

Traffix Group

Traffic Engineering Assessment

Proposed Commercial Development
101-105 Willowbank Road, Gisborne

Prepared for
Brady Road Investments

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G31013R-01B

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Table of Contents

- 1. Introduction.....5**
- 2. Proposal.....6**
- 3. Existing Conditions7**
 - 3.1. *Subject Site.....7*
 - 3.2. *Road Network..... 11*
 - 3.2.1. Local Area Network..... 11
 - 3.2.2. Existing Traffic Conditions..... 13
 - 3.2.3. Existing Traffic Volumes..... 15
 - 3.2.4. Assessment of Existing Traffic Conditions 16
 - 3.2.5. Existing Car Parking Conditions..... 19
 - 3.3. *Public Transport..... 20*
- 4. Traffic Engineering Assessment21**
 - 4.1. *Statutory Car Parking Assessment..... 21*
 - 4.2. *Reducing the Requirement for Car Parking..... 23*
 - 4.3. *Car Parking Demand Assessment..... 24*
 - 4.4. *Appropriateness of providing fewer car spaces than the number likely to be generated..... 26*
 - 4.4.1. Car Parking Demand Assessment..... 27
 - 4.4.2. Availability of Car Parking..... 27
 - 4.4.3. Summary..... 27
 - 4.5. *Bicycle Parking Assessment..... 28*
 - 4.6. *Review of Carpark Layout and Vehicle Access Arrangements..... 30*
 - 4.7. *Loading and Waste Collection..... 30*
 - 4.8. *Traffic Impact Assessment..... 31*
 - 4.8.1. Traffic Distribution..... 31
 - 4.8.2. Peak Hour Traffic Impacts..... 34
 - 4.8.3. Intersection of Willowbank Road and Brady Road..... 35
- 5. Conclusions.....37**

List of Figures

Figure 1: Locality Plan (Source: Melway Online)	8
Figure 2: Aerial Photograph (Source: Nearmap)	8
Figure 3: Subject Site Frontage to Willowbank Road – view south-west	9
Figure 4: Subject Site Frontage to Brady Road – view north-west	9
Figure 5: Land Use Zoning Map (Source: Planning Schemes Online)	10
Figure 6: Willowbank Road – view west	12
Figure 7: Willowbank Road – view east	12
Figure 8: Brady Road – view north	12
Figure 9: Brady Road – view south	12
Figure 10: Traffic Survey Locations (Source: Melway Online)	13
Figure 11: Existing Traffic Conditions	15
Figure 12: SIDRA Model – Willowbank Road and Brady Road	17
Figure 13: AM Peak hour Level of Service (LoS) diagram	18
Figure 14: PM Peak hour Level of Service (LoS) diagram	18
Figure 15: Parking Inventory Area (Source: Melway Online)	19
Figure 16: Public Transport Map (Source: ptv.vic.gov.au)	20
Figure 17: Development Traffic	32
Figure 18: Post-Development Traffic	33
Figure 19: SIDRA Network model	34
Figure 20: AM Peak hour post-development performance – Willowbank Road/Site Northern Access & Willowbank Road/Brady Road	34
Figure 21: PM Peak hour post-development performance – Willowbank Road/Site Northern Access & Willowbank Road/Brady Road	35
Figure 22: Extract from the Cardno Gisborne Futures Traffic and Transport Report	36
Figure 23: Extract from the Cardno Gisborne Futures Traffic and Transport Report	36

List of Tables

Table 1: Development Summary	6
Table 2: Subject Site Description	7
Table 3: Local Road Network	11
Table 4: Review of Tube Count Data (November-December, 2021)	14
Table 5: Description of Intersection Performance Levels	16
Table 6: Statutory Car Parking Assessment - Clause 52.06	22
Table 7: Statutory bicycle parking assessment - Clause 52.34	28
Table 8: Design of Bicycle Parking	29
Table 9: Carpark Layout and Access Assessment	42

List of Appendices

Appendix A	Development Plans
Appendix B	Parking Inventory
Appendix C	SIDRA Movement Summaries – Existing Conditions
Appendix D	Carpark Layout Review
Appendix E	Swept Path Diagrams
Appendix F	SIDRA Movement Summaries – Post-Development Conditions

1. Introduction

Traffic Group has been engaged by Brady Road Investments to undertake a Traffic Engineering Assessment for a proposed commercial development at 101-105 Willowbank Road, Gisborne.

This report provides a detailed traffic engineering assessment of the parking and traffic issues associated with the proposed development.

As part of the application, a concurrent Planning Scheme Amendment is proposed which converts the site from the General Residential Zone – Schedule 1 to a Commercial 1 Zone, in addition to the proposed commercial development application.

2. Proposal

The proposal is for a double-storey commercial development on the site as set out in the following table. A copy of the development plans prepared by ClarkeHopkinsClarke (dated 10th June, 2022) are attached at Appendix A.

Table 1: Development Summary

Characteristics		Description	
Uses	Size/No.	Parking	Notes
<u>Development:</u> <ul style="list-style-type: none"> Commercial (Office)¹ Medical Centre Café Mini Mart with Mezzanine Office 	300m ² 450m ² 170m ² 450m ²	57 car spaces	Overall parking rate of 4.2 spaces/100m ² 10 medical practitioners Car spaces provided via at-grade carpark located on the south and west of the subject site.
Bicycle Parking Provision	-	8 bicycle spaces	Located in Building B and at the shared footpath between Building A and Building B.
Other	Notes		
Vehicle Access	Access to the site is via two separate double-width crossovers to Willowbank Road and Brady Road respectively.		
Changes to on-street parking	Post development, the 6x on-street car spaces along Brady Road will be retained. A total of 7 car spaces will be provided along the site's frontage to Willowbank Road (loss of 1 space) due to a new crossover.		
Loading Provision	Loading activities will be undertaken via the shared loading bay located at the south-eastern side of the carpark.		
Waste Collection	Waste collection will occur on-site via a private contractor outside of operating times.		

As part of the application, a concurrent Planning Scheme Amendment is proposed which converts the site from the General Residential Zone – Schedule 1 to a Commercial 1 Zone, in addition to the proposed commercial development application.

¹ It is noted that the plans identify the first floor area above the medical centre as a 'commercial' floor space. The ultimate land use for this space is not yet known, however we understand that the most likely use of this space is as an 'Office' and for the purposes of our assessment, we have assessed it as such. In practice, a number of other land uses may be used here and will likely fall within the car parking requirements of this use.

3. Existing Conditions

3.1. Subject Site

The subject site is 101-105 Willowbank Road, Gisborne. The table below summarises the key characteristics of the subject site.

Table 2: Subject Site Description

Characteristic	Description
Address	101-105 Willowbank Road, Gisborne
Area	Approximately 3,547m ²
Frontage	55.33m to Willowbank Road along the site's northern boundary 54.00m to Brady Road along the site's eastern boundary
Zoning	General Residential Zone – Schedule 1 (GRZ1)
Activity Centre	Not located within an Activity Centre. It is located approximately 1.5km south-east from Gisborne Activity Centre.
Current use of site	Vacant land
Car parking and loading provision	N/A
Vehicle access	Existing 7.2m crossover at the south-east corner of the site.
On-street parking along site frontage	14 unrestricted car spaces along the site's frontage: <ul style="list-style-type: none"> • 8 unrestricted car spaces to the site's frontage along Willowbank Road, and • 6 unrestricted car spaces along the site's Brady Road frontage.

Significant non-residential land uses in the nearby area include:

- **Willowbank Early Learning Centre**, located adjacent to the east of site,
- **Sports Physio & Active Rehab**, located adjacent to the south of site,
- **Willowbank Estate Reserve**, located approximately 500m walking distance south-west of site,
- **Gisborne Motel**, located approximately 1.3km walking distance north-east of site, and
- **Gisborne Secondary College**, located approximately 1.3km walking distance north-west of site.

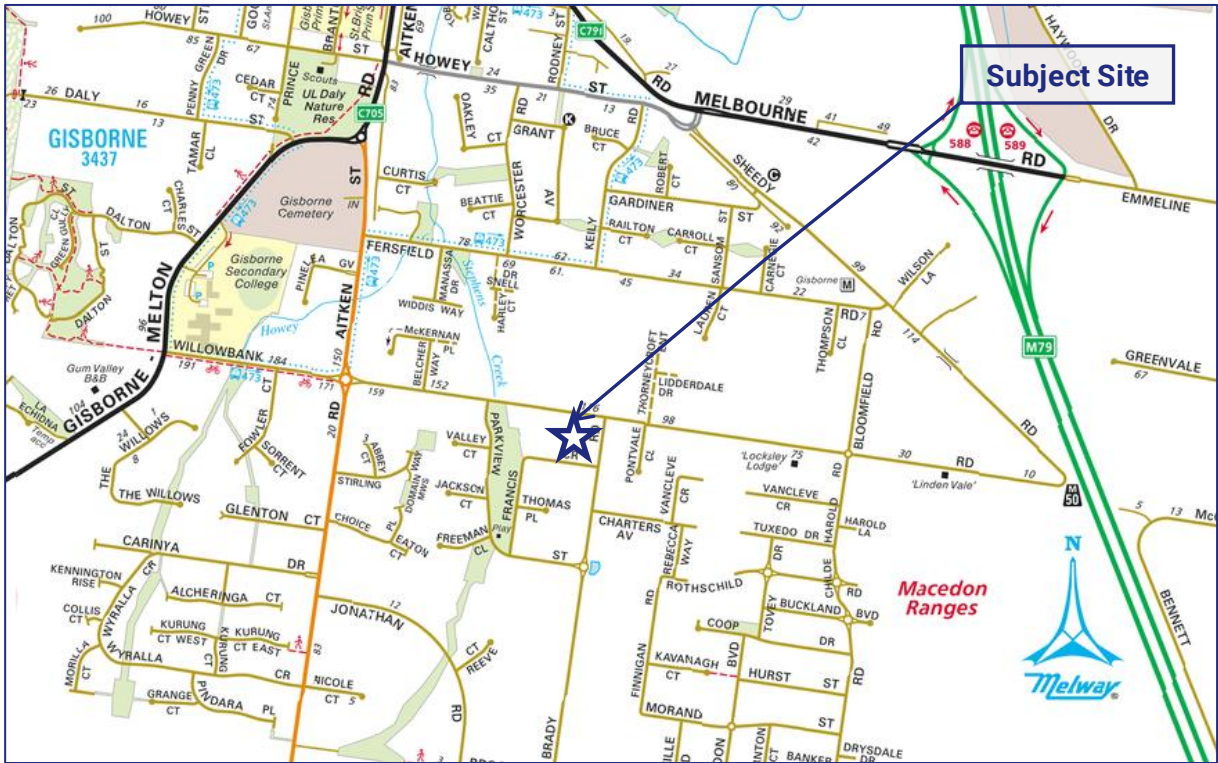


Figure 1: Locality Plan (Source: Melway Online)



Figure 2: Aerial Photograph (Source: Nearmap)



Figure 3: Subject Site Frontage to Willowbank Road – view south-west



Figure 4: Subject Site Frontage to Brady Road – view north-west

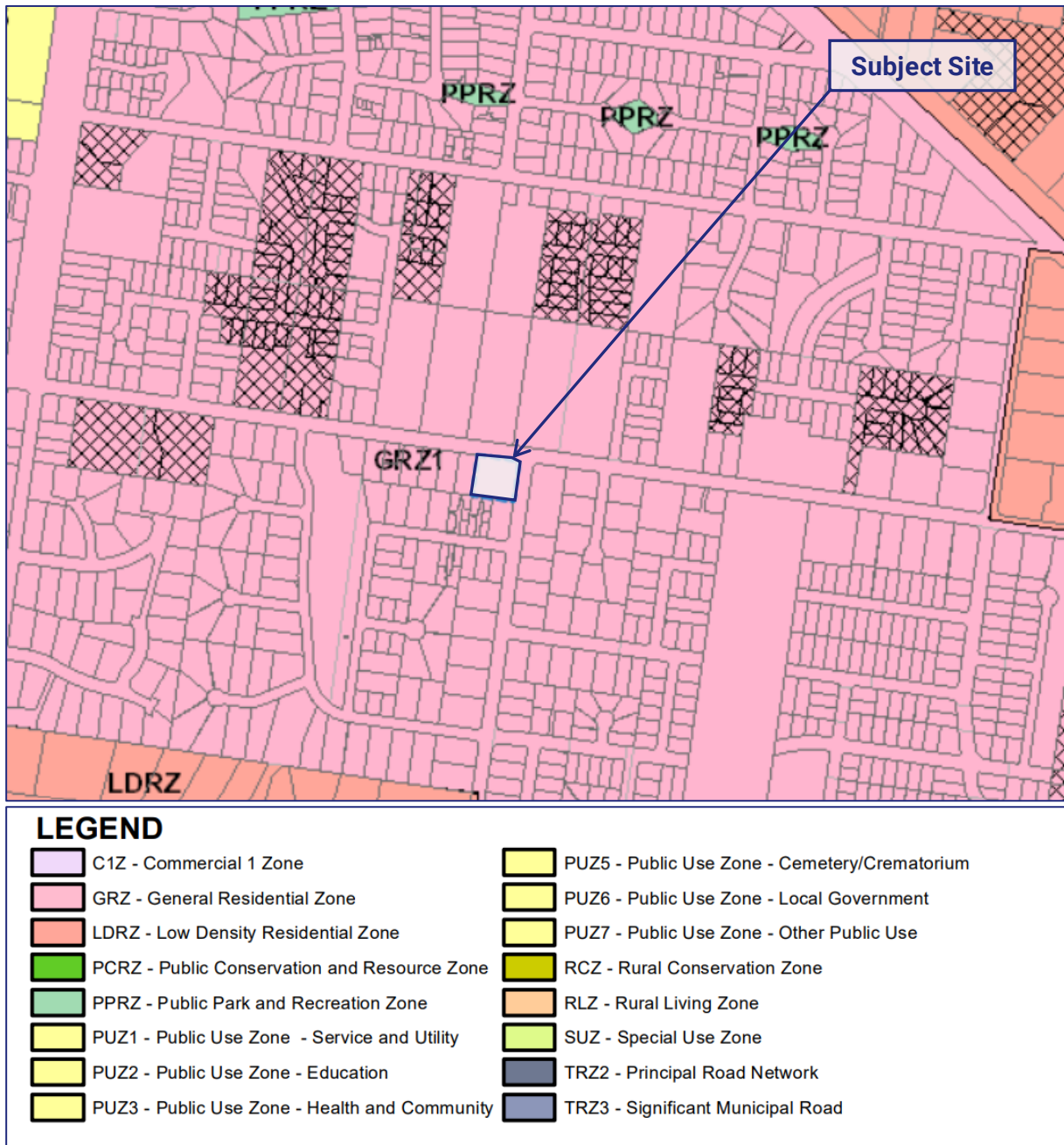


Figure 5: Land Use Zoning Map (Source: Planning Schemes Online)

3.2. Road Network

3.2.1. Local Area Network

A summary of the local road network is provided in the table below.

Photos of the surrounding road network are presented following the table.

Table 3: Local Road Network

Road Name	Agency	Classification	Transport Zone	Configuration	Speed Limit	Parking
Willowbank Road	Council	Sealed Link ¹	-	7.3m undivided carriageway ² aligned in an east-west direction between Melton Road in the west and Sheedy Road in the east.	Posted speed limit of 60km/h in the vicinity of site. Road section approximately between Melton Road and Fowler Court is subject to school speed zones of 40km/h between 8:00am – 9:30am and 2:30pm – 4:00pm during school days in both directions.	Unrestricted parking on both sides of the carriageway.
Brady Road	Council	Sealed Collector ¹	-	6.8m undivided carriageway ² aligned in a north-south direction between Willowbank Road in the north and Brooking Road in the south.	Default speed limit of 50km/h.	Unrestricted parking on both sides of the carriageway ³ .

Notes:

1. According to Macedon Ranges Shire Council – Public Road Register – dated April 2021.
2. Due to the carriageway width, if parking occurs on both sides simultaneously, this leaves one lane for two-way traffic flow.
3. Due to the limited carriageway width, vehicles can only park staggered on both sides of the road to leave sufficient space for a vehicle to traverse through Brady Road.



Figure 6: Willowbank Road – view west



Figure 7: Willowbank Road – view east



Figure 8: Brady Road – view north



Figure 9: Brady Road – view south

3.2.2. Existing Traffic Conditions

Traffic Group has commissioned traffic surveys to ascertain the existing traffic conditions in the nearby area. These surveys included 7-day automatic tube counters between Monday 29th November, 2021 and Monday 6th December, 2021.

The counts were undertaken at the following locations:

- Willowbank Road (West of Brady Road), and
- Brady Road (South of Willowbank Road).

The location of the traffic counters is shown at Figure 10 below.

At the time of the surveys, students had returned to on-site learning and most other Covid-19 restrictions had been lifted and are reflective of 'relatively normal' traffic conditions.

A summary of the results is provided at Table 4.

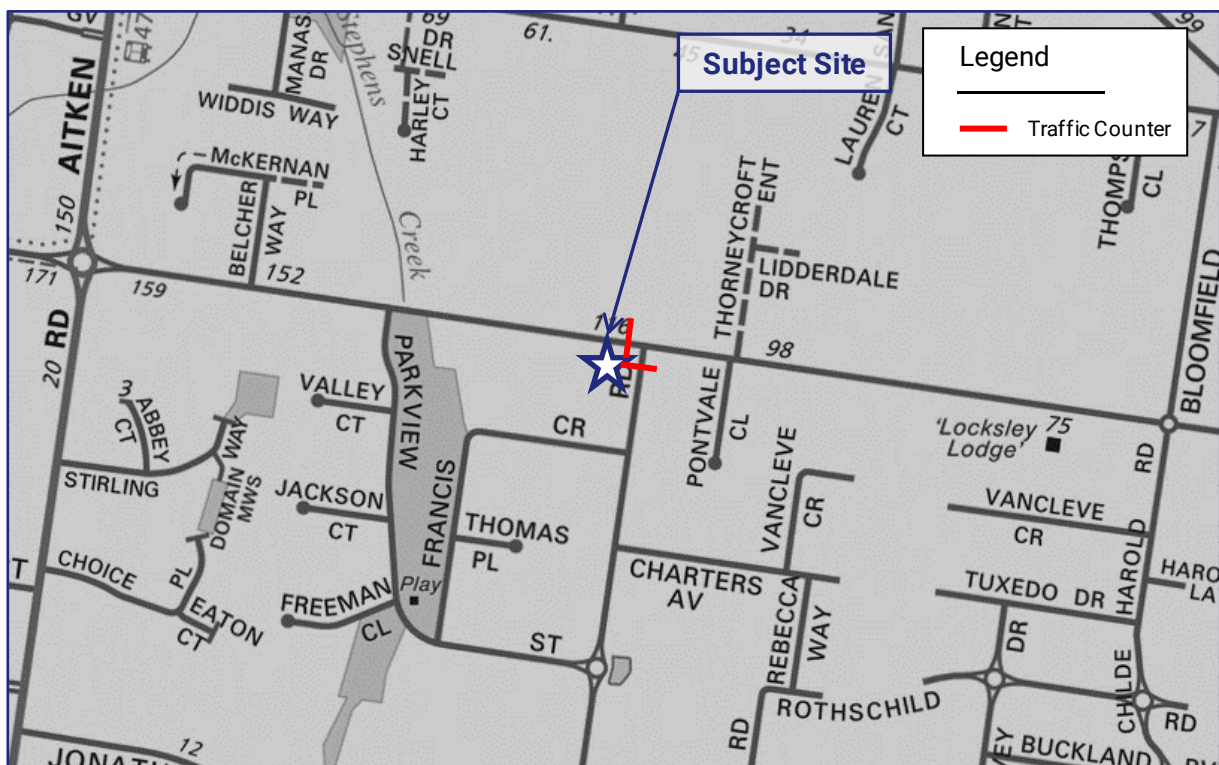


Figure 10: Traffic Survey Locations (Source: Melway Online)

Table 4: Review of Tube Count Data (November-December, 2021)

Characteristic	Willowbank Road			Brady Road		
	Eastbound	Westbound	Total	Northbound	Southbound	Total
24hr Weekday Ave. (veh/day)	1,229	1,119	2,348	997	1,055	2,052
AM Peak Hour Vol. (veh/hour)	107 (8am-9am)	132 (8am-9am)	239 (8am-9am)	119 (8am-9am)	109 (8am-9am)	229 (8am-9am)
PM Peak Hour Vol. (veh/hour)	121 (3pm-4pm)	116 (3pm-4pm)	236 (3pm-4pm)	94 (4pm-5pm)	115 (4pm-5pm)	209 (4pm-5pm)
Commercial Vehicle (%)	8%	8%	8%	5%	5%	5%
85 th Percentile Speed	44 km/h	41 km/h	43 km/h	34 km/h	33 km/h	34 km/h

Both Willowbank Road and Brady Road carry a volume of traffic according to their capacity and function as sealed link and sealed collector, respectively. As detailed in Section 3.2, the Macedon Ranges Shire Council Road Management Plan (2021) classifies Willowbank Road as a “Sealed Link” and Brady Road as a ‘Sealed Collector’, where:

- Sealed Link – ‘Sealed roads carrying high traffic volumes. (Typical ADT >2,000)’, and
- Sealed Collector – ‘Sealed roads carrying low traffic volumes generally of a local nature. Provides access to properties on that particular road and adjoining roads. (Typical ADT 1,000 – 2,000)’.

Accordingly, Willowbank Road adjacent to the subject site (2,348 vehicles per day) and Brady Road (2,052 vehicles per day) are functioning in a manner generally consistent with Council’s classification.

3.2.3. Existing Traffic Volumes

Traffic Group has undertaken AM and PM peak period traffic counts of the Willowbank Road/Brady Road intersection of Tuesday 30th November, 2021, between the hours of 7:30am-9:30am and 3:00pm-6:30pm. These times cover the typical road network peak hours.

The surveys identified the following peak hours as well as school pick-up times:

- AM peak - 8:15am-9:15am
- PM peak - 4:30pm-5:30pm
- School pick-up time - 3:15pm-4:15pm
- A summary of the peak hour traffic counts is presented in the figure below.

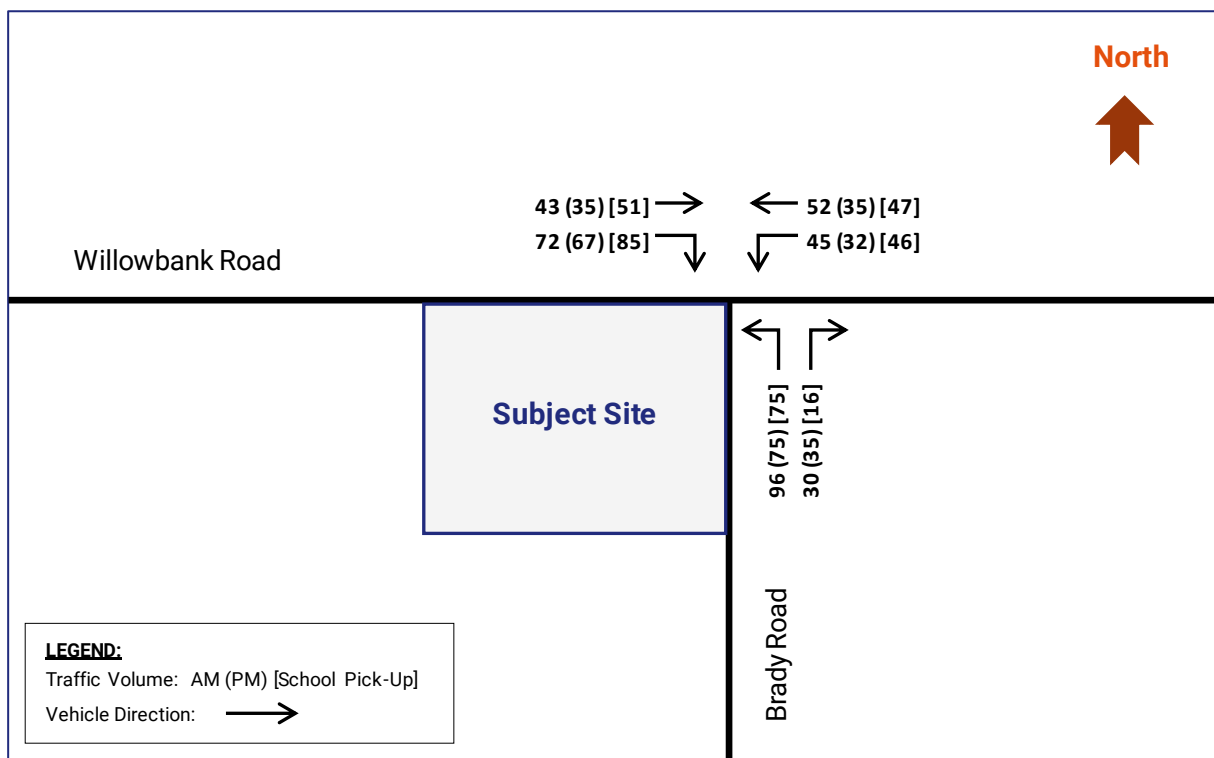


Figure 11: Existing Traffic Conditions

The above traffic volumes recorded through the peak hours and the school pick-up times during the review period does not exhibit any unusual traffic flow on Willowbank Road and Brady Road based on their road classification.

3.2.4. Assessment of Existing Traffic Conditions

SIDRA 9.0 has been used to assess the performance of the Willowbank Road and Brady Road intersection, based on the traffic volumes presented at Figure 11.

The intersection capacity analysis allows estimation of key operating parameters such as intersection Degree of Saturation (DoS), Level of Service (LoS), Average Delay and 95th percentile queue, which are described below:

- **Degree of Saturation (DoS)** – measure of intersection performance expressed as a ratio of demand/capacity. A DOS greater than 0.95 is generally regarded as unsatisfactory for a signalised intersection, while a DOS greater than 0.90 is generally regarded as unsatisfactory for an unsignalised intersection. This is shown in the table below.
- **Level of Service (LoS)** – the level of service is based on the average delay in this analysis.

Table 5: Description of Intersection Performance Levels

Level of Service		Intersection Degree of Saturation	
		Unsignalised Intersection	Signalised Intersection
A	Excellent	<= 0.60	<= 0.60
B	Very Good	0.60 – 0.70	0.60 – 0.70
C	Good	0.70 – 0.80	0.70 – 0.90
D	Acceptable	0.80 – 0.90	0.90 – 0.95
E	Poor	0.90 – 1.00	0.95 – 1.00
F	Very Poor	>= 1.0	>= 1.0

- **Average Delay (secs)** – this is the average delay to vehicles arriving during a given flow period including the delay experienced after the end of the flow period which is possible under heavy traffic conditions.
- **95th Percentile Queue** – this is the length of queue in vehicles or meters which is exceeded only 5% of the time over the analysis period (i.e. a peak hour).

The SIDRA intersection diagram is presented in the figure below. It is a diagrammatic model and not to scale.

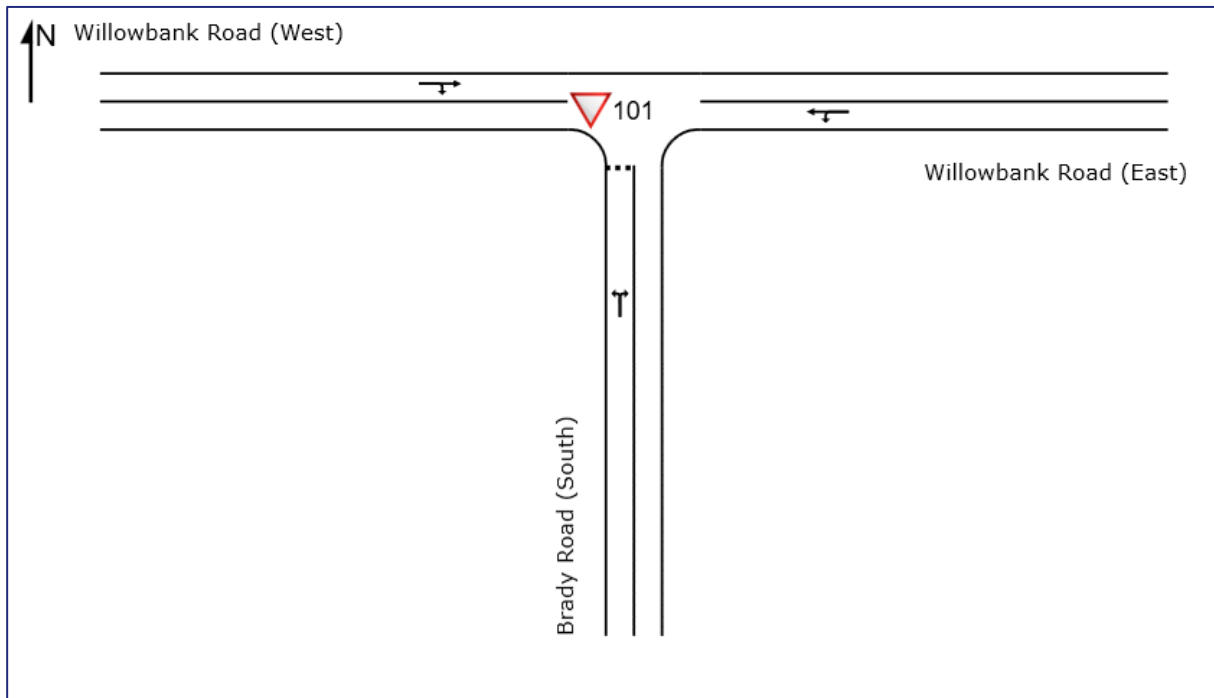


Figure 12: SIDRA Model – Willowbank Road and Brady Road

There is an indented bus stop located on the northern side of Willowbank Road, opposite Brady Road. When not in use by a bus, it is likely that this area is used by cars to pass by any vehicle which may be waiting to turn right into Brady Road. We have not included this allowance within the traffic model in order to conduct a conservative assessment.

The detailed SIDRA outputs are presented at Appendix C.

The AM and PM peak periods were assessed, as these are when traffic from the development will be at its highest. It is noted that the school pick-up period (3:15 to 4:15pm) observed marginally higher traffic volumes than during the PM peak, however traffic generated by the site is expected to be lower at this time. In any event, the AM peak recorded higher volumes than both the AM and School pick-up periods.

Figure 13 to Figure 14 set out the Level of Service for each lane within the two models.

AM Peak Hour



Figure 13: AM Peak hour Level of Service (LoS) diagram

PM Peak Hour

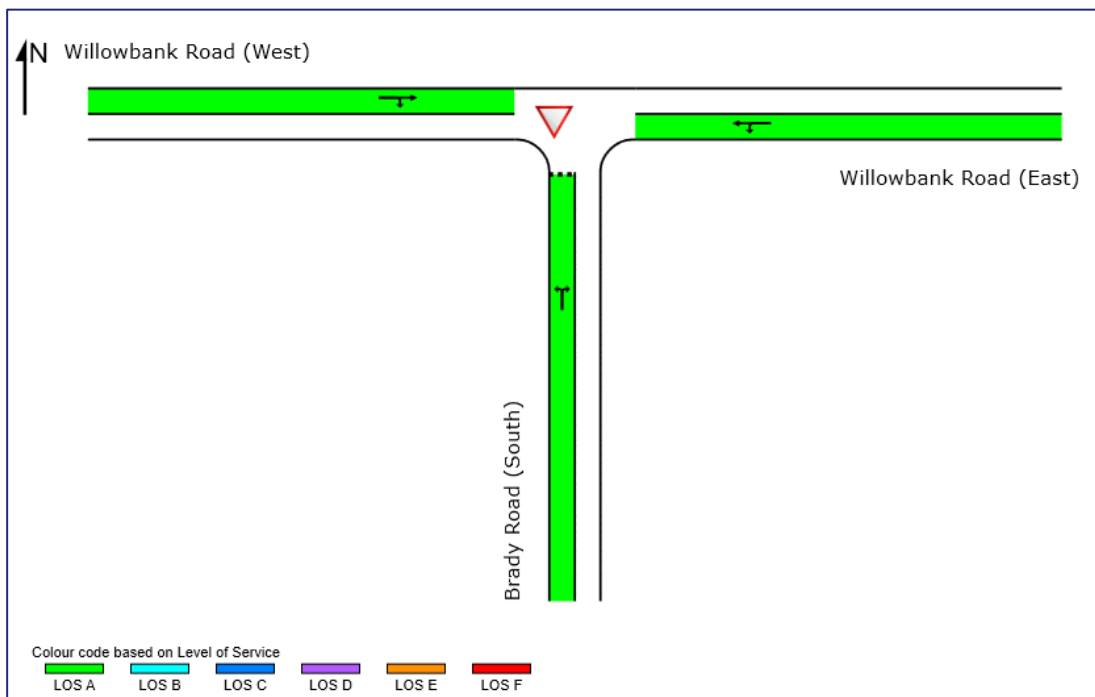


Figure 14: PM Peak hour Level of Service (LoS) diagram

The key results for both periods were that all legs operated with an LOS of A (Excellent), with minimal delays or queuing on any one leg.

We are satisfied that the intersection currently operates well within capacity.

3.2.5. Existing Car Parking Conditions

A parking inventory has been conducted by Traffix Group at 11:30am on Monday 6th December 2021, with the purpose of the inventory to identify car parking supply and restrictions surrounding the site.

The area included on-street parking along Willowbank Road and Brady Road, along with nearby roads within walking distances of up to 200m of the site as presented in Figure 15.

The detailed result of the inventory is provided at Appendix B.

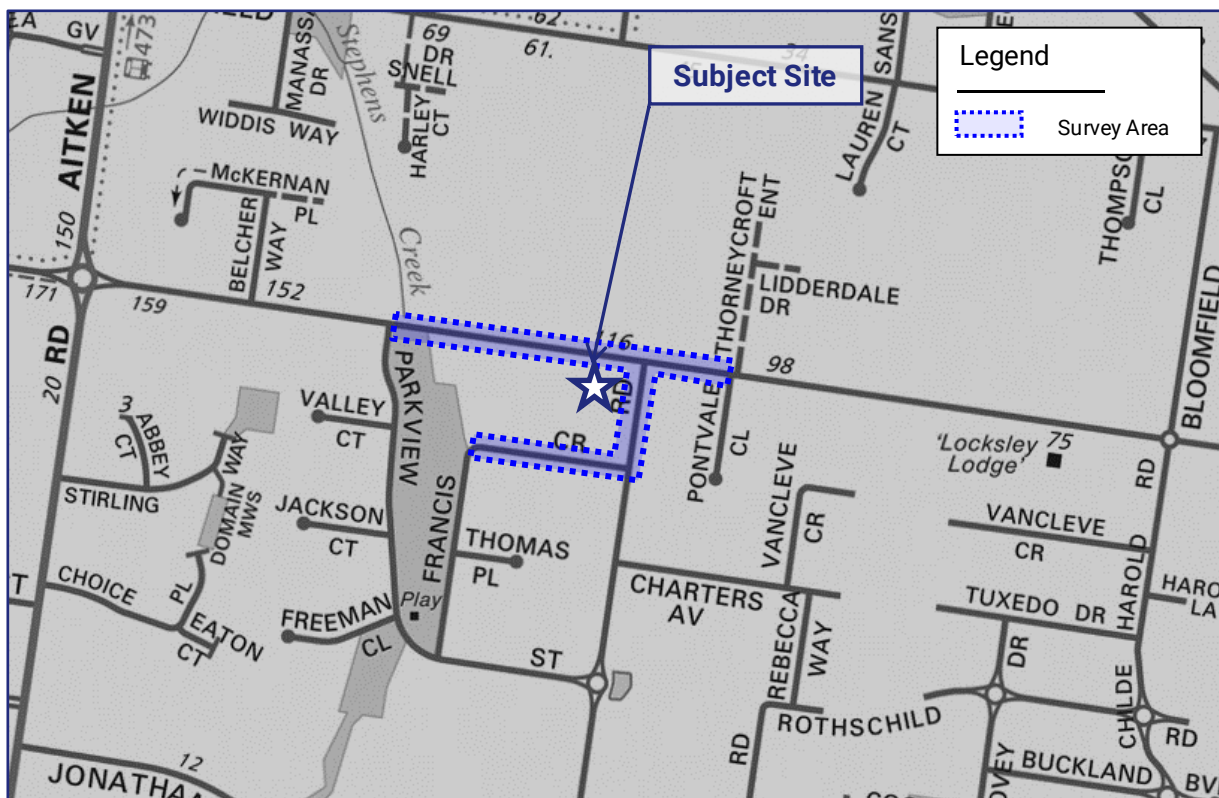


Figure 15: Parking Inventory Area (Source: Melway Online)

The overall area includes 156 on-street car spaces available to the general public (where permitted).

On-street parking in the vicinity of site is unrestricted and typically not utilised.

A total of 14 on-street car spaces are available along the site’s combined frontages to Willowbank Road and Brady Road.

The parking inventory indicated that there is low demand for on-street parking in the area, with a total of 150 vacant spaces at the time of the inventory (4% parking occupancy).

3.3. Public Transport

The site is serviced by a GisBus bus service operating past the site's frontage to Willowbank Road. The GisBus service is an on-demand bus service that connects the town of Gisborne to the V/Line rail network. This service is Bus Route 473, which runs between Gisborne Town Centre and Gisborne Station with the nearest bus stop located adjacent to the site on Willowbank Road.

The nearest railway station is Gisborne Railway Station, located approximately 5km north of the site.

The available public transport services within proximity of the site are shown in Figure 16. It is noted that the GisBus services are not illustrated in the Figure below.

The level of access to public transport services is in line with other rural towns.



Figure 16: Public Transport Map (Source: ptv.vic.gov.au)

4. Traffic Engineering Assessment

4.1. Statutory Car Parking Assessment

The proposed development falls under the land-use categories of 'office', 'food and drink premises', 'supermarket' and 'medical centre' under Clause 73.03 of the Planning Scheme. The Planning Scheme sets out the parking requirements for new developments under Clause 52.06.

It is noted that the plans identify the first floor area above the medical centre as a 'commercial' floor space. The ultimate land use for this space is not yet known, however we understand that the most likely use of this space is as an 'Office' and for the purposes of our assessment, we have assessed it as such. In practice, a number of other land uses may be used here and will likely fall within the car parking requirements of this use.

The purpose of Clause 52.06 is:

- *To ensure that car parking is provided in accordance with the State Planning Policy Framework and Local Planning Policy Framework.*
- *To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.*
- *To support sustainable transport alternatives to the motor car.*
- *To promote the efficient use of car parking spaces through the consolidation of car parking facilities.*
- *To ensure that car parking does not adversely affect the amenity of the locality.*
- *To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.*

The Planning Scheme sets out the parking requirements for new developments under Table 1 at Clause 52.06-5. In this regard Clause 52.06-5 states:

Column B applies if:

- *any part of the land is identified as being within the Principal Public Transport Network Area as shown on the Principal Public Transport Network Area Maps (State Government of Victoria, 2018); or*
- *a schedule to the Parking Overlay or another provision of the planning scheme specifies that Column B applies.*

The site is not located within the Principal Public Transport Network Area (PPTN Area) and accordingly, the Column A rates set out at Table 1 of Clause 52.06-5 apply to the site.

An assessment of the parking requirement of the development against the rates presented at the car parking table at Clause 52.06-5 of the Planning Scheme is set out in the table below.

Table 6: Statutory Car Parking Assessment - Clause 52.06

Use	Size/No.	Statutory Parking Rate (Column A)	Car Parking Req. ¹	Car Parking Provision	Shortfall/Surplus
Commercial (Office)	300m ²	3.5 car spaces per 100m ² NFA	10	57	-13
Medical Centre	450m ² (10 Practitioners)	5 car spaces for the first person providing health services; plus 3 car spaces for every other person providing health services thereafter	32		
Café (Food and Drink Premises other than listed in this table)	170m ²	4 car spaces per 100m ² LFA	6		
Mini Mart and Mezzanine Office (Supermarket)	450m ²	5 car spaces per 100m ² LFA	22		
TOTAL			70	57	-13

Note 1:

1. Clause 52.06-5 specifies that where a car parking calculation results in a requirement that is not a whole number, the number of spaces should be rounded down to the nearest whole number.

Based on the above, the development has a statutory requirement for 70 car spaces, the provision of 57 car spaces results in an overall numerical shortfall of 13 car spaces.

Accordingly, a car parking reduction is required under Clause 52.06-7.

Disabled Parking

Clause 52.06-9 states that:

The car parking requirement specified in Table 1 includes disabled car parking spaces. The proportion of spaces to be allocated as disabled spaces must be in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia.

Disabled car spaces are required under the National Construction Code (NCC) which has been fulfilled by the two disabled car spaces located at the south-west corner of Building A.

4.2. Reducing the Requirement for Car Parking

Clause 52.06-7 allows for the statutory car parking requirement to be reduced (including to zero). An application to reduce (including reduce to zero) the number of car spaces required under Clause 52.06-5 or in a schedule to the Parking Overlay must be accompanied by a Car Parking Demand Assessment.

Clause 52.06-7 sets out that a Car Parking Demand Assessment must have regard to the following key factors:

- *The likelihood of multi-purpose trips within the locality which are likely to be combined with a trip to the land in connection with the proposed use.*
- *The variation of car parking demand likely to be generated by the proposed use over time.*
- *The short-stay and long-stay car parking demand likely to be generated by the proposed use.*
- *The availability of public transport in the locality of the land.*
- *The convenience of pedestrian and cyclist access to the land.*
- *The provision of bicycle parking and end of trip facilities for cyclists in the locality of the land.*
- *The anticipated car ownership rates of likely or proposed visitors to or proposed occupants (residents or employees) of the land.*
- *Any empirical assessment or case study.*

Practice Note 22 (June, 2015) specifies that the provisions for reducing the car parking requirement draw a distinction between the assessment of likely demand for parking spaces (the Car Parking Demand Assessment), and whether it is appropriate to allow the supply of fewer spaces than assessed by the Car Parking Demand Assessment. These are two separate considerations, one technical while the other is more strategic. Different factors are taken into account in each consideration.

Accordingly, the applicant must satisfy the responsible authority that the provision of car parking is appropriate on the basis of a two-step process, which has regard to:

- *The car parking demand likely to be generated by the use.*
- *Whether it is appropriate to allow fewer spaces to be provided than the number likely to be generated by the site.*

An assessment of the appropriateness of reducing the car parking provision below the statutory requirement is set out below.

4.3. Car Parking Demand Assessment

The following Car Parking Demand Assessment has regard to the above factors as appropriate.

Commercial (Office)

The development includes an office tenancy with a total floor area of 300m². This use has a statutory car parking requirement to provide 10 car spaces, based on a rate of 3.5 spaces per 100m².

Whilst the statutory parking rate of 3.5 spaces per 100m² has not been met on-site, it is appropriate for an office use to provide reduced car parking in a site that has access to alternate transport modes and to encourage local living and working.

We expect in practice given the all-day nature of office parking, that office workers will be able to park on-site all day.

Outside of weekday business hours, the car spaces used by office workers will be available for use by other uses on the site.

Medical Centre

Based on the statutory car parking rate, it is expected that there will be a demand for 32 spaces associated with the medical centre.

Across the different proposed uses on the site, there will be fluctuations in car parking demand, however the overall supply of on-site car parking is generally expected to cater for all demands. From time to time, there may be a minor overflow or small delay until a car space is free.

This demand will only be expected during the operating hours (i.e., weekday business hours). Outside of these times there will be no parking impacts associated with the proposed development. This includes the peak amenity/demand times for residential parking during evenings and on weekends.

Café Tenancies (Food and Drink Premises)

The Planning Scheme rate of 4 spaces per 100m² of leasable floor area is generally appropriate for many cafés and restaurant uses.

Applying this rate to the total of 170m² for the 2 small food and drink premises results in a demand for 6 car spaces.

In practice, the food and drink premise tenancies are unlikely to be significant 'self-attractors' of customers from further afield, rather they are likely to serve customers already located within the area or on the site already (i.e. visiting the medical centre, supermarket or office workers). This means nearby office staff, residents, passing cyclists, all of whom can readily walk to the cafes, rather than undertake additional trips by private vehicles. These demands are also only during business hours only. Café demands generally peak on weekends, when there will be a greater availability of car parking available on the site as the office use is not expected to be operating.

Mini Mart including Mezzanine Office (Supermarket)

The leasable floor area of the proposed supermarket (including mezzanine office is 450m²) is small and will only be suitable for accommodating a small-line supermarket/mini-mart. It is not sufficient to accommodate a full-line supermarket, which require floor areas in excess of 3,000m².

Rather, the mini mart is targeted at convenience shopping and as a consequence, purchases are typically completed by-the-basket and external shopping trolley storage or similar is not necessary. Accordingly, customers are likely to purchase smaller quantities of goods and do not necessarily require the use of a car to transport them in every instance.

The Planning Scheme rate for a supermarket is 5 spaces per 100m², which in our experience typically relates to larger supermarkets that rely on the majority of customer trips by car as customers are making larger purchases (purchasing a trolley full of goods as part of weekly shopping trips, etc.) and there is a concentration of activity at after-work times and Saturday mornings. Furthermore, they do not rely on walking or cycling trips from the nearby neighbourhood areas.

This is in contrast to the proposed mini mart on this site, which is much smaller in size, and more akin to a local grocery or convenience shop (when compared to a typical full line supermarket). The majority of customers would be expected to undertake smaller purchases within the store and would carry their shopping in bags to their car, or alternatively walk home, etc.

Traffix Group has undertaken parking generation studies for small supermarket uses. The peak parking generation results of these investigations demonstrated demands much lower than the Planning Scheme rate, irrespective of their accessibility to public transport and alternative modes. A good example includes:

- IGA Supermarket, located in Seville (1,120m²):
 - 2.6 spaces per 100m²

The above survey demonstrates that smaller supermarkets generate considerably lower demands per 100m² than larger format supermarkets, which are typically more car-reliant due to the size of shopping purchases and the fact that the shopping times are spread across the day.

Smaller supermarkets/mini marts in this context rely on convenience shopping and can be expected to attract clientele from people already working or shopping within the nearby area and residents from the nearby area within walking distance of the store.

The results of Traffix Group surveys indicating that smaller supermarkets generate in the order of 2.6 spaces per 100m². Adopting the rate of 2.6 space per 100m², the mini mart would result in a peak demand of 11 car spaces (a reduction of 11 car spaces).

Whilst the proposed supermarket will attract some 'new' customers to the area, it will also service existing customers within the commercial development (i.e. staff, customers visiting other uses, etc). The proposed mini mart will also service local employees and nearby residents.

Summary

The Car Parking Demand Assessment outlined above indicates that whilst the proposal seeks a statutory car parking reduction, the demands expected are likely to be met on-site via a combination of the differing peaks of the various uses (i.e. offices are typically closed in the evenings and on weekends, cafes typically peak on weekends) and the likely demands (i.e. supermarket surveys indicate smaller minimarts generate lower demands).

We are satisfied that the car parking provided will adequately cater for the likely demands. In any event, there is sufficient on-street parking for any minor and temporary car parking overflow, including along the site's frontages, should the car parking demands exceed supply at any stage.

4.4. Appropriateness of providing fewer car spaces than the number likely to be generated

The second step is to consider whether it is appropriate to allow fewer spaces to be provided than the number likely to be generated by the site as assessed by the Car Parking Demand Assessment.

Clause 52.06-7 sets out a series of car parking provision factors that should be considered when assessing the appropriateness of providing fewer car spaces on the site than are likely to be generated by the use. The car parking provision factors are as follows, with the most relevant factors highlighted:

- **The Car Parking Demand Assessment.**
- *Any relevant local planning policy or incorporated plan.*
- **The availability of alternative car parking in the locality of the land, including:**
 - **Efficiencies gained from the consolidation of shared car parking spaces.**
 - **Public car parks intended to serve the land.**
 - **On street parking in non-residential zones.**
 - **Streets in residential zones specifically managed for non-residential parking.**
- *On street parking in residential zones in the locality of the land that is intended to be for residential use.*
- *The practicality of providing car parking on the site, particularly for lots of less than 300 square metres.*
- *Any adverse economic impact a shortfall of parking may have on the economic viability of any nearby activity centre.*
- *The future growth and development of any nearby activity centre.*
- *Any car parking deficiency associated with the existing use of the land.*
- *Any credit that should be allowed for car parking spaces provided on common land or by a Special Charge Scheme or cash-in-lieu payment.*
- *Local traffic management in the locality of the land.*

- *The impact of fewer car parking spaces on local amenity, including pedestrian amenity and the amenity of nearby residential areas.*
- *The need to create safe, functional and attractive parking areas.*
- *Access to or provision of alternative transport modes to and from the land.*
- *The equity of reducing the car parking requirement having regard to any historic contributions by existing businesses.*
- *The character of the surrounding area and whether reducing the car parking provision would result in a quality/positive urban design outcome.*
- *Any other matter specified in a schedule to the Parking Overlay.*
- *Any other relevant consideration.*

These factors are considered below.

4.4.1. Car Parking Demand Assessment

The Car Parking Demand Assessment outlined above indicates that whilst the proposal seeks a statutory car parking reduction, the demands expected are likely to be met on-site via a combination of the differing peaks of the various uses (i.e. offices are typically closed in the evenings and on weekends, cafes typically peak on weekends) and the likely demands (i.e. supermarket surveys indicate smaller minimarts generate lower demands).

We are satisfied that the car parking provided will adequately cater for the likely demands. In any event, there is sufficient on-street parking for any minor and temporary car parking overflow, including along the site's frontages, should the car parking demands exceed supply at any stage.

4.4.2. Availability of Car Parking

As detailed in Section 3.2.4, Traffix Group has undertaken a parking inventory of the nearby area (approximately 200m walking distance from the site) and have determined that a total of 150 vacant spaces (4% parking occupancy) was recorded during the survey period at 11:30am on Monday 6th December, 2021.

Accordingly, whilst not anticipated, there is an appropriate level of on-street car parking available in the nearby area to accommodate any minor and temporary overflow demands, as required.

4.4.3. Summary

Based on the decision factors of Clause 52.06-7, we are satisfied that the proposed level of car parking for this development is appropriate and that it is acceptable to provide fewer car spaces on the site than required under Clause 52.06-5.

4.5. Bicycle Parking Assessment

Clause 52.34 of the Planning Scheme specifies bicycle parking requirements for new developments. The purpose of Clause 52.34 is to:

- To encourage cycling as a mode of transport.
- To provide secure, accessible and convenient bicycle parking spaces and associated shower and change facilities.

The statutory bicycle parking requirement of the development under Clause 52.34 is set out in the table below.

Table 7: Statutory bicycle parking assessment - Clause 52.34

Use	Size/No.	Statutory Bicycle Parking Requirement		No. Bicycle spaces required
		Employees	Visitors/Customers	
Commercial (Office)	300m ² (Two Tenancies)	1 space to each 300m ² of NFA if the NFA exceeds 1,000m ²	1 space to each 1,000m ² of NFA if the NFA exceeds 1,000m ²	0 employee 0 visitor
Medical Centre	450m ² (10 Practitioners)	1 space to each 8 practitioners	1 space to each 4 practitioners	1 employee 3 visitors
Café (Retail premises other than specified in this table)	170m ²	1 space to each 300m ² of LFA	1 space to each 500m ² of LFA	1 employee 0 customer
Shop (Minimart & Mezzanine Office)	450m ²	1 space to each 600m ² of LFA if the LFA exceeds 1,000m ²	1 space to each 500m ² of LFA if the LFA exceeds 1,000m ²	0 employee 0 customer
TOTAL				5 spaces

Based on the above, the development is required to provide 5 bicycle spaces, which is met on-site by the provision of a total of 8 bicycle parking spaces as follows:

- 6 x horizontal floor mounted horizontal rails located within the shared footpath between Building A and Building B, and
- 2 x secure 'Ned Kelly' vertical wall-mounted bicycle parking spaces located within Building B, adjacent to the service room.

A minimum of 20% of the bicycle spaces must be provided in the form of ground level (horizontal) rails in accordance with Clause 2.1 (e) of AS2890.3-2015. We are satisfied that this has been achieved on the plans given that 75% of the bicycle spaces provided are horizontal in design.

Clause 52.34 also requires consideration of end-of-trip facilities, and the design of the bicycle parking spaces. The table below reviews the design and provision of these facilities.

Table 8: Design of Bicycle Parking

Requirement	Assessment	Design Response
End of Trip Facilities - Table 2 & 3 of Clause 52.34-5		
If 5 or more employee bicycle spaces are required, 1 one shower for the first 5 employee bicycle spaces, plus 1 to each 10 employee bicycle spaces thereafter.	✓	End-of-trip facilities are not required.
1 change room or direct access to a communal change room to each shower. The change room may be a combined shower and change room.	✓	
Design of Bicycle Parking		
Does the design comply with the design requirements of Clause 52.34-6?	✓	All bicycle spaces are designed in accordance with AS2890.3-2015.
Does the design comply with the requirements of AS2890.3-2015?	✓	

Based on the above, we are satisfied the provision and design of bicycle spaces is appropriate for the proposed development.

4.6. Review of Carpark Layout and Vehicle Access Arrangements

Traffix Group has provided design advice to the project architect to achieve a satisfactory carpark layout. The proposed parking layout has been assessed under the following guidelines:

- Clause 52.06-9 of the Planning Scheme (Design Standards for car parking),
- AS2890.1-2004 – Part 1: Off-Street Car Parking, where relevant, and
- AS2890.6-2009 – Part 6: Off-Street Car Parking for People with Disabilities.

A detailed assessment of the carpark layout and vehicle access arrangements against the relevant design standards of the Planning Scheme and Australian Standards is provided at Appendix D.

Swept path diagrams demonstrating accessing to all critical car spaces and vehicle circulation movements are provided Appendix E.

4.7. Loading and Waste Collection

Loading

Clause 65.01 of the Planning Scheme states that the Responsible Authority must consider a number of matters as appropriate including:

- *The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.*

The proposal includes an on-site shared loading bay measuring 10.5m long x 3.2m wide. The loading bay will be suitable for commercial vehicles associated with the different tenancies, which can be suitably managed by the tenants and suppliers.

We understand that the minimart will be primarily serviced via small vans which can make use of the on-site loading bay or car spaces during off-peak times, as required.

Based on the above, we are satisfied that the provision of a loading area with the ground level car park is acceptable.

Waste Collection

A Waste Management Plan (WMP) has been prepared by Traffix Group (Ref: G31013R-02A (WMP), dated July, 2022) in association with the proposed development.

It is proposed that waste collection will occur via a private contractor. The waste collection vehicle (an 8.8m long rear loading waste truck) will access the at-grade carpark and prop temporarily on the accessways whilst loading and unloading the waste bins. Waste collection will occur outside of operational times for the uses on the site to minimise disruption.

A swept path diagram demonstrating a waste vehicle collecting waste from within the carpark is attached at Appendix E.

Overall, waste collection is satisfactory from a traffic engineering perspective.

4.8. Traffic Impact Assessment

A range of different uses are proposed on the site and their differing characteristics, all of which will share car parking to ensure the most efficient use of the car parking supply on the site.

As a result of this, we consider that it is more appropriate to adopt a first principles approach to assessing the likely traffic to be generated by the site.

We consider that during peak hours, that a reasonable traffic generation figure to adopt of that each car space will 'turnover' once. Based on 57 car spaces, this means that a traffic generation figure of 114 vehicle trips can be expected.

The proposal includes 2 two-way vehicle access points, with 1 located at the site's north-western boundary to Willowbank Road and the other towards the site's south-eastern boundary to Brady Road.

A 50% arrival and 50% departure traffic split have been adopted for both peak periods to reflect that most trips will be driven by the turnover of customers, noting the various uses on the site. This equates to approximately 57 entry and 57 exit trips during both peak periods.

4.8.1. Traffic Distribution

The following assessment is highly conservative because no deductions are made for passer-by trips. These are trips from drivers already on the road network and passing the subject site who stop at the site (such as a driver heading home and stopping at the minimart on the way).

We have distributed the development generated traffic in the following manner based on the traffic movement patterns observed at the intersection of Willowbank Road and Brady Road in both peak periods.

AM Peak

Arrival Patterns

- 1/3 of traffic will arrive from each of the east, west and south of the site.
 - Of the 1/3 arriving from the east, half of this will enter the site via the northern access whilst half the south-eastern access.
 - All traffic from the west will enter the northern access.
 - All traffic from the south will enter the south-eastern access.

Departure Patterns

- 45% will depart to the west via Willowbank Road using the northern access.
- 20% will depart to the east via Willowbank Road, with half using each access point.
- 35% will depart to the south via Brady Road using the south-eastern access.

PM Peak

Arrival Patterns

- 25% from the east, of which half of this will enter the site via the northern access whilst half the south-eastern access.
- 35% from the west, which will enter via the northern access.
- 40% from the south, which will enter via the southern access.

Departure Patterns

- 40% will depart to the west via Willowbank Road using the northern access.
- 25% will depart to the east via Willowbank Road, with half using each access point.
- 35% will depart to the south via Brady Road using the south-eastern access.

Figure 17 outlines the expected future traffic volumes for each movement to and from the site generated by the proposed development based on the layout of the wider road network.

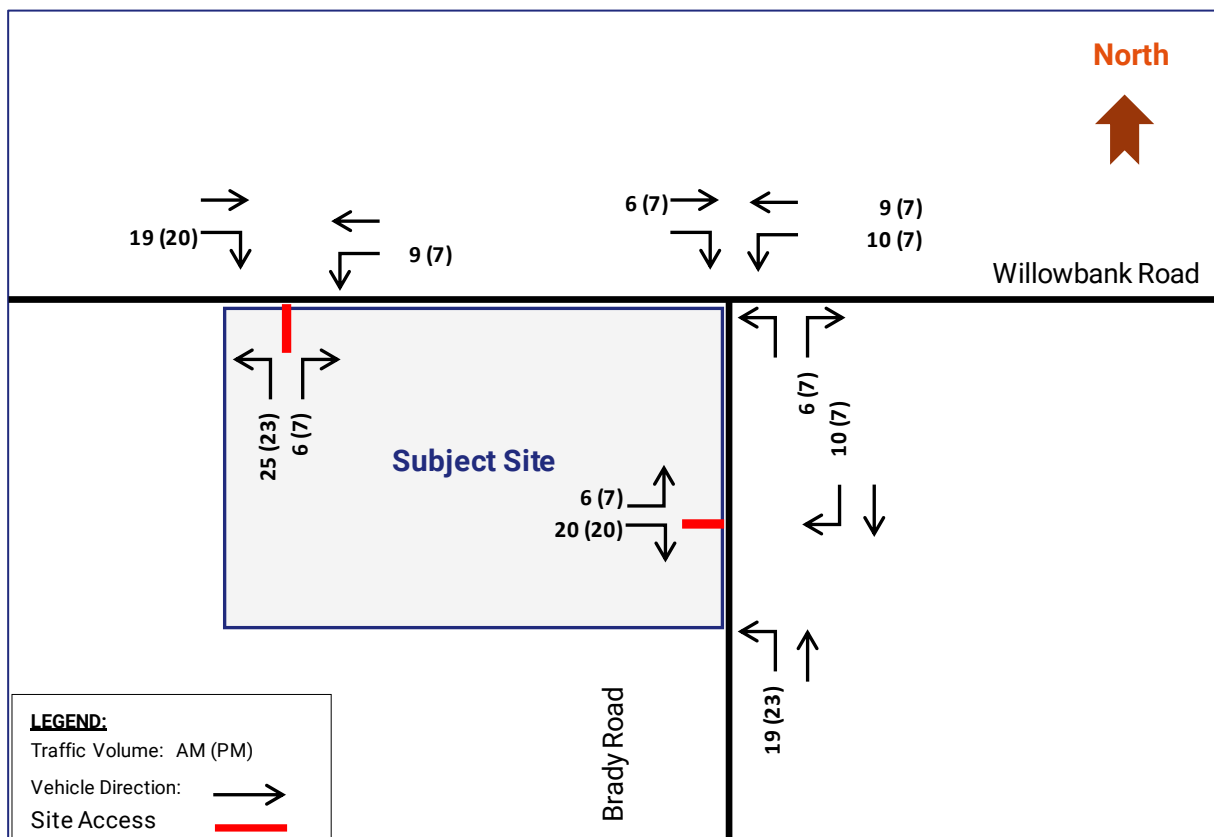


Figure 17: Development Traffic

Figure 18 outlines the traffic which is expected to have been generated by the site (as detailed at Section 3.2.3) based on the distributions outlined previously.

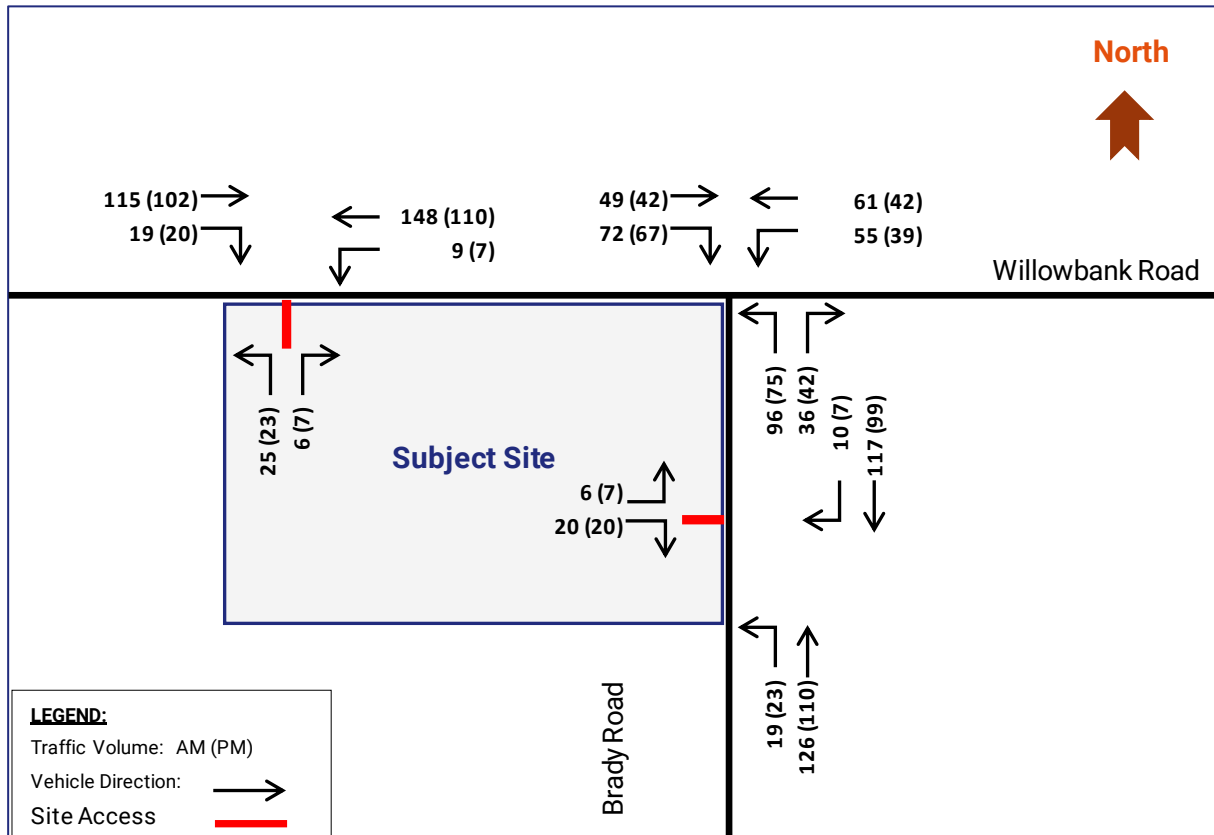


Figure 18: Post-Development Traffic

Section 4.8.2 reviews the post-development performance of the intersection of Willowbank Road and Brady Road, as well as the proposed northern site access to Willowbank Road. The south-eastern access to Brady Road was not included due to lower traffic volumes at this location and lower order of road.

4.8.2. Peak Hour Traffic Impacts

We have assessed the post-development intersection conditions using SIDRA 9.0, adopting the post-development traffic volumes set out at Section 3.2.3.

The network layout is shown below and the assumptions, analysis and assessment parameters are as per Section 3.2.4.

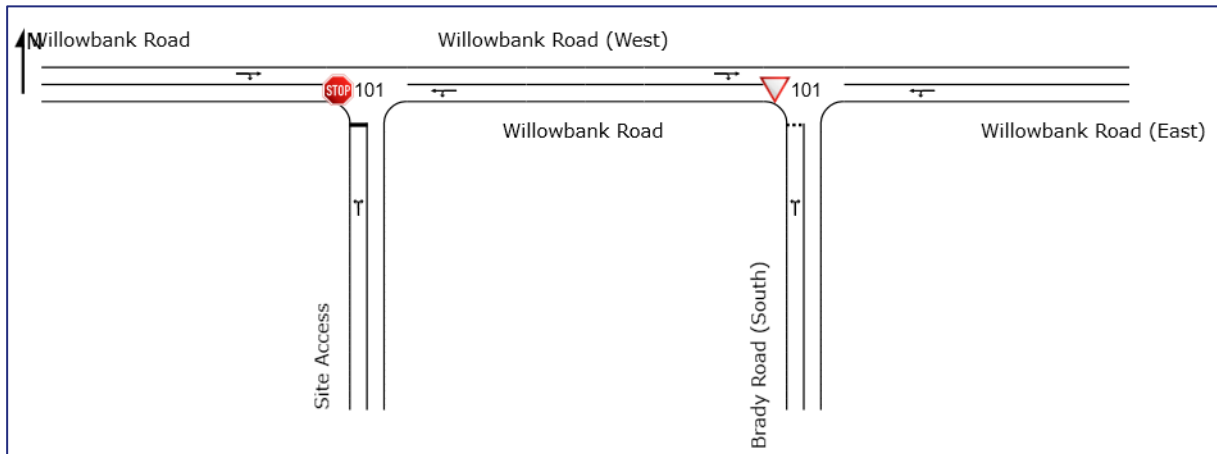


Figure 19: SIDRA Network model

Figure 20 to Figure 21 set out the Level of Service for each lane within the models.

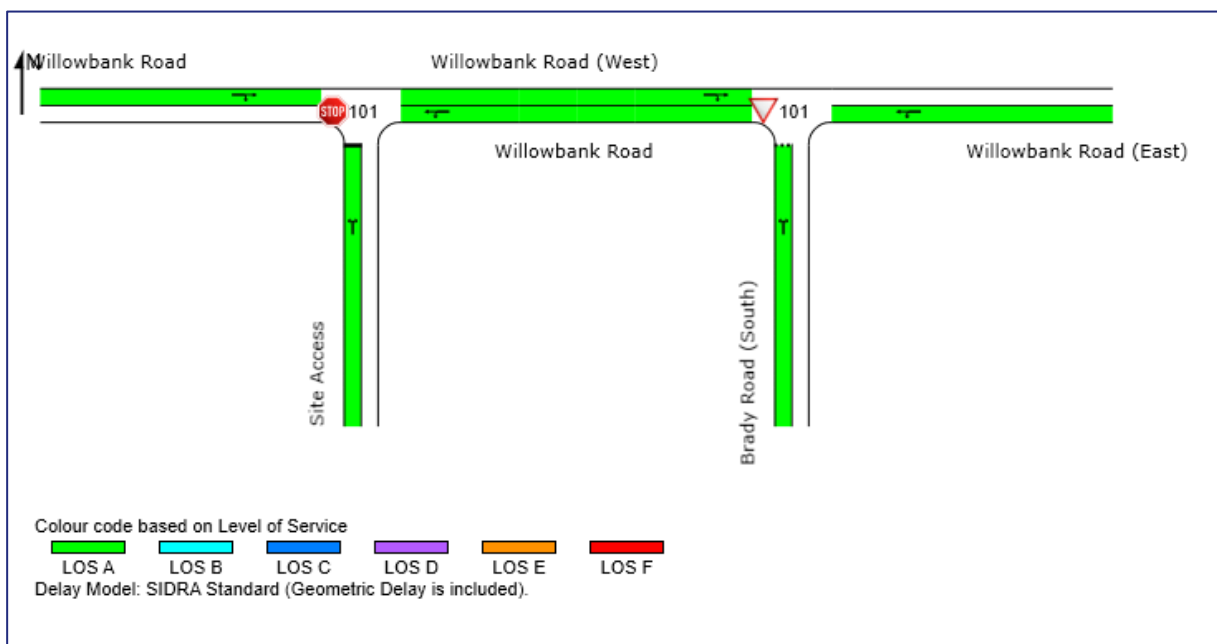


Figure 20: AM Peak hour post-development performance – Willowbank Road/Site Northern Access & Willowbank Road/Brady Road

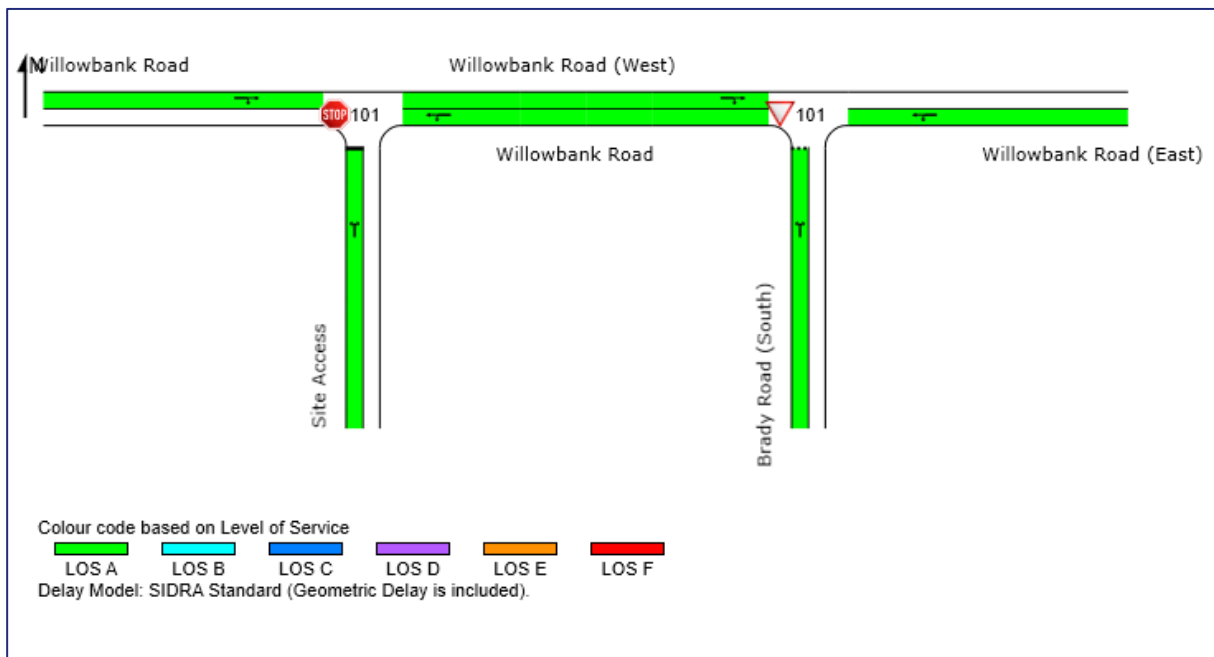


Figure 21: PM Peak hour post-development performance – Willowbank Road/Site Northern Access & Willowbank Road/Brady Road

The full SIDRA results are provided at Appendix F.

The analysis indicates that during the AM and PM peak periods, both the intersection of Willowbank Road/Brady Road and the proposed access point/Willowbank Road will operate with an LOS of A (Excellent).

The changes experienced at the intersection of Willowbank Road and Brady Road are very low and negligible, with minimal delays and queuing expected.

We are satisfied that the intersection of Willowbank Road and Brady Road will continue to operate within its capacity and that no mitigating works are required as a result of the proposed development.

The site's two access points assist with managing the traffic impacts of the development on this intersection as a large number of vehicle movements do not need to proceed through this intersection to access the site.

Overall, we are satisfied that the development traffic can readily be accommodated by the local and surrounding road network.

4.8.3. Intersection of Willowbank Road and Brady Road

We have reviewed a number of files and past studies in relation to this intersection, including the Gisborne Futures Draft Structure Plan (dated July 2020), Gisborne Movement Network Study (dated 2016) and Gisborne Futures Traffic and Transport Report by Cardno (dated July 2020).

The 2016 Gisborne Movement Network Study identifies that the intersection may be upgraded due to potential traffic congestion.

The Cardno report provides a summary of the background recommendations for the intersection, as per below.

Road network Recommendation	Identified in	Current status / Comments
Willowbank Road and Brady Road – intersection upgrade to provide a standard T-intersection when abutting land is developed.	ODP 2009, GMNS 2009	Implemented – standard T- intersection. GMNS 2016 notes that this intersection should be upgraded to a roundabout, considering future volumes. GMNS 2016 also recommends lowering the speed of Brady Road from 100kph to residential default 50kmh.

Figure 22: Extract from the Cardno Gisborne Futures Traffic and Transport Report

In reference to the above, a standard ‘T-intersection’ treated has already been provided. There is reference from a previous study that the intersection should be upgraded to a roundabout.

In any event, the Cardno report continues on to outline road upgrades in the area in the figure provided below and does not indicate that the intersection will be upgraded, only that a pedestrian crossing (zebra) will be installed.

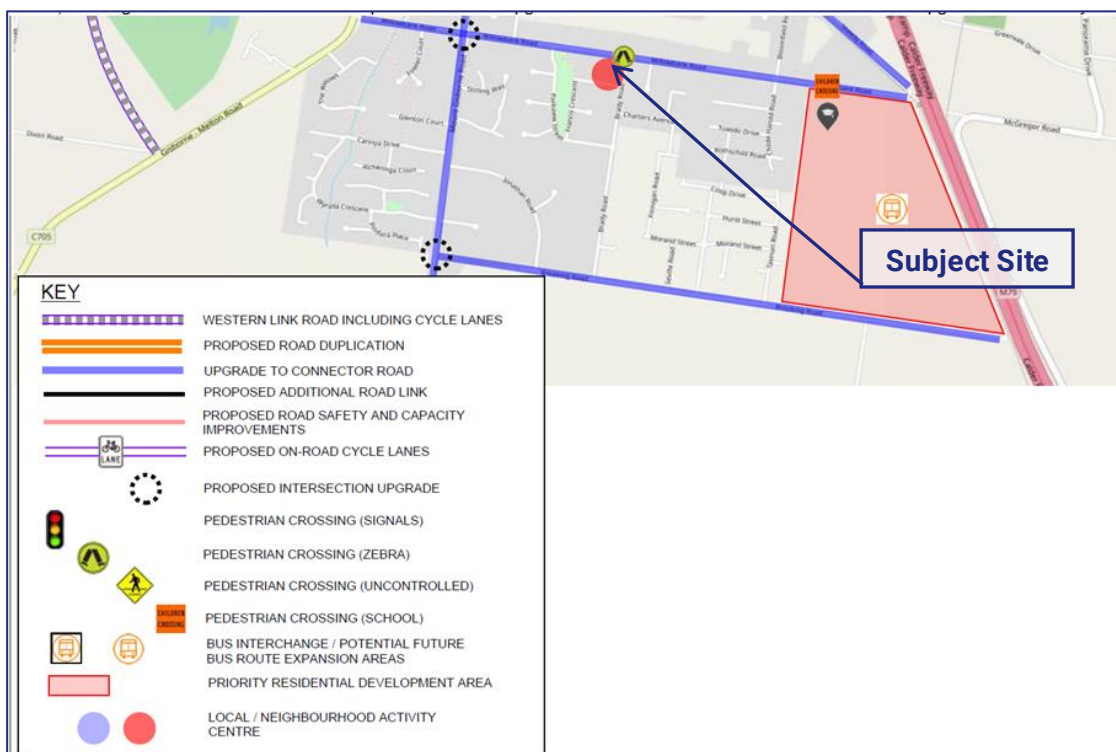


Figure 23: Extract from the Cardno Gisborne Futures Traffic and Transport Report

Based on the above and our traffic analysis outlined at Section 4.8.2, we do not consider that any upgrades are warranted to this intersection at this point in time and that there is more than sufficient capacity in the intersection. The study prepared by Cardno does not state that an upgrade is necessary, nor is it planned and there are no acquisition overlays across the subject land. In any event, a large corner splay is provided at the site’s north-eastern corner should Council wish to upgrade this intersection in the future.

5. Conclusions

Having undertaken a detailed traffic engineering assessment of the proposed commercial development at 101-105 Willowbank Road, Gisborne, we are of the opinion that:

- a) the proposed development has a statutory car parking requirement of 70 car spaces under Clause 52.06-5 and the provision of 57 car spaces results in an overall shortfall of 13 car spaces,
- b) the required car parking reduction under Clause 52.06-7 is supported on the following grounds:
 - i) The Car Parking Demand Assessment, which indicates that whilst the proposal seeks a statutory car parking reduction, the demands expected are likely to be met on-site via a combination of the differing peaks of the various uses (i.e. offices are typically closed in the evenings and on weekends, cafes typically peak on weekends) and the likely demands (i.e. supermarket surveys indicate smaller minimarts generate lower demands).
 - ii) the availability of alternative car parking in the nearby area to accommodate any unlikely overflow demands.
- c) It is noted that the plans identify the first floor area above the medical centre as a 'commercial' floor space. The ultimate land use for this space is not yet known, however we understand that the most likely use of this space is as an 'Office' and for the purposes of our assessment, we have assessed it as such. In practice, a number of other land uses may be used here and will likely fall within the car parking requirements of this use.
- d) bicycle parking is provided above the minimum requirements set out at Clause 52.34 of the Planning Scheme and accords with the design requirements of AS2890.3-2015,
- e) the proposed parking layout and vehicle access arrangements accord with the requirements of the Planning Scheme, AS2890.1:2004 (where relevant), AS2890.6:2009 and current practice,
- f) the level of traffic generated by the proposal will be modest and can be accommodated without any adverse impacts to the operation of the nearby road network, including the intersection of Willowbank Road and Brady Road,
- g) loading arrangements are acceptable from a traffic engineering perspective, with adequate loading opportunities being able to be accommodated within the on-site carpark,
- h) waste collection can be undertaken via a private contractor from within ground level carpark outside of operating times in line with the Waste Management Plan, and
- i) there are no traffic engineering reasons why a planning permit for the proposed commercial development at 101-105 Willowbank Road, Gisborne should be refused, subject to appropriate conditions.

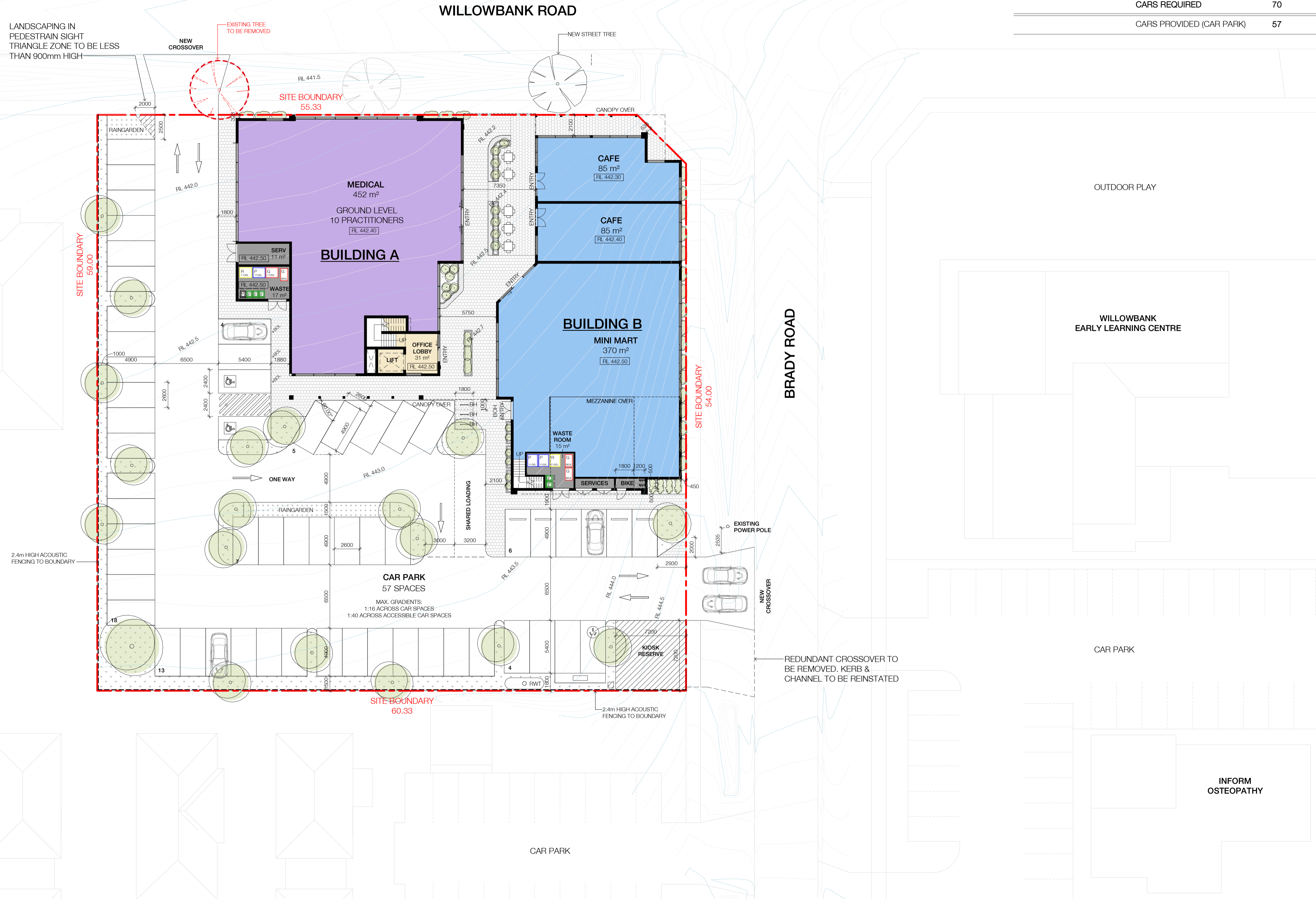


Appendix A

Development Plans

DEVELOPMENT SCHEDULE

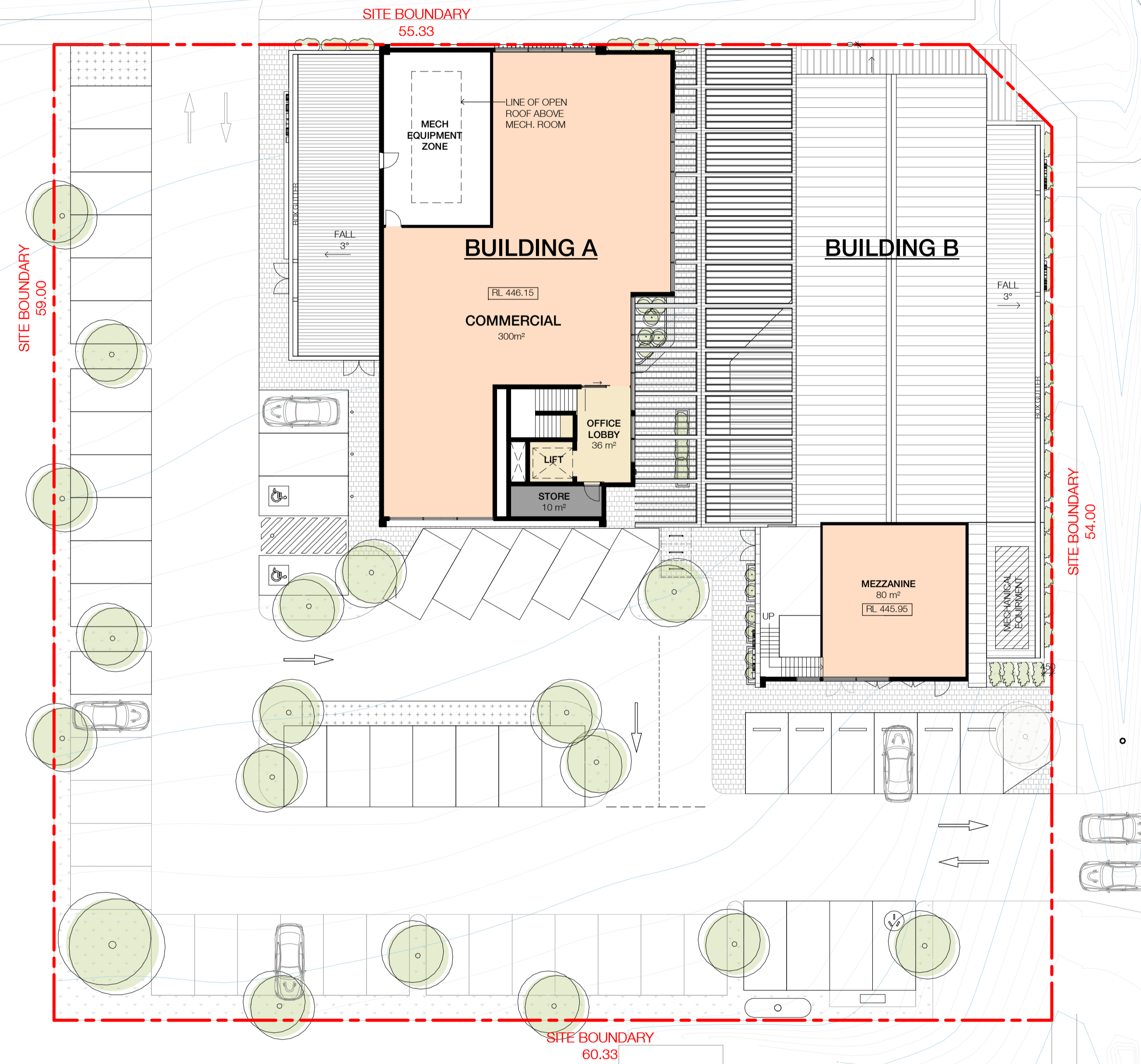
USE	AREA (m ²)	RATE (per 100m ²)	CARS
MINI MART	370	5	18
MINI MART (MEZZANINE LEVEL)	80	5	4
FOOD & BEVERAGE	170	4	6
MEDICAL CENTRE - 10 PRACTITIONERS	450	-	32
COMMERCIAL (LEVEL 1)	300	3.5	10
CARS REQUIRED			70
CARS PROVIDED (CAR PARK)			57



DEVELOPMENT SCHEDULE

USE	AREA (m ²)	RATE (per 100m ²)	CARS
MINI MART	370	5	18
MINI MART (MEZZANINE LEVEL)	80	5	4
FOOD & BEVERAGE	170	4	6
MEDICAL CENTRE - 10 PRACTITIONERS	450	-	32
COMMERCIAL (LEVEL 1)	300	3.5	10
CARS REQUIRED			70
CARS PROVIDED (CAR PARK)			57

WILLOWBANK ROAD



BRADY ROAD

WILLOWBANK
EARLY LEARNING CENTRE

INFORM
OSTEOPATHY



Appendix B

Parking Inventory

Surveyed By: Kenneth Ewe

Survey Dates & Times: See below

Location		Restriction	Capacity Min - Max	6-Dec-21
				11:30am
ON-STREET CARPARKING				
Map Ref.	Brady Road²			
	West Side			
B	Francis Crescent to SB #101-105 (SS)	No Stopping	-	0
		Unrestricted	6	0
	SB #101-105 (SS) to NB #101 - 105 (SS)/Willowbank Road	Unrestricted	6	0
		No Stopping	-	0
Brady Road2			Capacity	12 - 12
			Total Number of Cars Parked	0
			Total Number of Vacant Spaces	12
			Percentage Occupancy	0%
Map Ref.	Francis Crescent			
	North Side			
C	Brady Road to WB #14	No Stopping	-	0
		Unrestricted	22	6
South Side				
D	WB #13-15 to Brady Road	No Stopping	-	0
		Unrestricted	23	0
Francis Crescent			Capacity	45 - 45
			Total Number of Cars Parked	6
			Total Number of Vacant Spaces	39
			Percentage Occupancy	13%
Map Ref.	Willowbank Road			
	North Side			
E	WB #136 - WB # 128	Unrestricted	7	0
	WB # 128 to WB #122	Unrestricted	15	0
	WB #122 to WB # 116	Unrestricted	9	0
	WB # 116 to Brady Road	Unrestricted	6	0
	Brady Road to Thomeycroft Entrance	Unrestricted	17	0
South Side				
F	Pontvale Close to Brady Road	No Stopping	-	0
		Unrestricted	12	0
		No Stopping	-	0
G	EB #101 - 105 (SS)/Brady Road to WB #101-105 (SS)	No Stopping	-	0
		Unrestricted	8	0
	WB #101-105 (SS) to WB #117	Unrestricted	19	0
	WB #117 to WB #121	Unrestricted	6	0
Willowbank Road			Capacity	99 - 99
			Total Number of Cars Parked	0
			Total Number of Vacant Spaces	99
			Percentage Occupancy	0%
SUMMARY => ON-STREET CARPARKING				
Car Parking Supply			156 - 156	156
Total Number of Cars Parked				6
Total Number of Vacant Spaces				150
Percentage Occupancy				4%
Note:				
1. Public parking includes spaces that are available to the general public and excludes 'No Stopping', 'Loading Zones' and 'No Parking' areas, etc., during the relevant enforcement periods.				
2. Due to the limited carriageway width of Brady Road, on-street parking has only been considered on one side of the road on Brady Road (Side of the Subject Site).				
LEGEND: Public Parking				
Not available to the general public				
Not Available, illegally parked cars included in analysis				
No Stopping/ Other No Parking				





Appendix C

SIDRA Movement Summaries – Existing Conditions

MOVEMENT SUMMARY

Site: 101 [Willowbank Road & Brady Road - AM EXG (Site Folder: Existing Conditions)]

New Site
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV] veh/h	[Total veh/h]	[HV] %				[Veh. veh]	[Dist] m				
South: Brady Road (South)														
1	L2	96	1	101	1.0	0.094	4.7	LOS A	0.4	2.6	0.14	0.52	0.14	49.4
3	R2	30	0	32	0.0	0.094	5.3	LOS A	0.4	2.6	0.14	0.52	0.14	49.0
Approach		126	1	133	0.8	0.094	4.9	LOS A	0.4	2.6	0.14	0.52	0.14	49.3
East: Willowbank Road (East)														
4	L2	45	1	47	2.2	0.055	5.6	LOS A	0.0	0.0	0.00	0.27	0.00	55.9
5	T1	52	2	55	3.8	0.055	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	57.5
Approach		97	3	102	3.1	0.055	2.6	NA	0.0	0.0	0.00	0.27	0.00	56.8
West: Willowbank Road (West)														
11	T1	43	5	45	11.6	0.071	0.3	LOS A	0.3	2.4	0.20	0.36	0.20	56.0
12	R2	72	0	76	0.0	0.071	5.8	LOS A	0.3	2.4	0.20	0.36	0.20	50.2
Approach		115	5	121	4.3	0.071	3.7	NA	0.3	2.4	0.20	0.36	0.20	52.2
All Vehicles		338	9	356	2.7	0.094	3.8	NA	0.4	2.6	0.12	0.39	0.12	52.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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 [Willowbank Road & Brady Road - PM EXG (Site Folder: Existing Conditions)]

New Site
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Brady Road (South)														
1	L2	75	1.0	79	1.0	0.083	4.7	LOS A	0.3	2.2	0.11	0.52	0.11	49.5
3	R2	35	0.0	37	0.0	0.083	5.1	LOS A	0.3	2.2	0.11	0.52	0.11	49.1
Approach		110	0.7	116	0.7	0.083	4.8	LOS A	0.3	2.2	0.11	0.52	0.11	49.4
East: Willowbank Road (East)														
4	L2	32	0.0	34	0.0	0.038	5.5	LOS A	0.0	0.0	0.00	0.28	0.00	55.9
5	T1	35	6.0	37	6.0	0.038	0.0	LOS A	0.0	0.0	0.00	0.28	0.00	57.4
Approach		67	3.1	71	3.1	0.038	2.7	NA	0.0	0.0	0.00	0.28	0.00	56.7
West: Willowbank Road (West)														
11	T1	35	0.0	37	0.0	0.061	0.2	LOS A	0.3	2.0	0.16	0.37	0.16	56.1
12	R2	67	0.0	71	0.0	0.061	5.7	LOS A	0.3	2.0	0.16	0.37	0.16	50.3
Approach		102	0.0	107	0.0	0.061	3.8	NA	0.3	2.0	0.16	0.37	0.16	52.2
All Vehicles		279	1.0	294	1.0	0.083	3.9	NA	0.3	2.2	0.10	0.41	0.10	52.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



Appendix D

Carpark Layout Review



Table 9: Carpark Layout and Access Assessment

Requirement	Assessment	Design Response
Clause 52.06-9 Design Standard 1 – Accessways		
Must be at least 3m wide	✓	Accessways are greater than 3m in width
Have an internal radius of at least 4m at changes of direction or intersection or be at least 4.2m wide.	o	B99 design car can navigate all bends. Objective achieved.
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forwards direction with one manoeuvre.	✓	Complies.
Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8m.	✓	The carpark is an open carpark.
If the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or Transport Zone 3, the accessway must be designed so that cars can exit the site in a forward direction.	✓	Complies.
Provide a passing area at the entrance at least 6.1m wide and 7m long if the accessway serves ten or more car parking spaces and is either more than 50m long or connects to a road in a Transport Zone 2 or Transport Zone 3.	✓	Passing area provided.
Have a corner splay or area at least 50% clear of visual obstructions extending at least 2m along the frontage road from the edge of an exit lane and 2.5m along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	✓	Splays provided.
If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or Transport Zone 3, the access to the car spaces must be at least 6m from the road carriageway.	✓	Complies.

Requirement	Assessment	Design Response
If entry to the car space is from a road, the width of the accessway may include the road.	✓	Not applicable.

Clause 52.06-9 Design Standard 2 – Car Parking Spaces

Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 under Clause 52.06-9.

Angle of car spaces to accessway	Accessway width	Car park width	Car park length
Parallel	3.6 m	2.3 m	6.7 m
45°	3.5 m	2.6 m	4.9 m
60°	4.9 m	2.6 m	4.9 m
90°	6.4 m	2.6 m	4.9 m
	5.8 m	2.8 m	4.9 m
	5.2 m	3.0 m	4.9 m
	4.8 m	3.2 m	4.9 m

Note to Table 2: Some dimensions in Table 2 vary from those shown in the Australian Standard AS2890.1-2004 (off street). The dimensions shown in Table 2 allocate more space to aisle widths and less to marked spaces to provide improved operation and access. The dimensions in Table 2 are to be used in preference to the Australian Standard AS2890.1-2004 (off street) except for disabled spaces which must achieve Australian Standard AS2890.6-2009 (disabled).

✓

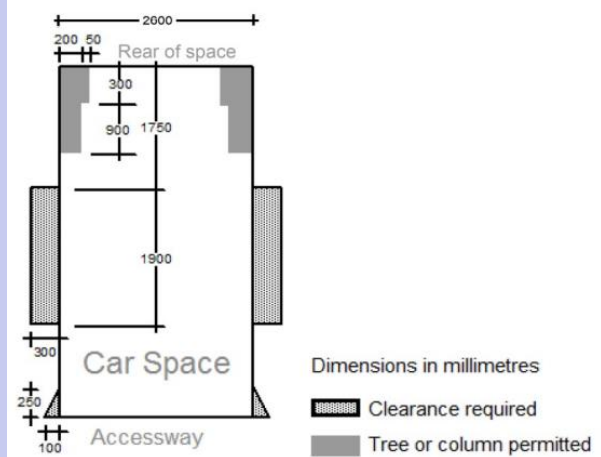
All car spaces are 2.6m wide x 4.9m with a 6.5m wide access aisle for 90-degree parking and 4.9m wide access aisle for 60-degree parking.

Access to and from the car spaces within the at-grade carpark have been checked for access by the B85 design car (specified at Appendix B of AS2890.1-2004).

A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1, other than:

- A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1.
- A structure, which may project into the space if it is at least 2.1 metres above the space.

Diagram 1 Clearance to car parking spaces



✓

Complies.

Requirement	Assessment	Design Response
Car spaces in garages/carports must be at least 6m long and 3.5m wide for a single space and 5.5m wide for a double space measured inside the garage/carport.	N/A	No garages proposed.
Where parking spaces are provided in tandem, an additional 0.5m in length must be provided between each space.	N/A	No tandem car spaces.
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	N/A	No dwellings proposed within the development.
Disabled car parking spaces must be designed in accordance with AS2890.6-2009 and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 by 0.5m. A minimum headroom of 2.5m is to be provided above the disabled car space in accordance with AS2890.6-2009.	✓	Complies.

Clause 52.06-9 Design Standard 3 - Gradients

Accessway grades must not be steeper than 1:10 (10 per cent) within 5 metres of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage. This does not apply to accessways serving three dwellings or less.	✓	Complies.													
Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 and be designed for vehicles travelling in a forward direction.	✓	Complies.													
<table border="1"> <thead> <tr> <th>Type of car park</th> <th>Length of ramp</th> <th>Maximum grade</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Public car parks</td> <td>20 metres or less</td> <td>1:5 (20%)</td> </tr> <tr> <td>longer than 20 metres</td> <td>1:6 (16.7%)</td> </tr> <tr> <td rowspan="2">Private or residential car parks</td> <td>20 metres or less</td> <td>1:4 (25%)</td> </tr> <tr> <td>longer than 20 metres</td> <td>1:5 (20%)</td> </tr> </tbody> </table>	Type of car park	Length of ramp	Maximum grade	Public car parks	20 metres or less	1:5 (20%)	longer than 20 metres	1:6 (16.7%)	Private or residential car parks	20 metres or less	1:4 (25%)	longer than 20 metres	1:5 (20%)		
Type of car park	Length of ramp	Maximum grade													
Public car parks	20 metres or less	1:5 (20%)													
	longer than 20 metres	1:6 (16.7%)													
Private or residential car parks	20 metres or less	1:4 (25%)													
	longer than 20 metres	1:5 (20%)													
Where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5 per cent) for a summit grade change, or greater than 1:6.7 (15 per cent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.	✓	Complies.													

Requirement	Assessment	Design Response
Plans must include an assessment of grade changes of greater than 1:5.6 (18 per cent) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority	✓	Complies.
Clause 52.06-9 Design Standard 5 – Urban Design		
Ground level car parking, garage doors and accessways must not visually dominate public space.	N/A*	These matters are more related to urban design, rather than specifically traffic engineering.
Car parking within buildings (including visible portions of partly submerged basements) must be screened or obscured where possible, including through the use of occupied tenancies, landscaping, architectural treatments and artworks.		
Design of car parks must take into account their use as entry points to the site.		
Design of new internal streets in developments must maximise on street parking opportunities.	N/A	No internal streets proposed.
Clause 52.06-9 Design Standard 6 – Safety		
Car parking must be well lit and clearly signed.	N/A	It is expected that the carpark will be well lit during operational hours for the uses on the site and that this will be directed as part of the detailed design stage of the works. Appropriate signage will be provided across the site and can be managed in the post-permit process.
The design of car parks must maximise natural surveillance and pedestrian visibility from adjacent buildings.	✓	We are satisfied that the common accessway naturally provides good sightlines.
Pedestrian access to car parking areas from the street must be convenient.	✓	A dedicated footpath is provided from both Willowbank Road and Brady Road to the at-grade carpark.

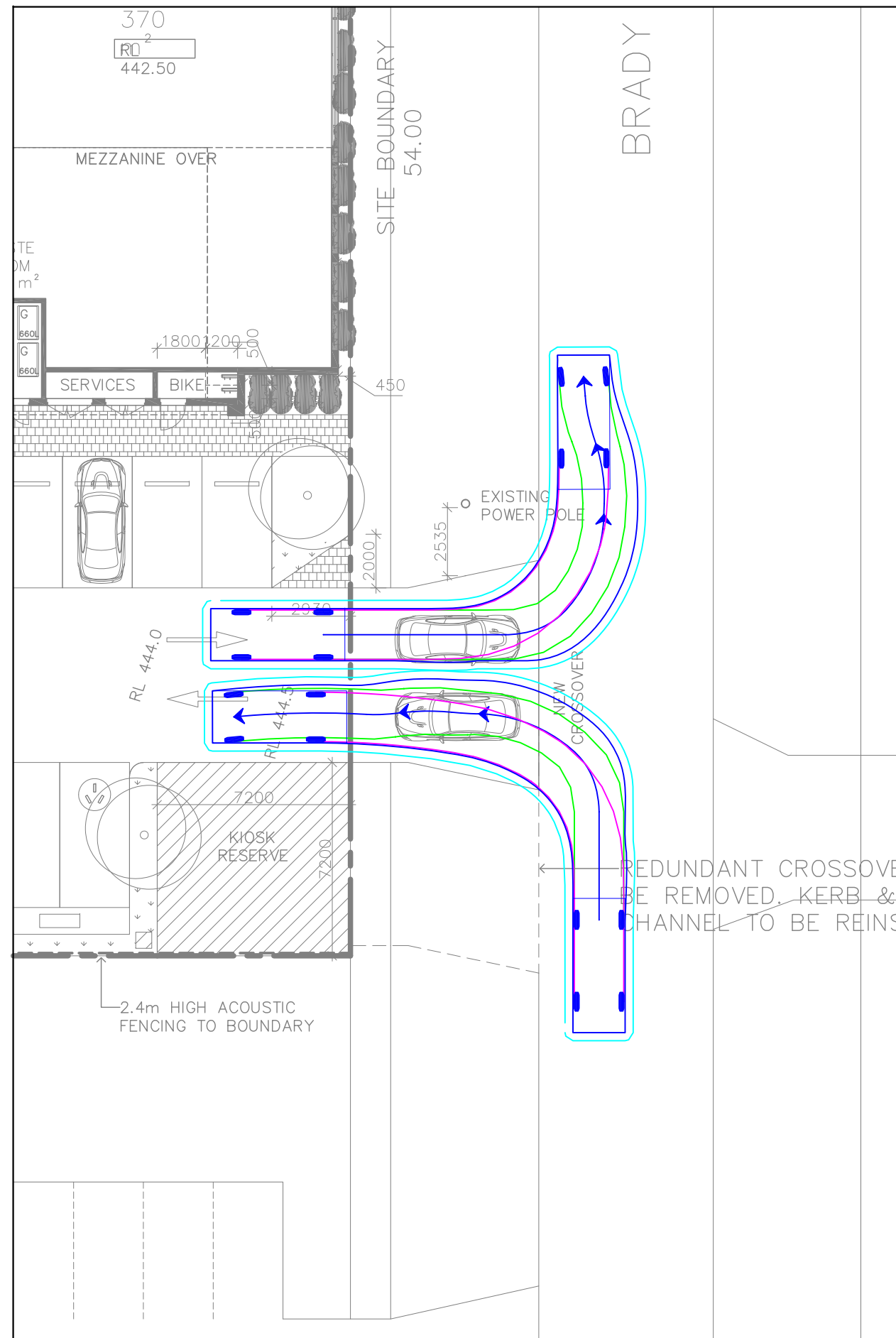
Requirement	Assessment	Design Response
<p>Pedestrian routes through car parking areas and building entries and other destination points must be clearly marked and separated from traffic in high activity parking areas.</p>	<p>✓</p>	<p>The carpark is not especially large and travel distances within the carpark to a separated pedestrian area are not far. We are satisfied that pedestrian routes are appropriate.</p>
<p>Clause 52.06-9 Design Standard 7 - Landscaping</p>		
<p>The layout of car parking areas must provide for water sensitive urban design treatment and landscaping.</p>	<p>N/A*</p>	<p>These requirements are not strictly related to traffic engineering matters.</p>
<p>Landscaping and trees must be planted to provide shade and shelter, soften the appearance of ground level car parking and aid in the clear identification of pedestrian paths.</p>		
<p>Ground level car parking spaces must include trees planted with flush grilles. Spacing of trees must be determined having regard to the expected size of the selected species at maturity.</p>		



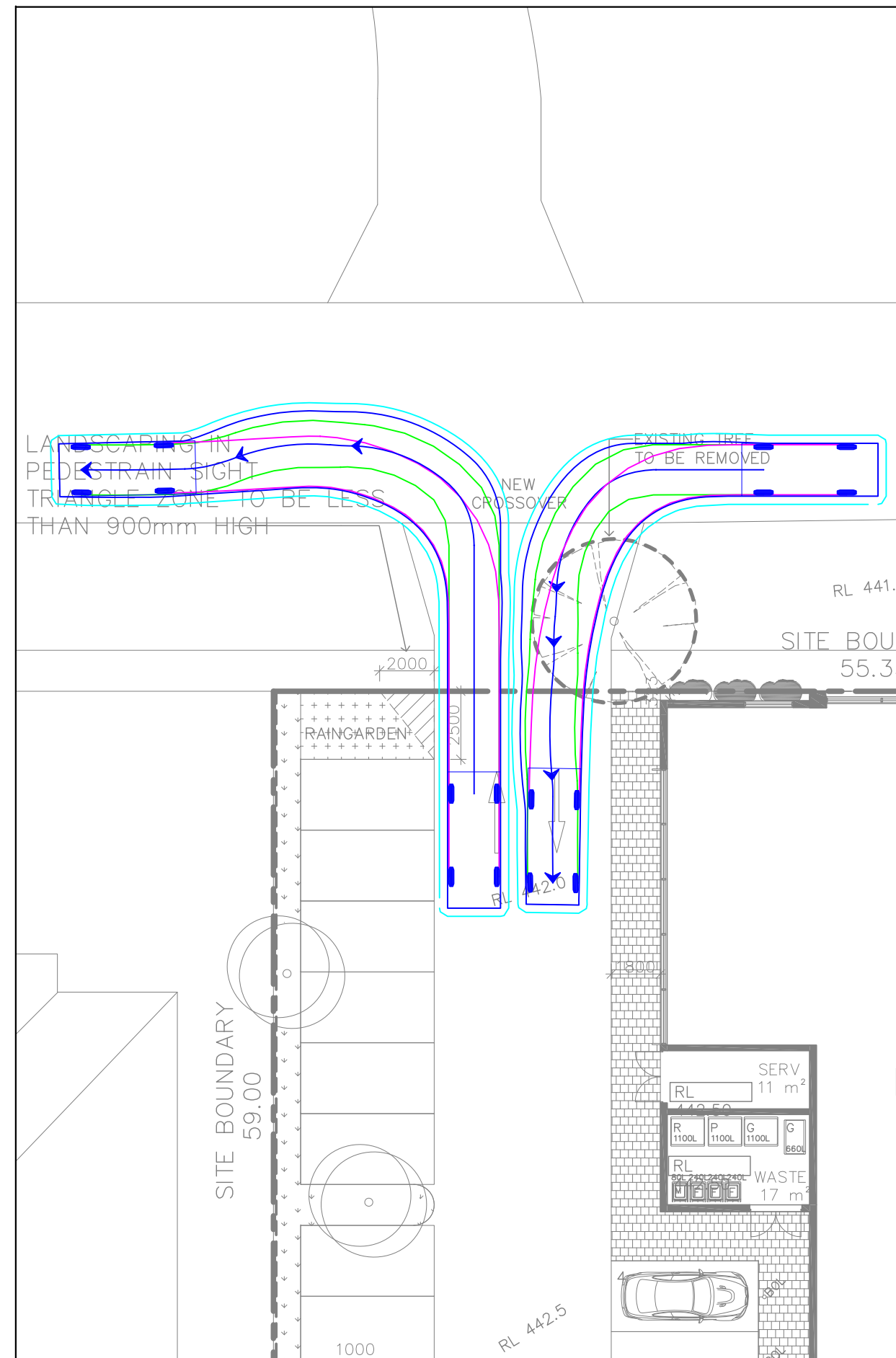
Appendix E

Swept Path Diagrams

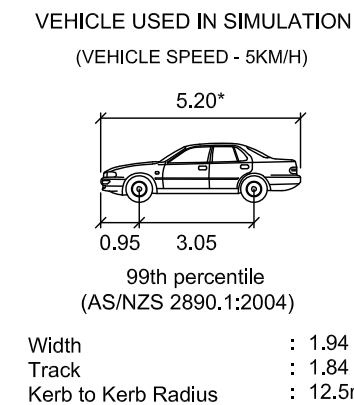
BRADY ROAD ACCESS - B99 VEHICLE PASSING AREA



WILLOWBANK ROAD ACCESS - B99 VEHICLE PASSING AREA



VEHICLE PROFILE



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	18/07/2022	TOWN PLANNING	K. EWE	J. STONE

101-106 WILLOWBANK ROAD, GISBORNE
PROPOSED COMMERCIAL DEVELOPMENT

GENERAL NOTES:
BASE INFORMATION FROM:
"210037_tp02a_ground floor site plan_dwg.dwg"
DRAWINGS BY: ClarkeHopkinsClarke, dated 10 June, 2022.

FILE NAME: G31013-01A
SHEET NO.: 01

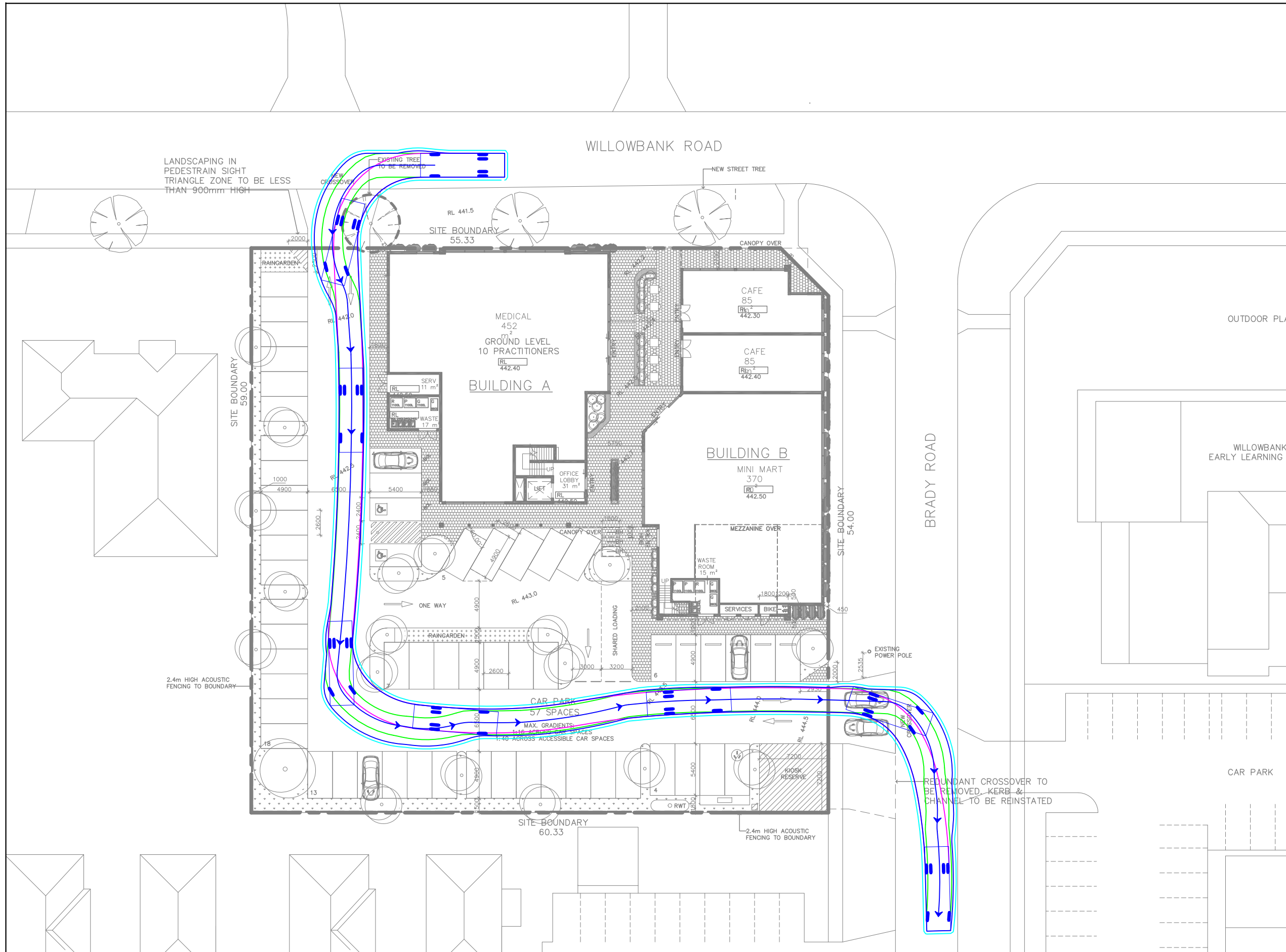


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VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

MRV (AS 2890.2) mm

Width	:	2500
Track	:	2500
Lock to Lock Time	:	6.0
Steering Angle	:	34.0

LEGEND

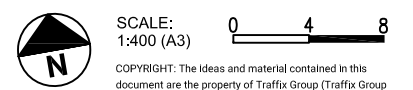
—	REAR WHEELS	—	VEHICLE BODY
—	FRONT WHEELS	—	BODY CLEARANCE

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	18/07/2022	TOWN PLANNING	K. EWE	J. STONE

101-106 WILLOWBANK ROAD, GISBORNE
PROPOSED COMMERCIAL DEVELOPMENT

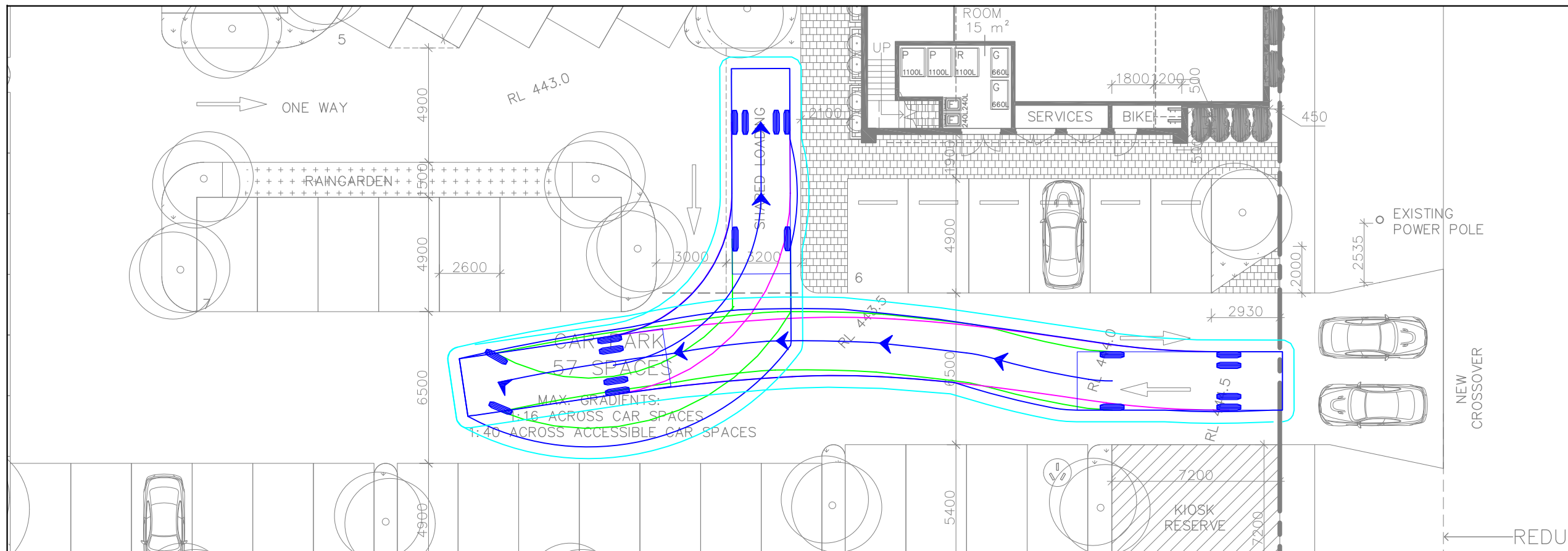
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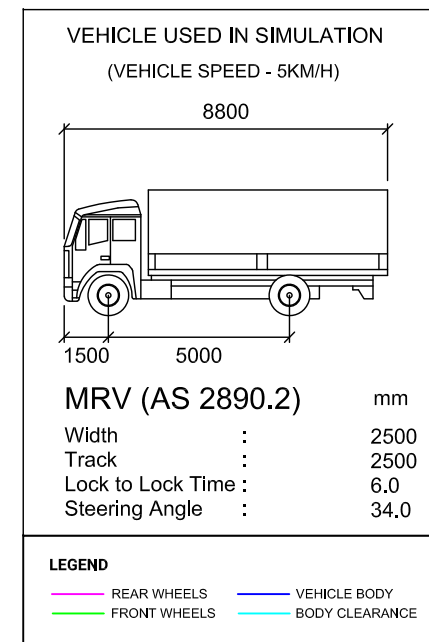


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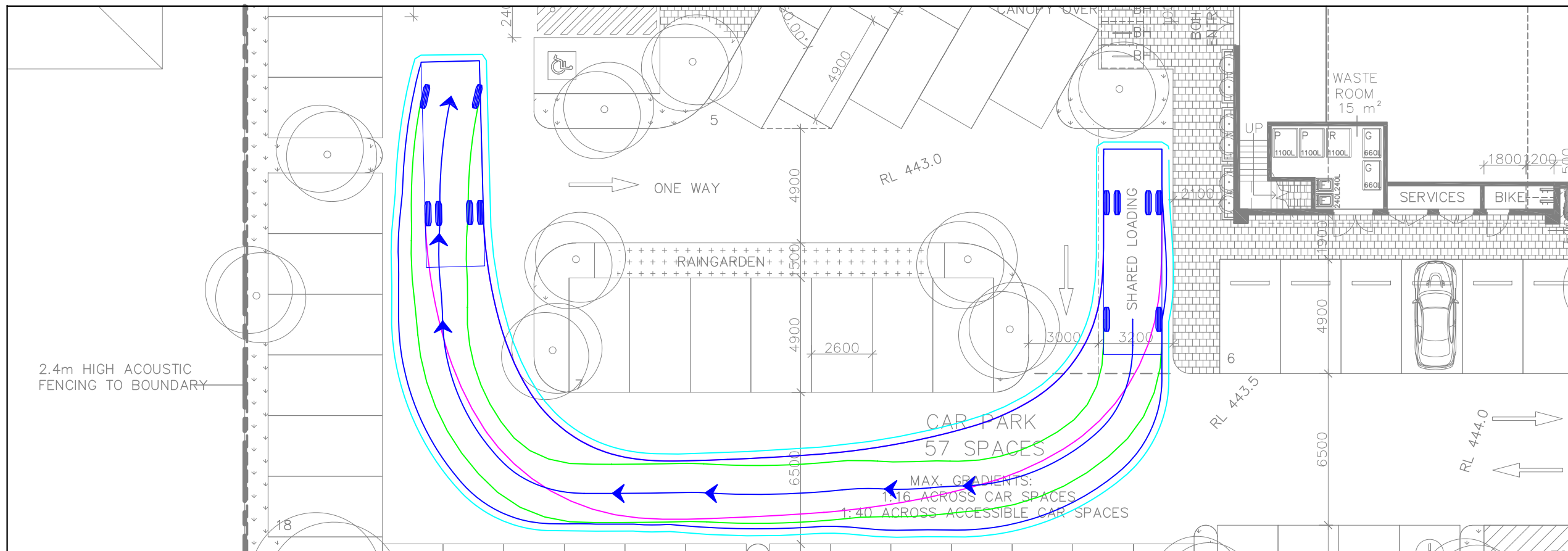
8.8m MRV - SHARED LOADING BAY INGRESS



VEHICLE PROFILE



8.8m MRV - SHARED LOADING BAY EGRESS



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101-106 WILLOWBANK ROAD, GISBORNE
 PROPOSED COMMERCIAL DEVELOPMENT

GENERAL NOTES:
 BASE INFORMATION FROM:
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 DRAWINGS BY: ClarkeHopkinsClarke, dated 10
 June, 2022.

FILE NAME: G31013-01A
SHEET NO.: 03

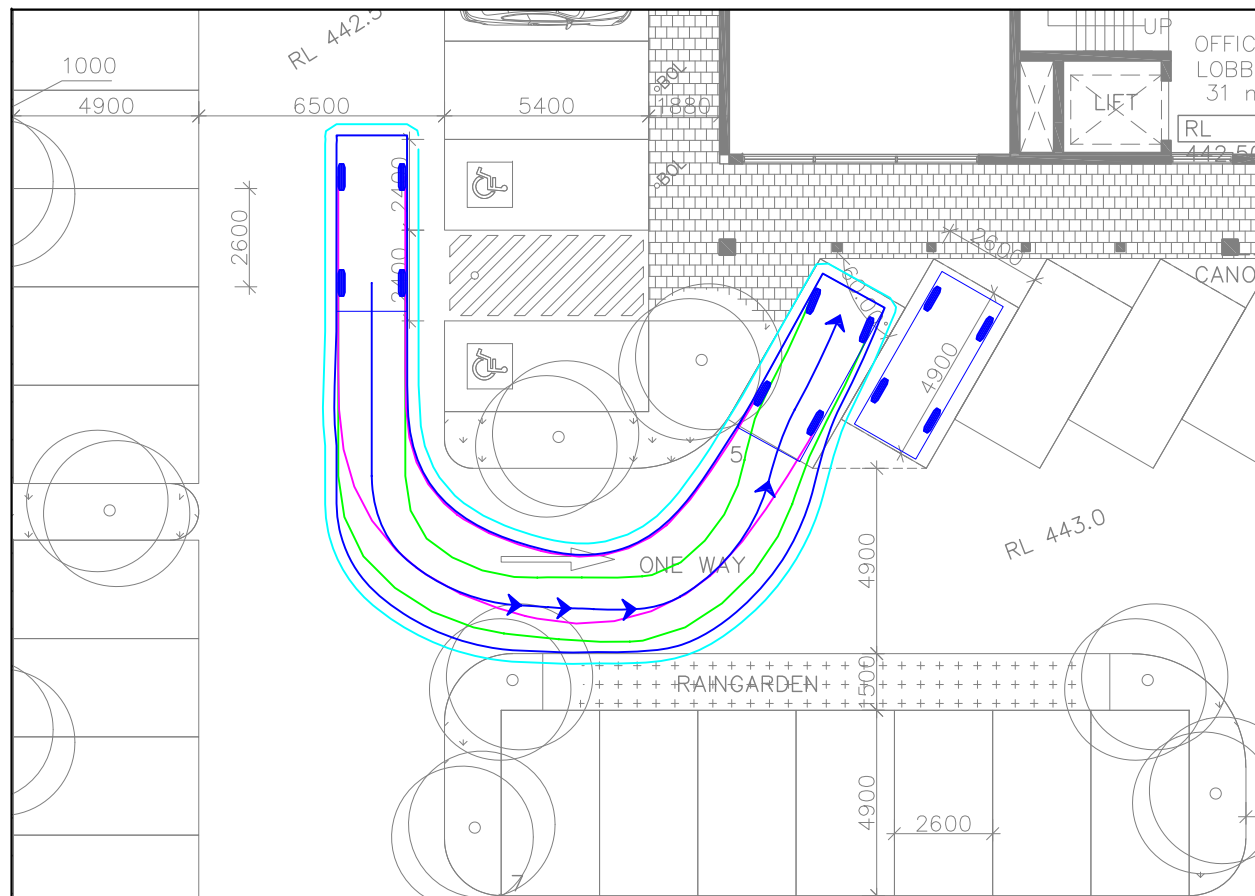


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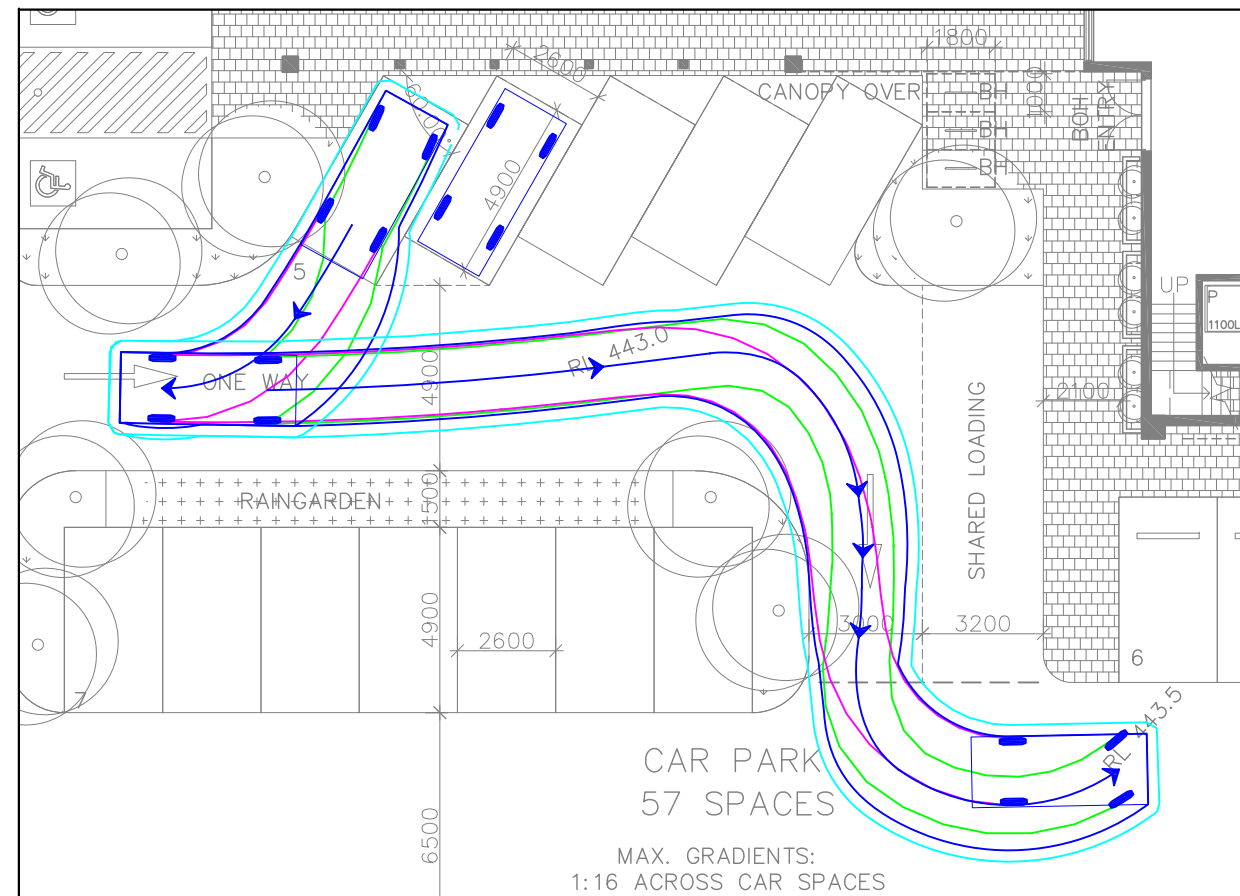
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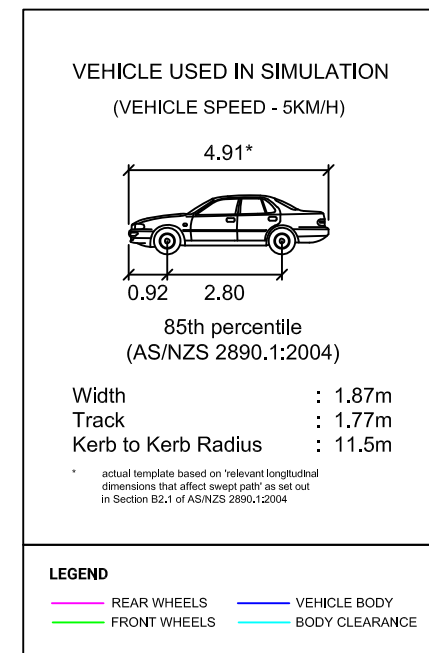
60 DEGREE CAR SPACE 01 - INGRESS



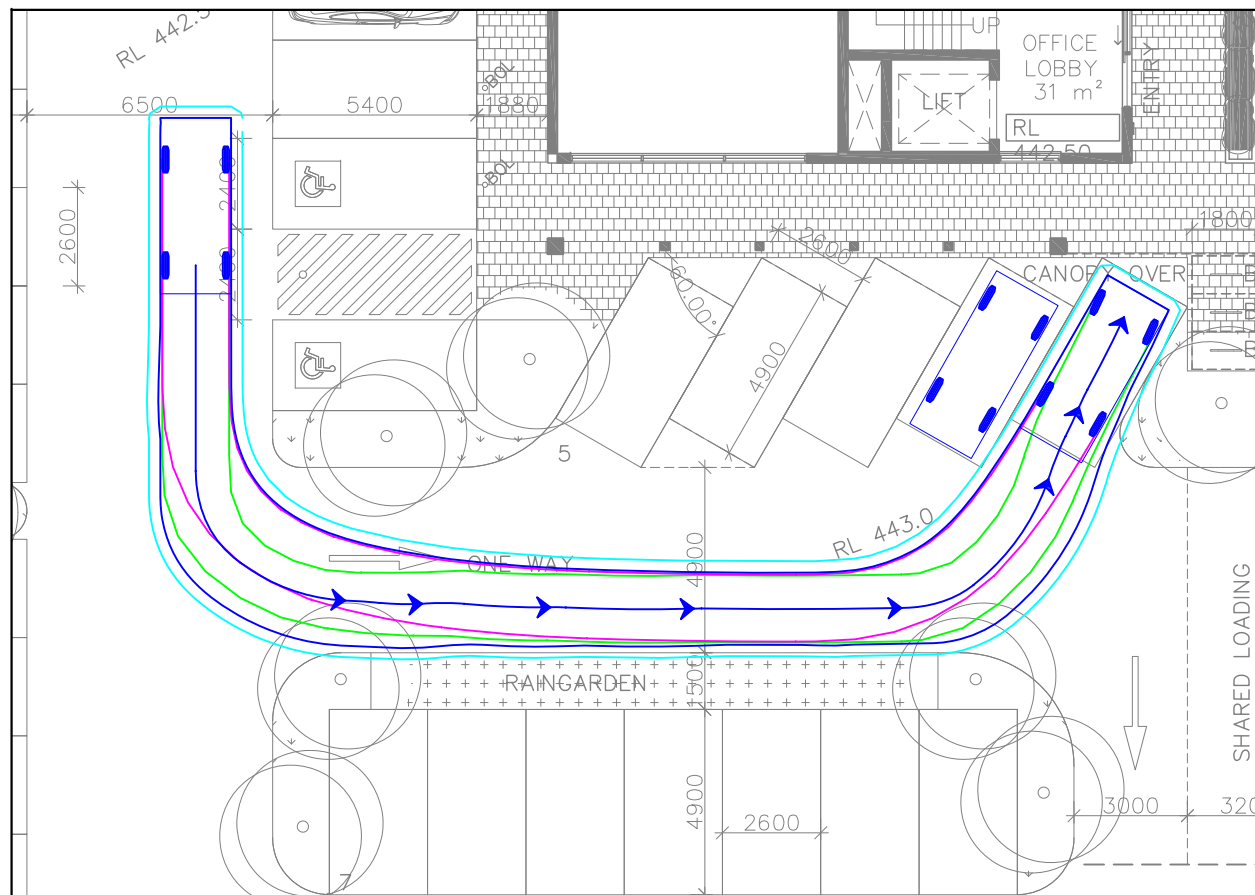
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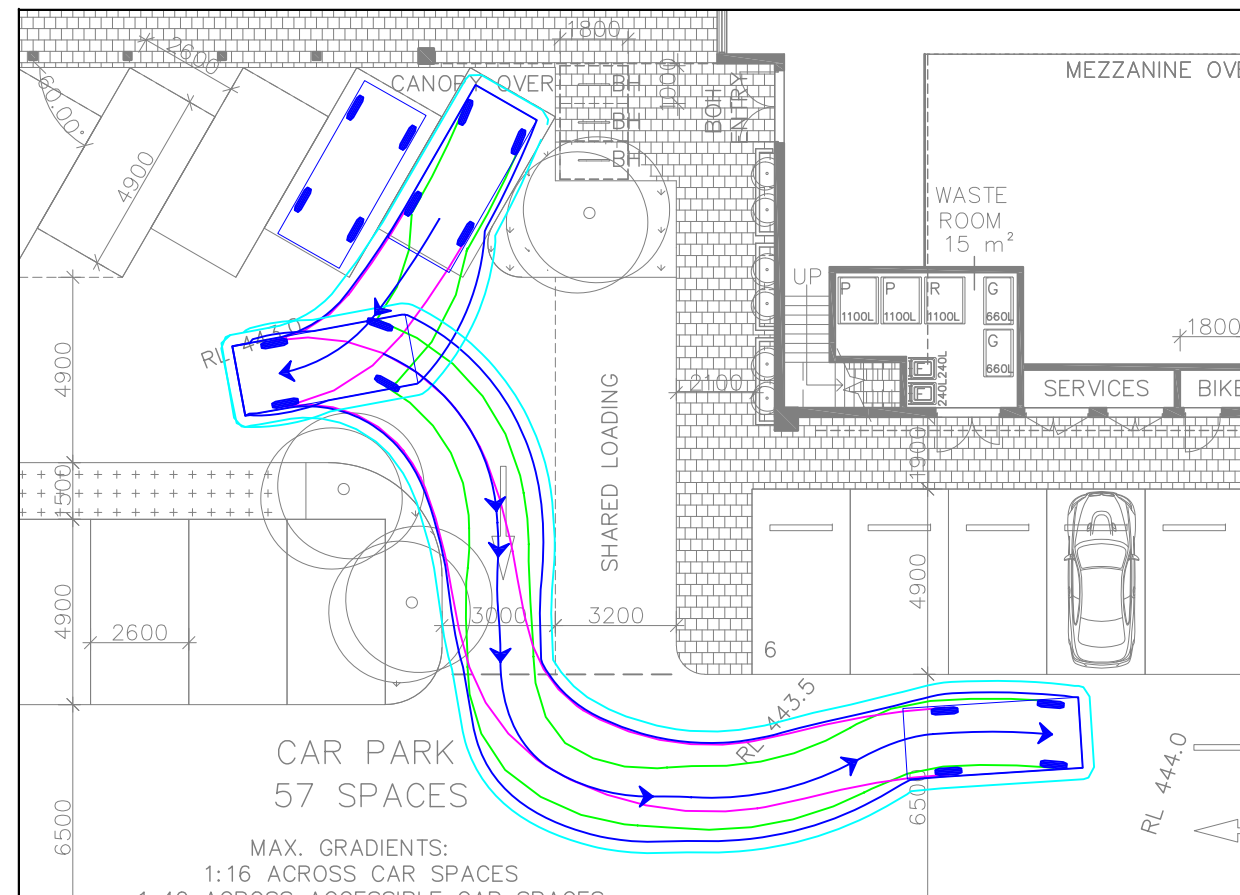
VEHICLE PROFILE



60 DEGREE CAR SPACE 02 - INGRESS



60 DEGREE CAR SPACE 02 - EGRESS

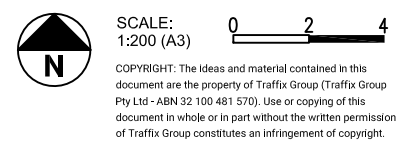


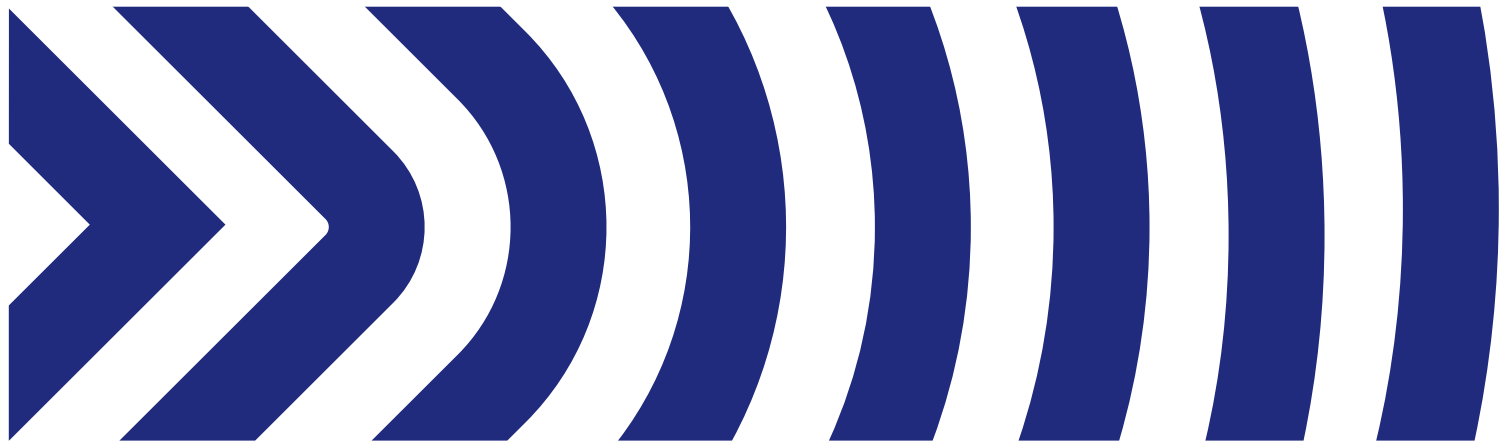
REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	18/07/2022	TOWN PLANNING	K. EWE	J. STONE

101-106 WILLOWBANK ROAD, GISBORNE
PROPOSED COMMERCIAL DEVELOPMENT

GENERAL NOTES:
 BASE INFORMATION FROM:
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 DRAWINGS BY: ClarkeHopkinsClarke, dated 10 June, 2022.

FILE NAME: G31013-01A
SHEET NO.: 04





Appendix F

SIDRA Movement Summaries – Post-Development Conditions

MOVEMENT SUMMARY

Site: 101 [Willowbank Road & Brady Road - AM PDV (Site Folder: Post-Development)]

Network: N101 [AM PDV (Network Folder: General)]

New Site
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Brady Road (South)														
1	L2	101	1.0	101	1.0	0.101	4.8	LOS A	0.4	2.8	0.15	0.52	0.15	43.9
3	R2	38	0.0	38	0.0	0.101	5.4	LOS A	0.4	2.8	0.15	0.52	0.15	49.0
Approach		139	0.8	139	0.8	0.101	4.9	LOS A	0.4	2.8	0.15	0.52	0.15	45.9
East: Willowbank Road (East)														
4	L2	58	1.8	58	1.8	0.065	5.6	LOS A	0.0	0.0	0.00	0.28	0.00	55.9
5	T1	64	3.3	64	3.3	0.065	0.0	LOS A	0.0	0.0	0.00	0.28	0.00	55.2
Approach		122	2.6	122	2.6	0.065	2.7	NA	0.0	0.0	0.00	0.28	0.00	55.6
West: Willowbank Road (West)														
11	T1	52	10.2	52	10.2	0.075	0.3	LOS A	0.3	2.5	0.22	0.33	0.22	55.0
12	R2	76	0.0	76	0.0	0.075	4.4	LOS A	0.3	2.5	0.22	0.33	0.22	45.8
Approach		127	4.1	127	4.1	0.075	2.7	NA	0.3	2.5	0.22	0.33	0.22	49.1
All Vehicles		388	2.4	388	2.4	0.101	3.5	NA	0.4	2.8	0.13	0.38	0.13	50.0

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

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 [Willowbank Road & Site Access - AM PDV (Site Folder: Post-Development)]

Network: N101 [AM PDV (Network Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total HV veh/h	%				[Veh. veh	Dist] m				
South: Site Access														
1	L2	26	0.0	26	0.0	0.029	8.0	LOS A	0.1	0.7	0.27	0.87	0.27	47.9
3	R2	6	0.0	6	0.0	0.029	8.3	LOS A	0.1	0.7	0.27	0.87	0.27	41.5
Approach		33	0.0	33	0.0	0.029	8.1	LOS A	0.1	0.7	0.27	0.87	0.27	47.1
East: Willowbank Road														
4	L2	9	0.0	9	0.0	0.086	4.1	LOS A	0.0	0.0	0.00	0.03	0.00	56.7
5	T1	156	1.4	156	1.4	0.086	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.5
Approach		165	1.3	165	1.3	0.086	0.2	NA	0.0	0.0	0.00	0.03	0.00	59.4
West: Willowbank Road														
11	T1	121	4.3	121	4.3	0.077	0.1	LOS A	0.1	1.0	0.09	0.09	0.09	57.8
12	R2	20	0.0	20	0.0	0.077	6.0	LOS A	0.1	1.0	0.09	0.09	0.09	52.5
Approach		141	3.7	141	3.7	0.077	0.9	NA	0.1	1.0	0.09	0.09	0.09	56.4
All Vehicles		339	2.2	339	2.2	0.086	1.3	NA	0.1	1.0	0.06	0.14	0.06	56.0

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

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 [Willowbank Road & Brady Road - PM PDV (Site Folder: Post-Development)]

Network: N101 [PM PDV (Network Folder: General)]

New Site
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Brady Road (South)														
1	L2	79	1.0	79	1.0	0.090	4.7	LOS A	0.3	2.4	0.12	0.52	0.12	44.0
3	R2	44	0.0	44	0.0	0.090	5.2	LOS A	0.3	2.4	0.12	0.52	0.12	49.0
Approach		123	0.6	123	0.6	0.090	4.9	LOS A	0.3	2.4	0.12	0.52	0.12	46.5
East: Willowbank Road (East)														
4	L2	41	0.0	41	0.0	0.046	5.6	LOS A	0.0	0.0	0.00	0.28	0.00	55.9
5	T1	44	6.0	44	6.0	0.046	0.0	LOS A	0.0	0.0	0.00	0.28	0.00	55.1
Approach		85	3.1	85	3.1	0.046	2.7	NA	0.0	0.0	0.00	0.28	0.00	55.6
West: Willowbank Road (West)														
11	T1	44	0.0	44	0.0	0.066	0.2	LOS A	0.3	2.1	0.18	0.34	0.18	55.2
12	R2	71	0.0	71	0.0	0.066	4.2	LOS A	0.3	2.1	0.18	0.34	0.18	45.9
Approach		115	0.0	115	0.0	0.066	2.7	NA	0.3	2.1	0.18	0.34	0.18	49.1
All Vehicles		323	1.1	323	1.1	0.090	3.5	NA	0.3	2.4	0.11	0.39	0.11	49.7

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.

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

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 [Willowbank Road & Site Access - PM PDV (Site Folder: Post-Development)]

Network: N101 [PM PDV (Network Folder: General)]

New Site
 Site Category: (None)
 Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Site Access														
1	L2	24	0.0	24	0.0	0.027	7.9	LOS A	0.1	0.7	0.23	0.88	0.23	47.9
3	R2	7	0.0	7	0.0	0.027	8.0	LOS A	0.1	0.7	0.23	0.88	0.23	41.6
Approach		32	0.0	32	0.0	0.027	7.9	LOS A	0.1	0.7	0.23	0.88	0.23	47.0
East: Willowbank Road														
4	L2	7	0.0	7	0.0	0.066	4.1	LOS A	0.0	0.0	0.00	0.03	0.00	56.7
5	T1	116	6.0	116	6.0	0.066	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.5
Approach		123	5.6	123	5.6	0.066	0.2	NA	0.0	0.0	0.00	0.03	0.00	59.3
West: Willowbank Road														
11	T1	107	0.0	107	0.0	0.069	0.1	LOS A	0.1	0.9	0.09	0.10	0.09	57.6
12	R2	21	0.0	21	0.0	0.069	5.8	LOS A	0.1	0.9	0.09	0.10	0.09	52.5
Approach		128	0.0	128	0.0	0.069	1.0	NA	0.1	0.9	0.09	0.10	0.09	56.1
All Vehicles		283	2.5	283	2.5	0.069	1.5	NA	0.1	0.9	0.06	0.16	0.06	55.5

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.