Traffix Group

Traffic Engineering Assessment

Proposed Commercial Development

148 Rouse Street, Tenterfield

Prepared for
Shun Hung Pty Ltd

September 2021

G30348R-01A

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1. Introduction

Traffix Group has been engaged by Shun Hung Pty Ltd to undertake a Traffic Engineering Assessment for the proposed commercial development at 148 Rouse Street, Tenterfield.

2. Proposal

The proposal is for a commercial development on the site accommodating a variety of uses as set out in the following table.

A copy of the development plans prepared by Mills Gorman Architects (dated August, 2021) are attached at Appendix A.

Table 1: Development Summary

Characteristics	**Description**		
Uses	**Size/No.**	**Car Parking**	**Notes**
Pharmacy	180.33m²	64	Shared resource between all uses
Café	142.68m²		
Bowling Alley	154.5m²		
Cinema	745m² (278 seats)		
Medical Centre	392.80m²		
Childcare	184.33m² (adopt 50 children)		
Car Parking Provision		64 car spaces (inc. 3 DDA spaces)	Located at ground level
Other	**Notes**		
Vehicle Access	6.0m and 6.2m wide crossover to Crown Street		
Changes to on-street parking	Addition of 4 spaces along Rouse Street and 2 spaces along Miles Street		
Loading Provision	Loading proposed via existing loading bay		
Waste Collection	Proposed via private contractor using existing loading bay		

3. Existing Conditions

3.1. Subject Site

The subject site is 146 Rouse Street, Tenterfield. The table below summarises the key characteristics of the subject site.

Table 2: Subject Site Description

Characteristic	Description
Address	148 Rouse Street, Tenterfield
Area	5,626.85m^2
Frontages	58m to Crown Street 98m to Miles Street 51m to Rouse Street
Zoning	RU5 Village
Activity Centre	Tenterfield Township
Current use of site	Sexton & Green Subaru (Car sales and repair shop) Operating Hours: Mon-Fri: 8am-5pm Saturday: 8:30am-11:30am Sunday: Closed
Car parking and loading provision	Loading area provided at the rear accessed from Crown Street
Vehicle access	Porte-cochere arrangement provided at Rouse Street Three (3) single width access points to Miles Street Two (2) single width crossovers to Crown Street
On-street parking along site frontage	2 x '2P 8am-6pm Mon-Fri, 8:30am-12:30pm Sat' car spaces on Rouse Street 9 unrestricted car spaces on Miles Street

A locality plan and aerial photographs is provided at Figure 1 to Figure 3, respectively.

The site is located within the Tenterfield Township.

The township includes a variety of commercial and community uses. Council controlled off-street car parking areas are available at various locations throughout the township.

A Coles supermarket is located immediately north of the site, including off-street car parking areas.

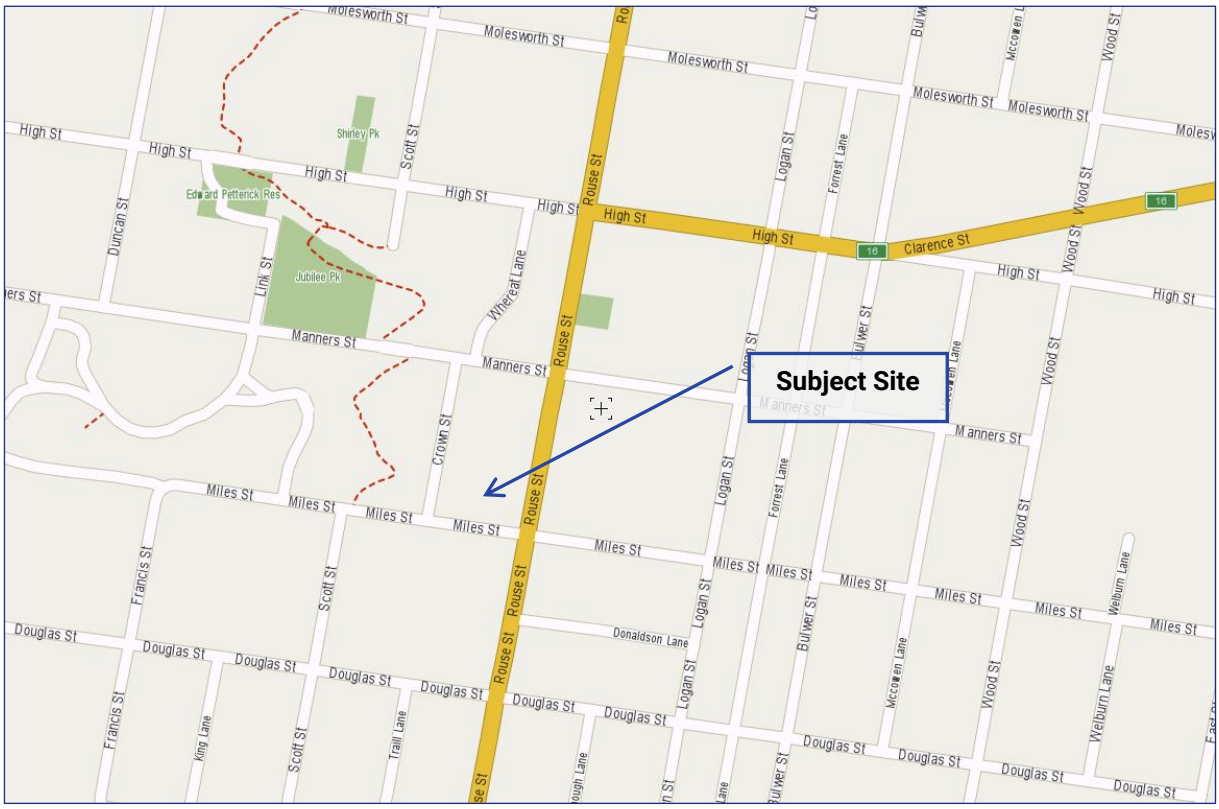

Figure 1: Locality Plan (Source: http://www.street-directory.com.au/)

Figure 2: Aerial Photograph (Source: Nearmap)

Figure 3: Aerial Photograph (Source: Nearmap)

Figure 4: Rear Loading Area – Crown Street

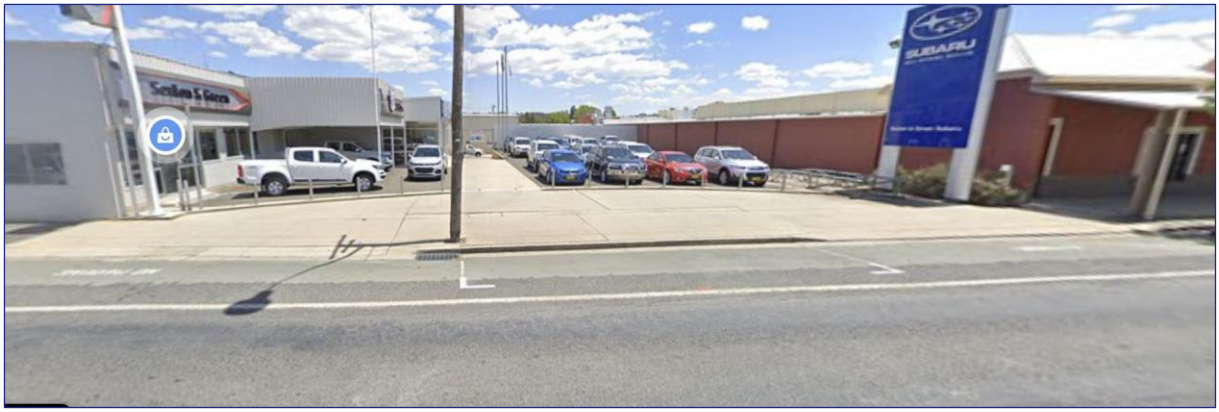

Figure 5: Existing Front Porte Cochere – Rouse Street

3.2. Transport Network

3.2.1. Road Network

The subject site directly abuts Rouse Street, Crown Street, and Miles Street. A summary of the local road network is provided in the table below.

Photos of the surrounding road network are presented following the table.

Table 3: Local Road Network

Road Name	Agency	Classif-ication	Configuration	Speed Limit	Parking
Rouse Street / New England Highway	RTA	Class A Roads – Arterial (State Highways)	2 traffic lanes Undivided carriageway Parking lane along each side	50km/h (reduces to 40km/h immediately north of the site)	Both sides Typically controlled by 2P 8:30am-6pm Mon-Fri and 8:30am-12:30pm Sat
Miles Road	Council	Class D – Local Access	2 traffic lanes Undivided carriageway Parking lane along each side	50km/h	Unrestricted both sides
Crown Street	Council	Class D – Local Access	2 traffic lanes Undivided carriageway Some indented 90 degree parking towards northern end	50km/h	Unrestricted where available

Figure 6: Rouse Street – view north

Figure 7: Rouse Street – view south

Figure 8: Miles Street – view east

Figure 9: Miles Street – view west

Figure 10: Crown Street – view north

Figure 11: Crown Street – view south

3.2.2. Car Parking Conditions

A desktop review of the nearby car parking has identified that extensive on-street car parking is available in the nearby area.

When considering the site's frontages, a total of 9 unrestricted spaces are available along Miles Street and 2 x "2P" spaces are available along Rouse Street.

Post development, the crossovers along the site's frontage to Miles Street and Rouse Street will be removed resulting in an increase in the on-street car parking, including 4 spaces to Rouse Street and 2 spaces to Miles Street. These additional on-street car parking areas will improve the availability of car parking for the site and general public.

4. Traffic Engineering Assessment

4.1. Car Parking Requirements

The proposed development falls under the following land-use categories and floor areas:

- Pharmacy (Retail Premises) – 180.33m^2
- Medical Centre – 392.80m^2
- Café – 142.68m^2
- Bowling Alley (Place of Public Entertainment) – 154.50m^2
- Cinema (Place of Public Entertainment) – 745m^2
- Childcare – 184.33m^2

The Tenterfield Shire Council Development Control Plan (2014) sets out the following aims and objectives under Chapter 6 – Access and parking.

Aims and Objectives

- *To provide a guide for the provision of access and parking associated with development in the Tenterfield LGA in order that:*
- *Traffic safety and management are maintained or improved;*
- *Parking areas are provided that are convenient, functional and sufficient for use;*
- *Adequate provision is made for access and parking for people with disabilities;*
- *A balance is achieved between the needs of the proposed use and of vehicular and pedestrian traffic; and*
- *Parking areas, once established, are maintained in an adequate condition that continues to provide facilities that comply with those required when development consent was granted.*

In relation to the provision of car parking as part of new developments the DCP sets out the following aims and performance outcomes:

Aims

- *To provide accessible car parks; and*
- *To provide sufficient car parks to serve the needs of particular developments.*

Performance Outcomes

- *New car parks are sufficient in number and design to provide appropriately for the needs of new developments;*
- *Adequate provision is made for parking for people with disabilities; and*
- *All parking bays must be readily accessible and an adequate area is provided for the turning and manoeuvring of vehicles.*

The specific requirements for car parking for various uses are detailed under Table F1 of the DCP with an assessment provided in the following table.

In regard to the cinema, given the level of floor area allocated towards ancillary uses, we are of the opinion that the most accurate determination of the car parking demands would be based on the seating numbers rather than the overall floor areas (i.e. access corridors, admin, mechanical services). In this regard, the cinema includes a total of 278 seats and our assessment of the car parking has been completed on this basis.

Empirical rates have been adopted for the medical centre and the childcare centre components noting that there is no definitive rate for these uses under Table F1 of the DCP. Further discussion regarding these rates is provided within this report.

Table 4: Car Parking Assessment

Use	Size / No.	Car Parking Rates	Parking Requirement
Pharmacy	180.33m^2	1 space per 30m² GFA	6 spaces
Café	142.68m^2	1 space per 30m² GFA	5 spaces
Bowling Alley	154.5m^2	1 space per 10 seats or 1 space per 15m² of main assembly area, whichever is the greater.	10 spaces (allows for 150 patrons)
Cinema	745m^2 278 seats	1 space per 10 seats or 1 space per 15m² of main assembly area, whichever is the greater.	28 spaces (based on seats)
Medical Centre	392.80m^2	4.0 spaces per 100m^2 – RTA Rate	13 spaces
Childcare	184.33m^2 (adopt 50 children)	0.25 spaces per child – Empirical Rate	12 spaces
TOTAL			**74 spaces**
Parking Provision			**64 spaces**
Shortfall			***8 spaces***

In regard to the parking requirement, the DCP sets out that:

> *The total number of on-site parking spaces provided in association with new development shall be in accordance with the recommended ratios set out in this Chapter as appropriate, subject to any qualifications or exceptions which may be applicable in the circumstances of the case. In this regard parking proposals that provide less parking than required by this Chapter shall be supported by a parking study.*

Further to the above, the explanatory notes at Table F1 identify:

> *5. The parking provision for restaurants and function rooms may be reduced where it is demonstrated that the time of peak demand for parking associated with each facility does not coincide or where common usage reduces total demand. Each case will be considered on its individual merits.*

This guideline is particularly relevant for the bowling alley and cinema uses noting that the peak demands for these uses would be highly unlikely to coincide with the peak demand for other uses on the site (i.e. medical centre, pharmacy and childcare centre).

Disabled Parking

Disabled car parking is required for commercial developments under the National Construction Code (NCC).

Three disabled car spaces are provided for the development which is acceptable and will accord with the relevant requirements.

4.1.1. RTA Guidelines

In regard to the medical centre and childcare centre uses, guidance has been taken from the RTA Guide to Traffic Generating Developments for determining the car parking demands. Excerpts from these guidelines is provided as follows.

> ***Childcare Centre***
>
> *Off-street parking must be provided at the rate of <u>one space for every four children in attendance</u>.*
>
> *Given the short length of stay (the RTA's surveys found an average length of stay of 6.8 minutes), parking must be provided in a convenient location, allowing safe movement of children to and from the centre.*
>
> *Consideration could be given to reducing the parking required if convenient and safe on-street parking is available (e.g. indented parking bays), provided that the use of such parking does not adversely affect the amenity of the adjacent area.*
>
> ***Medical Centre***
>
> *Parking*
>
> *The minimum number of parking spaces required by medical centres is <u>4 per 100 m^2 gross floor area</u>, based on the RTA's survey conducted 1991.*

This rate is based on Sunday and Monday parking figures and reflects the mean peak parking demand surveyed on those days. For reference, the 85 percent demand produced a rate of 5 spaces per 100m^2 gross floor area.

As the average length of stay at a medical centre is approximately 27 minutes, parking facilities must be provided in a convenient location.

We are satisfied that these rates are appropriate for determining the peak demand for these uses and these rates are reflected in the table presented previously.

4.1.2. Car Parking Demand Study

A Car Parking Demand study has been undertaken for the various uses on the site:

- The likelihood of multi-purpose trips within the locality which are likely to be combined with a trip to the land in connection with the proposed use.
- The variation of car parking demand likely to be generated by the proposed use over time.
- The short-stay and long-stay car parking demand likely to be generated by the proposed use.

The car parking demand assessment is set out below.

Multi Purpose Trips

For the proposed entertainment uses on the site we would expect some efficiency between linked trips. For example, patrons visiting the Cinema may also visit the restaurant of bowling alley. This may result in reduced demands but longer duration of stay for these persons.

Similarly, there would be certain efficiencies between the medical centre and the chemist. This will result in reduced car parking demands overall (estimated as approximately 10% decrease).

Variation of Car Parking Demand Over Time

The various commercial uses proposed as part of the development will have variations in when the peak car parking demands occur. For example, the medical centre would generate peak demands during business hours and significantly reduced demands during the evening and weekend. Similarly, the cinema will generate peak demands during evening and weekends with reduced demands during business hours.

On-site car parking will be shared amongst the various uses and as such there will be significant efficiencies gained.

The following table identifies an estimate of the car parking profile of the various commercial uses on the site based on our experience with similar projects.

The table identifies that as a result of the variation in the peak demands, the overall peak demands are highly unlikely to ever reach the combined demands identified under the car parking requirement table.

On this basis, we are satisfied that the provision of 64 car spaces will be adequate to accommodate the peak parking demands on the site as required.

Table 5: Indicative Variation in Car Parking Demands

Use	Peak Demand	Weekday Demand			Weekend Demand	
		6am-10am	10am-4pm	4pm-6pm	9am-5pm	5pm-10pm
Pharmacy	6 spaces	3 50%	6 100%	6 100%	6 100%	3 50%
Café	5 spaces	3 50%	5 100%	3 50%	5 100%	5 100%
Bowling Alley	10 spaces	2 15%	5 50%	5 50%	10 100%	10 100%
Cinema	28 spaces	4 15%	14 50%	14 50%	28 100%	28 100%
Medical Centre	13 spaces	7 50%	13 100%	7 50%	7 50%	7 50%
Childcare	12 spaces	12 100%	7 60%	12 100%	0 0%	0 0%
TOTAL	**74**	**31**	**50**	**47**	**56**	**53**

4.2. Review of Carpark Layout and Vehicle Access Arrangements

Traffix Group has provided design advice to the project architect to achieve a satisfactory carpark layout. The proposed parking layout has been assessed under the following guidelines:

- AS2890.1-2004 – Part 1: Off-Street Car Parking, where relevant, and
- AS2890.6-2009 – Part 6: Off-Street Car Parking for People with Disabilities.

The proposed carpark layout is fully compliant with these standards.

Based on the above, we are satisfied that the design and layout of the carpark and vehicle accessways complies with the objectives of Clause 52.06 and the Australian Standards, where relevant.

4.3. Loading and Waste Collection Arrangements

4.3.1. Loading

Loading activities for the commercial uses on the site will utilise the existing loading bay located in the north-west corner of the site. Smaller commercial vehicles may also choose to utilise the on-site car parking areas if required.

4.3.2. Waste Collection

A Waste Management Plan (Reference: G30348R-01A (WMP)) has been prepared by our office that identifies waste collection to occur via a private contractor within existing loading bay located in the north-west corner of the site. A communal bin storage area is provided adjacent to the loading bay.

Accordingly, we satisfied that the waste collection arrangements are acceptable from a traffic engineering perspective.

4.4. Traffic Impact Assessment

DCP Requirements

The Tenterfield Shire Council Development Control Plan (2014) sets out the following aims and objectives under Chapter 6 – Access and parking.

> *Access and Traffic Generation*
>
> *The potential of a development to create additional traffic loads on the road network needs to be assessed. For smaller developments, there is unlikely to be any appreciable impact, and it will be sufficient to ensure that safe access (road connection and footpath crossing) is provided as required.*
>
> *For more significant developments, Council may require a Traffic Impact Study to be undertaken in order to address the following matters:*
>
> - *The rate of traffic generation associated with the proposed development;*
> - *The impact(s) the traffic generated by the development will have on traffic efficiency, amenity, safety, and road pavement life;*
> - *The cost impacts of traffic generated by the development and how those costs are to be met; and In addition, consideration must be given as to whether the development constitutes 'traffic generating development' (as per Schedule 3 of the State Environmental Planning Policy (Infrastructure) 2007), and thus whether it must be referred to the Roads and Traffic Authority for comment.*

Traffic Generation

Table 6 sets out the traffic generation rates of the various uses proposed on the site.

Table 6: Expected Traffic Generation

Use	Size	Traffic Generation Rate			Traffic Volumes			Notes
		AM	School	PM	AM	School	PM	
Childcare	50 places	0.8	0.4	0.8	40	20	40	1
Cinema	278 seats	0	0.025	0.05	0	7	14	2
Bowling Alley	150 patrons	0	0.025	0.05	0	4	8	2
Medical Centre	8 practitioners	6	6	2	48	48	16	3
Pharmacy (Shop)	180.33m^2	0	5	5	0	9	9	4
Café	142.68m^2	0	5	5	0	7	7	4
Total					**88**	**95**	**94**	

Notes

Rates based on RTA Guide to Traffic Generating Developments (2002 or 2013 where relevant), unless otherwise stated.

1. Measure is per childcare place. Rate based on surveys of multiple childcare centres by Traffix Group. Rates are generally consistent with those presented within the RTA guidelines.
2. Measure is per seat. Empirical rate based on assuming 50% capacity, 0.2 cars per patron, and 50% patron turnover in any hour. Peak traffic to occur during PM peak hour, with minimal traffic in the AM and school peaks.
3. Measure is per practitioner. Rate based on surveys of other medical centres in outer urban areas.
4. Measure is per 100m^2 floor area.

Distribution of Traffic

Traffic from the development is expected to be distributed 60% to/from the north and 40% to/from the south. Whilst the majority of the traffic would be distributed via Rouse Street, a proportion would occur via the local road network to the west of the site.

Conservatively allowing for all impacts via Rouse Street, this would suggest:

- Maximum of 57 vehicle movements per hour through the intersection between Manners Street/Rouse Street – this level of traffic equates to less than 1 additional vehicle movement every 60 seconds.
- Maximum of 38 vehicle movements per hour through the intersection between Manners Street/Rouse Street – this level of traffic equates to an average of less than 1 additional vehicle movement every 90 seconds.

We are satisfied that this level of traffic impacts generated by the development are low and in line with the existing volumes within the township.

On this basis, we are satisfied that intersection upgrades/modifications are not required as part of the development.

4.4.2. Construction Traffic Impacts

The various demolition and construction activities will result in traffic impacts and likely require works zones to be created along the site's frontages. It would be expected that the primary vehicle access to the site during these activities would be via Crown Street to the rear.

We are satisfied that the traffic impacts that occur during the stage can be suitable accommodated and managed through suitable Construction Traffic Management Plans.

4.4.3. Other Infrastructure Improvements

As part of the redevelopment of the site, it would be entirely appropriate for kerb and channel to be formalised along the eastern side of Crown Street and northern side of Miles Street.

These works would potentially increase on-street car parking along Crown Street and ensure that pedestrian network along the site's frontage is completed/connected as required.

Detailed engineering plans of these works would need to be prepared to the satisfaction of Council Engineers.

5. Conclusions

Having undertaken a detailed traffic engineering assessment of the proposed commercial development at 148 Rouse Street, Tenterfield, we are of the opinion that:

a) the proposed development has a car parking requirement of 74 car spaces based on rates detailed within the Tenterfield DCP and RTA Guide to Traffic Generating Developments,

b) the provision of 64 car spaces will adequately accommodate the anticipated car parking demands allowing for:

   i) sharing of the available car parking resources and multi-purpose trips that will occur in association with the uses, and

   ii) the variation in the peak demands that will occur in association with the provided uses.

c) the proposed parking layout and vehicle access arrangements accord with the requirements of the Australian Standards (where relevant) and current practice,

d) vehicle access to the site from Crown Street is acceptable and will provide for suitable vehicle access to the site,

e) the level of traffic generated by the proposal can be accommodated without any adverse impacts to the operation of the local road network and infrastructure improvements are not required in order to accommodate the traffic impacts,

f) footpath and kerb and channel shall be constructed/created along the site's western and southern boundaries as part of the proposed redevelopment, the details of these works would be identified in detailed engineering drawings to the satisfaction of Council,

g) loading and waste collection will be accommodated on-site within the existing loading bay as required, and

h) there are no traffic engineering reasons why a planning permit for the proposed commercial development at 148 Rouse Street, Tenterfield should not be supported.

Appendix A

Development Plans