



Engineering a better future for over 20 years!

Proposed Service Station

323 -325 Great Eastern Highway,
Midvale

Transport Impact Assessment

PREPARED FOR:
Peregrine Corporation

June 2023

Document history and status

Author	Revision	Approved by	Date approved	Revision type
Roger Bajwa	r01	B Bordbar	28/03/2023	Draft
Roger Bajwa	r01a	B Bordbar	30/03/2023	Final
Roger Bajwa	r01b	B Bordbar	24/05/2023	Revised Final
Roger Bajwa	r01c	B Bordbar	29/06/2023	2 nd Revised Final

File name: t23.033.rb.r01c

Author: Roger Bajwa

Project manager: Behnam Bordbar

Client: Peregrine Corporation

Project: 323 -325 Great Eastern Highway, Midvale

Document revision: r01c

Project number: t23.033

2023 Copyright in all drawings, reports, specifications, calculations and other documents provided by the Consultant in connection with the Project shall remain the property of the Consultant.

The Client alone shall have a license to use the documents referred to above for the purpose of completing the Project, but the Client shall not use, or make copies of, such documents in connection with any work not included in the Project, unless written approval is obtained from the Consultant or otherwise agreed through a separate contract.

TABLE OF CONTENTS

1	INTRODUCTION.....	1
2	DEVELOPMENT PROPOSAL.....	3
2.1	PROPOSED ACCESS FOR ALL MODES.....	3
3	EXISTING SITUATION.....	5
3.1	EXISTING SITE USE, ACCESS AND PARKING.....	5
3.2	EXISTING SITE TRAFFIC GENERATION.....	5
3.3	EXISTING ROAD NETWORK.....	5
3.4	EXISTING TRAFFIC VOLUMES ON ROADS.....	7
3.5	HEAVY VEHICLES.....	8
3.6	PUBLIC TRANSPORT ACCESS.....	9
3.7	PEDESTRIAN AND CYCLIST FACILITIES.....	10
3.8	CRASH DATA.....	11
4	CHANGES TO SURROUNDING TRANSPORT NETWORKS.....	12
5	INTEGRATION WITH SURROUNDING AREA.....	13
6	TRAFFIC ASSESSMENT.....	14
6.1	ASSESSMENT PERIOD.....	14
6.2	TRIP GENERATION AND DISTRIBUTION.....	14
6.3	TRAFFIC FLOWS.....	19
6.4	ANALYSIS OF LOCAL INTERSECTIONS & DEVELOPMENT'S CROSSOVERS.....	21
6.5	IMPACT ON SURROUNDING ROADS.....	24
6.6	IMPACT ON NEIGHBOURING AREAS.....	24
6.7	TRAFFIC NOISE AND VIBRATION.....	25
7	PARKING.....	26
8	PROVISIONS FOR HEAVY VEHICLES.....	27
9	PUBLIC TRANSPORT ACCESS.....	28
10	PEDESTRIAN AND CYCLIST ACCESS.....	29
11	CONCLUSIONS.....	30

APPENDIX A: PROPOSED DEVELOPMENT PLANS

APPENDIX B: TURN PATH ANALYSIS

APPENDIX C: SIDRA Results



REPORT FIGURES

Figure 1: Location of the subject site	1
Figure 2. MRS Map	2
Figure 3. Proposed Access Arrangements	4
Figure 4. Eastbound view along Great Eastern Highway	6
Figure 5. Southbound view along Victoria Parade	6
Figure 6: Existing peak hour traffic turn counts.....	7
Figure 7. Existing heavy vehicle road network classification (RAV)	8
Figure 8. Existing bus routes (source: Transperth).....	9
Figure 9. Bike map (source: Transperth).....	10
Figure 10. Total peak hour development traffic – Weekday AM and PM peak hours.....	18
Figure 11. Existing traffic flows at the intersection of Great Eastern Highway/ Victoria Parade and subject site crossovers – Weekday AM & PM peak hours	19
Figure 12. Post development traffic flows – Weekday AM and PM peak hours	20
Figure 13. Network model – SIDRA network model layout (two stage right turns at Great Eastern Highway/ Victoria Parade intersection).....	22

REPORT TABLES

Table 1. Crash history for the Great Eastern Highway/ Victoria Parade Intersection.....	11
Table 2. Morning peak hour surveyed results at the service station with a drive-through facility ...	15
Table 3. Traffic survey results at the service stations with drive-through facilities in South Australia	16
Table 4. Estimated proposed development traffic generation	17
Table 5. Passing and non-passing trade components of the proposed development traffic generation	17
Table 6. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2) – Weekday AM peak period (Existing)	38
Table 7. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2) – Weekday PM peak period (Existing)	39
Table 8. SIDRA results for the crossover 1 on Victoria Parade - Weekday AM peak period (Existing)	40
Table 9. SIDRA results for the crossover 1 on Victoria Parade - Weekday PM peak period (Existing)	40
Table 10. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday AM peak period (Existing)	41
Table 11. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday PM peak period (Existing)	41

Table 12. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2) – Weekday AM peak period (Post development – 2023).....	42
Table 13. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2) – Weekday PM peak period (Post development – 2023)	43
Table 14. SIDRA results for the crossover 1 on Victoria Parade - Weekday AM peak period (Post development – 2023).....	44
Table 15. SIDRA results for the crossover 1 on Victoria Parade - Weekday PM peak period (Post development – 2023).....	44
Table 16. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday AM peak period (Post development – 2023).....	45
Table 17. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday PM peak period (Post development – 2023).....	45
Table 18. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2) – Weekday AM peak period (10-year post development – 2033).....	46
Table 19. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2) – Weekday PM peak period (10-year post development – 2033)	47
Table 20. SIDRA results for the crossover 1 on Victoria Parade - Weekday AM peak period (10-year post development – 2033)	48
Table 21. SIDRA results for the crossover 1 on Victoria Parade - Weekday PM peak period (10-year post development – 2033)	48
Table 22. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday AM peak period (10-year post development – 2033)	49
Table 23. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday PM peak period (10-year post development – 2033)	49



1 Introduction

This Transport Impact Assessment (TIA) has been prepared by Transcore on behalf of Peregrine Corporation with regards to the proposed service station with an associated order-taking drive-through facility to be located at 323-325 Great Eastern Highway, Midvale in the City of Swan. The subject site is located at the northwest corner of Great Eastern Highway and Victoria Parade's priority-controlled 'T' intersection.

The subject site for the proposed service station is located within an existing retail/commercial facility which is bound by Victoria Parade to the east, Great Eastern Highway to the south, Bushby Street to the west and existing residential properties to the immediate north as illustrated in **Figure 1**. The subject site is currently occupied by an existing vacant building located at the easternmost portion of the facility.

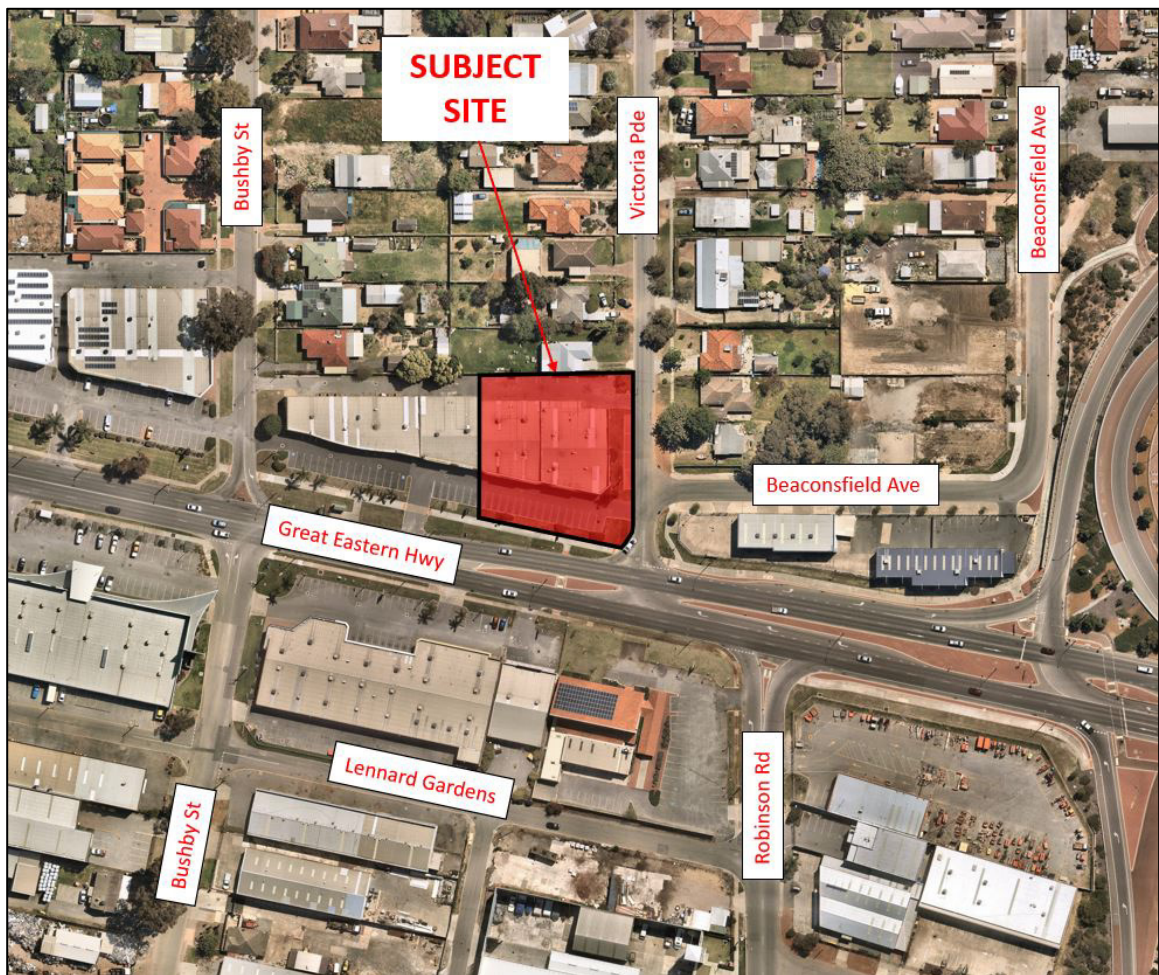


Figure 1: Location of the subject site

Vehicle accesses to the commercial/retail facility are currently available via two full-movement crossovers on Victoria Parade, one full-movement crossover on Great

Eastern Highway and one full-movement crossover on Bushby Street. As part of the proposed development, both existing crossovers on Victoria Parade are proposed to be removed and replaced by a new crossover creating greater separation between Great Eastern Highway.

The subject site is illustrated in **Figure 2** within the context of the zones and reservations of the Metropolitan Region Scheme, which shows that Great Eastern Highway is classified as a Primary Regional Road (Red Road).

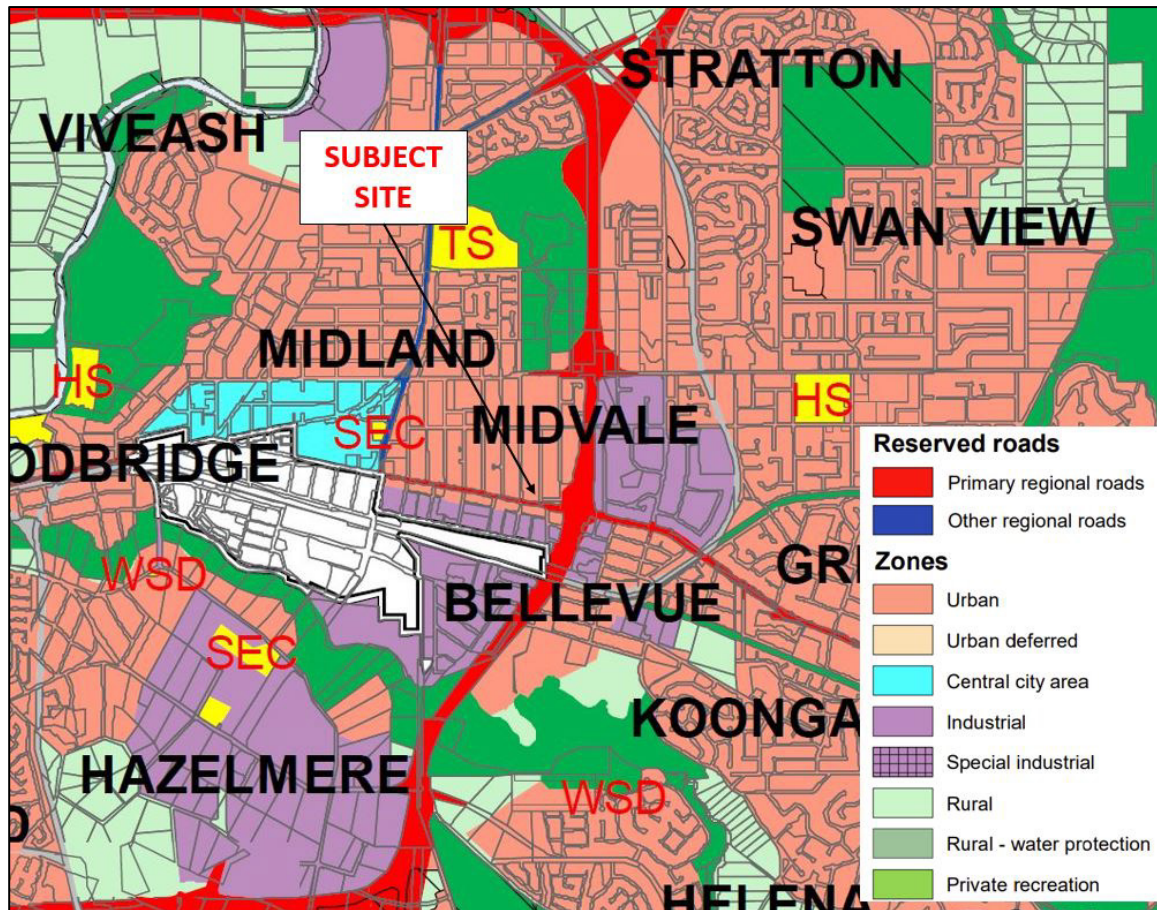


Figure 2. MRS Map

The key issues that will be addressed in this report include establishing the net traffic generation and distribution of the proposed development, operations and capacity analysis of the proposed development crossovers, and the priority-controlled 'T' intersection of Great Eastern Highway and Victoria Parade. The internal site circulation system for fuel tankers and service vehicles is also addressed in this report.



2 Development Proposal

According to the proposed development plan in **Appendix A** of this report, the proposal includes a service station comprising the following elements:

- A control building convenience retail store with GFA of 250m²;
- An order-taking drive-through facility for the control building with a stacking capacity of 10 cars;
- Fuel canopy with 8 vehicle fuelling positions; and,
- A total of 13 car parking bays inclusive of one ACROD bay plus 4 EV charging bays.

The layout of the proposed development is shown in the site plan included in **Appendix A**.

2.1 Proposed Access for all Modes

The proposed access system for the development comprises one full-movement crossover on Victoria Parade. Additional access will also be available through the existing access system for the commercial/retail facility on Great Eastern Highway and Bushby Street.

As part of the proposed development, both existing crossovers on Victoria Parade are proposed to be removed and replaced by a new crossover creating greater separation between Great Eastern Highway.

Furthermore, the proposed development entails two reciprocal connection points with the existing facility at the western side of the subject site to maintain effective circulation. The locations of the site crossovers and shared accesses are shown in **Figure 3**.

The delivery of fuel will be undertaken by using fuel tankers up to 16.5m in length which will enter the site via the Victoria Parade crossover, access the fill point and exit the site via the same crossover. Appropriate turn path assessment for the tanker is presented in **Appendix B**.



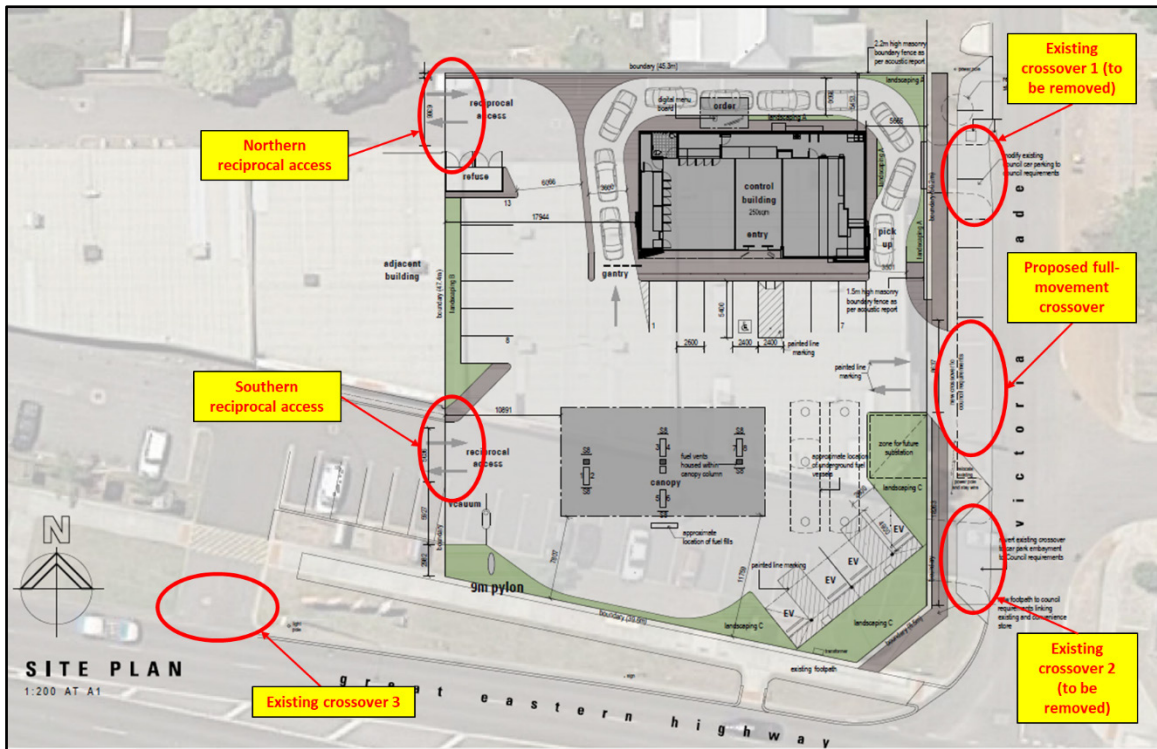


Figure 3. Proposed Access Arrangements



3 Existing Situation

3.1 Existing Site Use, Access and Parking

The subject site is located at the northwest corner of Great Eastern Highway/ Victoria Parade's priority-controlled 'T' intersection. The subject site has two road frontages: Great Eastern Highway to the south and Victoria Parade to the east. Bushby Street is fronting the commercial/retail facility to the west.

3.2 Existing Site Traffic Generation

The subject site currently accommodates two vacant commercial tenancies.

3.3 Existing Road Network

Great Eastern Highway, in the vicinity of the subject site, is a dual divided-carriageway with four lanes and raised median. Pedestrian footpaths are available on both sides of Great Eastern Highway in the vicinity of the subject site. Please refer to **Figure 4** for more details.

Great Eastern Highway is classified as a *Primary Distributor* in the Main Roads WA Functional Road Hierarchy and operates under the sign posted speed limit of 60km/h in the vicinity of the subject site. Great Eastern Highway is classified as a Primary Regional Road (Red Road) in the MRS.

According to the latest available SCATS data sourced from Main Roads WA, Great Eastern Highway (west of Roe Highway) carried approximately 27,438vpd on a typical weekday in 2021/22. The morning traffic volume peak of 2,015vph was recorded at this location between 08:00AM to 09:00AM while the afternoon traffic volume peak of 2,378vph was recorded between 4:00PM to 5:00PM. Heavy vehicle participation in the overall traffic is recorded to be about 7.5%.

Victoria Parade, in the vicinity of the subject site, is constructed as a single-carriageway, two-lane undivided road with a pedestrian footpath on the eastern side of the road. Refer to **Figure 5** for more details.

Victoria Parade is classified as a *Local Distributor* in the Main Roads WA Functional Road Hierarchy and operates under the default built-up area speed limit of 50km/h.

Victoria Parade forms a give-way sign-controlled 'T' intersection with Great Eastern Highway.



Figure 4. Eastbound view along Great Eastern Highway



Figure 5. Southbound view along Victoria Parade



3.4 Existing Traffic Volumes on Roads

Transcore undertook manual traffic counts for the turn movements at existing site crossovers and the intersections of Great Eastern Highway and Victoria Parade on Friday 02nd March 2023 between 08:00AM to 09:00AM and 4:00PM to 5:00PM. The existing traffic peak hour turn counts at the intersections and site crossovers are shown in **Figure 6**.

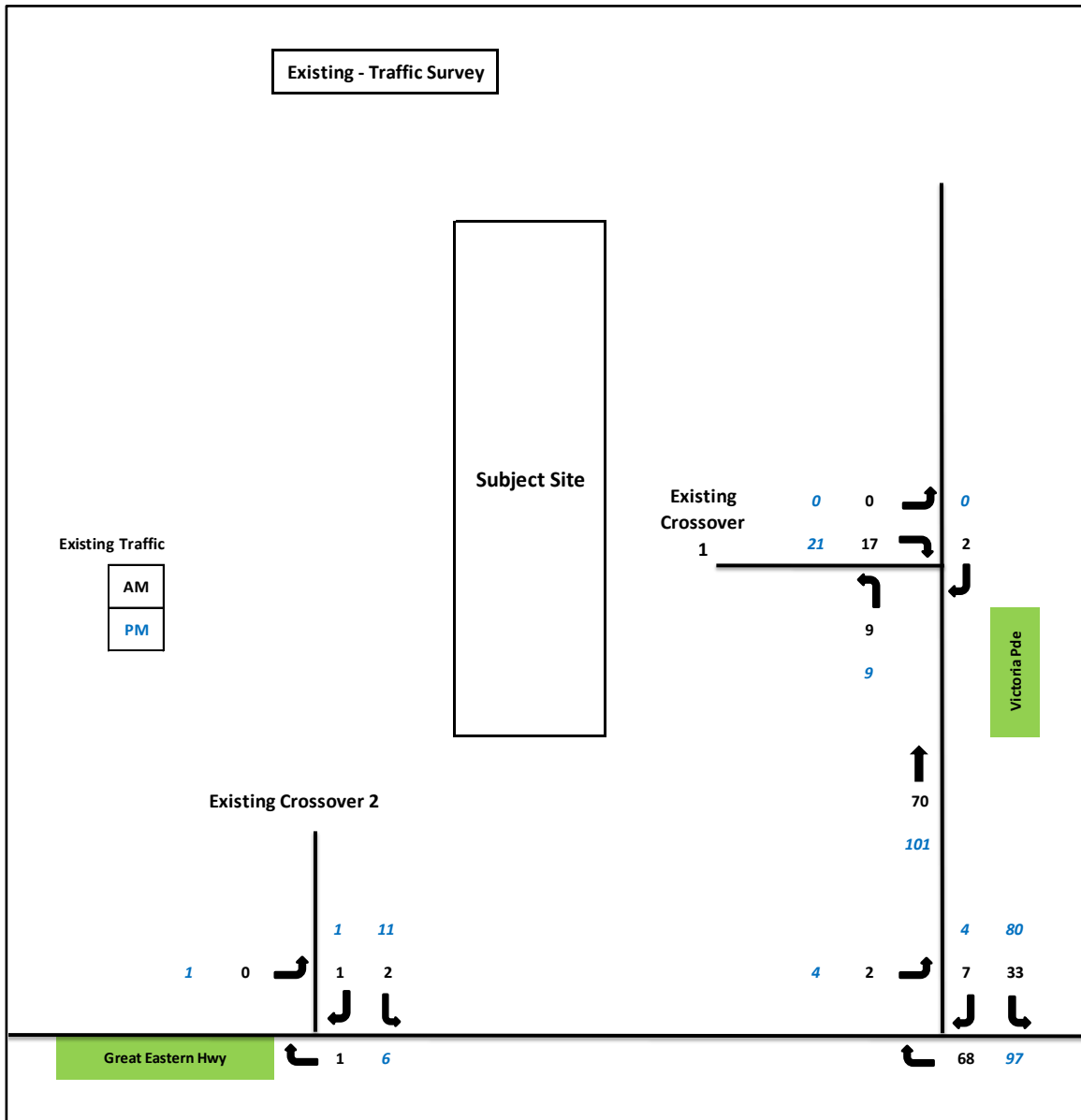


Figure 6: Existing peak hour traffic turn counts



3.5 Heavy Vehicles

Restricted Access Vehicle (RAV) Network routes are designated for access by large heavy vehicle combinations and are managed by Main Roads WA. Great Eastern Highway to the south of the subject site is classified as RAV Network 4 as shown in **Figure 7**.

RAV Network 4 roads are classified to carry heavy vehicle compositions of up to 27.5m in length.

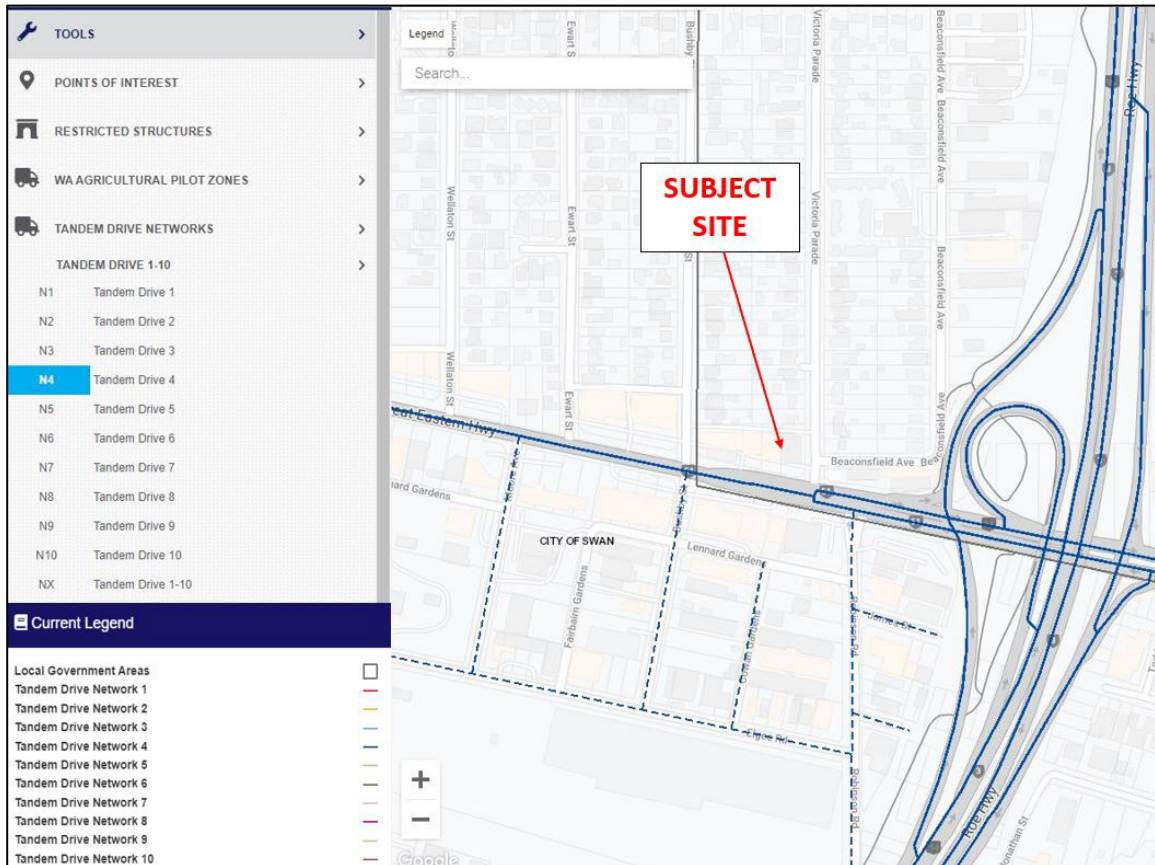


Figure 7. Existing heavy vehicle road network classification (RAV)



3.6 Public Transport Access

As shown in **Figure 8**, the subject site has access to Transperth bus routes 320, 321, 322, 326 and 328 that operate along Great Eastern Highway, south of the subject site. The nearest bus stop on Great Eastern Highway is located approximately 35m walking distance west of the subject site and the nearest bus stop on Victoria Parade is located approximately 10m walking distance north of the subject site. The nearest bus stops are accessible from the subject site via the existing path system at this locality. The bus routes provide links to Midland train station and Midland Gate shopping centre.

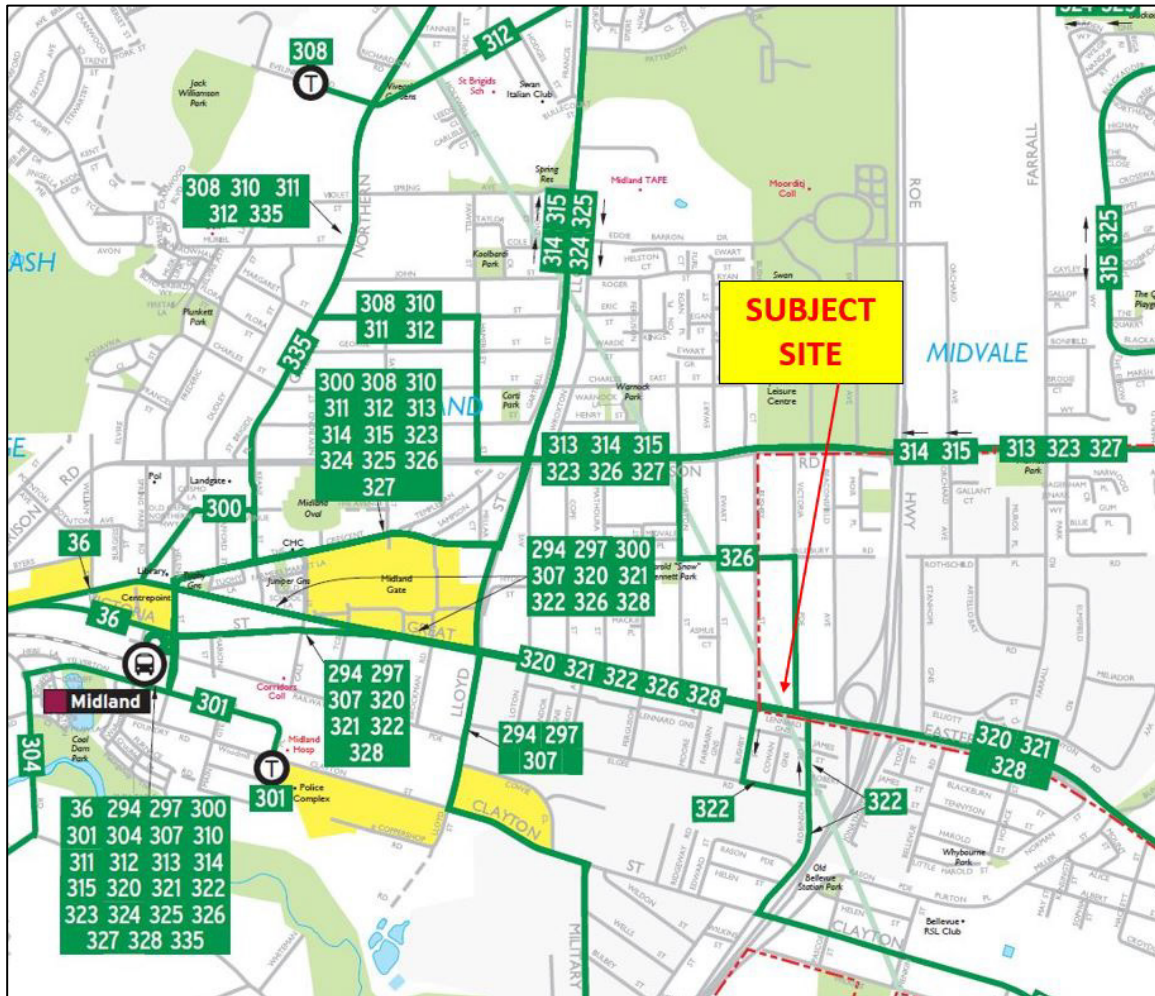


Figure 8. Existing bus routes (source: Transperth)



3.7 Pedestrian and Cyclist Facilities

Pedestrian footpaths in the vicinity of the subject site are provided on both sides of Great Eastern Highway and the eastern side of Victoria Parade. Pedestrian crossing facility with refuge island is available near the 'T' intersection of Great Eastern Highway and Victoria Parade.

The Department of Transport's *Perth Bike Map* series within the vicinity of the subject site shows good cyclist connectivity near the subject site as illustrated in **Figure 9**. Great Eastern Highway has shared paths as shown and Beaconsfield Avenue is classified as a good road riding environment.

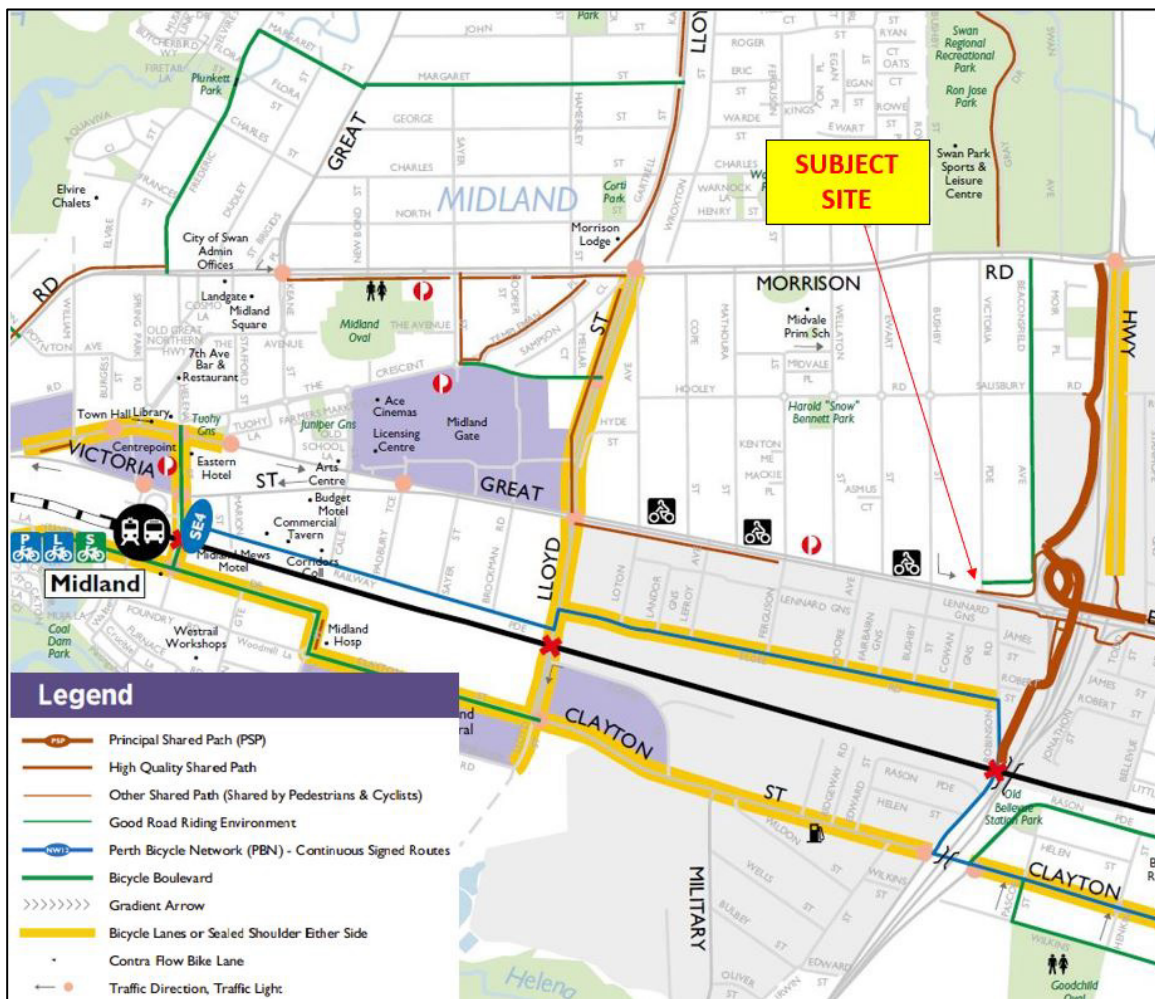


Figure 9. Bike map (source: Transperth)

3.8 Crash Data

The information available on the Main Roads WA website provides crash statistics for Great Eastern Highway/ Victoria Parade ‘T’ intersection during the five-year period ending in December 2022.

The crash records indicate that Great Eastern Highway/ Victoria Parade intersection recorded a total of seven crashes, three crashes classified as property damage only (PDO) minor and three PDO major crash in the last five-year period and one crash required medical attention. More details on the crash records are provided in **Table 1**.

Table 1. Crash history for the Great Eastern Highway/ Victoria Parade Intersection

Intersection				Total Crashes	Casualty
Great Eastern Highway/ Victoria Parade (T-intersection)				7	0
Right Angle	Reversing	Rt Angle thru	U-turn	Wet	Dry
3	1	2	1	1	6



4 Changes to Surrounding Transport Networks

The proposed local changes to the surrounding road network include the removal of both existing crossovers on Victoria Parade and replacement by a new crossover creating greater separation of crossover from Great Eastern Highway.

Due to the location of the proposed crossover, four existing on-street parking bays on Victoria Parade will be removed and reinstated as part of this development. Three of these bays will be reinstated to the north of the proposed crossover and one bay will be reinstated south of the proposed crossover.



5 Integration with Surrounding Area

The layout of the proposed development and the location of the crossovers are considered appropriate for the area. Access and egress for the proposed development can be facilitated via the existing crossovers on Great Eastern Highway and Bushby Street via reciprocal arrangement and the new proposed crossover on Victoria Parade.

The proposed development facilitates connectivity with Victoria Parade, Great Eastern Highway and Bushby Street, which provides an essential service to passing vehicles and is consistent with the current zoning for the subject site.



6 Traffic Assessment

6.1 Assessment Period

Due to the nature of the proposed development, it is expected that distinct peak activity periods will be experienced during weekday morning and afternoon peak road network periods.

It is therefore anticipated that the combination of the traffic to be generated by the proposed development and the peak road network traffic periods is likely to result in the greatest demand on the road network during the typical weekday morning and afternoon peak hours between 08:00AM-09:00AM and 04:00PM-05:00PM. As such, trip generation is estimated and traffic analysis is undertaken for these periods.

It is assumed that the proposed development would be fully constructed and activated by the end of 2023, so post-development analysis has been undertaken for 2023.

6.2 Trip Generation and Distribution

Based on the feedback received from a number of Western Australia service station operators that the trip rates published in the *Institute of Transportation Engineers 11th Edition Trip Generation Guidelines* (a US trip generation source) significantly overestimate the actual patronage numbers, Transcore undertook extensive traffic surveys during 2022. As part of this survey, a total of 15 service stations were surveyed, in order to establish more accurate local traffic generation rates for this type of land use in Western Australia. All of the sites selected entailed different operators in order to ensure robust data with a high level of confidence. The surveys were undertaken on Mondays, Tuesdays and Wednesdays in order to include trade activity during the discounted fuel days as well and to ensure a conservative approach.

The following sites were surveyed for the purpose of the study:

- 7-Eleven, 194 Great Eastern Hwy, Ascot WA
- Ampol, 204 Great Eastern Hwy, Ascot WA
- BP, 1 Canham Way, Greenwood WA
- BP, 88 Gilbertson Road, Kardinya WA
- BP, 848 Canning Hwy, Applecross WA
- Coles Express, 73A Frobisher Street, Osborne Park WA
- Puma, 58 Montana Crescent, Alkimos WA
- Ampol 3, Morwell Street, Yanchep WA
- Liberty, 2341 Albany Highway, Gosnells WA
- 7-Eleven, 931 Wanneroo Road, Wanneroo WA
- 7-Eleven, 13 Lakes Road, Greenfield WA
- Shell, 582 Stirling Highway, Mosman WA



- Puma, Cnr Johnson Street & Helena Street, Guildford WA
- United, 2 Feilman Drive, Leda WA
- United, 101 Terrier Place, Southern River WA

Based on the result from above surveys, the trip rates used to estimate traffic generation for the service station components of the proposed development are as follows:

Service Station with Convenience Store – Regular Fuelling Points:

- Weekday daily: 162.20vpd per filling point;
- Weekday AM peak hour: 9.49vph per filling point; and,
- Weekday PM peak hour: 11.27vph per filling point.

Accordingly, it is estimated that the traffic generations for the service station facility of the proposed development are:

- Weekday daily: $162.20 \times 8 = 1298$ vehicles;
- Weekday AM peak hour: $9.49 \times 8 = 76$ vph; and,
- Weekday PM peak hour: $11.27 \times 8 = 90$ vph.

Drive-Through Component:

This service station entails a drive-through facility for the convenience store/control building. This drive-through facility is proposed to provide additional convenience to customers of the convenience store. No traffic generation rates are available for a such drive-through facility.

For the purpose of this project, Transcore has identified and undertaken a manual traffic survey at a similar service station with a drive-through facility in Halls Head on Thursday 2nd September 2021 between 8:00AM to 9:00AM as the drive through facility at surveyed service station only operates till 2:00PM every day. This drive-through facility closes at 2pm every day. This is because the drive-through sales do not generate enough during the afternoons because of the strong coffee demand during the morning period. The surveyed results are shown in **Table 2**.

Table 2. Morning peak hour surveyed results at the service station with a drive-through facility

Time	Movement	Drive-Thru	Service Station	Total
8:00AM – 9:00AM	Entry	31	22	53
	Exit	55		55
Total (inbound and outbound)				108



It should be noted that this service station in Halls Head is the only available existing service station currently operating with a drive-through facility in the Perth metropolitan area and Mandurah Peel region.

For the purpose of this project, Transcore also sourced additional information for OTR service stations with drive-through facilities in South Australia. The surveyed results with respective locations are provided in **Table 3**.

Table 3. Traffic survey results at the service stations with drive-through facilities in South Australia

Location	Daily	Peak Periods	
		AM peak	PM peak
OTR Croydon Park	-	4	-
OTR Para Hills	170	17	-
OTR Trinity Gardens	126	-	8
OTR Marion South	80	6	-
Average	125 vehicles	9 vehicles	8 vehicles

Combining the results of the Halls Head survey and South Australian survey results in the following daily and peak hour number of vehicles:

- Weekday daily: 250 vehicles equivalent to 125 in and 125 out trips
- Weekday AM: 30 vehicles equivalent to 15 in and 15 out trips
- Weekday PM: 16 vehicles equivalent to 8 in and 8 out trips.

Accordingly, it is estimated that the traffic generations for the order-taking drive-through facility of the proposed development are:

- Weekday daily: $125 \times 1 = 125$ vehicles;
- Weekday AM peak hour: $30 \times 1 = 30$ vph; and,
- Weekday PM peak hour: $16 \times 1 = 16$ vph.

Due to the mix of the proposed land uses, incidences of multi-purpose trips (i.e., cross-trade) are anticipated. Accordingly, a cross-trade factor of 20% was deemed appropriate and applicable in this case. As such, the 20% cross-trade adjustment was applied for the order-taking drive-through facility only i.e. 20 percent of the people using drive-through facility are assumed to buy fuel as well.



Therefore, the proposed development would generate approximately **1,498** vehicular trips per day (combined total of inbound and outbound trips) with approximately **100** and **104** trips during the weekday AM and PM peak hours respectively.

60% passing trade was assumed for the analysis of the service station facility and 90% passing trade was assumed for the analysis of the order-taking drive-through facility based on information sourced from the ITE manual.

Therefore, the net additional traffic when accounting for passing trade is **+539vpd (daily)**, **+32vph (AM peak hour)** and **+38vph (PM peak hour)** on the surrounding road network as shown in **Table 4** and **Table 5**.

It should be noted that the reported net traffic increase as a result of the proposed development is conservative as it does not allow for trip generation of the retail land uses that were operating from the existing buildings. Therefore, the actual net traffic increase would be less than that reported.

Table 4. Estimated proposed development traffic generation

Land use	Quantity	Rate			Crosstrade	Trips			In/Out Trips			
		Daily	AM Peak Hour	PM Peak Hour		Daily	AM Peak Hour	PM Peak Hour	AM		PM	
									IN	OUT	IN	OUT
Fuel Station regular bowser - fuelling position + Convenience store	8	162.2	9.49	11.27	-	1298	76	91	38	38	46	45
Control building drive through facility	1	250	30	16	20%	200	24	13	12	12	6	7
Total						1498	100	104	50	50	52	52

Table 5. Passing and non-passing trade components of the proposed development traffic generation

Land use	Passing Trade	Passing Traffic						Non-Passing Trade	Non-Passing Traffic					
		Daily Trips	AM		PM		Daily Trips		AM		PM			
			IN	OUT	IN	OUT			IN	OUT	IN	OUT		
Fuel Station regular bowser - fuelling position + Convenience store	60%	779	23	23	28	27	40%	519	15	15	18	18		
Control building drive through facility	90%	180	11	11	5	6	10%	20	1	1	1	1		
Total		959	34	34	33	33		539	16	16	19	19		



The directional split of inbound/outbound trips for the proposed development is assumed to be about 50/50 for inbound/outbound trips during peak hours.

Traffic distributions for the weekday AM and PM peak hours are detailed in **Figure 10**.

With respect to the assumed distribution and assignment of the development-generated traffic, consideration was given to the location of the site, the predominantly passing trade nature of the proposed land uses and the access and egress routes to and from the site (distribution is based on the current road network and its layout).

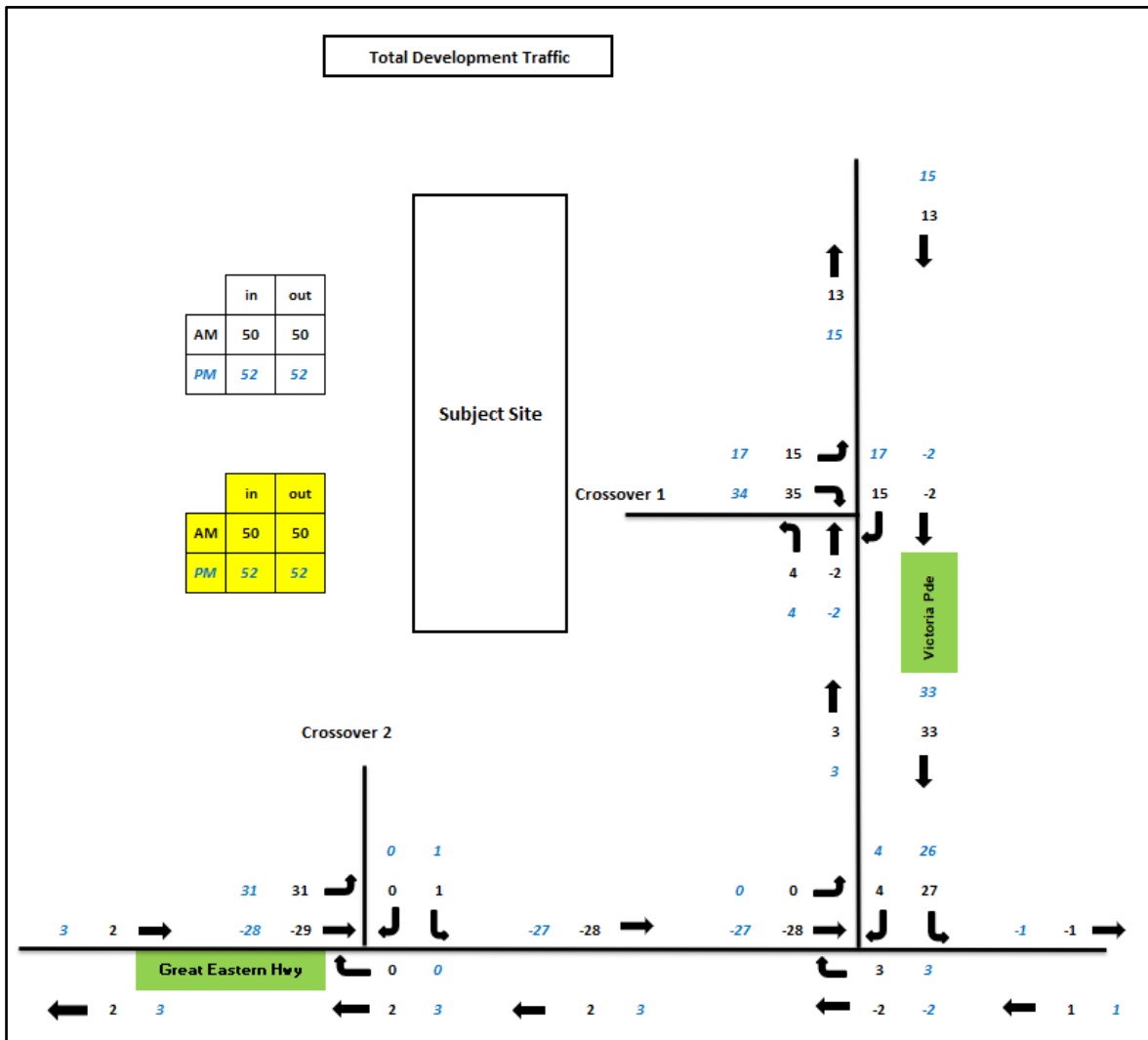


Figure 10. Total peak hour development traffic – Weekday AM and PM peak hours



6.3 Traffic Flows

The existing traffic flows used as the base for traffic assessment are presented in **Figure 11** which is the outcome of the traffic survey undertaken by Transcore on 2nd March 2023.

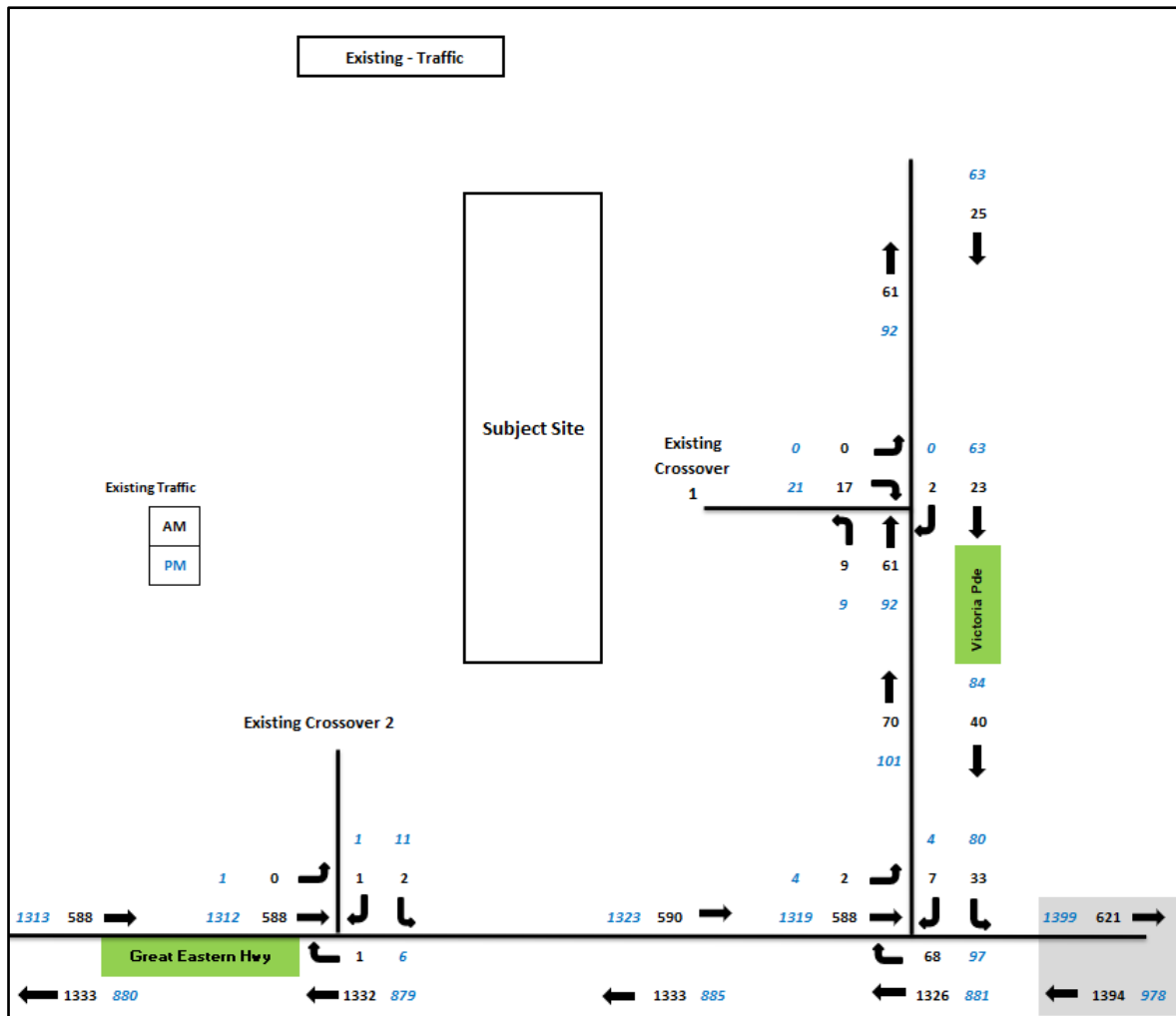


Figure 11. Existing traffic flows at the intersection of Great Eastern Highway/ Victoria Parade and subject site crossovers – Weekday AM & PM peak hours



In order to undertake the post-development traffic assessment for the proposed development, the existing traffic volumes of the existing development were added to the proposed development traffic. The post-development traffic flows are shown in **Figure 12**.

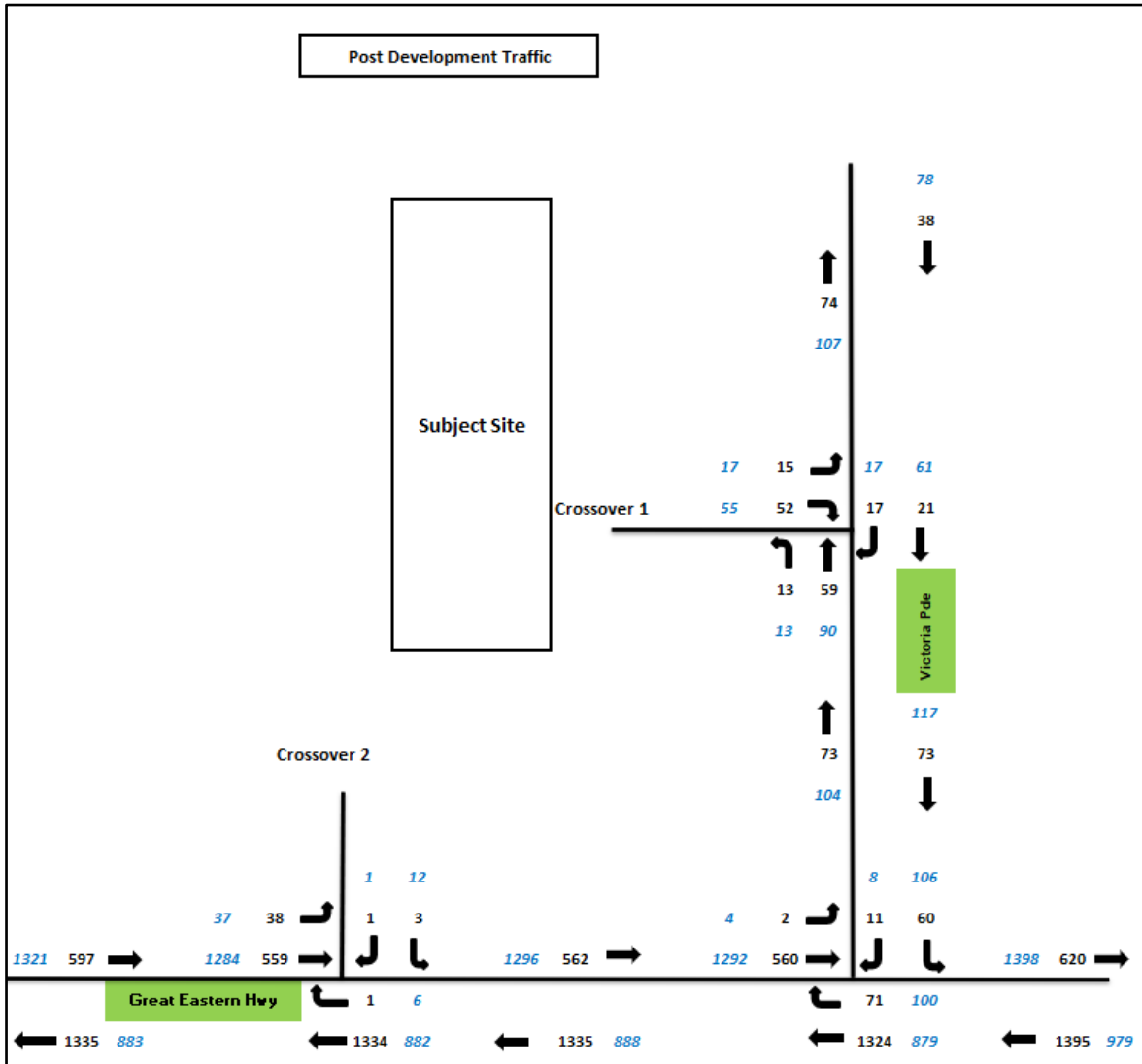


Figure 12. Post development traffic flows – Weekday AM and PM peak hours



6.4 Analysis of Local Intersections & Development's Crossovers

SIDRA network intersection analysis has been undertaken for the subject site crossovers on Victoria Parade and Great Eastern Highway and the intersection of Great Eastern Highway/ Victoria Parade in order to assess their operations in the existing and post-development scenarios for AM and PM peak hours.

Relevant heavy vehicle settings and parameters in the SIDRA analysis were updated in accordance with Main Roads WA's latest requirements.

The SIDRA package is a commonly used intersection-modelling tool by traffic engineers for all types of intersections. SIDRA outputs are presented in the form of Degree of Saturation, Level of Service, Average Delay and 95% Queue. These items are defined as follows:

- ✚ **Degree of Saturation:** is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The Degree of Saturation ranges from close to zero for varied traffic flow up to one for saturated flow or capacity.
- ✚ **Level of Service:** is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. In general, there are 6 levels of service, designated from A to F, with Level of Service A representing the best operating condition (i.e. free flow) and Level of Service F the worst (i.e. forced or breakdown flow).
- ✚ **Average Delay:** is the average of all travel time delays for vehicles through the intersection.
- ✚ **95% Queue:** is the queue length below which 95% of all observed queue lengths fall.

The SIDRA network model layout is illustrated in **Figure 13**. The results of SIDRA analysis are reported in **Table 6** to **Table 17** in **Appendix C** and discussed in the following paragraphs.



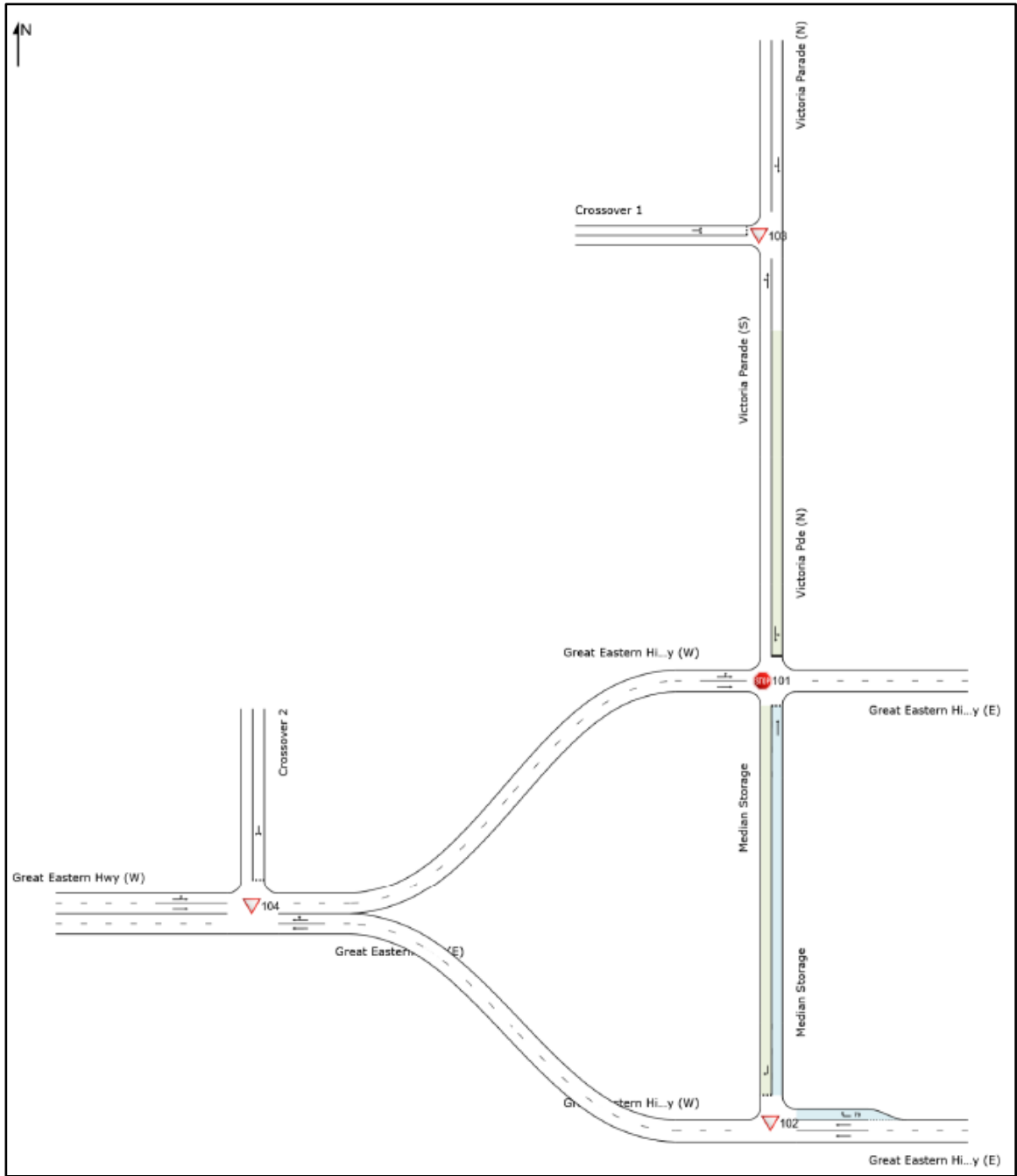


Figure 13. Network model – SIDRA network model layout (two stage right turns at Great Eastern Highway/ Victoria Parade intersection)

Victoria Parade Crossover (Crossover 1)

The SIDRA results for full-movement crossover on Victoria Parade indicate that this crossover would operate with overall Level of Service (LoS) A with minimal delays and queuing during typical AM and PM peak hours in the post-development scenarios (both 2023 and 2033).



Great Eastern Highway Crossover (Crossover 2)

Existing

The SIDRA results for full-movement crossover on Great Eastern Highway indicate that this crossover is currently working with a Level of Service (LoS) A during typical AM and PM peak hours except for the right out movement which operates with at Level of Service (LoS) F.

Post-development scenario

The SIDRA results for full-movement crossover on Great Eastern Highway indicate that this crossover would also operate with overall Level of Service (LoS) A with minimal delays and queuing during typical AM and PM peak hours except for the right out movement which will operate with at Level of Service (LoS) F in the post-development scenarios (both 2023 and 2033).

Thus, the SIDRA results for the post-development scenario confirm that the addition of traffic generated by the proposed developments will not have a material impact on the operation of this crossover, which retains the current levels of service and will not have any significant increase in queues and delays in the post-development scenarios.

Intersection of Great Eastern Highway/ Victoria Parade

Existing

SIDRA results indicate that all the legs of this intersection are currently operating with a Level of Service (LoS) A except for right-turn from Victoria Parade which operates with a Level of Service (LoS) B during typical AM peak hour. In the PM peak hour, all the legs of this signalised intersection are currently operating with Level of Service (LoS) A to C except for right-turns from Victoria Parade which operates with a Level of Service (LoS) E.

Post-development scenario

In the post-development 2023 scenario, the intersection will operate with a Level of Service (LoS) A except for right-turns from Victoria Parade which will operate with a Level of Service (LoS) B during typical AM peak hour. In the PM peak hour, all the legs of this intersection will operate with Level of Service (LoS) A to C except for right-turns from Victoria Parade which will operate with a Level of Service (LoS) E.

Thus, the SIDRA results for the post-development scenario confirm that the addition of traffic generated by the proposed developments will not have a material impact on the operation of this intersection, which retains the current levels of service and will not have any significant increases in queues and delays.



Year 2033 – 10 Year post-development scenario

Analysis of historic traffic volumes on Great Eastern Highway shows that the traffic volumes on this road have decreased significantly from the year 2017/18. However, to be conservative, 2033 background traffic was established by applying a nominal growth factor of 2% per annum.

In the ten-year post-development 2033 scenario, the intersection will operate with a Level of Service (LoS) A with the exception of right-turns from Victoria Parade which will operate with a Level of Service (LoS) C during typical AM peak hour. In the PM peak hour all the legs of this intersection will operate with a Level of Service (LoS) A to C with the exception of right-turns from Victoria Parade which will operate with a Level of Service (LoS) F. The change in LoS is due to growth in background traffic on Great Eastern Highway and not the development traffic.

Even though SIDRA report LoS F for the right turns, the level of queues and delays are acceptable for peak hour in the year 2033.

Therefore, it is considered that the impact of the development traffic on this intersection is not significant, and the traffic operations are satisfactory for both post-development and 10-year post-development scenarios.

6.5 Impact on Surrounding Roads

The WAPC Transport Impact Assessment Guidelines (2016) provides guidance on the assessment of traffic impacts:

“As a general guide, an increase in traffic of less than 10 per cent of capacity would not normally be likely to have a material impact on any particular section of road, but increases over 10 per cent may. All sections of road with an increase greater than 10 per cent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 per cent of capacity. Therefore, any section of road where the structure plan traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis.”

The proposed development will not increase traffic flows anywhere near the quoted WAPC threshold to warrant further detailed analysis. As detailed in **Section 6**, the proposed development will not increase traffic on any lanes on the surrounding road network by more than 100 vph and therefore any further detailed analysis is not warranted.

6.6 Impact on Neighbouring Areas

The traffic generated by the proposed development will have an insignificant impact on the surrounding areas.



6.7 Traffic Noise and Vibration

It generally requires a doubling of traffic volumes on a road to produce a perceptible 3dB increase in road noise. The proposed development will not increase traffic volumes or noise on surrounding roads to this level.



7 Parking

The proposed development will provide a total of 13 car parking spaces inclusive of an ACROD. Additionally, the drive through component will have a stacking capacity of 10 cars.

It is Transcore's understanding that sufficient parking supply is provided to address the parking requirements of the proposed development, particularly considering the drive-through facility for the control building/shop.



8 Provisions for Heavy Vehicles

The largest service vehicle which is expected to use the subject site is a 16.5m fuel tanker for fuel deliveries. The fuel tanker will enter the site via the Victoria Parade crossover, access the fill point and exit the site via the same crossover.

It is anticipated that delivery and service trucks will enter the site outside peak operating hours of the service station and the road network to minimise any impacts. Turn path analysis undertaken for 12.5m service vehicle and 16.5m fuel tanker confirm satisfactory access, egress and circulation.

The turn path analysis plans are presented in **Appendix B**.



9 Public Transport Access

The existing public transport services in the area are described in **Section 3.6** of this report.



10 Pedestrian and Cyclist Access

Pedestrian and cyclists' facilities are described in **Section 3.7** of this report.



11 Conclusions

This TIA has been prepared by Transcore on behalf of Peregrine Corporation with regards to the proposed service station with an order-taking drive-through facility to be located at 323-325 Great Eastern Highway, Midvale in the City of Swan.

As part of the proposed development, both existing crossovers on Victoria Parade are proposed to be removed and replaced by a new crossover creating greater separation between Great Eastern Highway.

Furthermore, the proposed development entails two reciprocal connection points with the existing facility at the western side of the subject site to maintain effective circulation. The internal site layout of the proposed development facilitates efficient and convenient vehicular entry and egress to and from the subject site.

It is Transcore's understanding that sufficient parking is provided to address the parking requirement for the proposed development.

Turn path analysis undertaken for a 12.5m service vehicle and a 16.5m fuel-tanker confirms satisfactory access, egress and circulation to/from and within the site.

The net traffic generation of the proposed development is estimated to be approximately 100vph and 104vph during the AM and PM peak hours respectively including both primary and non-primary trips. The net additional trips (non-primary trips) due to the proposed development are estimated to be approximately 32vph and 38vph during the AM and PM peak hours respectively. This level of traffic generation would not have any significant impact on the abutting road network.

The reported net traffic increase as a result of the proposed development is conservative as it does not allow for trip generation of the retail land uses that were operating from the existing buildings. Therefore, the actual net traffic increase would be less than that reported.

Traffic modelling and analysis undertaken demonstrates that the subject site crossovers will operate satisfactorily and the priority-controlled 'T' intersection of Great Eastern Highway/ Victoria Parade would continue to operate at the current levels of service with minimal increases in queues and delays for the post-development scenarios. Accordingly, it is concluded that the development traffic does not have a significant impact on the operations of the surrounding road network.

In conclusion, the findings of this Transport Impact Assessment are supportive of the proposed development.

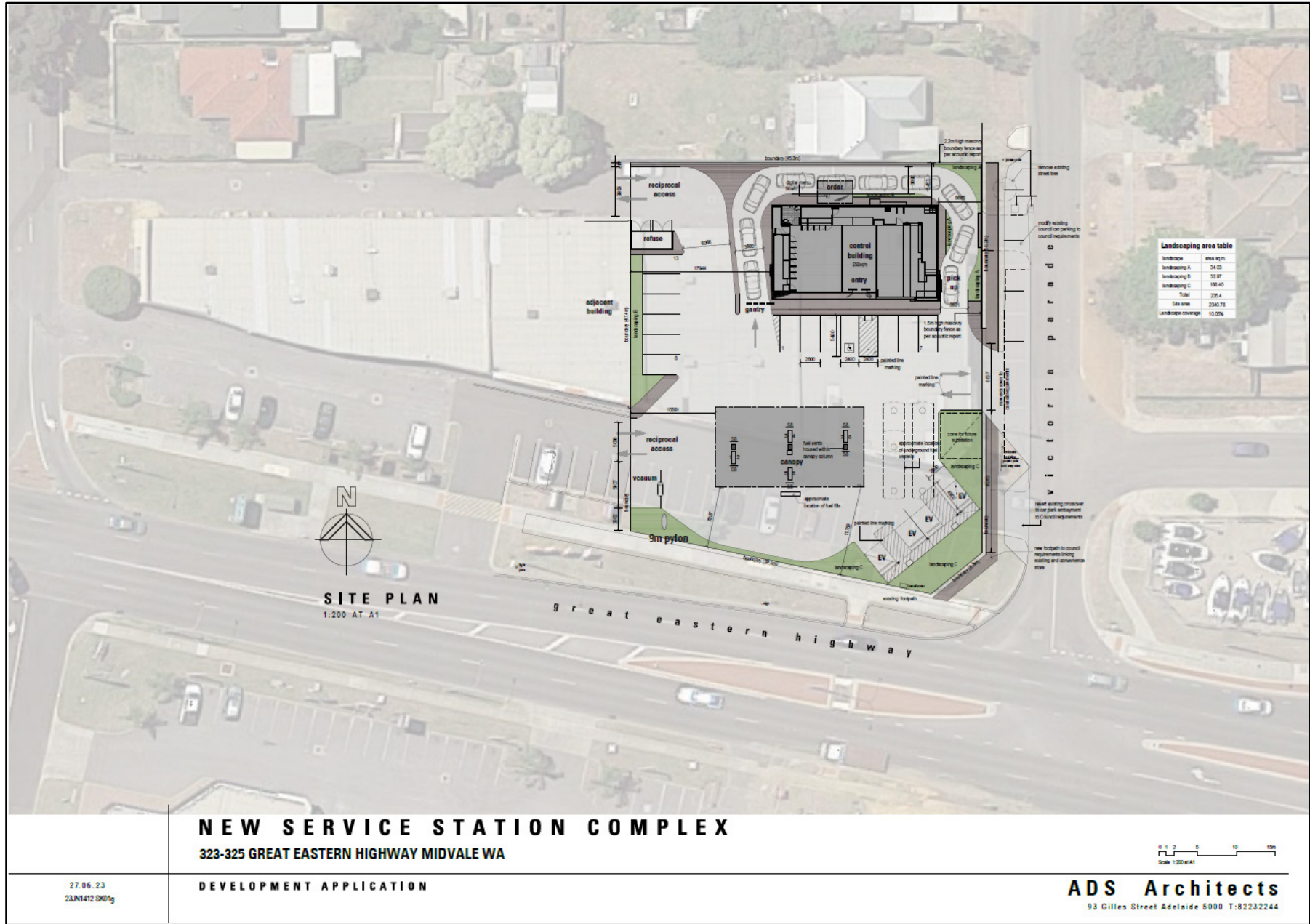


Appendix A

PROPOSED DEVELOPMENT PLANS



Engineering a better future for over 20 years!

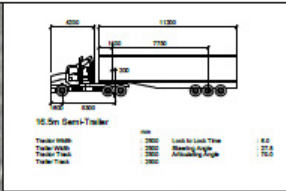
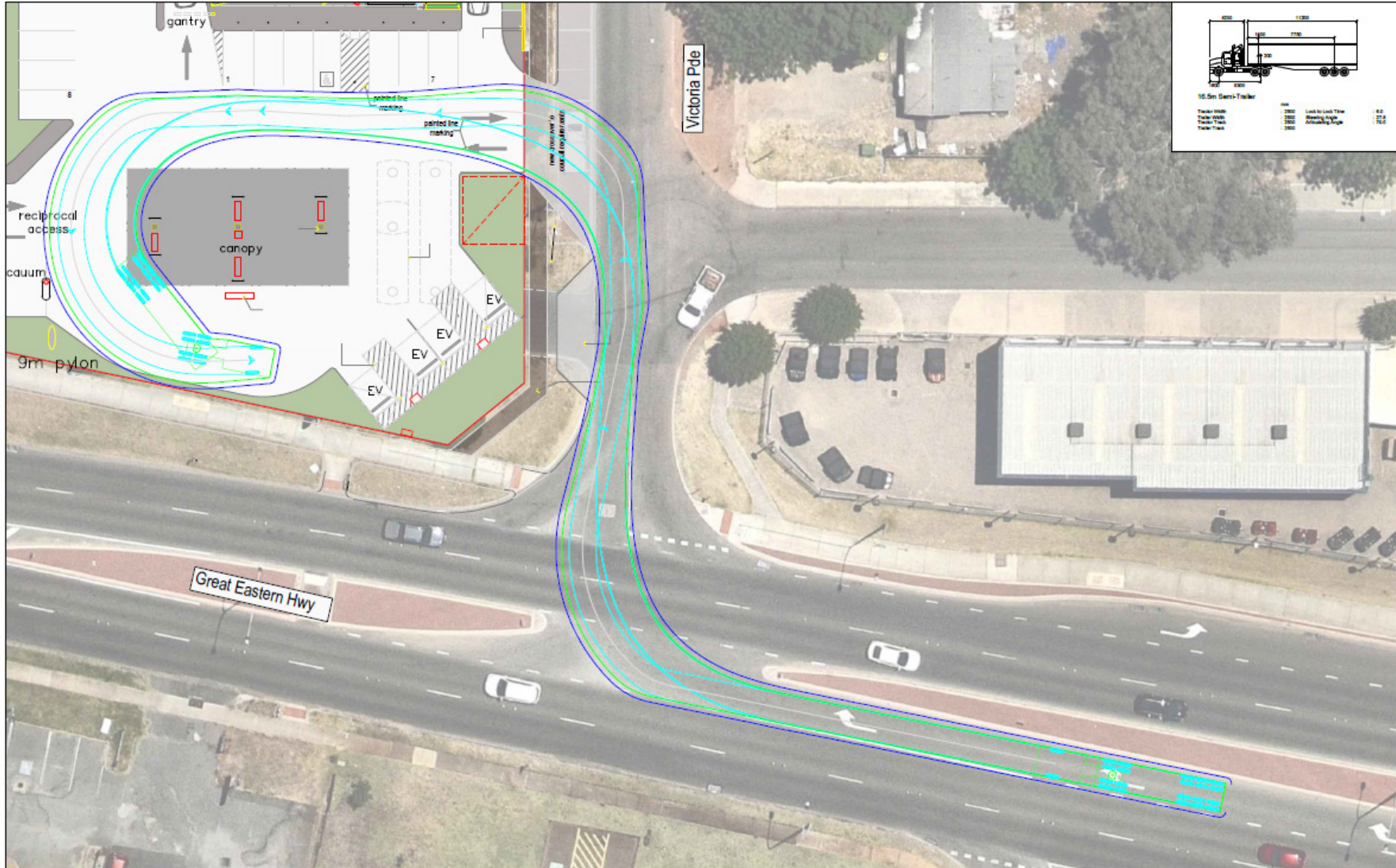


Appendix B

TURN PATH PLANS



Engineering a better future for over 20 years!



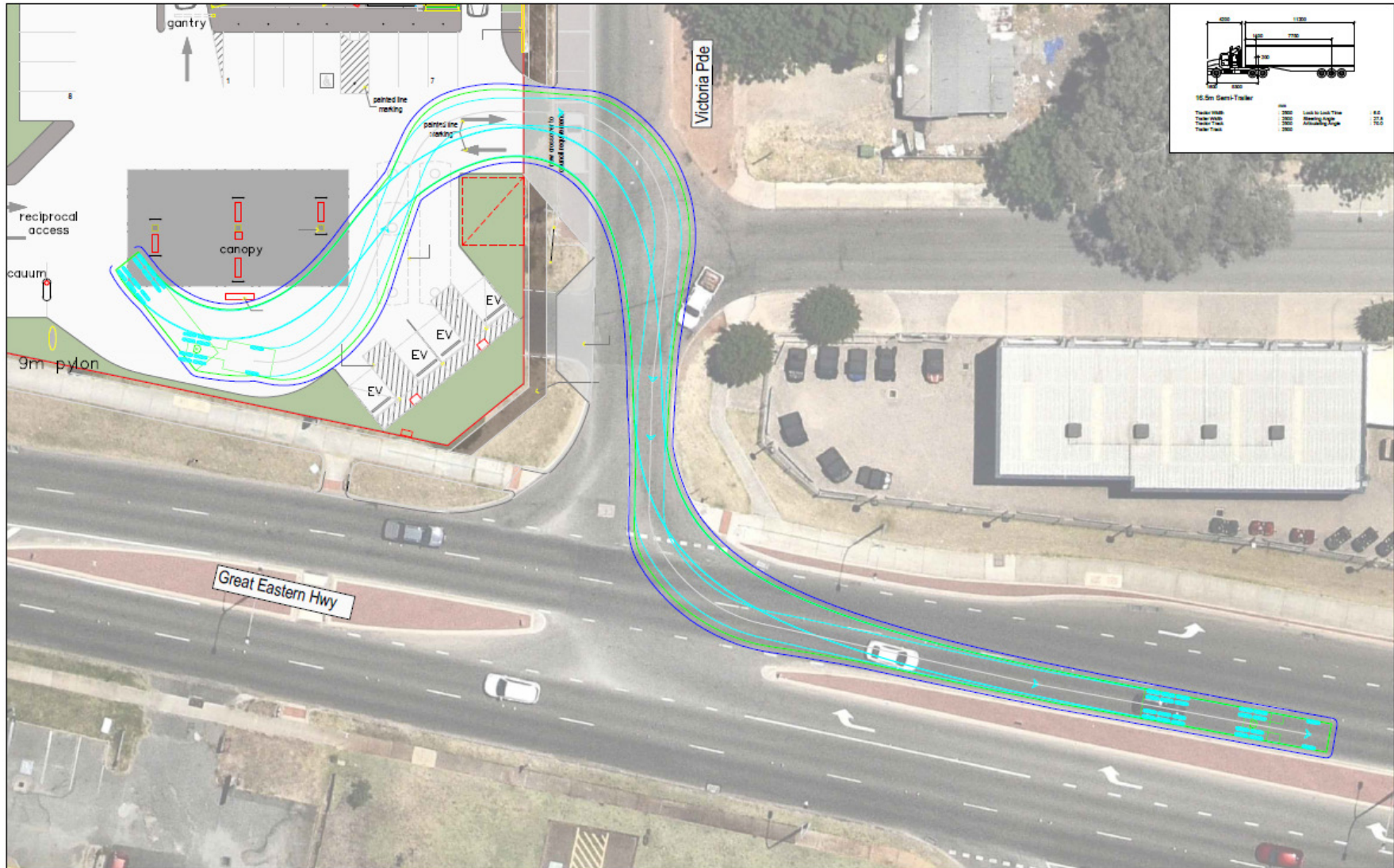
323 - 325 Great Eastern Highway, Midvale
 16.5m Fuel Tanker (Austroads 12.5m R & MRWA 15m R)
 Fuel Tanker Entry

LEGEND
 Vehicle Body
 Wheel Path
 500mm Clearance



t23.033.sk03b
 29/6/2023
 Scale: 1:300 @ A3



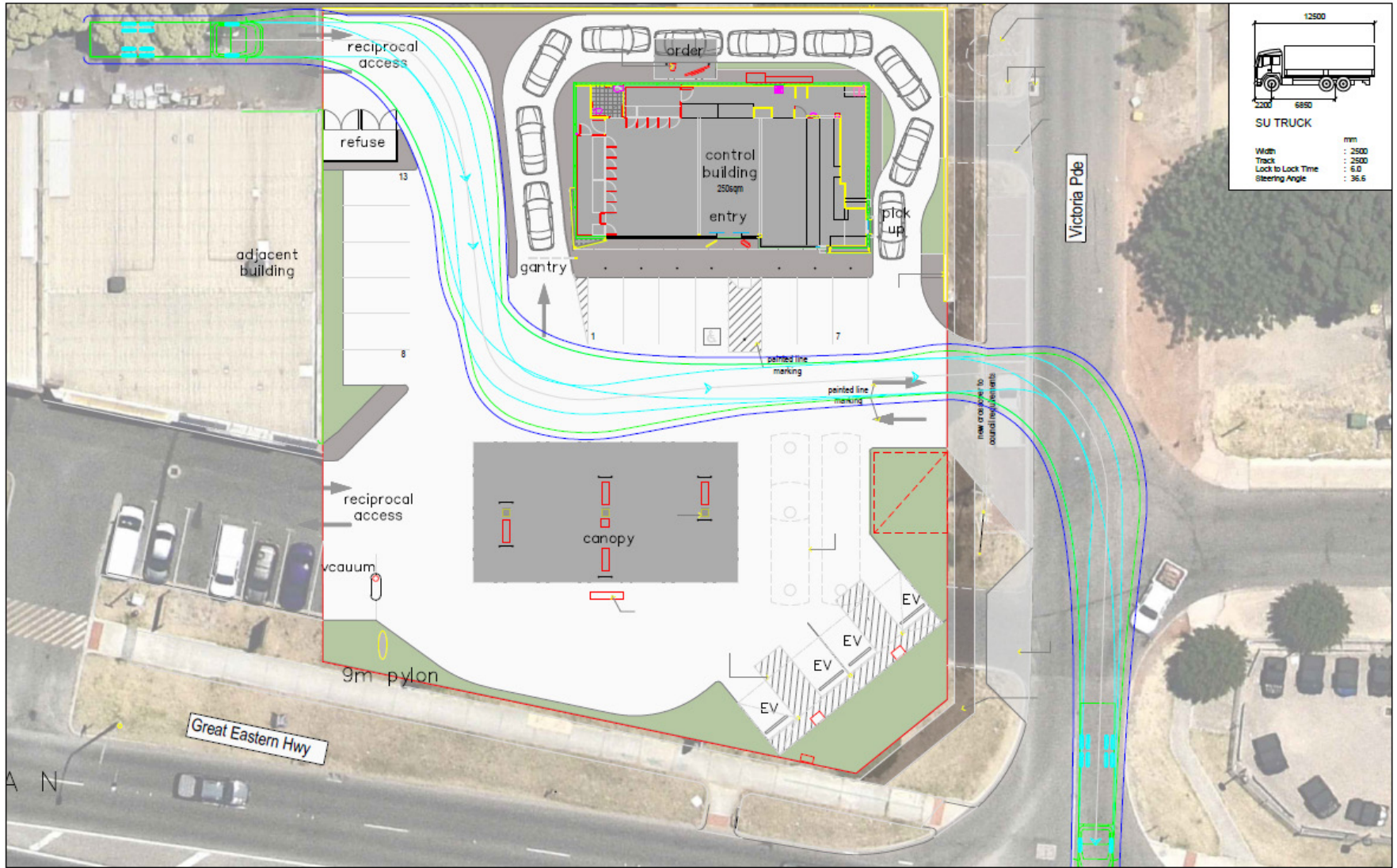


323 - 325 Great Eastern Highway, Midvale
 16.5m Fuel Tanker (Austroads 12.5m R & MRWA 15m R)
 Fuel Tanker Exit

LEGEND
 Vehicle Body
 Wheel Path
 500mm Clearance

t23.033.sk04b
 29/6/2023
 Scale: 1:300 @ A3





323 - 325 Great Eastern Highway, Midvale
 Austroads 2013: 12.5m Service Vehicle
 Service Vehicle Circulation

LEGEND
 Vehicle Body █
 Wheel Path █
 500mm Clearance █

t23.033.sk05b
 29/6/2023
 Scale: 1:250 @ A3



Appendix C

SIDRA RESULTS



Engineering a better future for **over 20 years!**

**Table 6. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2)
– Weekday AM peak period (Existing)**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
South: Median Storage															
5	T1	All MCs	72	3.0	72	3.0	0.089	2.8	LOS A	0.3	2.4	0.51	0.46	0.51	10.1
Approach			72	3.0	72	3.0	0.089	2.8	LOS A	0.3	2.4	0.51	0.46	0.51	10.1
North: Victoria Pde (N)															
1	L2	All MCs	35	3.0	35	3.0	0.050	6.2	LOS A	0.2	1.4	0.45	0.90	0.45	30.7
2	T1	All MCs	7	3.0	7	3.0	0.050	10.4	LOS B	0.2	1.4	0.45	0.90	0.45	13.4
Approach			42	3.0	42	3.0	0.050	7.0	LOS A	0.2	1.4	0.45	0.90	0.45	29.3
West: Great Eastern Highway (W)															
3	L2	All MCs	2	3.0	2	3.0	0.172	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	59.5
4	T1	All MCs	619	8.5	619	8.5	0.172	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			621	8.5	621	8.5	0.172	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles			735	7.6	735	7.6	0.172	0.7	NA	0.3	2.4	0.08	0.10	0.08	55.2

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
East: Great Eastern Highway (E)															
2	T1	All MCs	1396	8.5	1396	8.5	0.386	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
3	R2	All MCs	72	3.0	72	3.0	0.039	5.7	LOS A	0.0	0.0	0.00	0.63	0.00	35.8
Approach			1467	8.2	1467	8.2	0.386	0.3	NA	0.0	0.0	0.00	0.03	0.00	57.8
North: Median Storage															
1	R2	All MCs	7	3.0	7	3.0	0.027	11.5	LOS B	0.1	0.6	0.80	0.84	0.80	3.9
Approach			7	3.0	7	3.0	0.027	11.5	LOS B	0.1	0.6	0.80	0.84	0.80	3.9
All Vehicles			1475	8.2	1475	8.2	0.386	0.4	NA	0.1	0.6	0.00	0.03	0.00	57.4

**Table 7. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2)
– Weekday PM peak period (Existing)**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	[Dist] m				
South: Median Storage															
5	T1	All MCs	102	3.0	102	3.0	0.404	17.4	LOS C	1.4	10.7	0.89	1.04	1.13	2.8
Approach			102	3.0	102	3.0	0.404	17.4	LOS C	1.4	10.7	0.89	1.04	1.13	2.8
North: Victoria Pde (N)															
1	L2	All MCs	84	3.0	84	3.0	0.195	10.1	LOS B	0.7	5.2	0.69	1.02	0.70	24.8
2	T1	All MCs	4	3.0	4	3.0	0.195	48.6	LOS E	0.7	5.2	0.69	1.02	0.70	8.7
Approach			88	3.0	88	3.0	0.195	12.0	LOS B	0.7	5.2	0.69	1.02	0.70	24.4
West: Great Eastern Highway (W)															
3	L2	All MCs	4	3.0	4	3.0	0.385	4.8	LOS A	0.0	0.0	0.00	0.00	0.00	59.4
4	T1	All MCs	1388	8.5	1388	8.5	0.385	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			1393	8.5	1393	8.5	0.385	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.7
All Vehicles			1583	7.8	1583	7.8	0.404	1.8	NA	1.4	10.7	0.10	0.13	0.11	51.0

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	[Dist] m				
East: Great Eastern Highway (E)															
2	T1	All MCs	927	8.5	927	8.5	0.257	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	102	3.0	102	3.0	0.081	5.7	LOS A	0.0	0.0	0.00	0.63	0.00	35.8
Approach			1029	8.0	1029	8.0	0.257	0.6	NA	0.0	0.0	0.00	0.06	0.00	56.1
North: Median Storage															
1	R2	All MCs	4	3.0	4	3.0	0.007	4.9	LOS A	0.0	0.2	0.60	0.57	0.60	7.3
Approach			4	3.0	4	3.0	0.007	4.9	LOS A	0.0	0.2	0.60	0.57	0.60	7.3
All Vehicles			1034	7.9	1034	7.9	0.257	0.6	NA	0.0	0.2	0.00	0.06	0.00	56.0

Table 8. SIDRA results for the crossover 1 on Victoria Parade - Weekday AM peak period (Existing)

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %	Arrival Flows [Total HV] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh]	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Victoria Parade (S)													
1	L2	All MCs	9 2.0	9 2.0	0.039	2.4	LOS A	0.0	0.0	0.00	0.07	0.00	23.4
2	T1	All MCs	64 3.0	64 3.0	0.039	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	46.5
Approach			74 2.9	74 2.9	0.039	0.3	NA	0.0	0.0	0.00	0.07	0.00	42.0
North: Victoria Parade (N)													
8	T1	All MCs	24 3.0	24 3.0	0.014	0.0	LOS A	0.0	0.1	0.03	0.05	0.03	45.2
9	R2	All MCs	2 2.0	2 2.0	0.014	3.1	LOS A	0.0	0.1	0.03	0.05	0.03	31.6
Approach			26 2.9	26 2.9	0.014	0.3	NA	0.0	0.1	0.03	0.05	0.03	43.1
West: Crossover 1													
10	L2	All MCs	1 2.0	1 2.0	0.016	0.2	LOS A	0.1	0.4	0.17	0.18	0.17	20.9
12	R2	All MCs	18 2.0	18 2.0	0.016	0.9	LOS A	0.1	0.4	0.17	0.18	0.17	16.5
Approach			19 2.0	19 2.0	0.016	0.9	LOS A	0.1	0.4	0.17	0.18	0.17	16.8
All Vehicles			119 2.7	119 2.7	0.039	0.4	NA	0.1	0.4	0.03	0.08	0.03	36.4

Table 9. SIDRA results for the crossover 1 on Victoria Parade - Weekday PM peak period (Existing)

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %	Arrival Flows [Total HV] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh]	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Victoria Parade (S)													
1	L2	All MCs	9 2.0	9 2.0	0.056	2.4	LOS A	0.0	0.0	0.00	0.05	0.00	23.6
2	T1	All MCs	97 3.0	97 3.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	47.5
Approach			106 2.9	106 2.9	0.056	0.2	NA	0.0	0.0	0.00	0.05	0.00	44.2
North: Victoria Parade (N)													
8	T1	All MCs	66 3.0	66 3.0	0.035	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	48.9
9	R2	All MCs	1 2.0	1 2.0	0.035	3.0	LOS A	0.0	0.1	0.01	0.01	0.01	32.7
Approach			67 3.0	67 3.0	0.035	0.0	NA	0.0	0.1	0.01	0.01	0.01	48.4
West: Crossover 1													
10	L2	All MCs	1 2.0	1 2.0	0.021	0.3	LOS A	0.1	0.5	0.23	0.22	0.23	20.4
12	R2	All MCs	22 2.0	22 2.0	0.021	1.2	LOS A	0.1	0.5	0.23	0.22	0.23	15.9
Approach			23 2.0	23 2.0	0.021	1.2	LOS A	0.1	0.5	0.23	0.22	0.23	16.2
All Vehicles			197 2.8	197 2.8	0.056	0.3	NA	0.1	0.5	0.03	0.05	0.03	39.7

**Table 10. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday
AM peak period (Existing)**

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %	Arrival Flows [Total HV] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h	
East: Great Eastern Hwy (E)													
5	T1	All MCs	1402 8.5	1402 8.5	0.393	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	59.8
6	R2	All MCs	1 2.0	1 2.0	0.393	6.3	LOS A	0.0	0.2	0.00	0.00	0.00	42.8
Approach			1403 8.5	1403 8.5	0.393	0.0	NA	0.0	0.2	0.00	0.00	0.00	59.8
North: Crossover 2													
7	L2	All MCs	2 2.0	2 2.0	0.064	1.3	LOS A	0.1	1.1	1.00	0.82	1.00	2.2
9	R2	All MCs	1 2.0	1 2.0	0.064	152.3	LOS F	0.1	1.1	1.00	0.82	1.00	4.3
Approach			3 2.0	3 2.0	0.064	51.6	LOS F	0.1	1.1	1.00	0.82	1.00	2.9
West: Great Eastern Hwy (W)													
10	L2	All MCs	1 2.0	1 2.0	0.173	3.5	LOS A	0.0	0.0	0.00	0.00	0.00	25.5
11	T1	All MCs	619 8.5	619 8.5	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			620 8.5	620 8.5	0.173	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.6
All Vehicles			2026 8.5	2026 8.5	0.393	0.1	NA	0.1	1.1	0.00	0.00	0.00	58.9

**Table 11. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday
PM peak period (Existing)**

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %	Arrival Flows [Total HV] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h	
East: Great Eastern Hwy (E)													
5	T1	All MCs	925 8.5	925 8.5	0.275	0.0	LOS A	0.6	4.6	0.04	0.04	0.04	53.6
6	R2	All MCs	6 2.0	6 2.0	0.275	125.7	LOS F	0.6	4.6	0.08	0.08	0.08	35.4
Approach			932 8.5	932 8.5	0.275	0.9	NA	0.6	4.6	0.04	0.04	0.04	53.5
North: Crossover 2													
7	L2	All MCs	12 2.0	12 2.0	0.150	5.1	LOS A	0.3	2.5	0.88	0.89	0.90	3.5
9	R2	All MCs	1 2.0	1 2.0	0.150	304.4	LOS F	0.3	2.5	0.88	0.89	0.90	6.6
Approach			13 2.0	13 2.0	0.150	30.0	LOS D	0.3	2.5	0.88	0.89	0.90	3.8
West: Great Eastern Hwy (W)													
10	L2	All MCs	1 2.0	1 2.0	0.386	3.5	LOS A	0.0	0.0	0.00	0.00	0.00	25.5
11	T1	All MCs	1381 8.5	1381 8.5	0.386	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			1382 8.5	1382 8.5	0.386	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.6
All Vehicles			2326 8.4	2326 8.4	0.386	0.5	NA	0.6	4.6	0.02	0.02	0.02	53.7

**Table 12. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2)
– Weekday AM peak period (Post development – 2023)**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
South: Median Storage															
5	T1	All MCs	75	3.0	75	3.0	0.090	2.6	LOS A	0.3	2.4	0.50	0.44	0.50	10.4
Approach			75	3.0	75	3.0	0.090	2.6	LOS A	0.3	2.4	0.50	0.44	0.50	10.4
North: Victoria Pde (N)															
1	L2	All MCs	63	3.0	63	3.0	0.084	7.1	LOS A	0.3	2.5	0.44	0.91	0.44	30.6
2	T1	All MCs	12	3.0	12	3.0	0.084	11.0	LOS B	0.3	2.5	0.44	0.91	0.44	16.4
Approach			75	3.0	75	3.0	0.084	7.7	LOS A	0.3	2.5	0.44	0.91	0.44	29.5
West: Great Eastern Highway (W)															
3	L2	All MCs	2	3.0	2	3.0	0.164	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	59.5
4	T1	All MCs	589	8.5	589	8.5	0.164	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			592	8.5	592	8.5	0.164	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles			741	7.4	741	7.4	0.164	1.1	NA	0.3	2.5	0.09	0.14	0.09	53.0

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
East: Great Eastern Highway (E)															
2	T1	All MCs	1394	8.5	1394	8.5	0.386	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
3	R2	All MCs	75	3.0	75	3.0	0.041	5.7	LOS A	0.0	0.0	0.00	0.63	0.00	35.8
Approach			1468	8.2	1468	8.2	0.386	0.3	NA	0.0	0.0	0.00	0.03	0.00	57.8
North: Median Storage															
1	R2	All MCs	12	3.0	12	3.0	0.042	11.6	LOS B	0.1	0.9	0.80	0.84	0.80	3.9
Approach			12	3.0	12	3.0	0.042	11.6	LOS B	0.1	0.9	0.80	0.84	0.80	3.9
All Vehicles			1480	8.2	1480	8.2	0.386	0.4	NA	0.1	0.9	0.01	0.04	0.01	57.1

**Table 13. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2)
– Weekday PM peak period (Post development – 2023)**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
South: Median Storage															
5	T1	All MCs	105	3.0	105	3.0	0.395	16.3	LOS C	1.4	10.6	0.88	1.03	1.12	3.0
Approach			105	3.0	105	3.0	0.395	16.3	LOS C	1.4	10.6	0.88	1.03	1.12	3.0
North: Victoria Pde (N)															
1	L2	All MCs	112	3.0	112	3.0	0.279	11.6	LOS B	1.1	8.2	0.72	1.05	0.83	23.8
2	T1	All MCs	8	3.0	8	3.0	0.279	48.5	LOS E	1.1	8.2	0.72	1.05	0.83	10.3
Approach			120	3.0	120	3.0	0.279	14.2	LOS B	1.1	8.2	0.72	1.05	0.83	23.2
West: Great Eastern Highway (W)															
3	L2	All MCs	4	3.0	4	3.0	0.377	4.8	LOS A	0.0	0.0	0.00	0.00	0.00	59.4
4	T1	All MCs	1360	8.5	1360	8.5	0.377	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach			1364	8.5	1364	8.5	0.377	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.7
All Vehicles			1589	7.7	1589	7.7	0.395	2.2	NA	1.4	10.6	0.11	0.15	0.14	49.5

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
East: Great Eastern Highway (E)															
2	T1	All MCs	925	8.5	925	8.5	0.256	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	105	3.0	105	3.0	0.083	5.7	LOS A	0.0	0.0	0.00	0.63	0.00	35.8
Approach			1031	7.9	1031	7.9	0.256	0.6	NA	0.0	0.0	0.00	0.06	0.00	56.0
North: Median Storage															
1	R2	All MCs	8	3.0	8	3.0	0.015	4.9	LOS A	0.0	0.3	0.60	0.61	0.60	7.2
Approach			8	3.0	8	3.0	0.015	4.9	LOS A	0.0	0.3	0.60	0.61	0.60	7.2
All Vehicles			1039	7.9	1039	7.9	0.256	0.6	NA	0.0	0.3	0.00	0.07	0.00	55.7

Table 14. SIDRA results for the crossover 1 on Victoria Parade - Weekday AM peak period (Post development – 2023)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
South: Victoria Parade (S)															
1	L2	All MCs	14	2.0	14	2.0	0.040	3.0	LOS A	0.0	0.0	0.00	0.10	0.00	26.2
2	T1	All MCs	62	3.0	62	3.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	45.1
Approach			76	2.8	76	2.8	0.040	0.5	NA	0.0	0.0	0.00	0.10	0.00	40.5
North: Victoria Parade (N)															
8	T1	All MCs	22	3.0	22	3.0	0.023	0.0	LOS A	0.1	0.7	0.14	0.25	0.14	31.9
9	R2	All MCs	18	2.0	18	2.0	0.023	3.3	LOS A	0.1	0.7	0.14	0.25	0.14	26.5
Approach			40	2.6	40	2.6	0.023	1.5	NA	0.1	0.7	0.14	0.25	0.14	28.7
West: Crossover 1															
10	L2	All MCs	16	2.0	16	2.0	0.057	0.2	LOS A	0.2	1.5	0.17	0.17	0.17	21.0
12	R2	All MCs	55	2.0	55	2.0	0.057	1.0	LOS A	0.2	1.5	0.17	0.17	0.17	16.7
Approach			71	2.0	71	2.0	0.057	0.8	LOS A	0.2	1.5	0.17	0.17	0.17	18.0
All Vehicles			186	2.5	186	2.5	0.057	0.8	NA	0.2	1.5	0.10	0.16	0.10	28.5

Table 15. SIDRA results for the crossover 1 on Victoria Parade - Weekday PM peak period (Post development – 2023)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
South: Victoria Parade (S)															
1	L2	All MCs	14	2.0	14	2.0	0.057	3.0	LOS A	0.0	0.0	0.00	0.07	0.00	26.6
2	T1	All MCs	95	3.0	95	3.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	46.5
Approach			108	2.9	108	2.9	0.057	0.4	NA	0.0	0.0	0.00	0.07	0.00	43.0
North: Victoria Parade (N)															
8	T1	All MCs	64	3.0	64	3.0	0.045	0.0	LOS A	0.1	0.8	0.10	0.15	0.10	38.4
9	R2	All MCs	18	2.0	18	2.0	0.045	3.6	LOS A	0.1	0.8	0.10	0.15	0.10	29.2
Approach			82	2.8	82	2.8	0.045	0.8	NA	0.1	0.8	0.10	0.15	0.10	35.1
West: Crossover 1															
10	L2	All MCs	18	2.0	18	2.0	0.065	0.3	LOS A	0.2	1.7	0.23	0.21	0.23	20.6
12	R2	All MCs	58	2.0	58	2.0	0.065	1.3	LOS A	0.2	1.7	0.23	0.21	0.23	16.2
Approach			76	2.0	76	2.0	0.065	1.1	LOS A	0.2	1.7	0.23	0.21	0.23	17.6
All Vehicles			266	2.6	266	2.6	0.065	0.7	NA	0.2	1.7	0.10	0.13	0.10	31.7

**Table 16. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday
AM peak period (Post development – 2023)**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Great Eastern Hwy (E)															
5	T1	All MCs	1404	8.5	1404	8.5	0.393	0.0	LOS A	0.0	0.2	0.00	0.00	0.00	59.8
6	R2	All MCs	1	2.0	1	2.0	0.393	6.4	LOS A	0.0	0.2	0.00	0.00	0.00	42.8
Approach			1405	8.5	1405	8.5	0.393	0.0	NA	0.0	0.2	0.00	0.00	0.00	59.8
North: Crossover 2															
7	L2	All MCs	3	2.0	3	2.0	0.063	1.1	LOS A	0.1	1.1	1.00	0.76	1.00	2.8
9	R2	All MCs	1	2.0	1	2.0	0.063	149.2	LOS F	0.1	1.1	1.00	0.76	1.00	5.5
Approach			4	2.0	4	2.0	0.063	38.2	LOS E	0.1	1.1	1.00	0.76	1.00	3.6
West: Great Eastern Hwy (W)															
10	L2	All MCs	40	2.0	40	2.0	0.175	3.5	LOS A	0.0	0.0	0.00	0.07	0.00	24.5
11	T1	All MCs	588	8.5	588	8.5	0.175	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	55.8
Approach			628	8.1	628	8.1	0.175	0.2	NA	0.0	0.0	0.00	0.04	0.00	50.3
All Vehicles			2038	8.4	2038	8.4	0.393	0.2	NA	0.1	1.1	0.00	0.01	0.00	57.2

**Table 17. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday
PM peak period (Post development – 2023)**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Great Eastern Hwy (E)															
5	T1	All MCs	928	8.5	928	8.5	0.276	0.0	LOS A	0.6	4.7	0.04	0.04	0.04	53.5
6	R2	All MCs	6	2.0	6	2.0	0.276	128.9	LOS F	0.6	4.7	0.08	0.08	0.08	35.2
Approach			935	8.5	935	8.5	0.276	0.9	NA	0.6	4.7	0.04	0.04	0.04	53.4
North: Crossover 2															
7	L2	All MCs	13	2.0	13	2.0	0.149	4.6	LOS A	0.3	2.5	0.87	0.88	0.88	3.8
9	R2	All MCs	1	2.0	1	2.0	0.149	300.6	LOS F	0.3	2.5	0.87	0.88	0.88	7.1
Approach			14	2.0	14	2.0	0.149	27.4	LOS D	0.3	2.5	0.87	0.88	0.88	4.1
West: Great Eastern Hwy (W)															
10	L2	All MCs	39	2.0	39	2.0	0.388	3.5	LOS A	0.0	0.0	0.00	0.03	0.00	25.0
11	T1	All MCs	1352	8.5	1352	8.5	0.388	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	57.8
Approach			1391	8.3	1391	8.3	0.388	0.1	NA	0.0	0.0	0.00	0.02	0.00	55.0
All Vehicles			2339	8.3	2339	8.3	0.388	0.6	NA	0.6	4.7	0.02	0.03	0.02	52.2

**Table 18. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2)
– Weekday AM peak period (10-year post development – 2033)**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
South: Median Storage															
5	T1	All MCs	88	3.0	88	3.0	0.124	3.5	LOS A	0.4	3.3	0.55	0.54	0.55	8.9
Approach			88	3.0	88	3.0	0.124	3.5	LOS A	0.4	3.3	0.55	0.54	0.55	8.9
North: Victoria Pde (N)															
1	L2	All MCs	69	3.0	69	3.0	0.104	7.5	LOS A	0.4	3.0	0.49	0.93	0.49	29.8
2	T1	All MCs	13	3.0	13	3.0	0.104	13.3	LOS B	0.4	3.0	0.49	0.93	0.49	15.5
Approach			82	3.0	82	3.0	0.104	8.4	LOS A	0.4	3.0	0.49	0.93	0.49	28.6
West: Great Eastern Highway (W)															
3	L2	All MCs	2	3.0	2	3.0	0.198	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	59.5
4	T1	All MCs	713	8.5	713	8.5	0.198	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			715	8.5	715	8.5	0.198	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles			885	7.4	885	7.4	0.198	1.1	NA	0.4	3.3	0.10	0.14	0.10	52.8

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
East: Great Eastern Highway (E)															
2	T1	All MCs	1674	8.5	1674	8.5	0.463	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
3	R2	All MCs	88	3.0	88	3.0	0.049	5.7	LOS A	0.0	0.0	0.00	0.63	0.00	35.8
Approach			1762	8.2	1762	8.2	0.463	0.3	NA	0.0	0.0	0.00	0.03	0.00	57.7
North: Median Storage															
1	R2	All MCs	13	3.0	13	3.0	0.079	20.5	LOS C	0.2	1.5	0.89	0.91	0.89	2.4
Approach			13	3.0	13	3.0	0.079	20.5	LOS C	0.2	1.5	0.89	0.91	0.89	2.4
All Vehicles			1775	8.2	1775	8.2	0.463	0.5	NA	0.2	1.5	0.01	0.04	0.01	56.7

**Table 19. SIDRA results for Great Eastern Highway/ Victoria Parade (Stage 1 and 2)
– Weekday PM peak period (10-year post development – 2033)**

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
South: Median Storage															
5	T1	All MCs	125	3.0	125	3.0	0.825	52.8	LOS F	1.8	13.7	0.98	1.63	2.07	1.0
Approach			125	3.0	125	3.0	0.825	52.8	LOS F	1.8	13.7	0.98	1.63	2.07	1.0
North: Victoria Pde (N)															
1	L2	All MCs	128	3.0	128	3.0	0.515	17.6	LOS C	2.1	15.6	0.87	1.14	1.27	18.0
2	T1	All MCs	9	3.0	9	3.0	0.515	96.5	LOS F	2.1	15.6	0.87	1.14	1.27	6.7
Approach			138	3.0	138	3.0	0.515	23.0	LOS C	2.1	15.6	0.87	1.14	1.27	17.5
West: Great Eastern Highway (W)															
3	L2	All MCs	2	3.0	2	3.0	0.453	4.8	LOS A	0.0	0.0	0.00	0.00	0.00	59.5
4	T1	All MCs	1635	8.5	1635	8.5	0.453	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
Approach			1637	8.5	1637	8.5	0.453	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.6
All Vehicles			1900	7.7	1900	7.7	0.825	5.2	NA	2.1	15.6	0.13	0.19	0.23	40.9

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
East: Great Eastern Highway (E)															
2	T1	All MCs	1112	8.5	1112	8.5	0.307	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
3	R2	All MCs	125	3.0	125	3.0	0.069	5.7	LOS A	1.8	13.8	0.00	0.63	0.00	35.8
Approach			1237	7.9	1237	7.9	0.307	0.6	NA	1.8	13.8	0.00	0.06	0.00	56.0
North: Median Storage															
1	R2	All MCs	9	3.0	9	3.0	0.022	6.9	LOS A	0.1	0.5	0.69	0.73	0.69	5.8
Approach			9	3.0	9	3.0	0.022	6.9	LOS A	0.1	0.5	0.69	0.73	0.69	5.8
All Vehicles			1246	7.9	1246	7.9	0.307	0.7	NA	1.8	13.8	0.01	0.07	0.01	55.6

Table 20. SIDRA results for the crossover 1 on Victoria Parade - Weekday AM peak period (10-year post development – 2033)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
South: Victoria Parade (S)															
1	L2	All MCs	14	2.0	14	2.0	0.048	3.0	LOS A	0.0	0.0	0.00	0.08	0.00	26.4
2	T1	All MCs	77	3.0	77	3.0	0.048	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	45.9
Approach			91	2.8	91	2.8	0.048	0.5	NA	0.0	0.0	0.00	0.08	0.00	41.8
North: Victoria Parade (N)															
8	T1	All MCs	28	3.0	28	3.0	0.026	0.0	LOS A	0.1	0.7	0.14	0.23	0.14	33.2
9	R2	All MCs	18	2.0	18	2.0	0.026	3.4	LOS A	0.1	0.7	0.14	0.23	0.14	27.0
Approach			46	2.6	46	2.6	0.026	1.3	NA	0.1	0.7	0.14	0.23	0.14	29.9
West: Crossover 1															
10	L2	All MCs	16	2.0	16	2.0	0.059	0.2	LOS A	0.2	1.5	0.20	0.18	0.20	20.8
12	R2	All MCs	55	2.0	55	2.0	0.059	1.1	LOS A	0.2	1.5	0.20	0.18	0.20	16.5
Approach			71	2.0	71	2.0	0.059	0.9	LOS A	0.2	1.5	0.20	0.18	0.20	17.8
All Vehicles			207	2.5	207	2.5	0.059	0.8	NA	0.2	1.5	0.10	0.15	0.10	29.8

Table 21. SIDRA results for the crossover 1 on Victoria Parade - Weekday PM peak period (10-year post development – 2033)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
South: Victoria Parade (S)															
1	L2	All MCs	14	2.0	14	2.0	0.069	3.0	LOS A	0.0	0.0	0.00	0.06	0.00	26.8
2	T1	All MCs	117	3.0	117	3.0	0.069	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	47.0
Approach			131	2.9	131	2.9	0.069	0.3	NA	0.0	0.0	0.00	0.06	0.00	44.0
North: Victoria Parade (N)															
8	T1	All MCs	82	3.0	82	3.0	0.055	0.0	LOS A	0.1	0.9	0.10	0.13	0.10	39.7
9	R2	All MCs	18	2.0	18	2.0	0.055	3.8	LOS A	0.1	0.9	0.10	0.13	0.10	29.7
Approach			100	2.8	100	2.8	0.055	0.7	NA	0.1	0.9	0.10	0.13	0.10	36.7
West: Crossover 1															
10	L2	All MCs	18	2.0	18	2.0	0.065	0.4	LOS A	0.2	1.7	0.26	0.23	0.26	20.4
12	R2	All MCs	55	2.0	55	2.0	0.065	1.5	LOS A	0.2	1.7	0.26	0.23	0.26	16.0
Approach			73	2.0	73	2.0	0.065	1.2	LOS A	0.2	1.7	0.26	0.23	0.26	17.4
All Vehicles			303	2.7	303	2.7	0.069	0.6	NA	0.2	1.7	0.10	0.12	0.10	33.4

Table 22. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday AM peak period (10-year post development – 2033)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
East: Great Eastern Hwy (E)															
5	T1	All MCs	1685	8.5	1685	8.5	0.472	0.0	LOS A	0.0	0.3	0.00	0.00	0.00	59.7
6	R2	All MCs	1	2.0	1	2.0	0.472	7.2	LOS A	0.0	0.3	0.00	0.00	0.00	42.8
Approach			1686	8.5	1686	8.5	0.472	0.0	NA	0.0	0.3	0.00	0.00	0.00	59.7
North: Crossover 2															
7	L2	All MCs	3	2.0	3	2.0	0.211	5.1	LOS A	0.5	3.5	1.00	0.97	1.02	1.8
9	R2	All MCs	1	2.0	1	2.0	0.211	247.4	LOS F	0.5	3.5	1.00	0.97	1.02	3.5
Approach			4	2.0	4	2.0	0.211	65.7	LOS F	0.5	3.5	1.00	0.97	1.02	2.2
West: Great Eastern Hwy (W)															
10	L2	All MCs	40	2.0	40	2.0	0.210	3.5	LOS A	0.0	0.0	0.00	0.06	0.00	24.7
11	T1	All MCs	713	8.5	713	8.5	0.210	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	56.4
Approach			753	8.2	753	8.2	0.210	0.2	NA	0.0	0.0	0.00	0.03	0.00	51.6
All Vehicles			2443	8.4	2443	8.4	0.472	0.2	NA	0.5	3.5	0.00	0.01	0.00	57.1

Table 23. SIDRA results for the crossover 2 on Great Eastern Highway - Weekday PM peak period (10-year post development – 2033)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	Dist] m				
East: Great Eastern Hwy (E)															
5	T1	All MCs	1115	8.5	1115	8.5	0.343	0.0	LOS A	1.5	12.4	0.05	0.05	0.05	46.6
6	R2	All MCs	6	2.0	6	2.0	0.343	370.9	LOS F	1.5	12.4	0.11	0.12	0.11	27.7
Approach			1121	8.5	1121	8.5	0.343	2.1	NA	1.5	12.4	0.05	0.05	0.05	46.4
North: Crossover 2															
7	L2	All MCs	13	2.0	13	2.0	0.518	33.6	LOS D	1.2	9.2	0.98	0.99	1.00	2.0
9	R2	All MCs	1	2.0	1	2.0	0.518	326.2	LOS F	1.2	9.2	0.98	0.99	1.00	4.0
Approach			14	2.0	14	2.0	0.518	56.1	LOS F	1.2	9.2	0.98	0.99	1.00	2.2
West: Great Eastern Hwy (W)															
10	L2	All MCs	39	2.0	39	2.0	0.466	3.6	LOS A	0.0	0.0	0.00	0.03	0.00	25.1
11	T1	All MCs	1627	8.5	1627	8.5	0.466	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	58.0
Approach			1666	8.3	1666	8.3	0.466	0.1	NA	0.0	0.0	0.00	0.01	0.00	55.6
All Vehicles			2801	8.4	2801	8.4	0.518	1.2	NA	1.5	12.4	0.02	0.03	0.02	47.2