


# **Wurruk Growth Area, Princes Highway**

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## **Traffic and Transport Assessment**

27 October 2021

#### DOCUMENT CONTROL DATA

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- APPENDIX C. SIDRA ANALYSIS

# **1 PREAMBLE**

## **1.1 Introduction**

Beveridge Williams has been engaged by Jelaryl Pty Ltd, Barry Hollonds, Pearsondale Heights Pty. Ltd. and Park Ridge Investments Pty. Ltd. to prepare a Traffic and Transport Report and Pedestrian and Cyclist Movement Traffic Study for a residential subdivision on Princes Highway, Wurruk.

The following report sets out the findings of this assessment based on the investigations undertaken by Beveridge Williams.

## **1.2 Objectives**

Based on the scope of Beveridge Williams' engagement the information contained within this assessment has been prepared to respond to the following objectives:

- Traffic Impact Considerations;
- Appropriate use of existing transport-related infrastructure; and
- Access considerations.

## **1.3 Facts and Matters Relied Upon**

In preparing this assessment, Beveridge Williams has relied upon the following facts, matters and information:

- Wellington Planning Scheme;
- Schedule 9 to Clause 43.04 (DPO9) of the Wellington Planning Scheme;
- Sale, Wurruk & Longford Structure Plan;
- Development Plan V6 dated 19/10/2021 prepared by Beveridge Williams; and
- Site inspection observations.

## 2 EXISTING CONDITIONS

### 2.1 Subject Site

The subject site comprises the Wurruk Growth Area, which is defined in Schedule 9 to the Development Plan Overlay Clause 43.04 (DPO) in the Wellington Planning Scheme. This area is shown on the 'Concept Plan' within this Clause, which can be seen at **Figure 1**.



**Figure 1:** Concept Plan (Source: Schedule 9 to Clause 43.04; Wellington Planning Scheme)

The site is presently used largely for unirrigated livestock grazing, although there are some irrigated pastures in the southern portion. There are also two occupied dwellings in the southern portion of the site.

The existing conditions within the subject site and across its immediate surrounds are shown in the recent aerial photograph provided at **Figure 2**.



**Figure 2:** Aerial Photograph of the Subject Site Source: Nearmap



## 2.2 Subject Site Context

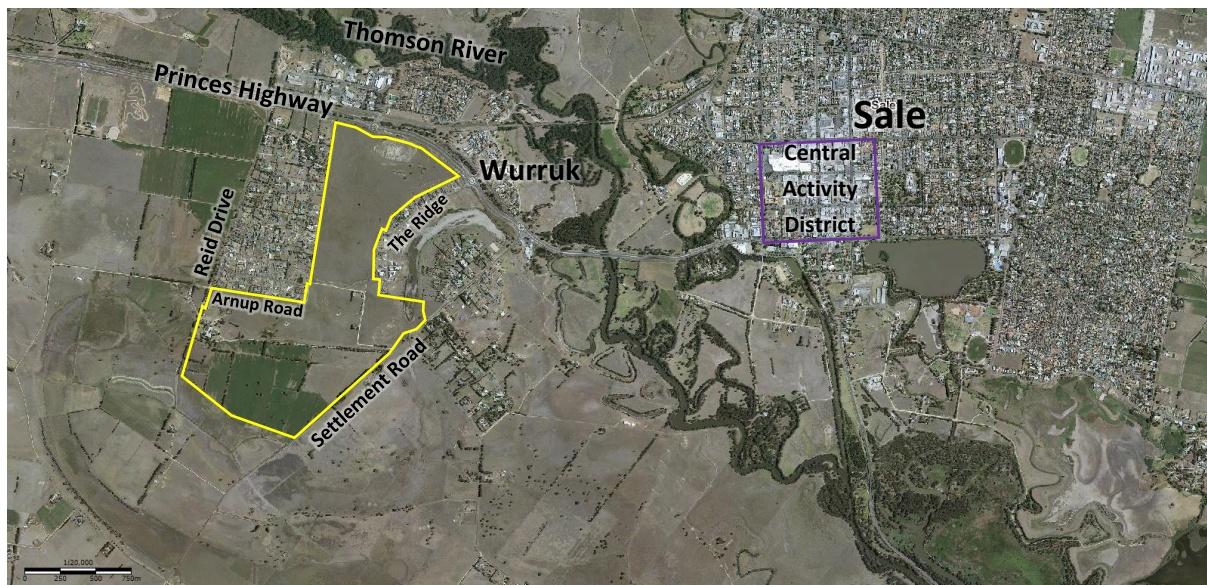
The subject site is located within the Wellington Shire LGA.

It fronts:

- Princes Highway on its north side;
- Existing low-density residential developments to the east and west;
- Settlement Road on its southeast side;
- Arnup Road and Reid Drive on its west side; and,
- Open farmland to the south.

Otherwise, it is located around 3 kilometres west of the central activity district of the regional centre of Sale.

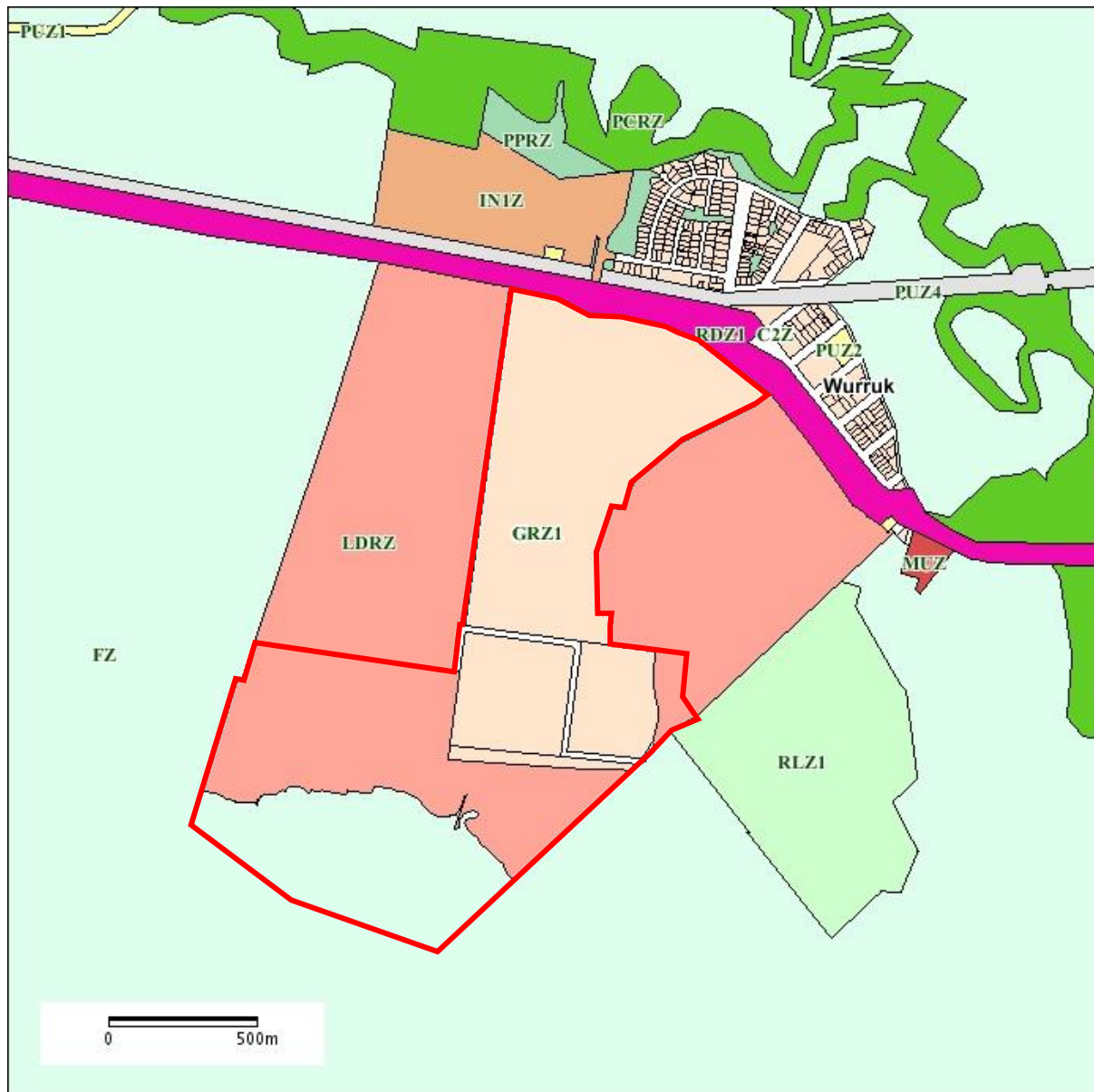
The site context plan at **Figure 3** demonstrates the surrounding features.



**Figure 3:** Aerial photograph showing the location of the Development Plan area with respect to the balance of development in Wurruk and the adjacent regional centre of Sale

As can be seen in the zoning map provided at **Figure 4**, the subject site is located in the:

- General Residential Zone in its northern and central portions;
- Farming Zone in its southern portion; and,
- Low Density Residential Zone across the balance.



**Figure 4:** Zoning Map showing the subject site outlined red



## 2.3 Road Network

The four roads adjoining the subject site have the following features:

### 2.3.1 Princes Highway

Princes Highway is a national highway aligned in an east-west fashion on the north side of the subject site. It is managed and under the authority of the Department of Transport (DoT). The subject site's abuttal to Princes Highway includes one intersection, which is presently formed as a roundabout with three connection points, i.e. at Hunt Place. The Princes Highway has two further roundabout intersections located between the subject site and Sale, i.e. at The Ridge and Settlement Road.

The Princes Highway carriageway is a separated, four-lane, two-way road with a combination of wire rope safety barrier and guard rail on both the road sides and median. The lanes are generally 3.5m wide and the median width varies around 14m. The road operates with a posted 80km/h speed zone at the frontage of the site.

### 2.3.2 Hunt Place

Hunt Place forms the northern leg of the intersection on the Princes Highway that abuts the subject site. It is where the subject site will gain direct access from the Princes Highway once it is developed.

Hunt Place is a local road that serves as the sole access point for the original Wurruk residential neighbourhood and the Wurruk Industrial Estate. These developments are both located on the north side of the Bairnsdale-Melbourne Railway line, which Hunt Place crosses less than 50 metres to the north of its intersection with Princes Highway.

Hunt Place is two-lane, two-way road with a default local road speed limit of 50km/h. Figure 5 provides an aerial view of the current roundabout at the intersection of Hunt Place and the Princes Highway.



**Figure 5:** Aerial view of the roundabout at the intersection of Hunt Place and Princes Highway

### 2.3.3 The Ridge

The Ridge is a local road that continues south from its roundabout with Princes Highway. It is formed as a two-way road with a varied, non-delineated carriageway width of approximately 6m and terminates in a cul-de-sac at its southern end. The road pavement has no kerbing or pedestrian facilities and operates with a default local road speed limit of 50km/h.

The Ridge presently services 40 low-density residential lots that back onto the eastern perimeter of the subject site. It was designed to provide 5 vehicle connection points into the subject site. However, the proposed development plan only seeks to utilise two for motorised vehicular traffic, i.e. the two closest to the intersection with Princes Highway. They will be designed to accommodate normal vehicular traffic and one will be designed to encourage only limited vehicle access.

The Ridge will provide an alternative local road access point from the Princes Highway to the subject site.

The aerial photograph at Figure 6 shows The Ridge estate and its roundabout intersection with the Princes Highway.



**Figure 6:** Aerial view of The Ridge estate and its intersection with Princes Highway



### 2.3.4 Settlement Road

Settlement Road is a local road that also continues south from its roundabout with Princes Highway. It is a two-lane, two-way road with a varied width of approximately 6.5m. The road has no kerbing or pedestrian facilities and operates with a posted speed limit of 80km/h for the northern half of its abuttal with the subject site and 100km/h across the balance of the abuttal.

Settlement Road presently services:

- a BP Service Centre, which is located adjacent to the intersection with Princes Highway;
- low-density residential estates that are located on either side right up to its frontage with the subject;
- the subject site, for which it presently provides access to the two dwellings thereon;
- Arnup Road, which is a gravel road that bisects the southern portion of the subject site before connecting to Reid Drive further to the west; and,
- Farmland to the southwest of the subject;

Settlement Road meets the subject site at its easternmost tip. It forms an intersection with Arnup Road near the juncture of the low density residential zoned and general residential zoned areas and within the subject site, as can be seen at Figure 7.

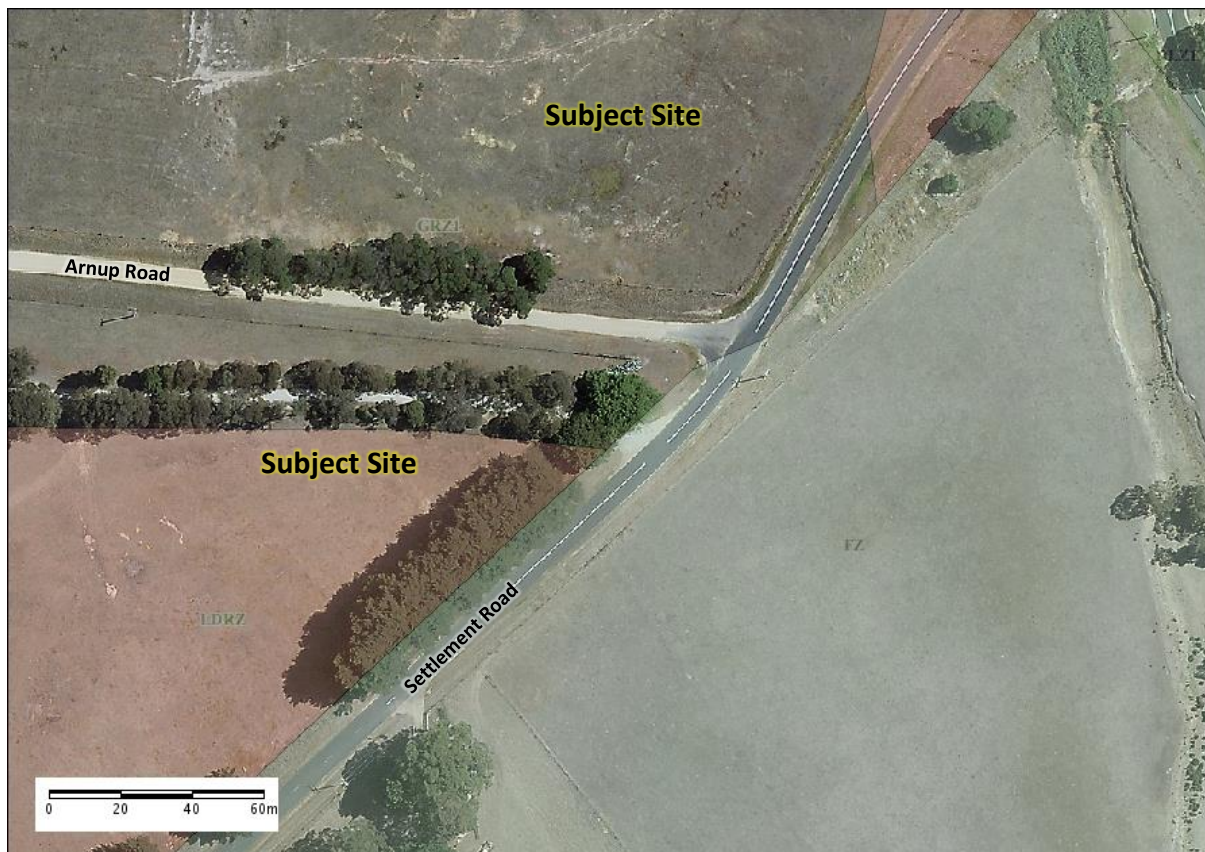


Figure 7: Aerial view of the intersection between Arnup Road and Settlement Road with the land use zoning overlaid

### 2.3.5 Arnup Road

Arnup Road is a local gravel road that bisects the southern portion of the subject site and connects to Reid Drive, which is a north-south running road to the west, as shown at Figure 8.



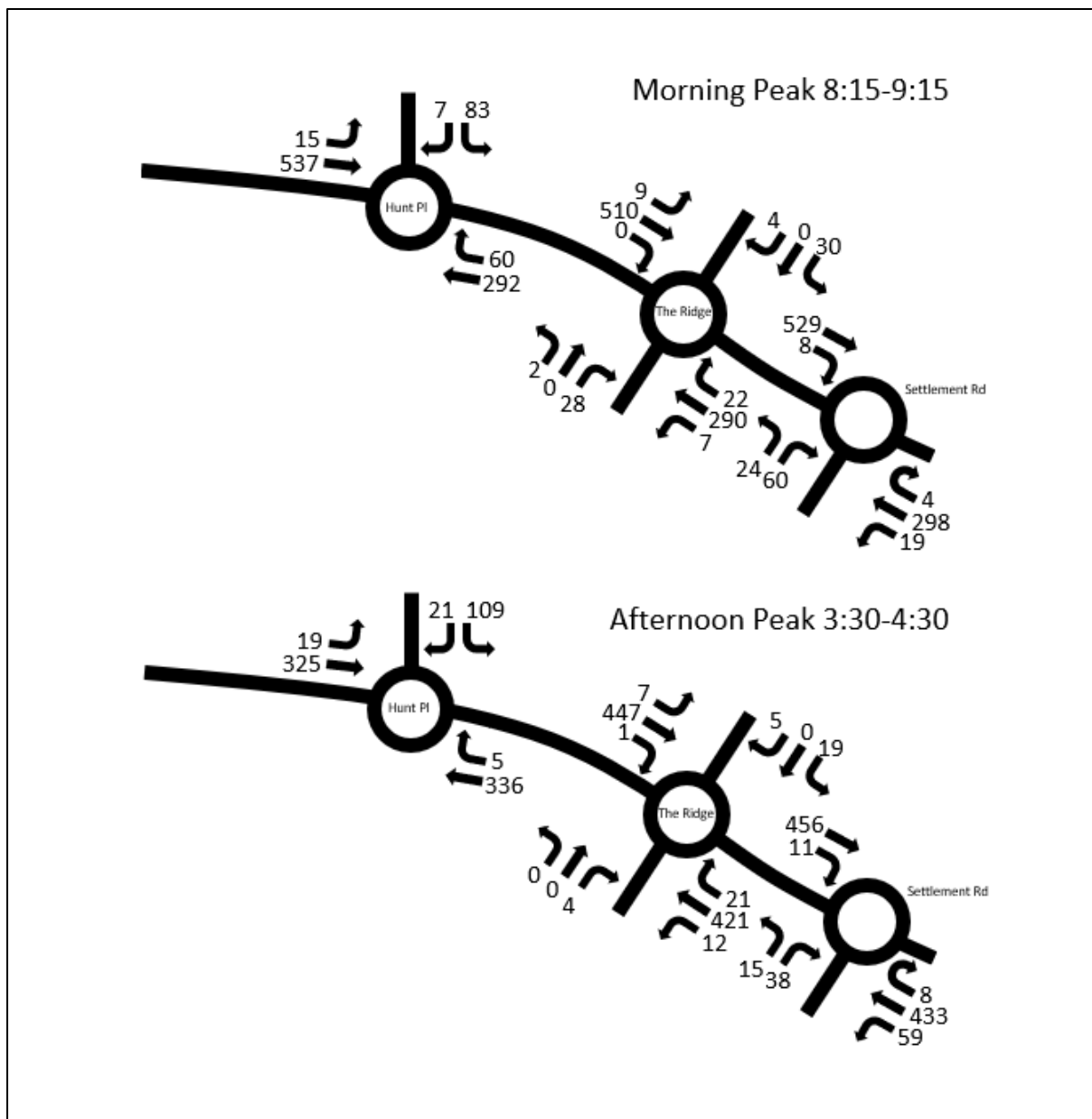
**Figure 8:** Aerial view of the intersection between Arnup Road and Reid Drive

## 2.4 Traffic Volumes

Turning movement counts were conducted along Princes Highway at the intersections of Hunt Place, The Ridge and Settlement Road on Wednesday 31 July 2019 between 7am-7pm.

The morning peak hour occurred between 8:15-9:15 and the afternoon peak hour occurred between 3:30-4:30. The full survey is included in Appendix A, with the peak hour turning counts shown below

Of particular note, 90% of departure morning traffic travelled towards Sale to the east, with a variance of afternoon arrival traffic with west/east origin ratios of 80:20 at Hunt Place, 10:90 at south leg of The Ridge, and 15:85 at Settlement Road.



**Figure 9: Peak Hour Turning Movement Counts**  
Source: Nationwide Traffic Surveys

## 2.5 Existing Intersection Operation

Based on the surveyed traffic volumes outlined in Figure 9, an assessment of the current operation of the intersections was carried as SIDRA model.

SIDRA intersection is a computer package developed to assess the operating characteristics of an intersection. Key metrics calculated by SIDRA include:

- Degree of saturation and level of service;
- Average delay; and
- 95<sup>th</sup> percentile queue length.

**Degree of saturation** is the ratio of traffic undertaking a movement within the intersection when compared to the maximum capacity calculated for that movement. The level of service is derived from the degree of saturation in the following way:

- |              |           |
|--------------|-----------|
| • Up to 0.6  | Excellent |
| • 0.6 to 0.7 | Very good |
| • 0.7 to 0.8 | Good      |
| • 0.8 to 0.9 | Fair      |
| • 0.9 to 1.0 | Poor      |
| • Over 1.0   | Very poor |

It is considered acceptable that some critical movements within an intersection operate in the range of 0.9 to 1.0 during peak periods, reflecting actual conditions of a substantial proportion of suburban intersections.

**Average delay** is the delay in seconds that can be expected over all the vehicles making a movement in the intersection during the peak hour.

The **95<sup>th</sup> percentile queue** represents the maximum queue length in metres expected in 95% of queues during the peak hour.

The results of the SIDRA intersection analysis of the existing intersection functionality are presented below.



Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
Hunt Pl	0.108	5.9	3	0.138	5.8	3.9
Princes Highway West	0.208	3.8	7.1	0.117	3.6	3.6
Princes Highway East	0.121	4.6	4.5	0.122	3.7	4.4

Figure 10: Existing intersection conditions – Princes Highway/Hunt Place

Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
The Ridge North	0.042	6	1.1	0.028	9.5	0.8
The Ridge South	0.033	9.9	0.9	0.007	8.9	0.2
Princes Highway West	0.194	3.8	6.9	0.163	3.7	5.3
Princes Highway East	0.109	4	3.8	0.161	3.9	6

Figure 11: Existing intersection conditions – Princes Highway/The Ridge

Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
Settlement Road	0.088	8.8	2.4	0.060	9.3	1.6
Princes Highway West	0.204	3.9	7.7	0.173	3.9	6.4
Princes Highway East	0.111	3.7	3.6	0.172	3.8	5.8

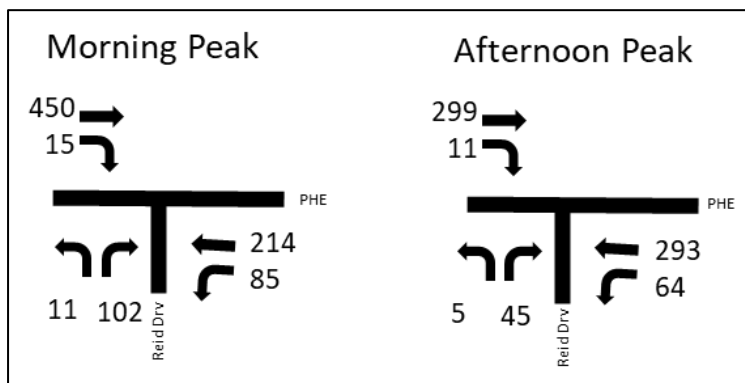
Figure 12: Existing intersection conditions – Princes Highway/The Ridge

A review of the above data indicates that the intersections along Princes Highway at Hunt Place, The Ridge and Settlement Road all operate with a Level of Service (LOS) of A with DoS of generally less than 0.2. The existing morning and afternoon peak hour operation of the intersections are considered to be 'Excellent' according to the SIDRA model.

## 2.6 Reid Drive Intersection

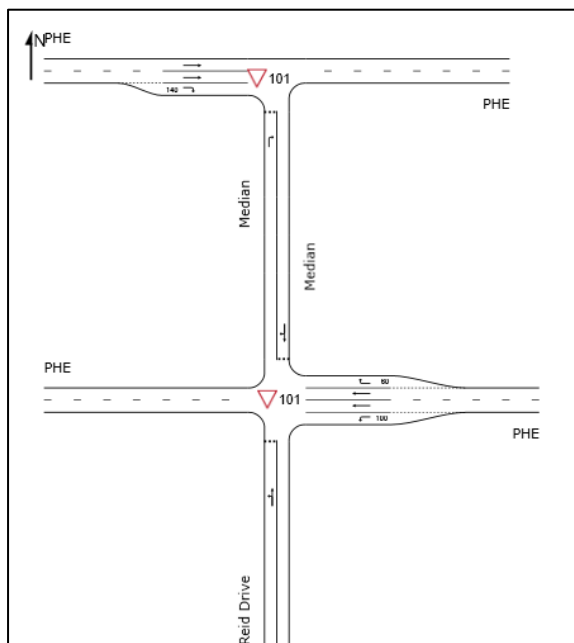
Early iterations of the proposed subdivision did not provide connections through the existing residential area that currently access the Princes Highway at Reid Drive. There were, therefore, wasn't a count conducted at Reid Drive when the three roundabouts were surveyed. As the current site layout proposes a connection, there are potential trips that would now travel via Reid Drive.

To assess the existing conditions, the number of lots in the existing residential area were tallied, with a total of 125 properties. Applying a rate of 10 vehicles per dwelling per day, the estimated volumes turning in and out of Reid Drive is 1,250 vehicles per day, or 125 during the peak periods. Applying the east/west directional splits from the existing intersections that were surveyed, the indicative turning movement counts are calculated below.



**Figure 13: Reid Drive Calculated Turning Movements**

Due to the wide median break, the intersection model was broken into two parts comprising the northern half and the southern half, which was networked to process the site as a whole. The SIDRA output is summarised below.



**Figure 14: Reid Drive SIDRA Model Layout**

Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
NB Median	0.022	4.3	0.3	0.018	4.8	0.2
SB Median	0.152	5.8	1.8	0.054	4.3	0.6
Reid Drive	0.140	6.8	1.9	0.068	7.3	0.9
Princes Highway West	0.129	0.2	0	0.086	0.2	0
Princes Highway East	0.062	1.6	0	0.084	1.0	0

**Figure 15: Reid Drive Existing Conditions**

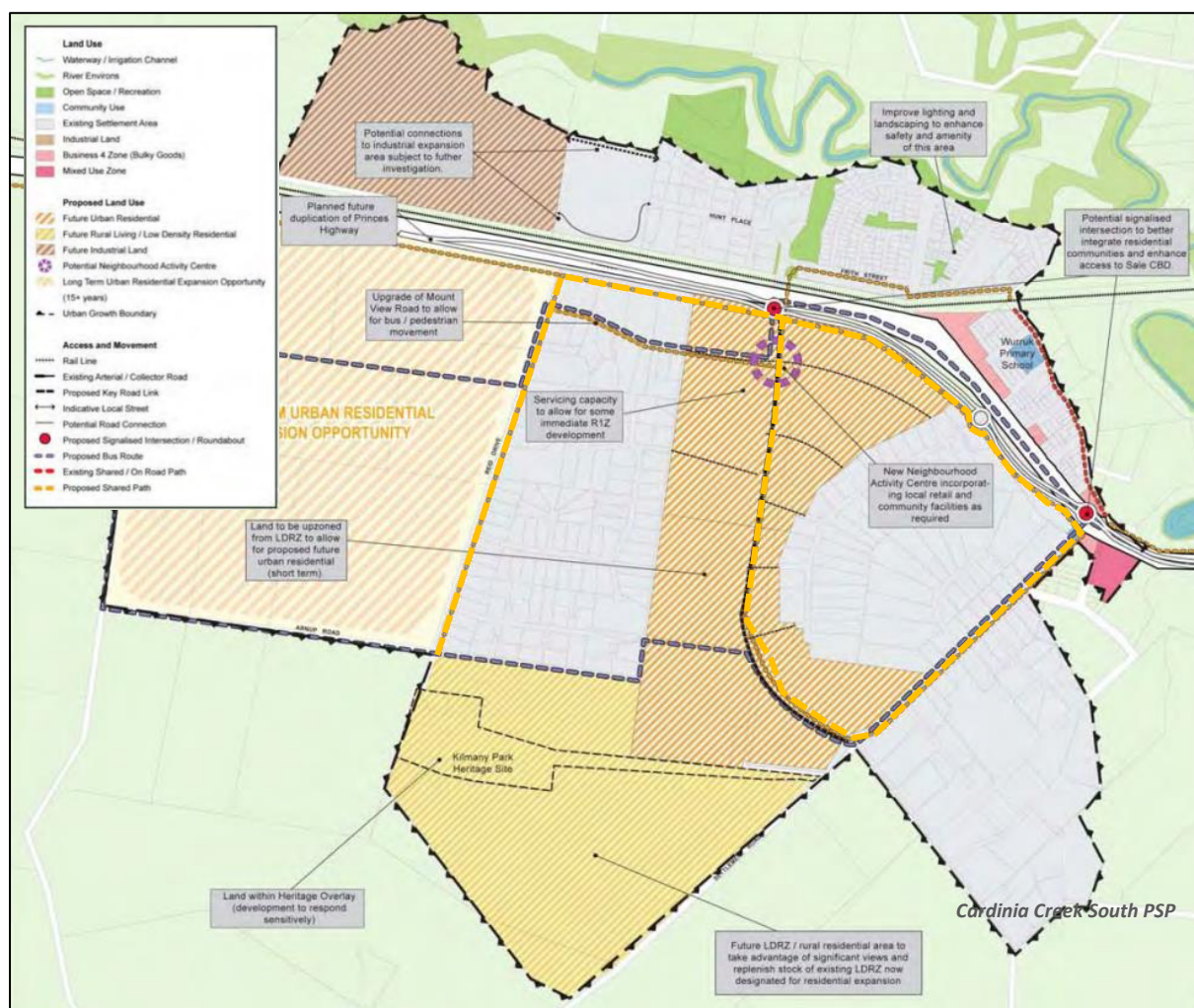
The existing conditions show the intersection is currently operating well within capacity. The median break storage at 17m is nowhere near close to being exceeded.

### 3 SALE, WURRUK AND LONGFORD STRUCTURE PLAN

#### 3.1 General

The Sale, Wurruk and Longford Structure Plan (Structure Plan) was prepared in 2010 by Wellington Shire to direct the development of the land within the precinct, which includes the subject site. The structure plan provides a Master Plan for the precinct which considers the mixture of land uses, indicative configuration of the road network, location of parks, activity centres and the infrastructure requirements for the future community.

The subject site context with respect to the Structure Plan is illustrated in Figure 16 below.



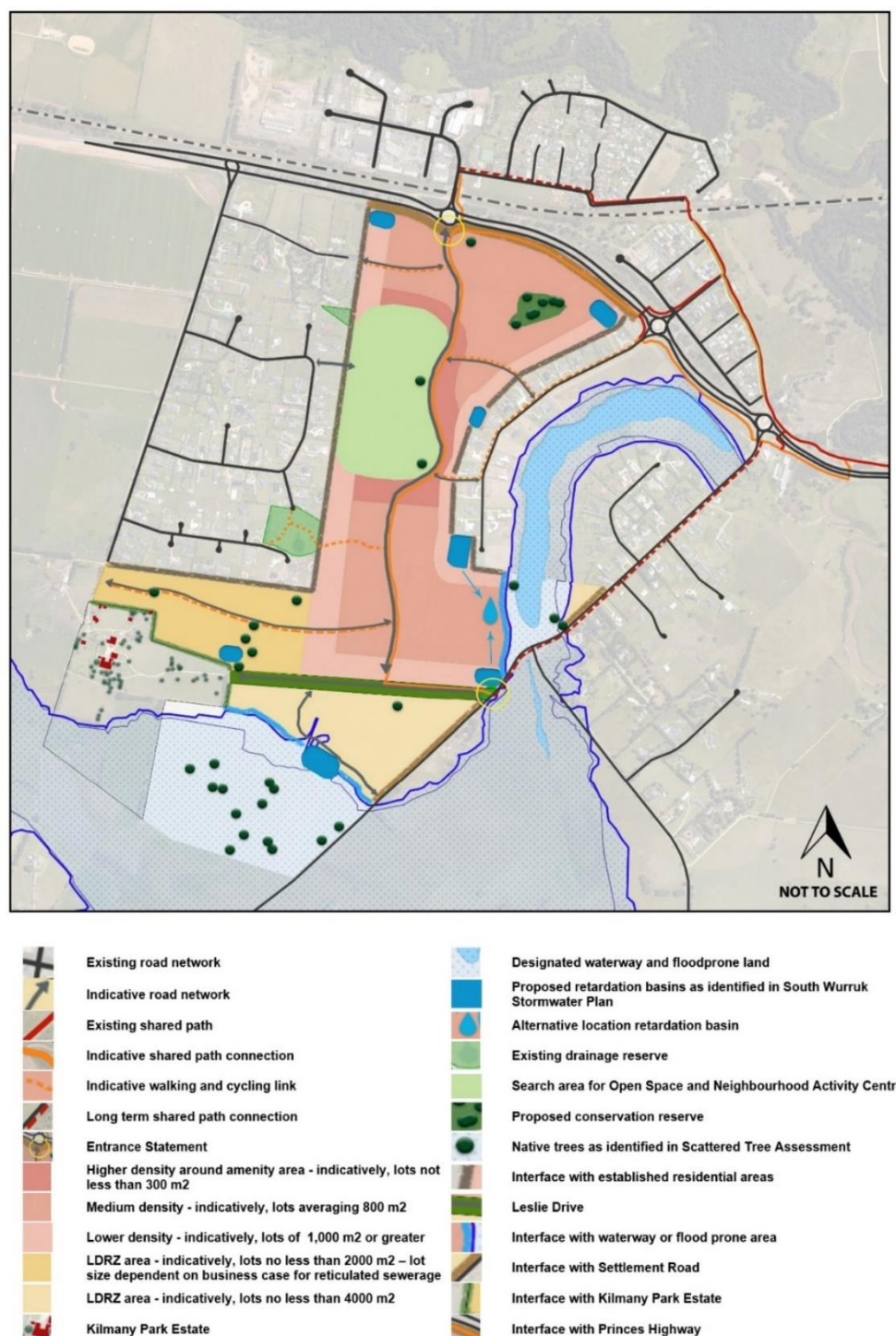
**Figure 16: Wurruk Growth Area Structure Plan**  
**Source: Sale, Wurruk and Longford Structure Plan**



## 4 PROPOSAL

### 4.1 General

During the preparation of Schedule 9 to the Development Plan Overlay, Council prepared the 'Concept Plan' shown at Figure 17. This plan sets anticipated lot densities for a future development plan and nominates 4 key vehicle access points, i.e. at Hunt Place, The Ridge, Mount View Drive and Reid Drive. A copy of this plan is provided at Appendix A.



**Figure 17:** Concept Plan (excerpt from Clause 43.04, Schedule 9; Wellington Planning Scheme)

Beveridge Williams has prepared an Indicative Development Plan for the subject site based on the densities foreshadowed in the Concept Plan, taking into account the capacity of all low density residential zoned land to be developed with a minimum lot size of 2,000m<sup>2</sup> if sewer is provided.

This plan confirms that development of the subject site at the densities foreshadowed in the Concept Plan at Figure 15 could provide up to 1,256 low and standard density residential lots. An excerpt of the Development Plan prepared by Beveridge Williams to match that outcome is provided below. This plan is reproduced in Appendix A.

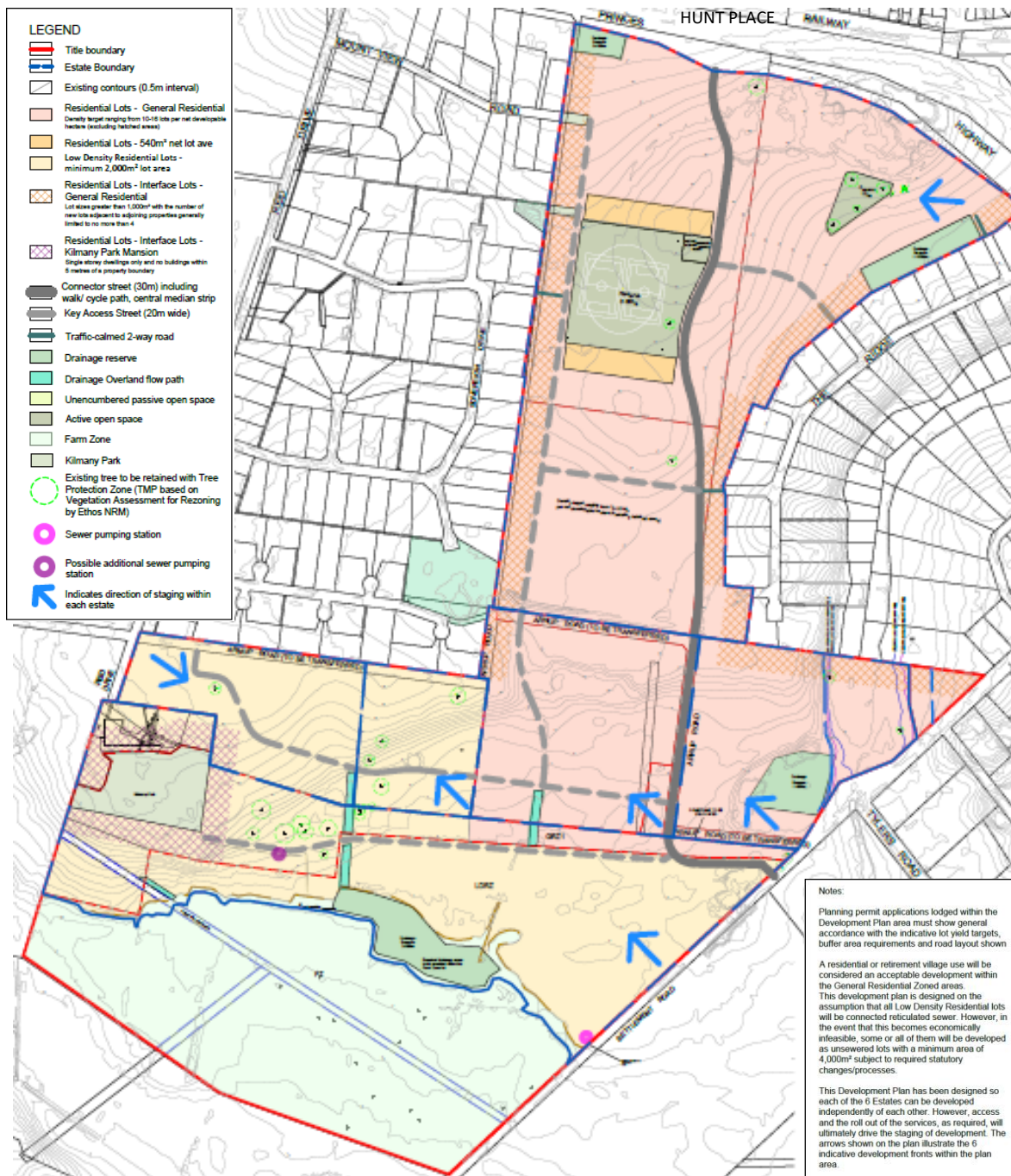


Figure 18: Indicative Development Plan with proposed site access points shown

## 4.2 Site Access

It is proposed develop the site with access at 7 separate locations:

1. Hunt Place
2. The Ridge – intersection closest to the Princes Highway;
3. The Ridge – second intersection from the Princes Highway;
4. Settlement Road;
5. Sovereign Drive; and,
6. Arnup Road.

These access points are proposed to be provided as follows:

### 4.2.1 Hunt Place

This access point will be constructed as the fourth and final leg of the existing roundabout intersection that Hunt Place forms with the Princes Highway. It will enjoy access to the two existing lanes within the roundabout and will become part of the highway up to the frontage of the subject site. As such it will be under the control of the Department of Transport, rather than Council. This intersection will be constructed in the early stages of the development of the northern portion of the subject site to allow the majority of traffic to be funnelled onto Princes Highway so as to avoid putting excessive pressure on surrounding local roads.

### 4.2.2 The Ridge – intersection 1

This access point will be constructed as part of the early stages of the development of the northern portion of the subject site. It will provide access to the northern portion of the development plan area early in the development. It will be a two-way, bitumen-sealed roadway that will connect to The Ridge near its intersection with the Princes Highway and provide pedestrian and vehicular access to the broader road, cycle path and footpath networks. It will remain under the control of Council.

### 4.2.3 The Ridge – intersection 2

This access point will connect to The Ridge and provide access to the northern portion of the development plan area early in the development. It will be constructed as a 'traffic-calmed' roadway that prioritises pedestrian and cyclist use over motorised vehicular traffic in order to limit the attractiveness of The Ridge to motorised vehicles as a thoroughfare into the development on the subject site. It will remain under the control of Council.

### 4.2.4 Settlement Road

This access point will provide the primary connection into the southern portion of the estate. A new road will be constructed between this intersection and the roundabout on the Princes Highway at Hunt Place to create a key connector street through the general residential zoned areas. It will sit within a road reserve with width of around 30 metres and be constructed in accordance with Council standards at the juncture of the low density residential zone and the general residential zones. There are two historic oak trees at this juncture that are growing on either side of an existing crossover. The gap between these trees is insufficient for a new intersection and connector road to be constructed between them. So, the new intersection will sit slightly to the south of the oak trees in order to allow their preservation.



#### 4.2.5 Sovereign Drive

The subject site does not presently have frontage to Sovereign Drive, which is a local, bitumen-sealed road that provides access to lots within the low density residential estate to the subject site's west. However, as part of the development of that estate, Council required the creation of a 20 metre wide reserve that can be used to provide a road connection from the subject site into Sovereign Drive. An aerial view of this reserve is shown at Figure 16. A one-way, traffic-calmed road connection will be constructed as part of the proposed development with preference given to eastbound traffic coming from the existing estate. This will avoid traffic from the development on the subject site choosing to use Sovereign Drive as an alternative egress to Princes Highway.



**Figure 19: Sovereign Drive Access Location**

## 4.2.6 Arnup Road

The existing road frontage to Arnup Road at the western end of the site will be used to provide access into the low density residential estate on the south side of the road reserve. It is anticipated that this portion of Arnup Road will be required to be upgraded to a bitumen standard as part of the development works.

An excerpt of the Indicative Development Plan prepared by Beveridge Williams with the 7 proposed site access points shown is provided at Figure 17.

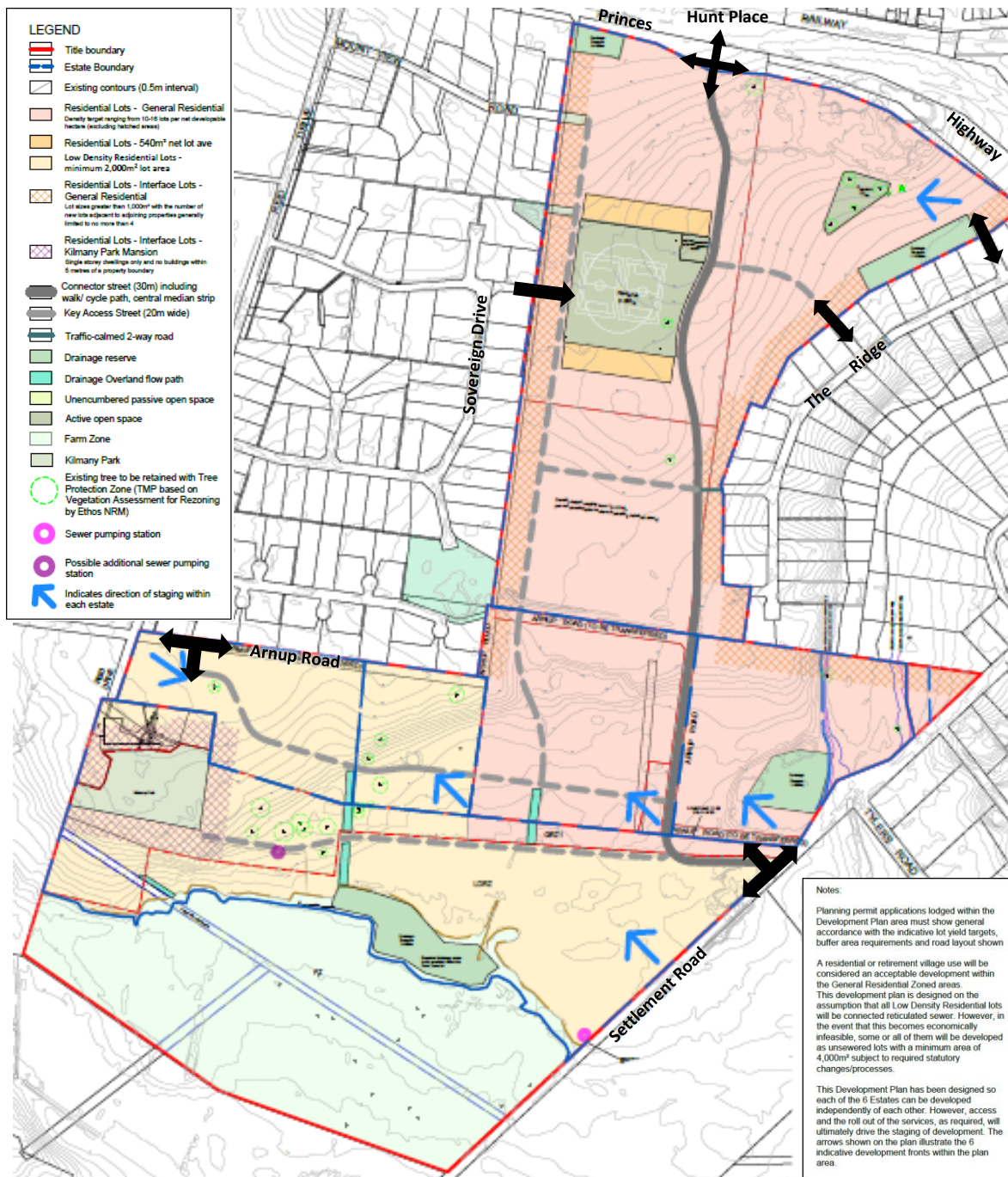
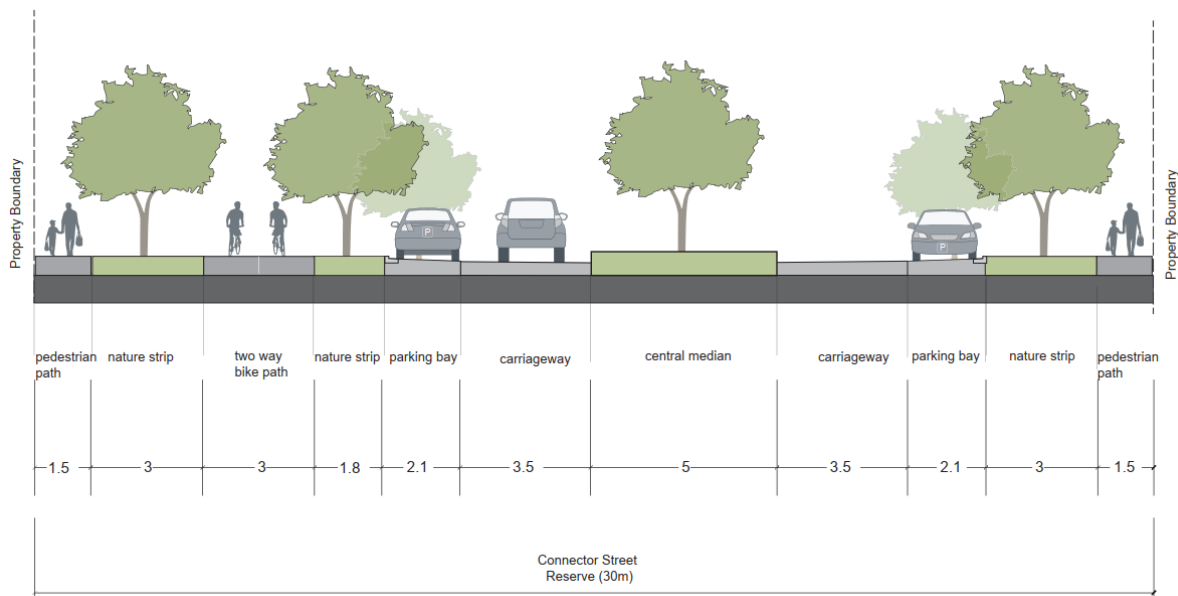


Figure 20: Indicative Development Plan with proposed site access points shown

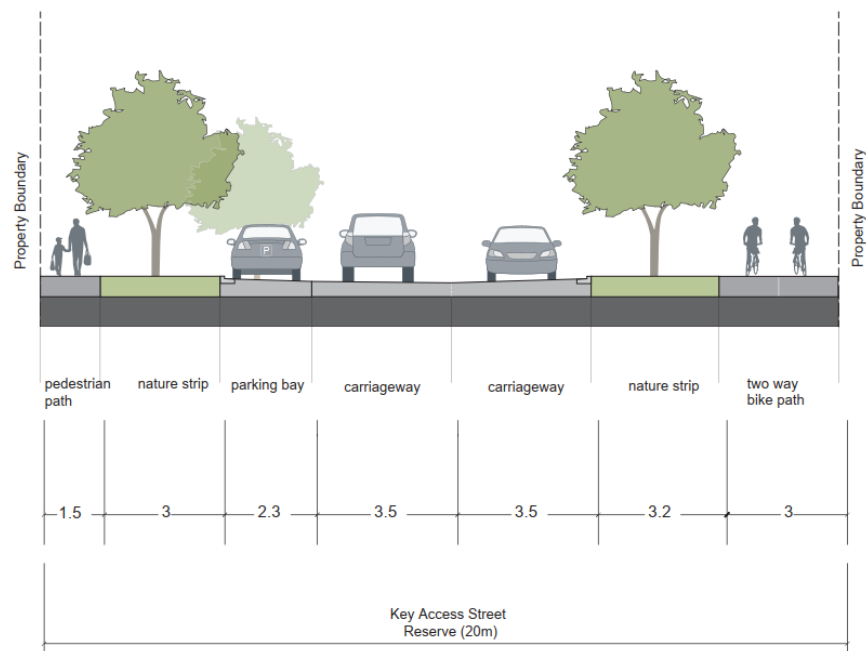
### 4.3 Proposed Internal Road Network Hierarchy

As is also shown at Figure 20, apart from the main north-south running connector street, the proposed development plan provides a network of Access Streets. These Access Streets provide the second tier of the road network across the development. For the most part, the access streets branch off the main connector street to the east and west to provide the connections to the The Ridge, Arnup Road and the low density residential areas in the southwest portions of the development plan area. There is also a north-south running Access Street that runs parallel to the main connector street and provides a 'secondary spine' to the development. As shown in the road section at Figure 20, the Access Streets will sit in 20 metre wide road reserves and provide a walk/cycle path down one side and a footpath down the other. The network has been arranged in this way to provide safe, continuous connections between the various stages of the development for pedestrians, cyclists and motorised vehicles, whilst also complementing the stormwater conveyance requirements of the proposed stormwater management system.

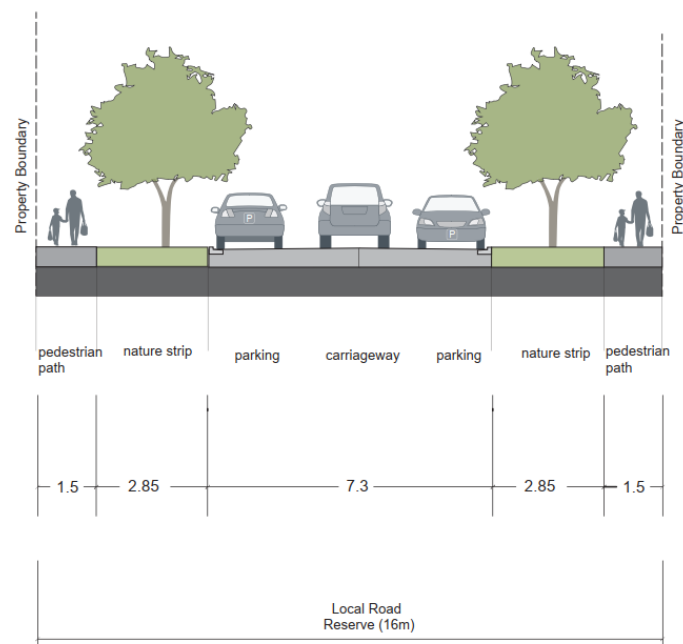
Indicative cross sections for the three road types, i.e. Connector Street (Figure 18), Access Streets (Figure 19) and Local Roads (Figure 20) are provided below.



**Figure 21: Cross Section 30m Connector Road**



**Figure 22: Cross Section 20m Key Access Street**



**Figure 23: Cross Section 16m Local Access Road**



## 4.4 Local Area Traffic Management

The proposed road network generally comprises a series of Access Streets connecting to a Connector Road to provide access to the external road network. The internal road network has been configured to avoid the creation of cross intersections with intersections typically taking the form of typical or staggered/off-set t-intersections.

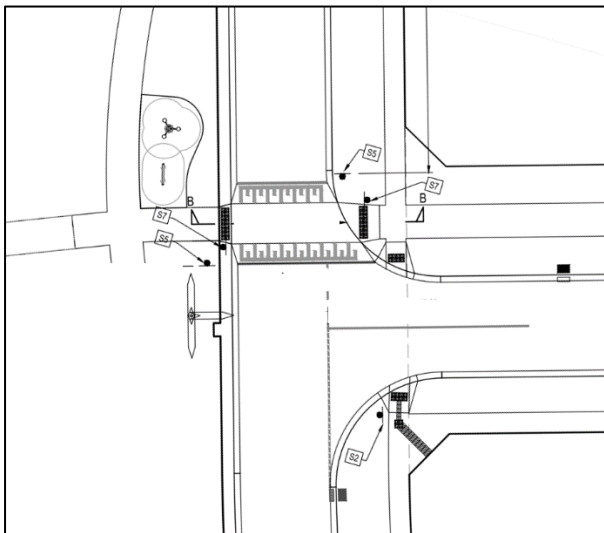
Consideration has been given to ensure that an appropriate street layout is provided that seeks to minimise vehicle speeds with the majority of straight road lengths not exceeding 240m.

Typically, the internal local road network is to be configured to minimise the requirements for traffic calming treatments through the use of a discontinuous road network and regular use of acute bends in roads. However, at locations where there is an opportunity for the target vehicle speeds to be exceeded the use of traffic calming devices or treatments may be warranted.

Where possible, traffic calming devices should be developed in conjunction with intersection treatments to comprise vertical plateaus (

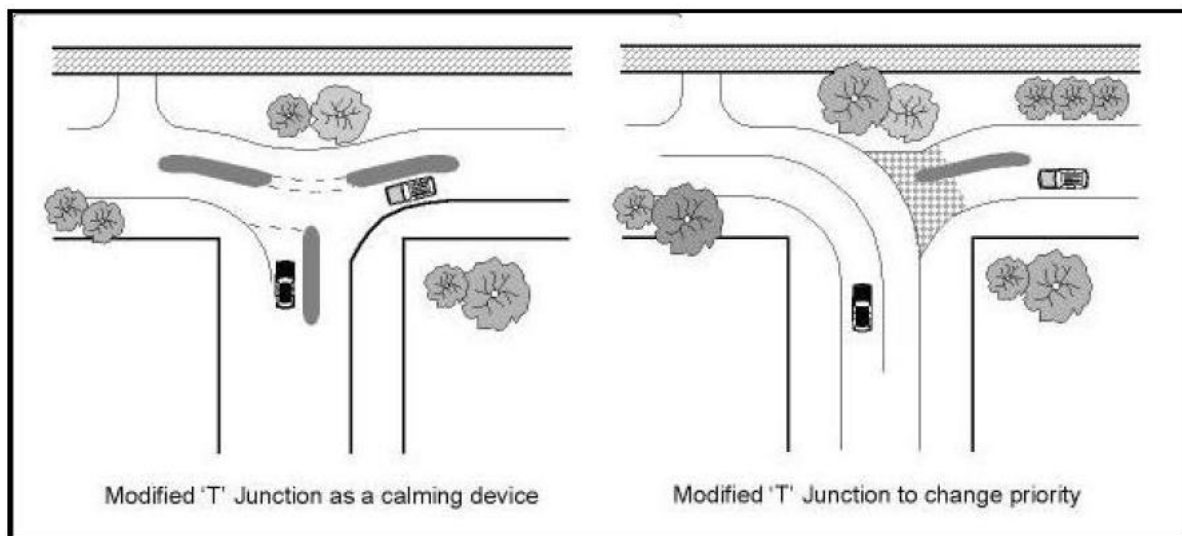
Figure 24) or narrowed in the form of modified T-intersections, refer

Figure 25.



**Figure 24: Example of Intersection Raised Plateau**

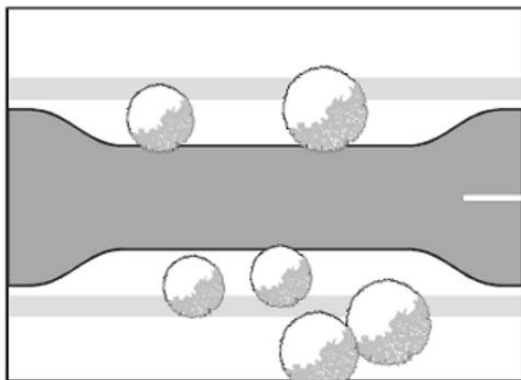




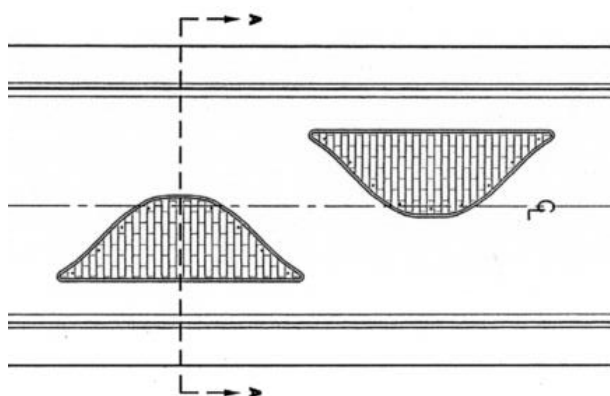
**Figure 25: Typical Modified T-Intersection Treatment**

If traffic calming treatments are not able to be implemented as part of an intersection design a mid-block location may be considered. Such treatments should have regard to access of surrounding lots and preferably take the form of localised narrowing as illustrated in Figure 26, chicane as illustrated in Figure 27 or a raised plateau as illustrated in

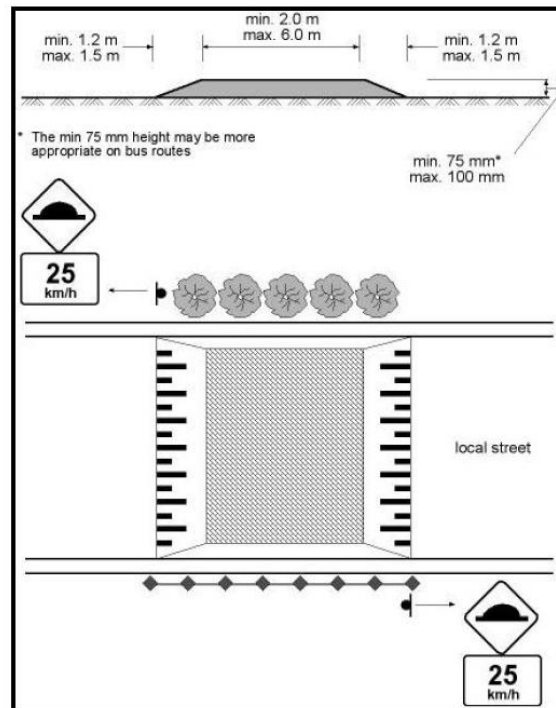
Figure 28. Alternate treatments may be considered as required.



**Figure 26: Example Single Lane Narrowing**

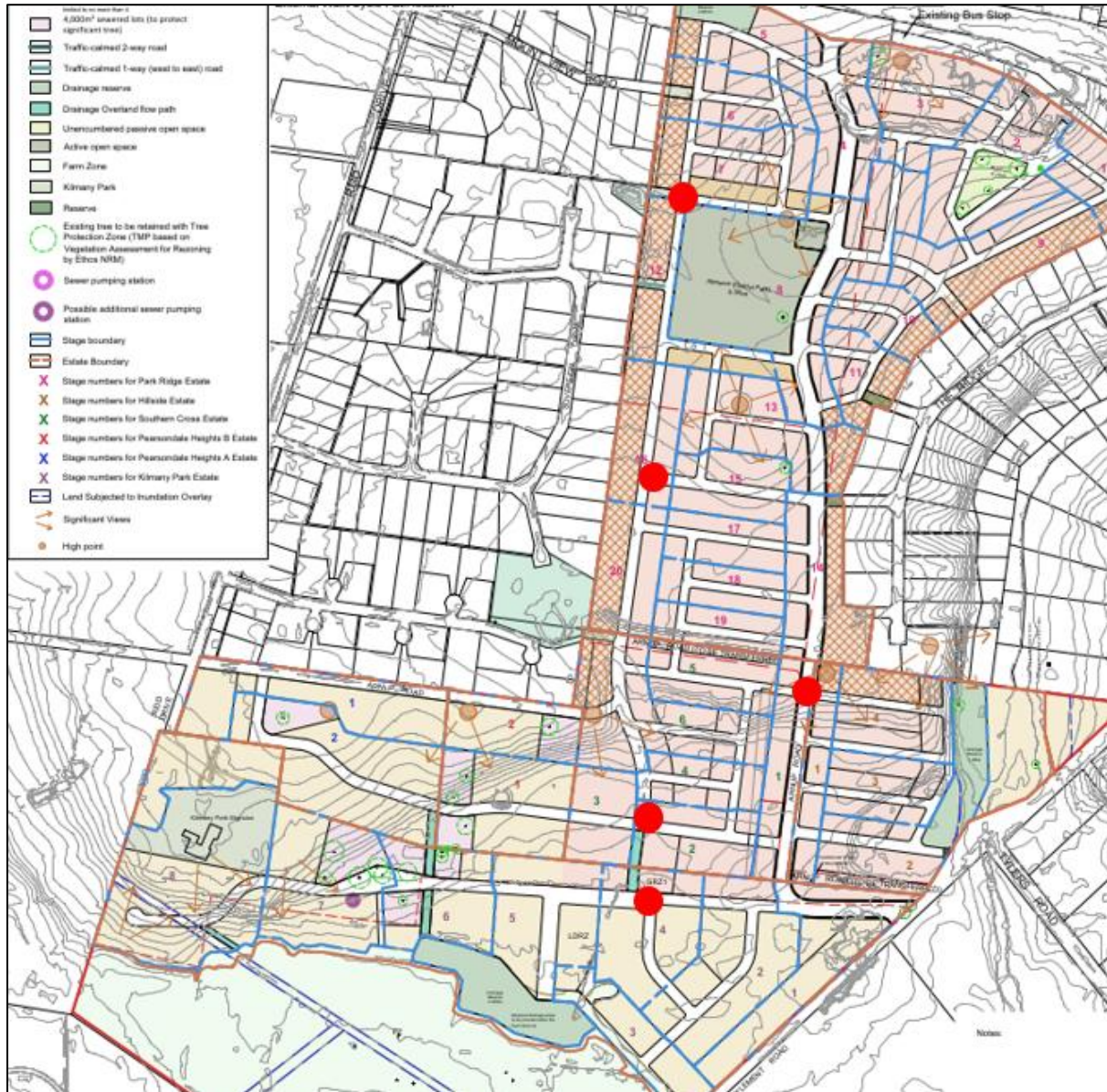


**Figure 27: Typical Chicane Treatment**



**Figure 28: Typical Raised Plateau Treatment**

Having regard to the proposed internal road network layout there are a number of straight sections of local road in excess of 250m that would be candidates for traffic calming devices. The indicative locations are provided below.



**Figure 29: Indicative LATM Device Locations**



## 4.5 Staging

The proposed development will be constructed in stages, commencing from the first access point from The Ridge, continuing to the west. Stage 4 includes the construction of the south leg of Hunt Place. The stages continue further south to its future connections to Arnup Road and Settlement Road.

Stages 1-3 rely on The Ridge as its sole access point prior to the connection at the Hunt Place roundabout. Based on the intersection model of the existing conditions in Figure 12, The Ridge currently operates under capacity. It is expected that the additional traffic from stages 1-3, which would be in the order of less than 300 lots, will have a minor impact on the operation of The Ridge.

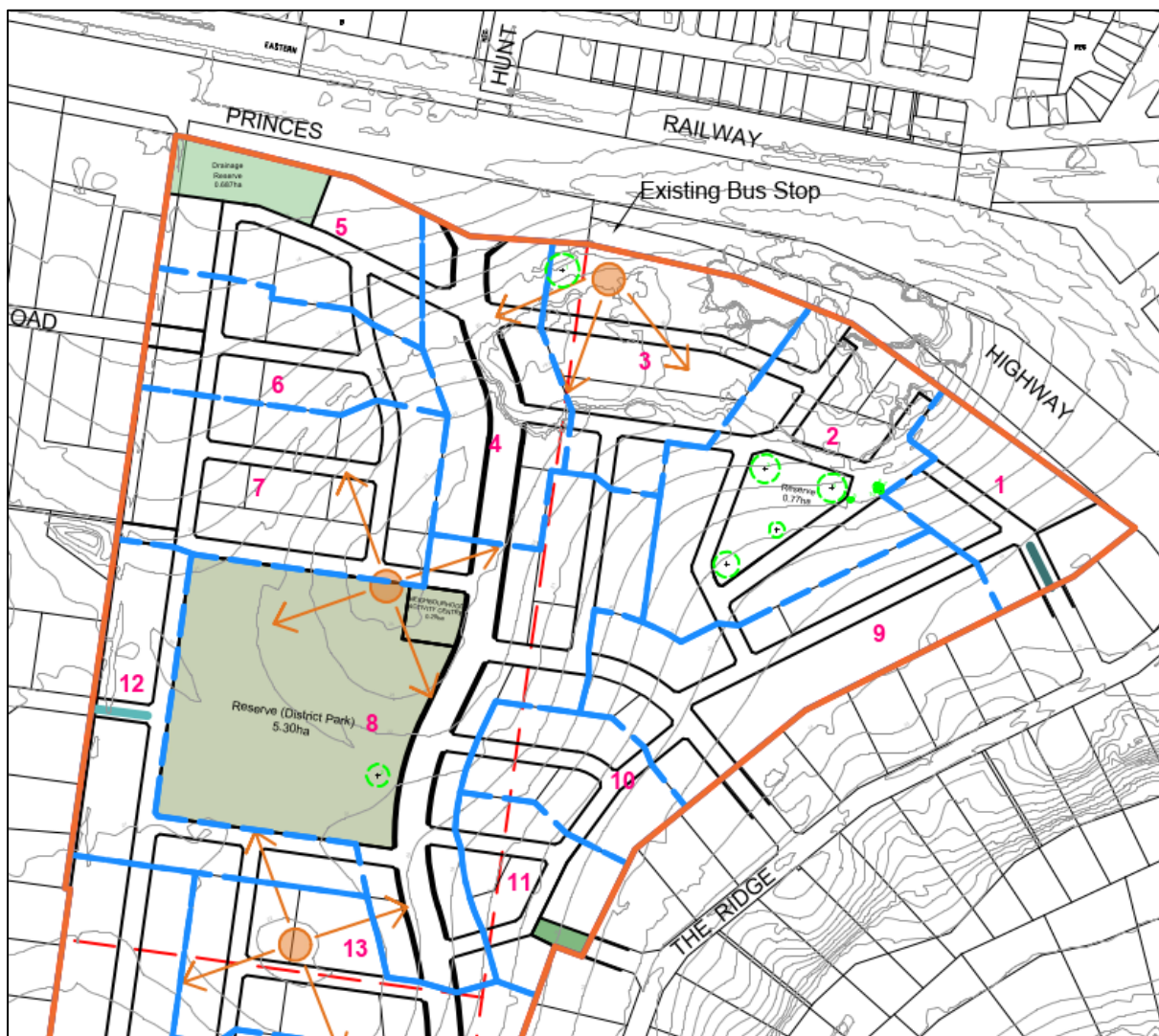


Figure 30: Early Works Staging Plan

## 5 TRAFFIC IMPACT CONSIDERATIONS

### 5.1 Traffic Generation

It is generally accepted that residential lots in outer suburban areas generate vehicular traffic at a rate of 10 vehicle movements per day (with 10% of movements occurring in the peak hours). In areas of higher density or with access to good public transport lower traffic generation rates can be recorded. For the purposes of this assessment the rate of 10 vehicle movements per day per lot has been adopted.

Application of this rate to the potential 1,256 lots equates to a daily traffic generation of 12,560 vehicle movements or 1,256 vehicle movements in the peak hours.

Based on the proposed development composition of the subject site it is considered that all vehicle trips will have an external origin or destination and therefore all vehicles will enter or exit the site.

The above traffic generation rate is inclusive of all trip types and includes work, recreation, shopping and educational trips. This is true for traffic generated by adjacent developments and those contained within the Wurruk Growth Area.

### 5.2 Traffic Distribution

Based on the existing traffic distribution percentages demonstrated in Section 2.4, the following post-development traffic distribution is assumed:

- 90% of traffic will egress in the morning, 10% will ingress;
- 40% of traffic will egress in the afternoon, 60% will ingress;
- Morning egress 90% to the east (towards Sale);
- Morning egress 10% to the west;
- Morning ingress 85% from the east (from Sale);
- Morning ingress 15% from the west;
- Afternoon egress 90% to the east (towards Sale);
- Afternoon egress 10% to the west;
- Afternoon ingress 85% to the east (towards Sale); and
- Afternoon ingress 15% to the west.

Further to the destination splits, based on the general locations of the access roads, it was assumed that the percentage of subdivisional traffic is as follows:

- 80% from Hunt Place;
- 10% from The Ridge;
- 5% from Arnup Road/Reid Drive (1% via Sovereign Drive); and
- 5% from Settlement Road.

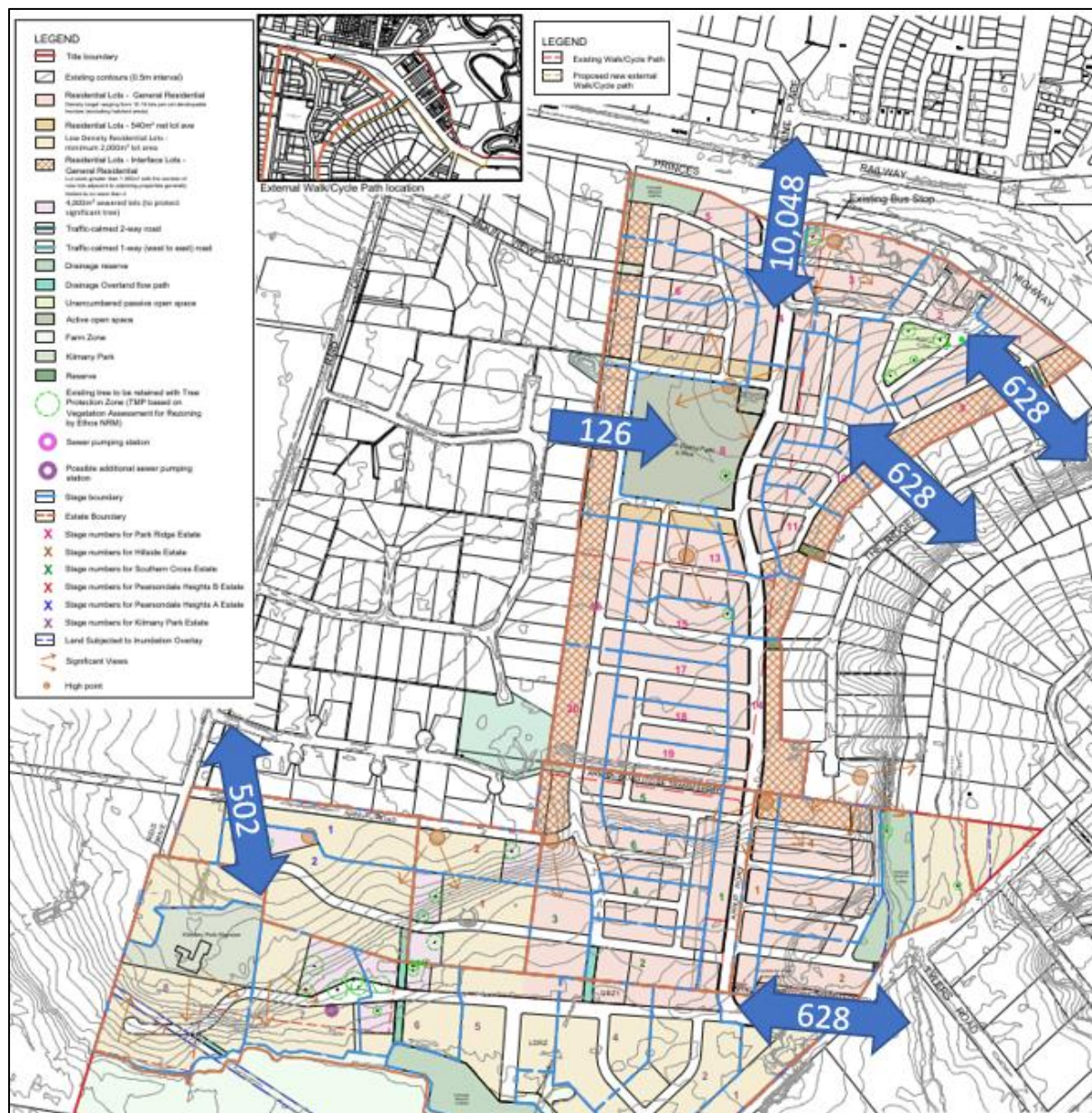


Figure 31: Post Development Access Point Volumes



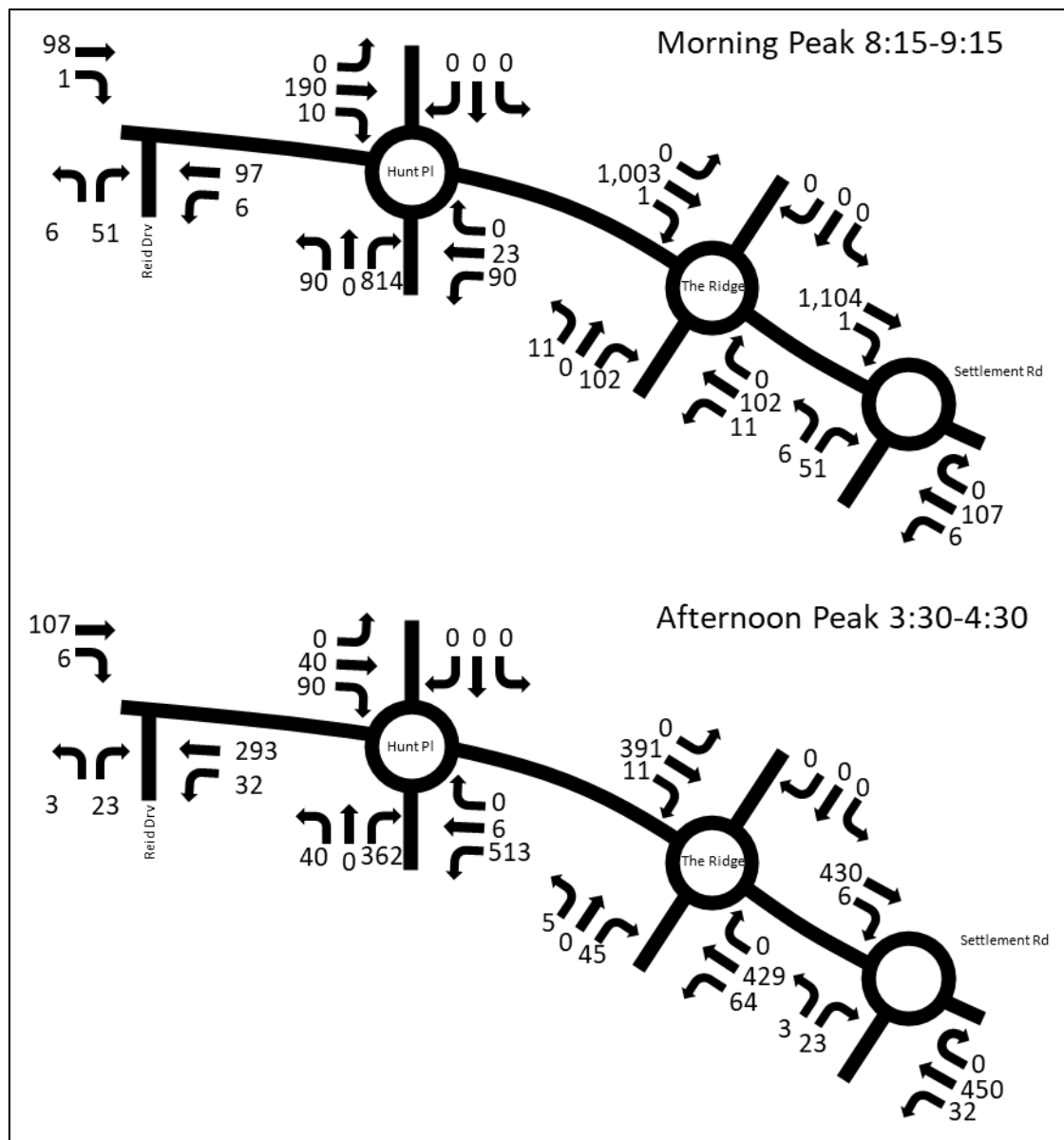


Figure 32: Additional Post Development Peak Hour Turning Movements on the Princes Highway

## 5.3 Intersection Modelling

### 5.3.1 Post Development Model

Based on the calculated post development traffic volumes outlined in the previous section, an assessment of the post development operation of the intersections were undertaken. In order to facilitate morning egress traffic in the order of 835 vehicles, it was found that a dedicated right turn lane on the Hunt Place southern leg was required.

The SIDRA results are demonstrated below.

Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
Hunt Pl North	0.246	13.4	9.8	0.188	7.74	6.2
Hunt Pl South	0.722	12.3	45.9	0.322	10.4	12.9
Princes Highway West	0.634	12.5	44.4	0.234	6.2	9.5
Princes Highway East	0.154	4.5	6	0.366	4.2	15.5

Figure 33: Existing intersection conditions – Princes Highway/Hunt Place

Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
The Ridge North	0.078	9.7	5.8	0.035	10.7	1
The Ridge South	0.161	10.4	4.6	0.078	11.5	2.2
Princes Highway West	0.624	4.8	39.4	0.325	4	14.2
Princes Highway East	0.148	3.9	5.8	0.338	3.9	15

Figure 34: Existing intersection conditions – Princes Highway/The Ridge

Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
Settlement Road	0.145	9.6	4.1	0.107	10.9	3
Princes Highway West	0.632	4.5	43.1	0.338	3.7	14.3
Princes Highway East	0.149	3.7	5.6	0.299	4	13.2

Figure 35: Existing intersection conditions – Princes Highway/The Ridge



Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
NB Median	0.026	5.4	0.3	0.046	9.5	0.5
SB Median	0.262	734	3.4	0.192	6.5	2.3
Reid Drive	0.243	8.1	3.4	0.122	11.2	1.4
Princes Highway West	0.158	0.2	0	0.145	0.2	0
Princes Highway East	0.089	1.3	0	0.168	0.8	0

*Figure 36: Existing intersection conditions – Princes Highway/Reid Drive*

According to the SIDRA analysis, the intersections continue to operate under ‘Excellent’ conditions. As expected, the main access at Hunt Place south, operates with a higher level of service during the morning peak period, operating at a DOS of 0.72 or ‘Good’ conditions. The 95<sup>th</sup> percentile queue accounts for less than 7 vehicles in the dedicated right turning lane. It is noted that the left lane may have a right turn allocation in future to lessen the DOS even further.

The 700m mid-block capacity along Princes Highway is not close to being exceeded, with the longest 95<sup>th</sup> percentile queue on the western leg at Hunt Place of 44m, which accounts for approximately 6 vehicles. This is the longest expected queue on the highway across all intersections.

The median break at Reid Drive is also nowhere near being exceeded.

### 5.3.2 Hunt Place Intersection

The post-development model found that a dedicated right turn lane would be required. A concept drawing is provided below. As the carriageway width of the roundabout is currently 2-lanes, there are no changes required within the intersection.



**Figure 37: Hunt Place South Leg with Dedicated Right Turning Lane**

The northern leg queuing is not expected to exceed the 37m between the roundabout and level crossing. The longest post-development queue will be approximately 10m during the morning peak. As explained in the next section, the 10-year growth model estimates that the queuing will still not exceed the level crossing distance with an average 15m queue, or 2 vehicles. The proposed development is expected to have no adverse impact on queueing over the railway line, however, future development to the north of Hunt Place may need to take this into consideration.

### 5.3.3 10-year Growth Model

The 10-year growth scenario was analysed to ensure the Princes Highway interfaces were appropriate over a 10-year life span. The environmental growth was based on 2%, with the south leg of Hunt Place set at 0% as it is already assumed that the proposed development is already complete.

Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
Hunt PI North	0.346	16.8	14.9	0.251	8.6	8.9
Hunt PI South	0.752	13.2	55.1	0.410	11	18.3
Princes Highway West	0.779	17.2	69.3	0.301	6.6	13.4
Princes Highway East	0.186	4.5	7.6	0.447	4.3	21.2

Figure 38: 10-year Growth conditions – Princes Highway/Hunt Place

Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
The Ridge North	0.130	12.1	4.7	0.046	11.2	1.3
The Ridge South	0.201	10.8	5.9	0.101	12.0	2.9
Princes Highway West	0.770	6.3	71.5	0.396	4.1	19
Princes Highway East	0.178	3.9	7.4	0.408	3.9	20

Figure 39: 10-year Growth conditions – Princes Highway/The Ridge

Approach	Morning Peak			Afternoon Peak		
	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)	Degree of Saturation	Average Delay (sec)	95 <sup>th</sup> Percentile Queue (m)
Settlement Road	0.182	9.9	5.3	0.124	11.2	3.5
Princes Highway West	0.653	4.7	45.3	0.373	3.8	16.8
Princes Highway East	0.169	3.7	6.8	0.282	4.1	12.2

Figure 40: 10-year Growth conditions – Princes Highway/The Ridge

Based on the 10-year growth scenarios, the intersections continue to operate with an overall LOS of A. With the additional right turning lane on the southern leg of Hunt Place, the DOS maintains within 'Very Good' operation.

Based on the preceding intersection analysis, it is considered that the proposed development will not have a significant adverse impact on the existing road network, particularly the Princes Highway.

## 6 CYCLIST AND PEDESTRIAN PATH NETWORK

### 6.1 Structure Plan Shared Path Network

The Structure Plan identifies a key opportunity for *“improving accessibility to all members of the community by better connecting key destinations with where people live through the enhancement of public transport services and improvements to key pedestrian / cycle connections that provide for safe, convenient and direct movement”*.

The excerpt of the Structure Plan in Figure 16 indicates a shared path network from the proposed development to cross Princes Highway near Hunt Place. The path continues along the south side of Princes Highway and south to the connector road that loops back to the highway via Settlement Road.

### 6.2 Proposed Shared Path Network

As can be seen from the Indicative Development Plan at Figure 18, the inclusion of walk/cycle paths within the main connector street and the second-tier access streets automatically creates a much more substantial network of shared paths that run through the estate. This network also provides external connections that reach into the middle of the two adjoining low density residential estates to the east and west.

The plan at Figure 14 shows the existing and proposed shared path networks, along with the network proposed through the Structure Plan. Relative to the path alignment shown in the Structure Plan, the location of shared paths along internal subdivisional roads will provide superior passive surveillance for path users. This increased level of pedestrian/cyclist safety should secure higher path patronage.

As can also be seen at Figure 29, the proposed path also seeks to reroute the shared path interface with the existing path so that it will meet it after running:

- Through portion of the existing low density residential estate at The Ridge;
- Along the south side of Princes Highway;
- Across Settlement Road at the intersection with Princes Highway;
- Across the frontage of the BP Service Station (remaining within the Princes Highway Road reserve);
- Adjacent to an existing gabion wall on the south side of the Princes Highway reserve. The path will run along a short section of constructed boardwalk in this portion to ensure it remains above an existing depression. A photograph of this portion of the path network is provided at Figure x; and,
- Up to and under an existing bridge to the east of the service station. Photographs showing the underside of the bridge and the approach to the existing path network are provided at Figures 31 and 32.



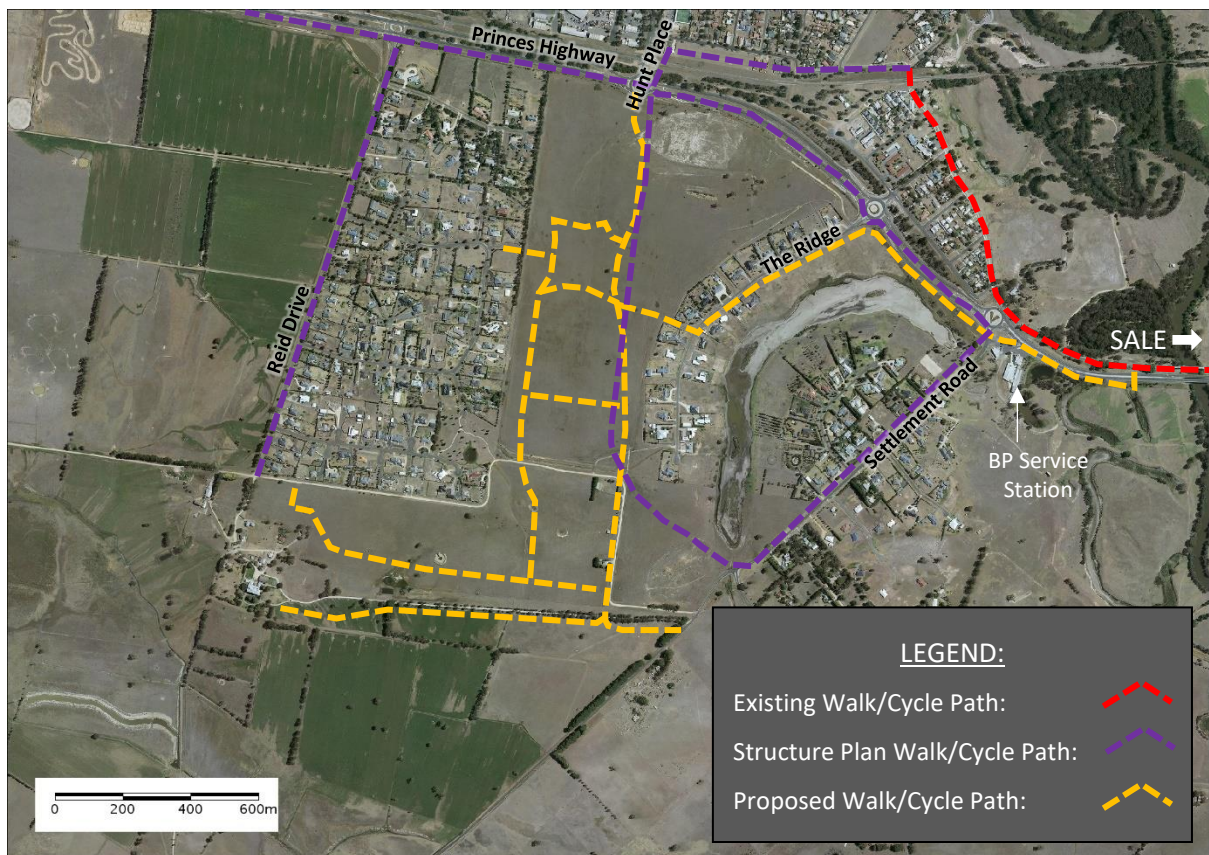


Figure 41: Map showing the existing, proposed and Structure Plan Walk/Cycle Path alignments across Wurruk



Figure 42: Existing Shared Path





***Figure 43: Existing Unformed Ramps***



***Figure 44: Proposed Shared Path Bridge Interface***





***Figure 45: Proposed Boardwalk Location***

### 6.3 Discussion

The proposed relocation of the shared path network takes into account some risks identified with the network proposed through the Structure Plan. The Princes Highway crossing near Hunt Place would likely require construction of a pedestrian overpass, which presents inherent vandalism opportunities and the risk of objects falling onto highway traffic. To ensure height clearances, the required ramping system would need a greater vertical displacement than going underneath the bridge will. It is noted that an overpass would also preclude this section of Princes Highway being used as a route for over-dimensional loads.

An additional risk inherent in the Structure Plan's nominated route is the requirement for the shared path to interface with the level crossing at Hunt Place, which unnecessarily introduces the potential for rail conflict and will require additional rail infrastructure.

Cycle path user behaviour indicates if any point of a bike route is unsafe or inconvenient, the entire route is likely not to be used despite an issue being localised. A big ramp system with a rail interface could be considered as localised points of inconvenience or unsafety.

During a meeting with DoT on 2 July 2019, it was indicated that the likely preferred alignment would involve the underpass. DoT officers advised that pedestrian connectivity between both sides of Wurruk and Sale was investigated. They advised that in discussing potential pedestrian facilities with the Wurruk Primary School, school management expressed the view that the school would not expand due to the extra growth within Wurruk. This inferred that children in the Wurruk growth area would likely attend schools in Sale.

It is likely that the generated pedestrian need for the growth area in Wurruk would exclusively require shared path connectivity to Sale as opposed to the existing parts of Wurruk on the north side of the highway. The proposed alignment of the shared path network would provide a safer and more direct route between the proposed development and Sale.

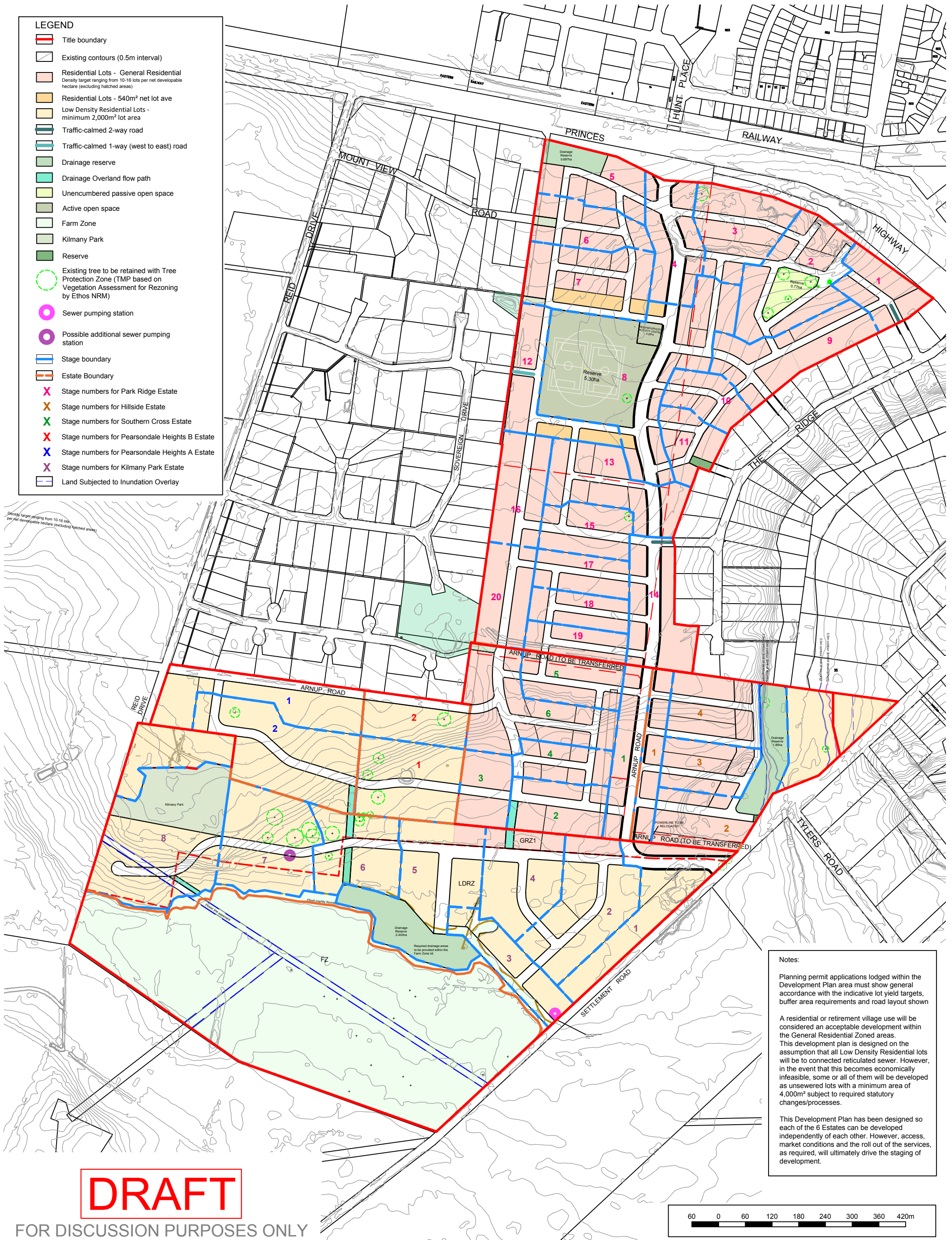


## 7 SUMMARY AND CONCLUSIONS

Based on the preceding it is summarised that:

- The subject site is located within the extent of the Sale, Wurruk and Longford Structure Plan.
- The development plan will provide the capacity to develop the subject site in line with the Structure Plan and will generate predominantly residential subdivision of up to 1,256 lots.
- It is anticipated that the subject site may generate traffic at a rate of up to 10 movements per lot per day equivalent to 12,560 vehicle movements per day.
- The internal road network of the subject site is proposed to comprise a series of Access Streets connecting to a central Connector Road that connects the Princes Highway to Settlement Road.
- The shared path network providing connectivity to Sale is proposed to cross Princes Highway underneath the bridge to the east of Settlement Road.
- It is considered that sufficient road network planning and capacity will be available in the short and long term to cater for traffic generated by the subject site.

## **APPENDIX A.      Development Plan Version 6**



## **APPENDIX B.      Turning Movement Counts**





Client: Beridge Williams

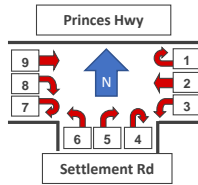
Name: Wurruk Traffic Count

Job No.: 5710

Location: Princes Hwy and Settlement Rd

Date: Wed 31/07/2019 Time: 7am-7pm

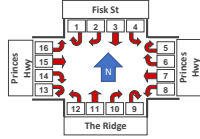
Weather: Sunny



Absolute Value		VEHICLE MOVEMENTS																	
		1		2		3		4		5		6		7		8		9	
TIME		Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck
7:00	7:15	1	0	39	4	1	0	0	0	7	0	4	0	0	0	1	2	45	8
7:15	7:30	1	1	60	3	1	0	0	0	3	1	7	0	0	0	2	0	41	11
7:30	7:45	0	0	72	7	1	0	0	0	9	0	6	1	0	0	1	0	61	8
7:45	8:00	1	0	68	5	1	0	0	0	13	0	3	1	0	0	1	0	102	6
8:00	8:15	1	0	58	6	2	0	1	0	7	0	5	1	0	0	3	0	85	4
8:15	8:30	0	0	62	6	4	0	0	0	15	1	4	1	1	0	1	0	129	19
8:30	8:45	0	0	65	3	6	0	0	0	26	1	9	0	0	0	2	0	142	12
8:45	9:00	2	1	82	6	5	0	0	0	9	0	4	0	0	0	3	0	110	7
9:00	9:15	1	0	67	7	4	0	0	0	8	0	6	0	0	0	2	0	103	7
9:15	9:30	2	0	62	9	7	0	0	0	6	1	7	1	0	0	2	1	72	6
9:30	9:45	2	0	66	6	8	0	0	0	5	0	1	1	0	0	2	0	64	4
9:45	10:00	1	0	65	4	4	0	0	0	11	1	4	0	0	0	4	0	74	5
10:00	10:15	1	1	64	7	3	0	0	0	6	1	3	0	1	0	0	1	70	7
10:15	10:30	0	0	64	9	4	0	0	0	9	0	5	1	0	0	2	2	64	7
10:30	10:45	0	1	72	3	7	0	0	0	10	0	3	0	0	0	1	1	70	7
10:45	11:00	0	1	60	3	8	0	0	0	9	0	3	3	0	0	3	0	68	2
11:00	11:15	1	0	61	11	3	1	0	0	7	0	1	0	0	0	1	0	65	6
11:15	11:30	2	0	60	6	6	0	0	0	5	0	0	0	0	0	2	0	65	6
11:30	11:45	0	0	73	10	2	0	0	0	9	0	6	1	0	0	2	0	73	5
11:45	12:00	2	0	60	4	12	0	0	0	10	0	3	0	0	0	3	0	73	4
12:00	12:15	2	0	62	5	12	0	0	0	7	0	8	1	0	0	8	0	72	6
12:15	12:30	0	0	82	6	10	0	0	0	7	1	0	0	0	0	3	1	84	3
12:30	12:45	1	0	80	8	9	0	0	0	10	1	7	1	0	0	4	1	71	4
12:45	13:00	0	0	76	7	4	0	0	0	11	0	7	0	0	0	3	0	72	8
13:00	13:15	1	0	89	8	9	0	0	0	12	0	5	0	0	0	1	1	63	9
13:15	13:30	2	0	70	4	4	0	0	0	6	0	3	0	0	0	0	0	69	6
13:30	13:45	1	0	75	4	5	0	0	0	6	0	4	0	1	0	2	0	87	3
13:45	14:00	3	0	64	4	5	1	0	0	3	0	3	0	0	0	3	1	67	2
14:00	14:15	3	0	93	3	8	0	0	0	7	0	4	0	0	0	2	0	64	5
14:15	14:30	1	0	76	6	7	0	0	0	5	0	1	0	0	0	4	1	70	8
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15:30	15:45	2	0	105	14	19	0	0	0	7	0	6	0	0	0	5	1	118	1
15:45	16:00	3	0	106	5	14	0	0	0	7	0	3	1	0	0	3	0	89	1
16:00	16:15	1	0	97	2	12	0	0	0	13	0	1	0	0	0	0	0	123	9
16:15	16:30	2	0	98	6	13	1	0	0	10	1	4	0	0	0	1	1	112	3
16:30	16:45	1	1	119	6	6	1	0	0	7	0	5	1	1	0	4	1	71	4
16:45	17:00	2	0	93	1	13	0	0	0	5	0	7	0	0	0	3	0	90	2
17:00	17:15	2	0	103	4	12	0	0	0	7	0	2	0	0	0	4	0	87	4
17:15	17:30	1	0	103	3	15	0	0	0	12	0	8	0	0	0	3	0	88	1
17:30	17:45	2	0	107	2	15	0	0	0	7	0	8	0	0	0	2	0	75	5
17:45	18:00	0	0	76	1	6	0	0	0	8	0	3	0	0	0	1	0	79	2
18:00	18:15	0	0	75	3	12	0	0	0	5	0	2	0	0	0	3	0	72	2
18:15	18:30	1	0	41	3	6	0	0	0	7	0	4	0	0	0	2	0	59	0
18:30	18:45	0	0	33	1	5	0	0	0	12	1	2	0	1	0	1	0	50	1
18:45	19:00	0	0	31	1	6	0	0	0	1	0	2	0	0	0	1	0	46	0

Accumulative Value		VEHICLE MOVEMENTS																		
		1		2		3		4		5		6		7		8		9		
TIME		Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	
610	7:00	7:15	1	0	39	4	1	0	0	0	7	0	4	0	0	0	1	2	45	8
	7:15	7:30	2	1	99	7	2	0	0	0	10	1	11	0	0	0	3	2	86	19
	7:30	7:45	2	1	171	14	3	0	0	0	19	1	17	1	0	0	4	2	147	27
671	7:45	8:00	3	1	239	19	4	0	0	0	32	1	20	2	0	0	5	2	249	33
	8:00	8:15	4	1	297	25	6	0	1	0	39	1	25	3	0	0	8	2	334	37
	8:15	8:30	4	1	359	31	10	0	1	0	54	2	29	4	1	0	9	2	463	56
783	8:30	8:45	4	1	424	34	16	0	1	0	80	3	38	4	1	0	11	2	605	68
	8:45	9:00	6	2	506	40	21	0	1	0	89	3	42	4	1	0	14	2	715	75
	9:00	9:15	7	2	573	47	25	0	1	0	97	3	48	4	1	0	16	2	818	82
876	9:15	9:30	9	2	635	56	32	0	1	0	103	4	55	5	1	0	18	3	890	88
	9:30	9:45	11	2	701	62	40	0	1	0	108	4	56	6	1	0	20	3	954	92
	9:45	10:00	12	2	766	66	44	0	1	0	119	5	60	6	1	0	24	3	1028	97
673	10:00	10:15	13	3	830	73	47	0	1	0	125	6	63	6	2	0	24	4	1098	104
	10:15	10:30	13	3	894	82	51	0	1	0	134	6	68	7	2	0	26	6	1162	111
	10:30	10:45	13	4	966	85	58	0	1	0	144	6	71	7	2	0	27	7	1232	118
667	10:45	11:00	13	5	1026	88	66	0	1	0	153	6	74	10	2	0	30	7	1300	120
	11:00	11:15	14	5	1087	99	69	1	1	0	160	6	75	10	2	0	31	7	1365	126
	11:15	11:30	16	5	1147	105	75	1	1	0	165	6	75	10	2	0	33	7	1430	132
650	11:30	11:45	16	5	1220	115	77	1	1	0	174	6	81	11	2	0	35	7	1503	137
	11:45	12:00	18	5	1280	119	89	1	1	0	184	6	84	11	2	0	38	7	1576	141
	12:00	12:15	20	5	1342	124	101	1	1	0	191	6	92	12	2	0	46	7	1648	147
732	12:15	12:30	20	5	1424	130	111	1	1	0	198	7	92	12	2	0	49	8	1732	150
	12:30	12:45	21	5	1504	138	120	1	1	0	208	8	99	13	2	0	53	9	1803	154
	12:45	13:00	21	5	1580	145	124	1	1	0	219	8	106	13	2	0	56	9	1875	162
780	13:00	13:15	22	5	1669	153	133	1	1	0	231	8	111	13	2	0	57	10	1938	171
	13:15	13:30	24	5	1739	157	137	1	1	0	237	8	114	13	2	0	57	10	2007	177
	13:30	13:45	25	5	1814	161	142	1	1	0	243	8	118	13	3	0	59	10	2094	180
706	13:45	14:00	28	5	1878	165	147	2	1	0	246	8	121	13	3	0	62	11	2161	182
	14:00	14:15	31	5	1971	168	155	2	1	0	253	8	125	13	3	0	64	11	2225	187
	14:15	14:30	32	5	2047	174	162	2	1	0	258	8	126	13	3	0	68	12	2295	195
712	14:30	14:45	34	6	2124	181	167	3	1	0	269	8	133	14	3	1	72	12	2364	203
	14:45	15:00	35	6	2217	186	174	3	1	0	278	9	137	14	3	1	77	13	2434	209
	15:00	15:15	37	6	2286	191	179	3	1	0	292	9	146	14	3	1	78	13	2521	217
826	15:15	15:30	37	6	2371	195	193	5	1	0	315	10	149	15	3	1	81	14	2613	218
	15:30	15:45	39	6	2476	209	212	5	1	0	322	10	155	15	3	1	86	15	2731	219
	15:45	16:00	42	6	2582	214	226	5	1	0	329	10	158	16	3	1	89	15	2820	220
998	16:00	16:15	43	6	2679	216	238	5	1	0	342	10	159	16	3	1	89	15	2943	229
	16:15	16:30	45	6	2777	222	251	6	1	0	352	11	163	16	3	1	90	16	3055	232
	16:30	16:45	46	7	2896	228	257	7	1	0	359	11	168	17	4	1	94	17	3126	236
954	16:45	17:00	48	7	2989	229	270	7	1	0	364	11	175	17	4	1	97	17	3216	238
	17:00	17:15	50	7	3092	233	282	7	1	0	371	11	177	17	4	1	101	17	3303	242
	17:15	17:30	51	7	3195	236	297	7	1	0	383	11	185	17	4	1	104	17	3391	243
898	17:30	17:45	53	7	3302	238	312	7	1	0	390	11	193	17	4	1	106	17	3466	248
	17:45	18:00	53	7	3378	239	318	7	1	0	398	11	196	17	4	1	107	17	3545	250
	18:00	18:15	53	7	3453	242	330	7	1	0	403	11	198	17	4	1	110	17	3617	252
696	18:15	18:30	54	7	3494	245	336	7	1	0	410	11	202	17	4	1	112	17	3676	252
	18:30	18:45	54	7	3527	246	341	7	1	0	422	12	204	17	5	1	113	17	3726	253
	18:45	19:00	54	7	3558	247	347	7	1	0	423	12	206	17	5	1	114	17	3772	253

**nationwide**  
TRAFFIC SURVEYS  
Client: Berridge Williams  
Name: Wurruk Traffic Count  
Job No.: 5710  
Location: Princes Hwy and The Ridge, Fisk St  
Date: Wed 31/07/2019 Time: 7am-7pm  
Weather: Sunny



Absolute Value		VEHICLE MOVEMENTS																																			
TIME		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16					
		Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck				
7:00	7:15	0	0	0	0	0	0	3	0	0	0	0	0	45	4	1	0	0	0	2	0	0	0	0	0	0	0	0	0	38	9	0	0				
7:15	7:30	0	0	2	0	0	0	7	0	0	0	4	0	64	4	1	0	0	0	3	0	0	0	1	0	0	0	0	42	10	1	0					
7:30	7:45	0	0	2	0	0	0	3	1	0	0	1	0	74	6	1	0	0	0	4	0	0	0	0	1	0	0	0	53	8	0	1					
7:45	8:00	0	0	1	0	0	0	2	0	0	0	2	0	77	6	1	0	0	0	4	0	0	0	1	0	0	0	0	102	6	0	0					
8:00	8:15	0	0	0	0	0	0	3	0	0	0	1	0	62	6	2	0	0	0	1	0	0	0	1	0	0	0	0	90	4	0	0					
8:15	8:30	0	0	1	0	0	0	10	2	0	0	4	1	64	6	2	0	0	0	9	0	0	0	1	0	0	0	0	119	18	0	0					
8:30	8:45	0	0	0	0	0	0	4	0	0	0	5	0	65	5	2	0	0	0	9	0	0	0	1	0	0	0	0	145	11	2	0					
8:45	9:00	0	0	0	0	0	0	5	0	1	0	5	0	62	3	0	0	0	0	9	0	0	0	0	0	0	0	0	105	9	5	0					
9:00	9:15	0	0	4	0	0	0	9	0	0	0	6	1	79	6	3	0	0	0	1	0	0	0	0	0	0	0	0	96	7	1	0					
9:15	9:30	0	0	0	0	0	0	6	0	0	0	6	0	66	7	0	0	0	0	3	0	0	0	0	0	0	0	0	69	7	0	0					
9:30	9:45	0	0	0	0	1	0	3	0	0	0	3	0	64	10	3	0	0	0	1	0	0	0	1	0	0	0	1	63	5	0	0					
9:45	10:00	0	0	1	0	0	0	2	0	0	0	2	0	70	6	0	0	0	0	1	0	0	0	2	0	0	0	0	76	7	0	1					
10:00	10:15	0	0	0	0	0	0	3	0	1	0	0	0	64	5	4	0	0	0	0	0	0	0	0	0	0	0	0	72	6	0	0					
10:15	10:30	0	0	0	1	0	0	5	0	0	0	3	0	61	7	1	0	0	0	3	0	0	0	0	0	0	0	0	58	9	0	0					
10:30	10:45	0	0	0	0	0	0	4	0	0	0	6	0	62	3	1	0	0	0	1	0	0	0	0	0	0	0	0	64	7	1	0					
10:45	11:00	0	0	0	0	0	0	4	0	0	0	5	0	66	5	1	0	0	0	1	0	0	0	0	0	0	0	0	64	1	0	0					
11:00	11:15	0	0	0	0	0	0	6	0	1	0	3	0	60	6	1	0	0	0	2	0	0	0	0	0	0	0	0	1	56	4	0	0				
11:15	11:30	0	0	0	0	0	0	1	0	1	0	4	0	55	8	2	0	0	0	3	0	0	0	0	0	0	1	0	0	66	4	0	0				
11:30	11:45	0	0	1	0	0	0	3	0	0	0	0	0	58	6	1	0	0	0	1	0	0	0	0	0	0	0	0	64	6	3	0					
11:45	12:00	0	0	0	0	0	0	6	1	0	0	6	0	69	6	1	0	0	0	2	0	0	0	0	0	0	0	0	72	4	1	1					
12:00	12:15	0	0	0	0	0	0	1	1	0	0	5	0	57	4	3	0	0	0	0	0	0	0	0	0	0	0	0	76	5	1	0					
12:15	12:30	0	0	2	0	0	0	1	0	0	0	3	0	68	5	2	0	0	0	0	0	0	0	0	0	0	0	0	84	4	0	0					
12:30	12:45	0	0	0	0	0	0	5	0	1	0	3	0	75	5	1	0	0	0	2	0	0	0	0	0	0	0	0	73	5	2	0					
12:45	13:00	0	0	0	0	0	0	2	0	0	0	5	1	74	8	3	0	0	0	1	0	0	0	0	0	0	0	0	64	10	0	0					
13:00	13:15	0	0	0	0	0	0	2	0	0	0	5	1	78	8	0	0	0	0	2	0	0	0	0	0	0	0	0	58	10	1	0					
13:15	13:30	0	0	3	1	0	0	8	0	0	0	3	0	91	10	1	0	0	0	6	0	0	0	0	0	0	0	0	62	5	2	0					
13:30	13:45	0	0	0	0	0	0	2	0	0	0	3	0	72	5	0	0	0	0	0	0	0	0	0	0	0	0	0	90	4	0	0					
13:45	14:00	0	0	0	0	0	0	3	0	0	0	5	0	69	5	1	0	0	0	2	0	0	0	0	0	0	0	0	67	4	0	0					
14:00	14:15	0	0	0	0	0	0	3	0	0	0	2	0	79	5	1	0	0	0	1	0	0	0	0	0	0	0	0	63	3	1	0					
14:15	14:30	0	0	0	0	0	0	7	0	1	0	1	0	71	7	1	0	0	0	1	0	0	0	0	0	0	0	0	69	8	0	0					
14:30	14:45	0	0	0	0	0	0	3	0	0	0	5	0	78	9	3	0	0	0	1	0	0	0	2	0	0	0	0	69	9	1	0					
14:45	15:00	0	0	0	0	0	0	10	0	0	0	5	0	89	6	2	0	0	0	1	0	0	0	1	0	0	0	0	76	5	0	0					
15:00	15:15	0	0	0	0	0	0	5	1	0	0	7	0	65	6	3	0	0	0	6	0	0	0	1	0	0	0	1	83	5	2	0					
15:15	15:30	0	0	3	0	0	0	12	0	0	0	5	0	79	6	4	0	0	0	3	0	0	0	1	0	0	0	1	84	1	1	0					
15:30	15:45	0	0	1	0	0	0	6	1	0	0	5	2	102	14	4	0	0	0	1	0	0	0	0	0	0	0	0	114	3	2	0					
15:45	16:00	0	0	0	0	0	0	6	0	0	0	7	0	98	8	2	0	0	0	0	0	0	0	0	0	0	0	87	2	2	0						
16:00	16:15	0	0	2	0	0	0	2	0	0	0	3	0	97	2	0	0	0	0	0	0	0	0	0	0	0	0	0	119	10	1	0					
16:15	16:30	0	0	3	0	0	0	4	0	0	0	4	0	93	7	5	0	0	0	2	0	0	0	0	0	0	0	1	109	3	1	1					
16:30	16:45	0	0	0	0	0	0	2	0	1	0	5	0	113	7	5	0	0	0	2	0	0	0	0	0	0	0	0	74	5	1	0					
16:45	17:00	0	0	0	0	0	0	2	0	0	0	2	0	93	2	4	0	0	0	1	0	0	0	2	0	0	0	0	92	2	0	0					
17:00	17:15	0	0	1	0	0	0	0	0	0	0	5	0	89	4	10	1	0	0	2	0	0	0	2	0	0	0	0	88	4	1	0					
17:15	17:30	0	0	1	0	0	0	2	0	0	0	1	0	99	4	5	0	0	0	1	0	0	0	0	0	0	0	1	0	89	2	0	0				
17:30	17:45	0	0	0	0	0	0	4	0	0	0	2	0	112	1	4	0	0	0	2	0	0	0	0	0	0	0	0	72	5	1	0					
17:45	18:00	0	0	0	0	0	0	3	0	0	0	3	0	77	6	3	0	0	0	6	0	0	0	0	0	0	0	0	101	2	2	0					
18:00	18:15	0	0	2	0	0	0	1	0	0	0	7	0	68	2	2	0	0	0	0	0	0	0	0	0	0	0	0	80	2	1	0					
18:15	18:30	0	0	0	0	0	0	2	0	0	0	1	0	43	3	2	0	0	0	1	0	0	0	1	0	0	0	0	55	1	1	0					
18:30	18:45	0	0	0	0	0	0	1	0	0	0	5	0	30	1	2	0	0	0	3	0	0	0	0	0	0	0	0	46	0	0	0					
18:45	19:00	0	0	0	0	0	0	2	0	0	0	2	0	27	1	1	0	0	0	3	0	0	0	0	0	0	0	0	43	0	1	0					

508  
666  
765  
859  
861  
904  
830  
736  
700  
644  
628  
623  
602  
585  
582  
575  
597  
610  
634  
663  
662  
674  
697  
702  
690  
683  
657  
660  
699  
726  
760  
835  
853  
904  
937  
897  
884  
855  
827  
815  
783  
741  
646  
531  
443

Accumulative Value		VEHICLE MOVEMENTS																																	
TIME		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16			
Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck				
7:00	7:15	0	0	0	0	0	0	0	0	0	0	0	0	45	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	38	9			
7:15	7:30	0	0	2	0	0	0	10	0	0	0	4	0	108	8	2	0	0	0	2	0	0	1	0	0	0	0	0	0	80	19	1			
7:30	7:45	0	4	0	0	0	13	1	0	0	5	0	183	14	3	0	0	0	9	0	0	0	1	0	1	0	0	0	133	27	1	1			
7:45	8:00	0	0	5	0	0	0	15	1	0	0	7	0	260	20	4	0	0	13	0	0	0	2	0	0	0	0	0	235	33	1	1			
8:00	8:15	0	5	0	0	0	0	18	1	0	0	8	0	322	26	6	0	0	14	41	0	0	3	0	1	0	0	0	325	37	1	1			
8:15	8:30	0	0	6	0	0	0	28	3	0	0	12	1	386	32	8	0	0	23	0	0	0	4	0	1	0	0	0	444	55	1	1			
8:30	8:45	0	6	6	0	0	0	32	3	3	0	0	17	513	40	10	0	0	32	0	0	0	5	1	0	0	0	0	599	96	3	2			
8:45	9:00	0	6	6	0	0	0	36	3	0	0	23	513	40	10	0	0	41	47	0	0	5	1	0	0	0	0	23	614	102	3	2			
9:00	9:15	0	10	0	0	0	0	46	3	0	0	28	2	592	46	13	0	0	42	0	0	0	5	1	0	0	0	0	760	82	9	2			
9:15	9:30	0	10	0	0	0	0	52	3	1	0	34	2	658	53	13	0	0	45	0	0	0	5	1	0	0	0	0	859	89	9	2			
9:30	9:45	0	10	0	0	1	0	55	3	1	0	37	2	722	63	16	0	0	42	0	0	0	6	0	1	0	0	1	922	94	9	2			
9:45	10:00	0	11	0	1	0	0	57	3	1	0	39	2	792	69	16	0	0	47	0	0	0	8	0	1	0	0	1	1098	101	9	3			
10:00	10:15	0	11	0	1	0	0	60	3	2	0	39	2	856	74	20	0	0	47	0	0	0	8	0	1	0	1	0	1167	107	11	3			
10:15	10:30	0	11	1	1	0	0	65	3	2	0	42	5	917	81	21	0	0	51	51	0	0	8	0	1	0	0	0	1286	116	11	3			
10:30	10:45	0	11	1	1	0	0	70	3	2	0	46	2	979	84	23	0	0	50	51	0	0	8	0	1	0	0	0	1404	123	12	3			
10:45	11:00	0	11	1	1	0	0	74	3	2	0	53	2	1045	89	23	0	0	52	0	0	0	8	0	1	0	0	0	1596	124	12	3			
11:00	11:15	0	11	1	1	0	0	80	3	3	0	56	2	1105	95	24	0	0	54	0	0	0	8	0	1	0	2	0	1312	128	12	3			
11:15	11:30	0	11	1	1	0	0	81	3	4	0	60	2	1160	103	26	0	0	57	103	0	0	8	0	2	0	2	0	1378	132	12	3			
11:30	11:45	0	12	1	1	0	0	84	3	4	0	60	2	1218	109	27	0	0	58	109	0	0	8	0	2	0	2	0	1442	138	15	3			
11:45	12:00	0	12	1	1	0	0	90	4	4	0	66	2	1287	115	28	0	0	60	115	0	0	8	0	2	0	2	0	1514	142	16	4			
12:00	12:15	0	12	1	1	0	0	91	5	4	0	71	2	1344	119	31	0	0	60	119	0	0	8	0	2	0	2	0	1590	147	17	4			
12:15	12:30	0	14	1	1	0	0	95	5	4	0	74	2	1492	124	33	0	0	60	124	0	0	8	0	2	0	2	0	1754	151	17	4			
12:30	12:45	0	14	1	1	0	0	97	5	5	0	77	2	1547	126	33	0	0	62	126	0	0	8	0	2	0	2	0	1727	147	17	4			
12:45	13:00	0	14	1	1	0	0	99	5	5	0	82	3	1561	137	37	0	0	63	137	0	0	8	0	2	0	2	0	1811	166	19	4			
13:00	13:15	0	14	1	1	0	0	101	5	5	0	87	4	1639	145	37	0	0	65	145	0	0	8	0	2	0	2	0	1869	176	20	4			
13:15	13:30	0	17	2	1	0	0	109	5	5	0	90	4	1730	155	38	0	0	71	155	0	0	8	0	2	0	2	0	1931	181	22	4			
13:30	13:45	0	17	2	1	0	0	111	5	5	0	93	4	1802	160	38	0	0	71	160	0	0	8	0	2	0	2	0	2021	185	22	4			
13:45	14:00	0	17	2	1	0	0	114	5	5	0	98	4	1861	165	39	0	0	73	165	0	0	9	0	2	0	2	0	2088	189	22	4			
14:00	14:15	0	17	2	1	0	0	117	5	5	0	100	4	1950	170	40	0	0	74	170	0	0	9	0	2	0	2	0	2159	192	23	4			
14:15	14:30	0	17	2	1	0	0	124	6	5	0	101	4	2009	172	40	0	0	75	172	0	0	9	0	2	0	2	0	2217	194	23	4			
14:30	14:45	0	17	2	1	0	0	127	5	6	0	106	4	2099	186	44	0	0	76	186	0	0	11	0	2	0	2	0	2285	209	24	4			
14:45	15:00	0	17	2	1	0	0	137	5	6	0	111	4	2188	192	46	0	0	77	192	0	0	12	0	2	0	2	0	2366	214	24	4			
15:00	15:15	0	17	2	1	0	0	142	6	6	0	118	4	2253	198	49	0	0	83	198	0	0	13	0	2	0	3	0	2448	219	26	4			
15:15	15:30	0	20	2	1	0	0	154	6	6	0	123	4	2332	204	53	0	0	86	204	0	0	14	0	2	0	4	0	2532	220	27	4			
15:30	15:45	0	20	2	3	1	0	160	7	6	0	128	6	2434	218	57	0	0	87	218	0	0	14	0	2	0	4	0	2646	223	29	4			
15:45	16:00	0	20	3	3	1	0	166	7	6	0	135	6	2528	226	59	0	0	88	226	0	0	14	0	2	0	4	0	2733	225	31	4			
16:00	16:15	0	21	21	1	0	0	170	7	7	0	136	6	2583	93	96	0	0	88	226	0	0	14	0	2	0	4	0	2819	225	32	4			
16:15	16:30	0	24	3	1	0	0	172	7	6	0	142	6	2722	235	65	0	0	90	235	0	0	14	0	2	0	5	0	2901	238	33	5			
16:30	16:45	0	24	3	3	1	0	174	7	7	0	147	6	2835	242	70	0	0	92	242	0	0	14	0	2	0	5	0	3035	243	34	5			
16:45	17:00	0	24	3	3	1	0	176	7	7	0	149	6	2928	244	74	0	0	93	244	0	0	16	0	2	0	5	0	3127	245	34	5			
17:00	17:15	0	25	3	3	1	0	176	7	7	0	154	6	3017	248	84	1	0	95	248	0	0	18	0	2	0	5	0	3215	249	35	5			
17:15	17:30	0	26	3	3	1	0	178	7	7	0	155	6	3116	252	89	1	0	96	252	0	0	18	0	2	0	6	0	3304	251	35	5			
17:30	17:45	0	26	3	3	1	0	182	7	7	0	157	6	3228	253	93	1	0	98	253	0	0	18	0	2	0	6	0	3379	256	36	5			
17:45	18:00	0	26	28	3	1	0	186	7	7	0	160	6	3283	96	96	0	0	98	253	0	0	18	0	2	0	7	0	3454	258	36	5			
18:00	18:15	0	28	3	3	1	0	187	7	7	0	167	6	3373	255	98	1	0	104	255	0	0	18	0	2	0	7	0	3526	260	39	5			
18:15	18:30	0	28	3	3	1	0	189	7	7	0	168	6	3414	258	100	1	0	105	258	0	0	19	0	2	0	7	0	3601	261	40	5			
18:30	18:45	0	28	3	3	1	0	190	7	7	0	173	6	3446	259	102	1	0	108	259	0	0	19	0	2	0	7	0	3627	261	40	5			
18:45	19:00	0	28	3	3	1	0	192	7	7	0	175	6	3473	260	103	1	0	111	260	0	0	19	0	2	0	7	0	3670	261	41	5			



Client: Beridge Williams

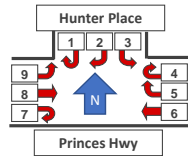
Name: Wurruk Traffic Count

Job No.: 5710

Location: Princes Hwy and Hunter Place

Date: Wed 31/07/2019 Time: 7am-7pm

Weather: Sunny



Absolute Value		VEHICLE MOVEMENTS																	
		1		2		3		4		5		6		7		8		9	
		Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck
TIME																			
7:00	7:15	0	0	1	1	5	1	0	0	5	1	39	3	0	0	31	8	1	1
7:15	7:30	0	0	1	1	3	1	0	0	14	1	52	2	0	0	40	9	2	0
7:30	7:45	0	0	3	1	4	0	0	0	6	0	62	6	0	0	55	9	2	1
7:45	8:00	0	0	1	1	6	0	0	0	16	1	67	4	0	0	93	5	2	0
8:00	8:15	0	0	2	0	13	1	0	0	10	0	56	6	0	0	77	3	1	0
8:15	8:30	0	0	0	1	16	1	0	0	9	2	52	4	0	0	110	18	2	1
8:30	8:45	0	0	1	0	22	3	0	0	7	2	55	1	0	0	125	8	4	0
8:45	9:00	0	0	2	0	12	0	0	0	17	0	57	6	0	0	96	9	4	0
9:00	9:15	0	0	1	0	11	4	0	0	12	1	50	5	0	0	86	5	2	1
9:15	9:30	0	0	2	1	13	1	0	0	8	1	65	11	0	0	55	6	2	1
9:30	9:45	0	0	0	1	13	0	0	0	13	0	59	6	0	0	54	4	2	1
9:45	10:00	0	0	2	2	15	1	0	0	12	2	51	4	0	0	61	8	1	0
10:00	10:15	0	0	3	1	10	0	0	0	9	0	58	5	0	0	56	5	1	0
10:15	10:30	0	0	2	0	13	0	0	0	10	2	54	6	0	0	49	9	1	0
10:30	10:45	0	0	1	0	7	0	0	0	9	0	61	6	0	0	55	7	1	0
10:45	11:00	0	0	1	1	10	0	0	0	8	1	48	5	0	0	58	1	2	0
11:00	11:15	0	0	1	0	6	0	0	0	4	0	56	11	0	0	49	4	1	1
11:15	11:30	0	0	5	0	14	0	0	0	13	1	43	5	0	0	52	4	2	1
11:30	11:45	0	0	0	1	9	0	0	0	14	2	60	9	0	0	57	5	3	0
11:45	12:00	0	0	2	0	15	2	1	0	8	0	47	4	0	0	56	4	1	2
12:00	12:15	0	0	2	0	22	1	0	0	13	1	53	5	1	0	61	2	2	0
12:15	12:30	0	0	3	0	8	1	0	0	17	0	63	5	0	0	79	1	3	1
12:30	12:45	0	0	3	0	18	0	0	0	5	1	61	12	0	0	55	5	2	0
12:45	13:00	0	0	1	1	15	0	0	0	10	0	72	5	0	0	53	11	2	0
13:00	13:15	0	0	1	0	12	0	0	0	19	3	69	19	0	0	44	11	3	0
13:15	13:30	0	0	0	1	13	0	0	0	11	0	65	4	0	0	46	5	3	0
13:30	13:45	1	0	3	0	17	2	0	0	8	0	64	8	0	0	70	2	1	0
13:45	14:00	0	0	3	0	14	1	0	0	6	1	61	4	0	0	58	3	3	1
14:00	14:15	0	0	3	0	4	1	0	0	10	0	86	3	0	0	54	4	2	0
14:15	14:30	0	0	1	1	11	1	0	0	12	1	56	2	0	0	56	7	2	0
14:30	14:45	0	0	2	1	6	0	0	0	16	0	70	0	0	0	64	9	0	0
14:45	15:00	0	0	1	0	11	0	0	0	9	1	87	5	0	0	69	5	1	1
15:00	15:15	0	0	4	0	18	0	0	0	9	2	55	3	0	0	67	5	1	0
15:15	15:30	0	0	5	1	8	0	0	0	15	1	66	4	0	0	73	1	1	0
15:30	15:45	0	0	14	0	55	0	0	0	17	3	91	11	0	0	63	3	1	0
15:45	16:00	0	0	1	0	16	2	0	0	14	1	81	4	0	0	74	0	1	0
16:00	16:15	0	0	4	2	18	2	0	0	14	1	83	2	0	0	96	8	3	0
16:15	16:30	0	0	2	0	18	1	0	0	20	0	76	7	0	0	92	3	0	0
16:30	16:45	0	0	2	0	7	0	2	0	9	1	98	5	0	0	65	5	2	0
16:45	17:00	0	0	2	1	10	0	0	0	15	2	85	0	0	0	88	2	0	0
17:00	17:15	0	0	2	0	10	1	0	0	7	1	81	3	0	0	73	3	1	1
17:15	17:30	0	0	3	0	19	1	0	0	10	2	95	2	0	0	72	1	1	0
17:30	17:45	0	0	2	0	12	1	1	0	16	1	90	0	0	0	61	4	2	0
17:45	18:00	0	0	1	2	12	1	0	0	14	0	69	0	0	0	57	2	3	0
18:00	18:15	0	0	5	1	16	1	0	0	10	0	60	2	0	0	61	2	3	0
18:15	18:30	0	0	0	0	7	0	0	0	11	0	35	3	1	0	47	1	1	0
18:30	18:45	0	0	0	0	9	0	0	0	11	0	19	1	0	0	37	0	2	0
18:45	19:00	0	0	0	0	3	0	0	0	5	0	23	1	1	0	39	1	1	0

Accumulative Value		VEHICLE MOVEMENTS																	
		1		2		3		4		5		6		7		8		9	
TIME		Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck
7:00	7:15	0	0	1	1	5	1	0	0	5	1	39	3	0	0	31	8	1	1
7:15	7:30	0	0	2	2	8	2	0	0	19	2	91	5	0	0	71	17	3	1
7:30	7:45	0	0	5	3	12	2	0	0	25	2	153	11	0	0	126	26	5	2
7:45	8:00	0	0	6	4	18	2	0	0	41	3	220	15	0	0	219	31	7	2
8:00	8:15	0	0	8	4	31	3	0	0	51	3	276	21	0	0	296	34	8	2
8:15	8:30	0	0	8	5	47	4	0	0	60	5	328	25	0	0	406	52	10	3
8:30	8:45	0	0	9	5	69	7	0	0	67	7	383	26	0	0	531	60	14	3
8:45	9:00	0	0	11	5	81	7	0	0	84	7	440	32	0	0	627	69	18	3
9:00	9:15	0	0	12	5	92	11	0	0	96	8	490	37	0	0	713	74	20	4
9:15	9:30	0	0	14	6	105	12	0	0	104	9	555	48	0	0	768	80	22	5
9:30	9:45	0	0	14	7	118	12	0	0	117	9	614	54	0	0	822	84	24	6
9:45	10:00	0	0	16	9	133	13	0	0	129	11	665	58	0	0	883	92	25	6
10:00	10:15	0	0	19	10	143	13	0	0	138	11	723	63	0	0	939	97	26	6
10:15	10:30	0	0	21	10	156	13	0	0	148	13	777	69	0	0	988	106	27	6
10:30	10:45	0	0	22	10	163	13	0	0	157	13	838	75	0	0	1043	113	28	6
10:45	11:00	0	0	23	11	173	13	0	0	165	14	886	80	0	0	1101	114	30	6
11:00	11:15	0	0	24	11	179	13	0	0	169	14	942	91	0	0	1150	118	31	7
11:15	11:30	0	0	29	11	193	13	0	0	182	15	985	96	0	0	1202	122	33	8
11:30	11:45	0	0	29	12	202	13	0	0	196	17	1045	105	0	0	1259	127	36	8
11:45	12:00	0	0	31	12	217	15	1	0	204	17	1092	109	0	0	1315	131	37	10
12:00	12:15	0	0	33	12	239	16	1	0	217	18	1145	114	1	0	1376	133	39	10
12:15	12:30	0	0	36	12	247	17	1	0	234	18	1208	119	1	0	1455	134	42	11
12:30	12:45	0	0	39	12	265	17	1	0	239	19	1269	131	1	0	1510	139	44	11
12:45	13:00	0	0	40	13	280	17	1	0	249	19	1341	136	1	0	1563	150	46	11
13:00	13:15	0	0	41	13	292	17	1	0	268	22	1410	155	1	0	1607	161	49	11
13:15	13:30	0	0	41	14	305	17	1	0	279	22	1475	159	1	0	1653	166	52	11
13:30	13:45	1	0	44	14	322	19	1	0	287	22	1539	167	1	0	1723	168	53	11
13:45	14:00	1	0	47	14	336	20	1	0	293	23	1600	171	1	0	1781	171	56	12
14:00	14:15	1	0	50	14	340	21	1	0	303	23	1686	174	1	0	1835	175	58	12
14:15	14:30	1	0	51	15	351	22	1	0	315	24	1742	176	1	0	1891	182	60	12
14:30	14:45	1	0	53	16	357	22	1	0	331	24	1812	176	1	0	1955	191	60	12
14:45	15:00	1	0	54	16	368	22	1	0	340	25	1899	181	1	0	2024	196	61	13
15:00	15:15	1	0	58	16	386	22	1	0	349	27	1954	184	1	0	2091	201	62	13
15:15	15:30	1	0	63	17	394	22	1	0	364	28	2020	188	1	0	2164	202	63	13
15:30	15:45	1	0	77	17	449	22	1	0	381	31	2111	199	1	0	2227	205	64	13
15:45	16:00	1	0	78	17	465	24	1	0	395	32	2192	203	1	0	2301	205	65	13
16:00	16:15	1	0	82	19	483	26	1	0	409	33	2275	205	1	0	2397	213	68	13
16:15	16:30	1	0	84	19	501	27	1	0	429	33	2351	212	1	0	2489	216	68	13
16:30	16:45	1	0	86	19	508	27	3	0	438	34	2449	217	1	0	2554	221	70	13
16:45	17:00	1	0	88	20	518	27	3	0	453	36	2534	217	1	0	2642	223	70	13
17:00	17:15	1	0	90	20	528	28	3	0	460	37	2615	220	1	0	2715	226	71	14
17:15	17:30	1	0	93	20	547	29	3	0	470	39	2710	222	1	0	2787	227	72	14
17:30	17:45	1	0	95	20	559	30	4	0	486	40	2800	222	1	0	2848	231	74	14
17:45	18:00	1	0	96	22	571	31	4	0	500	40	2869	222	1	0	2905	233	77	14
18:00	18:15	1	0	101	23	587	32	4	0	510	40	2929	224	1	0	2966	235	80	14
18:15	18:30	1	0	101	23	594	32	4	0	521	40	2964	227	2	0	3013	236	81	14
18:30	18:45	1	0	101	23	603	32	4	0	532	40	2983	228	2	0	3050	236	83	14
18:45	19:00	1	0	101	23	606	32	4	0	537	40	3006	229	3	0	3089	237	84	14

## APPENDIX C. SIDRA ANALYSIS



# MOVEMENT SUMMARY

 **Site: 101 [PHE/Hunt PI AM Existing]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Princes Highway												
5	T1	307	10.0	0.121	3.6	LOS A	0.6	4.5	0.05	0.38	0.05	57.9
6	R2	63	10.0	0.121	9.3	LOS A	0.6	4.4	0.05	0.47	0.05	57.2
Approach		371	10.0	0.121	4.6	LOS A	0.6	4.5	0.05	0.40	0.05	57.8
North: Hunt Place												
7	L2	87	10.0	0.108	5.5	LOS A	0.4	3.0	0.47	0.64	0.47	55.3
9	R2	7	10.0	0.108	11.3	LOS B	0.4	3.0	0.47	0.64	0.47	56.3
Approach		95	10.0	0.108	5.9	LOS A	0.4	3.0	0.47	0.64	0.47	55.4
West: Princes Highway												
10	L2	16	10.0	0.208	3.9	LOS A	0.9	7.0	0.17	0.36	0.17	55.4
11	T1	565	10.0	0.208	3.8	LOS A	0.9	7.1	0.17	0.36	0.17	57.9
Approach		581	10.0	0.208	3.8	LOS A	0.9	7.1	0.17	0.36	0.17	57.8
All Vehicles		1046	10.0	0.208	4.3	LOS A	0.9	7.1	0.16	0.40	0.16	57.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

**SIDRA INTERSECTION 8.0 | Copyright © 2000-2018 Akcelik and Associates Pty Ltd | sidrasolutions.com**

Organisation: BEVERIDGE WILLIAMS | Processed: Friday, 18 October 2019 3:03:56 PM

Project: K:\Jobs Data\1400147 - Wurruk rezoning application\\_TrafiSIDRA\1400147 v3.sip8

# MOVEMENT SUMMARY

 **Site: 101 [PHE/The Ridge AM Existing]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: The Ridge												
1	L2	2	10.0	0.033	4.7	LOS A	0.1	0.9	0.36	0.64	0.36	52.9
2	T1	1	10.0	0.033	4.8	LOS A	0.1	0.9	0.36	0.64	0.36	53.0
3	R2	29	10.0	0.033	10.5	LOS B	0.1	0.9	0.36	0.64	0.36	54.2
Approach		33	10.0	0.033	9.9	LOS A	0.1	0.9	0.36	0.64	0.36	54.1
East: Princes Highway												
4	L2	7	10.0	0.109	3.7	LOS A	0.5	3.8	0.04	0.34	0.04	56.8
5	T1	305	10.0	0.109	3.6	LOS A	0.5	3.8	0.05	0.37	0.05	58.5
6	R2	23	10.0	0.109	9.3	LOS A	0.5	3.8	0.05	0.40	0.05	58.0
Approach		336	10.0	0.109	4.0	LOS A	0.5	3.8	0.05	0.37	0.05	58.4
North: The Ridge												
7	L2	32	10.0	0.042	5.3	LOS A	0.1	1.1	0.45	0.60	0.45	55.2
8	T1	1	10.0	0.042	5.4	LOS A	0.1	1.1	0.45	0.60	0.45	56.0
9	R2	4	10.0	0.042	11.1	LOS B	0.1	1.1	0.45	0.60	0.45	56.9
Approach		37	10.0	0.042	6.0	LOS A	0.1	1.1	0.45	0.60	0.45	55.4
West: Princes Highway												
10	L2	9	10.0	0.194	3.9	LOS A	0.9	6.9	0.16	0.35	0.16	56.3
11	T1	537	10.0	0.194	3.8	LOS A	0.9	6.9	0.16	0.35	0.16	58.2
12	R2	1	10.0	0.194	9.5	LOS A	0.9	6.9	0.17	0.36	0.17	58.0
Approach		547	10.0	0.194	3.8	LOS A	0.9	6.9	0.16	0.35	0.16	58.2
All Vehicles		953	10.0	0.194	4.2	LOS A	0.9	6.9	0.14	0.38	0.14	58.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [PHE/Settlement Rd AM Existing]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Settlement Road												
1	L2	25	10.0	0.088	4.7	LOS A	0.3	2.4	0.37	0.64	0.37	53.4
3	R2	63	10.0	0.088	10.5	LOS B	0.3	2.4	0.37	0.64	0.37	53.9
Approach		88	10.0	0.088	8.8	LOS A	0.3	2.4	0.37	0.64	0.37	53.8
East: Princes Highway												
4	L2	20	10.0	0.111	3.7	LOS A	0.5	3.6	0.05	0.35	0.05	56.1
5	T1	314	10.0	0.111	3.6	LOS A	0.5	3.6	0.05	0.35	0.05	58.4
6u	U	4	10.0	0.111	11.7	LOS B	0.5	3.6	0.05	0.35	0.05	59.7
Approach		338	10.0	0.111	3.7	LOS A	0.5	3.6	0.05	0.35	0.05	58.3
West: Princes Highway												
11	T1	557	10.0	0.204	3.8	LOS A	1.0	7.7	0.20	0.37	0.20	57.7
12	R2	8	10.0	0.204	9.6	LOS A	1.0	7.7	0.20	0.37	0.20	57.7
Approach		565	10.0	0.204	3.9	LOS A	1.0	7.7	0.20	0.37	0.20	57.7
All Vehicles		992	10.0	0.204	4.3	LOS A	1.0	7.7	0.16	0.39	0.16	57.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [PHE/Hunt PI PM Existing]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Princes Highway												
5	T1	354	10.0	0.122	3.7	LOS A	0.6	4.4	0.10	0.34	0.10	58.2
6	R2	5	10.0	0.122	9.4	LOS A	0.6	4.3	0.10	0.35	0.10	58.2
Approach		359	10.0	0.122	3.7	LOS A	0.6	4.4	0.10	0.34	0.10	58.2
North: Hunt Place												
7	L2	115	10.0	0.138	4.8	LOS A	0.5	3.9	0.39	0.59	0.39	55.3
9	R2	22	10.0	0.138	10.6	LOS B	0.5	3.9	0.39	0.59	0.39	56.3
Approach		137	10.0	0.138	5.8	LOS A	0.5	3.9	0.39	0.59	0.39	55.5
West: Princes Highway												
10	L2	20	10.0	0.117	3.7	LOS A	0.5	3.6	0.03	0.35	0.03	56.2
11	T1	342	10.0	0.117	3.6	LOS A	0.5	3.6	0.04	0.34	0.04	58.5
Approach		362	10.0	0.117	3.6	LOS A	0.5	3.6	0.04	0.34	0.04	58.4
All Vehicles		858	10.0	0.138	4.0	LOS A	0.6	4.4	0.12	0.38	0.12	57.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: BEVERIDGE WILLIAMS | Processed: Friday, 18 October 2019 3:03:56 PM

Project: K:\Jobs Data\1400147 - Wurruk rezoning application\\_TrafiSIDRA\1400147 v3.sip8



# MOVEMENT SUMMARY

 **Site: 101 [PHE/The Ridge PM Existing]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: The Ridge												
1	L2	1	10.0	0.007	5.0	LOS A	0.0	0.2	0.41	0.60	0.41	53.5
2	T1	1	10.0	0.007	5.1	LOS A	0.0	0.2	0.41	0.60	0.41	53.8
3	R2	4	10.0	0.007	10.8	LOS B	0.0	0.2	0.41	0.60	0.41	54.9
Approach		6	10.0	0.007	8.9	LOS A	0.0	0.2	0.41	0.60	0.41	54.5
East: Princes Highway												
4	L2	13	10.0	0.161	3.8	LOS A	0.8	6.0	0.10	0.34	0.10	56.5
5	T1	443	10.0	0.161	3.7	LOS A	0.8	6.0	0.10	0.36	0.10	58.3
6	R2	22	10.0	0.161	9.4	LOS A	0.8	6.0	0.10	0.38	0.10	57.9
Approach		478	10.0	0.161	3.9	LOS A	0.8	6.0	0.10	0.36	0.10	58.3
North: The Ridge												
7	L2	5	10.0	0.028	5.1	LOS A	0.1	0.8	0.42	0.65	0.42	53.1
8	T1	1	10.0	0.028	5.2	LOS A	0.1	0.8	0.42	0.65	0.42	53.4
9	R2	20	10.0	0.028	10.9	LOS B	0.1	0.8	0.42	0.65	0.42	54.7
Approach		26	10.0	0.028	9.5	LOS A	0.1	0.8	0.42	0.65	0.42	54.3
West: Princes Highway												
10	L2	7	10.0	0.163	3.8	LOS A	0.7	5.3	0.10	0.34	0.10	56.6
11	T1	471	10.0	0.163	3.7	LOS A	0.7	5.3	0.10	0.34	0.10	58.5
12	R2	1	10.0	0.163	9.4	LOS A	0.7	5.3	0.11	0.34	0.11	58.3
Approach		479	10.0	0.163	3.7	LOS A	0.7	5.3	0.10	0.34	0.10	58.4
All Vehicles		989	10.0	0.163	4.0	LOS A	0.8	6.0	0.11	0.36	0.11	58.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [PHE/Settlement Rd PM Existing]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Settlement Road												
1	L2	16	10.0	0.060	5.1	LOS A	0.2	1.6	0.42	0.67	0.42	53.3
3	R2	40	10.0	0.060	10.9	LOS B	0.2	1.6	0.42	0.67	0.42	53.7
Approach		56	10.0	0.060	9.3	LOS A	0.2	1.6	0.42	0.67	0.42	53.6
East: Princes Highway												
4	L2	62	10.0	0.172	3.7	LOS A	0.8	5.8	0.06	0.36	0.06	56.0
5	T1	456	10.0	0.172	3.6	LOS A	0.8	5.8	0.06	0.36	0.06	58.3
6u	U	8	10.0	0.172	11.7	LOS B	0.8	5.8	0.07	0.36	0.07	59.6
Approach		526	10.0	0.172	3.8	LOS A	0.8	5.8	0.06	0.36	0.06	58.1
West: Princes Highway												
11	T1	480	10.0	0.173	3.8	LOS A	0.8	6.4	0.16	0.36	0.16	57.8
12	R2	12	10.0	0.173	9.5	LOS A	0.8	6.3	0.16	0.37	0.16	57.8
Approach		492	10.0	0.173	3.9	LOS A	0.8	6.4	0.16	0.36	0.16	57.8
All Vehicles		1074	10.0	0.173	4.1	LOS A	0.8	6.4	0.13	0.37	0.13	57.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [PHE/Hunt PI AM PD]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: RoadName												
1	L2	95	10.0	0.134	6.1	LOS A	0.5	3.7	0.46	0.63	0.46	54.2
2	T1	1	10.0	0.134	6.0	LOS A	0.5	3.7	0.46	0.63	0.46	56.1
3	R2	857	10.0	0.722	13.0	LOS B	6.6	49.9	0.69	0.88	0.84	52.8
Approach		953	10.0	0.722	12.3	LOS B	6.6	49.9	0.66	0.86	0.81	52.9
East: Princes Highway												
4	L2	63	10.0	0.154	3.8	LOS A	0.8	6.0	0.09	0.36	0.09	56.6
5	T1	332	10.0	0.154	3.7	LOS A	0.8	6.0	0.10	0.40	0.10	57.7
6	R2	63	10.0	0.154	9.4	LOS A	0.8	5.9	0.10	0.44	0.10	57.3
Approach		458	10.0	0.154	4.5	LOS A	0.8	6.0	0.10	0.40	0.10	57.5
North: Hunt Place												
7	L2	87	10.0	0.246	13.0	LOS B	1.3	9.8	0.85	0.92	0.85	50.9
8	T1	1	10.0	0.246	13.1	LOS B	1.3	9.8	0.85	0.92	0.85	50.5
9	R2	7	10.0	0.246	18.8	LOS B	1.3	9.8	0.85	0.92	0.85	50.6
Approach		96	10.0	0.246	13.4	LOS B	1.3	9.8	0.85	0.92	0.85	50.8
West: Princes Highway												
10	L2	16	10.0	0.634	11.9	LOS B	5.8	44.4	0.94	1.08	1.24	50.2
11	T1	765	10.0	0.634	12.4	LOS B	5.8	44.4	0.94	1.08	1.24	52.8
12	R2	11	10.0	0.634	19.0	LOS B	5.3	40.1	0.93	1.07	1.25	50.8
Approach		792	10.0	0.634	12.5	LOS B	5.8	44.4	0.94	1.08	1.24	52.7
All Vehicles		2298	10.0	0.722	10.8	LOS B	6.6	49.9	0.65	0.84	0.82	53.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: SIDRA Roundabout LOS.  
 Vehicle movement LOS values are based on average delay per movement.  
 Intersection and Approach LOS values are based on average delay for all vehicle movements.  
 Roundabout Capacity Model: SIDRA Standard.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [PHE/Hunt PI PM PD]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: RoadName												
1	L2	42	0.0	0.058	5.9	LOS A	0.2	1.7	0.48	0.58	0.48	54.5
2	T1	1	0.0	0.058	5.8	LOS A	0.2	1.7	0.48	0.58	0.48	56.4
3	R2	381	0.0	0.322	10.9	LOS B	1.8	12.9	0.53	0.72	0.53	53.7
Approach		424	0.0	0.322	10.4	LOS B	1.8	12.9	0.52	0.70	0.52	53.8
East: Princes Highway												
4	L2	540	0.0	0.366	4.1	LOS A	2.2	15.5	0.30	0.46	0.30	56.1
5	T1	360	10.0	0.306	4.2	LOS A	1.7	12.7	0.31	0.41	0.31	57.2
6	R2	5	10.0	0.306	9.9	LOS A	1.7	12.7	0.31	0.41	0.31	57.3
Approach		905	4.0	0.366	4.2	LOS A	2.2	15.5	0.31	0.44	0.31	56.6
North: Hunt Place												
7	L2	115	10.0	0.188	6.8	LOS A	0.8	6.2	0.62	0.78	0.62	54.3
8	T1	1	0.0	0.188	6.6	LOS A	0.8	6.2	0.62	0.78	0.62	55.0
9	R2	22	10.0	0.188	12.6	LOS B	0.8	6.2	0.62	0.78	0.62	55.0
Approach		138	9.9	0.188	7.7	LOS A	0.8	6.2	0.62	0.78	0.62	54.4
West: Princes Highway												
10	L2	20	10.0	0.234	5.1	LOS A	1.3	9.5	0.50	0.50	0.50	53.7
11	T1	384	10.0	0.234	5.1	LOS A	1.3	9.5	0.51	0.54	0.51	56.0
12	R2	95	0.0	0.234	10.7	LOS B	1.2	9.0	0.51	0.61	0.51	54.7
Approach		499	8.1	0.234	6.2	LOS A	1.3	9.5	0.51	0.55	0.51	55.7
All Vehicles		1966	4.6	0.366	6.3	LOS A	2.2	15.5	0.43	0.55	0.43	55.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: K:\Jobs Data\1400147 - Wurruk rezoning application\\_TrafiSIDRA\1400147 v3.sip8



# MOVEMENT SUMMARY

 **Site: 101 [PHE/The Ridge AM PD]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: The Ridge												
1	L2	14	10.0	0.161	5.2	LOS A	0.6	4.6	0.44	0.72	0.44	52.6
2	T1	1	10.0	0.161	5.3	LOS A	0.6	4.6	0.44	0.72	0.44	52.7
3	R2	137	10.0	0.161	11.0	LOS B	0.6	4.6	0.44	0.72	0.44	54.0
Approach		152	10.0	0.161	10.4	LOS B	0.6	4.6	0.44	0.72	0.44	53.9
East: Princes Highway												
4	L2	19	10.0	0.148	3.7	LOS A	0.8	5.8	0.05	0.34	0.05	56.7
5	T1	413	10.0	0.148	3.6	LOS A	0.8	5.8	0.06	0.36	0.06	58.5
6	R2	23	10.0	0.148	9.3	LOS A	0.7	5.7	0.06	0.38	0.06	58.1
Approach		455	10.0	0.148	3.9	LOS A	0.8	5.8	0.06	0.36	0.06	58.4
North: The Ridge												
7	L2	32	10.0	0.078	9.1	LOS A	0.3	2.6	0.75	0.86	0.75	53.0
8	T1	1	10.0	0.078	9.2	LOS A	0.3	2.6	0.75	0.86	0.75	53.2
9	R2	4	10.0	0.078	14.9	LOS B	0.3	2.6	0.75	0.86	0.75	54.5
Approach		37	10.0	0.078	9.7	LOS A	0.3	2.6	0.75	0.86	0.75	53.1
West: Princes Highway												
10	L2	9	10.0	0.624	4.8	LOS A	5.2	39.4	0.51	0.45	0.51	54.8
11	T1	1593	10.0	0.624	4.8	LOS A	5.2	39.4	0.52	0.46	0.52	56.8
12	R2	2	10.0	0.624	10.6	LOS B	5.1	38.7	0.53	0.47	0.53	56.4
Approach		1604	10.0	0.624	4.8	LOS A	5.2	39.4	0.52	0.46	0.52	56.8
All Vehicles		2247	10.0	0.624	5.1	LOS A	5.2	39.4	0.42	0.47	0.42	56.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: BEVERIDGE WILLIAMS | Processed: Wednesday, 27 October 2021 4:47:11 PM

Project: K:\Jobs Data\1400147 - Wurruk rezoning application\\_TrafiSIDRA\1400147 v3.sip8

# MOVEMENT SUMMARY

 **Site: 101 [PHE/The Ridge PM PD]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: The Ridge												
1	L2	6	10.0	0.078	6.4	LOS A	0.3	2.2	0.55	0.79	0.55	52.2
2	T1	1	10.0	0.078	6.5	LOS A	0.3	2.2	0.55	0.79	0.55	52.2
3	R2	52	10.0	0.078	12.2	LOS B	0.3	2.2	0.55	0.79	0.55	53.6
Approach		59	10.0	0.078	11.5	LOS B	0.3	2.2	0.55	0.79	0.55	53.4
East: Princes Highway												
4	L2	80	10.0	0.338	3.8	LOS A	2.0	15.0	0.15	0.36	0.15	56.3
5	T1	895	10.0	0.338	3.7	LOS A	2.0	15.0	0.15	0.36	0.15	58.2
6	R2	22	10.0	0.338	9.5	LOS A	2.0	14.9	0.16	0.36	0.16	57.9
Approach		997	10.0	0.338	3.9	LOS A	2.0	15.0	0.15	0.36	0.15	58.1
North: The Ridge												
7	L2	5	10.0	0.035	6.2	LOS A	0.1	1.0	0.55	0.75	0.55	52.6
8	T1	1	10.0	0.035	6.3	LOS A	0.1	1.0	0.55	0.75	0.55	52.7
9	R2	20	10.0	0.035	12.0	LOS B	0.1	1.0	0.55	0.75	0.55	54.1
Approach		26	10.0	0.035	10.7	LOS B	0.1	1.0	0.55	0.75	0.55	53.7
West: Princes Highway												
10	L2	7	10.0	0.325	4.0	LOS A	1.9	14.2	0.24	0.37	0.24	56.0
11	T1	882	10.0	0.325	3.9	LOS A	1.9	14.2	0.24	0.38	0.24	57.9
12	R2	13	10.0	0.325	9.7	LOS A	1.9	14.1	0.25	0.39	0.25	57.6
Approach		902	10.0	0.325	4.0	LOS A	1.9	14.2	0.24	0.38	0.24	57.8
All Vehicles		1984	10.0	0.338	4.2	LOS A	2.0	15.0	0.21	0.39	0.21	57.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

 **Site: 101 [PHE/Settlement Rd AM PD]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Settlement Road												
1	L2	32	10.0	0.145	5.1	LOS A	0.5	4.1	0.43	0.70	0.43	53.0
3	R2	106	10.0	0.145	10.9	LOS B	0.5	4.1	0.43	0.70	0.43	53.5
Approach		138	10.0	0.145	9.6	LOS A	0.5	4.1	0.43	0.70	0.43	53.4
East: Princes Highway												
4	L2	26	10.0	0.149	3.7	LOS A	0.7	5.6	0.06	0.35	0.06	56.0
5	T1	426	10.0	0.149	3.6	LOS A	0.7	5.6	0.06	0.35	0.06	58.3
6u	U	4	10.0	0.149	11.7	LOS B	0.7	5.5	0.06	0.35	0.06	59.7
Approach		457	10.0	0.149	3.7	LOS A	0.7	5.6	0.06	0.35	0.06	58.2
West: Princes Highway												
11	T1	1719	10.0	0.632	4.4	LOS A	5.7	43.1	0.45	0.43	0.45	56.5
12	R2	9	10.0	0.632	10.2	LOS B	5.7	43.1	0.47	0.44	0.47	56.6
Approach		1728	10.0	0.632	4.5	LOS A	5.7	43.1	0.45	0.43	0.45	56.5
All Vehicles		2323	10.0	0.632	4.6	LOS A	5.7	43.1	0.37	0.43	0.37	56.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

 **Site: 101 [PHE/Settlement Rd PM PD]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Settlement Road												
1	L2	19	10.0	0.107	6.5	LOS A	0.4	3.0	0.55	0.80	0.55	52.4
3	R2	64	10.0	0.107	12.3	LOS B	0.4	3.0	0.55	0.80	0.55	52.7
Approach		83	10.0	0.107	10.9	LOS B	0.4	3.0	0.55	0.80	0.55	52.6
East: Princes Highway												
4	L2	96	10.0	0.338	3.8	LOS A	1.9	14.2	0.10	0.35	0.10	55.8
5	T1	929	10.0	0.338	3.7	LOS A	1.9	14.3	0.10	0.35	0.10	58.1
6u	U	8	10.0	0.338	11.8	LOS B	1.9	14.3	0.10	0.35	0.10	59.5
Approach		1034	10.0	0.338	3.7	LOS A	1.9	14.3	0.10	0.35	0.10	58.0
West: Princes Highway												
11	T1	815	10.0	0.299	3.9	LOS A	1.7	13.2	0.24	0.38	0.24	57.5
12	R2	18	10.0	0.299	9.6	LOS A	1.7	13.0	0.24	0.39	0.24	57.5
Approach		833	10.0	0.299	4.0	LOS A	1.7	13.2	0.24	0.38	0.24	57.5
All Vehicles		1949	10.0	0.338	4.2	LOS A	1.9	14.3	0.18	0.38	0.18	57.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

 **Site: 101 [PHE/Hunt PI AM PD + 10yrs]**

New Site

Site Category: (None)

Roundabout

Design Life Analysis (Final Year): Results for 10 years

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: RoadName												
1	L2	95	10.0	0.139	6.4	LOS A	0.5	3.9	0.49	0.66	0.49	53.9
2	T1	1	10.0	0.139	6.3	LOS A	0.5	3.9	0.49	0.66	0.49	55.8
3	R2	857	10.0	0.752	13.9	LOS B	7.2	55.1	0.74	0.97	0.97	52.2
Approach		953	10.0	0.752	13.2	LOS B	7.2	55.1	0.71	0.94	0.93	52.4
East: Princes Highway												
4	L2	76	10.0	0.186	3.8	LOS A	1.0	7.6	0.11	0.36	0.11	56.5
5	T1	398	10.0	0.186	3.7	LOS A	1.0	7.6	0.11	0.40	0.11	57.7
6	R2	76	10.0	0.186	9.4	LOS A	1.0	7.4	0.12	0.44	0.12	57.2
Approach		549	10.0	0.186	4.5	LOS A	1.0	7.6	0.11	0.40	0.11	57.4
North: Hunt Place												
7	L2	105	10.0	0.345	16.4	LOS B	2.0	14.9	0.90	0.98	1.00	49.0
8	T1	1	10.0	0.345	16.4	LOS B	2.0	14.9	0.90	0.98	1.00	48.3
9	R2	9	10.0	0.345	22.2	LOS C	2.0	14.9	0.90	0.98	1.00	48.4
Approach		115	10.0	0.345	16.8	LOS B	2.0	14.9	0.90	0.98	1.00	49.0
West: Princes Highway												
10	L2	19	10.0	0.779	16.3	LOS B	9.1	69.3	1.00	1.22	1.58	47.5
11	T1	918	10.0	0.779	17.1	LOS B	9.1	69.3	1.00	1.22	1.58	50.1
12	R2	13	10.0	0.779	23.9	LOS C	8.1	61.8	0.99	1.21	1.59	47.6
Approach		950	10.0	0.779	17.2	LOS B	9.1	69.3	1.00	1.22	1.58	50.1
All Vehicles		2567	10.0	0.779	12.9	LOS B	9.1	69.3	0.70	0.93	1.00	52.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [PHE/Hunt PI PM PD + 10yrs]**

New Site

Site Category: (None)

Roundabout

Design Life Analysis (Final Year): Results for 10 years

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: RoadName												
1	L2	51	0.0	0.074	6.5	LOS A	0.3	2.3	0.53	0.63	0.53	54.1
2	T1	1	0.0	0.074	6.4	LOS A	0.3	2.3	0.53	0.63	0.53	55.9
3	R2	457	0.0	0.410	11.5	LOS B	2.6	18.3	0.63	0.76	0.63	53.4
Approach		509	0.0	0.410	11.0	LOS B	2.6	18.3	0.62	0.75	0.62	53.5
East: Princes Highway												
4	L2	648	0.0	0.447	4.2	LOS A	3.0	21.2	0.37	0.49	0.37	55.9
5	T1	432	10.0	0.375	4.4	LOS A	2.2	17.1	0.37	0.43	0.37	56.9
6	R2	6	10.0	0.375	10.1	LOS B	2.2	17.1	0.37	0.43	0.37	57.0
Approach		1086	4.0	0.447	4.3	LOS A	3.0	21.2	0.37	0.46	0.37	56.3
North: Hunt Place												
7	L2	138	10.0	0.251	7.6	LOS A	1.2	8.9	0.69	0.84	0.69	53.8
8	T1	1	0.0	0.251	7.4	LOS A	1.2	8.9	0.69	0.84	0.69	54.3
9	R2	27	10.0	0.251	13.4	LOS B	1.2	8.9	0.69	0.84	0.69	54.3
Approach		165	9.9	0.251	8.6	LOS A	1.2	8.9	0.69	0.84	0.69	53.9
West: Princes Highway												
10	L2	24	10.0	0.301	5.6	LOS A	1.8	13.4	0.59	0.54	0.59	53.3
11	T1	461	10.0	0.301	5.6	LOS A	1.8	13.4	0.59	0.58	0.59	55.6
12	R2	114	0.0	0.301	11.2	LOS B	1.7	12.5	0.60	0.65	0.60	54.3
Approach		599	8.1	0.301	6.6	LOS A	1.8	13.4	0.59	0.59	0.59	55.3
All Vehicles		2360	4.6	0.447	6.6	LOS A	3.0	21.2	0.50	0.58	0.50	55.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

 **Site: 101 [PHE/The Ridge AM PD + 10yrs]**

New Site

Site Category: (None)

Roundabout

Design Life Analysis (Final Year): Results for 10 years

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: The Ridge												
1	L2	16	10.0	0.201	5.5	LOS A	0.8	5.9	0.48	0.76	0.48	52.5
2	T1	1	10.0	0.201	5.6	LOS A	0.8	5.9	0.48	0.76	0.48	52.6
3	R2	164	10.0	0.201	11.3	LOS B	0.8	5.9	0.48	0.76	0.48	53.9
Approach		182	10.0	0.201	10.8	LOS B	0.8	5.9	0.48	0.76	0.48	53.7
East: Princes Highway												
4	L2	23	10.0	0.178	3.7	LOS A	1.0	7.4	0.06	0.34	0.06	56.7
5	T1	495	10.0	0.178	3.6	LOS A	1.0	7.4	0.06	0.36	0.06	58.5
6	R2	28	10.0	0.178	9.3	LOS A	0.9	7.2	0.07	0.38	0.07	58.1
Approach		546	10.0	0.178	3.9	LOS A	1.0	7.4	0.06	0.36	0.06	58.4
North: The Ridge												
7	L2	38	10.0	0.130	11.5	LOS B	0.6	4.7	0.84	0.91	0.84	51.5
8	T1	1	10.0	0.130	11.6	LOS B	0.6	4.7	0.84	0.91	0.84	51.4
9	R2	5	10.0	0.130	17.3	LOS B	0.6	4.7	0.84	0.91	0.84	53.0
Approach		44	10.0	0.130	12.1	LOS B	0.6	4.7	0.84	0.91	0.84	51.7
West: Princes Highway												
10	L2	11	10.0	0.770	6.0	LOS A	9.2	69.6	0.70	0.60	0.74	54.0
11	T1	1911	10.0	0.770	6.2	LOS A	9.4	71.5	0.72	0.63	0.77	56.0
12	R2	3	10.0	0.770	12.3	LOS B	9.4	71.5	0.74	0.65	0.80	55.4
Approach		1925	10.0	0.770	6.3	LOS A	9.4	71.5	0.72	0.63	0.77	56.0
All Vehicles		2697	10.0	0.770	6.2	LOS A	9.4	71.5	0.57	0.59	0.61	56.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [PHE/The Ridge PM PD + 10yrs]**

New Site

Site Category: (None)

Roundabout

Design Life Analysis (Final Year): Results for 10 years

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: The Ridge												
1	L2	8	10.0	0.101	6.9	LOS A	0.4	2.9	0.60	0.84	0.60	51.9
2	T1	1	10.0	0.101	7.0	LOS A	0.4	2.9	0.60	0.84	0.60	51.8
3	R2	62	10.0	0.101	12.7	LOS B	0.4	2.9	0.60	0.84	0.60	53.2
Approach		71	10.0	0.101	12.0	LOS B	0.4	2.9	0.60	0.84	0.60	53.1
East: Princes Highway												
4	L2	96	10.0	0.408	3.9	LOS A	2.6	20.0	0.18	0.36	0.18	56.2
5	T1	1074	10.0	0.408	3.8	LOS A	2.6	20.0	0.19	0.36	0.19	58.1
6	R2	27	10.0	0.408	9.5	LOS A	2.6	19.8	0.19	0.37	0.19	57.7
Approach		1196	10.0	0.408	3.9	LOS A	2.6	20.0	0.19	0.36	0.19	57.9
North: The Ridge												
7	L2	6	10.0	0.046	6.8	LOS A	0.2	1.3	0.60	0.79	0.60	52.3
8	T1	1	10.0	0.046	6.9	LOS A	0.2	1.3	0.60	0.79	0.60	52.4
9	R2	24	10.0	0.046	12.6	LOS B	0.2	1.3	0.60	0.79	0.60	53.8
Approach		32	10.0	0.046	11.2	LOS B	0.2	1.3	0.60	0.79	0.60	53.4
West: Princes Highway												
10	L2	9	10.0	0.396	4.1	LOS A	2.5	19.0	0.29	0.39	0.29	55.8
11	T1	1059	10.0	0.396	4.0	LOS A	2.5	19.0	0.29	0.40	0.29	57.7
12	R2	15	10.0	0.396	9.8	LOS A	2.5	18.7	0.30	0.40	0.30	57.3
Approach		1083	10.0	0.396	4.1	LOS A	2.5	19.0	0.29	0.40	0.29	57.6
All Vehicles		2381	10.0	0.408	4.3	LOS A	2.6	20.0	0.25	0.40	0.25	57.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



# MOVEMENT SUMMARY

 **Site: 101 [PHE/Settlement Rd AM PD + 10yrs]**

New Site

Site Category: (None)

Roundabout

Design Life Analysis (Final Year): Results for 10 years

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Settlement Road												
1	L2	38	10.0	0.182	5.5	LOS A	0.7	5.3	0.47	0.74	0.47	52.9
3	R2	128	10.0	0.182	11.3	LOS B	0.7	5.3	0.47	0.74	0.47	53.3
Approach		165	10.0	0.182	9.9	LOS A	0.7	5.3	0.47	0.74	0.47	53.2
East: Princes Highway												
4	L2	32	10.0	0.180	3.7	LOS A	1.0	7.7	0.08	0.34	0.08	55.9
5	T1	512	10.0	0.180	3.6	LOS A	1.0	7.7	0.08	0.34	0.08	58.2
6u	U	5	10.0	0.180	11.7	LOS B	1.0	7.5	0.08	0.35	0.08	59.6
Approach		548	10.0	0.180	3.7	LOS A	1.0	7.7	0.08	0.34	0.08	58.1
West: Princes Highway												
11	T1	2063	10.0	0.776	5.0	LOS A	9.2	70.0	0.66	0.49	0.66	55.6
12	R2	11	10.0	0.776	10.8	LOS B	9.2	70.0	0.68	0.50	0.68	55.6
Approach		2074	10.0	0.776	5.0	LOS A	9.2	70.0	0.66	0.49	0.66	55.6
All Vehicles		2788	10.0	0.776	5.0	LOS A	9.2	70.0	0.53	0.47	0.53	55.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: K:\Jobs Data\1400147 - Wurruk rezoning application\\_Trafa\SIDRA\1400147 v3.sip8

# MOVEMENT SUMMARY

 **Site: 101 [PHE/Settlement Rd PM PD - Copy]**

New Site  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Settlement Road												
1	L2	19	10.0	0.107	6.5	LOS A	0.4	3.0	0.55	0.80	0.55	52.4
3	R2	64	10.0	0.107	12.3	LOS B	0.4	3.0	0.55	0.80	0.55	52.7
Approach		83	10.0	0.107	10.9	LOS B	0.4	3.0	0.55	0.80	0.55	52.6
East: Princes Highway												
4	L2	96	10.0	0.338	3.8	LOS A	1.9	14.2	0.10	0.35	0.10	55.8
5	T1	929	10.0	0.338	3.7	LOS A	1.9	14.3	0.10	0.35	0.10	58.1
6u	U	8	10.0	0.338	11.8	LOS B	1.9	14.3	0.10	0.35	0.10	59.5
Approach		1034	10.0	0.338	3.7	LOS A	1.9	14.3	0.10	0.35	0.10	58.0
West: Princes Highway												
11	T1	815	10.0	0.299	3.9	LOS A	1.7	13.2	0.24	0.38	0.24	57.5
12	R2	18	10.0	0.299	9.6	LOS A	1.7	13.0	0.24	0.39	0.24	57.5
Approach		833	10.0	0.299	4.0	LOS A	1.7	13.2	0.24	0.38	0.24	57.5
All Vehicles		1949	10.0	0.338	4.2	LOS A	1.9	14.3	0.18	0.38	0.18	57.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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