GTAconsultants

Caulfield Village
Whole of Land Material
Integrated Transport Plan

Client // BPG Caulfield Village Pty Ltd
Office // VIC
Reference // 15M1432100
Date // 24/01/17

PLANNING AND ENVIRONMENT ACT 1987
GLEN EIRA PLANNING SCHEME

Development Plan Approval

No: GE/ENQ - 16060/2013/C

Sheet 1 of 1

Delegate for the Responsible Authority
(Glen Eira City Council)

Date: 6/2/2017

Caulfield Village

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Integrated Transport Plan

Issue: Final 24/01/17

Client: BPG Caulfield Village Pty Ltd
Reference: 15M1432100
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Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
B	24/01/17	Final	Justin Gale	Simon Davies	Simon Davies	

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Executive Summary

The following sets out an assessment of the transport implications of the proposed Caulfield Village development. In doing so, the Report responds to the Integrated Transport Plan (ITP) items detailed in Schedule 2 to the Priority Development Zone of the Glen Eira Planning Scheme and has regard for the Incorporated Plan.

The proposed development incorporates some 2,067 apartments and 13,496sq.m of retail land uses (including a 4,000sq.m supermarket). The proposed development anticipates a number of transport infrastructure works, generally consistent with those anticipated in the Incorporated Plan and the Section 173 Agreement between the Melbourne Racing Club (MRC) and Glen Eira Council.

The Table below provides a summary of each of the ITP items from Schedule 2 of the Priority Development Zone, how the development responds to each item and which Section to refer to for further detail.

Table 1: Integrated Transport Plan Items

ITP Item	Response	Section
The expected number of trips generated by persons working within the precinct, shoppers, residents and visitors to the site.	The site is anticipated to generate approximately 30,500 trips across a day.	Section 6.6
Estimate of each transport mode's share of travel.	Walking and cycling 30%, public transport 20%, private car 48% and other 2%.	Section 6.5
Public transport arrangements and pedestrian access routes.	A number of new pedestrian routes are provided through the site with supporting infrastructure to connect future residents and visitors to key external nodes.	Sections 6.3 and 6.4
Any works considered necessary for public transport vehicles or passenger facilities within the area covered, including any modal interchanges.	A new Type 5 Trafficable Platform Tram Stop is proposed on Normanby Road.	Section 6.3
Document proposed sustainable travel initiatives including estimated mode share targets and actions to encourage increased usage of public transport and non-motorised trips to and from the site.	Sustainable transport initiatives are documented in Section 6.5, it is recommended that these be implemented via the preparation of a Green Travel Plan.	Section 6.5
Public transport arrangements that respond to the Public Transport Guidelines for Land Use and Development and pedestrian access routes.	The public transport facilities are detailed in Section 6.3 and meet the expectations of the PT Guidelines.	Section 6.3
Any road with a public transport service should be designed as an Undivided Connector Road – B Public Transport Guidelines for Land Use and Development with a 4.2 wide shared bike/bus lane and 2.3 m wide parking lane.	Future alterations to Station Street will be completed in accordance with the requirements of the Guidelines.	Section 6.3
Any works, or facilities proposed to improve access to public transport services to the site, encourage bicycles and pedestrians within the area and how such works will be funded.	The proposed works are detailed in Section 6.3 and 6.4 and the Developer will contribute to the costs in conjunction with the appropriate transport authorities subject to negotiation.	Section 6.3 and 6.4
How the plan responds to state government transport objectives.	The ITP has been prepared having regard for the relevant state policy and the DoT ITP Advisory Note.	Section 6

ITP Item	Response	Section
A traffic analysis which has regard to the likely pattern and intensity of development in all three precincts.	SIDRA intersection analysis has be undertaken to assess the future operation of the road network and indicates that following the proposed transport network upgrades the road network can accommodate the post development traffic volumes.	Section 5
Works necessary to existing and proposed intersections to accommodate traffic increases and safe pedestrian movement.	The proposed infrastructure works detailed in the Section 173 Agreement are considered appropriate to accommodate the site generated traffic and pedestrians.	Section 5
Public transport arrangements that respond to the Public Transport Guidelines for land use and development and pedestrian access routes.	The public transport facilities are detailed in Section 6.3 and meet the expectations of the Guidelines.	Section 6.3
Location of taxi ranks as may be appropriate.	A taxi rank could be provided on Caulfield Boulevard (opposite Smith Street) at the front door of the Racecourse and in close proximity to intensive land uses. Further consideration will be required as part of the detailed planning of this stage.	Section 6
The signalisation of the intersection of Caulfield Boulevard and Station Street on the basis that: o The design of the roads is to be such that Station Street is continuous with Caulfield Boulevard intersecting into Station Street to form a modified "T type" intersection; and o There is provision for safe pedestrian movement through the intersection to the activity centre core and the railway station."	The intersection will be provided with pedestrian crossings on the north and east approach consistent with standard T-intersection design and has been designed with Caulfield Boulevard forming the minor approach to the T-intersection with Station Street.	Section 5.4

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AMENDMENTS					
P11	16.12.16	GENERAL AMENDMENTS TO OVERALL ROAD NETWORK	A.B.	S.B.	S.B.
P10	07.04.16	MINOR AMENDMENTS ON THE BOULEVARD	P.P.	A.B.	S.B.
P9	24.03.16	AMENDMENTS TO ROUNDABOUT ON KAMBROOK ROAD	P.P.	K.W.	S.B.
P8	04.03.16	MINOR MODIFICATIONS TO HAVE CONSISTENCE DESIGN BETWEEN ULTIMATE AND STAGE 2	P.P.	K.W.	S.B.
P7	31.08.15	MINOR MODIFICATIONS TO SHEET 4 AND ADDED SHEET 7 AS PER VICROADS COMMENTS	B.K.	K.W.	S.B.
P6	26.08.15	INDENTED PARKING INCLUDED ON BOND STREET	P.P.	K.W.	S.B.
P5	06.08.15	UPDATE ARCHITECTURAL BASE. MODIFY THE BOULEVARD ALIGNMENT	P.P.	K.W.	S.B.
P4	11.05.15	INITIAL ISSUE	E.S.	A.B.	S.B.
ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.

GENERAL NOTES

1. ALL DIMENSIONS AND RADII ARE IN METRES AND ARE TO THE FACE OF KERB AND CHANNEL.
2. BASE INFORMATION OBTAINED FROM NEARMP AERIAL PHOTOGRAPHY DATABASE AND BASE PLAN FROM ARM ARCHITECTURE DATED 14 JANUARY '15
3. GTA CONSULTANTS DOES NOT TAKE ANY RESPONSIBILITY FOR THE ACCURACY OF THE EXISTING CONDITIONS BASE ON WHICH THE SETOUT DETAIL IS BASED. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE EXISTING CONDITIONS INCLUDING UNDERGROUND SERVICES SHOULD BE VERIFIED ON SITE.
4. DECLARED MAIN ROAD - NORMANBY ROAD - SPEED ZONE 60KM/H
   MAIN ROAD - STATION STRET - SPEED ZONE 60KM/H
   LOCAL ROAD - KAMBROOK ROAD - SPEED ZONE 50KM/H

DESIGNED: E. SANSTOUPET	DESIGN CHECK: -
DRAWN: E. SANSTOUPET/ B.JAYSINGHE	DRAFTING CHECK: -
APPROVED BY: -	DATE APPROVED FOR INITIAL ISSUE: 05 FEBRUARY '15
SCALE: A3 — Metres 0 5 10 — 1:500	CAD FILE NO.: 15M1432104-02P11.dgn

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CAULFIELD VILLAGE
EXTERNAL ROAD IMPROVEMENTS,

STATION STREET/KAMBROOK ROAD,
CAULFIELD

FUNCTIONAL LAYOUT PLAN

MELWAY REF.	DRAWING NO.	ISSUE
68/E1	15M1432104-02-05	P11

PLOTTED BY : Anthony Bellisola ON 16/12/2015 AT 4:36:55 PM

AMENDMENTS					
P11	16.12.15	GENERAL AMENDMENTS TO OVERALL ROAD NETWORK	A.D.	S.D.	S.D.
P10	07.04.15	MINOR AMENDMENTS ON THE BOULEVARD	P.P.	A.D.	S.D.
P9	24.03.15	AMENDMENTS TO ROUNDABOUT ON KAMBROOK ROAD	P.P.	K.W.	S.D.
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P7	31.08.15	MINOR MODIFICATIONS TO SHEET 4 AND ADDED SHEET 7 AS PER VICROADS COMMENTS	B.K.	K.W.	S.D.
P6	26.08.15	INDENTED PARKING INCLUDED ON BOND STREET	P.P.	K.W.	S.D.
P5	06.08.15	UPDATE ARCHITECTURAL BASE. MODIFY THE BOULEVARD ALIGNMENT	P.P.	K.W.	S.D.
P4	11.05.15	ADD SHEETS 6 AND 5. AMEND DESIGN	E.S.	A.D.	S.D.
P3	17.04.15	MODIFICATIONS TO ALIGNMENT OF THE BOULEVARD	B.K.	K.W.	S.D.
P2	16.02.15	INTERSECTION ALIGNMENT MODIFIED	K.W.	K.W.	S.D.
ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.

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CAULFIELD VILLAGE
EXTERNAL ROAD IMPROVEMENTS,

BOND STREET / STATION STREET,
CAULFIELD

FUNCTIONAL LAYOUT PLAN

MELWAY REF.	DRAWING NO.	ISSUE
68/E1	15M1432104-02-06	P11

PLOTTED BY : Anthony Delikaris ON 21/12/2016 AT 9:19:37 AM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P11	16.12.16	GENERAL AMENDMENTS TO OVERALL ROAD NETWORK	A.B.	S.B.	S.B.
P10	07.04.16	MINOR AMENDMENTS ON THE BOULEVARD	P.P.	A.B.	S.B.
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P7	31.08.15	INITIAL ISSUE	B.K.	K.W.	S.B.

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   LOCAL ROAD - KAMBROOK ROAD - SPEED ZONE 50KM/H

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CAULFIELD VILLAGE
EXTERNAL ROAD IMPROVEMENTS,

PRINCES HIGHWAY / SMITH STREET, CAULFIELD

FUNCTIONAL LAYOUT PLAN

MELWAY REF.	DRAWING NO.	ISSUE
68/E1	15M1432104-02-07	P11

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1. Introduction

1.1 Background

A Development Plan is to be prepared for the Caulfield Village development which will guide the future development of the site. As part of the Development Plan an Integrated Transport Plan (ITP), amongst various other documents, is to be developed.

The preparation of this document will ensure that the intent of the transport elements detailed within the Incorporated Plan are translated into the Development Plan and that appropriate transport infrastructure is provided to support the future development of the site.

Specifically, Schedule 2 to the Priority Development Zone indicates the following requirements of the ITP:

*"The **Integrated Transport Plan** must show or include as appropriate:*

- *The expected number of trips generated by persons working within the precinct, shoppers, residents and visitors to the site.*
- *Estimate of each transport mode's share of travel.*
- *Public transport arrangements and pedestrian access routes.*
- *Any works considered necessary for public transport vehicles or passenger facilities within the area covered, including any modal interchanges.*
- *Document proposed sustainable travel initiatives including estimated mode share targets and actions to encourage increased usage of public transport and non-motorised trips to and from the site.*
- *Public transport arrangements that respond to the Public Transport Guidelines for Land Use and Development and pedestrian access routes.*
- *Any road with a public transport service should be designed as an Undivided Connector Road – B Public Transport Guidelines for Land Use and Development with a 4.2m wide shared bike/bus lane and 2.3 m wide parking lane.*
- *Any works, or facilities proposed to improve access to public transport services to the site, encourage bicycles and pedestrians within the area and how such works will be funded.*
- *How the plan responds to state government transport objectives.*
- *A traffic analysis which has regard to the likely pattern and intensity of development in all three precincts.*
- *Works necessary to existing and proposed intersections to accommodate traffic increases and safe pedestrian movement.*
- *Public transport arrangements that respond to the Public Transport Guidelines for land use and development and pedestrian access routes.*
- *Location of taxi ranks as may be appropriate.*
- *The signalisation of the intersection of The Boulevard and Station Street on the basis that:*
  - *The design of the roads is to be such that Station Street is continuous with The Boulevard intersecting into Station Street to form a modified 'T type" intersection; and*
  - *There is provision for safe pedestrian movement through the intersection to the activity centre core and the railway station."*

In addition to this ITP a Car Parking Management Plan has been prepared by GTA and will also form part of the Development Plan.

GTA Consultants was commissioned by BPG Caulfield Village in April 2013 to prepare this ITP for the proposed Caulfield Village development. More recently, GTA was engaged to prepare a revised ITP to reflect the current development proposal.

1.2 Purpose of this Report

This report sets out a response to each of the items required for the ITP in Schedule 2 of the Priority Development Zone and the requirements of Condition 24 of the Development Plan & Whole of Land Approval. It includes a 'Whole of Land' Assessment for the future traffic and car parking conditions associated with the overall development. It is anticipated that individual stages will be developed with regard for this overarching document.

It is noted that this report should be read in conjunction with the Car Parking Management Plan and Staging Plan also prepared by GTA for the site.

1.3 References

In preparing this report, a number of references have been made, including:

- Glen Eira Planning Scheme
- VicRoads letter dated 25 September 2015
- PTV letter dated 15 June 2015
- Development Plan & Whole of Land Approval (DP No. 16060/2013) dated 27 May 2014
- plans for the proposed development prepared by SJB Architects (dated 25 February 2013)
- GTA Report titled 'Staging Plan' Assessment dated 26 August 2013
- GTA Report titled 'Car Parking Management Plan' dated 30 September 2015
- GTA Report titled 'Caulfield Village Development Amendment C60 – Microsimulation Model Calibration and Validation Report' dated 26 August 2013
- the 'Caulfield Mixed Use Area Incorporated Plan' dated November 2013
- Cardno assessment titled 'Amendment C60 Glen Eira Planning Scheme Traffic Engineering Assessment' dated 10 May 2010
- The Victorian Transport Plan
- Integrated Transport Plan Advisory Note (Department of Transport)
- Melbourne 2030 / Melbourne@5million
- traffic and car parking surveys undertaken by GTA Consultants as referenced in the context of this report
- various technical data as referenced in this report
- an inspection of the site and its surrounds
- other documents as nominated.

2. Existing Conditions

2.1 Subject Site

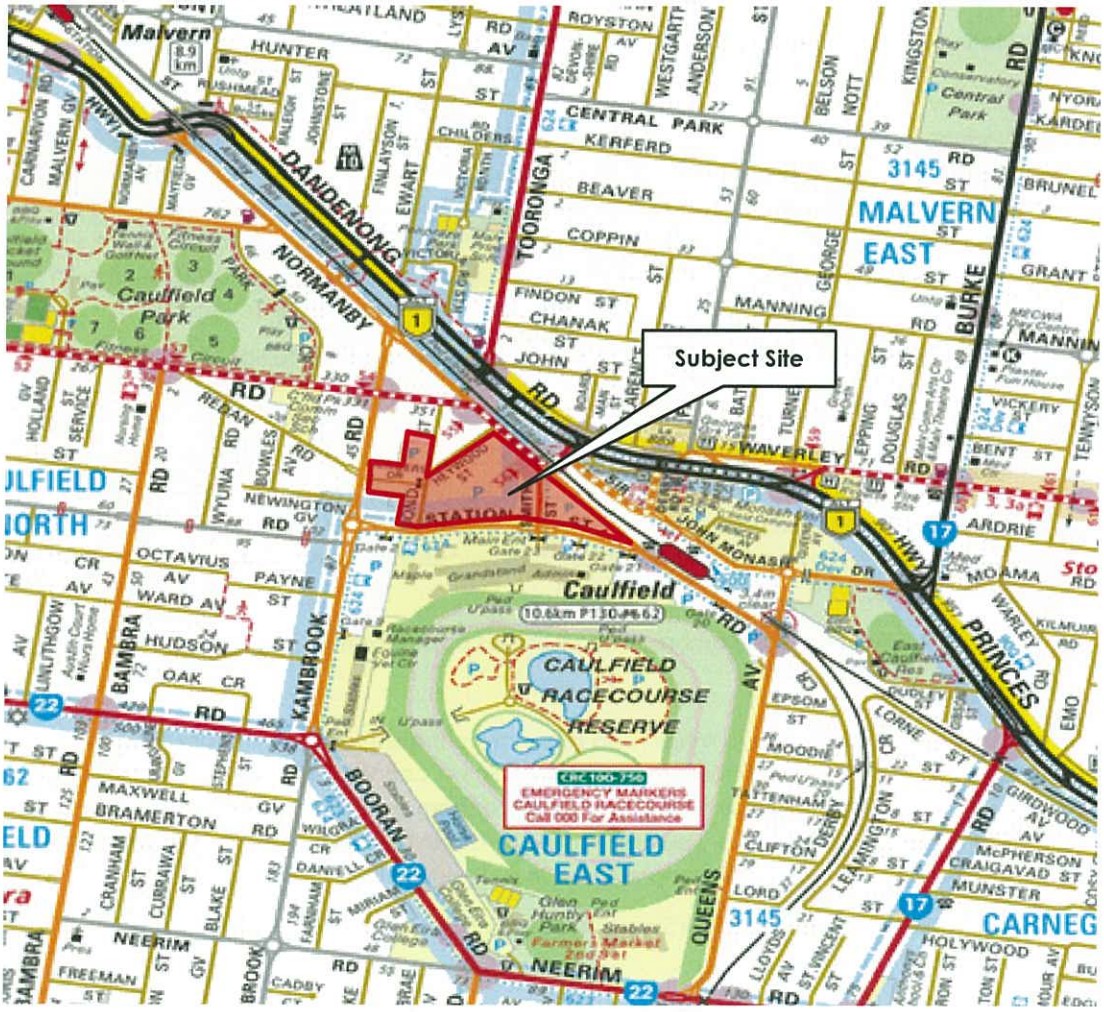
The subject site is an irregular parcel of land generally located between the Caulfield Racecourse and the Railway line bounded by Balaclava Road to the north, Normanby Road to the northeast, Station Road to the south and Kambrook Road to the west.

The site is located within a 'Priority Development Zone – Schedule 2' and is currently occupied by vacant land and car parking.

Caulfield Racecourse is located immediately south of the site, whilst Monash University (Caulfield campus) and Caulfield Railway Station are located immediately east of the site. The remaining properties are generally residential with some commercial land uses provided on Derby Road and along the Dandenong Road corridor.

The location of the subject site and the surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject Site and its Environs



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2.2 Road Network

2.2.1 Adjoining Roads

Balaclava Road

Balaclava Road functions as a secondary arterial road and is aligned in an east-west direction providing an important connection between St Kilda and Caulfield. It is a two-way road configured with four lanes (two lanes in each direction) including tram lines that run along the centre lanes in both directions. Kerbside car parking is provided along both sides of the road subject to time restrictions.

In the vicinity of the site, Balaclava Road carries approximately 8,000 vehicles per day[1].

Station Street

Station Street functions as a major road (Council controlled) and is generally aligned in an east-west direction connecting Normanby Road to the east and Kambrook Road to the west. It is a two-way road configured with two lanes (one lane in each direction) with angled car parking provided on both sides of the carriageway. A marked bicycle lane separates the main carriageway and car parking in both directions.

Station Road carries approximately 13,000 vehicles per day[1].

Normanby Road

Normanby Road functions as a secondary arterial rood (VicRoads controlled) between Smith Street and Balaclava Road and is generally aligned in a northwest-southeast direction. It is predominately a two-way road configured with two lanes (one lane in each direction) with time restricted car parking provided on both sides of the carriageway. However, at the site frontage between Balaclava Road and Smith Street, it is a two-way four lane road (two lanes in each direction) with tram lines that run along the centre lanes in both directions.

In the vicinity of the site, Normanby Road carries approximately 10,500 vehicles per day[1].

Kambrook Road

Kambrook Road functions as a major road (Council controlled) and is generally aligned in a north-south direction. It is a two-way road configured with two lanes (one lane in each direction). A parking lane is marked on both sides of the carriageway for kerbside parking whilst a marked bicycle lane is provided on both sides of the carriageway between the main carriageway and parking lane.

In the vicinity of the site, Kambrook Road carries approximately 7,500 vehicles per day[1].

Smith Street

Smith Street functions as a major road (Council controlled) and is generally aligned in a north-south direction. The northern section of Smith Street connects Normanby Road and Dandenong Road underneath the railway line and caters for tram and vehicle movements. South of Normanby Road it is a two-way road configured with two lanes (one lane in each direction). Angled on-street car parking is provided on both sides of the carriageway.

In the vicinity of the site, Smith Street carries approximately 7,000 vehicles per day.[1]

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1 Based on the peak hour traffic counts undertaken by Austraffic on behalf of GTA in March 2011 and supplemented by additional surveys undertaken in April 2013 and assuming a peak-to-daily ratio of 8% for arterial roads and 10% for local roads.

Bond Street

Bond Street functions as a local road and is aligned in a north-south direction connecting Balaclava Road to the north and Station Street to the south. Primarily it provides local access to a number of residential properties fronting it (5 dwellings and 2 small apartment buildings). It is a two-way road configured with two lanes (one lane in each direction) and parallel parking provided on both sides.

Bond Street carries low traffic volumes (less than 500 vehicles per day).

Heywood Street

Heywood Street functions as a local road and is aligned in a northeast-southwest direction connecting Normanby Road to the northeast and Bond Street to the southwest. Primarily it provides local access to a number of residential properties fronting it (seven dwellings). It is a two-way road configured with two lanes (one lane in each direction) and parallel parking provided on both sides.

Bond Street carries low traffic volumes (less than 500 vehicles per day).

2.2.2 Surrounding Intersections

The following key intersections exist within the study area:

- Normanby Road / Station Road (unsignalised)
- Station Road / Smith Street (unsignalised)
- Normanby Road / Smith Street (signalised)
- Normanby Road / Balaclava Road (signalised)
- Kambrook Road / Balaclava Road (signalised)
- Kambrook Road / Station Road (roundabout)
- Balaclava Road / Bond Street (unsignalised)
- Normanby Road / Heywood Street (unsignalised)
- Heywood Street / Bon Street (unsignalised).

2.2.3 Traffic Volumes

GTA Consultants commissioned Austraffic to undertake turning movement counts using video recording technology at key intersections within the study area on Thursday 24 March 2011 during the following peak periods:

- AM Peak Period 7am to 10am
- PM Peak Period 4pm to 7pm.

These surveys were supplemented by additional surveys undertaken by GTA in April 2013[2]. The AM and PM peak hour traffic volumes are shown in Appendix A.

2.2.4 Intersection Operation

Given the complexity of the surrounding road network in order to accurately model the existing and future operation of key intersections a microsimulation model was originally prepared. The existing conditions models have been calibrated and validated against the relevant traffic modelling guidelines and considered 'fit for purpose' to undertake the assessment of future year scenarios, as documented in GTA's 'Caulfield Village Development Amendment C60 – Microsimulation Model Calibration and Validation Report' dated 26 August 2013 (henceforth

[2] The additional 2013 traffic surveys were undertaken at the Bond Street / Station Street, Bond Street / Balaclava Road and Heywood Street / Normanby Road intersections.

referred to as GTA's Microsimulation Model Calibration and Validation Report). In addition, the Calibration and Validation Report has been updated to respond to the items raised by Glen Eira City Council in May 2013. These documents were provided as Appendices to the original ITP report dated 20 December 2013.

While the MicroSimulation model supported the ITP, the results set out in the ITP were SIDRA outputs which were requested by Council to more clearly summarise the existing and anticipated traffic conditions.

The commonly used measure of intersection performance is referred to as *Level of Service (LOS)*. For assessment purposes a LOS of D or above is considered acceptable, whilst LOS's E and F are considered unacceptable. This model has been calibrated against existing conditions including queue lengths, delays and travel times.

The operation of key intersections surrounding the subject site is summarised in Table 2.1.

Table 2.1: Surrounding Intersections – Existing Operating Conditions

Peak Hour	Intersection	LOS#	Average Delay (sec)	Maximum Modelled Queue (m)	DOS
AM	Normanby Road / Kambrook Road	N/A	6 sec	32m	0.55
	Kambrook Road / Balaclava Road	B	16 sec	69m	0.60
	Kambrook Road / Station Street	A	8 sec	121m	0.81
	Station Street / Bond Street	N/A	0 sec	1m	0.53
	Station Street / Smith Street	N/A	8 sec	29m	0.78
	Station Street / Normanby Road	N/A	6 sec	29m	0.54
	Normanby Road / Smith Street	C	35 sec	141m	0.83
	Normanby Road / Heywood Street	N/A	0 sec	0m	0.15
	Normanby Road / Balaclava Road	B	15 sec	42m	0.35
	Balaclava Road / Bond Street	N/A	0 sec	1m	0.19
	Princes Highway / Smith Street / Sir John Monash Drive	C	30 sec	421m	0.93
	Princes Highway / Tooronga Road	F	90 sec	614m	1.10
PM	Normanby Road / Kambrook Road	N/A	4 sec	15m	0.32
	Kambrook Road / Balaclava Road	B	16 sec	59m	0.57
	Kambrook Road / Station Street	D	37 sec	362m	1.04
	Station Street / Bond Street	N/A	0 sec	1m	0.39
	Station Street / Smith Street	N/A	8 sec	48m	0.86
	Station Street / Normanby Road	N/A	4 sec	14m	0.36
	Normanby Road / Smith Street	C	30 sec	120m	0.60
	Normanby Road / Heywood Street	N/A	0 sec	0m	0.24
	Normanby Road / Balaclava Road	B	15 sec	38m	0.33
	Balaclava Road / Bond Street	N/A	0 sec	0m	0.16
	Princes Highway / Smith Street / Sir John Monash Drive	C	23 sec	280m	0.74
	Princes Highway / Tooronga Road	C	29 sec	411m	0.91

LOS – Level of Service, DOS – Degree of Saturation, # – Intersection LOS

On the basis of the above assessment, it is clear that the surrounding intersections currently operate satisfactorily with the exception of Princes Highway / Tooronga Road and Princes

Highway / Smith Street the AM peak and Kambrook Road / Station Street during the PM peak due to high delays and poor level of service (LOS).[3]

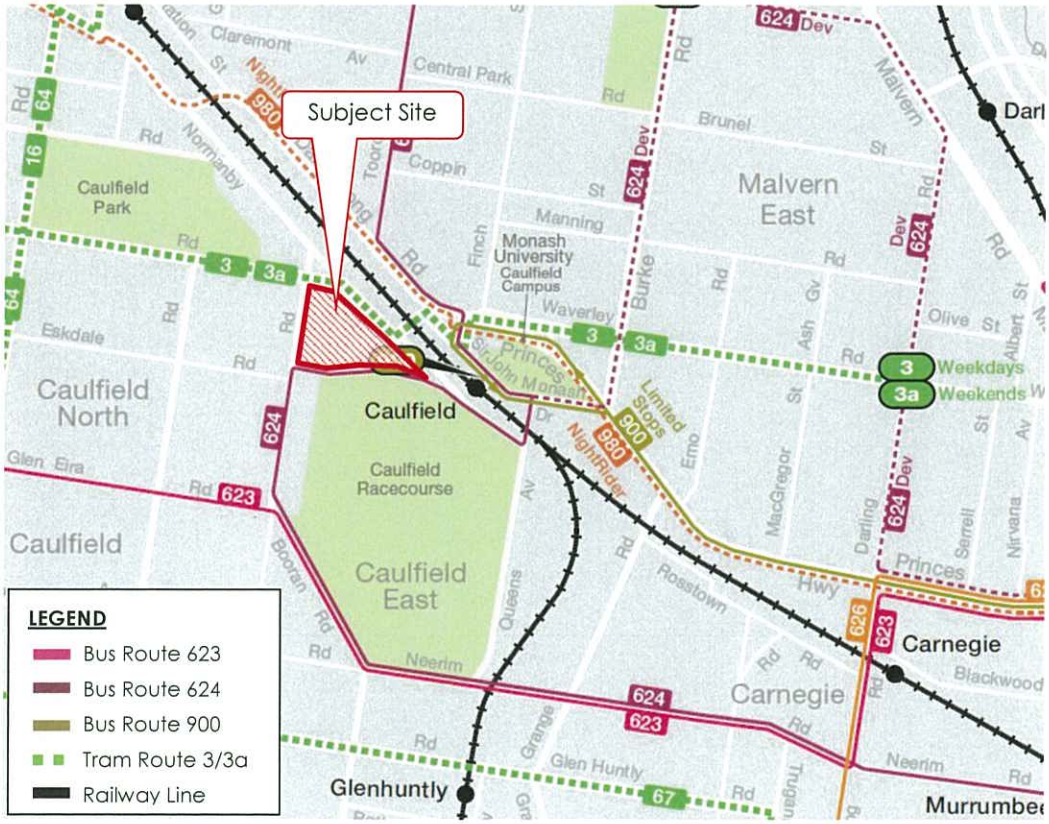
2.3 Sustainable Transport Infrastructure

2.3.1 Public Transport

Figure 2.2 shows the subject site in relation to existing public transport routes within its vicinity whilst Table 2.2 summarises the road based routes and major destinations that can be reached using these services.

In addition to road based public transport, Caulfield Railway Station on the Frankston and Pakenham lines is located immediately east of the site.

Figure 2.2: Public Transport Map



[3] Level of Service definitions as defined in the RTA Modelling guidelines.

LOS	Average Delays (secs)
A	0 – 14.5 secs
B	14.5 – 28.5 secs
C	28.5 – 42.5 secs
D	42.5 – 56.5 secs
E	56.5 – 70.5 secs
F	>70.5 secs

Table 2.2: Road Based Public Transport Provision

Service	Route Nos	Route Description	Distance to Nearest Stop (m)	Significant Destinations On Route	Frequency On/Off Peak
Bus	623	Glen Waverley to St Kilda	600m	Glen Waverley Station, Chadstone SC, Caulfield Racecourse, Glen Eira Secondary College, Caulfield Grammar, St Kilda	25-40mins / 60mins
	624	Kew to Oakleigh	50m	Swinburne University, Tooronga Rd, Caulfield Station, Caulfield Racecourse, Chadstone SC, Holmesglen TAFE, Oakleigh Central SC	10-20mins / 30mins
	900	Stud Park Shopping Centre to Caulfield	50m	Stud Park SC, Wellington Rd, Oakleigh Central SC, Chadstone SC, Dandenong Rd, Monash University	15mins / 15mins
Tram	3/3a	Melbourne University to East Malvern	50m	Melbourne University, Flinders St, St Kilda Junction, Caulfield Racecourse, Caulfield Station, East Malvern	10-15mins / 12mins

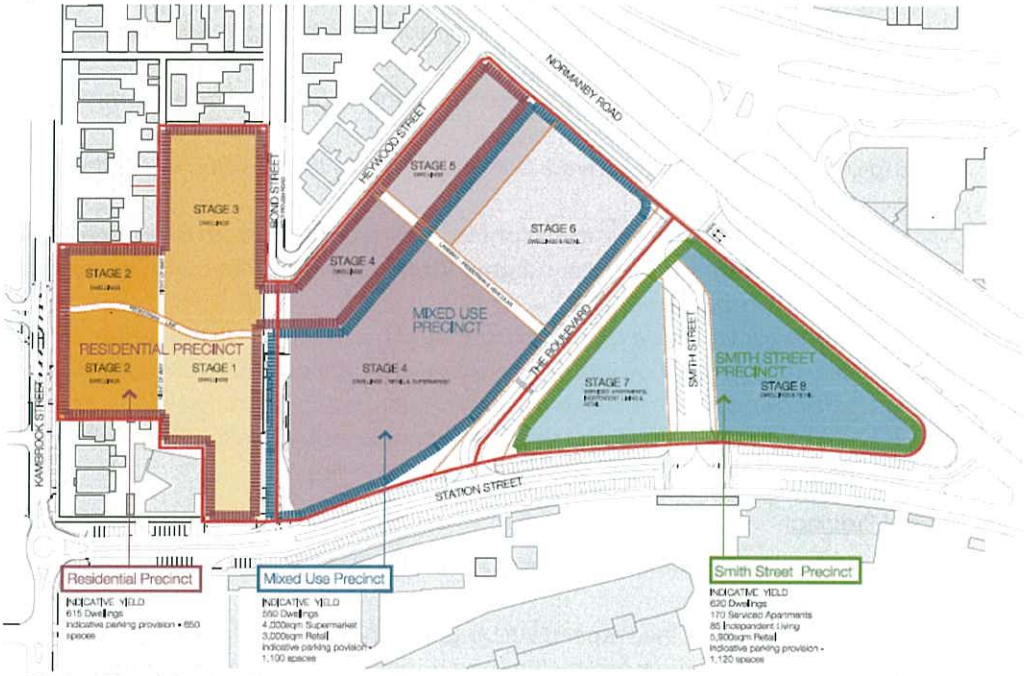
3. Background Documents

3.1 Incorporated Plan

Amendment C60 was incorporated into the Glen Eira Planning Scheme and had the effect of establishing Schedule 2 to the Priority Development Zone. The 'Caulfield Mixed Use Area Incorporated Plan' dated April 2011 outlines the objectives and design principles of the proposed Caulfield Village precinct.

The precinct is separated into three land parcels, Residential Precinct, Mixed Use Precinct and the Smith Street precinct as illustrated in Figure 3.1.

Figure 3.1: Caulfield Village Overview



Whole of Land Staging Plan

The following tested development scenario was assessed as part of the incorporated plan:

- 1,000 to 1,200 residential dwellings
- 15,000sq.m of office space
- 20,000sq.m of retail floor area.

The plan provides a series of Plan Objectives, Network Objectives, Design Guidelines and Precinct Guidelines. Typically the Design Guidelines now form the agreed Section 173 works between the MRC and Glen Eira Council (see Section below). In addition, the IP recommends the following transport related guidelines for each of the precincts.

Residential Precinct

- *"A pedestrian link between Kambrook Road and Bond Street is to be provided to facilitate a safe, permeable and accessible neighbourhood for residents of the precinct and the wider neighbourhood*
- *A permeable, walkable environment is to create safer streets, encourage passive recreational activity, and promote better community health levels*
- *Vehicle access to the precinct is to be provided from the existing street and road network, via Heywood Street, Station Street (west), Bond Street and Kambrook Road "*

Mixed Use Precinct

- *"The street network will be the focus of the pedestrian environment and will be connected to the broader urban landscape*
- *A new laneway connecting The Boulevard to Heywood Street is to be designed as a pedestrian route with limited service vehicle access and for cyclists, incorporating activated edges with windows, and front doors to promote passive surveillance and enhance the safety of pedestrians*
- *Pedestrian permeability will ensure that the neighbourhood is walkable promoting better community health levels*
- *Loading access to the major commercial tenancies is to be provided via Bond Street south*
- *Access to on-site car parking for the retail uses will be provided from Bond Street south*
- *Loading to the supermarket and any large retail business should occur at the rear of the premises away from public view*
- *On site car parking should be placed in basements so that they do not detract from street frontages. Basement car parking spaces should not extend into landscaped front and rear setback areas. If car parking is unavoidably provided above-ground then it should be contained within a building within an active habitable frontage facing all streets, lanes and habitable space on adjacent properties. "*

Smith Street Precinct

- *"The pedestrian environment of the Smith Street Precinct will be connected to the broader urban landscape*
- *Pedestrian movement in the Precinct will be generally focused on the street network and the public realm constituted by the road reserves. A permeable, walkable environment will create safer streets and encourage passive recreational activity promoting better community health levels*
- *The Station Street frontage will be designed to be pedestrian-friendly, and also provide service and vehicle access for the precinct*
- *On site car parking should be placed in basements so that they do not detract from street frontages. Basement car parking spaces should not extend into landscaped front and rear setback areas. If car parking is unavoidably provided above-ground then it should be contained within a building within an active habitable frontage facing all streets, lanes and habitable space on adjacent properties."*

3.2 Car Parking Rates

The Schedule to Clause 45.09 of the Glen Eira Planning Scheme provides car parking rates that must be met for the Caulfield Mixed Use Area (Development Plan Area). A summary of the car parking rates is reproduced in Figure 3.2.

Figure 3.2: Car Parking Requirement

2.0 Number of car parking spaces required

19/04/2013 VC95

If a use is specified in the Table below, the number of car parking spaces required for the use is calculated by multiplying the *Rate* specified for the use by the accompanying *Measure*.

Table: Car parking spaces

Use	Rate	Measure
Dwelling (other than student housing)	1	to each one and two bedroom dwelling, plus
	2	to each three or more bedroom dwelling
Retail premises (not including Supermarket)	2.18	to each 100 sq m of leasable floor area
Office	2.0	to each 100 sq m of net floor area
Supermarket	5.5	to each 100 sq m of leasable floor area

3.0 Reference document

19/04/2013 VC95

Caulfield Mixed Use Area Incorporated Plan April 2011

It is noted that the statutory parking rates for Dwellings do not specify a separate residential visitor parking requirement.

3.3 Section 173 Agreed Works

A Section 173 agreement between the MRC and Glen Eira Council requires the following infrastructure works to be undertaken by the MRC to support the proposed development:

i. *"Signalisation of the reconfigured intersection of The Boulevard / Normanby Road / Underpass in accordance with the Integrated Transport Plan.*
ii. *The construction of The Boulevard as identified in the Integrated Transport Plan.*
iii. *The reconfiguration of the laneway in the south western part of the subject land to ensure continuity of access for users of the laneway prior to closure of the existing laneway.*
iv. *The works required to close or partially close Smith Street at Normanby Road and Bond Street at the intersection of Heywood Street which are to be subsequently closed by Council to facilitate the development of the land.*
v. *The construction of the intersection 'of The Boulevard with Station Street including any need to signalise this intersection in accordance with the Integrated Transport Plan.*
vi. *The works required to provide a safe at-grade pedestrian crossing point between the Incorporated Plan area and the railway station.*
vii. *The improvement of the intersection at Kambrook Road and Station Street to increase the capacity of the intersection and specifically, the right turn movement through the intersection, and at the same time ensure that pedestrians are provided with a safe at-grade crossing point across Kambrook Road."*

As detailed in the following Sections, the proposed development will deliver each of the above Section 173 Agreement items as required.

4. Proposed Development Plan

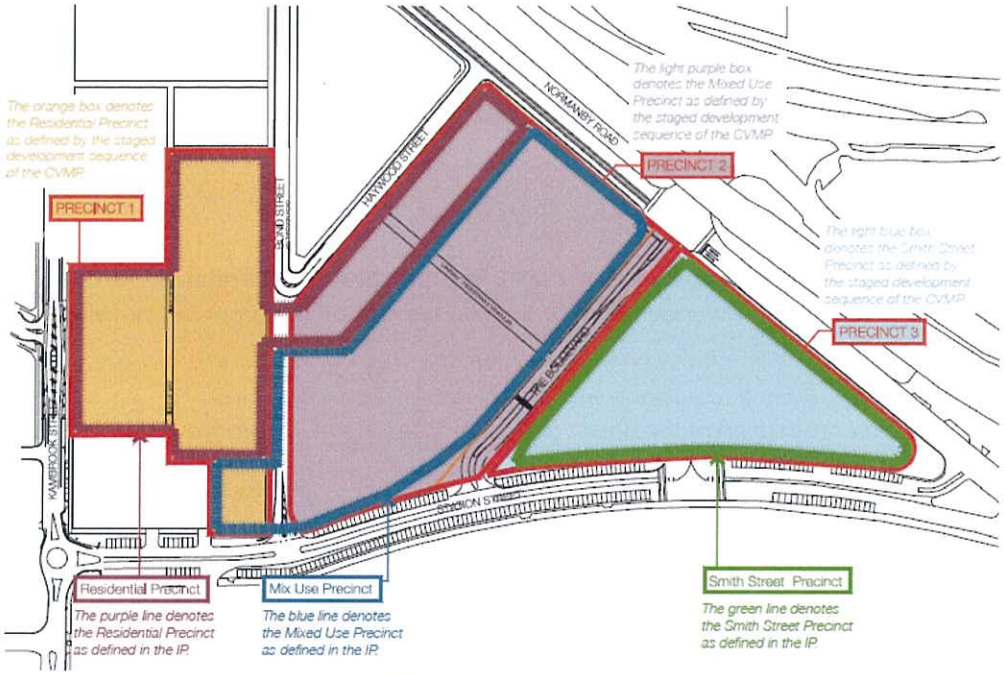
4.1 Preamble

The Development Plan anticipates a variety of uses including commercial / retail, supermarket and residential (incorporating standard dwellings, serviced apartments and retirement village units) uses. It is noted that whilst the Incorporated Plan contemplates the possibility of office provision, the Development Plan does not include any office floor space. The site is divided into three precincts, Residential Precinct, Mixed Use Precinct and Smith Street Precinct and is illustrated in Figure 4.1.

It is noted that the alignment of the precincts boundaries, whilst generally consistent with the Precinct Plan in the Incorporated Plan, is not identical to it. Notwithstanding, the broader land use and access arrangements for the site remain consistent as detailed in Table 4.1.

It is noted that for assessment purposes, within this report, the Residential Precinct includes all land uses to the west of Bond Street (Stages 1 to 3), whilst the Mixed Use Precinct includes all land uses bound by Bond Street, Heywood Street, Normanby Road, Caulfield Boulevard and Station Street (including the balance of the Residential Precinct land uses).

Figure 4.1: Overview of Subject Site



Overlay of the IP Precinct Delineation with the CVMP Precincts / Staging

4.2 Land Uses

A summary of the proposed indicative land uses for each of the precincts is provided in Table 4.1.

Table 4.1: Summary of Proposed Land Uses (indicative only)

Use	Master Plan Precinct			Total
	Residential Precinct (Stages 1 to 3)	Mixed Use Precinct (inclusive of Stages 4 and 5 of the Residential Precinct)	Smith Street Precinct	
Residential Apartments	463 dwellings [1]	732 dwellings	872 dwellings [2]	2,067 dwellings
Commercial / Retail	-	7,658sq.m (inc. 4,000sq.m supermarket)	5,838sq.m	13,496sq.m (inc. 4,000sq.m supermarket)

[1] The recently approved Amended Development Plan increased the number of dwellings in Stages 1 to 3 of the Residential Precinct from 442 to 463 dwellings.

[2] Includes approximately 170 serviced apartments and 80 retirement village units.

Table 4.1 indicates that the Master Plan anticipates in the order of 2,067 residential dwellings and 13,496sq.m of commercial / retail uses (including 4,000sq.m of supermarket).

It is noted that the balance of the Residential Precinct land uses included in the Mixed Use Precinct amounts to approximately 160 apartments.

4.3 Car Parking

Car parking is proposed to be provided within basement or podium car parks in each of the precincts as summarised in Table 4.2.

Table 4.2: Summary of Proposed Car Parking Provisions (indicative only)

Precinct	No. of Car Parking Spaces
Residential Precinct (Stages 1 to 3)	[1] 489 spaces
Mixed Use Precinct (including the balance of the Residential Precinct land uses)	1,314 spaces
Smith Street Precinct	1,118 spaces
TOTAL	**2,921 spaces**

[1] The recently approved Amended Development Plan increased the number of parking spaces in Stages 1 to 3 of the Residential Precinct from 478 to 489 spaces.

Table 4.2 indicates that in the order of 2,921 car parking spaces are to be provided as part of the Development Plan.

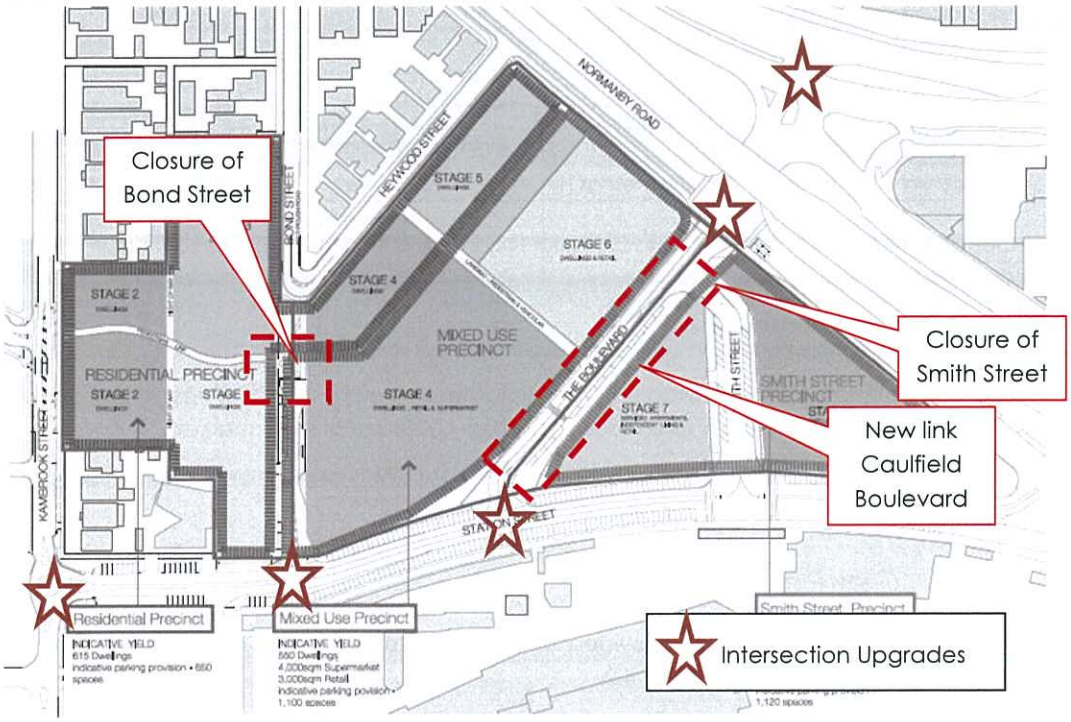
In addition to the proposed off-street car parking provisions, existing on-street car parking is available on a number of roads within the precinct and will also be provided along Caulfield Boulevard.

Further discussion regarding the adequacy of car parking for each of the precincts is provided in the Car Parking Management Plan which has been prepared by GTA. In addition an assessment of the car parking provisions for each Stage of the development will be undertaken as part of individual Planning Permit Applications.

4.4 Road Network Mitigating Works

The future road network mitigating works are illustrated in Figure 4.2 below.

Figure 4.2: Proposed Road Network Upgrades



Whole of Land Staging Plan

As part of the Development Plan and in accordance with the Incorporated Plan it is proposed to provide a new road 'The Boulevard' which will link Station Street to the Normanby Road / Smith Street intersection. As a result of the new link, Smith Street is proposed to be closed at the northern end with access retained via Station Street. Caulfield Boulevard will form the new south approach to the Normanby Road signalised intersection.

Caulfield Boulevard is designed to "support high amenity pedestrian activity" and "provide for traffic and pedestrian movement" in accordance with the requirements of the Incorporated Plan. It is noted that as a result of Smith Street being downgraded Caulfield Boulevard will carry the displaced traffic from Smith Street between Station Street and Normanby Road.

In order to minimise commercial traffic utilising Bond Street (north) and Heywood Street, Bond Street will be truncated to vehicles between Heywood Street and Station Street in accordance with the Incorporated Plan. Access for pedestrians and cyclists will be maintained along Bond Street.

In addition to the new road link and the discontinuation of Bond Street a number of intersections will be upgraded as part of the Caulfield Village development. Concept plans for the proposed intersection upgrade works are provided in Appendix B with summary of works provided in Table 4.3.

The nominated works are in accordance with the requirements of the Section 173 Agreement between MRC and Glen Eira Council.

Table 4.3: Proposed Intersection Upgrades

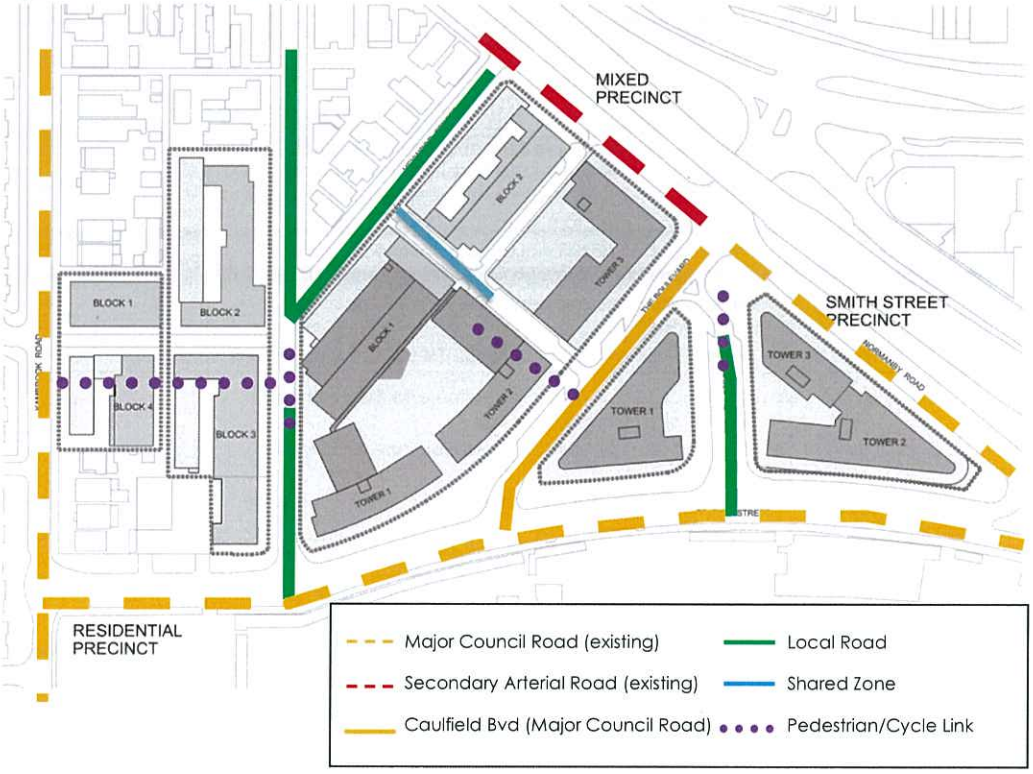
Intersection Location	Description of Works	Indicative Timing [1]
Bond Street / Station Street (unsignalised)	o Provision of a right turn deceleration lane on Station Street o Provision of two stand up lanes on the Bond Street approach o Provision of left turn lane on Station Street o Refer GTA Drawing No. 15M1432104-02-06 in Appendix B	Completion of Precinct 2a
Kambrook Road / Station Street (signalised)	o Provision of a second approach lane on the south approach (1 x through lane and 1 x right turn lane) o Provision of two additional approach lanes for the east approach (2 x left turn lanes and 1x right turn lane) o Provision of an additional approach lane on the north approach (1x left/through lane and 1x through lane) o Provision of a second departure lane on the south approach. o Refer GTA Drawing No. 15M1432104-08-P2 in Appendix B	Completion of Precinct 2a
Caulfield Boulevard / Station Street	o Construction of a new intersection and the southern section of Caulfield Boulevard o Provision of a right turn deceleration lane on Station Street o Provision of two stand up lanes on Caulfield Boulevard approach o Provision of separate left turn lane on Station Street	Completion of Precinct 2a
	o Signalisation of the intersection (including pedestrian crossings on the north and west approach consistent) with standard signalised T-intersection design o Refer GTA Drawing No. 15M1432104-02-03 in Appendix B	Completion of Precinct 2b
Normanby Road / Caulfield Boulevard / Smith Street (signalised)	o Retention of existing tram fairways on the Smith Street underpass o Close the northern end of Smith Street with Caulfield Boulevard providing new southern leg o Provision of Type 5 Trafficable Platform Tram Stop on Normanby Road in accordance with the DOT Client Design Requirements for Accessible Tram Stops. o Completion of Caulfield Boulevard including provision of two stand-up lanes on Caulfield Boulevard approach o Prohibit right turns from Normanby Road (west to south) and Caulfield Boulevard (south to east) o Refer GTA Drawing No. 15M1432104-02-02 in Appendix B	Completion of Precinct 2b
PHE / Smith Street (signalised)	o Extend left turn lane on east approach of PHE o Extend right turn lanes on west approach of PHE o Extend left turn slip lane on Smith Street o Extend downstream short lane on PHE westbound departure lane o Refer GTA Drawing No. 15M1432104-02-04 and 15M1432104-02-07 in Appendix B.	Completion of Precinct 2b

[1]: Timing of works is linked directly to the timing of construction of each Precinct and may vary depending on market demand for construction.

4.5 Road Hierarchy

Figure 4.3 provides an overview of the future hierarchy and function of the roads within the site.

Figure 4.3: Road Hierarchy



The role of each of the internal roads is described below.

Caulfield Boulevard is anticipated to operate as a Major Council Road. It will replace the existing traffic route between Station Street and Normanby Road currently served by Smith Street. In addition to catering for these traffic volumes it will also be designed as a as a high amenity pedestrian environment, noting there will be active street frontages on both sides of the road.

Bond Street (south) will provide vehicle and loading access for the retail and residential land uses within the mixed use precinct (Precinct 2) as well as vehicle access to the Residential Precinct (Precinct 1). There are no existing residential uses that will front Bond Street (south).

Bond Street (north) and Heywood Street will operate as local roads catering for residential trips from the residential uses only. Both of these roads will continue to be fronted by existing residential dwellings and will be protected accordingly (i.e. closure of Bond Street at Heywood Street).

Smith Street will cater for local vehicle access and pedestrian movements. As a result of its truncation at its northern end (with Normanby Road) Smith Street will carry low traffic volumes.

The shared zone within the Mixed Use Area known as 'Village Mews' will cater for pedestrian, cyclist and limited vehicle movements. The vehicle movements are associated with loading activities for retail and residential land uses and drop-off / pick-up activities (including taxis) associated the residential uses.

4.6 Vehicle and Pedestrian Access

In addition to the above road network modifications a summary of the proposed vehicle and pedestrian access points to the Development Plan area are illustrated in Figure 4.4.

Figure 4.4: Vehicle and Pedestrian Access Locations

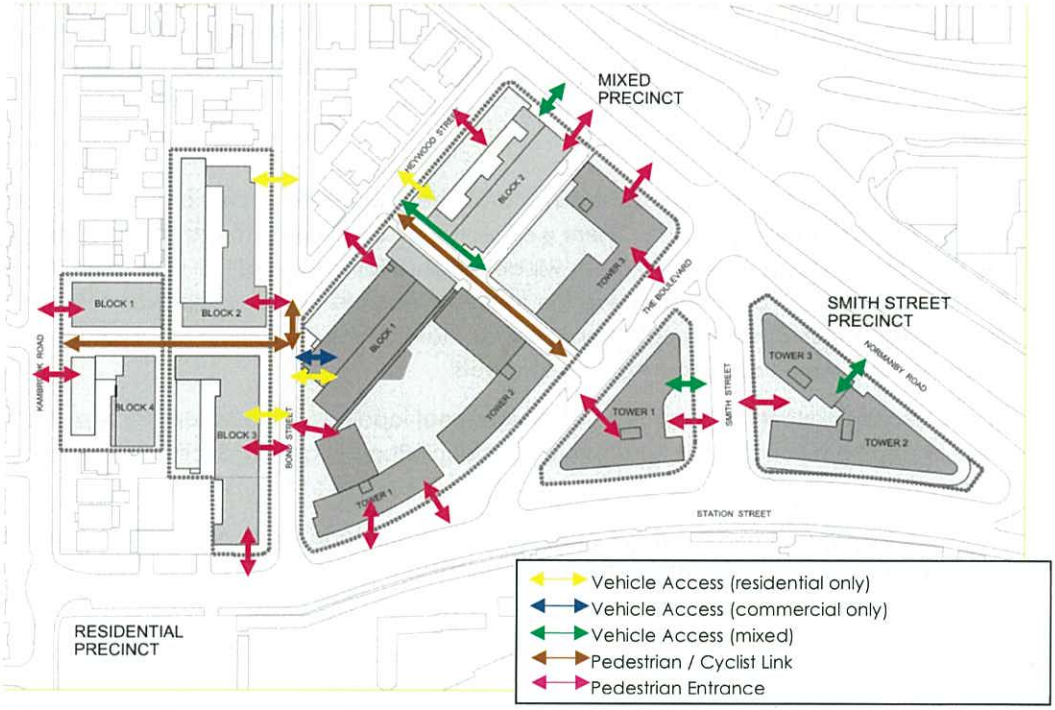


Table 4.4 provides a summary of the vehicle access points and key pedestrian/cyclist access points to each of the precincts. It is noted that this access strategy is indicative only and will need to be resolved in greater detail as the individual stages are developed.

Table 4.4: Vehicle Access Summary

Precinct	Vehicle Access	Pedestrian / Cyclist Access
Residential Precinct (Stages 1 to 3)	○ Bond Street (south) ○ Bond Street (north)	○ Bond Street ○ Kambrook Road ○ Station Street
Mixed Use Precinct (including the balance of the Residential Precinct land uses)	○ Bond Street (south) (x2) ○ Normanby Road (left in / right in/ left out) (i.e. no right turn out permitted) ○ Heywood Street (residential only)	○ Heywood Street ○ Caulfield Boulevard ○ Normanby Road ○ Station Street ○ Village Mews
Smith Street Precinct	○ Smith Street ○ Normanby Road	○ Smith Street ○ Caulfield Boulevard ○ Station Street ○ Normanby Road

The proposed vehicle access provisions are generally in accordance with the Incorporated Plan, noting the following variations:

- The shared lane through the Mixed Use Precinct (known as 'Village Mews') has been moved to the south.
- Direct vehicle access is anticipated to Normanby Road from the Smith Street precinct in addition to access to Station Street (potentially via Smith Street).

Further discussion regarding these variations in vehicle access is provided in Section 5.

4.7 Bicycle Facilities

Bicycle parking and end of trip facilities are anticipated to be provided as part of each precinct. Further details regarding the provision of these facilities will be determined at the detailed Development Plan submissions for each development stage. However bicycle facilities should be provided in line with the rates detailed in Clause 52.34 of the Glen Eira Planning Scheme.

4.8 Loading Areas

It is recommended that the specific loading strategies be refined as part of the town planning process for each of the precincts. There is no statutory requirement to provide a loading area for the Residential Precinct. Loading areas will be required for the Mixed Use and Smith Street Precincts. As such, in order to achieve the desired outcomes of the Incorporated Plan including the delivery of high amenity pedestrian areas on Station Street, Caulfield Boulevard, Smith Street ideally loading would not occur from these streets.

Based on the above requirements it is envisaged that loading for the Mixed Use Area be primarily be provided from Bond Street (south) and Normanby Road in accordance with the Incorporated Plan.

It is noted that Village Mews has the potential to facilitate loading associated with the smaller retail uses and the adjacent residential buildings.

5. Traffic Impact Assessment

5.1 Preamble

In order to assess the suitability of the proposed access arrangements and transport infrastructure works along with their ability to cater for the anticipated development yield, a MicroSimulation model was originally prepared as documented in Appendix B and C of the Integrated Transport Plan dated 20 December 2013.

As indicated in Section 2.2.4, the existing conditions models have been calibrated and validated against the relevant traffic modelling guidelines and considered 'fit for purpose' to undertake the assessment of future year scenarios, as documented in GTA's Microsimulation Model Calibration and Validation Report dated 26 August 2013.

It is noted that Council have reviewed the draft Whole of Land Assessment in May 2013 and November 2013 and provided comments in regards to the microsimulation modelling assessment. The Caulfield Village Development Microsimulation Modelling Options Assessment Report dated 20 December 2013 sets out the detailed modelling assumptions and methodology in response to these comments.

The outcomes of the MicroSimulation model were also supplemented by SIDRA intersection analysis as requested by Glen Eira City Council with the SIDRA results summarised in the body of the ITP.

In amending the ITP the SIDRA analysis has been updated to reflect the modified intersection arrangements at Normanby Road / Caulfield Boulevard / Smith Street / Princes Highway East and Station Street / Kambrook Road as well as the modified site access arrangements with the removal of proposed direct vehicle access via Caulfield Boulevard.

The outcome of this assessment is detailed as follows.

5.2 Traffic Generation

Table 5.1 provides a summary of the anticipated peak hour traffic generation from each of the precincts. The traffic generation rates adopted have been sourced from the Amendment C60 Cardno Panel Report (May 2010).

Table 5.1: Traffic Generation Summary (Peak Hour)

Precinct	Use	Size	Traffic Generation Rate		Traffic Generation	
			AM	PM	AM	PM
Residential Precinct (Stages 1 to 3)	Residential	463 dwellings [1]	0.4 movements per dwelling		185	185
Mixed Use Precinct (including the balance of the Residential Precinct land uses)	Residential	732 dwellings	0.4 movements per dwelling		293	293
	Supermarket	4,000sq.m	3 movements per 100sq.m	7 movements per 100sq.m	120	280
	Retail	3,658sq.m	3 movements per 100sq.m	7 movements per 100sq.m	110	256
	Sub Total				*523*	*829*
Smith Street Precinct	Residential	617 dwellings	0.4 movements per dwelling		247	247
	Serviced Apartments	170 apartments	0.25movements per apartment		43	43
	Retirement Village Units	85 apartments	0.20 movements per apartment		17	17
	Retail	5,838sq.m	3 movements per 100sq.m	7 movements per 100sq.m	175	409
	Sub Total				*481*	*715*
TOTAL					**1,189**	**1,729**

[1] The recently approved Amended Development Plan increased the number of dwellings in Stages 1 to 3 of the Residential Precinct from 442 to 463 dwellings.

Table 5.1 indicates that the uses nominated within the Master Plan could be anticipated to generate in the order of 1,729 movements in the PM peak hour. This compares to 1,667 movements in the PM peak hour which would be generated by the land uses contemplated by the 'Incorporated Plan'[4]. On this basis, whilst a more detailed assessment will need to be completed to assess the operation of the future road network, the traffic generation associated with the proposed Master Plan uses is considered to be consistent with the uses anticipated within the Incorporated Plan.

5.3 Traffic Distribution

The directional distribution and in/out splits from the Cardno Panel Report have been adopted for assessment purposes and are summarised as follows.

Directional Distribution:

- Kambrook Road (south): 25%
- North of Railway Line (north): 25%
- Normanby Road (west): 20%
- Normanby Road (east): 20%
- Balaclava Road (west) 10%.

Tables 5.2 and 5.3 provide a summary of the in / out splits for each of the precincts and the overall development for each of the AM and PM peak periods.

[4] It is noted that the Cardno Report anticipates a PM peak hour traffic generation of 1,467 movements, but is based on 700 dwellings and not 1,200 dwellings as contemplated in the Incorporated Plan.

Table 5.2: AM Peak Hour – IN / OUT Splits

Precinct	Use	Movements	Traffic Distribution		Traffic Generation	
			IN	OUT	IN	OUT
Residential Precinct (Stages 1 to 3)	Residential	185	20%	80%	37	148
Mixed Use Precinct (including the balance of the Residential Precinct land uses)	Residential	293	20%	80%	59	234
	Retail	110	70%	30%	77	33
	Supermarket	120	70%	30%	84	36
	Sub Total	523			220	303
Smith Street Precinct	Serviced Apartments	43	20%	80%	9	34
	ILUs	17	20%	80%	3	14
	Residential	246	20%	80%	49	197
	Retail	175	70%	30%	123	53
	Sub Total	481			184	297
TOTAL					441	748

Table 5.3: PM Peak Hour – IN / OUT Splits

Precinct	Use	Movements	Traffic Distribution		Traffic Generation	
			IN	OUT	IN	OUT
Residential Precinct (Stages 1 to 3)	Residential	185	70%	30%	130	55
Mixed Use Precinct (including the balance of the Residential Precinct land uses)	Residential	293	70%	30%	205	88
	Retail	256	40%	60%	102	154
	Supermarket	280	40%	60%	112	168
	Sub Total	829			419	410
Smith Street Precinct	Serviced Apartments	43	70%	30%	30	13
	ILUs	17	70%	30%	12	5
	Residential	246	70%	30%	172	74
	Retail	409	40%	60%	164	245
	Sub Total	715			378	337
TOTAL					927	802

5.1 Post Development Traffic Volumes

Based on the traffic generation and distribution described previously, site generated traffic volumes and post development traffic volumes have been estimated and are presented in Figure 5.1 to Figure 5.4.

Figure 5.1: AM Peak Hour – Site Generated Traffic Volumes

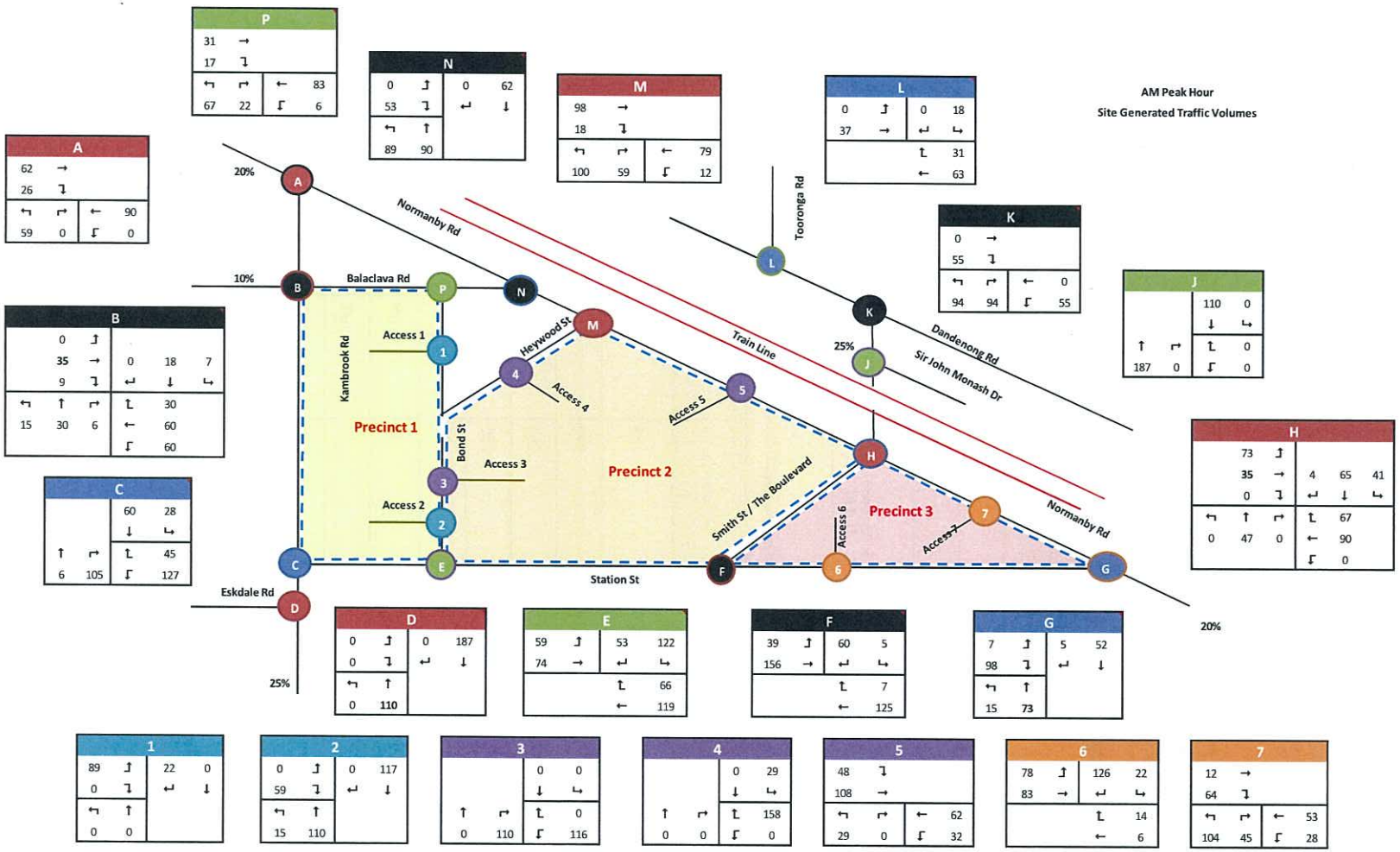


Figure 5.2: PM Peak Hour – Site Generated Traffic Volumes

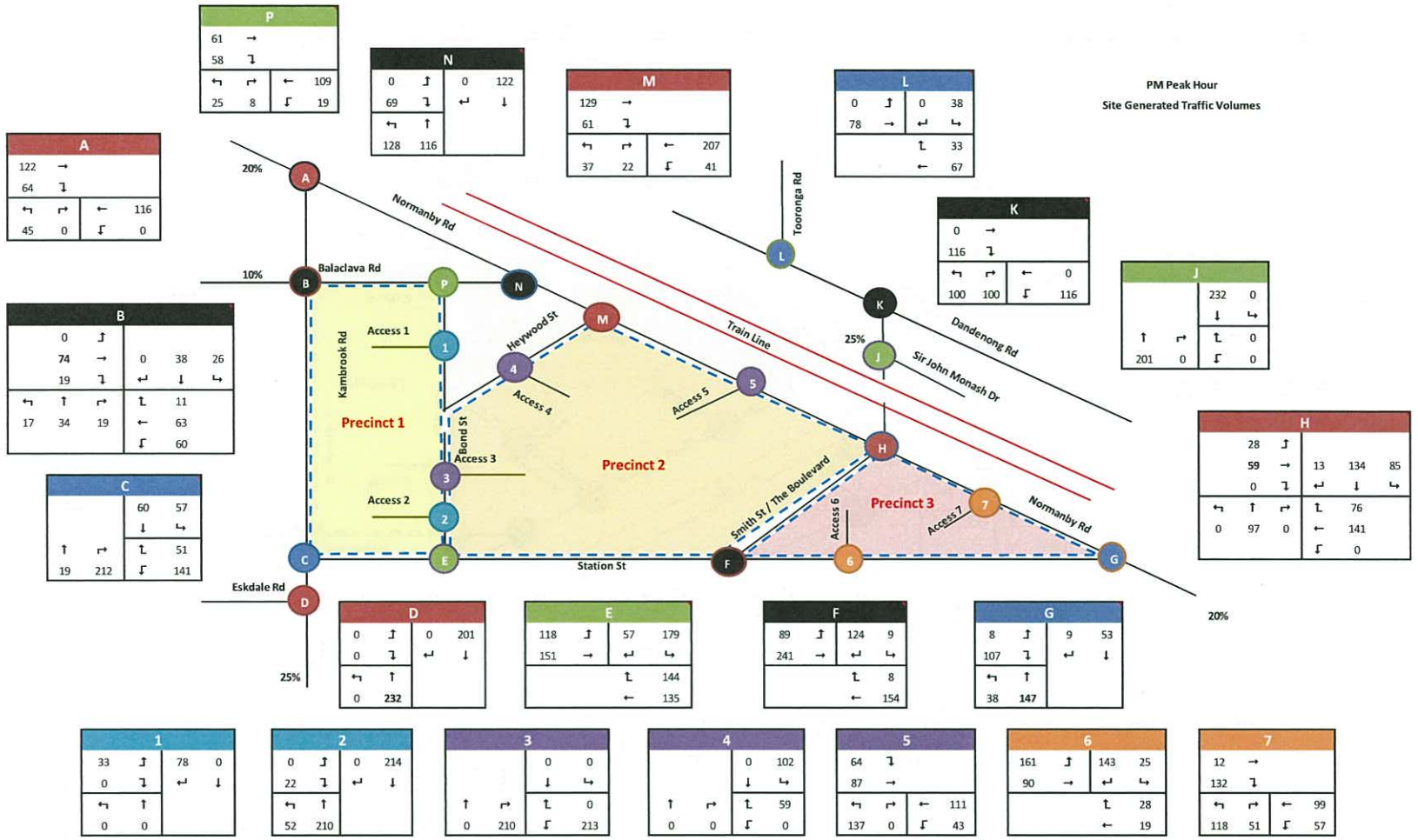


Figure 5.3: AM Peak Hour – Post Development Traffic Volumes

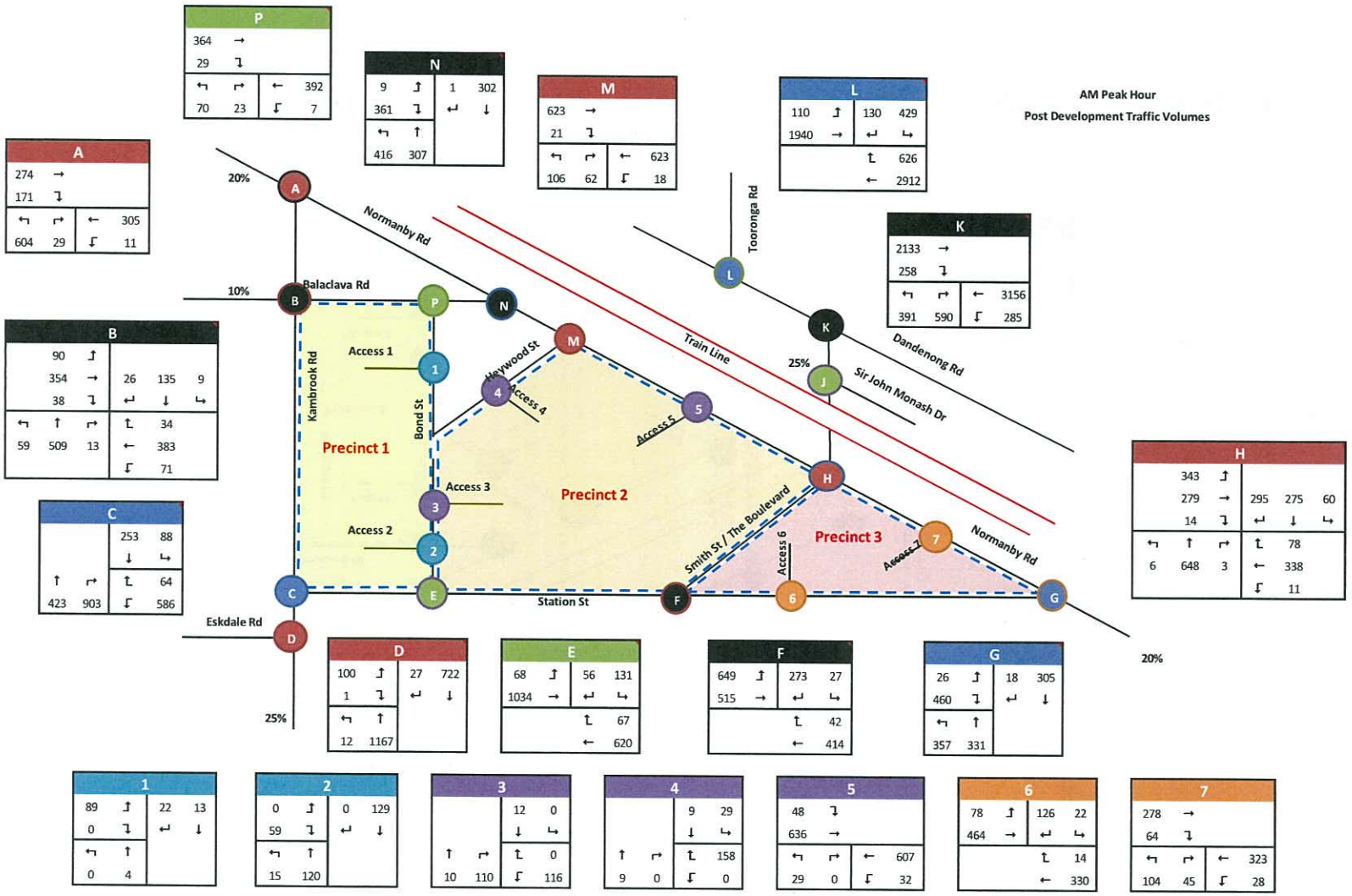
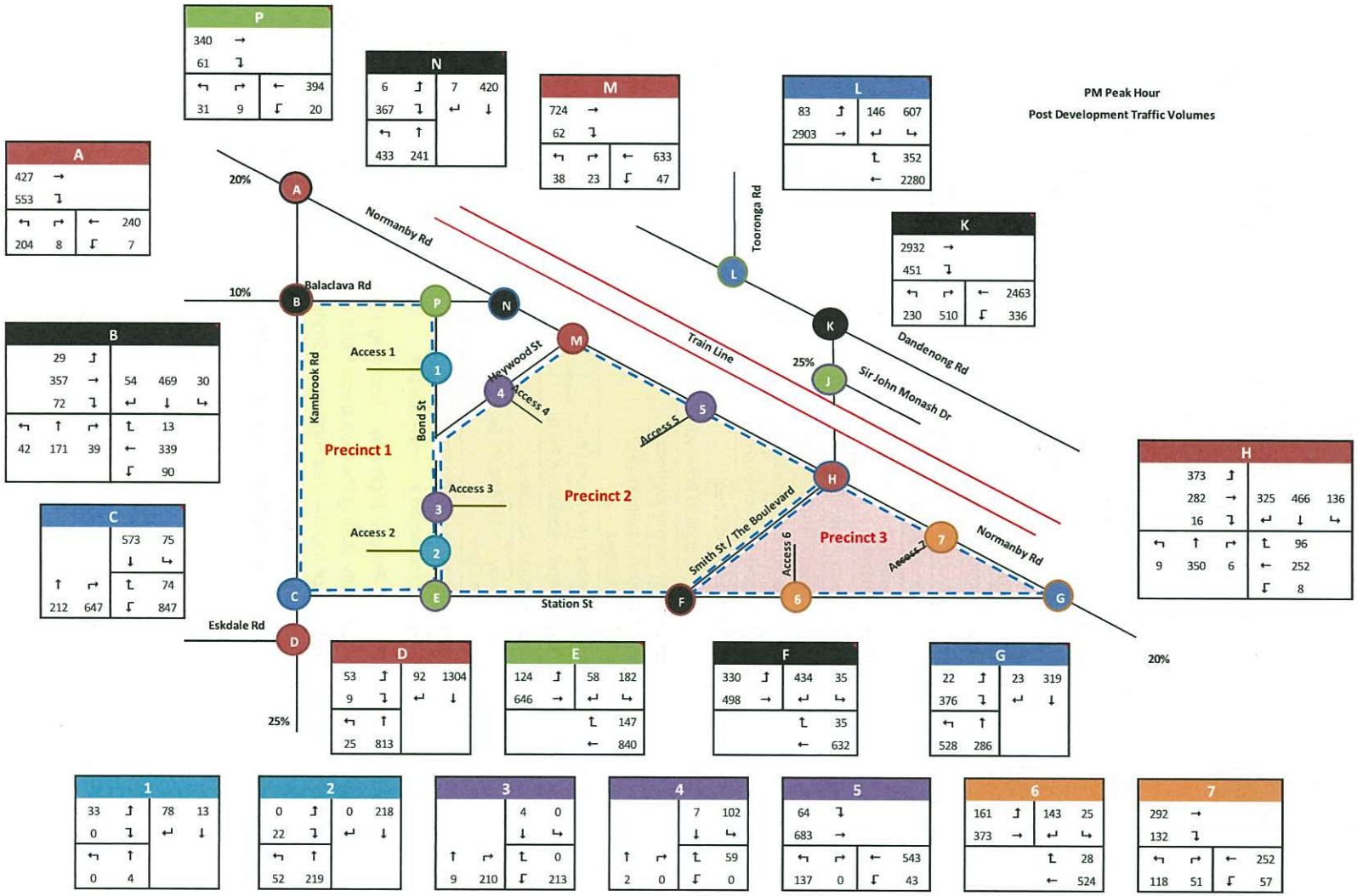


Figure 5.4: PM Peak Hour – Post Development Traffic Volumes



5.2 Future Road Network Operation

The post development operation of the surrounding intersections has been re-analysed using SIDRA with a summary of the results provided in Table 5.4.

Table 5.4: Surrounding Intersections – Post Development Operating Conditions

Peak Hour	Intersection#	LOS	Average Delay (sec)	Maximum Modelled Queue (m)	DOS
AM	Normanby Road / Kambrook Road	N/A	7 sec	52m	0.67
	Kambrook Road / Balaclava Road	B	17 sec	85m	0.70
	Kambrook Road / Station Street	C	27 sec	274m	0.88
	Station Street / Bond Street	N/A	7 sec	28m	0.89
	Station Street / Caulfield Boulevard	B	11 sec	66m	0.75
	Station Street / Normanby Road	N/A	8 sec	56m	0.80
	Normanby Road / Smith Street / Caulfield Boulevard	C	32 sec	141m	0.68
	Normanby Road / Heywood Street	N/A	2 sec	10m	0.32
	Normanby Road / Balaclava Road	B	15 sec	54m	0.44
	Balaclava Road / Bond Street	N/A	2 sec	3m	0.22
	Princes Highway / Smith Street / Sir John Monash Drive	D	37 sec	460m	0.94
	Princes Highway / Tooronga Road	F	106 sec	685m	1.14
PM	Normanby Road / Kambrook Road	N/A	4 sec	19m	0.41
	Kambrook Road / Balaclava Road	B	18 sec	79m	0.73
	Kambrook Road / Station Street	C	28 sec	138m	0.82
	Station Street / Bond Street	N/A	4 sec	16m	0.61
	Station Street / Caulfield Boulevard	B	17 sec	129m	0.80
	Station Street / Normanby Road	N/A	6 sec	31m	0.64
	Normanby Road / Smith Street / Caulfield Boulevard	C	31 sec	174m	0.64
	Normanby Road / Heywood Street	N/A	2 sec	7m	0.37
	Normanby Road / Balaclava Road	B	14 sec	57m	0.45
	Balaclava Road / Bond Street	N/A	1 sec	5m	0.24
	Princes Highway / Smith Street / Sir John Monash Drive	C	29 sec	285m	0.83
	Princes Highway / Tooronga Road	D	45 sec	626m	0.97

LOS – Level of Service, DOS – Degree of Saturation, # – Intersection LOS

Table 5.4 indicates that the Princes Highway / Tooronga Road intersection is expected to continue to exceed capacity during the AM peak hour and approach capacity during the PM peak hour. The operation of the Princes Highway / Smith Street intersection is expected to improve slightly with the introduction of the proposed mitigating works with the average delay at the intersection decreasing during both the AM and PM peak hours.

5.3 Vehicle Access Considerations

5.3.1 Mixed Use Precinct (Shared Zone)

As detailed in Section 4 the shared zone known as Village Mews is proposed to provide a pedestrian and cyclist connection between Heywood Street and Caulfield Boulevard. Limited service vehicle access via Heywood Street is proposed including retail and residential loading (no supermarket loading) and drop-off / pick-up activities including taxis.

It is noted that the Mixed Use Precinct was envisaged within the Incorporated Plan as follows:

"A new laneway connecting The Boulevard to Heywood Street is to be designed as a pedestrian route with limited service vehicle access and for cyclists, incorporating activated edges with windows, and front doors to promote passive surveillance and enhance the safety of pedestrians."

The proposed design and function of Village Mews is considered consistent with the Incorporated Plan.

5.3.2 Smith Street Precinct (Access to Normanby Road)

The Incorporated Plan envisages loading and vehicle access to the Smith Street Precinct from Station Street. In addition, it also envisaged that Station Street will "be designed to be pedestrian friendly". In order to create a high amenity pedestrian link along Station Street it is considered appropriate that vehicle access points to Station Street be minimised. In this regard the provision of a vehicle access point to Normanby Road is considered an appropriate alternative. It is noted that this section of Normanby Road between Station Street and Caulfield Boulevard is a lower order road than Normanby Road west of Caulfield Boulevard where it carries greater traffic volumes and trams movement and is a VicRoads declared road.

5.4 Response to ITP Requirements Outlined in the Priority Development Zone

A response to each of the ITP Items specifically regarding the traffic assessment is provided below.

"A traffic analysis which has regard to the likely pattern and intensity of development in all three precincts."

The SIDRA analysis presented in Section 5.5 provides appropriate traffic analysis and indicates that subject to specific road network upgrades (detailed in Section 4.4) there is sufficient capacity within the surrounding road network to accommodate the additional traffic generated by the proposed development.

"Works necessary to existing and proposed intersections to accommodate traffic increases and safe pedestrian movement."

The SIDRA analysis undertaken above indicates that the intersection works detailed in the Section 173 Agreement satisfactorily accommodate the additional traffic generated by the development. As detailed in the following section a number of new pedestrian routes are provided through the site, whilst a number of new pedestrian crossing facilities are also to be provided. These works will create a safe, high quality environment for pedestrians, in particular for those accessing the Caulfield Railway Station and Activity Centre to the east.

"The signalisation of the intersection of The Boulevard and Station Street on the basis that:

- **The design of the roads is to be such that Station Street is continuous with The Boulevard intersecting into Station Street to form a modified "T type" intersection; and**
- **There is provision for safe pedestrian movement through the intersection to the activity centre core and the railway station."**

As indicated in Figure 4.2 and Table 4.3, the Station Street / Caulfield Boulevard intersection has been designed as a T-intersection and has provided signalised pedestrian crossings on the north and east approach consistent with standard signalised T-intersection designs. A signalised pedestrian crossing is not recommended on the west approach as it would necessitate pedestrians being in conflict with the heavy right turn movement from Caulfield Boulevard.

6. Sustainable Transport Items

6.1 Preamble

The existing Caulfield Village site is provided with excellent public transport accessibility, with existing train, tram and bus services at the sites doorstep. In order to take advantage of these existing public transport opportunities it is imperative that high quality connections be provided for all modes between the site and these facilities.

The following provides an overview of the non-vehicle infrastructure provided within and surrounding the site, including as assessment of the existing and anticipated future mode share of residents, workers and shoppers of the site.

6.2 State Policy

6.2.1 Plan Melbourne

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

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

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

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

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

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

v **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. It is evident that the development of the Caulfield Village site as an urban renewal brownfield precinct comprising a range of land uses including community, retail, commercial and residential of a medium and high density nature will deliver or enhance features which relate to a range of initiatives outlined in Plan Melbourne including:

- Initiative 2.2.2: unlock the capacity of urban renewal precincts for higher density, mixed use development
- Initiative 2.2.3: deliver housing close to jobs and transport
- Initiative 2.2.5: facilitate the remediation of contaminated land, particularly on sites in developed areas of Melbourne with potential for residential development
- Initiative 3.4.1: make neighbourhoods pedestrian-friendly
- Initiative 3.4.2: create a network of high-quality cycling links.

Apart from these initiatives, the project will also assist with delivering on key directions including:

- Direction 2.2: reduce the cost of living by increasing housing supply near services and public transport
- Direction 4.1: create a city of 20-minute neighbourhoods
- Direction 4.3: create neighbourhoods that support safe communities and healthy lifestyles.

6.2.2 Transport Integration Act 2010

The Transport Integration Act is the primary transport statute for Victoria, and has caused significant change to the way transport and land use authorities make decisions and work together. The Act enshrines a triple bottom line approach to decision making about 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 the Department of Planning and Community Development take account of transport issues in land use decisions. The Act has been effective to date in changing the focus of organisations that traditionally only considered a single transport mode.

The Act:

- unifies all elements of the transport portfolio to ensure that transport agencies work together towards the common goal of an integrated transport system
- provides a framework for integrated and sustainable transport policy and operations
- recognises that the transport system should be conceived and planned as a single system performing multiple tasks rather than separate transport modes
- integrates land use and transport planning and decision-making by extending the framework to land use agencies whose decisions can significantly impact on transport ("interface bodies")
- re-constitutes transport agencies and aligns their charters to make them consistent with the framework.

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).

6.2.3 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. An ITP should be lodged concurrently to the Responsible Authority with the planning permit application.
- 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. As per the requirements of Clause 52.36, the Director of Public Transport acts as a referral authority for all major developments. The director considers that 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 *"Compact and walkable neighbourhood objectives."*

6.2.4 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."[5]

The SmartRoads approach is used by VicRoads as a decision-making tool in relation to any projects that impact on the area.

The VicRoads SmartRoads Network Operating Plan for the area surrounding the subject site has been reproduced in Figure 6.1.

Figure 6.1: VicRoads SmartRoads Network Operating Plan – Glen Eira

Figure 6.1 illustrates that Balaclava Road and Normanby Road are both tram priority routes. Kambrook Road, Station Street, Queens Avenue and Normanby Road (between Station Street and Queens Avenue and west of Kambrook Road) have been identified as a future bicycle

[5] Source: www.vicroads.gov.au.

priority route. No internal precinct roads are nominated for modal priority. Based on VicRoads' website, road use priority routes (for buses and trams) have been identified to ensure:

"Trams and buses are given priority on key public transport routes that link activity centres during morning and afternoon peak periods."

6.2.5 DDA Compliance

The Disability Standards for Accessibly Public Transport (Transport Standards) (DSAPT), which came into effect in 2002, set out minimum accessibility requirements for providers and operations of public transport. It also prescribes timing of progress towards full compliance with the requirements of the Federal Disability Discrimination Act 1992 (DDA) over twenty years through a series of milestones at five-year intervals (from 2002 to 2022).

This compliance timetable is to ensure that old infrastructure is gradually replaced with accessible services and facilities. The goal is to provide people with disability the same levels of access to the public transport services as other members of the community.

The Victorian Government's Accessible Public Transport in Victoria Action Plan 2006-2012 provides a framework for achieving accessible public transport in Victoria for people with disabilities. It covers mainstream public transport, for which the Victorian Government has direct responsibility, including:

- Metropolitan rail, tram and bus services
- Regional rail, coach and bus services
- Taxi services.

6.3 Public Transport Considerations

The site is well located in terms of proximity to existing public transport provisions with the Caulfield Railway Station and bus interchange located immediately to the east of the site, the #3 tram operating along the northern boundary (Normanby Road) of the site and #624 Bus operating along the southern boundary (Station Street) of the site.

The nearest tram stop is located on the west approach to the Normanby Road / Smith Street intersection. Following discussions with Public Transport Victoria (PTV) it is proposed to upgrade this tram stop to a Type 5 Trafficable Platform Stop. The design of the stop has been incorporated into the design of the Normanby Road / Boulevard / Smith Street intersection. The intersection design includes a prohibition on the right turn from Normanby Road into Caulfield Boulevard to minimise delays to trams at the intersection.

Eastbound traffic on Normanby Road will continue to use the shared tram/traffic lane through the tram stop while left turning traffic will utilise the raised platform. The shared tram/traffic lane will also facilitate right turns into the Mixed Use-Precinct in lieu of allow right turns into Caulfield Boulevard at Normanby Road.

Westbound traffic will be confined to the kerbside raised platform with tram services provided a designated tram westbound lane adjacent to the site.

It is considered that the nearby existing bus stop locations at the Station Street / Normanby Road intersection and Kambrook Road at Eskdale Road appropriately service the proposed development noting the two existing bus stops are located approximately 600m apart.

In addition to public transport facilities, subject to further discussions with Melbourne Racing Club and the development of the precinct, a taxi rank could be located in close proximity to the racecourse entrance on Station Street.

The existing public transport services including tram and bus stop locations are illustrated in Figure 6.2. In addition, a 200m radius from each of the stops is indicated to demonstrate the high level of public transport access that will be provided.

Figure 6.2: Public Transport Facilities

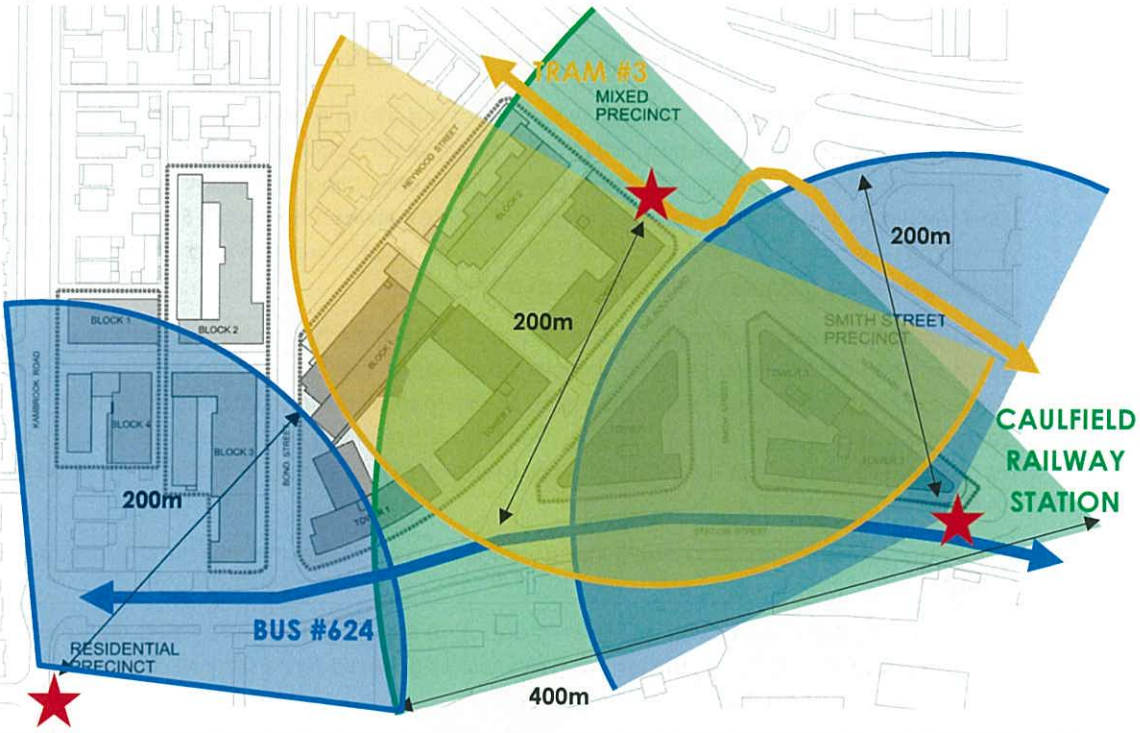


Figure 6.2 illustrates that the majority of the development is within 200m radius of the existing and proposed on-road public transport facilities. The entire development will be within 400m walking distance of both the existing tram and bus stops whilst the majority of the development will be within 400m of the Caulfield Railway Station.

As such the existing public transport facilities, meets the DoT target outlined in the 'Public Transport: Guidelines to Land Use Development', reproduced below:

"Ninety-five (95%) of residential land uses in established and urban growth areas to be designed to allow access to public transport services within 400 meters safe walking distance."

It is not proposed to reroute the existing bus service through the site via Caulfield Boulevard, noting the following:

- The existing public transport provisions meet the DoT requirements.
- Rerouting the bus through the site would create a circuitous route for the bus and increase delays to the existing service.
- The Caulfield Boulevard cross-section is to be designed as a pedestrian friendly environment, if a bus route were to be accommodated it may increase the required road space and reduce pedestrian amenity.
- A modal interchange (tram, bus and rail services) is already provided at Caulfield Railway Station.

Given that Station Street will continue to support buses, any alterations will need to ensure that they are designed in accordance with the requirements of the Public Transport Guidelines (minimum 4.2m shared traffic and bike lane).

It is noted that the future public transport requirements will need to be confirmed with PTV.

6.4 Pedestrian and Cyclists Facilities

High quality internal pedestrian paths will connect the site to existing pedestrian facilities abutting the site. These internal pedestrian links will be provided in accordance with the principles of the Incorporated Plan, including pedestrian/cycle links connecting Kambrook Road to Bond Street and Heywood Street to Caulfield Boulevard. The link between Heywood Street and Caulfield Boulevard will also cater for service vehicle movements at its western end where it will be designed as a shared zone with pedestrian priority.

In addition, Caulfield Boulevard and Smith Street will provide high quality pedestrian environments whilst still catering for vehicle movements. The carriageway widths of Caulfield Boulevard and Smith Street will be reduced to minimise pedestrian crossing distances. It is recommended that the 'throats' and curve radii be minimised at intersections and access points to reduce the pedestrian crossing widths at these locations, whilst still maintaining accessibility for relevant design vehicles.

A number of new signalised pedestrian crossings will be provided on the site's boundary, as follows:

- Caulfield Boulevard / Station Street intersection (crossings to be provided on the east and north approach consistent with standard signalised T-intersection design)
- Normanby Road (north of Station Street).

In accordance with the Section 173 agreement pedestrian signals will be provided on Normanby Road connecting the site to the Caulfield Railway Station and Activity Centre.

In addition to the signalised crossings a pedestrian refuge is to be provided on Kambrook Road. The refuge will cater for pedestrian movements between the internal east-west link (connecting Kambrook Road and Bond Street) and Redan Road which provides access to Caulfield Park.

It is also noted that existing pedestrian refuges located on Station Street at Smith Street (both sides) and Kambrook Road are proposed to be retained.

All new pedestrian paths and pedestrian crossing points within the Development Plan will be designed in accordance with the DDA requirements.

Cyclist access to and from the Site will be facilitated by bicycle facilities on Station Street (on-road bike lanes), Kambrook Road (on-road bike lanes), Normanby Road (wide kerbside lane) and Queens Avenue (on-road bike lanes). Station Street will continue to provide for on-road cycle lanes. On-site resident, shopper and employee bicycle parking will be provided in accordance with the requirements of Clause 52.34 of the Glen Eira Planning Scheme.

The proposed pedestrian provisions are illustrated in Figure 6.3 and listed in Table 6.1.

Figure 6.3: Pedestrian Routes and Public Transport Facilities

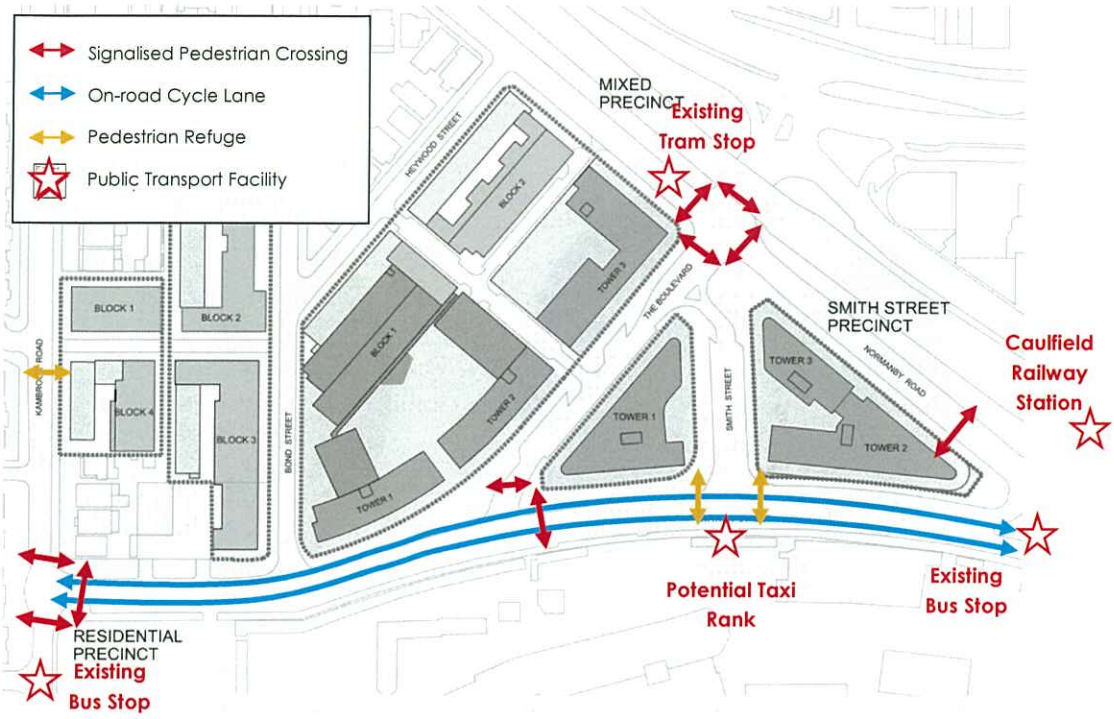


Table 6.1: Proposed Pedestrian and Public Transport Upgrades

Intersection Location	Description of Works	Indicative Timing [1]
Kambrook Road pedestrian Refuge	Provision of a pedestrian refuge on Kambrook Road at Redan Road	Completion of Precinct 1
Kambrook Road / Station Street (signalised pedestrian crossings)	Signalised pedestrian crossings on all approaches of the T-intersection.	Completion of Precinct 2a
Caulfield Boulevard / Station Street (signalised pedestrian crossings)	Signalised pedestrian crossings on the north and east approach consistent with standard signalised T-intersection.	Completion of Precinct 2b
Normanby Road Tram Stop Upgrade	Provision of Type 5 Trafficable Platform Tram Stop on Normanby Road in accordance with the DOT Client Design Requirements for Accessible Tram Stops.	Completion of Precinct 2b
Normanby Road Signalised Pedestrian Crossing	Signalised pedestrian crossing of Normanby Road between Caulfield Railway Station and Precinct 3.	Completion of Precinct 3

[1]: Timing of works is linked directly to the timing of construction of each Precinct and may vary depending on market demand for construction.

6.5 Mode Share

Existing Characteristics

The subject site lies within the suburb of Caulfield, and is located in close proximity to public transport facilities and sustainable transport infrastructure to encourage the use of non-motorised transport modes.

Existing weekday travel for all trips has been analysed from the Department of Transport's "Victorian Integrated Survey of Travel Activity" (VISTA09). This provides a comprehensive picture of the transport demand in the City of Glen Eira. Figure 6.4 has been prepared to summarise the existing weekday mode share based on total number of trips undertaken (i.e. trips associated with work, education, retail, recreation, etc) by existing residents of the City of Glen Eira. By way of

comparison, Figure 6.5 shows the same travel mode information recorded within all of metropolitan Melbourne.

Figure 6.4: Existing Weekday Transport Mode Split – City of Glen Eira

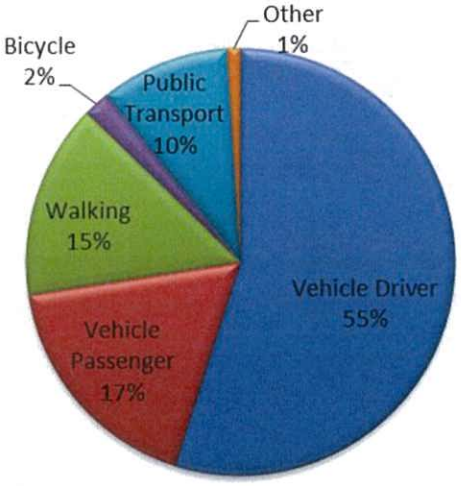
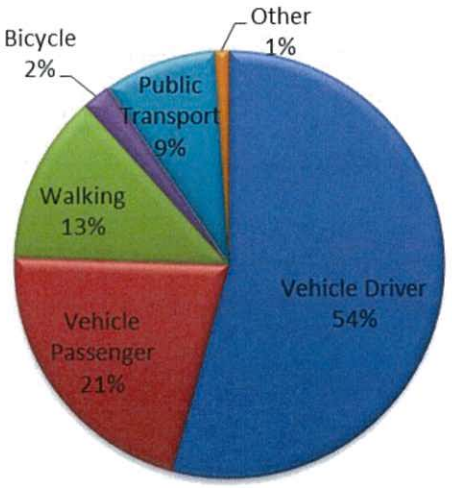


Figure 6.5: Existing Weekday Transport Mode Split – Metropolitan Melbourne



Figures 6.4 and 6.5 indicate that vehicle and public transport usage for residents of Glen Eira is generally consistent with that of the greater Metropolitan Melbourne area. It is noted that the above data is for the entire Municipality of Glen Eira and does not take into account the site's location adjacent to the Caulfield Activity Centre and excellent access to public transport.

Issues Affecting Mode Choice

Mode choice for residents, shopper and workers within the site will be influenced by a variety of factors, including:

- access to suitable public transport which is safe and convenient
- ease of access to car parking (both at home and the destination)
- congestion on the surrounding traffic network
- proximity of retail and community facilities
- provision of a safe, amenable environment for walking and cycling
- provision of information on walking and cycling in the area
- implementation of a Green Travel Plan
- macroeconomic factors such as the cost of petrol
- dispersal of employment
- type of work/employment.

As stated above, the development has the potential to result in a high proportion of trips by public and active transport modes, due to its proximity to public transport, shopping and recreational facilities. It is likely that the majority of trips for most residents can be accommodated by public and active transport, at a higher rate than in the broader City of Glen Eira local government area.

Transport Initiatives

A number of sustainable transport initiatives have been identified to encourage the use of active and sustainable transport modes to/from the site, summarised below:

- Provide maps illustrating public transport routes in the foyers and lobbies of residential buildings and retail staff rooms (including timetable information).

- Identify employees living near work that may be interested in walking to work (retail and community uses).
- Produce a map showing safe walking routes to and from the site with times, not distances, to local facilities, such as shops, schools and public transport stops. Display in building foyers and retail / community notice boards.
- Have some TravelSmart Get to Work days encouraging residents and workers to travel to work by alternative modes of transport.
- Have good, secure bicycle parking in an easily accessible location.
- Provide bicycle parking for visitors (ensure bicycle parking is clearly visible or provide signage to direct people to cycle bays).
- Set up a carpooling database.
- Promote car share availability and benefits to residents.

It should be noted that these actions should not be viewed as being compulsory but rather as potential options that should be investigated and implemented as appropriate for the future occupants of the site to improve sustainable travel behaviour.

Future Mode Split Targets

Mode split targets are an important part of an ITP, as they:

- Show the existing mode split for the suburb or area, as a baseline for the development.
- Analyse transport factors for the development based on access to sustainable and active transport (i.e. is the development likely to achieve a better or worse result than the surrounding suburb / area, based on "no intervention").
- Articulate an aspirational target mode split to serve as a reference point post occupancy.

In this regard, weekday mode Split Targets have been nominated for the development and are presented at Table 6.2. It is considered that these targets are achievable, given the public transport, walking and cycling opportunities adjacent to the subject site, the mixed use nature of the development and having consideration to the anticipated population characteristics of future residents, workers and shoppers.

Table 6.2: Mode Split Targets

Primary Mode of Transport	Existing Weekday VISTA09 [2]	Initial Target - weekday
Walking and Cycling	17%	30%
Public Transport	10%	20%
Car as Driver or Passenger	72%	48%
Other [1]	1%	2%

[1] Note that the category "other" includes modes such as motorcycle and scooter.
[2] Based on VISTA data for the Glen Eira LGA.

It is noted that the above mode split targets are applicable for residents of the development only. It is anticipated that the retail uses would likely have a greater proportion of private vehicle trips and less public transport trips.

The above mode share targets anticipate a significantly lower private vehicle use than for the remainder of Glen Eira. However, the targets are considered achievable noting the following specific characteristics of the site:

- attractive walking and cycling options within and adjacent to the site
- proximity of retail uses within the site itself
- proximity of adjacent public transport facilities (Caulfield Railway Station, Tram #3 and various bus routes)
- proximity of Monash University and Caulfield Activity Centre

- comparatively lower car ownership rates for residents compared to the remainder of the Glen Eira municipality
- provision of high quality pedestrian facilities.

6.6 Resultant Trip Generation

Overall trip generation has been determined utilising VISTA09 data for resident trips and utilising daily traffic generation rates from the RTANSW for shopping centre uses with retail trip mode share data from the GTA database. Table 6.3 provides a summary of the anticipated future trip generation from the site.

Table 6.3: Trip Generation – All Modes

Use	Size	Daily Trip Generation Rate	Source	Resultant Daily Trips
Residential	2,067 dwellings [1]	8.5 trips per dwelling per day	VISTA09 [2]	17,570 trips
Retail	13,496sq.m	110 trips per 100sq.m per day	RTANSW and GTA Database [3]	14,846 trips
Reduction Factor [4]		*10% reduction of residential trips*	-	*-1,757 trips*
Total (external and internal trips)				**30,658 trips**

[1] The recently approved Amended Development Plan increased the number of dwellings in Stages 1 to 3 of the Residential Precinct from 442 to 463 dwellings.

[2] VISTA09 indicates a daily trip generation of 10.2 trips per day per household for Glen Eira. This includes all household types (i.e. apartments, standard, attached, etc). It is anticipated that the development will include smaller households than a typical dwelling within Glen Eira and as such, will generate less daily trips. In this regard reference is made to daily trip data for the nearby LGA's of Stonnington (8.8 daily trips) and Port Phillip (8.2 daily trips) with a daily trip rate of 8.5 adopted.

[3] RTANSW Shopping Centre traffic generation rate of 78 daily trips per 100sq.m and a mode share to car (as driver) of 71%. With the remaining 29% consisting of public transport, walking, cycling and other trips.

[4] Historical surveys undertaken by the former Ministry of Housing indicates that up to 30% of residential trips are associated with retail purposes. Given the proposed on-site retail facilities it is considered reasonable to assume that one third of these trips (i.e. 10%) would utilise these facilities and hence can be discounted from the external number of trips.

Table 6.3 indicates that the development could be anticipated to generate in the order of some 30,650 trips per day. These trips are anticipated to be made up of the following:

- Vehicle: ~19,000 vehicle trips (8,500 residential plus 10,500 retail)
- Walking and Cycling: ~6,300 trips (3,500 residential plus 2,800 retail)
- Public Transport: ~5,000 trips (3,500 residential plus 1,500 trips)
- Other: ~350 trips (350 residential trips).

6.7 Response to ITP Requirements Outlined in the Priority Development Zone

A response to each of the 'traditional' ITP Items is provided below.

"Estimate of each transport mode's share of travel."

The existing mode share for Glen Eira and an estimate of the future mode share for travel to and from the site is provided in Section 6.5. Car trips are anticipated to account for 48% of total future trips, public transport 20% and walking and cycling trips 30%.

"The expected number of trips generated by persons working within the precinct, shoppers, residents and visitors to the site."

The anticipated overall number of trips generated by the site is provided in Section 6.6. The Table indicates an overall trip generation of approximately 30,650 daily trips.

"Public transport arrangements and pedestrian access routes."

The existing and future public transport facilities and pedestrian routes to and from these facilities from the site are illustrated in Figures 6.2 and 6.3 in Sections 6.3 and 6.4.

"Any works considered necessary for public transport vehicles or passenger facilities within the area covered, including any modal interchanges."

The future public transport provisions are detailed in Section 6.3 of this report and include the provision of a DDA compliant Type 5 tram stop on Normanby Road.

"Document proposed sustainable travel initiatives including estimated mode share targets and actions to encourage increased usage of public transport and non motorised trips to and from the site."

Travel initiatives that could form part of future Green Travel Plans for the site as well as future mode share targets are outlined in Section 6.5.

"Public transport arrangements that respond to the Public Transport Guidelines for Land Use and Development and pedestrian access routes."

The future public transport provisions associated with the site, as identified in Sections 6.3 are in accordance with the requirements of the Public Transport Guidelines.

"Any road with a public transport service should be designed as an Undivided Connector Road – B Public Transport Guidelines for Land Use and Development with a 4.2 wide shared bike/bus lane and 2.3 m wide parking lane."

As detailed in Section 6.3 any alterations to Station Street will be consistent with the requirements of the Public Transport Guidelines.

"Any works, or facilities proposed to improve access to public transport services to the site, encourage bicycles and pedestrians within the area and how such works will be funded."

The proposed works are detailed in Section 6.3 and 6.4 and the Developer will contribute to the costs in conjunction with the appropriate transport authorities subject to negotiation.

"How the plan responds to state government transport objectives."

The ITP has regard for the Transport Integration Act and is consistent with the DoT ITP Advisory Note.

"Location of taxi ranks as may be appropriate."

A taxi rank could potentially be located on Station Street at the entrance to the Racecourse. Additional taxi rank locations could be considered as the precinct is developed.

7. Car Parking

7.1 Overview

A summary of the anticipated car parking demands for each precinct is provided below adopting the car parking rates presented in the Schedule to Clause 45.09 of the Glen Eira Planning Scheme as presented in Section 3 of this Report.

It is noted that no specific car parking rate is provided for the serviced apartment and independent living unit uses. In this regard reference is made to Clause 52.06 of the Glen Eira Planning Scheme which indicates the following the statutory car parking requirements for both uses:

- 1 space per one and two bedroom per serviced apartments / retirement village units
- 2 spaces per three or more bedroom per serviced apartments / retirement village units.

Table 7.1 provides a summary of the anticipated car parking demands.

Table 7.1: Car Parking Demands

Precinct	Use	Car Parking Rate	Car Parking Demand
Residential Precinct (Stages 1 to 3) [1]	463 residential dwellings	1 space to each 1 and 2 bedroom dwelling and 2 spaces to each 3 or more bedroom dwelling	489 spaces
Mixed Use Precinct (including the balance of the Residential Precinct land uses)	732 residential dwellings [2]	1 space to each 1 and 2 bedroom dwelling and 2 spaces to each 3 or more bedroom dwelling	769 spaces
	7,658sq.m commercial	2.18 spaces per 100sq.m (retail) and 5.5 spaces per 100sq.m (supermarket)	300 spaces
		Sub Total	1,069 spaces
Smith Street Precinct	872 residential dwellings [3]	1 space to each 1 and 2 bedroom dwelling and 2 spaces to each 3 or more bedroom dwelling [2]	903 spaces
	5,838sq.m commercial	2.18 spaces per 100sq.m	126 spaces
		Sub Total	1,029 spaces
TOTAL			**2,583 spaces**

[1] The recently approved Amended Development Plan increased the number of dwellings in Stages 1 to 3 of the Residential Precinct from 442 to 463 dwelling

[2] Assuming that 95% of apartments are 1 and 2 bedroom dwellings and 5% are 3 or more bedroom dwellings.

[3] Includes 170 serviced apartments and 85 retirement village units. The serviced apartments and retirement village units are assumed to be 1 or 2 bedroom dwellings.

Table 7.1 indicates that the car parking demands generated by each precinct adopting the Clause 45.09 car parking rates are expected to result in a total parking provision in the order of 2,600 spaces across the three Precincts.

It is noted that further details regarding the adequacy of car parking for each of the precincts is provided within the Car Parking Management Plan prepared by GTA for the site. In addition, an assessment of car parking will be provided as part of the town planning applications for each stage of development.

7.2 On-street Car Parking

As a result of the proposed road configuration, vehicle access provisions, intersection works and pedestrian facilities it is anticipated that a number of existing on-street car parking spaces will be removed as part of the Caulfield Village development.

The exact extent of on-street car parking losses will be determined at the detailed design stage via the preparation of functional layout plans. Notwithstanding, Table 7.2 provides an overview of the indicative on-street car parking losses based on the functional layout plans included in the ITP.

Table 7.2: Removal of On-street Car Parking Spaces (Indicative)

Location	Indicative No. of Spaces to be Lost / Gained	Comment
Kambrook Road (at Redan Road)	5 space LOSS	Parallel spaces to be removed to accommodate pedestrian refuge
Station Street / Bond Street	15 space LOSS	Spaces to be removed / modified to 60 degree to facilitate left turn and right turn lanes into Bond Street and pedestrian refuge across Station Street
Station Street / Caulfield Boulevard	45 space LOSS	Parallel spaces to be removed to facilitate left turn lane into Caulfield Boulevard and removal and/or modification to 60 degree angle of existing 90 degree parking on Station Street in the vicinity of the intersection
Normanby Road	10 space LOSS	Parallel spaces to be removed to accommodate new crossovers and Type 5 DDA compliant tram stop and improve tram priority
Caulfield Boulevard	25 space GAIN	Introduction of parallel parking on both sides of Caulfield Boulevard
Bond Street	20 space LOSS	Provision of pocket park in Bond Street closure
PHE Service Road	5 space LOSS	Loss to facilitate extension of left turn lane into Smith Street
Sir John Monash Drive	2 space GAIN	Provision of 2 additional indented parking spaces
Total Net Loss	**73 space LOSS**	
Loss attributable to Community Benefits	**35 space LOSS**	Loss of parking for pedestrian refuge in Kambrook Street, tram stop in Normanby Road and pocket park in Bond Street
Net Loss for other works	**38 space LOSS**	

Table 7.2 indicates that the proposed vehicle access provisions, intersection works and pedestrian facilities is expected to result in a total net loss of approximately 73 on-street parking spaces throughout the precinct. Of these, 35 spaces are lost in order to provide a direct net community benefit through the provision of a new pedestrian refuge, DDA compliant tram stop and a pocket park in Bond Street.

As such the net loss of on-street parking associated with 'other' mitigating road works is 38 spaces and is primarily associated with the upgrade of the Station Street / Bond Street intersection and the construction of the new Caulfield Boulevard / Station Street signalised intersection.

7.3 Relocation / Reprogramming of Parking Machines

Any relocation or reprogramming of existing parking machines as a result of proposed works set out in the Integrated Transport Plan would be funded by the Applicant.

8. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

i The development plan is generally consistent with the requirements of the Incorporated Plan.

ii The Caulfield Village Development is anticipated to generate in the order of 1,729 traffic movements during the PM peak hour.

iii Subject to the proposed road network upgrades the surrounding road network can accommodate the additional traffic generated by the development.

iv The proposed works at the Normanby Road / Caulfield Boulevard / PHE / Sir John Monash Drive intersection as shown in Appendix B are considered to provide the maximum traffic capacity that can be achieved within the constraints and having regard to the pedestrian and public transport priorities that are envisaged within the Incorporated Plan. These works have the in-principle support of VicRoads and PTV.

v As one traffic lane is provided in each direction on Caulfield Boulevard with indented parking, a requirement to only allow parking during non-peak periods is not considered necessary or appropriate.

vi The public transport provisions are in accordance with the DoT Public Transport Guidelines including the provision of a Type 5 Trafficable Platform tram stop on Normanby Road for which PTV has provided in-principle support.

vii Pedestrian and cycle access is provided between the site and public transport facilities, open space and the Caulfield Activity Centre.

viii It is anticipated that car parking will be provided in line with the requirements of the Schedule to Clause 45.09 of the Glen Eira Planning Scheme.

ix The ITP envisages the loss of up to 73 publicly accessible on-street parking spaces associated with the proposed works as set out in Table 7.2. It is noted that the majority of the spaces lost are considered to provide a community benefit through the provision of a new pedestrian refuge, DDA compliant tram stop and land for a pocket park.

x Any relocation or reprogramming of existing parking machines as a result of proposed works set out in the Integrated Transport Plan would be funded by the Applicant.

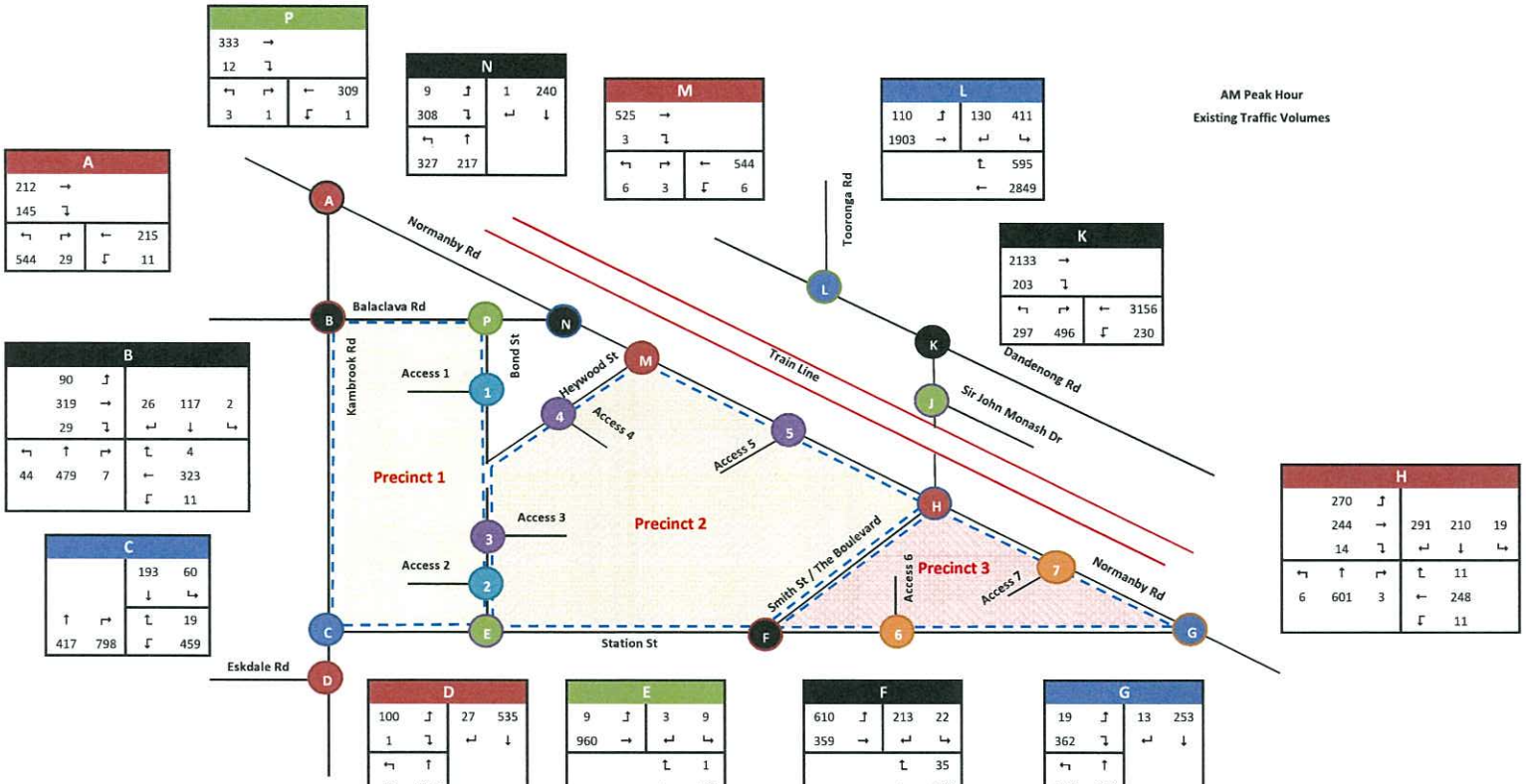
xi A program of road, pedestrian and public transport improvement works are set out in Tables 4.3 and 6.1 with the majority of works to be undertaken as part of Precinct 1 and Precinct 2.

xii The timing of the proposed works is consistent with the GTA Report titled 'Staging Plan' Assessment dated 26 August 2013 which was submitted as part of the Whole of Land Development Plan Approval submission and is considered appropriate.

Appendix A

Existing AM and PM Peak Hour Traffic Volumes

AM Peak Hour
Existing Traffic Volumes



P			
333	→		
12	↴		
↰	↱	←	309
3	1	↲	1

N			
9	↱	1	240
308	↴	↵	↓
↰	↑		
327	217		

M			
525	→		
3	↴		
↰	↱	←	544
6	3	↲	6

L			
110	↱	130	411
1903	→	↵	↳
		↰	595
		←	2849

A			
212	→		
145	↴		
↰	↱	←	215
544	29	↲	11

K			
2133	→		
203	↴		
↰	↱	←	3156
297	496	↲	230

B					
	90	↱			
	319	→	26	117	2
	29	↴	↵	↓	↳
↰	↑	↱	↰	4	
44	479	7	←	323	
			↲	11	

H					
	270	↱			
	244	→	291	210	19
	14	↴	↵	↓	↳
↰	↑	↱	↰	11	
6	601	3	←	248	
			↲	11	

C			
		193	60
		↓	↳
↑	↱	↰	19
417	798	↲	459

D			
100	↱	27	535
1	↴	↵	↓
↰	↑		
12	1057		

E			
9	↱	3	9
960	→	↵	↳
		↰	1
		←	501

F			
610	↱	213	22
359	→	↵	↳
		↰	35
		←	289

G			
19	↱	13	253
362	↴	↵	↓
↰	↑		
342	258		

1			
0	↱	0	13
0	↴	↵	↓
↰	↑		
0	4		

2			
0	↱	0	12
0	↴	↵	↓
↰	↑		
0	10		

3			
		12	0
		↓	↳
↑	↱	↰	0
10	0	↲	0

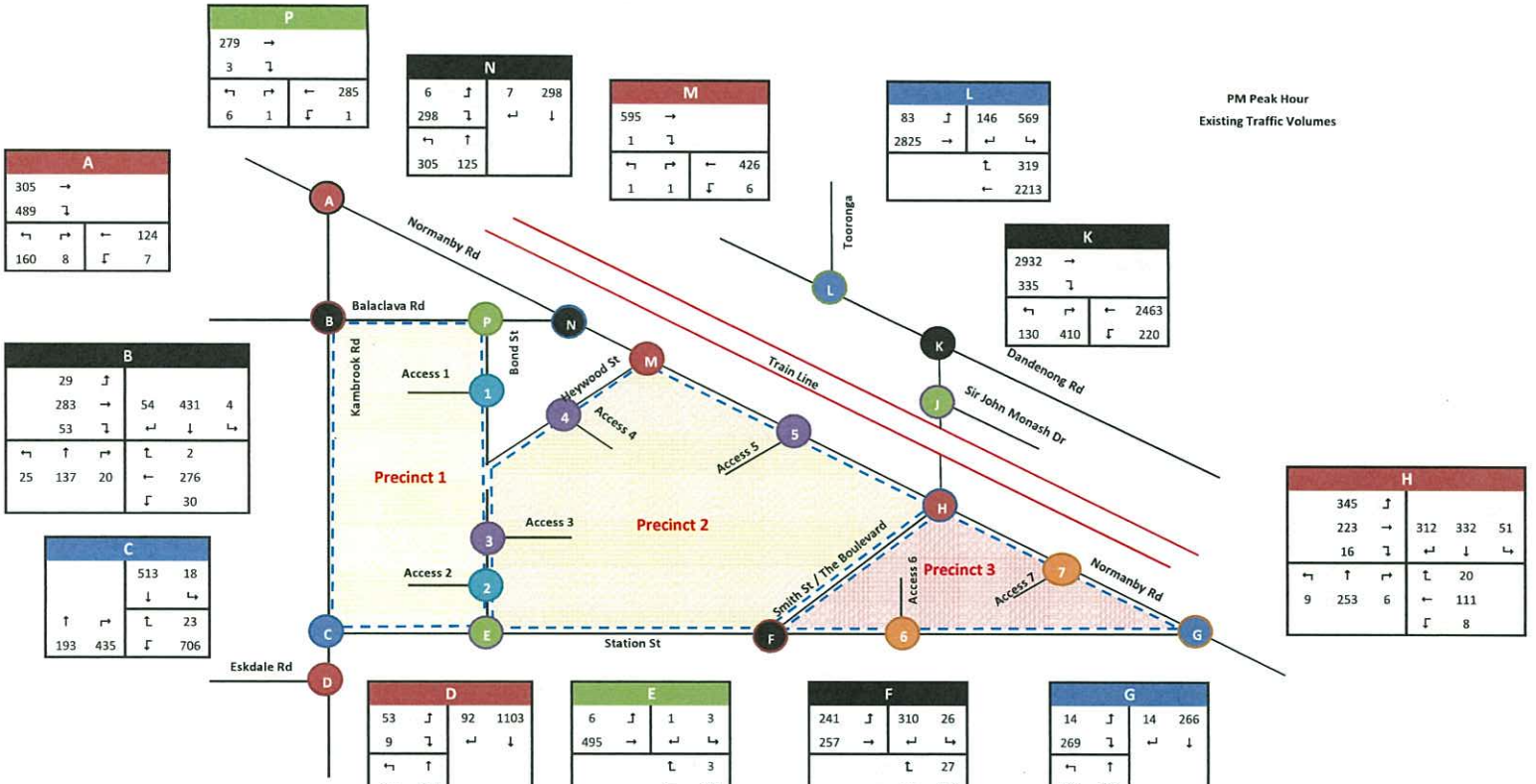
4			
		9	0
		↓	↳
↑	↱	↰	0
9	0	↲	0

5			
528	→		
	↰	←	545
	0	↲	0

6			
0	↱	0	0
381	→	↵	↳
		↰	0
		←	324

7			
266	→		
0	↴		
↰	↱	←	270
0	0	↲	0

PM Peak Hour
Existing Traffic Volumes



P			
279	→		
3	↴		
↰	↱	←	285
6	1	↙	1

N			
6	↱	7	298
298	↴	↵	↓
↰	↑		
305	125		

M			
595	→		
1	↴		
↰	↱	←	426
1	1	↙	6

L			
83	↱	146	569
2825	→	↵	↳
		↳	319
		←	2213

A			
305	→		
489	↴		
↰	↱	←	124
160	8	↙	7

K			
2932	→		
335	↴		
↰	↱	←	2463
130	410	↙	220

B					
	29	↱			
	283	→	54	431	4
	53	↴	↵	↓	↳
↰	↑	↱	↳	2	
25	137	20	←	276	
			↙	30	

H					
	345	↱			
	223	→	312	332	51
	16	↴	↵	↓	↳
↰	↑	↱	↳	20	
9	253	6	←	111	
			↙	8	

C				
		513	18	
		↓	↳	
↑	↱	↳	23	
193	435	↙	706	

D			
53	↱	92	1103
9	↴	↵	↓
↰	↑		
25	581		

E			
6	↱	1	3
495	→	↵	↳
		↳	3
		←	705

F			
241	↱	310	26
257	→	↵	↳
		↳	27
		←	478

G			
14	↱	14	266
269	↴	↵	↓
↰	↑		
490	139		

1			
0	↱	0	13
0	↴	↵	↓
↰	↑		
0	4		

2			
0	↱	0	4
0	↴	↵	↓
↰	↑		
0	9		

3			
		4	0
		↓	↳
↑	↱	↳	0
9	0	↙	0

4			
		7	0
		↓	↳
↑	↱	↳	0
2	0	↙	0

5			
596	→		
↰	↱	←	432
0		↙	0

6			
0	↱	0	0
283	→	↵	↳
		↳	0
		←	505

7			
280	→		
0	↴		
↰	↱	←	153
0	0	↙	0

Appendix B

Proposed External Road Improvements

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P11	16.12.16	GENERAL UPDATES TO THE OVERALL NETWORK	A.D.	S.D.	S.D.
P10	07.04.16	MINOR AMENDMENTS ON THE BOULEVARD	P.P.	A.D.	S.D.
P9	24.03.16	AMENDMENTS TO ROUNDABOUT ON KAMBROOK ROAD	P.P.	K.W.	S.D.
P8	04.03.16	MINOR MODIFICATIONS TO HAVE CONSISTENCE DESIGN BETWEEN ULTIMATE AND STAGE 2	P.P.	K.W.	S.D.
P7	31.08.15	MINOR MODIFICATIONS TO SHEET 4 AND ADDED SHEET 7 AS PER VICROADS COMMENTS	B.K.	K.W.	S.D.
P6	26.08.15	INDENTED PARKING INCLUDED ON BOND STREET	P.P.	K.W.	S.D.
P5	06.08.15	UPDATE ARCHITECTURAL BASE. MODIFY THE BOULEVARD ALIGNMENT	P.P.	K.W.	S.D.
P4	11.05.15	ADD SHEETS 4 AND 5, AMEND DESIGN	E.S.	A.D.	S.D.
P3	17.04.15	CHANGES TO ALIGNMENT OF THE BOULEVARD	B.K.	K.W.	S.D.
P2	16.02.15	INCORPORATE PRELIMINARY YARRA TRAMS COMMENTS	K.W.	K.W.	S.D.

GENERAL NOTES

1. ALL DIMENSIONS AND RADII ARE IN METRES AND ARE TO THE FACE OF KERB AND CHANNEL.
2. BASE INFORMATION OBTAINED FROM NEARMP AERIAL PHOTOGRAPHY DATABASE AND BASE PLAN FROM ARM ARCHITECTURE DATED 14 JANUARY '15
3. GTA CONSULTANTS DOES NOT TAKE ANY RESPONSIBILITY FOR THE ACCURACY OF THE EXISTING CONDITIONS BASE ON WHICH THE SETOUT DETAIL IS BASED. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE EXISTING CONDITIONS INCLUDING UNDERGROUND SERVICES SHOULD BE VERIFIED ON SITE.
4. DECLARED MAIN ROAD - NORMANBY ROAD - SPEED ZONE 60KM/H
MAIN ROAD - STATION STRET - SPEED ZONE 60KM/H
LOCAL ROAD - KAMBROOK ROAD - SPEED ZONE 50KM/H

DESIGNED: P.PHAM	DESIGN CHECK: -
DRAWN: P.PHAM	DRAFTING CHECK: -
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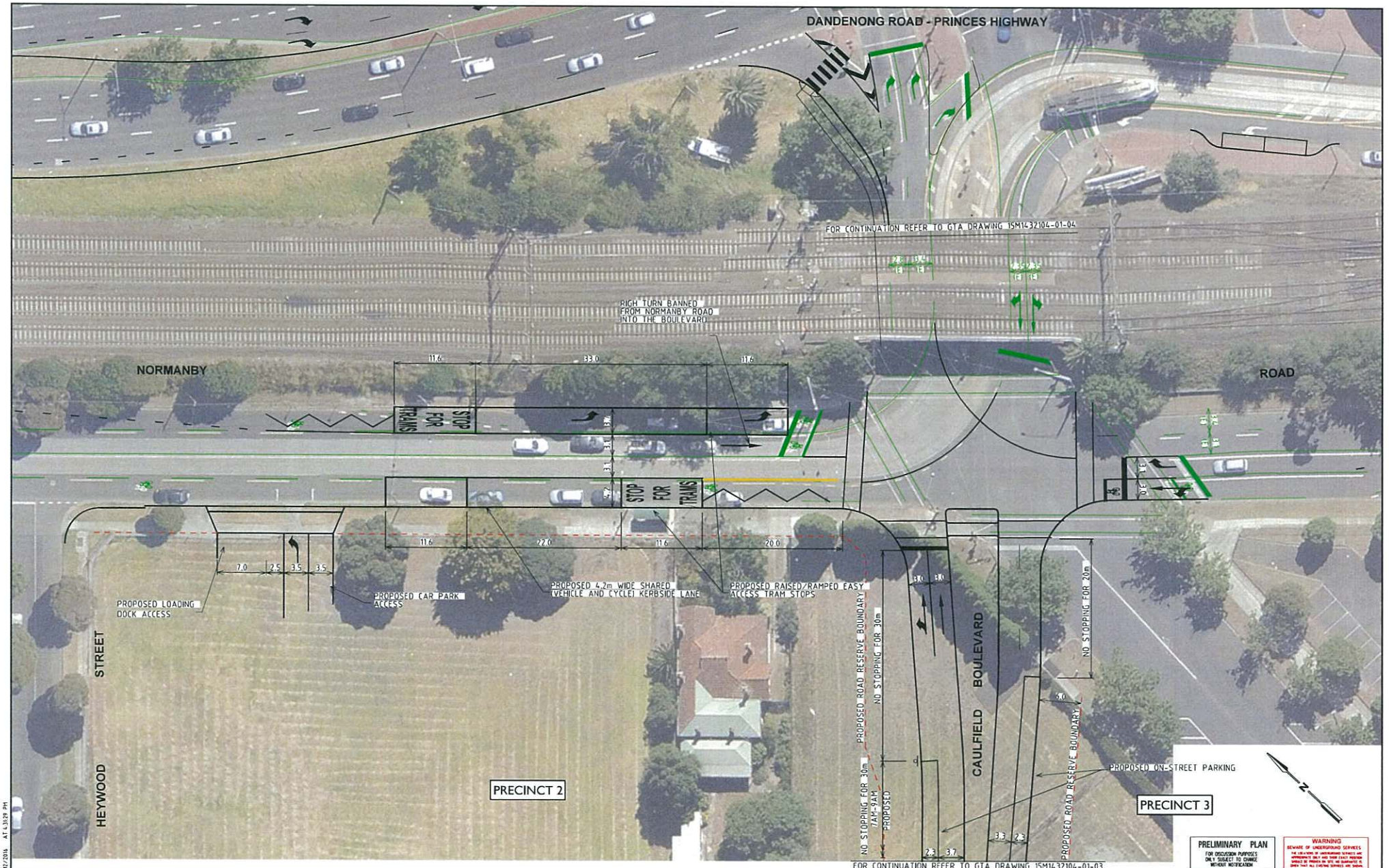
CAULFIELD VILLAGE
EXTERNAL ROAD IMPROVEMENTS,
CAULFIELD

FUNCTIONAL LAYOUT PLAN - COVER SHEET

MELWAY REF.	DRAWING NO.	ISSUE
68/E1	15M1432104-02-01	P11



PLOTTED BY Anthony Zerilla ON 16/12/2016 AT 4:31:29 PM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P11	16.12.16	GENERAL AMENDMENTS TO OVERALL ROAD NETWORK	A.D.	S.D.	
P10	07.04.16	MINOR AMENDMENTS ON THE BOULEVARD	P.P.	A.D.	S.D.
P9	24.03.16	AMENDMENTS TO ROUNDABOUT ON KAMBROOK ROAD	P.P.	K.W.	S.D.
P8	04.03.16	MINOR MODIFICATIONS TO HAVE CONSISTENCE DESIGN BETWEEN ULTIMATE AND STAGE 2	P.P.	K.W.	S.D.
P7	31.08.15	MINOR MODIFICATIONS TO SHEET 4 AND ADDED SHEET 7 AS PER VICROADS COMMENTS	B.K.	K.W.	S.D.
P6	26.08.15	INDENTED PARKING INCLUDED ON BOND STREET	P.P.	K.W.	S.D.
P5	06.08.15	UPDATE ARCHITECTURAL BASE. MODIFY THE BOULEVARD ALIGNMENT	P.P.	K.W.	S.D.
P4	11.05.15	ADD SHEETS 4 AND 5. AMEND DESIGN	E.S.	A.D.	S.D.
P3	17.04.15	MODIFICATIONS OF ALIGNMENT OF THE BOULEVARD	B.K.	K.W.	S.D.
P2	16.03.15	TRAM ACCESSIBLE STOP AREA EXTENDED TO 33m ON NOTHERN SIDE OF NORMANBY ROAD	P.P.	K.W.	S.D.

GENERAL NOTES

1. ALL DIMENSIONS AND RADII ARE IN METRES AND ARE TO THE FACE OF KERB AND CHANNEL.
2. BASE INFORMATION OBTAINED FROM NEARMP AERIAL PHOTOGRAPHY DATABASE AND BASE PLAN FROM ARM ARCHITECTURE DATED 16 JANUARY '15.
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4. DECLARED MAIN ROAD - NORMANBY ROAD - SPEED ZONE 60KM/H
   MAIN ROAD - STATION STRET - SPEED ZONE 60KM/H
   LOCAL ROAD - KAMBROOK ROAD - SPEED ZONE 50KM/H

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CAULFIELD VILLAGE EXTERNAL ROAD IMPROVEMENTS,

NORMANBY ROAD / CAULFIELD BOULEVARD, CAULFIELD

FUNCTIONAL LAYOUT PLAN

MELWAY REF.	DRAWING NO.	ISSUE
68/E1	15M1432104-02-02	P11

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY SUBJECT TO CHANGE WITHOUT NOTIFICATION

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEY EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

PLOTTED BY: Anthony Deitsolo ON 16/12/2016 AT 1:33:02 PM

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P11	16.12.16	GENERAL AMENDMENTS TO OVERALL ROAD NETWORK	A.B.	S.D.	S.D.
P10	07.04.16	MINOR AMENDMENTS ON THE BOULEVARD	P.P.	A.D.	S.D.
P9	24.03.16	AMENDMENTS TO ROUNDABOUT ON KAMBROOK ROAD	P.P.	K.W.	S.D.
P8	04.03.16	MINOR MODIFICATIONS TO HAVE CONSISTENCE DESIGN BETWEEN ULTIMATE AND STAGE 2	P.P.	K.W.	S.D.
P7	31.08.15	MINOR MODIFICATIONS TO SHEET 4 AND ADDED SHEET 7 AS PER VICROADS COMMENTS	B.K.	K.W.	S.D.
P6	26.08.15	INDENTED PARKING INCLUDED ON BOND STREET	P.P.	K.W.	S.D.
P5	06.08.15	UPDATE ARCHITECTURAL BASE, MODIFY THE BOULEVARD ALIGNMENT	P.P.	K.W.	S.D.
P4	11.05.15	INITIAL ISSUE	F.S.	A.D.	S.D.

GENERAL NOTES
1. ALL DIMENSIONS AND RADII ARE IN METRES AND ARE TO THE FACE OF KERB AND CHANNEL.
2. BASE INFORMATION OBTAINED FROM NEARMP AERIAL PHOTOGRAPHY DATABASE AND BASE PLAN FROM ARM ARCHITECTURE DATED 14 JANUARY '15
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   MAIN ROAD - STATION STRET - SPEED ZONE 60KM/H
   LOCAL ROAD - KAMBROOK ROAD - SPEED ZONE 50KM/H

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DRAWN: E. SANSTOUPET/ B.JAYASINGHE	DRAFTING CHECK: -
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CAULFIELD VILLAGE
EXTERNAL ROAD IMPROVEMENTS,

NORMANBY ROAD / CAULFIELD BOULEVARD, CAULFIELD

FUNCTIONAL LAYOUT PLAN

MELWAY REF.	DRAWING NO.	ISSUE
68/E1	15M1432104-02-04	P11

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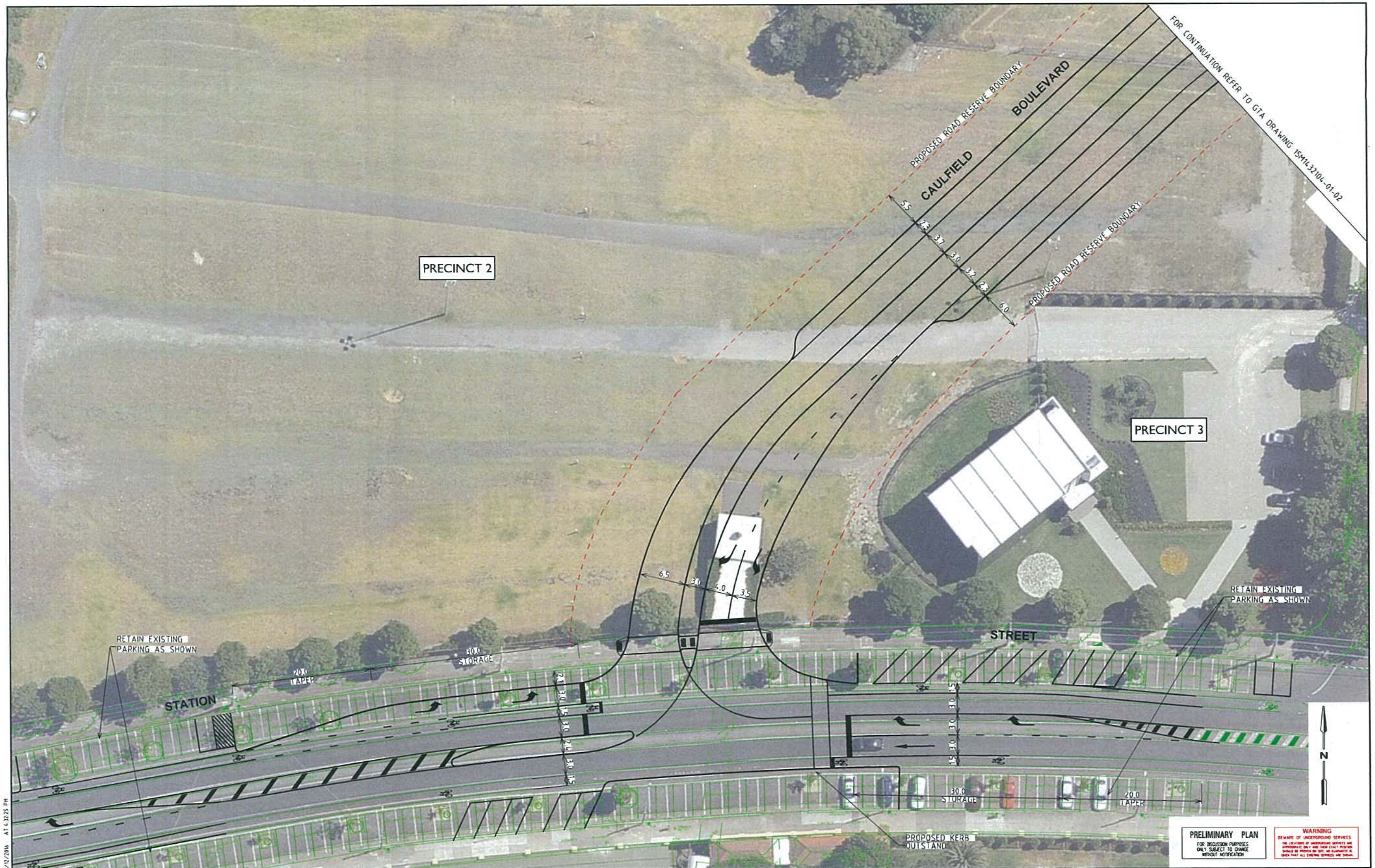

AMENDMENTS

ISSUE	DATE	DESCRIPTION	BY	CHK.	APP.
P11	16.12.16	GENERAL AMENDMENTS TO OVERALL ROAD NETWORK	A.D.	S.D.	S.D.
P10	07.04.16	MINOR AMENDMENTS ON THE BOULEVARD	P.P.	A.D.	S.D.
P9	24.03.16	AMENDMENTS TO ROUNDABOUT ON KAMBROOK ROAD	P.P.	K.W.	S.D.
P8	04.03.16	MINOR MODIFICATIONS TO HAVE CONSISTENCE DESIGN BETWEEN ULTIMATE AND STAGE 2	P.P.	K.W.	S.D.
P7	31.08.15	MINOR MODIFICATIONS TO SHEET 4 AND ADDED SHEET 7 AS PER VICROADS COMMENTS	B.K.	K.W.	S.D.
P6	26.08.15	INDENTED PARKING INCLUDED ON BOND STREET	P.P.	K.W.	S.D.
P5	06.08.15	UPDATE ARCHITECTURAL BASE. MODIFY THE BOULEVARD ALIGNMENT	P.P.	K.W.	S.D.
P4	11.05.15	ADD SHEETS 4 AND 5, AMEND DESIGN	E.S.	A.D.	S.D.
P3	17.04.15	MODIFICATIONS TO ALIGNMENT OF THE BOULEVARD	B.K.	K.W.	S.D.
P2	16.02.15	INTERSECTION ALIGNMENT MODIFIED	K.W.	K.W.	S.D.

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CAULFIELD VILLAGE
EXTERNAL ROAD IMPROVEMENTS,

CAULFIELD BOULEVARD / STATION STREET,
CAULFIELD

FUNCTIONAL LAYOUT PLAN

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