

Traffix Group

Traffic Impact Assessment

Proposed Development Plan
42-80 Manuka Road, Berwick

Prepared for
Veris

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1. Introduction

Traffix Group has been engaged by Veris to prepare a traffic impact assessment report for the Development Plan at 42-80 Manuka Road, Berwick.

This report (G27725R-01E) responds to the requirements under DPO24 of the Casey Planning Scheme for the preparation of a traffic impact assessment and is based on the Veris Urban Structure Plan Version I (06.06.2025) which is attached at Appendix A of this report.

2. DPO24

DPO24 of the Casey Planning Scheme covers land to the east side of Manuka Road, north of Allan Street. It requires a development plan to be prepared that includes a number of requirements, including a traffic impact assessment which must include the following items:

- *A detailed assessment of the expected traffic generation and traffic impacts associated with the development on the internal and external road network and any recommended works or measures within and external to the site,*
- *An internal road layout and external road access,*
- *Any recommendations of an independent traffic safety audit,*
- *Details of road widths to ensure that all streets are designed to allow for service and emergency vehicles to appropriately manoeuvre,*
- *Typical cross sections of internal roads indicating provision for pedestrians, tree planting and car parking,*
- *An internal perimeter road along the northern and eastern boundaries, and an internal loop along the western boundary with appropriate reserves for landscaping,*
- *A cross section of the perimeter road to allow for appropriate parallel or indented parking adjacent to the public open space,*
- *The intersection treatment at Manuka Road, having regard to access to the school and community facilities on the western side of Manuka Road,*
- *The intersection treatment at Allan Street/Manuka Road,*
- *The upgrade of Allan Street to urban standards, to the satisfaction of the responsible authority,*
- *The location of all pedestrian crossings on Manuka Road and Allan Street,*
- *The proposed internal cycle and pedestrian path network and connection to the Casey Trail Network (shared user path and equestrian trails), including public access through the site, and*
- *Identification of visitor car parking within the proposed street network.*

3. Existing Conditions

3.1. Development Plan Area

The development plan area is located on the east side of Manuka Road, north of Allan Street. The development plan area consists of four (4) parcels of land that are largely used for farming with the exception of 'Clover Cottage' (former restaurant). The eastern boundary of the development plan area abuts the Melbourne Water Pipe Track.

A locality plan and aerial photograph of the development plan area are provided at Figure 1 and Figure 2 below.

Key uses surrounding the development plan area include Berwick Secondary College and Edwin Flack Reserve with the remaining land uses primarily consisting of residential dwellings.

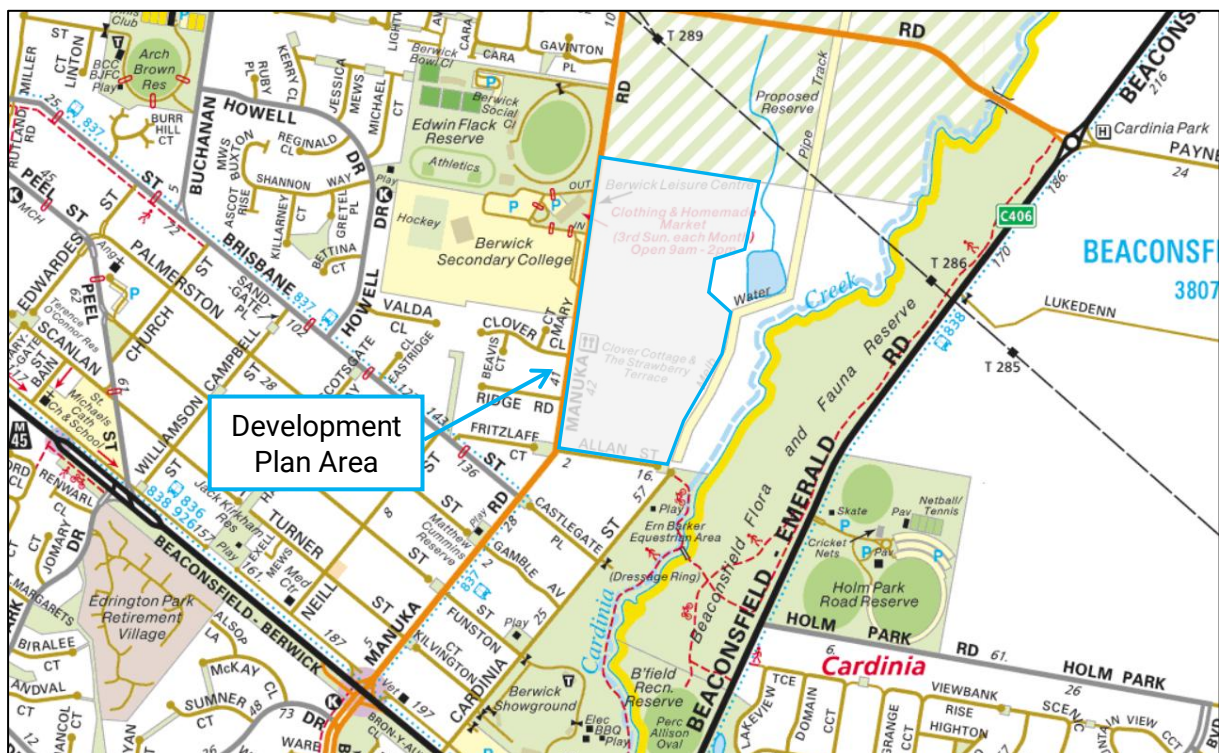


Figure 1: Locality Plan

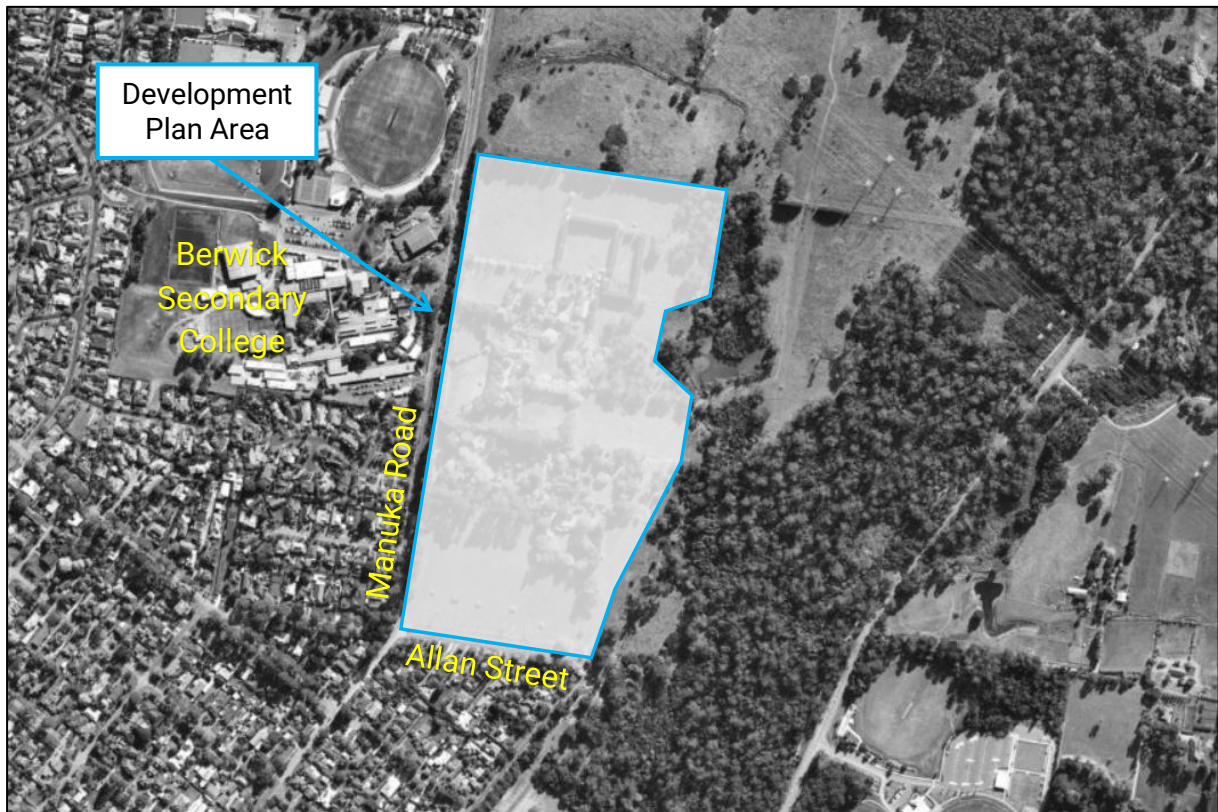


Figure 2: Aerial Photograph

3.2. Road Network

Manuka Road is classified as a 'Trunk Collector' road under the Casey Public Road Register and generally extends north-south from Princes Highway in the south to Inglis Road in the north. In the vicinity of the development plan area Manuka Road provides for a lane of traffic in each direction with a carriageway width of approximately 10m in the vicinity of Allan Street (kerb and channel both sides of the road) and approximately 6m in the vicinity of the Berwick Secondary College (plus gravel verges).

The road reserve width in the vicinity of the development plan area is approximately 20m wide. Manuka Road has a 60km/h speed limit in the vicinity of the development plan area with a reduction to 40km/h during school periods adjacent to the northern boundary of the development plan area.

Allan Street is classified as a 'Local' road under the Casey Public Roads Register and extends east-west from Manuka Road to a dead end in the east. In the vicinity of the development plan area Allan Street provides an unconstructed road (gravel) with a carriageway width of approximately 6m. The road reserve width in the vicinity of the development plan area is approximately 30m wide. Allan Street is subject to the default urban speed limit of 50km/h.

Photographs of the road network surrounding the development plan area are provide in Figure 3 to Figure 6.



Figure 3: Manuka Road - View North



Figure 4: Manuka Road - View South



Figure 5: Allan Street - View West



Figure 6: Allan Street - View East

3.3. Traffic Volumes

Traffic counts were previously undertaken in June 2021. Since then, there have been no changes to existing land uses within the DPO area or the surrounding locality. Additionally, the total number of dwellings/residential lots now proposed is lower than that associated with the earlier development plan associated with the 2021 counts. On this basis, the 2021 traffic data is considered appropriate for the purposes of this assessment.

3.3.1. Peak Hour Traffic Volumes

Turning movement counts were undertaken at the intersection of Manuka Road and Allan Street and the intersections of Manuka Road and the school entrance and exit. These counts were conducted on Thursday, 24th June 2021 from 7:00am-9:00am and 3:00pm-6:00pm.

The results of the turning movement counts are detailed at Figure 7 below.

The AM peak hour occurred from 8:00am-9:00am and the PM peak hour occurred from 3:00pm-4:00pm.

A full copy of the turning movement count results is provided at Appendix B.

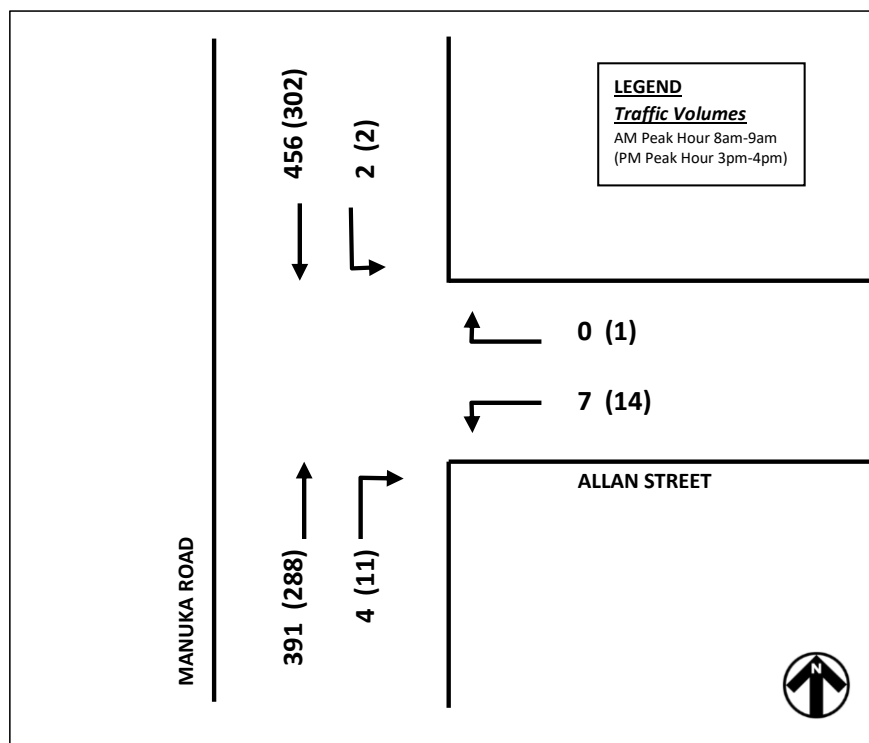


Figure 7: Manuka Road / Allan Street – Existing

3.3.2. Daily Traffic Volumes

Seven-day automatic traffic counts were undertaken on Manuka Road and Allan Street in the vicinity of the development plan area.

The counts were conducted between 19th June and 26th June 2021. Table 1 below summarises the key traffic volumes recorded from the automatic tube count, while a full summary of the results is provided in Appendix C.

Table 1: Automatic Tube Counts (June 2021)

Location	24 Hour Weekday Average Volumes			AM Peak Hour Weekday Average			PM Peak Hour Weekday Average		
	N/E	S/W	Total	N/E	S/W	Total	N/E	S/W	Total
Manuka Road North of Clover Lane	1,583	1,464	3,047	369	316	685	224	247	472
Allan Street East of Manuka Road	55	52	107	4	4	9	7	6	13

3.4. Public Transport

The development plan area is serviced by a public bus route which operates in close proximity to the site (as shown in the public transport map at Figure 8) as follows:

- **Bus Route 837** provides a service between Berwick Station and Beaconsfield East via Brisbane Street and Beaconsfield Plaza Shopping Centre. Route 837 operates on Brisbane Street 400 metres to the south of the development plan area.

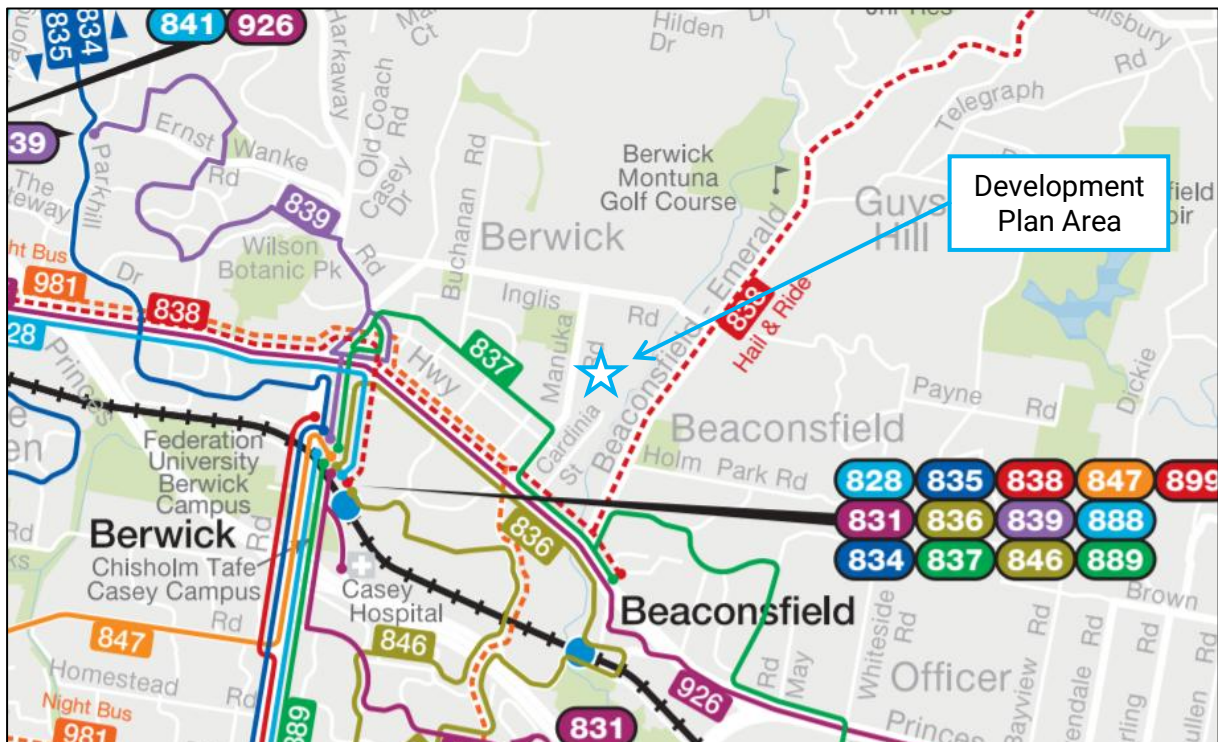


Figure 8: Public Transport Map

4. Development Plan

The development plan area is shown in Figure 9.

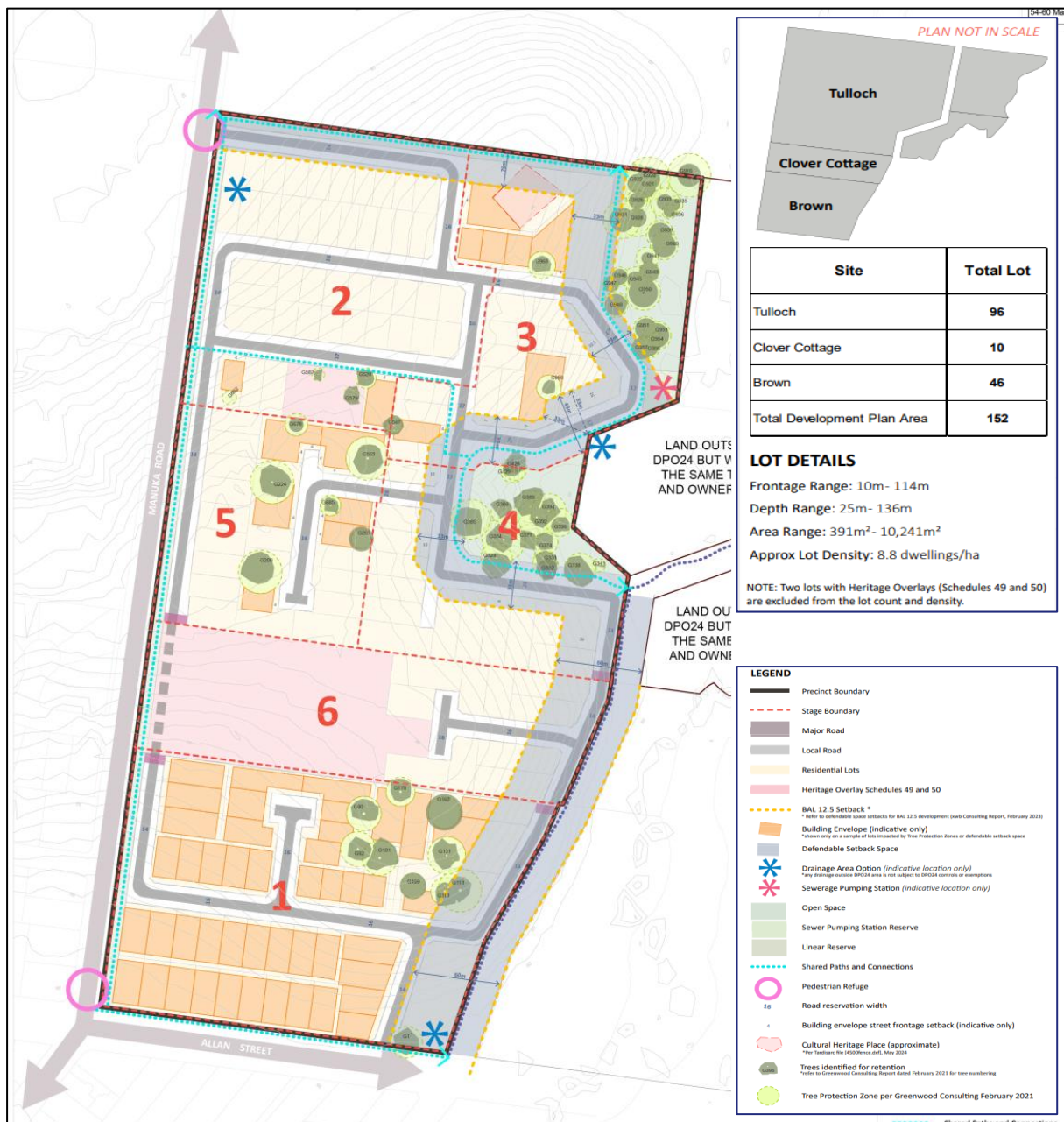


Figure 9: Development Plan

DP024 will comprise of residential uses and future residential uses over four (4) separate parcels of land within the development area.

The Development Plan includes the following key traffic engineering features:

- Access point to Allan Street,
- Access point to Manuka Road, and
- Internal roads within the site.

5. External Traffic Considerations

5.1. Traffic Generation

The following traffic generation rates have been adopted for the purposes of this assessment based on recent growth area planning of residential subdivisions:

- Conventional residential lots: 8 vte/day
0.8 vte/h during commuter peak hours

Based on the proposal to provide a total of 152 standard lots, this represents a daily traffic generation of 1,216 trips with approximately 122 trips in each of the AM and PM peak hour periods. The breakdown between each parcel is shown in Table 2 below.

Table 2: Traffic Generation

Section	Number of Lots	Daily Trip Generation	Peak Hour Volumes
North Precinct	96 lots	768 vte/day	77 vte/h
South Precinct	46 lots	368 vte/day	37 vte/h
'Clover Cottage'	10 lots	80 vte/day	8 vte/h
Total	152 lots	1,216 vte/day	122 vte/h

5.2. Traffic Distribution

Based on the location of the development plan area as well as access to the surrounding suburbs and external road network, the distribution of generated traffic to and from the site has been assumed as follows:

- Northbound – 25% of trips, and
- Southbound – 75% of trips.

Directional splits of 20% in / 80% out during the AM peak and 70% in / 30% out in the PM peak have been adopted.

It should be noted that ultimately there will be connector roads joining together all four (4) parcels of land. The complete traffic generation and distribution is presented at Appendix D.

It is acknowledged that the peak hour for the proposed development is likely to occur between 5pm-6pm (commuter peak periods). However, the dominant peak hour for the local intersection generally occurs between 3pm-4pm. Therefore, in order to be conservative, the vehicle volumes generated by the site have been added to the existing peak hours for the existing peak hours along the network.

5.3. Design Traffic Volumes

5.3.1. Background Traffic

For the purposes of this assessment, a growth rate of 2% per annum has been adopted for Manuka Road and applied for a period of 10 years to calculate the design background traffic volumes (equal to a growth of 1.22 times existing traffic volumes conservatively assuming compound growth). No growth has been applied to Allan Street, as this will be accounted for via the traffic generated by the development plan. The projected AM and PM peak hour turning movement volumes at the site of the proposed northern access point and the intersection of Manuka Road / Allan Street are presented in Figure 10 and Figure 11 respectively.

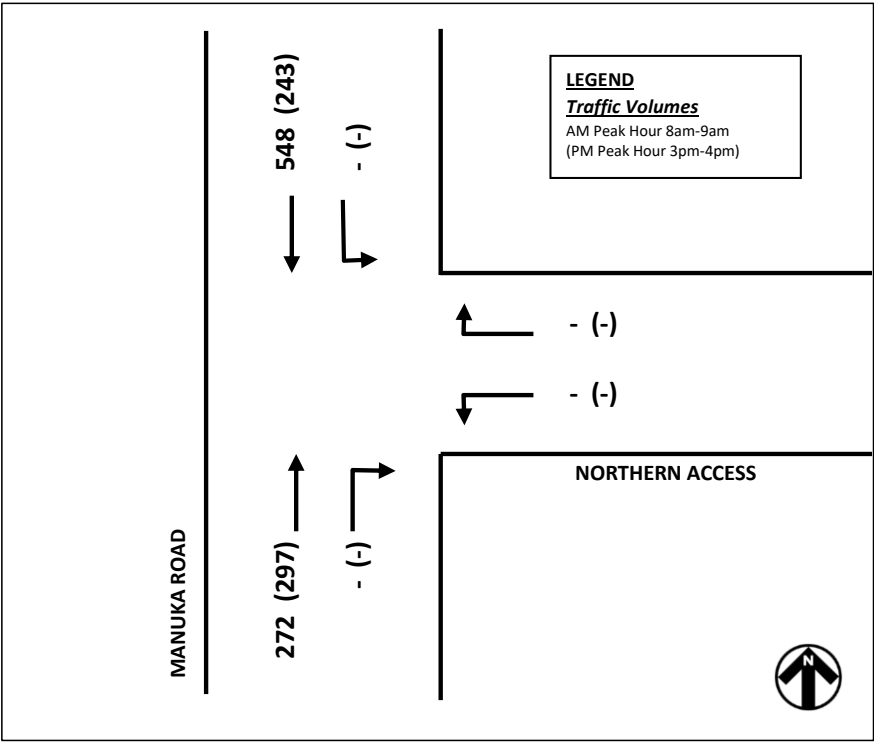


Figure 10: Manuka Road / Northern Access - Background Traffic

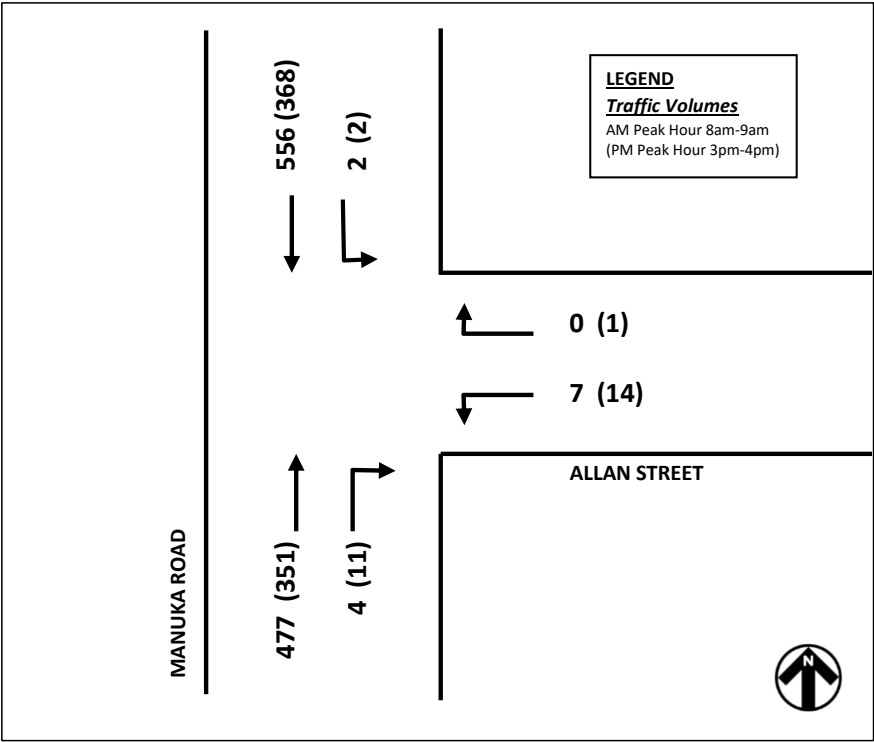


Figure 11: Manuka Road / Allan Street - Background Traffic

5.3.2. Development Traffic

The traffic generated by the development, based on the previously detailed trip generations and travel distributions is presented in Figure 12 and Figure 13 for the intersection of the proposed northern access point / Manuka Road and the intersection of Manuka Road / Allan Street for the AM and PM peak hours respectively.

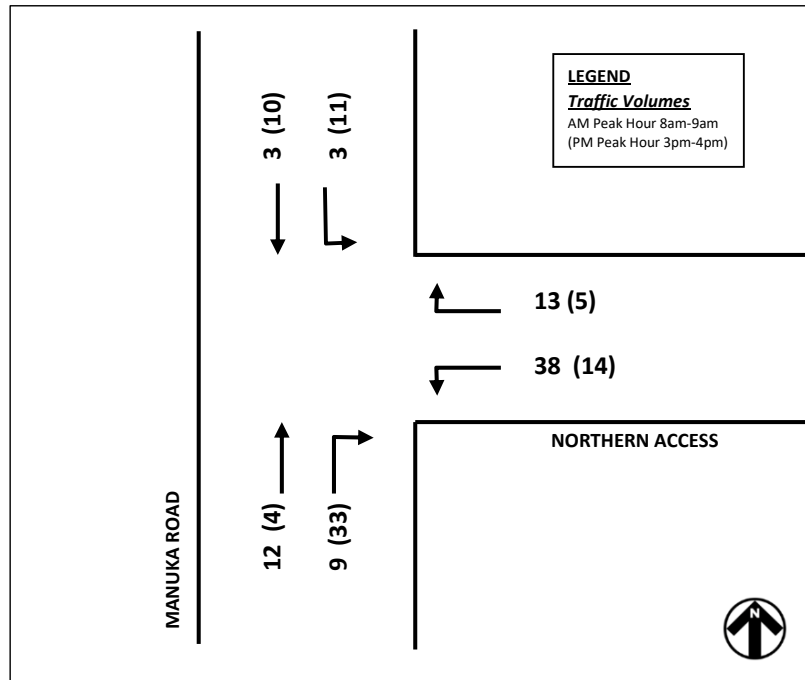


Figure 12: Development Volumes - Manuka Road / Northern Access

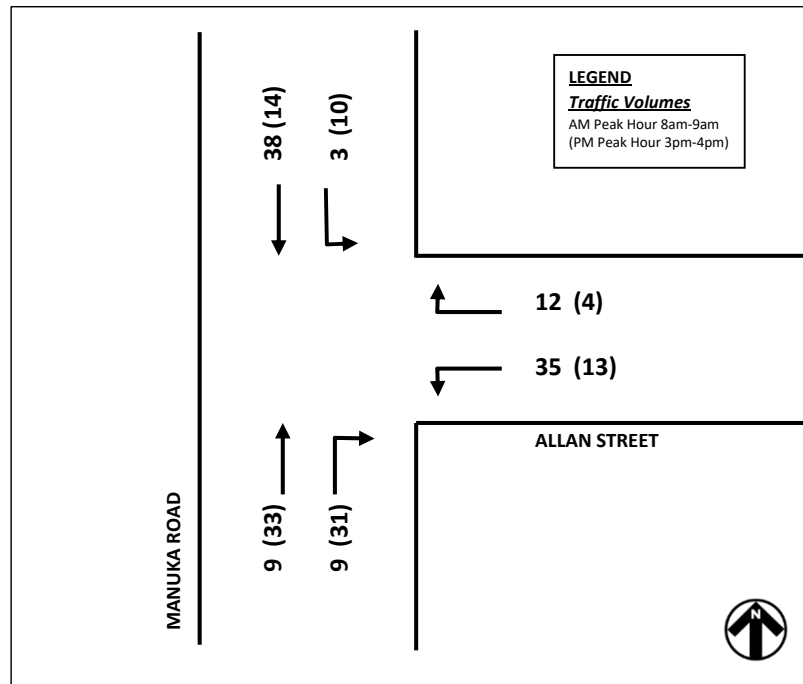


Figure 13: Development Volumes - Manuka Road / Allan Street

5.3.3. Design Traffic Volumes

The design traffic volumes, as a result of the sum of the background and development volumes for the are produced by adding the background traffic volumes to the development traffic volumes, as shown in the figures below.

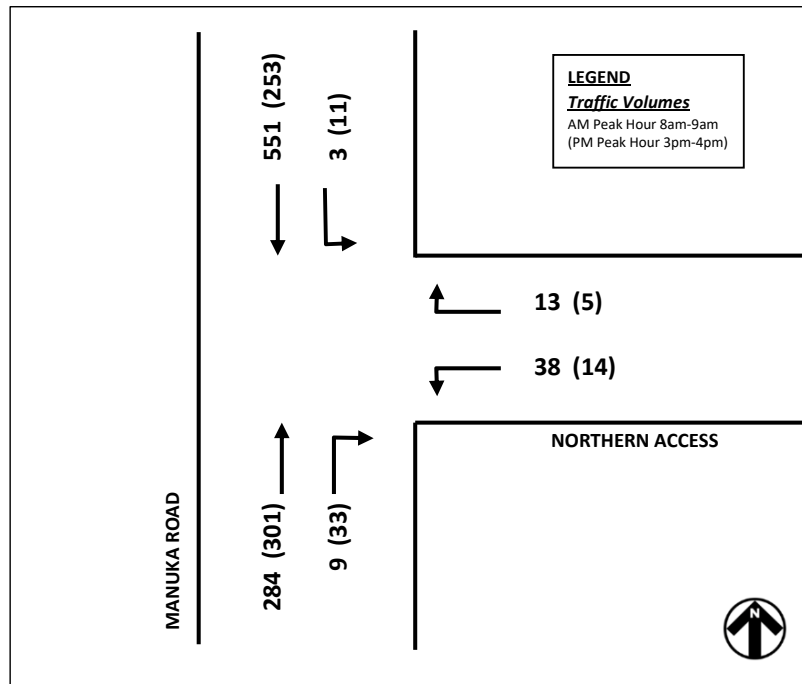


Figure 14: Design Volumes - Manuka Road / Northern Access

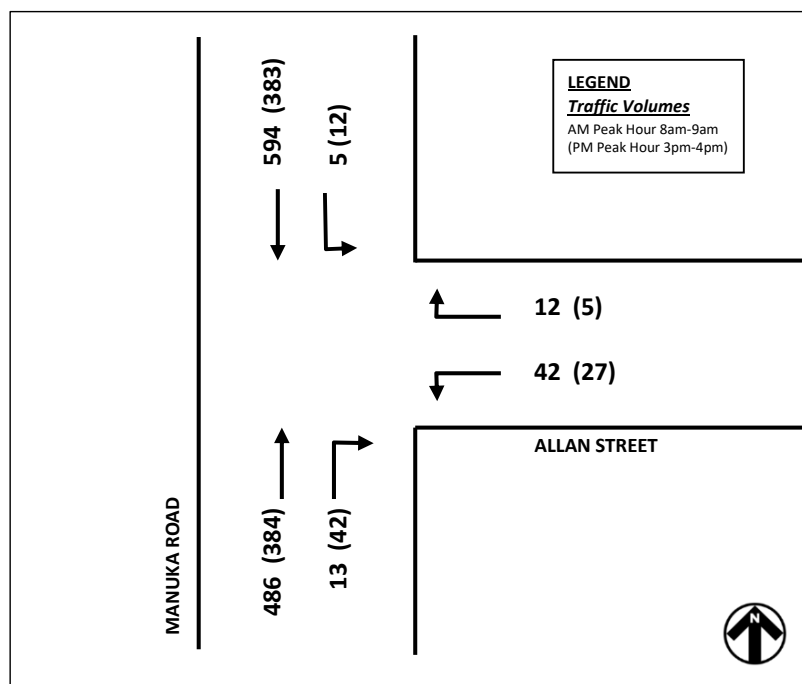


Figure 15: Design Volumes - Manuka Road / Allan Street

5.4. Intersection Type

Guide to Traffic Management Part 6 Intersections, Interchanges and Crossings (Austroads, 2020) ("GTM Part 6") provides guidance as to the selection of intersection types. Of relevance, Figure 3.25(c) in AGTM Part 6 provides a graph for selecting turn treatments on roads with a design speed of less than 70km/h. Figure 3.25(c) is shown below in Figure 16.

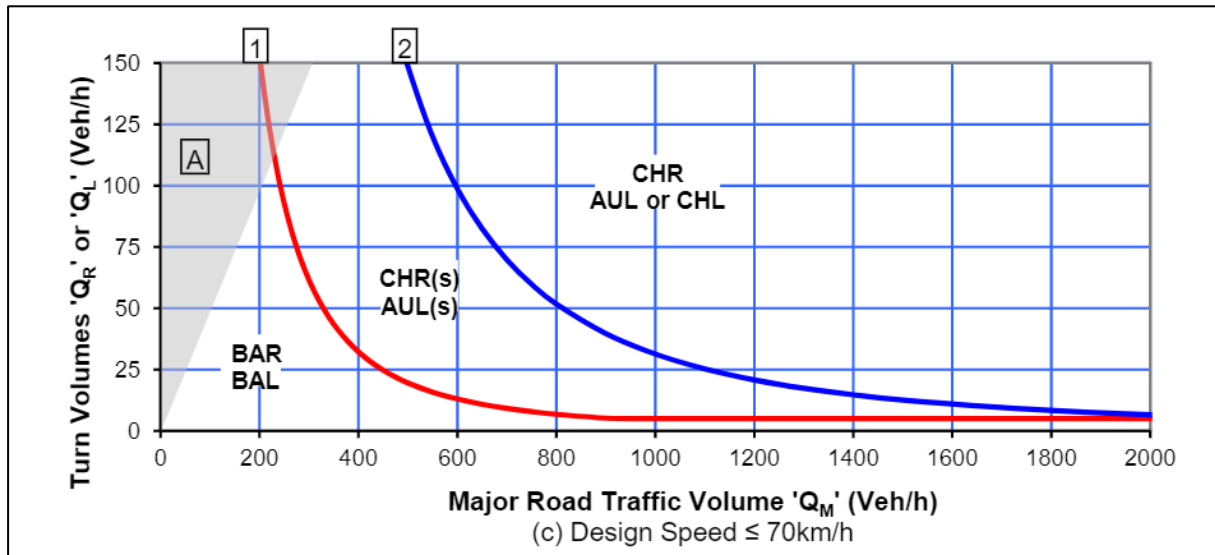


Figure 16: Warrants for Turn Lane Treatments on Major Roads at Unsignalised Intersections

The types of intersections are described as follows:

- BAL: Basic left turn
- AUL(S): Auxiliary left turn (short)
- AUL or CHL: Auxiliary left turn or channelised left turn
- BAR: Basic right turn
- CHR(S): Channelised right turn (short)
- CHR: Channelised right turn

It is noted that Commentary C9.2 states:

The warrants are based on the construction of intersections on new roads (i.e., Greenfield sites). Therefore, their most appropriate application is to the selection of turn types for intersections on new roads. However, the warrants may also be used:

- *as a reference for the construction of new intersections on existing roads*
- *as a reference for intervention levels when upgrading existing intersection turn treatments*
- *although not intended for direct application to accesses and driveways, they may be used as a reference for such.*

On this basis, Figure 3.25(c) is therefore to be used as a reference for intervention levels when upgrading existing intersection turn treatments.

To determine the type of intersection required in the future and responsibility for its upgrade, an assessment is first made of the type of intersection required as a result of existing traffic volumes, followed by an assessment of the type of intersection required for the assumed growth in traffic volumes and thirdly an assessment of the type of intersection required for the design traffic volumes (i.e., following completion of the development). The proposed development is then responsible for any upgrading of the intersection type compared to the background intersection type.

5.4.1. Existing Traffic Volumes

Table 3 below shows the results of applying the existing traffic volumes to Figure 3.25 in AGTM Part 6.

Table 3: Existing Traffic Volumes – Intersection Types

Time Period	Allan Street		Northern Access	
	Left Turn	Right Turn	Left Turn	Right Turn
AM Peak	BAL	BAR	N/A	N/A
PM Peak	BAL	BAR	N/A	N/A

5.4.2. Background Traffic Volumes

Table 4 below shows the results of applying the background traffic volumes to Figure 3.25 in AGTM Part 6.

Table 4: Background Traffic Volumes – Intersection Types

Time Period	Allan Street		Northern Access	
	Left Turn	Right Turn	Left Turn	Right Turn
AM Peak	BAL	BAR	N/A	N/A
PM Peak	BAL	CHR(S)	N/A	N/A

5.4.3. Design Traffic Volumes

Table 5 below shows the results of applying the design traffic volumes to Figure 3.25(c) in AGTM Part 6.

Table 5: Design Traffic Volumes – Intersection Types

Time Period	Allan Street		Northern Access	
	Left Turn	Right Turn	Left Turn	Right Turn
AM Peak	BAL	CHR (S)	BAL	CHR(S)
PM Peak	BAL	CHR(S)	BAL	CHR(S)

5.4.4. Upgrades Required Due to Proposed Development

A comparison of Table 3, Table 4 and Table 5 shows the turning lane treatments required as a result of the development are as follows:

- Allan Street
 - Left Turn: No Change
 - Right Turn: CHR (S)
- Northern Access
 - Left Turn: BAL
 - Right Turn: CHR(S)

5.5. Intersection Capacity Analysis

SIDRA 9 has been used to assess the intersection capacities of the two (2) intersections with Manuka Road for the design traffic volumes. SIDRA provides information about the capacity of an intersection (or access connections in this case) in terms of a range of parameters, described as follows:

Degree of Saturation (DoS) is the ratio of the volume of traffic observed making a particular movement compared to the maximum capacity for that movement.

The **95th Percentile Queue** represents the maximum queue length, in metres, that can be expected in 95% of observed queue lengths in the peak hour.

Average Delay (seconds) is the average delay time that can be expected for all vehicles making a particular movement in the peak hour.

The results of the SIDRA assessment on the intersections of Manuka Road with Allan Street and the Northern Access Street are provided below. It should be noted that CHR(S) right turns have been provided on the south approach of each of the intersections as per the previous sections.

Table 6: SIDRA Result Summary - Design Volumes

Approach	AM Peak			PM Peak		
	DOS	Delay (s)	Queue (m)	DOS	Delay (s)	Queue (m)
Manuka Road / Allan Street						
South	0.26	0.3	0.4	0.21	0.7	1.1
East	0.11	11.2	2.6	0.04	7.9	1
North	0.32	0.1	0	0.21	0.2	0
Total	0.32	0.7	2.6	0.21	0.8	1.1
Manuka Road / Northern Access Street						
South	0.15	0.3	0.3	0.16	0.7	0.8
East	0.08	9.7	2.1	0.02	7.3	0.5
North	0.30	0.1	0	0.14	0.3	0
Total	0.30	0.7	2.1	0.16	0.7	0.8

This analysis shows that all intersections will operate at a low degree of saturation with minimal delays and queues, based on the conservative assumption that up to 152 lots could be ultimately provided on the site. Storage for one car is required in the proposed right turn lanes on Manuka Road into Allan Street and the Northern Access Street.

Detailed SIDRA outputs are provided at Appendix E.

5.6. Intersection Designs

Proposed intersection layouts have been developed to incorporate the recommended channelised right turn (CHR(S)) and BAL turning lane treatments specified in Section 5.4 at Manuka Road / Allan Street and Manuka Road / Northern Access.

A basic diagram of a channelised right turn is provide below in Figure 17.

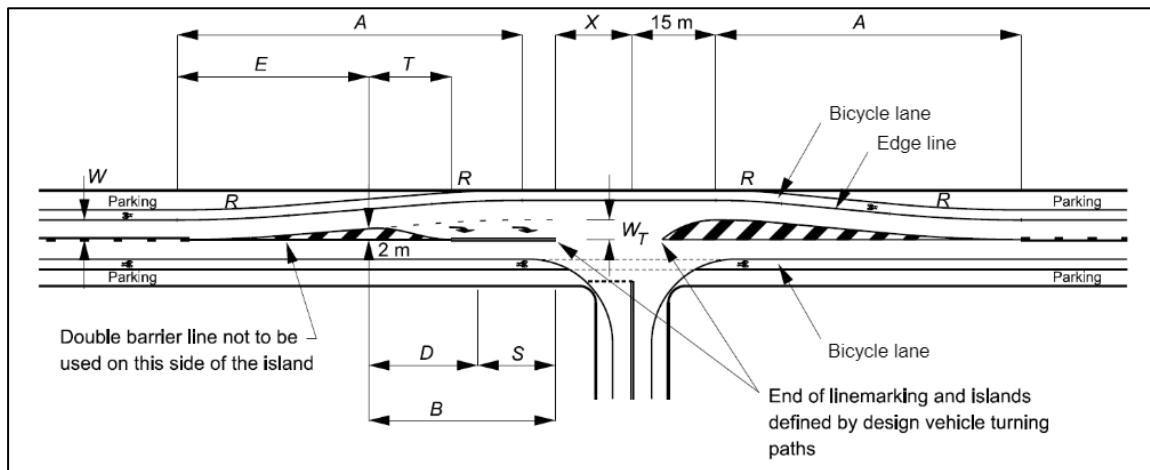


Figure 17: Urban Channelised Right Turn Example

Based on the site constraints, we note that the widening of Manuka Road is most likely required to accommodate the turn lanes.

The dimension of the channelised right turn was assessed against the requirements outlined in Figure 7.7 of Austroads Guide to Road Design Part 4A for a 60km/h speed zone and a turn lane width of 3.0m.

Concept layouts for the proposed intersection layouts are attached at Appendix F.

6. Internal Road Network

6.1. Road Hierarchy

The internal road network of a residential subdivision on the development plan area is subject to Clause 56 of the Casey Planning Scheme. Typically, the internal roads of a subdivision are broadly defined under the 'Access Street' provision in the Planning Scheme.

Given the total daily traffic generated within the proposed development area, all roads are anticipated to carry less than 2,000 vehicles per day and as such, a road hierarchy has been established as shown in Figure 18 below with cross sections detailed in the next section.



Figure 18: Proposed Road Hierarchy

The westernmost internal road has the potential to extend north-south through the Clover Cottage estate. In the event that this occurs, the existing direct access from Clover Cottage to Manuka Road would need to be considered (by others).

Allan Street (to the west of the site access up to Manuka Road) is being proposed to be upgraded as an 'Access Street' which is considered appropriate given the low vehicle volumes.

Other lower order access streets would likely be provided as part of the future establishment of a detailed subdivision layout.

6.2. Road Cross-Sections

All roads within the development plan area would be subject to the provision of Clause 56 of the Planning Scheme and the guidelines presented in the MPA Engineering Design and Construction Manual.

All streets within a residential subdivision will be 'Access Streets' which are recommended to have dimensions as follows:

- Access Street
 - 16m wide road reservation (14m wide if adjacent to reserve)
 - 7.3m wide carriageway (parking both sides)
 - 1.5m footpaths on both sides of the road
- Access Street (shared path)
 - 17m wide road reservation
 - 7.3m wide carriageway (parking both sides)
 - 1.5m footpath on one side of the road
 - 2.5m shared user path on one side of the road

The park interface streets along the eastern boundary of the site have a road reserve between 23-27m with a 7.9m carriageway and a 1.55m footpath and 2.5m shared path on either side of the carriageway. These cross sections accord with the requirements of the relevant Bushfire Attack Level, which requires a greater building setback in these instances.

6.2.1. Allan Street

As part of the proposed development, the section of Allan Street from Manuka Road to the site access is proposed to be upgraded to a more formalised cross section. Given that the overall road reservation along Allan Street is approximately 30m, the proposed cross section is as follows:

- 30m road reservation
 - 12m existing verge on the south side
 - 7.3m carriageway from the southern edge of the existing carriageway location
 - 8.2m verge
 - 2.5m shared user path.

This cross-section is illustrated on an aerial image as shown below.

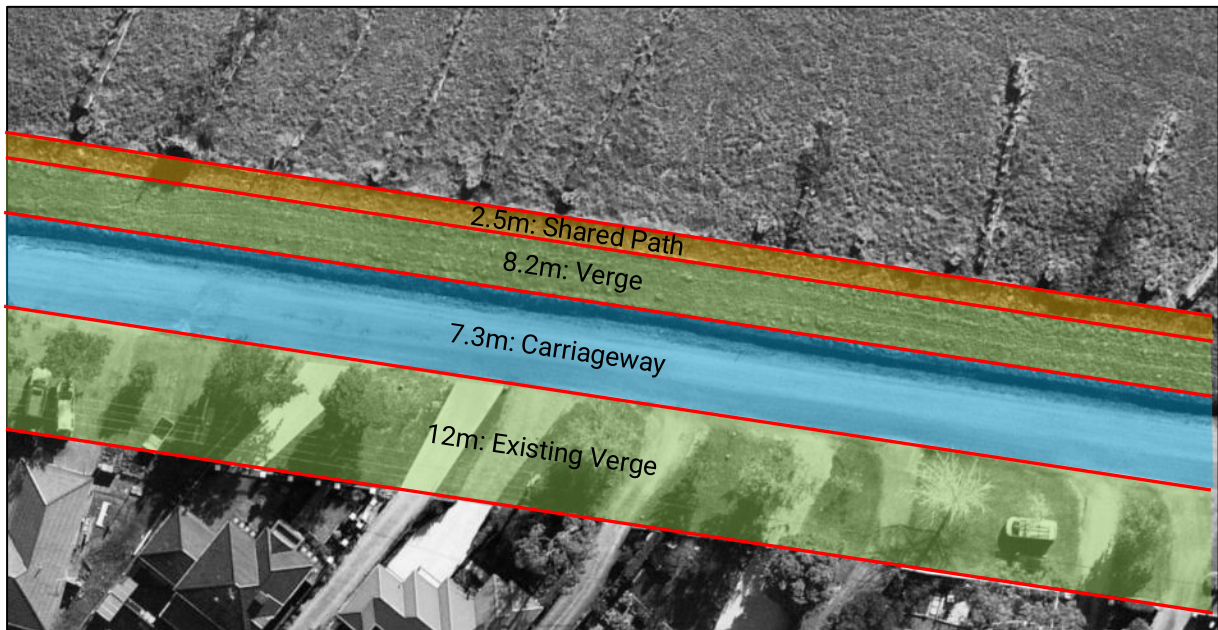


Figure 19: Proposed Allan Street Cross Section

Turnaround provision in the form of 'side turning' bays or court bowls should be provided for any discontinuous street with facilities that meet the requirements of the VPA 'Engineering Design and Construction Manual for Subdivision in Growth Areas'.

6.3. Waste Collection and Service Vehicles

The 'Access Street' roads outlined above provide a 7.3m wide carriageway width which will allow for Council waste collection vehicles as well as other service vehicles to manoeuvre past vehicles parked on both sides of the road.

6.4. Walking and Cycling

The City of Casey 'Paths and Trails Strategy' outlines a number of proposed shared paths in the vicinity of the development area that connect to existing paths to the south, as shown on the map below.

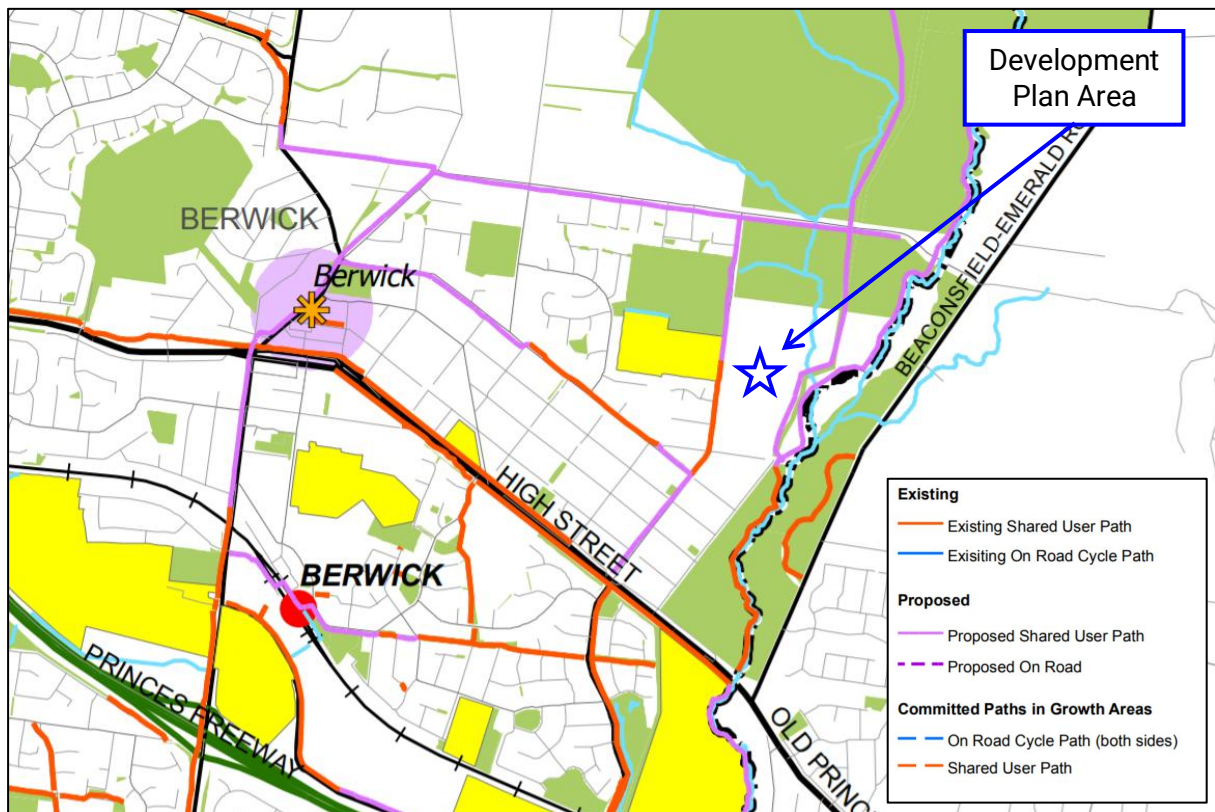


Figure 20: City of Casey 'Parks and Trails Strategy' - Trail Network North

The Development Plan at Figure 9 shows shared user paths installed along the Manuka Road frontage of the development plan area, through the development plan area, and along the pipe track to the east of the development plan area.

All roads will include footpaths on the dwelling side within the development area.

This provides the proposed estate with a high level of connectivity for walking and cycling. where shared paths are not proposed cyclists will share the road carriageway in a manner that is typical with such roads.

As per Section 6.2.1, a shared user path is proposed along the north side of Allan Street.

7. Other DP024 Requirements

7.1. Pedestrian Crossings on Manuka Road and Allan Street

It is not proposed to construct any pedestrian crossings on Manuka Road or Allan Street as the pedestrian demands are unlikely to satisfy any relevant warrants for crossing facilities, however the intersection layouts at Manuka Road / Allan Street and Manuka Road / Northern Access Street incorporate pedestrian refuges to facilitate pedestrian access across Manuka Road and are demonstrated in the concept plans attached at Appendix F.

7.2. Identification of Visitor Parking

It is expected that parking will be provided in line with Clause 52.06 so that adequate resident provision is provided off-street (typically in a garage space and/or driveway space) with the visitor parking being provided on-street.

As discussed above, the adopted road cross sections permit on-street parking and as such it is not considered necessary to specifically identify visitor parking.

8. DPO24 Response Summary

The following table provides a response to the specific traffic engineering requirements outlined in DPO24.

DPO24	Response	Location
<i>A detailed assessment of the expected traffic generation and traffic impacts associated with the development on the internal and external road network and any recommended works or measures within and external to the site.</i>	Detailed traffic generation and distribution has been undertaken on the entirety of the development plan area and intersection treatments have been recommended.	Section 5.1- Section 5.5 & Appendix D.
<i>An internal road layout and external road access.</i>	The internal road layout and external road access have been reviewed against the requirements of the Planning Scheme and the VPA Engineering Design and Construction Manual for Subdivision in Growth Areas.	Section 6.1
<i>Any recommendations of an independent traffic safety audit.</i>	To be undertaken following further detailed design of the intersections.	
<i>Details of road widths to ensure that all streets are designed to allow for service and emergency vehicles to appropriately manoeuvre.</i>	Appropriate road widths have been detailed and reviewed against the requirements of service and emergency vehicles.	Section 6.2 & Section 6.3
<i>Typical cross sections of internal roads indicating provision for pedestrians, tree planting and car parking.</i>	Cross sections have been specified for each of the relevant road types within the development plan area.	Section 6.2
<i>An internal perimeter road along the northern and eastern boundaries, and an internal loop along the western boundary with appropriate reserves for landscaping.</i>	Has been shown on the Development Plan and reviewed within this traffic impact assessment report.	Section 6.1 & Section 6.2
<i>A cross section of the perimeter road to allow for appropriate parallel or indented parking adjacent to the public open space.</i>	Cross sections have been specified for each of the relevant road types within the development plan area.	Section 6.2

DPO24	Response	Location
<i>The intersection treatment at Manuka Road, having regard to access to the school and community facilities on the western side of Manuka Road.</i>	An assessment has been undertaken on the required intersection treatments based on the ultimate site build out with Concept Plan developed showing these treatments.	Section 5.6 & Appendix E
<i>The intersection treatment at Allan Street/Manuka Road.</i>		Section 5.6 & Appendix E
<i>The upgrade of Allan Street to urban standards, to the satisfaction of the responsible authority.</i>	The proposed Allan Street cross section has been detailed and reviewed in this report.	Section 6.1 and 6.2.1
<i>The location of all pedestrian crossings on Manuka Road and Allan Street.</i>	No pedestrian crossings are proposed however the intersection treatments can cater for the provision of pedestrian refuges on the northern side of the intersection.	Section 7.1
<i>The proposed internal cycle and pedestrian path network and connection to the Casey Trail Network (shared user path and equestrian trails), including public access through the site.</i>	Has been discussed and reviewed.	Section 6.4
<i>Identification of visitor car parking within the proposed street network.</i>	Has been discussed and reviewed.	Section 7.2



Appendix A

Development Plan

		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	TOTAL	
Area (ha)		4.80	3.65	3.18	2.22	2.17	2.73	18.75	
NDA		4.33	3.15	2.32	1.68	2.05	1.15	14.67	
Dwellings		46	44	18	13	21	10	152	
Open Space (sqm)	Encumbered	1448	2842	8173	2492	1209	703	16867	19835
	Unencumbered	0	0	0	2968	0	0	2968	
Shared Paths / Trails (linear metres)		423	554	477	178	149	86	1869	

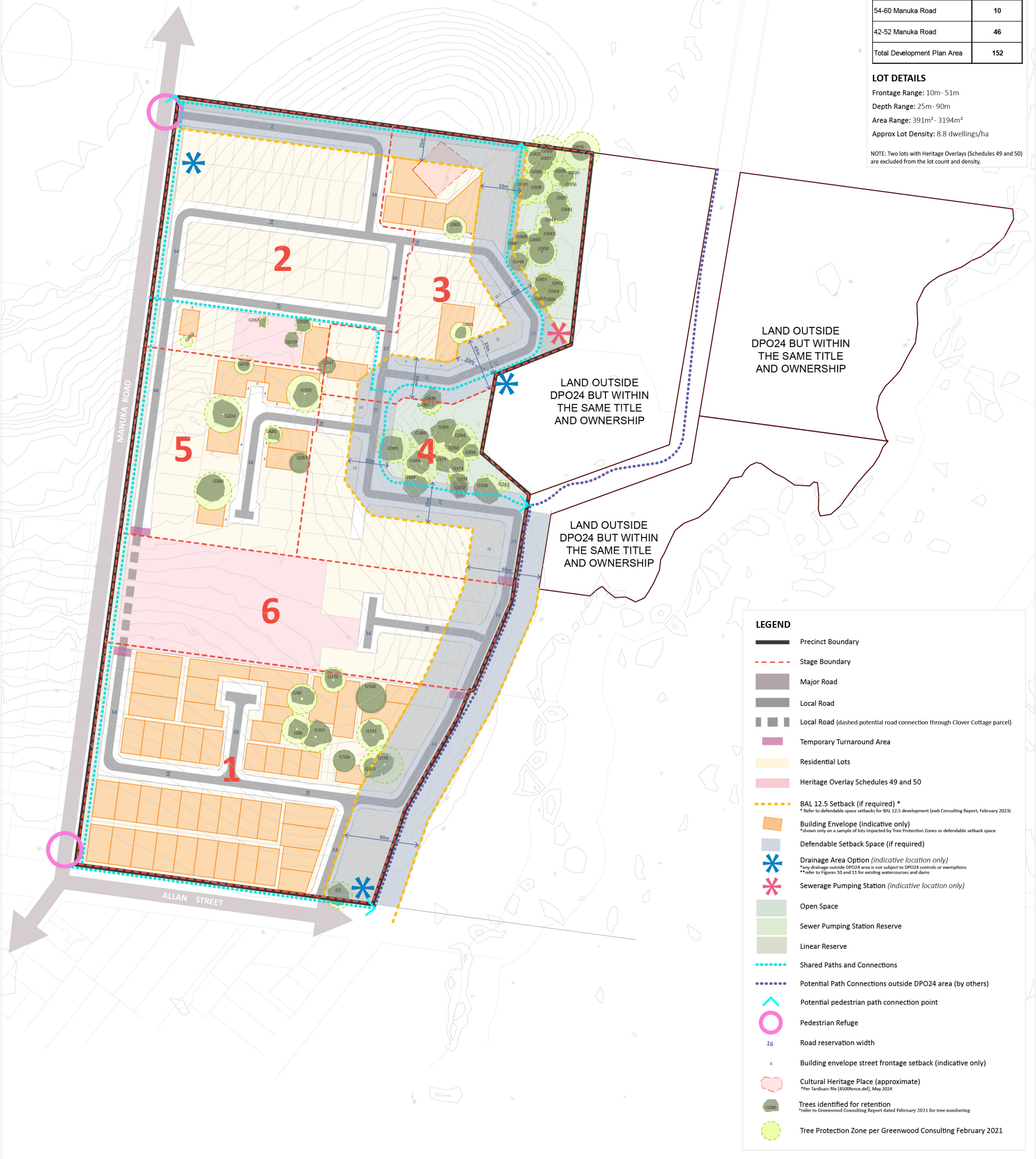
*Area and figures are subject to rounding

PLAN NOT IN SCALE

Site	Total Lot
62-80 Manuka Road	96
54-60 Manuka Road	10
42-52 Manuka Road	46
Total Development Plan Area	152

LOT DETAILS
Frontage Range: 10m- 51m
Depth Range: 25m- 90m
Area Range: 391m²- 3194m²
Approx Lot Density: 8.8 dwellings/ha

NOTE: Two lots with Heritage Overlays (Schedules 49 and 50) are excluded from the lot count and density.



Development Plan

42 - 80 Manuka Road | Berwick
328131 | 328131UDYK | Version K | 16.12.25

1:3,000@ A3

Note: Plan to be read in conjunction with text of Development Plan.
This is an indicative plan only based on the Planning Zones/Overlays. This plan and areas shown are subject to survey and rounding. Tree data per Veris survey "3110545.dwg", May 2024 and other sources.
The current property boundaries are based on DCMB data and are subject to survey realignment.

Damon Land Pty Ltd

veris



Appendix B

Turning Movement Counts

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of School Entrance and Manuka Rd, Beaconsfield

GPS -38.030761, 145.365847

Date:	Thu 24/06/21
Weather:	Fine
Suburban:	Beaconsfield
Customer:	Traffix

North:	Manuka Rd
East:	N/A
South:	Manuka Rd
West:	School Entrance

Survey	AM:	7:00 AM-9:00 AM
Period	PM:	3:00 PM-6:00 PM
Traffic	AM:	8:00 AM-9:00 AM
Peak	PM:	3:00 PM-4:00 PM

All Vehicles

Time		North Approach Manuka Rd			South Approach Manuka Rd			West Approach School Entrance			Hourly Total	
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
7:00	7:15	0	1	8	0	5	3	0	0	0	175	
7:15	7:30	0	2	7	0	9	2	0	0	0	368	
7:30	7:45	0	2	21	0	9	8	0	0	0	571	
7:45	8:00	0	12	51	0	17	18	0	0	0	784	
8:00	8:15	0	47	110	0	16	37	0	0	0	933	Peak
8:15	8:30	0	45	112	0	19	47	0	0	0		
8:30	8:45	0	66	133	0	11	43	0	0	0		
8:45	9:00	0	47	125	0	22	53	0	0	0		
15:00	15:15	0	19	33	0	26	30	0	0	0	574	Peak
15:15	15:30	0	31	127	0	23	29	0	0	0	561	
15:30	15:45	0	17	74	0	30	23	0	0	0	435	
15:45	16:00	0	13	37	0	38	24	0	0	0	381	
16:00	16:15	0	7	33	0	45	10	0	0	0	355	
16:15	16:30	0	9	31	0	30	14	0	0	0	354	
16:30	16:45	0	3	45	0	33	9	0	0	0	340	
16:45	17:00	0	6	38	0	30	12	0	0	0	354	
17:00	17:15	0	6	49	0	31	8	0	0	0	350	
17:15	17:30	0	4	30	0	28	8	0	0	0		
17:30	17:45	0	2	66	0	29	7	0	0	0		
17:45	18:00	0	5	27	0	35	15	0	0	0		

Peak Time		North Approach Manuka Rd			South Approach Manuka Rd			West Approach School Entrance			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
8:00	9:00	0	205	480	0	68	180	0	0	0	933
15:00	16:00	0	80	271	0	117	106	0	0	0	574

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of School Exit and Manuka Rd, Beaconsfield

GPS -38.029828, 145.366034

Date:	Thu 24/06/21
Weather:	Fine
Suburban:	Beaconsfield
Customer:	Traffix

North:	Manuka Rd
East:	N/A
South:	Manuka Rd
West:	School Exit

Survey	AM:	7:00 AM-9:00 AM
Period	PM:	3:00 PM-6:00 PM
Traffic	AM:	8:00 AM-9:00 AM
Peak	PM:	3:15 PM-4:15 PM

All Vehicles

Time		North Approach Manuka Rd			South Approach Manuka Rd			West Approach School Exit			Hourly Total	
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
7:00	7:15	0	0	8	0	4	1	0	1	0	153	
7:15	7:30	0	1	8	0	9	0	0	1	0	349	
7:30	7:45	0	0	20	0	9	0	0	3	1	547	
7:45	8:00	0	2	52	0	16	1	0	11	5	788	
8:00	8:15	0	4	115	0	16	0	0	42	33	957	Peak
8:15	8:30	0	5	108	0	19	0	0	49	36		
8:30	8:45	0	4	124	0	11	0	0	75	60		
8:45	9:00	0	2	90	0	22	0	0	82	60		
15:00	15:15	0	5	43	0	22	4	0	9	8	607	
15:15	15:30	0	3	83	0	21	2	0	75	65	621	Peak
15:30	15:45	0	3	53	0	29	1	0	38	31	456	
15:45	16:00	0	2	34	0	37	1	0	16	22	407	
16:00	16:15	0	1	22	0	44	1	0	18	19	390	
16:15	16:30	0	0	27	0	30	0	0	13	14	404	
16:30	16:45	0	0	27	0	33	0	0	21	25	389	
16:45	17:00	0	1	31	0	27	3	0	13	20	387	
17:00	17:15	0	0	25	0	31	0	0	30	33	361	
17:15	17:30	0	0	26	0	28	0	0	8	7		
17:30	17:45	0	0	53	0	29	0	0	15	7		
17:45	18:00	0	0	29	0	35	0	0	3	2		

Peak Time		North Approach Manuka Rd			South Approach Manuka Rd			West Approach School Exit			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
8:00	9:00	0	15	437	0	68	0	0	248	189	957
15:15	16:15	0	9	192	0	131	5	0	147	137	621

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of Manuka Rd and Allan St, Beaconsfield

GPS -38.034871, 145.365047

Date:	Thu 24/06/21
Weather:	Fine
Suburban:	Beaconsfield
Customer:	Traffix

North:	Manuka Rd
East:	Allan St
South:	Manuka Rd
West:	N/A

Survey	AM:	7:00 AM-9:00 AM
Period	PM:	3:00 PM-6:00 PM
Traffic	AM:	8:00 AM-9:00 AM
Peak	PM:	3:00 PM-4:00 PM

All Vehicles

Time		North Approach Manuka Rd			East Approach Allan St			South Approach Manuka Rd			Hourly Total	
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peak
7:00	7:15	0	11	0	0	0	1	0	0	13	180	
7:15	7:30	0	12	0	0	0	1	0	0	13	336	
7:30	7:45	0	20	0	0	0	0	0	0	20	501	
7:45	8:00	0	46	0	0	0	0	0	0	43	684	
8:00	8:15	0	93	0	0	0	0	0	2	86	861	Peak
8:15	8:30	0	109	0	0	0	4	0	2	76		
8:30	8:45	0	112	1	0	0	2	0	0	108		
8:45	9:00	0	142	1	0	0	1	1	0	121		
15:00	15:15	0	27	0	0	0	2	1	1	69	623	Peak
15:15	15:30	0	141	2	0	0	9	2	7	70	620	
15:30	15:45	0	95	0	0	0	2	2	3	68	472	
15:45	16:00	0	39	0	0	1	1	0	0	81	397	
16:00	16:15	0	33	0	0	0	1	0	2	61	357	
16:15	16:30	0	33	0	0	0	0	0	0	50	358	
16:30	16:45	0	49	0	0	0	0	0	1	45	360	
16:45	17:00	0	34	0	0	0	1	0	1	46	379	
17:00	17:15	0	50	0	0	0	1	0	1	46	381	
17:15	17:30	0	39	0	0	0	0	0	3	43		
17:30	17:45	0	66	0	0	0	1	0	4	43		
17:45	18:00	0	28	1	0	0	2	0	1	52		

Peak Time		North Approach Manuka Rd			East Approach Allan St			South Approach Manuka Rd			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	
8:00	9:00	0	456	2	0	0	7	1	4	391	861
15:00	16:00	0	302	2	0	1	14	5	11	288	623



Appendix C

Automatic Traffic Counts

TRANS TRAFFIC SURVEY

 trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

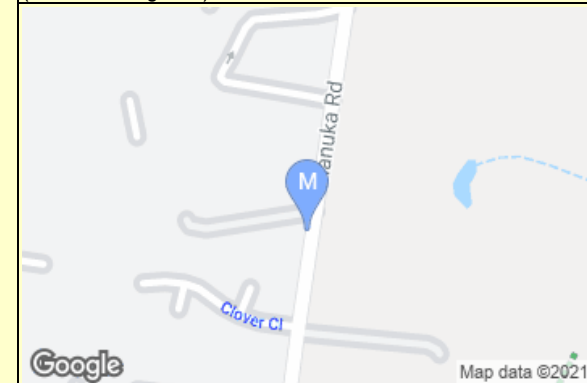
AUTOMATIC COUNT SUMMARY

Street Name :	Manuka Rd	Location :	North of Clover Cl
Suburb :	Berwick	Start Date :	00:00 Sat 19/June/2021
Metrocount ID	MD722R32/P	Finish Date :	00:00 Sat 26/June/2021
Site ID Number :	11174	Speed Zone :	60 km/h
Prepared By :	Vo Son Binh	Email:	binh@trafficsurvey.com.au

GPS information Lat 38° 1' 55.54 South Long 145° 21' 55.74 East		Direction of Travel		
		Both directions	Northbound	Southbound
Traffic Volume : (Vehicles/Day)	Weekdays Average	3,047	1,583	1,464
	7 Day Average	2,983	1,567	1,416
Weekday AM	08:00	685	369	316
Peak hour starts PM	15:00	472	224	247
Speeds : (Km/Hr)	85th Percentile	56.5	54.4	58.7
	Average	51.0	48.9	53.1
Classification % :	Light Vehicles up to 5.5m	97.2%	97.1%	97.2%

Location

GPS Information [Load Google Map \(internet required\)](#)
(Latitude, Longitude) -38.032095, 145.365483



[Speed Data](#) [Speed Graph](#) [Speed Bin](#)
[Volume Data](#) [Volume Graph](#) [Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

OH&S SYSTEM CERTIFIED TO ISO 4801:2001

ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open. These results should be used for indicative assessment only."

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

AUTOMATIC COUNT SUMMARY

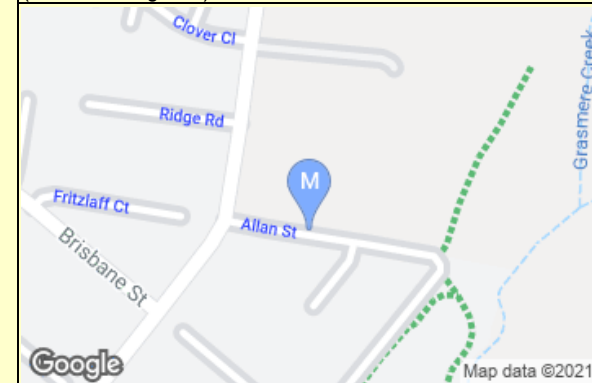
Street Name :	Allan St	Location :	East of Manuka Rd
Suburb :	Berwick	Start Date :	00:00 Sat 19/June/2021
Metrocount ID	ME65AZR9	Finish Date :	00:00 Sat 26/June/2021
Site ID Number :	11175	Speed Zone :	50 km/h
Prepared By :	Vo Son Binh	Email:	binh@trafficsurvey.com.au

GPS information		Direction of Travel		
Lat	38° 2' 5.93 South	Both directions	Westbound	Eastbound
Long	145° 21' 58.06 East			
Traffic Volume : (Vehicles/Day)	Weekdays Average	107	52	55
	7 Day Average	104	51	53
Weekday AM	10:00	9	4	4
Peak hour start PM	15:00	13	6	7
Speeds : (Km/Hr)	85th Percentile	30.3	29.8	31.4
	Average	26.7	26.7	27.0
Classification % :	Light Vehicles up to 5.5m	90.3%	90.2%	90.4%

Location

GPS Information [Load Google Map \(internet required\)](#)

(Latitude, Longitude) -38.03498,145.366127



[Speed Data](#)

[Speed Graph](#)

[Speed Bin](#)

[Volume Data](#)

[Volume Graph](#)

[Classification](#)



QUALITY ASSURED COMPANY BY ISO 9001:2015

OH&S SYSTEM CERTIFIED TO ISO 4801:2001

ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open. These results should be used for indicative assessment only."



Appendix D

Traffic Generation and Distribution

42-80 Manuka Road, Berwick
Proposed Residential Subdivision
Traffic Generation and Distribution
Our Ref: GRP27725



Parcel	No. of Lots	Trip Generation (veh/day)	Peak Hour %	Peak Hour Volumes (v/h)	Daily Trip Generation (v/d)
Tulloch (North)	96	8	10%	77	768
Brown (South)	46	8	10%	37	368
'Clover Cottage'	10	8	10%	8	80

Site Access	Peak Hour	Daily
Northern Access	63	630.4
Allan Access	59	585.6

Parcel	North	South
Tulloch	80%	20%
Brown	0%	100%
Clover	20%	80%

Peak Period Splits	AM	PM
In	20%	70%
Out	80%	30%

General Traffic Direction	Percentage
To/From North	25%
To/From South	75%

Manuka Road / Northern Access	AM Peak	PM Peak
Left in	3	11
Right in	9	33
Left Out	38	14
Right out	13	5
TOTAL:	63	63

Manuka Road / Allan Street	AM Peak	PM Peak
Left in	3	10
Right in	9	31
Left Out	35	13
Right out	12	4
TOTAL:	59	59



Appendix E

Detailed SIDRA Outputs

SITE LAYOUT

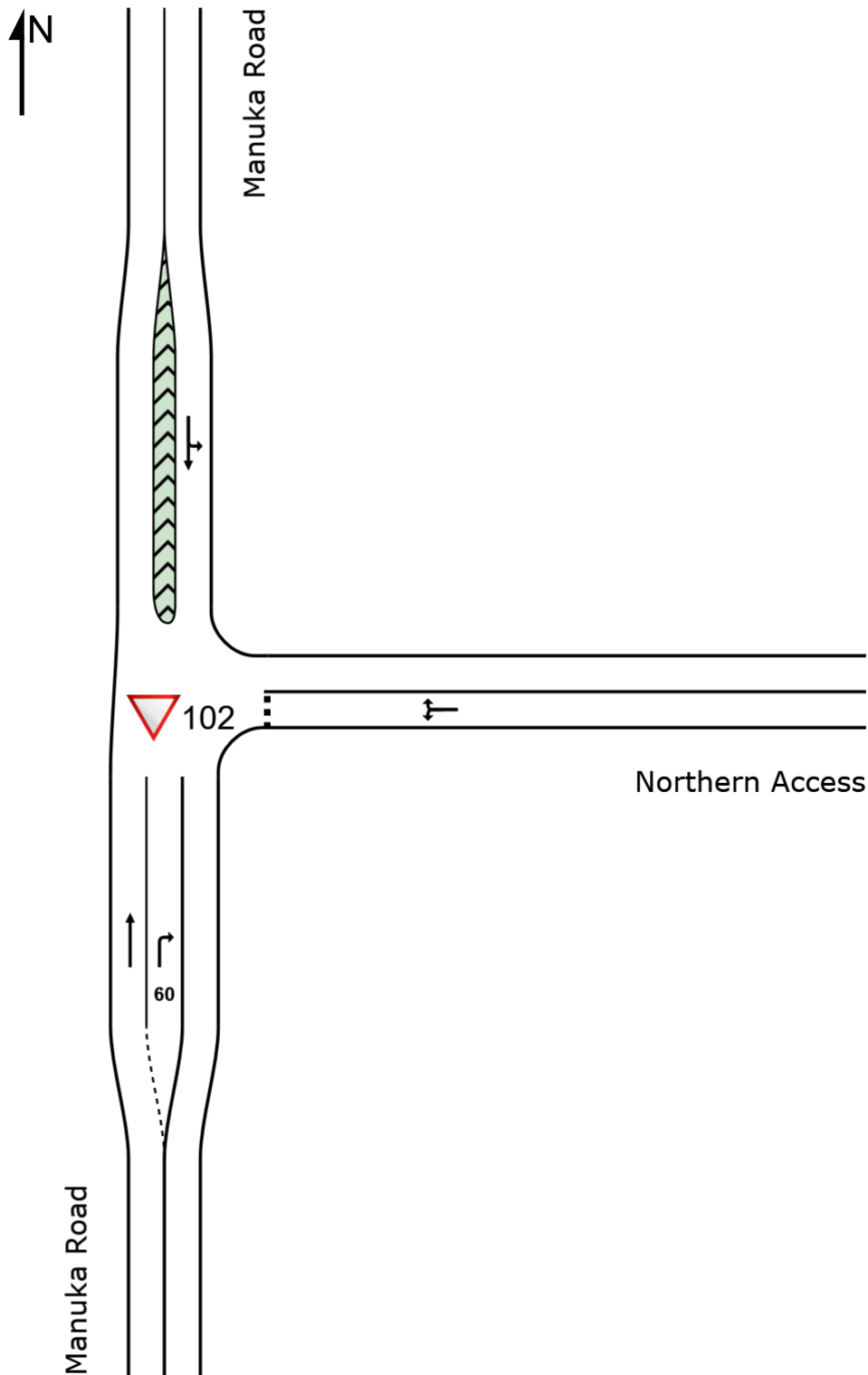
▼ Site: 102 [Manuka Road / Northern Access - AM Peak (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITE LAYOUT

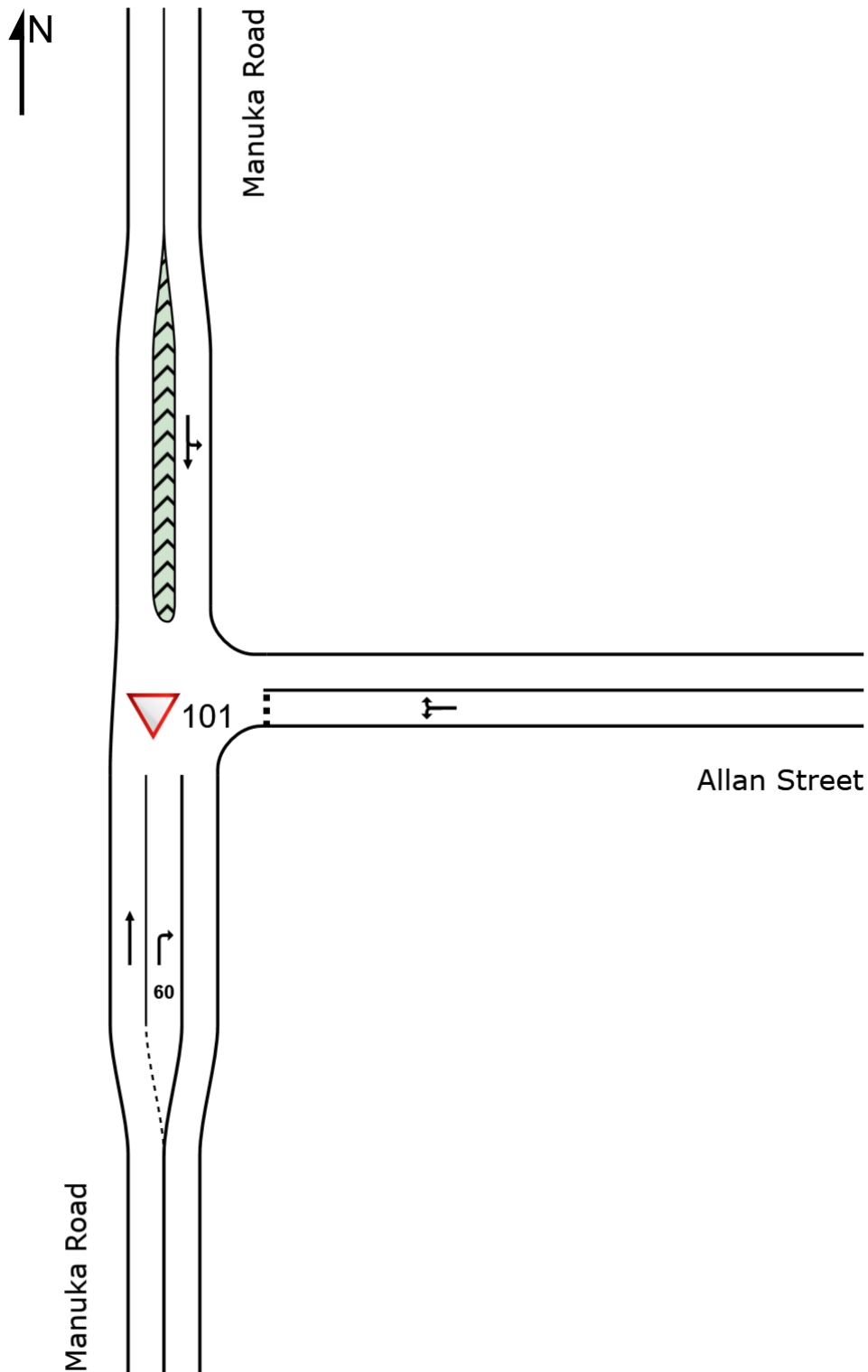
▽ Site: 101 [Manuka Road / Allan Street - AM Peak (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 102 [Manuka Road / Northern Access - AM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Manuka Road															
2	T1	All MCs	299	0.0	299	0.0	0.153	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	9	0.0	9	0.0	0.010	7.7	LOS A	0.0	0.3	0.53	0.64	0.53	51.0
Approach			308	0.0	308	0.0	0.153	0.3	NA	0.0	0.3	0.02	0.02	0.02	59.6
East: Northern Access															
4	L2	All MCs	40	0.0	40	0.0	0.083	8.0	LOS A	0.3	2.1	0.58	0.78	0.58	49.9
6	R2	All MCs	14	0.0	14	0.0	0.083	14.7	LOS B	0.3	2.1	0.58	0.78	0.58	49.7
Approach			54	0.0	54	0.0	0.083	9.7	LOS A	0.3	2.1	0.58	0.78	0.58	49.8
North: Manuka Road															
7	L2	All MCs	3	0.0	3	0.0	0.299	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.3
8	T1	All MCs	580	0.0	580	0.0	0.299	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			583	0.0	583	0.0	0.299	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles			945	0.0	945	0.0	0.299	0.7	NA	0.3	2.1	0.04	0.05	0.04	59.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 102 [Manuka Road / Northern Access - PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Manuka Road															
2	T1	All MCs	317	0.0	317	0.0	0.162	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	35	0.0	35	0.0	0.025	6.3	LOS A	0.1	0.8	0.36	0.58	0.36	51.7
Approach			352	0.0	352	0.0	0.162	0.7	NA	0.1	0.8	0.04	0.06	0.04	59.0
East: Northern Access															
4	L2	All MCs	15	0.0	15	0.0	0.021	6.4	LOS A	0.1	0.5	0.41	0.59	0.41	51.6
6	R2	All MCs	5	0.0	5	0.0	0.021	9.9	LOS A	0.1	0.5	0.41	0.59	0.41	51.4
Approach			20	0.0	20	0.0	0.021	7.3	LOS A	0.1	0.5	0.41	0.59	0.41	51.5
North: Manuka Road															
7	L2	All MCs	12	0.0	12	0.0	0.143	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	57.2
8	T1	All MCs	266	0.0	266	0.0	0.143	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach			278	0.0	278	0.0	0.143	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.6
All Vehicles			649	0.0	649	0.0	0.162	0.7	NA	0.1	0.8	0.03	0.06	0.03	59.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Manuka Road / Allan Street - AM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Manuka Road															
2	T1	All MCs	512	0.0	512	0.0	0.262	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	14	0.0	14	0.0	0.015	8.1	LOS A	0.1	0.4	0.55	0.68	0.55	50.7
Approach			525	0.0	525	0.0	0.262	0.3	NA	0.1	0.4	0.01	0.02	0.01	59.6
East: Allan Street															
4	L2	All MCs	44	0.0	44	0.0	0.107	8.3	LOS A	0.4	2.6	0.63	0.83	0.63	48.9
6	R2	All MCs	13	0.0	13	0.0	0.107	21.2	LOS C	0.4	2.6	0.63	0.83	0.63	48.7
Approach			57	0.0	57	0.0	0.107	11.2	LOS B	0.4	2.6	0.63	0.83	0.63	48.9
North: Manuka Road															
7	L2	All MCs	5	0.0	5	0.0	0.323	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	57.3
8	T1	All MCs	625	0.0	625	0.0	0.323	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			631	0.0	631	0.0	0.323	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.7
All Vehicles			1213	0.0	1213	0.0	0.323	0.7	NA	0.4	2.6	0.04	0.05	0.04	59.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Manuka Road / Allan Street - PM Peak (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

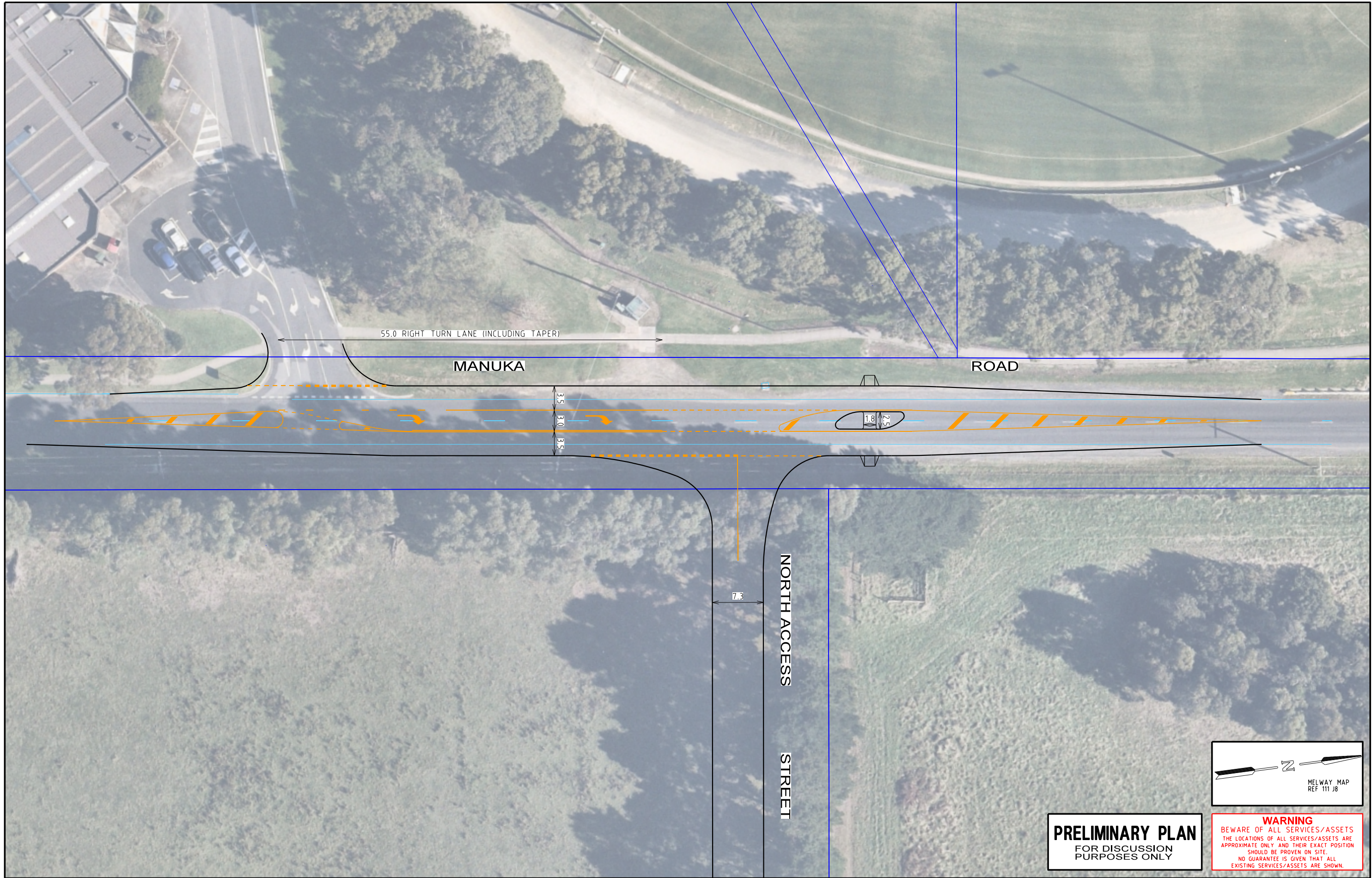
Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Manuka Road															
2	T1	All MCs	404	0.0	404	0.0	0.207	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	44	0.0	44	0.0	0.037	6.9	LOS A	0.2	1.1	0.45	0.63	0.45	51.5
Approach			448	0.0	448	0.0	0.207	0.7	NA	0.2	1.1	0.04	0.06	0.04	58.9
East: Allan Street															
4	L2	All MCs	28	0.0	28	0.0	0.039	6.9	LOS A	0.1	1.0	0.48	0.65	0.48	51.1
6	R2	All MCs	5	0.0	5	0.0	0.039	13.3	LOS B	0.1	1.0	0.48	0.65	0.48	51.0
Approach			34	0.0	34	0.0	0.039	7.9	LOS A	0.1	1.0	0.48	0.65	0.48	51.1
North: Manuka Road															
7	L2	All MCs	13	0.0	13	0.0	0.214	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	57.2
8	T1	All MCs	403	0.0	403	0.0	0.214	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach			416	0.0	416	0.0	0.214	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.6
All Vehicles			898	0.0	898	0.0	0.214	0.8	NA	0.2	1.1	0.04	0.06	0.04	58.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



Appendix F

Concept Design Intersection Layouts



ISSUE	ISSUE DESCRIPTION	ISSUE DATE
A	INITIAL ISSUE	30 JUL 2021
B	UPDATED DEVELOPMENT PLAN	24 MAR 2022

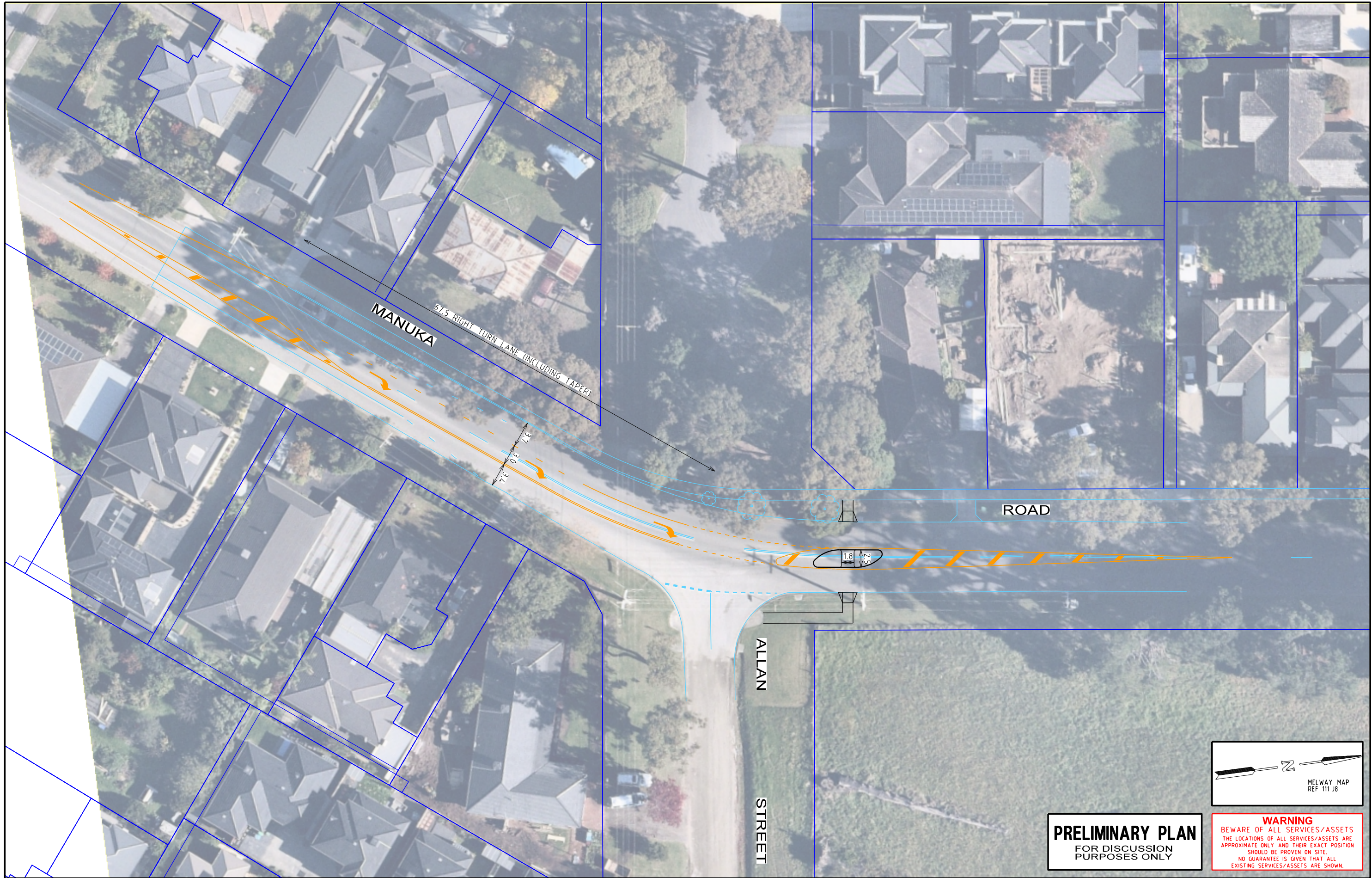
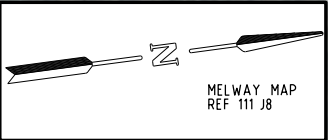
GENERAL NOTES
1. BASE INFORMATION FROM AERIAL PHOTOGRAPH (SOURCE: NEARMAP APR 2021)
2. ALL DIMENSIONS ARE TO FACE OF KERB & CHANNEL
3. MANUKA ROAD - MAIN ROAD (SPEED ZONE 60km/h)
4. ALL PROPOSED FOOTPATHS AND PRAM CROSSINGS ARE TO BE CONSTRUCTED WITH TACTILE GROUND SURFACE INDICATORS TO DDA COMPLIANCE GUIDELINES REFER TO AS 14284:2009

DESIGNED	A MONTGOMERIE 30 JUL 2021
CHECKED/APPROVED	W DE WAARD 30 JUL 2021
FILE NAME	G27725-01-00.dgn

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MANUKA ROAD, BERWICK
RIGHT TURN LANE TREATMENT
CASEY CITY COUNCIL
CONCEPT LAYOUT PLAN

SCALE 1:500 (A3) 0 2.5 5 7.5 10 SHEET No. 1 OF 2 DWG No. G27725-01-01



PRELIMINARY PLAN
FOR DISCUSSION
PURPOSES ONLY

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

ISSUE	ISSUE DESCRIPTION	ISSUE DATE
A	INITIAL ISSUE	30 JUL 2021
B	UPDATED DEVELOPMENT PLAN	24 MAR 2022

GENERAL NOTES
1. BASE INFORMATION FROM AERIAL PHOTOGRAPH (SOURCE: NEARMAP APR 2021)
2. ALL DIMENSIONS ARE TO FACE OF KERB & CHANNEL
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MANUKA ROAD / ALLAN STREET, BERWICK
RIGHT TURN LANE TREATMENT
CASEY CITY COUNCIL
CONCEPT LAYOUT PLAN

SCALE 1:500 (A3) 0 2.5 5 7.5 10 SHEET No. 2 OF 2 DWG No. G27725-01-02