

Appendix F

Traffic Assessment

Technical Memorandum

Traffic Impact Assessment



Date	15/05/2026	Project Number	P0051836
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Project	The Village Oonoonba Traffic Assessment	Reviewed By	Alice Shi

1 Introduction

1.1 Background

Urbis has been engaged by the Economic Development Queensland Urban Developments team (EDQ UD) to provide traffic engineering advice for The Village development at Oonoonba, located within the Oonoonba Priority Development Area (PDA).

The PDA has an existing approval over the masterplan. In 2025, EDQ investigated the delivery of signalisation of the Abbott Street / Lakeside Drive and Lakeside Drive / Riveredge Boulevard intersections to enable the development of the PDA following a period of stagnation. The signalisation was to address safety concerns raised by the Department of Transport and Main Roads (TMR) surrounding the potential for queues across the adjacent rail level crossing. Through considered consultation with TMR, Queensland Rail (QR) and Townsville City Council (TCC), the design and traffic operations of the signalised upgrades were largely supported and catalyst funding was successfully granted.

Due to external factors, the full build out of the approved masterplan will not likely be achievable. Therefore, EDQ has investigated the likely achievable yields for the balance of the site, being a reduction from the approved scheme. This revised masterplan is enclosed at Appendix A.

This assessment addresses EDQ's proposal to submit a Reconfiguring a Lot (RoL) application to overwrite the existing masterplan with a reduced yield. As the ultimate yields are no longer expected, this assessment investigates the impacts of the proposed reduced scheme under a scenario in which both intersections remain in their existing priority-controlled form, without introducing unacceptable safety risks.

1.2 Reference

In preparation of this assessment, previous traffic studies have been provided for review, including:

1. South Townsville Road Strategic Assessment of Service Requirements (SASR) Future Situation and Causal Factors, prepared by Bitzios Consulting, dated 29 August 2024
2. The Village, Oonoonba, Townsville Traffic Impact Assessment, prepared by Calibre Consulting, dated 4 May 2018.
3. 286 Lakeside Drive, Oonoonba Proposed Mixed Use Development Traffic Engineering report, prepared by TTM, dated 25 June 2021.

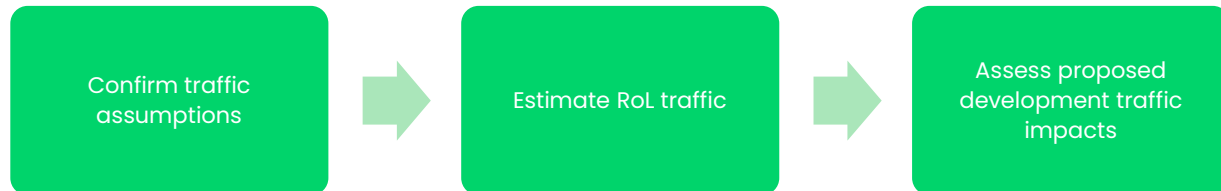
The first report was provided by TMR for input to previous assessment for the Lakeside Drive upgrade investigations.

The third report refers to the traffic impacts of the proposed development at Lot 6,000. It is understood a revised assessment will be submitted for this site however was not available at the time of this assessment.

2 Methodology

As outlined earlier, EDQ is seeking a new RoL approval for the site. This assessment addresses the traffic impacts of the proposed additional yield on the existing priority-controlled intersections at Lakeside Drive / Riveredge Boulevard and Lakeside Drive / Abbott Street, without compromising road safety or resulting in unacceptable queue spillback across the rail corridor.

Urbis has developed an assessment methodology to address current conditions and assumptions updated from previous assessments. The adopted methodology for this assessment is outlined below.



2.1 Confirm Traffic Assumptions

Intersection surveys

Intersection surveys were undertaken by Austraffic during the 3-hour AM and PM peak periods on Wednesday, 29 May 2024 at the Lakeside Drive / Riveredge Boulevard priority-controlled intersection. Traffic volumes, delays and queue lengths were recorded to enable calibration of the SIDRA assessment.

Future year traffic volumes

Traffic volumes for the 2036 design horizon were extracted directly from the South Townsville Road Model (STRM) prepared for TMR and adopted for this assessment. The STRM forms part of TMR's future network planning framework and is derived from the Townsville Aimsun Mesoscopic Model (TAMM), incorporating demand from the Townsville Strategic Transport Model (TSTM).

These volumes are considered to appropriately reflect surrounding development and planned road network upgrades and provide a robust basis for assessing future traffic conditions. It is noted that these volumes present a conservative scenario as it was assumed that the PDA would be built to ultimate yields, which is no longer proposed.

Volume comparison and background growth assumptions

Lakeside Drive and Abbott Street are state controlled north-south routes running parallel to one another, both providing connections to the Bruce Highway and offering alternative route choices. To establish future road network conditions and background traffic growth, growth assumptions were reviewed. A comparison of modelled 2036 STRM traffic volumes and 2024 surveyed volumes showed no growth on Lakeside Drive, with Abbott Street indicated as the preferred route choice.

The comparison indicates no material difference between the two sets of volumes. Accordingly, a background growth rate of 0% been adopted for Lakeside Drive, reflecting that Abbott Street is the preferred route choice. A background growth rate of 2% per annum has been adopted for Abbott Street.

Revised access Design for Lot 6000 Development

The access arrangement for the adjacent Lot 6000 development (food and drink outlet and service station) has been revised so it no longer operates as a four-way intersection with the Lakeside Drive / Riveredge Boulevard intersection. As a result, signalisation of the Lakeside Drive / Riveredge Boulevard intersection is no longer required. It has been assumed for this assessment that the access will be relocated towards the southern end of the site with the expected traffic volumes informed from the 2021 traffic assessment prepared by TTM. The proponent of the site will confirm the proposed site yields and access arrangements with their submitted application.

2.2 Estimate RoL Traffic

Establish through traffic volumes

To establish accurate 2037 through-movement volumes on Lakeside Drive and Abbott Street, the 2024 surveyed traffic datasets were adopted and grown to the 2037 design horizon using the adopted background traffic growth rates.

Establish development traffic volumes

Turning movement volumes from Riveredge Boulevard have been informed by the RoL concept plan and the TTM Traffic Impact Assessment for the Lot 6000 development. This includes:

- Traffic generated by the proposed 127 low-density residential dwellings as part of the RoL, assessed using previously endorsed residential trip rates.
- A separate methodology has been adopted to estimate traffic generation associated with the proposed social housing component (48 dwellings) of the RoL. This has been based on an adjustment factor accounting for the typically lower vehicle ownership rates for people living in social housing.
- The Lot 6000 Traffic Impact Assessment (2021) was reviewed to confirm access and intersection assumptions. While earlier assessments assumed a four-way signalised intersection, the current scenario retains priority-controlled intersections. Accordingly, the Lakeside Drive / Riveredge Boulevard and Lakeside Drive / Lot 6000 access intersections have been revised to staggered T-intersections, with updated traffic volumes applied to the 2037 turning movement assessment to redistribute the Lot 6000 trips through the study network. It is understood that a separate application is being submitted for the revised Lot 6000 site which was not available at the time of this assessment.

2.3 Assess Proposed Development Traffic

SIDRA assessment

The 2037 baseline traffic volumes, together with trips associated with the proposed RoL development, have been assessed using SIDRA Intersection 10 to evaluate the capacity and queue performance of the key project intersections in their existing priority-controlled forms.

3 Traffic Impact Assessment

3.1 Assessment Scenarios

It is expected that the proposed additional dwellings would be developed in 2027. As the development will be capped following construction of the RoL works, with no further expansion anticipated, traffic impacts have been assessed for a 10-year post-construction horizon year of 2037.

Therefore, the assessed scenarios include the AM and PM weekday peaks for the design horizon year (2037).

3.2 STRM Future Year Base Volumes

Urbis was provided with the Stage 2 Future Year Base Modelling Report (Bitzios Consulting, 2024), which contains STRM future year base intersection volumes for the 2036 and 2046 forecast years at the Lakeside Drive/Riveredge Boulevard intersection.

The STRM incorporates all traffic associated with the Oonoonba PDA, together with state committed road infrastructure upgrades across the surrounding network (STRM model extent shown in Figure 1). As a result, the model provides a comprehensive representation of future traffic conditions within the study area and the wider road network.

Figure 1 STRM Model Extents



Source: South Townsville Road SASR: Traffic Modelling and Analysis Report (Bitzios Consulting, 2024)

The 2036 modelled traffic volumes are presented in Table 1 and presented as a stick diagram in Figure 2.

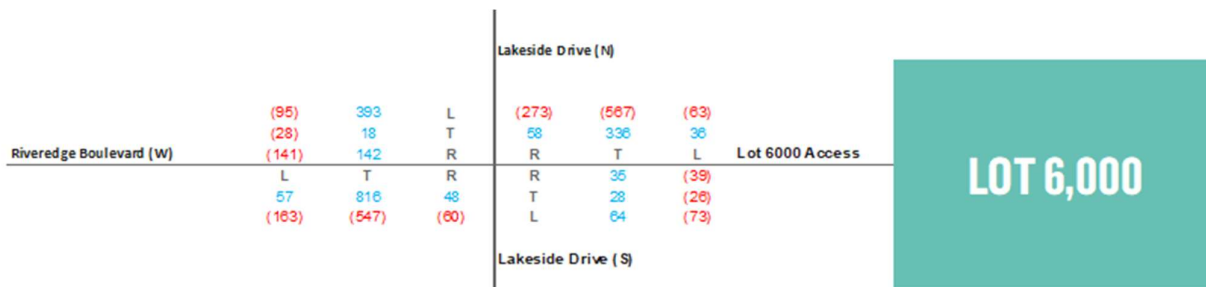
Table 1 2036 STRM Traffic Volumes at Lakeside Drive / Riveredge Boulevard intersection

Table 4.9: Intersection 2 – Lakeside Drive / Riveredge Boulevard SIDRA Outputs												
Scenario	App	Turn	AM				PM				LOS	Queue ⁴
			Vol ¹	DOS ²	Delay ³	LOS	Vol ¹	DOS ²	Delay ³	LOS		
2022 Base	S	L	57	0.04	6	LOS A	1.0	0.05	6	LOS A	1.3	
		T	757	0.39	0	LOS A	0.0	0.28	0	LOS A	0.0	
	N	T	341	0.18	0	LOS A	0.0	0.28	0	LOS A	0.0	
		R	46	0.06	9	LOS A	1.7	0.12	8	LOS A	3.6	
	W	L	182	0.69	17	LOS B	28.1	0.62	14	LOS A	23.5	
		R	67	0.69	41	LOS C	28.1	0.62	33	LOS C	23.5	
	Intersection		1,451	0.69	41	LOS C	28.1	0.62	33	LOS C	23.5	
2036 Base	S	L	57	0.04	41	LOS C	1.8	0.14	25	LOS B	12.3	
		T	816	0.91	61	LOS E	360.1	0.64	35	LOS C	166.1	
		R	48	0.10	57	LOS E	8.8	0.14	46	LOS D	12.1	
	E	L	64	0.06	9	LOS A	6.0	0.09	21	LOS B	14.9	
		T	28	0.67	66	LOS E	27.7	0.69	66	LOS E	28.7	
		R	35	0.67	71	LOS F	27.7	0.69	72	LOS F	28.7	
	N	L	36	0.39	25	LOS B	95.4	0.89	57	LOS E	244.8	
		T	336	0.39	20	LOS B	95.4	0.89	51	LOS D	244.8	
		R	58	0.32	33	LOS C	13.1	0.51	36	LOS C	46.7	
	W	L	393	0.89	56	LOS D	151.8	0.20	31	LOS C	25.6	
		T	18	0.44	51	LOS D	60.6	0.92	73	LOS F	82.9	
		R	142	0.44	57	LOS E	60.6	0.92	79	LOS F	82.9	
	Intersection		2,031	0.91	49	LOS D	360.1	0.92	44	LOS C	244.8	
2046 Base	S	L	49	0.03	28	LOS B	1.5	0.13	31	LOS C	14.1	
		T	647	0.71	38	LOS C	203.7	0.76	35	LOS C	225.8	
		R	38	0.08	45	LOS D	6.8	0.14	43	LOS D	8.0	
	E	L	60	0.05	8	LOS A	5.0	0.08	14	LOS A	12.1	
		T	13	0.54	65	LOS E	21.8	0.65	66	LOS E	26.7	
		R	38	0.54	70	LOS E	21.8	0.65	71	LOS F	26.7	
	N	L	36	0.39	25	LOS B	95.6	0.66	29	LOS C	174.0	
		T	375	0.39	20	LOS B	95.6	0.66	24	LOS B	174.0	
		R	72	0.23	25	LOS B	12.3	0.64	32	LOS C	53.2	
	W	L	321	0.69	36	LOS C	97.5	0.38	37	LOS C	44.4	
		T	21	0.32	45	LOS D	42.3	0.74	60	LOS E	63.9	
		R	97	0.32	50	LOS D	42.3	0.74	66	LOS E	63.9	
	Intersection		1,766	0.71	34	LOS C	203.7	0.76	34	LOS C	225.8	

¹Volume, ²Degree of saturation, ³Average delay in seconds, ⁴95th percentile queue length in metres

Source: South Townsville Road SASR: Traffic Modelling and Analysis Report (Bitzios Consulting,2024)

Figure 2 2036 STRM Traffic Volumes at Lakeside Drive / Riveredge Boulevard intersection



Source: Adapted from South Townsville Road SASR: Traffic Modelling and Analysis Report (Bitzios Consulting,2024)

3.3 Volume Comparison

This section examines background traffic growth along Lakeside Drive using intersection volumes extracted from the STRM, with relevant trip adjustments applied to represent the 2036 baseline scenario. These volumes are then compared with intersection surveys undertaken by Austraffic during the three-hour AM and PM peak periods on Wednesday, 29 May 2024 at the Riveredge Boulevard / Lakeside Drive intersection.

A comparison of the mid-block volumes (combining both northbound and southbound traffic) on Lakeside Drive is provided in Table 2.

Table 2 Midblock volumes at Lakeside Drive

Direction	2024 AM	2036 AM	AM Difference	2024 PM	2036 PM	PM Difference
Northbound	795	816	+21	526	547	+21
Southbound	390	336	-54	662	567	-95
Lakeside Total	1,185	1,152	-33	1,188	1,114	-74

The comparison indicates that projected 2036 traffic volumes on Lakeside Drive are effectively consistent with observed 2024 volumes. On this basis, it is considered conservative to assume that no additional background traffic growth will occur on Lakeside Drive beyond PDA-related traffic.

Based on these findings, a greater proportion of background traffic growth is assumed to be distributed to Abbott Street, reflecting planned corridor upgrades. Through movements on Abbott Street are assumed to grow at approximately 2% per annum in line with previous assessments, while no background growth is assumed on Lakeside Drive between Abbott Street and Riveredge Boulevard.

3.4 Background Growth Factors

Based on the findings in Section 3.3, the background growth factors for Lakeside Drive and Abbott Street are summarised in Table 3.

Table 3 Adopted background growth factor

	Lakeside Drive	Abbott Steet
Growth factor	0%	2%

3.5 Assessed Volumes–Through Traffic Volumes

To establish more realistic future traffic conditions, Lakeside Drive and Abbott Street through volumes were informed by the 2024 traffic survey data and grown to the 2037 design horizon using the background growth rates identified in Table 3. Linear growth has been applied for this purpose.

$$= 2024 \text{ volume} \times (1 + \text{growth factor} \times (2037 - 2024))$$

3.6 Assessed Volumes–Turning Volumes

Traffic volumes on Riveredge Boulevard (both inbound and outbound) represent development-generated traffic. These volumes have been informed by the RoL concept plan and the TTM TIA report for the Lot 6000 development.

$$= \text{Existing traffic} + \text{low density residential trips} + \text{social housing trips} + \text{Lot 6000 Trips}$$

Detailed assumptions underpinning the turning movement volumes for the adjacent Lot 6000 development, as well as the new social housing component of the RoL, are outlined in the sections below.

3.6.1 Low Density Residential Trips

Consistent with previous assessments, this assessment adopts the AM and PM trip rates informed from the 2024 survey data for the Riveredge Boulevard catchment. The adopted trip rates are summarised in Table 4 with the resulting total AM and PM peak period trips presented in Table 5.

Table 4 Adopted low density residential trip rates

Land Use	AM Peak Rate	PM Peak Rate
Low density residential	0.55 vph/dw	0.68 vph/dw

Table 5 Low density residential trips

Yield	AM Peak Rate	PM Peak Rate
127 dwellings	70 Trips	86 Trips

3.6.2 Social Housing Trips

The proposed RoL development includes 48 social housing units. Given the demographic characteristics typically associated with social housing, a tailored traffic generation approach has been adopted for this component of the development.

Vehicle ownership data obtained from ABS Census data in Townsville indicates an average ownership rate of 0.93 vehicles per dwelling. By comparison, broader vehicle ownership data for all dwelling types in Townsville indicates an average of 1.84 vehicles per dwelling.

For the purposes of this assessment, peak-hour vehicle trip generation has been assumed to be broadly proportionate to vehicle ownership. On this basis, social housing dwellings are assumed to generate approximately 51% of the peak-hour vehicle trips adopted for standard low-density residential dwellings.

Accordingly, the traffic generation rates applied to the social housing component have been discounted relative to low-density residential rates to reflect lower vehicle ownership and associated travel demand. This approach is considered reasonable and conservative and aligns with observed local vehicle ownership characteristics for social housing residents in Townsville.

The adopted trip rates for the proposed social housing component are summarised in Table 6, with the resulting total AM and PM peak period trips presented in Table 7.

Table 6 Adopted social housing trip rates

Land Use	AM Peak Rate	PM Peak Rate
Social housing units	0.28 vph/dw	0.34 vph/dw

Table 7 Social housing trips

Yield	AM Peak Rate	PM Peak Rate
48 Units	13 Trips	16 Trips

3.6.3 Lot 6000 Trips

Turning movement volumes for Lot 6000 have been adopted from the TTM report dated 25 June 2021, prepared in support of the development application for the site. The report outlines the approved land uses and development yields, as shown in **Error! Reference source not found..**

Figure 3 Lot 6000 Development Yield

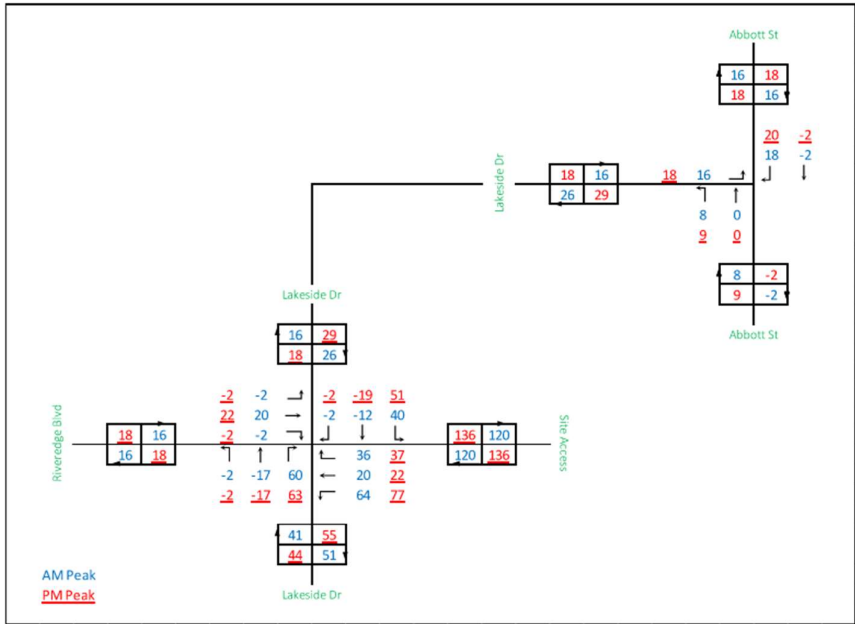
Use	Use	Area/Qty
Stage 1	Service Station	240m ² GFA 8 Fuel Bowsers
	Fast Food Outlet	223m ² GFA
Future Stages	Indoor Sport & Rec (Gym)	700m ² GFA
	Health Care	680m ² GFA

Source: TTM (Table 2.1: Proposed Land Uses)

Error! Reference source not found. illustrates the assessed traffic generation associated with Lot 6000 as estimated by TTM. These values have been adopted in place of the Lot 6000 turning movements outlined in the Calibre report.

The negative values relate to the drop in trips associated with the convenience uses on the lot. The change in trips has been distributed across the network following the Calibre traffic distribution assumptions.

Figure 4 Lot 6000 Assessed Traffic Generation

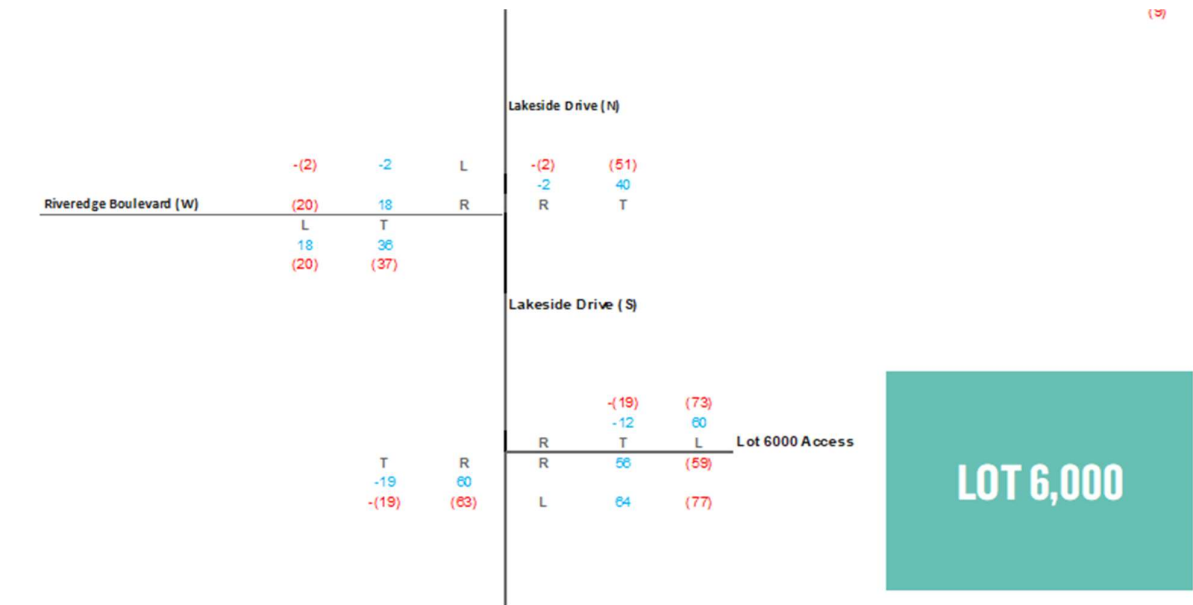


Traffic Network Diagram 8: Development Traffic Volumes (vph) – Ultimate

Source: TTM

While TTM assessments assumed a four-way signalised intersection, the current scenario retains priority-controlled intersections. From a safety perspective, a four-way priority-controlled layout was not considered appropriate. Accordingly, the Riveredge Boulevard / Lakeside Drive and Lakeside Drive / Lot 6000 intersections were revised to staggered T-intersections, and the Lot 6000 associated traffic were applied to the 2037 turning movements, as shown in **Error! Reference source not found..** It is noted that the Abbott Street / Lakeside Drive volumes are not expected to change and have not been redistributed.

Figure 5 Redistributed Lot 6000 traffic



3.7 Assessed Volumes

The traffic volumes assessed for the purposes of this assessment are illustrated in Figure 6 and Figure 7.

Figure 6 Development Traffic Volumes (including Lot 6000)

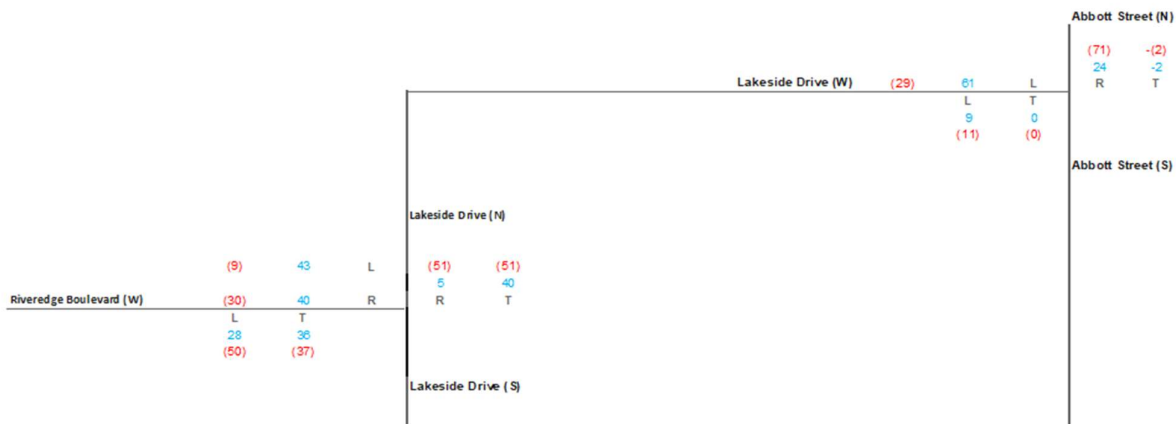
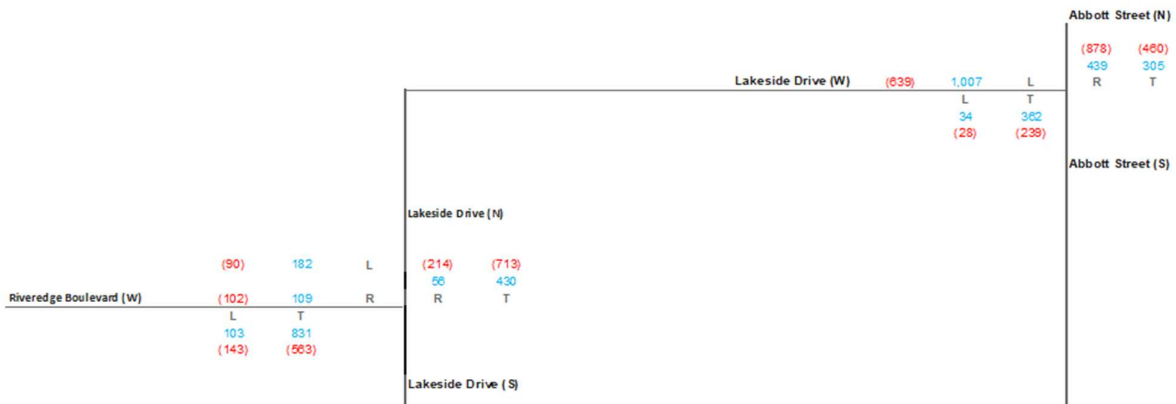


Figure 7 2037 BG + Development Traffic Volumes



These volumes incorporate the updated background growth assumptions, traffic generated by the RoL development, and trips associated with the adjacent Lot 6000 development.

4 SIDRA Assessment

4.1 Modelling Scenarios

For the purpose of this assessment, the two key intersections on Lakeside Drive (Riveredge Blvd / Lakeside Drive and Abbott Street / Lakeside Drive) have been tested in SIDRA for the following scenario:

- 2037 AM & PM peaks – Background traffic with proposed RoL traffic

4.2 Assumptions & Assessment Parameters

The performance of the study intersections has been analysed using SIDRA Intersection 10 (SIDRA). SIDRA is an industry recognised analysis tool that estimates the capacity and performance of intersections based on input parameters, including geometry and traffic volumes, and provides estimates of an intersection's Degree of Saturation (DOS), queues and delays. Delay thresholds adopted for the assessment are tabulated below.

Table 8 Adopted Intersection Performance Threshold – Delay

Intersection Treatment	Delay Threshold
Priority Control Intersections	Less than or equal to 42 seconds

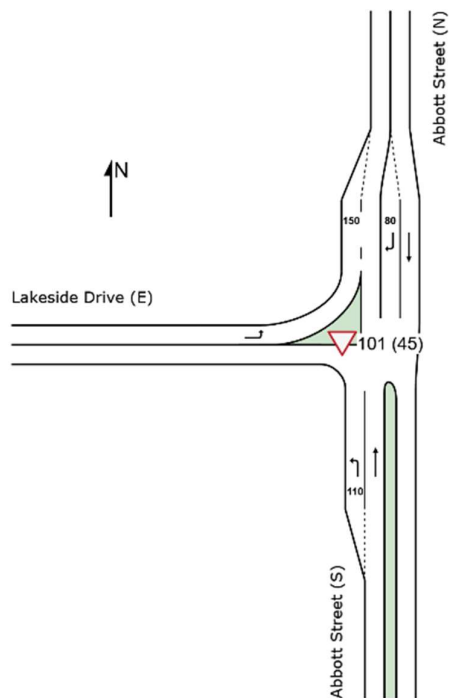
Given the close proximity of the development to the Lakeside Drive / Abbott Street rail level crossing, the Department of Transport and Main Roads (TMR) previously raised concerns that increased traffic on Lakeside Drive could result in vehicle queues extending across the rail corridor.

Consultation with both TMR and Queensland Rail has confirmed that queue length and queue spillback across the rail level crossing present a greater road safety concern than intersection delay. Accordingly, this assessment places primary emphasis on safety factors influenced by queue performance and delays rather than theoretical capacity based intersection performance metric of degree of saturation.

4.3 Abbott Street / Lakeside Drive

The assessed layout of the Abbott Street / Lakeside Drive intersection is shown on Figure 8.

Figure 8 Abbott Street / Lakeside Drive – SIDRA Layout



Source: SIDRA

Table 9 reports the network intersection results from the SIDRA analysis.

Table 9 Abbott Street / Lakeside Drive – SIDRA Results

Scenario	DOS	Maximum Delay (sec)	95th Percentile Queue (m)	Critical Movement (longest queue)
2036BG+Dev AM Peak	0.632	11.3	42.6	North approach-Right turn
2036BG+Dev PM Peak	0.856	14.7	136.2	North approach-Right turn

As shown, the degree of saturation (DoS) at the intersection is forecast to be slightly above the nominal capacity threshold of 0.80 in the 2036 PM peak. This still remains well below the capacity of 1.00. Given that the intersection assessment focuses on safety, delay and queuing performance are considered the critical factors. Delays are expected to remain well below the 42 second threshold, with a maximum delay of 14.7 seconds reported for the critical movement.

The results indicate that the longest queues will form on the Abbott Street right turn into Lakeside Drive, and will reach a maximum recorded length of approximately 136.2 metres in the PM peak. The extent of this is shown on Figure 9. This queue length remains within the available queue storage (with queueing permitted in painted chevrons) and does not block the through lane on Abbott Street.

Figure 9 Maximum extent of vehicle queuing along Abbott Street Right Lane

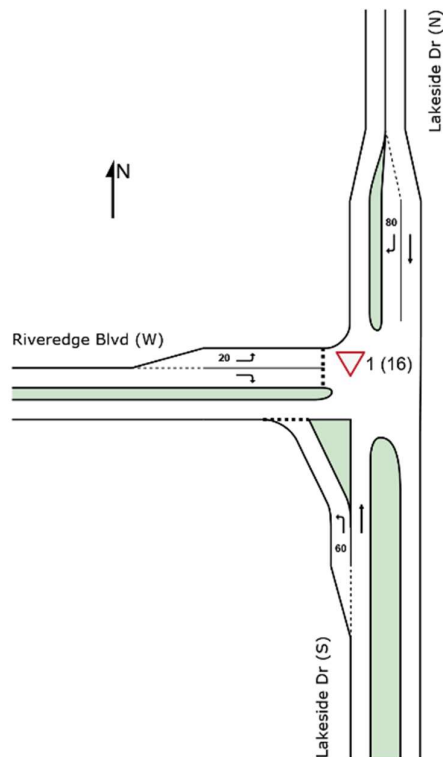


Source: Nearmap

4.4 Lakeside Drive / Riveredge Boulevard

The assessed layout of the Lakeside Drive / Riveredge Boulevard intersection is shown on Figure 10

Figure 10 Lakeside Drive / Riveredge Boulevard – SIDRA Layout



Source: SIDRA

Table 10 Lakeside Drive / Riveredge Boulevard – SIDRA Results

Scenario	DOS	Maximum Delay (sec)	95th Percentile Queue (m)	Critical Movement (longest queue)
2036BG+Dev AM Peak	0.647	29.2	21.4	West approach-left turn
2036BG+Dev PM Peak	0.723	33.0	16.9	North approach-right turn

As shown in Table 10, the DoS is expected to remain within the capacity threshold of 0.80 for priority-controlled intersections. The maximum delay, expected to be 33 seconds on the minor approach is below the 42 second safety threshold.

The maximum queue length on Lakeside Drive during the PM peak is approximately 17m relating to the right turn from Lakeside Drive north approach. This queue length is well within the available storage and is not expected to spill back to the rail crossing (Figure 11). Accordingly, queues are not anticipated to extend across or affect the rail corridor, and no adverse safety implications are expected under the assessed condition.

Figure 11 Maximum extent of vehicle queuing at Lakeside Dr / Riveredge Blvd



Source: Nearmap

5 Safety Assessment

A safety assessment has been prepared for the proposed development. This follows the risk assessment framework outlined in the Guide to Traffic Impact Assessments (GTIA) Section 9.

5.1 Crash History

Crash data has been sourced from the QLD Department of Transport and Main Roads for the study area for the most recent 5-year period (2020–2024) of available crash data. The locations of recorded crashes are shown in Figure 12.

Figure 12 Crash Locations (2020–2024)



Source: Google Earth

As shown, three crashes were recorded at the Lakeside Drive / Riveredge Boulevard intersection, two of which resulted in hospitalisation. One crash occurred near the Abbott Street / Lakeside Drive intersection and involved a rear end resulting in medical treatment. A further two crashes were recorded approximately 160m north of the intersection, both involving vehicles driving off the carriageway and hitting objects, resulting in hospitalisation.

Table 11 details the crash descriptions. The crashes were all of different natures, indicating that there is no trend related to a deficiency of the road design. For the crashes located at the Lakeside Drive / Riveredge Boulevard intersection, the two hospitalisations involved two vehicles colliding but with different natures. One was a through-right from opposite approaches, likely relating to a right turn into Riveredge Boulevard conflicting with a northbound through vehicle. Crash ID 284135 is recorded as a DCA code 101 through-through collision, however this intersection is a T-junction therefore this crash type is not possible. It is reasoned that this crash may instead be a DCA code 102, which relates to through-right crash from adjacent approaches. Being of different natures, there is no clear trend indicating a deficiency in the road environment.

Table 11 Crash History (2020–2024)

Crash Reference	Crash Severity	Crash Year	Crash Location	Crash DCA Code	Crash DCA Description
281689	Minor injury	2022	Riveredge Blvd/ Lakeside Dr	808	Off Path–Curve: Mounts Traffic Island
284135	Hospitalisation	2020	Lakeside Dr	101	Vehs Adjacent Approach: Thru–Thru
330427	Hospitalisation	2021	Riveredge Blvd/ Lakeside Dr	202	Vehs Opposite Approach: Thru–Right
88617	Hospitalisation	2022	Abbott St	704	Off Path–Straight: Right Off Cway Hit Obj
336762	Medical treatment	2024	Abbott St/Lakeside Dr	301	Vehs Same Direction: Rear End
395974	Hospitalisation	2024	Abbott St	703	Off Path–Straight: Left Off Cway Hit Obj

The crash history does not indicate that the study area has a crash trend.

5.2 Risk Assessment

As outlined in the GTIA Section 9, a safety risk assessment has been prepared. The rating descriptors are defined in and Table 12 and Table 13.

Table 12 Potential Consequence and Likelihood

Rating	Consequence Descriptor	Rating	Likelihood Descriptor	Occurrence
1	Property Only	5	Very likely. The event is expected to occur in most circumstances	Once per quarter
2	Minor Injury	4	There is a strong possibility the event will occur	Once per quarter to once per year
3	Medical Treatment	3	The event might occur at some time	Once per year to once every three years
4	Hospitalisation	2	Not expected, but there's a slight possibility it may occur at some time.	Once every three years to once every seven years
5	Fatality	1	Highly unlikely, but it may occur in exceptional circumstances. It could happen, but probably never will.	Less than once every seven years

The issues identified have been assigned a risk rating using the risk score matrix shown on Figure 13.

Figure 13 Risk Score Matrix

Figure 9.3.2(a) – Safety risk score matrix

		Potential consequence				
		Property only (1)	Minor injury (2)	Medical treatment (3)	Hospitalisation (4)	Fatality (5)
Potential likelihood	Almost certain (5)	M	M	H	H	H
	Likely (4)	M	M	M	H	H
	Moderate (3)	L	M	M	M	H
	Unlikely (2)	L	L	M	M	M
	Rare (1)	L	L	L	M	M

L: Low risk
M: Medium risk
H: High risk

Risk scores are calculated as likelihood multiplied by consequence level. Table 13 outlines the potential risks, and risk scores associated with the current design and the proposed design.

Table 13 Risk Safety Assessment

Risk Item	Existing Situation			Proposed Design			Comment
	Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score	
Abbott Street / Lakeside Drive							
Through-right crash on Abbott Street	2	4	8 Med	2	4	8 Med	No crashes on this nature were recorded in the last five years. While the development increases right-turn movements, SIDRA modelling indicates a maximum delay of 15 seconds. This delay is not expected to result in unsafe driver behaviour and, therefore, is unlikely to increase the likelihood or severity of crashes associated with this turn movement.
Through-left crash on Abbott Street	1	3	3 Low	1	3	3 Low	No crashes on this nature were recorded in the last five years. The increase in traffic volumes is not expected to result in unsafe driver behaviour and, therefore, is unlikely to increase the likelihood or severity of crashes associated with this turn movement.
Rear end crash on Abbott Street	3	3	9 Med	3	3	9 Med	One crash of this nature occurred in the last five years. While the development increases traffic movements, SIDRA modelling indicates

Risk Item	Existing Situation			Proposed Design			Comment
	Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score	
							a maximum delay of 17 seconds for the right turn into Lakeside Drive. This delay is not expected to result in unsafe driver behaviour and, therefore, is unlikely to increase the likelihood or severity of crashes associated with this turn movement.
Pedestrians crossing Lakeside Drive being hit by a car	2	4	8 Med	2	4	8 Med	No crashes on this nature were recorded in the last five years. The existing design includes an uncontrolled pedestrian crossing facility. However, crash analysis indicates that no pedestrian-related crashes have been recorded, and there is no observable crash trend suggesting elevated risk. As such, the likelihood of a pedestrian crossing Lakeside Drive being hit by a car considered to remain low.
Pedestrians crossing Abbott Street being hit by a car	2	4	8 Med	2	4	8 Med	No crashes on this nature were recorded in the last five years. The existing design includes an uncontrolled pedestrian crossing facility. However, crash analysis indicates that no pedestrian-related crashes have been recorded, and there is no observable crash trend suggesting elevated risk. As such, the likelihood of a pedestrian crossing Abbott Street being hit by a car considered to remain low.
Pedestrians crossing the level crossing being hit by train	1	5	5 Med	1	5	5 Med	No crashes on this nature were recorded in the last five years. Although the likelihood is assessed as very low, there remains a residual risk of serious injury should the crossing be circumvented.
Queueing spills back to the level crossing being hit by train	2	5	10 Med	2	5	10 Med	No crashes on this nature were recorded in the last five years. Existing design has boom gates to control vehicles crossing the rail corridor. The proposed design does not alter this configuration.

Risk Item	Existing Situation			Proposed Design			Comment
	Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score	
Lakeside Drive / Riveredge Boulevard							
Through-right crash on Lakeside Drive	3	4	12 Med	3	4	12 Med	One crash of this nature occurred in the last five years. While the development increases right-turn movements, SIDRA modelling indicates a maximum delay of 17 seconds. This delay is not expected to result in unsafe driver behaviour and, therefore, is unlikely to increase the likelihood or severity of crashes associated with this turn movement.
Through-right crash on Riveredge Blvd	3	4	12 Med	3	4	12 Med	One crash of this nature occurred in the last five years. While the development increases right-turn movements, SIDRA modelling indicates a maximum delay of 33 seconds. This delay is not expected to result in unsafe driver behaviour and, therefore, is unlikely to increase the likelihood or severity of crashes associated with this turn movement.
Through-left crash on Riveredge Blvd	1	3	3 Low	1	3	3 Low	No crashes of this nature were recorded in the last five years. While the proposed development is expected to increase traffic volumes at the intersection, SIDRA modelling indicates that DOS, delays and queuing will remain within acceptable safety thresholds. On this basis, traffic operations are not expected to materially worsen, and the overall safety risk at the intersection is expected to remain acceptable.
Pedestrians crossing Lakeside Drive being hit by a car	1	4	4 Med	1	4	4 Med	No crashes of this nature were recorded in the last five years. The proposal does not significantly increase traffic or pedestrian volumes, therefore it is not expected that the likelihood of pedestrian crashes will increase.
Pedestrians crossing Riveredge Blvd being hit by a car	1	4	4 Med	1	4	4 Med	No crashes of this nature were recorded in the last five years.

Risk Item	Existing Situation			Proposed Design			Comment
	Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score	
							The proposal does not significantly increase traffic or pedestrian volumes, therefore it is not expected that the likelihood of pedestrian crashes will increase.

The risk assessment indicates that the intersections operate currently under low or medium risks, with no high level risks identified. The proposed development will not worsen the risk ratings for any of the identified risks. While the proposed development is expected to increase traffic volumes in the surrounding area, SIDRA modelling shows that both intersections are projected to continue operating within safe capacity thresholds. Delays are expected to remain well under the safety threshold (42 seconds) for all movements. Queuing at both intersections are expected to remain within the available storage lanes and are not expected to impede through movements on the major roads.

As traffic conditions at the two intersections are not forecast to materially worsen compared with existing conditions, the likelihood of crashes and overall safety performance are expected to remain negligible and consistent with current conditions. Accordingly, retaining the two priority-controlled intersections in their existing form is considered acceptable from a road safety review perspective.

6 Summary

Urbis has been engaged by Economic Development Queensland Urban Developments to provide traffic engineering advice for The Village development at Oonoonba, within the Oonoonba PDA. A Reconfiguring a Lot (RoL) application has been prepared to revise the masterplan. The proposed RoL development comprises 127 low-density residential dwellings and 48 social housing units.

This traffic memo evaluates the traffic impacts of the proposed additional lots that can be accommodated by the existing priority-controlled intersections at Lakeside Drive / Riveredge Boulevard and Lakeside Drive / Abbott Street without introducing unacceptable safety risks, particularly vehicle queue spillback across the adjacent rail level crossing.

SIDRA analysis indicates that the assessed intersections will operate within acceptable performance thresholds in the design horizon (2037) AM and PM peak periods. Forecast queues remain within available storage and are not expected to extend across the rail corridor. Delays are expected to remain well within the safety threshold.

The safety assessment indicates that the proposed development will not materially change intersection performance or safety outcomes, with the identified risk levels remaining unchanged as a result of the development.

Accordingly, the proposed RoL development can be supported without adverse traffic or road safety impacts.

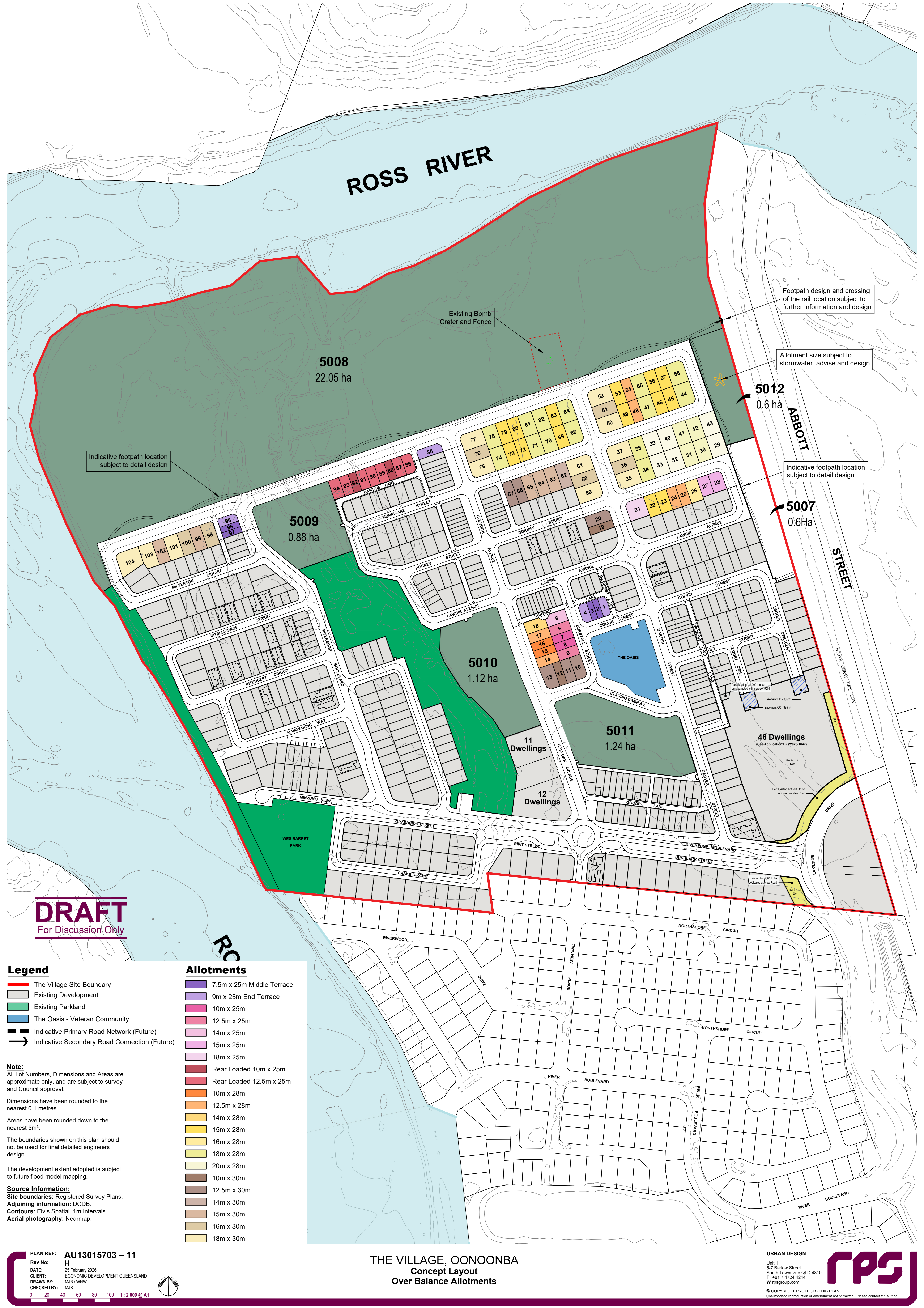


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Appendix A: Revised Master Plan



DRAFT
For Discussion Only

Legend

- The Village Site Boundary
- Existing Development
- Existing Parkland
- The Oasis - Veteran Community
- Indicative Primary Road Network (Future)
- Indicative Secondary Road Connection (Future)

Note:
All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.

Dimensions have been rounded to the nearest 0.1 metres.

Areas have been rounded down to the nearest 5m².

The boundaries shown on this plan should not be used for final detailed engineers design.

The development extent adopted is subject to future flood model mapping.

Source Information:
Site boundaries: Registered Survey Plans.
Adjoining information: DCDB.
Contours: Elvis Spatial, 1m Intervals
Aerial photography: Nearmap.

Allotments

- 7.5m x 25m Middle Terrace
- 9m x 25m End Terrace
- 10m x 25m
- 12.5m x 25m
- 14m x 25m
- 15m x 25m
- 18m x 25m
- Rear Loaded 10m x 25m
- Rear Loaded 12.5m x 25m
- 10m x 28m
- 12.5m x 28m
- 14m x 28m
- 15m x 28m
- 16m x 28m
- 18m x 28m
- 20m x 28m
- 10m x 30m
- 12.5m x 30m
- 14m x 30m
- 15m x 30m
- 16m x 30m
- 18m x 30m

THE VILLAGE, OONOONBA
Concept Layout
Over Balance Allotments

URBAN DESIGN

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Appendix B: SIDRA Outputs

SITE LAYOUT

▽ Site: [101 (45)] Lakeside Dr - Abbott St - 2037BG+175dw - AM
Peak - with Lot 6000 (with Lot 6000 (access south))

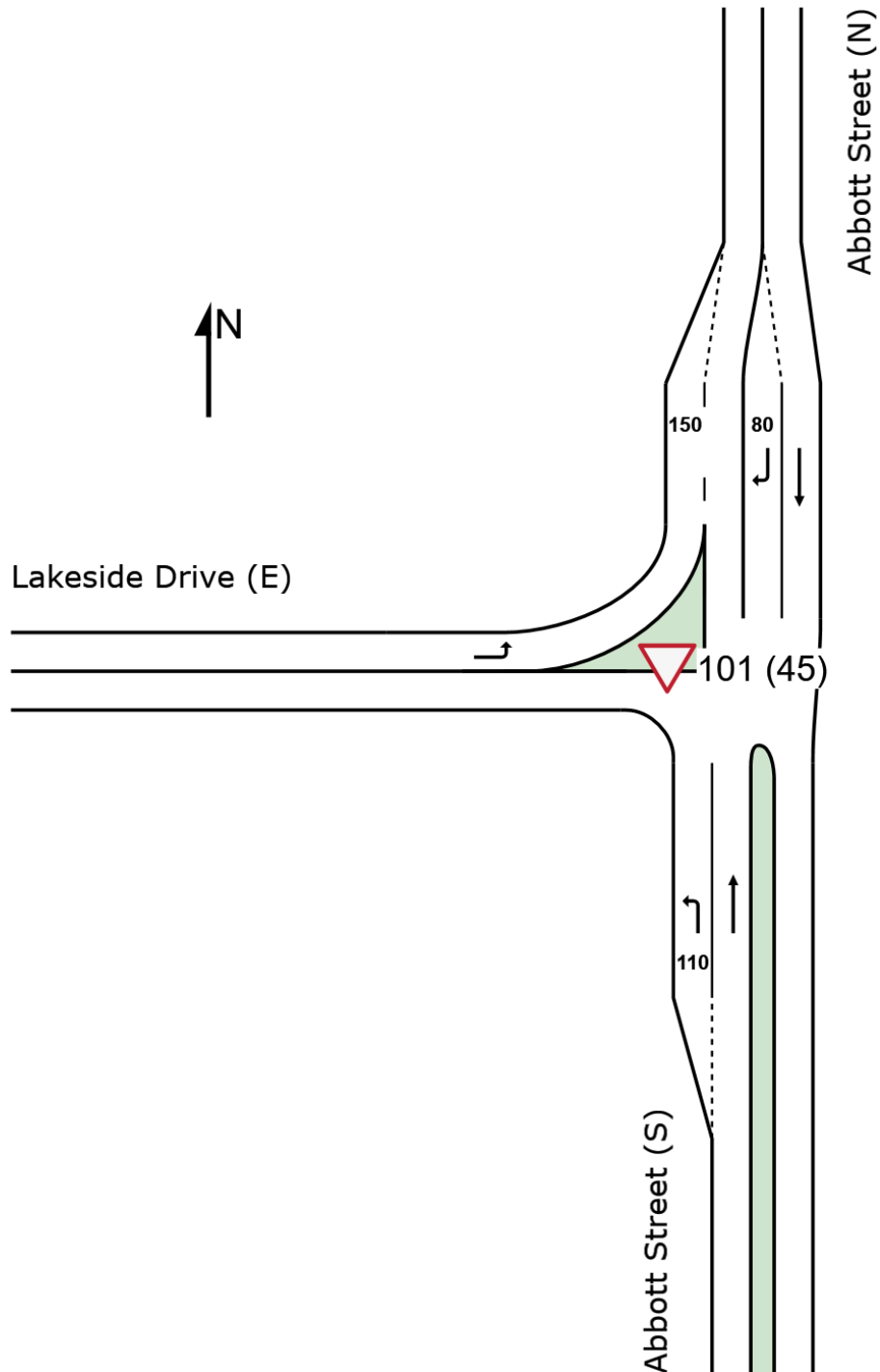
New Site

Site Category: (None)

Give-Way (Two-Way)

Site Scenario: 1 | Local Volumes

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



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Project: C:\Users\d.wang\Urbis Ltd\P0051836 SUB Oonoona Village Traffic Assessment - General\02_Workspace\08_Transport\01_Analysis
\SIDRA\P0051836 - SIDRA - 20260413_V13.sipx

MOVEMENT SUMMARY

Site: [101 (45)] Lakeside Dr - Abbott St - 2037BG+175dw - AM
Peak - with Lot 6000 (with Lot 6000 (access south))
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
South: Abbott Street (S)															
1	L2	All MCs	36	0.0	36	0.0	0.019	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	49.7
2	T1	All MCs	381	7.0	381	7.0	0.204	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			417	6.4	417	6.4	0.204	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.2
North: Abbott Street (N)															
8	T1	All MCs	321	19.0	321	19.0	0.185	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	563	3.0	563	3.0	0.632	11.3	LOS B	5.9	42.6	0.69	0.98	1.17	44.0
Approach			884	8.8	884	8.8	0.632	7.2	NA	5.9	42.6	0.44	0.62	0.75	50.2
West: Lakeside Drive (E)															
10	L2	All MCs	1060	1.0	1060	1.0	0.575	9.1	LOS A	0.0	0.0	0.00	0.53	0.00	50.2
Approach			1060	1.0	1060	1.0	0.575	9.1	NA	0.0	0.0	0.00	0.53	0.00	50.2
All Vehicles			2361	4.9	2361	4.9	0.632	6.9	NA	5.9	42.6	0.16	0.48	0.28	52.0

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

MOVEMENT SUMMARY

Site: [101 (46)] Lakeside Dr - Abbott St - 2037BG+175dw - PM
Peak - with Lot 6000 (with Lot 6000 (access south))
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
South: Abbott Street (S)															
1	L2	All MCs	29	0.0	29	0.0	0.016	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	49.7
2	T1	All MCs	252	6.0	252	6.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			281	5.4	281	5.4	0.134	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.1
North: Abbott Street (N)															
8	T1	All MCs	484	3.0	484	3.0	0.313	0.4	LOS A	1.7	12.1	0.41	0.10	0.41	58.2
9	R2	All MCs	924	0.0	924	0.0	0.856	14.7	LOS B	19.5	136.2	0.85	1.16	1.82	41.5
Approach			1408	1.0	1408	1.0	0.856	9.8	NA	19.5	136.2	0.70	0.79	1.34	47.6
West: Lakeside Drive (E)															
10	L2	All MCs	673	1.0	673	1.0	0.365	6.5	LOS A	0.0	0.0	0.00	0.53	0.00	50.3
Approach			673	1.0	673	1.0	0.365	6.5	NA	0.0	0.0	0.00	0.53	0.00	50.3
All Vehicles			2362	1.5	2362	1.5	0.856	7.8	NA	19.5	136.2	0.42	0.63	0.80	49.7

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

SITE LAYOUT

▽ Site: [1 (16)] Lakeside Dr - Riveredge Blvd - 2037Dev+175dw
- AM Peak - with Lot 6000 (with Lot 6000 (access south))

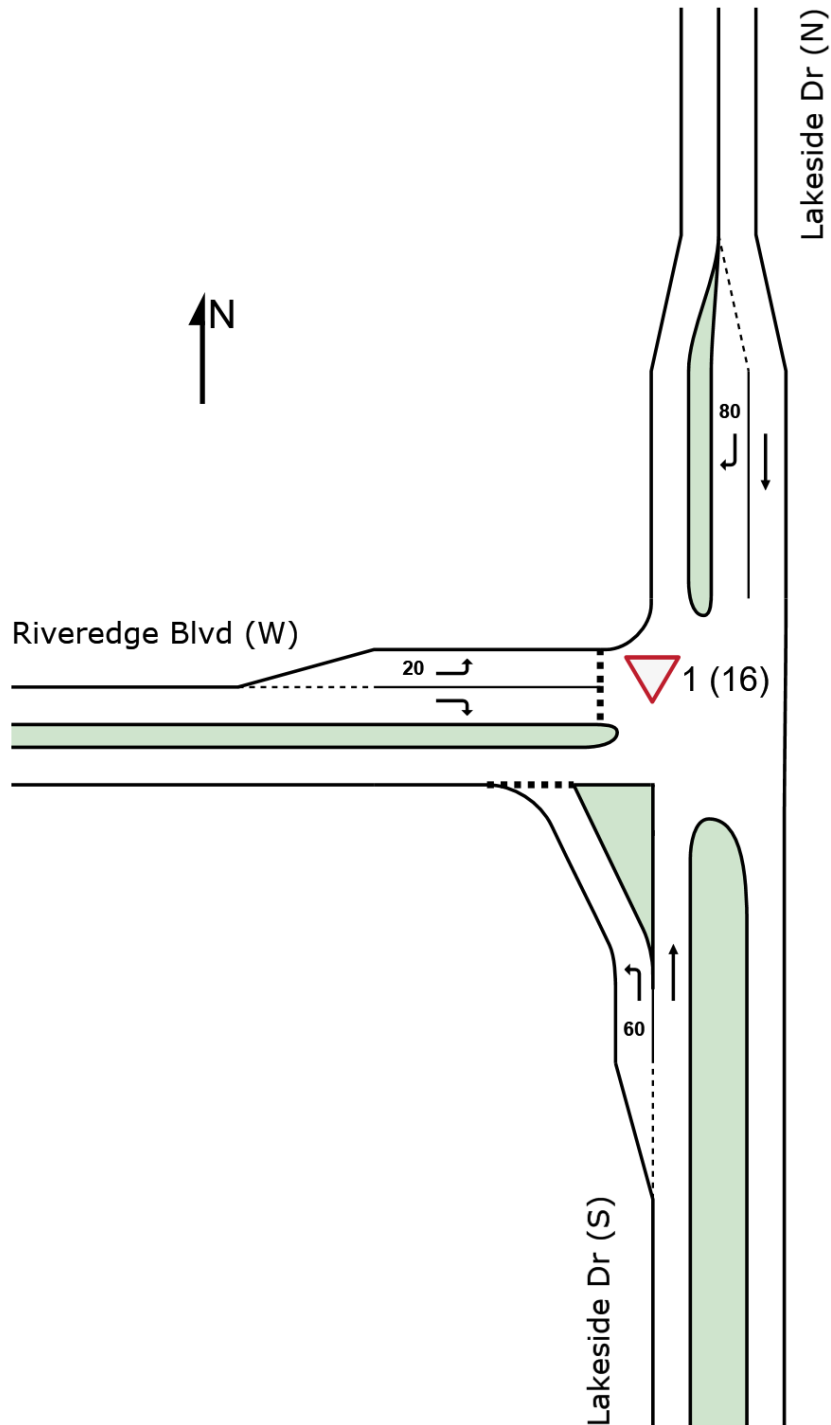
New Site

Site Category: (None)

Give-Way (Two-Way)

Site Scenario: 1 | Local Volumes

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\SIDRA\P0051836 - SIDRA - 20260413_V13.sipx

MOVEMENT SUMMARY

▽ Site: [1 (16)] Lakeside Dr - Riveredge Blvd - 2037Dev+175dw
- AM Peak - with Lot 6000 (with Lot 6000 (access south))
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Lakeside Dr (S)															
1	L2	All MCs	108	3.0	108	3.0	0.205	6.4	LOS A	0.5	3.9	0.17	0.55	0.17	48.9
2	T1	All MCs	875	1.0	875	1.0	0.451	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			983	1.2	983	1.2	0.451	0.7	LOS A	0.5	3.9	0.02	0.06	0.02	56.8
North: Lakeside Dr (N)															
8	T1	All MCs	453	3.0	453	3.0	0.237	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
9	R2	All MCs	59	0.0	59	0.0	0.222	16.6	LOS C	0.6	4.2	0.76	0.91	0.83	40.4
Approach			512	2.7	512	2.7	0.237	1.9	NA	0.6	4.2	0.09	0.11	0.10	53.7
West: Riveredge Blvd (W)															
10	L2	All MCs	192	1.0	192	1.0	0.647	23.8	LOS C	3.0	21.4	0.89	1.12	1.55	35.8
12	R2	All MCs	115	0.0	115	0.0	0.567	29.2	LOS D	2.0	14.2	0.92	1.06	1.34	32.9
Approach			306	0.6	306	0.6	0.647	25.8	LOS D	3.0	21.4	0.90	1.10	1.47	34.7
All Vehicles			1801	1.5	1801	1.5	0.647	5.3	NA	3.0	21.4	0.19	0.25	0.29	47.3

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

MOVEMENT SUMMARY

▽ Site: [1 (17)] Lakeside Dr - Riveredge Blvd - 2037Dev+175dw
- PM Peak - with Lot 6000 (with Lot 6000 (access south))
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Lakeside Dr (S)															
1	L2	All MCs	151	1.0	151	1.0	0.366	8.4	LOS A	0.8	5.5	0.26	0.67	0.32	47.0
2	T1	All MCs	593	1.0	593	1.0	0.306	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			743	1.0	743	1.0	0.366	1.7	LOS A	0.8	5.5	0.05	0.14	0.07	54.3
North: Lakeside Dr (N)															
8	T1	All MCs	751	1.0	751	1.0	0.387	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
9	R2	All MCs	225	1.0	225	1.0	0.397	14.0	LOS B	2.4	16.9	0.73	0.95	0.99	42.2
Approach			976	1.0	976	1.0	0.397	3.3	NA	2.4	16.9	0.17	0.22	0.23	50.9
West: Riveredge Blvd (W)															
10	L2	All MCs	95	0.0	95	0.0	0.160	9.2	LOS A	0.5	3.3	0.52	0.80	0.52	46.1
12	R2	All MCs	107	3.0	107	3.0	0.723	33.0	LOS D	2.0	14.2	0.93	1.11	1.62	31.1
Approach			202	1.6	202	1.6	0.723	21.8	LOS C	2.0	14.2	0.74	0.96	1.10	36.8
All Vehicles			1921	1.1	1921	1.1	0.723	4.6	NA	2.4	16.9	0.18	0.27	0.26	48.7

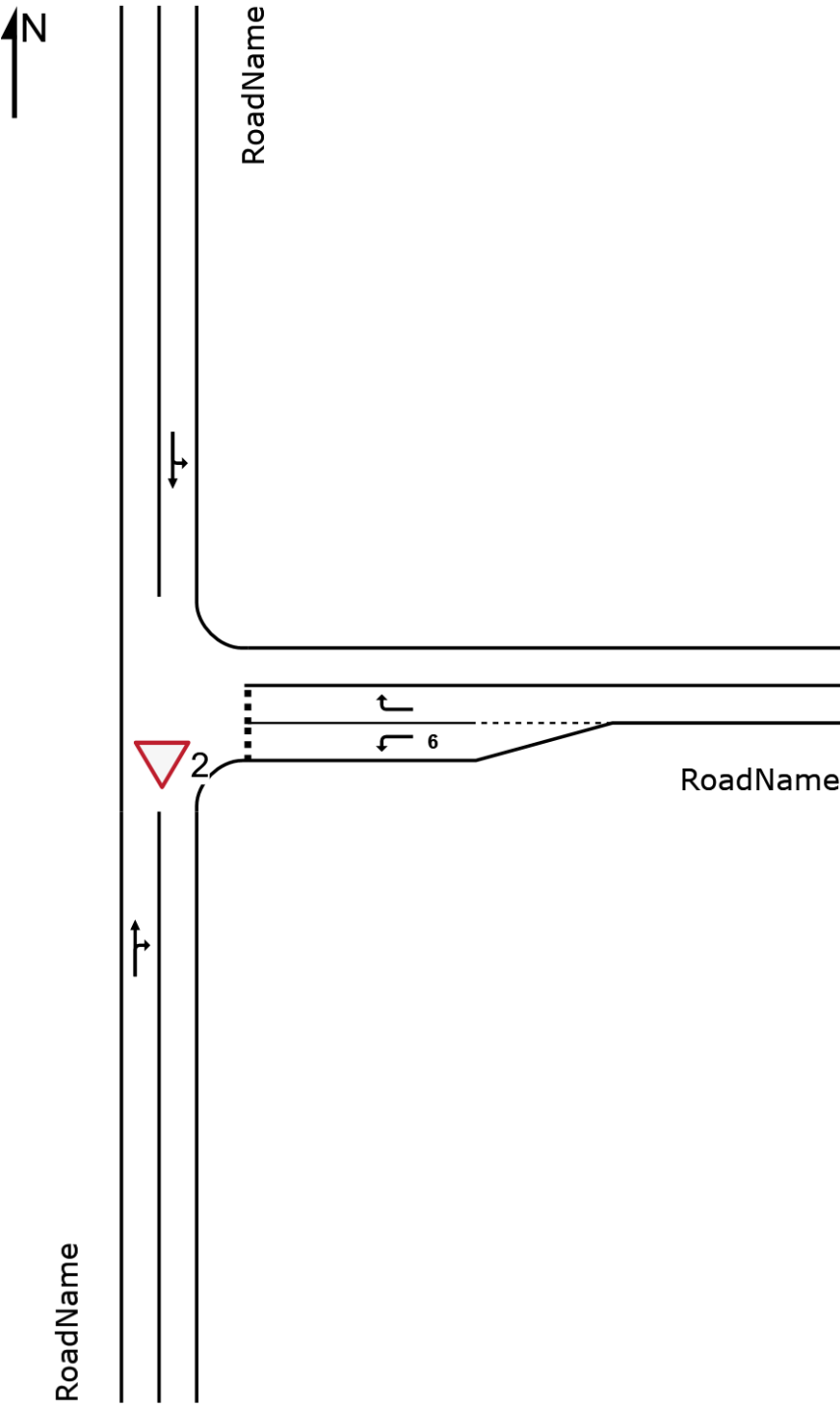
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of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

SITE LAYOUT

▽ Site: [2] Lakeside Dr - Lot 6000 Access - 2037Dev+175dw - AM Peak - with Lot 6000 (with Lot 6000 (access south))

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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\SIDRA\P0051836 - SIDRA - 20260413_V13.sipx

MOVEMENT SUMMARY

Site: [2] Lakeside Dr - Lot 6000 Access - 2037Dev+175dw - AM Peak - with Lot 6000 (with Lot 6000 (access south))
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
			veh/h		veh/h					veh	m				
South: RoadName															
2	T1	All MCs	896	1.0	896	1.0	0.525	0.7	LOS A	1.4	9.9	0.11	0.14	0.17	56.6
3	R2	All MCs	63	0.0	63	0.0	0.525	9.0	LOS A	1.4	9.9	0.11	0.14	0.17	54.9
Approach			959	0.9	959	0.9	0.525	1.2	NA	1.4	9.9	0.11	0.14	0.17	56.3
East: RoadName															
4	L2	All MCs	67	0.0	67	0.0	0.065	7.4	LOS A	0.2	1.7	0.46	0.67	0.46	48.6
6	R2	All MCs	59	0.0	59	0.0	0.338	28.1	LOS D	1.0	7.3	0.91	1.00	1.06	32.9
Approach			126	0.0	126	0.0	0.338	17.0	LOS C	1.0	7.3	0.67	0.82	0.74	40.3
North: RoadName															
7	L2	All MCs	63	0.0	63	0.0	0.277	5.5	LOS A	0.0	0.0	0.00	0.07	0.00	55.1
8	T1	All MCs	471	1.0	471	1.0	0.277	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	57.9
Approach			534	0.9	534	0.9	0.277	0.7	NA	0.0	0.0	0.00	0.07	0.00	57.3
All Vehicles			1619	0.8	1619	0.8	0.525	2.3	NA	1.4	9.9	0.12	0.17	0.16	53.7

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

MOVEMENT SUMMARY


Site: [2 (2)] Lakeside Dr - Lot 6000 Access - 2037Dev+175dw
- PM Peak - with Lot 6000 (with Lot 6000 (access south))
 Output produced by SIDRA INTERSECTION Version: 10.0.8.241

New Site
 Site Category: (None)
 Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	Dist]				km/h
South: RoadName															
2	T1	All MCs	632	1.0	632	1.0	0.428	1.8	LOS A	1.8	12.9	0.22	0.27	0.31	52.7
3	R2	All MCs	66	0.0	66	0.0	0.428	11.9	LOS B	1.8	12.9	0.22	0.27	0.31	53.1
Approach			698	0.9	698	0.9	0.428	2.8	NA	1.8	12.9	0.22	0.27	0.31	52.8
East: RoadName															
4	L2	All MCs	81	0.0	81	0.0	0.116	9.5	LOS A	0.4	2.9	0.60	0.83	0.60	46.8
6	R2	All MCs	62	0.0	62	0.0	0.328	26.2	LOS D	1.0	7.2	0.90	1.00	1.05	33.9
Approach			143	0.0	143	0.0	0.328	16.7	LOS C	1.0	7.2	0.73	0.90	0.80	40.5
North: RoadName															
7	L2	All MCs	77	0.0	77	0.0	0.430	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	55.2
8	T1	All MCs	753	1.0	753	1.0	0.430	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	58.2
Approach			829	0.9	829	0.9	0.430	0.6	NA	0.0	0.0	0.00	0.06	0.00	57.7
All Vehicles			1671	0.8	1671	0.8	0.430	2.9	NA	1.8	12.9	0.15	0.22	0.20	52.5

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