

Expert Traffic Evidence Statement

Amendment C317 / Planning
Application 970/2014, 321-399
Ibbotson Street, St Leonards

CG150980

Prepared for
Costa Property Nine Pty Ltd

8 December 2015



Document Information

Prepared for Costa Property Nine Pty Ltd
Project Name Amendment C317 / Planning Application 970/2014, 321-399 Ibbotson Street, St Leonards
File Reference CG150980REP001F01.docx
Job Reference CG150980
Date 8 December 2015

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Document Control

Version	Date	Author	Author Initials	Reviewer	Reviewer Initials
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1 Introduction

My name is Stephen John Hunt and I have been requested by TGM Group Pty Ltd on behalf of by Costa Property Nine Pty Ltd to review and provide my expert opinion on traffic and transport matters relevant to the proposed rezoning and subdivision of the subject land at 321-399 Ibbotson Street, St Leonards.

My qualifications to undertake this work along with facts and assumptions relied upon are provided below.

Name:

Stephen John Hunt

Address:

Cardno

Level 4, 501 Swanston Street

Melbourne Vic 3000

Professional Qualifications:

Bachelor of Engineering (Civil), 1975, Swinburne University of Technology

Graduate Diploma of Highway and Traffic Engineering, 1981, Chisholm Institute of Technology

Professional Experience:

Consultant, Cardno Victoria: 2007 - present

Director, Grogan Richards Pty Ltd: 1988 – 2006

Traffic Engineer with Cities of Doncaster and Templestowe, Caulfield and Prahran: 1975 - 1988

Areas of Expertise:

- > Car parking and traffic.
- > Traffic advice and assessment of land uses and development proposals to planning authorities, government agencies, corporations and developers (including major residential, retail, commercial, industrial, institutional and mixed use projects).
- > Preparation and presentation of evidence before VCAT and Planning Panels Victoria.

Expertise to Prepare This Report:

My training and experience including involvement with all forms of development over many years qualifies me to comment on the traffic and car parking implications of the proposal.

Instructions which Defined the Scope of this Report:

I have been requested by Costa Property Nine Pty Ltd to express my expert opinion as to the car parking implications of the proposed development.

Facts, Matters And Assumptions Relied Upon:

- > 321-359 Ibbotson Street, St Leonards development plans (Drawing No. 5636-100-0DP – Plan 8, sheets 1-6), TGM Group, 1 December 2015;
- > 'Greater Geelong Combined Planning Scheme Amendment C317 & Subdivision Permit 970/2014 St Leonards Growth Area 1', Department of Economic Development, Jobs, Transport and Resources (formally Department of Transport, Planning and Local Infrastructure), 16 October 2014;
- > 'Amendment C317 Delegated Authority Report', City of Greater Geelong, 3 November 2015;

- > 'Traffic and Transport Assessment, Ibbotson Street Subdivision – Growth Area 1', Cardno, 28 August 2015;
- > Demographics & Social Profile, Adopted St Leonards Structure Plan 2015: City of Greater Geelong, March 2015;
- > Sustainable Settlements, Greater Geelong Regional Profile: G21 Regional Alliance, October 2014;
- > Various submissions to Amendment C317 / Planning Application 970/2014;
- > Greater Geelong Planning Scheme;
- > Traffic survey data collected by Trans Traffic Surveys on behalf of Cardno, November 2015

Identity of Persons Undertaking the Work:

Stephen Hunt assisted by Aaron Walley of Cardno

I have made all the inquiries that I believe are desirable and appropriate, and no matters of significance, which I regard as relevant, have to my knowledge been withheld from the Tribunal.

A handwritten signature in black ink, appearing to be 'S. Hunt', written in a cursive style.

Stephen Hunt

Consultant

for **Cardno**

2 Planning Background

2.1 Amendment C317 / Planning Application 970/2014

The subject land is identified as 'Growth Area 1' in the St Leonards Structure Plan (adopted March 2015). Along with a second area to the south of Murradoc Road identified as 'Growth Area 2' (and the subject of Amendment C325), these two sites are estimated to provide between 16 and 23 years supply of land for the St Leonards Township.

On behalf of Costa Property Nine Pty Ltd, TGM Group submitted a combined Planning Scheme amendment application for the rezoning and the staged subdivision of the subject land at 321-399 Ibbotson Street, St Leonards in August 2014. My firm was engaged to provide specialist traffic engineering advice as part of this process culminating in the August 2015 Traffic and Transport Assessment report prepared by my firm¹. This work was coordinated with traffic advice provided by my firm for the Amendment C325 land to the south, with combined discussions with the City of Greater Geelong (CoGG), VicRoads and the Department of Economic Development, Jobs, Transport and Resources (DEDJTR) resolving the following external works to Murradoc Road intersections to mitigate the additional traffic generated across both sites:

- Shoulder widening and sealing to provide a left turn lane from Murradoc Road to Old St Leonards Road at the Murradoc Road / Old St Leonards Road intersection (Amendment C317 area); and
- Modifications to the Murradoc Road / Ibbotson Street / Leviens Road intersection to:
 - Provide a left turn lane from Murradoc Road to Ibbotson Street (Amendment C317 area);
 - Widen and seal the southern shoulder of Murradoc Road west of Leviens Road to provide facility for westbound through vehicles to pass right turning vehicles to Ibbotson Street (Amendment C317 area);
 - Amendments to Ibbotson Street to facilitate the above works (Amendment C317 area);
 - Widen and seal the northern shoulder of Murradoc Road east of Ibbotson Street and associated line marking changes along Murradoc Road to provide a channelised right turn to Leviens Road (Amendment C325 area);
 - Widen and seal the southern shoulder of Murradoc Road east of Leviens Road to provide a left turn lane to Leviens Road (Amendment C325 area); and
 - Discontinue Ibbotson Street south of the intersection (Amendment C325 area).

Concept layout plans detailing these intersection works are included in Appendix A.

The combined amendment and application was referred to VicRoads and Public Transport Victoria (PTV) in September 2014 with a coordinated response provided through the DEDJTR (formerly the Department of Transport, Planning and Local Infrastructure) on 16 October 2014. Neither VicRoads nor PTV opposed the amendment/application, with PTV advising of a preferred potential bus route through the land and a recommendation for Council to consider a formal pedestrian crossing of Murradoc Road near Old St Leonards Road, and with VicRoads providing planning permit conditions that outline the extent and delivery of the abovementioned Murradoc Road intersection works required by the Amendment C317 area. A copy of this referral response is included in Appendix B.

The amendment/application was also referred internally to Councils' Engineering Service unit, with Councils' traffic engineer determining that, by way of a planning permit condition, a Local Area Traffic Management (LATM) plan should be developed to identify the need and form of any internal and external traffic management treatments additional to the above Murradoc Road intersection works required to appropriately manage and mitigate development traffic impacts. A copy of this referral response is also included in Appendix B

The CoGG resolved to support the combined amendment and application under delegation in August 2015.

¹ 'Traffic and Transport Assessment, Ibbotson Street Subdivision – Growth Area 1', Cardno, 28 August 2015

2.2 Submissions

The combined amendment and application was advertised across September and October 2015 with 19 responses received. Traffic matters raised in submission additional to those raised in the DEDJTR and Council internal referrals include:

- Concern of increased traffic on existing local streets (specifically Rigby Street and Ibbotson Street);
- The lack of existing pedestrian infrastructure, particularly along Murradoc Road; and
- The impact of additional traffic on Murradoc Road.

3 Site and Surrounds

3.1 Location and Land Use

The subject site is located on the western edge of the existing St Leonards Township and bound by Old St Leonards Road to the south, Ibbotson Street to the west, the St Leonards Golf Course to the north and residential dwellings fronting Lake View Crescent to the east, as shown in Figure 3-1.

The site is undeveloped having historically been used for farming purposes.

Figure 3-1 Site Location



3.2 Road Network

3.2.1 Ibbotson Street

Ibbotson Street is a local road running north-south along the western edge of the subject land.

North of Murradoc Road to Old St Leonards Road, Ibbotson Street is an urban standard road with a sealed carriageway of approximately 10.2 metres that provides two 3.0 metre wide traffic lanes plus a parking lane of approximately 2.1 metres either side. North of Old St Leonards Road Ibbotson Street continues as a rural standard 6.0 metre wide sealed road to approximately midway along the site frontage from where it continues north as an unsealed rural road. The current posted speed limit of Ibbotson Street varies between 60 and 80km/h.

Figure 3-2 Ibbotson Street, looking south from the subject site



Figure 3-3 Ibbotson Street, looking north from the subject site



3.2.2 Old St Leonards Road

Old St Leonards Road extends west from Murradoc Road along the southern boundary of the site. West of Lake View Crescent Old St Leonards Road is an unsealed gravel road with a posted speed limit of 60km/h.

Figure 3-4 Old St Leonards Road, looking west from the subject site



3.2.3 Lake View Crescent

Lake View Crescent extends north from Old St Leonards Road to Doongara Avenue, servicing properties along the western edge of the existing St Leonards Township to the east of the subject land.

Lake View Crescent is constructed as an urban standard local street and has a carriageway of approximately 7.5 meters which allows for two way traffic and intermittent kerbside parallel parking along both sides of the street. A default speed limit of 50km/h applies.

A view of Lake View Crescent is shown in Figure 3-5.

Figure 3-5 Lake View Crescent, south from Thomson Boulevard



3.2.4 Murradoc Road

Murradoc Road is a Declared Main Road and extends between Drysdale in the west and St Leonards in the east. In the vicinity of the site Murradoc Road consists of a single carriageway with one traffic lane in each direction plus sealed shoulders of approximately 1.5 metres shared within cyclists. West of Old St Leonards Road and in the vicinity of the site, Murradoc Road currently has a posted speed limit of 70 km/h.

Murradoc Road at Ibbotson Street is shown in Figure 3-6.

Figure 3-6 Murradoc Road, looking west from Ibbotson Street



3.2.5 Doongara Avenue

Doongara Avenue extends east from the north-east corner of the subject land across Lake View Crescent to Wattletree Avenue, with Wattletree Avenue then continuing to the south east to Murradoc Road. The Doongara Avenue carriageway is approximately 7.3 metres within a 16 metre road reserve.

3.2.6 Emu Street / Thomson Boulevard

Emu Street is an unconstructed local street as the westerly continuation of Thomson Boulevard from Lake View Crescent to the boundary of the subject site. From Lake View Crescent, Thomson Boulevard extends to the south-east to Rigby Street as an urban standard local street with a carriageway of approximately 7.3 metres within a 16.0 metre road reserve.

3.2.7 Rigby Street

Rigby Street is a local street generally oriented in northeast-southwest between Coatsworth Avenue and Lake View Crescent, and consistent with other local streets has a carriageway of approximately 7.3 metres wide within a 16 metre road reserve. West of Lake View Crescent to the boundary of the subject site Rigby Street is currently unconstructed.

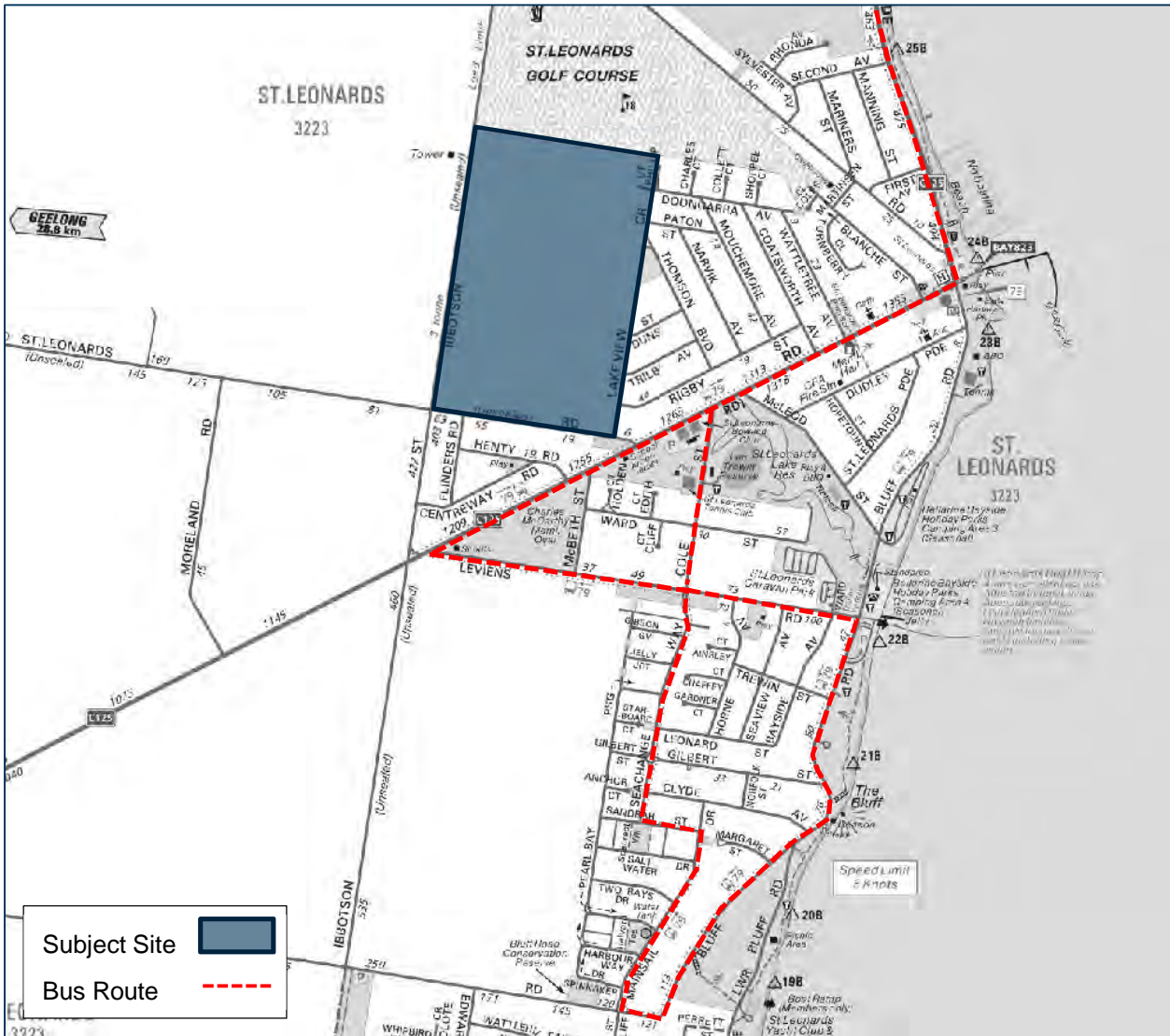
3.3 Public Transport

Bus Route 60 operates from the Geelong Railway Station to St Leonards via Portarlington, with this service operating along Murradoc Road in the vicinity of the site before circulating through residential streets to the south. Services operate between 5:00am and 9:00pm weekdays, with services approximately every hour between 7:00am and 2:00pm. Reduced services operate on Saturday, Sunday and Public Holidays.

The closest stop to the subject land is located on the north side of Murradoc Road to the west of Old St Leonards Road.

Bus Route 60 through St Leonards is shown in Figure 3-7.

Figure 3-7 Existing St Leonards Bus Route



4 Proposed Subdivision

4.1 General

As originally lodged in August 2014, the proposed rezoning subdivision of the subject land sought to develop the site as 484 residential lots. Since this time, responding to input from the CoGG and other, the proposed subdivision has been amended and refined, with the current plans by TGM Group Pty Ltd (Version 5636-100-ODP-Plan 8, Dated 1 December 2015), now proposing a total yield of 468 lots.

Figure 4-1 illustrates the proposed residential subdivision layout.

Figure 4-1 Proposed Residential Subdivision Layout



4.2 Vehicle Access and Road Network

Vehicle access to the proposed subdivision will be provided directly to Ibbotson Street and Old St Leonards Road, with access to the east to Lake View Crescent via Doongara Avenue and the unconstructed sections of Emu Street and Rigby Street.

Consistent with the existing local street network to the east, internal streets will be constructed to standard equivalent to the CoGG Planning Scheme Clause 56 Access Street Level 2 with a 7.3 metre wide carriageway within a typical 16.0 metre road reserve. Where fronting open space, the road reserve would be reduced to 13.5 metres wide but a 7.3 metre carriageway will be retained.

Development of the proposed subdivision will also include the sealing and upgrade of Old St Leonards Road to include a 7.0 metre carriageway plus a 2.3 metre wide parking lane on one side, along with the widening and improvements to Ibbotson Road north of Old St Leonards Road to an equivalent standard to that between Murradoc Road and Old St Leonards Road.

Proposed internal and external road cross sections are included in Appendix C.

4.3 External Works

As outlined in Section 2.1, the development of the subject land will include agreed works at the intersections of Old St Leonards Road and Ibbotson Road with Murradoc Road. As resolved with VicRoads and the CoGG, works to be undertaken will consist of:

- Shoulder widening and sealing to provide a left turn lane from Murradoc Road to Old St Leonards Road at the Murradoc Road / Old St Leonards Road intersection;
- Provision of a left turn lane from Murradoc Road to Ibbotson Street;
- The widening and sealing of the southern shoulder of Murradoc Road west of Leviens Road to provide facility for westbound through vehicles to pass right turning vehicles to Ibbotson Street; and
- Amendments to Ibbotson Street to facilitate the above works.

The location and detail of any external traffic management works and treatments on local roads, notably the treatment of access intersections along Lake View Crescent to the east, can reasonably be resolved through the preparation of a LATM plan as has been recommended by Councils' traffic engineer.

4.4 Sustainable Transport

4.4.1 Pedestrian and Cycle Facilities

In general pedestrian and cyclist will be accommodated within the local street network, with cyclists sharing road space with vehicle traffic and pedestrians using footpaths to be provided. In addition a 2.5 metre shared path will extend from the north-west corner of the site along Ibbotson Street and continue through the creek open space corridor to Old St Leonards Road in the south-east corner (see Figure 4-2).

As shown in the cross sections attached in Appendix C, footpaths will also be constructed within Ibbotson Street and Old St Leonards road along the interface of these streets with the subject land.

4.4.2 Public Transport

As shown in Figure 4-2, consistent with the possible bus route as identified within the October 2014 DEDJTR (DTPLI) referral, the internal east-west local street linking Rigby Street and Ibbotson Street is identified as a future bus route.

Figure 4-2 Walking, Cycling and Public Transport Plan



4.5 Staging

Development of the subject land will be delivered across 20 development stages. Development will commence along the eastern interface of the site, with Stage 1 through 9 to be initially rely on access via Lake View Crescent only before access to Ibbotson Street is provided as part of Stage 10.

With the expectation of Ibbotson Street along Stage 16 (to be delivered to Old St Leonards Road with Stage 10), the delivery of external road upgrades would be undertaken in connection with the relevant fronting development stage.

The proposed staging plan in presented in Figure 4-3.

Figure 4-3 Staging Plan



5 Traffic Matters

5.1 Local Street Traffic Volume Surveys

Responding to concerns regarding the impact of development on the existing road network, my firm commissioned traffic volume traffic counts at the following locations on key local roads that will be used by future development traffic across the week of Wednesday 28th October through Tuesday 3rd November 2015.

- Ibbotson Road - north of Murradoc Road
- Old St Leonards Road – between Lake View Crescent and Murradoc Road
- Lake View Crescent – between Old St Leonards Road and Rigby Street
- Wattletree Road - north of Murradoc Road

The summarised results of these surveys are presented in Table 5-1 below

Table 5-1 Existing Local Street Traffic Volumes (November 2015)

	Weekday Average (vpd)	7-Day Average (vpd)	Average Vehicle Speed (km/h)
Ibbotson Street	464	480	46
Old St Leonards Road	610	615	30
Lake View Crescent	562	565	37
Wattletree Road	278	296	35

5.2 St Leonards Residential Traffic Generation Characteristics

In conjunction with the above-mentioned traffic volume surveys of key local roads, to determine local residential traffic generation characteristics, additional traffic counts were undertaken to capture traffic movements to and from the isolated residential area (see Figure 5-1) to the east of the subject land across the same survey period, with this period including the Melbourne Cup public holiday. This area contains 386 dwellings (excluding unoccupied lots) with vehicle access to this area via Lakeview Crescent, Coatesworth Avenue and Wattletree Avenue only.

These traffic counts recorded the following traffic volumes to and from the study area:

- Weekday average (Wed – Fri): 1465 vehicle movements
- Weekend average (Sat & Sun): 1809 vehicle movements
- Holiday weekend average (Sat - Tues): 1759 vehicle movements

Equating these volumes to the number of dwellings within the survey area, recorded traffic generation rates are:

- Weekday average (Wed – Fri): 3.8 vehicle movements per dwelling
- Weekend average (Sat & Sun): 4.7 vehicle movements per dwelling
- Holiday weekend average (Sat - Tues): 4.6 vehicle movements per dwelling

The above recorded traffic generation rates are low compared to typical residential dwelling traffic generation rates. However, as St Leonards experiences a high dwelling vacancy rate outside of the peak summer holiday period², these lower traffic generation rates are not unexpected and reflect a 2011 Australian Bureau of Statistics Census (conducted in August 2011) dwelling vacancy rate of 59.1 percent³ as compared to a dwelling vacancy rate of 13.2 percent across the Greater Geelong Local Government Area (LGA)⁴.

² *Demographics & Social Profile*, Adopted St Leonards Structure Plan 2015: City of Greater Geelong, March 2015

³ *Demographics & Social Profile*, Adopted St Leonards Structure Plan 2015: City of Greater Geelong, March 2015

⁴ *Sustainable Settlements*, Greater Geelong Regional Profile: G21 Regional Alliance, October 2014

Figure 5-1 Local Traffic Generation Study Area



Acknowledging the above, and on the basis that dwellings across the subject land would exhibit similar occupancy rates, in my view the following traffic generation rates are appropriate as design rates for dwellings within the C317 area.

- Typical: 5 vehicle movement per dwelling per day
- Peak Holiday Period: 8 vehicle movement per dwelling per day

Also acknowledging the variation in typical and peak holiday period dwelling occupancy rates within the Township, existing traffic volumes as recorded in the November 2015 surveys and presented in Table 5-2 would be higher across the peak summer holiday period versus other times of the year. Factoring the recorded average daily traffic volumes based on the relative dwelling occupancy rates for St Leonards versus the Greater Geelong LGA, adjusted local street base traffic volumes that reflect peak period dwelling occupancies are presented in Table 5-2.

Table 5-2 Amendment C317 – Adopted Base Traffic Volumes (Daily)

	Average – Typical (vpd)	Average – Peak Holiday Period (vpd)
Ibbotson Street	480	1020
Old St Leonards Road	615	1305
Lake View Crescent	565	1200
Wattletree Road	296	630

5.3 Traffic Generation and Distribution

Considering the nature of St Leonards and the location retail, recreation, community, education and workplace destinations, the August 2015 traffic and transport assessment report adopts the following broad traffic distribution:

- West - Bellarine Peninsula / Geelong (inc. Drysdale) 75%
- East - St Leonards 25%

Locally this traffic will distribute across internal road, through the development access points and across the local road network by the perceived most convenient route. By in large, this will be either by Lake View Crescent to the Old St Leonards Road / Murradoc Road interaction or Ibbotson Street to Murradoc Road before then heading east or west on Murradoc Road.

Some development traffic other than that associated with Stage 16 and 17 can be expected to move east or west along Old St Leonards Road rather than travel directly to Murradoc Road once Old St Leonards Road is constructed as part of these stages. Additionally some eastbound traffic generated from lots at the northern end of the site can reasonably be expected to use Doongara Avenue and Wattletree Avenue rather than Lake View Crescent.

5.4 Traffic Impacts

5.4.1 Full Development Traffic Generation

Applying the typical and peak holiday period design rates identified in Section 5.2 to the 468 lots at full development, the expected daily traffic volumes that would be generated during typical and peak holiday periods is as follows:

- Typical (5 vm/lot/day): 2,340 vehicle movements per day
- Peak Holiday Period (8 vm/lot/day): 3,744 vehicle movements per day

Distributing this traffic across the development and external road network, expected typical and peak holiday period development traffic volumes are shown in Figure 5-2 and Figure 5-3 respectively. From these figures it is apparent that, with the exception of the middle Ibbotson Road access at peak holiday times (1,002 vehicle movement per day), traffic volumes on internal roads will remain below the typical lower order local access street daily target range of 1,000-2,000 vehicle movements per day (equivalent to the Clause 56 Access Street Level 1).

Adding development traffic to existing local street traffic volumes, post development external road traffic volumes are presented in Table 5-3 and Table 5-4.

From these tables, with the exception of Ibbotson Street north of Murradoc Road, typical daily volumes will remain within the lower order local access street daily target range of 1,000 – 2,000 vehicle movements per day, with Ibbotson Street just exceeding this range at 2,043 vehicle movements per day. At peak holiday periods, post development traffic volumes on external streets will increase, with volumes on Ibbotson Street reaching close to 3,500 vehicle movements per day and volumes on Lake View Crescent and Old St Leonards Road in the order of 2,200 to 2,800 vehicle movements per day.

With a 7.5 metre carriageway within a 16.0 metre road reserve, Lake View Crescent is equivalent to a Level 2 Access Street as per the residential street road design standards outlined in Clause 52.06 of the CoGG Planning Scheme, with such streets having a target daily traffic volume range of 2,000-3,000 vehicle movements per day. As such, in my opinion, the expected post development traffic volumes on Lake View Crescent are acceptable, particularly noting that typical volumes will actually be less than the 2,000-3,000 vehicle movements per day target range for equivalent residential streets.

Noting that Old St Leonards Road will be constructed to a similar standard, albeit that a parking lane will be provided clear of traffic lanes, I am also comfortable that post development traffic can reasonably be accommodated within this street.

Typical traffic volumes on Ibbotson Street between Old St Leonards Road and Murradoc Road will fall within the Clause 52.06 of the CoGG Planning Scheme Level 2 Access Street target daily traffic volume range of

2,000-3,000 vehicle movements per day, but with peak holiday period volumes exceeding this range at 3,500 vehicle movements per day.

The cross section of Ibbotson Street is of a higher standard than a typical Level 2 Access Street and includes a parking lane on either side of the street clear of traffic lanes. As such, Ibbotson Street does have a greater traffic capacity than a Level 2 Access Street where parked vehicles and through traffic in part share the available road space. Considering this and noting that the daily traffic volume range of 2,000-3,000 vehicle movements per day would be exceeded during peak holiday periods only, I am comfortable that post development traffic volumes can be accommodated.

Figure 5-2 Full Development Traffic Generation – Typical (5 vehicle movements per lot)



Figure 5-3 Full Development Traffic Generation – Peak Holiday Period (8 vehicle movements per lot)



Table 5-3 Amendment C317 – Post Development Local Street Traffic Volumes (Typical)

	Existing (vpd)	Additional Development Traffic (vpd)	Total Daily Traffic Volumes
Ibbotson Street (north of Murradoc)	480	1563	2043
Old St Leonards Road (west of Murradoc)	615	919	1534
Lake View Crescent (north of Old St Leonards)	565	634	1199
Wattletree Road (north of Murradoc)	296	47	343

Table 5-4 Amendment C317 – Post Development Local Street Traffic Volumes (Peak Holiday)

	Existing (vpd)	Additional Development Traffic (vpd)	Total Daily Traffic Volumes
Ibbotson Street (north of Murradoc)	1020	2456	3476
Old St Leonards Road (west of Murradoc)	1305	1469	2774
Lake View Crescent (north of Old St Leonards)	1200	1014	2214
Wattletree Road (north of Murradoc)	630	74	704

5.4.2 Stages 1 to 9 Traffic Generation

As per the development staging plan presented in Figure 4-3, prior to the delivery Stage 10, all vehicle access to Stages 1 through 9 will be via Lake View Crescent only. Assuming full occupancy of all 199 lots across these stages at this time, the level of traffic generated will be as follows:

- Typical (5 vm/lot/day): 995 vehicle movements per day
- Peak Holiday Period (8 vm/lot/day): 1595 vehicle movements per day

Distributing this traffic to Lake View Crescent and through the Old St Leonards Road / Murradoc Road intersection only, typical and peak holiday period development generated traffic volumes are shown in Figure 5-4 and Figure 5-5, with total external road network volumes presented in Table 5-5 and Table 5-6.

Review of these figures and tables shows that:

- Internal road network volumes will remain less than 1,000 vehicle movements per day on any street during typical and peak holiday periods; and
- External road network volumes will not exceed the Clause 52.06 of the CoGG Planning Scheme Level 2 Access Street target daily traffic volume range of 2,000-3,000 vehicle movements per day during typical and peak holiday periods.

Post the Stage 10 connection to Ibbotson Street, development generated traffic will redistribute, ultimately reaching levels as discussed in Section 5.4.1.

Figure 5-4 To Stage 9 Traffic Generation – Typical (5 vehicle movements per lot)

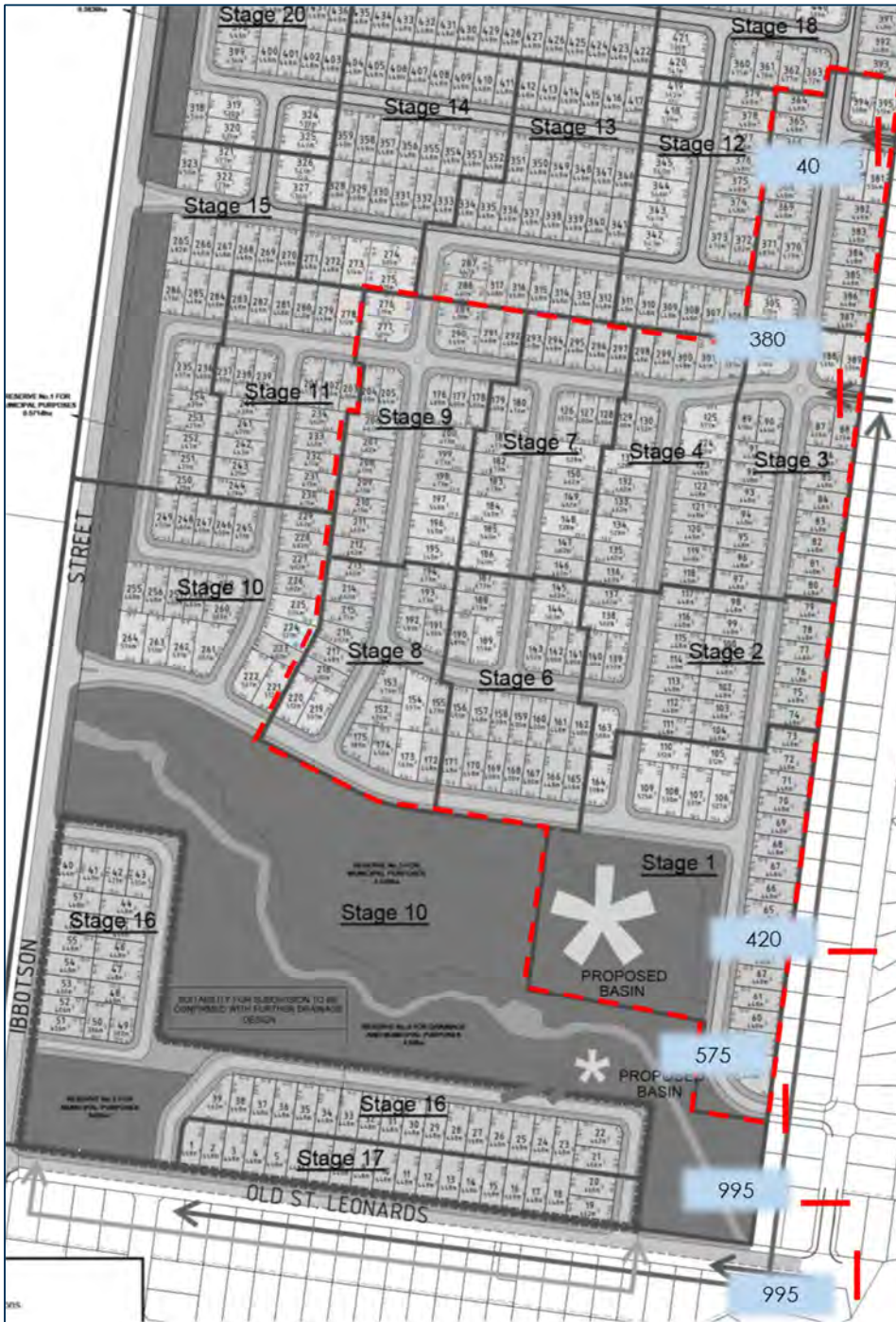


Figure 5-5 To Stage 9 Traffic Generation – Peak Holiday Period (8 vehicle movements per lot)

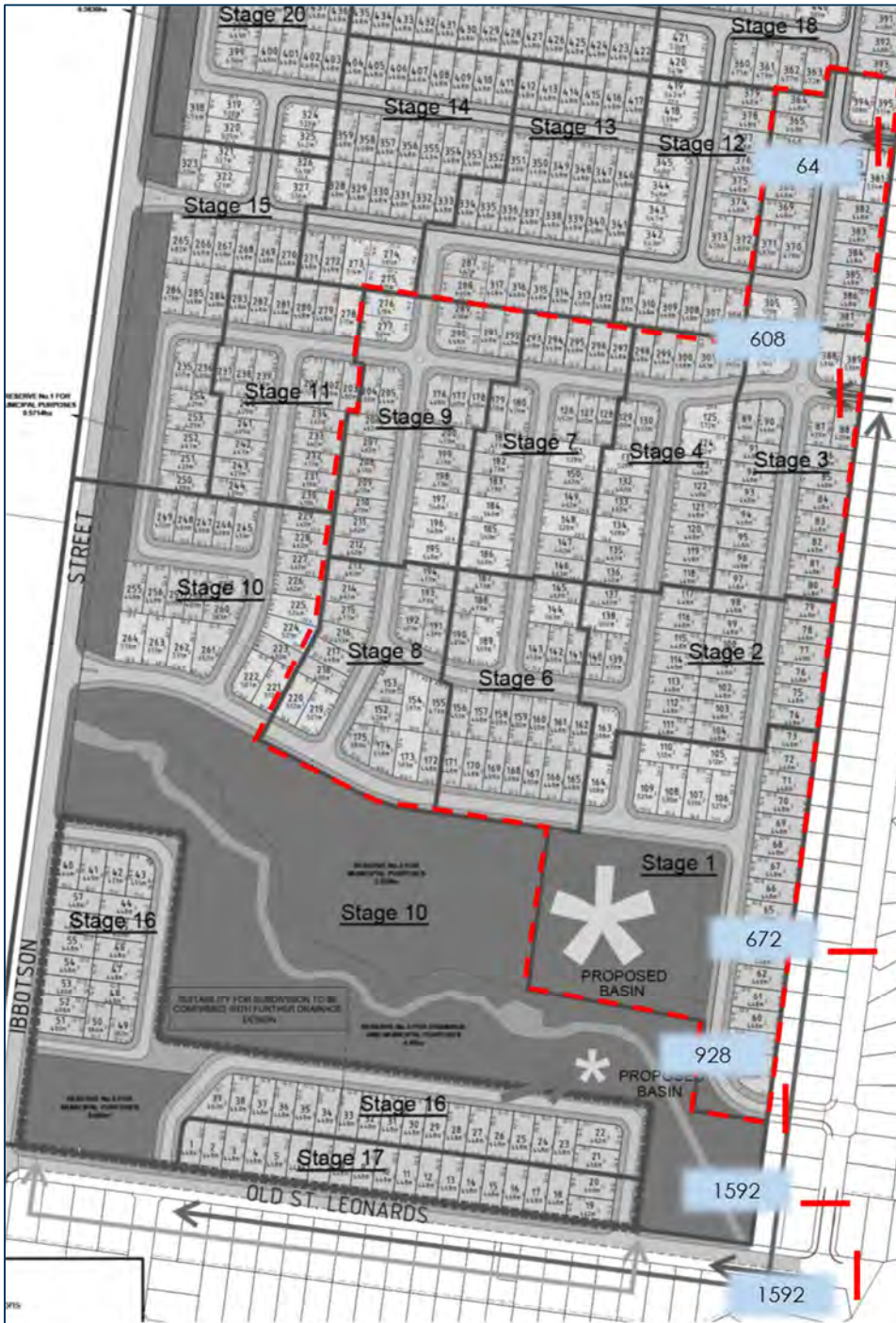


Table 5-5 Amendment C317 – Stage 9 Local Street Traffic Volumes (Typical)

	Existing (vpd)	Additional Development Traffic (vpd)	Total Daily Traffic Volumes
Ibbotson Street (north of Murradoc)	480	-	480
Old St Leonards Road (west of Murradoc)	615	995	1610
Lake View Crescent (north of Old St Leonards)	565	995	1560
Wattletree Road (north of Murradoc)	296	40	336

Table 5-6 Amendment C317 – Stage 9 Local Street Traffic Volumes (Peak Holiday)

	Existing (vpd)	Additional Development Traffic (vpd)	Total Daily Traffic Volumes
Ibbotson Street (north of Murradoc)	1020	-	1020
Old St Leonards Road (west of Murradoc)	1305	1592	2897
Lake View Crescent (north of Old St Leonards)	1200	1592	2792
Wattletree Road (north of Murradoc)	630	64	694

6 Response to Submissions

6.1 DEDJTR (Formerly DTPLI)

6.1.1 Public Transport Victoria

Comments provided by PTV within the combined October 2014 DEDJTR referral response suggested:

- To accommodate the future potential bus route through the subject land, the east-west internal street link north of the creek corridor should provide on-road cycle lanes consistent with the Public Transport Guidelines for Land Use Development, 2008; and
- That a formal pedestrian crossing of Murradoc Road near Old St Leonards Road should be considered as part of the identified intersection works.

I accept and generally agree with the principals for road design and cross sections outlined within the 2008 Public Transport Guidelines for Land Use Development. However, application of these guidelines and inclusion of bicycle lanes on the suggested bus route through the subject land is excessive in this instance noting that:

- With traffic volumes on the identified east-west link generally less than 1,000 vehicle movements per day, a wider street cross section is not warranted and is likely to result in undesirable driver behaviour;
- An off-road shared path is provided parallel to this street link through the creek open space corridor; and
- The resulting suggested road cross section would exceed that of existing connecting streets that would form part of the identified bus route.

I also agree in principal with the suggested formal pedestrian crossing of Murradoc Road in the vicinity of Old St Leonards Road. However, as discussed within the CoGG November 2015 delegates report, there is no existing pedestrian infrastructure in the vicinity of this intersection. Therefore, in my view it would be premature to provide this crossing until such time as the lack of other pedestrian infrastructure is resolved and addressed, with this beyond the remit of the subject development.

6.1.2 VicRoads

VicRoads requested conditions within the combined October 2014 DEDJTR referral response relate to the delivery of the agreed Murradoc Road intersection works, with VicRoads requesting that the identified works at both intersections (as discussed in Section 4.3) be undertaken prior to the issue of statement of compliance for any stage of the subdivision.

As identified within the staging plan, no access to Ibbotson Street will be provided until Stage 10, with Stages 1-9 accessed via Lake View Crescent and the Old St Leonards Road / Murradoc Road intersection only.

In this regard, in my view it reasonable that the agreed works at the Ibbotson Street / Murradoc Road intersection could be delayed until such time as the internal road network connection is made to Ibbotson Road is made and Ibbotson Road upgrade works undertaken as part of Stage 10. Works at the Old St Leonards Road / Murradoc Road intersection should be undertaken as part of the initial stages of development and ideally sequenced to avoid unnecessary impacts to traffic through this intersection as development progresses.

6.2 Other Submissions

Traffic matters raised by residents in submission include:

- Concerns of increased traffic on existing local streets (specifically Rigby Street and Ibbotson Street);
- The lack of existing pedestrian infrastructure, particularly along Murradoc Road; and
- The impact of additional traffic on Murradoc Road.

From the traffic surveys undertaken, existing volumes on all streets are low and, even when adjusted to reflect peak holiday periods, remain below the target capacity for a Level 2 Access Street of 2,000-3,000 vehicles per day. Of traffic generated by the subject development, 25 percent is expected to head east towards with the potential to filter through these local streets.

This is considered within the analysis in Section 5.4 of this statement, with this analysis indicating that traffic volumes on these streets will remain within or below this target range, including during peak holiday periods where St Leonards experiences an influx of holiday makers. As such it remains my view traffic generated by the development can reasonably be accommodated within the existing local road network. The agreed works at the intersection of Ibbotson Road and Old St Leonards Road with Murradoc Road that have been resolved with the Amendment C325 land will reasonably mitigate the additional traffic generated by both growth areas at these intersections.

The lack of existing pedestrian infrastructure beyond the subject land is noted but is not the remit of the subject development to resolve.

7 Conclusions

Based on the foregoing, it is my view that:

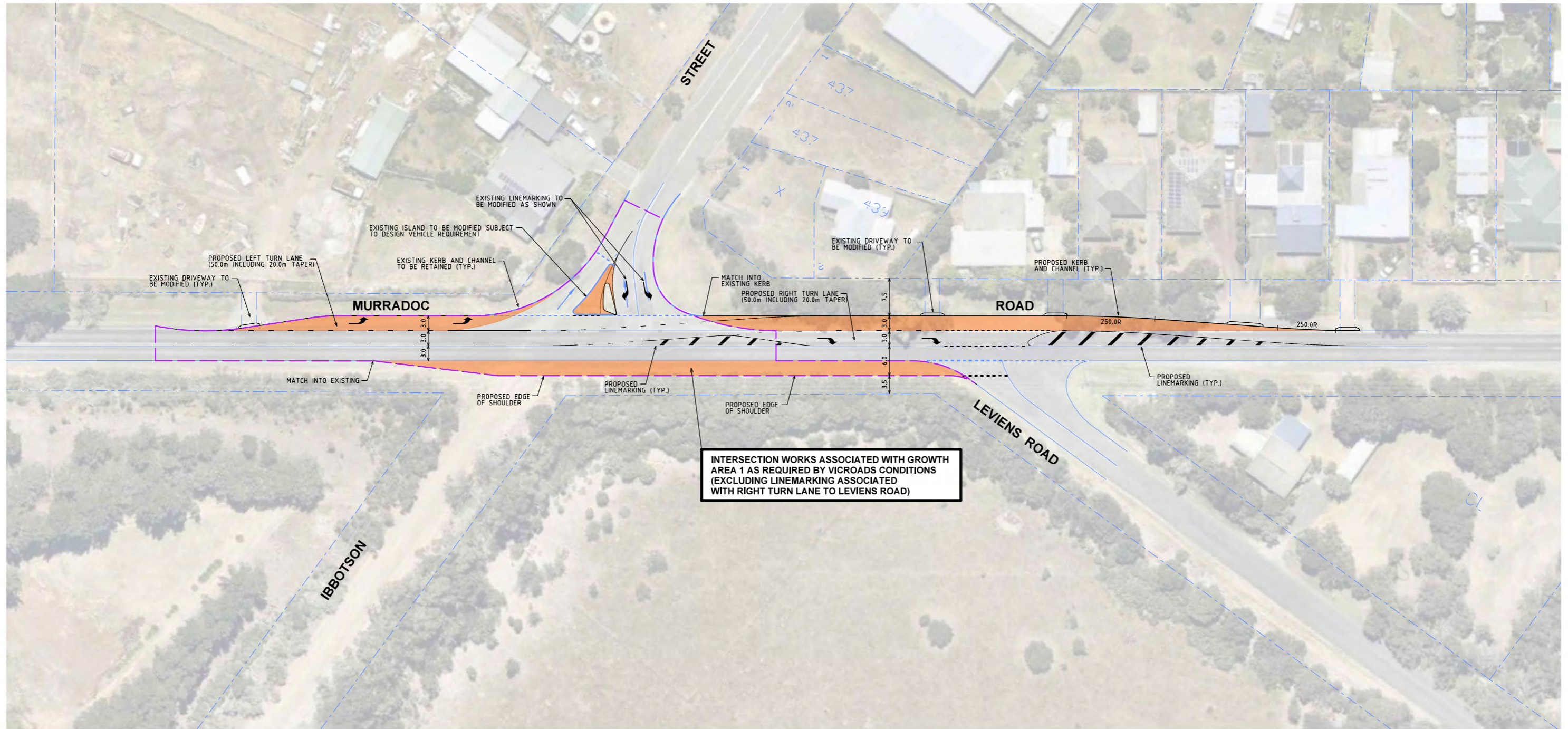
- The proposed subdivision layout including internal road cross sections, access points and proposed improvements to Ibbotson Road and Old St Leonards Road appropriate and will cater for the expected traffic that will be generated by the development;
- The external local road network can reasonably accommodate traffic generated by the subject development considering expected traffic generated during both typical and peak holiday periods;
- The Murradoc Road intersections works coordinated with the Amendment C325 land and agreed with VicRoads and CoGG are appropriate to mitigate traffic impacts at these intersections associated with traffic generated by both sites; and
- The trigger for the delivery of works at these intersections associated with the Amendment C317 land can reasonably be coordinated and delivered at the time of the relevant development stage that would result in additional traffic through these intersections.

Amendment C317 / Planning
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Ibbotson Street, St Leonards

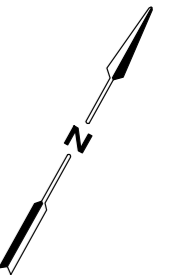
APPENDIX

A

MURRADOE ROAD INTERSECTIONS – CONCEPT LAYOUT PLANS



NEW PAVEMENT AREA = 745 m²



MELWAY REFERENCE MAP 459 J10

Rev	Date	Description	Drawn	Appr.
P1	04.12.15	ISSUED FOR INFORMATION	JCS	AW

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WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVIDED ON SITE.

1. ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
2. DECLARED ROAD - ST LEONARDS ROAD (SPEED ZONE 40KM/H)
3. LOCAL ROAD - IBBOTSON ROAD (SPEED ZONE 50KM/H)
3. LINE MARK IN ACCORDANCE WITH VICROADS TEM VOLUME 2 AND REMOVE ALL REDUNDANT LINEMARKING.

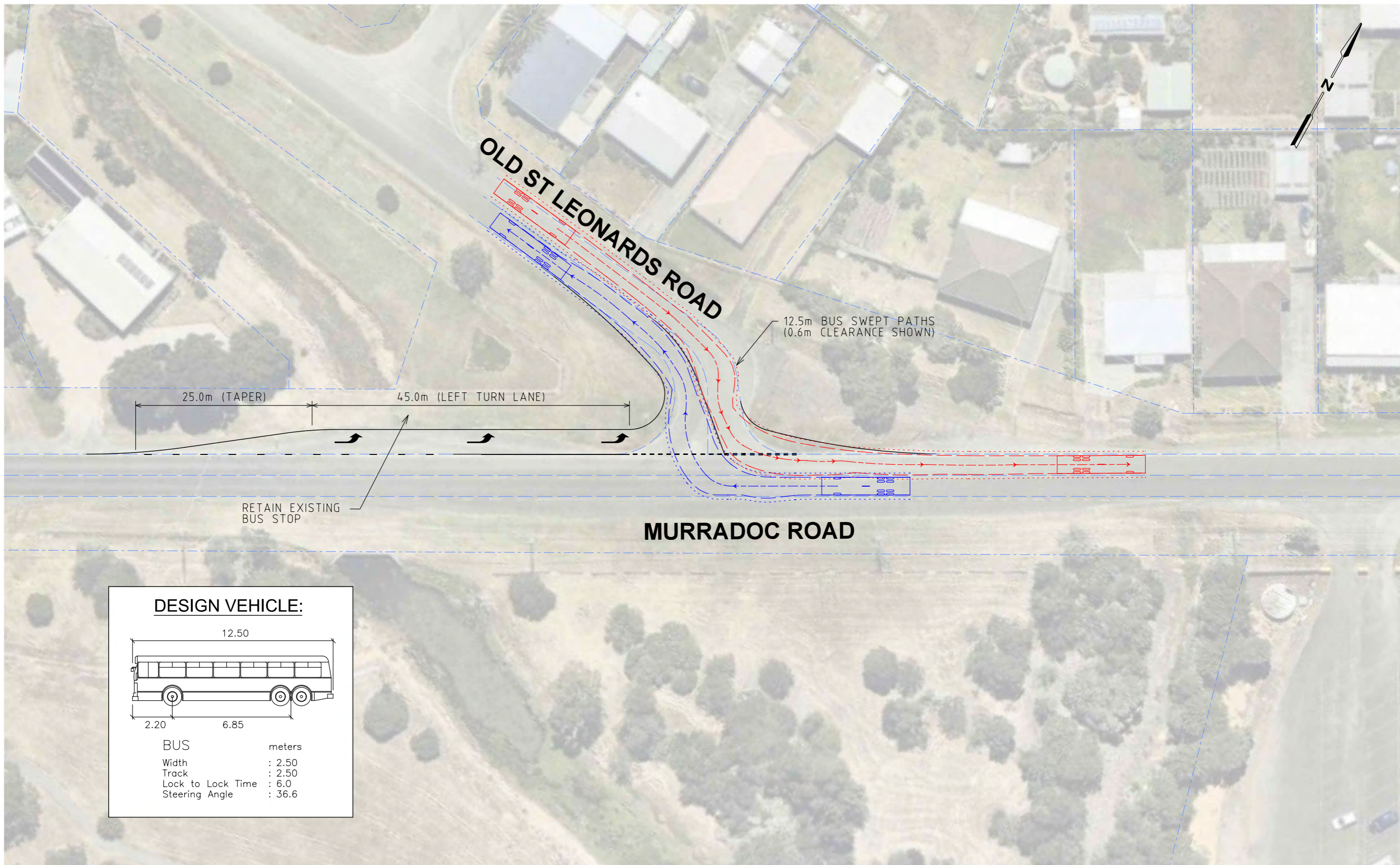
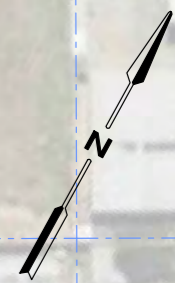
Cardno
 Shaping the Future

ABN: 47 106 610 913
 501 Swanston Street, Melbourne, VIC Australia 3000
 Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
 Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

Drawn	JCS
Designed	JCS
Checked	RPT
Authorised	AW

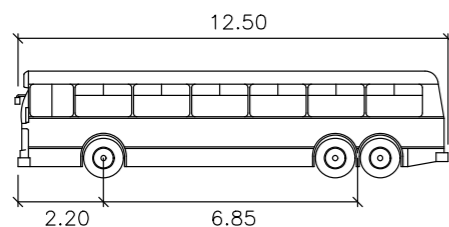
Client	COSTA PROPERTY NINE PTY LTD / TGM GROUP PTY LTD		
Project	GROWTH AREAS 1 AND 2 ST LEONARDS CITY OF GREATER GEELONG		
Title	GROWTH AREA 1 WORKS		

Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Date	04.12.15	Scale	1:400
Project Number	CG150980	Revision	T 01 P1



DATE PLOTTED: 4/12/2015 4:37:11 PM

DESIGN VEHICLE:



BUS		meters
Width	:	2.50
Track	:	2.50
Lock to Lock Time	:	6.0
Steering Angle	:	36.6

CAD FILE:\$FILEL\$.S

Amendment C317 / Planning
Application 970/2014, 321-399
Ibbotson Street, St Leonards

APPENDIX

B

AUTHORITY REFERRAL RESPONSES



Department of Transport, Planning and Local Infrastructure

180 Fyans Street
South Geelong Victoria 3220
PO Box 775
Geelong Victoria 3220
Phone (03) 5225 2524
Fax (03) 5221 6102
DX 216070

Ref: DOC/14/214719

Mr Peter Smith
Coordinator Strategic Implementation
City of Greater Geelong
PO Box 104
GEE LONG VIC 3220

Dear Peter

GREATER GEELONG COMBINED PLANNING SCHEME AMENDMENT C317 & SUBDIVISION PERMIT 970/2014 ST LEONARDS GROWTH AREA 1

I refer to your letter dated 4 September 2014 seeking initial comments and conditions to be included on the above mentioned combined amendment and subdivision permit application. The proposal relates to a multi-lot subdivision of approximately 480 lots at 321-399 Ibbotson Street, St Leonards.

This is a coordinated response from the Department of Transport, Planning and Local Infrastructure (DTPLI) and Public Transport Victoria (PTV) and VicRoads.

Public Transport

The following comments are provided in relation to the Cardno Traffic and Transport Assessment:

PTV's preference is for buses to access Murradoc Road, then turn right into Old St Leonards Road, right into Lake View Crescent, left into Rigby Street (into the new development using the southern east-west link road) and then left into Ibbotson Street (Refer to Attachment A below).

Roads nominated above for a potential bus route should provide for on-road cycle lanes in each direction and comply with the Public Transport Guidelines for Land Use and Development, 2008. The Guidelines were made a reference document in all Victorian Planning Schemes with the gazettal of Amendment VC49 on 15 September 2008. A copy of the Guidelines is available www.transport.vic.gov.au/projects/transport-strategies-and-plans/guidelines-for-land-use-development.

Pedestrians and Cyclists

It is noted that an east – west shared path through the development is proposed following the creek reserve, connecting Ibbotson Street with Old St Leonards Road. It is recommended that Council consider the need for a pedestrian crossing on Murradoc Road in the vicinity of Old St Leonards Road intersection to enable pedestrians from the growth area to safely access various attractions on the east side of Murradoc Road.

Arterial Roads

VicRoads has no objection to the Planning Scheme Amendment.

The subdivision will result in increased turning traffic on Murradoc Road at the Ibbotson Street and Old St Leonards Road intersections. Mitigating road works would be required at these two intersections to cater for this turning traffic. This requirement can be provided for as conditions on the planning permit.

It is requested that the following conditions be included in any permit granted for the subdivision:

1. Prior to the issue of a statement of compliance for any stage of this subdivision, the following works on Murradoc Road must be completed at no cost to and to the satisfaction of VicRoads:

At the Murradoc Road/Ibbotson Street intersection

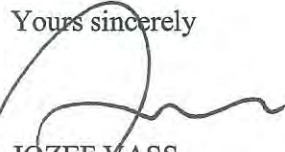
- a. A left turn lane shall be provided on Murradoc Road on the west approach to the intersection;
- b. The southern shoulder of Murradoc Road shall be widened and sealed (to allow through traffic to pass right turning vehicles);

At Murradoc Road/Old St Leonards Road intersection

- c. The northern shoulder of Murradoc Road shall be widened and sealed (to allow left turning vehicles to decelerate clear of through traffic).
2. Prior to commencing any works within the Murradoc Road reserve, the applicant must enter into a formal agreement with VicRoads regarding the following issues:
- a. The preparation of detailed construction plans.
 - b. The preparation of a specification for construction work methods, and quality assurance principles and practices.
 - c. Consultants and or contractors engaged in the design or the construction process being prequalified by VicRoads at the appropriate level.
 - d. Agreement to meet all costs incurred by VicRoads when undertaking assessments and approving all associated plans, including the surveillance and auditing of all works during and after construction.
 - e. Work site practices being in accordance with the Road Management Act 2004, Worksite Safety – Traffic Management, Code of Practice.
 - f. Agreement to terms associated with a defect liability period for all works and the lodgement of a security deposit.

If you require further information, please do not hesitate to contact me on 5225 2524 or at jozef.vass@dtpli.vic.gov.au

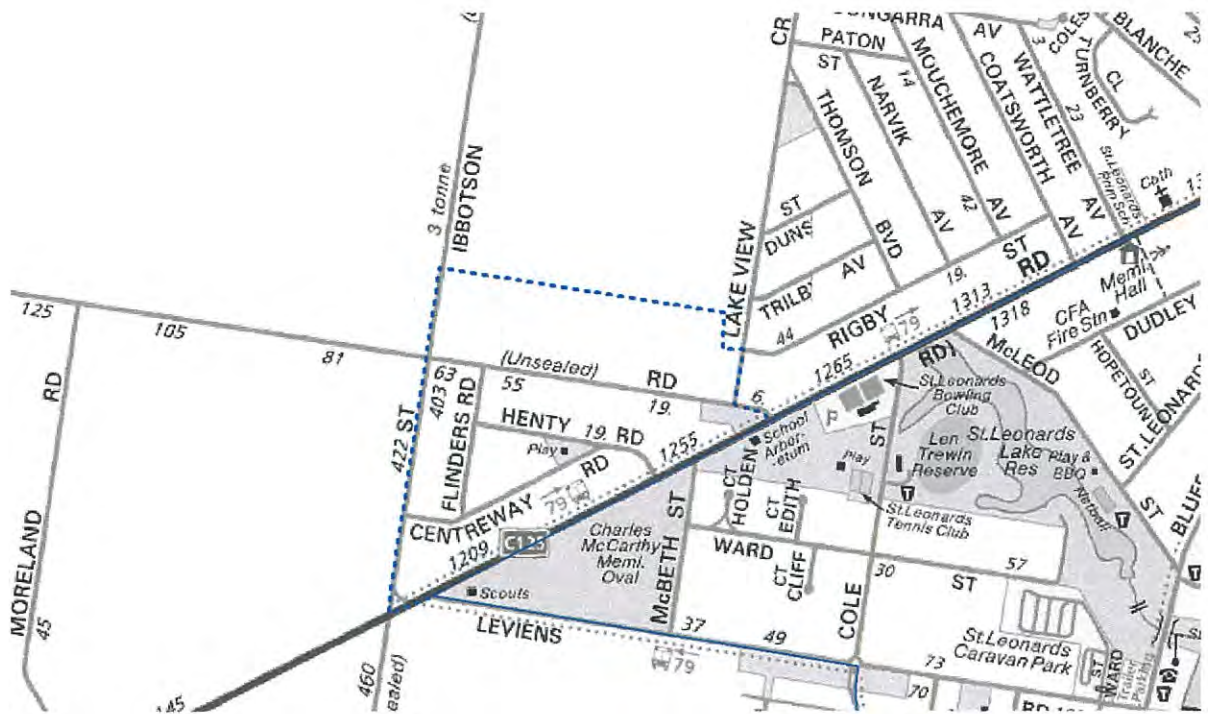
Yours sincerely



JOZEF VASS
Transport Coordination Manager
Barwon South West Region
Department of Transport, Planning and Local Infrastructure

16 / 10 / 2014

ATTACHMENT A – PTV PREFERRED BUS ROUTE



Broken blue line is the preferred route

Solid blue line is the existing and planned route for 2015

PTV preferred bus route is as follows:

- From Murradoc Road
- Right turn into Old St Leonards Road
- Right turn into Lake View Crescent
- Left turn into Rigby Street – (into the new development using the southern east-west link road)
- Left turn into Ibbotson Street
- Left turn into Murradoc Road
- Right turn into Leviens Road and then via normal route
- Reverse on the inbound.

MEMORANDUM

ATTENTION Lindsay Jacgung		
FROM Grant Edmonds	DOC NO. 970/2014	STATUS Internal Use Only
SUBJECT 321 – 399 Ibbotson St, St Leonards Combined Re-zoning (C317) and Multi Lot Subdivision		DATE 28 November 2014

Dear Lindsay,

I refer to your memo requesting an assessment of the above subdivision and re-zoning application.

Existing Conditions

Zoning:	FZ
Overlays:	N.A. (Pending Amendment C317)
Land area:	Approx 38.5 ha
Abuts:	N.A.

Proposed Development

The proposal relates to a combined amendment (change in zoning) and subdivision of the land into approximately 488 lots.

Road Network & Local Area Traffic Management

The proposed street layout has a number of concerns that will affect the amenity of future residents, safety and to the amenity into the existing road network.

Most issues can be dealt with through a Local Area Traffic Management (LATM) plan that will form part of the permit conditions.

The most obvious street that is likely to create a speeding issue is the long street close to the site's eastern boundary. Its length is approximately 700 m and follows a straight line. To avoid streets from developing a speeding issue, the length of such streets can be managed through shortening its length, or by applying LATM treatments.

In this case, LATM treatments and changes to some of the east-west streets will achieve an improved outcome. The problem though is that of the existing Lake View Cr, which is in parallel to this street and also has a similar length.

Council does not have any recent traffic counts or an 85th percentile speed for this street. If many LATM treatments were placed in the long north-south street within the development site, similar treatments would have to be provided in Lake View Cr.

The short east-west street that connects to Emu St needs to continue along the same alignment to the west, and a roundabout can be installed at the resultant cross intersection.

The two north-south streets currently within Stages 11 and 15 should be in alignment so that it forms a cross intersection, and a roundabout can be installed.

The east-west street close to the northern boundary results in rear fences backing onto the golf course land. It is preferable that the road abuts the golf course land in line with current guidelines.

Assuming this change is made, all other streets in the northern third of the site can move north, and that east-west street can be on the same alignment as Emu St. Another benefit is that the one cul-de-sac in the north-east corner can be removed.

There are a few 90 degree curves within the network that will require linemarking and parking restrictions. Some of these restrictions will affect the ability to park outside of the nearest dwellings. At the Rigby St extension, it is recommended that some indented parking be provided

The road reserve of the east-west street within Stage 1 may require widening at the T intersection to allow for a splitter island.

At least two intersection thresholds can be provided along this east-west street, given that it abuts the reserve.

Splitter islands are required at the three T intersections with Ibbotson St, and the road reserves may need widening to allow for this.

Other external treatments include the Emu St/Lake View Cr/Thomson Bvd intersection. Any eventual treatment will require some thought, given its current treatment and lack of priority. This could be a linemarking exercise...

It is recommended that indented parking be provided in the Emu St extension (within Stage 4).

C317 Amendment

It is recommended that a number of items be included in any Design Development Overlay that is applied to the re-zoning.

This should cover all external traffic works, such as:

- An upgrade to the Murradoc Rd/Ibbotson St intersection
- An upgrade to the Murradoc Rd/Old St Leonards Rd intersection
- Upgrades to Ibbotson St and Old St Leonards Rd
- Improvements to identified footpaths external to the site
- Implementation of Local Area Traffic Management (LATM) treatments to identified streets and intersections from an approved LATM plan to the east of the subject site

Traffic Generation

At full development, 488 lots will generate 2900 – 4900 vehicle trips per day. It is expected that there will be a percentage of dwellings that will be used on a seasonal basis. In that regard, the lower end of the range would form a base level and during main holiday times the upper end of the range would apply.

Conclusion

The application will be supported subject to the following conditions (to the satisfaction of the RA):

- A Local Area Traffic Management (LATM) plan must be developed with Council's Traffic Engineering unit prior to submitting of Functional Layout plans for Stage 1. The LATM plan must apply to the entire subdivision and any identified treatments that are external to the site. The LATM plan must also include an indicative street naming and house numbering plan.

It is expected that the above comments under 'Road Network and LATM heading will be addressed, so that the LATM plan can be developed with the changes already made to the road network.

In the event that these issues are not addressed, then the LATM plan will be more problematic and could result in more LATM treatments and parking restrictions than would otherwise be necessary.

If you require any additional information please feel free to contact me.

Yours sincerely

GRANT EDMONDS
TRAFFIC ENGINEER – PLANNING & STRATEGY

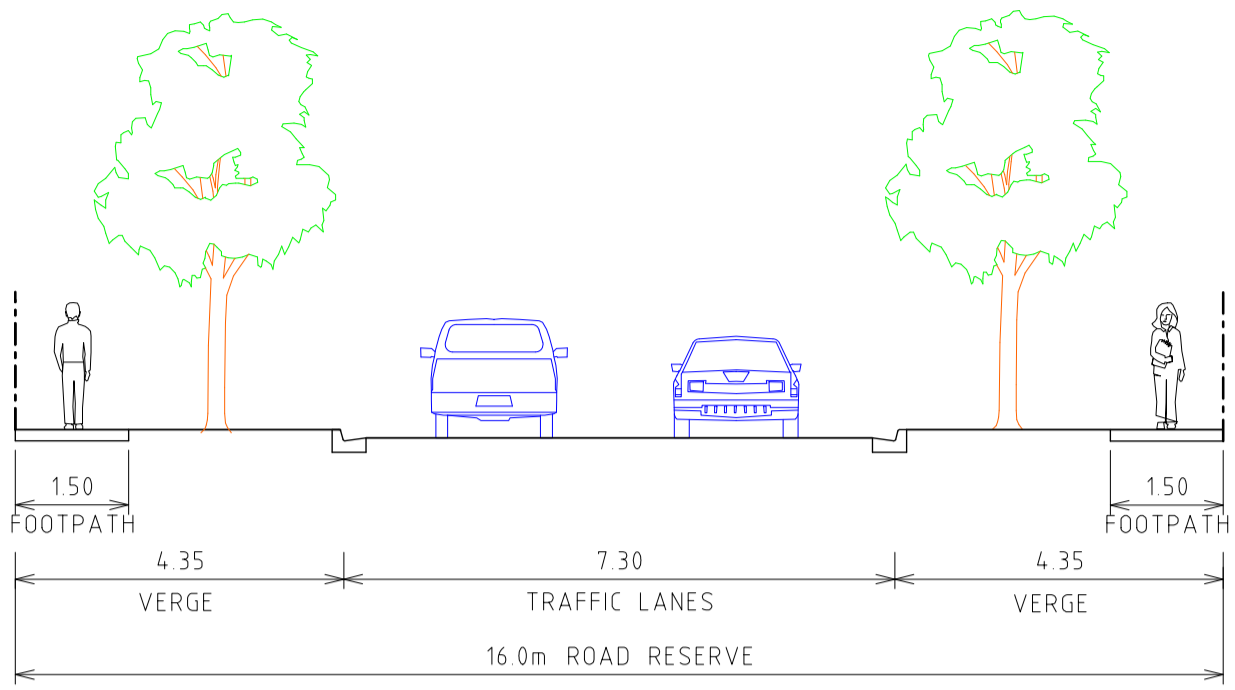
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gedmonds@geelongcity.vic.gov.au

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Ibbotson Street, St Leonards

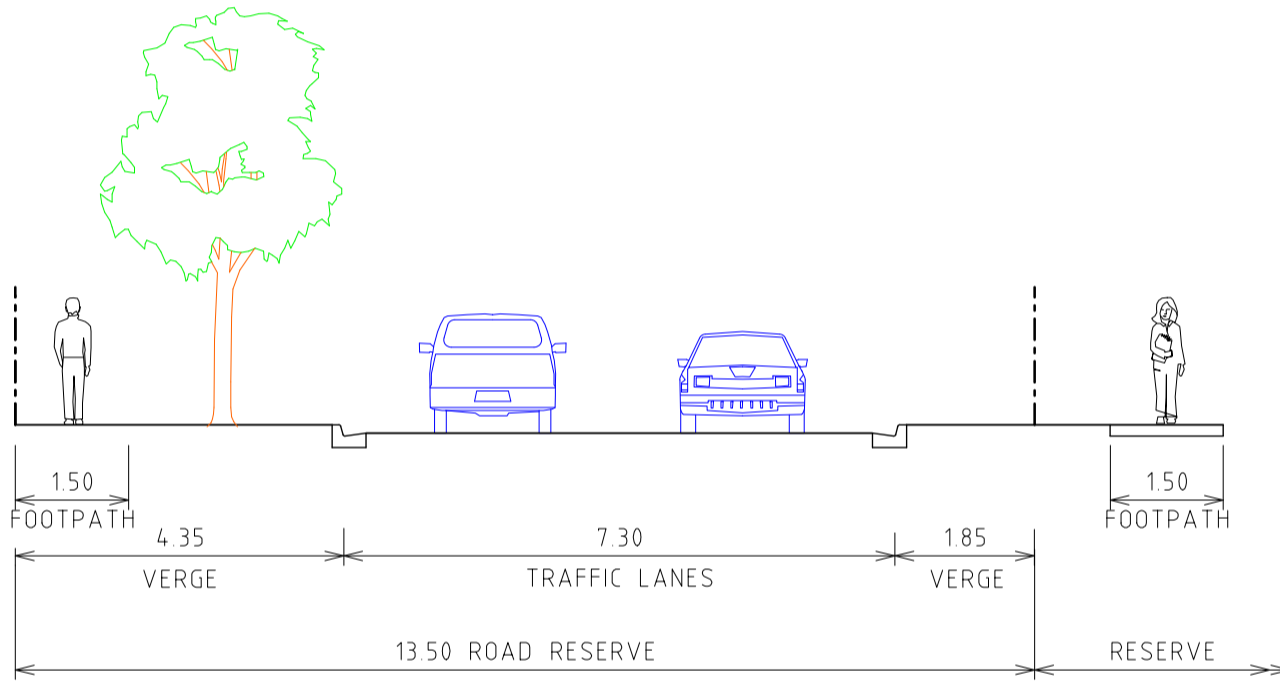
APPENDIX

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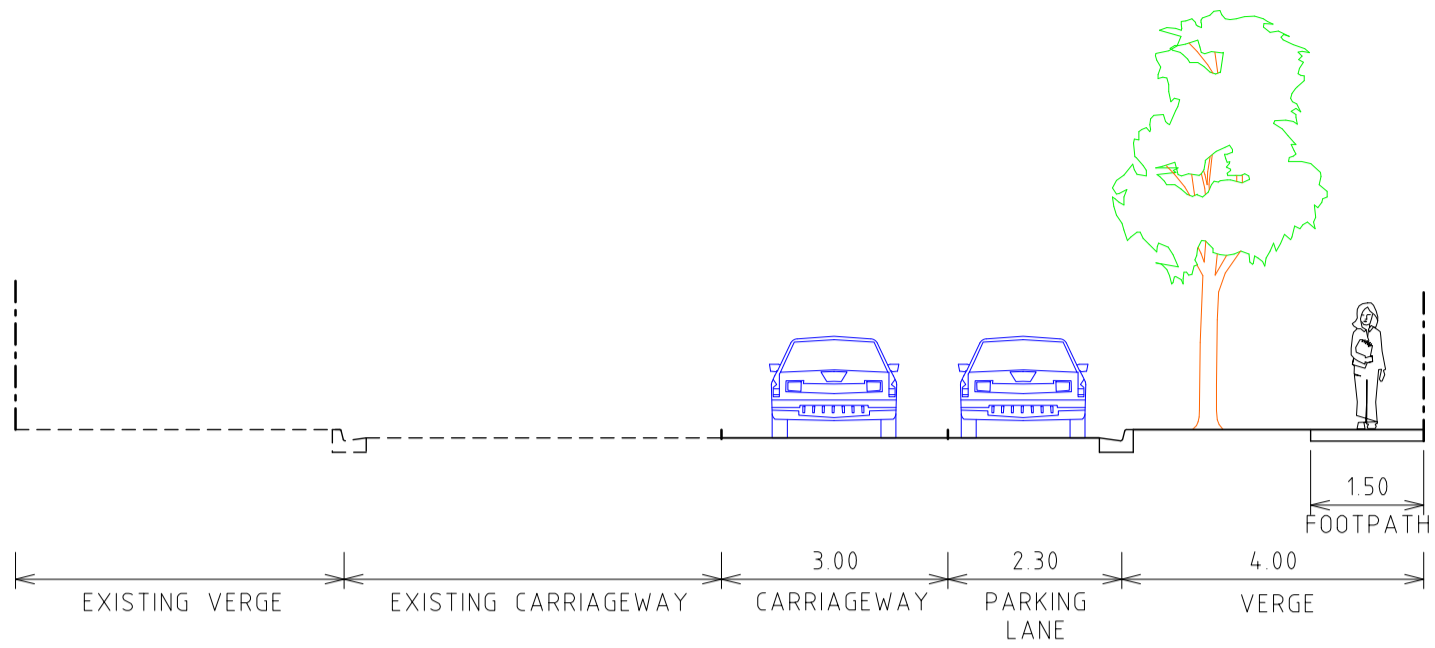
ROAD CROSS SECTIONS



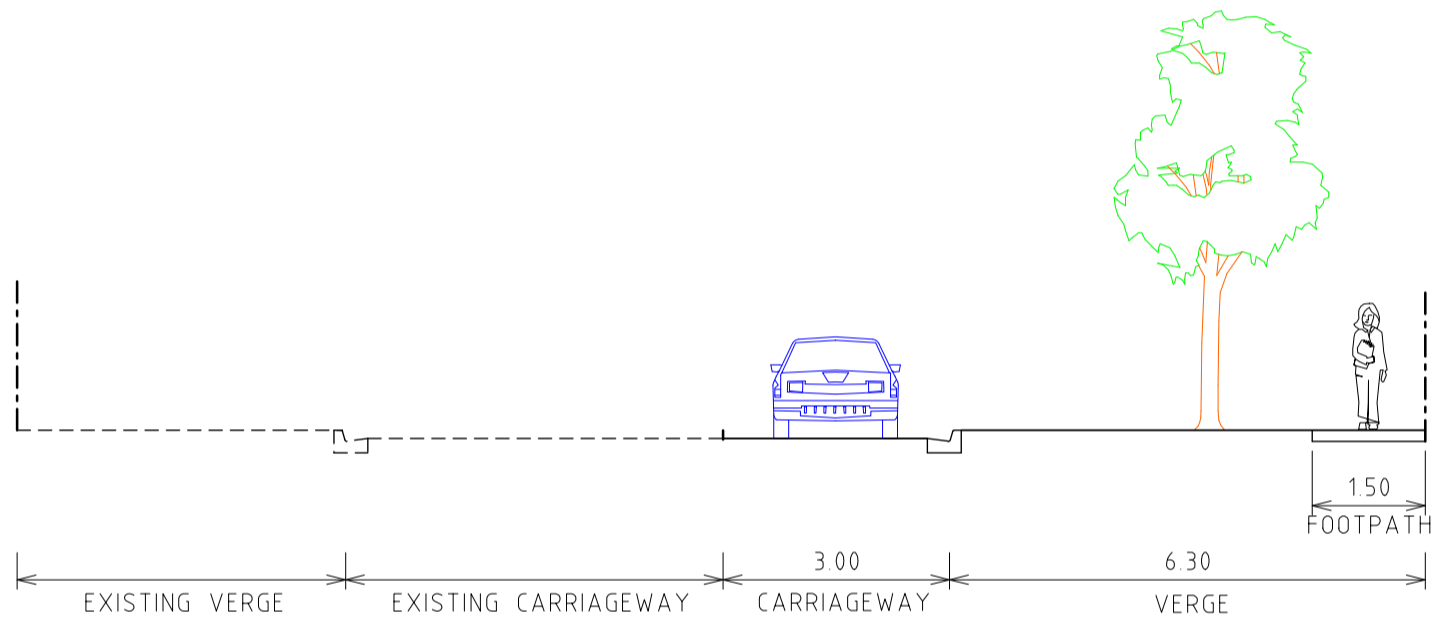
TYPICAL LOCAL ACCESS STREET
(LEVEL 2)
16.0m RESERVE



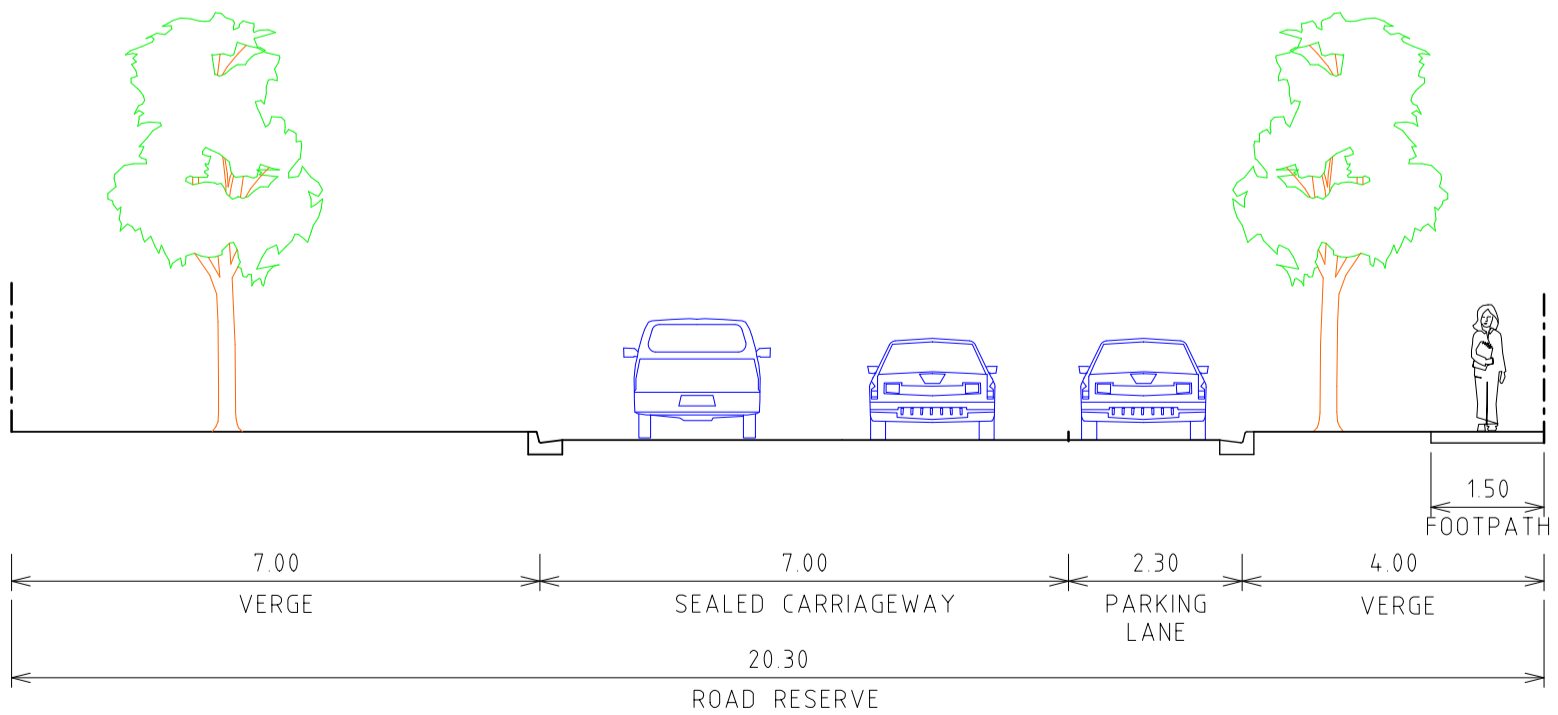
TYPICAL LOCAL ACCESS STREET
(LEVEL 2 - ADJACENT RESERVE)
13.5m RESERVE



IBBOTSON STREET - ADJACENT LOT FRONTAGE
(PROPOSED CROSS-SECTION - EASTERN SIDE OF ROAD)



IBBOTSON STREET - ADJACENT OPEN SPACE AREAS
(PROPOSED CROSS-SECTION - EASTERN SIDE OF ROAD)



OLD ST LEONARDS ROAD
PROPOSED CROSS-SECTION