

# Traffic Impact Assessment Report

Shoptop Housing Development Lewis & Mortimer Streets Mudgee

(Our Reference: 35200-TIA01\_4)

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date

23.08.2021

reference

35200-TIA01\_4

receiver

Mr Michael Fergus

C/- Petries Mitre 10

Group

144-148 Church Street

Mudgee NSW 2850

Dear Michael,

# Traffic Impact Assessment Report Shoptop Housing Development Cnr Lewis & Mortimer Street Mudgee NSW 2850

With reference to the above, please find the following Traffic Impact Assessment report regarding the proposed development.

If you have any further enquiries regarding this matter, please contact the undersigned.

Yours faithfully BARNSON PTY LTD

Eden Gliksman B.Eng (Hons)

CIVIL ENGINEER



#### **Disclaimer**

This report has been prepared solely for Michael Fergus (the client) in accordance with the scope provided by the client and for the purpose(s) as outlined throughout this report.

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Project Name:	Traffic Impact Assessment Report – Shoptop Housing Development, Lewis & Mortimer Streets, Mudgee NSW 2850
Client:	Michael Fergus
Project No.	35200
Report Reference	35200-TIA01_4
Date:	23.08.2021
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#### **EXECUTIVE SUMMARY**

Barnson has been engaged by Michael Fergus to prepare a Traffic Impact Assessment (TIA) as part of the Development Application (DA) for the proposed Shoptop housing development on the corner of Lewis and Mortimer Streets, Mudgee. This report summarises the findings of the TIA and should be read in conjunction with the DA.

The subject site is located within the town centre of Mudgee and has an area of 800 m<sup>2</sup>. The site is currently improved with a sealed carpark and has most recently been used as a car sales yard.

The project will consist of three attached two-storey units, each featuring a commercial office tenancy on the ground floor and a two-bedroom apartment on the first floor.

The following conclusions have been drawn as a result of this assessment:

- The development will generate up to eight vehicle trips per hour during the weekday peak
- Parking demand will be met by off-street and on-street parking. Three additional
  parking spaces are required within the surrounding streets within close proximity.
- Lewis and Mortimer Streets are both currently operating at an acceptable level of service and will continue to do so once the development is operational.
- The estimated existing traffic volumes and projected future volumes on Mortimer Street warrant BAL and BAR turn treatments in accordance with Austroads Guide to Road Design Part 4 (2017).
- The existing road configuration satisfies the requirements for the BAL and BAR turn treatments, and provides sufficient sigh distances to both directions in accordance with Austroads Guide to Road Design Part 4a (2017).
- It has been concluded that the development is unlikely to have any significant impacts on the traffic operations of the existing local road network.



#### 1 INTRODUCTION

#### 1.1 Project Outline

The project will consist of three two-storey units, each featuring a commercial office tenancy on the ground floor and a two-bedroom apartment on the first floor.

#### 1.2 Purpose and Scope

This report has been commissioned by the applicant as part of a DA for the subject site and provides an assessment of the traffic implications of the proposed development on surrounding traffic, transport and local road infrastructure.

This TIA has been prepared in accordance with the RTA Guide to Traffic Generating Developments (2002) and Mid-Western Regional Council's Policies & Plans.



#### 2 EXISTING CONDITIONS

#### 2.1 Location and Site

The subject site of this application is Lot 1 DP 59498, on the corner of Lewis and Mortimer Streets in the town centre of Mudgee. The site has an overall area of 800m<sup>2</sup> and currently contains a sealed carpark, most recently used as a car sales yard.



Source: SIX Maps e-Topo, NSW Spatial Information Exchange, 2019

Figure 1 Site aerial photograph

Vehicular access is gained via crossovers onto Lewis and Mortimer Streets. At the site frontage, both streets are in good sealed condition with one lane in each direction and a parking lane on each side. Sight distances when exiting both driveways exceed 150m in all directions.





Figure 2 Existing driveway onto Lewis Street



Figure 3 Existing driveway onto Mortimer Street



#### 2.2 Existing Traffic Hierarchy

The subject site is accessible vie Lewis Street and Mortimer Street, both of which are local connector roads.



Source: SIX Maps e-Topo, NSW Spatial Information Exchange, 2021

Figure 4 Site road hierarchy

#### 2.3 Traffic Volumes

Traffic counts were conducted by Gennaoui Consulting Pty Ltd on behalf of Mid-Western Regional Council in 2014, on Lewis Street between Gladstone and Mortimer Streets and on Mortimer Street between Lawson and Lewis Streets. The data obtained is attached in Appendix B.

To account for population and traffic growth since 2016, the data has been indexed at a cumulative rate of 5% pa, and the final volumes for the purposes of analyses are given in Table 1. Volumes are provided in units of vehicles per day (vpd) and vehicles per hour (vph).

Table 1 Summary of existing traffic volumes

Location	Daily Average (vpd)	Hourly Peak (vph)
Lewis Street	5,104	521
Mortimer Street	2,634	255

All vehicle rates shown are for movements in both directions.

The speed limit on Lewis and Mortimer Streets is 50km/h, except on weekdays between the hours of 8:00-9:30am and 2:30-4:00pm when the school zone is active, and the speed limit is 40km/h.



#### 2.4 Public Transport

Ogden's Coaches is the main bus operator in Mudgee. It runs school and community bus routes along Lewis and Mortimer Streets passing the subject site, including school bus services to St Matthew's Catholic School opposite the site on Lewis Street.

#### 2.5 Pedestrian Access

Pedestrian access to the site is linked to the wider pedestrian network throughout the Mudgee town centre. Concrete paths border both street frontages, with pedestrian crossings on both roads featuring refuge medians to for the safety and guidance of pedestrians.



Figure 5 Footpath along Mortimer Street





Figure 6 Pedestrian crossing on Lewis Street



Figure 7 Pedestrian crossing on Mortimer Street



#### 2.6 Traffic Safety

Traffic accident history of the area has been obtained from the RMS website. In the five-year period between 2015 and 2019, two crashes were recorded in the vicinity of the site and are detailed in Figure 8. As the two crashes occurred in different locations and were different crash types, there does not appear to be a crash pattern, and these are considered isolated incidents.



Source: Crash and Casualty Statistics, RMS, 2019

Figure 8 Accident history map



#### 3 PROPOSED DEVELOPMENT

As outlined in Section 1.1, the proposed development consists of three two-storey units, each featuring a commercial tenancy on the ground floor and a residential apartment on the first floor. The commercial tenancies will be fitted out as a basic open office layout. Each Shoptop apartment will feature two bedrooms, two bathrooms and an open plan kitchen/living/dining area. Floor plans for the development are provided in Appendix A.

#### 3.1 Parking Assessment

Parking rates have been obtained from the Mid-Western Regional Council's Development Control Plan Amendment 5 (2013) (the DCP). As the site is located within Mudgee's conservation area, the applicable car parking rate is one space per two-bedroom flat; plus one space per 30m² gross floor area (GFA) or office space. As such, the parking requirement can be calculated as:

$$3 \text{ units} + (408 \text{ m}^2 \div 30 \text{ m}^2) = 17 \text{ parking spaces}$$

The parking requirements are addressed in three ways:

- The proposal includes the provision of three off-street car parking spaces, each allocated to one unit to meet the residential parking needs.
- Of the 11 commercial parking spaces required, 8 spaces are to be accommodated by street parking along the site frontage on Lewis and Mortimer Streets, and another 3 street parking spaces within close proximity to the site.
- A departure from the DCP is sought on the remaining three spaces, with justification provided within the Statement of Environmental Effects submitted in support of the development proposal.

#### **3.1.1** Parking Surveys

Parking surveys have been conducted to assess the impact of relying on street parking for traffic generated by the development. With consideration of the development's operation as primarily commercial offices, and the surrounding activities including schools, restaurants, retail and residential dwellings, three peak parking demand periods are anticipated:

- 9:00am, corresponding with morning school and work traffic
- 3:00pm, corresponding with school pickup
- 5:00pm, corresponding with evening work traffic.

The parking survey identified the availability of 186 car parking spaces within the surveyed region identified in Appendix C. The average number of occupied spaces within the surveyed areas at different times is summarized in Table 2.



Table 2 Parking utilisation survey

7000	Canacity	Doctriction	Occupied Spaces				
Zone	Capacity	Restriction	9:00am	3:00pm	5:00pm		
Α	34	2 hours	30	33	11		
В	9	Unlimited	9	9	4		
С	17	Unlimited	16	15	8		
D	22	Unlimited	14	18	9		
E	104	Unlimited	76	84	61		
Total	186		145	159	93		

During the busiest time at 3pm, 159 parking spaces are occupied within the surveyed area; leaving 27 empty spaces available within close proximity to the site. The abundance of available car parking will absorb the 3 vehicles generated by the site with minimal impact, such that the availability of parking is reduced by 11% with at least 24 spaces remaining available. This minor decrease is considered unlikely to impact any surrounding businesses or residential and school activities.

#### 3.2 Traffic Generation

The RMS Guide to Traffic Generating Developments (2002) prescribes a peak traffic generation rate of 0.5vph per dwelling (up to two bedrooms) and 2vph per 100m<sup>2</sup> GFA office/commercial space. This gives the following peak hourly trip generation for the development:

$$0.5 vph \times 3 dwellings + 2 vph \times 408 m^2 \div 100 m^2 = 10 vph$$

#### 3.3 Lewis Street and Mortimer Street Analysis

The peak hourly flows for a mid-block road at various Levels of Service (LoS) are set out in Table 3 below.

Table 3 Urban road peak hour flows per direction

Level of Service	One Lane (vph)	Two Lanes (vph)
А	200	900
В	380	1400
С	600	1800
D	900	2200
E	1400	2800

Source: Guide to Traffic Generating Developments, RTA (2002)

From the available traffic counts and the projected traffic generation outlined in Section 0, and with the assumption that on some particular days 100% of generated traffic may utilise either Lewis Street or Mortimer Street, it can be concluded that:



Table 4 Lewis Street peak hour flows per direction

Location	Stage	Peak Hourly Flow per Direction (vph)	Level of Service
Lewis Street	Pre-development	261	А
	Post-development	266	А
Mortimer Street	Pre-development	128	А
	Post-development	133	А

Therefore, no upgrades are required to Lewis or Mortimer Streets.

#### 3.4 Proposed Driveway/Intersection Analysis

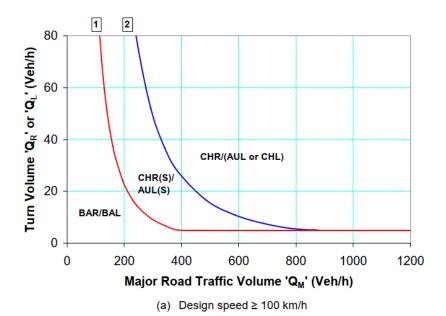
The existing crossovers to Mortimer and Lewis Streets are to be removed. A new combined entry/exit driveway is proposed at the eastern end of the site, and is to be 6m in width in accordance with AS2890.1:2004.

From Sections 2.3 and 0, the existing and proposed peak flows are summarised below:

Table 5 Peak hour turning traffic volumes

Existing through traffic (vph)	Turning traffic (vph)
255	10

From these traffic volumes and the warrants illustrated in Figure 9 below, the appropriate turn treatments are Basic Right (BAR) / Basic Left (BAL). This arrangement is satisfied by the existing road configuration.



Source: Figure A 10, Guide to Road Design Part 4, Austroads, 2017

Figure 9 Warrants for turn treatments at unsignalised intersections



### 3.4.1 Sight distance review

Sight distances at the Mortimer Street driveway extend around 180m in both directions, and the speed limit is 50km/h outside of school zone hours. In accordance with Table A 12 of the Austroads Guide to Road Design Part 4A (2017), the minimum safe intersection sight distance at the site driveway, conservatively using truck stopping distances and a reaction time of 2.0 s, is 83m. Therefore, the driveway sight distances are compliant with the Austroads requirements.

#### 3.5 Cumulative Impacts

There are no other known major developments currently being assessed by Mid-Western Regional Council in proximity to the subject site.



#### 4 CONCLUSION

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- It has been concluded that the development is unlikely to have any significant impacts on the traffic operations of the existing local road network.

Should you require any further information or clarification regarding this matter, please do not hesitate to contact the undersigned.

Yours faithfully

**BARNSON PTY LTD** 

Eden Gliksman

B.Eng (Hons)

**CIVIL ENGINEER** 



# Appendix A - Site Plans



# **Appendix B - Traffic Counts**

Gennaoui Consulting on behalf of Mid-Western Regional Council, 2014

APPENDIX B	DAILY TRAI	FFI	IC VOLUMES,	CLASSES	& SPEE	DS IN MU	IDGEE							
Street	1.4		tion	Average \	Veekly Dai	ly Traffic	Weel	kday	Peak	Hour				
Street	LC	Jua	llion	_			Heavy \	/ehicles	AM	PM	,	Spec	ed	
				Weekday	Weekend	Weekly	Medium	Heavy	Vol Time	Vol Time	Mean	85 <sup>%tle</sup>	50>	60>
1 Bellevue Road	west of Henry E	Зау	li Dr	1326	990	1230	7.7%	0.3%	108 8am	135 4pm	52.8	59.8	65.4%	15.0%
2 Burrundulla Ave	Horatio St	&	Denison St	931	578	830	4.10%	0.10%	82 8am	87 3pm	44.6	53.6	28.0%	4.0%
3 Burrandulla Road	east of Sydney	Ro	ad	1979	1216	1761	2.90%	0.10%	194 11am	195 1pm	27.3	32.4	0.1%	0.0%
4 Church Street	Market St	&	Short St	4685	4818	4723	4.10%	0.00%	409 8am	422 5pm	33.3	39.2	0.5%	0.0%
5 Church Street	Mealy St		Denison St	10059	8078	9493	2.70%	0.10%	725 8am	951 3pm	41.4	47.5	7.6%	0.4%
6 Church Street	Meares St	&	Railway X	7818	6628	7478	1.40%	0.00%	631 8am	786 5pm	49.7	55.1	45.4%	4.0%
7 Church Street	Spring Rd	&	Redbank Rd	1194	1149	1181	2.60%	0.10%	93 8am	122 5pm	49.8	56.5	49.0%	7.1%
8 Denison Street	George St	&	Lawson St	553	452	524	3.10%	0.00%	54 8am	54 3pm	33	38.5	0.3%	0.0%
9 Denison Street	Cox St	&	Gawthorne PI	1554	1915	1657	3.30%	0.00%	96 8am	179 5pm	47.7	56.2	41.4%	7.0%
10 Denison Street	Church St		Perry St	1063	657	947	3.40%	0.00%	118 8am	127 3pm	24.8	30.6	0.0%	0.0%
11 Douro Street	Market St	&	Short St	1365	763	1193	7.60%	2.60%	127 8am	138 4pm	37.1	43.9	2.7%	0.1%
12 Douro Street	Gladstone St	&	Mortimer St	7063	5747	6687	4.80%	2.00%	600 11am	641 4pm	44.2	51.5	22.8%	1.4%
13 Douro Street	at Railway X			5266	4251	4976	2.7%	0.2%	532 8am	549 3pm	42.3	51.8	22.2%	1.8%
14 Fairydale Lane		&	railway X	126	102	119	7.7%	0.0%	9 8am	13 4pm	38.5	49	12.9%	2.4%
15 Gladstone Street	Lewis St	&	Church St	1518	920	1347	1.0%	0.0%	149 8am	190 3pm	33	38.2	0.2%	0.0%
16 Gladstone Street	Court St		Cox St	2276	2094	2224	2.5%	0.0%	167 8am	222 3pm	46.3	53.6	33.6%	3.3%
17 Henry Bayly Drive	Baskerville Dr		Inglis St	696	623		10.3%	0.0%	51 8am	70 4pm	31.1	36	0.2%	0.0%
18 Horatio Street	Lochel Ln		George St	8535	5123	7560	7.1%	1.9%	677 8am	876 4pm	48.4	54.4	41.7%	3.3%
19 Horatio Street	Perry St		Douro St	4177	3012	3844	7.3%	2.7%	377 8am	396 3pm	44	51.1	19.8%	1.4%
20 Inglis Street	Douro St		Court St	2289	1848	2163	4.0%	0.0%	176 8am	225 5pm	26.4	30.6	0.0%	0.0%
21 Lawson Street		_	Mortimer St	532	347	479		0.0%	48 8am	66 3pm	33.6	38.9	0.6%	0.0%
22 Lewis Street	Gladstone St	_	Mortimer St	3627	2231	3228	6.0%	1.0%	304 8am	370 3pm	44.8	51.8	23.3%	2.0%
23 Lewis Street	Horatio St	_	Mealy St	2827	1693	2503	8.6%	1.2%	224 11am	303 4pm	41.4	47.5	8.0%	0.3%
24 Lions Drive	Sydney Rd	_	Broadhead Rd	1471	1090		4.9%	0.2%	134 8am	152 4pm	50.1	57.6	50.5%	9.2%
25 Madeira Road	Church St		Atkinson St	2763	2088		2.1%	0.0%	286 8am	285 3pm	38.7	46.1	5.1%	0.2%
26 Madeira Road	west of Douro S		7 tital 15011 Ot	834	792	822	1.8%	0.0%	82 8am	78 5pm	51.8	60.1	61.3%	16.1%
27 Market St	Lewis St		Church St	2141	1280		5.7%	0.0%	233 8am	229 3pm	24.9	29.9	0.2%	0.0%
28 Market St	Douro St		Court St	6875	5594	6509		0.6%	593 8am	615 4pm	40.5	48.6	10.9%	0.5%
29 Market St	Third St	_	Bell St	4917	4014	4659	5.7%	2.3%	428 8am	466 4pm	49.8	54.7	46.4%	4.0%
30 Meares Street	Grant St		Church St	2357	1986		2.2%	0.0%	162 9am	240 5pm	49.6	45.7	4.0%	0.1%
31 Mortimer Street	Lawson St	_	Lewis St	1872	1564	1784	1.9%	0.0%	138 10am	181 4pm	46	53.6	31.2%	3.4%
32 Mortimer Street	Cox St		Park Ave	885	721	838		0.1%	63 11am	91 4pm	41.9	48.2	10.6%	0.7%
33 Oporto Road	Madeira Rd	-	Norman Rd	3029	2427	2857	2.1%	0.0%	246 8am	294 4pm	41.9	47.5	8.5%	0.7%
34 Perry Street	Market St		Short St	1514	737	1292	4.8%	0.0%	144 7am	173 2pm	21.3	24.5	0.0%	0.0%
35 Perry Street	south of Market		SHOIL SL	4837	3007	4314	2.7%	0.0%	451 11am	547 3pm	32.5	41	1.4%	0.0%
36 Robertson Street	Trefusis Ave	_	Madeira Rd	1776	1538		2.1%	0.0%	163 8am	195 5pm	43.8	54.4	27.8%	5.5%
37 Robertson Street	Abernethy		Trefusis Ave	1911	1715		6.5%	0.0%	181 7am	195 5pm	55.9	63	81.3%	27.8%
38 Short Street	Lewis St		Church St	2124	1501	1946	7.8%	1.8%	177 8am	213 4pm	55.9 40	46.8	6.9%	0.3%
		-		1550	945	1946								
39 Short Street 40 Spring Road	Perry St Melton Rd		Douro St Church St	1550 1543	945 1424	1377	7.4% 3.6%	2.3%	126 8am 137 8am	148 4pm 165 5pm	47.4 54.2	55.1 61.6	37.5% 73.2%	5.4% 20.4%
40 Spring Road	ivieiton Ka	ά	Church St	1543	1424	1509	3.6%	0.0%	131 gam	mqc coı	54.2	0.10	13.2%	20.4%



Appendix C - Parking Surveys



Job: 35200 Date: 06-05-21

Zono	Canacity	Restriction	Occupied Spaces				
Zone	Capacity	Restriction	9am	3pm	5pm		
Α	34	2P60	31	33	14		
В	9	U60	9	9	4		
С	17	U60	17	14	7		
D	22	U60	14	19	9		
E	104	U	80	78	60		

Date: 07-05-21

Zone	Canacity	Restriction	Occupied Spaces				
Zone	Capacity	Restriction	9am	3pm	5pm		
Α	34	2P60	29	34	12		
В	9	U60	9	9	7		
С	17	U60	16	14	7		
D	22	U60	16	17	11		
E	104	U	75	96	59		

Date: 10-05-21

Zone	Canacity	Restriction	Occupied Spaces				
Zone	Capacity   Restriction		9am	3pm	5pm		
Α	34	2P60	30	32	7		
В	9	U60	9	9	2		
С	17	U60	14	17	9		
D	22	U60	12	17	7		
E	104	U	74	77	63		

#### Average

Zone	Capacity	Restriction	Occupied Spaces		
			9am	3pm	5pm
Α	34	2P60	30	33	11
В	9	U60	9	9	4
С	17	U60	16	16	8
D	22	U60	14	18	9
E	104	U	76	84	61
Total	186		145	159	93