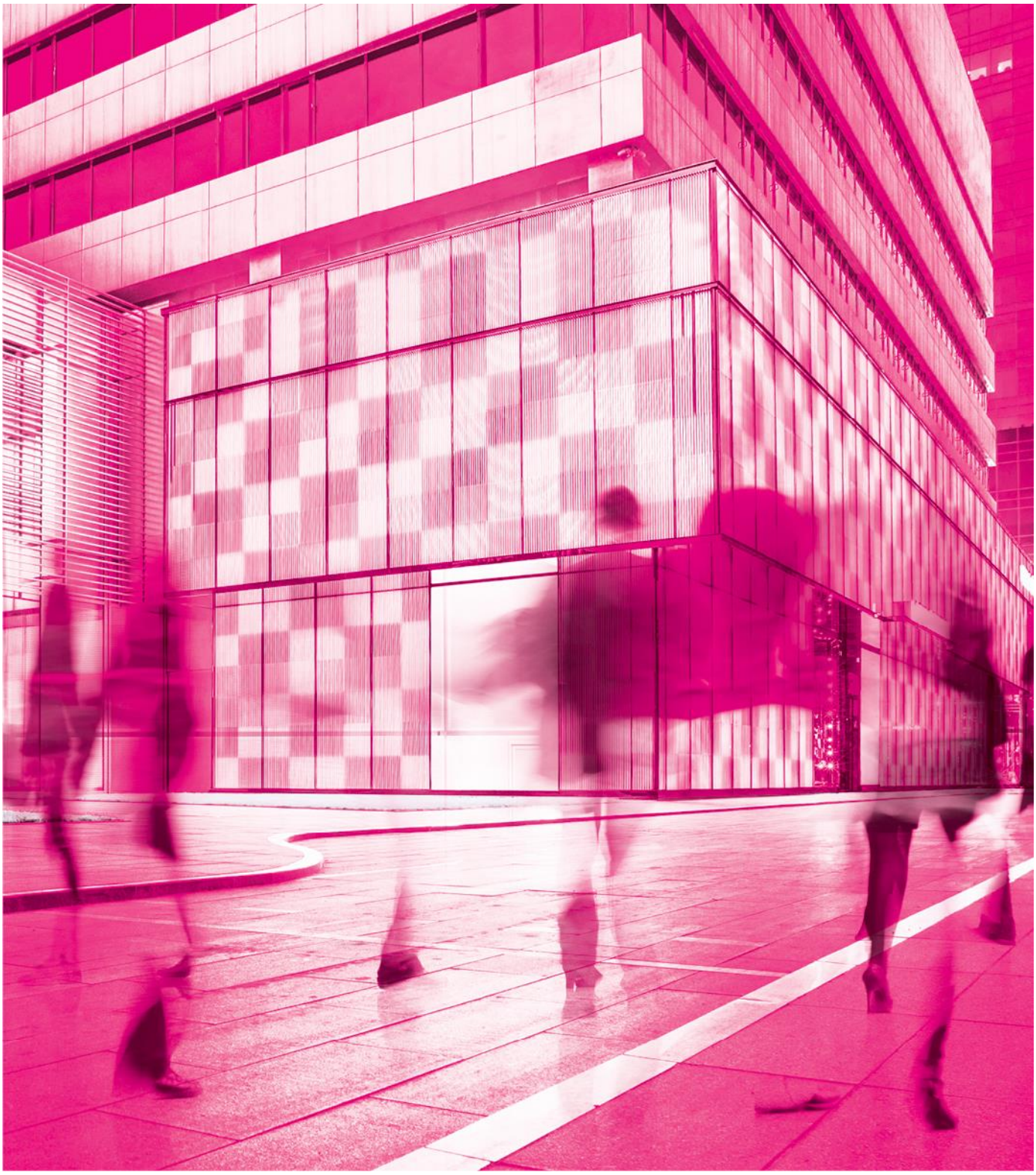

Traffic Impact Assessment;

11-13 Mannix Parade, Warwick Farm

For Taylor Construction Group

15 September 2020

parking;
traffic;
civil design;
wayfinding;

ptc.

Document Control

11-13 Mannix Parade, Warwick Farm, Traffic Impact Assessment

Issue	Date	Issue Details	Author	Reviewed	For the attention of
1	25/05/20	Draft Issue	JJ	AM	Alex King
2	01/06/20	Final Issue	JJ	AM	Cecile Tran
3	13/08/20	Final Issue (Revision)	JJ	AM	Cecile Tran
4	17/08/20	Final Issue (2nd Issue)	JJ	AM	Cecile Tran
5	15/09/20	Final Issue (3rd Issue)	JJ	AM	Cecile Tran

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Contents

1. Introduction

1.1 Project Summary

ptc. has been engaged by Taylor Construction Group to prepare a Traffic Impact Assessment (TIA) to accompany a Development Application (DA) to Liverpool City Council for the construction of a residential apartment building at 11-13 Mannix Parade, Warwick Farm.

The location of the subject site is outlined in Figure 1.

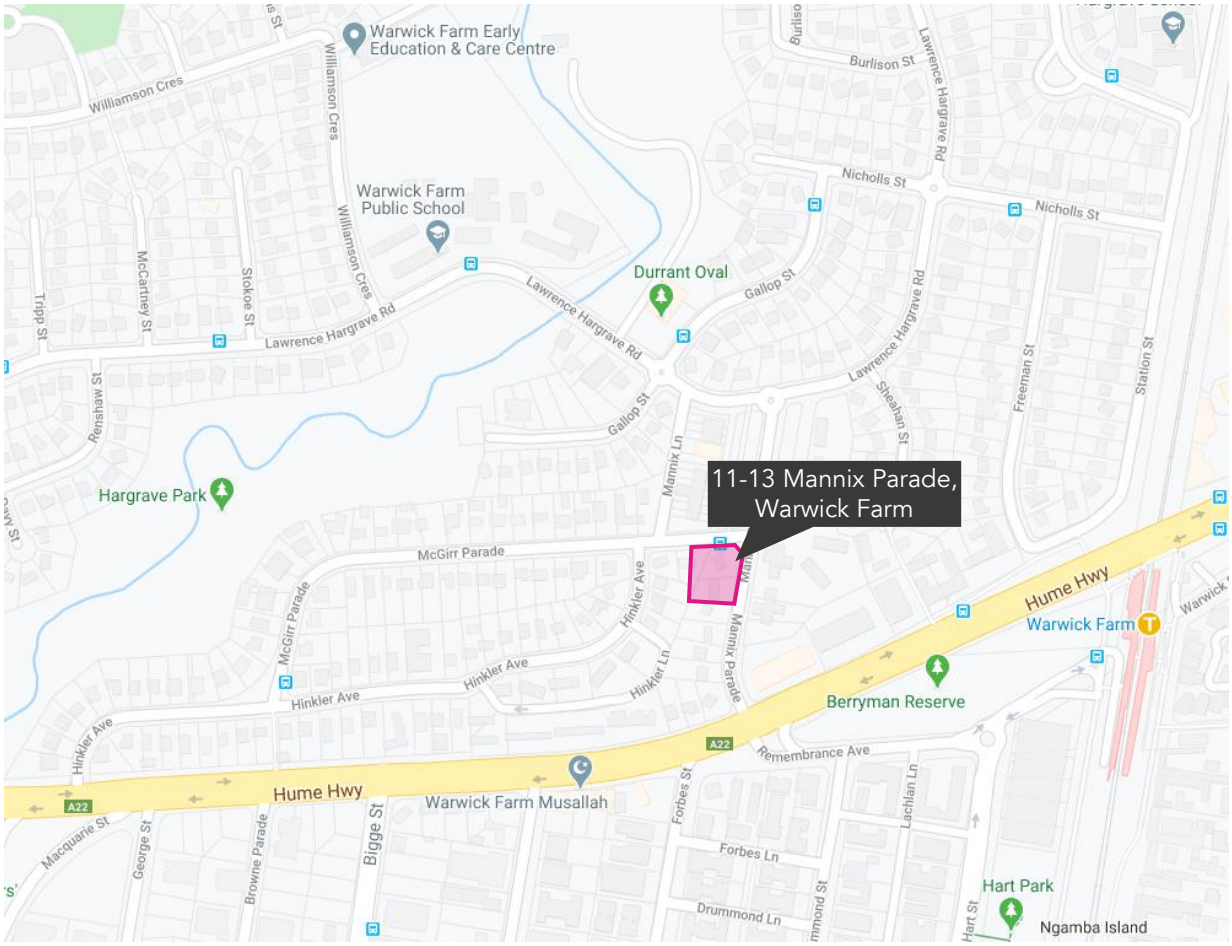

Figure 1 - Site Location

1.2 Purpose of this Report

This report presents the following considerations in relation to the Traffic and Parking assessment of the Proposal:

Section 2	A description of the project;
Section 3	A description of the road network serving the development property, and existing traffic volumes through key local intersections;
Section 4	Assessment of the proposed parking provision in the context of the relevant planning control requirements;
Section 5	Determination of the traffic activity associated with the development proposal, and the adequacy of the surrounding road network;
Section 6	Assessment of the proposed car park, vehicular access and internal circulation arrangements in relation to compliance with relevant standards, and Council policies; and
Section 7	Conclusion including comment on whether the proposed development will have an acceptable impact on the surrounding road network and whether the development provides adequate parking

2. Background Information

2.1 Site Location

The subject site has a listed street address of 11-13 Mannix Parade, Warwick Farm and comprises the following lots:

- Lot No. 26, DP 36641
- Lot No. 27, DP 36641

The site is located in Warwick Farm, which is approximately 26km west of the Sydney CBD.

The site is bordered by Mannix Parade to the east and McGirr Parade to the north, as shown in Figure 2.

Figure 2 - Aerial view of the subject site & surrounds (Source: Nearmap)

2.2 Surrounding Land Use

The subject site lies within a High Density Residential zone (R4) and is surrounded by the following key features:

- Mixed Use zone (B4);
- General Industrial zone (IN1);
- Low Density Residential zone (R2);
- Medium Density Residential zone (R3);
- Public Recreation zone (RE1); and
- Infrastructure zone (SP2).

Figure 3 - Local Land Use Map (Source: NSW Planning Viewer)

2.3 Current Site Use

The subject site is currently unoccupied with two existing single dwelling houses.

2.4 Development Proposal

The proposal involves the construction of residential units comprising the unit mix below:

Table 1 - Yield Schedule

Type	No. of Dwellings
1-bedroom	21
2-bedroom	22

The proposal involves the construction of a social housing unit for the Land and Housing Corporation and comprises a basement car park with seven levels of apartment.

The proposed layout of the development is shown in Figure 4.

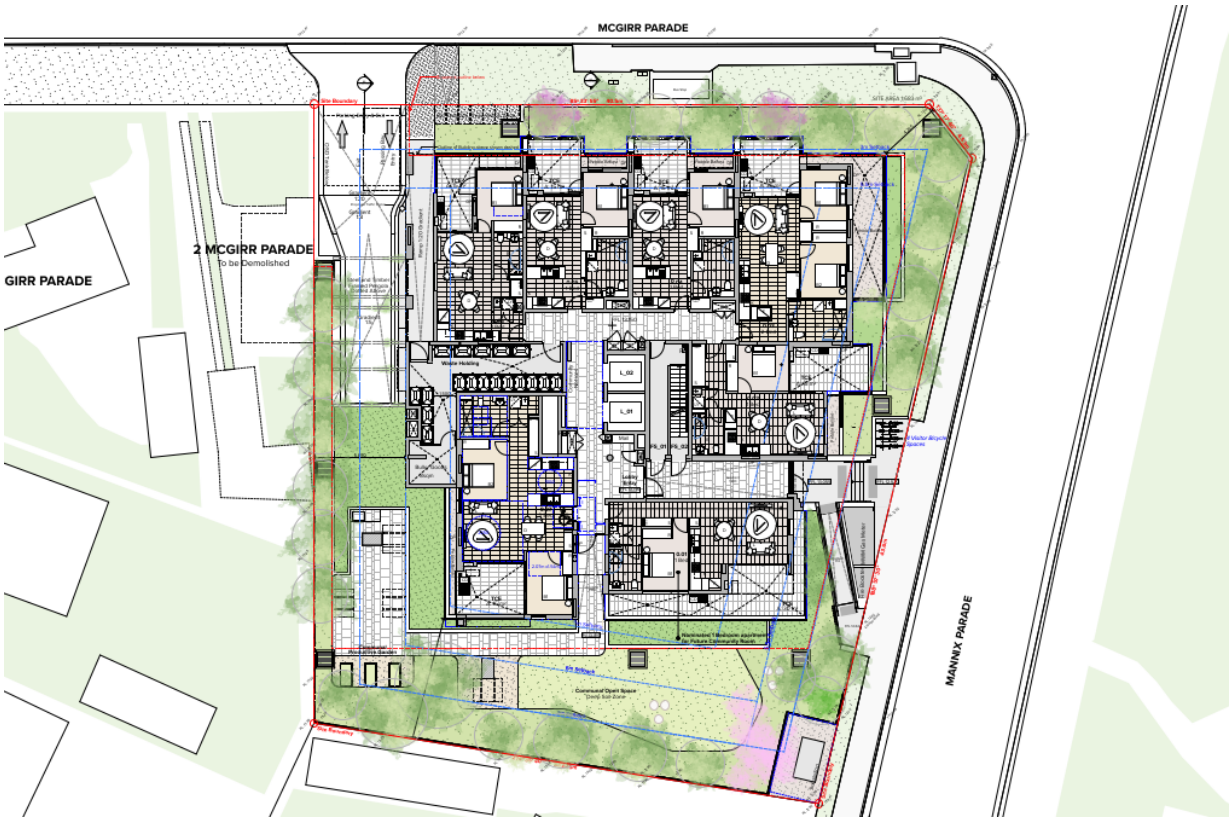

Figure 4 – Typical layout of the proposed development

3. Existing Transport Facilities

3.1 Road Hierarchy

Figure 5 - Road Hierarchy (Source: RMS Road Hierarchy Review)

The NSW administrative road hierarchy comprises the following road classifications:

- State Roads – Under the care and maintenance of Roads and Maritime Services
- Regional Roads – Under the care and maintenance of Council partially funded by the State
- Local Roads – Under the care and maintenance of Council

3.1.1 Existing Road Network

Table 2 - Existing Road Network - Mannix Parade

Mannix Parade	
Road Classification	Local Road
Alignment	North - South
Number of Lanes	1 lane in each direction along frontage of subject site
Carriageway Type	Undivided
Carriageway Width	9.5 metres
Speed Limit	50 kph
School Zone	No
Parking Controls	No Stopping on either side of the roadway along frontage of subject site
Forms Site Frontage	Yes

Figure 6 - Mannix Parade (Northbound)

Table 3 - Existing Road Network - McGirr Parade

McGirr Parade	
Road Classification	Local Road
Alignment	East - West
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	7.0 metres
Speed Limit	50 kph
School Zone	No
Parking Controls	No parking control
Forms Site Frontage	Yes

Figure 7 - McGirr Parade (Westbound)

Table 4 - Existing Road Network - Hinkler Avenue

Hinkler Avenue	
Road Classification	Local Road
Alignment	East - West
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	7.0 metres
Speed Limit	50 kph
School Zone	No
Parking Controls	No parking control
Forms Site Frontage	No

Figure 8 - Hinkler Avenue (Eastbound)

Table 5 - Existing Road Network - Hume Highway

Hume Highway	
Road Classification	State Road
Alignment	East - West
Number of Lanes	3 lanes in each direction in vicinity of subject site
Carriageway Type	Divided
Carriageway Width	21.0 metres
Speed Limit	70 kph
School Zone	No
Parking Controls	No Stopping on either side of the roadway
Forms Site Frontage	No

Figure 9 - Hume Highway (Westbound)

3.2 Public Transport

The locality has been assessed in the context of available forms of public transport that may be utilised by prospective staff and patrons. When defining accessibility, reference is made to the NSW Planning Guidelines for Walking and Cycling (2004) where a distance of 400-800m is recommended as a comfortable walkable catchment to access public transport and local amenities. The document also suggests a distance of 1500m as a suitable catchment for cycling.

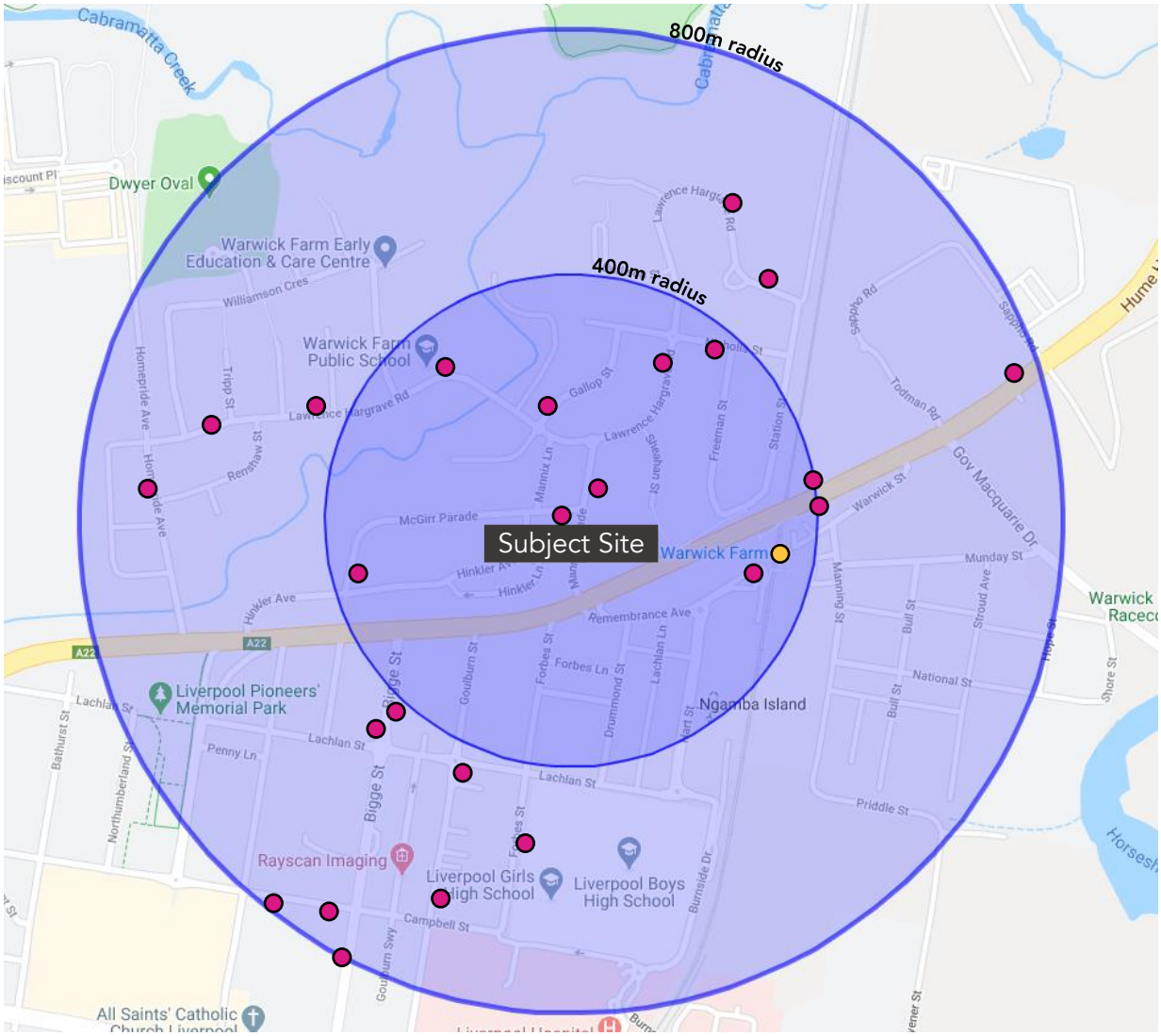

Figure 10 - Public transport accessibility (bus stops in pink, train stations in yellow)

3.2.1 Bus Services

The subject site is well serviced with multiple bus stops within a comfortable walking distance. A summary of the available bus routes is presented in Table 6which services the site.

Table 6 - Bus Route Summary

Bus Route	Coverage (to and from)	Service Frequency
823	Liverpool to Warwick Farm (Loop Service)	Mon-Fri: Every 30 min during peak, every 60 min outside peak Sat: Every 60 min Sun & Public Holidays: Every 60 min
851	Carnes Hill Marketplace to Liverpool via Cowpasture Road	Mon-Fri: Every 60 min Sat: Every 60 min Sun & Public Holidays: Every 60 min
853	Carnes Hill to Liverpool via Hoxton Park Road	Mon-Fri: Every 60 min Sat: Every 60 min Sun & Public Holidays: Every 60 min
854	Carnes Hill to Liverpool via Greenway Dr & Hoxton Park Road	Mon-Fri: Every 15 min during peak, every 60 min outside peak Sat: Every 60 min Sun & Public Holidays: Every 60 min
856	Bringelly to Liverpool	Mon-Fri: 4 services available Sat: 4 services available Sun & Public Holidays: 3 services available
857	Narellan to Liverpool	Mon-Fri: Every 60 min Sat: Every 3 hrs throughout the day, every 1 hr during evening Sun & Public Holidays: Every 3 hrs
865	Casula to Liverpool via Lurnea Shops	Mon-Fri: Every 30 min Sat: Every 60 min Sun & Public Holidays: Every 2 hrs
866	Casula to Liverpool	Mon-Fri: Every 15 min during peak, every 30 min outside peak Sat: Every 60 min Sun & Public Holidays: Every 2 hrs
901	Holsworthy to Liverpool via Wattle Grove	Mon-Fri: Every 30 min during peak, every 60 min outside peak Sat: Every 60 min Sun & Public Holidays: Every 60 min
902	Holsworthy to Liverpool via Moorebank	Mon-Fri: Every 30 min during peak, every 60 min outside peak Sat: Every 60 min Sun & Public Holidays: Every 60 min
902X	Sandy Point to Holsworthy via Voyager Point	Mon-Fri: 1 service available in morning peak Sat: No service available Sun & Public Holidays: No service available
903	Liverpool to Chipping Norton (Loop Service)	Mon-Fri: Every 30 min during peak, every 60 min outside peak Sat: Every 60 min Sun & Public Holidays: Every 2 hrs
904	Liverpool to Fairfield	Mon-Fri: Every 30 min during peak, every 60 min outside peak Sat: Every 60 min Sun & Public Holidays: Every 2 hrs

Bus Route	Coverage (to and from)	Service Frequency
M90	**Burwood to Liverpool**	**Mon-Fri: Every 10-15 min** **Sat: Every 20 min** **Sun & Public Holidays: Every 20 min**
N50	**Liverpool to City Town Hall**	**Mon-Fri: 5 late night services only** **Sat: Every 5 late night services only** **Sun & Public Holidays: 5 late night services only**

3.2.2 Train Services

Warwick Farm Station lies approximately 350m from the proposed development, which lies within the comfortable walking distance.

The Station serves the T2 Inner West & Leppington Line, T3 Bankstown Line and T5 Cumberland Line. The T2 Line provides frequent services with services being provided every 5-15 minutes. The T3 and T5 Lines provide services every 30 minutes during weekdays and weekends.

Figure 11 - Sydney Rail Network Map (Source: TfNSW)

3.3 Active Transport

The subject site is provided with limited cycling infrastructure as illustrated in Figure 12. However, the site is well serviced in terms of pedestrian amenities with signalised pedestrian crossings available at major intersections and footpaths and kerb ramps provided on either side of the roadway in the vicinity of the subject site.

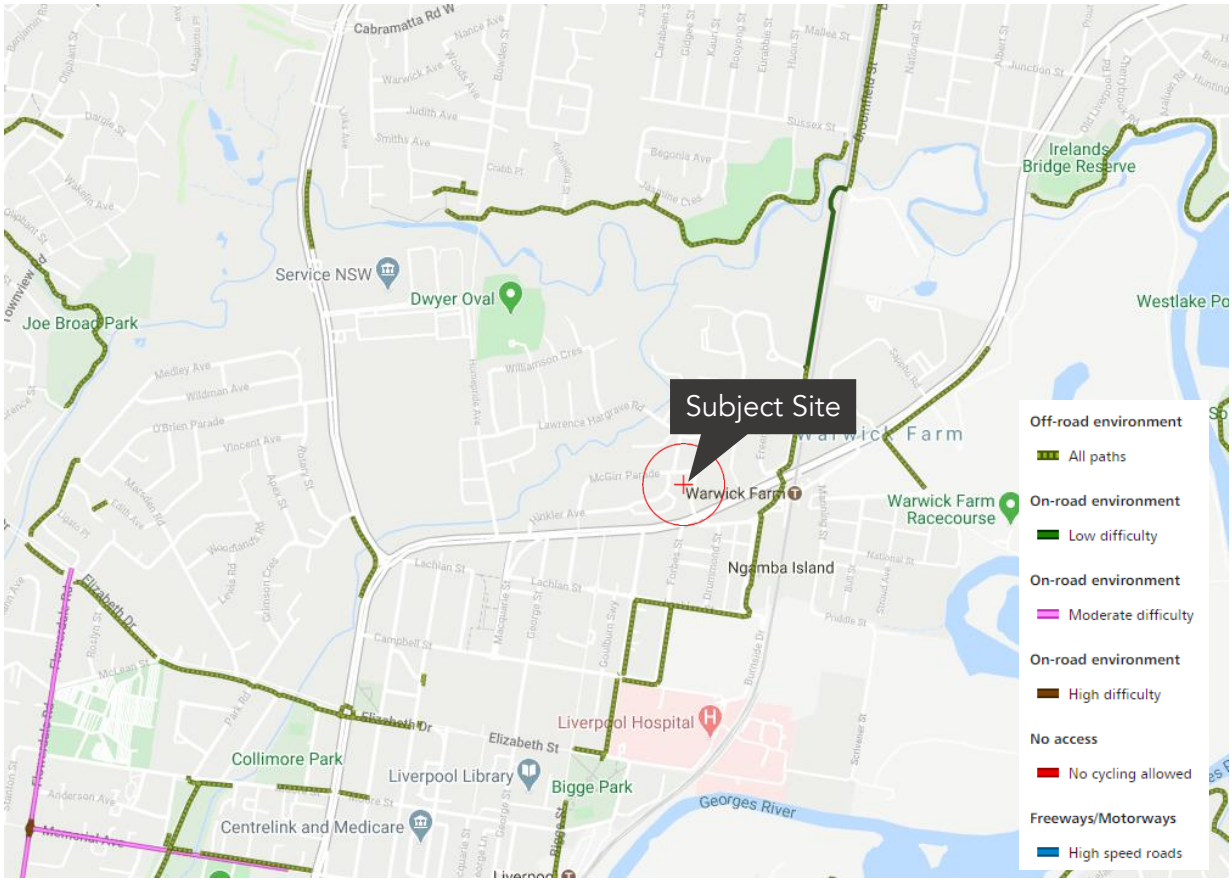

Figure 12 - Cycling Network (Source: RMS Cycleway Finder)

4. Parking Assessment

4.1 Planning Policy

The proposed development is subject to the parking provision rates stipulated in the following planning documents:

- Liverpool Development Control Plan 2008
- RMS Guide to Traffic Generating Developments 2002 (RMS Guide)
- State Environmental Planning Policy (Affordable Rental Housing) 2009 (SEPP)
- Australian Standard AS4299:1995 *Adaptable Housing*

4.2 Proposed Parking Provision

4.2.1 Car Parking Provision

The proposed development will comprise the following unit mix:

- 21 1-bedroom units; and
- 22 2-bedroom units.

The parking provision requirement has been calculated in accordance with the rates stipulated in the SEPP. The proposed car parking provision and the requirements are stipulated in Table 7.

Table 7 - Car Parking Provision

Component	No. of Dwelling	Parking Rate	Parking Provision Requirement (min)	Proposed Parking Provision
1-bedroom	21	0.4 space / dwelling	9 (8.4)	
2-bedroom	22	0.5 space / dwelling	11	
		Total	**20 (19.4)**	**20**

The above car parking provision was calculated using the parking rates for a "Residential development – Land and Housing Corporation" stipulated in the SEPP.

4.2.2 Accessible Car Parking Provision

The DCP rate stipulates that 1 accessible parking space is to be provided per 100 car parking spaces. However, AS4299:1995 requires that each adaptable dwelling should be provided with 1 parking space. In that regard, the provision of accessible spaces has been calculated on the basis that there will be 5 adaptable dwellings in the development. Therefore, 5 spaces are proposed that can be converted to accessible spaces as required.

4.2.3 Bicycle Parking Provision

The bicycle parking rates stipulated in the Council DCP has been used to calculate the bicycle parking requirement. The requirements are summarised in Table 8.

Table 8 - Bicycle Parking Provision

No. of Units	Parking Rate	Parking Provision Requirement (min)	Proposed Parking Provision
Resident			
43	1 space / 2 units	22 (21.5)	22
Visitor			
43	1 space / 10 units	4 (4.3)	4

5. Traffic Impact Assessment

The potential traffic generation associated with the proposed development has been estimated with reference to the following documents:

- RMS Guide to Traffic Generating Developments 2002 (RMS Guide)
- RMS Technical Direction 2013/04 (TDT)

The technical direction contains the most recent RMS survey data for high density residential developments.

5.1 Existing Traffic Volumes

An intersection survey was undertaken on Tuesday, 17th March 2020 between 7:00am-9:00am and 2:00pm-4:00pm at the following intersections:

- Hume Highway / Mannix Parade / Remembrance Avenue;
- Hinkler Avenue / Hume Highway; and
- Mannix Parade / McGirr Parade.

The locations of the intersections are shown in Figure 13.

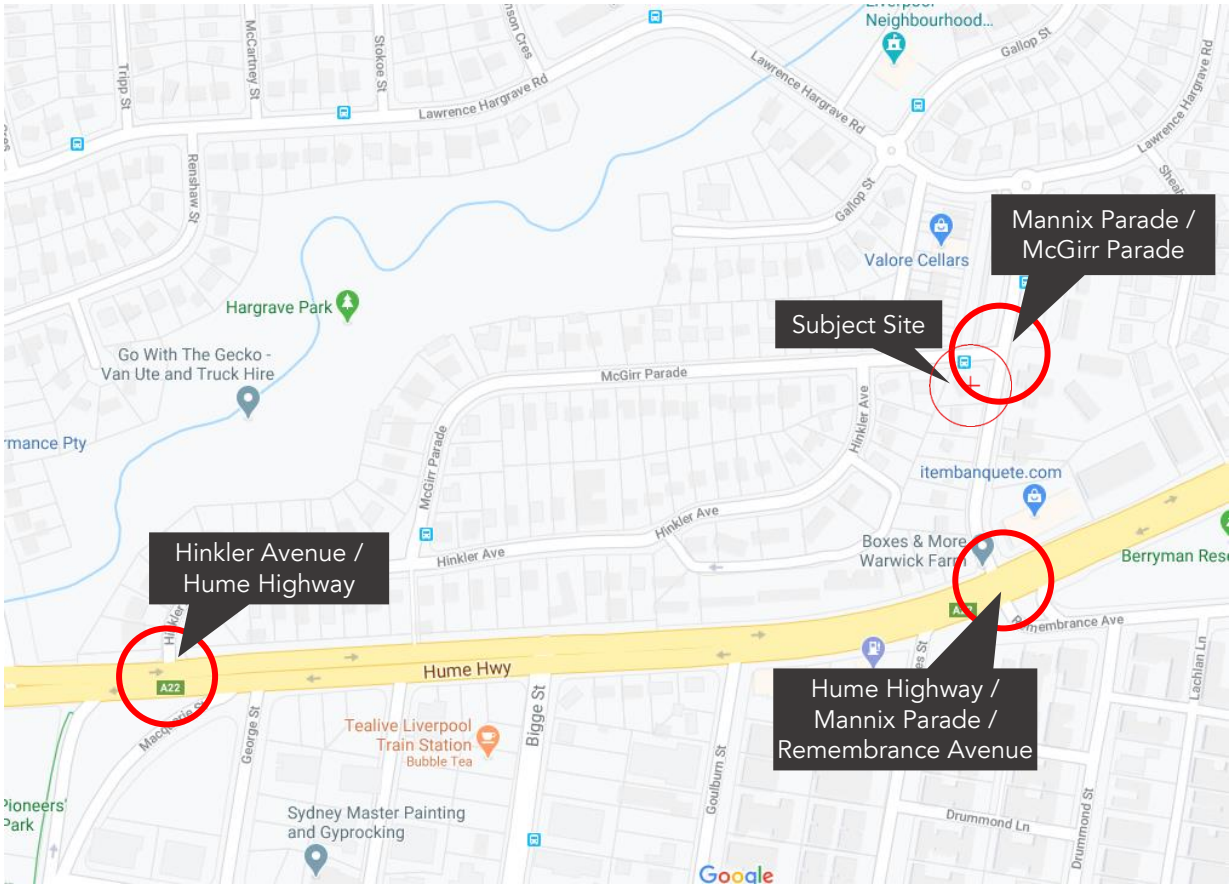

Figure 13 - Locations of Intersection Survey

The morning and afternoon peak periods for the local road network has been determined as follows:

- Morning Peak 7:15am – 8:15am; and
- Afternoon Peak 4:15pm – 5:15pm.

It is noted that the existing structures within the subject site are currently unoccupied and does not generate any traffic.

5.2 Development Traffic Generation

The rates from the TDT were adopted to estimate the potential traffic generated by the proposed development. The rates for a typical high density residential development have been summarised below[1]:

- AM Peak 0.19 trips per unit; and
- PM Peak 0.15 trips per unit.

The above-mentioned generation rates have been used to calculate the potential traffic generation post development. The potential trip generations are summarised below:

Table 9 - Development Trip Generationn

Component	Period	Vehicle Trip Rate	No. of Dwellings	Additional Trip Generation
High Density Residential	AM Peak	0.19 trips per unit	43	9 (8.17)
	PM Peak	0.15 trips per unit	43	7 (6.45)

The following assumptions were used to distribute the additional trips generated by the proposed development:

- Morning Peak Period: 20% inbound, 80% outbound;
- Afternoon Peak Period: 80% inbound, 20% outbound;
- It was assumed that the majority of the existing trips surveyed on McGirr Parade are residential trips, therefore, the trips entering and exiting from McGirr Parade were assumed to be an adequate representation of the directional trip distribution for a residential development. Therefore, the directional direction of the generated traffic has been assumed to be the same as the existing traffic distribution of the nearby residential dwellings on McGirr Parade for this study.

[1] TDT 2013/04 rate for Sydney average has been adopted.

5.3 SIDRA Analysis

- Degree of Saturation – The total usage of the intersection expressed as a factor of 1 with 1 representing 100% use/saturation. (e.g. 0.8=80% saturation)
- Average Delay – The average delay encountered by all vehicles passing through the intersection. It is often important to review the average delay of each approach as a side road could have a long delay time, while the large free flowing major traffic will provide an overall low average delay.
- 95% Queue Lengths (Q95) – is defined to be the queue length in metres that has only a 5-percent probability of being exceeded during the analysis time period. It transforms the average delay into measurable distance units.
- Level of Service (LoS) – This is a categorization of average delay, intended for simple reference. It is a good indicator of overall performance for individual intersections. The RMS adopts the following bands:

Table 10 - Intersection Performance - Levels of Service

Level of Service	Average Delay (secs/vehicle)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	<14	Good operation	
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity. At signals, incidents would cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	>70	Extra capacity required	Extreme delay, major treatment required

The summary of the existing and post development performance of the local road network is summarised in Table 11.

Table 11 - Summary of Existing and Post Development Intersection Performance

Intersection	Time	Period	Level of Service	Degree of Saturation (v/c)	Average Delay (s)	95% Queue Length (m)
Hinkler Avenue / Hume Highway	AM Peak	Existing	C	0.694	23.2	0.2
		Development	C	0.694	23.2	0.2
	PM Peak	Existing	A	0.414	8.2	0.0
		Development	A	0.414	8.2	0.0
Hume Highway / Mannix Parade / Remembrance Avenue	AM Peak	Existing	C	0.894	22.7	226.3
		Development	C	0.894	22.7	226.3
	PM Peak	Existing	C	0.889	20.6	255.5
		Development	C	0.889	20.7	256.1
Mannix Parade / McGirr Parade	AM Peak	Existing	A	0.058	5.2	0.4
		Development	A	0.058	5.2	0.5
	PM Peak	Existing	A	0.056	5.2	0.6
		Development	A	0.057	5.2	0.6

The SIDRA analysis indicates that the intersections are operating at an acceptable capacity with minor delays experienced. The results show that the proposed development has minor impact on the performance of the intersections as all performance indicators for each intersection increased marginally.

6. Access and Car Park Assessment

The following section presents an assessment of the proposed development with reference to the requirements of AS2890.1:2004 (Off-street Car Parking), AS2890.3:2015 (Bicycle Parking), AS2890.6:2009 (Off-street Parking for People with Disabilities) and AS4299:1995 (Adaptable Housing). This section is to be read in conjunction with the following architectural plans provided by Turner (see Attachment 2) and the car park assessment undertaken by ptc. (see Attachment 3):

- GA Plans Ground Level (Drawing No. A-110-008, Project No. 19010, Revision K dated 31 July 2020)
- GA Plans Basement 1 (Drawing No. A-110-007, Project No. 19010, Revision K dated 31 July 2020)
- GA Sections Section BB (Drawing No. A-350-020, Project No. 19010, Revision K dated 31 July 2020)

6.1 Vehicular Access

The proposed access driveway has been assessed in accordance with Table 3.1 and 3.2 of AS2890.1. The proposed car park facility represents a typical Class 1A facility for 'residential, domestic and employee parking' and the proposed car park is to accommodate 20 car parking spaces. The proposed access is to be provided on McGirr Parade which is classified as a local road.

Therefore, taking the above factors into consideration, AS2890.1 indicates that the proposed development needs to provide a Category 1 access driveway. The proposal involves the provision of approximately 5.1m wide access driveway which is within the 3.0m-5.5m range provided in AS2890.1.

The proposed access ramp has been assessed in relation to its width and relevant grades. The maximum grade for the proposed ramp is to be 1 in 5. A vertical clearance assessment has been undertaken for the inside edge of the curved ramp using a typical B99 vehicle which indicates that no underbody scraping occurs. The proposed access ramp is to maintain a minimum 2.2m height clearance (additional clearance may be required at crests/sags along the ramp subject to further assessment in the detailed design stage).

A swept path assessment has been undertaken using a B99 vehicle which indicates that the proposed ramp cannot accommodate two-way traffic flow. The proposal involves the provision of an appropriate traffic management system consisting of traffic signals, signage and waiting bays on the basement and ground levels to effectively manage the ingress/egress of vehicles. The assessment indicates that a B99 vehicle is able to use the proposed ramp to gain access to and from the proposed basement car park.

It is noted that cyclists are required to use the access ramp to gain access to the bicycle storage facility in the basement level. The cyclists will also adhere to the traffic management system which will reduce the interaction between cyclist and vehicular movements, minimising potential safety hazards for all users of the car park.

6.2 Sight Distance

The sight distance requirements are outlined in Section 3.2 of AS2890.1 and are prescribed on the basis of the post speed limit of 85th percentile vehicle speeds along the frontage road.

McGirr Parade has a posted speed limit of 50km/h, which requires a desirable visibility distance of 69 metres and a minimum stopping sight distance of 45 metres. The proposed driveway is located on a straight/flat section of the road where sufficient sight distance is provided.

The proposed car park also allows for all vehicles to enter and exit in a forward direction, therefore minimising potential conflict points and maintaining the overall safety of the road network.

6.3 Car Park Arrangement

6.3.1 Typical Requirements

The car parking arrangements have been assessed against the requirements of AS2890.1:2004, with reference to Class 1A (residential/employee) facilities:

Class 1A (residential/employee) facilities:

- Car Spaces: 2.4m x 5.4m
- Aisle Width: 5.8m (double-sided aisles)
- Aisle Width: 6.1m (single-sided aisles)

All parking spaces have been individually assessed and found to be compliant with the minimum requirements of AS2890.1. All spaces are to meet the clearance requirements (door opening, entry flanges, column locations) of the parking space envelope requirements provided in Figure 5.2 of AS2890.1. The aisles servicing the 90 degree parking spaces have been measured to be a minimum 6.1m in width which complies with the minimum requirement of AS2890.1.

Parallel Parking

- Car Spaces: 2.1m x 6.3m
- Car Spaces: 2.1m x 6.6m (obstructed end spaces)
- Aisle Width: 3.0m

The parallel parking spaces have been individually assessed and found to be compliant with the minimum requirements of AS2890.1. The parallel parking spaces have been provided with a 300mm clearance from obstructions higher than 150mm. The proposed aisle servicing the parallel parking spaces has been measured to be 3.0m which complies with the minimum requirement of AS2890.1.

6.3.2 Accessible & Adaptable Parking

All accessible parking spaces have been individually assessed against the requirements of AS2890.6 and AS4299 for adaptable parking. The parking spaces are to be designed based on the following dimensions:

- Accessible Spaces: 2.4m x 5.4m
- Adjacent Shared Bay: 2.4m x 5.4m
- Adaptable Spaces: 3.8m x 5.4m

All accessible spaces, shared bays and adaptable spaces have been individually assessed and found to be compliant with the minimum requirements of AS2890.6 and AS4299, with relevant pavement markings and bollards. A minimum height clearance of 2.5m is to be maintained above all the spaces mentioned above.

6.3.3 Headroom Clearance

The following are the requirements stipulated in the Australian Standards:

- Minimum 2.2m above all general spaces;
- Minimum 2.5m above all accessible spaces and adjacent shared bays;

The proposed car park is to provide the minimum height clearance as per the requirements stipulated in the Australian Standards.

6.3.4 Bicycle Parking

Approved bicycle parking devices (BPD's) shall be installed as per the following requirements of AS2890.3:2015:

- Multi-Tier Bicycle Parking: 1800mm x 500mm
- Access Aisle: 2000mm

The AS2890.3 does not provide a minimum requirement in terms of headroom clearance for multi-tier bicycle parking devices. Therefore, reference has been made to various multi-tier bicycle parking devices in order to determine the appropriate headroom clearance required to ensure the safe use of these parking devices. The specifications indicate that a headroom clearance of 2.7m is sufficient to install and use the parking devices, hence a minimum 2.7m headroom clearance has been provided within the proposed bicycle storage area.

6.3.5 Service Vehicle Parking

The following are comments raised by Council in the pre-lodgement advice in relation to service vehicle parking provision:

" *The application must demonstrate that access, car parking and manoeuvring details comply with AS2890 Parts 1,2 & 6 and Council's Development Control Plan."*

"The proposed development shall be designed to be serviced by a Medium Rigid Vehicle."

"Calculations that show that the waste truck (2.8 metres wide including mirrors) and another vehicle parked on the opposite side of the road will still allow for the safe passage of a standard vehicle between the two."

A swept path assessment has been undertaken using a typical Medium Rigid Vehicle (MRV) to assess the manoeuvrability of the heavy vehicle within the proposed basement level of the development. The assessment indicates that substantive number of car parking spaces will have to be removed to allow a MRV to manoeuvre within the basement floor to allow forward entry and exit to and from the public roadway.

The access ramp grade requirement has also been assessed in accordance with AS2890.2 which indicates that a 31.9m long access ramp needs to be provided. It is noted that the vertical wall-to-wall distance for the proposed development is approximately 33.4m. Therefore, due to site limitations, it is proposed that parking for the MRV be provided on-street. A swept path assessment has been undertaken to demonstrate

that traffic flow along McGirr Parade can be maintained whilst the MRV is parked on-street with cars parked directly opposite the heavy vehicle.

A swept path assessment has also been undertaken along McGirr Parade using a typical Council waste collection vehicle with 2.8m width which indicates that the heavy vehicle is able to park on-street and still allow safe passage of a typical B99 vehicle.

The plans indicate the location of the existing bus stop and the proposed location where the Council waste collection vehicle will park. The proposed location ensures that the existing bus stop location is not impeded by the presence of the waste collection vehicle.

It is also noted that the bus route currently using the bus stop is 823. The bus route timetable indicates that currently, the first service that arrives at the McGirr Parade bus stop is approximately 9:20am whilst waste collection is expected to occur at 5am. Hence, it is envisaged that no buses will require access to the existing bus stop whilst waste collection occurs. The proposed location of the 12.5 metres of kerbside needed for the parking of the waste truck and the rotation and emptying of waste bins has been indicated on the plans.

7. Conclusion

ptc. has been engaged by Taylor Construction Group to prepare a Traffic Impact Assessment (TIA) to accompany a Development Application (DA) to Liverpool City Council for the construction of a residential apartment building at 11-13 Mannix Parade, Warwick Farm.

A review of the potential traffic generation of the proposed development has revealed that the proposal will lead to a net increase in peak hour traffic generation of 9 and 7 vehicular trips in the AM and PM peaks respectively. The SIDRA results indicate that the proposed development will not cause a noticeable impact on the performance of the existing road network.

The proposed development will provide a total of 20 car parking spaces (inclusive of 5 accessible spaces) and 26 bicycle parking spaces (inclusive of 4 visitor bicycle spaces). The waste collection is proposed to be conducted on-street.

A preliminary design review of the car parking facility has been undertaken with reference to AS2890.1:2004, AS2890.2:2018, AS2890.3:2015, AS2890.6:2009 and AS4299:1995. The review of the car park found the proposal to comply and meet the intent of the relevant standards.

In light of the above, the proposed development is endorsed in the context of parking and traffic.

Attachment 1 SIDRA Results

MOVEMENT SUMMARY

Site: 101 [Existing AM - Hume Highway / Mannix Parade / Remembrance Avenue]

Network: N101 [Existing AM]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Remembrance Avenue														
1	L2	57	5.6	57	5.6	0.266	45.2	LOS D	2.1	15.2	0.92	0.74	0.92	33.3
2	T1	21	0.0	21	0.0	0.266	40.6	LOS D	2.1	15.2	0.92	0.74	0.92	23.0
3	R2	84	0.0	84	0.0	0.171	44.7	LOS D	1.1	7.8	0.90	0.73	0.90	33.5
Approach		162	1.9	162	1.9	0.266	44.3	LOS D	2.1	15.2	0.91	0.74	0.91	32.4
East: Hume Highway East														
4	L2	138	0.0	138	0.0	0.150	16.6	LOS B	1.8	12.8	0.54	0.71	0.54	46.4
5	T1	1291	4.5	1291	4.5	0.315	5.4	LOS A	4.6	33.2	0.39	0.34	0.39	63.6
6	R2	46	2.3	46	2.3	0.240	42.4	LOS D	1.2	8.9	0.90	0.77	0.90	26.9
Approach		1475	4.0	1475	4.0	0.315	7.6	LOS A	4.6	33.2	0.42	0.39	0.42	60.2
North: Mannix Parade														
7	L2	65	0.0	65	0.0	0.207	39.2	LOS D	2.1	14.4	0.86	0.73	0.86	30.3
8	T1	18	0.0	18	0.0	0.207	34.7	LOS C	2.1	14.4	0.86	0.73	0.86	27.6
9	R2	43	7.3	43	7.3	0.225	48.4	LOS D	1.2	9.0	0.93	0.74	0.93	26.6
Approach		126	2.5	126	2.5	0.225	41.7	LOS D	2.1	14.4	0.88	0.73	0.88	28.5
West: Hume Highway West														
10	L2	29	0.0	29	0.0	0.894	35.0	LOS D	31.1	226.0	0.94	0.97	1.06	34.2
11	T1	2004	4.4	2004	4.4	0.894	28.7	LOS C	31.2	226.3	0.94	0.97	1.06	45.5
12	R2	183	1.1	183	1.1	0.801	44.0	LOS D	6.0	42.5	0.88	0.97	1.18	34.7
Approach		2217	4.1	2217	4.1	0.894	30.0	LOS C	31.2	226.3	0.93	0.97	1.07	44.2
All Vehicles		3980	3.9	3980	3.9	0.894	22.7	LOS C	31.2	226.3	0.74	0.74	0.82	47.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		158	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Existing AM - Hinkler Avenue / Hume Highway]

Network: N101 [Existing AM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
North: Hinkler Avenue														
7	L2	3	33.3	3	33.3	0.015	23.2	LOS C	0.0	0.2	0.85	0.88	0.85	30.9
Approach		3	33.3	3	33.3	0.015	23.2	LOS C	0.0	0.2	0.85	0.88	0.85	30.9
West: Hume Highway West														
10	L2	42	5.0	42	5.0	0.023	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	58.3
11	T1	2646	3.5	2646	3.5	0.694	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	69.5
Approach		2688	3.5	2688	3.5	0.694	0.3	NA	0.0	0.0	0.00	0.01	0.00	69.1
All Vehicles		2692	3.5	2692	3.5	0.694	0.3	NA	0.0	0.2	0.00	0.01	0.00	69.0

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

MOVEMENT SUMMARY

Site: 101 [Existing AM - Mannix Parade / McGirr Parade]

Network: N101 [Existing AM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mannix Parade South														
1	L2	23	4.5	23	4.5	0.045	4.6	LOS A	0.0	0.0	0.00	0.15	0.00	47.9
2	T1	63	0.0	63	0.0	0.045	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	48.8
Approach		86	1.2	86	1.2	0.045	1.2	NA	0.0	0.0	0.00	0.15	0.00	48.5
North: Mannix Parade North														
8	T1	111	2.9	111	2.9	0.058	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
9	R2	1	0.0	1	0.0	0.058	4.8	LOS A	0.0	0.0	0.00	0.01	0.00	49.0
Approach		112	2.8	112	2.8	0.058	0.0	NA	0.0	0.0	0.00	0.01	0.00	49.9
West: McGirr Parade														
10	L2	31	0.0	31	0.0	0.033	4.7	LOS A	0.1	0.4	0.14	0.51	0.14	46.3
12	R2	15	0.0	15	0.0	0.033	5.2	LOS A	0.1	0.4	0.14	0.51	0.14	43.9
Approach		45	0.0	45	0.0	0.033	4.9	LOS A	0.1	0.4	0.14	0.51	0.14	45.8
All Vehicles		243	1.7	243	1.7	0.058	1.4	NA	0.1	0.4	0.03	0.15	0.03	48.3

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

MOVEMENT SUMMARY

Site: 101 [Existing PM - Hume Highway / Mannix Parade / Remembrance Avenue]

Network: N101 [Existing PM]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Remembrance Avenue														
1	L2	155	0.0	155	0.0	0.638	57.6	LOS E	6.2	43.4	0.99	0.82	1.00	30.2
2	T1	24	0.0	24	0.0	0.638	53.0	LOS D	6.2	43.4	0.99	0.82	1.00	19.8
3	R2	187	0.0	187	0.0	0.411	55.8	LOS E	3.1	22.0	0.95	0.78	0.95	30.4
Approach		366	0.0	366	0.0	0.638	56.4	LOS E	6.2	43.4	0.97	0.80	0.97	29.8
East: Hume Highway East														
4	L2	72	1.5	72	1.5	0.059	10.3	LOS B	0.6	4.3	0.31	0.65	0.31	50.4
5	T1	2042	3.1	2042	3.1	0.535	6.2	LOS A	11.2	80.7	0.43	0.39	0.43	62.7
6	R2	62	0.0	62	0.0	0.382	52.0	LOS D	2.2	15.2	0.96	0.81	0.96	23.6
Approach		2176	3.0	2176	3.0	0.535	7.7	LOS A	11.2	80.7	0.44	0.41	0.44	60.7
North: Mannix Parade														
7	L2	56	0.0	56	0.0	0.196	47.8	LOS D	2.2	15.1	0.87	0.73	0.87	27.3
8	T1	16	0.0	16	0.0	0.196	43.3	LOS D	2.2	15.1	0.87	0.73	0.87	25.0
9	R2	85	2.5	85	2.5	0.807	72.4	LOS E	3.4	24.2	1.00	0.92	1.32	21.3
Approach		157	1.3	157	1.3	0.807	60.8	LOS E	3.4	24.2	0.94	0.84	1.12	23.5
West: Hume Highway West														
10	L2	48	2.2	48	2.2	0.889	30.6	LOS C	35.8	255.2	0.90	0.89	0.96	37.1
11	T1	2172	2.1	2172	2.1	0.889	24.2	LOS C	35.9	255.5	0.90	0.89	0.96	48.1
12	R2	57	0.0	57	0.0	0.538	32.2	LOS C	1.6	11.1	0.73	0.79	0.76	39.0
Approach		2277	2.0	2277	2.0	0.889	24.5	LOS C	35.9	255.5	0.90	0.89	0.95	47.6
All Vehicles		4976	2.3	4976	2.3	0.889	20.6	LOS C	35.9	255.5	0.70	0.67	0.73	49.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		158	54.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Existing PM - Mannix Parade / McGirr Parade]

Network: N101 [Existing PM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mannix Parade South														
1	L2	16	0.0	16	0.0	0.050	4.6	LOS A	0.0	0.0	0.00	0.09	0.00	48.5
2	T1	80	0.0	80	0.0	0.050	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	49.2
Approach		96	0.0	96	0.0	0.050	0.8	NA	0.0	0.0	0.00	0.09	0.00	49.1
North: Mannix Parade North														
8	T1	95	2.2	95	2.2	0.050	0.0	LOS A	0.0	0.0	0.01	0.01	0.01	49.9
9	R2	1	0.0	1	0.0	0.050	4.9	LOS A	0.0	0.0	0.01	0.01	0.01	49.0
Approach		96	2.2	96	2.2	0.050	0.1	NA	0.0	0.0	0.01	0.01	0.01	49.9
West: McGirr Parade														
10	L2	4	0.0	4	0.0	0.056	4.8	LOS A	0.1	0.6	0.22	0.55	0.22	46.1
12	R2	60	0.0	60	0.0	0.056	5.2	LOS A	0.1	0.6	0.22	0.55	0.22	43.6
Approach		64	0.0	64	0.0	0.056	5.1	LOS A	0.1	0.6	0.22	0.55	0.22	43.9
All Vehicles		256	0.8	256	0.8	0.056	1.6	NA	0.1	0.6	0.06	0.17	0.06	48.0

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

MOVEMENT SUMMARY

Site: 101 [Existing PM - Hinkler Avenue / Hume Highway]

Network: N101 [Existing PM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
North: Hinkler Avenue														
7	L2	2	0.0	2	0.0	0.003	8.2	LOS A	0.0	0.0	0.59	0.59	0.59	40.9
Approach		2	0.0	2	0.0	0.003	8.2	LOS A	0.0	0.0	0.59	0.59	0.59	40.9
West: Hume Highway West														
10	L2	35	0.0	35	0.0	0.019	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	59.7
11	T1	1585	2.7	1585	2.7	0.414	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	69.8
Approach		1620	2.7	1620	2.7	0.414	0.2	NA	0.0	0.0	0.00	0.01	0.00	69.4
All Vehicles		1622	2.7	1622	2.7	0.414	0.2	NA	0.0	0.0	0.00	0.01	0.00	69.3

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

MOVEMENT SUMMARY

Site: 101 [Development AM - Hume Highway / Mannix Parade / Remembrance Avenue]

Network: N101 [Development AM]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Remembrance Avenue														
1	L2	57	5.6	57	5.6	0.266	45.2	LOS D	2.1	15.2	0.92	0.74	0.92	33.3
2	T1	21	0.0	21	0.0	0.266	40.6	LOS D	2.1	15.2	0.92	0.74	0.92	23.0
3	R2	84	0.0	84	0.0	0.171	44.7	LOS D	1.1	7.8	0.90	0.73	0.90	33.5
Approach		162	1.9	162	1.9	0.266	44.3	LOS D	2.1	15.2	0.91	0.74	0.91	32.4
East: Hume Highway East														
4	L2	138	0.0	138	0.0	0.150	16.6	LOS B	1.8	12.8	0.54	0.71	0.54	46.4
5	T1	1291	4.5	1291	4.5	0.315	5.4	LOS A	4.6	33.2	0.39	0.34	0.39	63.6
6	R2	46	2.3	46	2.3	0.240	42.4	LOS D	1.2	8.9	0.90	0.77	0.90	26.9
Approach		1475	4.0	1475	4.0	0.315	7.6	LOS A	4.6	33.2	0.42	0.39	0.42	60.2
North: Mannix Parade														
7	L2	66	0.0	66	0.0	0.209	39.2	LOS D	2.1	14.6	0.86	0.73	0.86	30.3
8	T1	18	0.0	18	0.0	0.209	34.7	LOS C	2.1	14.6	0.86	0.73	0.86	27.6
9	R2	44	7.1	44	7.1	0.230	48.4	LOS D	1.2	9.2	0.93	0.74	0.93	26.6
Approach		128	2.5	128	2.5	0.230	41.8	LOS D	2.1	14.6	0.88	0.73	0.88	28.5
West: Hume Highway West														
10	L2	29	0.0	29	0.0	0.894	35.0	LOS D	31.1	226.0	0.94	0.97	1.06	34.2
11	T1	2004	4.4	2004	4.4	0.894	28.7	LOS C	31.2	226.3	0.94	0.97	1.06	45.5
12	R2	183	1.1	183	1.1	0.801	44.0	LOS D	6.0	42.5	0.88	0.97	1.18	34.7
Approach		2217	4.1	2217	4.1	0.894	30.0	LOS C	31.2	226.3	0.93	0.97	1.07	44.2
All Vehicles		3982	3.9	3982	3.9	0.894	22.7	LOS C	31.2	226.3	0.74	0.74	0.82	47.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		158	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Development AM - Mannix Parade / McGirr Parade]

Network: N101 [Development AM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mannix Parade South														
1	L2	24	4.3	24	4.3	0.046	4.6	LOS A	0.0	0.0	0.00	0.15	0.00	47.9
2	T1	63	0.0	63	0.0	0.046	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	48.7
Approach		87	1.2	87	1.2	0.046	1.3	NA	0.0	0.0	0.00	0.15	0.00	48.5
North: Mannix Parade North														
8	T1	111	2.9	111	2.9	0.058	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
9	R2	1	0.0	1	0.0	0.058	4.8	LOS A	0.0	0.0	0.00	0.01	0.00	49.0
Approach		112	2.8	112	2.8	0.058	0.0	NA	0.0	0.0	0.00	0.01	0.00	49.9
West: McGirr Parade														
10	L2	36	0.0	36	0.0	0.038	4.7	LOS A	0.1	0.5	0.14	0.51	0.14	46.3
12	R2	17	0.0	17	0.0	0.038	5.2	LOS A	0.1	0.5	0.14	0.51	0.14	43.9
Approach		53	0.0	53	0.0	0.038	4.9	LOS A	0.1	0.5	0.14	0.51	0.14	45.8
All Vehicles		252	1.7	252	1.7	0.058	1.5	NA	0.1	0.5	0.03	0.16	0.03	48.2

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

MOVEMENT SUMMARY

Site: 101 [Development AM - Hinkler Avenue / Hume Highway]

Network: N101 [Development AM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
North: Hinkler Avenue														
7	L2	3	33.3	3	33.3	0.015	23.2	LOS C	0.0	0.2	0.85	0.88	0.85	30.9
Approach		3	33.3	3	33.3	0.015	23.2	LOS C	0.0	0.2	0.85	0.88	0.85	30.9
West: Hume Highway West														
10	L2	43	4.9	43	4.9	0.024	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	58.3
11	T1	2646	3.5	2646	3.5	0.694	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	69.5
Approach		2689	3.5	2689	3.5	0.694	0.3	NA	0.0	0.0	0.00	0.01	0.00	69.1
All Vehicles		2693	3.5	2693	3.5	0.694	0.3	NA	0.0	0.2	0.00	0.01	0.00	69.0

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

MOVEMENT SUMMARY

Site: 101 [Development PM - Hume Highway / Mannix Parade / Remembrance Avenue]

Network: N101 [Development PM]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Remembrance Avenue														
1	L2	155	0.0	155	0.0	0.638	57.6	LOS E	6.2	43.4	0.99	0.82	1.00	30.2
2	T1	24	0.0	24	0.0	0.638	53.0	LOS D	6.2	43.4	0.99	0.82	1.00	19.8
3	R2	187	0.0	187	0.0	0.411	55.8	LOS E	3.1	22.0	0.95	0.78	0.95	30.4
Approach		366	0.0	366	0.0	0.638	56.4	LOS E	6.2	43.4	0.97	0.80	0.97	29.8
East: Hume Highway East														
4	L2	72	1.5	72	1.5	0.059	10.3	LOS B	0.6	4.3	0.31	0.65	0.31	50.4
5	T1	2042	3.1	2042	3.1	0.535	6.2	LOS A	11.2	80.9	0.43	0.39	0.43	62.7
6	R2	63	0.0	63	0.0	0.388	52.2	LOS D	2.2	15.5	0.96	0.81	0.96	23.6
Approach		2177	3.0	2177	3.0	0.535	7.7	LOS A	11.2	80.9	0.44	0.41	0.44	60.7
North: Mannix Parade														
7	L2	56	0.0	56	0.0	0.196	47.8	LOS D	2.2	15.1	0.87	0.73	0.87	27.3
8	T1	16	0.0	16	0.0	0.196	43.3	LOS D	2.2	15.1	0.87	0.73	0.87	25.0
9	R2	86	2.4	86	2.4	0.816	72.9	LOS E	3.4	24.6	1.00	0.93	1.34	21.2
Approach		158	1.3	158	1.3	0.816	61.1	LOS E	3.4	24.6	0.94	0.84	1.13	23.4
West: Hume Highway West														
10	L2	49	2.1	49	2.1	0.889	30.7	LOS C	35.9	255.7	0.90	0.89	0.96	37.0
11	T1	2172	2.1	2172	2.1	0.889	24.3	LOS C	35.9	256.1	0.90	0.89	0.96	48.0
12	R2	57	0.0	57	0.0	0.541	32.3	LOS C	1.6	11.1	0.73	0.79	0.76	38.9
Approach		2278	2.0	2278	2.0	0.889	24.6	LOS C	35.9	256.1	0.90	0.89	0.95	47.6
All Vehicles		4979	2.3	4979	2.3	0.889	20.7	LOS C	35.9	256.1	0.71	0.67	0.74	49.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		158	54.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Development PM - Mannix Parade / McGirr Parade]

Network: N101 [Development PM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mannix Parade South														
1	L2	18	0.0	18	0.0	0.051	4.6	LOS A	0.0	0.0	0.00	0.10	0.00	48.4
2	T1	80	0.0	80	0.0	0.051	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	49.1
Approach		98	0.0	98	0.0	0.051	0.8	NA	0.0	0.0	0.00	0.10	0.00	49.0
North: Mannix Parade North														
8	T1	95	2.2	95	2.2	0.050	0.0	LOS A	0.0	0.0	0.01	0.01	0.01	49.9
9	R2	1	0.0	1	0.0	0.050	4.9	LOS A	0.0	0.0	0.01	0.01	0.01	49.0
Approach		96	2.2	96	2.2	0.050	0.1	NA	0.0	0.0	0.01	0.01	0.01	49.9
West: McGirr Parade														
10	L2	4	0.0	4	0.0	0.057	4.8	LOS A	0.1	0.6	0.23	0.55	0.23	46.1
12	R2	61	0.0	61	0.0	0.057	5.2	LOS A	0.1	0.6	0.23	0.55	0.23	43.6
Approach		65	0.0	65	0.0	0.057	5.1	LOS A	0.1	0.6	0.23	0.55	0.23	43.9
All Vehicles		259	0.8	259	0.8	0.057	1.6	NA	0.1	0.6	0.06	0.18	0.06	47.9

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

MOVEMENT SUMMARY

Site: 101 [Development PM - Hinkler Avenue / Hume Highway]

Network: N101 [Development PM]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
North: Hinkler Avenue														
7	L2	2	0.0	2	0.0	0.003	8.2	LOS A	0.0	0.0	0.59	0.59	0.59	40.9
Approach		2	0.0	2	0.0	0.003	8.2	LOS A	0.0	0.0	0.59	0.59	0.59	40.9
West: Hume Highway West														
10	L2	39	0.0	39	0.0	0.021	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	59.7
11	T1	1585	2.7	1585	2.7	0.414	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	69.8
Approach		1624	2.7	1624	2.7	0.414	0.2	NA	0.0	0.0	0.00	0.01	0.00	69.3
All Vehicles		1626	2.7	1626	2.7	0.414	0.2	NA	0.0	0.0	0.00	0.02	0.00	69.2

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

Attachment 2 Architectural Plan

NOTES

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DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6685, ABN 86 064 084 911

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LEGEND

AWN	AWNING	**DP**	DOWN PIPE	**K**	KITCHEN
B	BATHROOM	**FCL**	FINISHED CEILING LEVEL	**L1, 2...**	LIFT NO.1, 2, ETC.
B1, 2...	BEDROOM 1, BEDROOM 2	**FEX**	FIRE EXTINGUISHER	**L**	LIVING
BAL	BALUSTRADE	**FFL**	FINISHED FLOOR LEVEL	**LY**	LAUNDRY
BKR	BICYCLE RACK	**FH**	FIRE HYDRANT	**S**	STORAGE
BRWO	BALCONY RAIN WATER OUTLET	**FIP**	FIRE INDICATOR PANEL	**SCN**	SCREEN
BY	BALCONY	**H**	HYDRAULIC	**SSL**	STRUCTURAL SLAB LEVEL
CBL	RETRACTABLE CLOTHES DRYING LINE	**HWU**	HOT WATER UNIT	**ST_01**	STAIR NO.1, 2, ETC.

Rev	Date	Approved by	Issue Name
K	31/07/20	VS	For Information

Project Title

Mannix Parade Warwick Farm
11-13 Mannix Parade, Warwick Farm, NSW 2170 Australia

Drawing Title

GA Plans
Ground Level

Scale: 1:100 @A1, 50%@A3
Status: LAHC Review
Project No.: 19010
Dwg No.: A-110-008
Drawn by: BP, MM, JC
Rev: K
North

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NOTES

CLIENT

NSW Land and Housing Corporation

LEGEND

AWN	AWNING	**DP**	DOWN PIPE	**K**	KITCHEN
B	BATHROOM	**FCL**	FINISHED CEILING LEVEL	**L1, 2...**	LIFT NO.1, 2, ETC.
B1, 2...	BEDROOM 1, BEDROOM 2	**FEX**	FIRE EXTINGUISHER	**L**	LIVING
BAL	BALUSTRADE	**FFL**	FINISHED FLOOR LEVEL	**LY**	LAUNDRY
BKR	BICYCLE RACK	**FH**	FIRE HYDRANT	**S**	STORAGE
BRWO	BALCONY RAIN WATER OUTLET	**FIP**	FIRE INDICATOR PANEL	**SCN**	SCREEN
BY	BALCONY	**H**	HYDRAULIC	**SSL**	STRUCTURAL SLAB LEVEL
CBL	RETRACTABLE CLOTHES DRYING LINE	**HWU**	HOT WATER UNIT	**ST_01**	STAIR NO.1, 2, ETC.

Rev	Date	Approved by	Issue Name
K	31.07.20	VS	For Information

Project Title
Mannix Parade Warwick Farm
11-13 Mannix Parade, Warwick Farm, NSW 2170 Australia

Drawing Title
GA Plans
Basement 1

Scale: 1:100 @A1, 50%@A3
Status: **LAHC Review**
Project No.: **19010**
Dwg No.: **A-110-007**
Drawn by: **BP, MM**
Rev: **K**
North

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Materials Legend

BAL1	Balustrade Type 1 Vertical 75mm x 20mm metal baluster with aluminium plate. 100mm x 20mm metal top rail. PCF1	COF1	Concrete Off Form, Type 1 Natural Finish.	PCF2	Powder Coat Finish, Type 2 Powder Coat to match Duralloy Wallaby
BWK1	Brick, Type 1 Austral. Bowral Dry Pressed. Colour: Gertrudis Brown or Similar 230x76 'Stack Bond' Mortar Colour "Terracotta"	GC1	Glass, Clear Type 1 Clear glass with Aluminium Framing System - PFC1	SCN1	Aluminium Screening, Powder coat finish. Colour to match PCF1.
BWK2	Brick, Type 2 Austral. Bowral Dry Pressed. Colour: Praline or Similar, 230x76 Horizontal mortar joints; raked , Vertical mortar joints; flush Mortar Colour "Off White"	GD1	Glass, Decorative Type 1 Glass to match Viridian ScalaTexture Squarelite.	STL1	Metal Fence Alternating Vertical Cross Sections of 75 x 25mm and 50 x 100mm steel fence. No top rail, Powder coat finish. Colour to match PCF2
BWK3	Brick, Type 3 Corbelled Brick Pattern	PCF1	Powder Coat Finish, Type 1 Powder Coat to match Duralloy Monument	STL2	Metal Fence Vertical 65x15mm Metal Slat Fence. No top rail, Powder coat finish. Colour to match PCF2.

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Rev	Date	Approved by	Issue Name
K	31/07/20	VS	For Information

Project Title
Mannix Parade Warwick Farm
11-13 Mannix Parade, Warwick Farm, NSW 2170 Australia

Drawing Title
GA Sections
Section BB

Scale: 1:100 @A1, 50%@A3
Status: **LAHC Review**
Project No.: **19010**
Dwg No.: **A-350-020**
Drawn by: **BP/MM**
Rev: **K**
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Attachment 3 Compliance Assessment

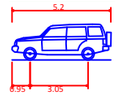
comments

A3

VEHICLE SPECIFICATIONS

IN

OUT



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

PARKING SPACE DIMENSIONS

TYPICAL CLASS 1A FACILITY
WIDTH 2.4M
LENGTH 5.4M

ACCESSIBLE PARKING SPACE
WIDTH 2.4M
LENGTH 5.4M

ACCESSIBLE SHARED BAY
WIDTH 2.4M
LENGTH 5.4M

ADAPTABLE PARKING SPACE
WIDTH 3.8M
LENGTH 5.4M

BICYCLE PARKING SPACE
WIDTH 0.5M
LENGTH 1.8M

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rev	date	comment / description	drawn	reviewed
11	12/08/20	for review	JJ	AM
10	10/08/20	for review	JJ	DS
9	04/08/20	for review	JJ	DS
8	29/07/20	for review	JJ	KB
7	01/06/20	for review	JJ	AM
6	26/05/20	For Review	JJ	AM
5	22/05/20	For Review	JJ	SW

project
11-13 Mannix Parade, Warwick Farm

drawing title
Car Park Compliance Assessment - Access Driveway

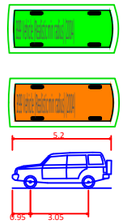
client	Taylor Construction Group
drawing #	ptc-001
project #	AM-2808
scale	1 : 250

rev 11

comments

A3

VEHICLE SPECIFICATIONS



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

PARKING SPACE DIMENSIONS

TYPICAL CLASS 1A FACILITY
WIDTH 2.4M
LENGTH 5.4M

ACCESSIBLE PARKING SPACE
WIDTH 2.4M
LENGTH 5.4M

ACCESSIBLE SHARED BAY
WIDTH 2.4M
LENGTH 5.4M

ADAPTABLE PARKING SPACE
WIDTH 3.8M
LENGTH 5.4M

BICYCLE PARKING SPACE
WIDTH 0.5M
LENGTH 1.8M

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rev	date	comment / description	drawn	reviewed
11	12/08/20	for review	JJ	AM
10	10/08/20	for review	JJ	DS
9	04/08/20	for review	JJ	DS
8	29/07/20	for review	JJ	KB
7	01/06/20	for review	JJ	AM
6	26/05/20	For Review	JJ	AM
5	22/05/20	For Review	JJ	SW

project
11-13 Mannix Parade, Warwick Farm

drawing title
Car Park Compliance Assessment - Basement Level

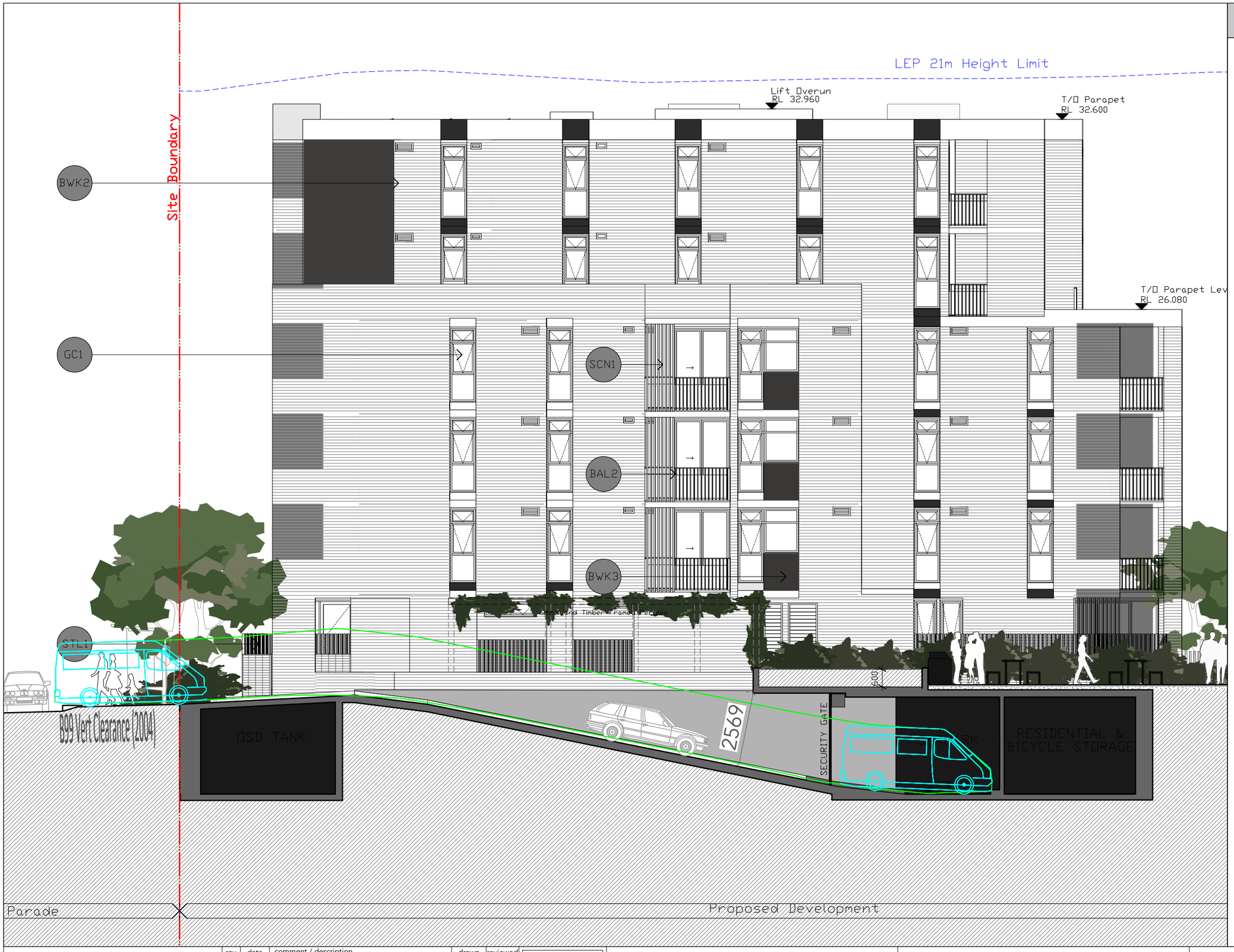
client	Taylor Construction Group
drawing #	ptc-002
project #	AM-2808
scale	1 : 200

rev 11

comments | A3

VEHICLE SPECIFICATIONS

B99 Vert Clearance (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.120m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.000m



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rev	date	comment / description	drawn	reviewed
11	12/08/20	for review	JJ	AM
10	10/08/20	for review	JJ	DS
9	04/08/20	for review	JJ	DS
8	29/07/20	for review	JJ	KB
7	01/06/20	for review	JJ	AM
6	26/05/20	For Review	JJ	AM
5	22/05/20	For Review	JJ	SW

project
11-13 Mannix Parade, Warwick Farm

drawing title
Vertical Clearance Assessment - Typical B99 Vehicle

client	Taylor Construction Group
drawing #	ptc-003
project #	AM-2808
scale	1 : 125

rev 11

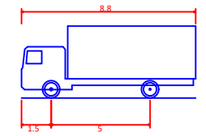
comments

A3

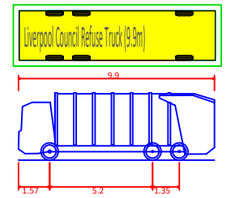
VEHICLE SPECIFICATIONS

IN

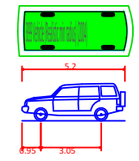
OUT



MRV - Medium Rigid Vehicle	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10.000m



Liverpool Council Refuse Truck (9.9m)	
Overall Length	9.900m
Overall Width	2.500m
Overall Body Height	3.400m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	10.500m



B99 Vehicle (Realistic min radius) (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

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rev	date	comment / description	drawn	reviewed
2	15/09/20	For Review	JJ	SW
1	01/05/20	For Review	JJ	SW

project

11-13 Mannix Parade, Warwick Farm

drawing title

Swept Path Assessment - Council Refuse Vehicle - On-street Parking

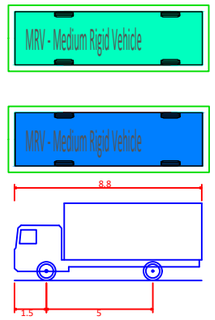
client	Taylor Construction Group
drawing #	RFI-001
project #	AM-2808
scale	1 : 250

rev 2

comments

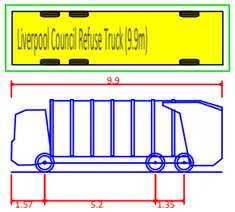
A3

VEHICLE SPECIFICATIONS



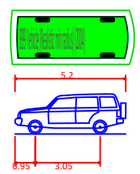
MRV - Medium Rigid Vehicle

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10.000m



Liverpool Council Refuse Truck (9.9m)

Overall Length	9.900m
Overall Width	2.500m
Overall Body Height	3.400m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	10.500m



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

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rev	date	comment / description	drawn	reviewed
		for review	JJ	SW
2	15/09/20	For Review	JJ	SW
1	01/05/20	For Review	JJ	SW

project

11-13 Mannix Parade, Warwick Farm

drawing title

Swept Path Assessment - Medium Rigid Vehicle - Ground Floor Level

client	Taylor Construction Group
drawing #	RFI-002
project #	AM-2808
scale	1 : 250

rev 2

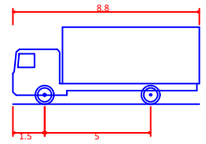
comments

A3

VEHICLE SPECIFICATIONS

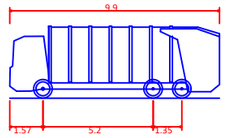
IN

OUT



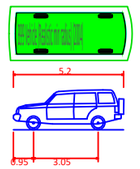
MRV - Medium Rigid Vehicle

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10.000m



Liverpool Council Refuse Truck (9.9m)

Overall Length	9.900m
Overall Width	2.500m
Overall Body Height	3.400m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	10.500m



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

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rev	date	comment / description	drawn	reviewed
		for review	JJ	SW
2	15/09/20	For Review	JJ	SW
1	01/05/20	For Review	JJ	SW

project

11-13 Mannix Parade, Warwick Farm

drawing title

Swept Path Assessment - Medium Rigid Vehicle - Basement Floor Level

client	Taylor Construction Group
drawing #	RFI-003
project #	AM-2808
scale	1 : 200

rev 2

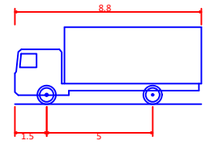
comments

A3

VEHICLE SPECIFICATIONS

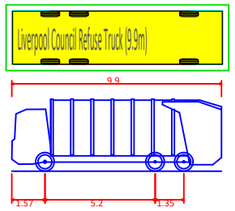
IN

OUT



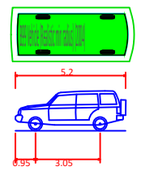
MRV - Medium Rigid Vehicle

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10.000m



Liverpool Council Refuse Truck (9.9m)

Overall Length	9.900m
Overall Width	2.500m
Overall Body Height	3.400m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	10.500m



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

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rev	date	comment / description	drawn	reviewed
2	15/09/20	For Review	JJ	SW
1	01/05/20	For Review	JJ	SW

project

11-13 Mannix Parade, Warwick Farm

drawing title

Vehicular Sight Splay Clearance Requirements

client	Taylor Construction Group
drawing #	RFI-004
project #	AM-2808
scale	1 : 250

rev 2