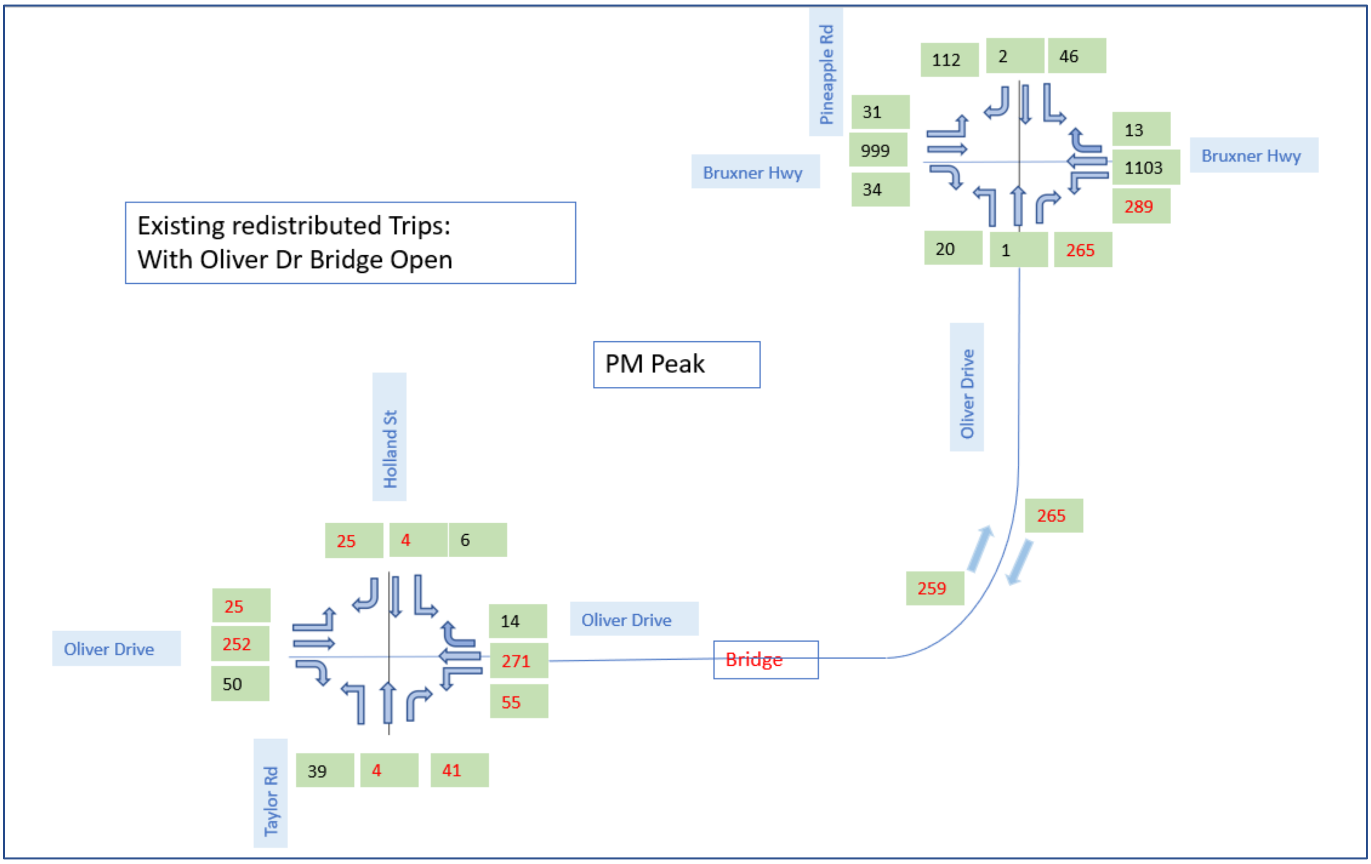


Figure 6.10: Existing redistributed trips (PM Peak)

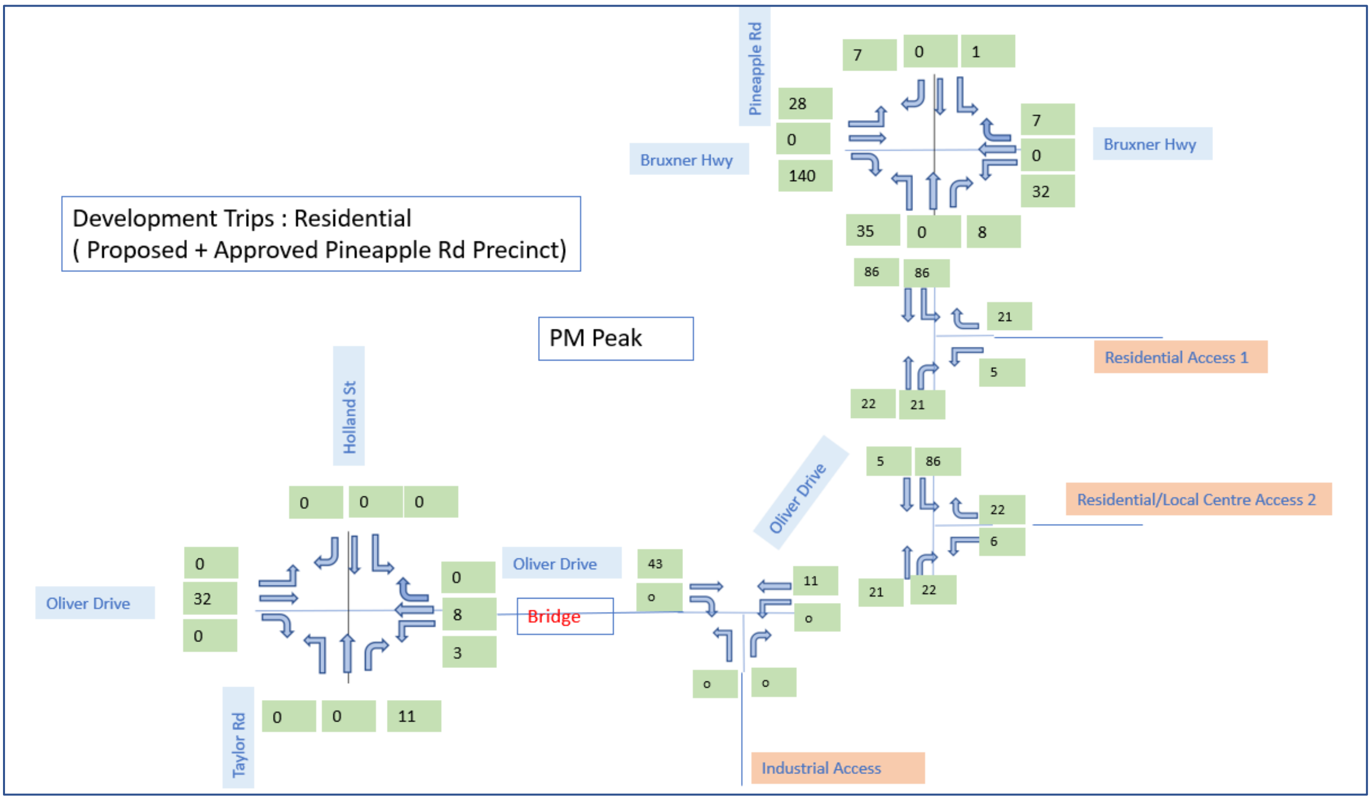



Figure 6.11: Total residential assigned trips (PM Peak)

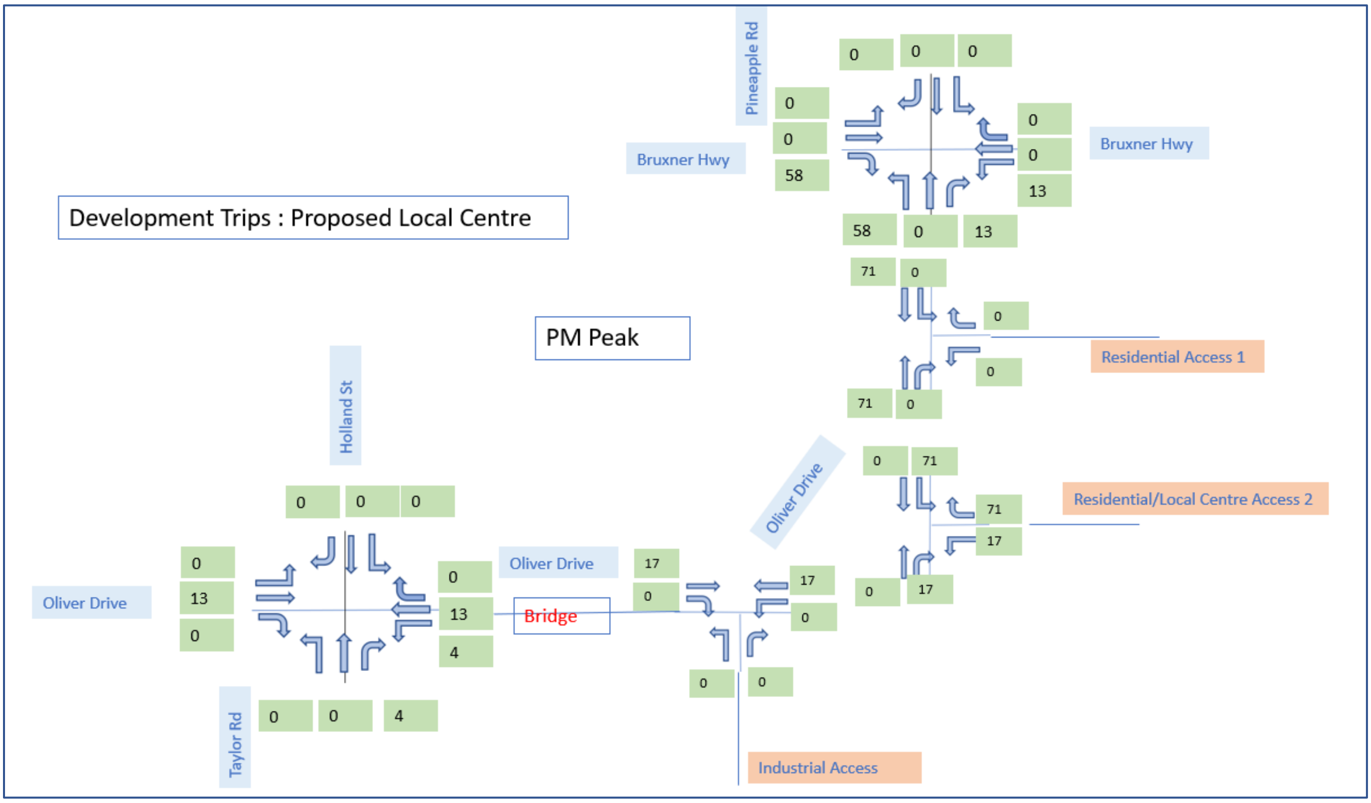



Figure 6.12: Local centre assigned trips (PM Peak)

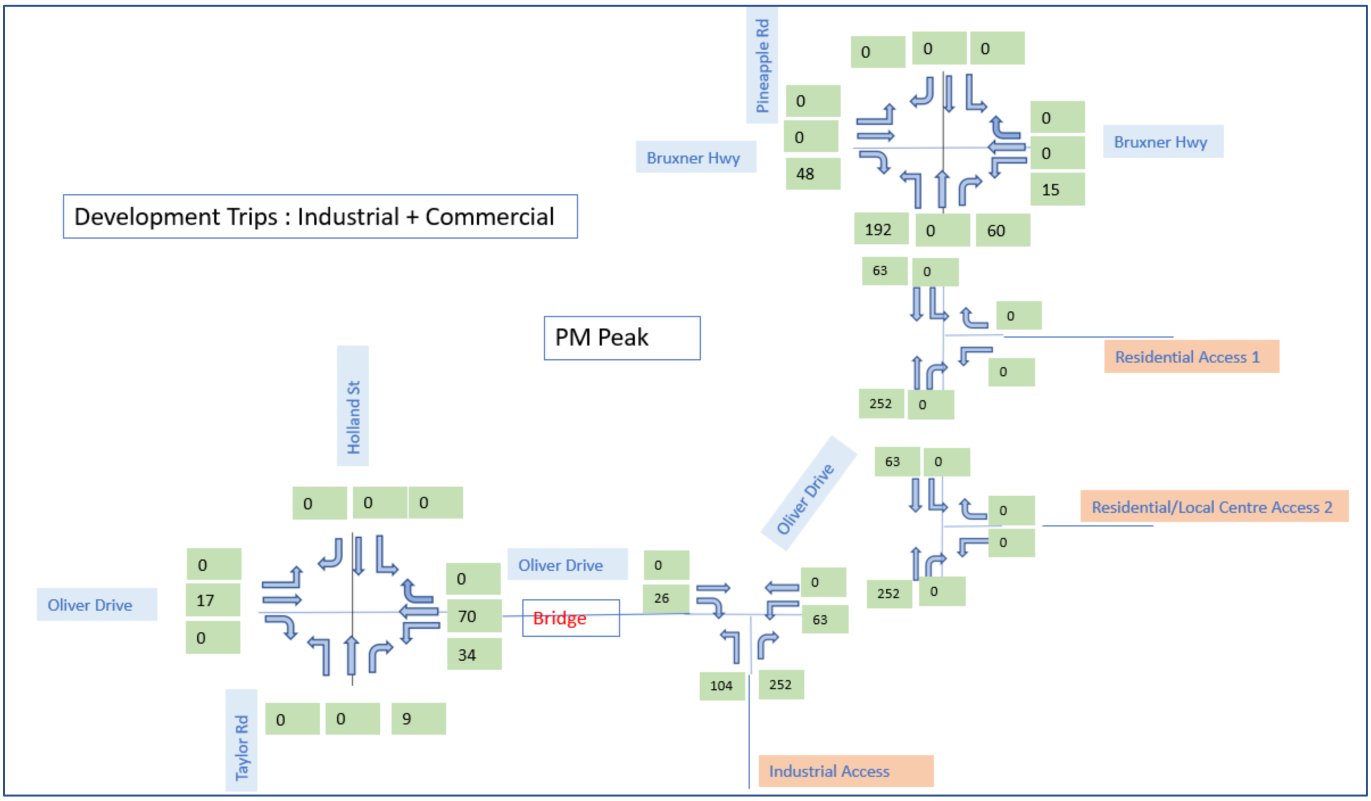



*Figure 6.13: Industrial and business assigned trips (PM Peak)*

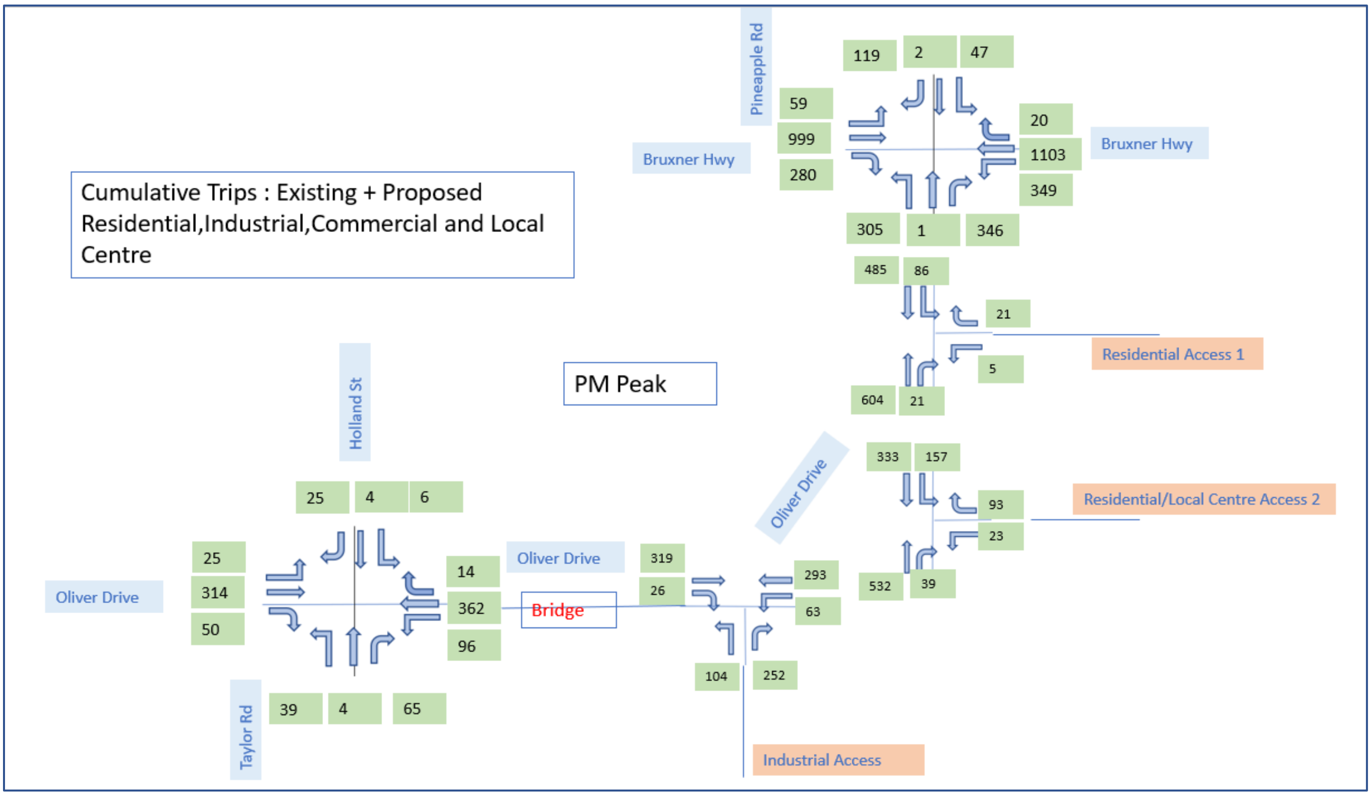



*Figure 6.14: Cumulative existing and proposed assigned trips (PM Peak)*

## 6.4 SIDRA Analysis and Impact of Generated Traffic

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 as well as the proposed access road intersections with Oliver Avenue outlined at the start of Section 6 have been assessed for the full development stage and 10-year growth scenarios for AM and PM peak periods. A growth rate of 1.7% per annum has been applied to the surveyed and assigned traffic to obtain the 10-year growth volumes as a worst-case scenario.

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

*Table 6.3: 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) | 6.4 | 10.8 | 7.2 | 24.1 |
| | LOS | A | B | A | C |
| PM | Delay (s) | 6.7 | 11.2 | 7.6 | 26.0 |
| | LOS | A | B | A | C |

*Table 6.4: 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) | 8.4 | 9.3 | 9.0 | 10.7 |
| | LOS | A | A | A | B |
| PM | Delay (s) | 8.3 | 8.8 | 8.6 | 10.1 |
| | LOS | A | A | A | B |

*Table 6.5: 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 | 1.6 |
| | LOS | N/A | A | N/A | A |
| PM | Delay (s) | N/A | 1.0 | N/A | 1.2 |

| | | | | | |
|---|---|---|---|---|---|
| | LOS | N/A | A | N/A | A |

*Table 6.6: 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 | 3.6 |
| | LOS | N/A | A | N/A | A |
| PM | Delay (s) | N/A | 2.5 | N/A | 3.0 |
| | LOS | N/A | A | N/A | A |

*Table 6.7: 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 | 3.6 | N/A | 4.0 |
| | LOS | N/A | A | N/A | A |
| PM | Delay (s) | N/A | 4.2 | N/A | 5.3 |
| | 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 existing and 10-year growth scenarios with the additional development generated traffic.

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

The level of service for the left turn from Oliver Avenue to Bruxner Highway in the PM reduces to LoS E in the post development 10 year scenario, however, the maximum queue length will be only 15 vehicles so the impact is relatively minor.

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 to accommodate the development traffic even in 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.

## 6.5 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 can 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 the subdivisions/developments.

## 6.6 Consultation with Transport for NSW

### 6.6.1 Pre-lodgement Meeting with TfNSW

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.*

### 6.6.2 Response to TfNSW requirements

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.

# 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 346 residential lots (although 364 lots has been used in this analysis), 23.27 hectares of industrial land, 2.76 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.

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;
- Three new proposed intersections

The proposed rezoning is expected to generate an additional 914 trips and 939 trips during the AM and PM peak, respectively. SIDRA intersection analysis indicates all the analysed intersections generally operate at high levels of service with acceptable average delays during the existing and 10-year growth scenarios with the additional development traffic. No modifications or improvements are required to the existing configurations of the intersections of Oliver Avenue with Bruxner Highway and Holland Street.

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 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 in relation to the impact of traffic. The proposed re-zoning 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'.*

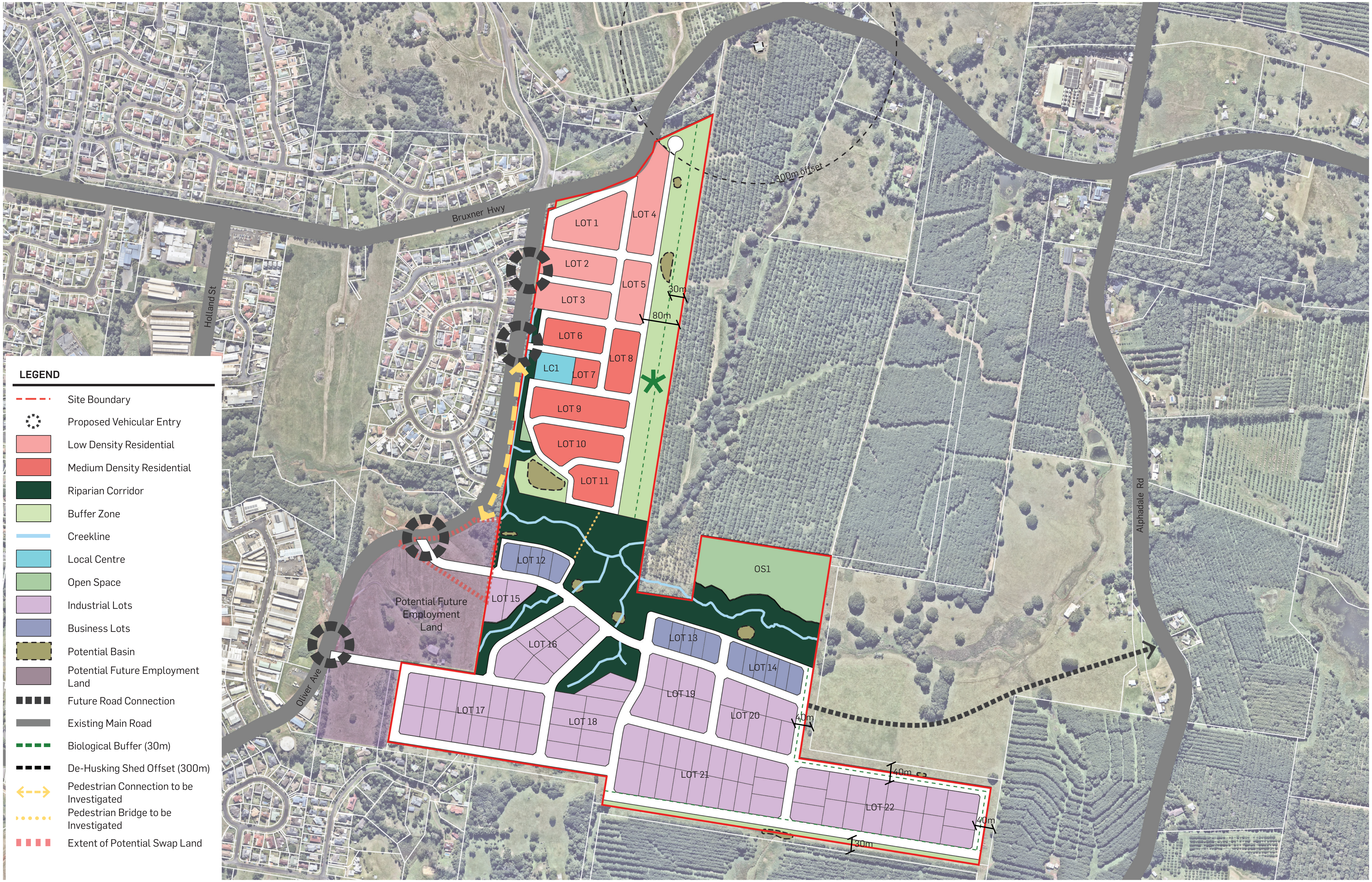
Australian Standards, 'AS/NZS 2890.6:2002 Off-Street Parking for People with Disabilities'.

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 – Concept Plan




URBIS

# OLIVER AVE, LISMORE GOONELLABAH

## ILLUSTRATIVE CONCEPT PLAN

**DISCLAIMER:**

This plan is conceptual and is for discussion purposes only and is subject to further detail study, Council approval, engineering input, and survey. Cadastral boundaries, areas and dimensions are approximate only. Written figured dimensions shall take preference to scaled dimensions.

1:7,500 @ A3

0 100 200 300 400

**DATE:** 26 SEP 2022

**JOB NO:** P0040564

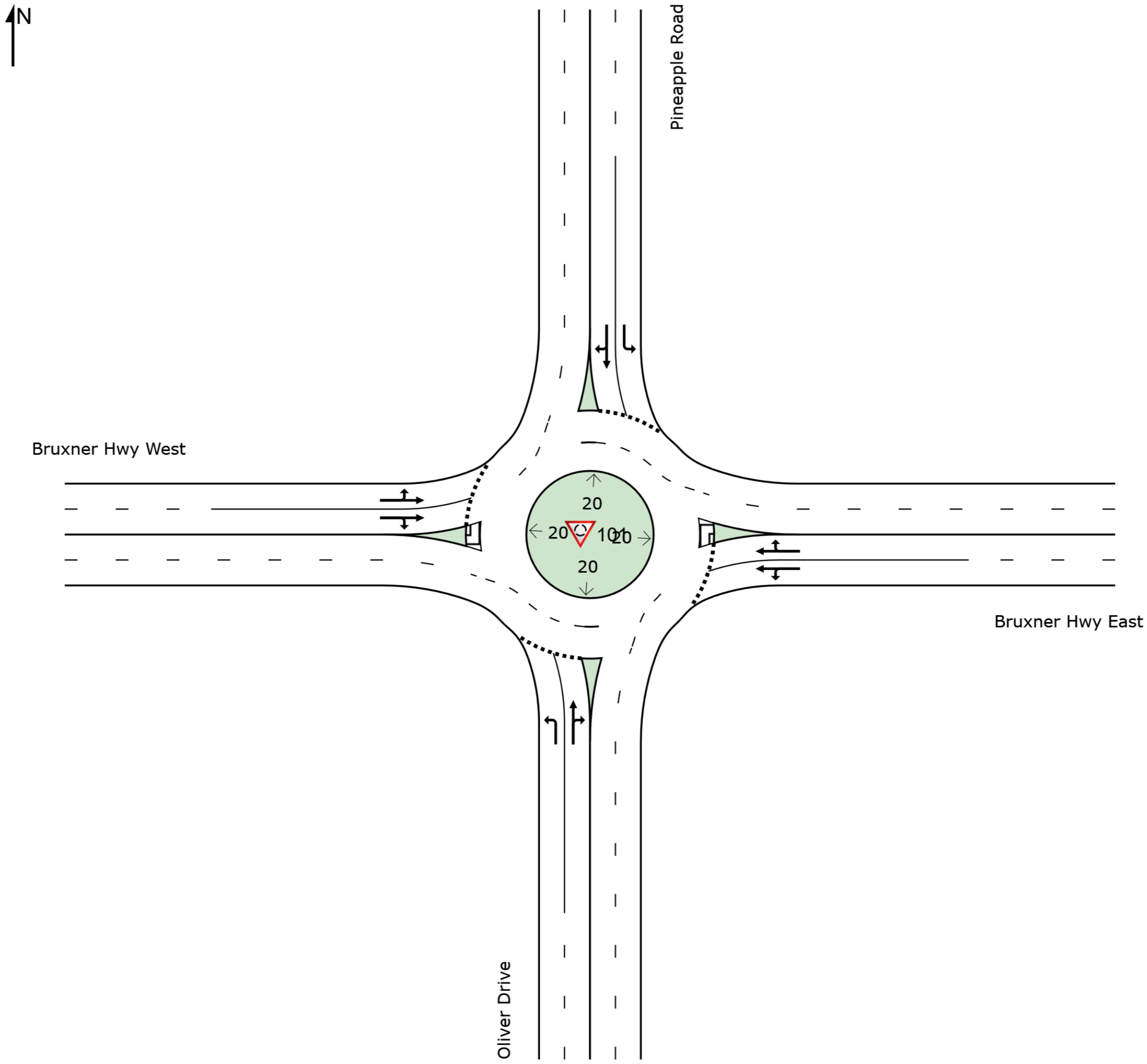
# Appendix B - Traffic Network Diagrams

# SITE LAYOUT

## Site: 101 [Bruxner Hwy/Oliver Drive_Existing Redistributed_AM (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.

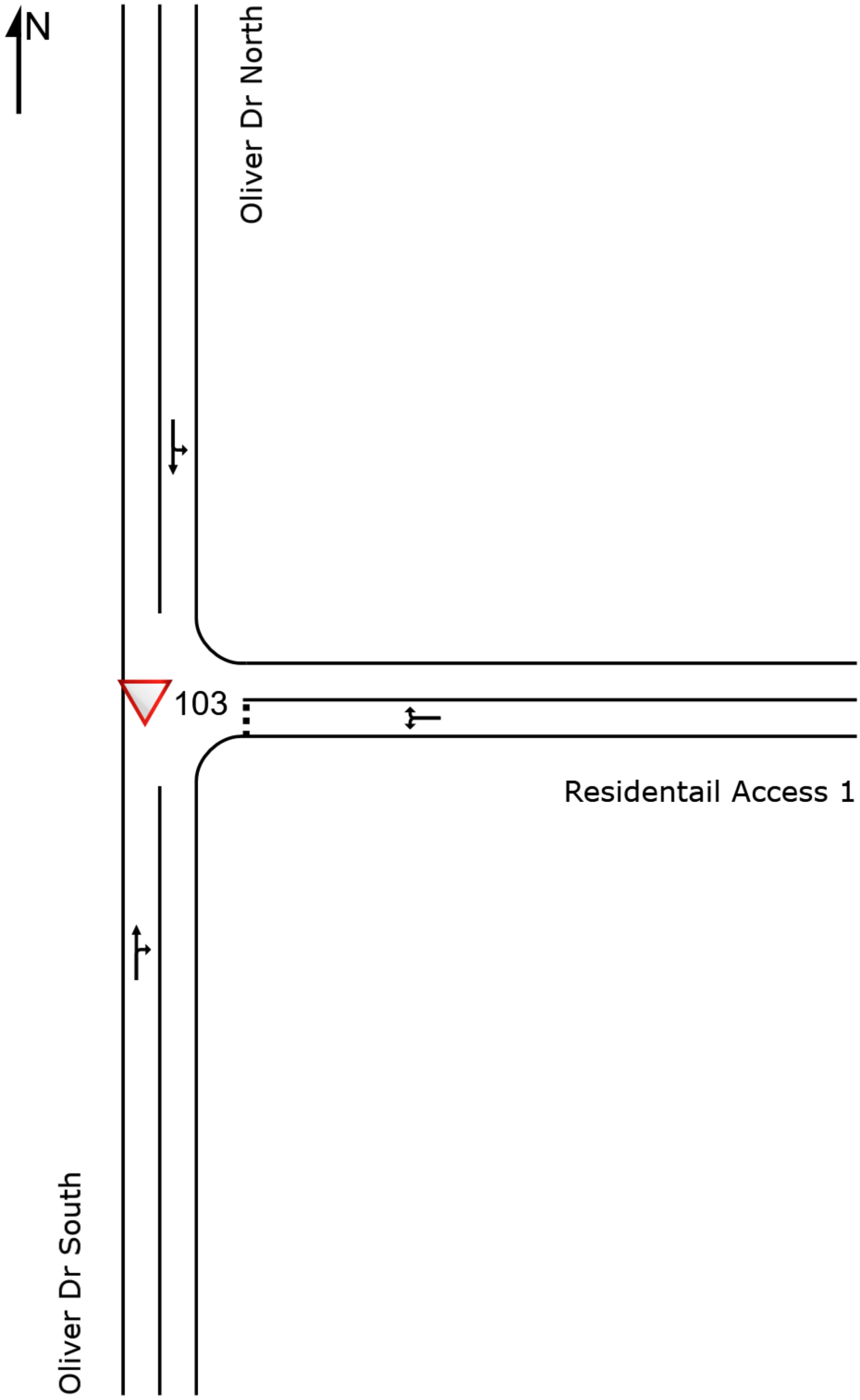


# SITE LAYOUT

## ▽ Site: 103 [Residentail Accees 1_AM (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.

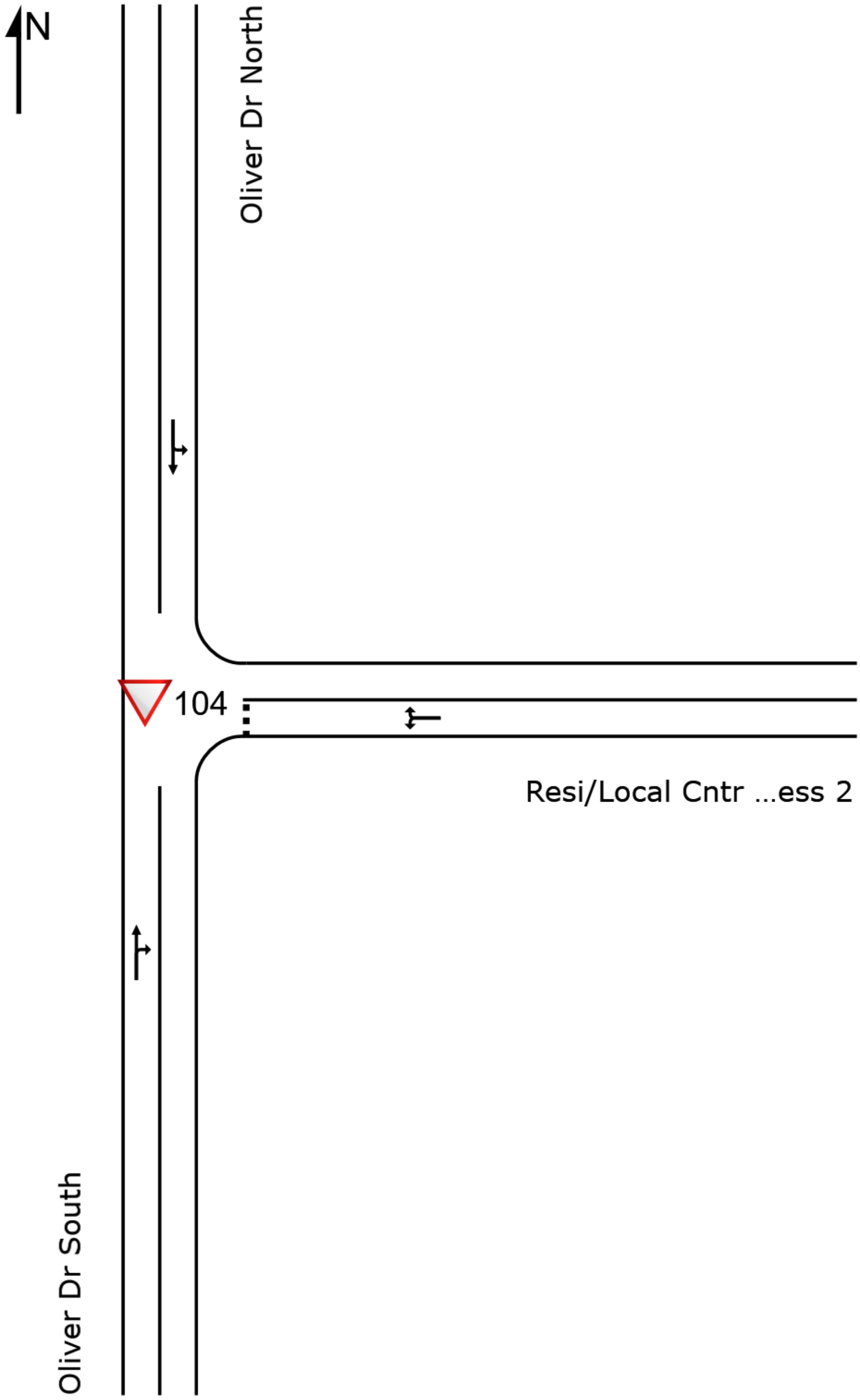


# SITE LAYOUT

## ▽ Site: 104 [Residentail/Local Centre Accees 2_AM (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.

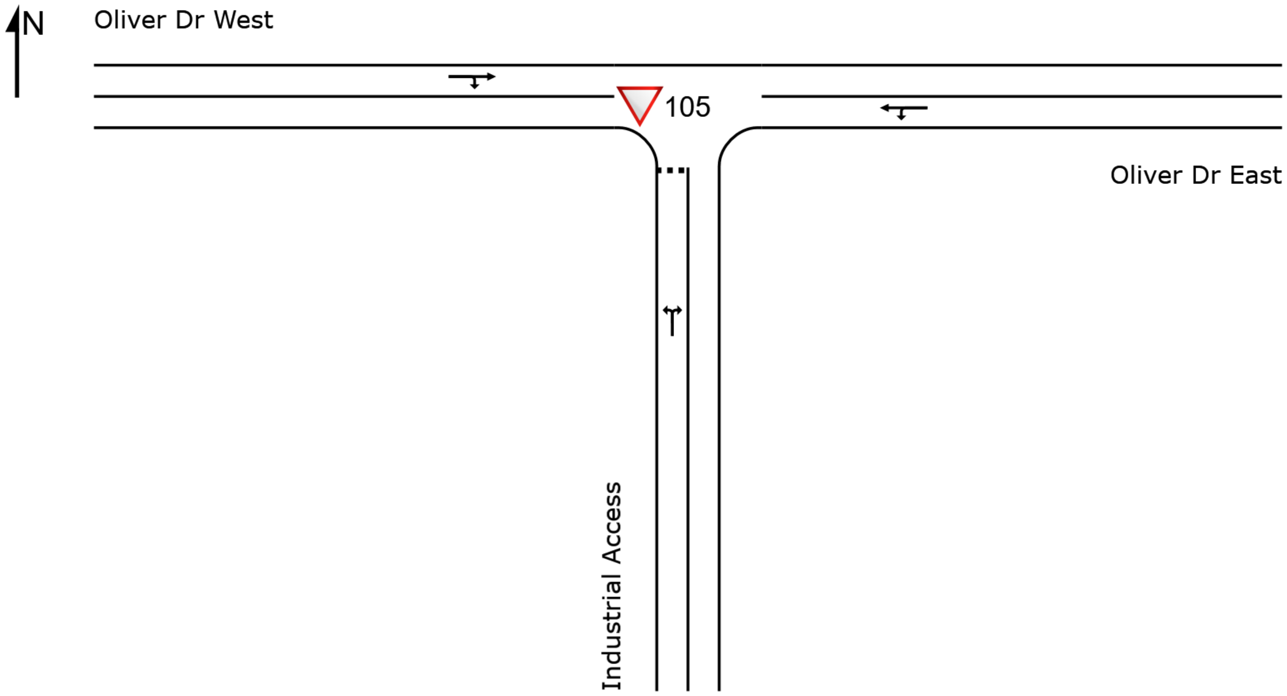


# SITE LAYOUT

## Site: 105 [Industrial Access_AM (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.

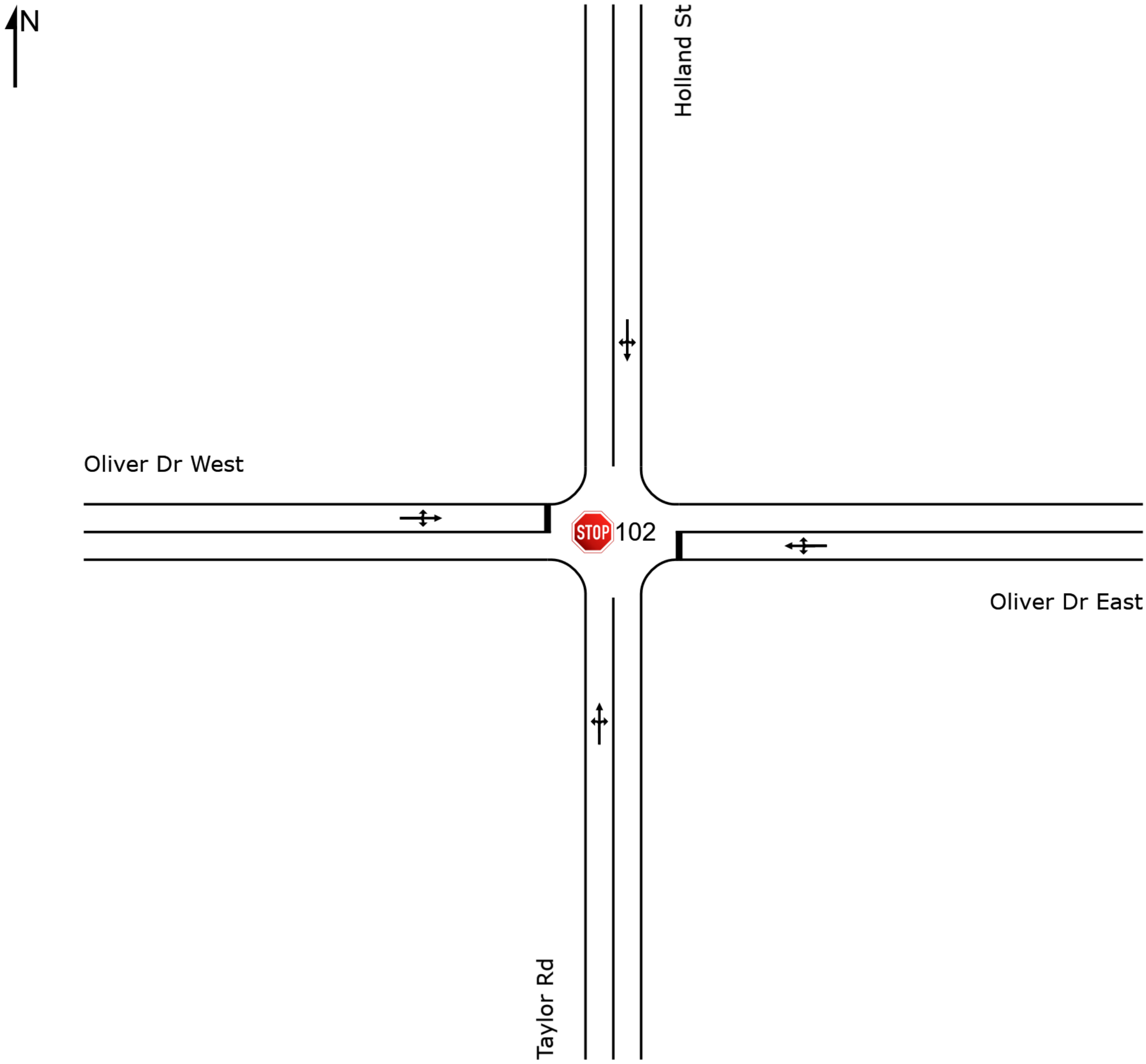


# SITE LAYOUT

## Site: 102 [Oliver Drive/Holland St_Existing Redistributed_AM (Site Folder: Bruxner Highway Rezoning)]

Stop Control
Site Category: Existing Design
Stop (Two-Way)

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



# Appendix C - SCATS Data

# Appendix D - SIDRA Output Summaries

# MOVEMENT SUMMARY

## Site: 101 [Bruxner Hwy/Oliver Drive_Existing Redistributed_AM (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 | 0.124 | 9.4 | LOS A | 0.5 | 3.5 | 0.68 | 0.83 | 0.68 | 33.7 |
| 2 | T1 | 3 | 2.0 | 3 | 2.0 | 0.334 | 7.8 | LOS A | 1.7 | 12.0 | 0.73 | 0.91 | 0.75 | 31.7 |
| 3 | R2 | 249 | 2.0 | 262 | 2.0 | 0.334 | 12.5 | LOS B | 1.7 | 12.0 | 0.73 | 0.91 | 0.75 | 30.5 |
| Approach | | 310 | 2.0 | 326 | 2.0 | 0.334 | 11.9 | LOS B | 1.7 | 12.0 | 0.72 | 0.90 | 0.74 | 31.0 |
| East: Bruxner Hwy East | | | | | | | | | | | | | | |
| 4 | L2 | 230 | 2.0 | 242 | 2.0 | 0.506 | 4.7 | LOS A | 4.5 | 31.9 | 0.39 | 0.46 | 0.39 | 38.8 |
| 5 | T1 | 1112 | 2.0 | 1171 | 2.0 | 0.506 | 4.8 | LOS A | 4.5 | 31.9 | 0.40 | 0.47 | 0.40 | 38.6 |
| 6 | R2 | 47 | 2.0 | 49 | 2.0 | 0.506 | 9.5 | LOS A | 4.4 | 31.4 | 0.41 | 0.47 | 0.41 | 36.3 |
| Approach | | 1389 | 2.0 | 1462 | 2.0 | 0.506 | 4.9 | LOS A | 4.5 | 31.9 | 0.40 | 0.47 | 0.40 | 38.5 |
| North: Pineapple Road | | | | | | | | | | | | | | |
| 7 | L2 | 27 | 2.0 | 28 | 2.0 | 0.055 | 8.6 | LOS A | 0.2 | 1.7 | 0.69 | 0.80 | 0.69 | 34.9 |
| 8 | T1 | 1 | 2.0 | 1 | 2.0 | 0.096 | 7.3 | LOS A | 0.5 | 3.3 | 0.70 | 0.84 | 0.70 | 32.3 |
| 9 | R2 | 67 | 2.0 | 71 | 2.0 | 0.096 | 11.9 | LOS B | 0.5 | 3.3 | 0.70 | 0.84 | 0.70 | 31.1 |
| Approach | | 95 | 2.0 | 100 | 2.0 | 0.096 | 10.9 | LOS B | 0.5 | 3.3 | 0.70 | 0.83 | 0.70 | 32.0 |
| West: Bruxner Hwy West | | | | | | | | | | | | | | |
| 10 | L2 | 102 | 2.0 | 107 | 2.0 | 0.480 | 5.9 | LOS A | 3.8 | 27.4 | 0.64 | 0.60 | 0.64 | 36.3 |
| 11 | T1 | 918 | 2.0 | 966 | 2.0 | 0.480 | 6.1 | LOS A | 3.8 | 27.4 | 0.65 | 0.62 | 0.65 | 36.2 |
| 12 | R2 | 25 | 2.0 | 26 | 2.0 | 0.480 | 10.9 | LOS B | 3.7 | 26.2 | 0.66 | 0.63 | 0.66 | 34.2 |
| Approach | | 1045 | 2.0 | 1100 | 2.0 | 0.480 | 6.2 | LOS A | 3.8 | 27.4 | 0.65 | 0.61 | 0.65 | 36.2 |
| All Vehicles | | 2839 | 2.0 | 2988 | 2.0 | 0.506 | 6.4 | LOS A | 4.5 | 31.9 | 0.54 | 0.58 | 0.54 | 36.4 |

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_PM (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 | 0.046 | 9.4 | LOS A | 0.2 | 1.3 | 0.69 | 0.80 | 0.69 | 33.7 |
| 2 | T1 | 1 | 2.0 | 1 | 2.0 | 0.376 | 8.4 | LOS A | 2.1 | 15.0 | 0.78 | 0.95 | 0.84 | 31.1 |
| 3 | R2 | 265 | 2.0 | 279 | 2.0 | 0.376 | 13.0 | LOS B | 2.1 | 15.0 | 0.78 | 0.95 | 0.84 | 29.9 |
| Approach | | 286 | 2.0 | 301 | 2.0 | 0.376 | 12.8 | LOS B | 2.1 | 15.0 | 0.77 | 0.94 | 0.83 | 30.1 |
| East: Bruxner Hwy East | | | | | | | | | | | | | | |
| 4 | L2 | 289 | 2.0 | 304 | 2.0 | 0.547 | 5.1 | LOS A | 5.0 | 35.5 | 0.51 | 0.52 | 0.51 | 37.6 |
| 5 | T1 | 1103 | 2.0 | 1161 | 2.0 | 0.547 | 5.3 | LOS A | 5.0 | 35.5 | 0.53 | 0.52 | 0.53 | 37.5 |
| 6 | R2 | 13 | 2.0 | 14 | 2.0 | 0.547 | 10.0 | LOS A | 4.9 | 34.6 | 0.54 | 0.53 | 0.54 | 35.4 |
| Approach | | 1405 | 2.0 | 1479 | 2.0 | 0.547 | 5.3 | LOS A | 5.0 | 35.5 | 0.53 | 0.52 | 0.53 | 37.5 |
| North: Pineapple Road | | | | | | | | | | | | | | |
| 7 | L2 | 46 | 2.0 | 48 | 2.0 | 0.097 | 8.9 | LOS A | 0.4 | 3.0 | 0.72 | 0.85 | 0.72 | 34.4 |
| 8 | T1 | 2 | 2.0 | 2 | 2.0 | 0.168 | 7.6 | LOS A | 0.8 | 6.0 | 0.74 | 0.90 | 0.74 | 32.0 |
| 9 | R2 | 112 | 2.0 | 118 | 2.0 | 0.168 | 12.3 | LOS B | 0.8 | 6.0 | 0.74 | 0.90 | 0.74 | 30.7 |
| Approach | | 160 | 2.0 | 168 | 2.0 | 0.168 | 11.2 | LOS B | 0.8 | 6.0 | 0.73 | 0.89 | 0.73 | 31.6 |
| West: Bruxner Hwy West | | | | | | | | | | | | | | |
| 10 | L2 | 31 | 2.0 | 33 | 2.0 | 0.483 | 5.8 | LOS A | 4.0 | 28.5 | 0.64 | 0.58 | 0.64 | 36.2 |
| 11 | T1 | 999 | 2.0 | 1052 | 2.0 | 0.483 | 6.0 | LOS A | 4.0 | 28.5 | 0.65 | 0.60 | 0.65 | 36.2 |
| 12 | R2 | 34 | 2.0 | 36 | 2.0 | 0.483 | 10.8 | LOS B | 3.8 | 27.2 | 0.66 | 0.62 | 0.66 | 34.2 |
| Approach | | 1064 | 2.0 | 1120 | 2.0 | 0.483 | 6.1 | LOS A | 4.0 | 28.5 | 0.65 | 0.60 | 0.65 | 36.1 |
| All Vehicles | | 2915 | 2.0 | 3068 | 2.0 | 0.547 | 6.7 | LOS A | 5.0 | 35.5 | 0.61 | 0.61 | 0.61 | 35.7 |

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: 102 [Oliver Drive/Holland St_Existing Redistributed_AM (Site Folder: Bruxner Highway Rezoning)]

Stop Control
Site Category: Existing Design
Stop (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: Taylor Rd | | | | | | | | | | | | | | |
| 1 | L2 | 66 | 2.0 | 69 | 2.0 | 0.089 | 5.6 | LOS A | 0.4 | 2.8 | 0.08 | 0.53 | 0.08 | 53.5 |
| 2 | T1 | 7 | 2.0 | 7 | 2.0 | 0.089 | 0.1 | LOS A | 0.4 | 2.8 | 0.08 | 0.53 | 0.08 | 55.0 |
| 3 | R2 | 79 | 2.0 | 83 | 2.0 | 0.089 | 5.5 | LOS A | 0.4 | 2.8 | 0.08 | 0.53 | 0.08 | 53.0 |
| Approach | | 152 | 2.0 | 160 | 2.0 | 0.089 | 5.3 | NA | 0.4 | 2.8 | 0.08 | 0.53 | 0.08 | 53.3 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 64 | 2.0 | 67 | 2.0 | 0.262 | 8.1 | LOS A | 1.2 | 8.2 | 0.06 | 1.05 | 0.06 | 51.2 |
| 5 | T1 | 188 | 2.0 | 198 | 2.0 | 0.262 | 9.0 | LOS A | 1.2 | 8.2 | 0.06 | 1.05 | 0.06 | 50.9 |
| 6 | R2 | 6 | 2.0 | 6 | 2.0 | 0.262 | 10.7 | LOS B | 1.2 | 8.2 | 0.06 | 1.05 | 0.06 | 50.7 |
| Approach | | 258 | 2.0 | 272 | 2.0 | 0.262 | 8.8 | LOS A | 1.2 | 8.2 | 0.06 | 1.05 | 0.06 | 51.0 |
| North: Holland St | | | | | | | | | | | | | | |
| 7 | L2 | 16 | 2.0 | 17 | 2.0 | 0.024 | 5.7 | LOS A | 0.1 | 0.7 | 0.15 | 0.45 | 0.15 | 53.8 |
| 8 | T1 | 6 | 2.0 | 6 | 2.0 | 0.024 | 0.2 | LOS A | 0.1 | 0.7 | 0.15 | 0.45 | 0.15 | 55.2 |
| 9 | R2 | 18 | 2.0 | 19 | 2.0 | 0.024 | 5.7 | LOS A | 0.1 | 0.7 | 0.15 | 0.45 | 0.15 | 53.2 |
| Approach | | 40 | 2.0 | 42 | 2.0 | 0.024 | 4.9 | NA | 0.1 | 0.7 | 0.15 | 0.45 | 0.15 | 53.7 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 10 | L2 | 17 | 2.0 | 18 | 2.0 | 0.378 | 8.3 | LOS A | 1.9 | 13.5 | 0.19 | 1.01 | 0.20 | 50.6 |
| 11 | T1 | 201 | 2.0 | 212 | 2.0 | 0.378 | 9.1 | LOS A | 1.9 | 13.5 | 0.19 | 1.01 | 0.20 | 50.4 |
| 12 | R2 | 90 | 2.0 | 95 | 2.0 | 0.378 | 12.0 | LOS B | 1.9 | 13.5 | 0.19 | 1.01 | 0.20 | 50.2 |
| Approach | | 308 | 2.0 | 324 | 2.0 | 0.378 | 9.9 | LOS A | 1.9 | 13.5 | 0.19 | 1.01 | 0.20 | 50.3 |
| All Vehicles | | 758 | 2.0 | 798 | 2.0 | 0.378 | 8.4 | NA | 1.9 | 13.5 | 0.12 | 0.90 | 0.12 | 51.3 |

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: 102 [Oliver Drive/Holland St_Existing Redistributed_PM (Site Folder: Bruxner Highway Rezoning)]

Stop Control
Site Category: Existing Design
Stop (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: Taylor Rd | | | | | | | | | | | | | | |
| 1 | L2 | 39 | 2.0 | 41 | 2.0 | 0.049 | 5.6 | LOS A | 0.2 | 1.4 | 0.05 | 0.54 | 0.05 | 53.6 |
| 2 | T1 | 4 | 2.0 | 4 | 2.0 | 0.049 | 0.0 | LOS A | 0.2 | 1.4 | 0.05 | 0.54 | 0.05 | 55.1 |
| 3 | R2 | 41 | 2.0 | 43 | 2.0 | 0.049 | 5.5 | LOS A | 0.2 | 1.4 | 0.05 | 0.54 | 0.05 | 53.1 |
| Approach | | 84 | 2.0 | 88 | 2.0 | 0.049 | 5.3 | NA | 0.2 | 1.4 | 0.05 | 0.54 | 0.05 | 53.4 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 55 | 2.0 | 58 | 2.0 | 0.336 | 8.1 | LOS A | 1.6 | 11.5 | 0.06 | 1.05 | 0.06 | 51.4 |
| 5 | T1 | 271 | 2.0 | 285 | 2.0 | 0.336 | 8.6 | LOS A | 1.6 | 11.5 | 0.06 | 1.05 | 0.06 | 51.1 |
| 6 | R2 | 14 | 2.0 | 15 | 2.0 | 0.336 | 11.4 | LOS B | 1.6 | 11.5 | 0.06 | 1.05 | 0.06 | 50.9 |
| Approach | | 340 | 2.0 | 358 | 2.0 | 0.336 | 8.6 | LOS A | 1.6 | 11.5 | 0.06 | 1.05 | 0.06 | 51.1 |
| North: Holland St | | | | | | | | | | | | | | |
| 7 | L2 | 6 | 2.0 | 6 | 2.0 | 0.021 | 5.7 | LOS A | 0.1 | 0.7 | 0.13 | 0.49 | 0.13 | 53.7 |
| 8 | T1 | 4 | 2.0 | 4 | 2.0 | 0.021 | 0.1 | LOS A | 0.1 | 0.7 | 0.13 | 0.49 | 0.13 | 55.2 |
| 9 | R2 | 25 | 2.0 | 26 | 2.0 | 0.021 | 5.6 | LOS A | 0.1 | 0.7 | 0.13 | 0.49 | 0.13 | 53.2 |
| Approach | | 35 | 2.0 | 37 | 2.0 | 0.021 | 5.0 | NA | 0.1 | 0.7 | 0.13 | 0.49 | 0.13 | 53.5 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 10 | L2 | 25 | 2.0 | 26 | 2.0 | 0.356 | 8.1 | LOS A | 1.7 | 11.9 | 0.10 | 1.03 | 0.10 | 51.1 |
| 11 | T1 | 252 | 2.0 | 265 | 2.0 | 0.356 | 8.5 | LOS A | 1.7 | 11.9 | 0.10 | 1.03 | 0.10 | 50.9 |
| 12 | R2 | 50 | 2.0 | 53 | 2.0 | 0.356 | 12.4 | LOS B | 1.7 | 11.9 | 0.10 | 1.03 | 0.10 | 50.6 |
| Approach | | 327 | 2.0 | 344 | 2.0 | 0.356 | 9.0 | LOS A | 1.7 | 11.9 | 0.10 | 1.03 | 0.10 | 50.9 |
| All Vehicles | | 786 | 2.0 | 827 | 2.0 | 0.356 | 8.3 | NA | 1.7 | 11.9 | 0.08 | 0.96 | 0.08 | 51.4 |

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: 101 [Bruxner Hwy/Oliver Drive_Cumulative_AM (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 | 292 | 2.0 | 307 | 2.0 | 0.635 | 13.0 | LOS B | 4.3 | 31.0 | 0.90 | 1.05 | 1.20 | 29.2 |
| 2 | T1 | 3 | 2.0 | 3 | 2.0 | 0.515 | 9.8 | LOS A | 3.5 | 24.8 | 0.89 | 1.02 | 1.05 | 29.7 |
| 3 | R2 | 297 | 2.0 | 313 | 2.0 | 0.515 | 14.4 | LOS B | 3.5 | 24.8 | 0.89 | 1.02 | 1.05 | 28.6 |
| Approach | | 592 | 2.0 | 623 | 2.0 | 0.635 | 13.7 | LOS B | 4.3 | 31.0 | 0.90 | 1.03 | 1.12 | 28.9 |
| East: Bruxner Hwy East | | | | | | | | | | | | | | |
| 4 | L2 | 310 | 2.0 | 326 | 2.0 | 0.744 | 10.1 | LOS B | 10.4 | 73.9 | 0.91 | 0.91 | 1.14 | 32.7 |
| 5 | T1 | 1112 | 2.0 | 1171 | 2.0 | 0.744 | 10.9 | LOS B | 10.4 | 73.9 | 0.92 | 0.95 | 1.18 | 31.9 |
| 6 | R2 | 48 | 2.0 | 51 | 2.0 | 0.744 | 16.1 | LOS B | 10.0 | 71.2 | 0.93 | 0.98 | 1.21 | 29.9 |
| Approach | | 1470 | 2.0 | 1547 | 2.0 | 0.744 | 10.9 | LOS B | 10.4 | 73.9 | 0.92 | 0.94 | 1.18 | 32.0 |
| North: Pineapple Road | | | | | | | | | | | | | | |
| 7 | L2 | 34 | 2.0 | 36 | 2.0 | 0.091 | 10.2 | LOS B | 0.4 | 3.0 | 0.78 | 0.89 | 0.78 | 32.5 |
| 8 | T1 | 1 | 2.0 | 1 | 2.0 | 0.172 | 8.6 | LOS A | 0.9 | 6.6 | 0.82 | 0.94 | 0.82 | 30.9 |
| 9 | R2 | 93 | 2.0 | 98 | 2.0 | 0.172 | 13.3 | LOS B | 0.9 | 6.6 | 0.82 | 0.94 | 0.82 | 29.7 |
| Approach | | 128 | 2.0 | 135 | 2.0 | 0.172 | 12.4 | LOS B | 0.9 | 6.6 | 0.81 | 0.92 | 0.81 | 30.3 |
| West: Bruxner Hwy West | | | | | | | | | | | | | | |
| 10 | L2 | 108 | 2.0 | 114 | 2.0 | 0.649 | 7.6 | LOS A | 7.2 | 51.0 | 0.82 | 0.77 | 0.90 | 34.8 |
| 11 | T1 | 918 | 2.0 | 966 | 2.0 | 0.649 | 7.9 | LOS A | 7.2 | 51.0 | 0.82 | 0.79 | 0.92 | 34.0 |
| 12 | R2 | 307 | 2.0 | 323 | 2.0 | 0.649 | 13.2 | LOS B | 7.0 | 50.0 | 0.83 | 0.84 | 0.95 | 31.1 |
| Approach | | 1333 | 2.0 | 1403 | 2.0 | 0.649 | 9.1 | LOS A | 7.2 | 51.0 | 0.83 | 0.80 | 0.92 | 33.3 |
| All Vehicles | | 3523 | 2.0 | 3708 | 2.0 | 0.744 | 10.8 | LOS B | 10.4 | 73.9 | 0.88 | 0.90 | 1.06 | 31.8 |

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 [Bruxner Hwy/Oliver Drive_Cumulative_PM (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 | 305 | 2.0 | 321 | 2.0 | 0.665 | 14.0 | LOS B | 4.8 | 33.9 | 0.91 | 1.07 | 1.26 | 28.1 |
| 2 | T1 | 1 | 2.0 | 1 | 2.0 | 0.594 | 10.9 | LOS B | 4.4 | 31.2 | 0.91 | 1.05 | 1.15 | 28.7 |
| 3 | R2 | 346 | 2.0 | 364 | 2.0 | 0.594 | 15.6 | LOS B | 4.4 | 31.2 | 0.91 | 1.05 | 1.15 | 27.6 |
| Approach | | 652 | 2.0 | 686 | 2.0 | 0.665 | 14.8 | LOS B | 4.8 | 33.9 | 0.91 | 1.06 | 1.20 | 27.8 |
| East: Bruxner Hwy East | | | | | | | | | | | | | | |
| 4 | L2 | 349 | 2.0 | 367 | 2.0 | 0.743 | 10.1 | LOS B | 10.3 | 73.4 | 0.91 | 0.91 | 1.14 | 32.6 |
| 5 | T1 | 1103 | 2.0 | 1161 | 2.0 | 0.743 | 10.9 | LOS B | 10.3 | 73.4 | 0.92 | 0.95 | 1.18 | 32.0 |
| 6 | R2 | 20 | 2.0 | 21 | 2.0 | 0.743 | 16.1 | LOS B | 9.9 | 70.8 | 0.93 | 0.97 | 1.21 | 30.1 |
| Approach | | 1472 | 2.0 | 1549 | 2.0 | 0.743 | 10.8 | LOS B | 10.3 | 73.4 | 0.92 | 0.94 | 1.17 | 32.1 |
| North: Pineapple Road | | | | | | | | | | | | | | |
| 7 | L2 | 47 | 2.0 | 49 | 2.0 | 0.133 | 10.8 | LOS B | 0.6 | 4.5 | 0.81 | 0.90 | 0.81 | 31.7 |
| 8 | T1 | 2 | 2.0 | 2 | 2.0 | 0.238 | 9.2 | LOS A | 1.3 | 9.5 | 0.85 | 0.95 | 0.85 | 30.3 |
| 9 | R2 | 119 | 2.0 | 125 | 2.0 | 0.238 | 13.9 | LOS B | 1.3 | 9.5 | 0.85 | 0.95 | 0.85 | 29.2 |
| Approach | | 168 | 2.0 | 177 | 2.0 | 0.238 | 13.0 | LOS B | 1.3 | 9.5 | 0.84 | 0.94 | 0.84 | 29.8 |
| West: Bruxner Hwy West | | | | | | | | | | | | | | |
| 10 | L2 | 59 | 2.0 | 62 | 2.0 | 0.671 | 8.2 | LOS A | 7.9 | 56.5 | 0.86 | 0.81 | 0.97 | 34.3 |
| 11 | T1 | 999 | 2.0 | 1052 | 2.0 | 0.671 | 8.5 | LOS A | 7.9 | 56.5 | 0.87 | 0.83 | 0.99 | 33.6 |
| 12 | R2 | 280 | 2.0 | 295 | 2.0 | 0.671 | 13.8 | LOS B | 7.7 | 54.9 | 0.88 | 0.88 | 1.03 | 30.8 |
| Approach | | 1338 | 2.0 | 1408 | 2.0 | 0.671 | 9.6 | LOS A | 7.9 | 56.5 | 0.87 | 0.84 | 1.00 | 33.0 |
| All Vehicles | | 3630 | 2.0 | 3821 | 2.0 | 0.743 | 11.2 | LOS B | 10.3 | 73.4 | 0.89 | 0.92 | 1.10 | 31.4 |

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: 102 [Oliver Drive/Holland St_Cumulative_AM (Site Folder: Bruxner Highway Rezoning)]

Stop Control
Site Category: Existing Design
Stop (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: Taylor Rd | | | | | | | | | | | | | | |
| 1 | L2 | 66 | 2.0 | 69 | 2.0 | 0.114 | 5.6 | LOS A | 0.5 | 3.9 | 0.09 | 0.53 | 0.09 | 53.5 |
| 2 | T1 | 7 | 2.0 | 7 | 2.0 | 0.114 | 0.1 | LOS A | 0.5 | 3.9 | 0.09 | 0.53 | 0.09 | 54.9 |
| 3 | R2 | 119 | 2.0 | 125 | 2.0 | 0.114 | 5.5 | LOS A | 0.5 | 3.9 | 0.09 | 0.53 | 0.09 | 52.9 |
| Approach | | 192 | 2.0 | 202 | 2.0 | 0.114 | 5.4 | NA | 0.5 | 3.9 | 0.09 | 0.53 | 0.09 | 53.2 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 87 | 2.0 | 92 | 2.0 | 0.358 | 8.1 | LOS A | 1.7 | 12.2 | 0.06 | 1.05 | 0.06 | 50.9 |
| 5 | T1 | 247 | 2.0 | 260 | 2.0 | 0.358 | 9.5 | LOS A | 1.7 | 12.2 | 0.06 | 1.05 | 0.06 | 50.7 |
| 6 | R2 | 6 | 2.0 | 6 | 2.0 | 0.358 | 13.0 | LOS B | 1.7 | 12.2 | 0.06 | 1.05 | 0.06 | 50.4 |
| Approach | | 340 | 2.0 | 358 | 2.0 | 0.358 | 9.2 | LOS A | 1.7 | 12.2 | 0.06 | 1.05 | 0.06 | 50.7 |
| North: Holland St | | | | | | | | | | | | | | |
| 7 | L2 | 16 | 2.0 | 17 | 2.0 | 0.024 | 5.7 | LOS A | 0.1 | 0.7 | 0.15 | 0.45 | 0.15 | 53.8 |
| 8 | T1 | 6 | 2.0 | 6 | 2.0 | 0.024 | 0.2 | LOS A | 0.1 | 0.7 | 0.15 | 0.45 | 0.15 | 55.2 |
| 9 | R2 | 18 | 2.0 | 19 | 2.0 | 0.024 | 5.7 | LOS A | 0.1 | 0.7 | 0.15 | 0.45 | 0.15 | 53.2 |
| Approach | | 40 | 2.0 | 42 | 2.0 | 0.024 | 4.9 | NA | 0.1 | 0.7 | 0.15 | 0.45 | 0.15 | 53.7 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 10 | L2 | 17 | 2.0 | 18 | 2.0 | 0.519 | 9.3 | LOS A | 3.8 | 27.3 | 0.25 | 1.04 | 0.35 | 49.4 |
| 11 | T1 | 291 | 2.0 | 306 | 2.0 | 0.519 | 10.7 | LOS B | 3.8 | 27.3 | 0.25 | 1.04 | 0.35 | 49.2 |
| 12 | R2 | 90 | 2.0 | 95 | 2.0 | 0.519 | 15.9 | LOS C | 3.8 | 27.3 | 0.25 | 1.04 | 0.35 | 49.0 |
| Approach | | 398 | 2.0 | 419 | 2.0 | 0.519 | 11.8 | LOS B | 3.8 | 27.3 | 0.25 | 1.04 | 0.35 | 49.2 |
| All Vehicles | | 970 | 2.0 | 1021 | 2.0 | 0.519 | 9.3 | NA | 3.8 | 27.3 | 0.15 | 0.92 | 0.19 | 50.6 |

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: 102 [Oliver Drive/Holland St_Cumulative_PM (Site Folder: Bruxner Highway Rezoning)]

Stop Control
Site Category: Existing Design
Stop (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: Taylor Rd | | | | | | | | | | | | | | |
| 1 | L2 | 39 | 2.0 | 41 | 2.0 | 0.063 | 5.6 | LOS A | 0.3 | 2.0 | 0.05 | 0.55 | 0.05 | 53.6 |
| 2 | T1 | 4 | 2.0 | 4 | 2.0 | 0.063 | 0.0 | LOS A | 0.3 | 2.0 | 0.05 | 0.55 | 0.05 | 55.0 |
| 3 | R2 | 65 | 2.0 | 68 | 2.0 | 0.063 | 5.5 | LOS A | 0.3 | 2.0 | 0.05 | 0.55 | 0.05 | 53.0 |
| Approach | | 108 | 2.0 | 114 | 2.0 | 0.063 | 5.3 | NA | 0.3 | 2.0 | 0.05 | 0.55 | 0.05 | 53.3 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 96 | 2.0 | 101 | 2.0 | 0.471 | 8.1 | LOS A | 2.6 | 18.8 | 0.06 | 1.05 | 0.06 | 51.1 |
| 5 | T1 | 362 | 2.0 | 381 | 2.0 | 0.471 | 9.0 | LOS A | 2.6 | 18.8 | 0.06 | 1.05 | 0.06 | 50.9 |
| 6 | R2 | 14 | 2.0 | 15 | 2.0 | 0.471 | 13.7 | LOS B | 2.6 | 18.8 | 0.06 | 1.05 | 0.06 | 50.6 |
| Approach | | 472 | 2.0 | 497 | 2.0 | 0.471 | 9.0 | LOS A | 2.6 | 18.8 | 0.06 | 1.05 | 0.06 | 50.9 |
| North: Holland St | | | | | | | | | | | | | | |
| 7 | L2 | 6 | 2.0 | 6 | 2.0 | 0.021 | 5.7 | LOS A | 0.1 | 0.7 | 0.13 | 0.49 | 0.13 | 53.7 |
| 8 | T1 | 4 | 2.0 | 4 | 2.0 | 0.021 | 0.1 | LOS A | 0.1 | 0.7 | 0.13 | 0.49 | 0.13 | 55.2 |
| 9 | R2 | 25 | 2.0 | 26 | 2.0 | 0.021 | 5.6 | LOS A | 0.1 | 0.7 | 0.13 | 0.49 | 0.13 | 53.2 |
| Approach | | 35 | 2.0 | 37 | 2.0 | 0.021 | 5.0 | NA | 0.1 | 0.7 | 0.13 | 0.49 | 0.13 | 53.5 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 10 | L2 | 25 | 2.0 | 26 | 2.0 | 0.451 | 8.5 | LOS A | 2.7 | 19.3 | 0.13 | 1.03 | 0.14 | 50.5 |
| 11 | T1 | 314 | 2.0 | 331 | 2.0 | 0.451 | 9.1 | LOS A | 2.7 | 19.3 | 0.13 | 1.03 | 0.14 | 50.2 |
| 12 | R2 | 50 | 2.0 | 53 | 2.0 | 0.451 | 16.5 | LOS C | 2.7 | 19.3 | 0.13 | 1.03 | 0.14 | 50.0 |
| Approach | | 389 | 2.0 | 409 | 2.0 | 0.451 | 10.0 | LOS B | 2.7 | 19.3 | 0.13 | 1.03 | 0.14 | 50.2 |
| All Vehicles | | 1004 | 2.0 | 1057 | 2.0 | 0.471 | 8.8 | NA | 2.7 | 19.3 | 0.09 | 0.97 | 0.09 | 51.0 |

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_AM (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 | 437 | 0.0 | 460 | 0.0 | 0.241 | 0.1 | LOS A | 0.1 | 0.4 | 0.02 | 0.01 | 0.02 | 59.8 |
| 3 | R2 | 4 | 0.0 | 4 | 0.0 | 0.241 | 9.0 | LOS A | 0.1 | 0.4 | 0.02 | 0.01 | 0.02 | 56.6 |
| Approach | | 441 | 0.0 | 464 | 0.0 | 0.241 | 0.1 | NA | 0.1 | 0.4 | 0.02 | 0.01 | 0.02 | 59.8 |
| East: Residentail Access 1 | | | | | | | | | | | | | | |
| 4 | L2 | 19 | 0.0 | 20 | 0.0 | 0.223 | 8.5 | LOS A | 0.8 | 5.3 | 0.71 | 0.89 | 0.76 | 44.9 |
| 6 | R2 | 74 | 0.0 | 78 | 0.0 | 0.223 | 13.8 | LOS B | 0.8 | 5.3 | 0.71 | 0.89 | 0.76 | 37.2 |
| Approach | | 93 | 0.0 | 98 | 0.0 | 0.223 | 12.7 | LOS B | 0.8 | 5.3 | 0.71 | 0.89 | 0.76 | 39.3 |
| North: Oliver Dr North | | | | | | | | | | | | | | |
| 7 | L2 | 20 | 0.0 | 21 | 0.0 | 0.315 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 55.6 |
| 8 | T1 | 562 | 0.0 | 592 | 0.0 | 0.315 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 59.6 |
| Approach | | 582 | 0.0 | 613 | 0.0 | 0.315 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 59.5 |
| All Vehicles | | 1116 | 0.0 | 1175 | 0.0 | 0.315 | 1.2 | NA | 0.8 | 5.3 | 0.07 | 0.09 | 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 (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 | 604 | 0.0 | 636 | 0.0 | 0.350 | 0.3 | LOS A | 0.4 | 3.0 | 0.07 | 0.02 | 0.09 | 59.2 |
| 3 | R2 | 21 | 0.0 | 22 | 0.0 | 0.350 | 9.5 | LOS A | 0.4 | 3.0 | 0.07 | 0.02 | 0.09 | 56.1 |
| Approach | | 625 | 0.0 | 658 | 0.0 | 0.350 | 0.6 | NA | 0.4 | 3.0 | 0.07 | 0.02 | 0.09 | 59.1 |
| East: Residential Access 1 | | | | | | | | | | | | | | |
| 4 | L2 | 5 | 0.0 | 5 | 0.0 | 0.076 | 7.5 | LOS A | 0.2 | 1.6 | 0.72 | 0.86 | 0.72 | 44.0 |
| 6 | R2 | 21 | 0.0 | 22 | 0.0 | 0.076 | 15.3 | LOS C | 0.2 | 1.6 | 0.72 | 0.86 | 0.72 | 36.3 |
| Approach | | 26 | 0.0 | 27 | 0.0 | 0.076 | 13.8 | LOS B | 0.2 | 1.6 | 0.72 | 0.86 | 0.72 | 38.2 |
| North: Oliver Dr North | | | | | | | | | | | | | | |
| 7 | L2 | 86 | 0.0 | 91 | 0.0 | 0.311 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 54.3 |
| 8 | T1 | 485 | 0.0 | 511 | 0.0 | 0.311 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 58.7 |
| Approach | | 571 | 0.0 | 601 | 0.0 | 0.311 | 0.9 | NA | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 58.2 |
| All Vehicles | | 1222 | 0.0 | 1286 | 0.0 | 0.350 | 1.0 | NA | 0.4 | 3.0 | 0.05 | 0.07 | 0.06 | 58.2 |

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: 104 [Residentail/Local Centre Accees 2_AM (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 | 296 | 0.0 | 312 | 0.0 | 0.185 | 0.4 | LOS A | 0.3 | 2.2 | 0.12 | 0.05 | 0.12 | 58.9 |
| 3 | R2 | 22 | 0.0 | 23 | 0.0 | 0.185 | 8.7 | LOS A | 0.3 | 2.2 | 0.12 | 0.05 | 0.12 | 55.6 |
| Approach | | 318 | 0.0 | 335 | 0.0 | 0.185 | 1.0 | NA | 0.3 | 2.2 | 0.12 | 0.05 | 0.12 | 58.7 |
| East: Resi/Local Cntr Access 2 | | | | | | | | | | | | | | |
| 4 | L2 | 37 | 0.0 | 39 | 0.0 | 0.353 | 8.8 | LOS A | 1.4 | 10.1 | 0.68 | 0.92 | 0.86 | 45.5 |
| 6 | R2 | 145 | 0.0 | 153 | 0.0 | 0.353 | 12.7 | LOS B | 1.4 | 10.1 | 0.68 | 0.92 | 0.86 | 43.2 |
| Approach | | 182 | 0.0 | 192 | 0.0 | 0.353 | 11.9 | LOS B | 1.4 | 10.1 | 0.68 | 0.92 | 0.86 | 43.7 |
| North: Oliver Dr North | | | | | | | | | | | | | | |
| 7 | L2 | 90 | 0.0 | 95 | 0.0 | 0.316 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 56.0 |
| 8 | T1 | 491 | 0.0 | 517 | 0.0 | 0.316 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 58.9 |
| Approach | | 581 | 0.0 | 612 | 0.0 | 0.316 | 0.9 | NA | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 58.6 |
| All Vehicles | | 1081 | 0.0 | 1138 | 0.0 | 0.353 | 2.8 | NA | 1.4 | 10.1 | 0.15 | 0.22 | 0.18 | 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: 104 [Residentail/Local Centre Accees 2_PM (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 | 0.327 | 0.4 | LOS A | 0.6 | 4.4 | 0.12 | 0.04 | 0.13 | 59.0 |
| 3 | R2 | 39 | 0.0 | 41 | 0.0 | 0.327 | 8.5 | LOS A | 0.6 | 4.4 | 0.12 | 0.04 | 0.13 | 55.6 |
| Approach | | 571 | 0.0 | 601 | 0.0 | 0.327 | 1.0 | NA | 0.6 | 4.4 | 0.12 | 0.04 | 0.13 | 58.8 |
| East: Resi/Local Cntr Access 2 | | | | | | | | | | | | | | |
| 4 | L2 | 23 | 0.0 | 24 | 0.0 | 0.262 | 7.3 | LOS A | 0.9 | 6.5 | 0.66 | 0.86 | 0.75 | 45.0 |
| 6 | R2 | 93 | 0.0 | 98 | 0.0 | 0.262 | 13.7 | LOS B | 0.9 | 6.5 | 0.66 | 0.86 | 0.75 | 42.7 |
| Approach | | 116 | 0.0 | 122 | 0.0 | 0.262 | 12.5 | LOS B | 0.9 | 6.5 | 0.66 | 0.86 | 0.75 | 43.2 |
| North: Oliver Dr North | | | | | | | | | | | | | | |
| 7 | L2 | 157 | 0.0 | 165 | 0.0 | 0.269 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.19 | 0.00 | 54.7 |
| 8 | T1 | 333 | 0.0 | 351 | 0.0 | 0.269 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.19 | 0.00 | 58.0 |
| Approach | | 490 | 0.0 | 516 | 0.0 | 0.269 | 1.8 | NA | 0.0 | 0.0 | 0.00 | 0.19 | 0.00 | 57.2 |
| All Vehicles | | 1177 | 0.0 | 1239 | 0.0 | 0.327 | 2.5 | NA | 0.9 | 6.5 | 0.12 | 0.19 | 0.14 | 56.6 |

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: 105 [Industrial Access_AM (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 | 26 | 0.0 | 27 | 0.0 | 0.138 | 6.5 | LOS A | 0.5 | 3.3 | 0.49 | 0.75 | 0.49 | 51.0 |
| 3 | R2 | 63 | 0.0 | 66 | 0.0 | 0.138 | 10.0 | LOS B | 0.5 | 3.3 | 0.49 | 0.75 | 0.49 | 50.5 |
| Approach | | 89 | 0.0 | 94 | 0.0 | 0.138 | 9.0 | LOS A | 0.5 | 3.3 | 0.49 | 0.75 | 0.49 | 50.7 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 252 | 0.0 | 265 | 0.0 | 0.292 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.28 | 0.00 | 55.9 |
| 5 | T1 | 276 | 0.0 | 291 | 0.0 | 0.292 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.28 | 0.00 | 57.3 |
| Approach | | 528 | 0.0 | 556 | 0.0 | 0.292 | 2.7 | NA | 0.0 | 0.0 | 0.00 | 0.28 | 0.00 | 56.6 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 11 | T1 | 255 | 0.0 | 268 | 0.0 | 0.248 | 1.5 | LOS A | 1.2 | 8.3 | 0.40 | 0.21 | 0.40 | 56.7 |
| 12 | R2 | 104 | 0.0 | 109 | 0.0 | 0.248 | 8.4 | LOS A | 1.2 | 8.3 | 0.40 | 0.21 | 0.40 | 54.7 |
| Approach | | 359 | 0.0 | 378 | 0.0 | 0.248 | 3.5 | NA | 1.2 | 8.3 | 0.40 | 0.21 | 0.40 | 56.1 |
| All Vehicles | | 976 | 0.0 | 1027 | 0.0 | 0.292 | 3.6 | NA | 1.2 | 8.3 | 0.19 | 0.30 | 0.19 | 55.8 |

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 (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 | 104 | 0.0 | 109 | 0.0 | 0.502 | 8.2 | LOS A | 2.9 | 20.4 | 0.59 | 0.90 | 0.88 | 49.9 |
| 3 | R2 | 252 | 0.0 | 265 | 0.0 | 0.502 | 11.6 | LOS B | 2.9 | 20.4 | 0.59 | 0.90 | 0.88 | 49.4 |
| Approach | | 356 | 0.0 | 375 | 0.0 | 0.502 | 10.6 | LOS B | 2.9 | 20.4 | 0.59 | 0.90 | 0.88 | 49.5 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 63 | 0.0 | 66 | 0.0 | 0.194 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 57.4 |
| 5 | T1 | 293 | 0.0 | 308 | 0.0 | 0.194 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 59.0 |
| Approach | | 356 | 0.0 | 375 | 0.0 | 0.194 | 1.0 | NA | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 58.7 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 11 | T1 | 319 | 0.0 | 336 | 0.0 | 0.195 | 0.2 | LOS A | 0.3 | 1.9 | 0.09 | 0.05 | 0.09 | 59.2 |
| 12 | R2 | 26 | 0.0 | 27 | 0.0 | 0.195 | 7.1 | LOS A | 0.3 | 1.9 | 0.09 | 0.05 | 0.09 | 57.0 |
| Approach | | 345 | 0.0 | 363 | 0.0 | 0.195 | 0.7 | NA | 0.3 | 1.9 | 0.09 | 0.05 | 0.09 | 59.0 |
| All Vehicles | | 1057 | 0.0 | 1113 | 0.0 | 0.502 | 4.2 | NA | 2.9 | 20.4 | 0.23 | 0.35 | 0.33 | 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: 101 [Bruxner Hwy/Oliver Drive_Existing Redistributed_AM (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

| 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 | 71 | 2.0 | 0.163 | 10.3 | LOS B | 0.7 | 5.0 | 0.74 | 0.87 | 0.74 | 32.5 |
| 2 | T1 | 3 | 2.0 | 4 | 2.0 | 0.451 | 9.8 | LOS A | 2.7 | 19.4 | 0.82 | 0.99 | 0.98 | 29.7 |
| 3 | R2 | 249 | 2.0 | 307 | 2.0 | 0.451 | 14.4 | LOS B | 2.7 | 19.4 | 0.82 | 0.99 | 0.98 | 28.6 |
| Approach | | 310 | 2.0 | 382 | 2.0 | 0.451 | 13.6 | LOS B | 2.7 | 19.4 | 0.81 | 0.97 | 0.93 | 29.2 |
| East: Bruxner Hwy East | | | | | | | | | | | | | | |
| 4 | L2 | 230 | 2.0 | 283 | 2.0 | 0.603 | 4.9 | LOS A | 6.2 | 43.8 | 0.48 | 0.48 | 0.48 | 37.9 |
| 5 | T1 | 1112 | 2.0 | 1370 | 2.0 | 0.603 | 5.1 | LOS A | 6.2 | 43.8 | 0.50 | 0.49 | 0.50 | 37.6 |
| 6 | R2 | 47 | 2.0 | 58 | 2.0 | 0.603 | 9.7 | LOS A | 6.1 | 43.1 | 0.52 | 0.50 | 0.52 | 35.4 |
| Approach | | 1389 | 2.0 | 1711 | 2.0 | 0.603 | 5.2 | LOS A | 6.2 | 43.8 | 0.50 | 0.49 | 0.50 | 37.6 |
| North: Pineapple Road | | | | | | | | | | | | | | |
| 7 | L2 | 27 | 2.0 | 33 | 2.0 | 0.076 | 9.5 | LOS A | 0.3 | 2.4 | 0.75 | 0.87 | 0.75 | 33.5 |
| 8 | T1 | 1 | 2.0 | 1 | 2.0 | 0.133 | 8.1 | LOS A | 0.7 | 4.9 | 0.78 | 0.90 | 0.78 | 31.5 |
| 9 | R2 | 67 | 2.0 | 83 | 2.0 | 0.133 | 12.7 | LOS B | 0.7 | 4.9 | 0.78 | 0.90 | 0.78 | 30.2 |
| Approach | | 95 | 2.0 | 117 | 2.0 | 0.133 | 11.8 | LOS B | 0.7 | 4.9 | 0.77 | 0.89 | 0.77 | 31.0 |
| West: Bruxner Hwy West | | | | | | | | | | | | | | |
| 10 | L2 | 102 | 2.0 | 126 | 2.0 | 0.593 | 7.0 | LOS A | 5.7 | 40.8 | 0.77 | 0.71 | 0.81 | 35.2 |
| 11 | T1 | 918 | 2.0 | 1131 | 2.0 | 0.593 | 7.4 | LOS A | 5.7 | 40.8 | 0.78 | 0.74 | 0.83 | 35.1 |
| 12 | R2 | 25 | 2.0 | 31 | 2.0 | 0.593 | 12.4 | LOS B | 5.7 | 40.2 | 0.79 | 0.77 | 0.86 | 33.2 |
| Approach | | 1045 | 2.0 | 1287 | 2.0 | 0.593 | 7.5 | LOS A | 5.7 | 40.8 | 0.78 | 0.74 | 0.83 | 35.1 |
| All Vehicles | | 2839 | 2.0 | 3496 | 2.0 | 0.603 | 7.2 | LOS A | 6.2 | 43.8 | 0.64 | 0.65 | 0.68 | 35.2 |

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 (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

**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 | 25 | 2.0 | 0.062 | 10.3 | LOS B | 0.3 | 1.9 | 0.75 | 0.86 | 0.75 | 32.4 |
| 2 | T1 | 1 | 2.0 | 1 | 2.0 | 0.527 | 11.2 | LOS B | 3.6 | 25.6 | 0.88 | 1.04 | 1.11 | 28.4 |
| 3 | R2 | 265 | 2.0 | 326 | 2.0 | 0.527 | 15.9 | LOS B | 3.6 | 25.6 | 0.88 | 1.04 | 1.11 | 27.4 |
| Approach | | 286 | 2.0 | 352 | 2.0 | 0.527 | 15.5 | LOS B | 3.6 | 25.6 | 0.87 | 1.03 | 1.09 | 27.6 |
| East: Bruxner Hwy East | | | | | | | | | | | | | | |
| 4 | L2 | 289 | 2.0 | 356 | 2.0 | 0.658 | 5.5 | LOS A | 7.0 | 49.5 | 0.64 | 0.56 | 0.64 | 36.5 |
| 5 | T1 | 1103 | 2.0 | 1358 | 2.0 | 0.658 | 5.7 | LOS A | 7.0 | 49.5 | 0.66 | 0.57 | 0.66 | 36.3 |
| 6 | R2 | 13 | 2.0 | 16 | 2.0 | 0.658 | 10.4 | LOS B | 6.8 | 48.2 | 0.68 | 0.58 | 0.68 | 34.2 |
| Approach | | 1405 | 2.0 | 1730 | 2.0 | 0.658 | 5.7 | LOS A | 7.0 | 49.5 | 0.66 | 0.57 | 0.66 | 36.3 |
| North: Pineapple Road | | | | | | | | | | | | | | |
| 7 | L2 | 46 | 2.0 | 57 | 2.0 | 0.136 | 10.1 | LOS B | 0.6 | 4.4 | 0.78 | 0.89 | 0.78 | 32.7 |
| 8 | T1 | 2 | 2.0 | 2 | 2.0 | 0.235 | 8.6 | LOS A | 1.3 | 9.0 | 0.82 | 0.94 | 0.82 | 31.0 |
| 9 | R2 | 112 | 2.0 | 138 | 2.0 | 0.235 | 13.2 | LOS B | 1.3 | 9.0 | 0.82 | 0.94 | 0.82 | 29.8 |
| Approach | | 160 | 2.0 | 197 | 2.0 | 0.235 | 12.3 | LOS B | 1.3 | 9.0 | 0.81 | 0.92 | 0.81 | 30.5 |
| West: Bruxner Hwy West | | | | | | | | | | | | | | |
| 10 | L2 | 31 | 2.0 | 38 | 2.0 | 0.598 | 6.7 | LOS A | 5.9 | 41.8 | 0.77 | 0.68 | 0.80 | 35.1 |
| 11 | T1 | 999 | 2.0 | 1230 | 2.0 | 0.598 | 7.1 | LOS A | 5.9 | 41.8 | 0.78 | 0.71 | 0.82 | 35.0 |
| 12 | R2 | 34 | 2.0 | 42 | 2.0 | 0.598 | 12.1 | LOS B | 5.8 | 41.4 | 0.79 | 0.76 | 0.85 | 33.1 |
| Approach | | 1064 | 2.0 | 1310 | 2.0 | 0.598 | 7.2 | LOS A | 5.9 | 41.8 | 0.78 | 0.72 | 0.82 | 35.0 |
| All Vehicles | | 2915 | 2.0 | 3590 | 2.0 | 0.658 | 7.6 | LOS A | 7.0 | 49.5 | 0.73 | 0.69 | 0.77 | 34.3 |

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: 102 [Oliver Drive/Holland St_Existing Redistributed_AM (Site Folder: Bruxner Highway Rezoning)]

Stop Control
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**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 | 81 | 2.0 | 0.105 | 5.6 | LOS A | 0.5 | 3.3 | 0.09 | 0.52 | 0.09 | 53.5 |
| 2 | T1 | 7 | 2.0 | 9 | 2.0 | 0.105 | 0.1 | LOS A | 0.5 | 3.3 | 0.09 | 0.52 | 0.09 | 55.0 |
| 3 | R2 | 79 | 2.0 | 97 | 2.0 | 0.105 | 5.6 | LOS A | 0.5 | 3.3 | 0.09 | 0.52 | 0.09 | 53.0 |
| Approach | | 152 | 2.0 | 187 | 2.0 | 0.105 | 5.3 | NA | 0.5 | 3.3 | 0.09 | 0.52 | 0.09 | 53.3 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 64 | 2.0 | 79 | 2.0 | 0.316 | 8.1 | LOS A | 1.5 | 10.3 | 0.07 | 1.04 | 0.07 | 51.0 |
| 5 | T1 | 188 | 2.0 | 232 | 2.0 | 0.316 | 9.4 | LOS A | 1.5 | 10.3 | 0.07 | 1.04 | 0.07 | 50.8 |
| 6 | R2 | 6 | 2.0 | 7 | 2.0 | 0.316 | 11.6 | LOS B | 1.5 | 10.3 | 0.07 | 1.04 | 0.07 | 50.5 |
| Approach | | 258 | 2.0 | 318 | 2.0 | 0.316 | 9.1 | LOS A | 1.5 | 10.3 | 0.07 | 1.04 | 0.07 | 50.8 |
| North: Holland St | | | | | | | | | | | | | | |
| 7 | L2 | 16 | 2.0 | 20 | 2.0 | 0.028 | 5.8 | LOS A | 0.1 | 0.8 | 0.17 | 0.45 | 0.17 | 53.7 |
| 8 | T1 | 6 | 2.0 | 7 | 2.0 | 0.028 | 0.2 | LOS A | 0.1 | 0.8 | 0.17 | 0.45 | 0.17 | 55.2 |
| 9 | R2 | 18 | 2.0 | 22 | 2.0 | 0.028 | 5.7 | LOS A | 0.1 | 0.8 | 0.17 | 0.45 | 0.17 | 53.2 |
| Approach | | 40 | 2.0 | 49 | 2.0 | 0.028 | 4.9 | NA | 0.1 | 0.8 | 0.17 | 0.45 | 0.17 | 53.7 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 10 | L2 | 17 | 2.0 | 21 | 2.0 | 0.469 | 9.0 | LOS A | 3.1 | 21.8 | 0.23 | 1.03 | 0.29 | 49.8 |
| 11 | T1 | 201 | 2.0 | 248 | 2.0 | 0.469 | 10.1 | LOS B | 3.1 | 21.8 | 0.23 | 1.03 | 0.29 | 49.5 |
| 12 | R2 | 90 | 2.0 | 111 | 2.0 | 0.469 | 14.1 | LOS B | 3.1 | 21.8 | 0.23 | 1.03 | 0.29 | 49.3 |
| Approach | | 308 | 2.0 | 379 | 2.0 | 0.469 | 11.2 | LOS B | 3.1 | 21.8 | 0.23 | 1.03 | 0.29 | 49.5 |
| All Vehicles | | 758 | 2.0 | 934 | 2.0 | 0.469 | 9.0 | NA | 3.1 | 21.8 | 0.14 | 0.90 | 0.17 | 50.9 |

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: 102 [Oliver Drive/Holland St_Existing Redistributed_PM (Site Folder: Bruxner Highway Rezoning)]

Stop Control
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

| 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 | 48 | 2.0 | 0.057 | 5.6 | LOS A | 0.2 | 1.7 | 0.05 | 0.54 | 0.05 | 53.6 |
| 2 | T1 | 4 | 2.0 | 5 | 2.0 | 0.057 | 0.0 | LOS A | 0.2 | 1.7 | 0.05 | 0.54 | 0.05 | 55.1 |
| 3 | R2 | 41 | 2.0 | 50 | 2.0 | 0.057 | 5.5 | LOS A | 0.2 | 1.7 | 0.05 | 0.54 | 0.05 | 53.1 |
| Approach | | 84 | 2.0 | 103 | 2.0 | 0.057 | 5.3 | NA | 0.2 | 1.7 | 0.05 | 0.54 | 0.05 | 53.4 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 55 | 2.0 | 68 | 2.0 | 0.403 | 8.1 | LOS A | 2.1 | 14.7 | 0.07 | 1.04 | 0.07 | 51.2 |
| 5 | T1 | 271 | 2.0 | 334 | 2.0 | 0.403 | 8.8 | LOS A | 2.1 | 14.7 | 0.07 | 1.04 | 0.07 | 50.9 |
| 6 | R2 | 14 | 2.0 | 17 | 2.0 | 0.403 | 12.7 | LOS B | 2.1 | 14.7 | 0.07 | 1.04 | 0.07 | 50.7 |
| Approach | | 340 | 2.0 | 419 | 2.0 | 0.403 | 8.9 | LOS A | 2.1 | 14.7 | 0.07 | 1.04 | 0.07 | 51.0 |
| North: Holland St | | | | | | | | | | | | | | |
| 7 | L2 | 6 | 2.0 | 7 | 2.0 | 0.025 | 5.7 | LOS A | 0.1 | 0.8 | 0.14 | 0.49 | 0.14 | 53.7 |
| 8 | T1 | 4 | 2.0 | 5 | 2.0 | 0.025 | 0.1 | LOS A | 0.1 | 0.8 | 0.14 | 0.49 | 0.14 | 55.1 |
| 9 | R2 | 25 | 2.0 | 31 | 2.0 | 0.025 | 5.6 | LOS A | 0.1 | 0.8 | 0.14 | 0.49 | 0.14 | 53.1 |
| Approach | | 35 | 2.0 | 43 | 2.0 | 0.025 | 5.0 | NA | 0.1 | 0.8 | 0.14 | 0.49 | 0.14 | 53.4 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 10 | L2 | 25 | 2.0 | 31 | 2.0 | 0.434 | 8.3 | LOS A | 2.4 | 17.2 | 0.12 | 1.03 | 0.13 | 50.7 |
| 11 | T1 | 252 | 2.0 | 310 | 2.0 | 0.434 | 8.9 | LOS A | 2.4 | 17.2 | 0.12 | 1.03 | 0.13 | 50.5 |
| 12 | R2 | 50 | 2.0 | 62 | 2.0 | 0.434 | 14.3 | LOS B | 2.4 | 17.2 | 0.12 | 1.03 | 0.13 | 50.2 |
| Approach | | 327 | 2.0 | 403 | 2.0 | 0.434 | 9.7 | LOS A | 2.4 | 17.2 | 0.12 | 1.03 | 0.13 | 50.5 |
| All Vehicles | | 786 | 2.0 | 968 | 2.0 | 0.434 | 8.6 | NA | 2.4 | 17.2 | 0.10 | 0.96 | 0.10 | 51.1 |

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: 101 [Bruxner Hwy/Oliver Drive_Cumulative_AM (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | INPUT VOLUMES HV ] % | DEMAND FLOWS [ Total veh/h | DEMAND FLOWS HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | 95% BACK OF QUEUE Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Oliver Drive | | | | | | | | | | | | | | |
| 1 | L2 | 292 | 2.0 | 360 | 2.0 | 0.954 | 45.7 | LOS D | 12.4 | 88.0 | 1.00 | 1.54 | 2.71 | 13.1 |
| 2 | T1 | 3 | 2.0 | 4 | 2.0 | 0.742 | 17.0 | LOS B | 6.2 | 44.5 | 0.98 | 1.15 | 1.44 | 24.1 |
| 3 | R2 | 297 | 2.0 | 366 | 2.0 | 0.742 | 21.7 | LOS C | 6.2 | 44.5 | 0.98 | 1.15 | 1.44 | 23.4 |
| Approach | | 592 | 2.0 | 729 | 2.0 | 0.954 | 33.5 | LOS C | 12.4 | 88.0 | 0.99 | 1.34 | 2.07 | 17.3 |
| East: Bruxner Hwy East | | | | | | | | | | | | | | |
| 4 | L2 | 310 | 2.0 | 382 | 2.0 | 0.951 | 28.1 | LOS C | 30.4 | 216.7 | 1.00 | 1.51 | 2.34 | 19.0 |
| 5 | T1 | 1112 | 2.0 | 1370 | 2.0 | 0.951 | 30.2 | LOS C | 30.4 | 216.7 | 1.00 | 1.55 | 2.41 | 18.3 |
| 6 | R2 | 48 | 2.0 | 59 | 2.0 | 0.951 | 36.6 | LOS D | 28.0 | 199.6 | 1.00 | 1.58 | 2.46 | 17.4 |
| Approach | | 1470 | 2.0 | 1810 | 2.0 | 0.951 | 30.0 | LOS C | 30.4 | 216.7 | 1.00 | 1.54 | 2.39 | 18.4 |
| North: Pineapple Road | | | | | | | | | | | | | | |
| 7 | L2 | 34 | 2.0 | 42 | 2.0 | 0.139 | 12.2 | LOS B | 0.7 | 4.9 | 0.85 | 0.92 | 0.85 | 30.0 |
| 8 | T1 | 1 | 2.0 | 1 | 2.0 | 0.265 | 10.6 | LOS B | 1.6 | 11.1 | 0.91 | 0.97 | 0.91 | 28.9 |
| 9 | R2 | 93 | 2.0 | 115 | 2.0 | 0.265 | 15.3 | LOS B | 1.6 | 11.1 | 0.91 | 0.97 | 0.91 | 27.9 |
| Approach | | 128 | 2.0 | 158 | 2.0 | 0.265 | 14.4 | LOS B | 1.6 | 11.1 | 0.89 | 0.96 | 0.89 | 28.4 |
| West: Bruxner Hwy West | | | | | | | | | | | | | | |
| 10 | L2 | 108 | 2.0 | 133 | 2.0 | 0.815 | 12.3 | LOS B | 14.0 | 99.9 | 1.00 | 1.02 | 1.36 | 30.3 |
| 11 | T1 | 918 | 2.0 | 1131 | 2.0 | 0.815 | 12.9 | LOS B | 14.0 | 99.9 | 1.00 | 1.04 | 1.39 | 29.2 |
| 12 | R2 | 307 | 2.0 | 378 | 2.0 | 0.815 | 18.8 | LOS B | 13.4 | 95.4 | 1.00 | 1.09 | 1.43 | 26.2 |
| Approach | | 1333 | 2.0 | 1642 | 2.0 | 0.815 | 14.2 | LOS B | 14.0 | 99.9 | 1.00 | 1.05 | 1.39 | 28.5 |
| All Vehicles | | 3523 | 2.0 | 4339 | 2.0 | 0.954 | 24.1 | LOS C | 30.4 | 216.7 | 0.99 | 1.30 | 1.91 | 21.4 |

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_Cumulative_PM (Site Folder: Bruxner Highway Rezoning)]

Roundbaout
Site Category: Existing Design
Roundabout
Design Life Analysis (Final Year): Results for 10 years

**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 | 305 | 2.0 | 376 | 2.0 | 0.993 | 61.9 | LOS E [11] | 16.8 | 119.9 | 1.00 | 1.77 | 3.42 | 10.3 |
| 2 | T1 | 1 | 2.0 | 1 | 2.0 | 0.853 | 24.3 | LOS C | 9.1 | 64.9 | 1.00 | 1.29 | 1.86 | 20.2 |
| 3 | R2 | 346 | 2.0 | 426 | 2.0 | 0.853 | 29.0 | LOS C | 9.1 | 64.9 | 1.00 | 1.29 | 1.86 | 19.7 |
| Approach | | 652 | 2.0 | 803 | 2.0 | 0.993 | 44.4 | LOS D | 16.8 | 119.9 | 1.00 | 1.52 | 2.59 | 14.2 |
| East: Bruxner Hwy East | | | | | | | | | | | | | | |
| 4 | L2 | 349 | 2.0 | 430 | 2.0 | 0.941 | 26.0 | LOS C | 28.6 | 203.5 | 1.00 | 1.46 | 2.23 | 19.9 |
| 5 | T1 | 1103 | 2.0 | 1358 | 2.0 | 0.941 | 28.2 | LOS C | 28.6 | 203.5 | 1.00 | 1.50 | 2.30 | 19.2 |
| 6 | R2 | 20 | 2.0 | 25 | 2.0 | 0.941 | 34.3 | LOS C | 26.4 | 188.3 | 1.00 | 1.53 | 2.35 | 18.3 |
| Approach | | 1472 | 2.0 | 1813 | 2.0 | 0.941 | 27.8 | LOS C | 28.6 | 203.5 | 1.00 | 1.49 | 2.28 | 19.4 |
| North: Pineapple Road | | | | | | | | | | | | | | |
| 7 | L2 | 47 | 2.0 | 58 | 2.0 | 0.203 | 13.3 | LOS B | 1.0 | 7.3 | 0.87 | 0.93 | 0.87 | 28.8 |
| 8 | T1 | 2 | 2.0 | 2 | 2.0 | 0.362 | 12.3 | LOS B | 2.3 | 16.1 | 0.94 | 1.00 | 1.01 | 27.5 |
| 9 | R2 | 119 | 2.0 | 147 | 2.0 | 0.362 | 17.0 | LOS B | 2.3 | 16.1 | 0.94 | 1.00 | 1.01 | 26.5 |
| Approach | | 168 | 2.0 | 207 | 2.0 | 0.362 | 15.9 | LOS B | 2.3 | 16.1 | 0.92 | 0.98 | 0.97 | 27.1 |
| West: Bruxner Hwy West | | | | | | | | | | | | | | |
| 10 | L2 | 59 | 2.0 | 73 | 2.0 | 0.848 | 14.4 | LOS B | 16.4 | 116.7 | 1.00 | 1.09 | 1.49 | 28.3 |
| 11 | T1 | 999 | 2.0 | 1230 | 2.0 | 0.848 | 15.2 | LOS B | 16.4 | 116.7 | 1.00 | 1.11 | 1.51 | 27.3 |
| 12 | R2 | 280 | 2.0 | 345 | 2.0 | 0.848 | 21.2 | LOS C | 15.5 | 110.4 | 1.00 | 1.16 | 1.57 | 24.5 |
| Approach | | 1338 | 2.0 | 1648 | 2.0 | 0.848 | 16.4 | LOS B | 16.4 | 116.7 | 1.00 | 1.12 | 1.52 | 26.7 |
| All Vehicles | | 3630 | 2.0 | 4471 | 2.0 | 0.993 | 26.0 | LOS C | 28.6 | 203.5 | 1.00 | 1.34 | 2.00 | 20.4 |

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.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

# MOVEMENT SUMMARY

## Site: 102 [Oliver Drive/Holland St_Cumulative_AM (Site Folder: Bruxner Highway Rezoning)]

Stop Control
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

| 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 | 81 | 2.0 | 0.133 | 5.6 | LOS A | 0.6 | 4.6 | 0.10 | 0.53 | 0.10 | 53.4 |
| 2 | T1 | 7 | 2.0 | 9 | 2.0 | 0.133 | 0.1 | LOS A | 0.6 | 4.6 | 0.10 | 0.53 | 0.10 | 54.9 |
| 3 | R2 | 119 | 2.0 | 147 | 2.0 | 0.133 | 5.6 | LOS A | 0.6 | 4.6 | 0.10 | 0.53 | 0.10 | 52.9 |
| Approach | | 192 | 2.0 | 236 | 2.0 | 0.133 | 5.4 | NA | 0.6 | 4.6 | 0.10 | 0.53 | 0.10 | 53.2 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 87 | 2.0 | 107 | 2.0 | 0.437 | 8.5 | LOS A | 2.7 | 18.9 | 0.07 | 1.05 | 0.08 | 50.4 |
| 5 | T1 | 247 | 2.0 | 304 | 2.0 | 0.437 | 10.4 | LOS B | 2.7 | 18.9 | 0.07 | 1.05 | 0.08 | 50.1 |
| 6 | R2 | 6 | 2.0 | 7 | 2.0 | 0.437 | 15.4 | LOS C | 2.7 | 18.9 | 0.07 | 1.05 | 0.08 | 49.9 |
| Approach | | 340 | 2.0 | 419 | 2.0 | 0.437 | 10.0 | LOS B | 2.7 | 18.9 | 0.07 | 1.05 | 0.08 | 50.2 |
| North: Holland St | | | | | | | | | | | | | | |
| 7 | L2 | 16 | 2.0 | 20 | 2.0 | 0.028 | 5.8 | LOS A | 0.1 | 0.8 | 0.17 | 0.45 | 0.17 | 53.7 |
| 8 | T1 | 6 | 2.0 | 7 | 2.0 | 0.028 | 0.2 | LOS A | 0.1 | 0.8 | 0.17 | 0.45 | 0.17 | 55.2 |
| 9 | R2 | 18 | 2.0 | 22 | 2.0 | 0.028 | 5.7 | LOS A | 0.1 | 0.8 | 0.17 | 0.45 | 0.17 | 53.2 |
| Approach | | 40 | 2.0 | 49 | 2.0 | 0.028 | 4.9 | NA | 0.1 | 0.8 | 0.17 | 0.45 | 0.17 | 53.7 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 10 | L2 | 17 | 2.0 | 21 | 2.0 | 0.656 | 10.9 | LOS B | 6.4 | 45.8 | 0.31 | 1.09 | 0.55 | 47.8 |
| 11 | T1 | 291 | 2.0 | 358 | 2.0 | 0.656 | 12.8 | LOS B | 6.4 | 45.8 | 0.31 | 1.09 | 0.55 | 47.5 |
| 12 | R2 | 90 | 2.0 | 111 | 2.0 | 0.656 | 20.6 | LOS C | 6.4 | 45.8 | 0.31 | 1.09 | 0.55 | 47.3 |
| Approach | | 398 | 2.0 | 490 | 2.0 | 0.656 | 14.5 | LOS B | 6.4 | 45.8 | 0.31 | 1.09 | 0.55 | 47.5 |
| All Vehicles | | 970 | 2.0 | 1195 | 2.0 | 0.656 | 10.7 | NA | 6.4 | 45.8 | 0.18 | 0.94 | 0.28 | 49.7 |

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: 102 [Oliver Drive/Holland St_Cumulative_PM (Site Folder: Bruxner Highway Rezoning)]

Stop Control
Site Category: Existing Design
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**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 | 48 | 2.0 | 0.074 | 5.6 | LOS A | 0.3 | 2.4 | 0.06 | 0.54 | 0.06 | 53.6 |
| 2 | T1 | 4 | 2.0 | 5 | 2.0 | 0.074 | 0.0 | LOS A | 0.3 | 2.4 | 0.06 | 0.54 | 0.06 | 55.0 |
| 3 | R2 | 65 | 2.0 | 80 | 2.0 | 0.074 | 5.5 | LOS A | 0.3 | 2.4 | 0.06 | 0.54 | 0.06 | 53.0 |
| Approach | | 108 | 2.0 | 133 | 2.0 | 0.074 | 5.3 | NA | 0.3 | 2.4 | 0.06 | 0.54 | 0.06 | 53.3 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 96 | 2.0 | 118 | 2.0 | 0.567 | 8.9 | LOS A | 5.0 | 35.5 | 0.07 | 1.05 | 0.09 | 50.3 |
| 5 | T1 | 362 | 2.0 | 446 | 2.0 | 0.567 | 10.2 | LOS B | 5.0 | 35.5 | 0.07 | 1.05 | 0.09 | 50.1 |
| 6 | R2 | 14 | 2.0 | 17 | 2.0 | 0.567 | 17.2 | LOS C | 5.0 | 35.5 | 0.07 | 1.05 | 0.09 | 49.8 |
| Approach | | 472 | 2.0 | 581 | 2.0 | 0.567 | 10.1 | LOS B | 5.0 | 35.5 | 0.07 | 1.05 | 0.09 | 50.1 |
| North: Holland St | | | | | | | | | | | | | | |
| 7 | L2 | 6 | 2.0 | 7 | 2.0 | 0.025 | 5.7 | LOS A | 0.1 | 0.8 | 0.14 | 0.49 | 0.14 | 53.7 |
| 8 | T1 | 4 | 2.0 | 5 | 2.0 | 0.025 | 0.1 | LOS A | 0.1 | 0.8 | 0.14 | 0.49 | 0.14 | 55.1 |
| 9 | R2 | 25 | 2.0 | 31 | 2.0 | 0.025 | 5.6 | LOS A | 0.1 | 0.8 | 0.14 | 0.49 | 0.14 | 53.1 |
| Approach | | 35 | 2.0 | 43 | 2.0 | 0.025 | 5.0 | NA | 0.1 | 0.8 | 0.14 | 0.49 | 0.14 | 53.4 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 10 | L2 | 25 | 2.0 | 31 | 2.0 | 0.562 | 9.6 | LOS A | 4.9 | 34.9 | 0.16 | 1.04 | 0.22 | 49.3 |
| 11 | T1 | 314 | 2.0 | 387 | 2.0 | 0.562 | 10.5 | LOS B | 4.9 | 34.9 | 0.16 | 1.04 | 0.22 | 49.0 |
| 12 | R2 | 50 | 2.0 | 62 | 2.0 | 0.562 | 21.5 | LOS C | 4.9 | 34.9 | 0.16 | 1.04 | 0.22 | 48.8 |
| Approach | | 389 | 2.0 | 479 | 2.0 | 0.562 | 11.9 | LOS B | 4.9 | 34.9 | 0.16 | 1.04 | 0.22 | 49.0 |
| All Vehicles | | 1004 | 2.0 | 1237 | 2.0 | 0.567 | 10.1 | NA | 5.0 | 35.5 | 0.11 | 0.97 | 0.14 | 50.1 |

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 (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**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 | 437 | 0.0 | 538 | 0.0 | 0.282 | 0.1 | LOS A | 0.1 | 0.7 | 0.02 | 0.01 | 0.02 | 59.7 |
| 3 | R2 | 4 | 0.0 | 5 | 0.0 | 0.282 | 10.5 | LOS B | 0.1 | 0.7 | 0.02 | 0.01 | 0.02 | 56.6 |
| Approach | | 441 | 0.0 | 543 | 0.0 | 0.282 | 0.2 | NA | 0.1 | 0.7 | 0.02 | 0.01 | 0.02 | 59.7 |
| East: Residentail Access 1 | | | | | | | | | | | | | | |
| 4 | L2 | 19 | 0.0 | 23 | 0.0 | 0.344 | 10.6 | LOS B | 1.2 | 8.6 | 0.81 | 0.97 | 1.00 | 41.6 |
| 6 | R2 | 74 | 0.0 | 91 | 0.0 | 0.344 | 18.8 | LOS C | 1.2 | 8.6 | 0.81 | 0.97 | 1.00 | 33.5 |
| Approach | | 93 | 0.0 | 115 | 0.0 | 0.344 | 17.1 | LOS C | 1.2 | 8.6 | 0.81 | 0.97 | 1.00 | 35.6 |
| North: Oliver Dr North | | | | | | | | | | | | | | |
| 7 | L2 | 20 | 0.0 | 25 | 0.0 | 0.368 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 55.6 |
| 8 | T1 | 562 | 0.0 | 692 | 0.0 | 0.368 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 59.5 |
| Approach | | 582 | 0.0 | 717 | 0.0 | 0.368 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 59.4 |
| All Vehicles | | 1116 | 0.0 | 1374 | 0.0 | 0.368 | 1.6 | NA | 1.2 | 8.6 | 0.08 | 0.09 | 0.09 | 57.3 |

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

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

| 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 | 604 | 0.0 | 744 | 0.0 | 0.414 | 0.5 | LOS A | 0.7 | 4.7 | 0.09 | 0.02 | 0.12 | 58.9 |
| 3 | R2 | 21 | 0.0 | 26 | 0.0 | 0.414 | 11.4 | LOS B | 0.7 | 4.7 | 0.09 | 0.02 | 0.12 | 55.8 |
| Approach | | 625 | 0.0 | 770 | 0.0 | 0.414 | 0.8 | NA | 0.7 | 4.7 | 0.09 | 0.02 | 0.12 | 58.7 |
| East: Residential Access 1 | | | | | | | | | | | | | | |
| 4 | L2 | 5 | 0.0 | 6 | 0.0 | 0.126 | 8.0 | LOS A | 0.4 | 2.6 | 0.81 | 0.91 | 0.81 | 41.0 |
| 6 | R2 | 21 | 0.0 | 26 | 0.0 | 0.126 | 20.5 | LOS C | 0.4 | 2.6 | 0.81 | 0.91 | 0.81 | 32.8 |
| Approach | | 26 | 0.0 | 32 | 0.0 | 0.126 | 18.1 | LOS C | 0.4 | 2.6 | 0.81 | 0.91 | 0.81 | 34.8 |
| North: Oliver Dr North | | | | | | | | | | | | | | |
| 7 | L2 | 86 | 0.0 | 106 | 0.0 | 0.363 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 54.3 |
| 8 | T1 | 485 | 0.0 | 597 | 0.0 | 0.363 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 58.6 |
| Approach | | 571 | 0.0 | 703 | 0.0 | 0.363 | 0.9 | NA | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 58.2 |
| All Vehicles | | 1222 | 0.0 | 1505 | 0.0 | 0.414 | 1.2 | NA | 0.7 | 4.7 | 0.06 | 0.07 | 0.08 | 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: 104 [Residentail/Local Centre Accees 2_AM (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**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 | 296 | 0.0 | 365 | 0.0 | 0.221 | 0.6 | LOS A | 0.5 | 3.2 | 0.14 | 0.05 | 0.14 | 58.6 |
| 3 | R2 | 22 | 0.0 | 27 | 0.0 | 0.221 | 9.9 | LOS A | 0.5 | 3.2 | 0.14 | 0.05 | 0.14 | 55.3 |
| Approach | | 318 | 0.0 | 392 | 0.0 | 0.221 | 1.3 | NA | 0.5 | 3.2 | 0.14 | 0.05 | 0.14 | 58.4 |
| East: Resi/Local Cntr Access 2 | | | | | | | | | | | | | | |
| 4 | L2 | 37 | 0.0 | 46 | 0.0 | 0.512 | 11.1 | LOS B | 2.3 | 16.3 | 0.79 | 1.03 | 1.21 | 42.5 |
| 6 | R2 | 145 | 0.0 | 179 | 0.0 | 0.512 | 17.1 | LOS C | 2.3 | 16.3 | 0.79 | 1.03 | 1.21 | 40.1 |
| Approach | | 182 | 0.0 | 224 | 0.0 | 0.512 | 15.9 | LOS C | 2.3 | 16.3 | 0.79 | 1.03 | 1.21 | 40.6 |
| North: Oliver Dr North | | | | | | | | | | | | | | |
| 7 | L2 | 90 | 0.0 | 111 | 0.0 | 0.370 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 55.9 |
| 8 | T1 | 491 | 0.0 | 605 | 0.0 | 0.370 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 58.8 |
| Approach | | 581 | 0.0 | 716 | 0.0 | 0.370 | 1.0 | NA | 0.0 | 0.0 | 0.00 | 0.09 | 0.00 | 58.5 |
| All Vehicles | | 1081 | 0.0 | 1331 | 0.0 | 0.512 | 3.6 | NA | 2.3 | 16.3 | 0.17 | 0.24 | 0.24 | 55.4 |

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 (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**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 | 655 | 0.0 | 0.388 | 0.6 | LOS A | 1.0 | 6.8 | 0.14 | 0.05 | 0.19 | 58.6 |
| 3 | R2 | 39 | 0.0 | 48 | 0.0 | 0.388 | 9.8 | LOS A | 1.0 | 6.8 | 0.14 | 0.05 | 0.19 | 55.3 |
| Approach | | 571 | 0.0 | 703 | 0.0 | 0.388 | 1.3 | NA | 1.0 | 6.8 | 0.14 | 0.05 | 0.19 | 58.5 |
| East: Resi/Local Cntr Access 2 | | | | | | | | | | | | | | |
| 4 | L2 | 23 | 0.0 | 28 | 0.0 | 0.400 | 9.1 | LOS A | 1.5 | 10.7 | 0.77 | 0.96 | 1.02 | 41.8 |
| 6 | R2 | 93 | 0.0 | 115 | 0.0 | 0.400 | 18.8 | LOS C | 1.5 | 10.7 | 0.77 | 0.96 | 1.02 | 39.3 |
| Approach | | 116 | 0.0 | 143 | 0.0 | 0.400 | 16.9 | LOS C | 1.5 | 10.7 | 0.77 | 0.96 | 1.02 | 39.9 |
| North: Oliver Dr North | | | | | | | | | | | | | | |
| 7 | L2 | 157 | 0.0 | 193 | 0.0 | 0.314 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.19 | 0.00 | 54.7 |
| 8 | T1 | 333 | 0.0 | 410 | 0.0 | 0.314 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.19 | 0.00 | 57.9 |
| Approach | | 490 | 0.0 | 603 | 0.0 | 0.314 | 1.8 | NA | 0.0 | 0.0 | 0.00 | 0.19 | 0.00 | 57.1 |
| All Vehicles | | 1177 | 0.0 | 1450 | 0.0 | 0.400 | 3.0 | NA | 1.5 | 10.7 | 0.14 | 0.20 | 0.19 | 56.0 |

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

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**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 | 26 | 0.0 | 32 | 0.0 | 0.190 | 6.8 | LOS A | 0.6 | 4.5 | 0.56 | 0.78 | 0.56 | 50.2 |
| 3 | R2 | 63 | 0.0 | 78 | 0.0 | 0.190 | 11.6 | LOS B | 0.6 | 4.5 | 0.56 | 0.78 | 0.56 | 49.7 |
| Approach | | 89 | 0.0 | 110 | 0.0 | 0.190 | 10.2 | LOS B | 0.6 | 4.5 | 0.56 | 0.78 | 0.56 | 49.8 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 252 | 0.0 | 310 | 0.0 | 0.341 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.28 | 0.00 | 55.8 |
| 5 | T1 | 276 | 0.0 | 340 | 0.0 | 0.341 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.28 | 0.00 | 57.3 |
| Approach | | 528 | 0.0 | 650 | 0.0 | 0.341 | 2.7 | NA | 0.0 | 0.0 | 0.00 | 0.28 | 0.00 | 56.6 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 11 | T1 | 255 | 0.0 | 314 | 0.0 | 0.308 | 2.3 | LOS A | 1.8 | 12.9 | 0.46 | 0.24 | 0.54 | 55.9 |
| 12 | R2 | 104 | 0.0 | 128 | 0.0 | 0.308 | 9.6 | LOS A | 1.8 | 12.9 | 0.46 | 0.24 | 0.54 | 53.9 |
| Approach | | 359 | 0.0 | 442 | 0.0 | 0.308 | 4.4 | NA | 1.8 | 12.9 | 0.46 | 0.24 | 0.54 | 55.3 |
| All Vehicles | | 976 | 0.0 | 1202 | 0.0 | 0.341 | 4.0 | NA | 1.8 | 12.9 | 0.22 | 0.31 | 0.25 | 55.4 |

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 (Site Folder: Bruxner Highway Rezoning)]

New Site
Site Category: Proposed Design 1
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**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 | 104 | 0.0 | 128 | 0.0 | 0.670 | 10.5 | LOS B | 4.8 | 33.8 | 0.70 | 1.07 | 1.39 | 47.7 |
| 3 | R2 | 252 | 0.0 | 310 | 0.0 | 0.670 | 15.4 | LOS C | 4.8 | 33.8 | 0.70 | 1.07 | 1.39 | 47.3 |
| Approach | | 356 | 0.0 | 438 | 0.0 | 0.670 | 14.0 | LOS B | 4.8 | 33.8 | 0.70 | 1.07 | 1.39 | 47.4 |
| East: Oliver Dr East | | | | | | | | | | | | | | |
| 4 | L2 | 63 | 0.0 | 78 | 0.0 | 0.227 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 57.4 |
| 5 | T1 | 293 | 0.0 | 361 | 0.0 | 0.227 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 58.9 |
| Approach | | 356 | 0.0 | 438 | 0.0 | 0.227 | 1.0 | NA | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 58.6 |
| West: Oliver Dr West | | | | | | | | | | | | | | |
| 11 | T1 | 319 | 0.0 | 393 | 0.0 | 0.230 | 0.3 | LOS A | 0.4 | 2.5 | 0.11 | 0.05 | 0.11 | 59.1 |
| 12 | R2 | 26 | 0.0 | 32 | 0.0 | 0.230 | 7.6 | LOS A | 0.4 | 2.5 | 0.11 | 0.05 | 0.11 | 56.9 |
| Approach | | 345 | 0.0 | 425 | 0.0 | 0.230 | 0.8 | NA | 0.4 | 2.5 | 0.11 | 0.05 | 0.11 | 59.0 |
| All Vehicles | | 1057 | 0.0 | 1302 | 0.0 | 0.670 | 5.3 | NA | 4.8 | 33.8 | 0.27 | 0.41 | 0.50 | 54.4 |

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.