

Traffic Impact Assessment

5483 & 5495 Princes Highway, Traralgon

Client
Stable Property Services

Issued
30/07/2025



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1. PREAMBLE

1.1. Introduction

Beveridge Williams has been engaged by Stable Property Services to prepare a Traffic Impact Assessment in support of the rezoning of land to facilitate a potential, future multi-lot residential and commercial development at 5483 Princes Highway and 5495 Princes Highway (the subject site - Hollydale Estate), Traralgon. This 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:

- Review of surrounding road network;
- Road hierarchy considerations;
- Traffic impact considerations;
- Access considerations;
- Design considerations; and
- Other considerations.

1.3. Facts and Matters Relied Upon

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

- Latrobe Planning Scheme;
- Latrobe City Council Public Road Register 2024;
- Future development potential as outlined by the Beveridge Williams planning team;
- Morwell Traralgon Employment Corridor (MTEC) Investment Masterplan (2020);
- Morwell Traralgon Employment Corridor (MTEC) Precinct Masterplan (2018) – Background Report;
- Traralgon West Structure Plan (2013);
- Infrastructure Design Manual (IDM) v5.4;
- Transport Victoria's Speed Zone database;
- Transport Victoria's Road Crash Data database;
- Country Fire Authority (CFA) statutory planning subdivision resources; and
- RMS Guide to Traffic Generating Developments.

1.4. Evolution of this report

The evolution of this traffic impact assessment report is outlined below.

- Version 1 of this report and the associated traffic modelling was prepared to support a planning permit application based on Indicative Development Plan Version 8 (which proposed a lot yield of ~600 lots for the residential component and a total commercial area of approximately 2.14ha).
- Version 2 of this report amended Version 1 to support a s96a planning application based on Indicative Development Plan version 10 (which proposed a lot yield of ~520 lots for the residential component and a similar total commercial area), though the modelling results from Version 1 were conservatively adopted for Version 2 (noting the reduction in lot yield from ~600 lots to ~520 lots).
- This report version (version 3) has been prepared to support the rezoning of the subject site to facilitate a future multi-lot residential and commercial development. The estimated future lot yield is 520 residential lots and a similar sized commercial area noting this is subject to future investigations and discussions with Council. This report version has conservatively adopted the modelling from report version 1. A future potential lot yield of 520 lots (compared to the 600 lots contemplated for the version 1 modelling and subsequently adopted for versions 2 and 3) will result in decreased vehicle movements through the site and onto the external road network, and a lessened traffic impact (approximately 6% less peak hour traffic).

2. PROPOSED REZONING

The following Latrobe Planning Scheme changes outlined in Figure 1 are proposed as part of the proposed rezoning of the subject site.

- General Residential Zone 3 (GRZ3)
- Commercial Zone 1 (CZ1)
- Environmental Audit Overlay
- Development Plan Overlay X (DPOX)



Figure 1: Proposed Latrobe Planning Scheme Amendments (Source: Beveridge Williams)

3. EXISTING CONDITIONS

3.1. Subject Site

The subject site is located at 5483 Princes Highway and 5495 Princes Highway, Traralgon, as shown in Figure 2. The site is located approximately 3.7km southwest from Traralgon.

The site is irregular in shape, and it is predominantly vacant and undeveloped. The site has an approximate frontage of 1.014km to Princes Highway. It has Bradford Drive intersecting with Princes Highway on its southeast corner and Regan Rd running north-south along the northern section of its eastern boundary. Regan Road intersects with Old Melbourne Road further to the north.

Land use adjacent to the subject site on the west, north and east is predominantly residential with sparsely built developments. The surrounding land on the southeast corner of the subject site at Bradford Dr has commercial developments whereas the land to the south of the subject site (i.e., south of Princes Hwy) is farmland.

The subject site occupies a total area of approximately 57.44ha. The subject site locality and surrounding area are provided in Figure 2 below.

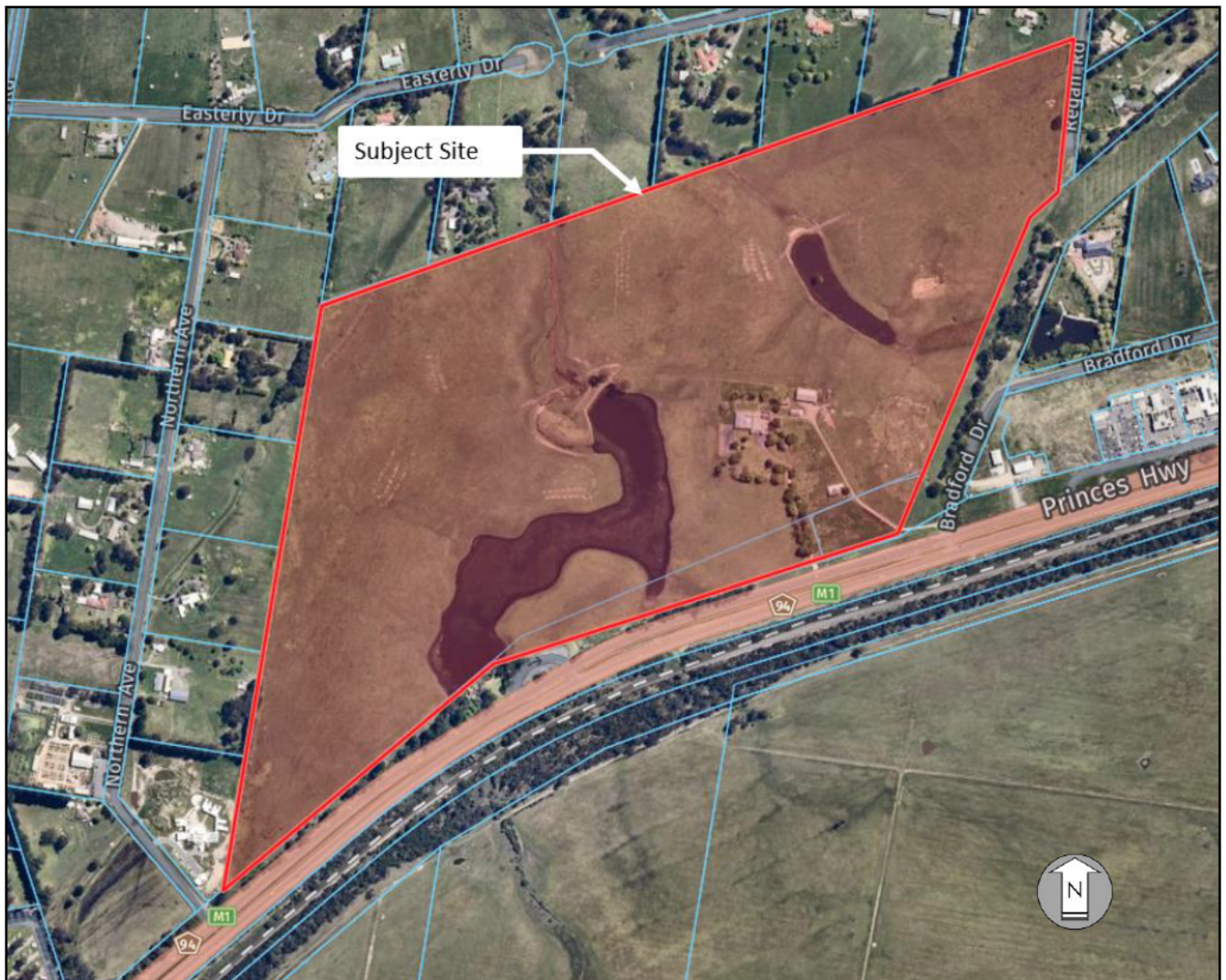


Figure 2: Subject Site Existing Conditions (Source: Nearmap)

3.2. Planning Zones

Located within the Latrobe Shire, the subject site is zoned as Farming Zone (FZ1). Other zones surrounding the site are Public Use Zone 3 on the southwest corner, Rural Living Zone (RLZ1) on the western and northern sides, Low Density Residential Zone (LDRZ) on the eastern side, and Special Use Zone (SUZ2) on the southeast corner of the site. To the immediate south of the subject site, there is a multi-modal transport corridor consisting of State Transport Infrastructure (TRZ1) containing the Gippsland railway line and Principal Road Network (TRZ2) containing the Princes Highway. Further to the south of this transport corridor, the land is zoned as Farming Zone (FZ1).

Figure 3 below shows the planning zones surrounding the subject site as per VicPlan.

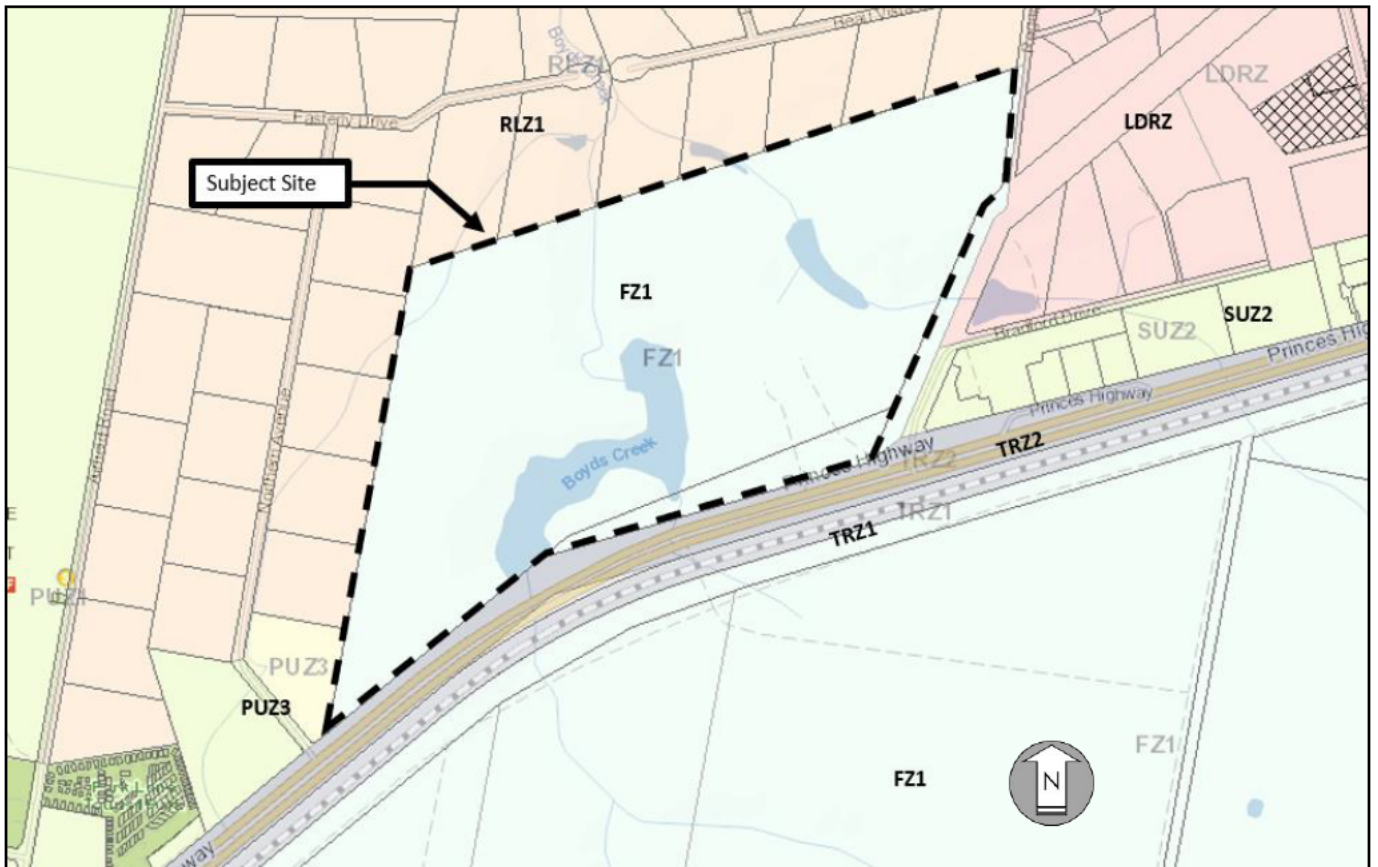


Figure 3: Planning Zones within the vicinity of the subject site (Source: VicPlan)

3.3. Traralgon West Structure Plan

The Traralgon West Structure Plan (TWSP) was a key guiding document designed to shape the future development of a significant area of land strategically located between Morwell and Traralgon. Traralgon West Structure Plan identifies the subject site as a strategic residential site.

It is noted that the TWSP depicts the southeast corner of the subject site as the location of a local activity centre (LAC) and that Bradford Dr falls within the green movement corridor in the structure plan. Therefore, while the TWSP informed the creation of the MTEC Investment Masterplan, it has been somewhat superseded by it.

It is noted that the TWSP (2013) superseded the Traralgon-Morwell Corridor Concept Plan (2007) due to the selection of the northernmost alignment for the future potential Traralgon Bypass.

An excerpt of the Traralgon West Structure Plan is shown in Figure 4 below.

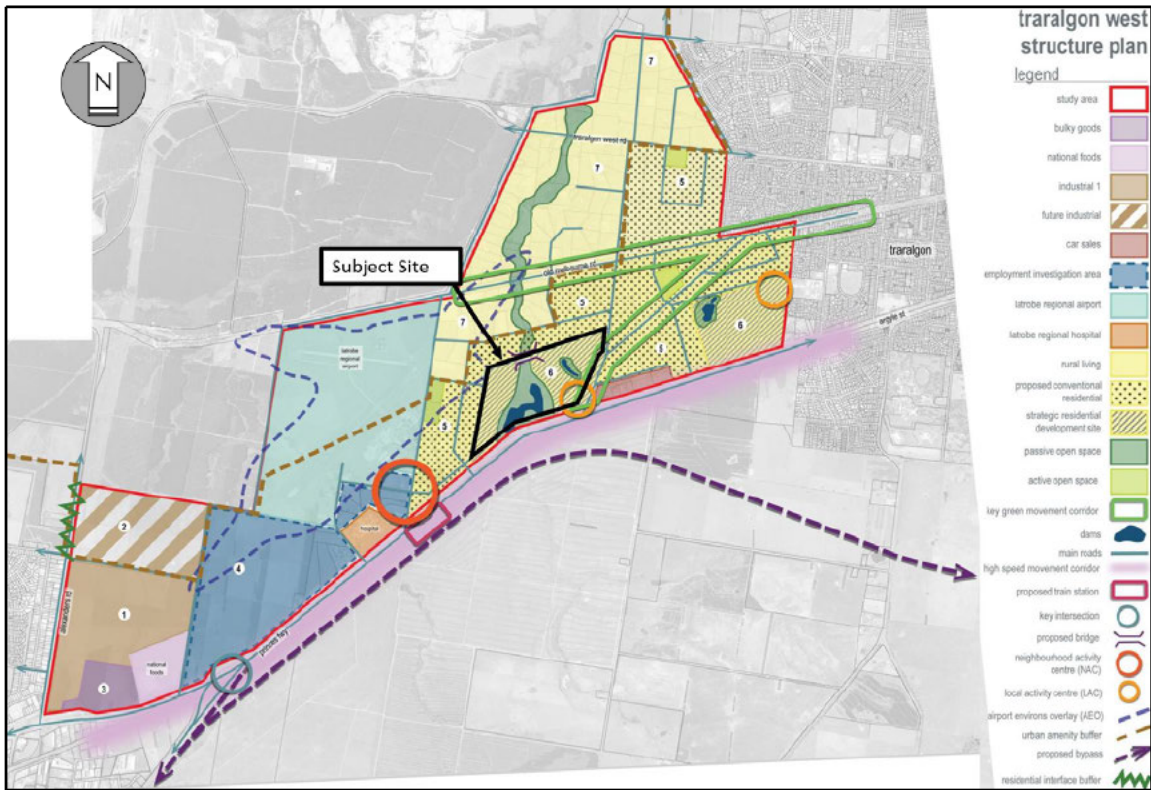


Figure 4: Traralgon West Structure Plan (TWSP)

The TWSP includes access and movement related direction for future growth of the area where the subject site is located. Figure 5 below shows this plan with respect to the subject site.

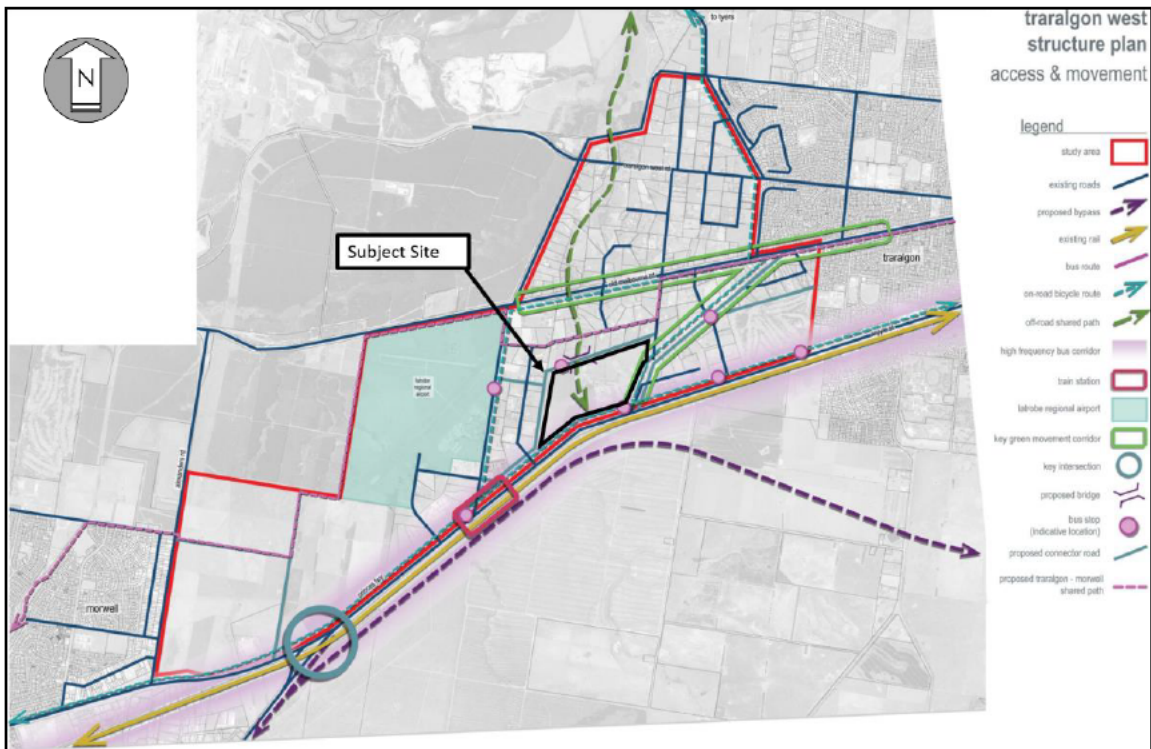


Figure 5: TWSP Access and Movement

TWSP proposes future connector roads on the western and northern boundaries of the subject site. The eastern boundary is also proposed for a partial connector road that would link to Old Melbourne Rd as shown in Figure 5.

3.4. Morwell Traralgon Employment Corridor (MTEC) Investment Masterplan

The Morwell-Traralgon Employment Corridor Investment Masterplan represents Stage 2 of the MTEC Investment Masterplan project, building on the Background Report (2018) as well as the TWSP.

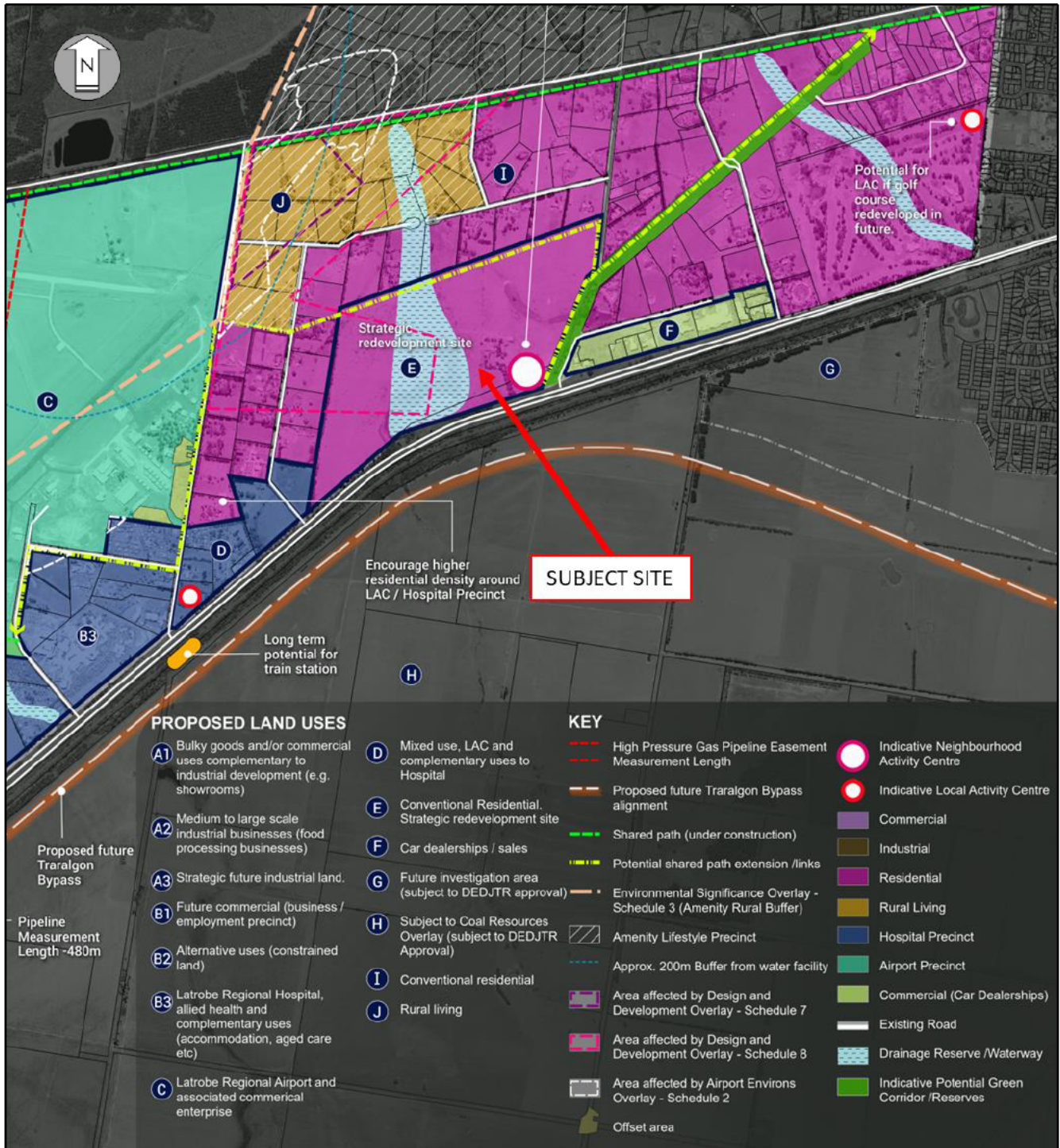


Figure 6: Proposed Land Uses (MTEC Investment Masterplan excerpt)

The following key points are highlighted in regard to the MTEC Investment Masterplan:

- Signalisation of the existing intersection of Bradford Drive and Princes Highway associated with the location of the Neighbourhood Activity Centre (NAC) and the southern nexus of Precinct E/F. This is classified as a short-term catalyst project (as per the Masterplan).
- New connector roads along the eastern and northern boundaries of the subject site, and standardisation of the southern section of Northern Avenue to a connector street standard are proposed by the Masterplan.

- It is noted that the TWSP (superseded) proposed a new connector road parallel and slightly offset to the subject site's western boundary in lieu of upgrading Northern Avenue.
- Future channelised left and right turn treatments on Old Melbourne Road.
- Suggestion of a potential shared path along the northern boundary of the subject site.
- The NAC at the corner of Princes Highway and Bradford Drive will be developed to meet residential demand in the east. The development of the NAC is classified as a short-term catalyst project.
 - It is noted by the Masterplan report that the NAC should consist of a full line supermarket, specialty shops and ancillary commercial floorspace of the type typically provided in a residential growth area.
 - The MTEC suggests that a service station, and take-away food outlets be located in Precinct F. However, it is also proposed within this report that these uses could be co-located with the NAC, i.e., within Precinct E.
- Infrastructure funding will be the responsibility of developers, Council, and service agencies. One of the key findings from the Traffic and Transport Review conducted by the Traffix Group (Appendix D, MTEC Background Report) was that mitigating works on Princes Highway will have a level of "external" demand, with a proportion of associated infrastructure costs funded by the relevant road authority.
- Shared path connections to the NAC will be facilitated by the collector road network.
- The MTEC Investment Plan anticipates that the existing four lane (two lanes each way) configuration of Princes Highway will be sufficient to accommodate the ultimate version of the MTEC, subject to timely construction of the Traralgon Bypass. It also anticipated that, subject to the provision of channelised turn lane treatments, that Old Melbourne Road will be adequate to cater for future volumes without requiring duplication or incurring a speed limit reduction.
- The MTEC Investment Plan states that any proposed signalised intersection on Princes Highway east of National Road would need to occur after the Traralgon Bypass is established.
 - Intersection options for the NAC and Bradford Drive include signalling Bradford Drive or signalling the entrance to the NAC and converting Bradford Drive to a left-in/left-out arrangement.
 - However, it is noted that the timeline of the construction of the Traralgon Bypass is largely unclear (with no timing provided by the Department of Transport and Planning/Transport Victoria) and if development is to proceed in Precinct E, the intersection of Bradford Drive and Princes Highway may have to be signalised before the Bypass is finished.
- There is potential for a train station along the Gippsland railway line within proximity to the subject site.
- Figure 7 depicts the proposed transport and movement infrastructure of the MTEC.
 - The shared path along Old Melbourne Road has been constructed.
 - A connector road along the orientation of Regan Road and extending southwards.
 - A connector road following the centreline of the Bradford Drive road reserve and extending northwards.
 - A connector road and potential shared path aligned with the existing orientation of Coopers Road and extending to the eastern boundary of the subject site/Precinct E. This would then form a T-intersection with the Regan Road connector road. To the south-west of this proposed T-intersection, the Coopers Road connector road and the Bradford Drive connector road would link up and form a bend.
 - An indicative signalised intersection at Bradford Drive and Princes Highway.
 - Indicative Channelised Left and Right Turn treatments at Regan Road / Old Melbourne Road intersection.
 - A connector road (and the required bridge crossing) would straddle the northern boundary of the subject site.
- The timing of Precinct E is within the next 20 years. Precinct I would be developed within the next 20-40 years.
- The signalised intersection upgrade of Bradford Drive and Princes Highway could be a cost-share item with the developers in the surrounding precincts.

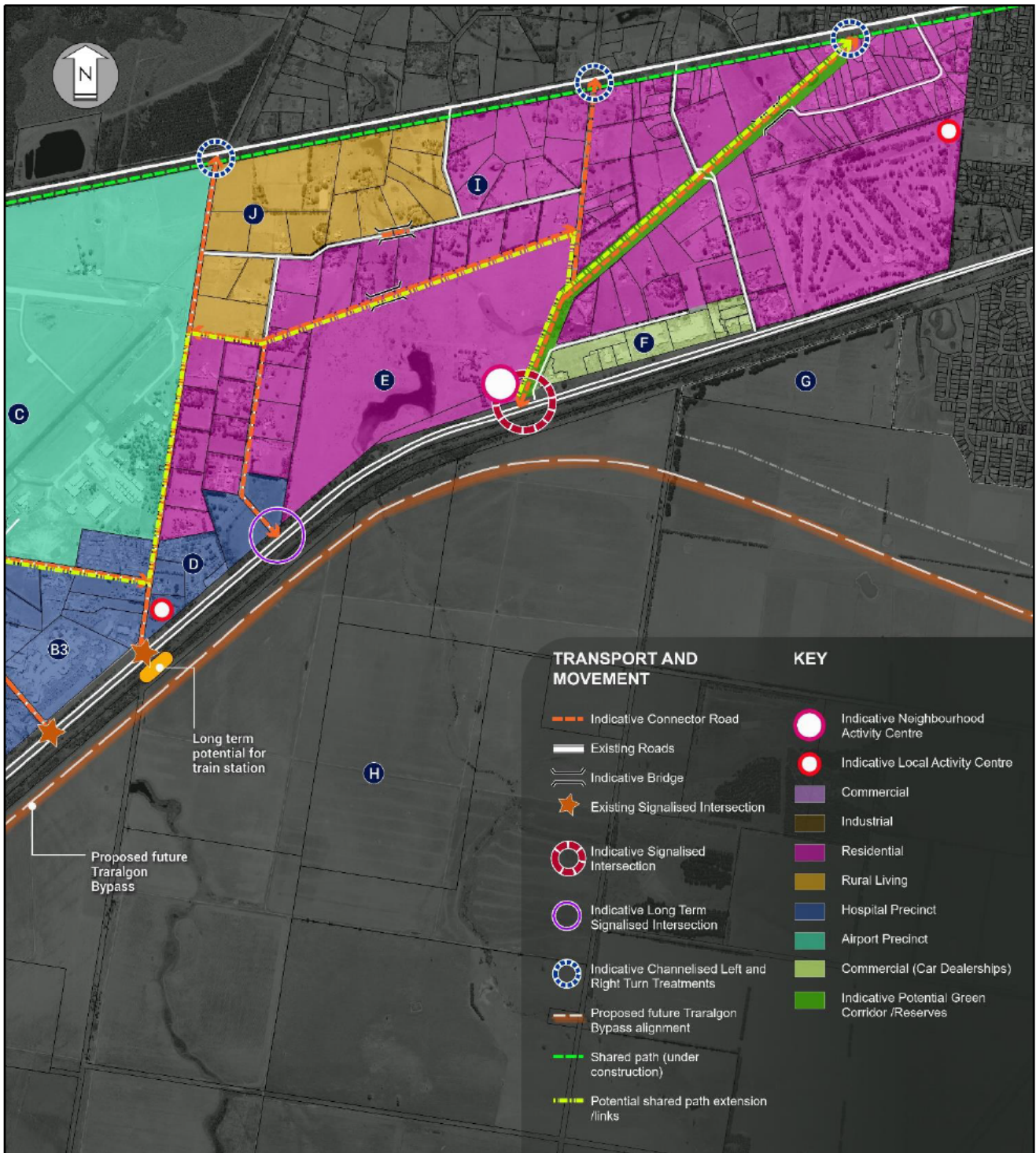


Figure 7: Proposed Transport and Movement Infrastructure (MTEC Investment Masterplan excerpt)

3.5. Road Network

The existing road network in the vicinity of the subject site is shown in Figure 8 below. Descriptions of the key external roads shown in Figure 8 are also provided below.

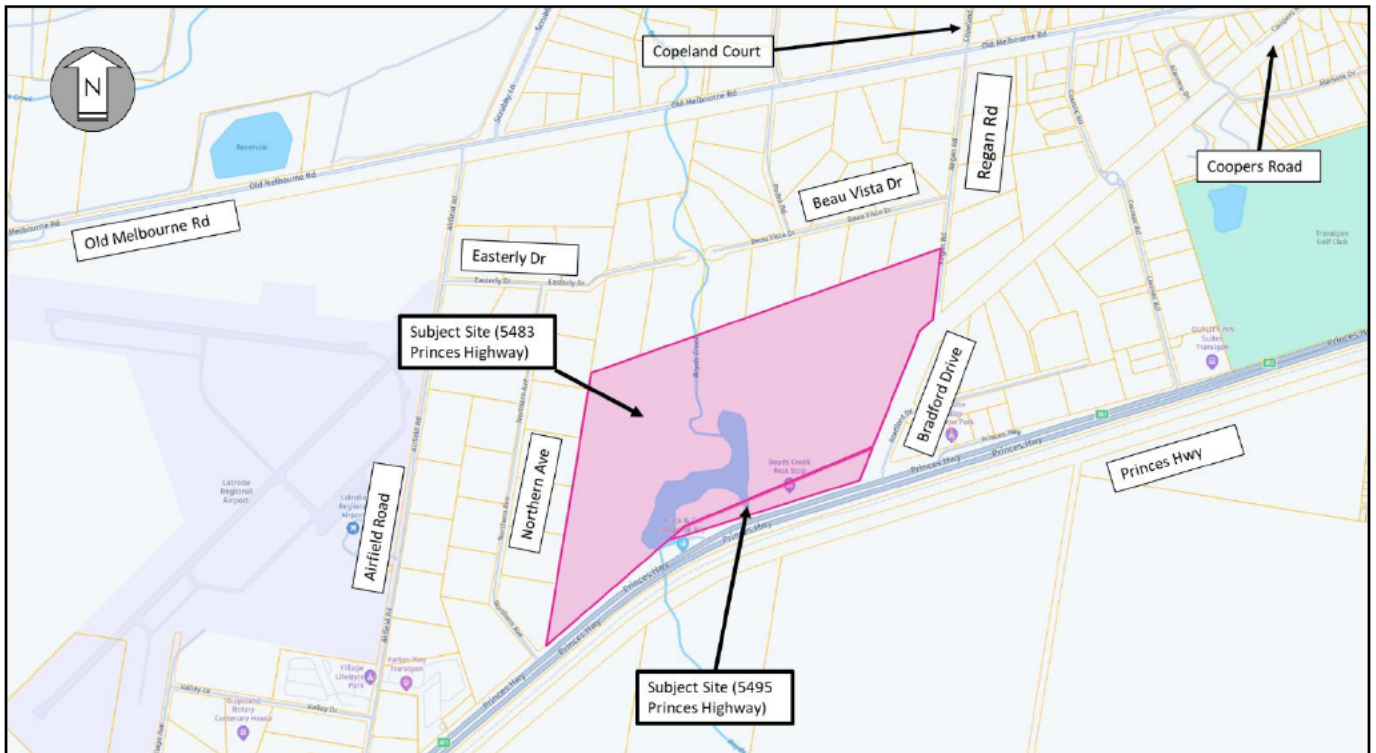


Figure 8: External Road Network in the vicinity of the subject site (Source: Nearmap)

Princes Highway

Princes Hwy forms the southern boundary of the subject site. Princes Hwy is an arterial road under the management of Department of Transport and Planning. It consists of a dual carriageway with two lanes in each direction, with a wide median near the subject site. It is contained within an approximately 60m-wide road reserve. In the vicinity of the subject site, the westbound traffic lanes have a 100km/h speed limit and the eastbound traffic lanes have an 80km/h speed limit.

Bradford Drive

Bradford Dr is a local road that falls under the management of Latrobe City Council. It is aligned in a north-south manner and intersects with Princes Hwy as shown in Figure 8. Bradford Dr forms the south-eastern boundary of the subject site for about 217m and then runs approximately 530m east before terminating as a dead end. It is a single lane two-way sealed carriageway and has an unposted speed limit of 50km/h per Transport Victoria's Speed Zone database.

As per the MTEC Masterplan, the north-south section of Bradford Drive is proposed to be upgraded to a connector road standard.

Regan Road

Regan Rd is a local road that falls under the management of Latrobe Council. It is aligned in a north-south manner and forms the southern leg of the cross-intersection with Old Melbourne Rd and Copeland Court as shown in Figure 8. Currently, Regan Rd has a total length of approximately 708m, out of which its southern section forms the boundary of the subject site for about 285m. Regan Rd is currently a dead end on its southern section and has an unposted speed limit of 50km/h per Transport Victoria's Speed Zone database.

Old Melbourne Road

Old Melbourne Rd is a link road (per Latrobe City Council's Public Road Register) that falls under the management of Latrobe City Council. It is generally aligned in an east-west manner and intersects with Regan Rd and Copeland Ct as shown in Figure 8. It is a sealed road with a single lane in each direction and provides Traralgon-Morwell connectivity for the area to the north of the subject site. Old Melbourne Rd is designated as an 80km/h speed zone in the vicinity of its intersection with Regan Rd.

Table 1 below summarises the details of the roads discussed above as well as other roads in the vicinity.

Table 1: Road Network

Road Name	Reserve (approx.)	Carriageway (approx.)	Future Proposal
Princes Hwy	62m (varies)	2x10.5m	-
Bradford Dr	60m	6.7m	Connector Road (for north-south section)
Regan Rd	20m	4.7m	Connector Road
Old Melbourne Rd	60m	7m	Part of the Traralgon-Morwell Shared Path corridor
Northern Ave	20m	5.5m	Connector Road
Easterly Dr	20m	6m	Bridge crossing connecting to Beau Vista Rd
Beau Vista Dr	20m	5.5m	Bridge crossing connecting to Easterly Dr

3.6. Existing Travel Behaviour

A review of existing travel behaviour has been undertaken as shown in Table 2. The table provides a comparison of journey to work data (place of work) for employees in Traralgon where the subject site is located. The mode share information is based on 2016 ABS Census data. It is noted that 80% of the residents in Traralgon use vehicles as a mode of transport to commute to their place of work.

It is noted that the percentage of people who work from home would have likely increased since this survey was undertaken.

Table 2: Existing Travel Behaviour

Travel Mode	Percentage
Public Transport	1.90%
Vehicle	80.08%
Active Transport	2.64%
Other Mode	0.49%
Worked at home*	13.99%
Mode not stated	0.92%
Total	100%

*Includes persons who stated they did not go to work'

Table 3: O/D Data from Journey to Work data

Traralgon ABS Census Data		
Destination	Travel Direction	%
OD1	Melbourne	8
OD2	Yallourn/Morwell/Moe	26
OD3	Mansfield	1
OD4	Traralgon/Sale	64
Total		100

3.7. Pedestrian and Bicycle Connectivity

The Morwell to Traralgon shared pathway has been constructed, which will allow for safe bicycle and pedestrian trips between Morwell and Traralgon, as well as for safe trips from and to destinations along the route. Within the vicinity of the subject site, it follows the alignment of Old Melbourne Road.

Within the vicinity of the subject site, there is substantial commercial development to the east. However, most of the businesses are car dealerships. The subject site is a substantial distance from both Traralgon and Morwell. Therefore, it is unlikely that the subject site will generate many external pedestrian trips, particularly until the other planned developments to the north and west have been completed.

3.8. Public Transport

The public transport network in the vicinity of the subject site is shown in Figure 9 and detailed in Table 4.

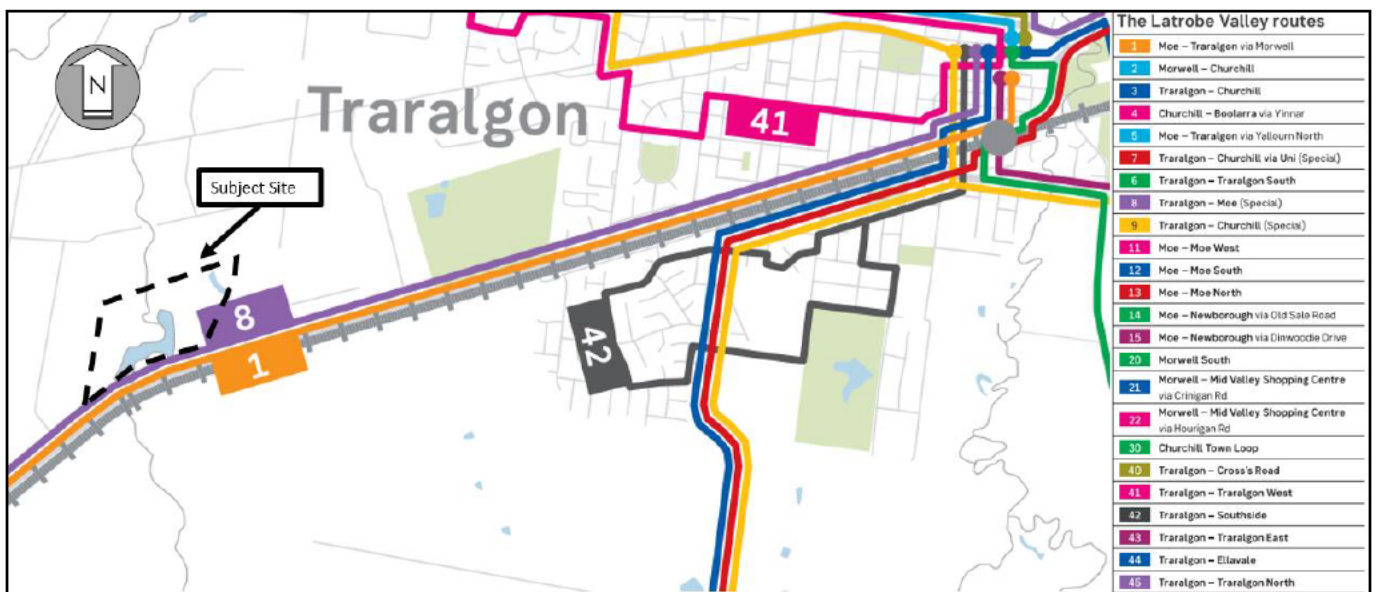


Figure 9: Traralgon Public Transport Network Map (Source: PTV)

Routes 1 and 8 run between Traralgon, Traralgon station, Morwell, and Moe. The nearest bus stops from the subject site are along Princes Hwy approximately 1km east from Bradford Dr intersection. This is then followed by bus stops on Princes Hwy approximately 1.73kms southwest from Bradford Dr intersection near Airfield Rd. Table 4 below summarises this information.

Table 4: Bus Route Information

Travel Mode	Route No.	Route Description	Nearest Stops
Bus	1	Moe - Traralgon via Morwell	1km east from Bradford Dr Intersection
	8	Traralgon - Moe (Special)	1km east from Bradford Dr Intersection
	1	Moe - Traralgon via Morwell	1.73km southwest from Bradford Dr Intersection
	8	Traralgon - Moe (Special)	1.73km southwest from Bradford Dr Intersection

Table 5 below shows the typical mid-week travel times to the two nearest bus stops from the subject site departing at 8am in the morning on a typical weekday.

Table 5: Travel Time to nearest bus stop

Travel Mode	Bus Route	Nearest Bus Stop	Travel Time
Walking	Routes 1 and 8	Coonoc Rd/Princes Hwy	13 mins
Cycling	Routes 1 and 8	Coonoc Rd/Princes Hwy	3 mins
Car	Routes 1 and 8	Coonoc Rd/Princes Hwy	1 min

In future, Traralgon West Structure Plan has identified two potential bus stop locations that are close to the subject site. The structure plan shows one bus stop at Bradford Dr/Princes Hwy intersection and the other near the northwest corner of the subject site. Figure 5 shows the indicative location of these bus stops. Given the uncertain nature of the surrounding developments, these bus stops could potentially be provided in a medium-long term timeframe.

3.9. Traralgon Bypass

The following points relate to the proposed Traralgon Bypass:

- The Traralgon Bypass is a proposed Bypass Route to redirect heavy vehicles and passing traffic from the existing formation of Princes Highway (which passes through the Traralgon town centre).
- The State Government has nominated the northernmost alignment for the future Traralgon Bypass.
- Currently, there is no indication that the Traralgon Bypass is likely to proceed in the near future, such that it can be reasonably accounted for in our traffic analysis.
 - Per Transport Victoria’s website, “planning for the bypass can continue once critical information about the rehabilitation of the Loy Yang Mine becomes available.”
- The current State Government funding environment is largely uncertain.
- There will be a significant time from any announcement of funding commitments to when it is opened.
- The Traralgon Bypass will likely reduce the number of light and heavy throughbound vehicle movements along the existing section of Princes Highway in proximity to the site. This would result in improved operation of Bradford Road and Princess Highway intersection and all access points to/from Princes Highway interfacing with the site.
- Considering that it is likely that the Traralgon Bypass will not occur within the ultimate timeframe for the development of the subject site, a 10-year growth scenario with a 2.0% compound growth rate has been adopted to assess the impact of future traffic movements on the post-development performance of the intersection of Bradford Drive and Princes Highway.

4. EXISTING TRAFFIC CONDITIONS

4.1. Traffic Surveys

To understand existing traffic conditions in the vicinity of the subject site, traffic volume surveys were undertaken on behalf of Beveridge Williams. Surveys were undertaken at the following key intersections in the vicinity of the subject site at the following times:

- Intersection of Bradford Drive and Princes Highway on Thursday 1st September 2022, between 7am to 7pm.
- Intersection of Regan Road, Old Melbourne Road, and Copeland Court on Thursday 27th October 2022, between 7:00am and 7:00pm

The survey locations are shown in Figure 10.

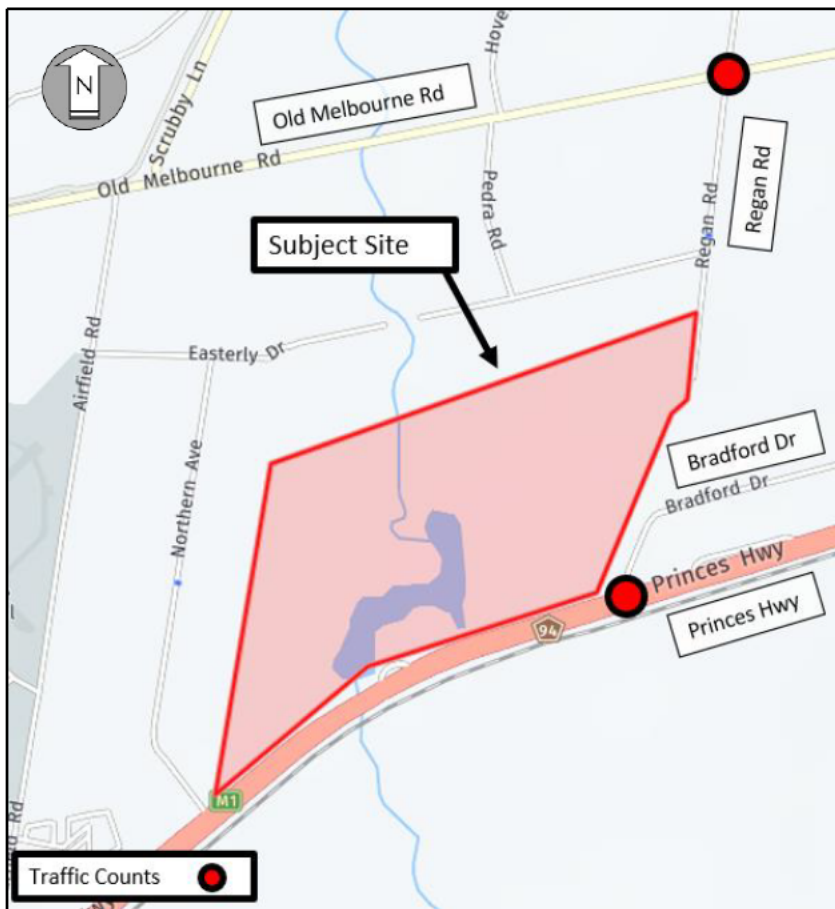


Figure 10: Traffic Count Locations (Nearmap)

4.2. Peak Hour Traffic Volumes

Based on the data from the traffic surveys, the peak hour for morning and afternoon was determined. The timing of the afternoon peak hours for each site were found to be slightly different. This information is presented in Table 6 below.

Table 6: Morning and Afternoon Peak Hours

Site	AM Peak	PM Peak
Princes Hwy/Bradford Dr	8:00am – 9:00am	4:30pm – 5:30pm
Old Melbourne Rd/Regan Rd/Copeland Ct	8:00am – 9:00am	4:15pm – 5:15pm

The existing AM and PM peak hour turning movements for each intersection are shown in Figure 11 and Figure 12 below.

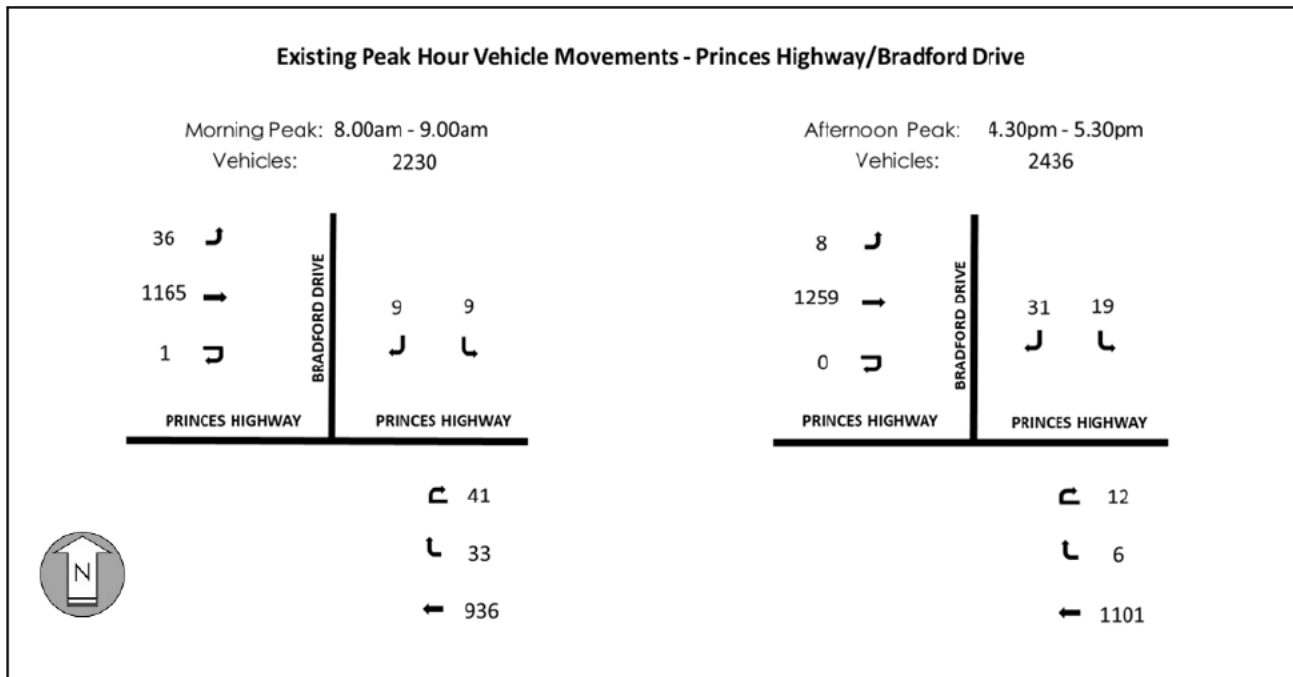


Figure 11: Existing AM and PM Peak Hour Turning Movements [Princes Highway and Bradford Drive]

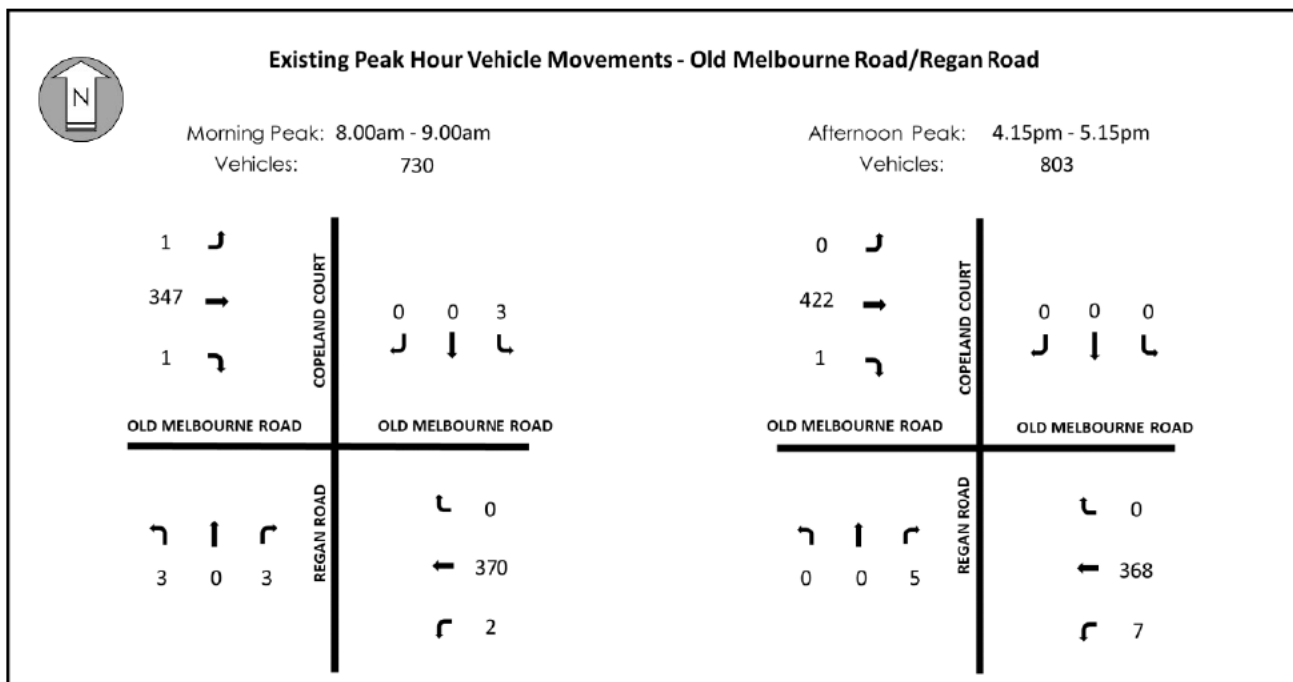


Figure 12: Existing AM and PM Peak Hour Turning Movements [Old Melbourne Road and Regan Road]

4.3. Peak Hour Intersection Performance

Based on the surveyed traffic volumes, an assessment of the current operation of the intersections was carried out by way of SIDRA analysis.

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;
- 95th percentile queue length.

Table 7 below shows the SIDRA Intersection parameters used in this study.

Table 7: SIDRA Intersection Parameters

Parameter	Description
Degree of Saturation	<p>Degree of saturation (DoS) 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:</p> <ul style="list-style-type: none"> • 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 <p>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.</p>
Average Delay (seconds)	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.
95 th Percentile Queue	The 95th percentile queue represents the maximum queue length in metres expected in 95% of queues during the peak hour.

It is noted that the Department of Transport and Planning (DTP) outlines the target desirable and maximum degree of saturation (DoS) values of the critical movement as follows:

- At signalised intersections,
 - 0.9 (desirable) and 0.95 (maximum)
- At un-signalised intersections,
 - 0.80 (desirable) and 0.85 (maximum)

The existing unsignalised intersection of Princes Highway and Bradford Drive has been modelled using two networked unsignalised intersections within the SIDRA software package to reflect the existing geometric design of the intersection (i.e. a wide-median unsignalised T-intersection). The 'northern' and 'southern' intersections have been setup as a cross- and t-intersection respectively. Although the intersections have been setup separately, they have been linked together to act as a connected network. The legs for each intersection are listed in Table 8.

Table 8: Bradford Drive and Princes Highway Intersection SIDRA Setup

Northern Intersection		Southern Intersection	
Approach Leg	Road Name	Approach Leg	Road Name
North	Bradford Drive	North	Median break
East	Princes Highway (Exit Lanes Only)	East	Princes Hwy (Approach Lanes Only)
West	Princes Hwy (Approach Lanes Only)	West	Princes Highway (Exit Lanes Only)
South	Median break	South	-

The results of the analysis of the existing conditions for the Princes Highway / Bradford Drive intersection are provided in Table 9.

As shown below, the intersection of Princes Highway / Bradford Drive is currently operating under 'Excellent' conditions with reasonable queues and delays experienced by motorists during the morning and afternoon peak hours.

Table 9: Princes Highway/Bradford Drive Intersection Performance (Existing Conditions)

Northern Section of Intersection			
Approach	DoS	Avg Delay (sec)	Queue (m)
AM Peak			
Bradford Drive (N)	0.027	11.7	0.7
Median Break (S)	0.233	18.6	5.7
Princes Highway (W)	0.331	2.2	0.0
PM Peak			
Bradford Drive (N)	0.080	12.4	0.9
Median Break (S)	0.051	17.9	0.5
Princes Highway (W)	0.358	2.1	0.0
Southern Section of Intersection			
Approach	DoS	Avg Delay (sec)	Queue (m)
AM Peak			
Median Break (N)	0.031	10.8	0.7
Princes Highway (E)	0.268	0.6	1.5
PM Peak			
Median Break (N)	0.132	15.7	1.3
Princes Highway (E)	0.315	0.2	0.1

The results of the analysis of the existing conditions for the Old Melbourne Road / Copeland Court / Regan Road intersection are provided in Table 10.

As shown below, the intersection of Old Melbourne Road / Copeland Court / Regan Road is currently operating under 'Excellent' conditions with reasonable queues and delays experienced by motorists during the morning and afternoon peak hours.

Table 10: Old Melbourne Road/Copeland Court/Regan Road Intersection Performance (Existing Conditions)

Approach	DoS	Avg Delay (sec)	Queue (m)
AM Peak			
Copeland Court (N)	0.003	7.3	0.1
Old Melbourne Road (E)	0.205	0.1	0.0
Regan Road (S)	0.010	11.2	0.2
Old Melbourne Road (W)	0.193	0.1	0.1
PM Peak			
Copeland Court (N)	0.001	7.7	0.0
Old Melbourne Road (E)	0.207	0.2	0.0
Regan Road (S)	0.014	14.3	0.3
Old Melbourne Road (W)	0.233	0.0	0.1

4.4. Existing traffic volumes

The intersection turning movement counts at the survey locations are listed in Appendix B.

5. PROPOSAL

5.1. General

It is proposed to rezone the subject site from Farming Zone (FZ) to General Residential Zone 3 (GRZ3) and Commercial Zone 1 (CZ1). For the purpose of assessing the potential future development of land for a future multi-lot residential and commercial development, a conservative residential lot yield of 600 lots (noting that a yield of 520 lots is more realistic) and a commercial area of approximately 2.143ha (generally reflective of the proposed extent of the CZ1 area) have been adopted. The intent of these figures is to provide a general overview of the traffic impacts of potential future development of the site subsequent to and in line with the proposed rezoning.

The residential and commercial areas are anticipated to align with the proposed zones shown in Figure 13.

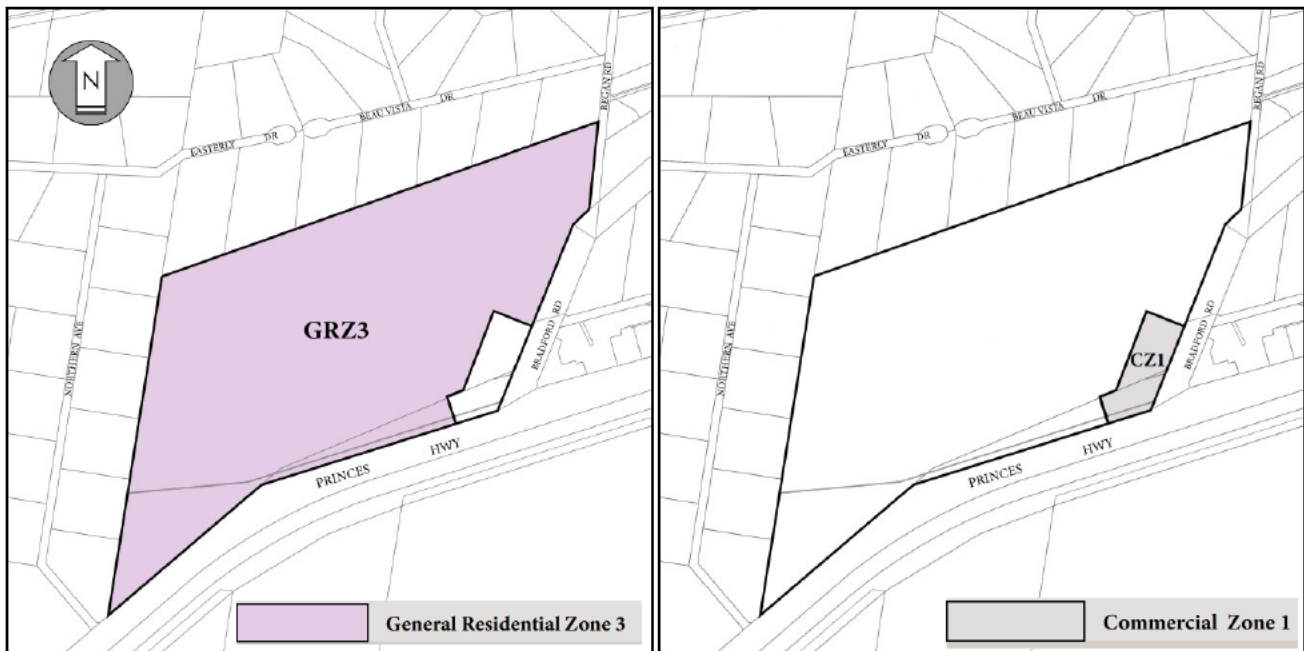


Figure 13: Location of residential and commercial development within subject site (Source: Beveridge Williams)

5.2. Internal Roads

5.2.1. Road Network Hierarchy

As part of any future development of the site, the internal road network (including the reserve and carriageway widths) will be provided as per IDM. The internal street network would most likely consist of access streets with 20m, 16m, and 14.5m reserves, and connector streets with 24m and 21m reserves.

5.2.2. Road Cross Sections

Figure 14 to Figure 19 show the likely cross-sections for internal streets for any potential future development of the site per the IDM specifications.

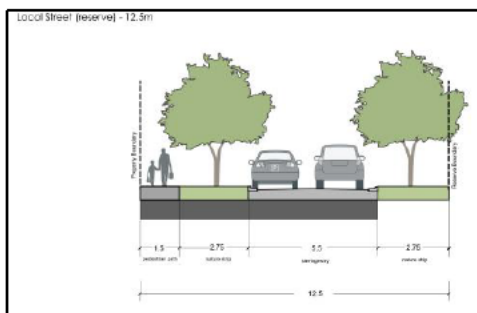


Figure 14: Indicative Access Lane Cross-Section (12.5m)

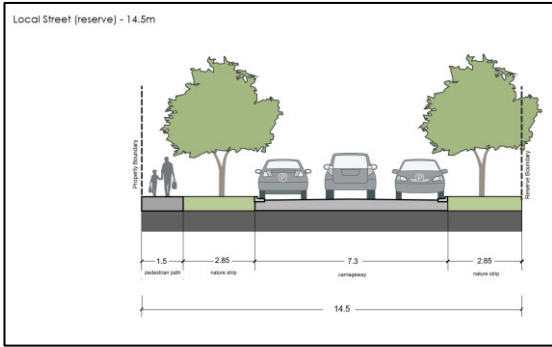


Figure 15: Indicative Access Street Cross-Section (14.5m)

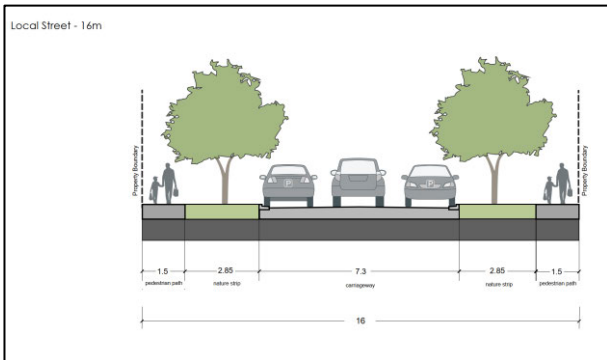


Figure 16: Indicative Access Street Cross-Section (16m)

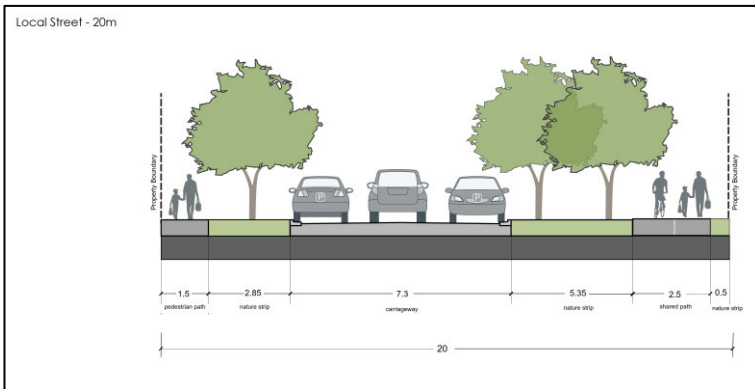


Figure 17: Indicative Access Street Cross-Section (20m)

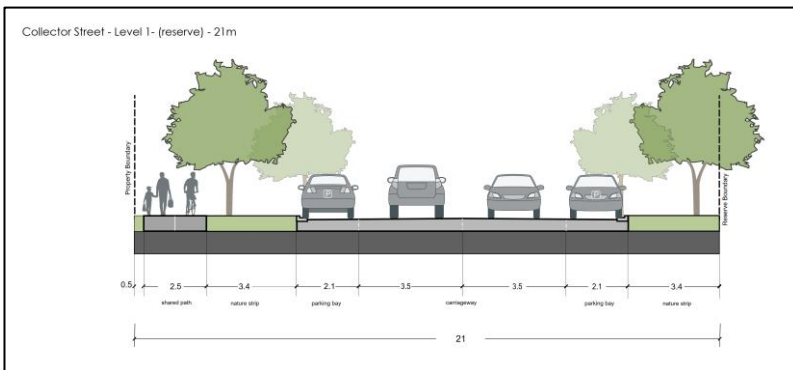


Figure 18: Indicative Connector Street Cross-Section (21m)

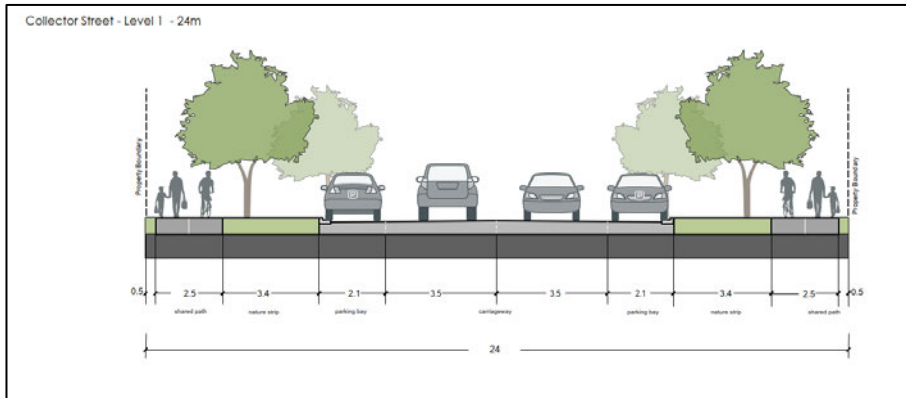


Figure 19: Indicative Connector Street Cross-Section (24m)

5.2.3. Service Vehicle Manoeuvrability

It is anticipated that the internal road designs and widths for any future development will be designed to be consistent with the IDM and accommodate 8.8m service vehicles for waste collection.

Where vehicle circulation is not possible or constrained in the interim, court bowls will be provided. The court bowls will be designed in accordance with the IDM and provide for a minimum of 10m radii to meet CFA requirements.

For the lots fronting onto Access Lanes, occupants will be required to wheel their bins to a frontage road for bin collection. The bin transfer distances will need to generally comply with Sustainability Victoria requirements of 40m.

5.2.4. Emergency Vehicle Access

The dimensions of the streets will need to meet CFA requirements. Any future, potential development would be required to ensure the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire. All stages of the development will require appropriate emergency vehicle access.

5.3. Department of Transport and Planning (DTP) Site Access Considerations

The residential and commercial access locations to Princes Highway, and the commercial access to Bradford Drive have been designed to incorporate comments provided from DTP.

Historical discussions with DTP have highlighted the following:

- Left-in/ left-out only access point will be approved to Princes Highway for residential uses.
- A left in only access point to the commercial area will be approved from Princes Highway. Exit movements from the commercial area are required to access Bradford Drive (not Princes Highway).
- It has been considered by DTP to remove the rest area to the east of the proposed left in/left out residential access due to underutilisation and maintenance issues.

5.4. Ultimate Site Access Arrangements

A general overview of the likely ultimate access arrangements for the potential, future development of the site is as follows, noting that all access arrangements will need to be approved by the relevant road authority.

- One (1) left-in/ left-out access along Princes Highway located west of the existing waterway and servicing the residential lots in the western and central areas of the subject site.
- One (1) left-in access along Princes Highway to the commercial area.
 - The appended concept plan which shows a left-out was prepared prior to discussions with DTP.
- A four-leg roundabout to service the existing east and south legs of Bradford Drive, the future continuation of the connector road to the north and the main eastern site access.

- Commercial access arrangements to the Bradford Drive connector street between Princes Highway and the roundabout for any potential, future development will be determined as part of the associated planning permit application.
- Facilitation for a future connector-connector intersection on the site's northeast corner.
- Facilitation for a future connector-connector intersection for the continuations of Bradford Drive and Coopers Road.
- Princes Highway / Bradford Drive signalisation.

These upgrades are anticipated to benefit any future, potential development and the precinct as a whole.

Figure 20 below shows the ultimate site access arrangements.

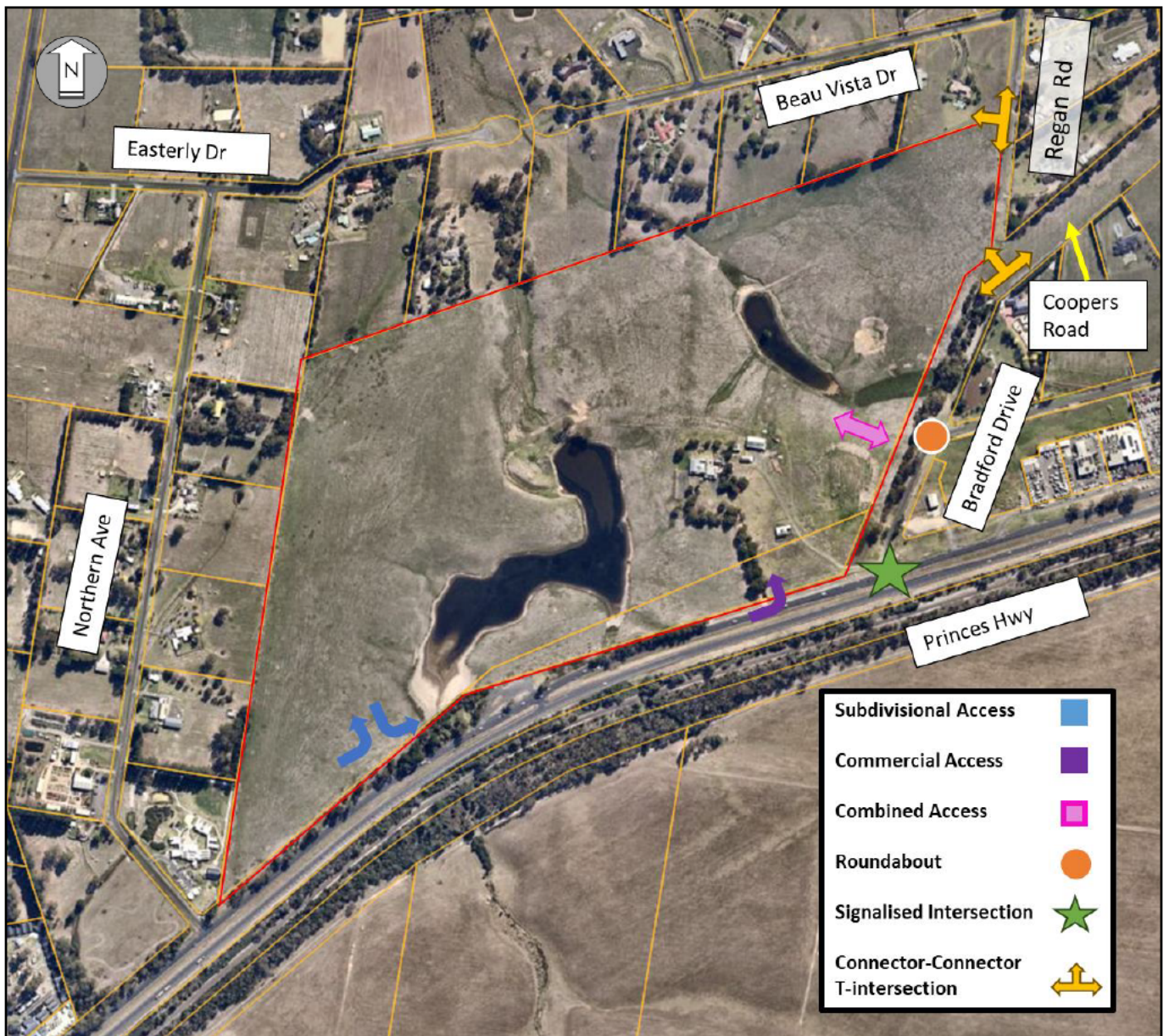


Figure 20: Ultimate Site Access Arrangements

5.5. Car Parking Considerations

Any future development will be required to provide car parking at the appropriate rates for the residential and commercial components, either as outlined in Clause 52.06 or justified via car parking demand analysis. The following sections present an overview of the anticipated parking demands any future development would likely entail.

5.5.1. Residential Use Parking

As the subject site is located outside of the Department of Environment, Land, Water and Planning's Principal Public Transport Networks (PPTN), the car parking rates are subject to Column A rates of Table 1 Clause 52.06-5 of Latrobe Planning Scheme. For residential dwellings and visitor parking, the following rates apply.

Table 11: Residential Parking

Use	Rate	Statutory Parking Rate
Residential Dwelling	1	To each one- or two-bedroom dwelling, plus
	2	To each three or more-bedroom dwelling (with studies or studios that are separate rooms counted as a bedrooms) plus
	1	For visitors to every 5 dwellings for developments of 5 or more dwellings

The following points are made regarding the residential statutory parking requirements:

- It is recommended that car parking for dwellings is provided at the above rates with 1 car space for 1 and 2-bedroom dwellings and 2 car spaces for 3 or more-bedroom dwellings.
- A potential future development of 520 residential lots would require 104 visitor parking spaces based on the requirement of 1 visitor park for every 5 dwellings.
- Adequate street frontage lengths would need to be provided to meet the visitor car parking space requirements.

5.5.2. Commercial Use Parking

Table 12 lists the carparking requirements based on Clause 52.06 of the Latrobe Planning Scheme and an estimated scope of future commercial development. As the future nature of the commercial development is subject to change, gross floor area has been considered where required and as such reflects a conservative number that does not consider common and public spaces.

Table 12: Commercial Parking

Use Type	Car-parking rate	Parking Measure	Relevant Use Value	Relevant Use Measure	Statutory Requirement
Food and Drink Premises (Assumed Drive-Through and take away)	4	To each 100m ² of leasable floor area	500	m ² GLFA	20
Convenience Shop (associated with Service Station)	10	To each premises	1	premise	10
Supermarket	5	To each 100 m ² of leasable floor area	3500	m ² GLFA	175
Shop (Pharmacy)	4	To each 100m ² of leasable floor area	500	m ² GLFA	20
Overall	-	-	-	-	225 spaces

As per Table 12 the statutory car parking requirement is for 225 spaces. It is estimated that a dedicated parking area of approx. 7500-8000m² for the commercial section would allow for a total available capacity of approximately 300 spaces, based on a broad rate of 25m² per parking space (including roadside furniture, accessways, offsets etc). These are indicative figures and subject to change based on the proposed scope of any future, potential development.

6. TRAFFIC CONSIDERATIONS

6.1. Future Traffic Growth (Not including any proposed future development)

6.1.1. Future Traffic Volumes at 10-years (not including any proposed future development)

To ensure that the operation of surrounding intersections will perform appropriately into the future, it is considered appropriate to include future traffic volume growth.

For the purposes of a conservative analysis, a compound growth rate of 2% per year has been applied to the existing traffic volumes over a 10-year period to account for future, external traffic growth.

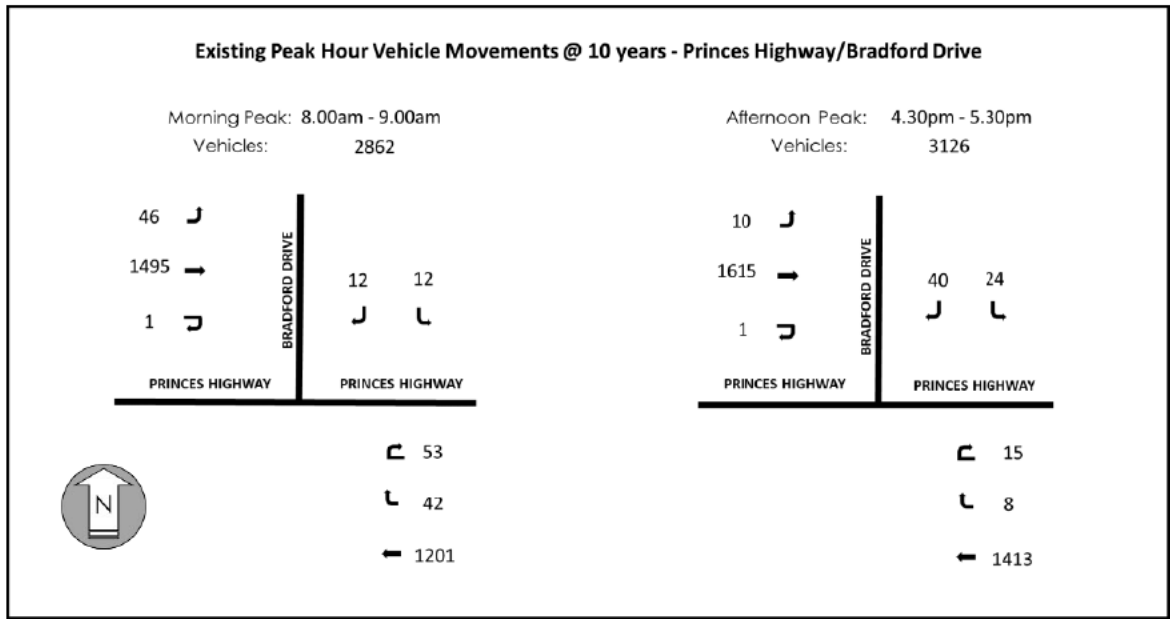


Figure 21: Existing Peak Hour Traffic @ 10 years: Princes Highway / Bradford Drive

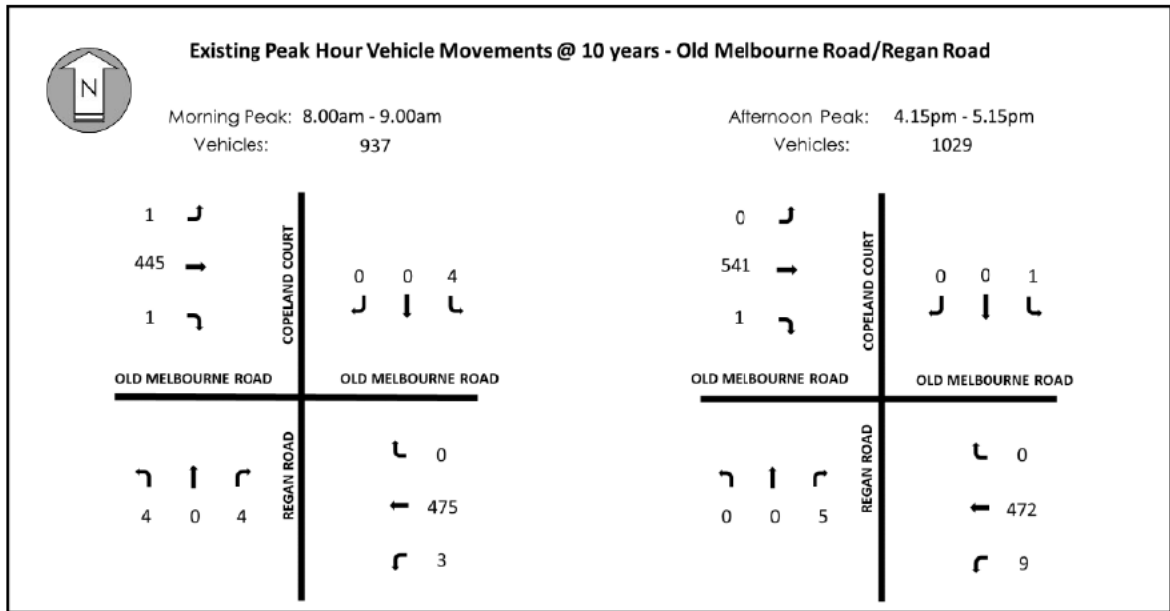


Figure 22: Existing Peak Hour Traffic @ 10 years: Old Melbourne Road / Regan Road

6.1.2. Future Operating Conditions at 10-years (Unsignalised) (not including proposed development)

Table 13 presents the SIDRA results for the existing configuration of Princes Highway / Bradford Drive unsignalised wide-median T-intersection under the existing @ 10 years scenario.

As shown below, the movements at the intersection of Princes Highway / Bradford Drive are anticipated to operate at an 'Excellent' Level of Service (LoS). It is expected that the provisions for future, short-term development in Precinct F (and I) by the MTEC will increase the traffic utilising this intersection, irrespective of whether any potential, future development at the subject site goes ahead.

Table 13: Princes Highway/Bradford Drive SIDRA Operating Conditions (Existing at 10 years, Unsignalised)

Northern Section of Intersection			
Approach	DoS	Avg Delay (sec)	Queue (m)
AM Peak			
Bradford Drive (N)	0.045	13.8	1.1
Median Break (S)	0.553	44.0	14.0
Princes Highway (W)	0.404	2.2	0.0
PM Peak			
Bradford Drive (N)	0.137	15.2	1.4
Median Break (S)	0.131	33.9	1.1
Princes Highway (W)	0.437	2.1	0.0
Southern Section of Intersection			
Approach	DoS	Avg Delay (sec)	Queue (m)
AM Peak			
Median Break (N)	0.057	16.6	1.3
Princes Highway (E)	0.326	0.6	1.8
PM Peak			
Median Break (N)	0.278	30.3	2.6
Princes Highway (E)	0.384	0.3	0.2

Table 14 presents the SIDRA results for the Old Melbourne Road / Regan Road / Copeland Court unsignalised X-intersection under the existing @ 10 years scenario.

As shown below, the intersection of Old Melbourne Road / Regan Road / Copeland Court will continue to operate under 'Excellent' conditions with reasonable queues and delays experienced by motorists during the morning and afternoon peak hours.

Table 14: Old Melbourne Rd/Regan Rd SIDRA Operating Conditions (Existing at 10 years)

Approach	DoS	Avg Delay (sec)	Queue (m)
AM Peak			
Copeland Court (N)	0.004	7.7	0.1
Old Melbourne Road (E)	0.250	0.1	0.0
Regan Road (S)	0.015	12.7	0.4
Old Melbourne Road (W)	0.235	0.1	0.1
PM Peak			
Copeland Court (N)	0.001	8.2	0.0
Old Melbourne Road (E)	0.252	0.2	0.0
Regan Road (S)	0.022	17.7	0.5
Old Melbourne Road (W)	0.285	0.0	0.1

6.1.3. Future Operating Conditions at 10-years (Signalised) (not including proposed development)

Figure 23 depicts the SIDRA intersection layout for a potential signalised arrangement of Princes Highway / Bradford Drive intersection. Unlike the unsignalized intersection, which was modelled as two networked intersections in SIDRA, the signalised operation of Bradford Drive and Princes Highway can be modelled as one intersection in SIDRA. The signalised intersection layout is generally reflective of the existing unsignalised arrangement.

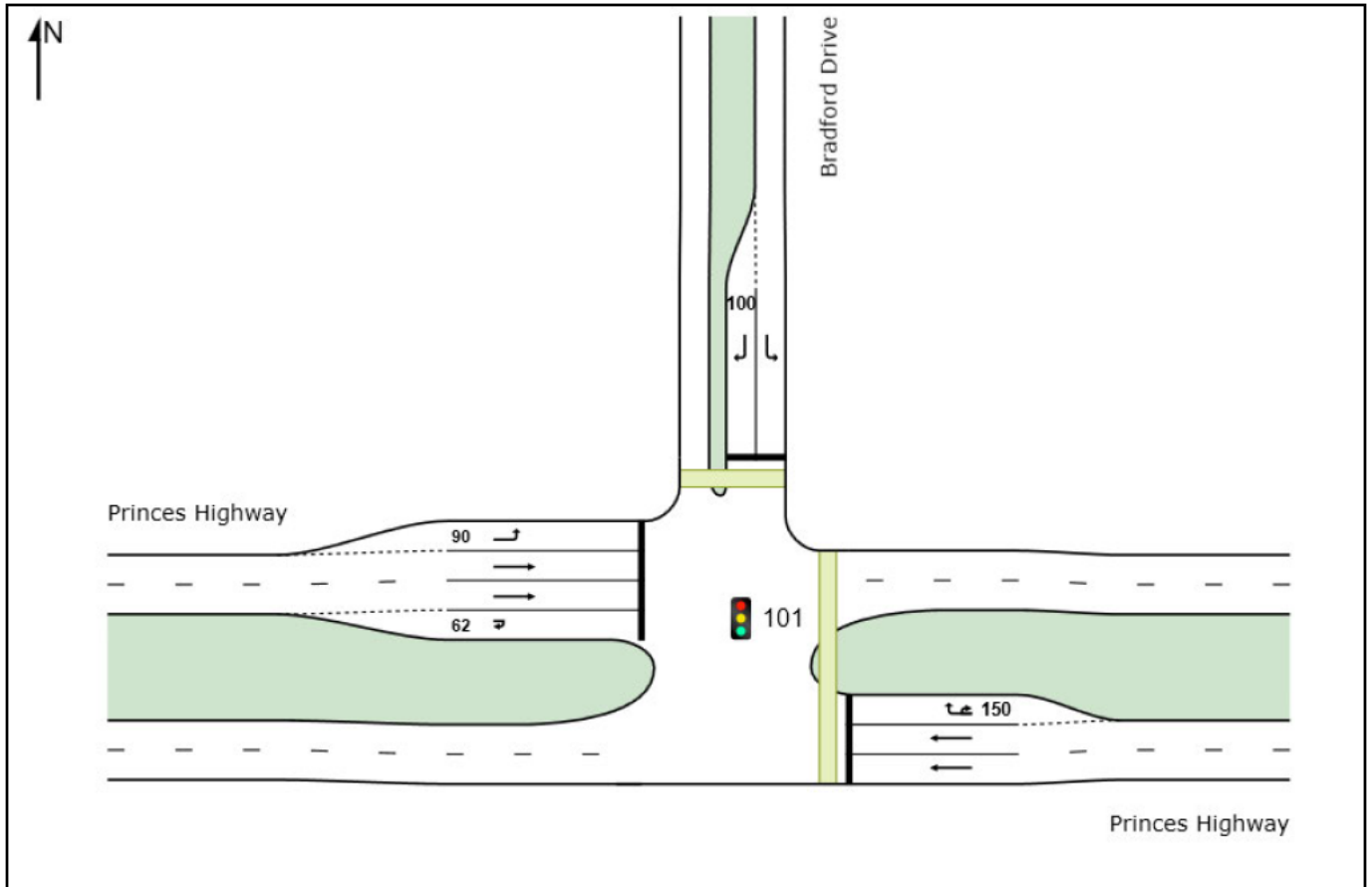


Figure 23: Potential Princes Highway / Bradford Drive signalised intersection layout (Source: SIDRA)

Based on the potential signalised intersection layout (Figure 23) and the existing @ 10 years traffic volumes (Figure 21), the SIDRA operating conditions for Princes Highway / Bradford Drive intersection under a signalised intersection arrangement for the existing @ 10 years scenario are tabulated in Table 15.

As shown below, the Princes Highway / Bradford Drive intersection is anticipated to operate at a 'Fair' Level of Service (LoS) with average delays of up to ~30 seconds and queues of less than 200m under the Existing @ 10 years scenario.

Table 15: Princes Highway/Bradford Drive SIDRA Operating Conditions (Existing at 10 years, Signalised)

Approach	DoS	Avg Delay (sec)	Queue (m)
AM Peak			
Bradford Drive (N)	0.055	29.7	2.6
Princes Highway (E)	0.718	15.6	111.6
Princes Highway (W)	0.786	19.5	170.6
PM Peak			
Bradford Drive (N)	0.191	31.8	9.4
Princes Highway (E)	0.715	14.6	135.0
Princes Highway (W)	0.820	21.6	189.4

6.2. Development Traffic Generation

6.2.1. Residential Use

As mentioned previously, a residential lot yield of ~600 lots (conservative) and a commercial area of approximately 2.143ha has been adopted to assess a potential future development proposal. The following traffic assessment is considered to be robust based on the conservative assumptions adopted, and the impact of any potential future development is expected to be reduced compared to the conditions outlined below.

The *Guide to Traffic Generating Developments (GTGD)* by Roads and Maritime Services New South Wales provides appropriate information on traffic generation that a single dwelling on a standard lot will generate vehicular traffic at a rate of 9 trips per day, with 10% of daily volume occurring in each peak hour. These traffic generation rates are inclusive of all trip types and includes work, recreation, shopping, and educational trips. Therefore, it is considered that a traffic generation rate of 9 veh/day/household will be adequate for the purpose of this assessment.

Table 16: Traffic Generation Rates

Dwelling Type	Daily	Peak Hour
Standard dwellings	9 veh / day	0.9 veh / hr

Applying the above traffic generation rates for the potential ~600 residential lots, the estimated traffic volume is as follows.

Table 17: Development Traffic Generation Volumes

Dwelling Type	Lot Numbers	Daily	Peak Hour
Standard dwellings	603	5,427 veh / day	543 veh / hr

6.2.2. Commercial Uses

The commercial area is located on the northwest corner of the intersection of Bradford Drive and Princes Highway. It is anticipated that traffic will ingress to the commercial area via a left-in entrance on Princes Highway and via Bradford Drive, and egress onto Bradford Drive.

The following points are made in relation to the calculation of the Commercial Use traffic values:

- The various traffic generation rates and figures were taken from the RTA Guide to Traffic Generating Developments.
- The building footprint areas are indicative only and subject to change, with these to be determined as part of any planning permit application associated with any potential, future development.
- The passing trade percentages were adopted from AustRoads Guide to Traffic Management part 12: Integrated Transport Assessments for Developments.
- A unique trip ratio of 0.75 was applied to all uses to account for multi-purpose trips.
- The peak hour trips were derived in the following way:
 - A food and drink premises outlet classified as a 'Drive-through take away food outlet' under the RTA guide (generating more concentrated traffic movements than traditional food and drink premises). An average of the peak hour generation figures was taken for McDonalds (180v/hr for an average development) and Kentucky Fried Chicken (100v/hr for an average development) to yield a rate of 140 veh/hr.
 - It is considered that the service station comprises a convenience store and 6 double-sided bowser. A trip generation rate of 14 peak hour vehicle trips per bowser has been assumed, similar to other developments. This accounts for trips to fill up and attend the convenience shop.
 - The RTA rate of 15.5 peak hour trips per 100m² of GLFA for a 'Supermarket GLFA' was applied (this considers the weekend peak period).
 - A figure of 90 trips per 1000m² of GLFA was considered appropriate for the pharmacy. This is higher than the RTA rates for 'Faster Trade GLFA' and 'Specialty Shops GLFA.'
- The daily trips were derived in the following way:
 - A trip generation rate of 205 daily vehicle trips per bowser was assumed.
 - The daily traffic volume for the food and drink premises was taken to be 10 times the hourly rate.

- The rate of 147.5 daily trips per 100m² of GLFA was used for the Supermarket.
- The RTA daily trip generation rate of 528 vehicles per 1000m² per day was taken for the pharmacy.
- The proportion of multi-purpose trips compared to overall trips is likely to be proportional to the level of commercial development.
- A 45% reduction has been applied to the commercial AM peak movements to account for reduced traffic generation (based on the empirical rates found within the RMS Technical Direction TDT 2013/04a).

Table 18: Commercial Sector Characteristics

Ref.	Use Type	Reference (RMS Guide)	GLFA (m ²)	Passing Trade Reduction	Unique Trip Ratio
1	Food and Drink Premises (Assumed drive-through take away food outlet)	3.7.1	500	0.65	0.75
2	Pharmacy	3.6.1	500	0.72	0.75
3	Service Station (Convenience store and 6 bowlers)	-	500	0.72	0.75
4	Supermarket	3.6.1	3500	0.72	0.75
Total	Overall	-	8050	-	-

Table 19: Commercial Sector Trip Generation

Use Type	Daily Trips	AM Peak Hour Trips	PM Peak Hour Trips
Food and Drink Premises (Assumed drive-through take away food outlet)	1050	58	105
Pharmacy	198	19	34
Service Station	1845	126	126
Supermarket	3872	224	407
Total	6965	426	672

6.3. Traffic Distribution

6.3.1. Residential Use

The origin / destination distribution for the residential traffic has largely been based on the ABS Journey to Work from Place of Usual Residence 2016 data for the people within the Traralgon area. It has also accounted for trips to other destinations, i.e., Melbourne, within the surrounding region that may not necessarily be incorporated in a 'Journey to Work' survey. The adopted origin-destination percentages are shown in Table 20 below.

Table 20: Origin/Destination Distribution

Origin / Destination	Road / Street	Percentage (%)
Melbourne/Morwell	Via Princes Hwy	25%
Morwell	Via Old Melbourne Road	8%
Traralgon/Sale	Via Old Melbourne Road	15%
Traralgon	Via Princes Hwy	47%
Commercial Area	Mostly via internal road network	5%

A high-level assessment of the Traralgon township suggests that up to 80% of trips from and to the subject site within the Traralgon township could be undertaken via Princes Highway (with the remaining 20% undertaken via Old Melbourne Road). An overview of this is presented below.

- 100% of trips to destinations south of Princes Highway will be serviced by Princes Highway
- 100% of trips to destinations east of Traralgon Showgrounds & Recreation Reserve will be serviced by Princes Highway
- Approximately 90% of trips to destinations bounded by Princes Street to the south and east, Kay Street and Post Office Place to the north, and the eastern boundary of the Traralgon Golf Club would be undertaken via Princes Highway (10% via Old Melbourne Road)
- 50% of trips to destinations located to the north of Kay Street and between Kosciuszko Street and Traralgon Creek via Princes Highway (50% via Old Melbourne Road)
- 100% of trips to destinations located to the north of Kay Street and west of Kosciuszko Street would be undertaken via Old Melbourne Road.

Therefore, the adopted origin/destination distribution in Table 20 between Princes Highway and Old Melbourne Road is considered to be potentially over-representative of the traffic to Old Melbourne Road, especially given the above high-level assessment solely considers trips within the Traralgon township.

Based on the typical travel trends identified in other similar studies carried out by Beveridge Williams, the inbound and outbound residential traffic distribution shown in Table 21 has been adopted.

Table 21: Inbound/Outbound Distribution

Peak Hour	Percentage of Daily Traffic	Outbound	Inbound
AM Peak	10%	80%	20%
PM Peak	10%	40%	60%

6.3.2. Commercial Use

The overall distribution of traffic movements was largely arrived at by considering the residential and commercial components of the traffic separately. The following section relates to the commercial trips external to the subject site.

Table 22: Commercial Traffic External Distribution Components

Origin	Percentage
North	20%
East	40%
West	40%

An even split for inbound and outbound commercial traffic movements has been adopted.

6.4. Post Development Traffic (Peak Hours)

6.4.1. Site-Generated Traffic

The following figures present the site-generated peak hour traffic movements at Princes Highway / Bradford Drive and Old Melbourne Road / Regan Road intersections as a result of the potential, future development.

The negative traffic volumes represent the diversion of through traffic due to the portion of passing trade captured by the commercial traffic generation.

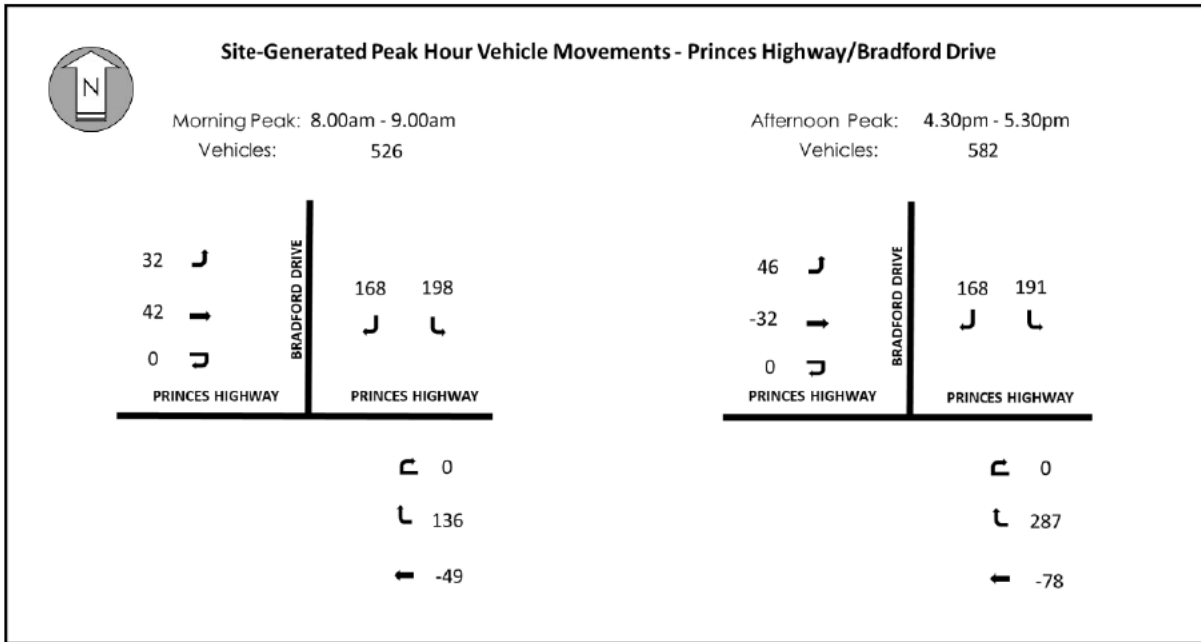


Figure 24: Site Generated Peak Hour Movements – Princes Highway / Bradford Drive intersection (Source: BW)

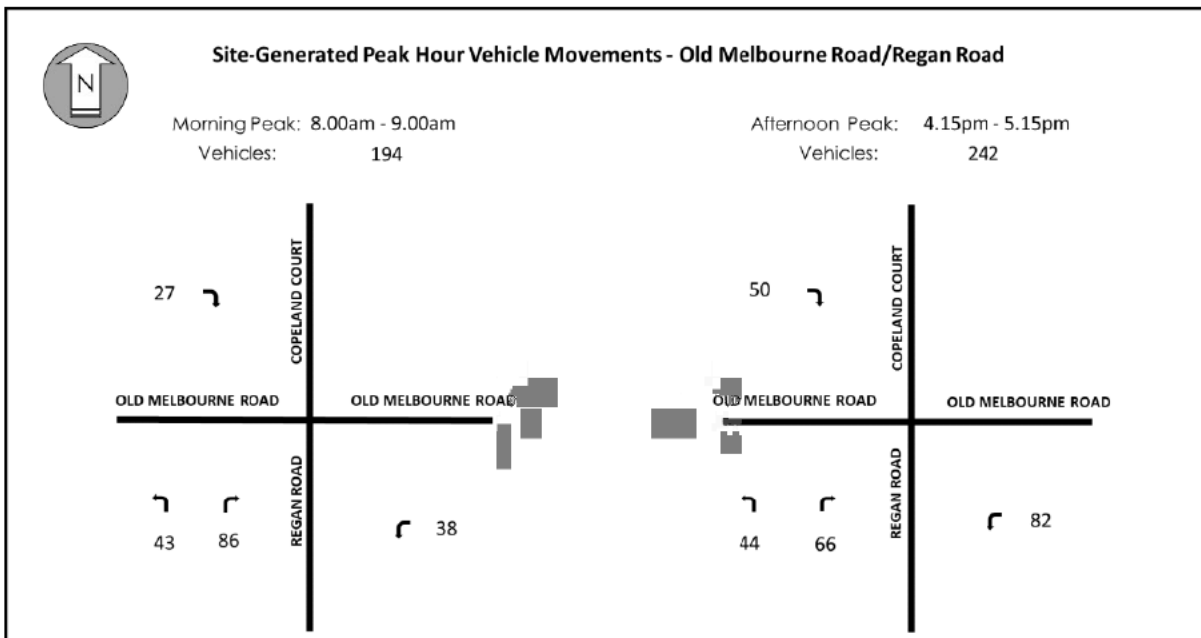


Figure 25: Site Generated Peak Hour Movements – Regan Road / Old Melbourne Road Intersection (Source: BW)

Due to the potential scope of future residential and commercial development, it is anticipated that the traffic generated by the subject site will have an impact on the overall network. Whilst it is noted that this impact is accounted for and encouraged by the MTEC Masterplan, e.g., indicative intersection upgrades, it is necessary to consider how the site-generated traffic affects the Old Melbourne Road / Regan Road and Princes Highway / Bradford Drive intersections under future conditions (i.e. 10-year post development growth conditions).

6.4.2. Post Development Traffic (10-year Growth Scenario)

The future intersection volumes across the network are calculated by combining the existing volumes at 10 years and superimposing the traffic expected to be generated by the potential, future development.

It is acknowledged that the extensions of Regan Road and Bradford Drive were not constructed at the time this study was undertaken. However, it is assumed that both roads will be constructed to a Connector Road standard as per the MTEC Investment Masterplan.

The resultant peak hour traffic volumes for the intersections of Princes Highway and Bradford Drive, and Old Melbourne Road and Regan Road are shown in Figure 26 and Figure 27.

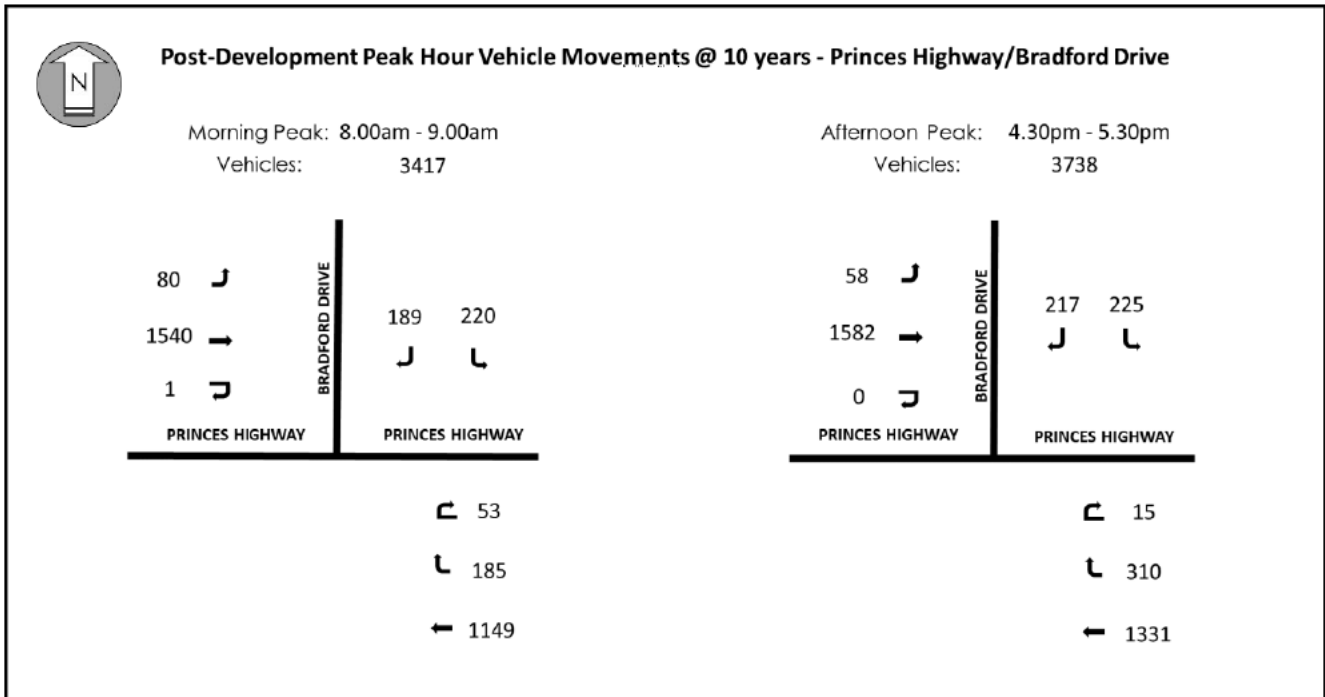


Figure 26: Post-Development Traffic in 10-years – Princes Highway and Bradford Drive

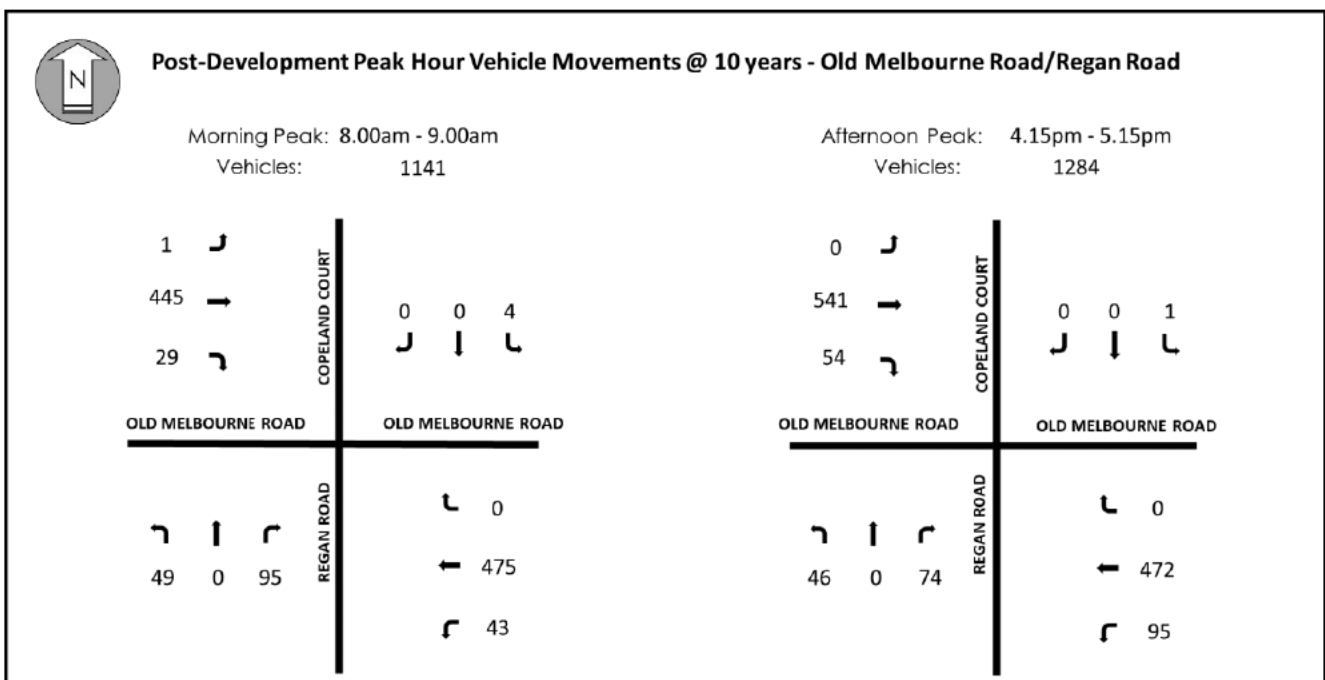


Figure 27: Post-Development Traffic in 10-years – Old Melbourne Road and Regan Road

6.5. Post Development Traffic Volumes @ 10 years – Princes Highway

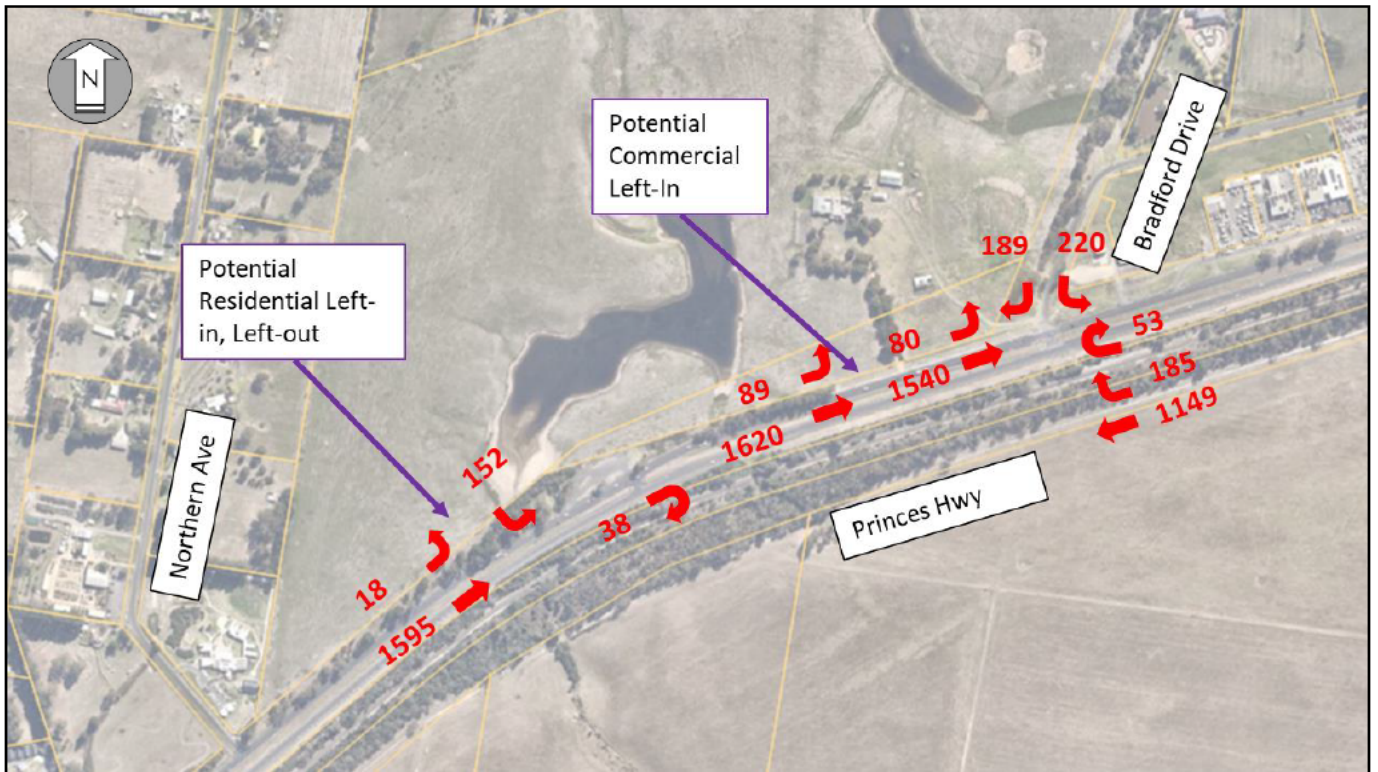


Figure 28: AM Post-Development Network Traffic in 10-years – Princes Highway traffic movements

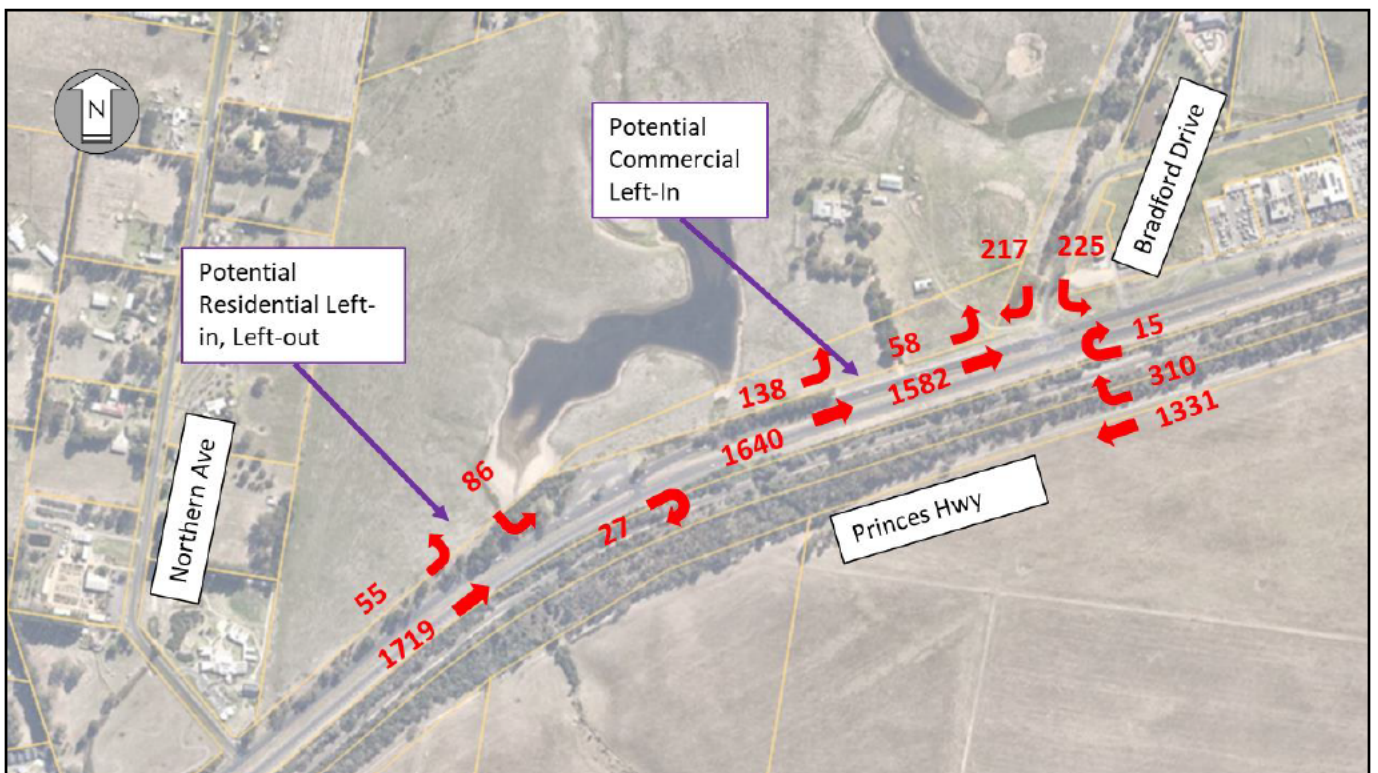


Figure 29: PM Post-Development Network Traffic in 10-years - Princes Highway traffic movements

6.6. Post Development Operating Conditions

To assess the future, post-development operation of the Princes Highway / Bradford Drive intersection, the anticipated future peak hour traffic volumes have been input into SIDRA Intersection. The results of the analysis are provided below.

Unlike the unsignalized intersection, which was modelled as two networked intersections in SIDRA, the signalised operation of Bradford Drive and Princes Highway can be modelled as one intersection in SIDRA.

The following results are based on the commercial and residential lot yield for the future, potential development outlined in previous sections. These results are conservative, with any potential future development likely to result in improved operational performance of Princes Highway / Bradford Drive intersection compared to what has been contemplated in this assessment.

The existing @ 10 years' operating conditions were taken for the signalised version of the intersection.

Table 23: Princes Highway / Bradford Drive SIDRA Operating Conditions (Post-Development, 10 years, Signalised)

Scenario	Approach	DoS	Avg Delay (sec)	Queue (m)
Existing + 10-year growth	AM Peak			
	Bradford Drive (N)	0.055	29.7	2.6
	Princes Highway (E)	0.718	15.6	111.6
	Princes Highway (W)	0.786	19.5	170.6
	PM Peak			
	Bradford Drive (N)	0.191	31.8	9.4
	Princes Highway (E)	0.715	14.6	135.0
Post – Development (including Existing + 10-year growth)	AM Peak			
	Bradford Drive (N)	0.918	40.1	66.3
	Princes Highway (E)	0.861	23.2	128.9
	Princes Highway (W)	0.887	33.7	261.6
	PM Peak			
	Bradford Drive (N)	0.872	46.6	95
	Princes Highway (E)	0.865	32.3	207
Difference between Existing + 10-year growth AND Post – Development	AM Peak			
	Bradford Drive (N)	0.863	10.4	63.7
	Princes Highway (E)	0.143	7.6	17.3
	Princes Highway (W)	0.101	14.2	91
	PM Peak			
	Bradford Drive (N)	0.681	14.8	85.6
	Princes Highway (E)	0.15	17.7	72
Princes Highway (W)	0.07	18.6	141.3	

As seen from Table 23, the operational performance of the northern leg experiences the most significant change with the addition of the site-generated traffic movements. There is also a decrease in the performance of the eastern and western approaches. However, it is noted that all legs, including the north leg, remain within the maximum DoS threshold of 0.95 contemplated by DTP for signalised intersections. Most legs also remain within the desirable DoS threshold of 0.9 contemplated by DTP for signalised intersections. The modelled queues and delays for both the 10-year existing and 10-year post development scenarios are considered to be acceptable.

Table 24: Old Melbourne Road / Regan Road Intersection Performance (Post-Development at 10 years)

Approach	DoS	Avg Delay (sec)	Queue (m)
AM Peak			
Copeland Court (N)	0.004	7.7	0.1
Old Melbourne Road (E)	0.272	0.6	0.0
Regan Road (S)	0.352	17.0	10.3
Old Melbourne Road (W)	0.264	0.9	2.9
PM Peak			

Copeland Court (N)	0.001	8.2	0.0
Old Melbourne Road (E)	0.300	1.2	0.0
Regan Road (S)	0.354	19.3	9.9
Old Melbourne Road (W)	0.341	1.6	6.9

As shown in Table 24, the intersection of Old Melbourne Road / Regan Road / Copeland Court will continue to operate post-development under 'Excellent' conditions with reasonable queues and delays experienced by motorists during the morning and afternoon peak hours.

6.7. Post-Development @ 10 years - Intersection Modelling Considerations

The post development traffic scenarios have been modelled noting the following:

- The ultimate traffic conditions do not account for the Traralgon Bypass given the unsure timing of construction. The Bypass would reduce through traffic along Princes Highway including a large proportion of heavy vehicles.
- Distribution of traffic from any potential, future development to Northern Avenue and Airfield Road was not considered, which would likely result in reduced residential traffic demands along Princes Highway and at its intersection with Bradford Drive.

6.8. External Intersection and Road Upgrades

6.8.1. Princes Highway / Bradford Drive Signalised Intersection

In the future it is proposed to signalise the intersection of Princes Highway and Bradford Drive. This will allow for more turning movements from Bradford Drive and from the east approach of Princes Highway. It is anticipated that the east and west legs of the intersection will remain largely unchanged (i.e., provision of 2 through lanes, 1 turn lane into Bradford Drive from each direction and a U-turn lane from the west will remain in place). It is anticipated that Bradford Drive will be upgraded to provide for separate left and right turning lanes. It is expected that pedestrian crossings will be installed on the northern and eastern legs of the intersection.

The timings, phasing, and signal arrangements of the signalised intersection of Bradford Drive and Princes Highway have partially been derived from the intersection of Princes Highway and Airfield Road to the west of the subject site. Changes were made to account for the minor variance in intersection design.

This intersection upgrade would benefit any potential, future development of the site and precinct as a whole.

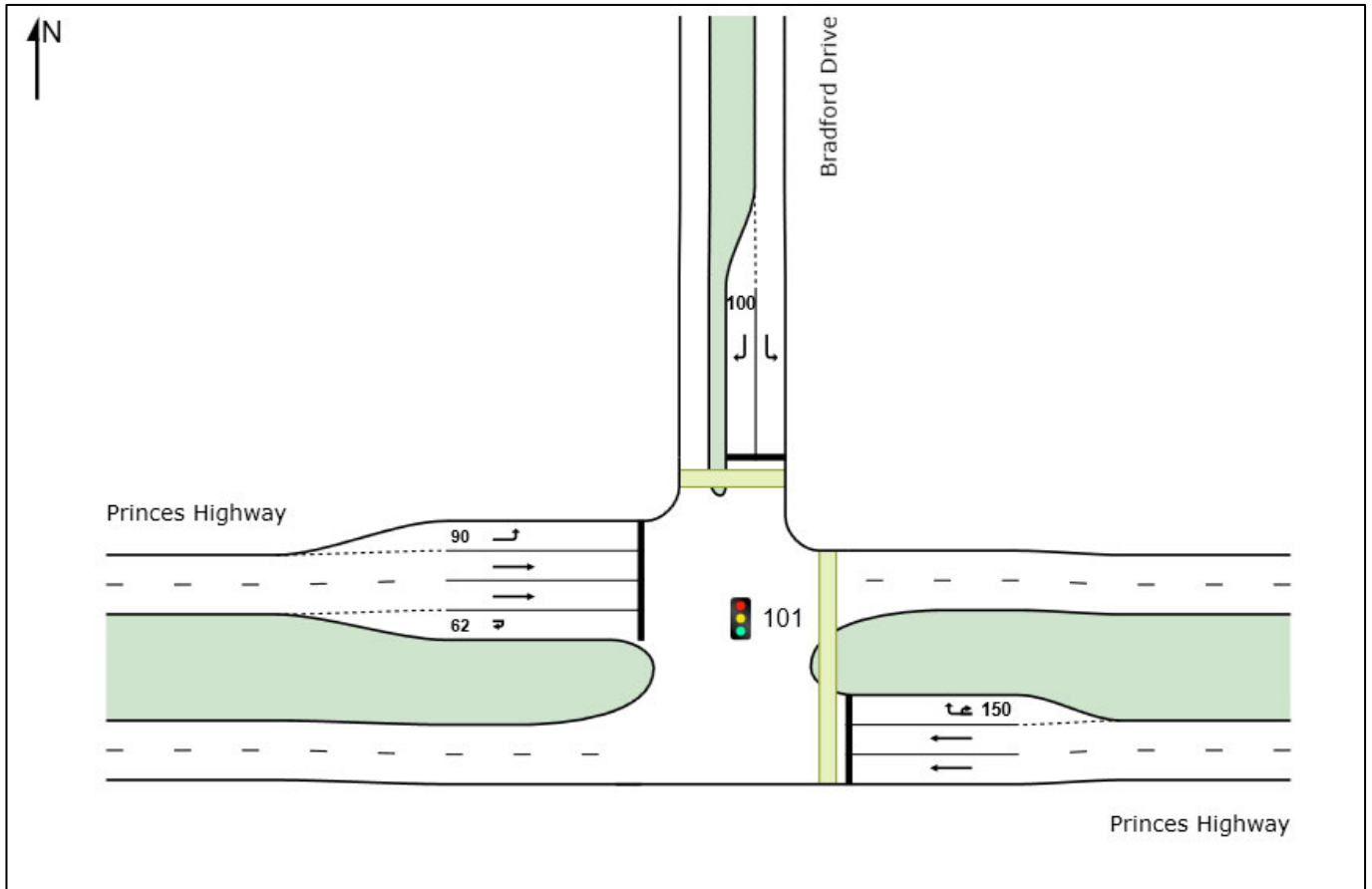


Figure 30: SIDRA Layout – Princes Highway / Bradford Drive intersection (Schematic Diagram Only – Not to Scale)

A concept plan was prepared by Beveridge Williams for the access arrangements for the southeast corner of the subject site, including Princes Highway / Bradford Drive intersection. Whilst the design of this concept plan has been superseded by subsequent traffic analysis and modelling and discussions with DTP, it demonstrates the feasibility of signalling the Princes Highway / Bradford Drive intersection in conjunction with other potential site access connections in the vicinity of this intersection.

Beveridge Williams has been advised by DTP that whilst they are willing to accept a commercial left-in from Princes Highway, they are not willing to accept a commercial left-out treatment in the vicinity of the Princes Highway / Bradford Drive intersection (commercial traffic must exit onto Bradford Drive). Considering the location of the commercial area, it is likely that the Princes Highway left-in will be located closer to the Princes Highway / Bradford Drive intersection.

The commercial access arrangements to Bradford Drive presented in Figure 31 are likely to change and are dependent on the potential commercial area layout of any future, potential development.

An excerpt of the concept plan is provided in Figure 31 and attached as Appendix A.

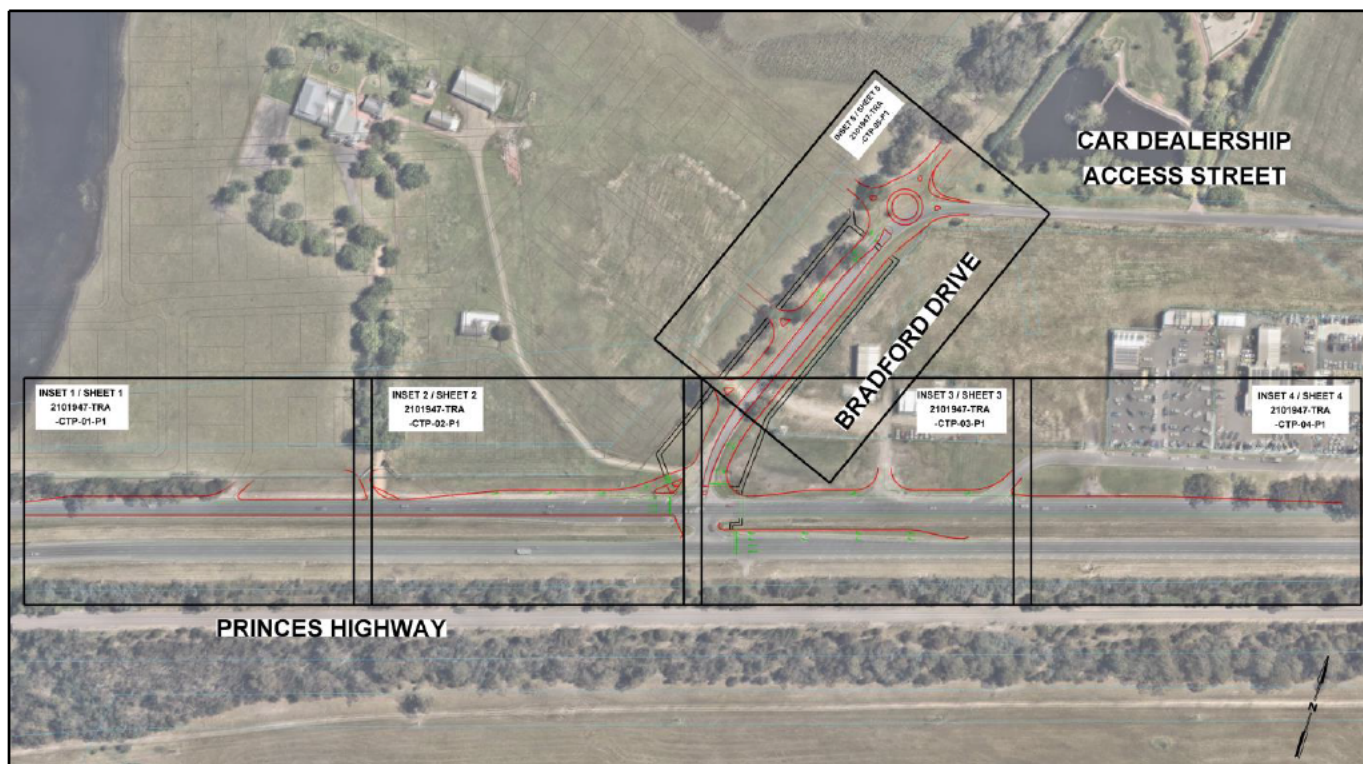


Figure 31: Princes Hwy / Bradford Dr signalised intersection concept plan (excerpt) (Source: Beveridge Williams)

6.8.2. Princes Highway Residential Left-in, Left Out

A residential left-in, left-out access to Princes Highway west of the existing waterway would likely be provided as part of any future potential development. This left-in, left-out would need to account for, amongst other things, the location of the existing waterway, access to Princes Highway, the internal road network of any future potential development, and gradient concerns.

6.8.3. Other Intersections

Table 25 below outlines other external intersection treatments that would be required to service any potential, future development and meet the MTEC masterplan. These treatments would benefit any potential future, development of the site and other developments in the precinct.

Table 25: Proposed Intersection Treatments

Intersection	Proposed Treatment	Explanation/Notes
Old Melbourne Road / Regan Road	CHR/AUL	Consistent with MTEC (Benefits site and external developments)
Combined residential and commercial access / Bradford Drive	Roundabout (Recommended)	Benefits site and external developments

A high-level turn warrant assessment has been undertaken for the Old Melbourne Road / Regan Road intersection. Under existing conditions, BAR and BAL treatments are required. Under the 10-year existing conditions (i.e. without the potential development traffic), the 'external demand' will trigger an AUL(s) turn treatment. Therefore, it is expected that Council would be required to contribute a portion of the costs to the upgrade of this intersection, especially noting the safety and operational improvements this intersection will afford other residents. A high-level review of Victorian Road Crash Data suggests that there is extensive crash history along Old Melbourne Road in the vicinity of this intersection. An assessment of the feasibility of providing CHR/AUL treatments, including an investigation of the intersection sight distances, could be undertaken as part of detailed design for any potential future development.

6.8.4. Regan Road & Bradford Drive Connector Road upgrades

To accommodate the expected level of traffic, it is considered that Regan Road and the north-south section of Bradford Drive would need to be upgraded as part of any future potential development to accommodate the anticipated level of daily traffic generated by the site and to meet the intent of the MTEC Investment Masterplan. The scope of this upgrade (including whether an interim access street arrangement or a partially built connector street would suffice) would be determined as part of negotiations with Council and would require further investigations from a traffic perspective. It is noted that the existing road reserve of Regan Road (20m) is insufficient to accommodate a connector street cross-section (25m per MTEC and 24m per the IDM). If Regan Road is required to be a collector street, Council will be required to undertake land acquisition to support the MTEC Masterplan.

6.9. Potential Key External Road Access and Intersection Provision/Upgrade Design Considerations

An assessment of the potential key external access points and future intersection upgrades surrounding the site and associated with any future, potential development have been reviewed from a geometric and traffic demand perspective.

The following locations are considered to be key external access points and intersections, with commentary provided on associated design elements:

- One (1) left-in/left-out access along Princes Highway (Residential)
 - This can be accommodated with the provision of appropriate taper and deceleration lengths with minimal impact to Princes Highway traffic. It is noted at this location the site boundary is located approximately 35 metres north of the nearest carriageway. The positioning of the left-in, left-out access will need to consider the existing waterway. Left in/left out access arrangements are common along Princes Highway in the precinct.
- One (1) left-in access along Princes Highway (Commercial)
 - This can be accommodated with the provision of appropriate taper and deceleration lengths with minimal impact to Princes Highway traffic, as well as ensuring appropriate circulation within the commercial uses and suitable offsets to the Princes Highway / Bradford Drive intersection (approximately 75 metres).
- One (1) fully directional access at Bradford Drive (a roundabout is recommended at this intersection) (Residential and Commercial)
 - This can be accommodated adequately within the ultimate road reserve.
- Princes Highway / Bradford Drive Intersection signalisation.
 - Signalisation is required to facilitate the potential future traffic demand at the intersection, with the east and west approaches largely remaining the same from a cross-sectional perspective and an additional southbound lane on Bradford Drive to allow for separate left and right turn lanes.
- Old Melbourne Road / Regan Road Intersection CHR/AUL treatments
 - Further assessment as part of any future, potential development will be required to determine the feasibility of accommodating the CHR and AUL treatments within the existing road reserve.

It is expected that the collector road along the northern boundary of the subject site would connect to the broader road network. Intersections on the northeast and northwest corner of the development will be developed by other developments once the surrounding land is unlocked.

The Bradford Drive (connector) / Coopers Road (connector) intersection is expected to be designed and constructed by the surrounding developments.

Based on the above, it is considered that any potential future development (post and separate to the proposed rezoning) would allow for appropriate intersection and development design responses at all stages of development.

Given that road cross sections and access requirements still require in principle approvals from relevant Authorities, it is intended that intersection and site access concept plans / functional layout plans will be developed at a later date as part of any planning permit applications associated with a potential future development.

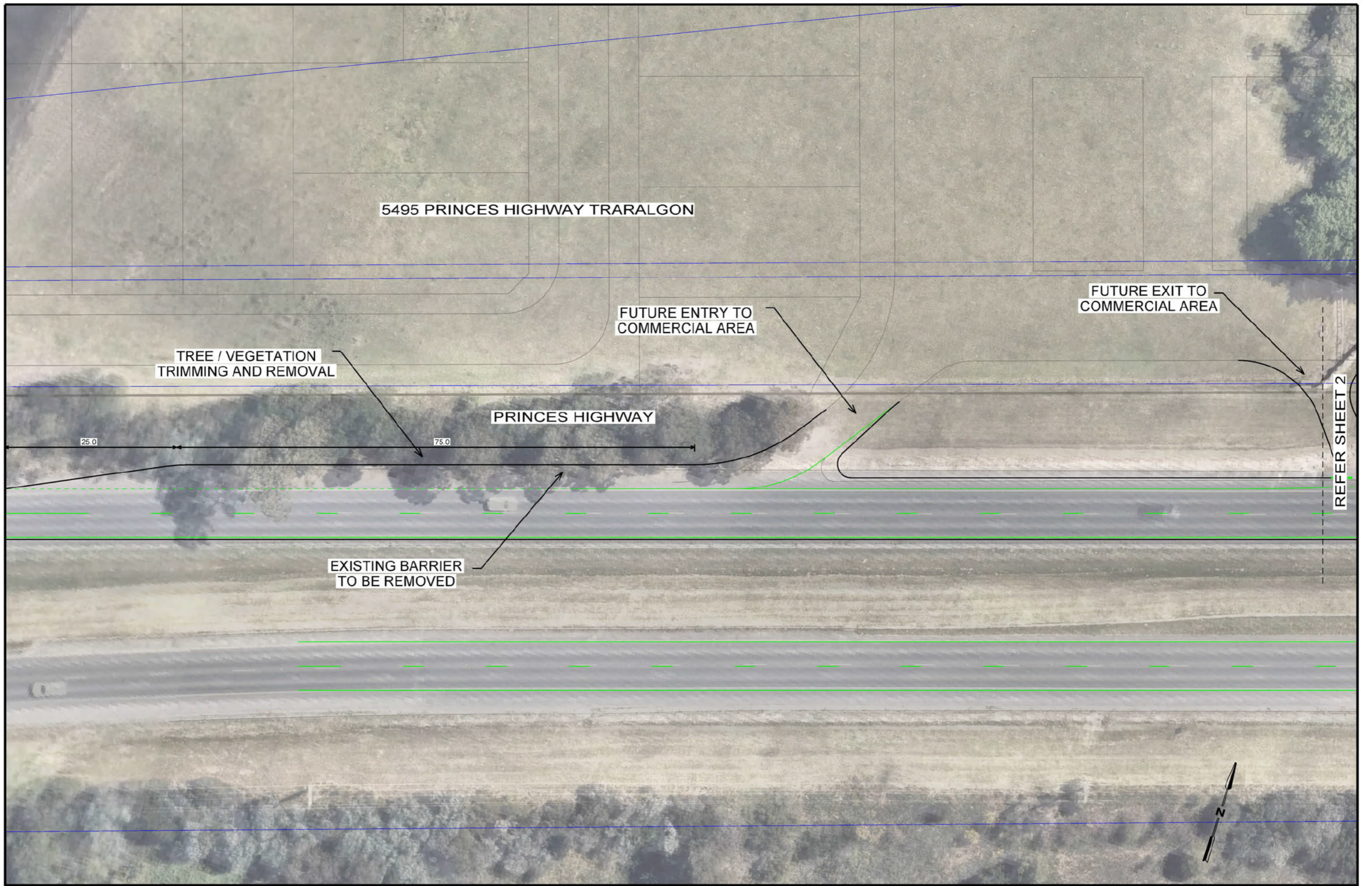
7. SUMMARY AND CONCLUSIONS

Considering the analysis presented above for a potential future, development consistent with (but separate to) the proposed rezoning of 5483 and 5495 Princes Highway, Traralgon, it is concluded that:

- It is proposed to rezone the subject site from Farming Zone (FZ) to General Residential Zone 3 (GRZ3) and Commercial Zone 1 (CZ1).
- For the purposes of the assessment of the traffic impact of a potential future development, a conservative lot yield of approximately 600 residential lots (noting that a lot yield of 520 residential lots is more realistic) and a commercial area of approximately 2.143ha have been considered.
 - The commercial area has considered the following uses: a service station, food and drink premises (drive-through, and take away), supermarket and a pharmacy. These uses will be subject to change depending upon any potential, future development.
- A high-level assessment suggests that any potential future development would not prohibit the provision of appropriate levels of car parking.
- A potential future development (based on a conservative residential lot yield of 600 lots and a mix of commercial uses) would be expected to generate 543 traffic movements during peak hour for the residential component and up to 672 traffic movements for the commercial use.
 - The peak hour traffic movements would be reduced by approximately 6% for a residential lot yield of 520 lots.
- The level of traffic associated with any potential future development (and accounting for the 10-year growth of the existing conditions) can be accommodated within the internal and/or external road network, subject to numerous key road access and intersection provision / upgrades as follows:
 - One (1) left-in/ left-out access along Princes Highway (Residential)
 - One (1) left-in access along Princes Highway (Commercial)
 - Independent commercial area access to Bradford Drive
 - One (1) fully directional access at Bradford Drive (a roundabout is recommended at this intersection) (Residential and Commercial)
 - Princes Highway / Bradford Drive Intersection signalisation, with an additional traffic lane on the north leg (Bradford Drive) for the southbound traffic (to allow for separate left and right turn lanes).
 - Old Melbourne Road /Regan Road Intersection CHR/AUL treatments
- Bradford Drive and Regan Road are required to be upgraded to meet the anticipated level of daily traffic associated with any future potential development, with consideration given to the feasibility of meeting the intent of the MTEC Investment Masterplan.
- The potential external connections have regard for Department of Transport and Planning (DTP) comments and the Morwell-Traralgon Employment Corridor Investment Masterplan (MTEC).
- The proposed key external access points and future intersection upgrades associated with any potential future development have been reviewed from a geometric and traffic demand perspective and are considered appropriate. Given that road cross sections and access requirements still require in principle approvals from relevant Authorities, it is intended that intersection and site access concept plans / functional layout plans will be developed at a later date as part of any planning permit applications associated with any future, potential development.
- Any internal road network associated with a potential future development will need to be designed to accommodate the turning movements and access requirements of service and emergency vehicles;
- The traffic and transport impacts of the potential future development (as facilitated by the rezoning) are expected to be appropriately managed having consideration to the proposed key road access and intersection provision / upgrades.
- The potential future development facilitated by the proposed rezoning is considered appropriate from a traffic engineering perspective, subject to the implementation of the recommended treatments.

In conclusion, the proposed rezoning is appropriate from a traffic perspective, with any potential future development expected to operate in accordance with the Morwell Traralgon Employment Corridor (MTEC) Investment Masterplan, provide large community benefits to the precinct and refrain from causing significant adverse traffic impacts.

APPENDIX A: INTERSECTION CONCEPT PLAN (INDICATIVE ONLY)



REFER SHEET 2

ISSUE	AMENDMENT
P1	PRELIMINARY ISSUE FOR COMMENT
P2	
P3	
P4	

REGISTERED PROFESSIONAL ENGINEER
REG NO: PE0008788
EXPIRY: 11/01/2026

GENERAL NOTES

1. BASE INFORMATION FROM AERIAL PHOTOGRAPH (SOURCE NEARMAP).
2. ALL DIMENSIONS ARE TO FACE OF KERB & CHANNEL.
3. MAIN ROAD - PRINCES HIGHWAY (SPEED ZONE 80KM/H, LOCAL ROAD - BRADFORD DRIVE (SPEED ZONE 50KM/H).
4. ROAD CROSS SECTION FOR BRADFORD DRIVE BASED OF THE 10M SD 605.

DESIGNED: [REDACTED]

APPROVED: [REDACTED]

CLIENT: STABLE ENGINEERING SERVICES

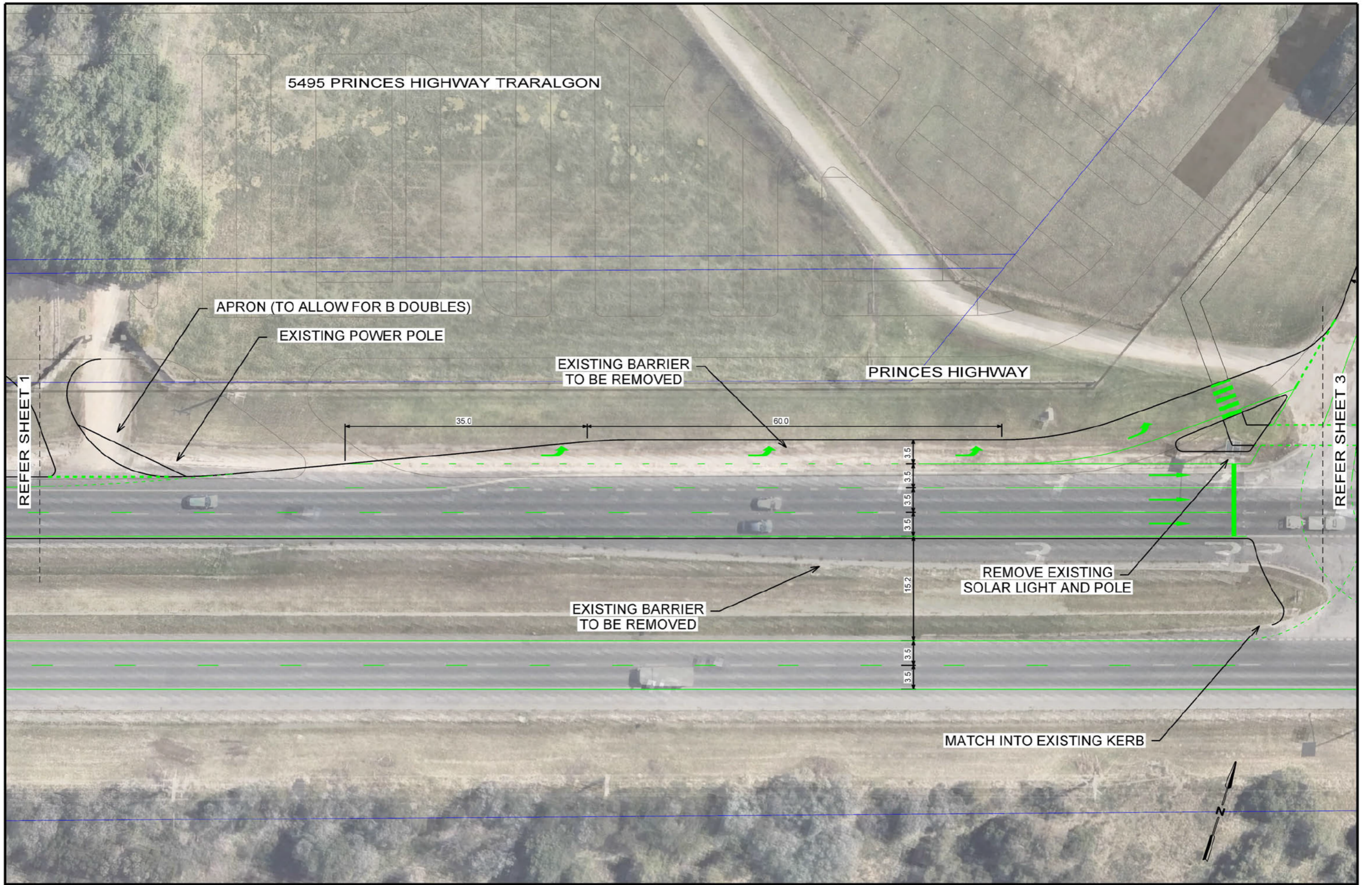
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DATE: 09/02/2023

SCALE OF METRES
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5495 PRINCES HIGHWAY TRARALGON				
LATROBE CITY				
CONCEPT LAYOUT PLAN				
PROJECT REF	STAGE NO	DRAWING NO.	SHEET NO.	ISSUE
210194.7	TR - CTP	01	1 OF 5	P1



ISSUE	AMENDMENT
P1	PRELIMINARY ISSUE FOR COMMENT
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REGISTERED PROFESSIONAL ENGINEER
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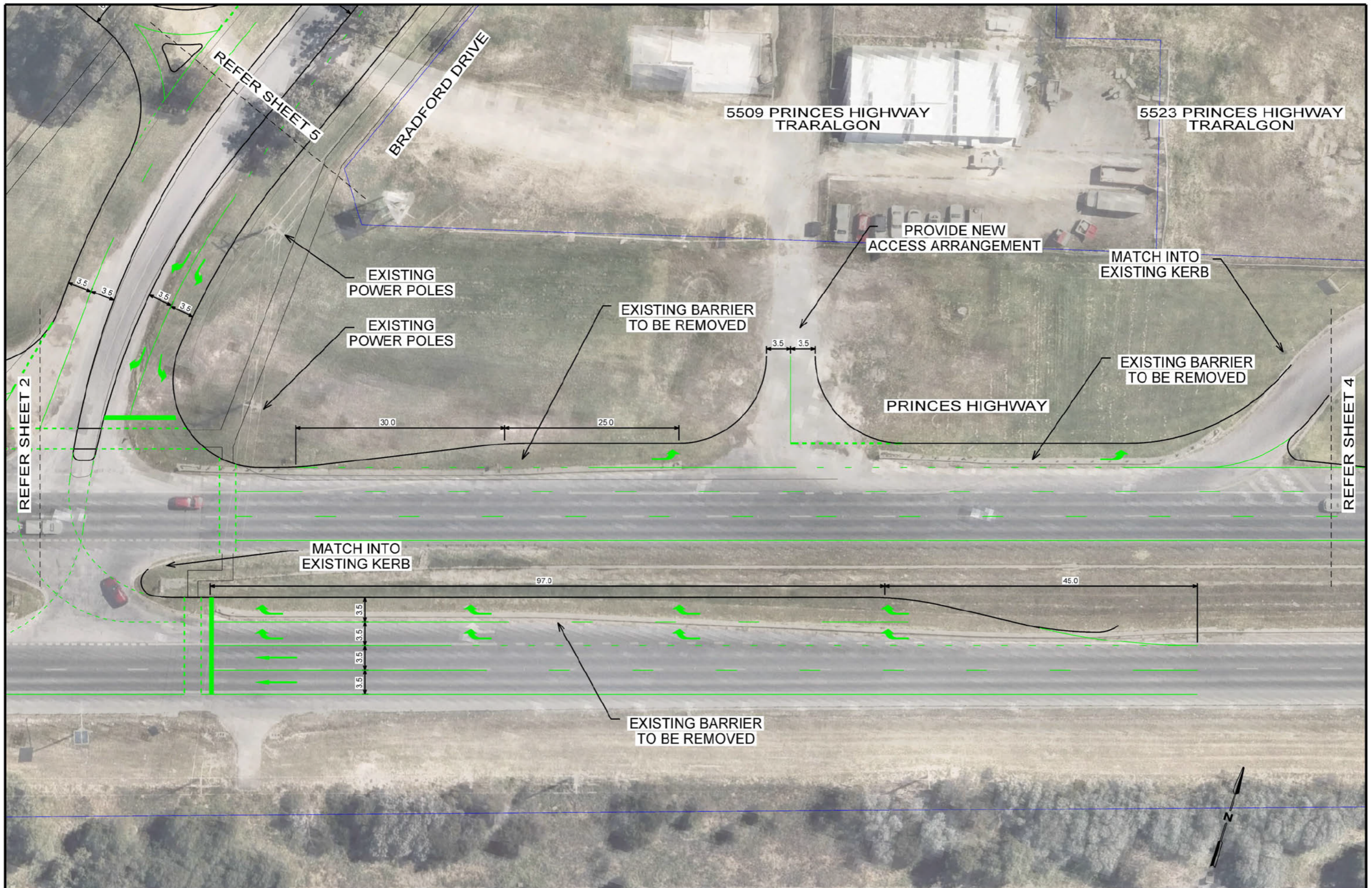
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DATE: 09/02/2023

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5495 PRINCES HIGHWAY TRARALGON		LATROBE CITY		CONCEPT LAYOUT PLAN	
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2101947	TR - CTP	02	2 OF 5	P1	



ISSUE	AMENDMENT
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GENERAL NOTES

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5495 PRINCES HIGHWAY TRARALGON LATROBE CITY CONCEPT LAYOUT PLAN				
PROJECT REF 210194.7	STAGE NO TR - CTP	DRAWING NO. 03	SHEET NO. 3 OF 5	ISSUE P1



REFER SHEET 3

5523 PRINCES HIGHWAY
TRARALGON

5527 PRINCES HIGHWAY
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PRINCES HIGHWAY
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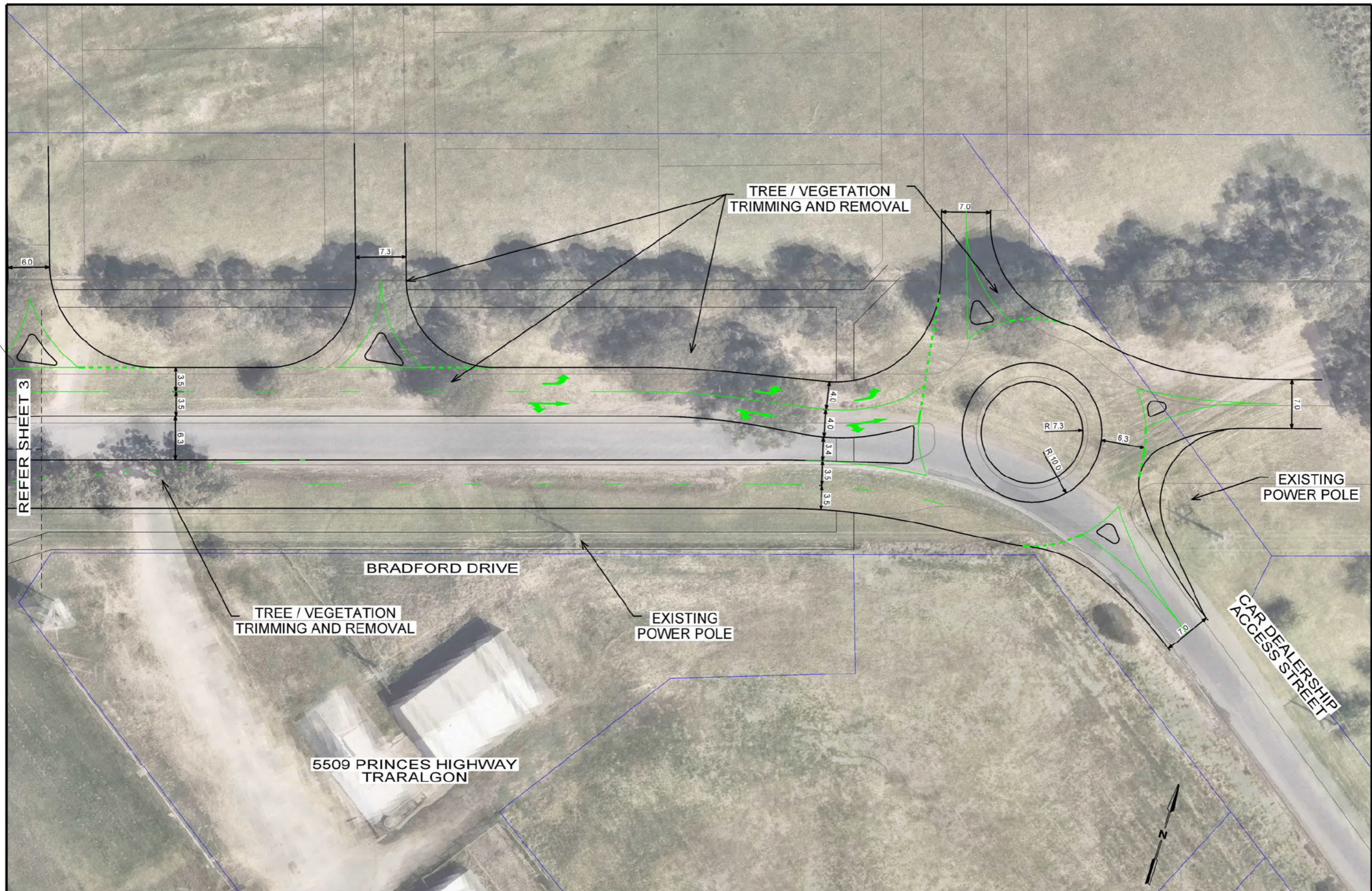
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ISSUE	AMENDMENT
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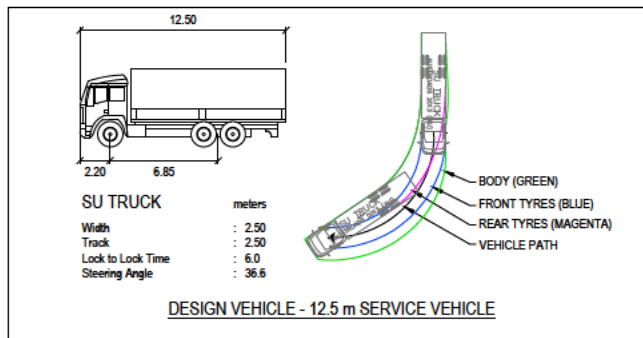
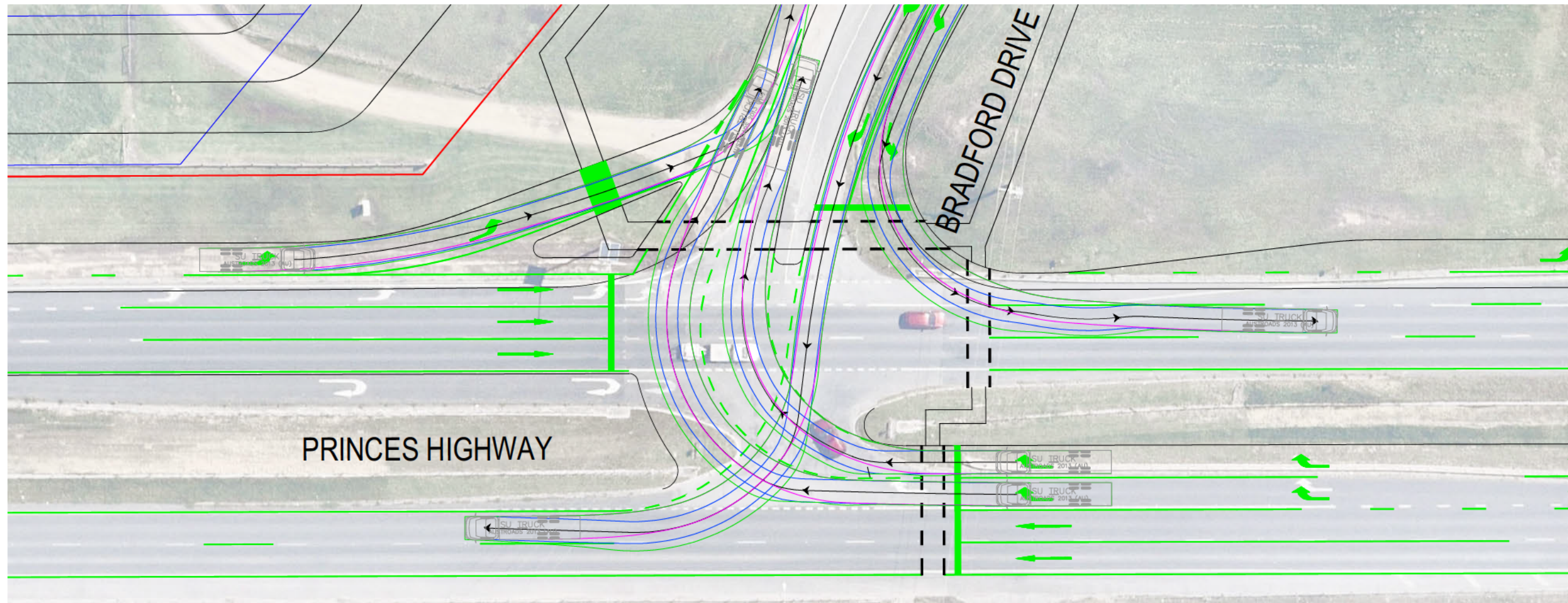
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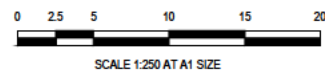
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PROJECT REF 2101947	STAGE NO TR - CTP	DRAWING NO. 05	SHEET NO. 5 OF 5	ISSUE P1



CONCEPT PLAN
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Designed Date: 10.02.2023
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 Approved Reg. No.: PE2000106
 Date: 10.02.2023
 PS Number: 0

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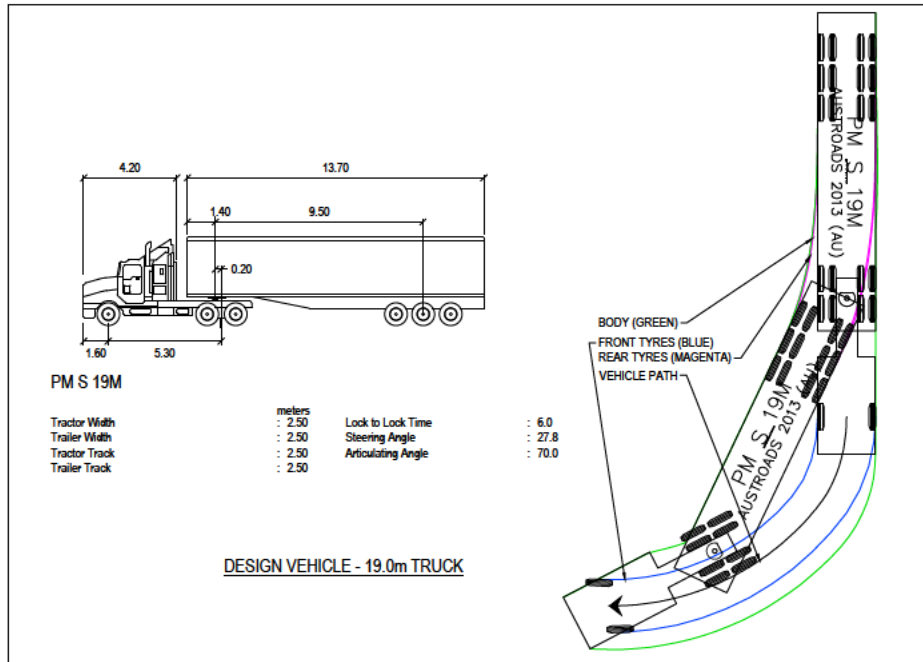
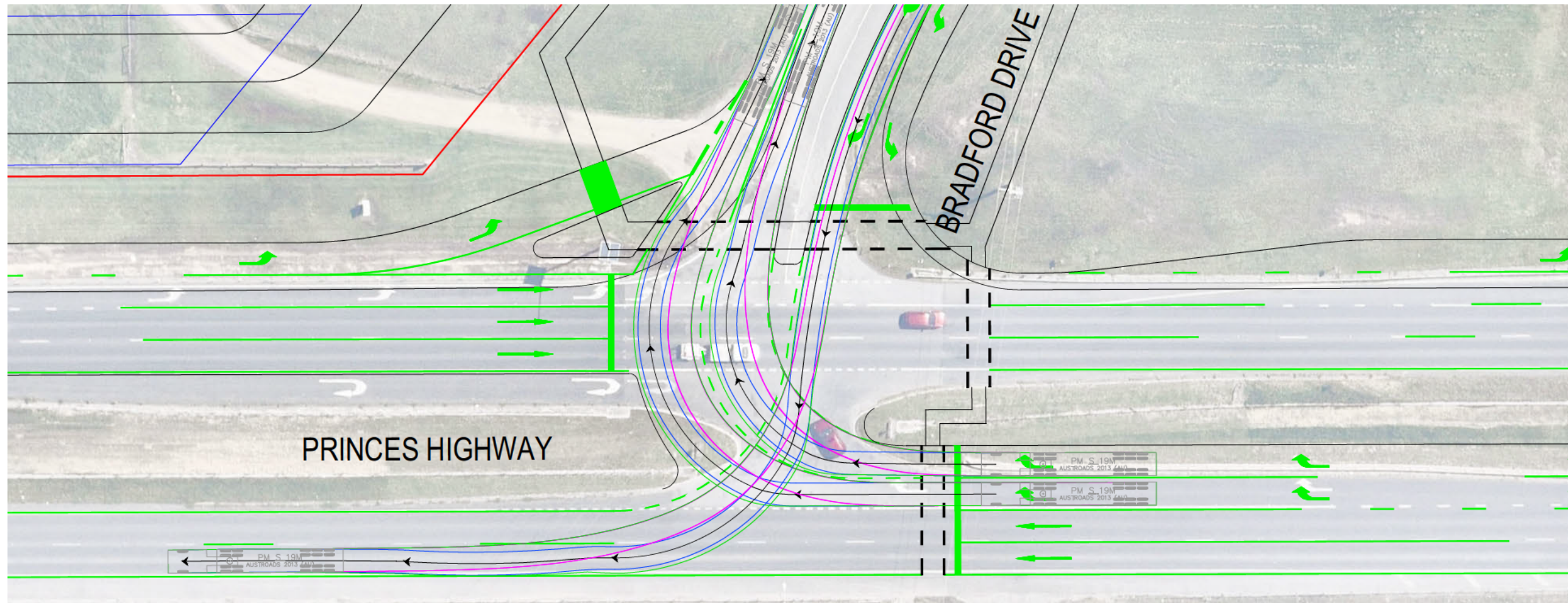
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Sheet 01 of 10
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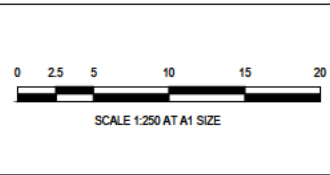
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 Drawing No: 940
 Rev: P0





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Project Details
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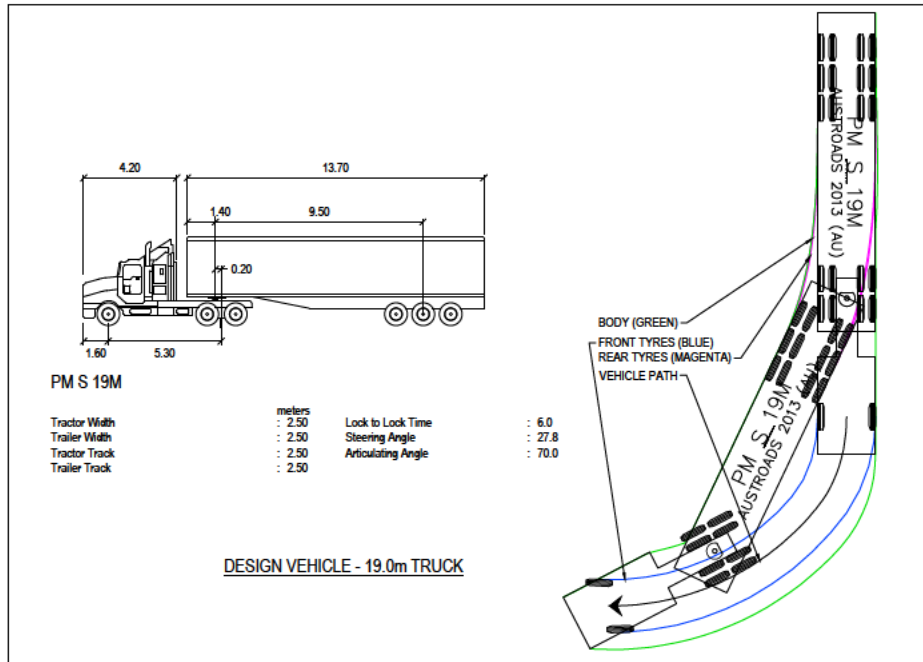
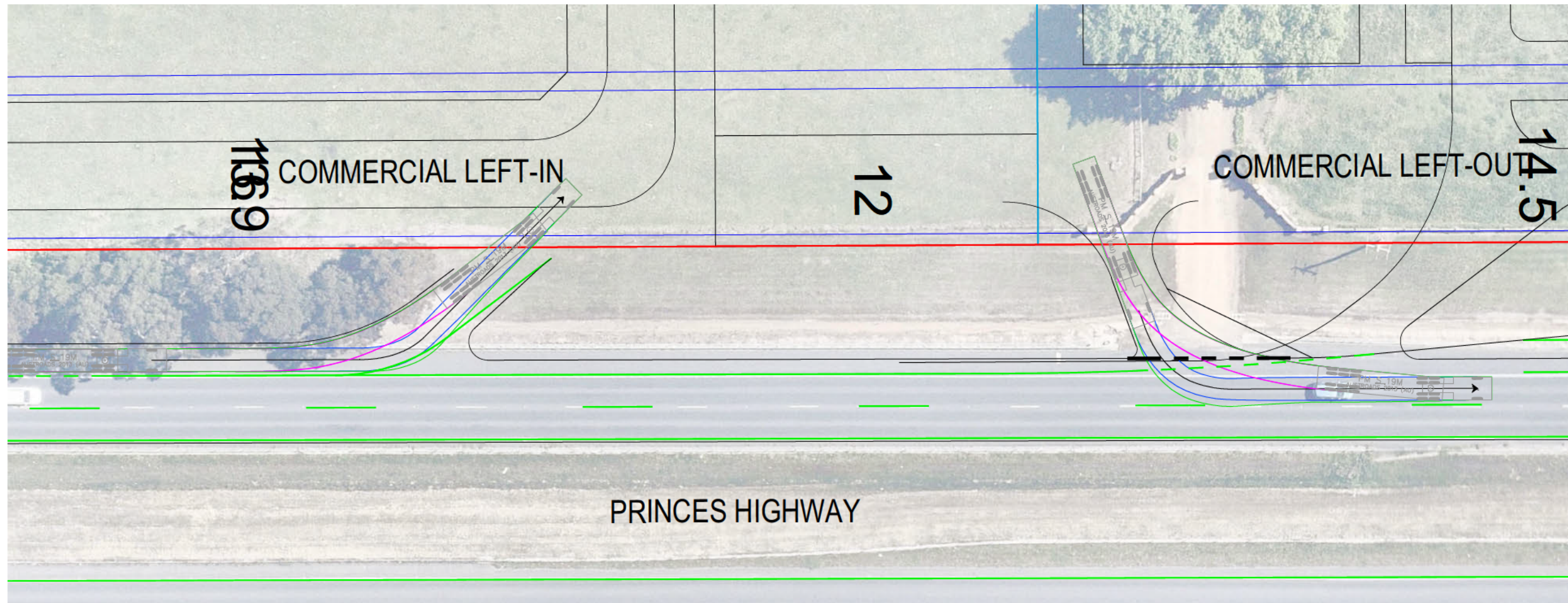
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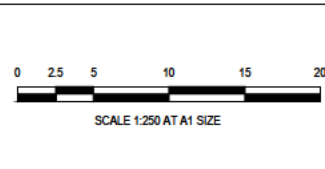


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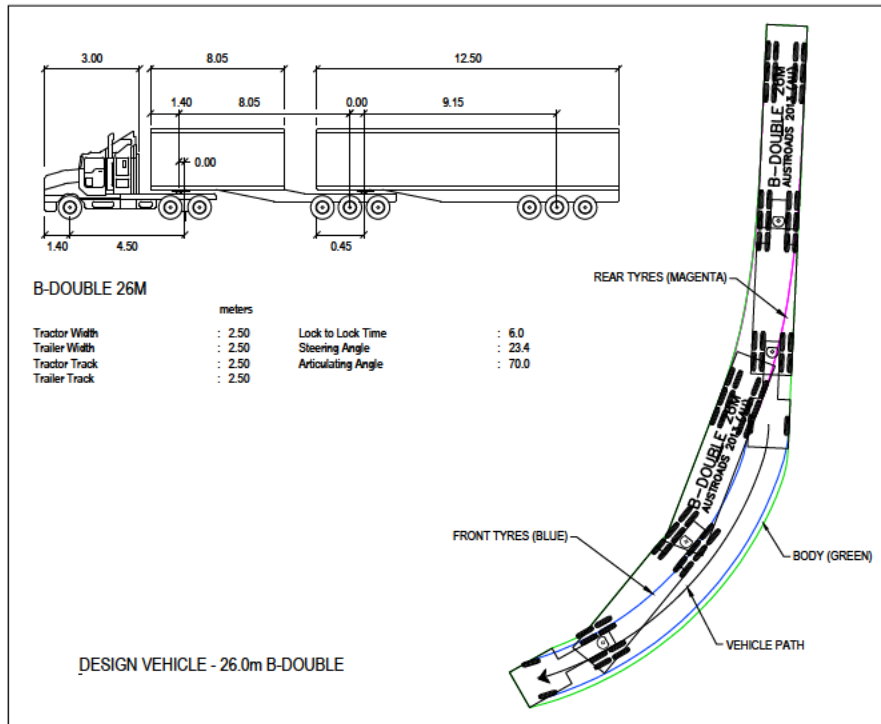
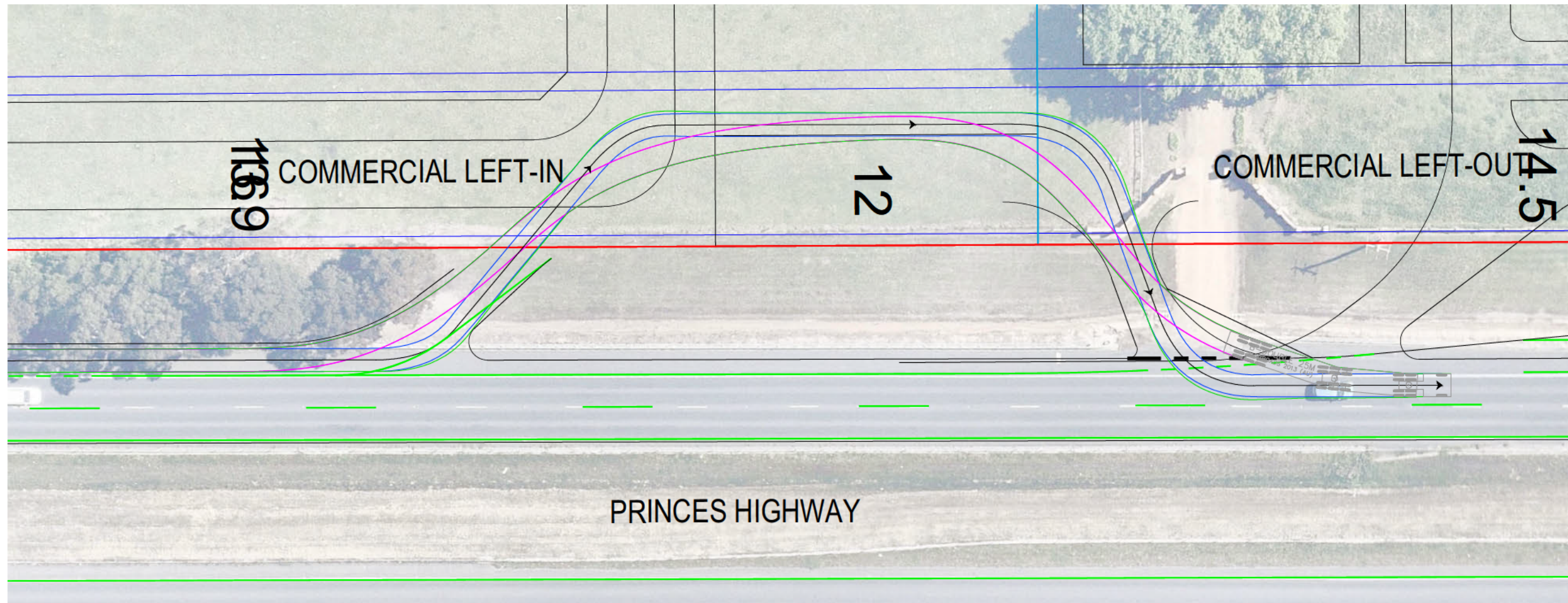
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 ph: 03 9534 8888
 www.beveridgewilliams.com.au

Project Details
 5495 PRINCES HWY
 TRARALGON
 LA TROBE

Drawing Title
 SWEPT PATH ANALYSIS - LEFT-IN/OUT
 DESIGN VEHICLE
 SHEET 1 OF 1

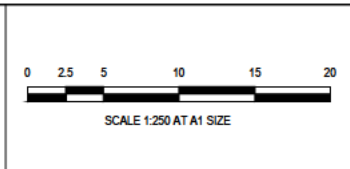
Sheet 03 of 10
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Project Ref 2101947
 Stage No TR
 Drawing No 942
 Rev P0



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REV	DESCRIPTION	DATE	DRN	APP	REV	DESCRIPTION	DATE	DRN	APP
P0	ISSUED FOR INFORMATION	10.02.23							



Designed Date: 10.02.2023
 Drawn: [Redacted]
 Checked Date: 10.02.2023
 Approved Reg. No.: PE000106
 Date: 10.02.2023
 PS Number: 0

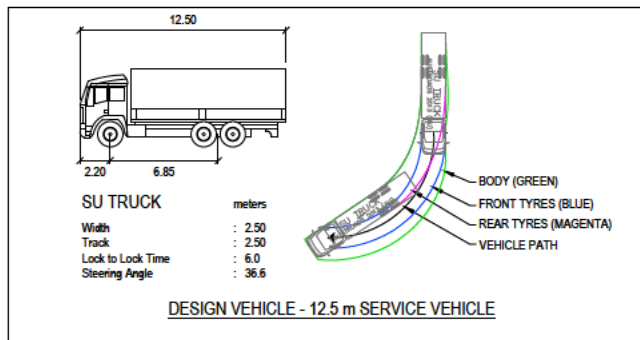
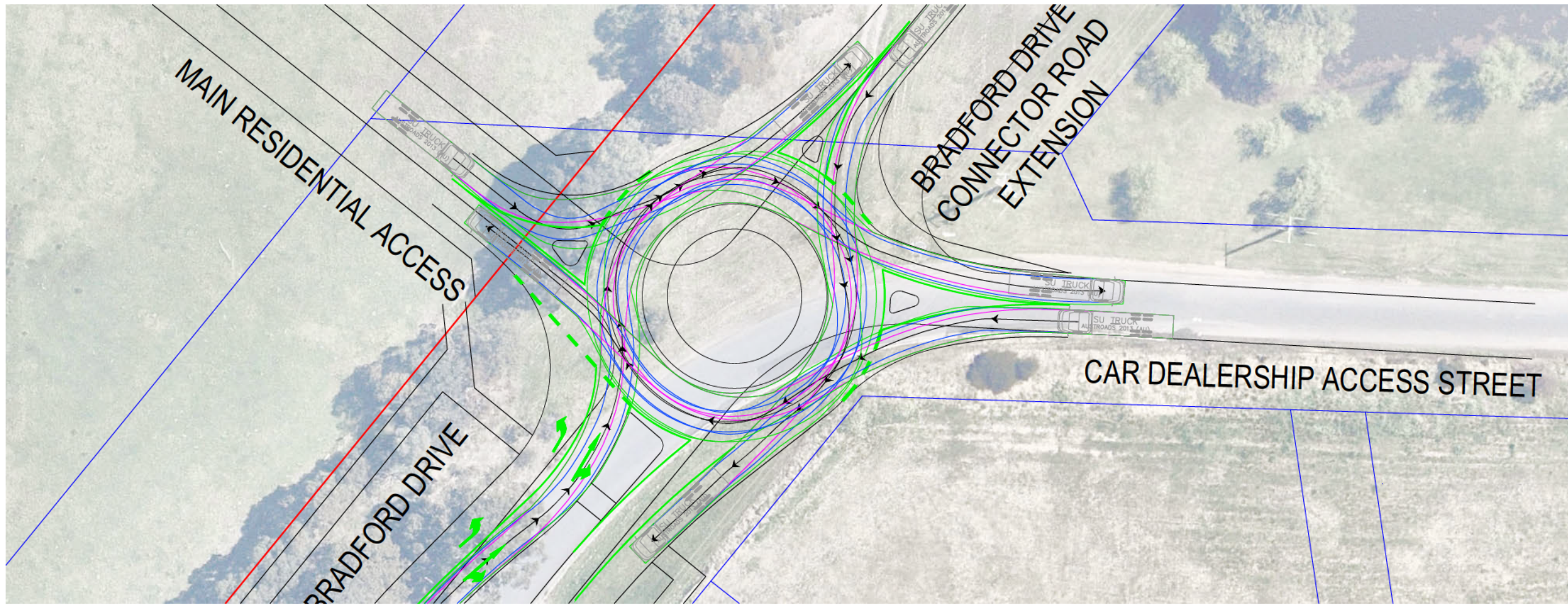
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Project Details
 5495 PRINCES HWY
 TRARALGON
 LA TROBE

Drawing Title
 SWEEP PATH ANALYSIS - LEFT-IN/OUT
 CHECK VEHICLE
 SHEET 1 OF 1

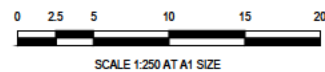
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Project Ref: 2101947
 Stage No: TR
 Drawing No: 943
 Rev: P0



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P0	ISSUED FOR INFORMATION	10.02.23							



Designed Date	10.02.2023
Drawn	
Checked Date	10.02.2023
Approved Reg. No.	PE2000198
Date	10.02.2023
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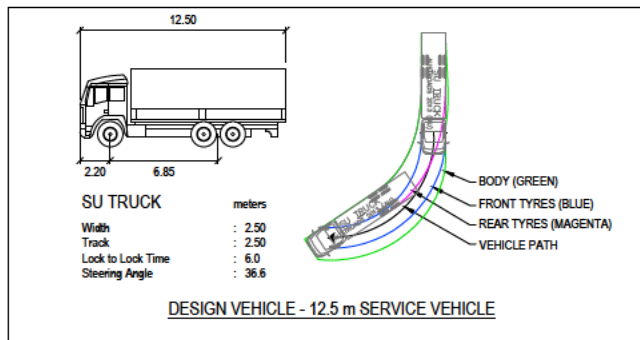
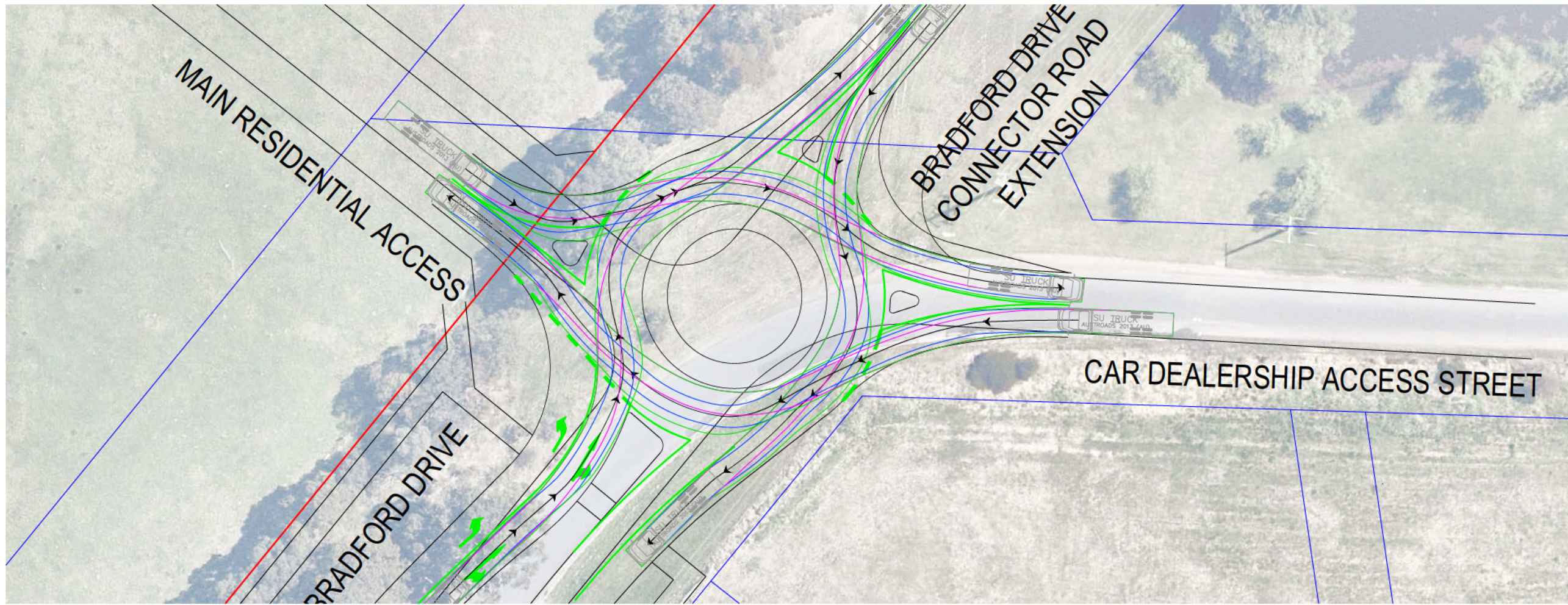
Project Details	5495 PRINCES HWY TRARALGON LA TROBE
Drawing Title	SWEPT PATH ANALYSIS - ROUNDABOUT DESIGN VEHICLE SHEET 1 OF 3

Sheet 05 of 10

Scale
1:250 @ A1

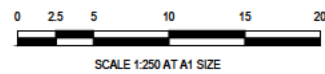


Project Ref	Stage No	Drawing No	Rev
2101947	TR	944	P0



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P0	ISSUED FOR INFORMATION	10.02.23							



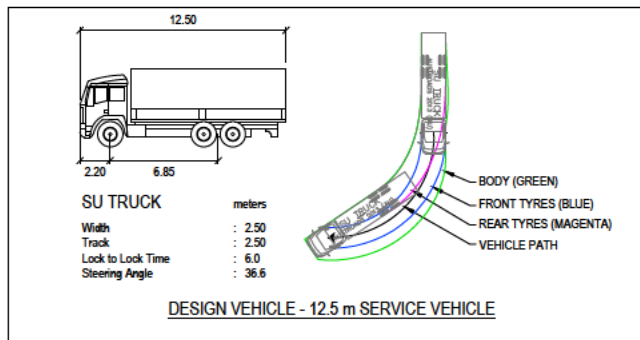
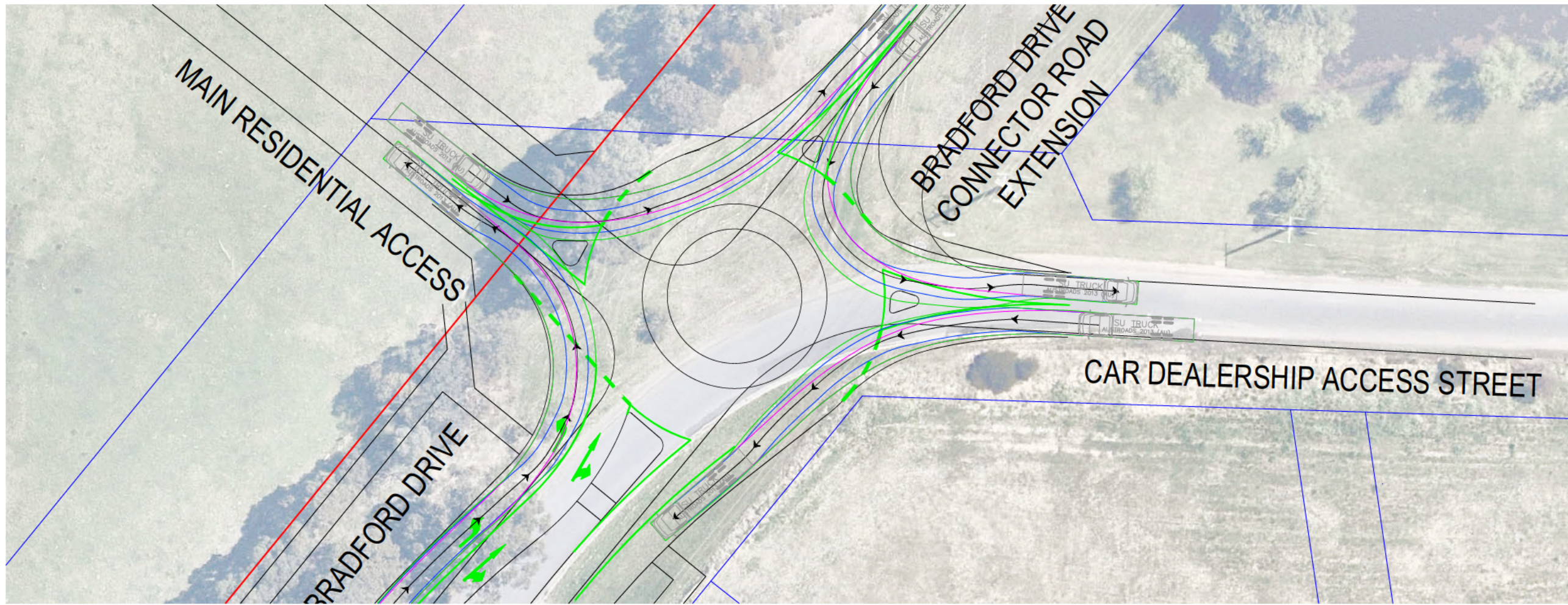
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 Checked Date: 10.02.2023
 Approved Reg. No.: PE2000198
 Date: 10.02.2023
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Project Details
 5495 PRINCES HWY
 TRARALGON
 LA TROBE

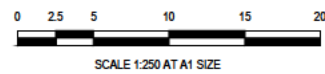
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 SWEPT PATH ANALYSIS - ROUNDABOUT
 DESIGN VEHICLE
 SHEET 2 OF 3

Sheet 06 of 10			
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Project Ref 2101947	Stage No TR	Drawing No 945	Rev P0



CONCEPT PLAN
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REV	DESCRIPTION	DATE	DRN	APP	REV	DESCRIPTION	DATE	DRN	APP
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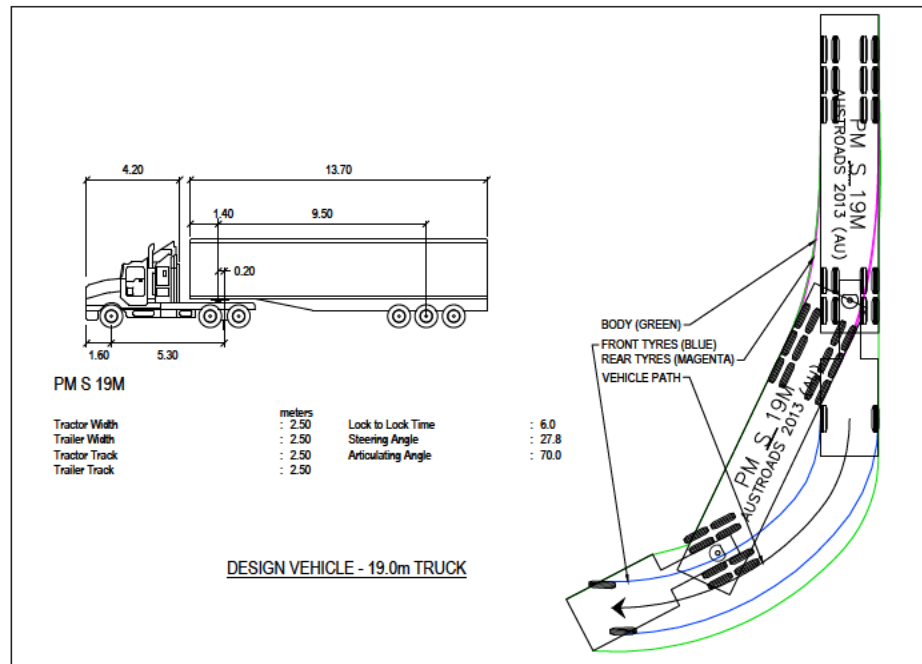
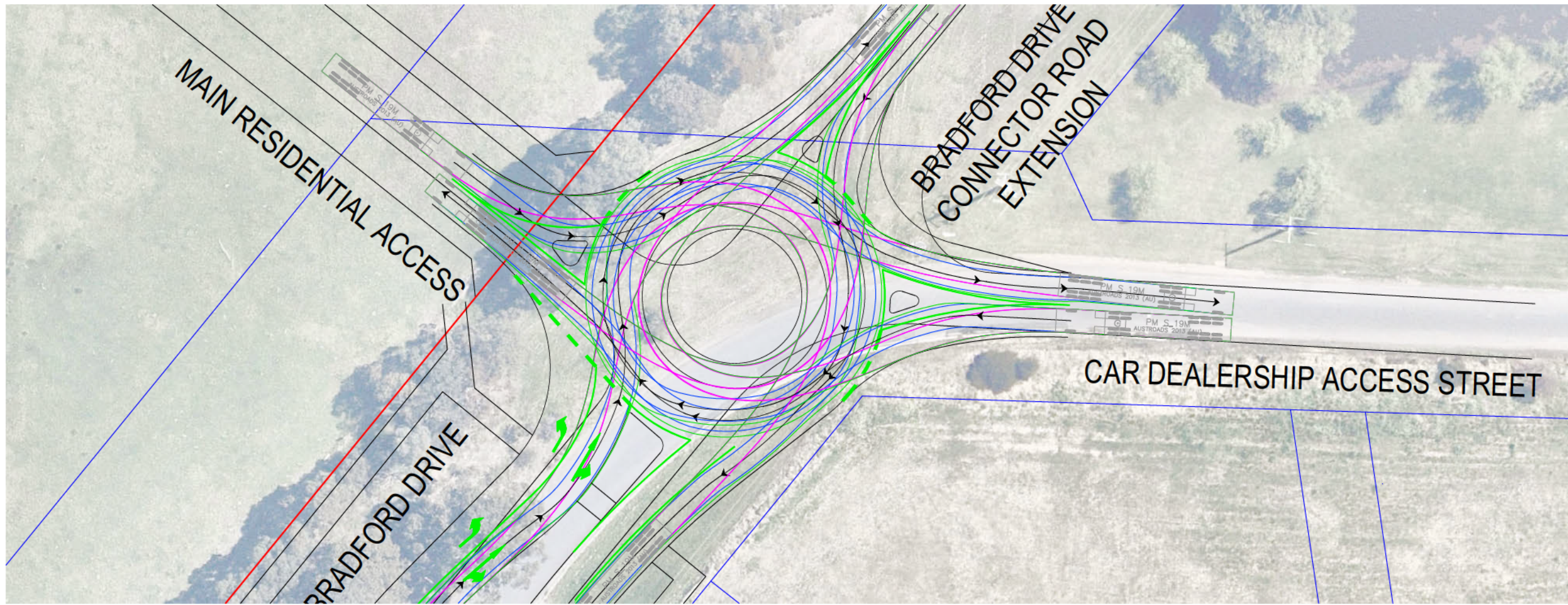
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Drawn	
Checked Date	10.02.2023
Approved Reg. No.	PE2000198
Date	10.02.2023
PS Number	0

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Project Details	5495 PRINCES HWY TRARALGON LA TROBE
Drawing Title	SWEPT PATH ANALYSIS - ROUNDABOUT DESIGN VEHICLE SHEET 3 OF 3

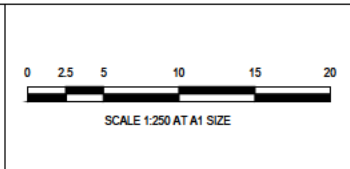
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Project Ref	2101947
Stage No	TR
Drawing No	946
Rev	P0





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Designed Date: 10.02.2023
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 Checked Date: 10.02.2023
 Approved Reg. No.: PE2000108
 Date: 10.02.2023
 PS Number: 0

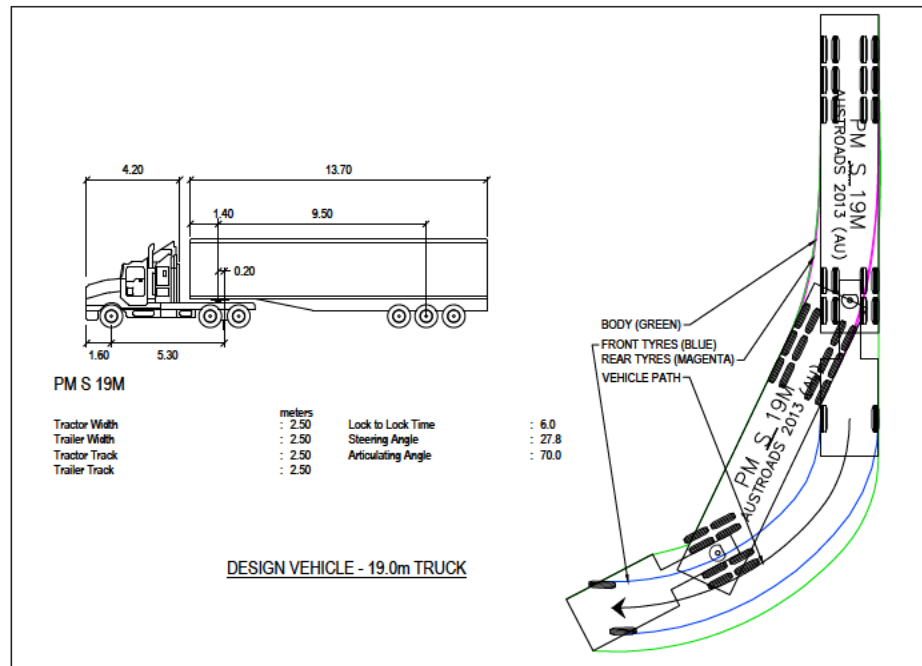
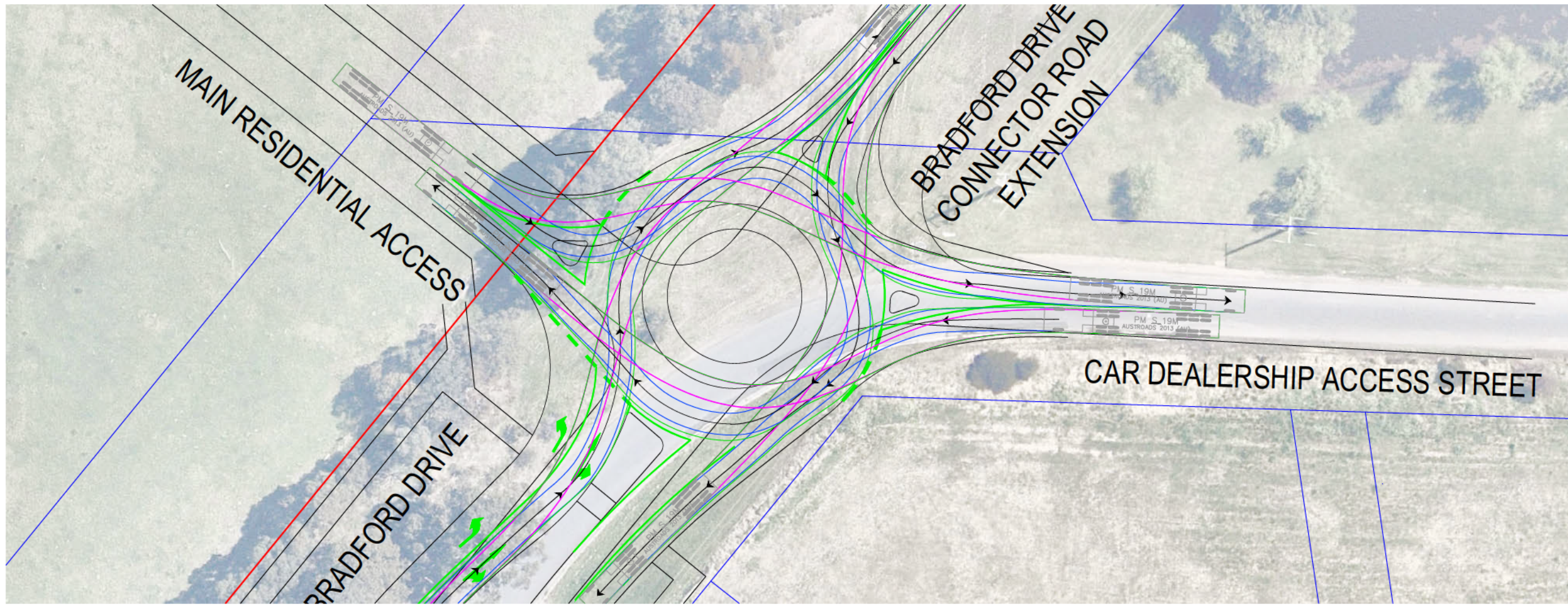
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Project Details
 5495 PRINCES HWY
 TRARALGON
 LA TROBE

Drawing Title
 SWEPT PATH ANALYSIS - ROUNDABOUT
 CHECK VEHICLE
 SHEET 1 OF 3

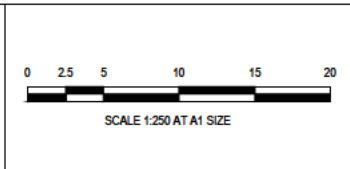
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Project Ref	2101947
Stage No	TR
Drawing No	947
Rev	P0





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REV	DESCRIPTION	DATE	DRN	APP	REV	DESCRIPTION	DATE	DRN	APP
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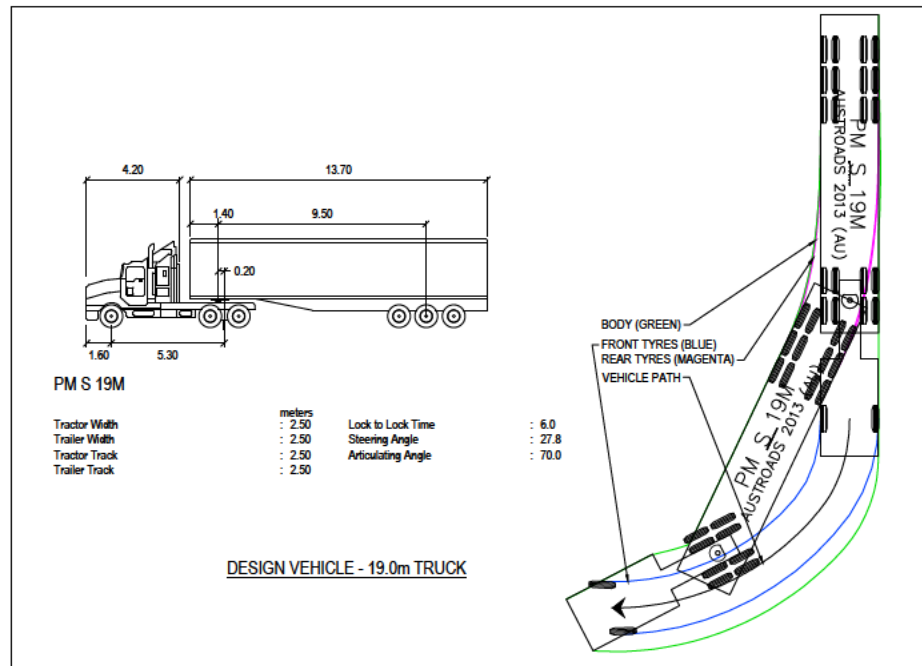
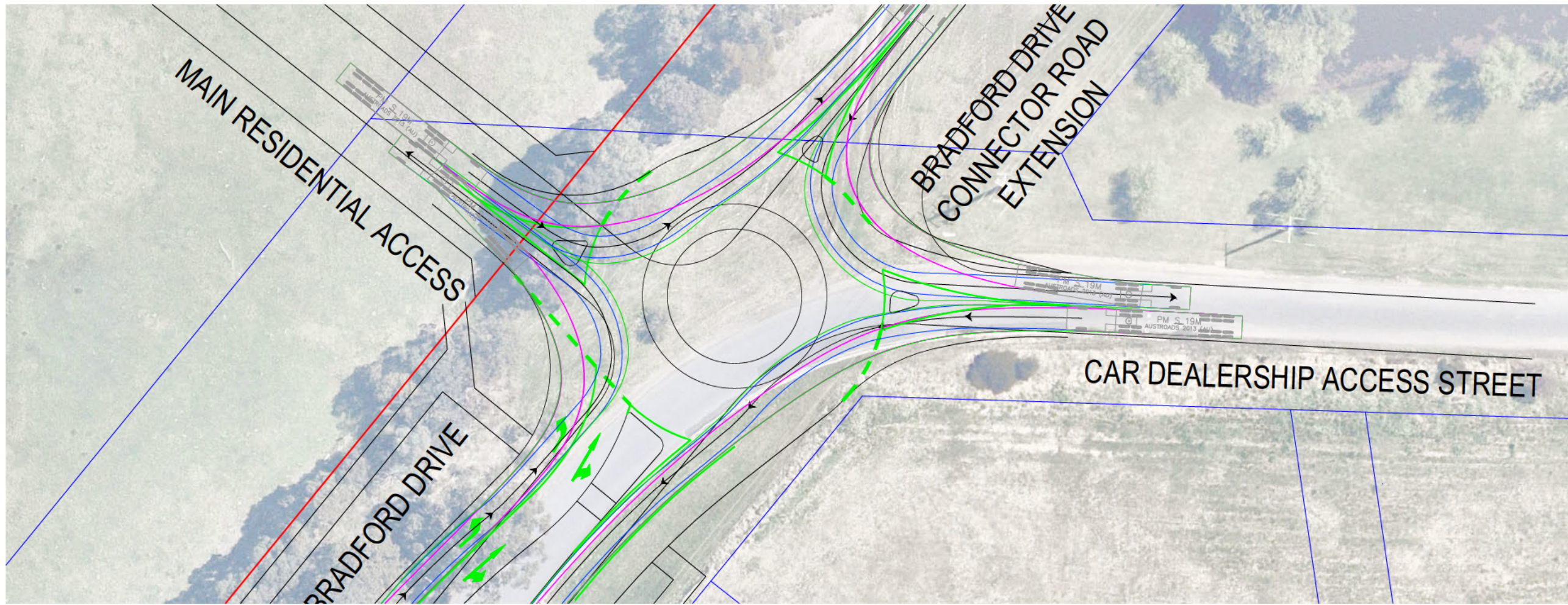
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 Checked Date: 10.02.2023
 Approved Reg. No. PE2000106
 Date: 10.02.2023
 PS Number: 0

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Project Details
 5495 PRINCES HWY
 TRARALGON
 LA TROBE

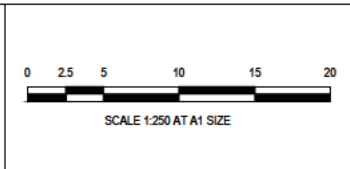
Drawing Title
 SWEPT PATH ANALYSIS - ROUNDABOUT
 CHECK VEHICLE
 SHEET 2 OF 3

Sheet	09 of 10						
Scale	1:250 @ A1						
Project Ref	2101947	Stage No	TR	Drawing No	948	Rev	P0



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PO	ISSUED FOR INFORMATION	10.02.23				
REV	DESCRIPTION	DATE	DRN	APP	REV	DESCRIPTION



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 Drawn: [Redacted]
 Checked Date: 10.02.2023
 Approved Reg. No. PE2000108
 Date: 10.02.2023
 PS Number: 0

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Project Details
 5495 PRINCES HWY
 TRARALGON
 LA TROBE

Drawing Title
 SWEPT PATH ANALYSIS - ROUNDABOUT
 CHECK VEHICLE
 SHEET 3 OF 3

Sheet 10 of 10			
Scale 1:250 @ A1			
Project Ref	Stage No	Drawing No	Rev
2101947	TR	949	P0

APPENDIX B: TURNING MOVEMENT COUNTS

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of Princes Hwy and Bradford Rd, Traralgon

GPS -38.209564, 146.492706

Date:	Thu 06/10/22
Weather:	Overcast
Suburban:	Traralgon
Customer:	BW

North:	Bradford Rd
East:	Princes Hwy
South:	N/A
West:	Princes Hwy

Survey Period	AM:	7:00 AM-12:00 PM
	PM:	12:00 PM-7:00 PM
Traffic Peak	AM:	8:00 AM-9:00 AM
	PM:	4:30 PM-5:30 PM

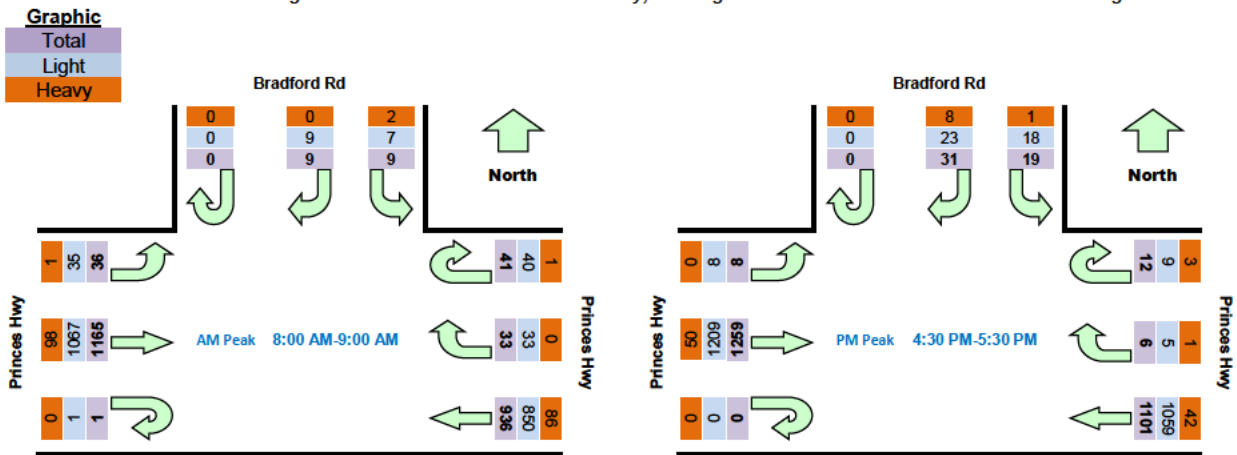
All Vehicles

Time		North Approach Bradford Rd			East Approach Princes Hwy			West Approach Princes Hwy			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	1	1	2	4	154	0	136	1	1644	
7:15	7:30	0	1	2	3	6	163	0	200	4	1872	
7:30	7:45	0	0	0	4	7	220	0	215	11	2040	
7:45	8:00	0	0	2	8	10	251	0	231	7	2149	
8:00	8:15	0	2	1	10	12	249	0	243	10	2230	Peak
8:15	8:30	0	1	4	12	14	219	0	283	14	2155	
8:30	8:45	0	3	1	12	4	222	0	319	5	2066	
8:45	9:00	0	3	3	7	3	246	1	320	7	1929	
9:00	9:15	0	3	4	5	3	217	0	216	4	1782	
9:15	9:30	0	1	4	5	2	208	0	235	3	1777	
9:30	9:45	1	4	4	4	1	199	0	212	4	1816	
9:45	10:00	0	1	5	7	5	206	2	217	0	1836	
10:00	10:15	0	3	4	9	5	215	0	208	3	1803	
10:15	10:30	0	3	2	7	0	235	0	249	1	1742	
10:30	10:45	0	1	4	4	1	195	0	241	3	1701	
10:45	11:00	0	2	2	7	0	183	0	213	3	1719	
11:00	11:15	0	1	2	5	2	186	0	188	2	1758	
11:15	11:30	0	4	2	4	3	238	0	200	5		
11:30	11:45	0	3	2	6	0	232	0	221	3		
11:45	12:00	0	2	1	4	1	205	1	232	3		
12:00	12:15	0	3	4	9	4	237	0	235	2	1921	
12:15	12:30	0	6	3	6	5	240	0	258	6	1894	
12:30	12:45	0	6	3	5	1	191	0	214	2	1845	
12:45	13:00	0	2	0	8	1	243	0	227	0	1901	
13:00	13:15	1	3	6	9	3	230	0	213	2	1925	
13:15	13:30	0	2	2	3	6	225	1	234	2	1950	
13:30	13:45	0	5	1	2	4	242	0	221	3	1980	
13:45	14:00	0	3	1	9	2	236	0	250	4	2011	
14:00	14:15	0	3	2	1	1	254	0	228	3	1997	
14:15	14:30	1	4	2	3	1	249	0	240	5	2049	
14:30	14:45	1	3	0	8	3	238	0	256	0	2140	
14:45	15:00	1	1	4	6	2	230	1	243	3	2201	
15:00	15:15	0	5	6	5	4	270	1	249	4	2282	
15:15	15:30	1	2	1	3	1	273	0	312	3	2329	
15:30	15:45	0	3	2	6	3	241	1	309	5	2318	
15:45	16:00	2	4	3	2	2	257	0	295	7	2377	
16:00	16:15	0	5	4	5	3	258	0	312	4	2401	
16:15	16:30	0	5	6	11	0	270	0	289	4	2378	

16:30	16:45	0	13	0	4	2	283	0	326	1	2436	Peak
16:45	17:00	0	5	9	6	1	253	0	319	3	2343	
17:00	17:15	0	5	3	1	1	266	0	290	2	2160	
17:15	17:30	0	8	7	1	2	299	0	324	2	1922	
17:30	17:45	0	8	5	0	0	261	0	262	0	1578	
17:45	18:00	0	3	3	5	0	208	0	193	1	1311	
18:00	18:15	0	1	0	0	0	154	0	174	1	1161	
18:15	18:30	0	0	0	1	1	151	0	146	0		
18:30	18:45	0	1	2	0	0	144	0	121	1		
18:45	19:00	0	0	0	0	0	124	0	139	0		

Peak Time		North Approach Bradford Rd			East Approach Princes Hwy			West Approach Princes Hwy			Peak total
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	
8:00	9:00	0	9	9	41	33	936	1	1165	36	2230
16:30	17:30	0	31	19	12	6	1101	0	1259	8	2436

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.



Light Vehicles

Time		North Approach Bradford Rd			East Approach Princes Hwy			West Approach Princes Hwy		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	1	0	1	4	141	0	114	1
7:15	7:30	0	1	1	3	6	149	0	173	3
7:30	7:45	0	0	0	4	7	195	0	182	11
7:45	8:00	0	0	1	8	9	230	0	208	7
8:00	8:15	0	2	1	10	12	231	0	217	10
8:15	8:30	0	1	3	11	14	200	0	256	14
8:30	8:45	0	3	1	12	4	203	0	299	5
8:45	9:00	0	3	2	7	3	216	1	295	6
9:00	9:15	0	3	3	5	3	185	0	197	4
9:15	9:30	0	1	4	5	1	181	0	220	3
9:30	9:45	1	4	4	4	1	176	0	200	4
9:45	10:00	0	1	5	7	5	191	2	200	0
10:00	10:15	0	3	4	9	3	185	0	183	3
10:15	10:30	0	3	1	6	0	214	0	222	1
10:30	10:45	0	0	4	4	0	175	0	227	3
10:45	11:00	0	2	1	7	0	154	0	201	3
11:00	11:15	0	1	2	4	2	164	0	171	2

11:15	11:30	0	4	2	4	3	217	0	185	5
11:30	11:45	0	3	2	6	0	213	0	205	3
11:45	12:00	0	2	1	3	1	191	1	215	3
12:00	12:15	0	3	3	8	4	216	0	214	2
12:15	12:30	0	6	3	6	5	222	0	242	6
12:30	12:45	0	6	3	5	1	180	0	200	2
12:45	13:00	0	2	0	8	1	227	0	203	0
13:00	13:15	1	3	6	9	3	213	0	192	2
13:15	13:30	0	2	2	3	6	204	1	221	2
13:30	13:45	0	5	1	2	4	226	0	208	3
13:45	14:00	0	3	1	9	2	219	0	235	3
14:00	14:15	0	2	2	1	1	230	0	207	3
14:15	14:30	1	4	2	3	1	225	0	219	5
14:30	14:45	1	3	0	8	3	217	0	240	0
14:45	15:00	1	1	4	5	2	213	1	226	3
15:00	15:15	0	5	6	5	4	246	1	233	4
15:15	15:30	1	2	1	3	1	252	0	296	3
15:30	15:45	0	3	2	6	3	223	1	298	5
15:45	16:00	2	4	3	2	2	244	0	279	7
16:00	16:15	0	5	4	5	3	247	0	298	4
16:15	16:30	0	5	6	11	0	256	0	275	4
16:30	16:45	0	6	0	3	2	273	0	315	1
16:45	17:00	0	5	9	4	0	243	0	305	3
17:00	17:15	0	5	3	1	1	258	0	281	2
17:15	17:30	0	7	6	1	2	285	0	308	2
17:30	17:45	0	8	5	0	0	250	0	255	0
17:45	18:00	0	3	3	5	0	207	0	183	1
18:00	18:15	0	1	0	0	0	150	0	169	1
18:15	18:30	0	0	0	1	1	146	0	135	0
18:30	18:45	0	1	2	0	0	139	0	118	1
18:45	19:00	0	0	0	0	0	118	0	136	0

Peak Time		North Approach Bradford Rd			East Approach Princes Hwy			West Approach Princes Hwy			Peak total
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	
8:00	9:00	0	9	7	40	33	850	1	1067	35	2042
16:30	17:30	0	23	18	9	5	1059	0	1209	8	2331

Heavy Vehicles

Time		North Approach Bradford Rd			East Approach Princes Hwy			West Approach Princes Hwy		
Period Start	Period End	U	R	L	U	R	WB	U	EB	L
7:00	7:15	0	0	1	1	0	13	0	22	0
7:15	7:30	0	0	1	0	0	14	0	27	1
7:30	7:45	0	0	0	0	0	25	0	33	0
7:45	8:00	0	0	1	0	1	21	0	23	0
8:00	8:15	0	0	0	0	0	18	0	26	0
8:15	8:30	0	0	1	1	0	19	0	27	0
8:30	8:45	0	0	0	0	0	19	0	20	0
8:45	9:00	0	0	1	0	0	30	0	25	1
9:00	9:15	0	0	1	0	0	32	0	19	0
9:15	9:30	0	0	0	0	1	27	0	15	0
9:30	9:45	0	0	0	0	0	23	0	12	0

9:45	10:00	0	0	0	0	0	15	0	17	0
10:00	10:15	0	0	0	0	2	30	0	25	0
10:15	10:30	0	0	1	1	0	21	0	27	0
10:30	10:45	0	1	0	0	1	20	0	14	0
10:45	11:00	0	0	1	0	0	29	0	12	0
11:00	11:15	0	0	0	1	0	22	0	17	0
11:15	11:30	0	0	0	0	0	21	0	15	0
11:30	11:45	0	0	0	0	0	19	0	16	0
11:45	12:00	0	0	0	1	0	14	0	17	0
12:00	12:15	0	0	1	1	0	21	0	21	0
12:15	12:30	0	0	0	0	0	18	0	16	0
12:30	12:45	0	0	0	0	0	11	0	14	0
12:45	13:00	0	0	0	0	0	16	0	24	0
13:00	13:15	0	0	0	0	0	17	0	21	0
13:15	13:30	0	0	0	0	0	21	0	13	0
13:30	13:45	0	0	0	0	0	16	0	13	0
13:45	14:00	0	0	0	0	0	17	0	15	1
14:00	14:15	0	1	0	0	0	24	0	21	0
14:15	14:30	0	0	0	0	0	24	0	21	0
14:30	14:45	0	0	0	0	0	21	0	16	0
14:45	15:00	0	0	0	1	0	17	0	17	0
15:00	15:15	0	0	0	0	0	24	0	16	0
15:15	15:30	0	0	0	0	0	21	0	16	0
15:30	15:45	0	0	0	0	0	18	0	11	0
15:45	16:00	0	0	0	0	0	13	0	16	0
16:00	16:15	0	0	0	0	0	11	0	14	0
16:15	16:30	0	0	0	0	0	14	0	14	0
16:30	16:45	0	7	0	1	0	10	0	11	0
16:45	17:00	0	0	0	2	1	10	0	14	0
17:00	17:15	0	0	0	0	0	8	0	9	0
17:15	17:30	0	1	1	0	0	14	0	16	0
17:30	17:45	0	0	0	0	0	11	0	7	0
17:45	18:00	0	0	0	0	0	1	0	10	0
18:00	18:15	0	0	0	0	0	4	0	5	0
18:15	18:30	0	0	0	0	0	5	0	11	0
18:30	18:45	0	0	0	0	0	5	0	3	0
18:45	19:00	0	0	0	0	0	6	0	3	0

Peak Time		North Approach Bradford Rd			East Approach Princes Hwy		West Approach Princes Hwy			Peak total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	
8:00	9:00	0	0	2	1	0	86	0	98	1	188
16:30	17:30	0	8	1	3	1	42	0	50	0	105

Intersection of Old Melbourne Rd and Copeland Ct, Traralgon

GPS -38.198424, 146.495493
 Date: Thu 27/10/22
 Weather: Overcast
 Suburban: Traralgon
 Customer: Beveridge Williams

North: Copeland Ct
 East: Old Melbourne Rd
 South: Regan Rd
 West: Old Melbourne Rd

Survey Period AM: 7:00 AM-12:00 PM
 PM: 12:00 PM-7:00 PM
 Traffic Peak AM: 8:00 AM-9:00 AM
 PM: 4:15 PM-5:15 PM

All Vehicles

Time		North Approach Copeland Ct				East Approach Old Melbourne Rd				South Approach Regan Rd				West Approach Old Melbourne Rd				Hourly Total	Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	0	0	0	0	0	33	0	0	0	0	0	0	0	30	0	424	
7:15	7:30	0	0	0	0	0	0	56	0	0	0	0	0	0	0	30	0	520	
7:30	7:45	0	0	0	0	0	0	60	0	0	0	0	0	0	0	39	0	611	
7:45	8:00	0	0	0	0	0	0	109	1	0	0	0	1	0	0	64	1	714	
8:00	8:15	0	0	0	1	0	0	90	0	0	0	0	1	0	1	65	1	730	Peak
8:15	8:30	0	0	0	0	0	0	80	0	0	0	0	2	0	0	95	0	666	
8:30	8:45	0	0	0	1	0	0	100	0	0	0	0	0	0	0	101	0	587	
8:45	9:00	0	0	0	1	0	0	100	2	0	3	0	0	0	0	86	0	477	
9:00	9:15	0	0	0	0	0	0	56	0	0	0	0	0	0	0	39	0	413	
9:15	9:30	0	0	0	1	0	2	57	0	0	0	0	0	0	0	38	0	426	
9:30	9:45	0	0	0	0	0	0	56	0	0	0	0	0	0	0	36	0	446	
9:45	10:00	0	0	0	0	0	0	63	1	0	2	0	0	0	1	60	1	445	
10:00	10:15	0	0	0	0	0	0	46	0	0	4	0	0	0	0	58	0	417	
10:15	10:30	0	0	0	0	0	0	55	1	0	2	0	1	0	0	59	0	403	
10:30	10:45	0	0	0	0	0	0	45	0	0	0	0	0	0	0	46	0	405	
10:45	11:00	0	0	0	0	0	0	54	0	0	0	0	0	0	1	45	0	424	
11:00	11:15	0	0	0	0	0	0	53	5	0	0	0	1	0	0	35	0	426	
11:15	11:30	0	0	0	0	0	0	79	0	0	1	0	0	0	0	40	0	483	
11:30	11:45	0	0	0	0	0	0	75	0	0	3	0	1	0	0	31	0	487	
11:45	12:00	0	0	0	0	0	0	52	0	0	3	0	1	0	0	46	0	486	
12:00	12:15	0	0	0	0	0	0	77	4	0	0	0	0	0	0	70	0	465	
12:15	12:30	0	0	0	0	0	1	64	3	0	0	0	0	0	0	56	0	408	
12:30	12:45	0	1	0	0	0	1	50	0	0	3	0	0	0	0	54	0	393	
12:45	13:00	0	0	0	0	0	0	46	1	0	1	0	0	0	0	33	0	393	
13:00	13:15	0	0	0	0	0	0	48	0	0	0	0	1	0	0	45	0	448	
13:15	13:30	0	0	0	0	0	0	57	4	0	0	0	0	0	0	48	0	476	
13:30	13:45	0	0	0	0	0	0	57	0	0	0	0	0	0	0	52	0	506	
13:45	14:00	0	1	0	0	0	3	68	2	0	2	2	0	0	1	57	0	548	
14:00	14:15	0	0	0	0	0	0	63	2	0	0	0	1	0	0	56	0	552	
14:15	14:30	0	0	0	0	0	0	70	2	0	0	0	0	0	0	66	1	594	
14:30	14:45	0	0	0	1	0	0	68	0	0	0	0	1	0	1	80	0	639	
14:45	15:00	0	1	0	1	0	0	68	0	0	2	0	1	0	0	64	3	685	
15:00	15:15	0	1	0	0	0	0	82	0	0	1	0	2	0	0	77	1	741	
15:15	15:30	0	0	0	0	0	1	73	1	0	0	0	0	0	0	109	0	768	
15:30	15:45	0	0	0	0	0	0	88	1	0	3	0	1	0	0	104	0	781	
15:45	16:00	0	0	0	0	0	0	97	3	0	0	0	0	0	0	96	0	791	
16:00	16:15	0	0	0	0	1	0	102	0	0	1	0	1	0	0	86	0	778	
16:15	16:30	0	0	0	0	0	0	83	4	0	1	0	0	0	0	109	0	803	Peak
16:30	16:45	0	0	0	0	0	0	91	1	0	0	0	0	0	0	115	0	790	
16:45	17:00	0	0	0	0	0	0	83	2	0	1	0	0	0	0	97	0	741	
17:00	17:15	0	0	0	0	0	0	111	0	0	3	0	0	0	1	101	0	683	
17:15	17:30	0	0	0	1	0	0	94	5	0	1	0	0	0	1	82	0	578	
17:30	17:45	0	0	0	0	0	0	90	1	0	0	0	0	0	1	66	0	483	
17:45	18:00	0	0	0	0	0	0	61	3	0	3	0	0	0	0	58	0	392	
18:00	18:15	0	0	0	0	0	1	59	2	0	0	0	0	0	1	48	0	326	
18:15	18:30	0	0	0	0	0	0	48	1	0	2	0	0	0	0	38	0		
18:30	18:45	0	2	0	0	0	0	32	1	0	2	0	0	0	0	30	0		
18:45	19:00	0	0	0	0	0	1	29	1	0	0	0	0	0	0	28	0		

Peak Time		North Approach Copeland Ct				East Approach Old Melbourne Rd				South Approach Regan Rd				West Approach Old Melbourne Rd				Peak total
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Peak total
8:00	9:00	0	0	0	3	0	0	370	2	0	3	0	3	0	1	347	1	730
16:15	17:15	0	0	0	0	0	0	368	7	0	5	0	0	0	1	422	0	803

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.



8:15	8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
8:30	8:45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0
8:45	9:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	
9:00	9:15	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	
9:15	9:30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	
9:30	9:45	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	
9:45	10:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	
10:00	10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	
10:15	10:30	0	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	
10:30	10:45	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	
10:45	11:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
11:00	11:15	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	
11:15	11:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	
11:30	11:45	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	
11:45	12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	
12:00	12:15	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	
12:15	12:30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	
12:30	12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45	13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13:00	13:15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	
13:15	13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13:30	13:45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
13:45	14:00	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	
14:00	14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
14:15	14:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	
14:30	14:45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
14:45	15:00	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	
15:15	15:30	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	
15:30	15:45	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	
15:45	16:00	0	0	0	0	0	0	7	0	0	0	0	0	0	0	2	0	
16:00	16:15	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	
16:15	16:30	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	
16:30	16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	
16:45	17:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	
17:00	17:15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	
17:15	17:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	
17:30	17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	
17:45	18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18:00	18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18:15	18:30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
18:30	18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
18:45	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Peak Time		North Approach Copeland Ct				East Approach Old Melbourne Rd				South Approach Regan Rd				West Approach Old Melbourne Rd				Peak total
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	
8:00	9:00	0	0	0	0	0	0	4	0	0	0	0	0	0	0	14	0	18
16:15	17:15	0	0	0	0	0	0	6	0	0	0	0	0	0	0	10	0	16

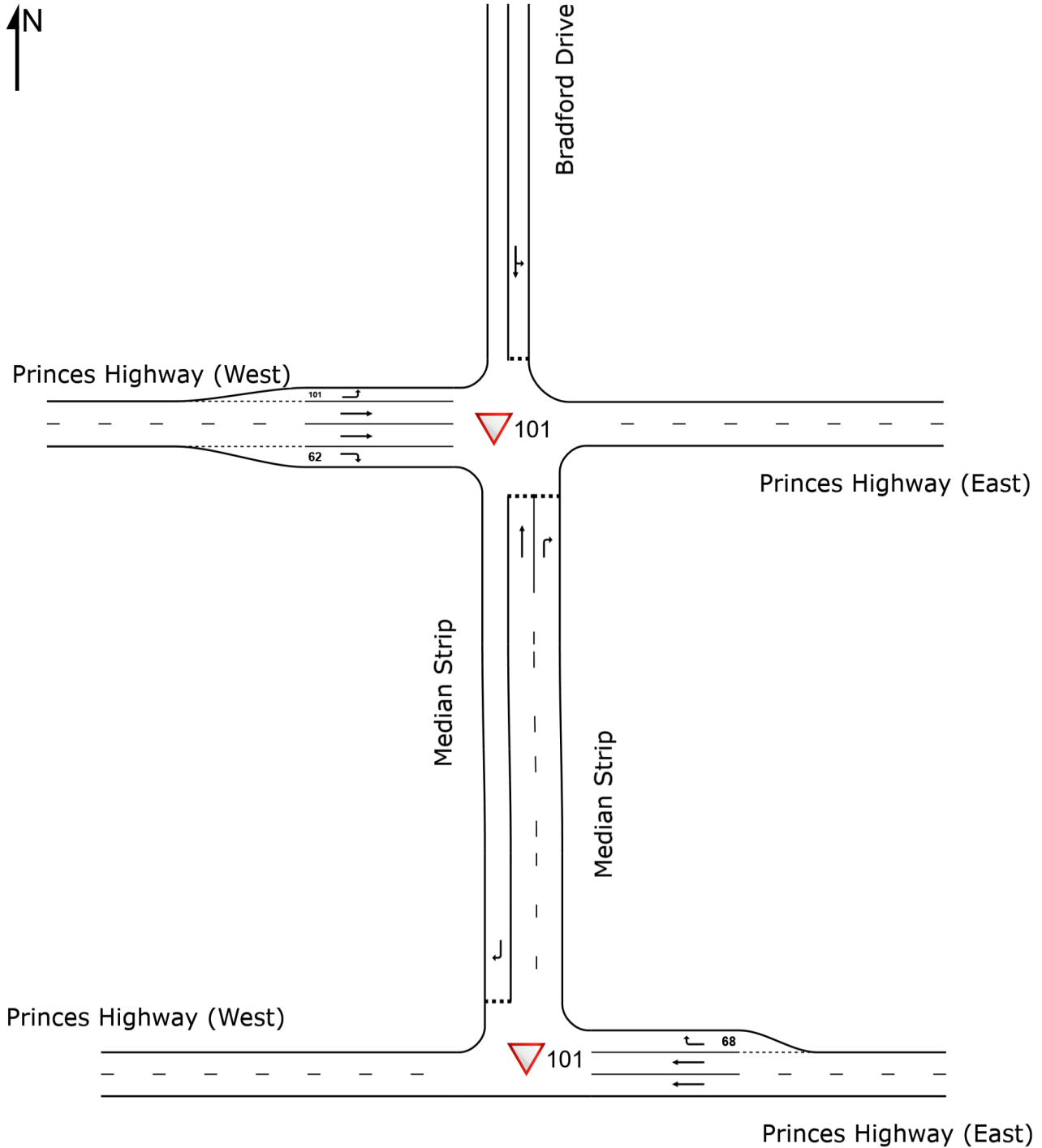
APPENDIX C: SIDRA ANALYSIS

NETWORK LAYOUT

■ Network: N101 [Ex. AM. Princes Highway Operation
(Network Folder: Existing)]

New Network
Network Category: (None)

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



SITES IN NETWORK		
Site ID	CCG ID	Site Name
▽101	NA	Ex. AM. - (North) Princes Highway
▽101	NA	Ex. AM. - (South) Princes Highway

Project: K:\Jobs Data\2101947 - 5495 Princes Highway, Traralgon_Traf_Documents\Report\2101947 - Scenario 1 - Analysis\2101947-SIDRA-2.0-Scenario 1 (Part B).sip9

MOVEMENT SUMMARY

Site: 101 [Ex. AM. - (North) Princes Highway (Site Folder: Princes Highway - Unsignalised)]

Network: N101 [Ex. AM. Princes Highway Operation (Network Folder: Existing)]

Northern Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Median Strip														
2	T1	35	4.0	35	4.0	0.233	28.2	LOS D	0.8	5.7	0.90	0.95	0.98	36.3
3	R2	43	4.0	43	4.0	0.120	10.8	LOS B	0.4	2.8	0.78	0.86	0.78	56.3
Approach		78	4.0	78	4.0	0.233	18.6	LOS C	0.8	5.7	0.83	0.90	0.87	47.4
North: Bradford Drive														
7	L2	9	4.0	9	4.0	0.027	11.7	LOS B	0.1	0.7	0.60	0.78	0.60	68.9
8	T1	9	4.0	9	4.0	0.027	11.7	LOS B	0.1	0.7	0.60	0.78	0.60	63.5
Approach		19	4.0	19	4.0	0.027	11.7	LOS B	0.1	0.7	0.60	0.78	0.60	67.3
West: Princes Highway (West)														
10	L2	38	4.0	38	4.0	0.022	7.9	LOS A	0.0	0.0	0.00	0.66	0.00	74.1
11	T1	1226	10.0	1226	10.0	0.331	2.0	LOS A	0.0	0.0	0.00	0.27	0.00	95.3
12	R2	1	4.0	1	4.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	71.5
Approach		1265	9.8	1265	9.8	0.331	2.2	NA	0.0	0.0	0.00	0.28	0.00	94.7
All Vehicles		1362	9.4	1362	9.4	0.331	3.3	NA	0.8	5.7	0.06	0.32	0.06	91.4

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

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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SIDRA-2.0-Scenario 1 (Part B).sip9

MOVEMENT SUMMARY

Site: 101 [Ex. AM. - (South) Princes Highway (Site Folder: Princes Highway - Unsignalised)]

Network: N101 [Ex. AM. Princes Highway Operation (Network Folder: Existing)]

Southern Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Princes Highway (East)														
5	T1	985	10.0	985	10.0	0.268	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
6	R2	78	4.0	78	4.0	0.045	6.8	LOS A	0.2	1.5	0.05	0.63	0.05	68.2
Approach		1063	9.6	1063	9.6	0.268	0.6	NA	0.2	1.5	0.00	0.05	0.00	79.2
North: Median Strip														
9	R2	11	4.0	11	4.0	0.031	10.8	LOS B	0.1	0.7	0.74	0.82	0.74	51.1
Approach		11	4.0	11	4.0	0.031	10.8	LOS B	0.1	0.7	0.74	0.82	0.74	51.1
All Vehicles		1074	9.5	1074	9.5	0.268	0.7	NA	0.2	1.5	0.01	0.05	0.01	79.0

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

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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SIDRA-2.0-Scenario 1 (Part B).sip9

MOVEMENT SUMMARY

Site: 101 [Ex. PM. - (North) Princes Highway (Site Folder: Princes Highway - Unsignalised)]

Network: N101 [Ex. PM. Princes Highway Operation (Network Folder: Existing)]

Northern Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Median Strip														
2	T1	6	4.0	6	4.0	0.051	29.6	LOS D	0.1	0.5	0.90	0.92	0.90	35.4
3	R2	13	4.0	13	4.0	0.041	12.1	LOS B	0.1	0.4	0.80	0.88	0.80	55.1
Approach		19	4.0	19	4.0	0.051	17.9	LOS C	0.1	0.5	0.83	0.89	0.83	48.5
North: Bradford Drive														
7	L2	20	4.0	20	4.0	0.080	12.5	LOS B	0.1	0.9	0.66	0.87	0.66	68.3
8	T1	33	4.0	33	4.0	0.080	12.3	LOS B	0.1	0.9	0.66	0.87	0.66	62.2
Approach		53	4.0	53	4.0	0.080	12.4	LOS B	0.1	0.9	0.66	0.87	0.66	65.8
West: Princes Highway (West)														
10	L2	8	4.0	8	4.0	0.005	7.9	LOS A	0.0	0.0	0.00	0.66	0.00	74.1
11	T1	1325	10.0	1325	10.0	0.358	2.0	LOS A	0.0	0.0	0.00	0.27	0.00	95.3
12	R2	1	4.0	1	4.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	71.5
Approach		1335	10.0	1335	10.0	0.358	2.1	NA	0.0	0.0	0.00	0.27	0.00	95.1
All Vehicles		1406	9.7	1406	9.7	0.358	2.7	NA	0.1	0.9	0.04	0.30	0.04	93.4

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

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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SIDRA-2.0-Scenario 1 (Part B).sip9

MOVEMENT SUMMARY

Site: 101 [Ex. PM. - (South) Princes Highway (Site Folder: Princes Highway - Unsignalised)]

Network: N101 [Ex. PM. Princes Highway Operation (Network Folder: Existing)]

Southern Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Princes Highway (East)														
5	T1	1159	10.0	1159	10.0	0.315	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
6	R2	19	4.0	19	4.0	0.011	6.8	LOS A	0.0	0.1	0.10	0.61	0.10	68.0
Approach		1178	9.9	1178	9.9	0.315	0.2	NA	0.0	0.1	0.00	0.01	0.00	79.6
North: Median Strip														
9	R2	33	4.0	33	4.0	0.132	15.7	LOS C	0.2	1.3	0.83	0.89	0.83	45.3
Approach		33	4.0	33	4.0	0.132	15.7	LOS C	0.2	1.3	0.83	0.89	0.83	45.3
All Vehicles		1211	9.7	1211	9.7	0.315	0.6	NA	0.2	1.3	0.02	0.03	0.02	79.0

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

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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SIDRA-2.0-Scenario 1 (Part B).sip9

MOVEMENT SUMMARY

Site: 101 [Ex. AM. @ 10yrs. - (North) Princes Highway - Copy - Import (Site Folder: Princes Highway - Unsignalised)]

Network: N101 [Ex. AM. @ 10yrs Princes Highway Operation - Import (Network Folder: Existing @ 10 years)]

Northern Intersection of Princes Highway and Bradford Drive
 Site Category: (None)
 Give-Way (Two-Way)
 Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Median Strip														
2	T1	42	4.0	42	4.0	0.553	76.1	LOS F ¹¹	1.9	14.0	0.97	1.10	1.27	19.7
3	R2	53	4.0	53	4.0	0.229	18.1	LOS C	0.7	5.3	0.88	0.96	0.95	50.0
Approach		95	4.0	95	4.0	0.553	44.0	LOS E ¹¹	1.9	14.0	0.92	1.02	1.09	32.8
North: Bradford Drive														
7	L2	12	4.0	12	4.0	0.045	13.5	LOS B	0.2	1.1	0.71	0.89	0.71	67.0
8	T1	12	4.0	12	4.0	0.045	14.1	LOS B	0.2	1.1	0.71	0.89	0.71	59.6
Approach		23	4.0	23	4.0	0.045	13.8	LOS B	0.2	1.1	0.71	0.89	0.71	64.8
West: Princes Highway (West)														
10	L2	46	4.0	46	4.0	0.027	7.9	LOS A	0.0	0.0	0.00	0.66	0.00	74.1
11	T1	1495	10.0	1495	10.0	0.404	2.0	LOS A	0.0	0.0	0.00	0.27	0.00	95.2
12	R2	1	4.0	1	4.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	71.5
Approach		1542	9.8	1542	9.8	0.404	2.2	NA	0.0	0.0	0.00	0.28	0.00	94.6
All Vehicles		1660	9.4	1660	9.4	0.553	4.8	NA	1.9	14.0	0.06	0.33	0.07	88.9

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

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

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

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

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SIDRA-2.0-Scenario 1 (Part B).sip9

MOVEMENT SUMMARY

Site: 101 [Ex. AM. @ 10yrs. - (South) Princes Highway - Import (Site Folder: Princes Highway - Unsignalised)]

Network: N101 [Ex. AM. @ 10yrs Princes Highway Operation - Import (Network Folder: Existing @ 10 years)]

Southern Intersection of Princes Highway and Bradford Drive
 Site Category: (None)
 Give-Way (Two-Way)
 Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: Princes Highway (East)														
5	T1	1201	10.0	1201	10.0	0.326	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
6	R2	95	4.0	95	4.0	0.054	6.8	LOS A	0.3	1.8	0.06	0.63	0.06	68.2
Approach		1296	9.6	1296	9.6	0.326	0.6	NA	0.3	1.8	0.00	0.05	0.00	79.1
North: Median Strip														
9	R2	13	4.0	13	4.0	0.057	16.6	LOS C	0.2	1.3	0.83	0.89	0.83	44.5
Approach		13	4.0	13	4.0	0.057	16.6	LOS C	0.2	1.3	0.83	0.89	0.83	44.5
All Vehicles		1309	9.5	1309	9.5	0.326	0.8	NA	0.3	1.8	0.01	0.05	0.01	78.9

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

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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SIDRA-2.0-Scenario 1 (Part B).sip9

MOVEMENT SUMMARY

Site: 101 [Ex. PM. @ 10yrs. - (North) Princes Highway - Import (Site Folder: Princes Highway - Unsignalised)]

Network: N101 [Ex. PM. @ 10yrs Princes Highway Operation - Import (Network Folder: Existing @ 10 years)]

Northern Intersection of Princes Highway and Bradford Drive
 Site Category: (None)
 Give-Way (Two-Way)
 Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Median Strip														
2	T1	8	4.0	8	4.0	0.131	61.4	LOS F ¹¹	0.2	1.1	0.96	0.96	0.96	23.0
3	R2	15	4.0	15	4.0	0.084	20.2	LOS C	0.1	0.7	0.88	0.93	0.88	48.4
Approach		23	4.0	23	4.0	0.131	33.9	LOS D	0.2	1.1	0.91	0.94	0.91	38.1
North: Bradford Drive														
7	L2	24	4.0	24	4.0	0.137	14.8	LOS B	0.2	1.4	0.77	0.92	0.77	65.9
8	T1	40	4.0	40	4.0	0.137	15.3	LOS C	0.2	1.4	0.77	0.92	0.77	57.3
Approach		64	4.0	64	4.0	0.137	15.2	LOS C	0.2	1.4	0.77	0.92	0.77	62.3
West: Princes Highway (West)														
10	L2	10	4.0	10	4.0	0.006	7.9	LOS A	0.0	0.0	0.00	0.66	0.00	74.1
11	T1	1615	10.0	1615	10.0	0.437	2.0	LOS A	0.0	0.0	0.00	0.27	0.00	95.2
12	R2	1	4.0	1	4.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	71.5
Approach		1627	10.0	1627	10.0	0.437	2.1	NA	0.0	0.0	0.00	0.27	0.00	95.1
All Vehicles		1714	9.7	1714	9.7	0.437	3.0	NA	0.2	1.4	0.04	0.30	0.04	92.8

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

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

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

¹¹ Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.

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SIDRA-2.0-Scenario 1 (Part B).sip9

MOVEMENT SUMMARY

Site: 101 [Ex. PM. @ 10yrs. - (South) Princes Highway - Import (Site Folder: Princes Highway - Unsignalised)]

Network: N101 [Ex. PM. @ 10yrs Princes Highway Operation - Import (Network Folder: Existing @ 10 years)]

Southern Intersection of Princes Highway and Bradford Drive
 Site Category: (None)
 Give-Way (Two-Way)
 Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
East: Princes Highway (East)														
5	T1	1413	10.0	1413	10.0	0.384	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
6	R2	23	4.0	23	4.0	0.014	6.8	LOS A	0.0	0.2	0.12	0.61	0.12	67.9
Approach		1436	9.9	1436	9.9	0.384	0.3	NA	0.0	0.2	0.00	0.01	0.00	79.5
North: Median Strip														
9	R2	40	4.0	40	4.0	0.278	30.3	LOS D	0.4	2.6	0.92	0.99	1.03	34.0
Approach		40	4.0	40	4.0	0.278	30.3	LOS D	0.4	2.6	0.92	0.99	1.03	34.0
All Vehicles		1476	9.7	1476	9.7	0.384	1.1	NA	0.4	2.6	0.03	0.04	0.03	78.4

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

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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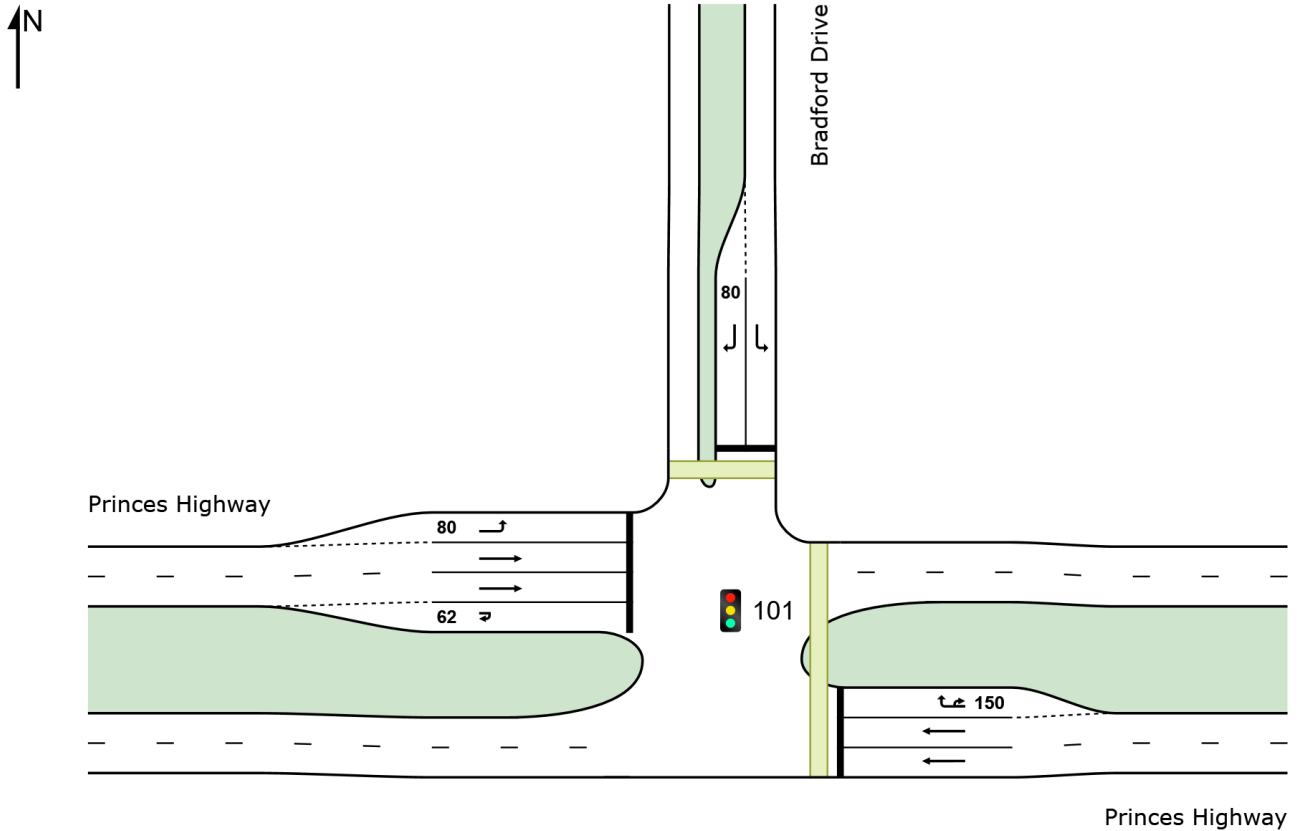
SIDRA-2.0-Scenario 1 (Part B).sip9

SITE LAYOUT

 Site: 101 [Ex-10-AM - Princes Highway (Site Folder: Original volumes with existing signalised design)]

Intersection of Princes Highway and Bradford Drive
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

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



PHASING SUMMARY

Site: 101 [Ex-10-AM - Princes Highway (Site Folder: Original volumes with existing signalised design)]

Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

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

Timings based on settings in the Site Phasing & Timing dialog (Demand & Sensitivity Analysis overrides)

Phase Times determined by the program

Phase Sequence: Leading Right Turn - Copy

Reference Phase: Phase B

Input Phase Sequence: A*, B, C, C1*, C2*

Output Phase Sequence: A*, B, C, C2*

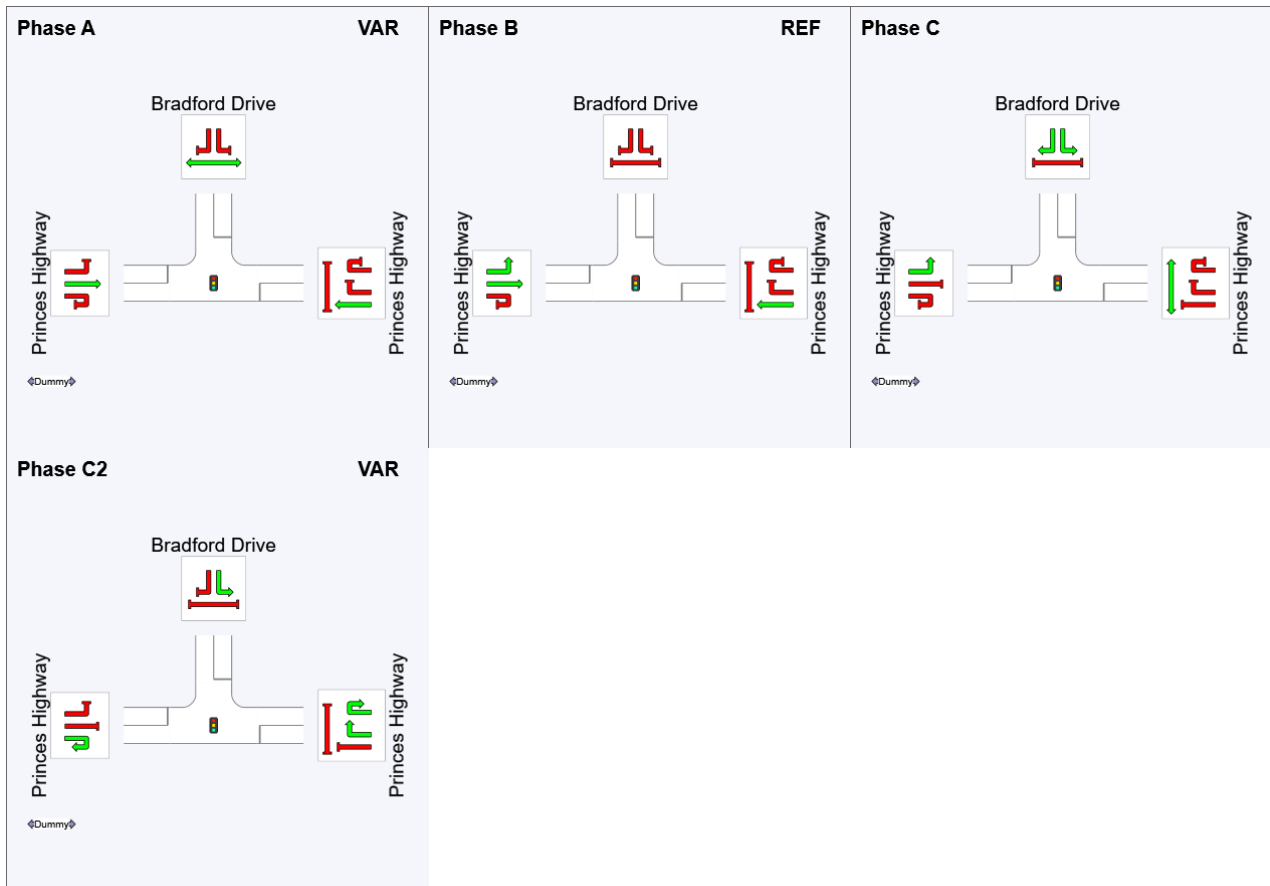
(* Variable Phase)

Phase Timing Summary













Phase	A	B	C	C2
Phase Change Time (sec)	44	0	17	32
Green Time (sec)	19	10	8	6
Phase Time (sec)	26	17	14	13
Phase Split	37%	24%	20%	19%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

PHASING SUMMARY

Site: 101 [Ex-10-PM - Princes Highway (Site Folder: Original volumes with existing signalised design)]

Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

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

Timings based on settings in the Site Phasing & Timing dialog (Demand & Sensitivity Analysis overrides)

Phase Times determined by the program

Phase Sequence: Leading Right Turn - Copy - Import

Reference Phase: Phase B

Input Phase Sequence: A*, B, C, C1*, C2*

Output Phase Sequence: A*, B, C, C2*

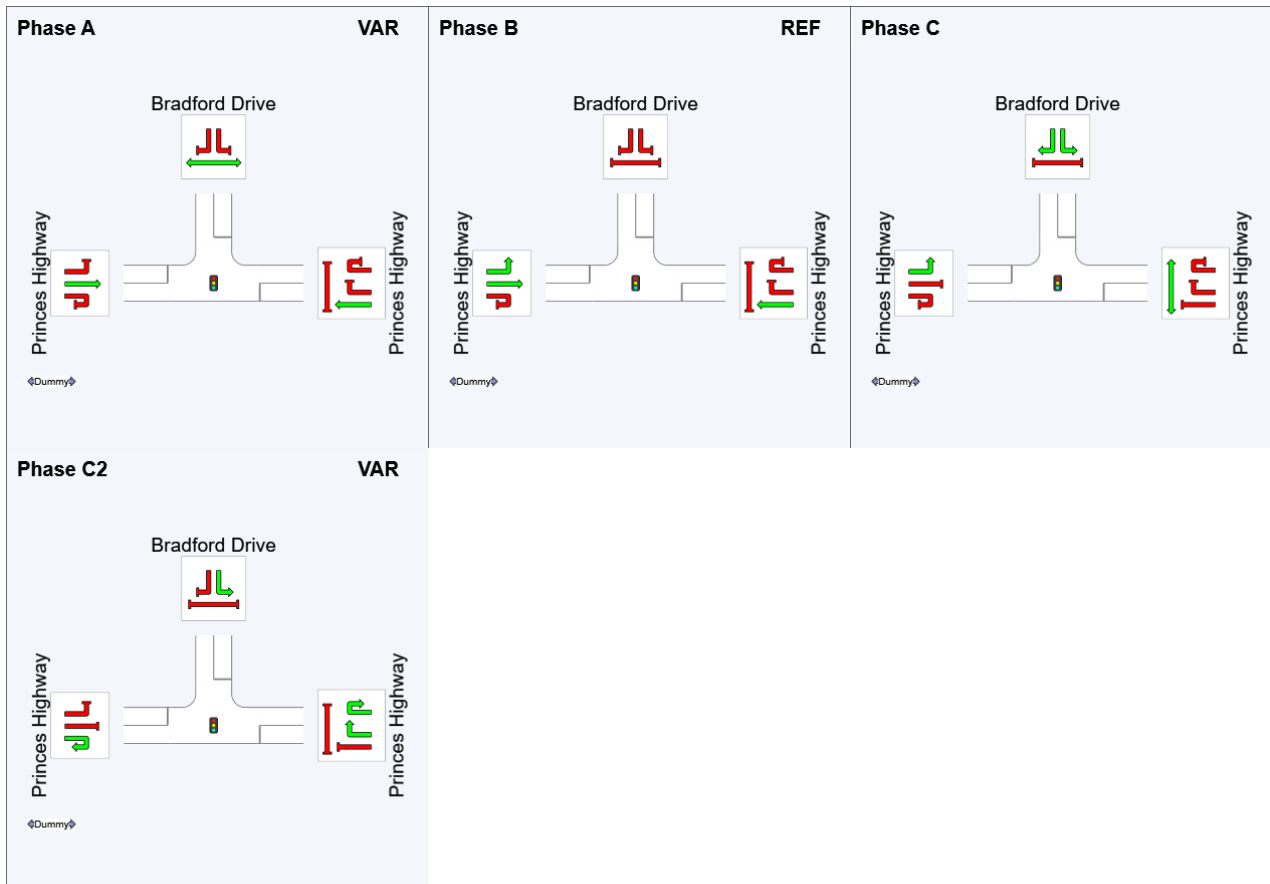
(* Variable Phase)

Phase Timing Summary

Phase	A	B	C	C2
Phase Change Time (sec)	44	0	17	32
Green Time (sec)	19	10	8	6
Phase Time (sec)	26	17	14	13
Phase Split	37%	24%	20%	19%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [Ex-10-AM - Princes Highway (Site Folder: Original volumes with existing signalised design)]

Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

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

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Princes Highway														
5	T1	936	9.0	1201	9.0	0.627	13.2	LOS B	14.8	111.6	0.77	0.69	0.77	69.1
6	R2	33	4.0	42	4.0	* 0.718	45.7	LOS D	3.6	26.0	1.00	0.85	1.26	37.9
6u	U	41	4.0	53	4.0	0.718	46.7	LOS D	3.6	26.0	1.00	0.85	1.26	48.9
Approach		1010	8.6	1296	8.6	0.718	15.6	LOS B	14.8	111.6	0.79	0.70	0.81	66.4
North: Bradford Drive														
7	L2	9	4.0	12	4.0	0.022	23.9	LOS C	0.3	2.1	0.74	0.65	0.74	47.3
9	R2	9	4.0	12	4.0	* 0.055	35.5	LOS D	0.4	2.6	0.92	0.67	0.92	34.2
Approach		18	4.0	23	4.0	0.055	29.7	LOS C	0.4	2.6	0.83	0.66	0.83	41.0
West: Princes Highway														
10	L2	36	4.0	46	4.0	0.071	23.9	LOS C	1.0	7.5	0.69	0.73	0.69	44.8
11	T1	1165	9.0	1495	9.0	* 0.786	19.3	LOS B	22.6	170.6	0.88	0.86	0.94	65.1
12u	U	1	4.0	1	4.0	0.011	42.0	LOS D	0.0	0.3	0.93	0.61	0.93	44.4
Approach		1202	8.8	1542	8.8	0.786	19.5	LOS B	22.6	170.6	0.87	0.85	0.93	64.7
All Vehicles		2230	8.7	2861	8.7	0.786	17.8	LOS B	22.6	170.6	0.83	0.78	0.87	65.3

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

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
East: Princes Highway												
P2	Full	20	26	29.3	LOS C	0.0	0.0	0.92	0.92	205.8	229.5	1.12
North: Bradford Drive												
P3	Full	50	64	29.3	LOS C	0.1	0.1	0.92	0.92	194.3	214.5	1.10
All Pedestrians		70	90	29.3	LOS C	0.1	0.1	0.92	0.92	197.6	218.8	1.11

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [Ex-10-PM - Princes Highway (Site Folder: Original volumes with existing signalised design)]

Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

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

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
East: Princes Highway														
5	T1	1101	4.0	1413	4.0	0.715	14.1	LOS B	18.6	135.0	0.83	0.74	0.83	68.8
6	R2	6	4.0	8	4.0	* 0.180	41.7	LOS D	0.8	5.8	0.96	0.71	0.96	39.5
6u	U	12	4.0	15	4.0	0.180	42.7	LOS D	0.8	5.8	0.96	0.71	0.96	50.4
Approach		1119	4.0	1436	4.0	0.715	14.6	LOS B	18.6	135.0	0.83	0.74	0.83	68.3
North: Bradford Drive														
7	L2	19	4.0	24	4.0	0.047	24.2	LOS C	0.6	4.4	0.75	0.68	0.75	47.1
9	R2	31	4.0	40	4.0	* 0.191	36.4	LOS D	1.3	9.4	0.94	0.72	0.94	33.7
Approach		50	4.0	64	4.0	0.191	31.8	LOS C	1.3	9.4	0.87	0.70	0.87	39.1
West: Princes Highway														
10	L2	8	4.0	10	4.0	0.016	23.5	LOS C	0.2	1.6	0.67	0.68	0.67	45.2
11	T1	1259	4.0	1615	4.0	* 0.820	21.5	LOS C	26.2	189.4	0.90	0.90	1.00	63.3
12u	U	1	4.0	1	4.0	0.011	42.0	LOS D	0.0	0.3	0.93	0.61	0.93	44.4
Approach		1268	4.0	1627	4.0	0.820	21.6	LOS C	26.2	189.4	0.90	0.90	1.00	63.2
All Vehicles		2437	4.0	3127	4.0	0.820	18.6	LOS B	26.2	189.4	0.87	0.82	0.92	65.0

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

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
East: Princes Highway												
P2	Full	20	26	29.3	LOS C	0.0	0.0	0.92	0.92	205.8	229.5	1.12
North: Bradford Drive												
P3	Full	50	64	29.3	LOS C	0.1	0.1	0.92	0.92	194.3	214.5	1.10
All Pedestrians		70	90	29.3	LOS C	0.1	0.1	0.92	0.92	197.6	218.8	1.11

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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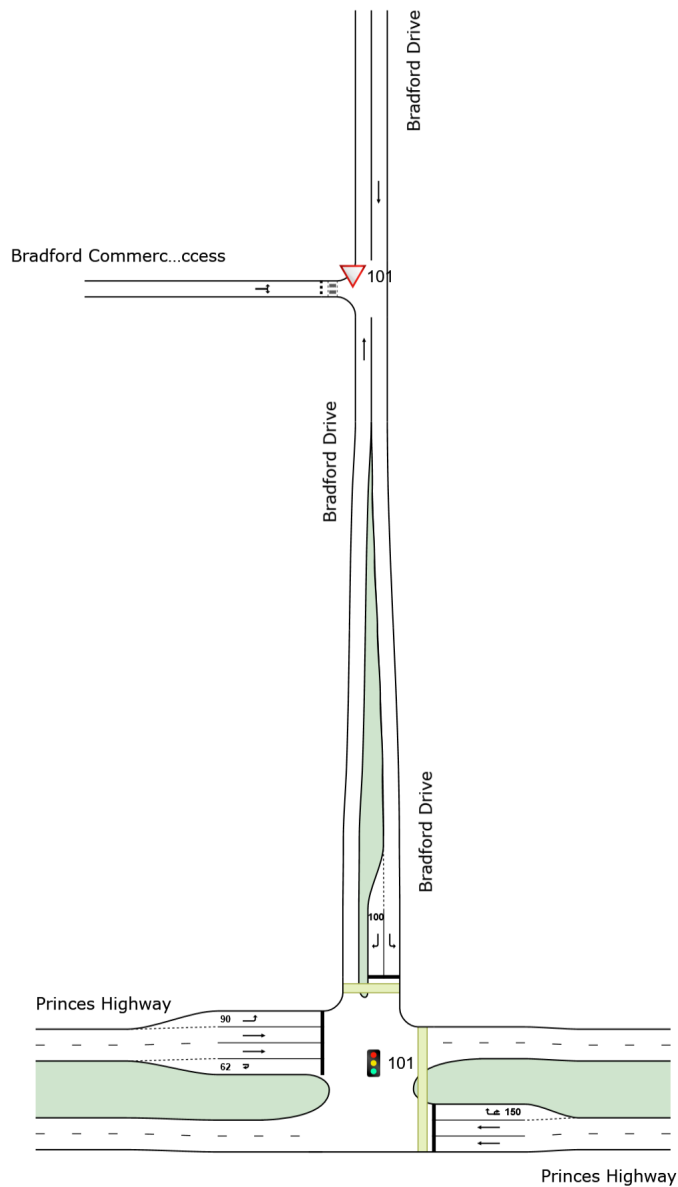
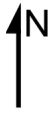
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NETWORK LAYOUT

■ Network: N101 [AM - Bradford Drive (Network Folder: Future Volumes Network)]

AM Networked Intersection of Bradford Drive and Princes Highway
 Network Category: (None)

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



SITES IN NETWORK		
Site ID	CCG ID	Site Name
101	NA	PD-10-AM - Princes Highway
▽101	NA	Commercial Access Bradford AM - Copy

PHASING SUMMARY

Site: 101 [PD-10-AM - Princes Highway (Site Folder: Scenario 1 - Final Volumes 2.0)]

Network: N101 [AM - Bradford Drive (Network Folder: Future Volumes Network)]

Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Leading Right Turn - Copy

Reference Phase: Phase B

Input Phase Sequence: A*, B, C, C1*, C2*

Output Phase Sequence: A*, B, C, C2*

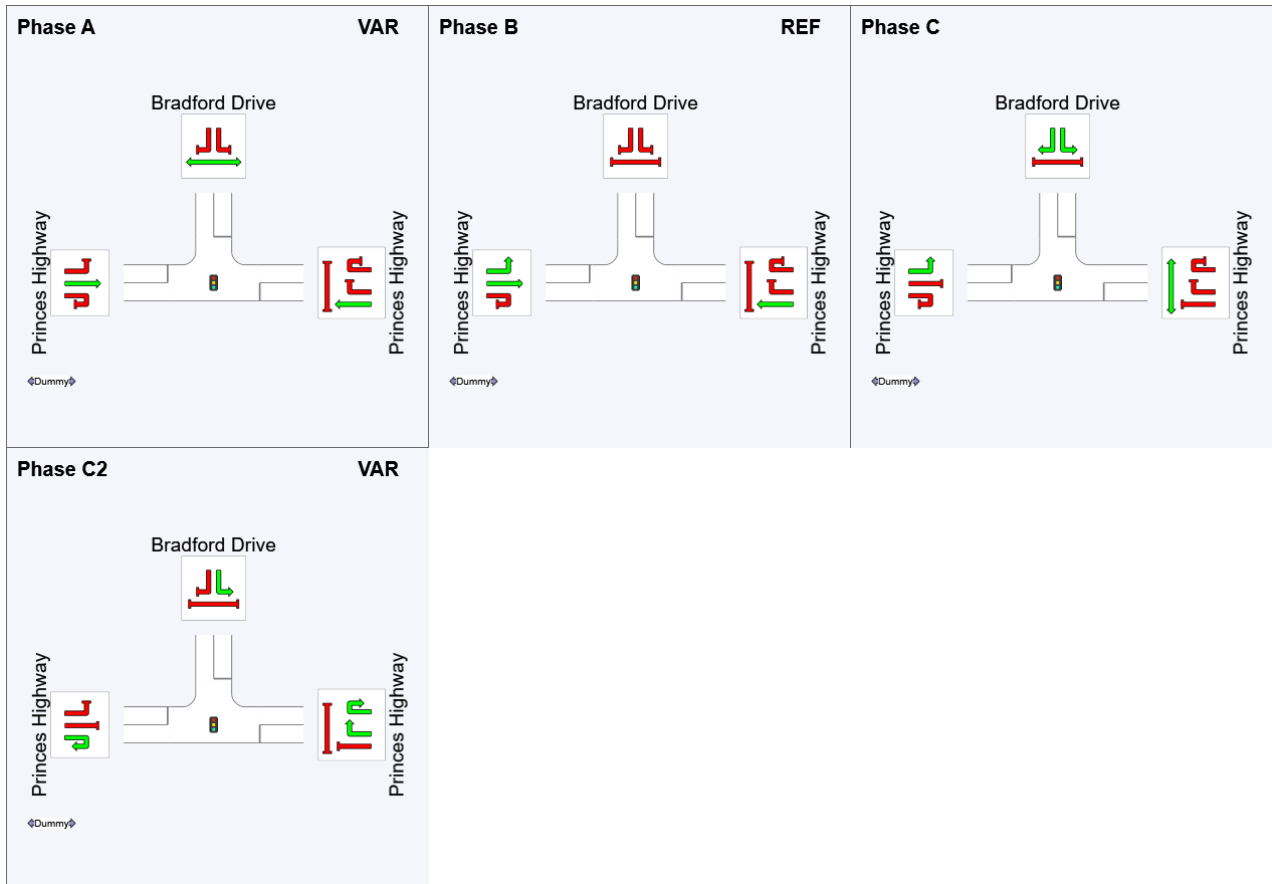
(* Variable Phase)

Phase Timing Summary

Phase	A	B	C	C2
Phase Change Time (sec)	52	0	17	33
Green Time (sec)	21	10	9	13
Phase Time (sec)	28	17	15	20
Phase Split	35%	21%	19%	25%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [PD-10-AM - Princes Highway (Site Folder: Scenario 1 - Final Volumes 2.0)]

Network: N101 [AM - Bradford Drive (Network Folder: Future Volumes Network)]

Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS [Total veh/h HV %]		ARRIVAL FLOWS [Total HV %]		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. Dist]		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Princes Highway														
5	T1	1149	9.0	1149	9.0	0.650	17.2	LOS B	17.1	128.9	0.82	0.73	0.82	65.5
6	R2	185	4.0	185	4.0	*0.861	51.6	LOS D	10.7	77.8	1.00	0.95	1.39	34.8
6u	U	53	4.0	53	4.0	0.861	52.6	LOS D	10.7	77.8	1.00	0.95	1.39	46.9
Approach		1387	8.1	1387	8.1	0.861	23.2	LOS C	17.1	128.9	0.85	0.77	0.91	59.7
North: Bradford Drive														
7	L2	220	4.0	220	4.0	0.345	25.5	LOS C	6.4	46.4	0.78	0.77	0.78	46.3
9	R2	188	4.0	188	4.0	*0.918	57.2	LOS E	9.2	66.3	1.00	1.14	1.64	26.1
Approach		408	4.0	408	4.0	0.918	40.1	LOS D	9.2	66.3	0.88	0.94	1.18	36.2
West: Princes Highway														
10	L2	80	4.0	80	4.0	0.135	28.5	LOS C	2.2	16.0	0.74	0.75	0.74	40.5
11	T1	1539	9.0	1539	9.0	*0.887	33.9	LOS C	34.7	261.6	0.97	1.01	1.19	54.8
12u	U	1	4.0	1	4.0	0.005	39.4	LOS D	0.0	0.3	0.85	0.62	0.85	45.8
Approach		1620	8.7	1620	8.7	0.887	33.7	LOS C	34.7	261.6	0.95	0.99	1.16	54.4
All Vehicles		3416	7.9	3416	7.9	0.918	30.2	LOS C	34.7	261.6	0.90	0.89	1.06	54.3

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

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped Dist]		Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist m	Aver. Speed m/sec
East: Princes Highway											
P2	Full	21	34.3	LOS D	0.0	0.0	0.93	0.93	210.8	229.5	1.09
North: Bradford Drive											
P3	Full	53	34.3	LOS D	0.1	0.1	0.93	0.93	199.3	214.5	1.08
All Pedestrians		74	34.3	LOS D	0.1	0.1	0.93	0.93	202.6	218.8	1.08

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Commercial Access Bradford AM - Copy (Site Folder: Scenario 1 - Final Volumes 2.0)]

Network: N101 [AM - Bradford Drive (Network Folder: Future Volumes Network)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Bradford Drive														
2	T1	265	4.0	265	4.0	0.138	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		265	4.0	265	4.0	0.138	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Bradford Drive														
8	T1	258	4.0	258	4.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		258	4.0	258	4.0	0.134	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Bradford Commercial Access														
10	L2	45	0.0	45	0.0	0.218	3.0	LOS A	0.9	6.1	0.43	0.60	0.43	31.3
12	R2	152	0.0	152	0.0	0.218	5.0	LOS A	0.9	6.1	0.43	0.60	0.43	18.5
Approach		197	0.0	197	0.0	0.218	4.6	LOS A	0.9	6.1	0.43	0.60	0.43	23.1
All Vehicles		720	2.9	720	2.9	0.218	1.3	NA	0.9	6.1	0.12	0.16	0.12	42.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

Site: 101 [PD-10-PM - Princes Highway (Site Folder: Scenario 1 - Final Volumes 2.0)]

Network: N101 [PM - Bradford Drive (Network Folder: Future Volumes Network)]

Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Leading Right Turn - Copy - Import

Reference Phase: Phase B

Input Phase Sequence: A*, B, C, C1*, C2*

Output Phase Sequence: A*, B, C, C2*

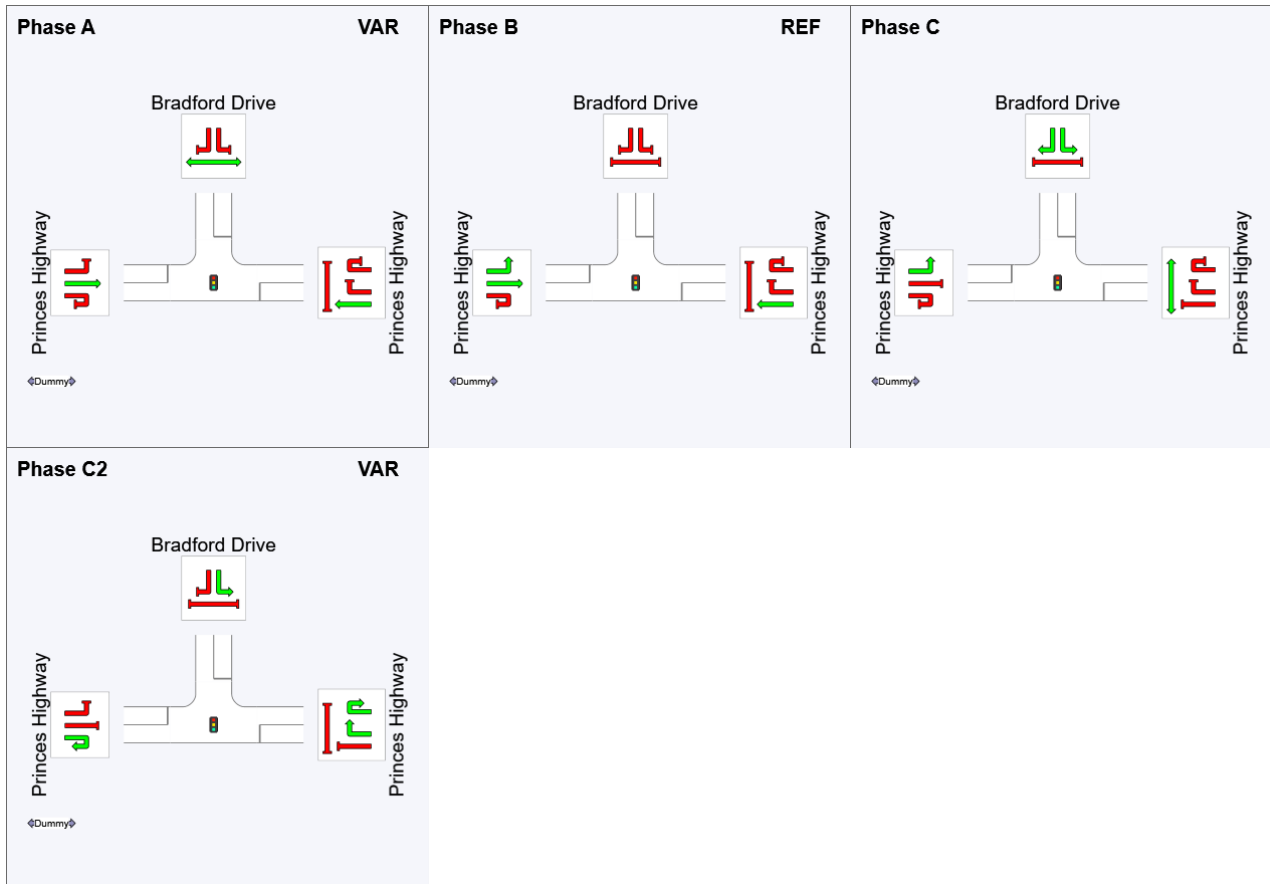
(* Variable Phase)

Phase Timing Summary

Phase	A	B	C	C2
Phase Change Time (sec)	68	0	17	39
Green Time (sec)	35	10	15	23
Phase Time (sec)	42	17	21	30
Phase Split	38%	15%	19%	27%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [PD-10-PM - Princes Highway (Site Folder: Scenario 1 - Final Volumes 2.0)]

Network: N101 [PM - Bradford Drive (Network Folder: Future Volumes Network)]

Intersection of Princes Highway and Bradford Drive

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
East: Princes Highway														
5	T1	1331	4.0	1331	4.0	0.733	25.0	LOS C	28.6	207.0	0.87	0.79	0.87	59.9
6	R2	311	4.0	311	4.0	*0.865	62.0	LOS E	19.3	139.9	1.00	0.93	1.25	31.3
6u	U	15	4.0	15	4.0	0.865	63.0	LOS E	19.3	139.9	1.00	0.93	1.25	43.6
Approach		1656	4.0	1656	4.0	0.865	32.3	LOS C	28.6	207.0	0.90	0.81	0.94	53.5
North: Bradford Drive														
7	L2	225	4.0	225	4.0	0.309	28.7	LOS C	8.2	59.5	0.73	0.76	0.73	44.5
9	R2	217	4.0	217	4.0	*0.872	65.1	LOS E	13.1	95.0	1.00	1.00	1.33	24.0
Approach		442	4.0	442	4.0	0.872	46.6	LOS D	13.1	95.0	0.86	0.87	1.02	33.4
West: Princes Highway														
10	L2	59	4.0	59	4.0	0.111	38.5	LOS D	2.3	16.7	0.77	0.75	0.77	33.5
11	T1	1581	4.0	1581	4.0	*0.890	40.3	LOS D	45.7	330.7	0.97	0.98	1.11	51.3
12u	U	1	4.0	1	4.0	0.004	45.6	LOS D	0.0	0.3	0.81	0.63	0.81	42.7
Approach		1641	4.0	1641	4.0	0.890	40.2	LOS D	45.7	330.7	0.96	0.97	1.10	50.9
All Vehicles		3739	4.0	3739	4.0	0.890	37.5	LOS D	45.7	330.7	0.92	0.89	1.02	50.0

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

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

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

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Princes Highway											
P2	Full	21	49.2	LOS E	0.1	0.1	0.95	0.95	225.7	229.5	1.02
North: Bradford Drive											
P3	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	214.3	214.5	1.00
All Pedestrians		74	49.3	LOS E	0.2	0.2	0.95	0.95	217.5	218.8	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Commercial Access Bradford PM - Copy (Site Folder: Scenario 1 - Final Volumes 2.0)]

Network: N101 [PM - Bradford Drive (Network Folder: Future Volumes Network)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Bradford Drive														
2	T1	369	4.0	369	4.0	0.192	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		369	4.0	369	4.0	0.192	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Bradford Drive														
8	T1	211	4.0	211	4.0	0.110	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
Approach		211	4.0	211	4.0	0.110	0.0	NA	0.0	0.0	0.00	0.00	0.00	50.0
West: Bradford Commercial Access														
10	L2	71	0.0	71	0.0	0.353	4.1	LOS A	1.8	12.6	0.53	0.73	0.61	29.9
12	R2	232	0.0	232	0.0	0.353	6.1	LOS A	1.8	12.6	0.53	0.73	0.61	17.0
Approach		302	0.0	302	0.0	0.353	5.6	LOS A	1.8	12.6	0.53	0.73	0.61	21.5
All Vehicles		882	2.6	882	2.6	0.353	1.9	NA	1.8	12.6	0.18	0.25	0.21	40.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 Delay Model: SIDRA Standard (Geometric Delay is included).
 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 [Ex. AM - Melbourne Road Intersection - Import (Site Folder: Old Melbourne Road)]

Intersection of Melbourne Road, Regan Road, and Copeland Court
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Regan Road														
1	L2	3	4.0	3	4.0	0.010	9.3	LOS A	0.0	0.2	0.50	0.69	0.50	68.5
3	R2	3	4.0	3	4.0	0.010	13.2	LOS B	0.0	0.2	0.50	0.69	0.50	66.4
Approach		6	4.0	6	4.0	0.010	11.2	LOS B	0.0	0.2	0.50	0.69	0.50	67.5
East: Old Melbourne Road (East)														
4	L2	2	4.0	2	4.0	0.205	7.0	LOS A	0.0	0.0	0.00	0.00	0.00	72.0
5	T1	370	4.0	389	4.0	0.205	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		372	4.0	392	4.0	0.205	0.1	NA	0.0	0.0	0.00	0.00	0.00	79.7
North: Copeland Court														
7	L2	3	4.0	3	4.0	0.003	7.3	LOS A	0.0	0.1	0.40	0.59	0.40	54.1
Approach		3	4.0	3	4.0	0.003	7.3	LOS A	0.0	0.1	0.40	0.59	0.40	54.1
West: Old Melbourne Road (West)														
10	L2	1	4.0	1	4.0	0.193	8.1	LOS A	0.0	0.1	0.00	0.00	0.00	50.8
11	T1	347	4.0	365	4.0	0.193	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	79.9
12	R2	1	4.0	1	4.0	0.193	8.5	LOS A	0.0	0.1	0.00	0.00	0.00	79.8
Approach		349	4.0	367	4.0	0.193	0.1	NA	0.0	0.1	0.00	0.00	0.00	79.8
All Vehicles		730	4.0	768	4.0	0.205	0.2	NA	0.0	0.2	0.01	0.01	0.01	79.5

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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 [Ex. PM. - Melbourne Road Intersection - Import
(Site Folder: Old Melbourne Road)]

Intersection of Melbourne Road, Regan Road, and Copeland Court
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Regan Road														
3	R2	5	4.0	5	4.0	0.014	14.3	LOS B	0.0	0.3	0.65	0.82	0.65	62.7
Approach		5	4.0	5	4.0	0.014	14.3	LOS B	0.0	0.3	0.65	0.82	0.65	62.7
East: Old Melbourne Road (East)														
4	L2	7	4.0	7	4.0	0.207	7.0	LOS A	0.0	0.0	0.00	0.01	0.00	71.9
5	T1	368	4.0	387	4.0	0.207	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	79.6
Approach		375	4.0	395	4.0	0.207	0.2	NA	0.0	0.0	0.00	0.01	0.00	79.4
North: Copeland Court														
7	L2	1	4.0	1	4.0	0.001	7.7	LOS A	0.0	0.0	0.44	0.58	0.44	53.7
Approach		1	4.0	1	4.0	0.001	7.7	LOS A	0.0	0.0	0.44	0.58	0.44	53.7
West: Old Melbourne Road (West)														
11	T1	422	4.0	444	4.0	0.233	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	79.9
12	R2	1	4.0	1	4.0	0.233	8.7	LOS A	0.0	0.1	0.00	0.00	0.00	79.8
Approach		423	4.0	445	4.0	0.233	0.0	NA	0.0	0.1	0.00	0.00	0.00	79.9
All Vehicles		804	4.0	846	4.0	0.233	0.2	NA	0.0	0.3	0.01	0.01	0.01	79.5

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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 [Ex. @ 10yrs. AM - Melbourne Road Intersection - Import (Site Folder: Old Melbourne Road)]

Intersection of Melbourne Road, Regan Road, and Copeland Court

Site Category: (None)

Give-Way (Two-Way)

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

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Regan Road														
1	L2	3	4.0	4	4.0	0.015	9.8	LOS A	0.0	0.4	0.56	0.75	0.56	66.9
3	R2	3	4.0	4	4.0	0.015	15.7	LOS C	0.0	0.4	0.56	0.75	0.56	64.6
Approach		6	4.0	8	4.0	0.015	12.7	LOS B	0.0	0.4	0.56	0.75	0.56	65.8
East: Old Melbourne Road (East)														
4	L2	2	4.0	3	4.0	0.250	7.0	LOS A	0.0	0.0	0.00	0.00	0.00	72.0
5	T1	370	4.0	475	4.0	0.250	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
Approach		372	4.0	477	4.0	0.250	0.1	NA	0.0	0.0	0.00	0.00	0.00	79.7
North: Copeland Court														
7	L2	3	4.0	4	4.0	0.004	7.7	LOS A	0.0	0.1	0.44	0.61	0.44	53.7
Approach		3	4.0	4	4.0	0.004	7.7	LOS A	0.0	0.1	0.44	0.61	0.44	53.7
West: Old Melbourne Road (West)														
10	L2	1	4.0	1	4.0	0.235	8.6	LOS A	0.0	0.1	0.01	0.00	0.01	50.8
11	T1	347	4.0	445	4.0	0.235	0.0	LOS A	0.0	0.1	0.01	0.00	0.01	79.9
12	R2	1	4.0	1	4.0	0.235	9.3	LOS A	0.0	0.1	0.01	0.00	0.01	79.7
Approach		349	4.0	448	4.0	0.235	0.1	NA	0.0	0.1	0.01	0.00	0.01	79.7
All Vehicles		730	4.0	937	4.0	0.250	0.2	NA	0.0	0.4	0.01	0.01	0.01	79.4

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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 [Ex. @ 10yrs. PM. - Melbourne Road Intersectio - Import (Site Folder: Old Melbourne Road)]

Intersection of Melbourne Road, Regan Road, and Copeland Court

Site Category: (None)

Give-Way (Two-Way)

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

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Regan Road														
3	R2	5	4.0	6	4.0	0.022	17.7	LOS C	0.1	0.5	0.74	0.92	0.74	59.2
Approach		5	4.0	6	4.0	0.022	17.7	LOS C	0.1	0.5	0.74	0.92	0.74	59.2
East: Old Melbourne Road (East)														
4	L2	7	4.0	9	4.0	0.252	7.0	LOS A	0.0	0.0	0.00	0.01	0.00	71.9
5	T1	368	4.0	472	4.0	0.252	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	79.6
Approach		375	4.0	481	4.0	0.252	0.2	NA	0.0	0.0	0.00	0.01	0.00	79.4
North: Copeland Court														
7	L2	1	4.0	1	4.0	0.001	8.2	LOS A	0.0	0.0	0.49	0.60	0.49	52.8
Approach		1	4.0	1	4.0	0.001	8.2	LOS A	0.0	0.0	0.49	0.60	0.49	52.8
West: Old Melbourne Road (West)														
11	T1	422	4.0	541	4.0	0.285	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	79.9
12	R2	1	4.0	1	4.0	0.285	9.5	LOS A	0.0	0.1	0.00	0.00	0.00	79.8
Approach		423	4.0	543	4.0	0.285	0.0	NA	0.0	0.1	0.00	0.00	0.00	79.9
All Vehicles		804	4.0	1032	4.0	0.285	0.2	NA	0.1	0.5	0.01	0.01	0.01	79.4

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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 [PD. @ 10yrs. AM - Melbourne Road Intersection - Copy - Import (Site Folder: Old Melbourne Road)]

Intersection of Melbourne Road, Regan Road, and Copeland Court
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Regan Road														
1	L2	47	4.0	49	4.0	0.352	11.4	LOS B	1.4	10.3	0.71	0.93	0.90	62.9
3	R2	90	4.0	95	4.0	0.352	19.8	LOS C	1.4	10.3	0.71	0.93	0.90	60.0
Approach		137	4.0	144	4.0	0.352	17.0	LOS C	1.4	10.3	0.71	0.93	0.90	61.1
East: Old Melbourne Road (East)														
4	L2	41	4.0	43	4.0	0.272	7.0	LOS A	0.0	0.0	0.00	0.05	0.00	71.2
5	T1	451	4.0	475	4.0	0.272	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	78.6
Approach		492	4.0	518	4.0	0.272	0.6	NA	0.0	0.0	0.00	0.05	0.00	77.8
North: Copeland Court														
7	L2	4	4.0	4	4.0	0.004	7.7	LOS A	0.0	0.1	0.44	0.61	0.44	53.6
Approach		4	4.0	4	4.0	0.004	7.7	LOS A	0.0	0.1	0.44	0.61	0.44	53.6
West: Old Melbourne Road (West)														
10	L2	1	4.0	1	4.0	0.264	10.0	LOS B	0.4	2.9	0.11	0.04	0.11	49.9
11	T1	423	4.0	445	4.0	0.264	0.3	LOS A	0.4	2.9	0.11	0.04	0.11	78.0
12	R2	28	4.0	29	4.0	0.264	9.7	LOS A	0.4	2.9	0.11	0.04	0.11	78.5
Approach		452	4.0	476	4.0	0.264	0.9	NA	0.4	2.9	0.11	0.04	0.11	77.9
All Vehicles		1085	4.0	1142	4.0	0.352	2.8	NA	1.4	10.3	0.14	0.16	0.16	74.6

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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 [PD. @ 10yrs. PM. - Melbourne Road Intersection - Copy - Import (Site Folder: Old Melbourne Road)]

Intersection of Melbourne Road, Regan Road, and Copeland Court
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Regan Road														
1	L2	44	4.0	46	4.0	0.354	11.8	LOS B	1.4	9.9	0.74	0.94	0.94	60.9
3	R2	71	4.0	75	4.0	0.354	23.9	LOS C	1.4	9.9	0.74	0.94	0.94	57.7
Approach		115	4.0	121	4.0	0.354	19.3	LOS C	1.4	9.9	0.74	0.94	0.94	59.0
East: Old Melbourne Road (East)														
4	L2	91	4.0	96	4.0	0.300	7.0	LOS A	0.0	0.0	0.00	0.11	0.00	70.4
5	T1	448	4.0	472	4.0	0.300	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	77.3
Approach		539	4.0	567	4.0	0.300	1.2	NA	0.0	0.0	0.00	0.11	0.00	75.8
North: Copeland Court														
7	L2	1	4.0	1	4.0	0.001	8.2	LOS A	0.0	0.0	0.49	0.60	0.49	52.8
Approach		1	4.0	1	4.0	0.001	8.2	LOS A	0.0	0.0	0.49	0.60	0.49	52.8
West: Old Melbourne Road (West)														
11	T1	514	4.0	541	4.0	0.341	0.7	LOS A	1.0	6.9	0.17	0.07	0.21	76.6
12	R2	51	4.0	54	4.0	0.341	10.6	LOS B	1.0	6.9	0.17	0.07	0.21	77.6
Approach		565	4.0	595	4.0	0.341	1.6	NA	1.0	6.9	0.17	0.07	0.21	76.7
All Vehicles		1220	4.0	1284	4.0	0.354	3.1	NA	1.4	9.9	0.15	0.17	0.19	73.7

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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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