102 - 108 Humffray Street South, Bakery Hill

Transport Impact Assessment

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4 November 2022

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one*mile****grid*** *operates from Wurundjeri Woiworung Country of the Kulin nation. We acknowledge and extend our appreciation to the Wurundjeri People, the Traditional Owners of the land. We pay our respects to leaders and Elders past, present and emerging for they hold the memories, the traditions, the culture, and the hopes of all Wurundjeri Peoples.*

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1 INTRODUCTION

onemile**grid** has been requested by Hygge Property to undertake a Transport Impact Assessment of the proposed mixed-use commercial and residential development at 102 - 108 Humffray Street South, Bakery Hill.

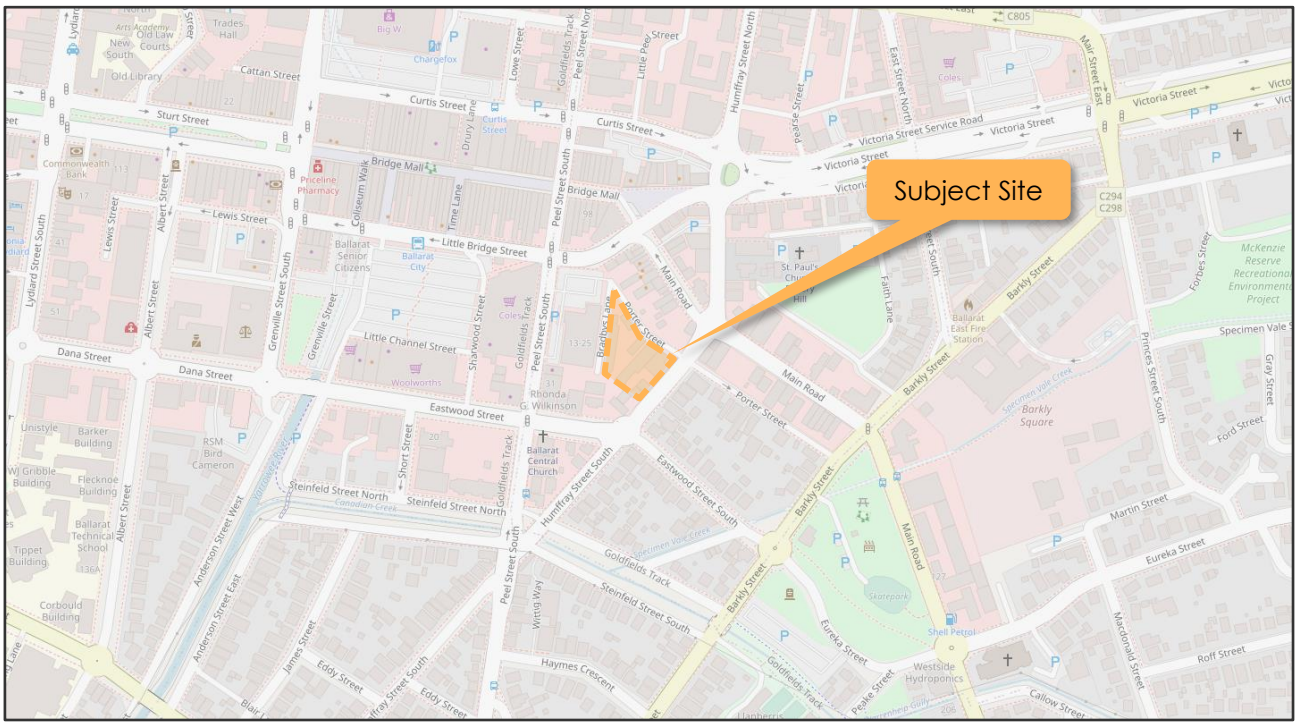
As part of this assessment the subject site has been inspected with due consideration of the development proposal, traffic data has been sourced and relevant background reports have been reviewed.

2 EXISTING CONDITIONS

2.1 Site Location

The subject site is bounded by Porter Street to the north, Bradbys Lane to the west and Humffray Street South to the east, and is addressed as 102 - 108 Humffray Street South, Bakery Hill, as shown in Figure 1.

Figure 1 Site Location



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The subject site is currently occupied by a retail premise operating as a building material supplier.

The site currently provides several vehicle accesses with main access via Humffray Street South to the east and Porter Street to the north.

Land use in the immediate vicinity of the site is commercial in nature, and includes retailers, a service station, eateries and supermarkets in the surrounding directions. Notably, Ballarat Central is located directly west of the site providing both Coles and Woolworth supermarkets amongst several additional retailers.

An aerial view of the subject site is provided in Figure 2.

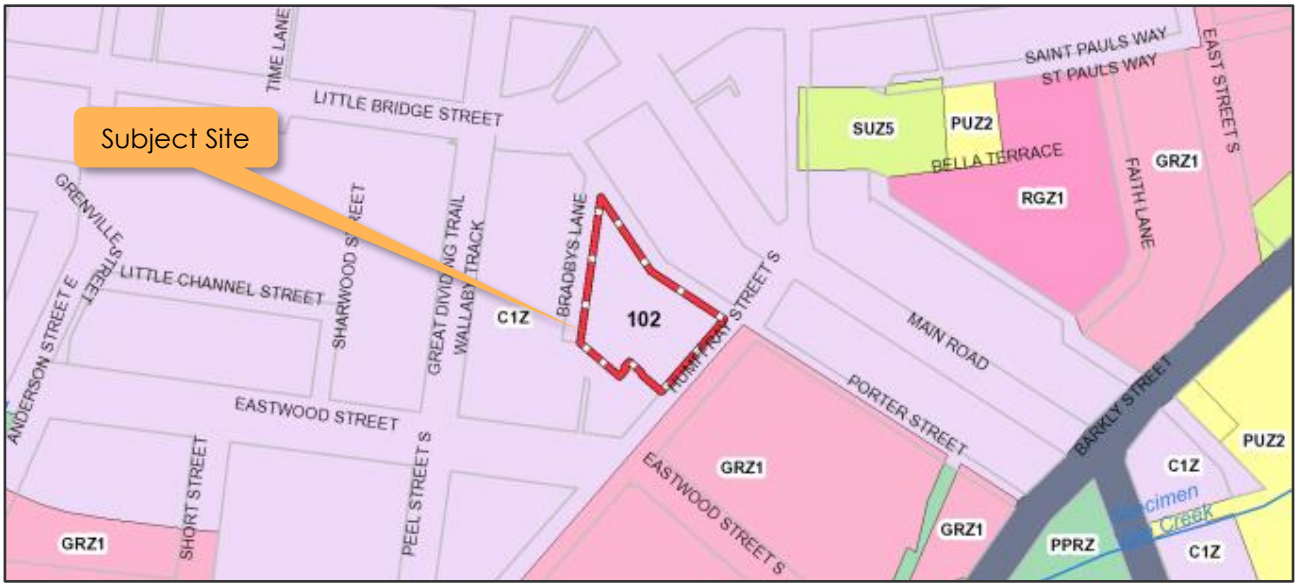
Figure 2 Site Context (26 March 2022)

Copyright Nearmap

2.2 Planning Zones and Overlays

It is shown in Figure 3 that the site is located within a Commercial 1 Zone (C1Z).

Figure 3 Planning Scheme Zones



2.3 Road Network

2.3.1 Humffray Street South

Humffray Street South is a local road generally aligned north-south, running between Greene Drive in the south, and Little Bridge Street in the north. Humffray Street South operates within a wide pavement which offers a single traffic lane and kerbside parking lane in each direction adjacent to the site. Kerbside parking is provided on both sides of the road, generally restricted to 2-hour parking between 9:00am and 5:30pm, Monday to Saturday. A 60km/h speed limit applies to Humffray Street South in the vicinity of the site.

The cross-section of Humffray Street South at the frontage of the site is shown in Figure 4 and Figure 5.

Figure 4 Humffray Street South, looking south from adjacent to the subject site

Figure 5 Humffray Street South facing north adjacent from the subject site

2.3.2 Porter Street

Porter Street is a local road generally aligned northwest-southeast, running between Bradbys Lane in the northwest and Barkly Street in the southeast. Porter Street facilitates two-way traffic movements adjacent to the site with no kerbside parking permitted on either side of the road. A 40km/h speed limit applies to Porter Street in the vicinity of the site.

The cross-section of Porter Street at the frontage of the site is shown in Figure 6 and Figure 7.

Figure 6 Porter Street, looking west from adjacent to the subject site

Figure 7 Porter Street looking east from adjacent to the subject site

2.3.3 Bradbys Lane

Bradbys Lane is a laneway generally aligned north-south, running between Porter Street in the north and terminating at the southwest boundary of the subject site (approximately 81 m south). Bradbys Lane provides a single traffic lane with unrestricted angled parking provided on the eastern side of the laneway. It also provides for loading and garbage collection for the adjacent buildings to the west.

The cross-section of Bradbys Lane at the frontage of the site is shown in Figure 8 and Figure 9.

Figure 8 Bradbys Lane, looking north from adjacent to the subject site

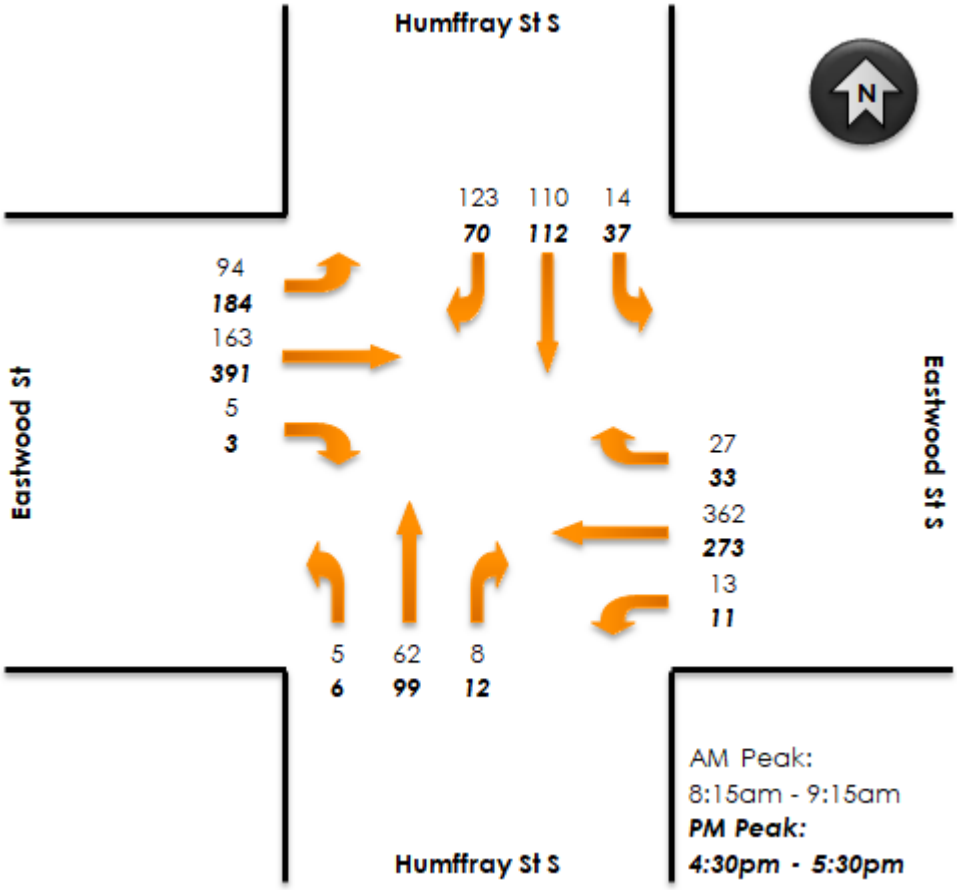
Figure 9 Bradbys Lane, looking south from adjacent to the subject site

2.4 Traffic Volumes

Traffic volume surveys were undertaken by Trans Traffic Survey on behalf of **one**mile**grid** at the intersection of Humffray Street S and Eastwood Street S on Wednesday 27th July 2022, between 6:30am and 9:30am, and between 4:00pm and 7:00pm.

The peak hour results of the surveys are shown in Figure 10.

Figure 10 Existing Traffic Volumes – Wednesday 27th July 2022



In addition to the turning movement counts, traffic volume, speed and classification surveys were undertaken by Trans Traffic Survey on behalf of **one**mile**grid** on Porter Street adjacent the site, for a one-week period from Saturday 27th July to Wednesday 3rd August 2022 inclusive. The results of the surveys are summarised in Table 1.

Table 1 Traffic Volume and Speed Surveys – Porter Street

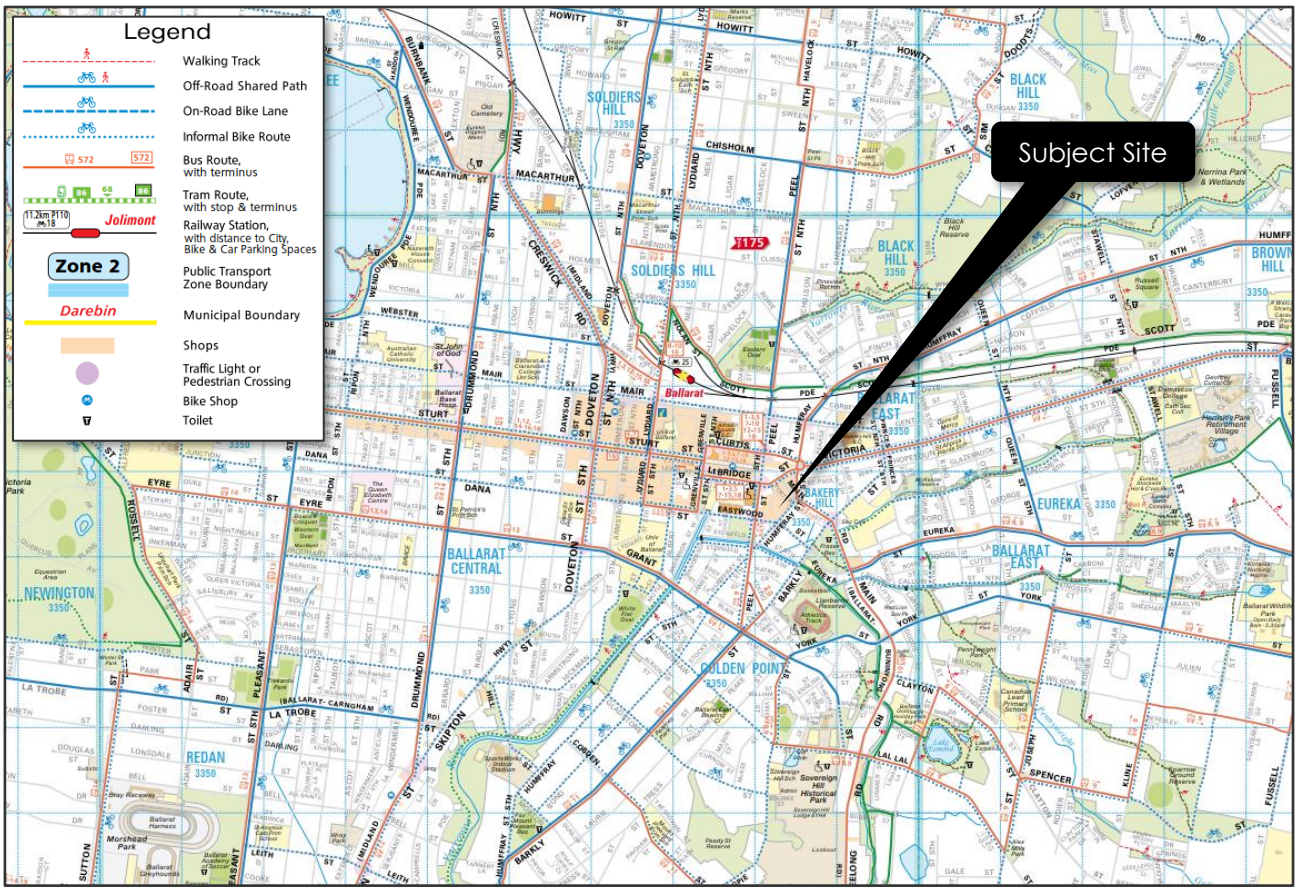
Time Period	*Direction*	*Traffic Volume (vpd)*	*Average Speed (km/h)*	*85th Percentile Speed (km/h)*
Weekday Average	Eastbound	119	27.1	30.2
	Westbound	78	26.5	29.4
	Both Directions	197	26.9	29.6
7 Day Average	Eastbound	106	27.3	30.3
	Westbound	68	27.1	29.8
	Both Directions	174	27.2	29.8

2.5 Sustainable Transport

2.5.1 General

An extract of the TravelSmart Map for the City of Ballarat is shown in Figure 11, highlighting the public transport, bicycle and pedestrian facilities in the area.

Figure 11 TravelSmart Map



As shown above, off-road shared paths are provided along Eureka Street and Grant Street, with informal bicycle routes provided along Humffray Street South, Eastwood Street and Main Street, all of which provide connections to a larger bicycle path network.

2.5.2 Public Transport

An extract of the Public Transport Map for the City of Ballarat is shown in Figure 12, highlighting the public transport services available in the area with services detailed in Table 2.

Figure 12 Public Transport Provision

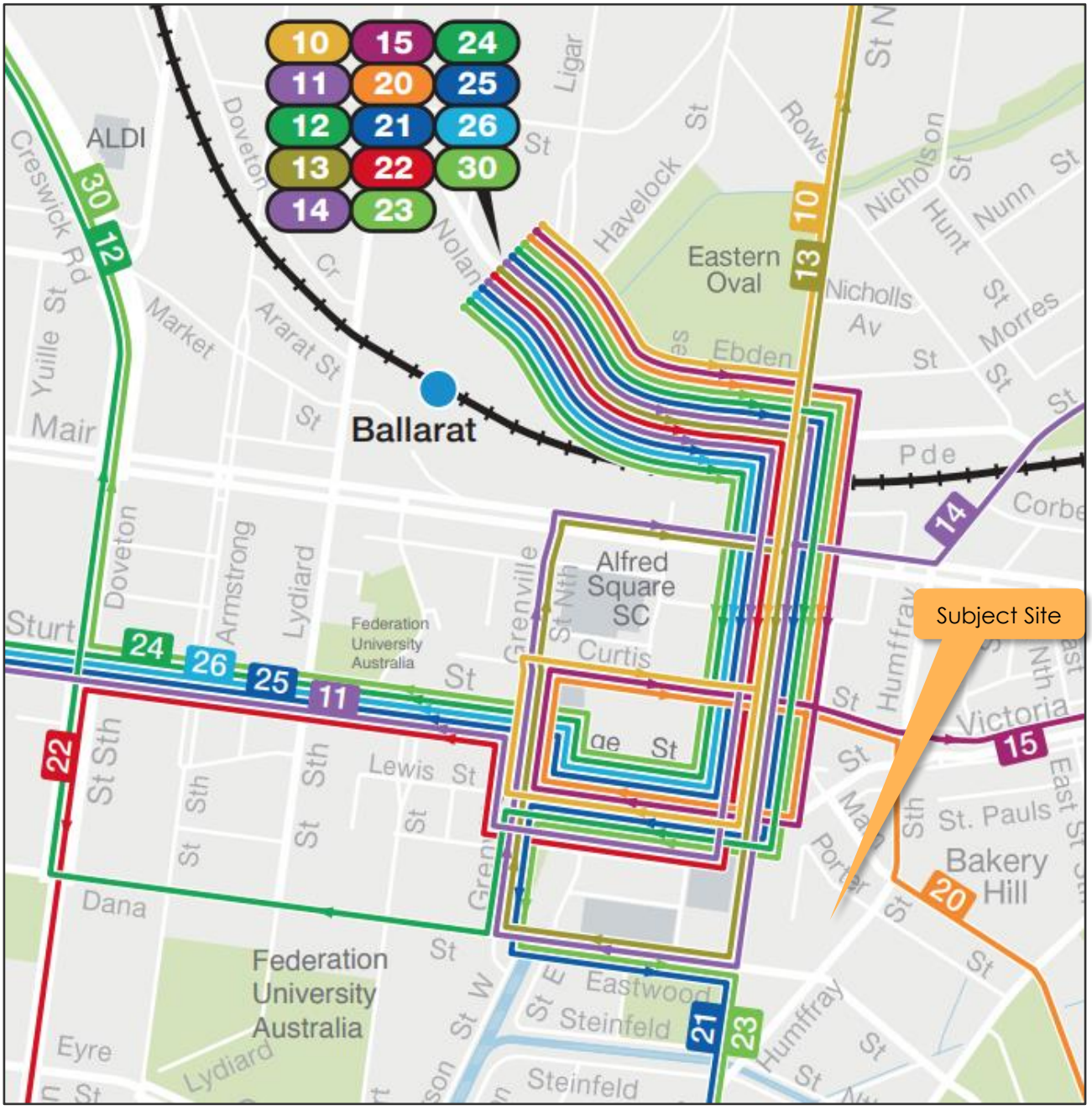


Table 2 Public Transport Provision

Mode	Route No.	Route Description	Nearest Stop/Station
Train		Ararat – Melbourne via Ballarat	Ballarat Station
		Ballarat – Melbourne via Melton	
		Melbourne – Maryborough via Ballarat	
Bus	10	Ballarat Station – Alfredton via Wendouree	Little Bridge Street Interchange
	11	Ballarat Station – Wendouree Station via Howitt Street	
	12	Ballarat Station – Wendouree Station via Forest Street	
	13	Ballarat Station – Invermay Park	
	14	Ballarat Station – Black	
	15	Ballarat Station – Brown Hill	
	20	Ballarat Station – Canadian	
	21	Ballarat Station – Buninyong via Federation University	
	22	Ballarat Station – Federation University via Sebastopol	
	23	Ballarat Station – Mount Pleasant	
	24	Ballarat Station – Sebastopol	
	25	Ballarat Station – Delacombe	
	26	Ballarat Station – Alfredton	
	30	Ballarat Station – Creswick	

The site has excellent public transport accessibility, with a wide variety of transport modes and services servicing the immediate vicinity of the site.

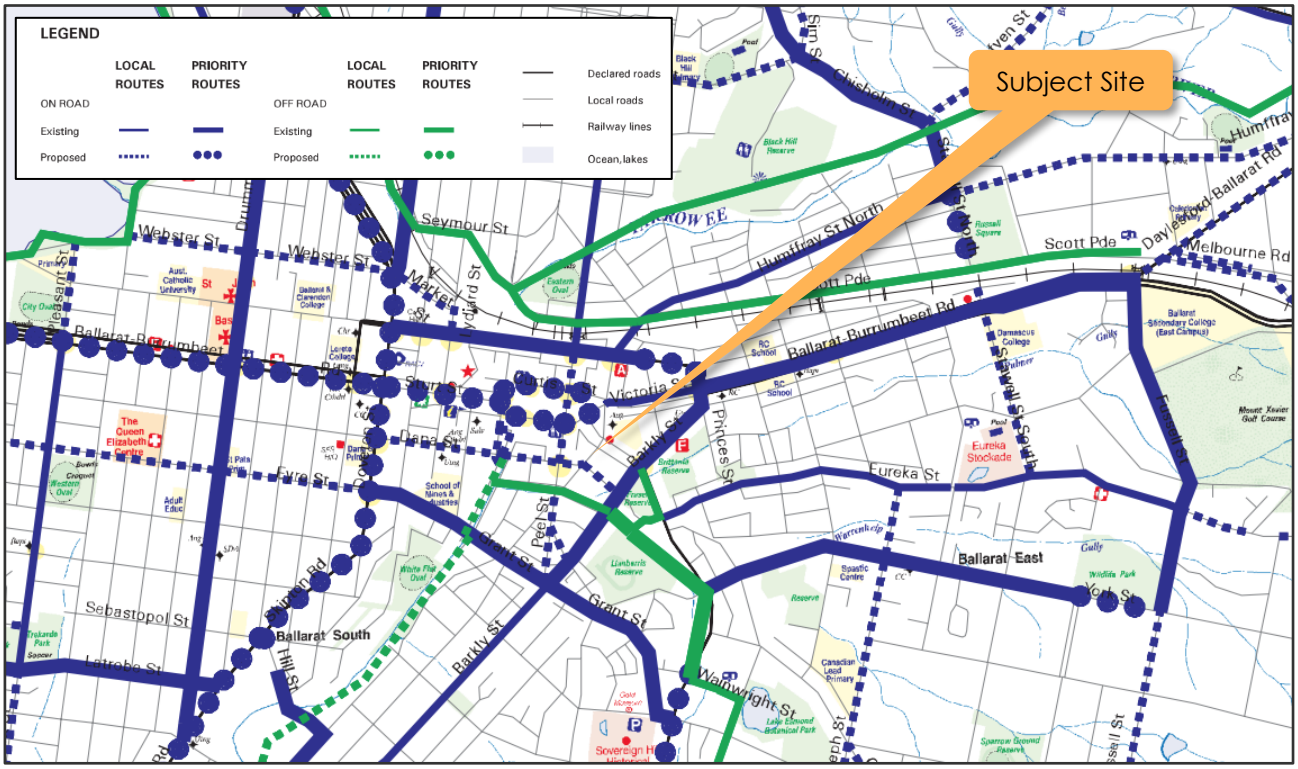
2.5.3 Bicycle Facilities

The Principal Bicycle Network (PBN) is a "*network of existing and proposed cycle routes identified to help people ride to major destinations around metropolitan Melbourne*". The PBN was originally established in 1994. The Department of Transport (VicRoads) undertook an extensive review of the PBN between 2009 and 2012 and identified numerous improvements.

The PBN also includes Bicycle Priority Routes (BPR), which are priority sections of the PBN, and which are also included on the SmartRoads Road User Hierarchy plans, as shown in Figure 13.

The PBN in the vicinity of the site is shown in Figure 13, which indicates that a high number of local and priority streets are available in the surrounding vicinity.

Figure 13 Principal Bicycle Network

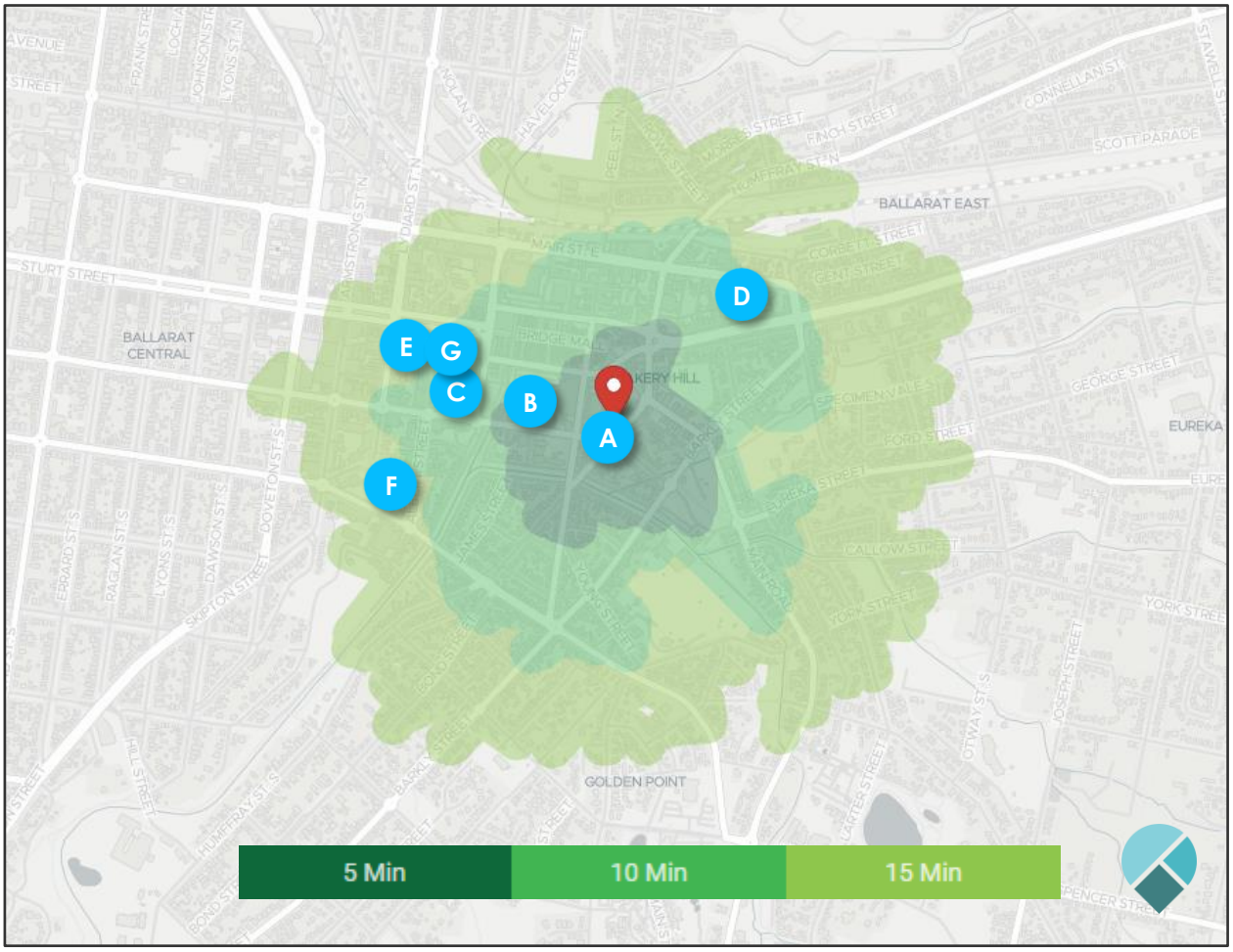


2.5.4 Pedestrian Accessibility

In addition to having good access to public transport modes the site is well-located for pedestrian accessibility, with a number of recreation, education and employment uses located within 10 – 15 minutes' walk from the site

Figure 14 shows a pedestrian walk time map for the site, with the major facilities in the vicinity of the site identified in Table 3.

Figure 14 Pedestrian Walk Time Map



Courtesy of Targomo

Table 3 Site Facilities

Ref	Facility	Approx. Distance
A	Caltex Service Station	100m
B	Ballarat Central Shopping	350m
C	Eureka Medical and Dental Centre	600m
D	Coles Victoria Street Bakery Hill	650m
E	Art Gallery of Ballarat	1000m
F	Federation University SMB Campus	850m
G	Ballarat Tech School	750m

2.5.5 Walkability

Walkability is a measure of how friendly an area is to walking. Walkability has many health, environmental, and economic benefits. Factors influencing walkability include the presence or absence and quality of footpaths or other pedestrian rights-of-way, traffic and road conditions, land use patterns, building accessibility, and safety.

The site has a Walk Score rating of 84/100 and is very walkable, with most errands able to be accomplished on foot.

3 DEVELOPMENT PROPOSAL

3.1 General

It is proposed to develop the subject site for the purposes of a mixed use development which will contain two multi-level buildings. The southern building referred to as Building A will be primarily a commercial building with office floor space fronting Humffray Street South whilst the northern building (Building B) will be a residential building.

A summary pf the proposed development is shown in Table 4.

Table 4 Proposed Development

Land Use	*Component*	*No. / NLA*
	Building A (Commercial)	
Offices		6,801.9 m²
Café		183.0 m²
Subtotal		**6,984.9 m²**
	Building B (Residential)	
Dwellings	1-Bedroom Unit	24
	2-Bedroom Unit	48
	3-Bedroom Unit	2
	Subtotal	**74**
Retail		191.9 m²

3.2 Pedestrian Access

The proposed development includes pedestrian access to both buildings via the Porter Street, Bradbys Lane and Humffray Street South frontages in addition to a new central landscaped pedestrian walkway that is located in between the two buildings.

Specifically, primary access to Building A is proposed via Humffray Street South with a wide entry foyer provided leading to the lobby and lifts. Secondary access is available from the new central landscaped walkway to the north of the building. Separate access to the retail tenancies may also be provided. A separate entry for cyclists to access the end of trip facilities is also provided.

Building B is proposed with primary access via the central landscaped walkway with a secondary access with Bradbys Lane also proposed. Building B is setback from Bradbys Lane to provide for an improved pedestrian environment up to the pedestrian entry. Separate access to the retail tenancies is also shown.

3.3 Parking, Vehicle Access & Loading

3.3.1 Building A - Commercial

It is proposed to provide 76 car parking spaces including 2 accessible spaces for Building A to service the office and commercial land uses. In addition, 3 motorcycle bays are also provided.

Vehicle access is proposed via a double width basement ramp to Humffray Street South leading from the ground floor directly to basement level 2.

It is proposed to provide 61 bicycle parking spaces comprising of 40 vertical and 21 horizontal spaces on the ground floor available for staff and visitor use. Seven end of trip facilities (including

one accessible facility) is provided adjacent to the bicycle store to accommodate for showers and lockers.

In relation to loading, a loading bay is proposed to the east of the car park ramp for all loading activity associated with the commercial component of the development.

The existing power pole along the Humffray Street South frontage is to be relocated to accommodate for the proposed basement car park ramp.

3.3.2 Building B - Residential

It is proposed to provide 30 car parking spaces for Building B with all spaces allocated for resident use. Vehicle access is proposed via a double width access to Bradbys Lane along the northern boundary leading to a double width ramp towards the basement car park.

A secure bicycle store is proposed to provide 76 bicycle parking spaces within the ground floor comprising of 18 horizontal bicycle parking spaces and 58 vertical parking spaces. An additional seven visitor bicycle parking spaces are provided in a horizontal bicycle rack along the Bradbys Lane frontage.

4 DESIGN ASSESSMENT

4.1 Ballarat Planning Scheme – Clause 52.06

onemile**grid** has undertaken an assessment of the car parking layout and access for the proposed development with due consideration of the Design Standards detailed within Clause 52.06-9 of the Planning Scheme. A review of those relevant Design Standards is provided in the following section.

4.1.1 Design Standard 1: Accessways

A summary of the assessment for Design Standard 1 is provided in Table 5.

Table 5 Clause 52.06-9 Design Assessment – Design Standard 1

Requirement	*Comments*
Be at least 3 metres wide.	Satisfied
Have an internal radius of at least 4 metres at changes of direction or intersection or be at least 4.2 metres wide.	Satisfied – Accessways are more than 4.2m wide
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre.	Satisfied
Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8 metres.	Satisfied
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.	Satisfied
Provide a passing area at the entrance at least 6.1 metres wide and 7 metres long if the accessway serves ten or more car parking spaces and is either more than 50 metres long or connects to a road in a Transport Zone 2 or Transport Zone 3.	N/a – does not connect to a Transport Zone
Have a corner splay or area at least 50 per cent clear of visual obstructions extending at least 2 metres along the frontage road from the edge of an exit lane and 2.5 metres 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.	Building A – Satisfied. To the east, visibility is afforded through the cyclist entry through a transparent wall, whilst on the west side, the full splay provided via the adjacent entry lane. Building B – N/A. This requirement relates to pedestrian visibility on the frontage footpath and as Bradbys Lane does not contain a footpath, this requirement does not apply.
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 6 metres from the road carriageway.	N/a – does not connect to a Transport Zone

4.1.2 Design Standard 2: Car Parking Spaces

A summary of the assessment for Design Standard 2 is provided in Table 6.

Table 6 Clause 52.06-9 Design Assessment – Design Standard 2

Requirement	*Comments*
Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 of Design Standard 2.	Satisfied - Car parking spaces are dimensioned in accordance with Table 2.
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 of Design Standard 2, 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 2.1m above the space.	Satisfied - The car park is designed in accordance with Diagram 1.
Car spaces in garages or 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 or carport.	N/A – Spaces are within a car park.
Where parking spaces are provided in tandem (one space behind the other) an additional 500mm in length must be provided between each space.	N/A – No tandem spaces are provided
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	Satisfied – All spaces are under cover
Disabled car parking spaces must be designed in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 of Design Standard 2 by 500mm.	Satisfied – Accessible spaces are provided with a length of 5.4m

Summary of Car Parking Design

All car spaces on-site are proposed with a minimum width of 2.6 metres, length of 4.9 metres and are accessed from aisles of no less than 6.4 metres with the exception of ground floor residential spaces which are provided a width of 3.0 metres and accessed from 5.2 metre aisles. Spaces adjacent to walls have been suitably widened and columns adjacent parking spaces are positioned in accordance with Design Standard 2 of the Planning Scheme.

4.1.3 Design Standard 3: Gradients

A summary of the assessment for Design standard 3 is provided in Table 7.

Table 7 Clause 52.06-9 Design Assessment – Design Standard 3

Requirement	*Comments*
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.	Building A – Satisfied Building B – The ramp to the podium level includes a grade of 1:8 within 5m of the property boundary. Vehicles exiting the site will be travelling down this ramp and there is a flat area at the entrance which will allow these vehicles to slow down before exiting. The proposed ramp grades at the access are thus considered acceptable.
Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 (of Design standard 3) and be designed for vehicles travelling in a forward direction.	Satisfied – a maximum grade of 1:4 is proposed
Where the difference in grade between two sections of ramp or floor is greater that 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.	Satisfied – a maximum change in grade of 12.5 % is proposed

4.2 Site Access Location

The proposed site access to Humffray Street South is located approximately 1.25m from the western site boundary and is proposed as a double width crossover for Building A. To the west of the site boundary is an existing service station which includes an exit crossover. After allowing for the existing splay for the service station egress as well as the splay for the proposed site access, there will still be an appropriate pedestrian refuge between the two crossovers of no less than 1 metre. This is acceptable for pedestrians to store in the unlikely event that is required.

The proposed construction of the crossover to Humffray Street South will include a relocation of the existing power pole in this location.

4.3 Waste Collection

Each building is provided with a dedicated waste bin store to accommodate for all waste generated. It is proposed to employ private waste collection services for the collection of all waste streams with bins to be collected via Humffray Street South for commercial waste and Bradbys Lane for residential waste.

Refer to the Waste Management Plan.

4.4 Bicycle Parking

Bicycle parking is proposed to be provided in a mixture of vertically mounted and staggered bicycle racks and on-ground bicycle hoops.

The vertical mounted racks have been designed in accordance with the Australian Standards; specifically, they are located at 500 mm centres, with an envelope of 1.2 metres provided for bicycles and a 1.5 metre access aisle.

The bicycle hoops have been designed in accordance with the Australian Standards; specifically, they are provided at one metre centres, with an envelope of 1.8 metres provided for bicycles and a 1.5 metre access aisle.

In addition, at least 20% of the bicycle parking spaces proposed have been provided as horizontal spaces to satisfy the Australian Standard requirement for spaces being provided on-ground.

4.5 Motorbike Parking

The motorcycle parking bays within the basement have been designed with a minimum width of 1.2 metres and length of 2.5 metres in accordance with the Australian Standard for Parking Facilities, Part 1: Off-street car parking (2890.1).

5 LOADING

Clause 65 (Decision Guidelines) of the Ballarat Planning Scheme identifies that "*Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate: The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.*"

For the commercial building, it is proposed to provide a 3.5 m wide and 8.8 m long loading bay for Building A accommodating for an 8.8m medium rigid vehicle (MRV). Access to the loading bay is proposed via Humffray Street South with trucks reversing in on entry to depart in a forward direction on exit. It is acknowledged that it is preferable for vehicles to enter in a forward direction however noting the dimensions of the site and moreover the land use which will have limited deliveries, this provision is considered acceptable.

In relation to the proposed residential development, loading facilities will only be required for occasional removalist vehicles, which may utilise the existing on-street parking available along Bradbys Lane.

The provision for loading is therefore considered appropriate for the proposed use.

6 BICYCLE PARKING

The bicycle parking requirements for the subject site are identified in Clause 52.34 of the Ballarat Planning Scheme, which specifies the following requirements for the different components of the proposed development.

Table 8 Clause 52.34 – Bicycle Parking Requirements

Component	No/Area	Requirement	Total
Building A (Commercial)			
Office	6,801.9 m²	1 space per 300m² for employees 1 space per 1000m² for visitors	23 spaces 7 spaces
Café	183.0 m²	1 space per 300 m² for employees 1 space per 500 m² for visitors	1 space -
		Employees **Visitors**	**24 spaces** **7 spaces**
Total			**31 spaces**
Building B (Residential)			
Dwelling (four or more storeys)	74 dwellings	1 space per 5 dwellings for residents 1 space per 10 dwellings for visitors	15 spaces 7 spaces
Retail premises other than specified in this table	191.9 m²	1 space per 300m² for employees 1 space per 500m² for visitors	1 space -
		Residents **Employees** **Visitors**	**15 spaces** **1 space** **7 spaces**
Total			**23 spaces**

Furthermore, where 5 or more employee bicycle spaces are required, employee facilities are required in accordance with Clause 52.34 of the Ballarat Planning Scheme, as identified below.

Table 9 Clause 52.34 – Bicycle Facility Requirements

Facility	Employee Bicycle Spaces	Requirement	Total
Showers	24 spaces	1 shower for the first 5 employee bicycle spaces; plus 1 to each 10 employee bicycle spaces thereafter	3

Showers must have access to a communal change room, or combined shower and change room

Building A

As 24 staff spaces are required for Building A, three end-of-trip facilities (showers) are required. End of trip facilities are provided to meet the Planning Scheme requirements.

Building A proposes to provide 61 bicycle parking spaces which satisfies the abovementioned staff requirement, which includes 10 visitor spaces along the Humffray Street South frontage.

Building B

It is proposed to provide a total of 76 bicycle parking spaces consisting of 69 residential bicycle parking spaces and seven visitor spaces for Building B which exceeds the Planning Scheme requirements. It is determined that the oversupply of bicycle parking for residents and visitors will aid in off-setting the car parking required for residents and visitors whilst promoting sustainable transport modes.

7 CAR PARKING

7.1 Car Parking Requirements – Clause 52.06

The car parking requirements for the subject site are identified in Clause 52.06 of the Ballarat Planning Scheme, which specifies the following requirements for the different components of the proposed development.

Table 10 Clause 52.06 – Car Parking Requirements

Use	*No/Area*	*Rate*	*Car Parking Measure*	*Total*
Building A (Commercial)				
Café (food and drink premise)	183 m²	4 spaces	to each 100m² of leasable floor area	7 spaces
Office	6,801.9 m²	3.5 spaces	to each 100m² of net floor area	238 spaces
Total				**245 spaces**
Building B (Residential)				
Dwelling	72 units	1 space	to each one or two bedroom dwelling, plus	72 spaces
	2 units	2 spaces	to each three or more bedroom dwelling (with studies or studios that are separate rooms counted as bedrooms), plus	4 spaces
	74 units	1 space	for visitors to every 5 dwellings for developments of 5 or more dwellings	14 spaces
	Subtotal			90 spaces
Shop	191.9 m²	4 spaces	to each 100m² of leasable floor area	7 spaces
Total				**97 spaces**

Based on the above calculations, 245 car parking spaces are required for Building A and 97 spaces are required for Building B.

7.2 Proposed Car Parking Provision

It is proposed to provide 76 spaces including two accessible spaces to Building A and 30 spaces to service Building B and accordingly the application seeks a reduction in the statutory car parking requirement. A summary of the proposed car parking allocation is provided in Table 11.

Table 11 Car Parking Allocation

Use	*No/Area*	*Stat. Requirement*	*Allocation*	*Reduction Sought*
Building A (Commercial)				
Café	183.0 m²	7 spaces	-	7 spaces
Office	6,801.9 m²	238 spaces	76 (1.12 spaces per 100sqm)	162 spaces
Total		**245 spaces**	**76 spaces**	**169 spaces**
Building B (Residential)				
Dwelling	24 x 1bed	24 spaces	-	24 spaces
	48 x 2 bed	48 spaces	26 (0.54 spaces per dwelling)	22 spaces
	2 x 3 bed	4 spaces	4 (2 spaces per dwelling)	None
	Visitors	14 spaces	-	14 spaces
Shop	191.9 m²	7 spaces	-	7 spaces
Total		**97 spaces**	**30 spaces**	**67 spaces**

In this regard, Clause 52.06-7 of the Ballarat Planning Scheme indicates that an application to reduce (including reduce to zero) the requirement for car spaces must be accompanied by a Car Parking Demand Assessment. The Assessment must assess the car parking demand likely to be generated by the proposed development, having consideration to:

- 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 occupants (residents or employees) of the land.
- Any empirical assessment or case study.

An assessment of the likely parking demands and the appropriateness of reducing the car parking provision below them is set out below, with firstly a review of car parking.

7.3 Review of Car Parking

7.3.1 Council Policy

The Ballarat Integrated Transport Strategy is outlined in The Ballarat Strategy "Our Vision for 2040" document prepared by the Ballarat City Council in July 2015 which highlights the initiatives it wishes to implement. The primary focus of the Integrated Transport Strategy is to develop a sustainable transport network within Ballarat.

The key initiatives highlighted in The Ballarat Strategy relevant to transport include:

- Connected Ballarat 4.1 – Transition Ballarat towards a more sustainable transport system
- Connected Ballarat 4.2 – Benchmark travel behaviour measures against 2011 figures, to monitor progress towards a less car dependent future

Both of the above initiatives fall under the banner of "Build a Less Car-dependent Community with a More Sustainable Transport System" with decision principle 7 stating "Embrace technology and innovation as an enabler of better transport choice and accessibility".

Overall, the Ballarat Integrated Transport System aims to provide a more sustainable transport network by following a decision framework that reduces the dependence on personal motor vehicles.

The proposed development which reduces car ownership reliance is entirely in line with the initiatives within the strategy.

7.3.2 Impact of Parking Supply on Traffic Congestion

A recent VCAT decision (Ronge v Moreland CC [2017] VCAT 550 (9 May 2017)) highlighted the value of reduced car parking provision with regard to traffic congestion, identifying the potential adverse impact of providing parking to comply with Clause 52.06, as below:

"*Our roads are already congested and will be unimaginably so if a 'business-as-usual' approach is accepted through until 2050. The stark reality is that the way people move around Melbourne will have to radically change, particularly in suburbs so well served by different modes of public transport and where cycling and walking are practical alternatives to car based travel.*

A car parking demand assessment is called for by Clause 52.06-6 [now Clause 52.06-7] *when there is an intention to provide less car parking than that required by Clause 52.06-5.*
However, discussion around existing patterns of car parking is considered to be of marginal value given the strong policy imperatives about relying less on motor vehicles and more on public transport, walking and cycling. Census data from 2011 or 2016 is simply a snapshot in time, a base point, but such data should not be given much weight in determining what number of car spaces should be provided in future, for dwellings with different bedroom numbers.

Policy tells us the future must be different.

Oversupplying parking, whether or not to comply with Clause 52.06, has the real potential to undermine the encouragement being given to reduce car based travel in favour of public transport, walking and cycling."

"*One of the significant benefits of providing less car parking is a lower volume of vehicle movements and hence a reduced increase in traffic movements . . .*"

7.3.3 Potential for On-Site Car Parking

It is noted that the basement has been maximised to provide car parking, motorcycle parking and bicycle parking. It is considered that the current layout has been suitability designed and providing more car parking would not be an efficient outcome to the development or encouraging sustainable transport options.

7.3.4 Availability of Public Car Parking

The proposed café and retailers are expected to generate a customer parking demand. On-street car parking in the vicinity is generally restricted to short term (2P) parking. This relatively high turnover of parking lends itself well for use by customers such as a café or retail premise.

7.3.5 Alternative Modes of Transport

As indicated in Section 2.5, the site has excellent access to Public Transport, with numerous train, and bus services available in the immediate vicinity. The provision of excellent public transport ensures that residents with no parking will have good access to alternate transportation modes.

Similarly, staff and visitors to the office and retail components will also have access to a variety of public transport options for site access.

Additionally, it is proposed to provide an oversupply of bicycle parking to service both buildings to ensure residents, staff and visitors have access to alternative sustainable transport modes with several roads in the surrounding provided on-road bicycle lanes.

7.3.6 Viability for Future Occupants

As noted, the proposed development proposes reduced car parking. Occupants of the development are well located with regard to amenities, education and employment. Of note, the town centre is located within walking distance to the west which include a wide variety of shopping, commercial and amenity based options (food, groceries, banks, post offices, etc).

Based on the above, the day to day requirements of a resident and employee can comfortably be met without the need for a private vehicle on-site.

7.3.7 Multipurpose Trips

Multi-purposed trips involve customers visiting more than one premise during a single trip to the area. As a result of multi-purposed trips, traffic generation and the car parking demand in locations such as the subject site are typically lower.

As the subject site is located within an active area, where patrons/customers rely on shared on-street car parking spaces, patrons are highly likely to visit other establishments and venues as part of a single trip.

7.3.8 Summary

Based on the above summary of car parking, there is strong support for reduced car parking in the area.

7.4 Car Parking Demand Assessment

7.4.1 Building A

Office

Office parking case-studies undertaken by a variety of consultants have identified parking generation rates varying between 1.5 – 4 spaces per 100 m², influenced heavily by public transport accessibility, bicycle parking facilities, provision of on-site parking, the availability of public car parking and other factors.

The subject site is readily accessible via public transport, with the Little Bridge Street bus interchange located within 5-minutes' walk from the subject site. Additionally, Ballarat Railway Station is located nearby with connections to the greater Victorian region and Melbourne CBD. As such, the site is readily accessible via means other than private car.

It is noted that car parking demands are heavily dependent on car parking provisions, insofar as a staff member with the need to park a vehicle is unlikely to drive to the site that does not provide them a car parking space. This is particularly true in areas where on-street parking is restricted to short durations and any unrestricted/long-term parking is not readily available, meaning on-street parking is not a viable alternative to on-site parking for staff.

A review of parking restrictions in the area surrounding the proposed development indicates that on-street parking is restricted with 2-hours. It is acknowledged that there are unrestricted spaces located further afield along the frontage of residential dwellings which could accommodate some parking is required. That said, in practice, the limited availability of off-site parking will substantially reduce the attractiveness and convenience of travelling to the site via private vehicle without having allocated parking available. Combined with the very good accessibility of the site by public transport, it is expected that office users will have suppressed car usage and encourage a travel mode shift by future staff to non-car travel.

Based on the above, it is expected that the car parking demands will be in line with the car parking provision on-site.

Café

The subject site is located nearby to the Ballarat town centre and is in an area that accommodates for a wide variety of employment, retail and commercial land uses, and is also in close proximity to residential properties in the surrounding directions.

Café uses within such areas rarely attract their own visitor/customer parking demand specific to the site, but instead trade from visitors who elect to visit the site as part of a trip to the area or generate trade from other businesses and residents within close proximity. On this basis, it is considered that the café will not attract any considerable visitor parking demands.

With regards to staff parking, similar to office staff, they will be encouraged to use alternative modes of travel to the site noting the very good accessibility to other forms of transport.

Overview

Based on the above, the proposed reduced car parking provision on-site will encourage staff to use alternative modes of travel to the site. In relation to short term demands, these can be accommodated in the area by the availability of short term car parking if required, noting that the majority of customers are likely to already be in the area.

7.4.2 Building B (Residential)

Residents

Car ownership data from the 2016 Census for the City of Ballarat was sourced from the Australian Bureau of Statistics (ABS). For development types similar to the proposed, the data is outlined in Table 12.

Table 12 2016 Census Car Ownership – City of Ballarat

Dwelling Type	*No. of Bedrooms*	*Average Car Ownership*	*% Dwellings with no Vehicles*
Flat, unit or apartment	1-bedroom	0.77 vehicles	31.3%
	2-bedrooms	0.97 vehicles	20.9%
	3-bedrooms	1.39 vehicles	8%

The ABS data indicates that there is a market for smaller dwellings that do not provide, and therefore do not attract the price premium associated with a car parking space. Of note, the data indicates that more than 30% of one-bedroom and 20% of two-bedroom apartments did not own or otherwise have a need to park a car at their place of residence.

Considering the location of the site and its proximity to local amenities, employment and education, it is expected that the parking demands generated by the proposed development will therefore be reduced, being particularly appealing to potential residents who do not have the need to park a vehicle at their place of residence. This is particularly of note considering the proportion of one-bedroom and two-bedroom apartments proposed on-site.

It is also proposed to provide an over-supply of bicycle parking spaces to encourage residents to change their travel behaviours to more sustainable modes.

Based on the above, the demands generated are expected to be in line with the provision of car parking.

7.4.3 Visitors

In relation to visitors, no car parking spaces are provided on-site and as such this demand will need to be accommodated within on-street parking in the vicinity.

Studies in relation to visitor car parking demands indicate that during the day, demands are half of the peak demand which typically occurs of an evening or on the weekend. For the purposes of this assessment, the full planning scheme requirement will be assumed to be the peak demand which equates to 14 car spaces, thus the daytime demand will be for 7 spaces.

A review of on-street car parking in the area indicates that car parking is typically restricted to 2 hours in the immediate vicinity of the site. This type of car parking for a short duration is perfectly placed to accommodate any short term demands. On-site observations indicates that this short term parking is not heavily utilised and accordingly the limited short term demands can be suitably accommodated.

7.4.4 Retail

Similar to the café tenancy in Building A, customer demands are likely to be already in the area and staff will be encouraged to travel by other means. Should any customer demands be generated similar to the visitors, these short term demands can be accommodated within the 2 hour parking that is available in the immediate vicinity.

7.4.5 Anticipated Parking Demand

Based on the above, noting the location of the site where staff and residents will be encouraged to live and work without reliance on a private car, demands will be supressed. It is acknowledged that from time to time there may be some overflow staff or resident demands generated however noting that there is not an oversupply of unrestricted public car parking in the area, the 'everyday' proposition of parking on-street is not feasible. In this regard, public transport and utilising the excellent bicycle facilities will be paramount.

The review of car parking undertaken above, demonstrates that the requirements of Clause 52.06-7 are justified where the provision of car parking does not meet the demands generated. These include the following considerations:

- 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.

7.5 Adequacy of Proposed Car Parking Provision

It is expected that the proposed supply of car parking is appropriate for the proposed development, considering the following:

- The 2016 Census data identifies that a market exists for dwellings with reduced car parking;
- The proposed development provides bicycle parking well in excess of the Planning Scheme requirements, therefore providing an alternate means of transportation;
- The development is within walking distance of amenities, including shops, education, entertainment and recreational facilities;
- The reduced provision of car parking is entirely in line with the initiatives within the Ballarat Integrated Transport Strategy;
- Reduced car parking provision assists with the desired reduction in private vehicle usage, therefore minimising traffic impacts in the vicinity.

8 TRAFFIC

8.1 Traffic Generation

8.1.1 Residential

Surveys undertaken by other traffic engineering firms at residential dwellings have shown that the daily traffic generation rates vary depending on the size, location and type of the dwelling, the parking provision and proximity to local facilities and public transport.

Medium to high density dwelling in inner areas generate traffic with rates between 3.0 and 6.0 movements per dwelling. Considering the location of the subject site and moreover the excellent access to public transport, it is expected that generation rates will be towards the lower end of the range. Nevertheless, for the purposes of this assessment a daily rate of in the order of 5.0 movements per day per dwelling with a car space will be adopted with 10% occurring during the peak hours.

Application of the above rates indicates that the 28 dwellings with car parking will generate 140 movements per day, inclusive of 14 vehicle movements during the morning and afternoon peak hours.

Furthermore, during the morning peak, it is estimated that 80% of the residential traffic will be outbound, while during the afternoon peak, 60% of the residential traffic will be inbound. It is therefore anticipated that the 14 projected vehicle movements will comprise 3 arrival and 11 departures during the AM peak and 8 arrivals and 6 departures during the PM peak.

8.1.2 Offices

Studies indicate that in 'normal' car parking structures (typical ramped open car parks), 50% of car parking turns over during peak periods. Noting that the proposed office is provided with 76 spaces, this equates to 38 vehicle movements during the morning and afternoon peak hours.

8.2 Traffic Impact

It is proposed to provide two vehicle accesses to service the site with a vehicle access via Humffray Street South to service the commercial building and a vehicle access to Bradbys Lane to service the residential building.

Reviewing the volumes above, it is projected that a total of 14 peak hour movements will be generated to Bradbys Lane and then to Porter Street as part of Building B. Across the peak hour, this equates to one additional movement every 4 minutes which is low in traffic engineering terms and unlikely to be noticeable considering the site already generates a level of traffic.

In relation to Building A, it is projected that there will be an additional 38 vehicle movements to Humffray Street South. This level of traffic equates to one additional movement every 1 and a half minutes on average during the peak periods. Typical of office developments, there are very limited movements at other times of the day. Regardless, this level of traffic is considered to be very low.

A review of the existing traffic volumes that were recorded on Humffray Street South and at the nearby intersection identified that there is more than sufficient capacity to accommodate these movements and as noted above, these will be largely discernible to the existing road user.

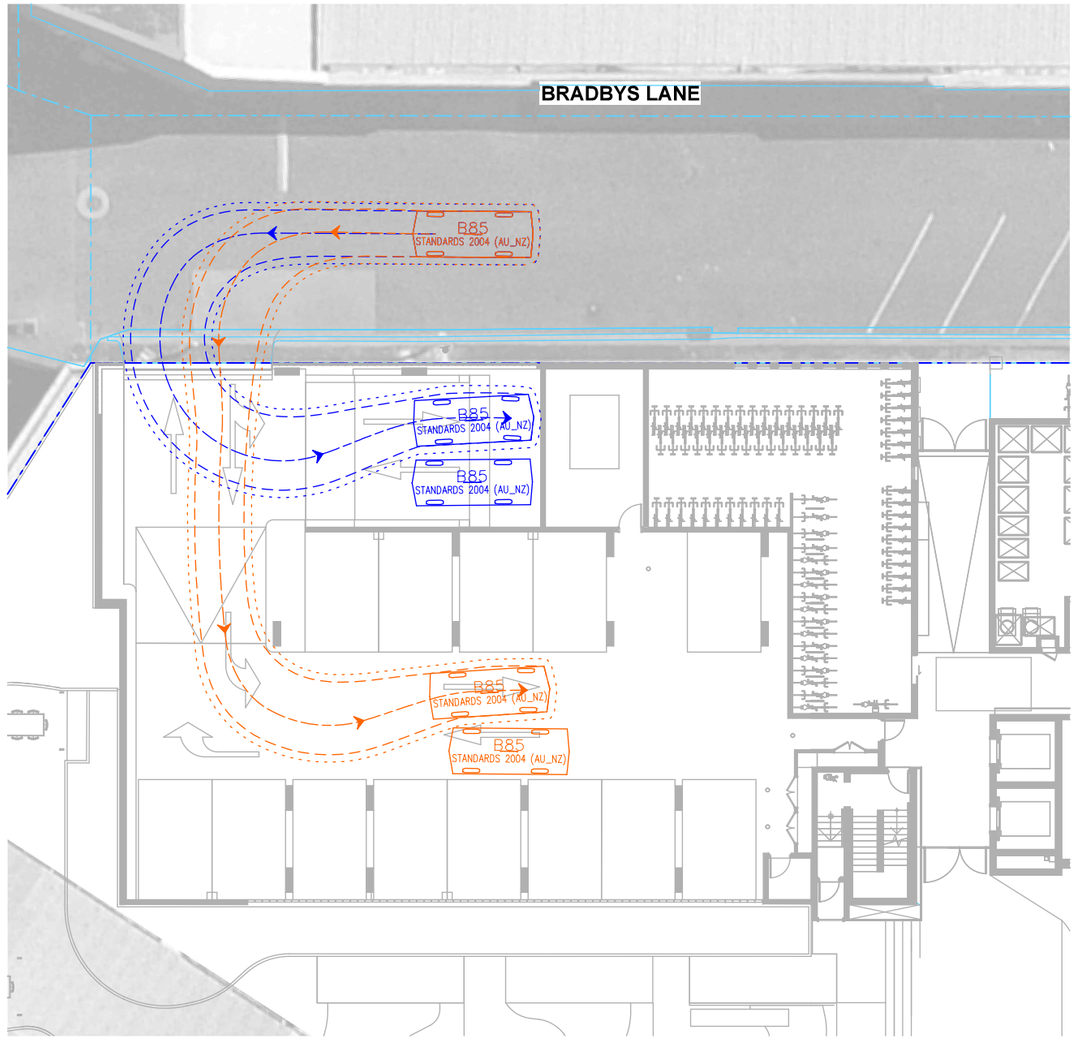
9 CONCLUSIONS

It is proposed to develop the subject site for the purposes of a mixed use development comprising of 74 apartments, offices, café and retail, with car parking accessed via Bradbys Lane and Humfrray Street South.

Considering the analysis presented above, it is concluded that:

- The car parking layouts and accesses have been designed generally in accordance with the requirements of the Planning Scheme and are considered appropriate;
- The bicycle access design is considered appropriate;
- The proposed loading and waste collection arrangements are appropriate;
- The proposed provision of resident and visitor bicycle parking exceeds the requirement of the Planning Scheme, and is therefore considered appropriate;
- The provision of car parking spaces equates to a total shortfall of 236 spaces;
- The provision of 30 residential spaces and 76 commercial spaces is considered acceptable considering the following;
  - Case study data identifies parking demand rates lower than the statutory requirement;
  - Parking restrictions in the area will encourage travel via modes other than private vehicle;
  - Multi-purpose trips are highly likely for customers to the café and retail tenancies;
  - The site has excellent access to public transport;
  - Bicycle lanes are provided along Main Road and Peel Street; and
  - Reduced private vehicle usage is encouraged within the Ballarat Strategy.
- The anticipated traffic volumes generated by the development is not expected to have an impact on the operation of the Humfrray Street South, Bradbys Lane or the surrounding road network.

Appendix A Swept Path Diagrams



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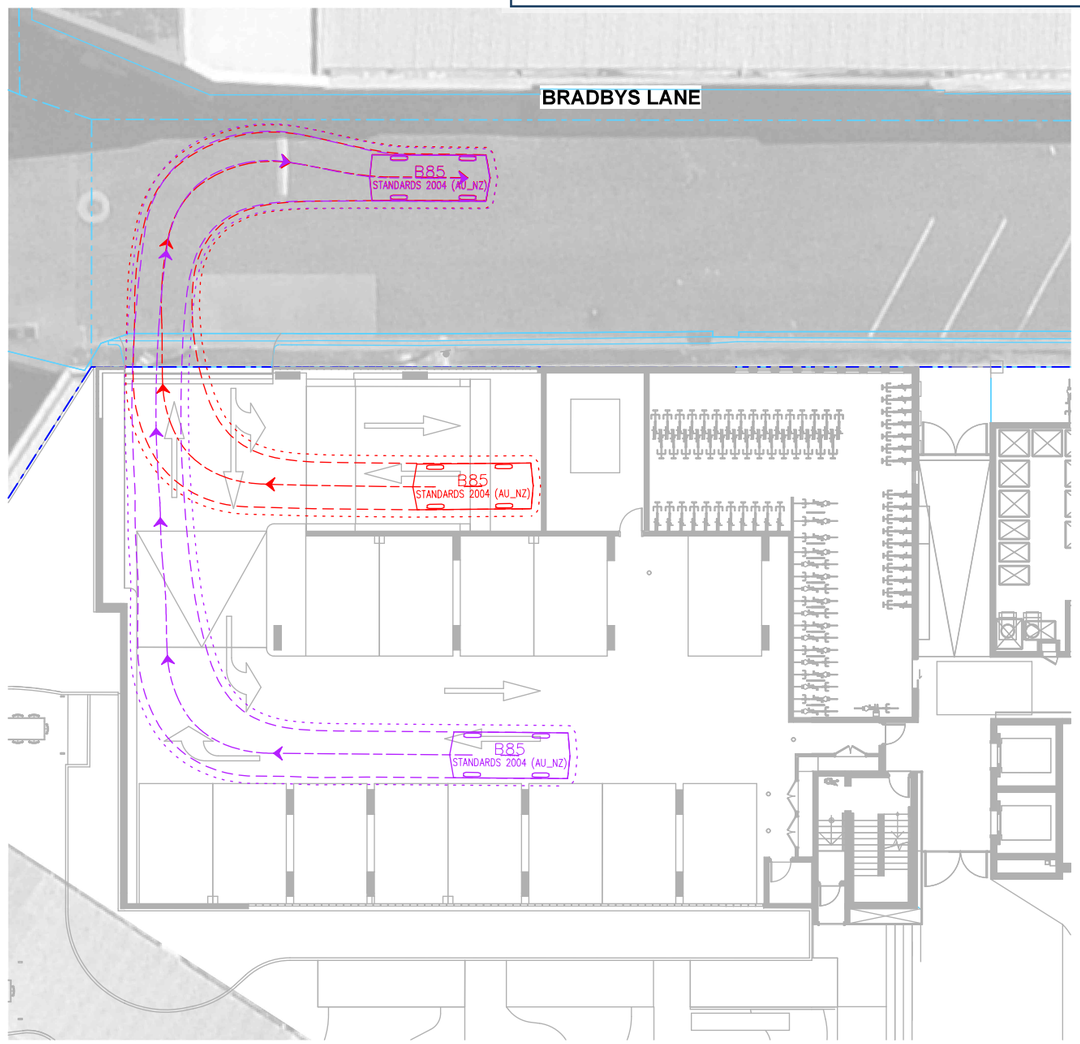

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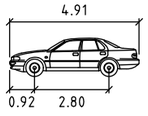

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Scale
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Drawing Title
102-108 HUMMFRAY ST SOUTH, BAKERY HILL
RESIDENTIAL SITE VEHICLE ACCESS - GROUND SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
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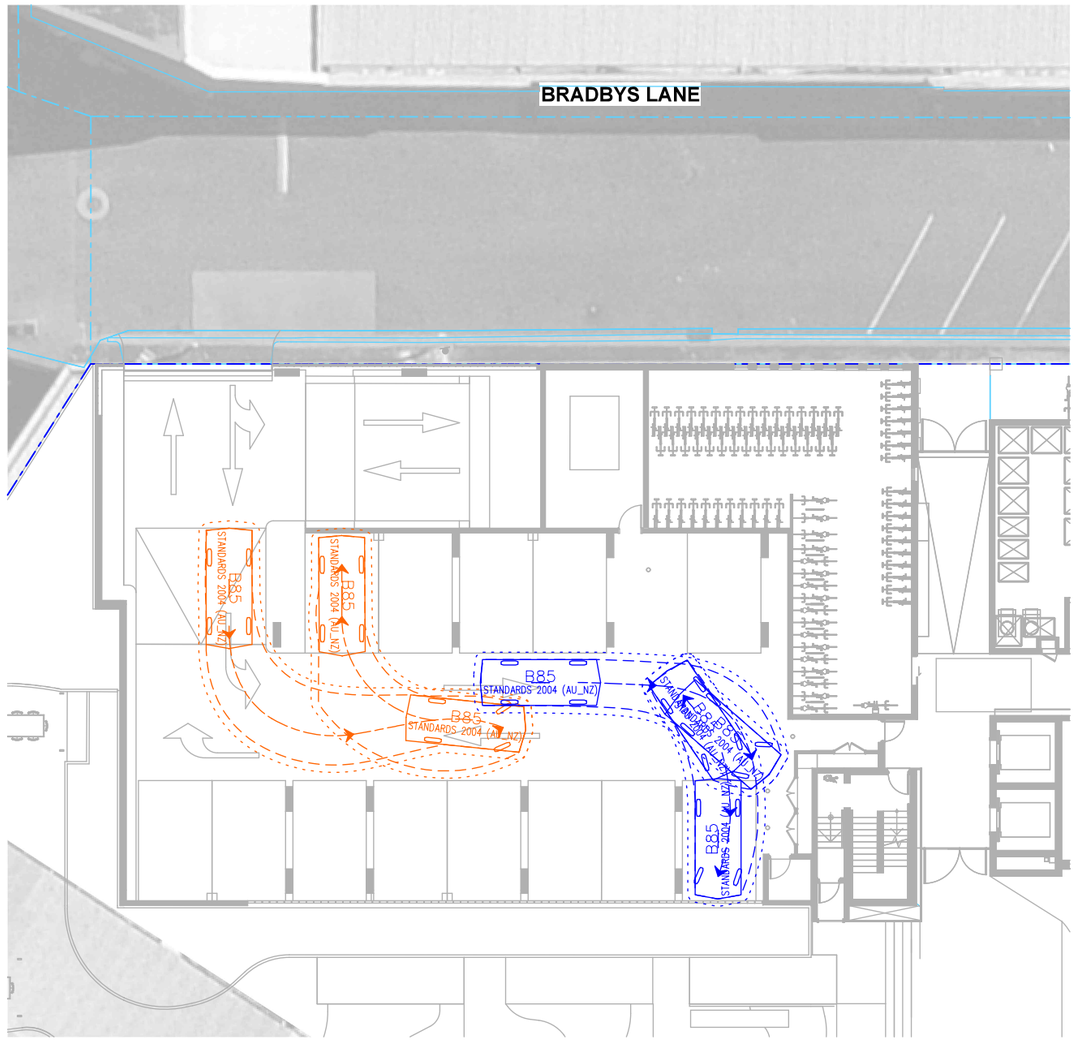

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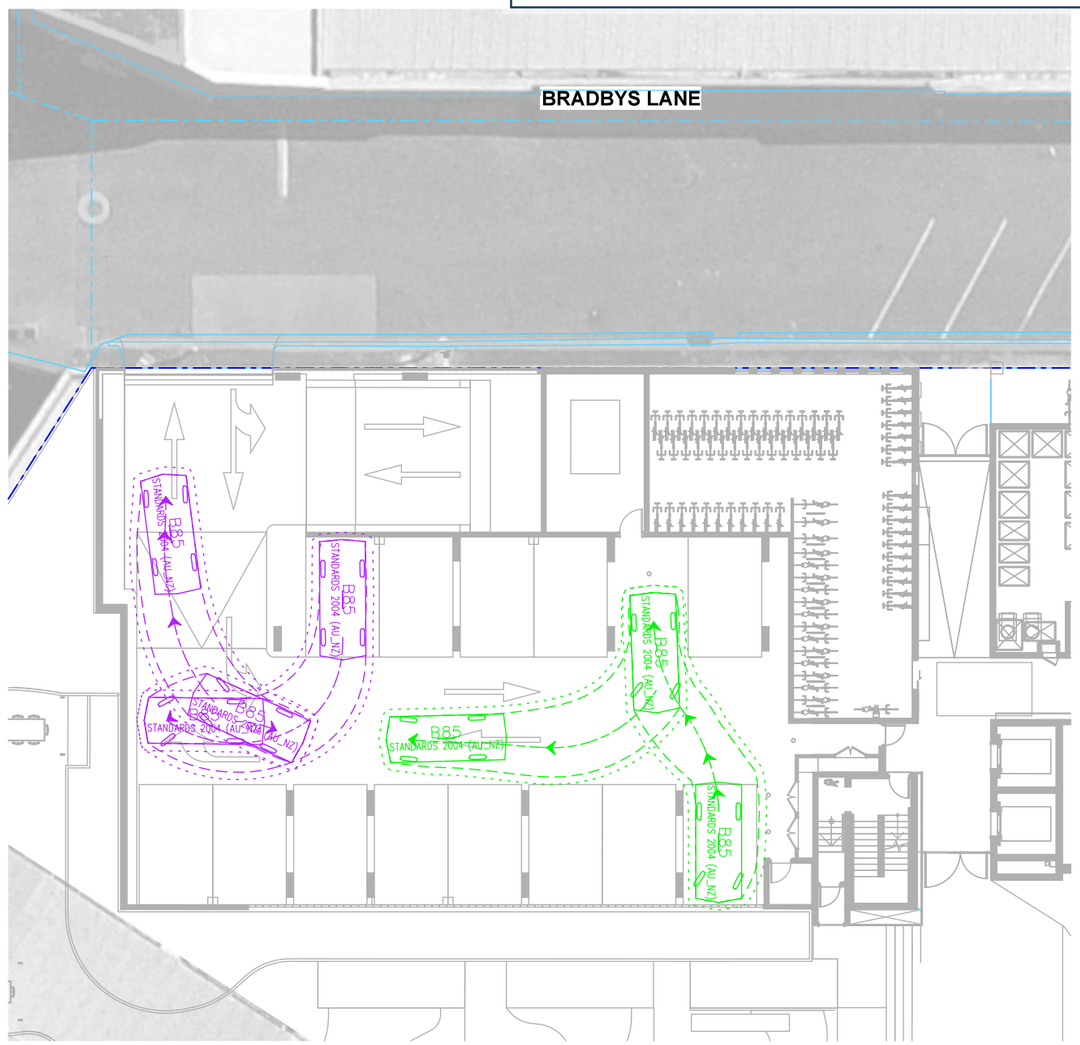

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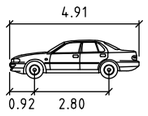

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Lock to Lock Time	: 6.0
Steering Angle	: 34.1

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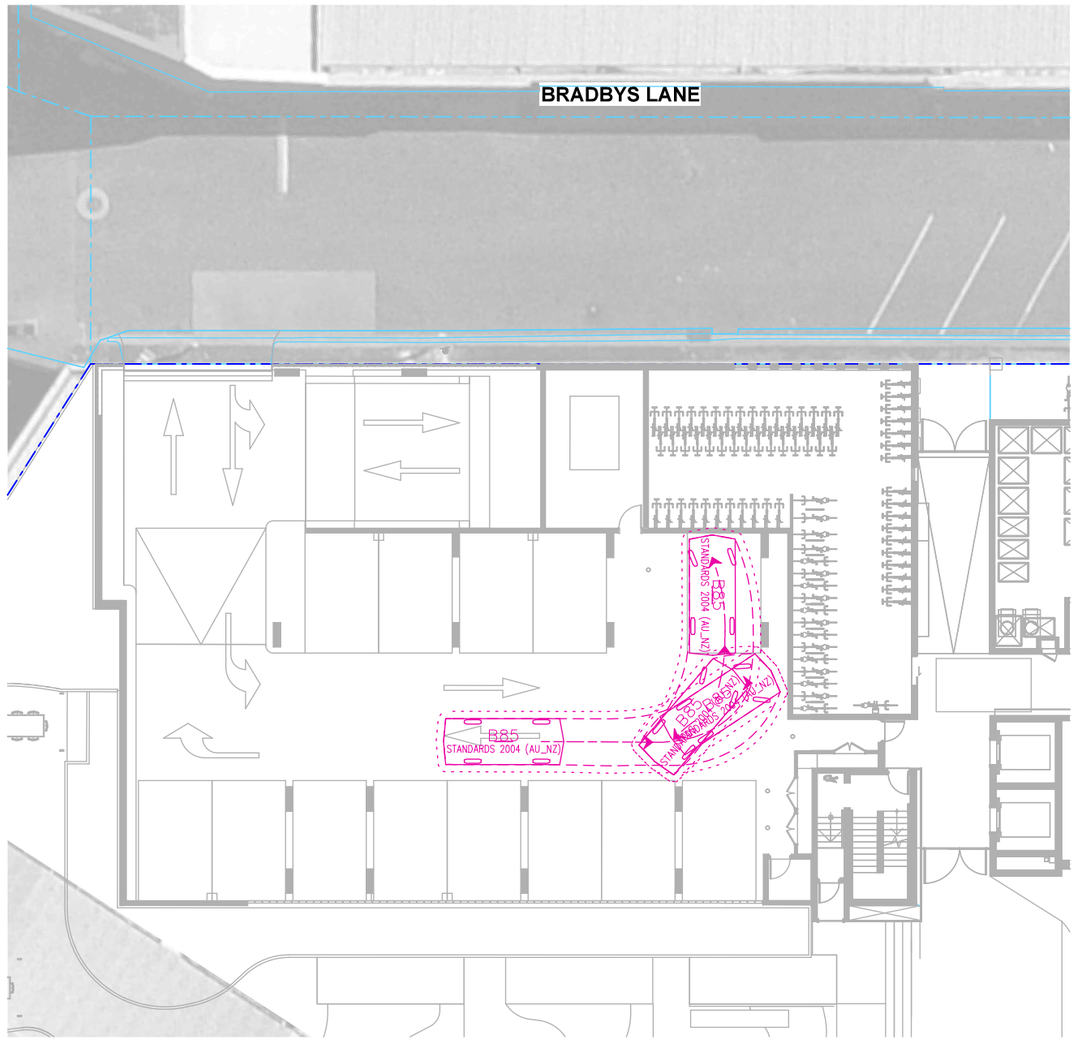
Drawing Title
102-108 HUMMFRAY ST SOUTH, BAKERY HILL
RESIDENTIAL SITE VEHICLE ACCESS - GROUND
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
220522	SPA101	B



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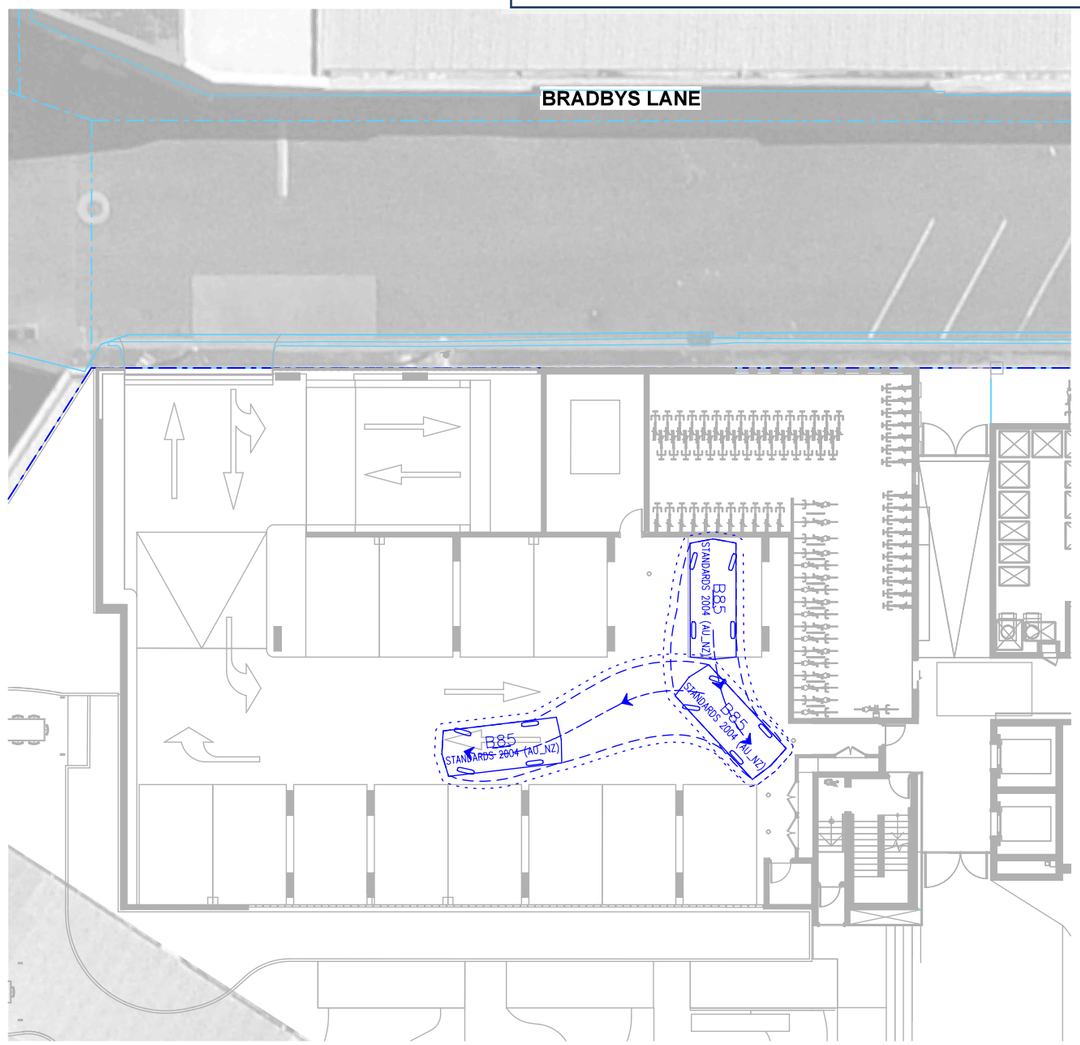

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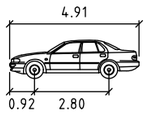

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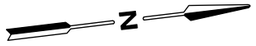

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Drawing Title
102-108 HUMMFRAY ST SOUTH, BAKERY HILL
RESIDENTIAL SITE VEHICLE ACCESS - GROUND
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
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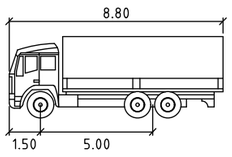

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SWEPT PATH LEGEND

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Drawing Title
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RESIDENTIAL SITE VEHICLE ACCESS - GROUND
SWEPT PATH ANALYSIS

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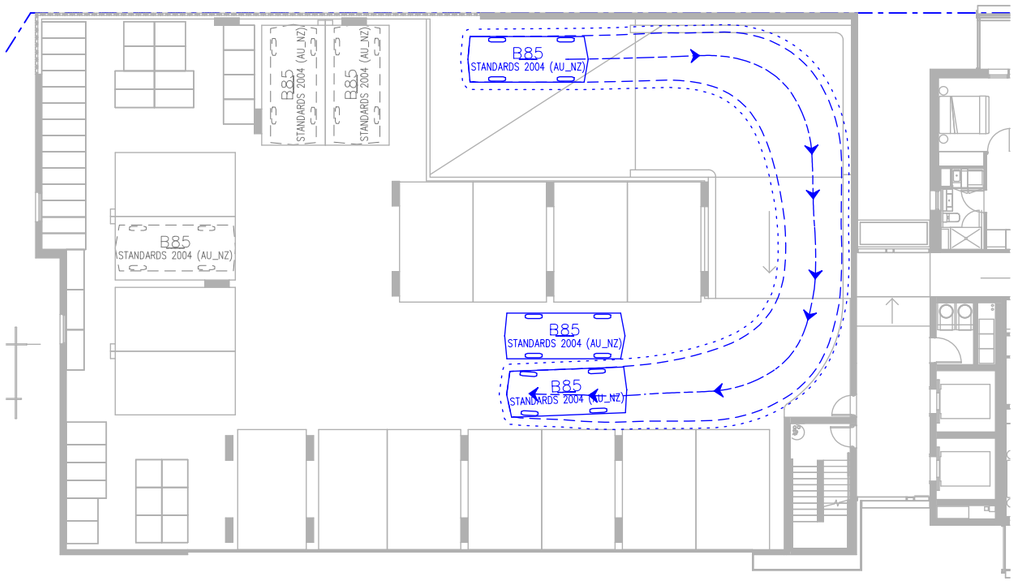

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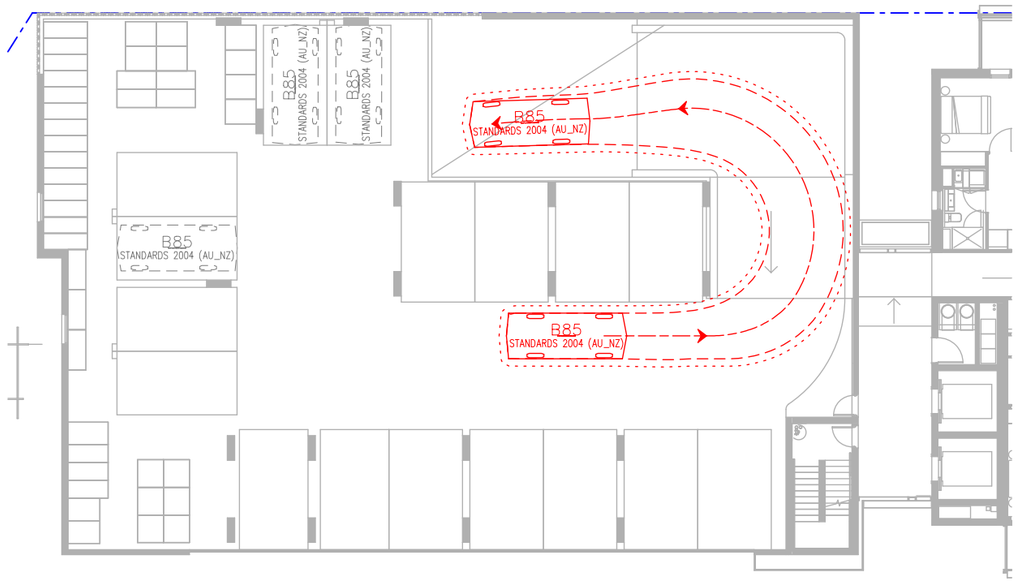

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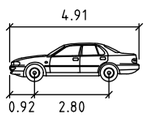

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Drawing Title
102-108 HUMMFRAY ST SOUTH, BAKERY HILL
RESIDENTIAL SITE VEHICLE ACCESS - LEVEL 1
SWEPT PATH ANALYSIS

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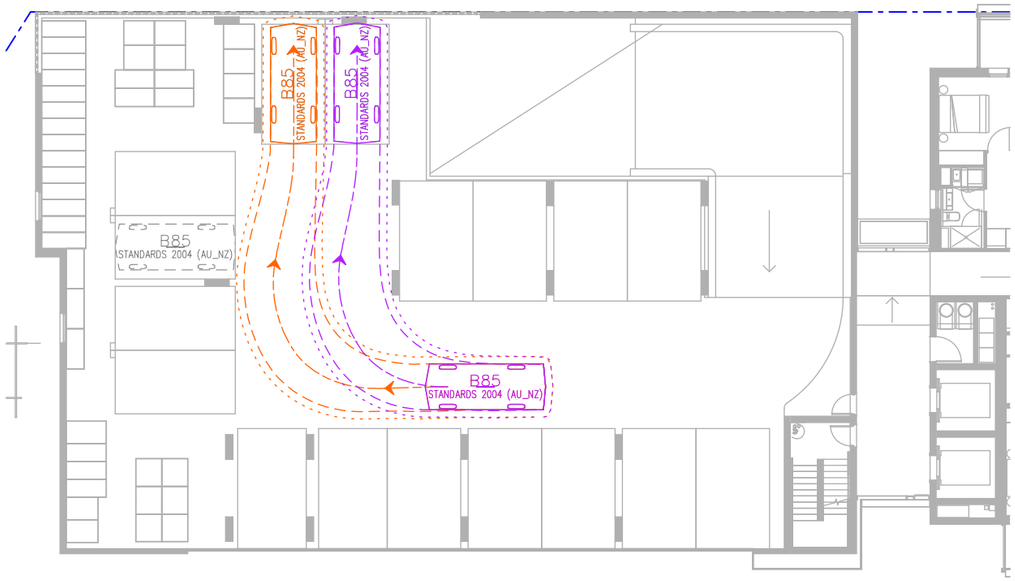

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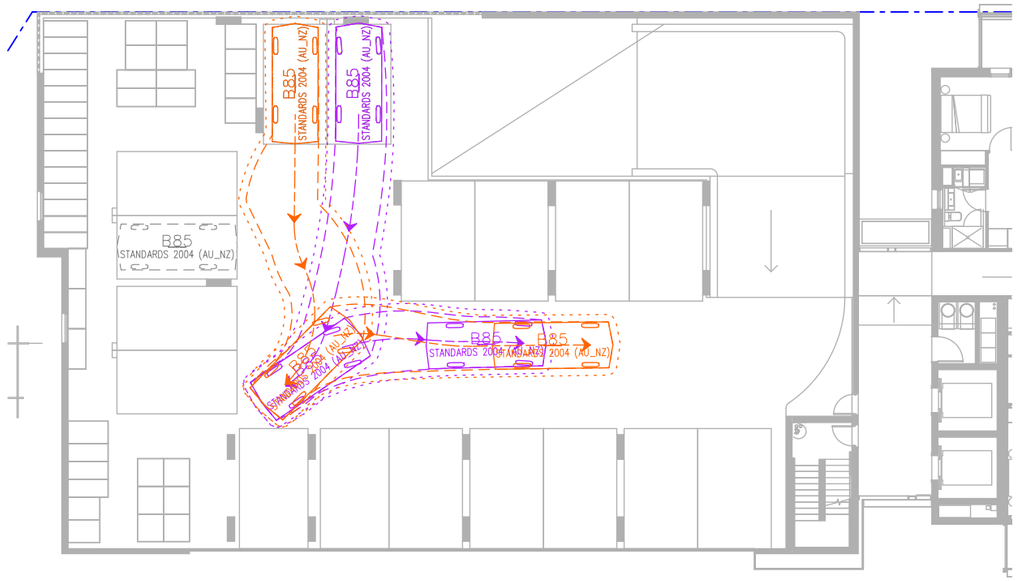

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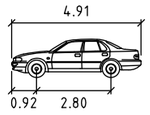
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED



B85	meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

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Phone (03) 9939 8250

Scale 1:250 @ A3 (0 1.25 2.5 5)

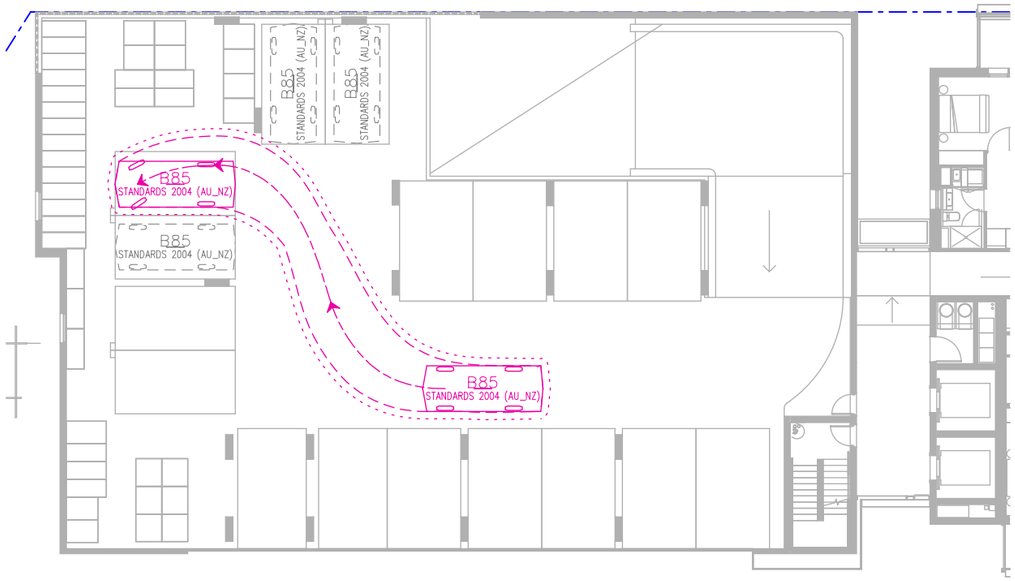
Drawing Title
102-108 HUMMFRAY ST SOUTH, BAKERY HILL
RESIDENTIAL SITE VEHICLE ACCESS - LEVEL 1
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
220522	SPA201	A

CAD File: \\auvlcsvr01\Company\Projects\2022\220522\Drawings\220522SPA201.dgn

Date Plotted: 14-09-2022 10:13:34 AM



ENTRY MANOEUVRES

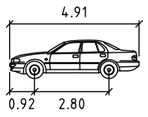
– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

EXIT MANOEUVRES

– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

CAD File: \\auvlcsvr01\Company\Projects\2022\220522\Drawings\220522SPA202.dgn

Date Plotted: 14-09-2022 10:13:46 AM



B85	meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

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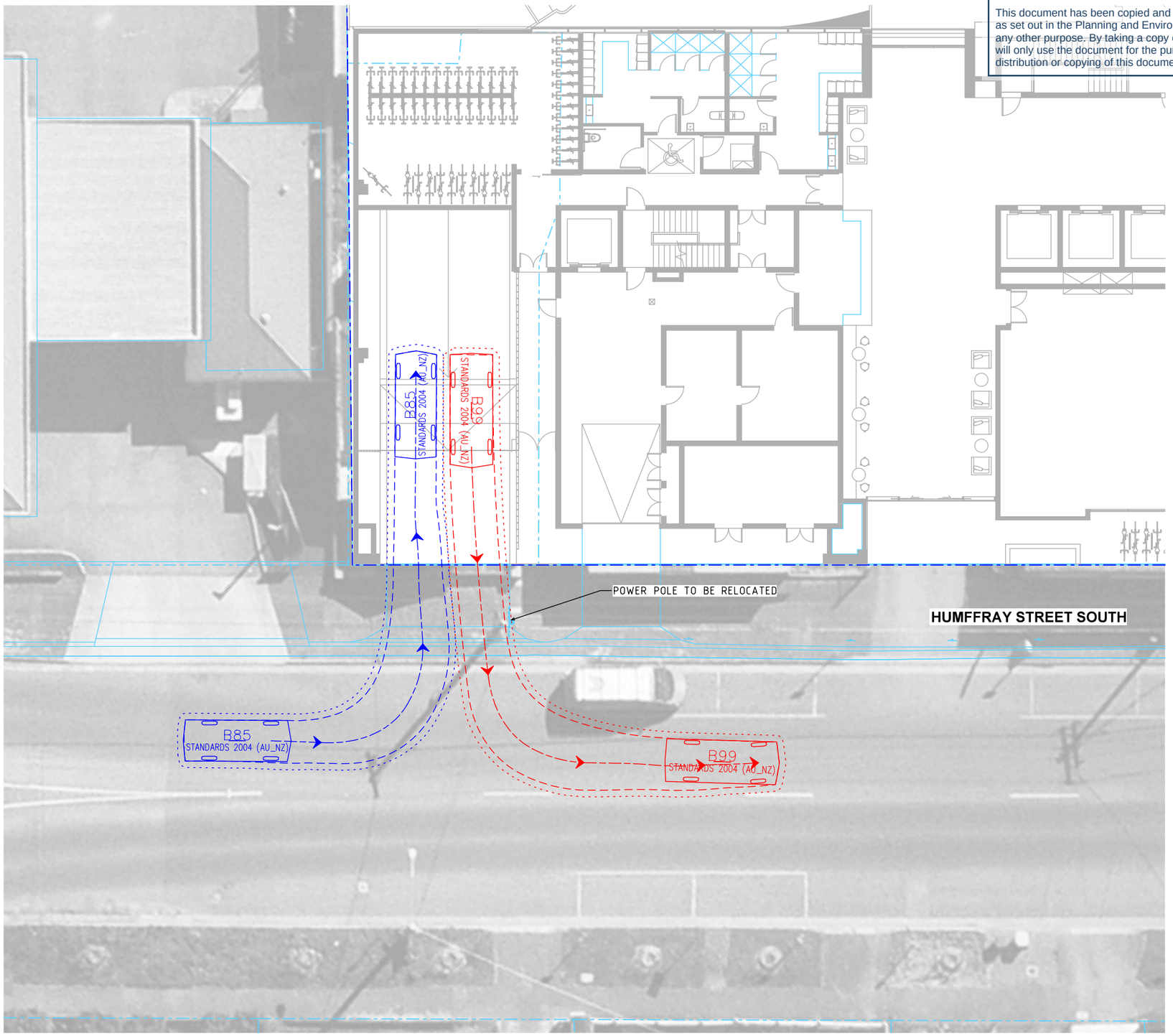
Drawing Title
102-108 HUMMFRAY ST SOUTH, BAKERY HILL
RESIDENTIAL SITE VEHICLE ACCESS - LEVEL 1
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
CM	VG	NA

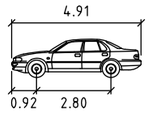
Scale
1:250 @ A3
0 1.25 2.5 5

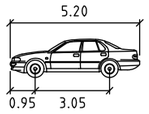
Project Number	Drawing Number	Revision
220522	SPA202	A



CAD File: N:\Projects\2022\220522\Drawings\220525PA300.dgn

Date Plotted: 03-11-2022 11:41:15





B85	meters	B99	meters
Width	: 1.87	Width	: 1.94
Track	: 1.77	Track	: 1.84
Lock to Lock Time	: 6.0	Lock to Lock Time	: 6.0
Steering Angle	: 34.1	Steering Angle	: 33.9

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SWEPT PATH LEGEND

- – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
- --------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

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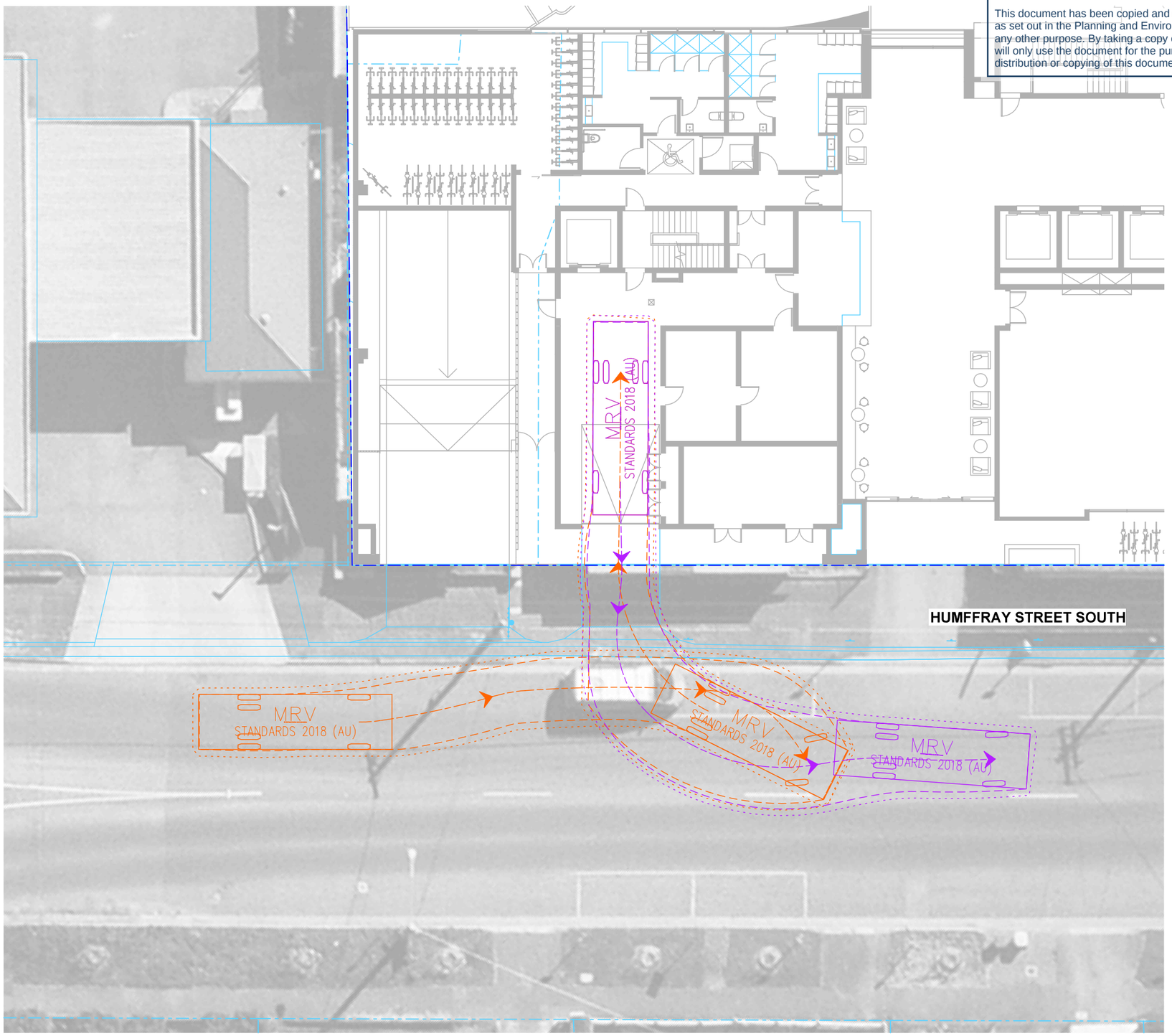
Scale	0 1 2 4
1:200 @ A3	

Drawing Title
102-108 HUMMFRAY STREET SOUTH, BAKERY HILL COMMERCIAL SITE VEHICLE ACCESS - GROUND SWEPT PATH ANALYSIS

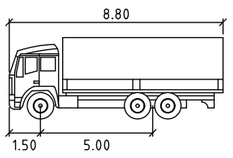
Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
220522	SPA300	B



CAD File: N:\Projects\2022\220522\Drawings\220522SPA301.dgn

Date Plotted: 03-11-2022 11:38:55 AM



MRV	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 34.0

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SWEPT PATH LEGEND

- - - - - DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

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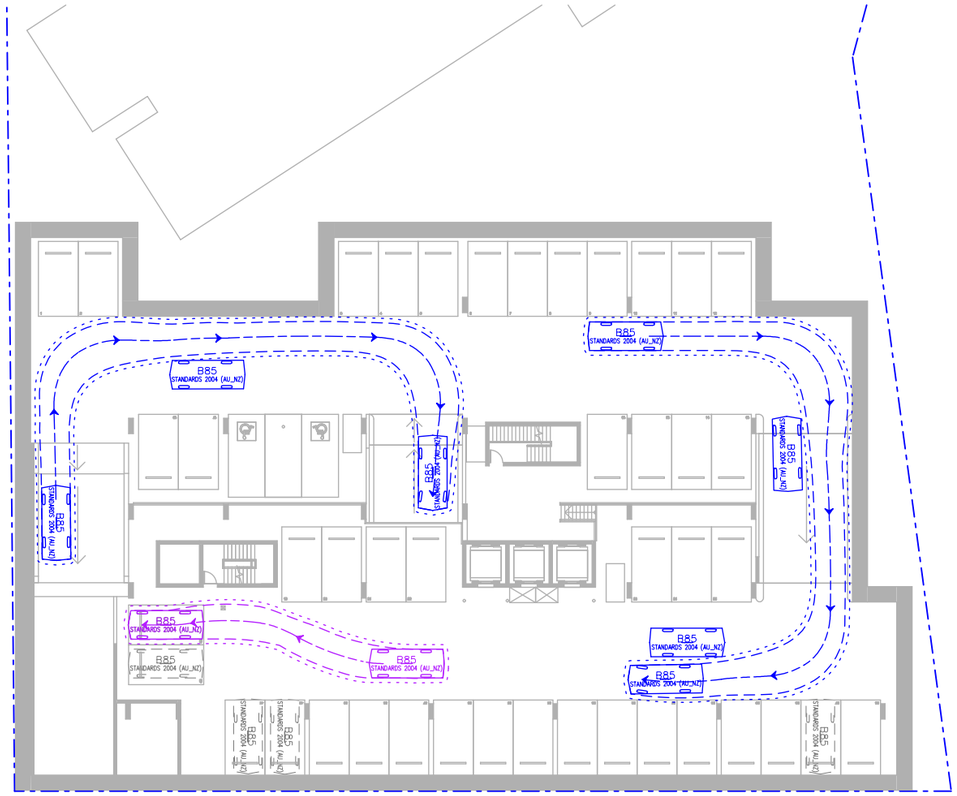
Scale 1:200 @ A3 (0 1 2 4)

Drawing Title
102-108 HUMMFRAY STREET SOUTH, BAKERY HILL
COMMERCIAL SITE VEHICLE ACCESS - GROUND
SWEPT PATH ANALYSIS

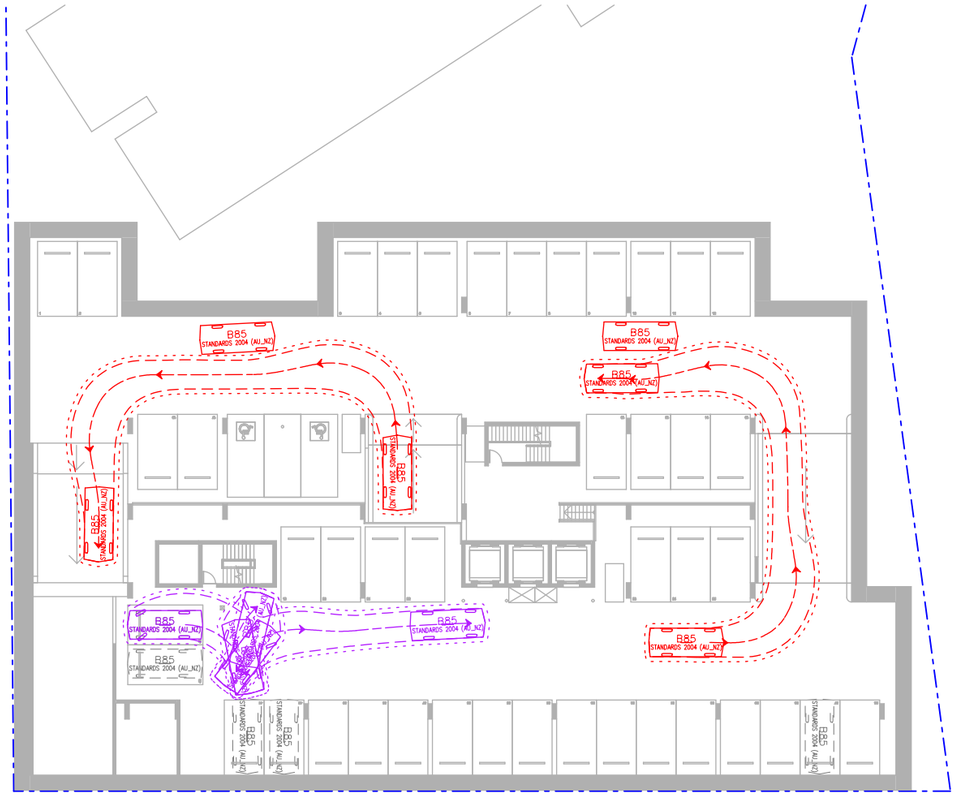
Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
220522	SPA301	B



ENTRY MANOEUVRES

– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

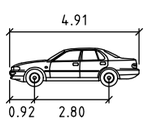


EXIT MANOEUVRES

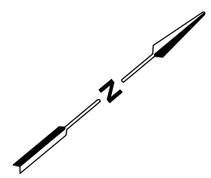
– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

CAD File: N:\Projects\2022\220522\Drawings\220522SPA400.dgn

Date Plotted: 03-11-2022 11:38:56 AM



B85	meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1



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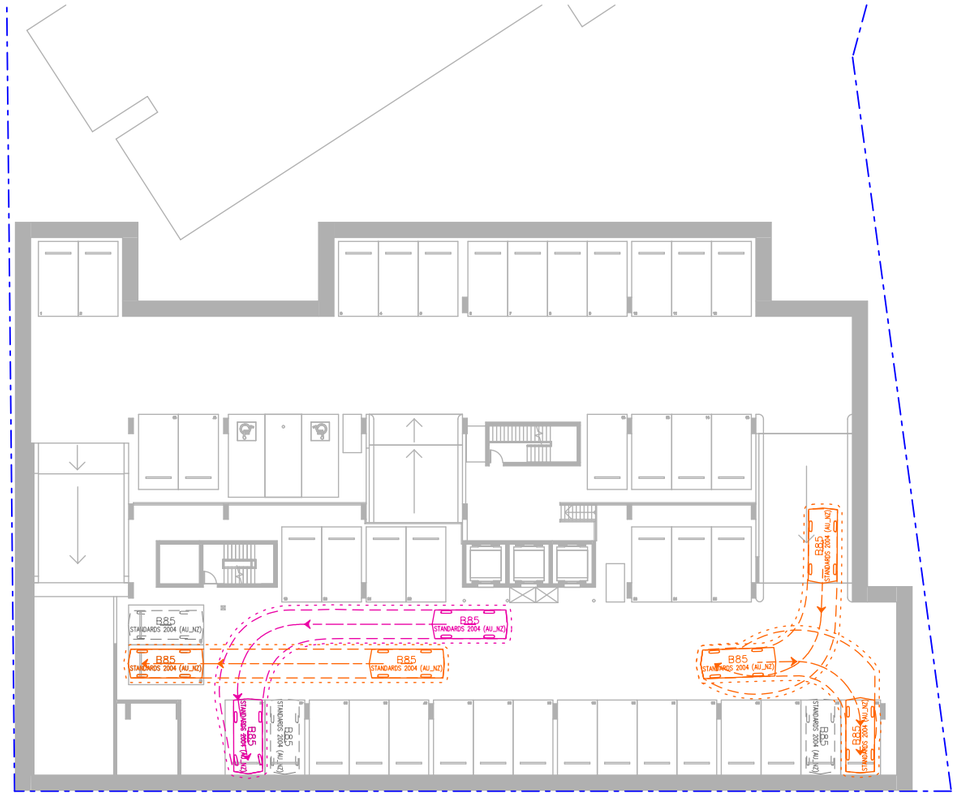
Phone (03) 9939 8250

Scale
1:400 @ A3
0 2 4 8

Drawing Title
102-108 HUMMFRAY STREET SOUTH, BAKERY HILL
COMMERCIAL SITE VEHICLE ACCESS - B1
SWEPT PATH ANALYSIS

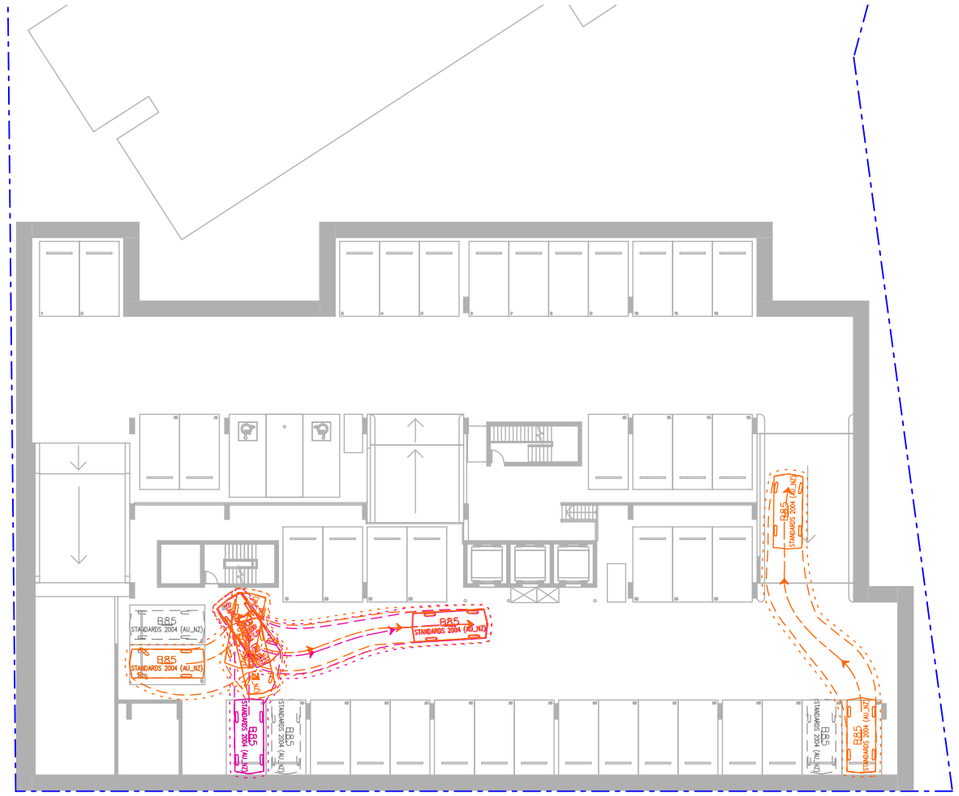
Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
220522	SPA400	B



ENTRY MANOEUVRES

– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

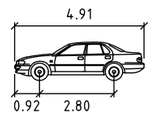


EXIT MANOEUVRES

– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

CAD File: N:\Projects\2022\220522\Drawings\220522SPA401.dgn

Date Plotted: 03-11-2022 11:38:57 AM



B85	meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

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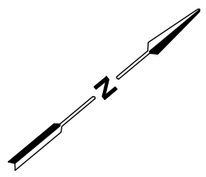

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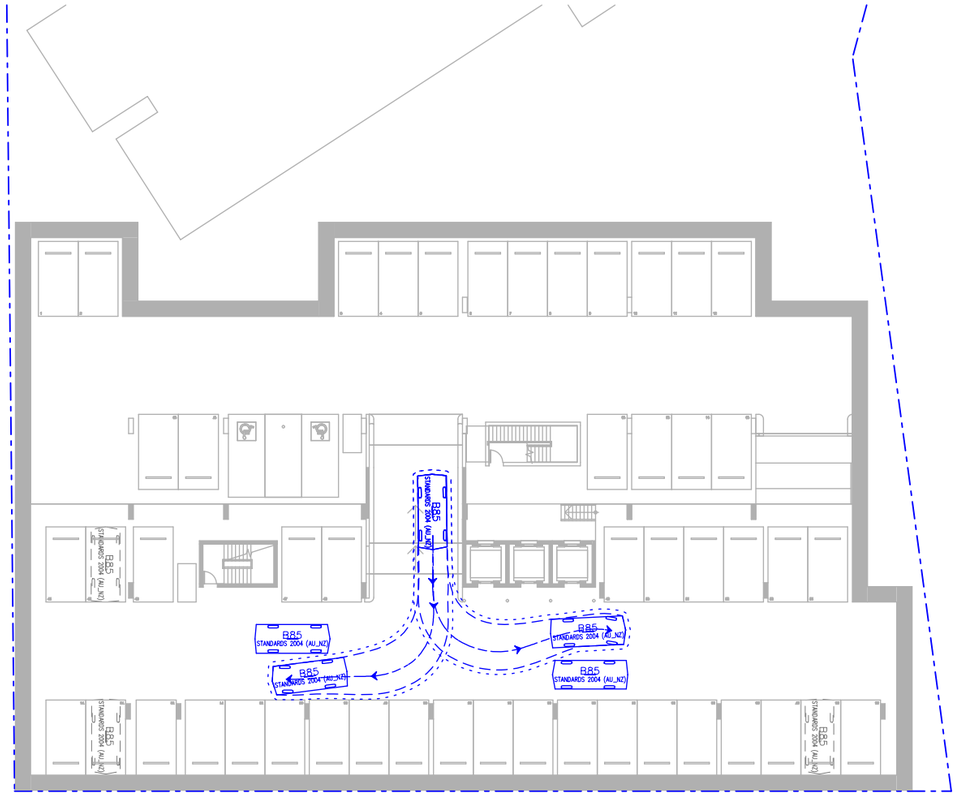
Phone (03) 9939 8250

Scale
1:400 @ A3
0 2 4 8

Drawing Title
102-108 HUMMFRAY STREET SOUTH, BAKERY HILL
COMMERCIAL SITE VEHICLE ACCESS - B1
SWEPT PATH ANALYSIS

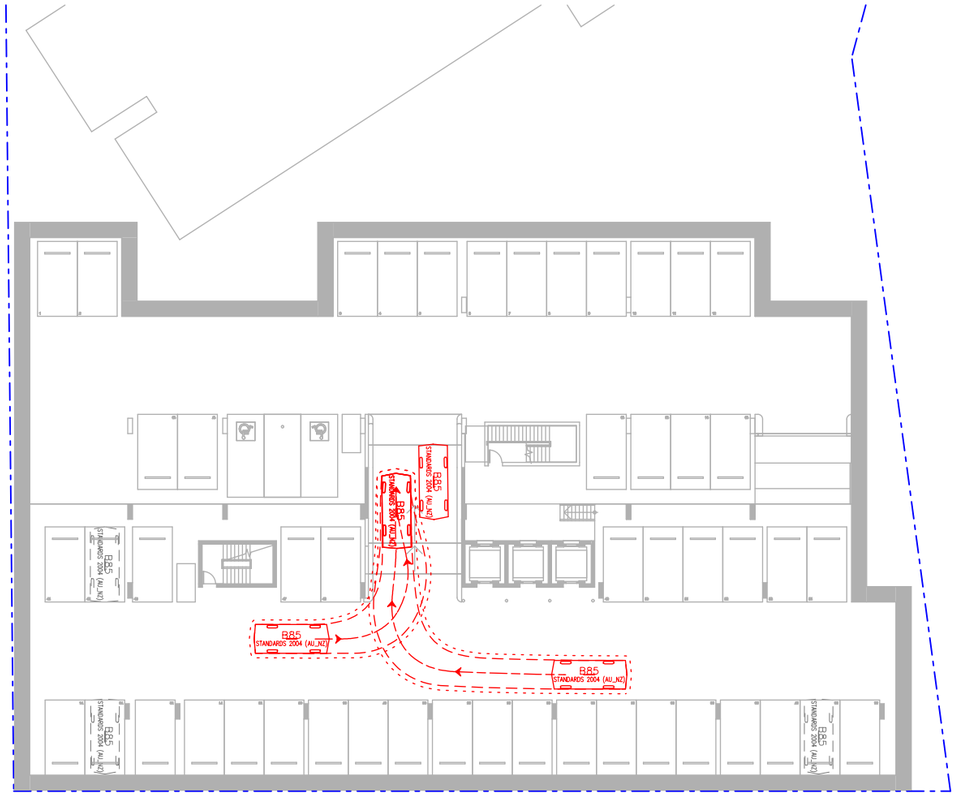
Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
220522	SPA401	B



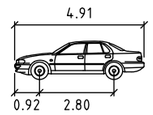
ENTRY MANOEUVRES

– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED



EXIT MANOEUVRES

– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED



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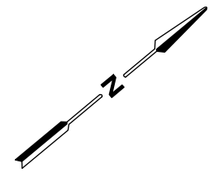
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1



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Phone (03) 9939 8250

Scale 1:400 @ A3 (0 2 4 8)

Drawing Title
102-108 HUMMFRAY STREET SOUTH, BAKERY HILL
COMMERCIAL SITE VEHICLE ACCESS - B2
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
220522	SPA500	B

CAD File: N:\Projects\2022\220522\Drawings\220522SPA500.dgn

Date Plotted: 03-11-2022 11:38:57 AM

ENTRY MANOEUVRES

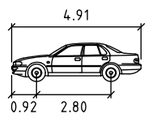
– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

EXIT MANOEUVRES

– – – – – DESIGN VEHICLE SWEPT PATHS SHOWN DASHED
--------- 300mm CLEARANCE ENVELOPE SHOWN DOTTED

CAD File: N:\Projects\2022\220522\Drawings\220522SPA501.dgn

Date Plotted: 03-11-2022 11:38:58 AM



B85	meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

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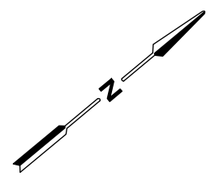

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Scale 1:400 @ A3 (0 2 4 8)

Drawing Title
102-108 HUMMFRAY STREET SOUTH, BAKERY HILL
COMMERCIAL SITE VEHICLE ACCESS - B2
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
CM	VG	NA

Project Number	Drawing Number	Revision
220522	SPA501	B