

Proposed Service Station

41 – 45 Angove Street, North Perth

Transport Impact Statement

PREPARED FOR:
PC Infrastructure
Pty Ltd

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1 Introduction

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of PC Infrastructure Pty Ltd with regard to the proposed service station including integrated retail sale of goods of an incidental or convenience nature to be located at 41 – 45 Angove Street, North Perth in the City of Vincent. The site is located at the southwest corner of 4-way priority-controlled intersection of Angove Street and Woodville Street.

The subject site is presently occupied by “Wesco North Perth” service station and is bound by Angove Street to the north, Woodville Street to the east, rear laneway and existing residential properties to the south and multi-level building to the west. Refer to **Figure 1** for more details. Vehicular accesses to the subject site are currently available via a full movement crossover on Angove Street and a full movement crossover on Woodville Street.

The Transport Impact Assessment Guidelines (WAPC, Vol 4 – Individual Developments, August 2016) states: *“A Transport Impact Statement is required for those developments that would be likely to generate moderate volumes of traffic¹ and therefore would have a moderate overall impact on the surrounding land uses and transport networks”.*

Section 6 of Transcore’s report provides details of the estimated trip generation for the proposed development. Accordingly, as the net increase in peak hour vehicular trips are estimated to be less than 100 trips, a Transport Impact Statement is deemed appropriate for this development.

Key issues that will be addressed in this report include the traffic generation and distribution of the proposed development, access and egress movement patterns and assessment of fuel tanker and service vehicle operations.

¹ Between 10 and 100 vehicular trips per hour



Figure 1: Location of the subject site

2 Proposed Development

The subject site is presently occupied by “Wesco North Perth” service station and the Development Application (DA) for the subject site proposes to replace it with upgraded service station, including integrated retail sale of goods of an incidental or convenience nature, trading as OTR North Perth comprising:

- ✚ A canopy with a total of eight fuel-filling positions (4 bowsers) for light vehicles;
- ✚ A convenience store having 206m² GFA;
- ✚ An office and meeting facilities on the mezzanine floor (associated with service station);
- ✚ A total of 6 parking bays inclusive of one ACROD bay; and,
- ✚ A refuse/loading area.

It is Transcore’s understanding that adequate parking supply is provided on site to address the parking requirements for the proposed development.

Waste collection for the proposed development is to be accommodated within the site at the proposed refuse area proposed next to parking bay No.6 as shown on the development plan in **Appendix A**. Waste collection is proposed to occur outside the peak periods.

A copy of the proposed development plan is included in **Appendix A**.

3 Vehicle Access and Parking

3.1 Access

Currently one full movement crossover on Angove Street and one full movement crossover on Woodville Street are serving the existing service station at the subject site. As part of the development proposal, it is proposed to retain both existing crossovers with modifications/ widening for Woodville Street crossover and modifications for Angove Street crossover to better facilitate the fuel tanker entry and exit movements. Moreover, it is also proposed to provide a new full movement crossover on the rear laneway.

Figure 2 illustrates the locations of the crossovers at the subject site.

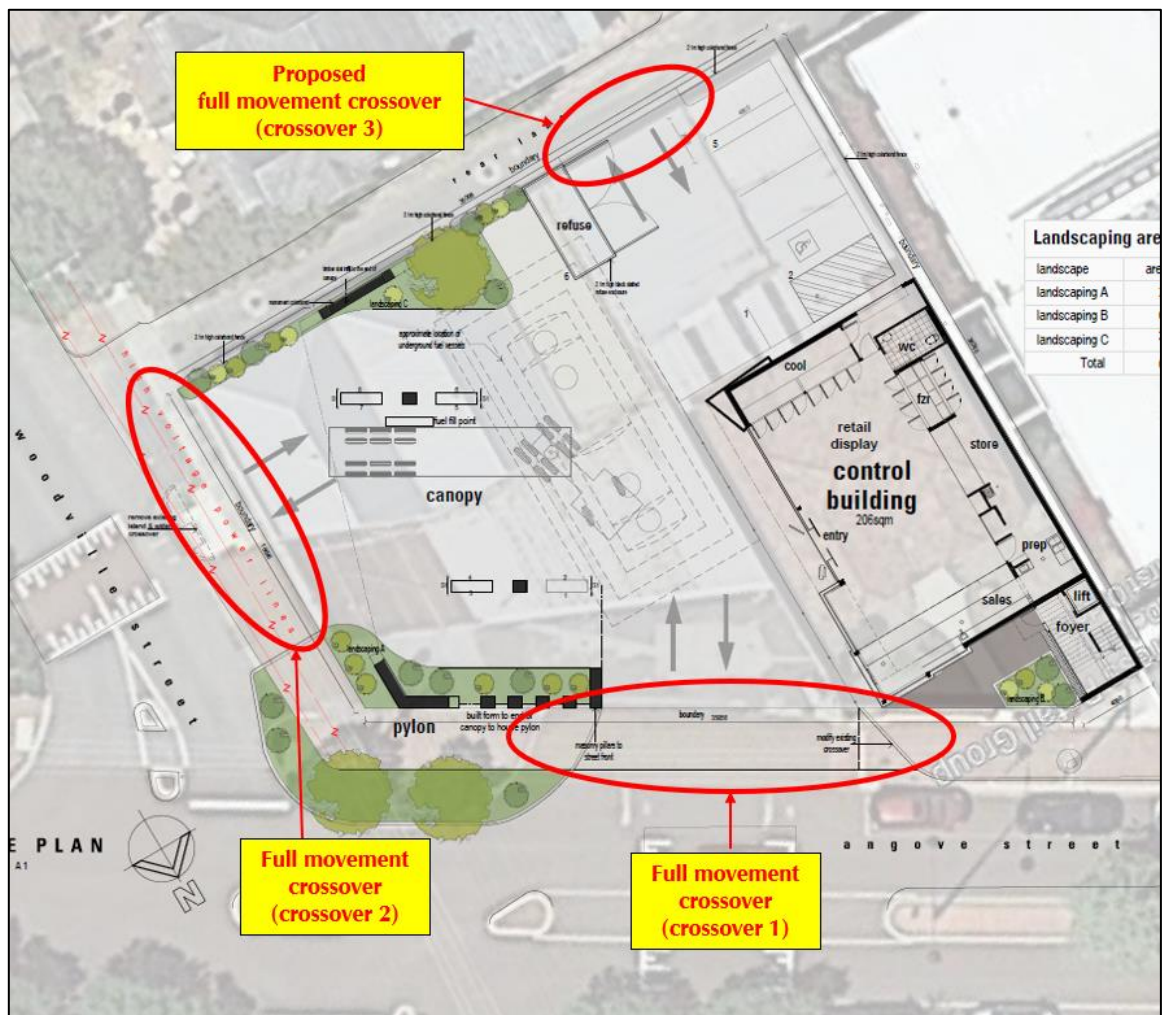


Figure 2. Locations of the crossovers

3.2 Parking

Based on the development plan attached in **Appendix A**, the proposed development provides a total of 6 car parking spaces inclusive of one ACROD bay. It is understood that the proposed car parking spaces are in accordance with the relevant requirements. Therefore, it is considered that the proposed parking provision is sufficient to accommodate the demands of the proposed development.

As the proposal includes an office and meeting facilities on mezzanine floor, even though these facilities are linked to the service station use, Transcore also investigated the available public parking facilities in the surrounding roads to address any parking overflow that may occur on rare occasions.

Accordingly, the nearby available public parking bays include existing 18 bays (3P) on Albert Street, located approximately 65m from the proposed development. Moreover, additional 3P parking bays are also available along the southern side of Albert Street located approximately 150m walking distance from the subject site.

Further, as public transport coverage for this locality is good, it is anticipated that some staff may use public transport or to be dropped off as there is a bus stop located on Fitzgerald Street approximately 250m walking distance from the subject site.

Therefore, it is considered that the parking supply at the subject site and the available public parking opportunities within the locality would be able to accommodate the anticipated parking demand of the proposed development.

4 Provision for Service Vehicles

The largest size truck which is expected to use the site would be 16.5m long fuel tanker. Fuel tankers are proposed to enter the site via a left turn at the full movement crossover on Woodville Street (crossover 2), access the fill point and exit the site via a left turn via the full movement crossover on Angove Street (crossover 1).

A refuse/loading area is proposed next to the car parking bay No.6. Service vehicles are proposed to enter the site via the proposed full movement crossover on Angove Street (crossover 1) and exit the site via the full movement crossover on Angove Street (crossover 1) in forward gear. Service vehicles are expected to access the site no more than 3-4 times a week and generally outside the peak road network and peak site activity periods. However, it is recommended that during fuel delivery the two southern bowsters and their northern fill points of these bowsters to be coned off during fuel delivery operation.

The swept path analysis undertaken for 16.5m fuel tanker and 8.8m service vehicle confirms the satisfactory access, egress and circulation of service vehicles within the site. Swept path analysis plans are included in **Appendix B**.

5 Hours of Operation

The proposed service station with convenience store is expected to operate 24 hours per day and 7 days per week.

6 Daily Traffic Volumes and Vehicle Types

6.1 Trip Generation and Distribution

6.1.1 Existing Traffic Generation

The subject site is presently occupied by a service station consisting four petrol fuel filling positions (2 bowsers) and two diesel fuel filling positions (1 bowser).

Transcore undertook a site visit in October 2021 and it was observed that only 2 petrol fuel filling positions and 1 diesel fuel filling position were operating at the subject site. Therefore, the existing traffic generation is estimated for 3 fuel filling positions only.

The traffic generation for the existing land use was estimated based on relevant trip rate from *the Institute of Transportation Engineers – Trip Generation Manual 11th Edition (ITE)* document and the trip rates which were used to estimate the existing traffic generation are as follows:

Service Station – Gasoline/ Service Station with Convenience Store (945)

- ✚ Weekday daily: 265.12vpd per fuelling point;
- ✚ Weekday AM peak hour: 16.06vph per fuelling point; and,
- ✚ Weekday PM peak hour: 18.42vph per fuelling point.

Accordingly, it is estimated that the traffic generations for the existing service station are:

- ✚ Weekday daily: $265.12 \times 3 = 795\text{vpd}$;
- ✚ Weekday AM peak hour: $16.06 \times 3 = 48\text{vph}$; and,
- ✚ Weekday PM peak hour: $18.42 \times 3 = 55\text{vph}$.

Therefore, it is estimated that the existing commercial land use generates about 795 vehicular trips per day on a typical weekday with approximately 48 trips and 55 trips during the typical weekday AM and PM peak hours respectively. These figures include both inbound and outbound vehicle movements.

Based on Transcore's site observations we believe that the trip rates from ITE 11 grossly over estimate that traffic generation of this site. Nevertheless, to undertake a robust assessment ITE 11 rates are adopted for this assessment.

6.1.2 Proposed Development Traffic Generation

The traffic generation rates for the proposed service station were also sourced from the *Institute of Transportation Engineers – Trip Generation Manual 11th Edition (ITE)* document using “Gasoline/ Service Station with Convenience Store (945)” land use as reference.

The trip rates which were used to estimate traffic generation for the proposed development are as follows:

Service Station – Gasoline/ Service Station with Convenience Store (945)

- ✚ Weekday daily: 265.12vpd per fuelling point;
- ✚ Weekday AM peak hour: 16.06vph per fuelling point; and,
- ✚ Weekday PM peak hour: 18.42vph per fuelling point.

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

- ✚ Weekday daily: $265.12 \times 8 = 2,121\text{pd}$;
- ✚ Weekday AM peak hour: $16.06 \times 8 = 129\text{vph}$; and,
- ✚ Weekday PM peak hour: $18.42 \times 8 = 147\text{vph}$.

Therefore, it is conservatively estimated that the proposed service station development would generate **2,121** vehicular trips per day on a typical weekday with approximately **129** and **147** trips during the typical weekday AM and PM peak hours respectively. These figures include both inbound and outbound vehicle movements.

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

6.2 Traffic Impact Comparison

Allowing for the existing service station, it is conservatively estimated that the net additional traffic as a result of the proposed new service station development is approximately **1,326** vehicle trips per day on a typical weekday and **81** and **92** trips for typical weekday morning and afternoon peak hours respectively as shown in **Table 1**. These figures include both inbound and outbound vehicle movements. As outlined earlier these figures represent an over estimation of actual expected patronage.

Therefore, as a result of the proposed development the maximum net increase of about 92 peak hour trips during the critical typical weekday PM peak hour is estimated on the local road network. This anticipated actual level of traffic increase is likely to have insignificant impact on the traffic operations of the surrounding road networks.

Table 1. Total trip generation comparison table

	Existing Development	Proposed Development	Net Increase
Weekday daily	795	2,121	+1,326
Weekday AM peak hour	48	129	+81
Weekday PM peak hour	55	147	+92

6.3 Traffic Flow

Based on ITE Guidelines, about 60% passing trade was assumed for the analysis for both AM and PM peak hours. Therefore, the net additional traffic from the proposed development when accounting for passing trade is conservatively +848vpd (daily), +52vph (AM peak hour) and +59vph (PM peak hour) on surrounding road network.

Moreover, the net additional traffic from the proposed development when accounting for passing trade and existing site traffic is +530vpd (daily), +33vph (AM peak hour) and +37vph (PM peak hour) on surrounding road network as shown in **Table 2**. These figures include both inbound and outbound vehicle movements.

Table 2. Non-Passing trade trip generation comparison table

	Existing Development	Proposed Development	Net Increase
Weekday daily	318	848	+530
Weekday AM peak hour	19	52	+33
Weekday PM peak hour	22	59	+37

With respect to the location of the development, permeability and layout of the surrounding road network, the assumed distribution for additional traffic as a result of the proposed service station is assumed as follows:

Passing Trade Traffic (inbound)

- 2% from the west on rear laneway (crossover 3);
- 10% from the north of Woodville Street (crossover 2);
- 13% from the south of Woodville Street (crossover 2);
- 20% from the west of Angove Street (crossover 2);
- 35% from the west of Angove Street (crossover 1); and,
- 20% from the east of Angove Street (crossover 2).

Passing Trade Traffic (outbound)

- ✚ 43% to the west of Angove Street; and,
- ✚ 57% to the east of Angove Street.

Non-Passing Trade

- ✚ 2% to and from the west on rear lane;
- ✚ 15% to and from the north of Woodville Street;
- ✚ 15% to and from the south of Woodville Street;
- ✚ 33% to and from the west of Angove Street; and,
- ✚ 35% to and from the east of Angove Street.

The directional morning, afternoon and total daily trip distribution of the development-generated traffic for the proposed service station development is illustrated in **Figure 3**. It should be noted that **Figure 3** represents the trip distribution of the proposed development without the consideration of existing trip generation at the subject site.

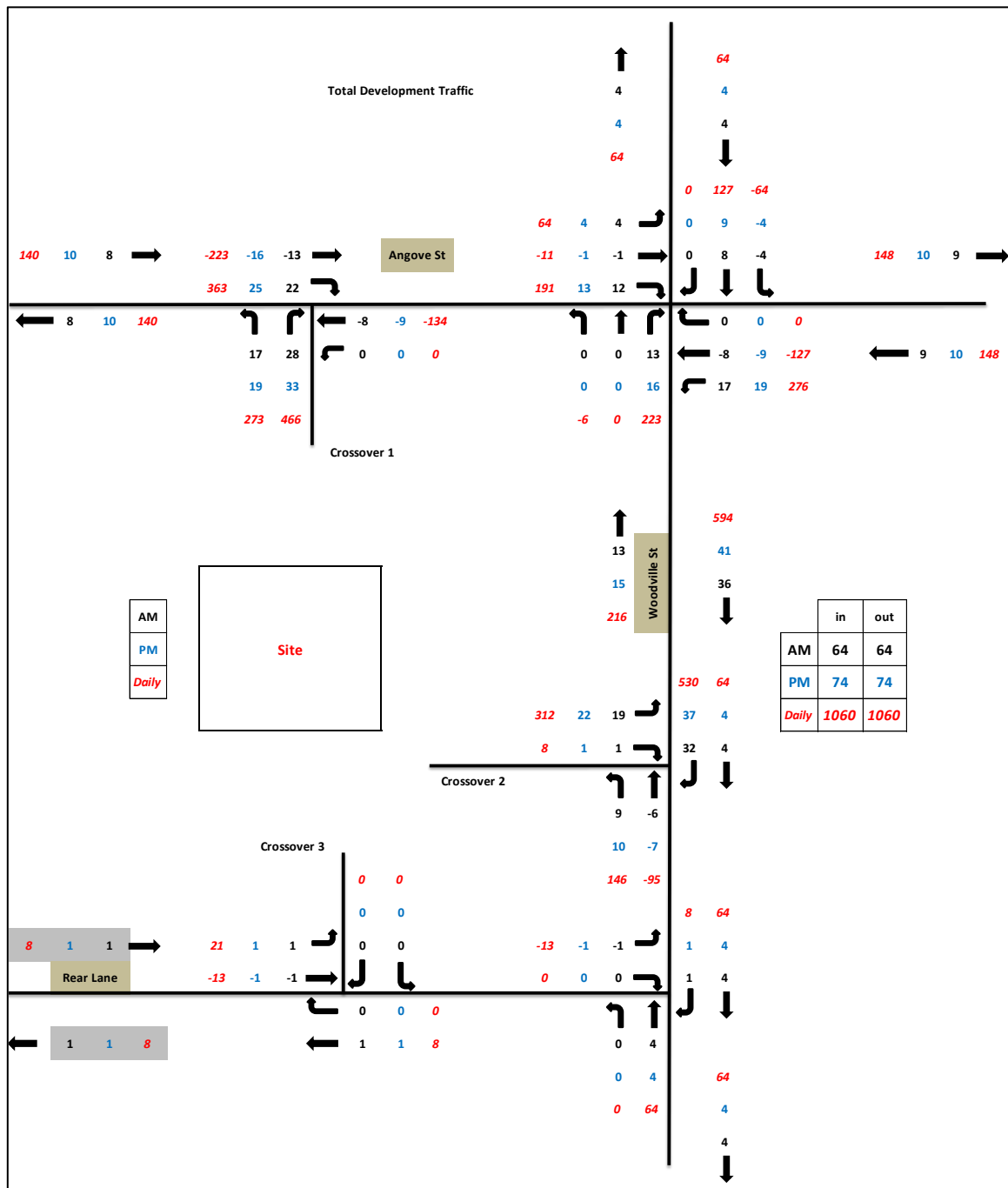


Figure 3. Estimated traffic movements for the proposed development – morning, afternoon peak hours and total daily trips

6.4 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 development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis.”

The net traffic increase of the proposed development will not increase traffic on any lanes on the surrounding road network by more than 100vph, therefore the impact of the additional traffic on the surrounding road network is considered to be insignificant and acceptable.

It is clear that the traffic increase from the proposed service station development, without consideration of the existing site traffic and passing trade, would be less than the critical threshold (100vph per lane) with the most pronounced increases being 56vph (including both inbound and outbound movements) on Woodville Street during the afternoon peak hour. Therefore, the impact of the development traffic on the surrounding road network is not considered to be significant.

6.5 Traffic increase on Rear Laneway

Transcore organised 7 days traffic count survey on Rear Laneway (south of subject site) in January 2022 and it is recorded that the maximum traffic volume during the surrounding roads network peak hours, AM (8am – 9am) and PM (5pm – 6pm) were 7vph and 2vph respectively and the maximum daily traffic volume on a typical weekday is 25vph as shown in **Table 3**.

According to **Figure 3**, it is observed that the traffic increases on Rear Lane due to the proposed development are conservatively estimated as 2 vehicular movements for both AM (8am – 9am) and PM (5pm – 6pm) peak hours and 16 vehicular daily movements (8 vehicles) on a typical weekday.

Table 3. 7-day traffic counts on Rear Laneway off Woodville Street

Road:	Rear Lane off Woodville St (south of Angove St)							Rear Lane off Woodville St (south of Angove St) ▼	
Direction:	Combined							Combined ▼	
Vehicles:	All Vehicles							All Vehicles ▼	
Date:	21/01/2022 - 27/01/2022								
Time	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Monday - Friday	Monday - Sunday
0:00	0	0	0	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	0
5:00	0	0	0	2	0	0	0	0	0
6:00	0	0	2	0	2	1	1	1	1
7:00	4	0	0	0	1	0	2	1	1
8:00	3	0	0	3	6	0	7	4	3
9:00	5	0	0	1	3	0	1	2	1
10:00	0	2	3	0	0	0	1	0	1
11:00	1	3	0	2	3	3	0	2	2
12:00	0	1	2	1	0	2	0	1	1
13:00	4	2	1	1	3	0	2	2	2
14:00	1	1	0	2	1	2	4	2	2
15:00	0	0	0	1	0	2	0	1	0
16:00	0	0	0	0	0	3	0	1	0
17:00	2	0	1	0	0	0	0	0	0
18:00	2	0	0	2	1	2	0	1	1
19:00	1	0	1	0	2	0	0	1	1
20:00	1	1	0	1	0	0	0	0	0
21:00	0	0	0	0	3	0	0	1	0
22:00	1	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0
Total	25	10	10	16	25	15	18	20	17

7 Traffic Management on the Frontage Streets

Angove Street, north of the subject site, is constructed as a two-lane divided carriageway with raised median. Pedestrian footpaths are provided on both sides of the road. Refer to **Figure 4** for more details.

Angove Street is classified as a *Distributor B* in the Main Roads WA *Functional Road Hierarchy* and operates under speed limit of 40km/h with 20km/h at pedestrian crossing raised humps in this area.

According to the latest available traffic information sourced from Main Roads WA, Angove Street, east of Charles Street, carried about 7,857 vehicles per typical weekday in 2019/20. The morning and afternoon peak hours were between 8:00am – 9:00am and 5:00pm – 6:00pm with traffic volumes of 698vph and 671vph respectively.



Figure 4: Southeast bound view along Angove Street

Woodville Street, is constructed as an approximately 9.0m wide, two-lane undivided road with pedestrian footpaths on both sides of the road in the vicinity of the subject site. Refer to **Figure 5** for more details.

Woodville Street is classified as an *Access Road* in the *Main Roads WA Functional Road Hierarchy* and operates under the default built up speed limit of 50km/h.

Woodville Street forms a priority-controlled four-way intersection with Angove Street.



Figure 5: Northbound view along Woodville Street

Rear Laneway, is approximately 3.5m. Rear Laneway forms priority-controlled 'T' intersection with Woodville Street on the eastern end.

8 Public Transport Access

According to the current TransPerth bus network map, the subject site does not have direct access to public transport system. The closest bus routes are 19, 360, 361, 362 and 'High Frequency Bus Route' 960 operating on Fitzgerald Street. The nearest bus stop is located on Fitzgerald Street approximately 250m walking distance from the subject site.

Moreover, bus routes 370, 384, 385, 386, 387, 388, 389 and 'High Frequency Bus Routes' 970 and 990 are also operating on Charles Street. The nearest bus stop on Charles Street is approximately 600m walking distance from the subject site.

The bus routes provide links to Perth Busport, Dog Swamp Shopping Centre, The Square Mirrabooka, Mirrabooka Station, Alexander Heights Shopping Centre, Kingsway City Shopping Centre, Warwick Train Station, Wanneroo Central Shopping Centre, Victoria Park Train Station, Curtin University Central Bus Station and Scarborough Beach Bus Station. The public transport services available in the vicinity of the subject site are illustrated in the relevant TransPerth service map (**Figure 6**).

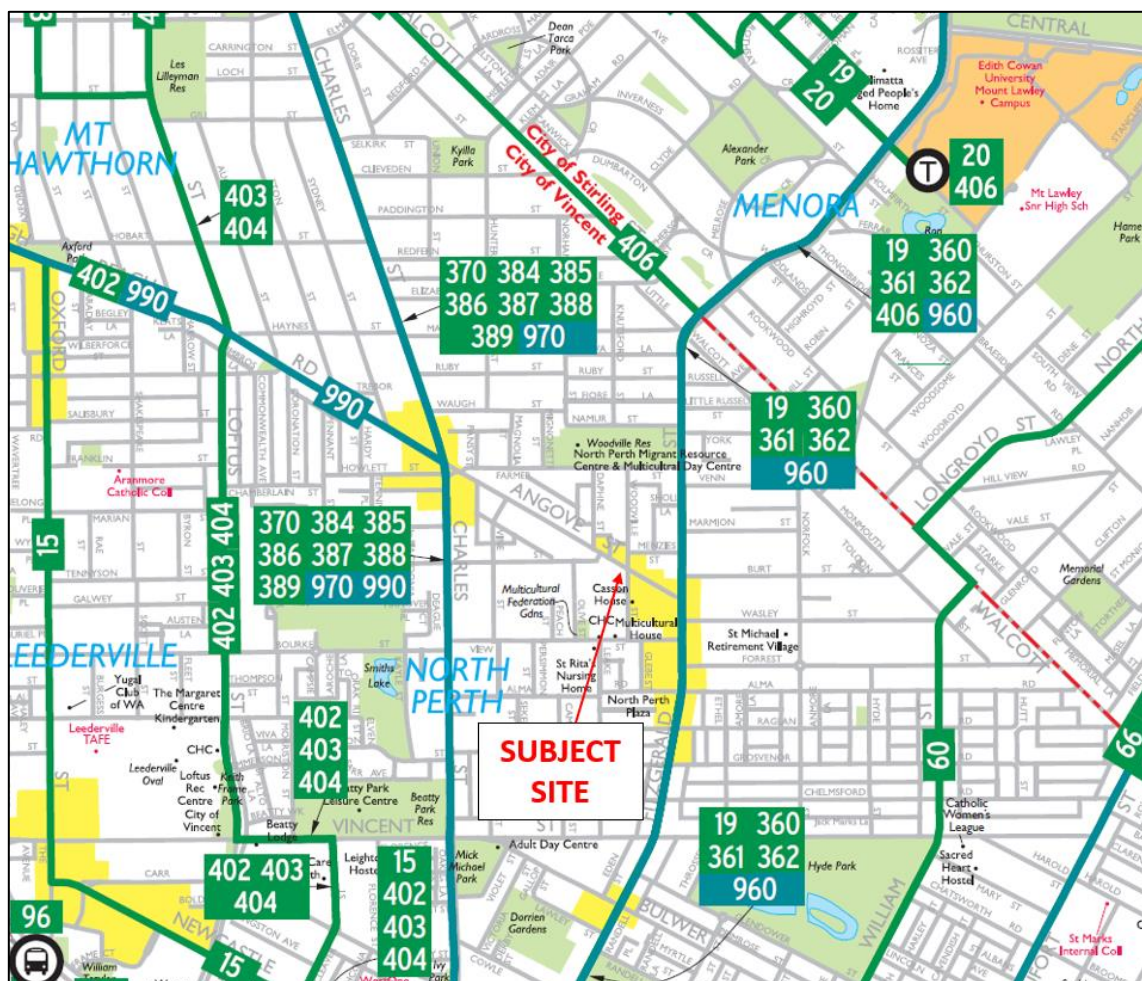


Figure 6: Public transport services (TransPerth Maps)

9 Pedestrian Access

Pedestrian accesses to the proposed development are directly available via the external footpath network on Angove Street and Woodville Street. Pedestrian crossing facilities are available at the four-way priority-controlled intersection of Angove Street and Woodville Street.

10 Cycle Access

According to the current Department of Transport Bike Maps, the subject site has direct access to the existing bike path network within the locality via the “Perth Bicycle Network (PBN) on Woodville Street.

Figure 7 shows the existing cyclist connectivity to the subject site.

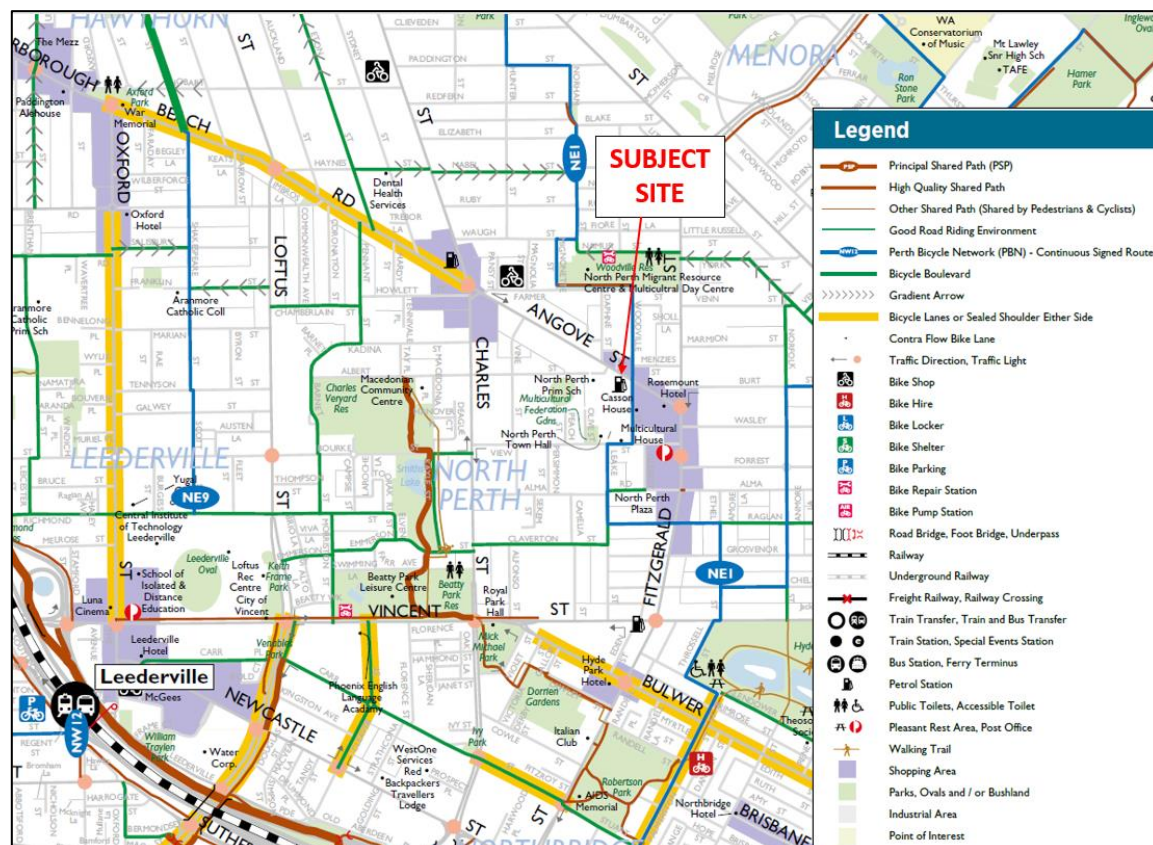


Figure 7: Extract from Perth Bicycle Network (Department of Transport)

11 Site Specific Issues

Other than the potential of parking overflow during rare occasions, no other site-specific transport issues have been identified for the proposed development.

12 Safety Issues

No particular transport safety issues have been identified for the proposed development.

13 Conclusions

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of PC Infrastructure Pty Ltd with regard to the proposed service station including integrated retail sale of goods of an incidental or convenience nature to be located at 41 – 45 Angove Street, North Perth in the City of Vincent. The site is located at the southwest corner of 4-way priority-controlled intersection of Angove Street and Woodville Street.

The subject site is presently occupied by “Wesco North Perth” service station and it is proposed to replace it with an upgraded service station, including integrated retail sale of goods of an incidental or convenience nature, trading as OTR North Perth.

Vehicular accesses to the subject site are currently available via a full movement crossover on Angove Street and a full movement crossover on Woodville Street. As part of the development proposal, it is proposed to retain both existing crossovers with modifications/ widening for Woodville Street crossover and modifications for Angove Street crossover to better facilitate the fuel tanker entry and exit movements. Moreover, it is also proposed to provide a new full movement crossover on rear laneway.

A total of 6 car parking bays including one ACROD parking bay are provided on site for the use of patrons and employees. A refuse/loading area is proposed next to the car parking bay No.6. Turn path analysis undertaken for 16.5m fuel tanker and 8.8m service vehicle confirms the satisfactory entry, circulation and egress arrangement within the subject site.

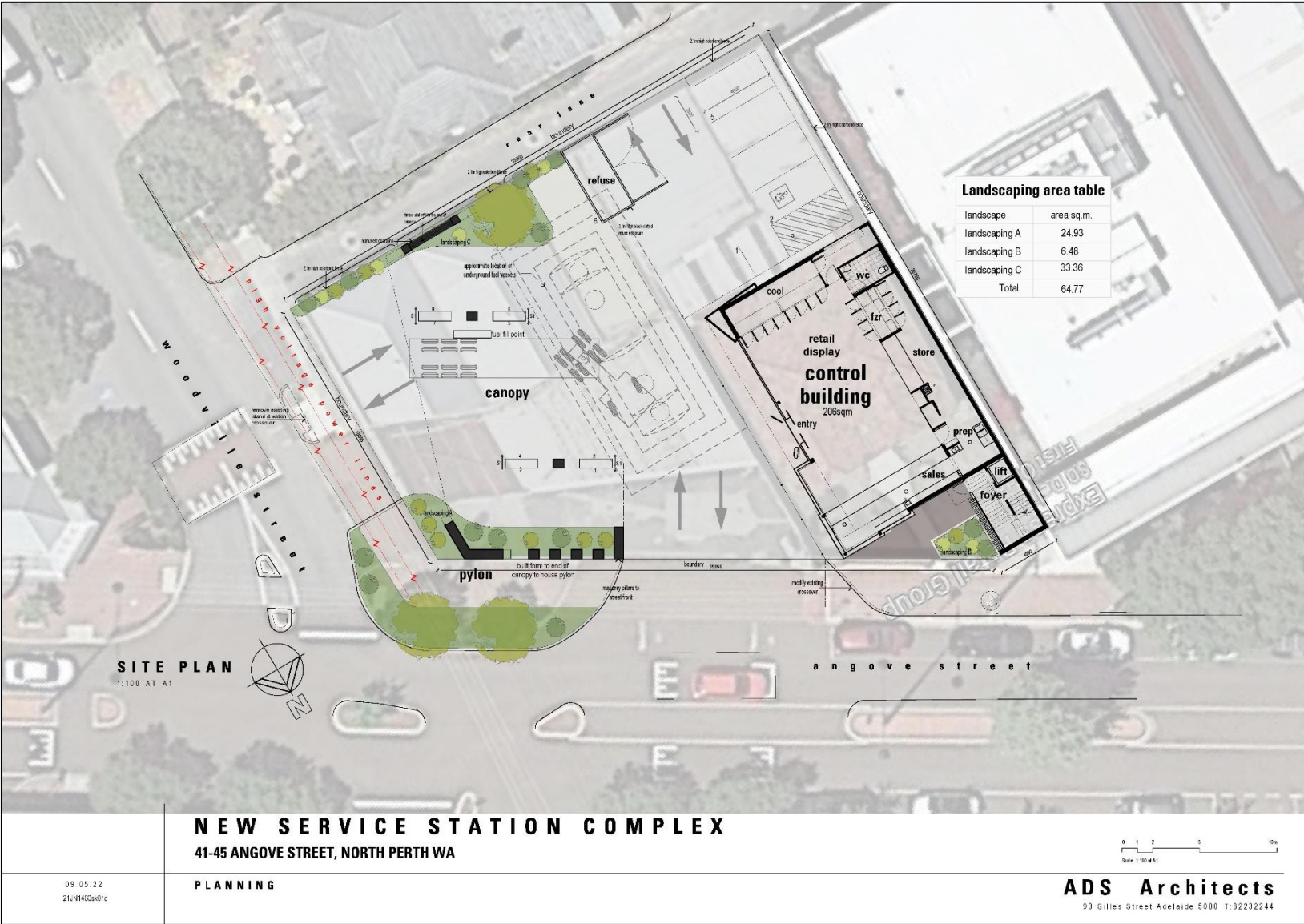
The traffic analysis undertaken in this report shows that the net traffic increase as a result of the proposed development, particularly considering the passing trade, is not significant and as such would not have a significant impact on the surrounding road network.

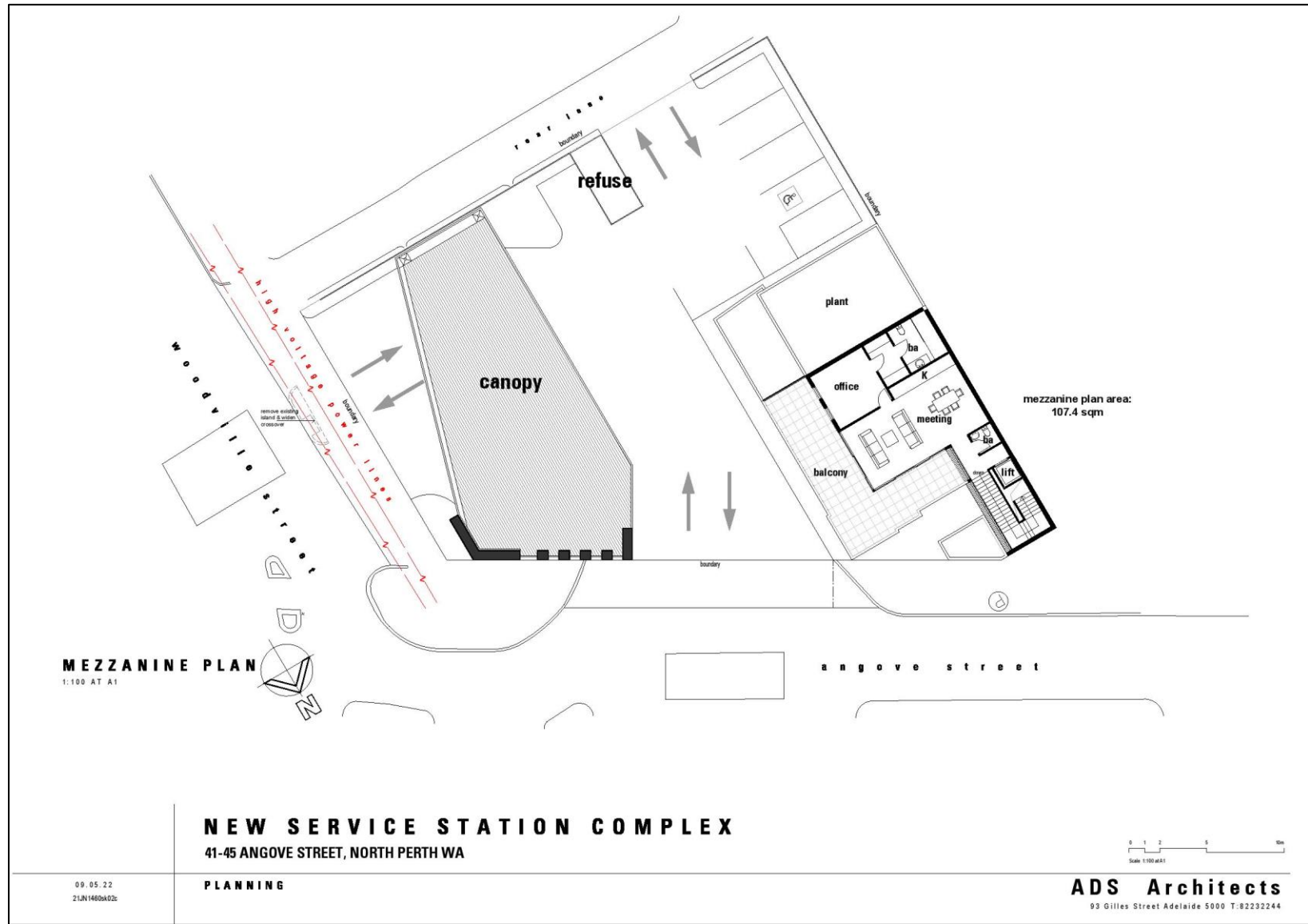
The subject site has good accessibility by the existing road network, pedestrian paths and cyclist network and enjoys reasonable public transport coverage through existing bus services operating in close proximity of the subject site.

Accordingly, it is concluded that the traffic related issues should not form an impediment to the approval of the proposed service station.

Appendix A

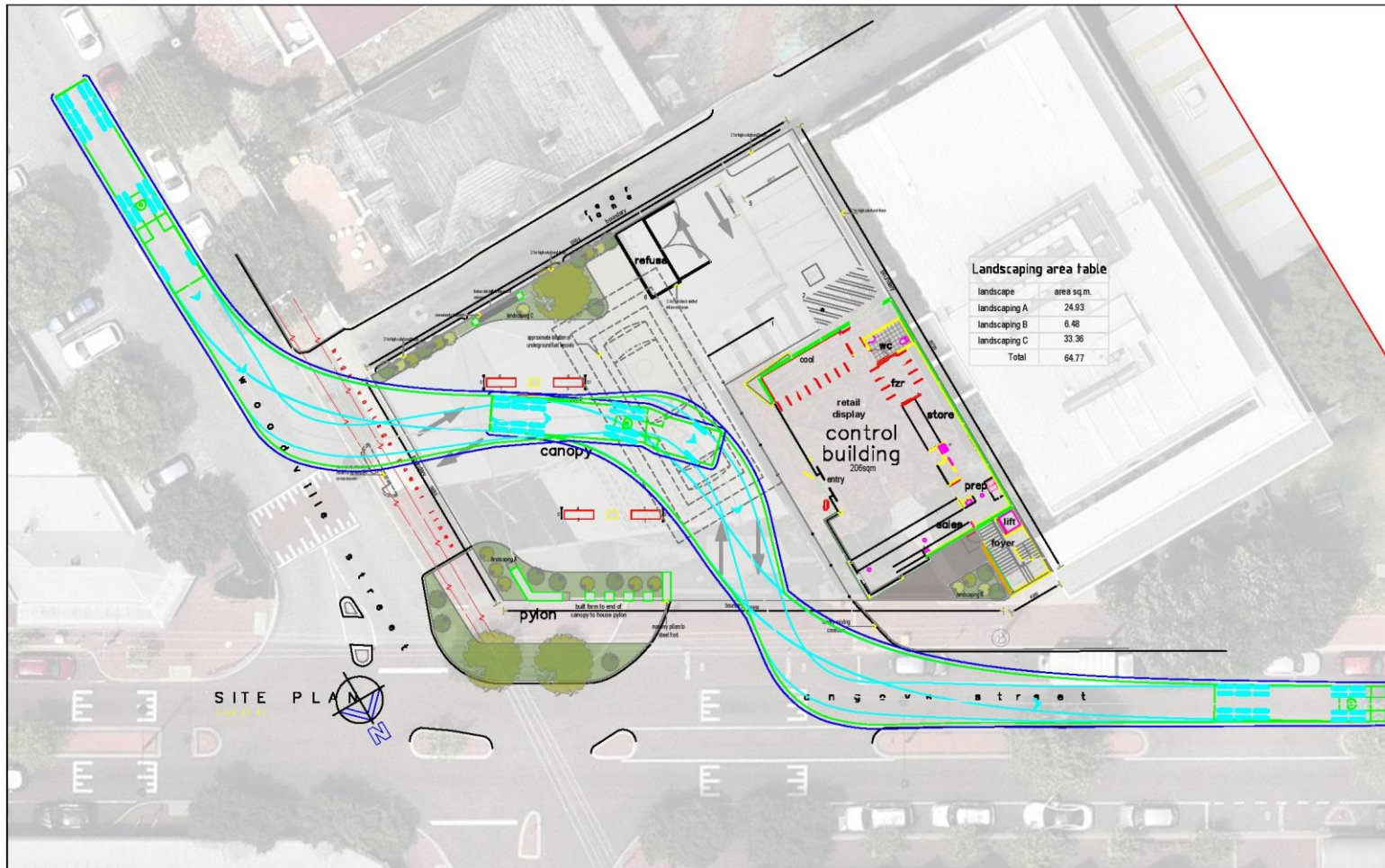
PROPOSED DEVELOPMENT PLANS

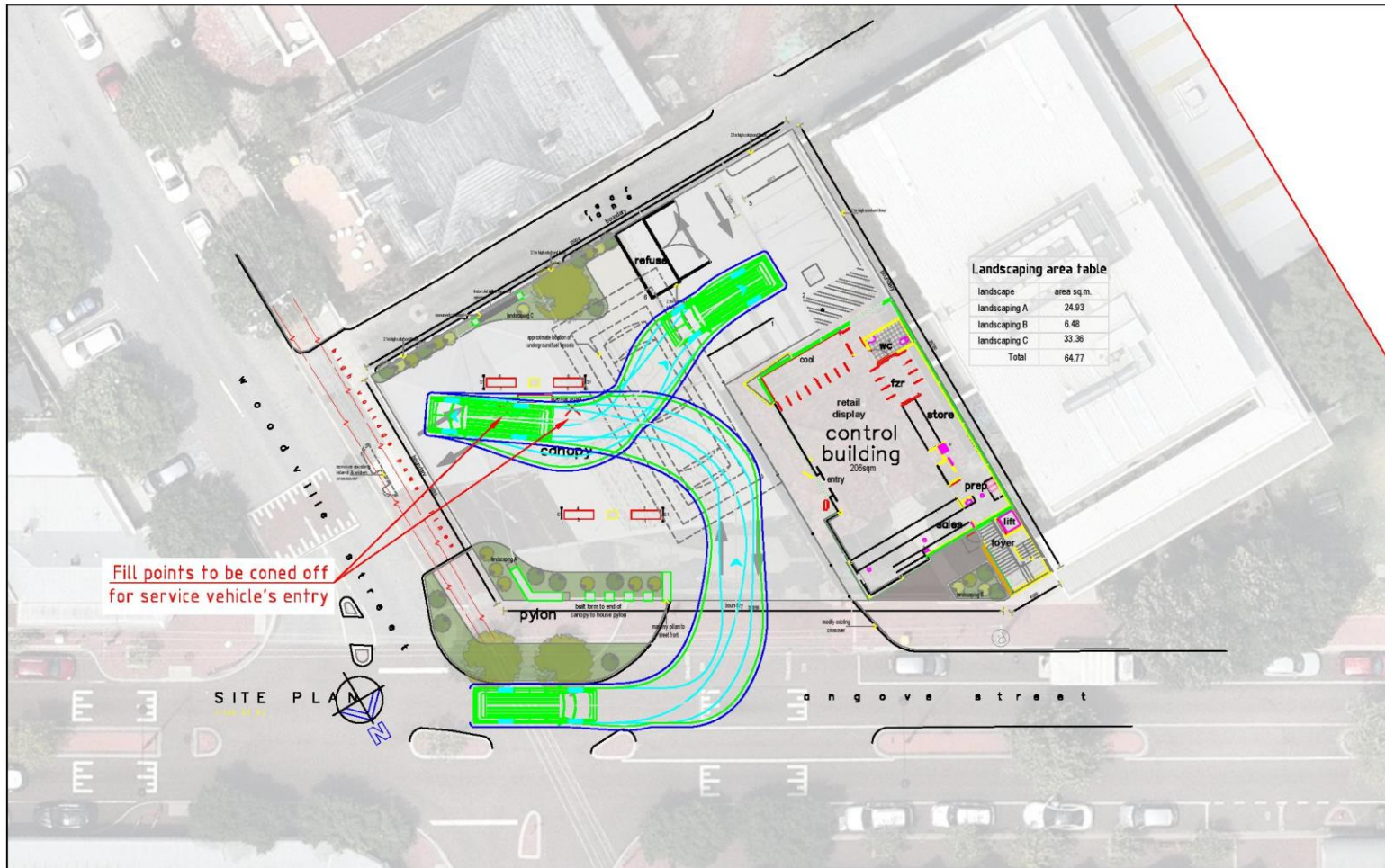




Appendix B

TURN PATH PLANS





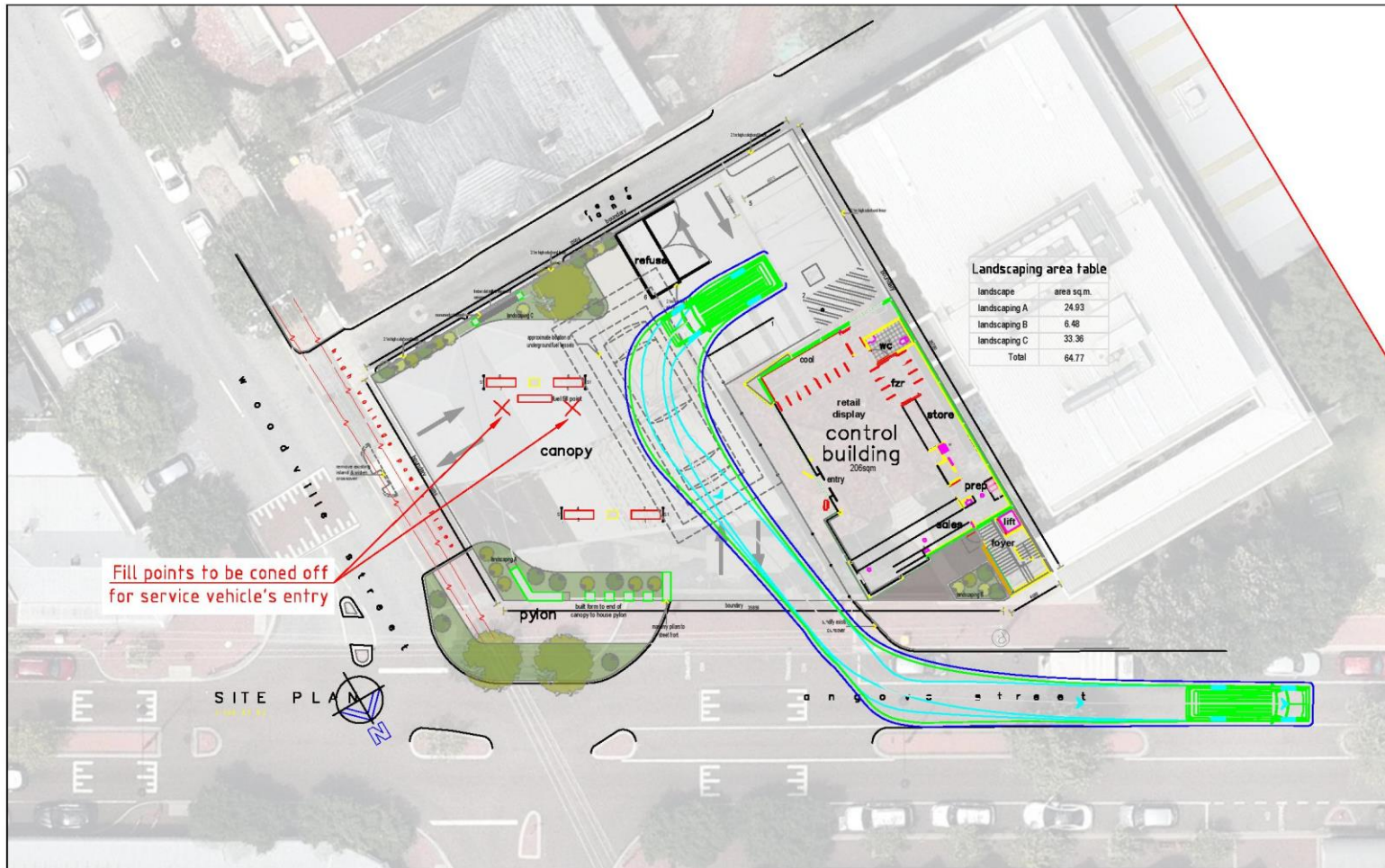
41 - 45 Angove Street, North Perth - Proposed OTR
 Austroads 2013: 8.8m Service Vehicle
 Service vehicle entry (entry from Angove St)

LEGEND
 Vehicle Body
 Wheel Path
 300mm Clearance



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 18/05/2022
 Scale: 1:250 @ A3





41 - 45 Angove Street, North Perth - Proposed OTR
 Austroads 2013: 8.8m Service Vehicle
 Service vehicle exit (exit onto Angove St)

LEGEND
 Vehicle Body
 Wheel Path
 300mm Clearance



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