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To	Noureen Wajid (Town Planner – Berrigan Shire Council)
From	Chris Greenland (Ratio)
Regarding	Response to Request for Further Information Letter
Date	10/01/2025
Reference Number	48-25-DA-DM
Document Number	21804T-LET01-F01

1. Background and Introduction

Ratio has prepared this letter in order to review, clarify and respond to transport engineering matters raised by Berrigan Shire Council (Council) pursuant to the proposed residential subdivision (Application No. 48-25-DA-DM) of subject land located at 32 Burma Road, Tocumwal.

Following review of the proposal, Council outlined their comments via a Request for Further Information (RFI) letter, dated 19 December 2024. Within the abovementioned letter, Council requested "*an updated TMP to include statistics for the entire development (not just the first stage of it), and potential traffic generation from the development*".

Ratio's *Transport Impact Assessment Report (dated 22/10/2024)* submitted with the Development Application included an assessment of the traffic generation of the entire development, including a SIDRA assessment of the site access intersection with Hutsons Road.

Nevertheless, in order to appease Council's concerns, the following response to Council's request will provide further clarification on the potential traffic generation of the entire development.

In preparing the below response, reference has been made to the Ratio's *Transport Impact Assessment Report (TIA),* dated 22 October 2024. The following letter should be read in conjunction with the aforementioned Transport Impact Assessment Report.

2. Traffic Review and Response

Traffic Generation and Impact

The proposed development consists of 28 standard residential lots and 324 moveable dwellings (LLC) within a gated community, with supporting amenities including a central Community Clubhouse and passive open spaces.

In accordance with the **NSW Guide to Traffic Impact Assessments**, Ratio's original Transport Impact Assessment Report (dated 22 October 2024) comprehensively assessed traffic generation for the entire development, including projected vehicle movements across different land-use components and time periods. This is outlined as follows:

Standard Residential Lots

The 28 standard residential lots are classified as low-density residential dwellings in a regional context. Based on the **NSW Guide to Traffic Impact Assessments** guidelines, these are anticipated to generate:

- **7.5 vehicle trips per dwelling per day** (210 daily movements).
- Peak hour movements of **0.83 AM peak** and **0.84 PM peak** trips per dwelling, resulting in:
    - **23 vehicle movements during AM peak** (16 outbound, 7 inbound).
    - **23 vehicle movements during PM peak** (9 outbound, 14 inbound).

These estimates reflect typical commuter traffic patterns, with higher outbound trips during the AM peak and inbound trips during the PM peak.

Moveable Dwellings (LLC)

The LLC component caters primarily to retirees, with ancillary facilities reducing reliance on external trips. Per the NSW Guide to Traffic Impact Assessments, a reduced traffic generation rate of **2.4 daily trips per dwelling** is applied, compared to the standard 7.5 trips for residential dwellings. This rate considers:

- Residents do not require routine commute-to-work trips.
- On-site recreational and personal services reducing trip frequencies outside the development.

The resulting traffic generation for the LLC component is:

- **778 daily movements** (324 dwellings at 2.4 trips/day).
- Peak hour movements of **0.44 AM peak** and **0.23 PM peak** trips per dwelling, resulting in:
    - **143 vehicle movements during AM peak** (100 outbound, 43 inbound).
    - **75 vehicle movements during PM peak** (30 outbound, 45 inbound).

These projections align with conservative estimates used for self-contained housing of seniors in a regional context.

Total Traffic Generation

Cumulatively, the proposed development (standard lots + LLC) is expected to generate, in its entirety:

- **988 daily trips**.
- Peak hour traffic of:
    - **166 vehicle movements during the AM peak** (116 outbound, 50 inbound).
    - **98 vehicle movements during the PM peak** (39 outbound, 59 inbound).

The above traffic generation figures are consistent with the findings in Ratio's original TIA.

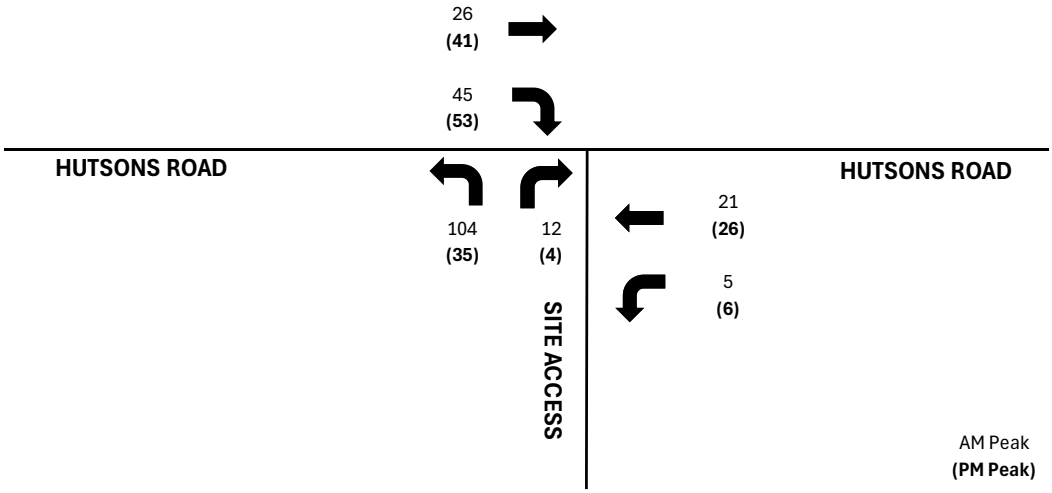
Traffic Distribution

In line with the original traffic report, it is estimated that **90% of the site-generated traffic** will travel to/from the west of the site, toward Tocumwal, with **10% traveling to/from the east**. This distribution reflects the regional context of the site, with the township of Tocumwal serving as the primary destination for employment, education, and essential services.

Figure 1 has been prepared detailing the anticipated post-development traffic volumes at the site access intersection. This figure incorporates background traffic volumes on Hutsons Road, as determined through turning movement counts undertaken by Spotto Consulting on Wednesday, 19 July 2023, for a prior application scheme for the site.

These volumes were previously detailed in Figure 2.4 of the original traffic report.

Figure 1: Post Development Traffic Volumes



Consistent with the original TIA, all development traffic has been routed through the site access intersection to ensure a conservative assessment of post-development conditions.

As shown in the proposed site layout, standard dwellings do not have access to the internal road network. Consequently, traffic generated by these dwellings will primarily utilise Hutsons Road and Burma Road.

SIDRA Results

The SIDRA analysis within Section 6 of the original TIA examined the operational performance of the proposed site access at Hutsons Road under full development conditions.

The results of the SIDRA analysis, as per the original TIA, are shown in Table 1 and are attached in full as Appendix A of this letter.

Table 1 - Post Development SIDRA Movement Summary

Approach	Movement	AM Peak			PM Peak		
		DOS	95%ile Queue (m)	Ave. Delay (s)	DOS	95%ile Queue (m)	Ave. Delay (s)
Site Access (S)	Left	0.08	2	6	0.03	1	6
	Right	0.08	2	6	0.03	1	6
Hutsons Rd (E)	Left	0.01	0	6	0.02	0	6
	Through	0.01	0	0	0.02	0	0
Hutsons Rd (W)	Through	0.04	1	0	0.06	2	0
	Right	0.04	1	6	0.06	2	6
Intersection		**0.08**			**0.06**		

The SIDRA results indicate:

- **Intersection Operates with "Excellent" Conditions** during both AM and PM peaks, reflecting ample capacity for the estimated traffic volumes.
- **Minimal Delays and Queueing:** Average delays are capped at 6 seconds for all movements, with queue lengths not exceeding 2 meters.

While Ratio's original report detailed the full development's traffic impact, further clarification of results reiterates that:

1. Traffic volumes associated with both standard residential lots and LLC dwellings were evaluated in their entirety (not limited to Stage 1).
2. The site access intersection is well-equipped to handle peak traffic volumes under projected conditions, with significant capacity remaining for potential future demand growth.

3. Summary

Ratio's comprehensive TIA originally prepared on 22 October 2024, included detailed analysis of the entire development at 32 Burma Road, Tocumwal.

Updated information provided herein reaffirms that:

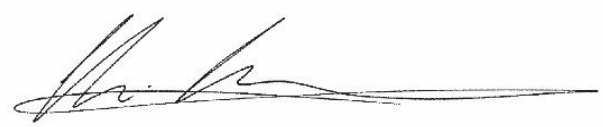
1. **Traffic Generation Estimates:** Traffic estimates, including daily and peak hour vehicle movements, comprehensively encompass both standard residential lots and LLC dwellings, aligning with regional benchmarks.
2. **Intersection Analysis:** The site access to Hutsons Road is modelled to operate at an "Excellent" level of service during both AM and PM peaks, demonstrating negligible impacts on local traffic.

In conclusion, it is considered that the proposed development and associated traffic generated can be accommodated without adverse impact on the local road network.

We consider that the above satisfactorily resolves the issues raised by Council.

Should you require any further information or clarification, please do not hesitate to contact either Sam Lewis or myself.

Yours sincerely



Chris Greenland
Director: Transport
Ratio Consultants Pty Ltd

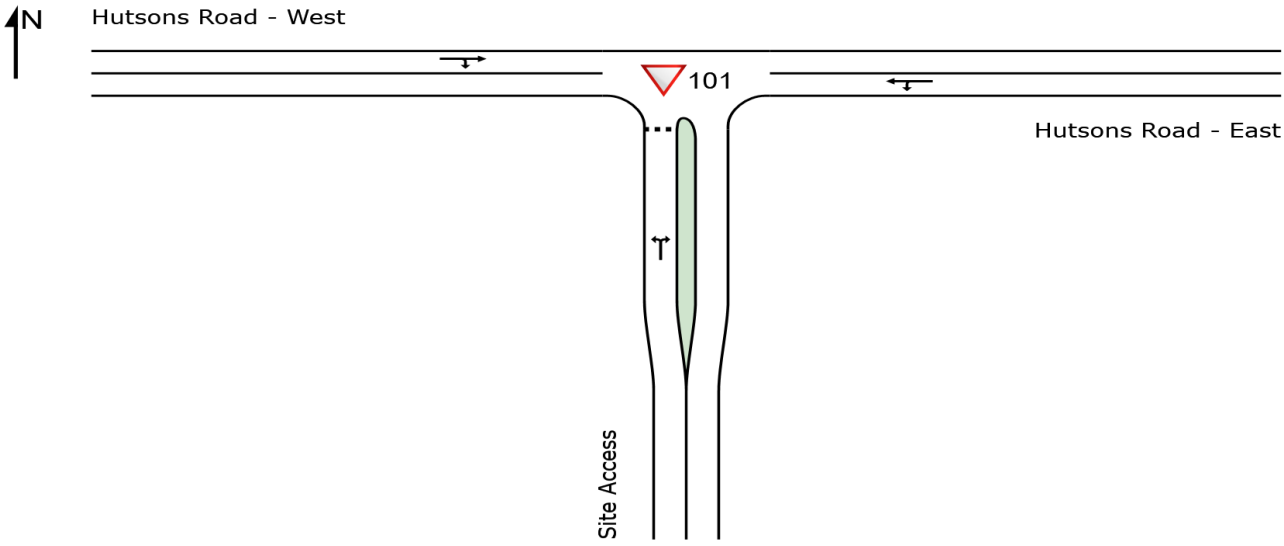
Appendix A – SIDRA Analysis Results

SITE LAYOUT

Site: 101 [AM Peak - Site/Hutsons Intersection (Site Folder: General)]

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

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



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Project: C:\Users\samuell\Downloads\Site Access Assesssment.sip9

MOVEMENT SUMMARY

Site: 101 [AM Peak - Site/Hutsons Intersection (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	109	0.0	109	0.0	0.079	5.6	LOS A	0.3	2.3	0.08	0.55	0.08	50.1
3	R2	All MCs	13	0.0	13	0.0	0.079	5.8	LOS A	0.3	2.3	0.08	0.55	0.08	49.8
Approach			122	0.0	122	0.0	0.079	5.6	LOS A	0.3	2.3	0.08	0.55	0.08	50.0
East: Hutsons Road - East															
4	L2	All MCs	5	0.0	5	0.0	0.014	5.5	LOS A	0.0	0.0	0.00	0.11	0.00	55.2
5	T1	All MCs	22	0.0	22	0.0	0.014	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	59.0
Approach			27	0.0	27	0.0	0.014	1.1	NA	0.0	0.0	0.00	0.11	0.00	58.4
West: Hutsons Road - West															
11	T1	All MCs	27	0.0	27	0.0	0.042	0.1	LOS A	0.2	1.3	0.09	0.37	0.09	56.4
12	R2	All MCs	47	0.0	47	0.0	0.042	5.6	LOS A	0.2	1.3	0.09	0.37	0.09	51.9
Approach			75	0.0	75	0.0	0.042	3.5	NA	0.2	1.3	0.09	0.37	0.09	53.8
All Vehicles			224	0.0	224	0.0	0.079	4.4	NA	0.3	2.3	0.08	0.44	0.08	52.5

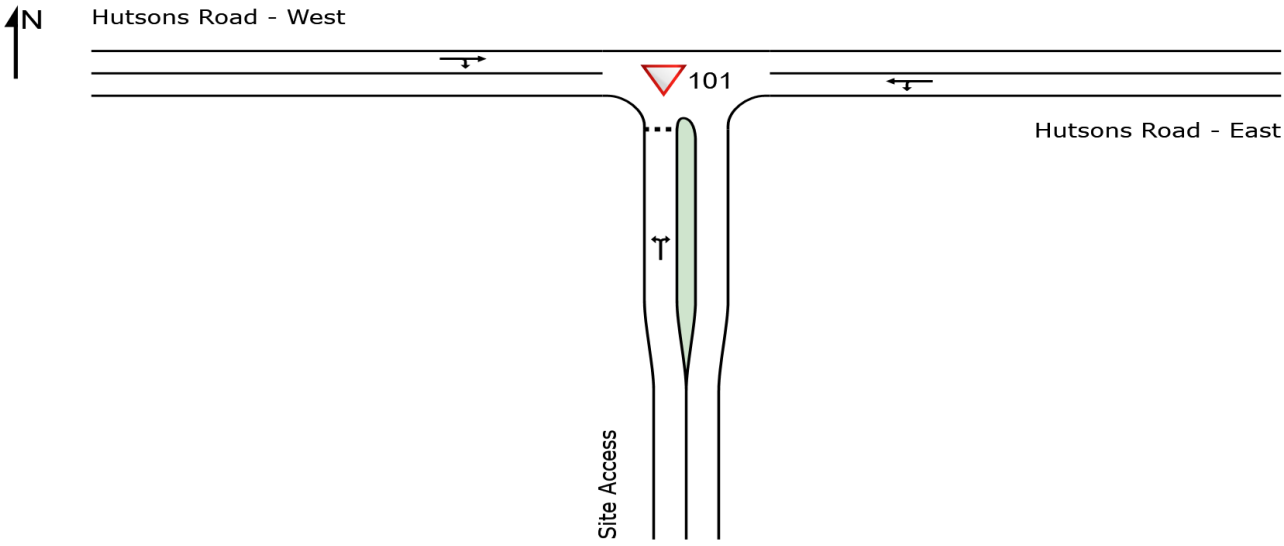
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of 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.

SITE LAYOUT

Site: 101 [PM Peak - Site/Hutsons Intersection (Site Folder: General)]

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

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



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Project: C:\Users\samuell\Downloads\Site Access Assesssment.sip9

MOVEMENT SUMMARY

Site: 101 [PM Peak - Site/Hutsons Intersection (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

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

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	37	0.0	37	0.0	0.027	5.6	LOS A	0.1	0.7	0.09	0.55	0.09	50.0
3	R2	All MCs	4	0.0	4	0.0	0.027	5.9	LOS A	0.1	0.7	0.09	0.55	0.09	49.8
Approach			41	0.0	41	0.0	0.027	5.6	LOS A	0.1	0.7	0.09	0.55	0.09	50.0
East: Hutsons Road - East															
4	L2	All MCs	6	0.0	6	0.0	0.018	5.5	LOS A	0.0	0.0	0.00	0.11	0.00	55.2
5	T1	All MCs	27	0.0	27	0.0	0.018	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	59.0
Approach			34	0.0	34	0.0	0.018	1.0	NA	0.0	0.0	0.00	0.11	0.00	58.4
West: Hutsons Road - West															
11	T1	All MCs	43	0.0	43	0.0	0.055	0.1	LOS A	0.2	1.7	0.10	0.33	0.10	56.7
12	R2	All MCs	56	0.0	56	0.0	0.055	5.6	LOS A	0.2	1.7	0.10	0.33	0.10	52.2
Approach			99	0.0	99	0.0	0.055	3.2	NA	0.2	1.7	0.10	0.33	0.10	54.5
All Vehicles			174	0.0	174	0.0	0.055	3.3	NA	0.2	1.7	0.08	0.34	0.08	54.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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