

Transport Impact Assessment

Butler Retail Development,
Camborne Parkway

CW1076200

Prepared for
Axiom Properties Ltd

03 July 2019



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1 Introduction

1.1 Background

Cardno has been commissioned by Axiom Properties Ltd (the Client) to prepare a Transport Impact Assessment (TIA) for the proposed retail development containing retail tenancies and a convenience store at No 150 (Lot 2810) Camborne Parkway, Butler (the Site). **Figure 1-1** shows the Site.

This report aims to assess the impacts of the proposed development upon the adjacent road network, with a focus on traffic operations, circulation, and car parking requirements. This report has been prepared in accordance with the *Western Australian Planning Commission (WAPC) Transport Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016)*.

Figure 1-1 Aerial Image of Site Location



Source: Nearmap

2 Existing Site Situation

2.1 Site Location

The Site is located at No 150 (Lot 2810) Camborne Parkway, Butler within the *City of Wanneroo*. The Site is bounded by Brackley Way to the north, Butler Boulevard to the south, a connector road to the east and Camborne Parkway to the west.

The location of the Site is as shown in **Figure 2-1**.

Figure 2-1 Site Location

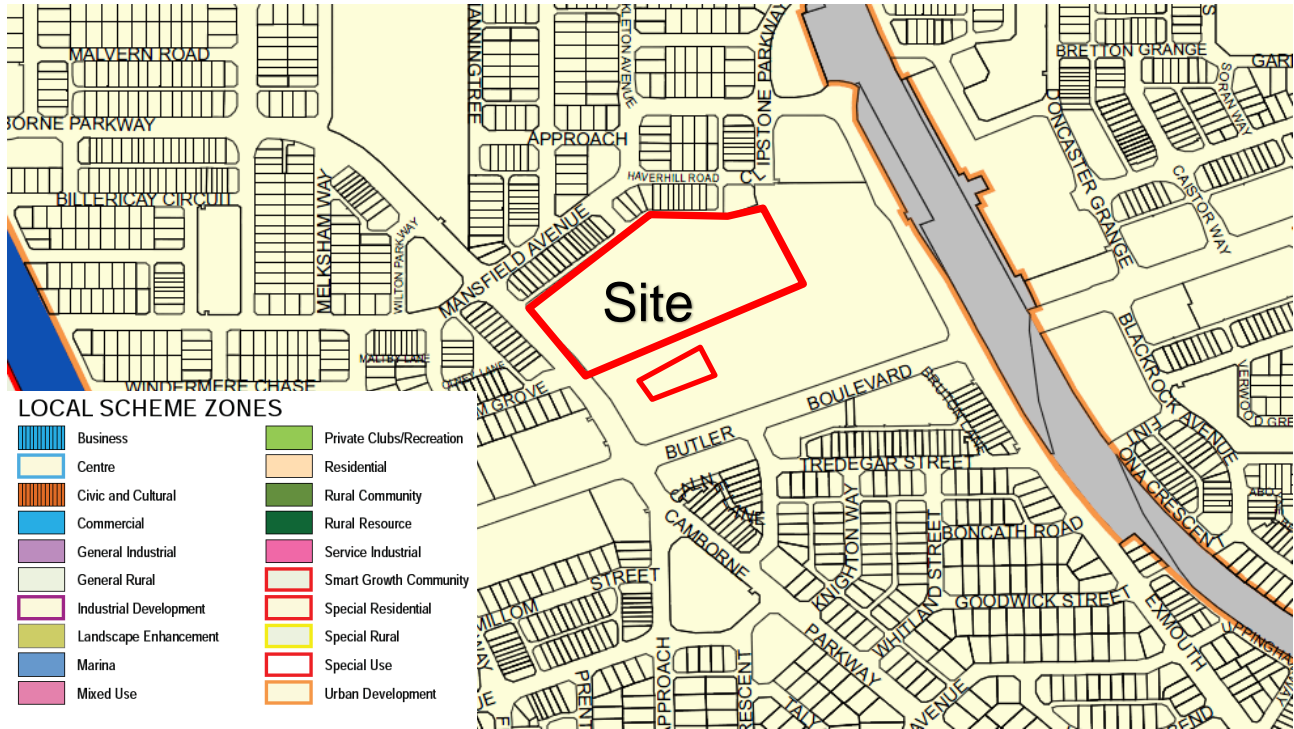


Source: Nearmap

2.2 Surrounding Land Use

According to the City of Wanneroo Town Planning Scheme No.2, the Site is zoned as 'Urban Development'. A detailed zoning map showing the zoning around the Site within the City of Wanneroo is shown in **Figure 2-2**

Figure 2-2 Zoning



Source: Town Planning Scheme No.2

2.3 Existing Road Network

The layout and classification of the roads under the *Main Roads WA Road Hierarchy* surrounding the Site is presented in **Figure 2-3**.

Figure 2-3 Road Network Classification



Source: Main Roads Information Mapping Centre, 2016

The characteristics of the surrounding road network are presented in **Table 2-1**.

Table 2-1 Road Network Description

Road Name	Road Hierarchy	Jurisdiction	Road Network			
			No. of Lanes	No. of Footpaths	Width (m)	Posted Speed Limit (km/h)
Camborne Parkway	Local Distributor	Local Govt.	2	1	10 (4 m median)	50
Brackley Way	Access Road	Local Govt.	2	0	5.5	50
Butler Boulevard	Distributor B	Local Govt.	2 (including 2 bicycle lanes)	2	12 (5.5 median)	50

2.4 Existing Intersections

- > Camborne Parkway/ Brackley Way - Is a give-way Left in/Left out priority-controlled T- intersection (**Figure 2-4**) with priority to Camborne Parkway located to the west of the Site.

Figure 2-4 Camborne Parkway and Brackley Way



- > Camborne Parkway/ Central Avenue - Is a give-way priority-controlled T- intersection (**Figure 2-5**) with priority to Camborne Parkway.

Figure 2-5 Camborne Parkway and Central Avenue



- > Camborne Parkway/ Mansfield Avenue– Is a four-way intersection (**Figure 2-6**) controlled by a roundabout and is located to the west of the Site.

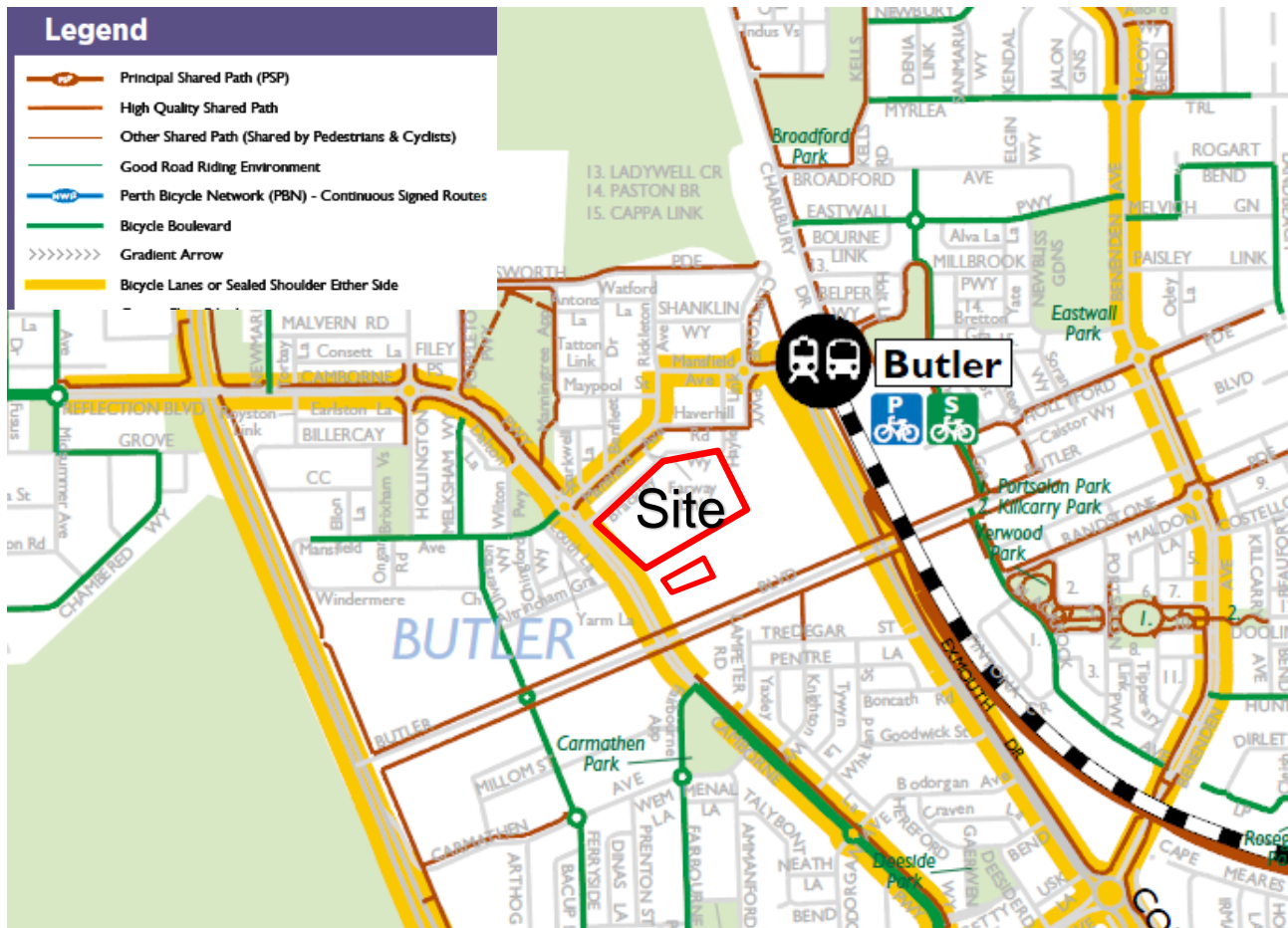
Figure 2-6 Camborne Parkway and Mansfield Avenue



2.5 Existing Pedestrian / Cycle Networks

According to *Department of Transport's Joondalup Bike Map*, high quality shared paths and bicycle boulevards run along Camborne Way, Mansfield Avenue connecting to Butler Train Station and bicycle lanes stretch along Camborne Parkway surrounding the Site. The Bike map is as depicted below on **Figure 2-7**. Overall the Site has excellent pedestrian and cycle connectivity.

Figure 2-7 Bike Map

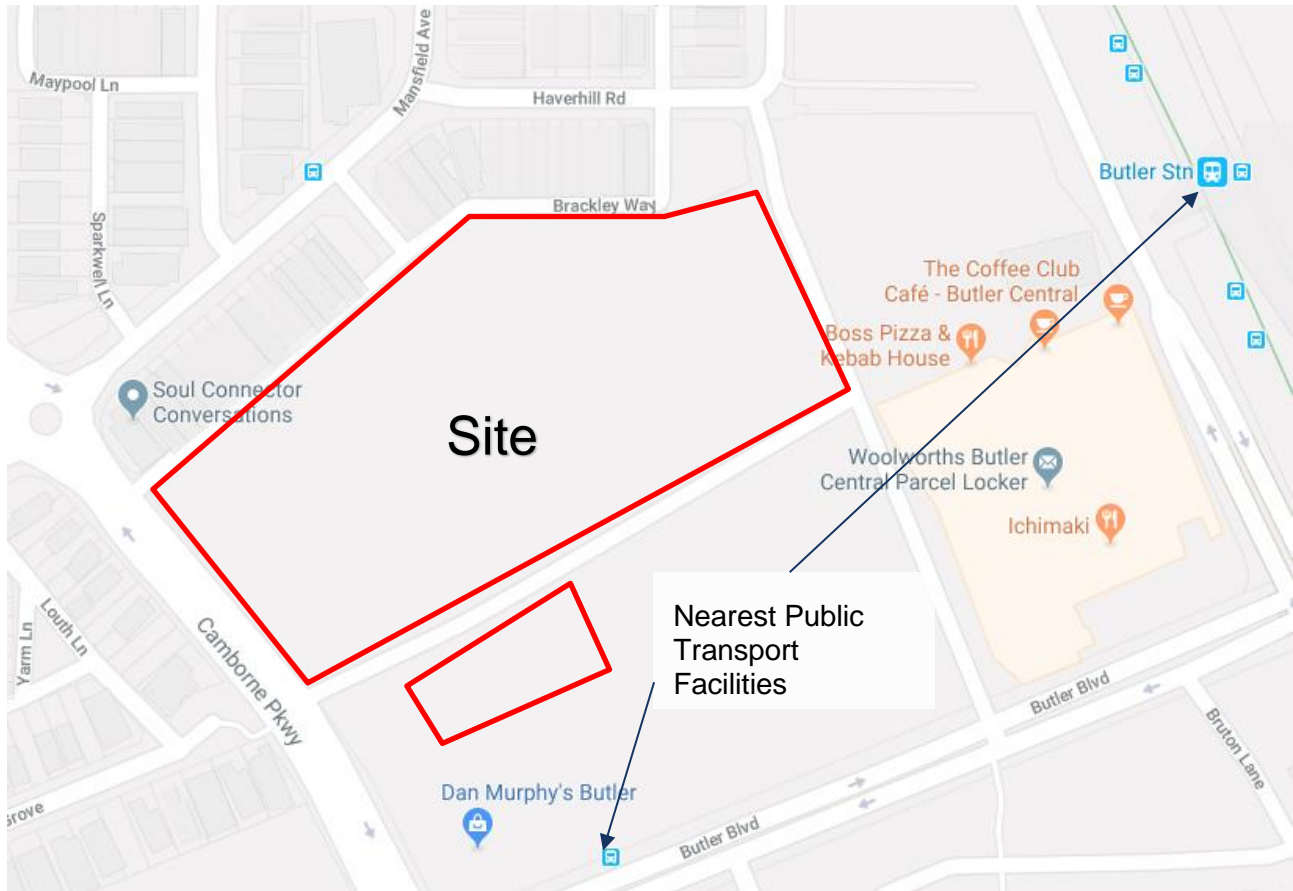


Source: Department of Transport

2.6 Existing Public Transport Facilities

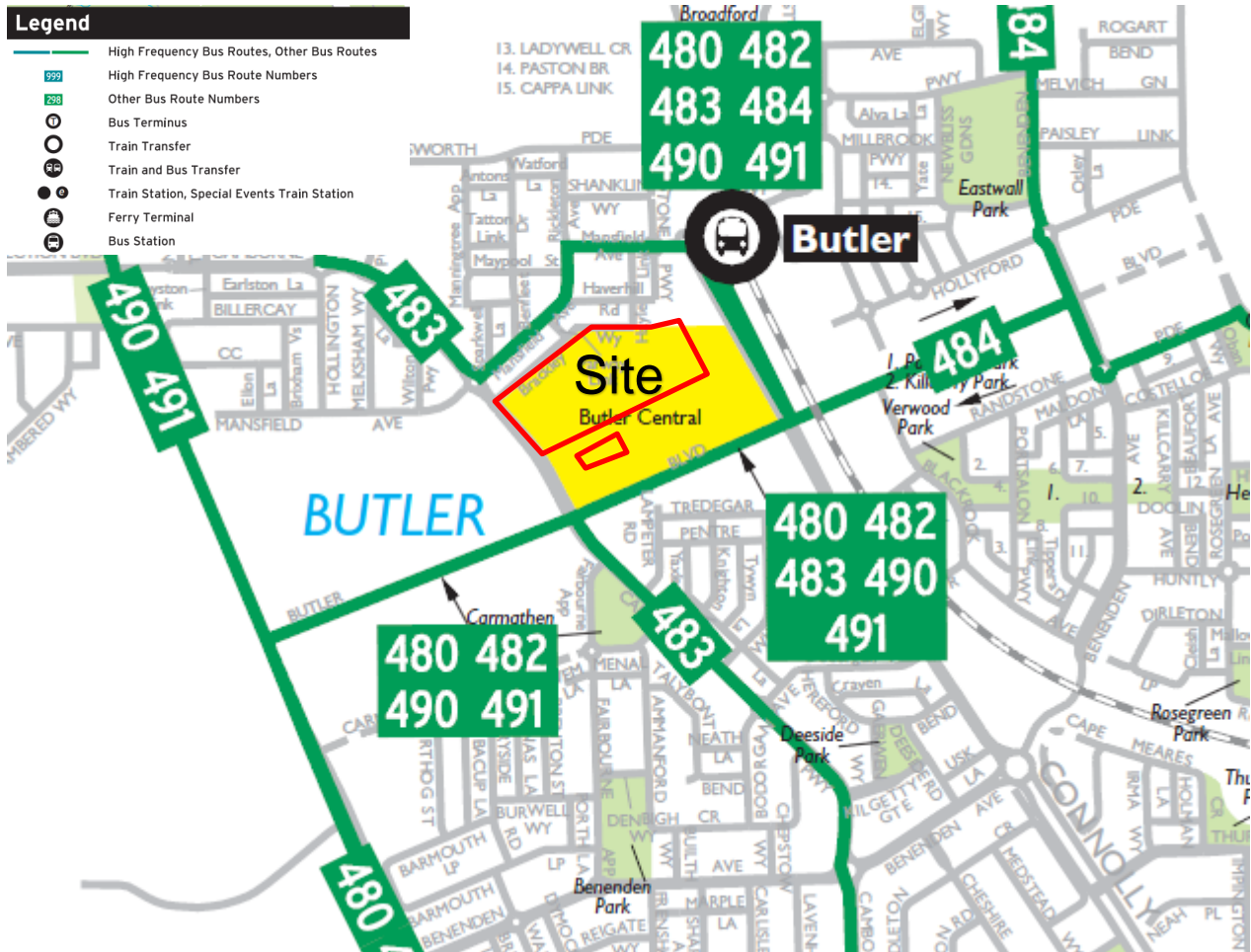
The excellent provision of existing public transport facilities around the Site are as depicted on **Figure 2-8** and **Figure 2-9**. The Butler train station is approximately 7 minutes' walk away from the Site served by the Butler line that travels to Perth and Butler and bus stands serving several bus routes. Nearest bus stop to the Site are located on Butler Boulevard (approximately 290m away) served by bus routes 480, 482, 483, 490 and 491.

Figure 2-8 Nearest Public Transport Facilities



Source: Google

Figure 2-9 Public Transport Facilities



Source: Transperth

Public Transport frequencies are as per **Table 2-2**.

Table 2-2 Frequency

Route Description	Frequency	
	Weekdays	Weekends
480 Butler Station	6:14 am to 9:33 pm (10-30 minutes)	7:25 am to 8:20 pm (60 minutes)
Clarkson Station	5:18 am to 7:56 pm (20 – 30 minutes)	7:26 am to 7:26 pm (60 minutes)
482 Butler Station	5:26 am to 7:56 pm (20 – 30 minutes)	7:51 am to 8:20 pm (60 minutes)
Clarkson Station	5:48 am to 10:33 pm (10 – 60 minutes)	6:56 am to 10:03 pm (60 minutes)
483 Clarkson Station	4:51 am to 11:03 pm (5 – 60 minutes)	5:48 am to 11:02 pm (60 minutes)
Alkimos	6:37 am to 12:53 am (20 – 60 minutes)	7:05 am to 12:49 pm (60 minutes)
491 Butler Station	5:34 am to 7:51 pm (20 – 60 minutes)	6:51 am to 6:51 pm (60-120 minutes)
490 Butler Station/Two Rocks	5:34 am to 7:51 pm (30-60 minutes)	10:51am to 6:51 pm (60 minutes)
Butler Line Butler	6:08am to 11:53pm (10-30 minutes)	6:08am to 12:53 pm (15-60 minutes)
Perth	5:30am to 11:45pm (10-30 minutes)	5:54am to 11:39pm (15-60 minutes)

2.7 Existing Traffic Volumes

Traffic volumes for the weekdays and the weekend were sourced from *City of Wanneroo* and are given in **Table 2-3**.

Table 2-3 Traffic Volumes

Road Name	Year	Average Two-Way Daily Traffic Volume
Butler Boulevard (East of Lampeter Road)	2016	5,958
Camborne Parkway (East of Royston Link)	2016	1,741
Camborne Parkway (North of Bodorgen Avenue)	2016	1,718
Mansfield Avenue (West of Farway Link)	2018	832

2.8 Crash Assessment

A search of the *Main Roads WA Reporting Centre* for crash data was undertaken. This search covered all recorded traffic accidents between 1 January 2014 and 31 December 2018 as shown for the following roads and intersections surrounding the site:

- > Camborne Parkway (SLK 1.88 to 1.31)
- > Brackley Way (SLK 0.00 to 0.29)
- > Camborne Parkway and Brackley Way Intersection

The Camborne Parkway and Brackley Way intersection and Brackley Way Midblock had no reported crashes.

Table 2-4 Camborne Parkway (SLK 1.88 to 1.31)

	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	0	0	0	1	0	1
Total	0	0	0	1	0	1

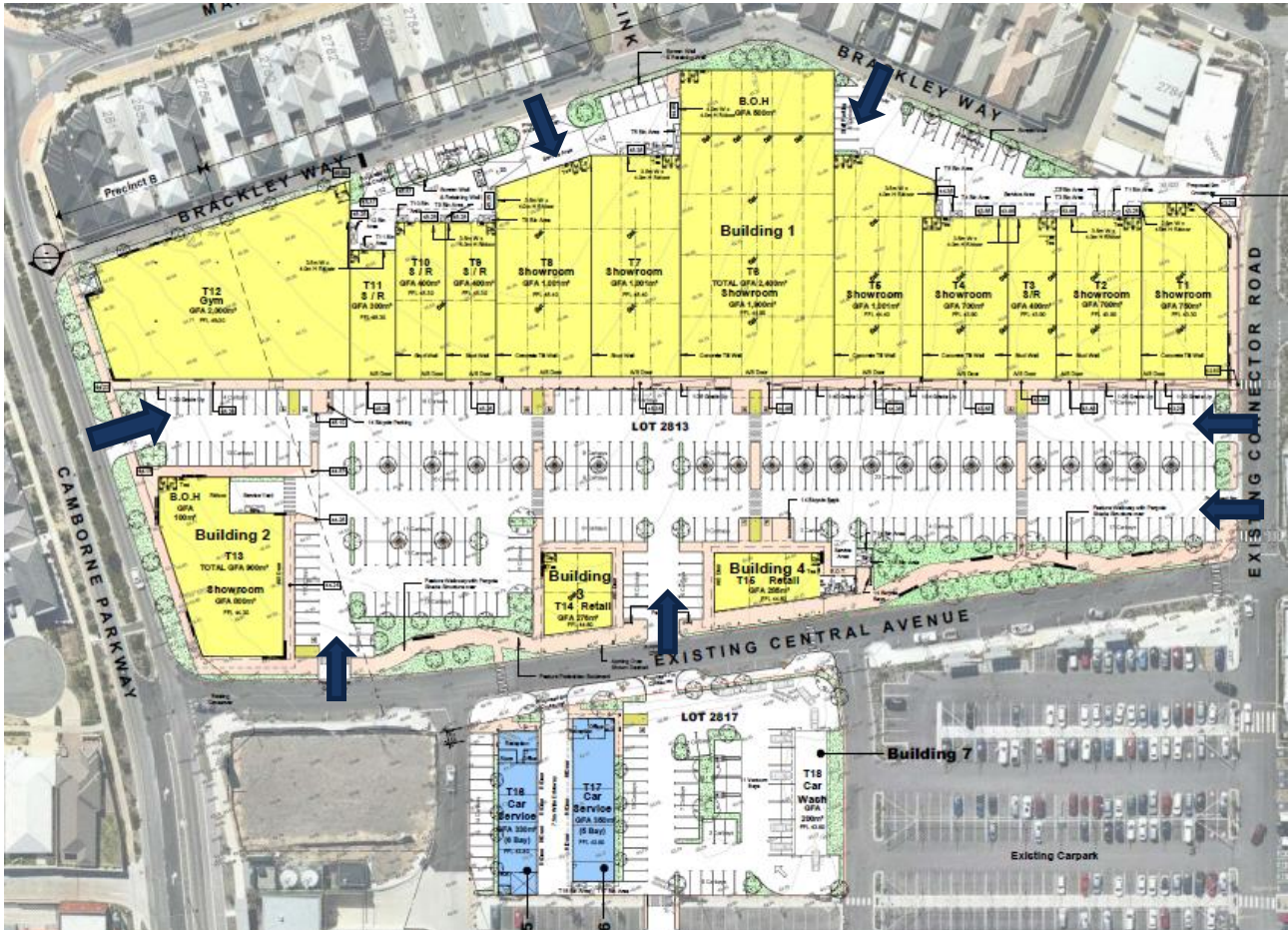
As seen in **Table 2-4**, a total of one rear end crash occurred causing major property damage at Camborne Parkway. With only one crash occurring on Camborne Parkway and none on Brackley Way, the surrounding road network is considered to not have any safety concerns and it is unlikely that this development will cause any material change to road safety in the surrounding road network.

3 Development Proposal

3.1 Proposed Land Use

The proposed development consists of showrooms with a total area of 9,353 m², a gym space of 2000 m² and retail space of 561 m². **Figure 3-1** shows the site plan of the development.

Figure 3-1 Proposed Development



3.2 Site Access

The Site provides vehicular access via crossovers located on Camborne Parkway, Brackley Way, the existing connector road and existing Central Avenue, as shown in **Figure 3-1**.

3.3 Car Parking Provision

The car parking requirements are given in the *City of Wanneroo District Planning Scheme No.2*. **Table 3-1** shows the car parking requirements and the provision on-site.

Table 3-1 Car Parking Requirements and Provision

Land Use	Car Parking Requirements		Car Parking Provision
Showrooms	1 per 30m ²	312 bays	399
Retail	1 per 25m ²	23 bays	
Private Recreation	1 per 4 people accommodated	50 bays	50
Car Services	5 per service bay	55 bays	
Total		440 bays	449 bays

The parking provision complies with the City's requirements. Overall, it is considered that the proposed parking supply will be adequate to accommodate the Site's operational demand.

3.4 Bicycle Parking and End of Trip Facilities

The City of Wanneroo District Planning Scheme No.2 states:

'Council may require the provision of bicycle parking and end of trip facilities such as showers, change rooms and lockers in commercial developments and other employment centres in accordance with Austroads' Guide to Engineering Practice Part 14: Bicycles.'

Austroads' Guide to Engineering Practice Part 14 is obsolete, therefore the *Guide to Traffic Management Part 11-Parking* was used to acquire the necessary requirements for bicycle parking as per **Table 3-2**.

Table 3-2 Bicycle Parking

Land Use	Parking Requirements		Parking Provision
	Short Stay	Long Stay	
Showroom	9 (1 space/1000 m ² NFA)	12 (1 space/750 m ² NFA)	56 spaces
Shop (Retail)	6 (if in a District Centre zone, 1 space/500 m ² NFA Min 6 spaces)	10 (if in a District Centre zone - 1 space/1000 m ² Min 10 spaces)	
Gym (Private Recreation)	10 (1 space/200m ² land area available to the public. Min 2 spaces)	5 (1 space/400 m ² land area available to the public)	
Total	25 spaces	27 spaces	56 spaces

The provision of bicycle parking meets the requirements of the City of Wanneroo.

Table 3-3 EoT Facilities

Land Use	Requirements		Provision
	Lockers	Showers	
Showroom (for 16 long stay bicycle spaces)	11-20 lockers	4 (two male, two female)	1 male and 1 female
Gym	3-5 lockers	1 shower	
Shop (for 10 long stay spaces)	6-10 lockers	2 (one male, one female)	
Total	20-35 lockers	7 showers	2 showers

The provision of EoT facilities includes 2 showers and associated facilities. The gym component of the Site will have its own showers and lockers therefore reducing the requirements to 6 showers and a minimum of 17 lockers. However, a shortfall in the provision of showers is acknowledged and will be provided as per City's advice.

3.5 Provision for Service Vehicles

Waste collection is to be carried out as per the Waste Management Plan dated June 2019 by Talis. The Waste Management Plan states that the collection of waste should occur within the development at suitable locations near the Bin Storage Area and as part of the collection contract the private contractor may be engaged to ferry the bins to the waste collection vehicle and return the bins to the Bin Store.

A swept path analysis was conducted for the waste service vehicles using a 10.1 m Veolia waste truck. As shown in **Figure 3-2, Figure 3-3** and **Figure 3-4**, these swept paths show that the access arrangements are acceptable.

Figure 3-2 Swept Path 1



Figure 3-3 Swept Path 2

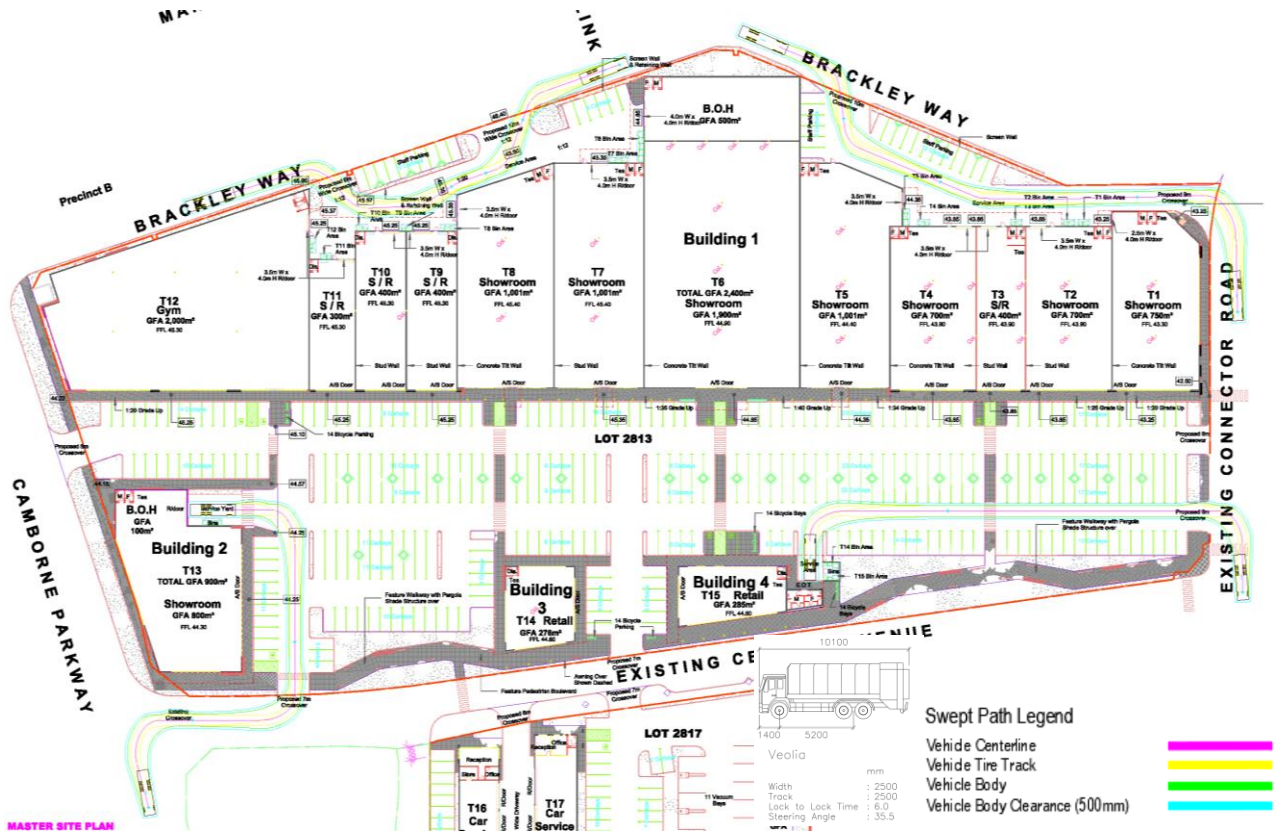
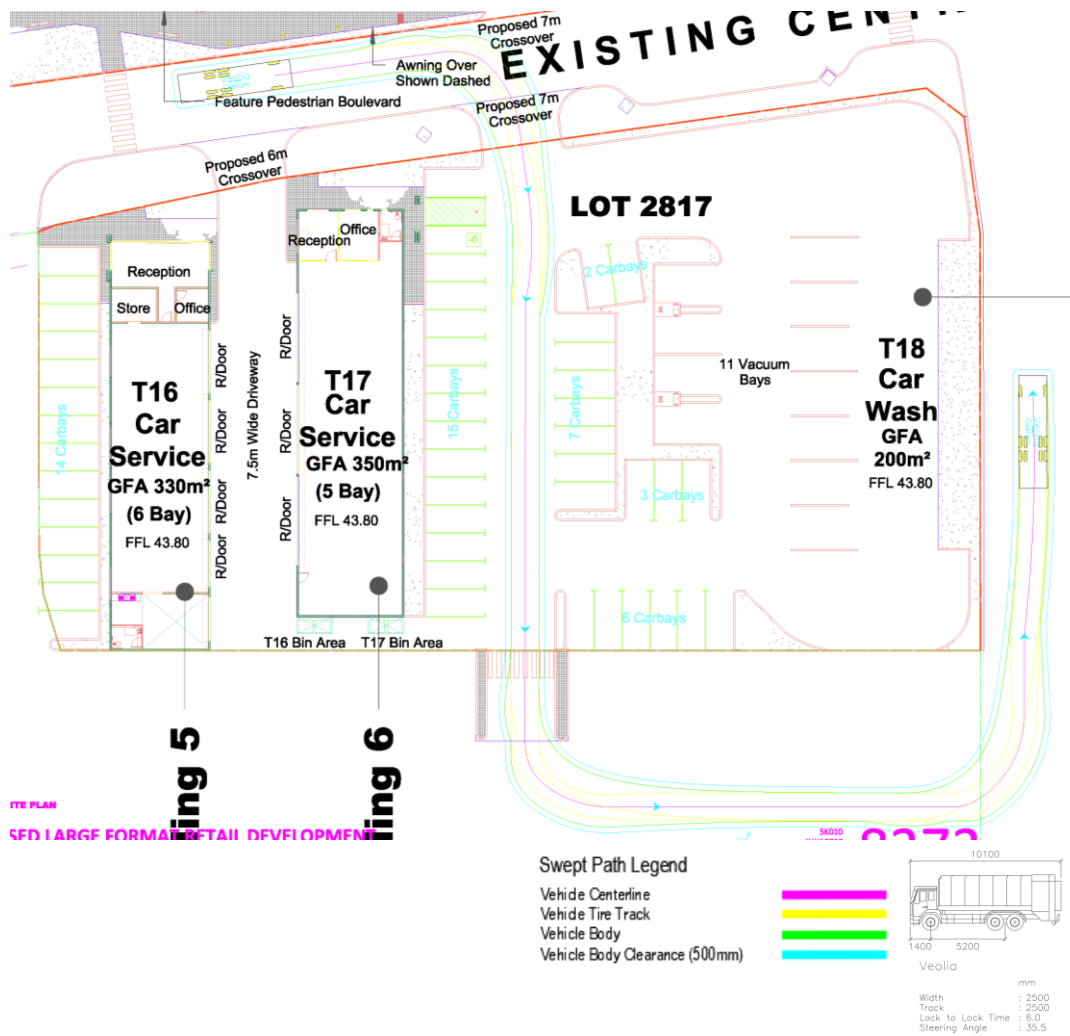


Figure 3-4 Swept Path 3



4 Changes to Surrounding Area

4.1 Road Network

Cardno contacted the relevant authorities and were advised of no proposed changes to the surrounding road network.

4.2 Intersection Controls

Cardno contacted the relevant authorities and were advised of no proposed changes to the surrounding road network.

4.3 Pedestrian/Cycle Networks

The Wanneroo Cycle Plan 2018/19-2021/22 states that Butler Boulevard (from Marmion Avenue to Landbeach Boulevard) will undergo line marking providing a connection from Marmion Avenue to Butler Train Station. The Exmouth Drive route is to be tied into the Perth Shared Path of the train line at Boncath Road. Further information can be found within *The Wanneroo Cycle Plan*.

4.4 Public Transport Services

Cardno contacted PTA and were advised that there were no proposed changes in the near future. Services will likely change when the Joondalup Line is extended north to Yanchep.

5 Integration with Surrounding Area

5.1 Surrounding Attractors/Generators

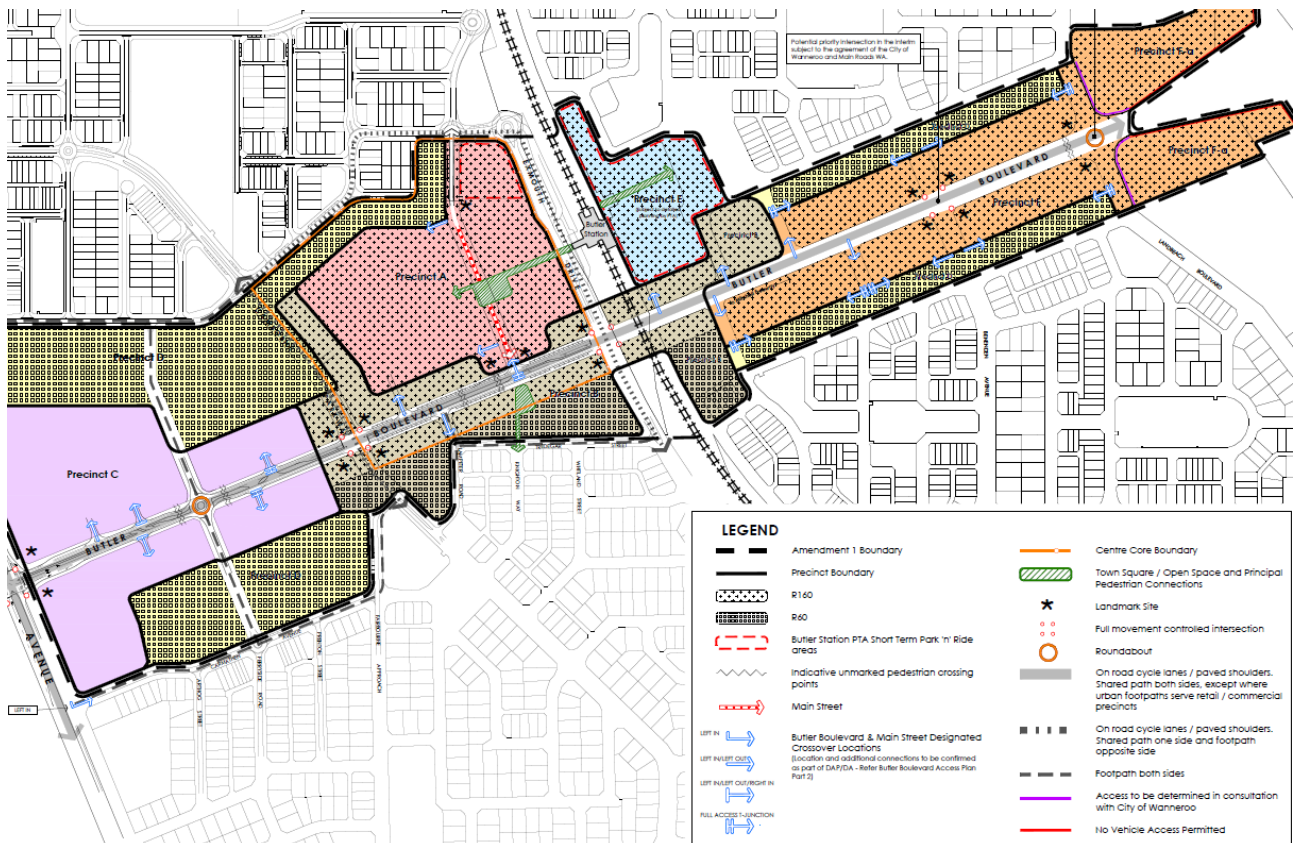
The key generators for the Site will be the surrounding residential area and those who exit from other land uses such as the nearby commercial and retail developments located within 800 m of the Site's boundaries, who may be attracted to the showrooms and retail store components of the development.

The major attractors, particularly for employees will be the commercial and retail establishments nearby and in the surrounding area such as Bunnings, public open spaces nearby, the residential area within 800 m distance to the Site's boundaries and the train station located within close proximity. Most employees and visitors are likely to walk to the train station and the nearby attractions or travel on Butler Boulevard to access the eastern and western areas. To travel north and south, most people are likely to use Camborne Parkway or Exmouth Drive.

5.2 Proposed Changes to Surrounding Land Use

The area is identified as *Precinct A-Main Street Centre Core* within the *Butler District Centre Activity Centre Structure Plan No.87 (Figure 5-1)*. The land use permissibility for the Precinct will be as per the *Butler District Centre Activity Centre Structure Plan*.

Figure 5-1 Butler District Centre Activity Centre Structure Plan



Source: Butler District Centre Activity Centre Structure Plan No.87

5.3 Level of Accessibility

The Site's access points are located on Camborne Parkway, Brackley Way, existing Central Avenue and existing connector road providing entry into car parks. Pedestrian access into the showrooms are on the southern side.

Access via public transport is facilitated by Butler train station including bus stands which is approximately 7 minutes' walk away and bus stops located on Butler Boulevard.

Pedestrian and cycle access are facilitated by the bicycle boulevards/lanes and shared paths within the vicinity of the Site.

6 Analysis of Transport Network

6.1 Assessment Years and Time Period

Peak times selected are 8 AM to 9 AM and 5 PM to 6 PM for the weekday peak period and a weekend peak period of 12 PM to 2 PM for the surrounding road network. However, the peak activity for this development is during the weekday PM peak period and weekend peak period, therefore only the PM weekday peak and the weekend peak are considered for analysis. The following model scenarios have therefore been analysed as part of this assessment:

- > Scenario 1 – Existing Traffic without Development
- > Scenario 2 - 2020 Opening Year Traffic with Development
- > Scenario 3 - 2030 10-year Horizon Traffic with Development

6.2 Traffic Generation

Trip generation has been calculated using various sources for the different components of the development: *Institute of Transportation Engineers (ITE) "Trip Generation" 10th Edition, Roads and Traffic Authority Guide to Traffic Generating Developments* and *WAPC Transport Impact Assessment Guidelines -Volume 5 - Technical Guidance*.

Table 6-1 Trip Generation Rate

Land Use	ITE Code/Source	Weekend Peak		Weekday Peak	
Retail (per 100 m ² GFA)	WAPC	1 (in)	0.25 (out)	2 (in)	2 (out)
Showroom	890/RTA	2.68 per 100 m ²		1.31 per 100 m ²	
Car Service	942	3.05 per 100 m ²		3.78 per 100 m ²	
Gym	492	1.51 per 100 m ²		4.22 per 100 m ²	

Table 6-2 Directional Distribution

Land Use	Weekend Peak		Weekday Peak	
	In	Out	In	Out
Showroom	69%	31%	48%	52%
Car Service	56%	44%	49%	51%
Gym	46%	54%	52%	48%

Table 6-3 Total Trip Generation

Land Use	Weekend Peak		Weekday Peak	
	In	Out	In	Out
Retail	6	2	8	8
Showroom	33	20	36	35
Gym	14	17	44	41
Car Service	23	18	25	26
Total	93	72	140	140

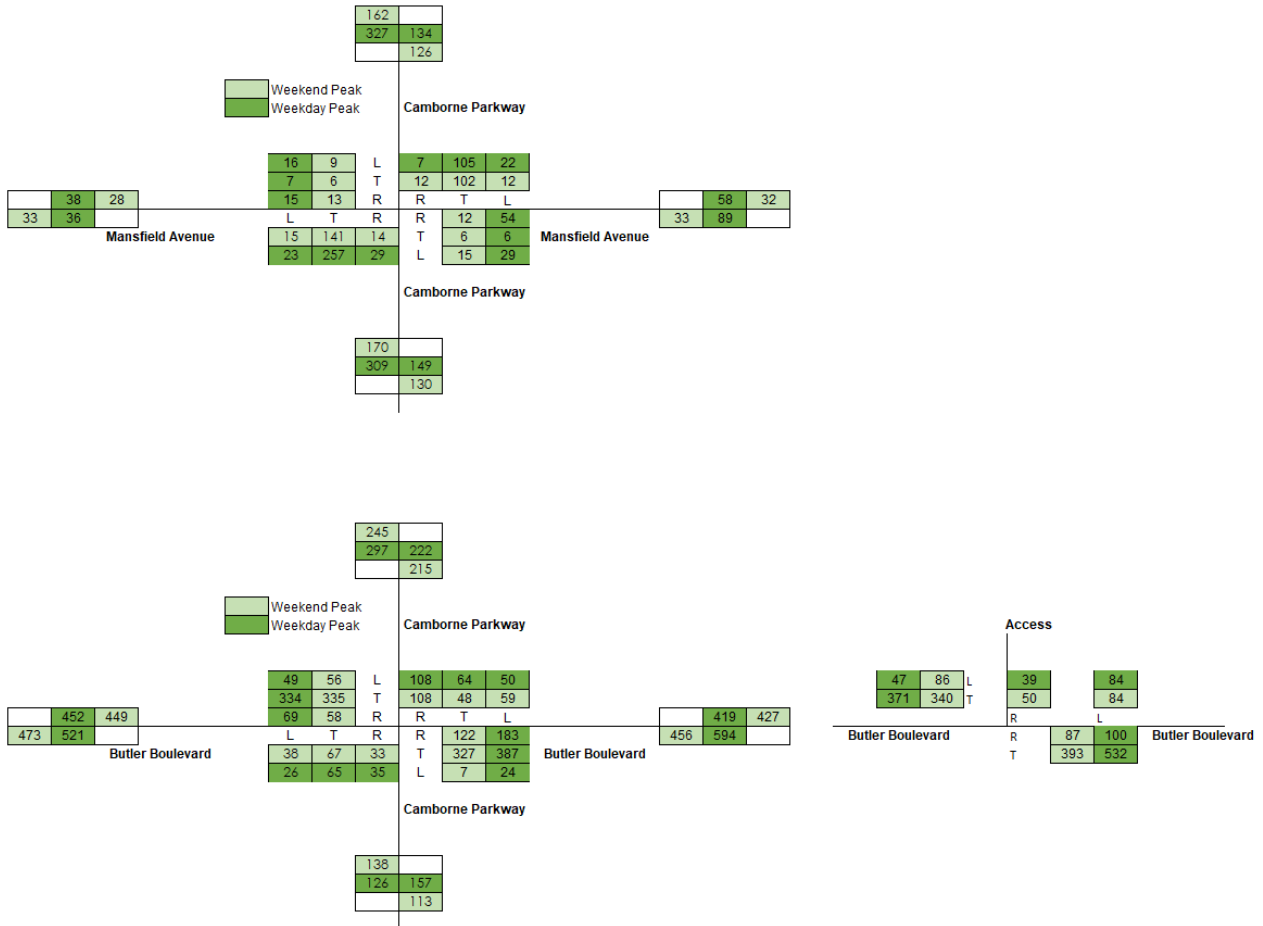
The proposed development represents a two-way trip generation of approximately 165 vehicles during the weekend peak period and 280 vehicles during the weekday peak period.

6.3 Scenario 1 – 2019 Existing Traffic without Development

The existing background traffic obtained from *AusTraffic* traffic count data for the year of 2019 assisted in the traffic analysis of the intersections of Camborne Parkway/Butler Boulevard, Camborne Parkway/Mansfield Avenue and Butler Boulevard/Shopping Centre access.

Figure 6-1 shows the adopted background traffic volumes for the weekday and weekend noon operation hours of the intersections.

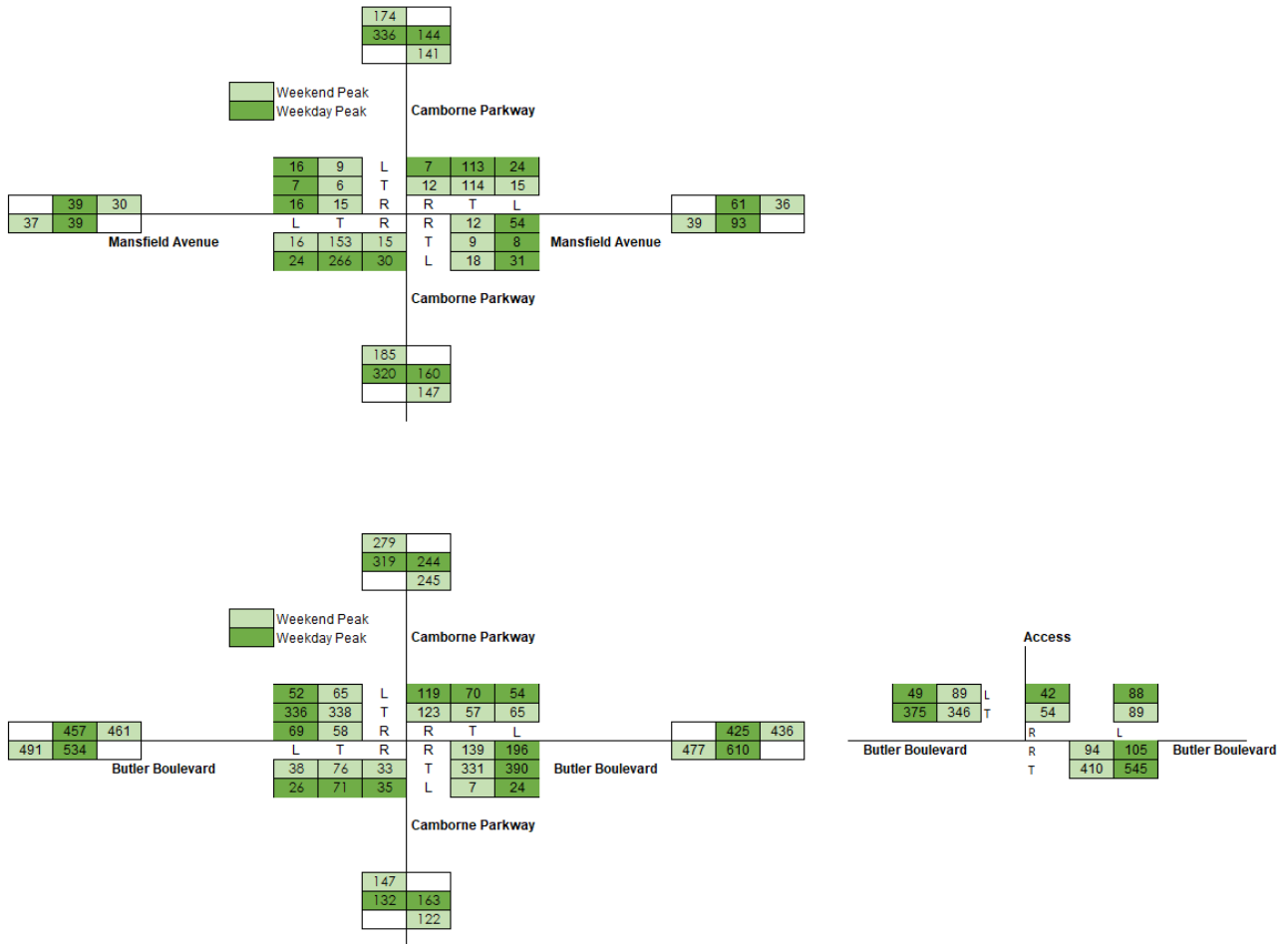
Figure 6-1 Scenario 1 – Existing Traffic without Development



6.4 Scenario 2 – 2020 Traffic with Development

Traffic generated was analysed for the development with an assumed opening year of 2020. **Figure 6-2** shows the traffic volume in the year 2020 with the traffic volume of the development.

Figure 6-2 Scenario 2 – 2020 Traffic with Development



6.5 Scenario 3 – 2030 Traffic with Development

A 10-year future scenario was considered for a comprehensive assessment. **Figure 6-3** shows the estimated traffic volumes with 10 years' growth on the weekday and weekend peak periods, based on a yearly traffic growth rate of 2.5% from 2020 to 2030.

Figure 6-3 Scenario 3 – 2030 Traffic with Development



6.6 Key Assumptions

The following assumptions were made for the analysis:

- A 2.5% annual growth rate has been applied to the background traffic for a 10-year period for the future year assessment. This provides a robust assessment of the intersection in the future scenario.
- Existing traffic volumes were obtained from the *AusTraffic* traffic counts conducted on Saturday 1st of June 2019 and Thursday 30th May 2019 for the intersection of Camborne Parkway/Butler Boulevard, Camborne Parkway/Mansfield Avenue and Butler Boulevard/Shopping Centre access.
- The percentage distribution of traffic at the intersection (for traffic exiting and entering the development) were determined from the existing splits.

6.7 Intersection Performance

The identified intersections have been analysed using the SIDRA analysis program. This program calculates the performance of intersections based on input parameters, including geometry and traffic volumes. As an output SIDRA provides values for the Degree of Saturation (DOS), queue lengths, delays, level of service, and 95th Percentile Queue. These parameters are defined as follows:

- > **Degree of Saturation (DoS):** is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The theoretical intersection capacity is exceeded for an un-signalized intersection where $DOS > 0.80$;
- > **95% Queue:** is the statistical estimate of the queue length up to or below which 95% of all observed queues would be expected;
- > **Average Delay:** is the average of all travel time delays for vehicles through the intersection. An un-signalised intersection can be considered to be operating at capacity where the average delay exceeds 40 seconds for any movement; and
- > **Level of Service (LoS):** is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. The different levels of service can generally be described as shown in **Table 6-4**.

Table 6-4 Level of Service (LoS) Performance Criteria

LOS	Description	Signalised Intersection	Unsignalised Intersection
A	Free-flow operations (best condition)	≤10 sec	≤10 sec
B	Reasonable free-flow operations	10-20 sec	10-15 sec
C	At or near free-flow operations	20-35 sec	15-25 sec
D	Decreasing free-flow levels	35-55 sec	25-35 sec
E	Operations at capacity	55-80 sec	35-50 sec
F	A breakdown in vehicular flow (worst condition)	≥80 sec	≥50 sec

A LOS exceeding these values indicates that the road section is exceeding its practical capacity. Above these values, users of the intersection are likely to experience unsatisfactory queuing and delays during the peak hour periods.

6.8 Scenario 1 – 2019 Existing Traffic without Development

The following presents the analysis of the Camborne Parkway and Mansfield Avenue intersection. **Figure 6-4** is a SIDRA layout representation of the intersection and **Table 6-5** shows the SIDRA results of the analysis.

Figure 6-4 SIDRA Layout - Scenario 1 – 2019 Existing Traffic without Development – Camborne Parkway/Mansfield Avenue

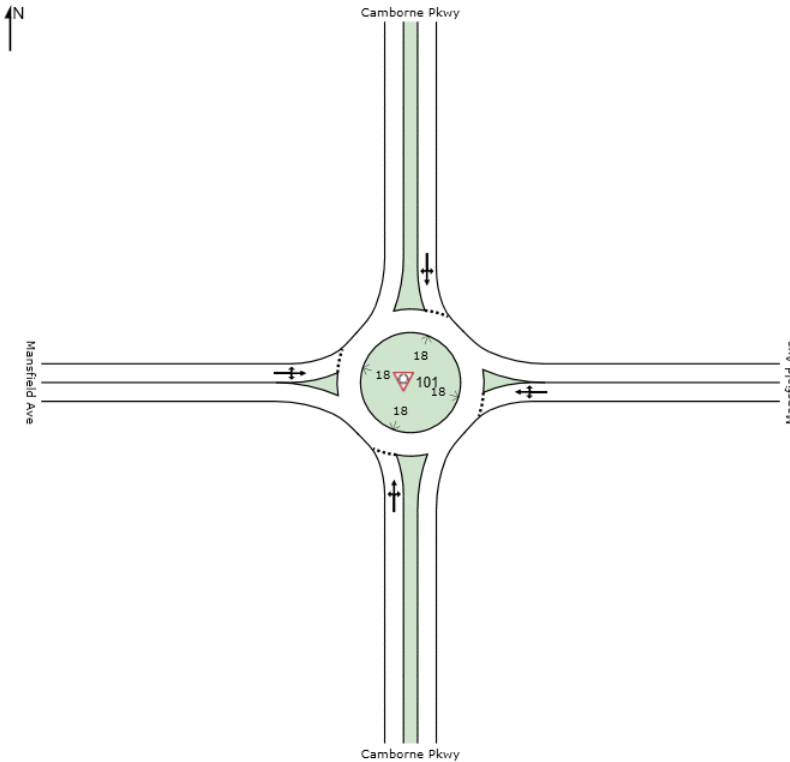


Table 6-5 SIDRA Results - 2019 Existing Traffic without Development - Camborne Parkway/Mansfield Avenue

Intersection Approach		Weekday peak				Weekend Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South: Camborne Pkwy	L	0.237	3.3	A	9.8	0.124	3.1	A	4.5
	T	0.237	3.3	A	9.8	0.124	3.1	A	4.5
	R	0.237	7.6	A	9.8	0.124	7.4	A	4.5
East: Mansfield Ave	L	0.08	3.6	A	2.9	0.029	3.5	A	0.9
	T	0.08	3.6	A	2.9	0.029	3.5	A	0.9
	R	0.08	8	A	2.9	0.029	7.8	A	0.9
North: Camborne Pkwy	L	0.106	3.5	A	3.9	0.095	3.3	A	3.4
	T	0.106	3.2	A	3.9	0.095	3.1	A	3.4
	R	0.106	7.5	A	3.9	0.095	7.4	A	3.4
West: Mansfield Ave	L	0.039	4.6	A	1.4	0.025	3.7	A	0.8
	T	0.039	4.6	A	1.4	0.025	3.7	A	0.8
	R	0.039	8.9	A	1.4	0.025	8	A	0.8
All vehicles		0.237	4.2	A	1.4	0.124	3.8	A	4.5

Figure 6-5 shows the SIDRA layout of Camborne Parkway and Butler Boulevard intersection and Table 6-6 shows the results of the SIDRA analysis.

Figure 6-5 SIDRA Layout - Scenario 1 – 2019 Existing Traffic without Development – Camborne Parkway/Butler Boulevard

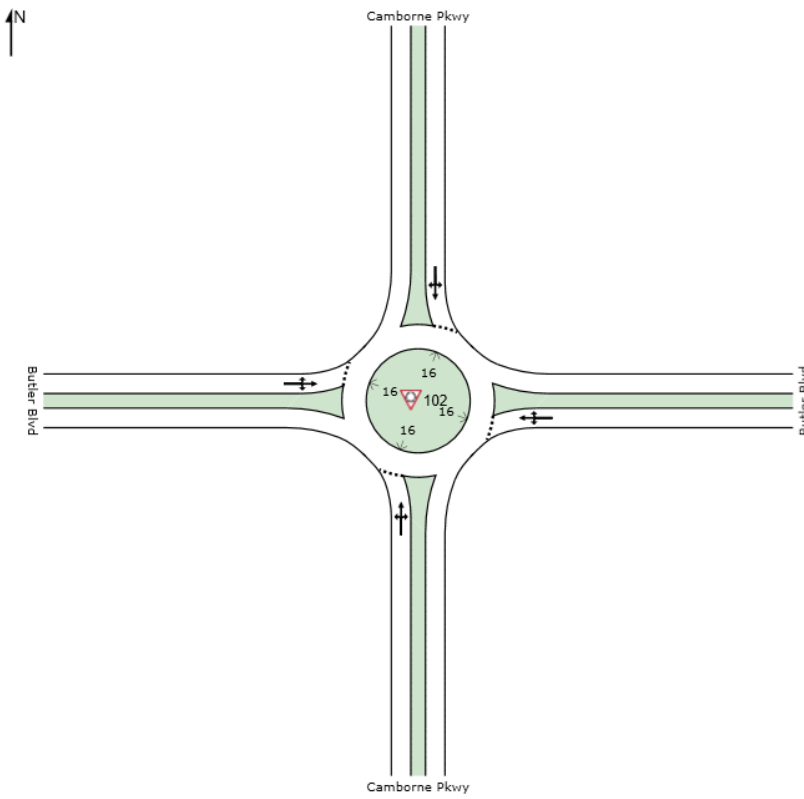


Table 6-6 SIDRA Results - 2019 Existing Traffic without Development - Camborne Parkway/Butler Boulevard

Intersection Approach		Weekday peak				Weekend Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South: Camborne Pkwy	L	0.201	7.7	A	9.3	0.18	6.5	A	7.5
	T	0.201	7.8	A	9.3	0.18	6.6	A	7.5
	R	0.201	12.5	B	9.3	0.18	10.7	B	7.5
East: Butler Blvd	L	0.572	5.8	A	34.3	0.424	4.9	A	21.3
	T	0.572	5.2	A	34.3	0.424	4.6	A	21.3
	R	0.572	9.2	A	34.3	0.424	8.7	A	21.3
North: Camborne Pkwy	L	0.266	5.9	A	11.8	0.25	5.7	A	10.7
	T	0.266	6	A	11.8	0.25	5.8	A	10.7
	R	0.266	10	A	11.8	0.25	9.8	A	10.7
West: Butler Blvd	L	0.46	5.2	A	23.5	0.418	4.7	A	20.2
	T	0.46	5.3	A	23.5	0.418	4.7	A	20.2
	R	0.46	9.3	A	23.5	0.418	8.7	A	20.2
All vehicles		0.572	6.8	A	4.7	0.424	6.1	A	21.3

Figure 6-6 shows the SIDRA layout of Butler Boulevard and the Access Road intersection and Table 6-7 shows the results of the SIDRA analysis.

Figure 6-6 SIDRA Layout - Scenario 1 – 2019 Existing Traffic without Development –Butler Boulevard/Access

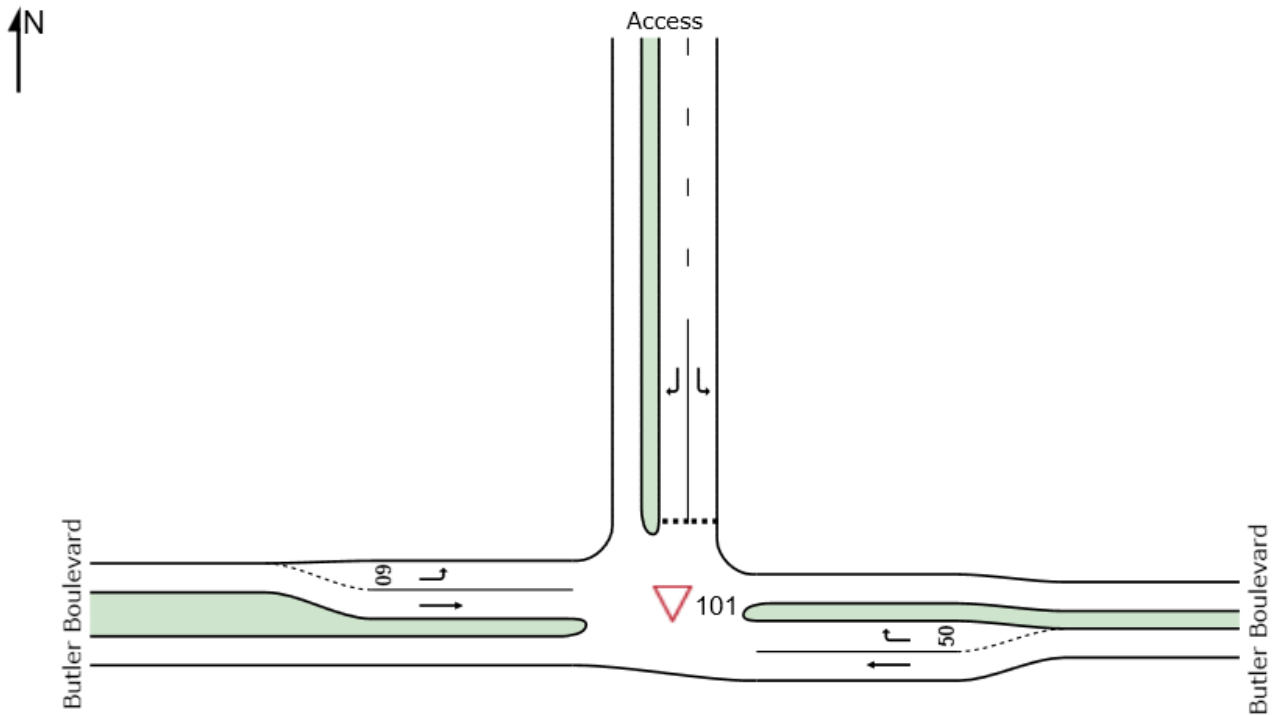


Table 6-7 SIDRA Results - 2019 Existing Traffic without Development - Butler Boulevard/Access

Intersection Approach	Weekday peak					Weekend Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
East: Butler Boulevard	T	0.287	0	A	0	0.212	0	A	0
	R	0.116	6.8	A	3.2	0.102	6.8	A	2.8
North: Access	L	0.099	6.5	A	2.5	0.096	6.2	A	2.4
	R	0.196	22.1	C	4.6	0.178	16.1	C	4.3
West: Butler Boulevard	L	0.027	4.6	A	0	0.049	4.6	A	0
	T	0.2	0	A	0	0.184	0	A	0
All vehicles		0.287	2	NA	4.6	0.212	2.2	NA	0.11

6.9 Scenario 2 – 2020 Traffic with Development

Table 6-8 shows the SIDRA results of the analysis of the intersection of Camborne Parkway/Mansfield Avenue for the year 2020 with development traffic.

Table 6-8 SIDRA Results - 2020 Traffic with Development - Camborne Parkway/Mansfield Avenue

Intersection Approach		Weekday peak				Weekend Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South: Camborne Pkwy	L	0.248	3.3	A	10.4	0.139	3.1	A	5.2
	T	0.248	3.3	A	10.4	0.139	3.1	A	5.2
	R	0.248	7.6	A	10.4	0.139	7.4	A	5.2
East: Mansfield Ave	L	0.086	3.6	A	3.1	0.036	3.6	A	1.2
	T	0.086	3.6	A	3.1	0.036	3.6	A	1.2
	R	0.086	8.1	A	3.1	0.036	7.9	A	1.2
North: Camborne Pkwy	L	0.116	3.5	A	4.3	0.108	3.2	A	3.9
	T	0.116	3.2	A	4.3	0.108	3.1	A	3.9
	R	0.116	7.5	A	4.3	0.108	7.4	A	3.9
West: Mansfield Ave	L	0.041	4.7	A	1.4	0.027	3.8	A	0.9
	T	0.041	4.7	A	1.4	0.027	3.8	A	0.9
	R	0.041	9	A	1.4	0.027	8.1	A	0.9
All vehicles		0.248	4.2	A	1.5	0.139	3.8	A	5.2

Table 6-9 shows the SIDRA results of the analysis of the intersection of Camborne Parkway/Butler Boulevard for the year 2020 with development traffic.

Table 6-9 SIDRA Results - 2020 Traffic with Development - Camborne Parkway/Butler Boulevard

Intersection Approach		Weekday peak				Weekend Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South: Camborne Pkwy	L	0.222	8.1	A	10.5	0.205	7	A	8.9
	T	0.222	8.2	A	10.5	0.205	7	A	8.9
	R	0.222	13	B	10.5	0.205	11.2	B	8.9
East: Butler Blvd	L	0.607	6.5	A	39.9	0.464	5.2	A	24.2
	T	0.607	5.9	A	39.9	0.464	4.9	A	24.2
	R	0.607	9.8	A	39.9	0.464	9	A	24.2
North: Camborne Pkwy	L	0.302	6	A	13.7	0.297	5.9	A	13.2
	T	0.302	6.1	A	13.7	0.297	5.9	A	13.2
	R	0.302	10.1	B	13.7	0.297	10	A	13.2
West: Butler Blvd	L	0.48	5.4	A	25	0.447	5	A	22.1
	T	0.48	5.6	A	25	0.447	5	A	22.1
	R	0.48	9.5	A	25	0.447	9	A	22.1
All vehicles		0.607	7.2	A	5.5	0.464	6.5	A	24.2

Table 6-10 shows the SIDRA results of the analysis of the intersection of Butler Boulevard and the Access Road for the year 2020 with development traffic.

Table 6-10 SIDRA Results - 2020 Traffic with Development - Butler Boulevard/Access Road

Intersection Approach		Weekday peak				Weekend Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
East: Butler Boulevard	T	0.294	0	A	0	0.221	0	A	0
	R	0.123	6.8	A	3.4	0.111	6.8	A	3.1
North: Access	L	0.105	6.5	A	2.6	0.062	6.2	A	1.5
	R	0.221	23.6	C	5.3	0.337	19.7	C	9.5
West: Butler Boulevard	L	0.028	4.6	A	0	0.05	4.6	A	0
	T	0.202	0	A	0	0.187	0	A	0
All vehicles		0.294	2.1	NA	5.3	0.337	2.9	NA	0.13

6.10 Scenario 3 – 2030 Traffic with Development

Table 6-11 shows the SIDRA results of the analysis of the intersection of Camborne Parkway/Mansfield Avenue for the year 2030 with development traffic.

Table 6-11 SIDRA Results - 2030 Traffic with Development - Camborne Parkway/Mansfield Avenue

Intersection Approach		Weekday peak				Weekend Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South: Camborne Pkwy	L	0.314	3.5	A	14.2	0.171	3.1	A	6.6
	T	0.314	3.5	A	14.2	0.171	3.1	A	6.6
	R	0.314	7.8	A	14.2	0.171	7.4	A	6.6
East: Mansfield Ave	L	0.109	3.8	A	4	0.044	3.8	A	1.5
	T	0.109	3.8	A	4	0.044	3.8	A	1.5
	R	0.109	8.2	A	4	0.044	8.1	A	1.5
North: Camborne Pkwy	L	0.144	3.5	A	5.5	0.133	3.3	A	4.9
	T	0.144	3.3	A	5.5	0.133	3.1	A	4.9
	R	0.144	7.5	A	5.5	0.133	7.4	A	4.9
West: Mansfield Ave	L	0.055	5.2	A	2	0.035	4	A	1.2
	T	0.055	5.2	A	2	0.035	4	A	1.2
	R	0.055	9.5	A	2	0.035	8.3	A	1.2
All vehicles		0.314	4.4	A	2	0.171	3.9	A	6.6

Table 6-12 shows the SIDRA results of the analysis of the intersection of Camborne Parkway/Butler Boulevard for the year 2030 with development traffic.

Table 6-12 SIDRA Results - 2030 Traffic with Development - Camborne Parkway/Butler Boulevard

Intersection Approach		Weekday peak				Weekend Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South: Camborne Pkwy	L	0.372	10.9	B	20	0.305	8.6	A	14.6
	T	0.372	11	B	20	0.305	8.6	A	14.6
	R	0.372	15.8	B	20	0.305	12.8	B	14.6
East: Butler Blvd	L	0.799	11.4	B	89.2	0.606	6.6	A	39.9
	T	0.799	10.7	B	89.2	0.606	6.3	A	39.9
	R	0.799	14.6	B	89.2	0.606	10.3	B	39.9
North: Camborne Pkwy	L	0.424	7.2	A	21.7	0.408	7	A	20.2
	T	0.424	7.3	A	21.7	0.408	7	A	20.2
	R	0.424	11.3	B	21.7	0.408	11.1	B	20.2
West: Butler Blvd	L	0.644	8.1	A	47.7	0.586	6.2	A	36.3
	T	0.644	8.2	A	47.7	0.586	6.3	A	36.3
	R	0.644	12.2	B	47.7	0.586	10.3	B	36.3
All vehicles		0.799	10.6	B	12.4	0.606	7.7	A	39.9

Table 6-13 SIDRA Results - 2030 Traffic with Development - Butler Boulevard/ Access Road

Intersection Approach		Weekday peak				Weekend Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
East: Butler Boulevard	T	0.366	0	A	0	0.274	0	A	0
	R	0.176	7.8	A	4.8	0.158	7.8	A	4.3
North: Access	L	0.147	7.3	A	3.7	0.141	7	A	3.6
	R	0.479	49.6	E	11.9	0.384	29.8	D	10.1
West: Butler Boulevard	L	0.035	4.6	A	0	0.063	4.6	A	0
	T	0.253	0	A	0	0.233	0	A	0
All vehicles		0.479	3.1	NA	11.9	0.384	3.1	NA	0.13

6.10.2 SIDRA Results Summary

Based on the above analysis, SIDRA indicates that the intersections in the existing scenario, in the year 2020 and in the future year 2030 at acceptable Levels of Service during the weekend peak and the weekday peak periods. The results also indicate that in the year 2030 the northern access road at the intersection of Butler Boulevard/Access Road will experience a longer delay, however this is due to the growth in the background traffic. The proposed development traffic does not cause any negative impact to the surrounding road network.

7 Summary

This report has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Assessment Guidelines for Developments: Volume 4 – Individual Development*.

The following conclusions have been made in regards to the proposed development:

- > The proposed development consists of showrooms and retail/commercial spaces.
- > The Site benefits from excellent pedestrian and cycle access via high quality shared paths and bicycle boulevards that run along Camborne Parkway, Mansfield Avenue connecting to Butler Train Station and bicycle lanes stretch along Camborne Parkway surrounding the Site.
- > The Site is facilitated by an excellent provision of public transport as the Butler train station is approximately 7 minutes' walk away from the Site served by Butler line that travels to Perth and Butler and bus stands serving several bus routes.
- > Car parking requirements have been met by the provision.
- > Bicycle parking requirements have been met by the provision of bicycle parking bays.
- > Traffic generation has been assessed and is not expected to cause any major impact on existing traffic conditions around the Site.
- > Based on analysis, the intersection of Camborne Parkway/Butler Boulevard, Camborne Parkway/Mansfield Avenue and Butler Boulevard/Shopping Centre access perform at acceptable levels of service.
- > Overall, the proposed development represents a low impact on the surrounding road network in terms of safety due to the low traffic generation given the close proximity to excellent public transportation.

Butler Retail Development, Camborne
Parkway

APPENDIX

A

WAPC CHECKLIST

Item	Provided	Comments/Proposals
Summary		
Introduction/Background		
name of applicant and consultant	Section 1	
development location and context	Section 2	
brief description of development proposal	Section 2	
key issues	Section 2	
Background information	Section 1	
Existing situation		
existing site uses (if any)	Section 2	
existing parking and demand (if appropriate)	Section 3	
existing access arrangements	Section 3	
existing site traffic	Section 6	
surrounding land uses	Section 4	
surrounding road network	Section 4	
traffic management on frontage roads	NA	
traffic flows on surrounding roads (usually am and pm peak hours)	Section 2	
traffic flows at major intersections (usually am and pm peak hours)	Section 2	
operation of surrounding intersections	Section 4	
existing pedestrian/cycle networks	Section 2	
existing public transport services surrounding the development	Section 2	
Crash data	Section 2	
Development proposal		
regional context	Section 2	
proposed land uses	Section 3	
table of land uses and quantities	Section 3	
access arrangements	Section 3	
parking provision	Section 3	
end of trip facilities	Section 3	
any specific issues	N/A	
road network	Section 2	
intersection layouts and controls	Section 4	
pedestrian/cycle networks and crossing facilities	Section 2	

Item	Provided	Comments/Proposals
public transport services	Section 2	
Integration with surrounding area	Section 5	
surrounding major attractors/generators	Section 5	
committed developments and transport proposals	N/A	
proposed changes to land uses within 1200 metres	Section 4	
travel desire lines from development to these attractors/generators	Section 5	
adequacy of existing transport networks	Section 2	
deficiencies in existing transport networks	Section 2	
remedial measures to address deficiencies	N/A	
Analysis of transport networks		
assessment years	Section 6	
time periods	Section 6	
development generated traffic	Section 6	
distribution of generated traffic	Section 6	
parking supply & demand	Section 3	
base and "with development" traffic flows	Section 6	
analysis of development accesses	Section 6	
impact on surrounding roads	Section 6	
impact on intersections	Section 6	
impact on neighbouring areas	N/A	
traffic noise and vibration	N/A	
road safety	Section 2	
public transport access	Section 2	
pedestrian access / amenity	Section 2	
cycle access / amenity	Section 2	
analysis of pedestrian / cycle networks	Section 2	
safe walk/cycle to school (for residential and school site developments only)	Section 2	
Traffic management plan (where appropriate)	N/A	