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PROPOSED RESIDENTIAL SUBDIVISION

1070 SAYERS ROAD, TARNEIT

Traffic Engineering Assessment

Prepared for

KEYZONE NOMINEES PTY LTD

OCTOBER, 2012

OUR REFERENCE: 14829R8570

PROPOSED RESIDENTIAL SUBDIVISION

1070 SAYERS ROAD, TARNEIT

Traffic Engineering Assessment

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Released By:	NATHAN WOOLCOCK	31 st October, 2012 DATE
Document Status:	Final.	

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TABLE OF CONTENTS

1	INTRODUCTION				
2 EXISTING CONDITIONS					
_	2.1 2.2 2.3 2.4	The Site Existing Land Use Road Network Public Transport	1 		
3	WES	ST GROWTH CORRIDOR PLAN	7		
4	GAA	A DRAFT REGIONAL STRUCTURE PLAN	8		
5	THE	PROPOSAL	9		
6	TRA	AFFIC GENERATION & IMPACT	10		
	6.1	TRAFFIC GENERATION			
	6.2	ROAD HIERARCHY			
	6.3 6.4	Traffic Distribution Traffic Impact			
7	-	AD CROSS-SECTIONS			
8	ACC	CESS FOR SERVICE & EMERGENCY VEHICLES	14		
9	PED	DESTRIAN & CYCLE ACCESS	15		
10	O PAR	RKING PROVISION	17		
1:	1 TRA	AFFIC MANAGEMENT	18		
12	2 CON	NCLUSIONS	19		



1 INTRODUCTION

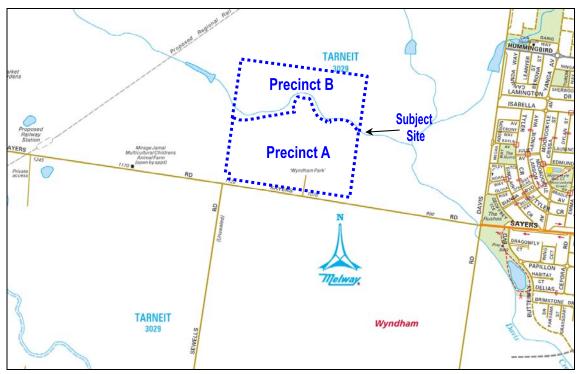
Traffix Group has been engaged by Keyzone Nominees Pty Ltd to undertake a traffic engineering assessment and to prepare a report for the proposed residential subdivision located at 1070 Sayers Road in Tarneit.

This report provides a traffic engineering assessment of the proposal, with particular attention to traffic generation and impacts.

2 EXISTING CONDITIONS

2.1 The Site

The subject site is located on the north side of Sayers Road, to the east of the Sewells Road road reservation in Tarneit. A locality plan is presented at Figure 1 below.



Reproduced with permission from Melway Publishing Pty Ltd.

Figure 1: Locality Plan

The subject site is roughly square in shape (excluding a small house block in the southwest corner) and has an overall area of 63.57 hectares. The current application is for the part of the site known as Precinct A (south of the creek), which has an overall area of 36.88 hectares.

The site has a frontage to Sayers Road, and secondary frontage to an unmade road (Sewells Road).



The site is currently occupied by a farm known as 'Wyndham Park'. Access is currently provided via a single-width crossover to Sayers Road, approximately 490 metres east of Sewells Road.

The site is shown in Figures 2 and 3.



Figure 2: Aerial View of the Site



Figure 3: Site (Existing Access) Viewed From Sayers Road



2.2 Existing Land Use

The subject site is located within the Urban Growth Zone (UGZ), as shown in Figure 4 below.

Surrounding land to the north, south, east and west is all within the UGZ and is currently undeveloped (rural land). There is a single house block (900m² approx.) located at the north-east corner of the Sayers Road/Sewells Road intersection.

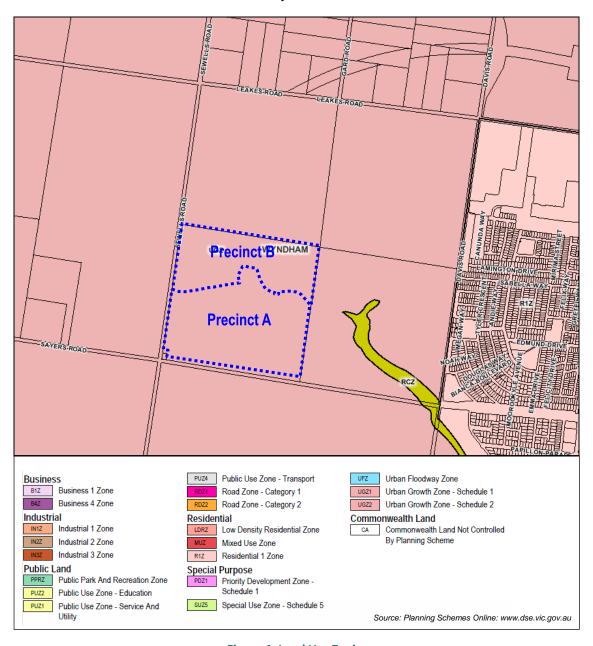


Figure 4: Land Use Zoning



2.3 Road Network

Sayers Road

Sayers Road will ultimately be a primary arterial road extending at least 13km in an east-west direction between Old Geelong Road (Laverton) and Shanahans Road (Tarneit).

Currently, it operates as an undivided arterial (Road Zone Category 1) between Old Geelong Road and Derrimut Road, a divided local main road (Road Zone Category 2) between Derrimut Road and Tarneit Road, and an undivided local main road (not a Road Zone) between Tarneit Road and Davis Road.

While Sayers Road is constructed to an urban standard east of Davis Road, it is currently a rural road to the west of Davis Road (including along the site's frontage).

The 'urban' section of Sayers Road immediately east of Davis Road is constructed with an 8.7 metre wide carriageway providing one traffic lane in each direction. The road reservation allows for future duplication to occur to the north of the existing carriageway, and properties fronting Sayers Road are accessed via service lanes.

The 'rural' section of Sayers Road along the site frontage is constructed with a 3.8 metre (approx.) sealed carriageway with 1.6 metre wide gravel shoulders on both sides (total trafficable width is 7 metres), within a 20 metre (approx.) road reservation.

The posted speed limit on Sayers Road is 70km/h.



Figure 5: Sayers Road (Urban Section East of Davis Road) Looking West



Figure 6: Sayers Road (Rural Section) Looking East Towards Existing Site Access Point



Sewells Road

The Sewells Road road reservation extends approximately 7km between Boundary Road (Mount Cottrell) in the north, and Werribee River (Tarneit) in the south. However, not all sections are currently constructed, including the section between Sayers Road and Leakes Road (including along the subject site's frontage).

To the south of Sayers Road, Sewells Road is currently a rural road comprising a 4.7 metre wide gravel carriageway within a 20 metre (approx.) road reservation.

Immediately north of Sayers Road, Sewells Road is currently occupied by truck parking and outbuildings which appear to possibly be associated with the adjacent residence (at 1122 Sayers Road).



Figure 7: Sewells Road Looking North to Sayers Road
(Showing Truck & Shed within Road Reservation to the North of Sayers Road)



Figure 8: Sewells Road Looking South from Sayers Road



2.4 Public Transport

There are currently no public transport services which serve the subject site. The nearest bus routes are Routes 442 and 444, which operate along Tarneit Road and Sayers Road approximately 2.4km east of the site's eastern boundary, as shown in Figure 9 below.

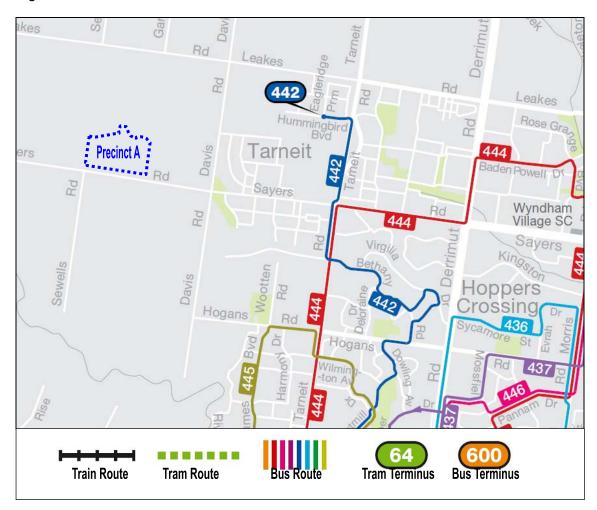


Figure 9: Public Transport Map

It is noted that preliminary planning undertaken by the Growth Areas Authority (GAA) for the west growth corridor identifies Sayers Road along the subject site's frontage and Sewells Road south of Sayers Road as forming part of the future Principal Public Transport Network (likely bus route).

In addition, a potential future railway station (Tarneit West) is identified on the Regional Rail Link (RRL). Construction of the RRL has commenced, and Tarneit West railway station is nominally located on the north side of Sayers Road approximately 1.2km west of the site's western boundary, although it won't be constructed as part of the initial RRL connection.

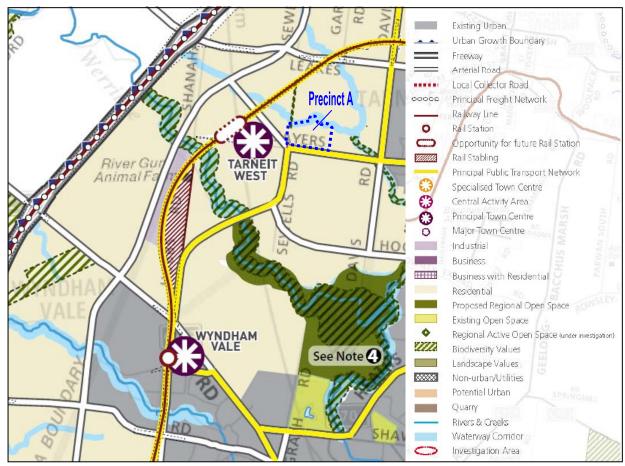
The GAA's West Growth Corridor Plan and associated public transport proposals are discussed in greater detail following.



3 WEST GROWTH CORRIDOR PLAN

The GAA has prepared Growth Corridor Plans to guide the delivery of key housing, employment and transport infrastructure in the growth areas, and provide a clear strategy for development over the next 30 to 40 years. The Growth Corridor Plans were developed and completed over a period of 18 months and are high level plans which provide a strategy for land use and transport considerations.

Figure 10 below shows part of the West Growth Corridor Plan, and includes the subject site and surrounds.



Source: http://www.gaa.vic.gov.au/

Figure 10: Extract from West Growth Corridor Plan

Figure 10 shows the following key elements which impact on the subject site:

- Sayers Road will be an arterial road along the subject site's frontage, and is likely to form part of the Principal Public Transport Network (bus route) as previously noted,
- an 'opportunity for future Rail Station (Tarneit West) is identified on the RRL to the west of the site, and
- the site is nominated for residential use.



4 GAA DRAFT REGIONAL STRUCTURE PLAN

The GAA has prepared a draft regional structure plan for the Wyndham North PSPs. The relevant section of the GAA draft plan is reproduced below.

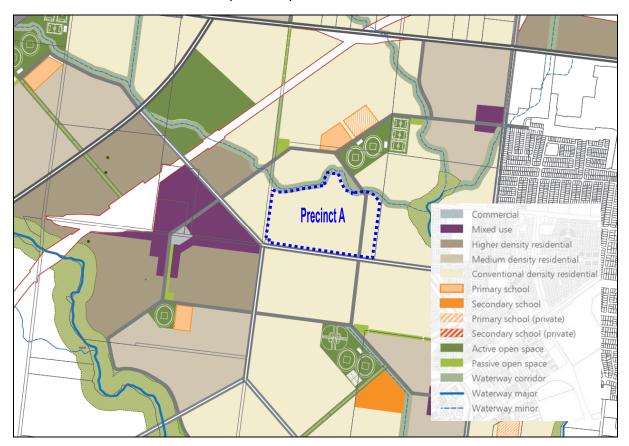


Figure 11: Wyndham North PSP's GAA Draft Regional Structure Plan

Figure 11 shows the following key elements which impact on the subject site:

- Sayers Road will be a divided arterial road along the subject site's frontage (as identified in the GAA's West Growth Corridor Plan),
- Sewells Road north of Sayers Road (adjacent to the subject site) will not be constructed.
- the site will be accessed via a north-south connector road near the site's eastern boundary which will be located opposite a connector road extending south of Sayers Road (this cross intersection will ultimately need to be signalised to retain fully directional access), and
- the key north-south connector road referred to above will ultimately extend across the creek via a bridge crossing, and will provide access between the site and primary schools to the north.



5 THE PROPOSAL

The proposal is to subdivide the site for the purposes of 561 residential allotments ranging in size from 182m² terrace lots to over 600m², in accordance with the following schedule:

Table 1: Lot Yield Schedule

Size	Number of Lots	
Terrace Lots (rear loaded)	70 lots	
300m ² – 399m ²	179 lots	
400m²- 499m²	263 lots	
500m ² +	49 lots	

The average residential lot size is 397 m².

In addition, a 0.783 hectare local park is proposed to be located within the site and 0.652 hectares of land is allocated to 'waterway reserve' adjacent to the creek.

A linear reserve is proposed either side of the main entrance to the site, in addition to a third linear reserve further to the west. Furthermore, a 14 metre road reserve widening has been provided along the site's Sayers Road frontage.

Access to the site is proposed to be provided as follows:

- primary access is proposed to be provided via a boulevard connector road intersecting Sayers Road approximately 200 metres west of the site's eastern boundary (this intersection is intended to ultimately be a signalised cross-intersection),
- a left-in/left-out connection is proposed to be provided to Sayers Road approximately
 175 metres west of the boulevard connector,
- future access to the east is proposed via three local road connections which align with the development proposal for land to the east,
- future access to the west is facilitated by two local road connections including one along the creek reserve and a wider access road (including off-road cycle path) which is intended to ultimately connect to the future railway station precinct to the west, and
- future access to the north is facilitated by extension of the north-south boulevard connector which will ultimately include a bridge crossing of the creek.

A copy of the proposed development plan is attached at Appendix A.



6 TRAFFIC GENERATION & IMPACT

6.1 Traffic Generation

The RTA Guide to Traffic Generating Developments (2002) (RTA Guide) sets out traffic generation rates based on survey data collected in New South Wales for a range of land uses. This guide is used by VicRoads and is generally regarded as the standard for metropolitan development characteristics.

Standard Residential Lots

The RTA Guide sets out the following rates for standard residential dwellings:

- Daily vehicle trips = 9 per dwelling
- Weekday peak hour vehicle trips = 0.85 per dwelling

However the RTA Guide states that ... "The Australian Model Code for Residential Development (AMCORD) assumes a daily vehicle generation rate of 10.0 per dwelling, with 10% of that taking place in the commuter peak period. The use of these figures provides some allowance for later dual occupancy development".

We note that later dual occupancy development is unlikely in the proposed subdivision having regard to the proposed lot sizes. However, for the purpose of providing a conservative analysis, we have adopted a rate of 10 vehicle trip-ends per dwelling per day.

Accordingly the overall traffic generation for the subject site is estimated to be 5,610 vehicle trip-ends per day, with 561 vehicle trip-ends during the road network peak hours.

6.2 Road Hierarchy

Figure 12 shows the road hierarchy for the proposed subdivision.





Figure 12: Road Hierarchy Plan

An access street is defined under Clause 56.06-8 as being ... "a street providing local residential access where traffic is subservient, speed and volume are low and pedestrian and bicycle movements are facilitated". Level 1 Access Streets typically carry between 1,000 and 2,000 vehicles per day, and Level 2 Access Streets typically carry between 2,000 and 3,000 vehicles per day.

The traffic volumes on each of the proposed level 1 and level 2 access streets will be well within the ranges specified in Clause 56.06-8.



6.3 Traffic Distribution

The subject site is located in Melbourne's outer south-west growth area. Having regard to the proposed (future) surrounding road network and land uses as identified in the GAA's draft regional structure plan for the Wyndham North PSPs, it is likely that ultimately a significant proportion of traffic generated by the subject site will head west towards the future town centre, railway station and the Outer Metropolitan Ring Road (OMR), with residents accessing primary schools likely to head north across the creek (via the future connector road/bridge crossing) and residents accessing secondary schools likely to head south. Some traffic will also head east towards existing nearby destinations.

However, in the short to medium term (before the surrounding area and road network is developed), virtually all traffic generated by the subject site will head east along Sayers Road.

The traffic impacts and associated road infrastructure to cater for the long term scenario will be dealt with via the Precinct Structure Plan (PSP) which is currently being prepared by the GAA, and will be accompanied by a Developer Contributions Plan (DCP), towards which the subject site will be required to contribute.

In the short-term, there will also be no connection north across the creek, or to the west, and accordingly all site-generated traffic will initially enter and exit via the two connections to Sayers Road (of which one will provide left-in/left-out only).

6.4 Traffic Impact

We note that there is currently negligible traffic on Sayers Road past the subject site.

In the initial stages, Sayers Road will need to be upgraded from its current rural configuration to an urban road from the current point where it transitions (just west of Davis Road up to the site access point(s).

An appropriate provision would be a 7 metre carriageway (3.5 metres in each direction) and passing provision (BAL and AUR) at the access point(s).

We understand that residential development is proposed on the adjacent land to the east (between Davis Road and the subject site) in the near future and we believe part of that development should include construction of Sayers Road to an urban standard along its frontage. Accordingly, the proposal that is the subject of this report would similarly only need to include the construction of the section of Sayers Road along its frontage. Wherever possible, the 'urban' construction of Sayers Road as discussed should be located such that it can form part of the future ultimate scenario.

Having regard to the very low through traffic, we are satisfied that the intersection will operate satisfactorily as a give-way controlled T-intersection until such time that the connector road to the south (opposite the proposed boulevard road within the site) is constructed. At that time, it would be appropriate for signals to be installed.



7 ROAD CROSS-SECTIONS

Taylors Development Strategists have developed the cross-sections for the subject site in consultation with the Growth Areas Authority (GAA).

The proposed cross-sections are summarised in Table 2 below.

Table 2: Proposed Cross-Sections

Classification	Road Reservation	Ultimate Function & Cross-Section	Parking Provision	Footpath Provision
Boulevard Collector	28 metres	Divided, 3.5 metre wide traffic lanes and 1.7 metre bike lanes	2.3m parking lanes both sides	1.5m both sides
Level 2 Access A (parking)	21.6 metres	7 metre carriageway		
Level 2 Access B (shared path)	20.5 metres	7.5 metre carriageway	Parking permitted within carriageway	1.5m one side, 3m shared path other side
Level 1 Access – two-sided	16 metres	7.5 metre carriageway	(both sides)	1.5m both sides
Level 1 Access - one-sided	13 metres	5.5 metre carriageway	Parking permitted within carriageway (one side)	1.5m one side
Service Road		carriageway		
Laneway	6.5 metres 6.5 metre No carriageway		No	No

We note that all of the proposed cross-sections meet the statutory requirements set out at Clause 56.06-8 of the Wyndham Planning Scheme as a minimum, with most exceeding the Planning Scheme requirements. Accordingly we are satisfied that they are appropriate.



8 ACCESS FOR SERVICE & EMERGENCY VEHICLES

The development plan for the subject site creates two east-west roads leading to the adjoining development land to the west, and three east-west roads leading to the adjoining development to the east. All of these are no greater than the width of two lots or depth of one lot (less than 50 metres). Accordingly, they will not be required to be constructed with temporary turning treatments to facilitate service and emergency vehicle access.

One permanent dead-end access place (extended driveway) will be constructed to provide access to four lots fronting Sayers Road in Stage 1. Residents of the two western lots will be able to walk their bins a short distance to the main boulevard road, and residents of the two eastern lots will be able to walk their bins a short distance to the nearest local road to the east. Accordingly, there will be no need for garbage vehicles to enter the dead-end access place (extended driveway).

There are no other dead-end access places proposed within the development.

The CFA's 'Requirements for Water Supplies and Access for Subdivisions in Residential 1 and 2 and Township Zones' (October, 2006) states the following in relation to emergency vehicle (fire truck) access:

- Fire trucks often used in residential areas are typically 3.02m wide and 7.7m long.
- The road width must allow room for safe passage of a fire truck with additional margins for human error and safe clearances.
- A 3.5m clearance is required horizontally and 4m vertically for access by a fire truck.
- A road at least 7.3m wide will allow for parking on both sides of the road and still enable access by a fire truck.
- A road 5.5m wide will allow parking on one side of the road only.
- Widths between these may encourage parking on both sides of the road so that access by a fire truck is not possible.

We note that all of the proposed road cross-sections within the development satisfy the above requirements as follows:-

- two-sided roads either have:
 - o a 7.5 metre wide carriageway, or
 - o where less than 7.3 metres wide, separate parking lanes are provided, and
- one-sided roads are 5.5 metres wide, allowing parking to occur on one side.

We are satisfied that the proposed development adequately provides access for service and emergency vehicles.



9 PEDESTRIAN & CYCLE ACCESS

Clause 56.06-5 of the Wyndham Planning Scheme specifies the following detailed walking and cycling network objectives:

Footpaths, shared paths, cycle paths and cycle lanes should be designed to:

- Be part of a comprehensive design of the road or street reservation.
- Be continuous and connect.
- Provide for public transport stops, street crossings for pedestrians and cyclists and kerb crossovers for access to lots.
- Accommodate projected user volumes and mix.
- Meet the requirements of (Clause 56.06-8).
- Provide pavement edge, kerb, channel and crossover details that support safe travel for pedestrians, footpath bound vehicles and cyclists, perform required drainage functions and are structurally sound.
- Provide appropriate signage.
- Be constructed to allow access to lots without damage to the footpath or shared path surfaces.
- Be constructed with a durable, non-skid surface.
- Be of a quality and durability to ensure:
 - safe passage for pedestrians, cyclists, footpath bound vehicles and vehicles,
 - discharge of urban run-off,
 - preservation of all-weather access,
 - maintenance of a reasonable, comfortable riding quality, and
 - a minimum 20 year life span.
- Be accessible to people with disabilities and include tactile ground surface indicators, audible signals and kerb ramps required for the movement of people with disabilities.

The proposed road reservation widths are in accordance with the Wyndham Planning Scheme, and will be sufficient to allow footpath provision in accordance with Clause 56.06-8 of the Planning Scheme.

Accordingly, we are satisfied that the proposed subdivision will adequately meet the objectives for pedestrians and satisfy the Wyndham Planning Scheme requirements, including 1.5 metre wide footpaths on both sides of all two-sided local streets and on one-side of all one-sided local streets (service roads fronting Sayers Road and the creek/park frontage roads).



On-road cycle lanes are proposed on both sides of the north-south boulevard connector road and also on the east-west boulevard road which connects the north-south connector to the local park.

A 3 metre wide shared path is proposed along the north side of the east-west road which connects the local park and the Sewells Road road reservation, and this is intended to ultimately provide a connected network from the site to the future railway station precinct to the west.

The following diagram shows the proposed bicycle network.

We note that ultimately recreational shared paths are likely to be provided within the local park and along the creek (these are shown indicatively in Figure 13 below).

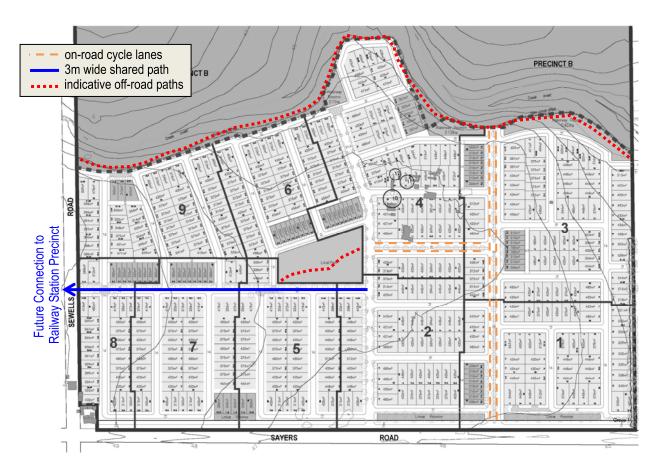


Figure 13: Proposed Bicycle Network



10 PARKING PROVISION

On-street parking is to be provided within the carriageway of each of the roads proposed within the site.

In particular, dedicated kerbside parallel parking lanes will be provided on both sides of the boulevard connector roads and the Level 2 Access A (parking) street. The 7.5 metre wide carriageways for all two-sided streets will be sufficient to allow informal on-street parking to occur on both sides of the street whilst maintaining a through lane for traffic (including emergency and service vehicles), whilst the 5.5 metre wide carriageways for all one-sided streets (including park-edge and service roads) will be sufficient to allow informal on-street parking to occur on one side of the street whilst maintaining a through lane for traffic.

The proposed provision of on-street parking is consistent with the Planning Scheme and current practice.

We note that Clause 55 of the Planning Scheme requires one visitor parking space per 5 lots, while Clause 56 specifies an on-street parking provision rate of one hard standing verge space per two lots. However, we understand that Council's Traffic Engineering Department have a preference for on-street parking to allow one space per dwelling.

While not a statutory requirement, we note that this is generally able to be achieved for the proposed subdivision.

It is recommended that wherever possible, and particularly for the narrower lots fronting the waterway reserve area (minimum of 10.5 metre wide frontages), double crossovers be provided to adjoining lots, in order to maximise the available frontage width for vehicle parking. This also maximises manoeuvring area into and out of the driveways by allowing cars to park further away from the driveways, as shown in Figure 14 below. This also allows for more substantial street tree planting due to the larger nature-strip areas. (We note that Figure 14 is an example for illustrative purposes only, and is not specifically showing a part of the proposed subdivision at the subject site.)

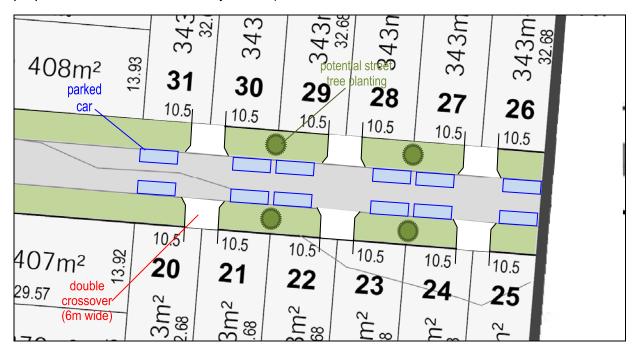


Figure 14: Street Parking & Driveway Location Example



11 TRAFFIC MANAGEMENT

The proposed roads within the subject site have generally been designed in accordance with the speed controlling objectives of the Wyndham Planning Scheme and current traffic engineering practise.

There is one proposed cross-intersection, and it is proposed that this be treated with a raised pavement to slow traffic in all directions. Priority will be given to the east-west movement as this is the more major route and ultimately will carry the higher traffic volume, providing a future connection to the town centre and railway station precinct.

Generally, the length of the proposed streets is not sufficient to warrant installation of speed controlling devices. The exception is the east-west Level 2 Access B (shared path) road providing a future connection to the town centre and railway station precinct.

A second raised pavement area is proposed along this road in the vicinity of the local park.

The creek edge street is also long enough to warrant speed control, and accordingly a reverse priority T intersection is proposed approximately mid-way along this road.

The proposed traffic management treatments are highlighted in Figure 15 below.

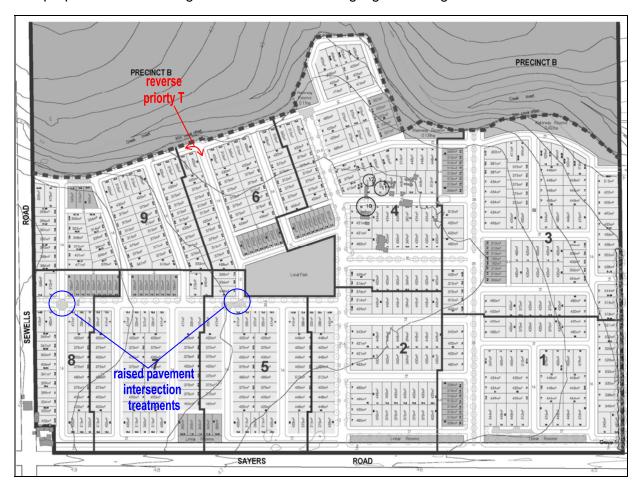


Figure 15: Proposed Traffic Management Treatments



12 CONCLUSIONS

Having visited the site, perused relevant documents and plans, provided design advice to the subdivision layout, and undertaken an assessment of traffic generation and distribution and subdivision layout, we are of the opinion that:-

- a) the layout of the road network and intersections is in accordance with good traffic engineering practice,
- b) the proposed road reservations within the subdivision meet or exceed the minimum requirements set out in Clause 56.06-8 of the Wyndham Planning Scheme and are in accordance with the typical GAA requirements.
- c) the road reservations will be appropriate having regard to the anticipated traffic volumes and function of the streets,
- d) adequate provision is made on-street within the proposed carriageways to accommodate visitor and service/emergency vehicle parking requirements,
- e) the road geometry will be more than sufficient for the passage of emergency and service vehicles and there is no need to construct any temporary or permanent turning treatments at the end of the short dead-end access places and extended driveways,
- f) the site will provide sufficient access for pedestrians and cyclists in accordance with the Planning Scheme requirements and general practice,
- g) the recommended traffic management treatments (including a reverse priority T-intersection and raised pavement) will provide adequate speed control through the site,
- h) there will not be any adverse impacts on the surrounding road network or intersections as a result of the proposed development, and
- i) there are no traffic engineering reasons why a permit should not be granted for the proposed residential subdivision located at 1070 Sayers Road in Tarneit.









