Yarrambat Structure Plan
Traffic and Transport Study

Issue: A 12/12/13

Client: Nillumbik Shire Council
Reference: 14M1111000
GTA Consultants Office: VIC

Quality Record

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1. Introduction

1.1 Context

Nillumbik Shire Council is currently preparing the Yarrambat Structure Plan. GTA Consultants has been engaged to prepare a traffic and transport study to inform the preparation of the Structure Plan.

This report outlines the existing conditions, issues and opportunities with regard to traffic and transport in central Yarrambat, to provide a frame of reference against which the future role and function of Yarrambat Township can be visualised. This includes the provision of broad level transport network recommendations under a ‘no change to zoning’ scenario.

Following the preparation of this study, provision of a Stage 2 report may be required should Council wish to investigate the potential transport implications of changes to land zoning.

1.2 Objectives

This report provides the transport network response for the draft Yarrambat Structure Plan. The report seeks to:

i. research the existing issues and opportunities of the transport and movement network within the study area, including ‘Central Yarrambat Township’ and surrounds

ii. determine broad level recommendations for potential changes to the transport network

iii. inform the traffic and transport considerations for the development of the Yarrambat Structure Plan, which will provide an overarching policy direction for strategic planning within the Yarrambat Low Density Residential Area.

1.3 Scope

The scope of this report is to:

i. qualitatively assess the operation of the transport network, including traffic movement, pedestrian and cycling amenity, and public transport services

ii. evaluate the existing road infrastructure in terms of its adequacy and safety, identifying any particular accident trends

iii. review and comment on traffic volumes and speeds within the Township

iv. determine the nature of existing car parking conditions within Yarrambat Township

v. recommend broad level upgrades to the existing transport infrastructure under a ‘no change to zoning’ scenario.

1.4 Study Area

The Yarrambat Study Area (the ‘Study Area’) adopted is consistent with the project brief, incorporating the distinct ‘Central Yarrambat Township’ and surrounding areas as shown in Figure 1.1. These areas are distinct from the wider suburb of Yarrambat.
Figure 1.1: Yarrambat Structure Plan Study Area

Reproduced from Nillumbik Shire Council
2. Policy Context

2.1 Summary of Key Policy Directions

A review of the relevant state, local, and national policy indicates the following key directions in relation to transport and land use:

- ‘Transport choice’ is central to providing equitable access to employment and services. Transport choice means that there are a number of viable and attractive options, such as walking, cycling, public transport or private vehicles. Transport choice is also intrinsically linked to urban form. Providing activity centres with a range of employment, retail, educational and community services in close proximity to where people live means that people will have more transport choices.

- All investment decisions in the transport network should be informed by a road user hierarchy. In Victoria, the SmartRoads Network Operating Plan / Road User Hierarchy tool developed by VicRoads is the appropriate planning tool to determine the road user hierarchy across the road network.

- Promoting sustainable transport (walking, cycling and public transport) is generally endorsed on a state wide basis and is important for a wide range of reasons:
  - Healthy, active communities – there is a strong link between active transport and health.
  - Socially connected, liveable communities – places where people walk, cycle and use public transport are likely to perform better on a range of social indicators.
  - Transport efficiency – increased use of sustainable transport has environmental and economic benefits through reduced greenhouse emissions and reduced space required for vehicle movement and storage.
  - Access for all members of the community – a large number of people in the community don’t or can’t drive, and the provision of attractive and viable alternative means of transport is a key factor in whether a community is affected by transport disadvantage.
  - Safety – increased sustainable and active transport improves safety and perceptions of safety.

- Planning for new development must consider providing for and promoting sustainable and active transport modes in accordance with the road user hierarchy. This includes a requirement for major developments to integrate with the transport network, including public transport and cycling.

- Nillumbik Council has a number of specific policies and strategies to improve walking, cycling and public transport in the Shire, including the Municipal Strategic Statement, and Sustainable Transport Study and Strategy for Diamond Creek and Eltham.

2.2 State Policy

2.2.1 Transport Integration Act 2010

The Transport Integration Act is the primary transport statute for Victoria, and has changed the way transport and land use authorities make decisions. The Act enshrines a triple bottom line approach to decision regarding transport and land use.
The Act requires that all transport agencies work together to achieve an integrated and sustainable transport system, and that land use agencies such as municipal councils and the Department of Transport, Planning and Local Infrastructure take into consideration relevant transport issues associated with land use planning decisions.

The Act has been effective in providing framework for integrated and sustainable transport policy and operations, and integrating land use and transport planning decision-making.

The Transport Integration Act forms an overarching legislative framework for transport related state planning policies and has been integrated within the Victorian Planning Provisions (VPP). Council’s obligations under the Act have been incorporated into the Local Government Act, and require that Council’s undertake integrated transport planning as part of their overall planning responsibilities.

2.2.2 Plan Melbourne

The Victorian Government released the draft metropolitan planning strategy, ‘Plan Melbourne’ in October 2013. Plan Melbourne is underpinned by seven major objectives for Melbourne:

i Delivered jobs and investment – create a city structure that drives productivity, supports investment through certainty and creates more jobs.

ii Housing choice and affordability – provide a diversity of housing in defined locations that cater for different households and are close to jobs and services.

iii A more connected Melbourne – provide an integrated transport system connecting people to jobs and services and goods to market.

iv Liveable communities and neighbourhoods – create healthy and active neighbourhoods and maintain Melbourne’s identity as one of the world’s most liveable cities.

v Environment and Energy – protect our natural assets and better plan our water, energy and waste management to create a sustainable city.

vi A state of Cities – maximise the growth potential of Victoria by developing a state of cities which delivers choice, opportunity, and global competitiveness.

vii Implementation: delivering better governance – achieve clear results through better governance, planning regulation and funding options.

These objectives are supported by a series of directions, initiatives and actions. For Nillumbik, the Plan proposes to ‘deliver a permanent boundary around Melbourne’ (Direction 6.1), which will see Yarrambat remain outside the Urban Growth Boundary for the foreseeable future.

2.2.3 Victoria Planning Provisions (VPP)

As per the legislative framework of the Transport Integration Act, various statutory planning requirements are incorporated within the VPP. The relevant clauses are outlined as follows:

- Clause 18.01 – Integrated Transport:
  This clause requires the preparation of an Integrated Transport Plan (ITP) for all new “major” developments. It is typical that an ITP be submitted with Planning Permit applications for development proposals.

- Clause 52.34 – Bicycle Facilities:
  This clause aims to encourage cycling as a mode of transport through provision of convenient parking and end of trip facilities.

- Clause 52.36 – Integrated Public Transport Planning:
  This clause seeks to ensure that development supports public transport usage. Under this Clause, Public Transport Victoria (PTV) acts as a referral authority for all major developments. PTV considers that such proposals should be consistent with the
Department of Transport’s “Public Transport Guidelines for Land Use and Development” and the objectives and standards in Clause 56.03-1 of the VPP.

Consideration of the Transport Integration Act policy framework has also been incorporated in the assessment of planning scheme amendments.

2.2.4 VicRoads SmartRoads Policy

SmartRoads is a VicRoads policy which sets ‘modal’ priorities on the road network and underpins many of the strategies for public and transport prioritisation. The policy is described as follows:

“SmartRoads is an approach that manages competing interests for limited road space by giving priority use of the road to different transport modes at particular times of the day. All road users will continue to have access to all roads. However, certain routes will be managed to work better for cars while others will be managed for public transport, cyclists and pedestrians.”

The SmartRoads approach is used by VicRoads as a decision making tool in relation to any projects that impact on the centre. The SmartRoads network in the vicinity of the Study Area is shown below in Figure 2.1

Figure 2.1: SmartRoads Road Use Hierarchy – Shire of Nillumbik

Source: VicRoads SmartRoads

Figure 2.1 indicates that Yan Yean Road currently has no SmartRoads designation in the vicinity of the study area, however is nominated as both a bus priority route and a traffic route to the south and east in the vicinity of Plenty and South Morang.

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1 Source: www.vicroads.gov.au.
2.2.5  Victorian Cycling Strategy and Action Plan

The Victorian cycling strategy, Cycling into the Future 2013-2023 and associated Victorian Cycling Action Plan 2013 & 2014, aims to grow and support cycling within Victoria by encouraging more people to ride and to increase the safety for those that already ride.

The strategy identifies a significant opportunity to increase cycling for short trips. This includes the opportunity for children to ride to school and for cyclists to regularly use cycling trails.

Cycling will play an increasingly important role in meeting transport needs and supporting vibrant, healthy urban communities in Victoria. Actions associated with the strategy provide opportunities for cycling networks in activity centres and towns to flow from precinct-based to beyond local government boundaries, providing for a continuous cycling infrastructure network across Victoria.

2.2.6  Principal Bicycle Network

The Principal Bicycle Network (PBN) is a network of existing and proposed on and off-road arterial cycling routes in metropolitan Melbourne, for which VicRoads has the primary responsibility to manage and develop. Bicycle facilities on the PBN are implemented by VicRoads and local councils depending on whether they are on an arterial or local road.

Figure 2.2 shows the existing and proposed on and off road bicycle facilities making up the PBN within and surrounding the Study Area.

Figure 2.2: VicRoads Principal Bicycle Network (PBN)

Source: VicRoads PBN

Figure 2.2 shows that Yan Yean Road is designated as a bicycle route on the VicRoads PBN approximately 2km to the north of Ironbark Road and 4km to the south of Ironbark Road.

2.2.7  Pedestrian Access Strategy 2010

The Pedestrian Access Strategy sets out the Victorian Government’s vision for a more pedestrian-friendly transport system for Victorians. The aim of the strategy is to encourage more Victorians to walk, especially for short trips. The strategy establishes broad policy principles and the first steps to
guide the Victorian Government’s investment in walking— including infrastructure, planning and design, safety and behaviour change programs.

By getting more people walking has the potential to help ease congestion caused by vehicles, reduce greenhouse emissions, improve the health of the community and promote social connections. Despite the many benefits of walking, both physical and attitudinal barriers stop people walking more. The Pedestrian Access Strategy explores the major barriers to walking to help understand how best to overcome them. The strategy also takes account of trends and patterns in how, where and why Victorians walk. This picture of walking in Victoria puts the focus on support for walking where it is most needed.

The five strategic directions and related actions for walking are:

i  Encourage people to walk by changing attitudes and behaviour.
   - Integrated provision for walking in Victorian Government transport projects, including principle development for incorporating walking in major transport projects.
   - Targeted behaviour change programs to encourage walking and develop travel planning guidance for workplaces, schools, communities, tertiary institutions and community precincts.

ii  Collaborate to improve provision for walking.
   - Improving Victorian Government coordination and consultation mechanisms for planning walking infrastructure with local government, including at the regional level.

iii Create pedestrian-friendly built environments, streets and public spaces.
   - Greater alignment of local planning policies with the Victorian planning framework to enhance focus on walking, and a requirement to provide appropriate and well-designed walking infrastructure.
   - Develop active transport guidelines for land use planning.

iv Increase the safety of walking.
   - Continue review of pedestrian crash data and identify counter measures to improve infrastructure safety and road user behaviour.
   - Provide for regular and sufficient pedestrian crossings on arterial and collector roads.

v  Continue integrated walking with public transport.
   - Provide safe and convenient walking access to public transport stops and interchanges.
3. Existing Conditions

3.1 Yarrambat in Context

Yarrambat is a regional suburb located approximately 31km from Melbourne CBD, having a total resident population of 1511 persons (ABS 2011 Census). As of 2011, Yarrambat had a total of 450 occupied private dwellings, 99.3% of which are classified as a ‘separate house’, (compared to the 76.9% for the whole of Victoria) with 88.2% of households owning 2 or more motor vehicles (compared to 56.8% for the whole of Victoria).2

The Yarrambat ‘township’ focus is around Ironbark Road, east of Yan Yean Road. Outside of this township, Yarrambat is characterised by its distinct rural feel and low density of development atmosphere. The movement network is typical of smaller regional towns, with limited provision of formal footpaths or on-street car parking.

In recent years, the rapid growth of surrounding areas within the Urban Growth Boundary (UGB), particularly to the north in the Doreen and Mernda areas, has led to increasing through traffic on Yan Yean Road. The location of Yarrambat in relation to the current UGB and planned growth areas is illustrated in Figure 3.1.

Figure 3.1: Urban Growth Boundary and Adjacent Growth Areas

Source: Growth Areas Authority – ‘Precinct Structure Plans, August 2013’

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3.2 Land Zoning

A land use zoning map of the Study Area and surrounds is shown in Figure 3.2. The area is predominately zoned as Low Density Residential, with some Public Use Zones and a Park and Recreation Zone. Further afield, the land is predominately zoned as a Rural Conservation Zone.

![Land Zoning Map](source: land.vic.gov.au)

3.3 Key Trip Generators and Stakeholders

A summary of key land uses within the Study Area which generate a transport demand include:

- Yarrambat Primary School
- Yarrambat General Store (and Mobile Library Site)
- Yarrambat Post Office and Tancks Café
- Boarding Kennels
- Veterinary Hospital
- Country Fire Authority
- Yarrambat Pre-school
- Yarrambat War Memorial Park (Recreation Oval)
- Single residential lots.

Acknowledgement of these existing land uses is important in understanding transport priorities and for determining the vision for Yarrambat as it relates to transport, access and movement.
3.4 Sustainable Transport Infrastructure

3.4.1 Public Transport

Figure 3.3 shows the public transport routes which operate in the vicinity of the study area.

Figure 3.3: Public Transport

As shown above, bus route 520 (Doreen to Greensborough) is the only public transport service to the study area. Major destinations accessible from this service include Yarrambat Primary School, Plenty Store, Nillumbik Shire Offices, Diamond Valley Sports Centre, Laurimar Town Centre, Greensborough Station, and Greensborough Plaza Shopping Centre. The bus service takes approximately 25 minutes to reach Greensborough Station from the Yan Yean Road/Ironbark Road bus stop.

On weekdays, the service spans from 5:55am to 9:51pm, with a frequency of approximately 30mins during peak periods. On weekends, the service operates at an hourly frequency, with the service span running from 7:16am-9:16pm on Saturdays and generally starting an hour later on Sundays.

The bus route is used by children going to Yarrambat Primary School, as well as the school bus stop on Ironbark Road shown in Figure 3.4.

Conclusion: Buses (both School buses and public buses) are a key form of transport in Yarrambat, particularly to access the Primary School. Safe and convenient access to the bus stops is a critical part of this service.
3.4.2 Active Travel Network

The existing pedestrian and cycling facilities, as well as local public transport infrastructure is illustrated below in Figure 3.4.

**Figure 3.4: Existing Sustainable Transport Infrastructure**

**Pedestrian Facilities**

Figure 3.4 indicates that some degree of formal pedestrian facilities are provided at key locations in Yarrambat Township, such as the north-south route (typically only on one side of Yan Yean Road), and also the route linking between key bus stops on Yan Yean Rd and the Yarrambat Primary School via the Ironbark Road/Yan Yean Road signalised intersection.

Further to the above, several pedestrian desire lines are apparent where demands over time have created...
Pedestrian paths in some locations, particularly along the south side of Ironbark Road and at some locations on the west side of Yan Yean Road as shown in Figure 3.5.

There is a need to provide safe and efficient connectivity throughout the Study Area to improve transport choice for residents and visitors, and to encourage shorter trips to be taken on foot. The chosen footpath treatments may require designs which are sympathetic to the rural character of the Study Area.

Site observations indicated that pedestrian demands at the supervised crossing were relatively high, due to the arrivals of school busses opposite the school on Ironbark Road.

Compared to the supervised crossing, demands on the signalised pedestrian crossings were low. Notwithstanding, school children arriving at the public bus stop on the west side of Yan Yean Road did use the footpath and signalised crossing. This pedestrian crossing was also supervised during the school peak, occurring approximately between 8:30am to 9:30am and 3pm to 4pm.

While pedestrian mode share appears to be low compared to car usage, a number of recreational walkers were observed along the footpath on the north side of Ironbark Road and east side of Yan Yean Road.

Conclusion: Due to the low population density, car dependent nature of trips from residential areas, and the limited walking infrastructure available within the Study Area; walking mode share is generally low. There is likely to be the potential to increase walking for both recreation and as a transport mode through the provision of a better network of pedestrian pathways throughout the study area.

Cycling Facilities

There are no dedicated bicycle facilities provided within the study area. Amenity for cyclists is generally poor, as the majority of roads have little to no shoulder, and often have poor quality road pavement and roadside hazards. These features, in addition to the high traffic volumes (particularly on Yan Yean Road) contribute to an unsafe environment for cycling. An example of this is shown in Figure 3.7.

While there are no Principal Bicycle Network routes within the study area, there is an opportunity to connect Yarrambat with the broader PBN through construction of a bicycle facility (likely to consist of a shared path). This would also assist with resolving the pedestrian network issues identified above, through the provision of a shared path ‘trunk’ through the study area, and potentially connecting further north and south along Yan Yean Road.

Conclusion: Existing facilities are insufficient and site observations did not observe any cycling based trips. It is likely that the lack of any dedicated bicycle facilities is a factor in this, in addition to the topography, relatively long distance between land use attractors, and high traffic volumes on Yan Yean Road. Notwithstanding the above, there is an opportunity to provide cycling infrastructure to facilitate recreational activity and short trips.
3.5 Road Network

3.5.1 Road Hierarchy

The existing road hierarchy within the study area consists of:

- **Major local roads**, which provide local access for freight and general traffic, and may play a limited through traffic role.
- **Collector Roads**, which connect destinations and local streets through and between neighbourhoods.
- **Minor local roads**, which service end destinations, and should not be encouraged to accommodate through traffic.

The roads within the study area are described within this framework below.

**Major Local Roads**

- **Yan Yean Road** runs centrally through the study area in a north-south direction and functions as a major road (controlled by Council). It is a two-way road with some turning lanes provided at major intersections adjacent Central Yarrambat Township. Short right-turn lanes are provided at key intersections, including at its intersection with Ironbark Road, Yarrambat Primary School entry points, and Vista Court. Short left-turn lanes are provided at its intersection with Vista Court and North Oatlands Road; however the function of the North Oatlands Road deceleration lane is significantly limited due to its length. Yan Yean Road has a 70 km/hr speed limit, with a 40 km/hr school zone effective between 8am-9:30am and 2:30pm-4pm on school days. Flashing 40km/hr signage is provided at the north and south extents of the school zone. Kerbside parking is generally not permitted by a solid centreline, and is typically unavailable due to a narrow road shoulder.

**Collector Roads**

- **Ironbark Road** runs directly through Central Yarrambat Township generally in an east-west direction and provides access to key trip generating land uses, as well as accommodating through traffic to the wider Yarrambat area east of Yan Yean Road. Kerbside parking is generally not permitted, with the minor exception being the shared bus and parking bay outside Yarrambat General Store. Ironbark Road has a 60 km/hr speed limit, with a 40 km/hr ‘school zone’ effective between 8am-9:30am and 2:30pm-4pm on school days.

**Local Streets**

Various local streets within the study area are as follows:

- **Ashley Road**, aligned in an east-west direction and is a no through-road providing access to single-lot residential properties and the Boarding Kennels.
- **Youngs Road**, aligned in an east-west direction is unsealed approximately 50m east of Yan Yean Road, serving single-lot residential properties and potential through traffic to Eisenmans Road to the north-east.
- **Vista Court**, aligned in an east-west direction and is a no-through road and serves residential properties.
- **North Oatlands Road**, aligned in an east-west direction and is a 50km/hr zone.
3.5.2 Duplication of Yan Yean Road

Application of the Public Acquisition Overlay (PAO) was recently approved by the Minister for Planning for the duplication of Yan Yean Road between Diamond Creek Road to south of Worns Lane, approximately 1 km south of the study area extent. The PAO generally covers the area of the road identified in the VicRoads Network Operating Plan as a bus and traffic route, and is shown below in Figure 3.8.

Figure 3.8: Public Acquisition Overlay – Duplication of Yan Yean Road

At this stage GTA are not aware of any plans to duplicate Yan Yean Road within the Study Area.

3.5.3 Planned Local Infrastructure Upgrades

At the time of this report, GTA understands that Council is in the process of finalising plans for the following road infrastructure upgrades:

- Yan Yean Road/North Oatlands Road intersection upgrade, including right turn lanes from Yan Yean Road
- Yan Yean Road/Youngs Road Oatlands Road intersection upgrade, including right turn lanes from Yan Yean Road
- Yan Yean Road/Ashley Road intersection upgrade, including right turn lanes from Yan Yean Road and a pedestrian refuge with associated footpath links.

These improvements are supported as they directly address some of the issues raised in this report.

3.5.4 Existing Access Agreements

Nillumbik Shire Council is understood to have entered into Section 173A Agreements regarding access to land parcels along Yan Yean Road between Youngs Road and Ironbark Road.

In general terms, these agreements mostly restrict access via Yan Yean Road for land on its east side, between Youngs Road and Ironbark Road, with a preference towards gaining access via
Youngs Road or its extension. Notwithstanding the above, it is noted that no agreement exists in relation to the two sites to the northeast of the Ironbark Rd/Yan Yean Rd intersection, and on this basis there is potential for these sites to gain access from Yan Yean Road.

In addition to the above it is understood that a tree reserve exists on the eastern side of Yan Yean Road and may present a constraint to access to properties from Yan Yean Road.

### 3.5.5 Accident Statistics

A review of the reported casualty accident history for the roads and intersections adjoining the subject site has been sourced from VicRoads CrashStats accident database. This database records all accidents causing injury that have occurred in Victoria since 1987 (as recorded by Victorian Police).

A summary of the casualty accidents in the vicinity of the study area for the last available five year period (31 December 2007 to June 2012) is shown graphically in Figure 3.9. Further information regarding crash history within the study area is provided in Appendix B.

![Casualty Accident Locations (December 2007 to June 2012)](image)

'Other' injury: at least one person required medical treatment as a result of the accident.

The CrashStats review indicates that a total of 5 casualty accidents have been reported within the nominated five year period, including three mid-block on Yan Yean Road and two more at its intersection with Ironbark Road and Youngs Road respectively.

Following a review of the available accident details, the following key themes were apparent:

- Four of five accidents occurred on a wet road, including three for which it was raining at the time of the accident.
- The two mid-block accidents on Yan Yean Road (directly north of North Oatlands Road) were rear end accidents in which a southbound passenger vehicle was hit by a heavy vehicle from behind. One of these accidents occurred in dry conditions. No turn lane is provided for south bound traffic turning right into North Oatlands Road.
• The accident at the intersection of Yan Yean Road and Younsg Road involved a vehicle turning right into Younsg Road being rear ended by vehicle travelling north (no turn lane is provided at this location).

• The accident at the intersection of Yan Yean Road and Ironbark Road involved four vehicles colliding in the same lane, in a southbound direction.

A review of the available CrashStats history indicates accident trends which are typical of rural type roads, including a high prevalence of accidents during poor weather conditions.

It is noted that CrashStats records casualty-only crashes that have been reported. Therefore, some crashes may be unaccounted for due to being unreported. It is also no longer a requirement of the Police to record property damage crashes.

**Conclusion: Based on the information presented above, it is considered that a number of factors contribute to the crashes on Yan Yean Road; however it appears likely that the lack of right turn lanes into side streets is a factor in some of these crashes, particularly when combined with the other factors such as speed and volume of traffic, and wet weather. GTA understands that Council are currently finalising plans to upgrade key intersections to provide right turn lanes from Yan Yean Road, however this excludes the intersection of Yan Yean Road and the child care centre/veterinary clinic site access point.**

### 3.5.6 Traffic Volumes

GTA obtained pneumatic tube count data from Council along key roads within the Study Area, for a week long period between 2 September 2013 and 9 September 2013. The average weekday traffic volumes recorded are summarised in Figure 3.10.
**Existing Conditions**

**Figure 3.10: Average Daily Weekday Traffic Volumes**

Source: Pneumatic tube counts undertaken by Nillumbik Shire Council in August and September 2013

Note: Yan Yean Road north of North Oatlands Road is based on 1 data point only

Table 3.1 presents the indicative daily flows and characteristics of key roads within the study area, along with their theoretical capacity with reference to Clause 56.06 of the Nillumbik Planning Scheme.
Table 3.1: Road Network Characteristics and Indicative Capacity

<table>
<thead>
<tr>
<th>Road Name</th>
<th>Road Characteristics</th>
<th>Road Type</th>
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<tr>
<td>Yan Yean Road</td>
<td>2 lanes with 1 lane in each direction</td>
<td>Major Local Road</td>
<td>Arterial Road (&gt; 7000vpd)</td>
<td>19,500vpd</td>
</tr>
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<td></td>
<td>20m road reserve (approx.)</td>
<td></td>
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<td></td>
<td>7m carriage way (varies)</td>
<td></td>
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<tr>
<td></td>
<td>On street parking not permitted</td>
<td></td>
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<tr>
<td>Ironbark Road</td>
<td>2 lanes with 1 lane in each direction</td>
<td>Collector Road</td>
<td>Connector Street – Level 2 (3000-7000vpd)</td>
<td>5,500vpd</td>
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<td>22m road reserve (approx.)</td>
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<td></td>
<td>7m typical carriage way</td>
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<td>On street parking generally not permitted</td>
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<tr>
<td>Vista Court</td>
<td>12.5m wide road reserve</td>
<td>Local Road</td>
<td>Access Street – (1000-3000vpd)</td>
<td>&lt;300vpd [2]</td>
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<td></td>
<td>Two-way 5-6m rural type carriageway(approx.)</td>
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<tr>
<td></td>
<td>Unsealed shoulder</td>
<td></td>
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<tr>
<td>North Oatlands Rd</td>
<td>20m wide road reserve</td>
<td>Local Road</td>
<td>Access Street – (1000-3000vpd)</td>
<td>250vpd</td>
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<td>Two-way 5-6m rural type carriageway(approx.)</td>
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<td>Youngs Rd</td>
<td>20m wide road reserve</td>
<td>Local Road</td>
<td>Access Street – (1000-3000vpd)</td>
<td>100vpd</td>
</tr>
<tr>
<td></td>
<td>Two-way 5-6m unsealed carriageway(approx.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ashley Rd</td>
<td>20m wide road reserve</td>
<td>Local Road</td>
<td>Access Street – (1000-2000vpd)</td>
<td>200vpd</td>
</tr>
<tr>
<td></td>
<td>Two-way 5-6m rural type sealed carriageway(approx.)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[1] Weekday average traffic volumes provided by Council, rounded to the nearest thousand.
[2] Estimate only, based on site observations

Reference to Table 3.1 indicates that the majority of roads are operating within their relevant capacity under Clause 56 of the Planning Scheme.

In addition to the above, application of the relevant Austroads capacity guide for interrupted flow on urban arterial roads suggests that Yan Yean Road has a theoretical daily capacity of 18,000vpd. It is evident that this road is currently operating at or close to capacity during peak periods, which has some undesirable effects including:

- congestion at the signalised intersection with Ironbark Road
- queuing due to the lack of right turn lanes
- rear-end casualty accidents (as identified in Figure 3.9) in some locations, and related safety concerns
- difficulty for vehicles to exit side streets onto Yan Yean Road.

These problems are likely to be exacerbated by the ongoing development of residential areas to the north.
3.5.7 Traffic Speeds

Traffic speed data has been obtained from pneumatic tube count data provided by Council for the period 2 September 2013 and 9 September 2013. A summary of traffic volumes on key roads within the study area is provided in Figure 3.11.

Figure 3.11: Summary of Traffic Speed Data on Key Roads

No. 540 Yan Yean Road count located between Vista Court and North Oatlands Road
No. 602 Yan Yean Road count located between Ironbark Road and Ashley Road

Figure 3.11 outlines the following issues with regard to traffic speeds in the study area:

- While Yan Yean Road operates as a 40km/hr zone during peak hours, 12.2% to 16.4% of vehicles were observed to travel over the nominal 70km/hr speed limit at each of the respective count locations. Notwithstanding, only 1% were observed travelling at least 10km/hr over the nominal speed limit.
- 76% of vehicles on North Oatlands Road were observed to be travelling over the speed limit of 50km/hr, with 41% travelling at least 10km/hr over the posted speed limit.
- 38% of vehicles on Ironbark Road were observed to be travelling at over the speed limit of 60km/hr, with almost 6% of those vehicles being at least 10km/hr over posted the speed limit.

Conclusions:

- While traffic speeds on Yan Yean Road and Ironbark Road are generally limited within the township by congestion during peak periods, week-long data suggests that speed may be an issue outside of these periods, particularly on Ironbark Road and North Oatlands Road. It follows that enforcement of speed limits within the study area is an issue.
- The existing speed limit on Ironbark Road does not support the safety and amenity of users of this space, including local shoppers, students and other pedestrians. A review of the existing 60km/hr speed limit is recommended. It is recommended that Council advocate to VicRoads that the existing time based school zone (40km/h) be extended.
3.5.8 Road Network Operation

GTA staff undertook two site inspections, which included a visitor during the AM peak road network peak and school drop-off peak times on Tuesday 17 September 2013, with key findings regarding traffic movement noted as follows:

- The intersection of Yan Yean Road/Ironbark Road was operating at capacity during the morning peak. A long queue was observed in the southbound traffic lane, with generally slow speeds throughout the study area. Notwithstanding the above, southbound queues generally discharged within one cycle, as a high portion of the signal cycle was allocated to through movements along Yan Yean Road.
- Limited gaps were available for vehicles exiting side roads, due to high volumes on Yan Yean Road. While some delay is likely, traffic volumes on these side roads are very low.
- The east approach of the Yan Yean Road/Ironbark Road intersection experienced long queues (past the supervised crossing), and was observed not to discharge completely on some occasions. This could be due to the side road phase “gapping out” due to a slow queue discharge with the incline of the approach and/or friction with the operation the primary school site access intersection(s).
- Some friction and circulation issues were observed at the intersection of Yan Yean Road and the childcare/veterinary clinic site access point and Primary School car park exit, which does not currently have any turning facilities provided. This was raised as a specific concern by the Yarrambat Primary School.

The long queues and delays along Yan Yean Road have been raised as an issue by members of the local community. It has been suggested by some that the existing signalised intersection of Yan Yean Road/Ironbark Road be replaced by a roundabout to improve traffic flows. However, this is unlikely to improve the situation, due to the intersection having unbalanced flows (i.e. high volumes along Yan Yean Road are likely to limit capacity of the minor approach).

**Conclusion:** The road network within the study area is at or approaching capacity on Yan Yean Road, which has some undesirable effects on local traffic such as congestion for access to key local land uses and increasing queues and delay. It is likely that increases in traffic volumes on Yan Yean Road in future (for example generated by residential development to the north) will exacerbate existing issues and cause more significant delays through the study area.

3.5.9 Car Parking

The vast majority of car parking within the study area is provided as private on-site car parking. Publicly available car parking is limited to the shared bus/parking bay on the north side of Ironbark Road, which accommodated approximately 6 vehicles. Other public parking is available within the Yarrambat War Memorial Park, however it is unlikely that this would be utilised for non-recreational purposes due to its disjointed location away from trip attractors, poor pedestrian connectivity, and out-of-sight location.

Site observations of car parking conditions undertaken within the survey area during the morning peak indicated the following:

- The Yarrambat Primary School generates a significant amount of pick-up and drop-off activity via the access points to Yan Yean Road and Ironbark Road, with a peak occurring just before 9am.
• Some pick-up/drop off passenger vehicle activity was observed via the shared bus/parking bay and also via the Yarrambat General Store parking area.

• Parking demands at Tancks Café/Australia Post site were observed to be at capacity around 9:00am-10am.

• Discussions with local operators indicated that parking is a controversial issue, and it was evident that bollards had been installed within the General Store car park to limit the extent of parking on private property.

Conclusion: Informal parking in the study area, particularly around the school and Ironbark Road businesses, is at or approaching capacity during peak times. The efficiency of parking could be improved through formalisation of parking options in the area (for example through sealing and line marking). Some of this would need to occur on private land and as such may be difficult for Council to influence.
## 4. Existing Issues

On consideration of the existing transport network, site observations, and context of the Central Yarrambat Township and surrounds, Table 4.1 outlines a summary of the existing transport issues within the Study Area as discussed in Section 3.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Issue</th>
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</table>
| 1. Pedestrian Network    | - While some key footpaths are provided, some pedestrian desire lines are currently not catered for by formal facilities.  
                           - Yan Yean Road presents a significant barrier to east-west pedestrian movement, particularly at the northern extent of the study area adjacent existing bus stops, where no pedestrian refuge is provided.  
                           - Due to the low density, generally car dependent nature of the residential areas, with limited walking infrastructure, walking mode share is generally low.  
                           - An opportunity exists to increase walking for both recreation and as a transport mode through provision of a safe and connected network of pedestrian pathways throughout the study area. |
| 2. Bicycle Network       | - Dedicated cycling facilities are not provided within the study area. Opportunities for short local trips are limited by the lack of infrastructure.  
                           - On road cycling is generally unsafe.  
                           - Site observations did not observe any cycling based trips, and the lack of any dedicated bicycle facilities is likely to be a factor in this.  
                           - The current Principal Bicycle Network practically excludes Yarrambat. This issue also presents an opportunity for Council to extend the network into Yarrambat, either through advocating to VicRoads for its inclusion or by a locally Council funded program. |
| 3. Public Transport      | - The bus service provided along Yan Yean Road is generally utilised for trips to Yarrambat Primary School.  
                           - All bus stops except for the school stop and the public bus stop at the Primary School frontage to Yan Yean Road currently lack seating, shelter, and dedicated lighting.  
                           - Bus stops at the north of the study area have a lack of connecting pedestrian footpaths and safe crossing points across Yan Yean Road. |
| 4. Road Network          | - Yan Yean Road is at or near its operating capacity during peak periods. It is likely that growth in areas to the north will generate increases in traffic volumes on Yan Yean Road, and will exacerbate existing issues and cause more significant delays through the Study Area.  
                           - The Yan Yean Road/Ironbark Road signalised intersection currently operates at capacity during the morning peak period, with long queues and delays observed.  
                           - Further development in growth areas to the north is likely to exacerbate this issue and cause more significant delays and potential peak spreading.  
                           - While school zones and heavy traffic flows generally limit speeds during peak hours, weekend traffic data suggests that speed may be an issue outside of these times, particularly on Ironbark Road and North Oatlands Road.  
                           - A number of factors contribute to crashes on Yan Yean Road; however it appears likely the lack of right turn lanes is a factor in some crashes, particularly when combined with the other factors such as speed, volume of traffic, and wet weather.  
                           - The majority of travel for Yarrambat residents is by private vehicle, which is typical of outer Melbourne suburbs. While the mode share is likely to remain dominated by private car, there is potential to improve transport choice within the study area. |
| 5. Car Parking           | - There is little to no publicly available car parking supply to absorb overspill car parking or parking for multi-purpose trips within the township.  
                           - Parking in the study area, particularly around the school and Ironbark Road businesses, is at or approaching capacity during peak times.  
                           - The efficiency of parking could be improved through formalisation of parking options, some of which would need to occur on private land and therefore may be difficult for Council to influence.  
                           - There is understood to be some degree of conflict with overspill of parking into adjacent private parking areas (i.e. Tancks cafe and the Yarrambat General Store), with no regulation of private on-site car parking. |

These issues and opportunities are also represented graphically in Appendix A, along with broad level recommendations for mitigating issues and realising opportunities discussed in Section 5.
Opportunities & Recommendations

The scope of the Yarrambat Transport Study has been to identify the broad level opportunities for upgrades to transport infrastructure under a ‘no-change to zoning’ scenario. As such, the following recommendations largely target the existing issues identified in Section 4 of this report.

These opportunities and recommendations are discussed in Table 5.1, and conceptually illustrated within the ‘Issues, Opportunities and Recommendations’ plan provided as Appendix A.

Table 5.1: Transport Network Recommended Actions and Upgrades

<table>
<thead>
<tr>
<th>Mode</th>
<th>Recommendations</th>
</tr>
</thead>
</table>
| 1. Pedestrian Network | ‣ Upgrade key informal pedestrian routes and/or desire lines to sealed footpaths (as shown in Appendix A).  
       | ‣ Investigate options to provide a pedestrian refuge across Yan Yean Road in the vicinity of Ashley Rd and Young’s Rd, providing an alternative crossing point and safe connectivity to bus stops on Yan Yean Rd.  
       | ‣ Investigate the provision of ‘secondary’ pathways on lower order roads such as Vista Court, North Oatlands Road, Ashley Road and Young’s Road. |
| 2. Bicycle Network    | ‣ Upgrade Yan Yean Road to provide a 2.5m wide shared path on the east side, to improve safety and facilitate short walking trips for residents, as shown in Appendix A.  
       | ‣ Advocate for the extension of existing PBN routes into the broader Yarrambat area, connecting into Yarrambat Township via a shared path along Yan Yean Road. |
| 3. Public Transport  | ‣ Install upgrades to bus stops to provide shelter, seating and lighting where these are not currently provided.  
       | ‣ Construct the planned pedestrian refuge across Yan Yean Road and associated footpath upgrades in the vicinity of Ashley Rd to provide safe connectivity to bus stops on Yan Yean Rd. |
| 4. Road Network       | ‣ Construct the planned intersection upgrades along Yan Yean Road including at North Oatlands Road, Young’s Road and Ashley Road.  
       | ‣ Investigate the planning, design, and construction of turning facilities into the Veterinary/Child Care access point along Yan Yean Road.  
       | ‣ Investigate expansion of the existing 40km/hr school zone along Ironbark road to a 40km/hr pedestrian zone through Yarrambat township, (between Yan Yean Road and south of De Fredericks Lane) to preserve pedestrian amenity, enhance safety, and contribute to a calm local traffic environment.  
       | ‣ Investigate the provision of gateway/threshold treatments at either end of Ironbark Road entering Yarrambat Township. This could be provided in the form of signage or place markers etc.  
       | ‣ Continue to monitor the performance of the Yan Yean Road and Ironbark Road intersection, ensuring that sufficient green time is allocated to the side road phase.  
       | ‣ Advocate for more rigorous enforcement of traffic speeds at critical locations within the study area.  
       | ‣ Ensure that new crossovers integrate with existing intersections and access points, particularly adjacent the Yarrambat Primary School access and Yan Yean Road/Ironbark Road intersection. |
| 5. Car Parking        | ‣ Investigate formalised public car parking areas, potentially provided along Ironbark Road, to enable multi-purpose trips, increase parking efficiency, and allow for overflow car parking within Yarrambat Township.  
       | ‣ Advocate with property owners to formalise private on-site car parking areas, to increase the efficiency of their use. |
Appendix A

Opportunities and Recommendations Plan
YARRAMBAT TRANSPORT STUDY
OPPORTUNITIES & RECOMMENDATIONS PLAN
14M1111000-SKD1-P2 DATE: 12/12/13

LEGEND

- STUDY AREA BOUNDARY

EXISTING FEATURES

- EXISTING FOOTPATH
- EXISTING PEDESTRIAN CROSSING
- EXISTING BUS ROUTE
- EXISTING BUS STOP
- EXISTING SCHOOL BUS STOP

OPPORTUNITY / RECOMMENDATION

- PLAN AND CONSTRUCT INTERSECTION UPGRADES (IN PROGRESS)
- INVESTIGATE RIGHT TURN LANES
- INVESTIGATE 'SECONDARY' FOOTPATH NETWORK
- SHARED PATH UPGRADE
- INVESTIGATE 40km/hr SCHOOL ZONE
- ADVOCATE FORMALISED PARKING
- FORMAL PUBLIC CAR PARKING
- INSTALL BUS SHELTER SEATING AND LIGHTING UPGRADES
- INVESTIGATE BROADER LINKS TO PBN
- PLAN AND CONSTRUCT FOOTPATH AND PEDESTRIAN REFUSE UPGRADES (IN PROGRESS)
- POTENTIAL GATEWAY/THRESHOLD TREATMENTS
- ADVOCATE ENFORCEMENT OF TRAFFIC SPEEDS AND CRITICAL LOCATIONS
- MONITOR INTERSECTION OPERATION