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Proposed Fast-Food Restaurant

Lot 200 (915) Wanneroo Road, Wanneroo

Transport Impact Statement

PREPARED FOR:
Freepup Pty Ltd

March 2024

Document history and status

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1 Introduction

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of Freepup Pty Ltd with regard to a proposed fast food restaurant to be located at Lot 200 (915) Wanneroo Road, Wanneroo in the City of Wanneroo.

The subject site (approximately 2,170m^2 on size), is located at the northwest corner of the existing Wanneroo Road/Noonan Drive intersection and the southernmost end of the existing commercial centre flanking Wanneroo Road along the western side. The subject site is bordered by Wanneroo Road along the east side, Noonan Drive along the south, existing commercial developments to the north and existing residential developments to the west. The subject site is broadly located a short distance south of the Wanneroo towncentre and immediately north of Wanneroo Showground park and recreation precinct. Refer **Figure 1** for more details.

Figure 1: Location of the subject site

The Transport Impact Assessment Guidelines (WAPC, Vol 4 – Individual Developments, August 2016) state: *"A Transport Impact Statement is required for those developments that would be likely to generate moderate volumes of traffic*[1] *and*

[1] *Between 10 and 100 vehicular trips per hour*

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 total 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 and access and egress movement patterns.

2 Development Proposal

The development proposal contemplates removal of the existing southernmost building of the existing commercial centre at the western side of Wanneroo Road and the construction of a new fast-food restaurant with a dual-lane drive-through facility.

The existing site crossover on Noonan Drive, the internal connection to the commercial centre, the existing two commercial centre's crossovers on Wanneroo Road and the accessway along the back will be retained, hence no changes to the existing access system for the site are proposed as part of this development.

The site currently accommodates 19 parking bays along the two road frontages, all of which will be retained. Additional five parking bays will be provided as part of the proposal for a total of 24 on-site parking bays.

More specifically the development proposal comprises the following elements:

- Restaurant building of approximately 275m2 GFA;
- Dual-lane drive-through facility with the capacity to accommodate up to 11 vehicles (upstream of order pick-up window);
- A total of 24 on-site car parking bays (inclusive of one ACROD bay); and
- Four bicycle parking bays.

The existing commercial centre, including the subject site as part of it, are currently served by two crossovers: one on Noonan Drive and one on Wanneroo Road. The existing access system is also shared with the balance of tenancies within the commercial centre.

Deliveries and waste collection are proposed to be carried out by small-size commercial vehicles such as 8.8m rigid trucks. One of the drive-through lanes will be temporary closed off and double up as a loading bay for scheduled deliveries and waste collection outside the peak operating periods. Turn path assessment has been undertaken for this type of trucks confirming the suitability of the internal site layout, as presented in **Appendix B**.

The total on-site parking supply comprises 24 single car bays, inclusive of one ACROD bay, which is conveniently located adjacent to the main entrance into the restaurant.

Refer site plan attached in **Appendix A** for more details.

3 Vehicle Access and Parking

3.1 Access

At present, the existing commercial centre, including the subject site (Lot 200) as an integral part of it, is served by an access system comprising the following crossovers:

- Existing full-movement crossover on Noonan Drive, approximately 40m west of Wanneroo Road; and,
- Existing left-in/left-out only crossover on Wanneroo Road, approximately 80m north of Noonan Drive intersection.
- Existing left-in/left-out only crossover on Wanneroo Road, approximately 145m north of Noonan Drive intersection.

As part of the development proposal, no modiciations to the existing access arrangement for the centre are proposed.

In addition, the existing service accessway along the back of the commercial centre (western side) is also proposed to be retained.

The future restaurant patrons arriving on foot will be able to access the site via the existing footpaths which are in place along Wanneroo Road and Noonan Drive. A dedicated pedestrian walkway conncting the restuariant to the Noonan Drive path is proposed to facilitate safe access to the restaurant through the car park area.

3.2 Parking

The on-site parking provision for the proposed restaurant comprises a total of 24 car bays, including one ACROD bay. The ACROD bay is conveniently located adjacent to the main entry into the restaurant. The internal car park connectivity between the subject site and the balance of the commercial centre will be maintained to retain connectivity to the balance of the commercial centre.

A total of four bike rails are also proposed adjacent to the restaurant building for patrons arriving on bicycles.

It is understood that the parking provision (on-site parking plus drive-through bays) exceeds the parking requirement for this type of development, in accordance with the relevant local government policies.

4 Provision for Service Vehicles

A 2.4m wide loading zone is provided next to the drive-through lane leading into the back of house area of the facility, to ensure quick, efficient, and coordinated servicing. It is proposed that service/delivery vehicles use the combined drive-through and loading zone adjacent to the restaurant for the temporary loading/unloading, waste collection and other servicing activities.

The relevant (eastern) drive-through lane would be coned off prior to the scheduled delivery or service vehicle arrival so to ensure its accessibility. Waste collection and deliveries will be carried out using up to 8.8m rigid trucks. The truck will enter the site via the Noonan Drive crossover reverse into the suitable position within the drive-through lane/loading zone and exit the site via the same crossover in forward gear. It is proposed that these activities be conducted outside of the peak restaurant operating hours so to minimise internal site traffic/parking conflicts.

Refer turn path plan attached in **Appendix B** for details.

5 Hours of Operation

The proposed restaurant operating hours are 10:00AM to 10:00 PM on weekdays and 11:00AM to 10:00PM on Saturday and Sunday.

6 Daily Traffic Volumes and Vehicle Types

6.1 Trip Generation

Based on the advice provided to Transcore, the proposed restaurant will be one of the second-tier fast-food operations generating lower level of vehicular trips due to type of food and beverage offerings.

Accordingly, the trip rate source used is customer/sales data for the one of the comparable type of restaurants. The sourced transaction data combines sales associated with walk-in, drive-through and park'n'sit customers. The trade data also includes a percentage of multiple purchases (i.e., one vehicle carrying several customers).

With respect to the location of proposed restaurant, adjacent to a local commercial centre and the Wanneroo Central Shopping Mall with legible and convenient pedestrian walkways, a higher-than-average participation of walk-in trade is anticipated (large pool of local employees and visitors as potential customers).

Accordingly, under given assumptions, it is estimated that the development would generate approximately **572** total daily vehicular trips (both inbound and outbound) with approximately **72** and **90** trips (inbound and outbound) during a weekday midday and evening peak hours, respectively.

The traffic distribution detailed in **Table 1** was based on the following directional split assumptions for peak hour periods:

- Midday peak split estimated as 51%/42% for inbound/outbound trips; and,
- Late afternoon peak split estimated as 52%/48% inbound/outbound trips.

Table 1: Peak hour trips for the development

Peak Period	Direction	Traffic Split	Total Peak Hour Trips
Midday Peak	Inbound	37	**72 trips**
	Outbound	35	
PM Peak	Inbound	47	**90 trips**
	Outbound	43	

It should also be noted that the proposed development replaces a former office/commercial tenancy which was a traffic generator in its own right. Hence, the overall net traffic generation and impact of the proposed development would be

lower than that reported. Allowing for the previous traffic activity at the subject site[2], the estimated net midday peak, evening peak and total daily traffic increase as a result of the proposed development is estimated to be in order of 59vph, 77vph and 442vpd, respectively.

6.2 Trip Distribution

Considering the location of the proposed development as well as the available access and egress routes to and from the site, the anticipated directional trip distribution of the development-generated traffic is assumed to be as follows:

- 45% of trips to/from the Wanneroo Road north direction;
- 45% of trips to/from the Wanneroo Road south direction; and,
- 10% of trips to/from the Noonan Drive direction.

The directional morning and afternoon trip distribution of the development-generated traffic is illustrated in **Figure 3**.

Figure 2. Estimated traffic movements for the subject development – midday peak/evening peak trips

[2] *Using WAPC Transport Impact Assessment (2015) trip rates for commercial space*

6.3 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."

It is clear that the traffic increase from the proposed restaurant would be notably lower than the critical threshold (100vph per lane). As detailed in **Section 6.2**, the proposed development will not increase traffic on any lanes on the surrounding road network by more than 100vph, therefore the impact of the development traffic on the surrounding road network will not be significant.

7 Traffic Management on Frontage Streets

Noonan Drive is generally presented as a 7.2m wide, single carriageway road, with section fronting the subject site widening to 13m carriageway and a 1.5m wide solid median. Section fronting the site entails pedestrian paths along both sides with section past the 90-degree bend featuring a footpath along the western side only. Refer **Figure 3** and **Figure 4** for more details.

Figure 3. Westbound view along Noonan Drive from Wanneroo Road

Figure 4. Eastbound view along Noonan Drive towards Wanneroo Road intersection

Noonan Drive operates under a default built-up area speed limit of 50km/h. Noonan Drive Road is classified as an *Access Street* in the Main Roads WA *Metropolitan Functional Road Hierarchy* document. This is a local road and as such it is under the care and control of the City of Wanneroo.

Wanneroo Road at this location is constructed to a dual divided carriageway standard with two lanes in each direction and a 10m wide landscaped median. Pedestrian footpath is in place along the eastern side of the road with a shared path along the the western side of the road. Refer **Figure 5** and **Figure 6** for more details.

Figure 5. Northbound view along Wannero Road adjacent to site

Figure 6. Southbound view along Wanneroo Road from San Rosa Road intersection

Wanneroo Road is classified as *Primary Distributor* in the Main Roads WA *Metropolitan Functional Road Hierarchy* document. This road is also identified as a *Primary Regional Road* (*Red Road*) in the *Metropolitan Region Scheme* and as such it is under the care and control of Main Roads WA. Wanneroo Road in the immediate vicinity of the subject site operates under a speed limit regime of 70km/h

Based on the latest available traffic data for this road sourced from Main Roads WA, Wanneroo Road (south of Dundebar Road) carried approximately 25,250vpd in 2020/21.

Noonan Drive forms a priority-controlled T-intersection at the eastern end with Wanneroo Road immediately adjacent to the subject site.

Main Roads WA Intersection *Crash Ranking Report* provides detailed crash data for the Wanneroo Road/San Rosa Road intersection over the 5-year period ending 31 December 2023.

The crash report information for the subject intersection indicates no crashes over the subject 5-year period.

8 Public Transport Access

Available nearby public transport services are shown in **Figure 7**. The closest existing bus services to the subject site are bus routes No. 389 and 468 operating along Wanneroo Road. Route 389 operates between Perth Busport and Wanneroo while route 468 links Whitfords Train Station and Joondalup Train Station. Hence, this bus service provides access to the greater Perth rail network via connection to the Joondalup train line.

The closest pair of bus stops is located on Wanneroo Road approximately 70m and 110m to the south. These stops are easily accessible via the existing footpath network.

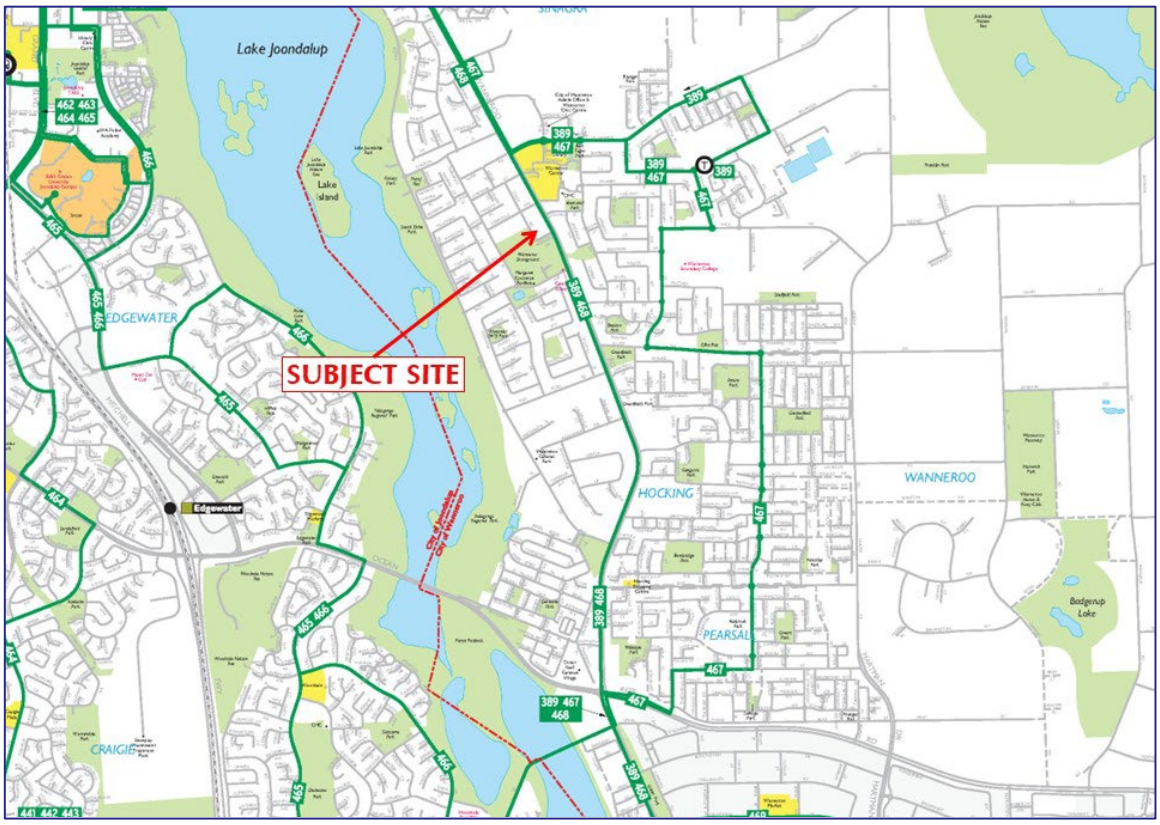

Figure 7: Existing bus services (source: TransPerth)

9 Pedestrian Access

Pedestrian access to the subject site is available directly from Noonan Drive and Wanneroo Road via the existing footpaths on surrounding roads.

Pedestrian crossing opportunities on Noonan Drive and Wanneroo Road are available at the Wanneroo Road/Noonan Drive intersection immediately adjacent to the site.

10 Cyclist Access

The subject site has direct cycle access to the local shared path network via a shared path which is in place along the western side of Wanneroo Road which connects to a system of roads classified as "good road riding environment" in the locality. For more details, refer Perth's Bicycle Network map illustrated in **Figure 8**.

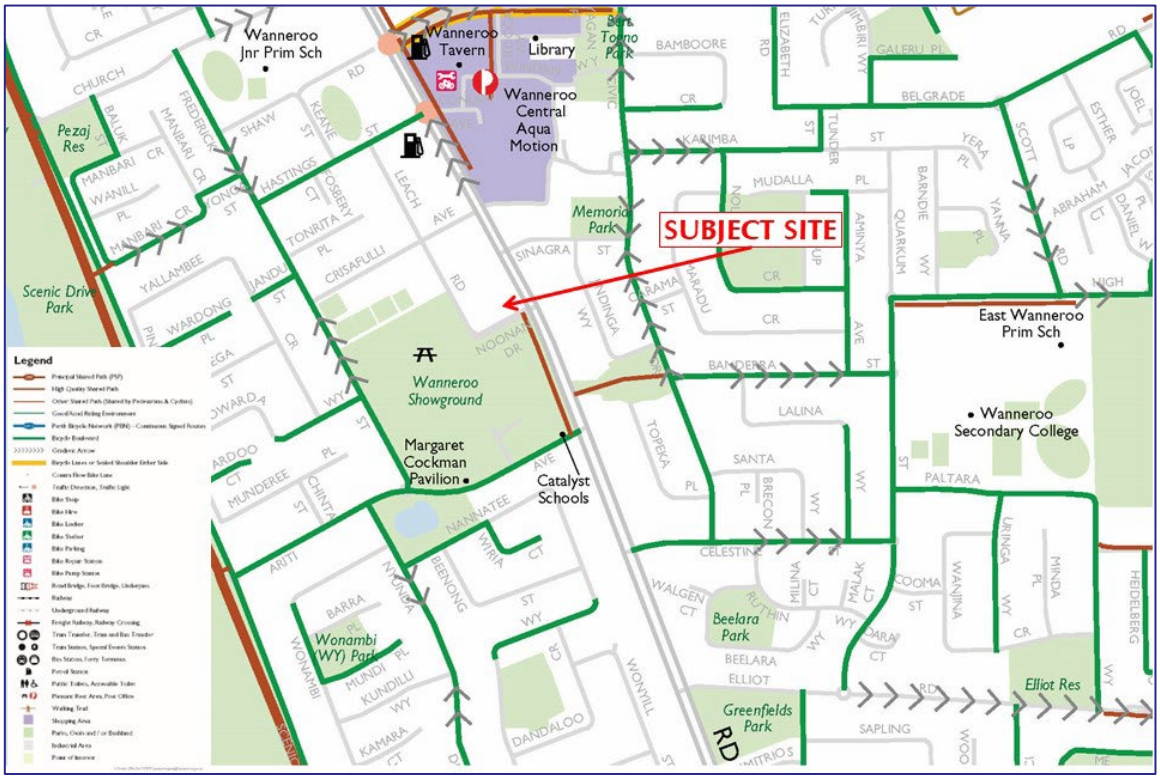

Figure 8: Extract from Perth Bicycle Network (Department of Transport)

11 Site Specific Issues – Queue Analysis

The proposed restaurant is designed to operate with a two-lane drive-through facility which includes two Customer Order Booths (COB). The proposed drive-through facility provides approximately 11 car stacking capacity within the drive through facility of which four bays are downstream of the COB.

Based on the trip generation calculations discussed in Section 7.2 of the report, the peak business activity hour of the restaurant is expect to be experienced during the midday and late evening weekday peak periods recording 37 and 45 customers. These transactions generally comprise 75/25 split of drive-through/ park'n'sit customers, respectively.

Accordingly, it is estimated that the drive-through will accommodate about 28 and 35 customers during the typical weekday midday peak hour period.

It is further assumed that the order-taking cycle would average 1min (60sec) equating to a service rate of 60 customer per hour per COB.

A queue length analysis was undertaken to assess the provision of storage for vehicles within the drive through lane. For this purpose, an M/M/1 queuing model was adopted for each COB. The M/M/1 is a single-server queue model that can be used to approximate simple systems.

The queuing model adopts the following assumptions:

- Vehicles arrive randomly following Poisson's probability distribution;
- Service time is exponentially distributed;
- There is one server per queue, i.e., one COB per lane;
- The capacity of the queue in which arriving users wait before being served is infinite (for the purposes of identifying queue space requirements);
- The population of users (i.e., the pool of users) available to join the system is infinite; and,
- The queue is serviced on a first come, first served basis.

In summary, weekday midday and late evening peak hour queuing analysis of the drive-through system established the following:

- There would be zero queuing 23% and 29% of the time during weekday midday and evening peak hours, respectively;
- The expected number of vehicles in the system is one during both peak hour periods;
- The expected time in the queue is 63 and 65 seconds, respectively; and,
- The 95th percentile queue in the system would be two vehicles.

The queue length usually adopted for robust analysis is the 95th percentile queue. This queue length will not be exceeded 95% of the time.

Based on the queue estimation model, it is concluded that under typical peak drive-through activity conditions the queue backs from each COB will be comfortably accommodated within the site, with no impact on internal site driveways or access points. The results of the queuing analysis are detailed in **Figure 9** and **Figure 10**.

M/M/s - Drive Through Queuing Analysis (Poisson Arrival and Service Rates)

	vph	vps	
M/M/s			
Arrival rate	28	0.007778	
Service rate	60	0.016667	
Number of servers	2	2	
Utilization	23.33%	23.33%	
P(0), probability that the system is empty	0.6216	0.6216	
Lq, expected queue length	0.0269	6.0000	(metres)
L, expected number in system	0.4935	6.0000	(metres)
Wq, expected time in queue	0.0010	3.4548	(seconds)
W, expected total time in system	0.0176	63.4548	(seconds)
Probability that a customer waits	0.0883	0.0883	
95% Queue	2.0000	12.0000	(metres)

80 45

$ 32.00

80

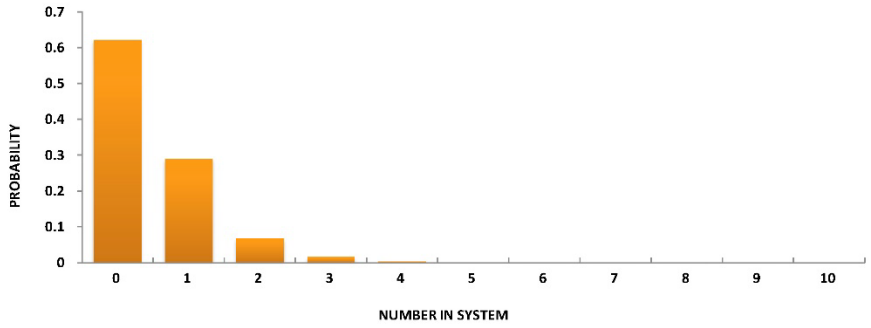

Figure 9. Peak weekday midday hour queueing analysis

M/M/s - Drive Through Queuing Analysis (Poisson Arrival and Service Rates)

M/M/s

	vph	vps
Arrival rate	35	0.009722
Service rate	60	0.016667
Number of servers	2	2

80 45

$ 32.00

80

Utilization	29.17%		29.17%	
P(0), probability that the system is empty	0.5484		0.5484	
Lq, expected queue length	0.0542	(cars)	6.0000	(metres)
L, expected number in system	0.6376	(cars)	6.0000	(metres)
Wq, expected time in queue	0.0015	(hours)	5.5787	(seconds)
W, expected total time in system	0.0182	(hours)	65.5787	(seconds)
Probability that a customer waits	0.1317		0.1317	
95% Queue	2.0000	(cars)	12.0000	(metres)

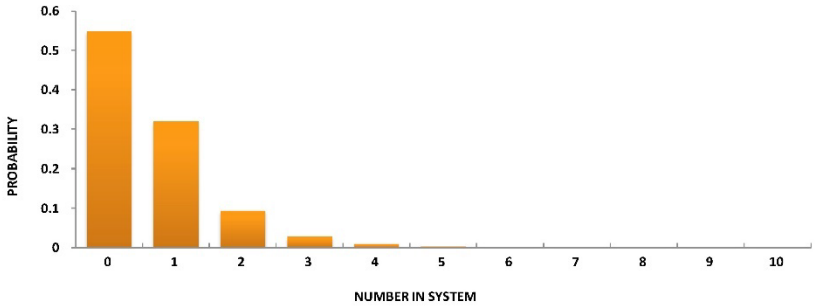

Figure 10. Peak weekday evening hour queueing analysis

No other site-specific issues have been identified for the proposed development.

12 Safety Issues

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

13 Conclusions

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of Freepup Pty Ltd with regard to a proposed fast food restaurant to be located at Lot 200 (915) Wanneroo Road, Wanneroo in the City of Wanneroo.

The subject site is located at the northwest corner of the existing Wanneroo Road/Noonan Drive intersection and forms part of the local commercial centre flanking Wanneroo Road along the western side.

The development proposal contemplates replacement of the southernmost building of the existing commercial centre at the western side of Wanneroo Road with the new fast-food restaurant with a dual-lane drive-through facility. The total on-site parking supply comprises 24 car bays (inclusive of one ACROD bay). The restaurant operating hours are proposed to be between 10:00AM - 10:00 PM on weekdays and 11:00AM to 10:00PM on Saturday and Sunday.

The development proposal does not contemplate any modifications to the existing access system, which comprises a full-movement crossover on Noonan Drive and the internal commercial centre driveway connecting to the two existing left-in/left-out crossovers on Wanneroo Road.

It is estimated that the proposed development would generate approximately **572** total daily trips with approximately **72** and **90** trips during typical weekday midday and evening peak hours, respectively. These trips include both inbound and outbound trips.

It should also be noted that the proposed restaurant replaces a former office/ commercial tenancy, which was a traffic generator in its own right. Hence, the overall net impact of the proposed development would be lower than that reported and estimated to be in order of 59vph, 77vph and 442vpd, for midday peak hour, evening peak hour and total daily, respectively.

Thus, the traffic generation of the proposed development is relatively low and therefore the impact of proposed development on the surrounding road network will not be significant.

Deliveries and waste collection activities will be accommodated from within the site. It is proposed that servicing be conducted outside of the peak operating hours of the proposed restaurant. Turn path analysis undertaken for an 8.8m service vehicle shows satisfactory access, egress, and circulation within the site.

The site features good connectivity via the existing road network and good coverage by the existing path network with convenient access to the public transport services.

No particular transport or safety issues have been identified for the proposed development within the scope of this report.

It is concluded that the findings of this Transport Impact Statement are supportive of the proposed development.

Appendix A

PROPOSED DEVELOPMENT PLAN

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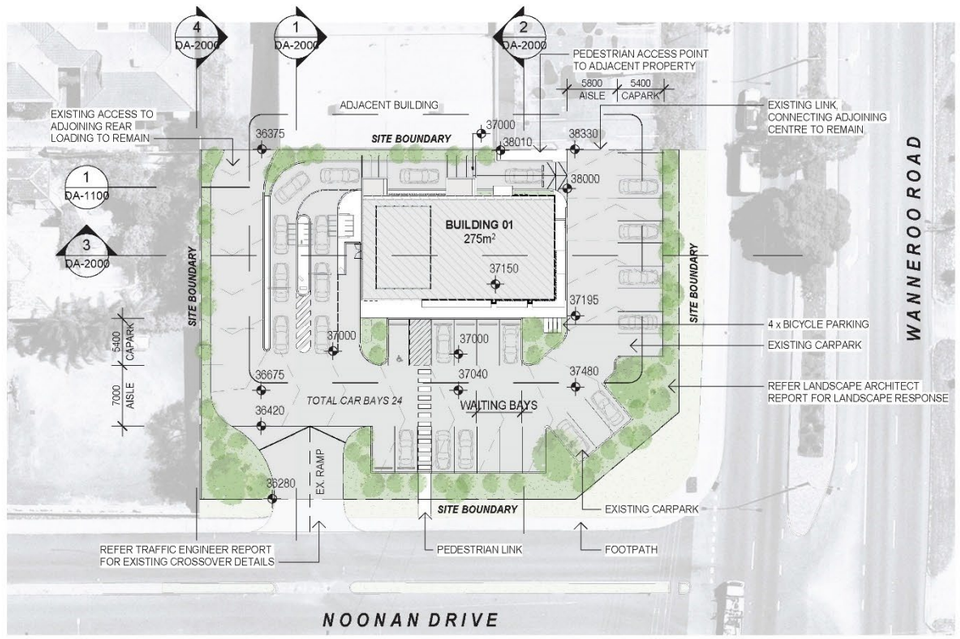
DA-1000
SITE PLAN



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ISSUE H
Date of Issue | 08.03.2024

| 915 WANNEROO ROAD, WANNEROO WESTERN AUSTRALIA

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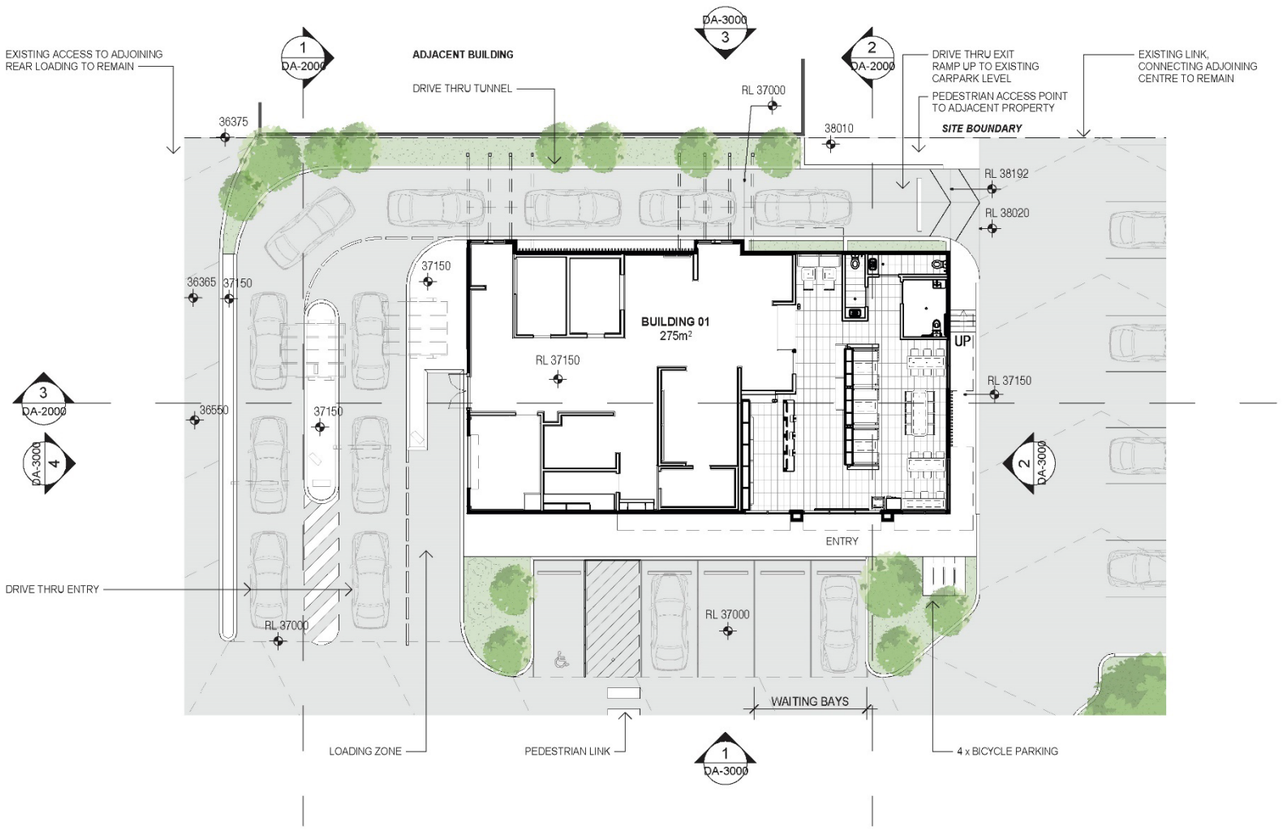
DA-1100
OVERALL FLOOR PLAN



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ISSUE D
Date of Issue | 08.03.2024

| 915 WANNEROO ROAD, WANNEROO WESTERN AUSTRALIA

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Appendix B

TURN PATH PLANS

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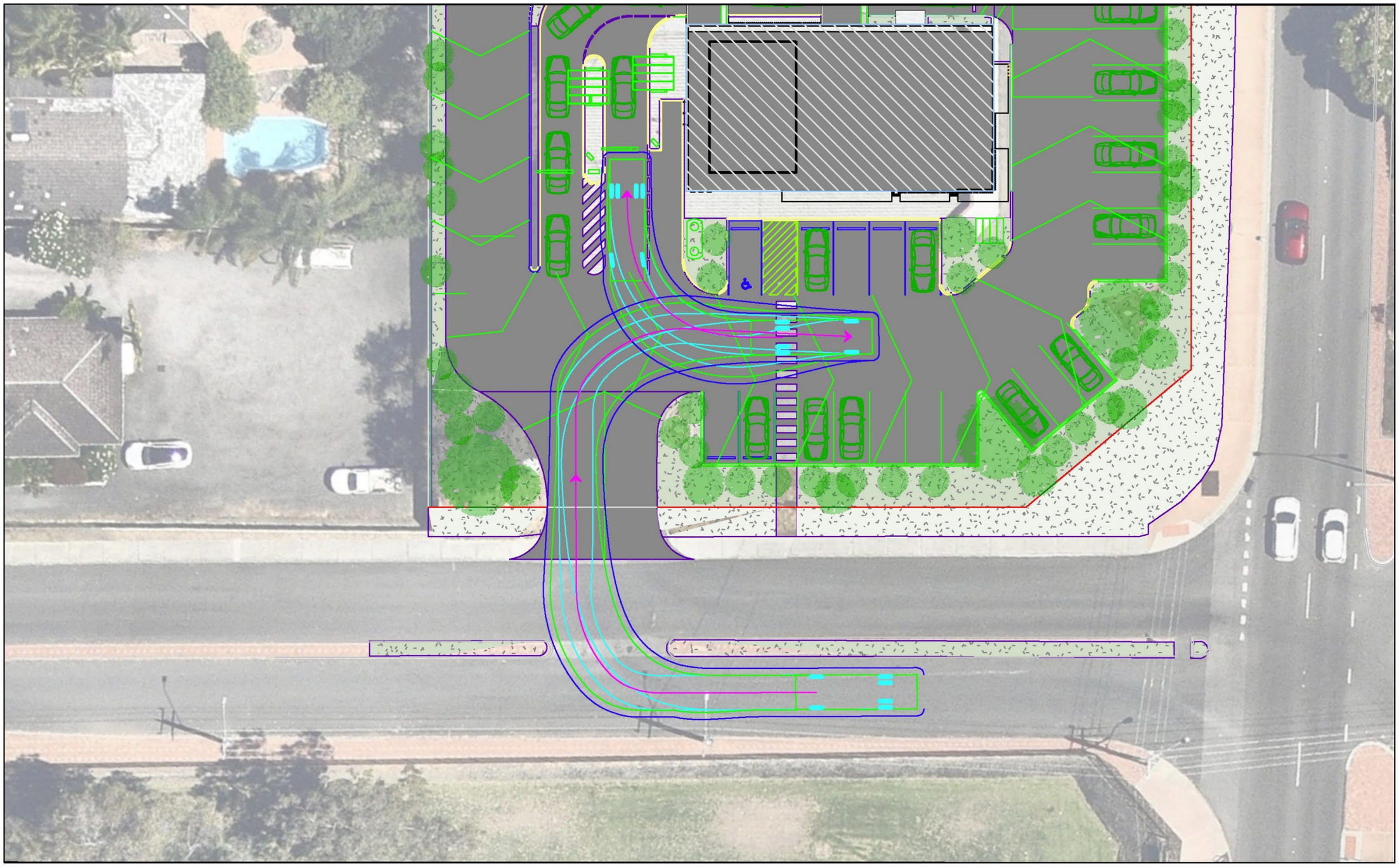

Lot 200 (915) Wanneroo Road, Wanneroo

Austroads 2013: 8.8m Service Vehicle

Service vehicle entry

LEGEND

Vehicle Body

Wheel Path

500mm Clearance

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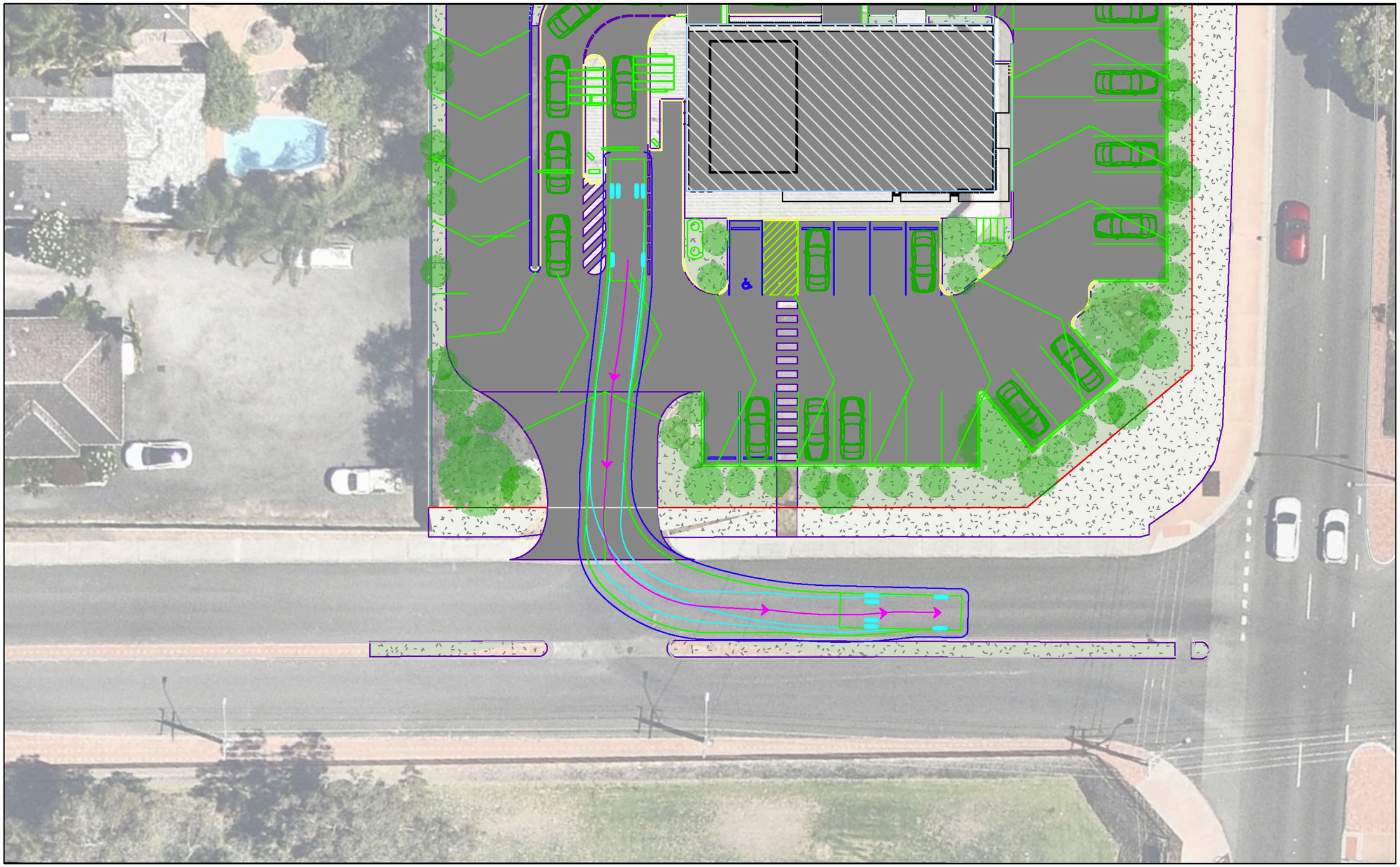
transcore



Lot 200 (915) Wanneroo Road, Wanneroo

Austroads 2013: 8.8m Service Vehicle

Service vehicle exit

LEGEND

Vehicle Body

Wheel Path

500mm Clearance

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Scale: 1:250 @ A3

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