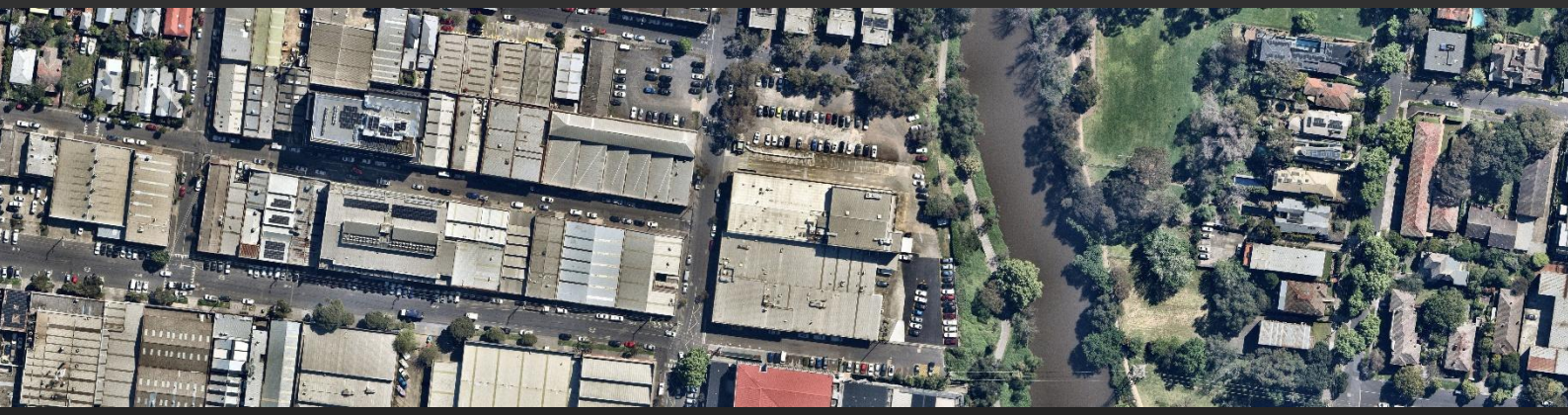
43 & 63-67 River Street, Richmond

Transport Impact Assessment



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8 May 2026

onemile**grid**

ABN: 79 168 115 679

(03) 9939 8250
Wurundjeri Woiworung Country
56 Down Street
COLLINGWOOD, VIC 3066
www.onemilegrid.com.au

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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.*

Cover image courtesy of Nearmap

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1 INTRODUCTION

onemile**grid** has been requested by Cbus Property R4 Pty Ltd to undertake a Transport Impact Assessment of the proposed residential development at 43 & 63-67 River Street, Richmond.

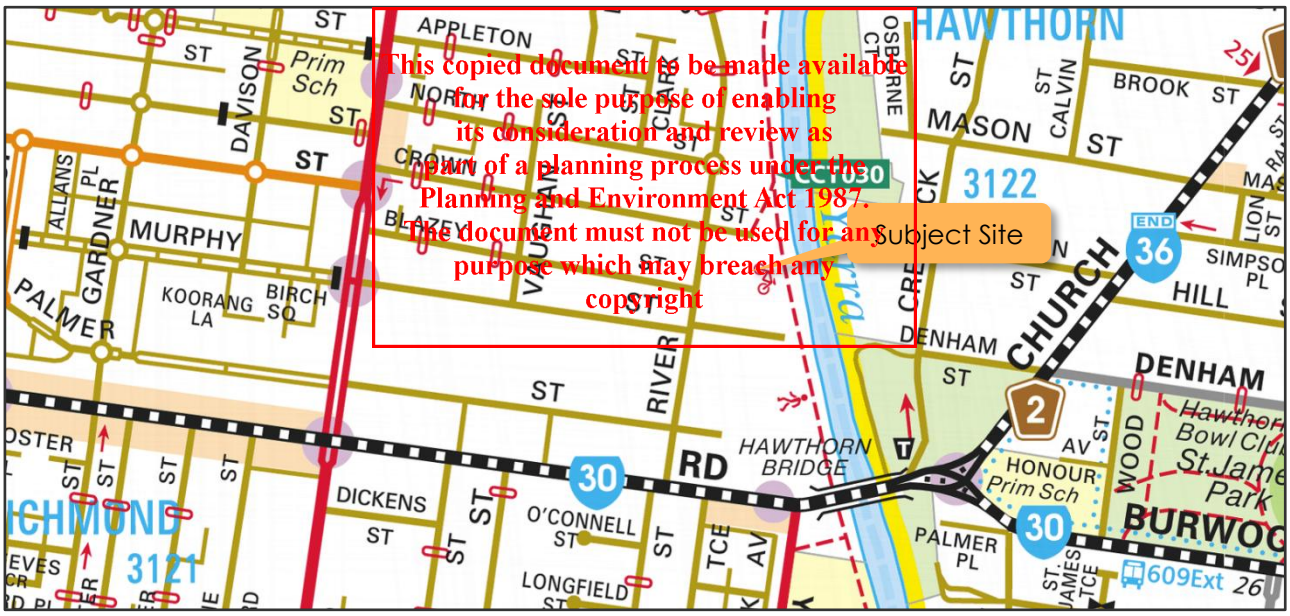
As part of this assessment the subject site has been inspected with due consideration of the development proposal, traffic data has been sourced, and relevant background information has been reviewed.

2 EXISTING CONDITIONS

2.1 Site Location

The subject site is addressed as 43 & 63-67 River Street, Richmond, and is located on the east side of River Street and the south side of Crown Street, as shown in Figure 1. The site is also provided with a southern frontage to a private road, with the title boundary located approximately midway across the roadway.

Figure 1 Site Location



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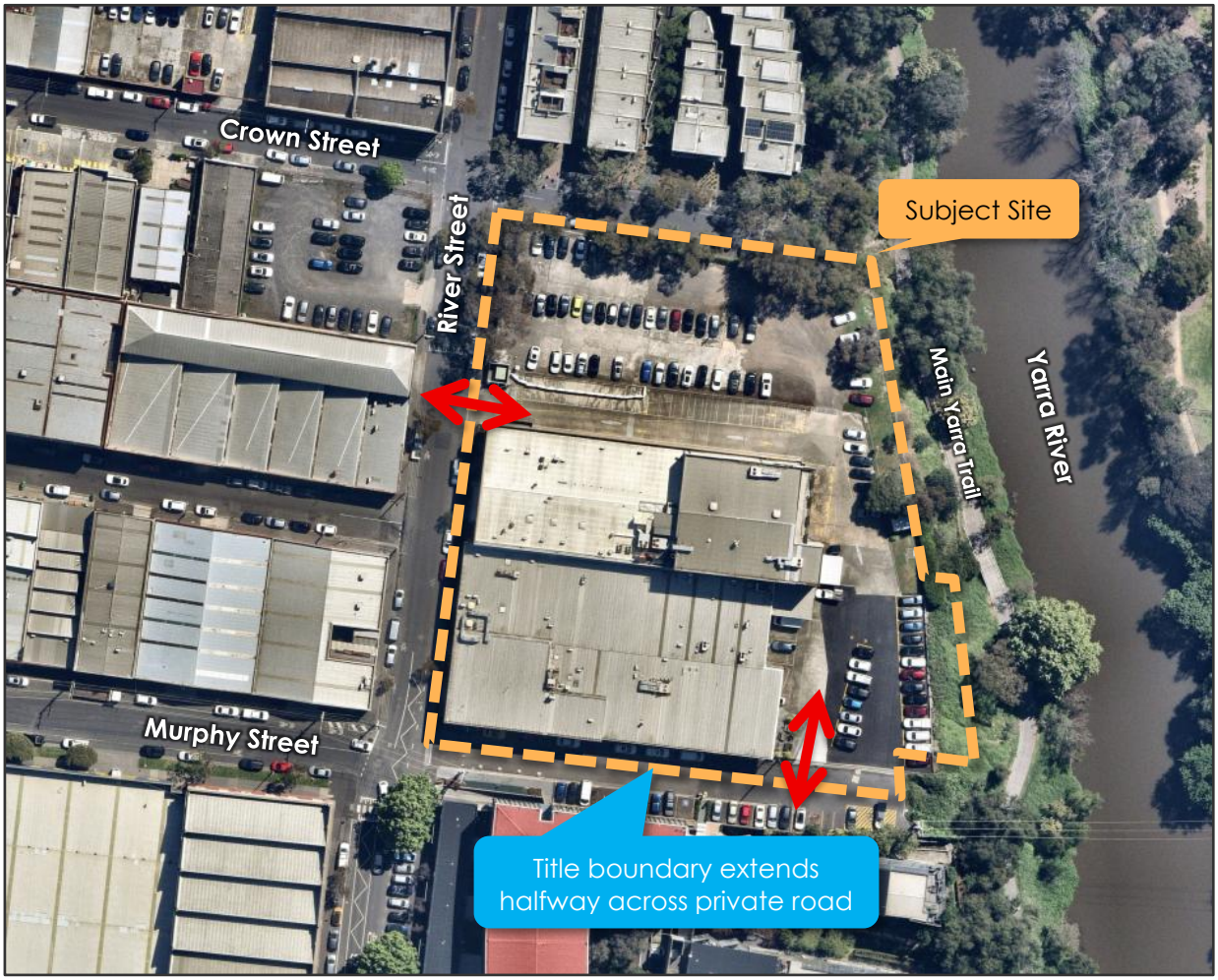
The site is currently occupied by an industrial manufacturing facility, with the current tenant being NHP Electrical Engineering Products.

The site is currently provided with access via a crossover to Murphy Street in the southeast corner of the site, and a crossover to River Street to the west of the site. The site currently provides in the order of 85 line marked car parking spaces on-site, with the majority of car parking provided within an open air car park within the northern portion of the site. The Main Yarra Trail runs along the eastern boundary of the site, parallel with the Yarra River.

Land use in the immediate vicinity of the site is mixed, with a high density residential building to the south, a medium density residential development to the north, and established industrial uses to the west.

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

Figure 2 Site Context (9 October 2024)



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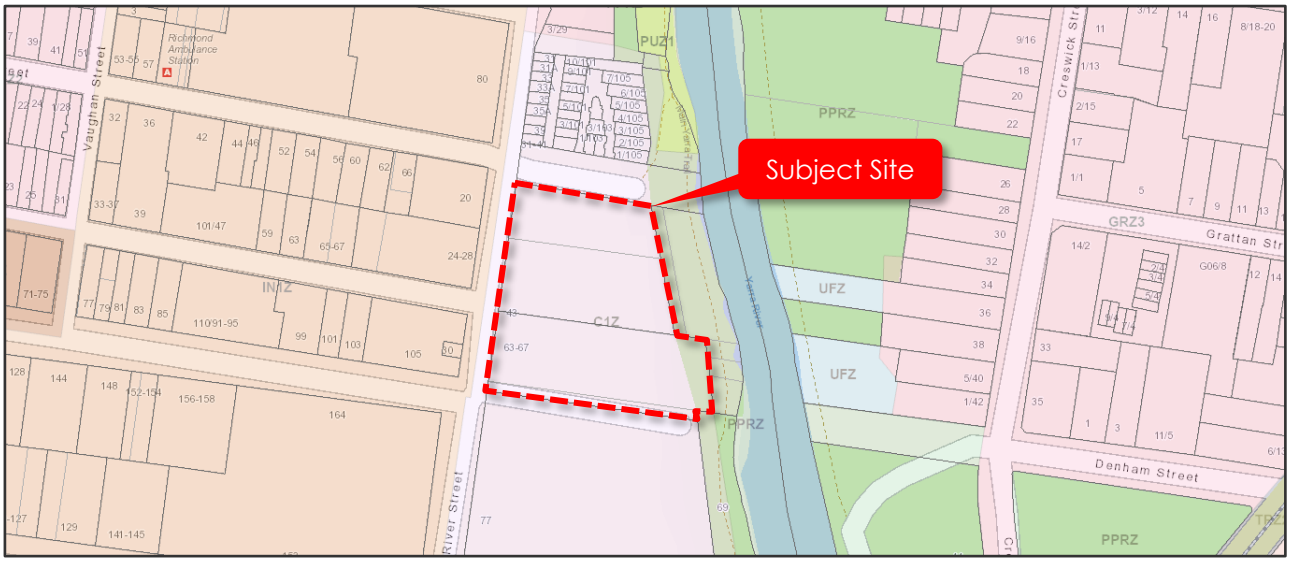
2.2 Planning Zones and Overlays

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 River Street

River Street is a local road generally aligned north-south, running between Bridge Road in the south, and terminating approximately 600 m north adjacent to Annettes Place reserve. River Street provides an approximately 11 m wide carriageway which allows for two-way traffic movements. Kerbside parking is permitted on both sides of the road, generally restricted to 1-hour parking between 8:00am and 5:00pm. River Street also includes intermittent landscaping and tree planters within the road reserve.

An on-street loading zone is provided along the site frontage towards the southern boundary of the site, with a 15-minute time restriction.

The cross-section of River Street at the frontage of the site is shown in Figure 4.

Figure 4 River Street, looking south adjacent to the subject site

Image date: July 2025

A 40 km/h speed limit applies to River Street in the vicinity of the site.

2.3.2 Crown Street

Crown Street is a local road generally aligned east-west, running between Burnley Street in the west, and terminating approximately 460 m to the east at the Yarra River. Adjacent to the site, Crown Street is provided with an approximately 6.5 m wide carriageway, which includes a pedestrian and cyclist path from Crown Street towards the Main Yarra Trail. West of the site, Crown Street is provided with an approximately 8.5 m wide carriageway which allows for two-way traffic movements, and includes intermittent landscaping and tree planters within the road reserve.

The cross-section of Crown Street at the frontage of the site is shown in Figure 5.

Figure 5 Crown Street , looking west adjacent to the subject site

Image date: July 2025

A 40 km/h speed limit applies to Crown Street in the vicinity of the site.

2.3.3 Private Road

A private road is provided along the southern boundary of the site, running between Murphy Street in the west and terminating at the upper banks of the Yarra River in the east. The private road includes a total carriageway width of 9 m, with the title boundary of the subject site located approximately midway across the private road. The remainder of the private road is understood to be included within the title of the adjacent sites to the south; No. 69 and 73 River Street. The private road includes parallel spaces along the development side of the road, and 90-degree parking spaces on the south side associated with the adjacent property.

The cross-section of the private road at the frontage of the site is shown in Figure 7.

Figure 6 Private Road, looking east adjacent to the subject site

Image date: July 2025

2.3.4 Murphy Street

Murphy Street is a local road generally aligned east-west, running between River Street in the east, and Coppin Street in the west, although the eastern and western sections of Murphy Street either side of Burnley Street are not provided with a direct vehicular connection. Murphy Street provides a 12 m wide carriageway, including a bike lane in each direction and kerbside parking lane in the vicinity of the site. Kerbside parking is generally unrestricted along Murphy Street.

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

Figure 7 Murphy Street, looking west away from the subject site

Image date: July 2025

A 40 km/h speed limit applies to Murphy Street in the vicinity of the site.

2.4 Existing Traffic Conditions

2.4.1 Existing Traffic Volumes

Traffic volume surveys were undertaken by Trans Traffic Survey on behalf of **one**mile**grid** on Thursday 31st July 2025 between 6:30am and 9:30am, and 2:30pm and 7:00pm, at the following intersections in the vicinity of the site:

- Bridge Road / River Street; and
- Burnley Street / Murphy Street.

The peak hour results of the surveys are shown in Figure 8 and Figure 9.

Figure 8 Existing Traffic Volumes – AM Peak (8:00am to 9:00am)

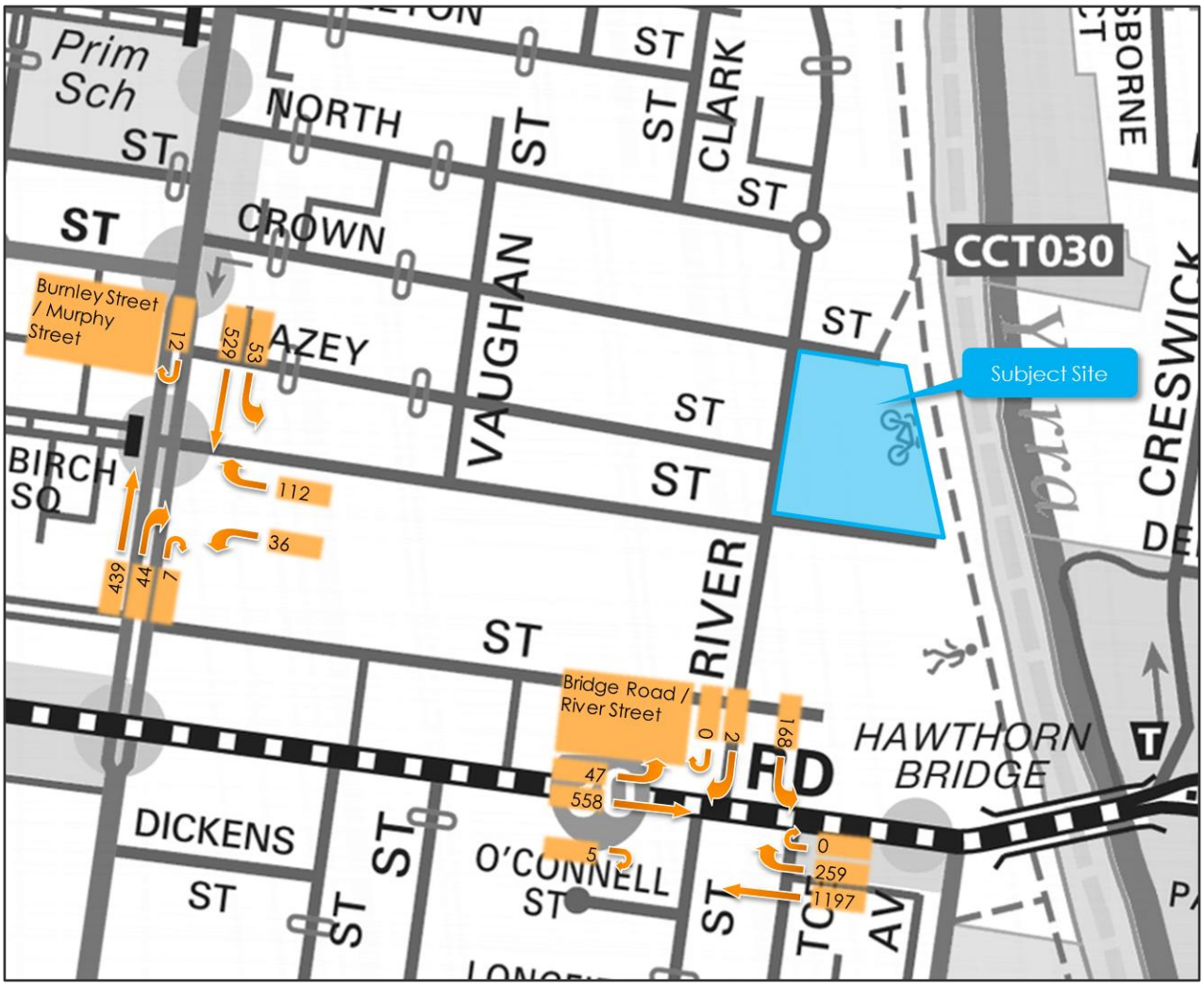
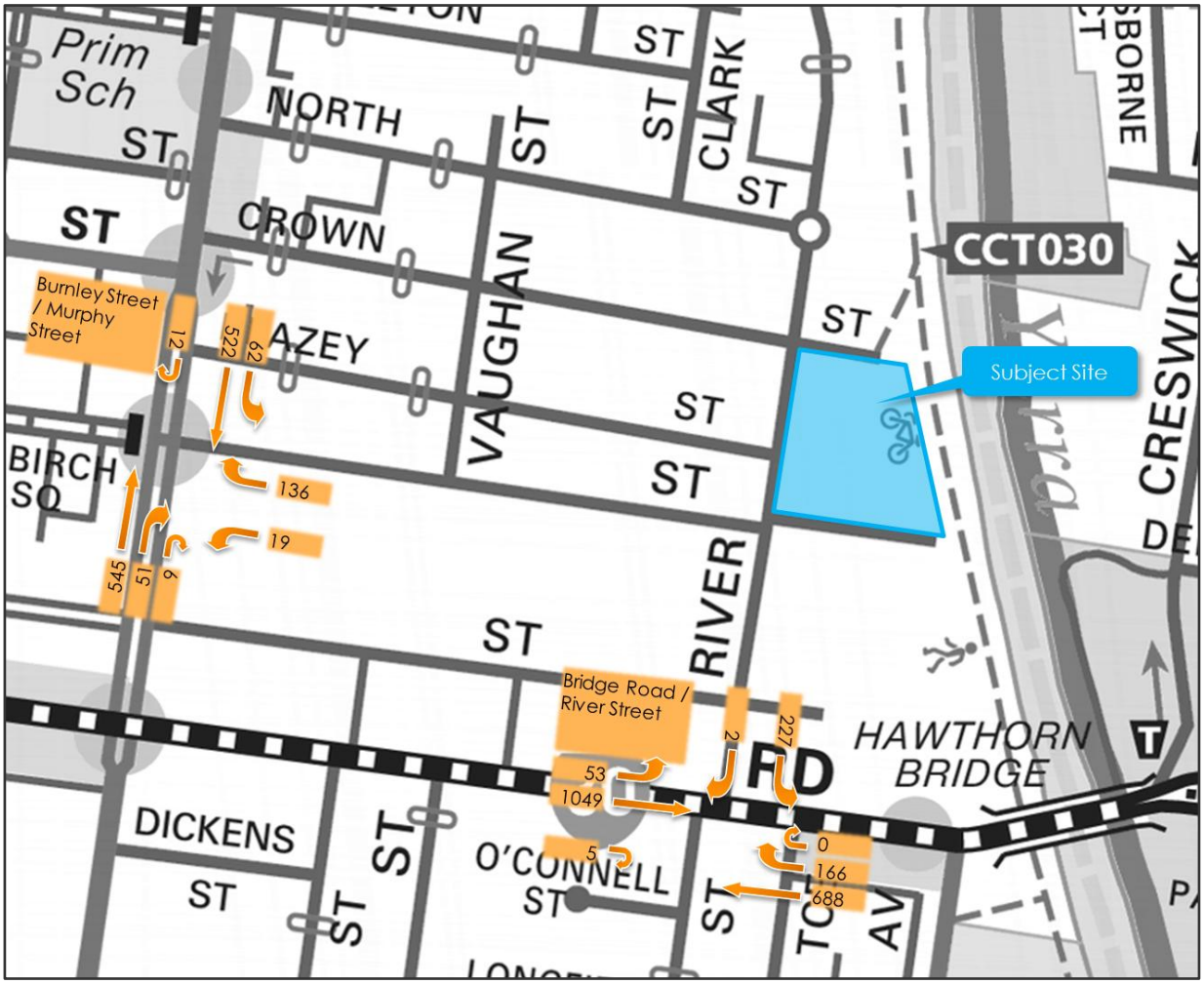


Figure 9 Existing Traffic Volumes – PM Peak (5:00pm to 6:00pm)



2.4.2 Existing Capacity Assessment

To assess the operation of the intersections, the traffic volumes have been input into SIDRA Intersection, a traffic modelling software package.

The SIDRA Intersection software package has been developed to provide information on the capacity of an intersection with regard to a number of parameters. Those parameters considered relevant are, Degree of Saturation (DoS), 95th Percentile Queue, and Average Delay, and Level of Service (LoS), as described in Table 1below.

Table 1 SIDRA Intersection Parameters

Parameter	*Description*
Degree of Saturation (DoS)	The DoS represents the ratio of the traffic volume making a particular movement compared to the maximum capacity for that particular movement. The value of the DoS has a corresponding rating depending on the ratio as shown below. *Degree of Saturation* / *Rating* Up to 0.60 – Excellent 0.61 – 0.70 – Very Good 0.71 – 0.80 – Good 0.81 – 0.90 – Fair 0.91 – 1.00 – Poor Above 1.00 – Very Poor It is noted that whilst the range of 0.91 – 1.00 is rated as 'poor', it is acceptable for critical movements at an intersection to be operating within this range during high peak periods, reflecting actual conditions in a significant number of suburban signalised intersections.
Average Delay (seconds)	Average delay is the time delay that can be expected for all vehicles undertaking a particular movement in seconds. This includes time taken to accelerate or decelerate, time taken to undertake the manoeuvre, and delay at a hold line or stop line.
95th Percentile (95%ile) Queue	95%ile queue represents the maximum queue length in metres that can be expected in 95% of observed queue lengths in the peak hour.
Level of Service (LoS)	A qualitative measure of sign-controlled intersection performance, based on the average delay experienced by a driver. A LoS of A, B, C or D suggests acceptable intersection performance. A LoS of E or F suggests mitigation measures or upgrades may be warranted.

The value of the average delay and Level of Service for a **sign-controlled intersection** has a corresponding rating, as shown in Table 2 below.

Table 2 Rating of Delay and V/C Ratio, and Level of Service

Rating	*Delay &V/C Ratio*	*Level of Service*
Excellent	≤ 10 seconds	A
Very Good	10 – 15 seconds	B
Good	15 – 25 seconds	C
Fair	20 – 35 seconds	D
Poor	30 – 50 seconds	E
Very Poor	50+ seconds	F

It is noted that whilst a Degree of Saturation in the range of 0.91 – 1.00, or a Level of Service E is rated as 'poor', it is acceptable for critical movements at an intersection to be operating within this range during high peak periods, reflecting actual conditions in a significant number of suburban intersections.

The results of the analysis are provided in Table 3 and Table 4 and discussed below.

Table 3 Burnley Street / Murphy Street – Existing Conditions

Approach	Movement	DoS	Avg. Delay (sec)	Queue (m)
AM Peak				
Burnley Street (S)	Through	0.357	6.4	61.0
	Right	0.073	14.9	8.4
	U-Turn	0.073	15.4	8.4
Murphy Street (E)	Left	0.486	42.2	46.1
	Right	0.486	39.9	46.1
Burnley Street (N)	Left	0.487	7.0	91.9
	Through	0.487	10.8	91.9
	U-Turn	0.029	16.4	1.7
PM Peak				
Burnley Street (S)	Through	0.436	7.0	80.0
	Right	0.085	15.0	9.7
	U-Turn	0.085	15.4	9.7
Murphy Street (E)	Left	0.481	41.9	46.6
	Right	0.481	39.6	46.6
Burnley Street (N)	Left	0.482	7.0	89.9
	Through	0.482	11.0	89.9
	U-Turn	0.084	17.9	1.8

The Burnley Street / Murphy Street intersection is currently operating under excellent conditions during the AM and PM peak periods.

Table 4 Bridge Road / River Street – Existing Conditions

Approach	Movement	DoS	Avg. Delay (sec)	Queue (m)	Level of Service
AM Peak					
Bridge Road (E)	Through	0.603	0.9	34.4	A
	Right	0.603	14.5	34.4	B
River Street (N)	Left	0.160	7.3	5.0	A
Bridge Road (W)	Left	0.068	3.4	0.0	A
	Through	0.340	5.6	15.7	A
	U-Turn	0.340	59.8	15.7	F
PM Peak					
Bridge Road (E)	Through	0.367	0.0	0.0	A
	Right	0.777	33.8	26.4	D
River Street (N)	Left	0.375	12.2	14.1	B
Bridge Road (W)	Left	0.314	3.5	0.0	A
	Through	0.314	0.4	2.6	A
	U-Turn	0.314	20.1	2.6	C

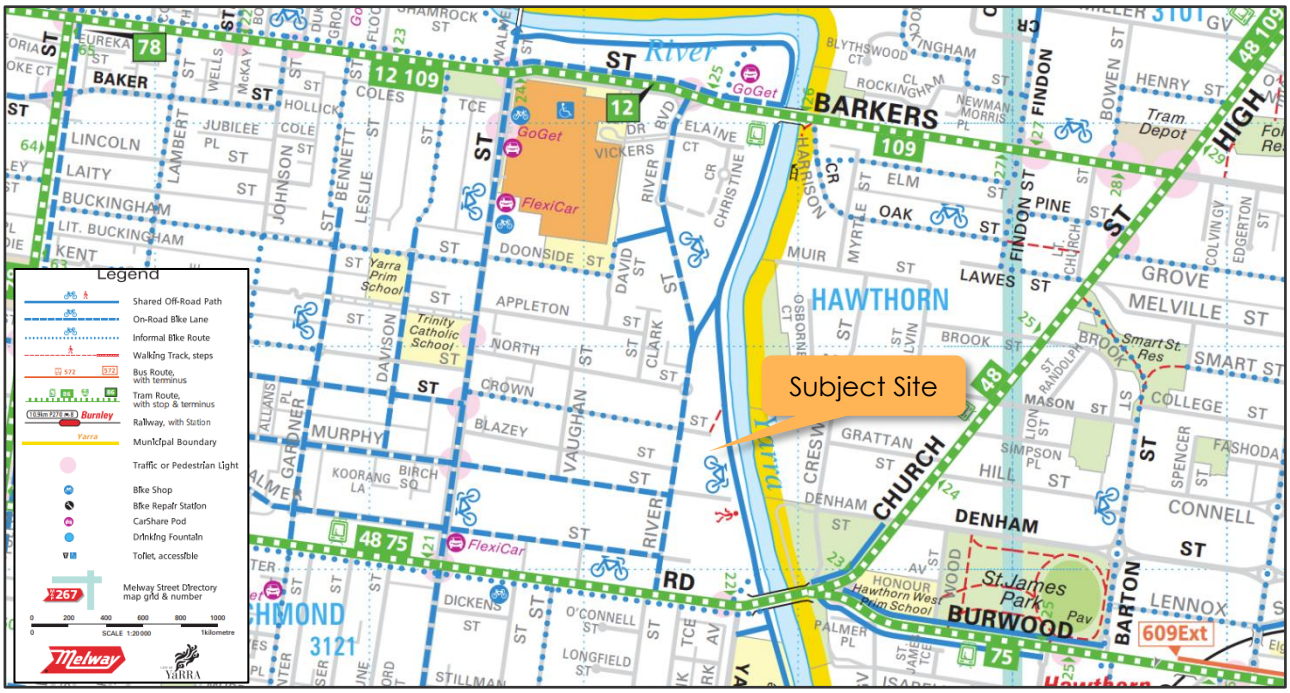
The Bridge Road / River Street intersection is generally operating under excellent and very good conditions during the AM and PM peak periods. Vehicles turning right and U-turning during the AM and PM peak periods are experiencing moderate to considerable delays, which is expected given the high volume of through traffic along Bridge Road and the central tram lanes provided. It is important to note that vehicles waiting to turn right are not impacting on the performance for through traffic.

2.5 Sustainable Transport

2.5.1 General

An extract of the TravelSmart Map for the City of Yarra is shown in Figure 10, highlighting the public transport, bicycle and pedestrian facilities in the area.

Figure 10 TravelSmart Map



2.5.2 Public Transport

The full public transport provision in the vicinity of the site is shown in Figure 11 and detailed in Table 5.

Figure 11 Public Transport Provision

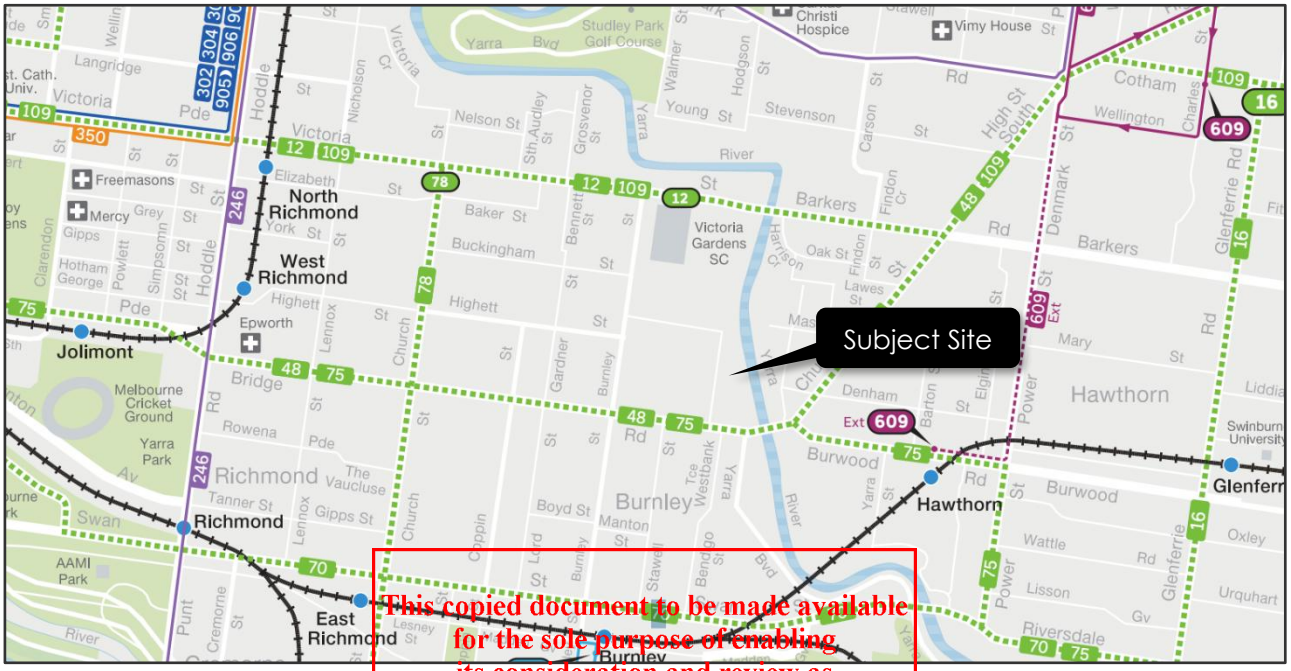


Table 5 Public Transport Provision

Mode	Route No.	Route Description	Nearest Stop/Station
Train		Alamein Line	Hawthorn Station
		Belgrave Line	Hawthorn Station
		Lilydale Line	Hawthorn Station
Tram	12	Victoria Gardens - St Kilda	Burnley Street / Victoria Street
	48	North Balwyn - Victoria Harbour Docklands	Yarra Boulevard / Bridge Road
	75	Vermont South - Central Pier Docklands	Yarra Boulevard / Bridge Road
	109	Box Hill - Port Melbourne	River Boulevard / Victoria Street

The site has excellent public transport accessibility, with a wide variety of transport modes and services servicing the immediate vicinity of the site. Most notably, the site is less than a 300 m walk from a tram stop for the No. 48 and 75 Routes along Bridge Road, providing convenient connection though to the CBD and eastern suburbs.

Furthermore, as previously noted the site falls within the Principal Public Transport Network (PPTN) area.

2.5.3 Bicycle Facilities

The Main Yarra Trail shared-use path runs along the eastern boundary of the site, which follows the Yarra River from the CBD to the northeastern suburbs.

River Street and Murphy Street are both provided with a combination of on-road bicycle lanes and sharrow line marking, indicating that bicycles can share the main traffic lane with vehicles.

Palmer Street and Burnley Street are both provided with on-street bicycle lanes on both sides of the road.

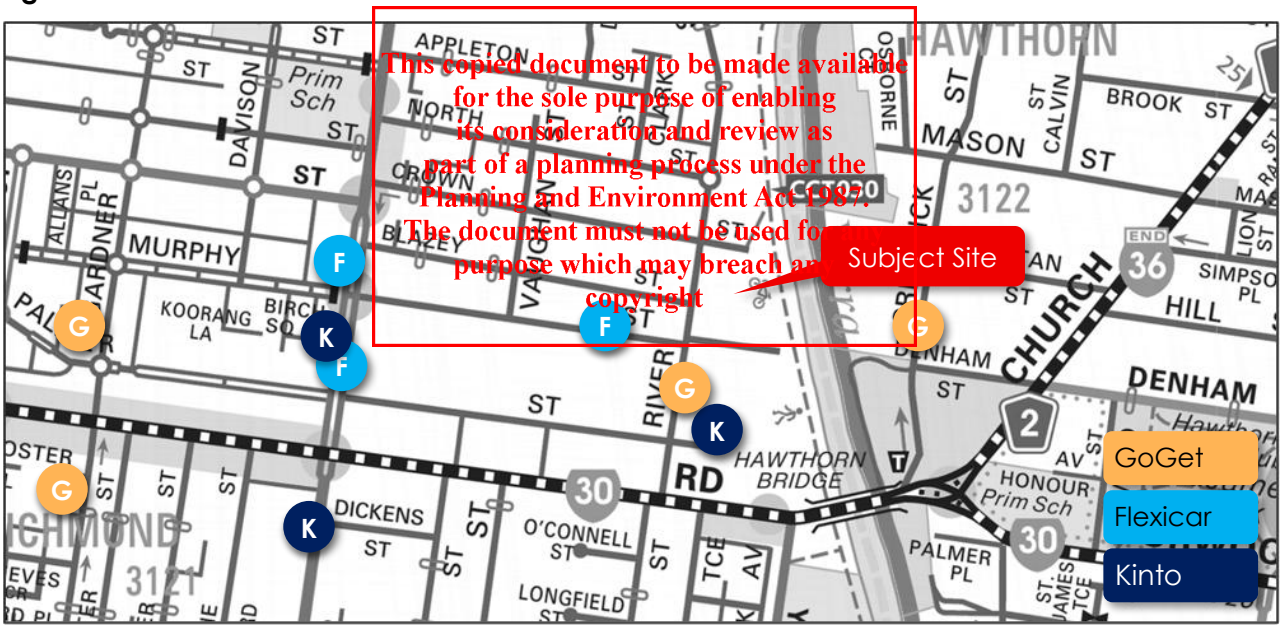
Bridge Road is also provided with intermittent, unconnected sections of bicycle lanes on both sides of the road.

2.5.4 Share Cars

Car sharing is becoming increasingly popular within highly populated areas for both employees and residents, where parking is restrictive and expensive. Car sharing operates similar to a car rental company, except users join as members and are charged on an hourly rate rather than a daily.

The location of the share cars within close proximity of the site are shown in Figure 12.

Figure 12 Share Car Locations



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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 89/100 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 residential development, comprising a combination of residential products, including apartments and townhouses. The development includes two towers, with the south tower including a commercial space on the ground floor. In addition, 13 townhouses are proposed along the eastern boundary of the site. The proposed development schedule is demonstrated below in Table 6.

Table 6 Proposed Development

Building	Use	Component	No./Area
Building A (North Tower)	Dwellings	1-Bedroom Apartment	4
		2-Bedroom Apartment	55
		3 & 4-Bedroom Apartment	40
		Sub-Total	**99**
Building B (South Tower)	Dwellings	1-Bedroom Apartment	16
		2-Bedroom Apartment	34
		3 & 4-Bedroom Apartment	38
		Sub-Total	**88**
	Café		366 m²
Townhouses	Dwellings	3 & 4-Bedroom Dwelling	13
Total	**Dwellings**	**1-Bedroom Dwelling**	**20**
		2-Bedroom Dwelling	**87**
		3 & 4-Bedroom Dwelling	**93**
		Sub-Total	**200**
	Café		**366 m²**

3.2 Pedestrian Facilities

The proposed development includes pedestrian access to the River Street, Crown Street and private road frontages, and also includes a direct connection to the Main Yarra Trail in the southeast corner of the site. Private internal connections are provided between each of the frontages, and the development also proposes to construct a footpath along the southern boundary of the site, within the private road.

3.3 Bicycle Parking and End-of-Trip Facilities

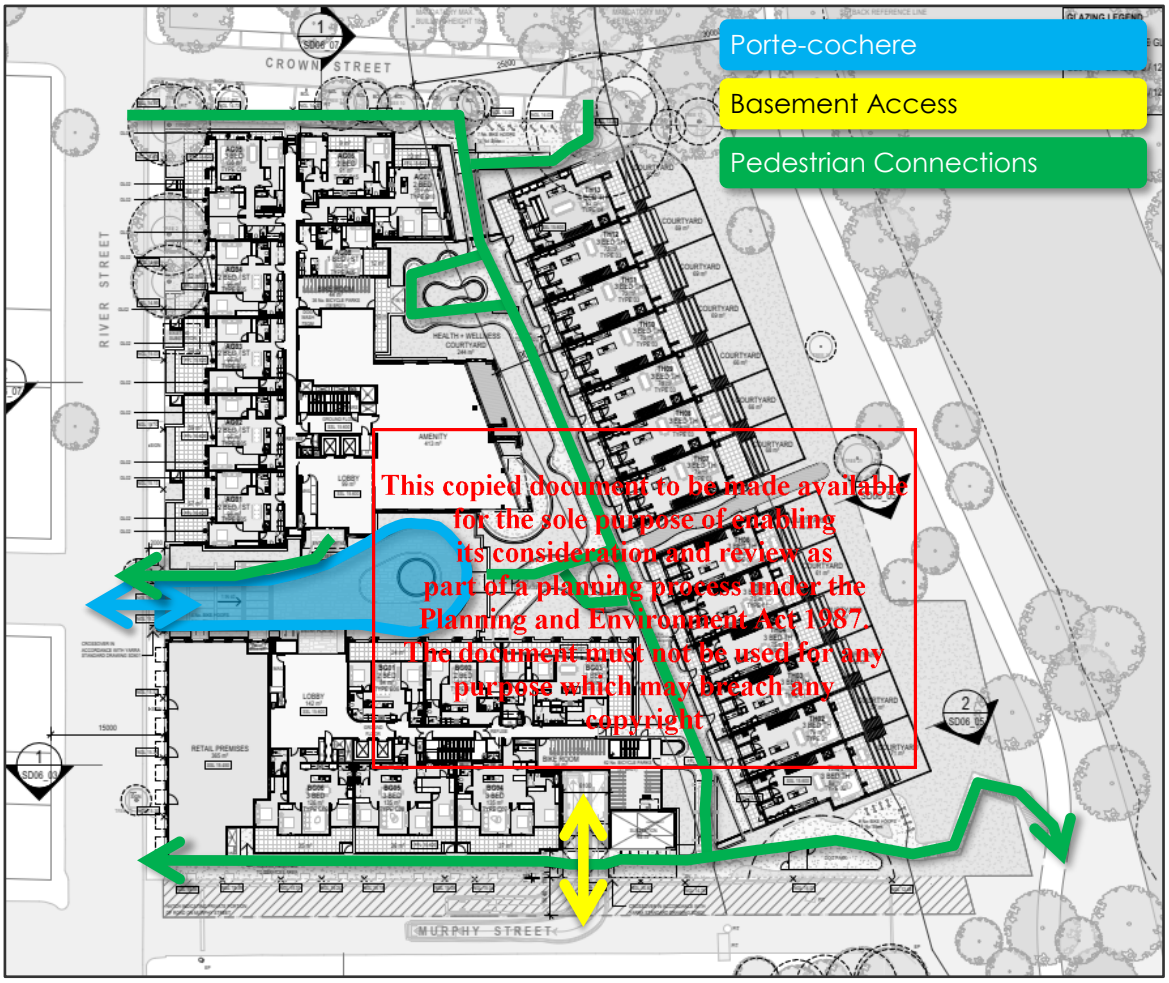
A total of 222 bicycle spaces are proposed across the site. This includes a total of 186 bicycle parking spaces across three secure bicycle parking areas on the ground floor and basement 1 available for residents, and a total of 36 visitor parking spaces. Two cargo bike parking spaces are proposed on basement 1.

3.4 Car Parking and Vehicular Access

A total of 300 car spaces are proposed in a two-level basement car park, with access via a crossover to the private road to the south. Basement level one includes a double garage for each of the townhouses, and one accessible parking space.

It is also proposed to provide a porte-cochere area on the ground floor, intended to be used for drop-off and pick-up.

Figure 13 Site Layout – Ground



In regard to car parking allocation, it is expected that some 1-bedroom and 2-bedroom apartments will be allocated 0 or 1 space, 3 bedroom apartments will be provided with 1 or 2 spaces and townhouses will be provided 2 or 3 spaces. The café is expected to be allocated 1 space, to be used by staff. The car parking allocation is summarised below in Table 7.

Table 7 Car Parking Allocation

Component	No./ Area	Parking Allocation
1-Bedroom Apartment	20	0 or 1 space per apartment
2-Bedroom Apartment	87	1 or 2 spaces per apartment
3-Bedroom Apartment	93	2 or 3 spaces per apartment
Townhouse	200	2 or 3 spaces per apartment
Café	366 m²	1 space

4 DESIGN ASSESSMENT

4.1 Yarra 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 sections.

4.1.1 Design Standard 1: Accessways

A summary of the assessment for Design Standard 1 is provided in Table 8.

Table 8 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 – changes of direction are between accessways of more than 4.2 m 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.	N/A – private car park, but still satisfied
Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheelbase of 2.8 metres.	Satisfied – a minimum height clearance of 2.2 metres is achieved
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.	Satisfied for basement access. The porte-cochere access is provided at 5.5 m wide, though includes a clear area on both sides to allow for an effective width of 6.1 m.
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 900 mm in height.	Generally satisfied – Refer to further discussion below
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

For the basement access, the substation is offset approximately 2.1 m from the proposed southern boundary, therefore only a partial pedestrian splay is provided to the proposed footpath within the site compared to the 2.5 m requirement. In this regard it is noted that this requirement is generally only applied from the property boundary, rather than the edge of the internal footpath, though the

intent of the requirement is recognised to be applicable in this case. Notwithstanding, the sight distance triangle will remain more than 50% clear of visual obstructions and is not expected to impact on sight distances for exiting motorists to pedestrians travelling on the footpath of the private road.

Furthermore, a swept path assessment has been undertaken demonstrating a 99.8th percentile passenger vehicle (B99) accessing the basement ramps and circulating through the site. Of note, each of the ramps allow for concurrent passing along the length of each of the ramps. Additionally, the porte-cochere area has been designed to allow two vehicles to pass each other at the interface with River Street and allows a B99 vehicle to turnaround within the site. The swept paths are attached in Appendix A.

4.1.2 Design Standard 2: Car Parking Spaces

The majority of 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. Some parking spaces (where the access aisle width is restricted by the structural elements of the lift core) have been widened to 2.75 metres, which is sufficient to offset the reduced aisle width of 5.99 metres, based on interpolation of the standard Planning Scheme dimensions.

Spaces adjacent to walls have been suitably widened in accordance with Design Standard 2 of the Planning Scheme.

The accessible bay is provided with a length of 5.4 metres and a width of 2.4 metres, and an adjacent shared area of the same dimensions, in accordance with the Australian Standard for Parking facilities, Part 6: Off-street parking for people with disabilities (AS 2890.6:2022). Furthermore, a height clearance of no less than 2.5 metres is provided above the centre of the accessible bay and adjacent shared area, in accordance with the Australian Standard.

The garage dimensions are in accordance with the requirements of the Planning Scheme, with all double garages a minimum of 6.0 m long and 5.5 m wide. Each garage also provides additional storage area over and above these minimum dimensions.

In addition, swept path diagrams have been provided within Appendix A demonstrating access to critical parking spaces and garages with an 85th percentile passenger vehicle (B85).

4.1.3 Design Standard 3: Gradients

At the interface with the roadway, the proposed ramp includes a 1:40 section for 1.5 metres, which represents the maximum crossfall permitted over a footpath, and then rises at a grade of 1:9.41 for 2 metres to address overland flow issues. The 1:9.41 section is followed by a 2-metre transition at 1:54, which is essentially flat.

It is acknowledged that the Planning Scheme requires that accessway grades must not be steeper than 1:10 within 5 metres of the frontage to ensure pedestrian and vehicle safety. In this context, the 1:9.41 grade is considered acceptable as it is only marginally steeper than 1:10 and is a downgrade for traffic exiting the site, in accordance with the requirements of Australian/New Zealand Standard for Parking facilities, Part 1: Off-street car parking (AS/NZS 2890.1:2004), and is therefore not anticipated to compromise pedestrian safety.

The maximum grade of the remainder of the ramps is no more than 1:4, in accordance with the requirements of Design Standard 3. Transitions are provided where changes of grade exceed 12.5%, and transition lengths have been designed to prevent potential scraping, with a 2.5 m transition provided when going from 1:4 to 1:8 then flat.

4.2 Garbage

The site has been designed to accommodate vehicles up to a 6.4 m rear-lift waste collection vehicle (mini-loader). Swept paths have been prepared illustrating a mini-loader accessing the basement via the ramp and propping adjacent each of the bin rooms, and utilising the car parking aisle to turnaround and exit the site. These swept paths are provided in Appendix A.

The ramps provide a minimum height clearance of 2.2 m, which is considered appropriate for access/circulation of mini-loader waste vehicles, which are specifically designed to access low clearance areas such as basement car parks. A minimum height clearance of 2.5 m is typically required at the waste collection point for mini-loaders servicing bins up to 1,100 litres. In this regard, a minimum height clearance of 3.09 m is provided within basement 1 which is considered appropriate.

Refer to the Waste Management Plan for further information.

4.3 Bicycle Parking

Bicycle parking is proposed to be provided in a mixture of staggered multi-tier and on-ground bicycle hoops.

The staggered multi-tier bicycle parking is provided at 0.5 m centres (providing 1.0m separation between racks at the same height when staggered), with a rack clearance of 2 m and at least a 2 m access aisle. Additionally, the bike rooms provide at least 2.8m ceiling height.

The bicycle hoops have been designed in accordance with the Australian Standard; 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.

The cargo bike spaces have been designed to provide a larger envelope measuring 2.5 m long and 1.1 m wide. The Australian Standard identifies that cargo bicycles are generally 2.55 m long and 0.65 m wide, therefore this is expected to be appropriate.

In addition, as bicycle parking is provided via the multi-tier system, this ensures that more than half of the bicycle parking spaces are provided on-ground, exceeding the Australian Standard requirement for 20% of spaces being provided on-ground.

4.4 Crossover Design

The proposed new crossovers to River Street and Murphy Street are designed in accordance with Yarra City Council vehicular crossings specifications (YSD601 Standard Concrete Vehicle Crossing). The proposed crossovers include a 6.1 m and 5.5 m width, respectively, at the property boundary, and include a 650 mm x 650 mm splay out to the River Street and Murphy Street carriageways.

The proposed crossover designs are therefore considered to be appropriate.

5 LOADING

Clause 65 (Decision Guidelines) of the Yarra 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.*"

Given the size of the proposed commercial use, it is not considered practical or necessary to provide an on-site loading bay. It is expected that the majority of deliveries will occur via small vans and utility vehicles.

It is proposed to accommodate all loading (with the exception of waste) within the existing 15-minute Loading Zone along the site frontage.

In relation to the residential component of the proposed development, loading facilities will only be required for occasional removalist vehicles, which may utilise the existing Loading Zone along the site frontage, or the car park for smaller vehicles. Additionally, removalists may utilise the porte-cochere for loading and unloading.

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 Yarra Planning Scheme, which specifies the following requirements for the different components of the proposed development.

Table 9 Clause 52.34 – Bicycle Parking Requirements

Component	No/Area	Requirement	Total
Dwelling (four or more storeys)	200 dwellings	1 space per 5 dwellings for residents 1 space per 10 dwellings for visitors	40 20
Retail premises	366 m²	1 space per 300 m² for employees 1 space per 500 m² for visitors	1 1
Total		**Residents** **Employees** **Visitors**	**40** **1** **21**

It is proposed to provide a total of 222 bicycle parking spaces across the site, which is well in excess of the bicycle parking requirements outlined above. This includes a total of 186 secure bicycle parking for residents, including two cargo bike places, and a total of 36 spaces intended for employees and visitors.

Considering the above, the proposed provision of resident, employee and visitor bicycle parking exceeds the requirements of the Planning Scheme, and is therefore considered appropriate.

7 CAR PARKING

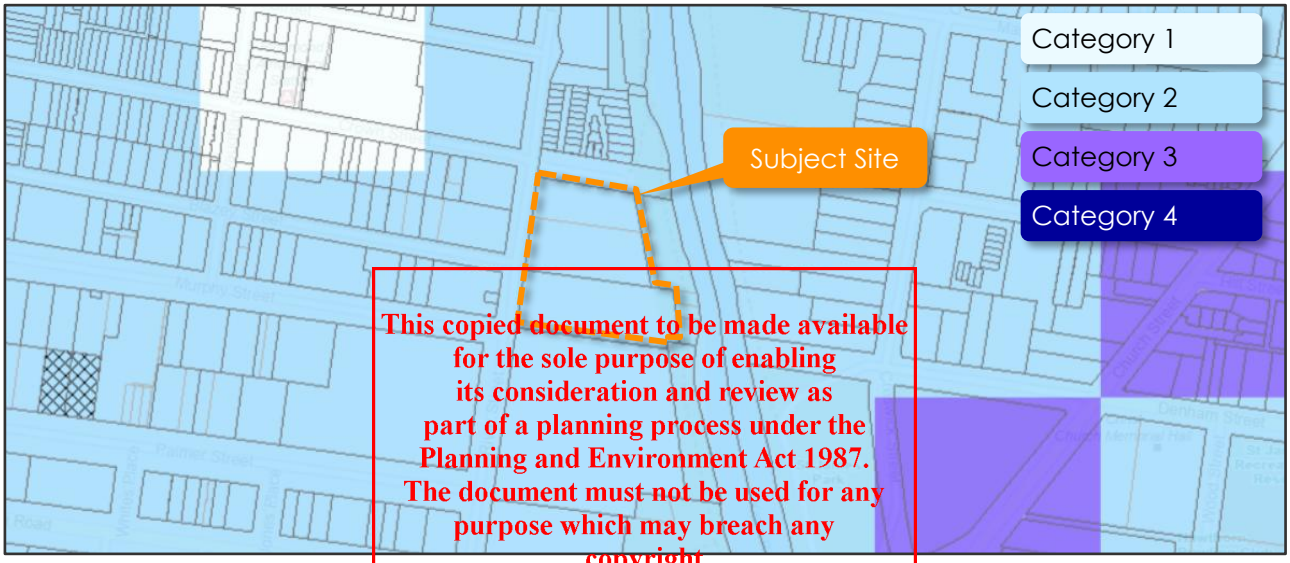
7.1 Statutory Car Parking Requirements

7.1.1 Car Parking Requirements – Clause 52.06

The car parking requirements for the subject site are identified in Clause 52.06 of the Yarra Planning Scheme, which provides different requirements depending on the public transport accessibility of the site. This can be determined from the land category, which is identified in the Car Parking Requirement Maps published by the Department of Transport and Planning.

As shown in Figure 14, the site is located within Category 2.

Figure 14 Car Parking Requirement Map



The resultant car parking requirements for the proposed development are shown in Table 10.

Table 10 Clause 52.06 – Car Parking Requirements

Use	*No/Area*	*Rate*	*Car Parking Measure*	*Total*
Dwelling	200 dwellings	1	to each dwelling	200
Food and drink premises - other than specified in this table	366 m²	2	to each 100 m² of net floor area	7
Total				**207**

Based on the above calculations, a total of 207 parking spaces are required for the proposed development.

7.1.2 Proposed Car Parking Provision

It is proposed to provide a total of 300 parking spaces on-site, which is in excess of the minimum Planning Scheme requirements outlined above.

Further, as demonstrated in Table 7, the proposed parking provision for the 2 bedroom and 3 bedroom dwellings meets or exceeds the above car parking requirements, therefore the provision of parking is considered to be appropriate to satisfy the anticipated parking demands.

However, it is proposed to allocate some of the 1 bedroom dwellings with no car parking, and the café with one car parking space, both representing a reduction from the statutory car parking requirements.

Clause 52.06-7 of the Yarra 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 likely of proposed visitors to or occupants (residents or employees) of the land.
- Any empirical assessment or case study.

An assessment of the likely parking demands of the proposed 1 bedroom dwellings and café use and the appropriateness of reducing the car parking provision below them is set out as follows.

7.2 Car Parking Demand Assessment

7.2.1 1 Bedroom Dwellings

In order to understand the potential demands for car parking generated by residents at the site, car ownership data from the 2021 Census for the City of Yarra was sourced from the Australian Bureau of Statistics (ABS). For development types similar to that proposed, the data is outlined in Table 11.

It should be recognised, however, that this data covers the entire municipality, including areas that do not enjoy the same level of public transport connectivity and proximity to local amenities as the subject site.

Table 11 2021 Census Car Ownership – City of Yarra

Dwelling Type	*No. of Bedrooms*	*Average Car Ownership*	*% Dwellings with no Vehicles*
Flat, unit or apartment	1	0.65 vehicles	40.9%

Reviewing the above data, it is clear there is a market for 1 bedroom dwellings in Yarra that do not supply any car parking, with residents of approximately 41% of similar dwellings not owning a vehicle.

Applying the above rates to the 20 one-bedroom dwellings proposed on-site gives an estimated demand for 13 parking spaces based on existing car ownership rates, and in unconstrained situations.

The ABS data clearly indicates that there is a market for 1 bedroom dwellings that do not provide, and therefore do not attract the price premium associated with a car parking space. Given the site's location with respect to public transport services and other services, it is expected that dwellings within the subject site would be particularly appealing to potential owners/tenants who do not have the need to park a vehicle at their place of residence.

Furthermore, it should be recognised that resident parking demands are, in part, dependent on car parking provisions, insofar as an owner/tenant with the need to park a vehicle is unlikely to occupy a dwelling that does not provide a car parking space. This is particularly true in areas where on-street parking is restricted to short durations, meaning on-street parking is not a viable alternative to on-site parking for residents.

With the site's location to public transport, pedestrian and bicycle paths and other amenities, and on-street parking in the area generally being restricted to 1P, it is considered reasonable to assume that 1 bedroom dwellings who are not allocated a car parking space on-site will not attract a demand for car parking.

7.2.2 Café

7.2.2.1 Overview

The car parking demands of the café can be broken up into two components: staff demand and customer demand.

7.2.2.2 Staff

In relation to staff, staff who are not provided a parking space will be encouraged to change their behaviour and utilise other modes of transport to the site. All retail parking is proposed to be allocated to staff of the retail use (1 space). As indicated in Section 2.5, the site has excellent access to Public Transport, with the No. 48 and 75 tram Routes both provided within less than a 300 m walk from the site. The provision of excellent public transport ensures that staff with no parking will have good access to alternate transportation modes.

Additionally, the site is well connected to the existing pedestrian and cycle network, with a direct connection to the Main Yarra Trail provided at the east end of Crown Street. Furthermore, the development proposes a generous supply of bicycle parking, in excess of the Planning Scheme requirements, encouraging staff to travel to the site via bicycle.

Furthermore, a review of parking restrictions in the area surrounding the proposed development indicates that on-street parking is heavily restricted or heavily utilised, and there is limited opportunity for long term parking in the area.

These restrictions are therefore expected to encourage employees to travel via alternative modes of transport, and ensure employees do not park long-term on-street.

7.2.2.3 Customer

In relation to customers, the site is not expected to generate a material car parking demand. The proposed café is expected to draw a significant portion of its trade from staff of the commercial uses in the vicinity or residents of the subject site or immediate vicinity.

As noted above, on-street car parking is generally restricted to short-term parking, and is therefore expected to be available for use should the commercial use generate a car parking demand for customer use.

Accordingly, the provision of no dedicated customer parking spaces on-site is considered appropriate.

7.2.3 Anticipated Parking Demand

Based on the above, all long term car parking demands generated by residents and staff of the commercial use are expected to be accommodated on-site. Residents who are not provided with an on-site car parking space are not anticipated to own a vehicle, as on-street parking in the vicinity is restricted to short durations, meaning on-street parking is not a viable alternative to on-site parking for residents.

In relation to customers, short term parking is available in the vicinity to accommodate any potential demands.

Furthermore, the proposed reduction in car parking is anticipated to reduce the overall traffic impacts of the proposed development.

7.3 Accessible Car Parking

The National Construction Code specifies the minimum requirements for provision of accessible car

The proposed café, classified as a Class 6 building, requires provision of one accessible car space for every 50 car parking spaces or part thereof for the first 1,000 spaces, and then 1 space per 100 car parking spaces or part thereof in excess of 1,000 spaces.

Noting the proposed provision of one car spaces for the café use on-site, the National Construction Code (NCC) requires at least one accessible car space on-site.

The proposed provision of one accessible car parking spaces thus satisfies the NCC requirements.

As less than 6 (i.e., no more than 5) car spaces are provided for the proposed café use (which requires the provision of accessible parking), the accessible bay does not need to be designated, so as to restrict the use of the car parking space only for people with a disability.

8 TRAFFIC

8.1 Traffic Generation

Surveys undertaken by **one**mile**grid** and 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.

Generally, where a site is closer to high-quality public transport, or local services and amenities (e.g., a full-line supermarket), lower traffic generation rates occur.

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 4.0 movements per day per dwelling will be adopted with 10% occurring during the 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.

Application of the above rates indicates that the 200 dwellings (conservatively assuming all have allocated car parking) will generate 800 movements per day, inclusive of 80 vehicle movements during the morning and afternoon peak hours as demonstrated below in Table 12.

Table 12 Residential Traffic Generation

Period	*Inbound*	*Outbound*	*Total*
AM Peak	16	64	80
PM Peak	48	32	80
Daily	400	400	800

8.2 Traffic Distribution

Considering the location of the site in relation to the arterial road network, public transport facilities, schools, recreation and retail and employment precincts, the directional distribution shown in Table 13 has been adopted.

Table 13 Adopted Directional Traffic Distribution

Origin/Destination	*Percentage*
East – Hawthorn	30%
Northwest – Victoria Street	30%
Southwest – Bridge Road	15%
South – Burnley	25%

8.3 Generated Traffic Volumes

Based on the above, the following traffic volumes are expected to be generated by the proposed development at the intersections of Burnley Street / Murphy Street and Bridge Road / River Street.

Figure 15 Generated Traffic Volumes – AM Peak (8:00am to 9:00am)

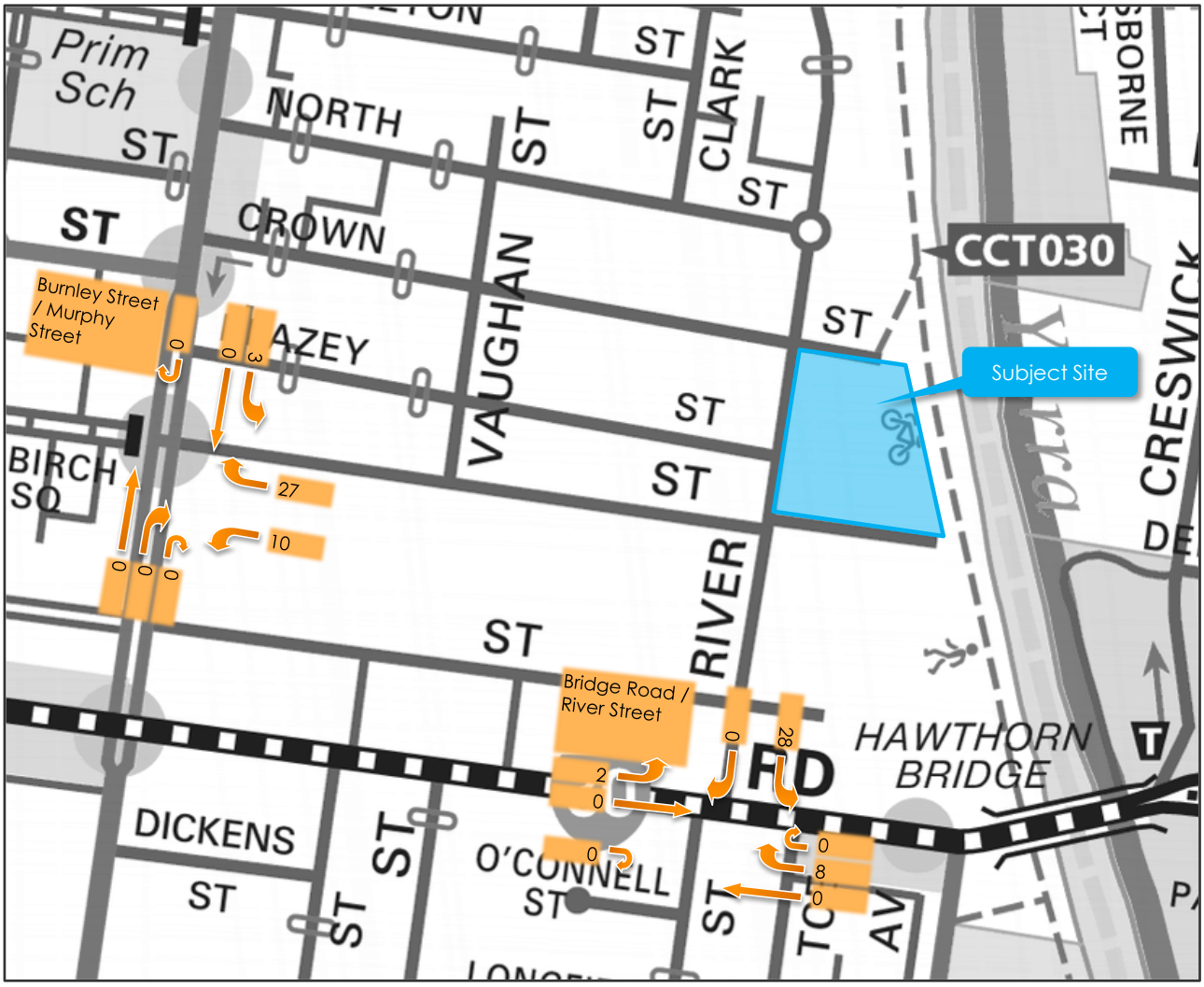
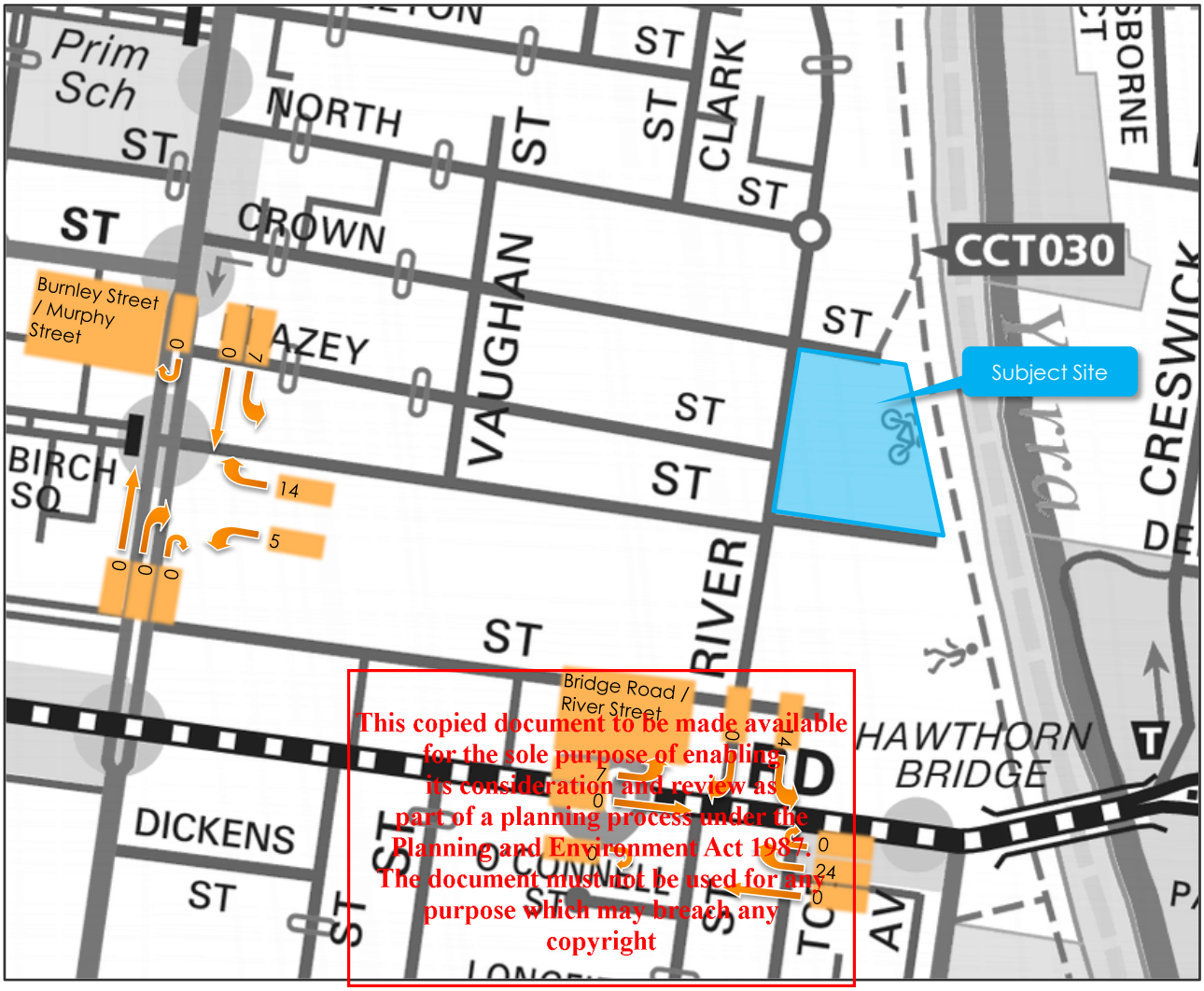


Figure 16 Generated Traffic Volumes – PM Peak (5:00pm to 6:00pm)



8.4 Existing Use

As previously noted, the existing industrial use on the site is provided with a significant supply of car parking. Based on **one**mile**grid**'s site inspection and a review of aerial imagery, this car parking is generally well utilised on weekdays. It is therefore necessary to remove the traffic currently generated by the site when assessing the traffic impacts of the proposed development.

The existing development on the site is provided with a total car parking provision in the order of 85 spaces. For commercial uses, it is generally expected that the level of traffic generated is a function of the turnover of parking during the morning and afternoon peak hours. In this regard, it has been our experience that during those AM and PM peak periods, staff parking 'turns over' at a rate of approximately 50% of the car parking spaces. The remaining spaces turnover outside of the peak hour. For the purposes of assessing the existing use on-site, a turnover rate of 50% (42 movements) in the peak direction will be adopted for the site.

It will therefore be assumed that whilst the proposed development will generate traffic as specified in Section 8.1, it will also result in the removal of 42 inbound traffic movements in the AM peak period, and the removal of 42 outbound traffic movements in the PM peak period.

8.5 Expected Traffic Volume Growth

Review of SCATS historical traffic volume data for the Burnley Street / Murphy Street intersection suggests that traffic volumes are currently lower than 2019 volumes, with volumes falling by 15% since 2014. Growth has therefore not been applied for the purposes of traffic analysis.

8.6 Resultant Future Traffic Volumes

Based on the above, the future intersection volumes at the Burnley Street / Murphy Street and Bridge Road / River Street intersections can be calculated by combining the existing volumes with the traffic anticipated to be generated by the proposed development, and the traffic to be removed from the road network by the removal of the existing use on-site.

The resultant peak hour traffic volumes are shown in Figure 17 and Figure 18.

Figure 17 Resultant Traffic Volumes – AM Peak (8:00am to 9:00am)

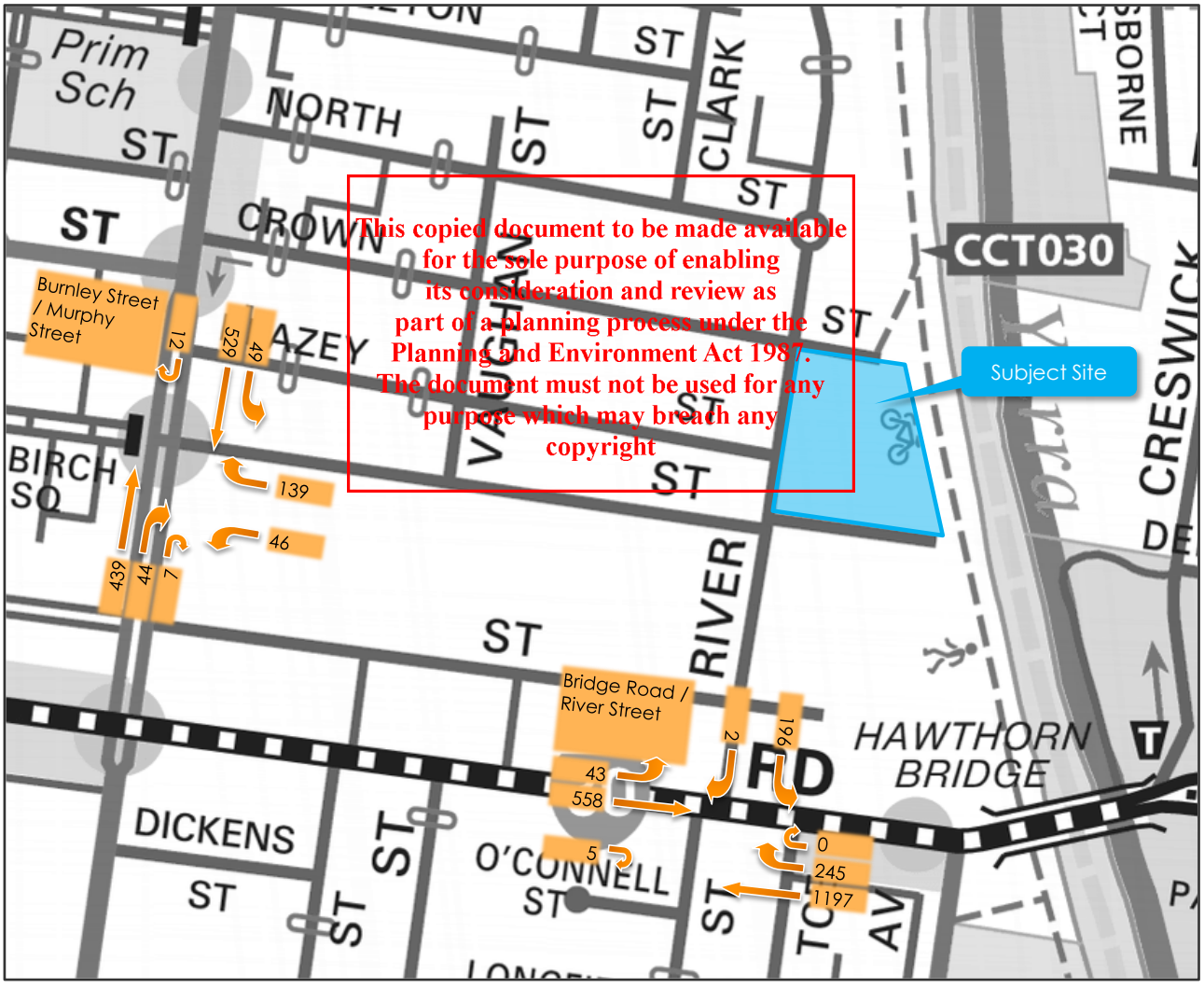
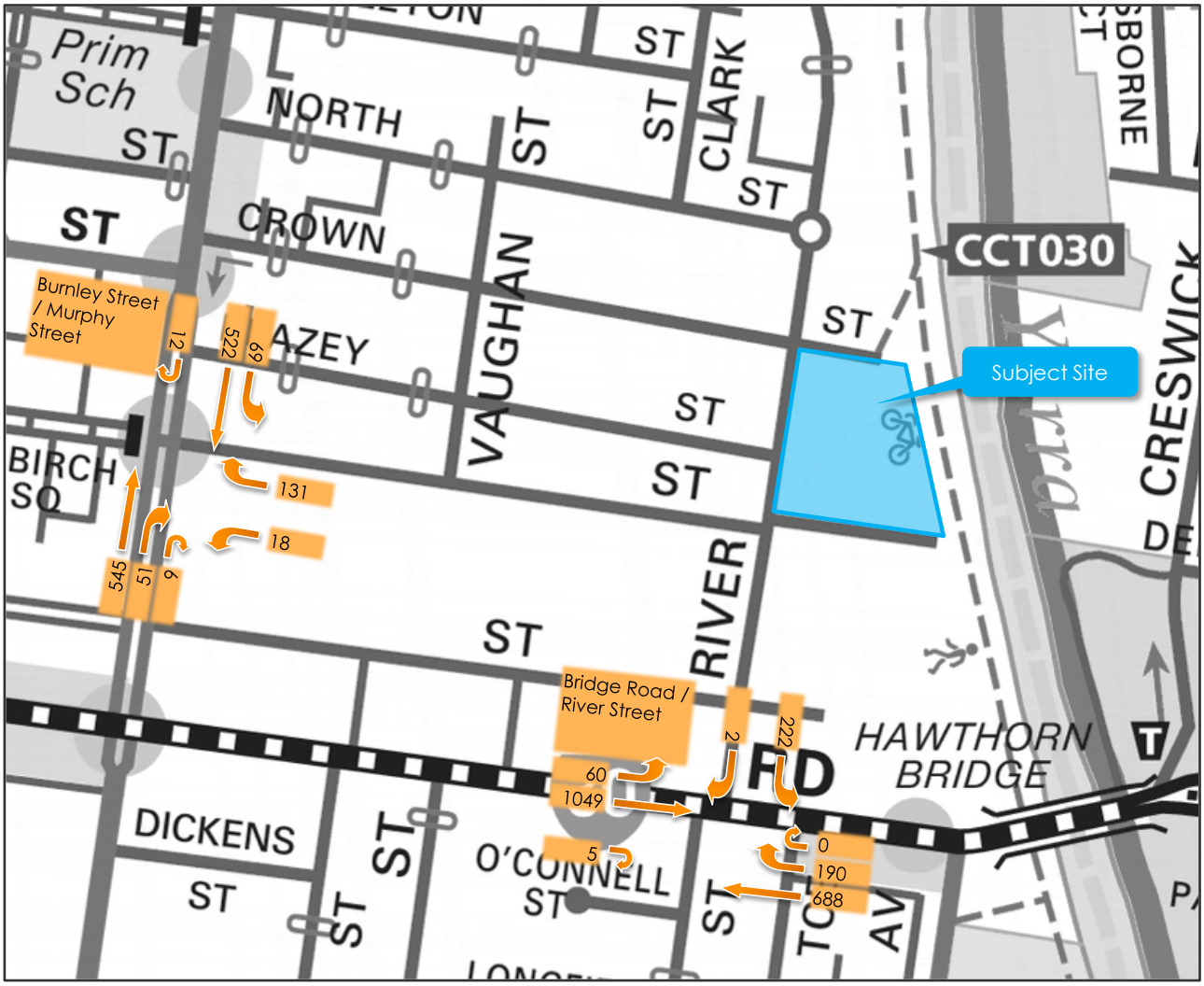


Figure 18 Resultant Traffic Volumes – PM Peak (5:00pm to 6:00pm)



It is shown that the additional traffic generation of the proposed development is minor in nature, and a maximum additional traffic volume of no more than 28 vehicles per hour is expected for any one movement. This is equivalent to less than 1 additional vehicle movement every 2 minutes during the peak periods, and is generally expected to have a negligible impact on the operation of the surrounding road network.

8.7 Traffic Impact

To assess the operation of the traffic generated by the proposed development through the road network, the projected future traffic volumes have been input into SIDRA Intersection. The results of the assessment are provided below:

The Burnley Street / Murphy Street intersection is expected to continue to operate under excellent conditions post development of the subject site, with only minor increases to delays and queues during both the AM and PM peak periods.

Table 14 Burnley Street / Murphy Street – Existing/Future Conditions

Approach	Movement	DoS		Avg. Delay (sec)		Queue (m)	
		Existing	Future	Existing	Future	Existing	Future
AM Peak							
Burnley Street (S)	Through	0.357	0.376	6.4	7.8	61.0	67.6
	Right	0.073	0.081	14.9	17.4	8.4	9.3
	U-Turn	0.073	0.081	15.4	17.9	8.4	9.3
Murphy Street (E)	Left	0.486	0.510	42.2	39.8	46.1	56.2
	Right	0.486	0.510	39.9	37.4	46.1	56.2
Burnley Street (N)	Left	0.487	0.510	7.0	8.1	91.9	101.0
	Through	0.487	0.510	10.8	13.7	91.9	101.0
	U-Turn	0.029	0.032	16.4	19.5	1.7	1.9
PM Peak							
Burnley Street (S)	Through	0.436	0.431	7.0	6.6	80.0	77.9
	Right	0.085	0.084	15.0	14.6	9.7	9.5
	U-Turn	0.085	0.084	15.4	14.9	9.7	9.5
Murphy Street (E)	Left	0.481	0.481	41.9	42.6	46.6	44.8
	Right	0.481	0.481	39.6	40.2	46.6	44.8
Burnley Street (N)	Left	0.482	0.482	7.0	6.8	89.9	89.1
	Through	0.482	0.482	11.0	10.5	89.9	89.1
	U-Turn	0.034	0.034	17.9	17.2	1.8	1.8

The Bridge Road / River Street intersection is expected to continue to operate under similar conditions during the AM peak. The removal of the existing industrial use on-site is expected to result in minor improvements to delays and queues.

During the PM peak, delays are expected to increase for vehicles turning right into River Street. This additional traffic is not expected to impact performance of through traffic on Bridge Road, with all other movements expected to continue to operate under similar conditions.

Table 15 Bridge Road / River Street – Existing/Future Conditions

Approach	Movement	DoS		Avg. Delay (sec)		Queue (m)		Level of Service	
		Ex.	Future	Ex.	Future	Ex.	Future	Ex.	Future
AM Peak									
Bridge Road (E)	Through	0.603	0.589	0.9	1.1	34.4	34.8	A	A
	Right	0.603	0.589	14.5	14.3	34.4	34.8	B	B
River Street (N)	Left	0.160	0.187	7.3	7.4	5.0	6.0	A	A
Bridge Road (W)	Left	0.068	0.067	3.4	3.4	0.0	0.0	A	A
	Through	0.340	0.336	5.6	5.4	15.7	15.1	A	A
	U-Turn	0.340	0.336	59.8	58.3	15.7	15.1	F	F
PM Peak									
Bridge Road (E)	Through	0.367	0.367	0.0	0.0	0.0	0.0	A	A
	Right	0.777	0.896	33.8	46.8	26.4	41.7	D	E
River Street (N)	Left	0.375	0.365	12.2	12.1	14.1	13.5	B	B
Bridge Road (W)	Left	0.314	0.316	3.5	3.6	0.0	0.0	A	A
	Through	0.314	0.316	0.4	0.4	2.6	2.6	A	A
	U-Turn	0.314	0.316	20.1	20.1	2.6	2.6	C	C

Based on the above assessment, it is found the existing road network will continue to operate under generally excellent conditions during both the morning and afternoon peak periods post development of the site, with only minor additional queues or delays. In view of the foregoing, the proposed development is anticipated to have a negligible impact on the road network. No external mitigation works are required, noting the limited change in operating characteristics as a result of the development.

8.8 Bridge Road / River Street Intersection

The Bridge Road / River Street intersection is marked with red pavement and Keep Clear line marking, which is intended to prevent vehicles delaying trams when turning from Bridge Road. East of River Street, the tram lanes are shared with cars, whilst west of this intersection, the trams are accommodated within their own dedicated right of way, separated from general traffic by kerbing, with a chevron island used to divert vehicles off the tram lanes.

The existing arrangement at the Bridge Road / River Street intersection is shown in Figure 19.

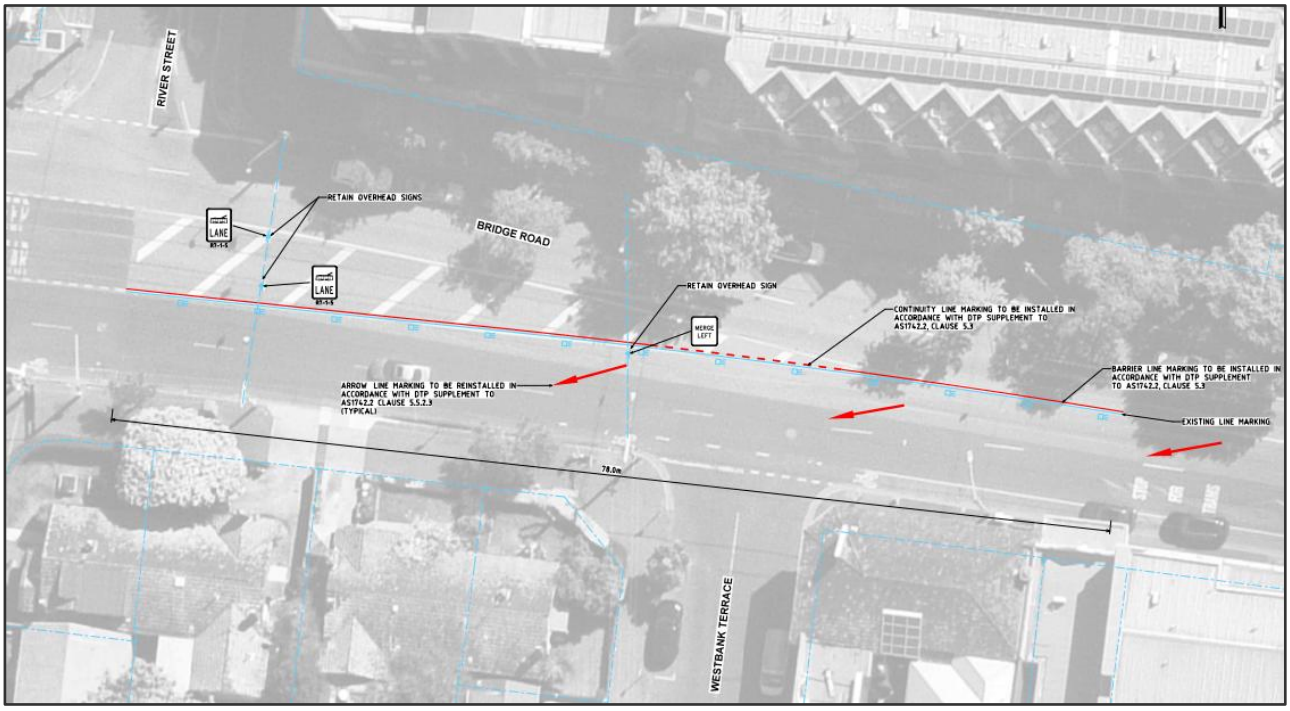
Figure 19 Bridge Road / River Street – Existing Conditions

It is currently legal for vehicles waiting to turn right into River Street to queue within the chevron line marking section, which has been observed to occasionally delay tram movements at peak times.

The proposed development is expected to generate up to 24 additional right-turn movements in the PM peak hour, which is considered modest and equates to less than 1 additional movement every 2 minutes. During the AM peak hour, right-turn movements into River Street are anticipated to decrease due to the removal of the existing commercial use on the site and the limited inbound traffic expected to be generated by the proposed residential development.

Regardless of the minimal increase in traffic volumes expected, a potential upgrade has been identified in collaboration with the Department of Transport and Planning (DTP), involving the installation of a double barrier line adjacent to the existing chevron island. This treatment would prohibit vehicles from queuing in the chevron area. An excerpt of a concept plan for these changes is shown in Figure 20.

Figure 20 Bridge Road / River Street – Potential Upgrade



Implementation of the above treatment, or similar, is expected to prevent vehicles queueing within the tram tracks and therefore minimise delays to trams caused by both existing right turning traffic, and development generated traffic.

9 RESPONSE TO COUNCIL COMMENTS

Our responses to the items relevant to traffic engineering received within Council's pre-application referral comments are detailed in Table 16.

Table 16 Response to Council Comments

Item	*Response*
Ensure adequate horizontal, on-ground bicycle parking spaces for residents with heavier bicycles, e-bikes and cargo bikes.	The proposal includes two cargo bike parking spaces on basement 1. The cargo bike spaces provide in excess of the standard bicycle parking envelope and are considered appropriate. The provision of cargo bike parking spaces is therefore considered appropriate. In regard to heavier bicycles and e-bikes, which are generally similar length as normal bicycles, residents will be capable of utilising the lower level of the multi-tier bike racks, which is considered appropriate.
Vehicle crossings to be dimensioned and drawn on the plans in accordance with Yarra Standard Drawings.	Vehicle crossings dimensioned and drawn on the plans as per Yarra Standard Drawing SD601 as requested.
The traffic report will need to be updated to reflect the revised car parking requirements of the new Clause 52.06 introduced within Planning Scheme Amendment VC277.	The car parking assessment within Section 7.1.1 has been updated as per the updated rates provided in Clause 52.06.

10 CONCLUSIONS

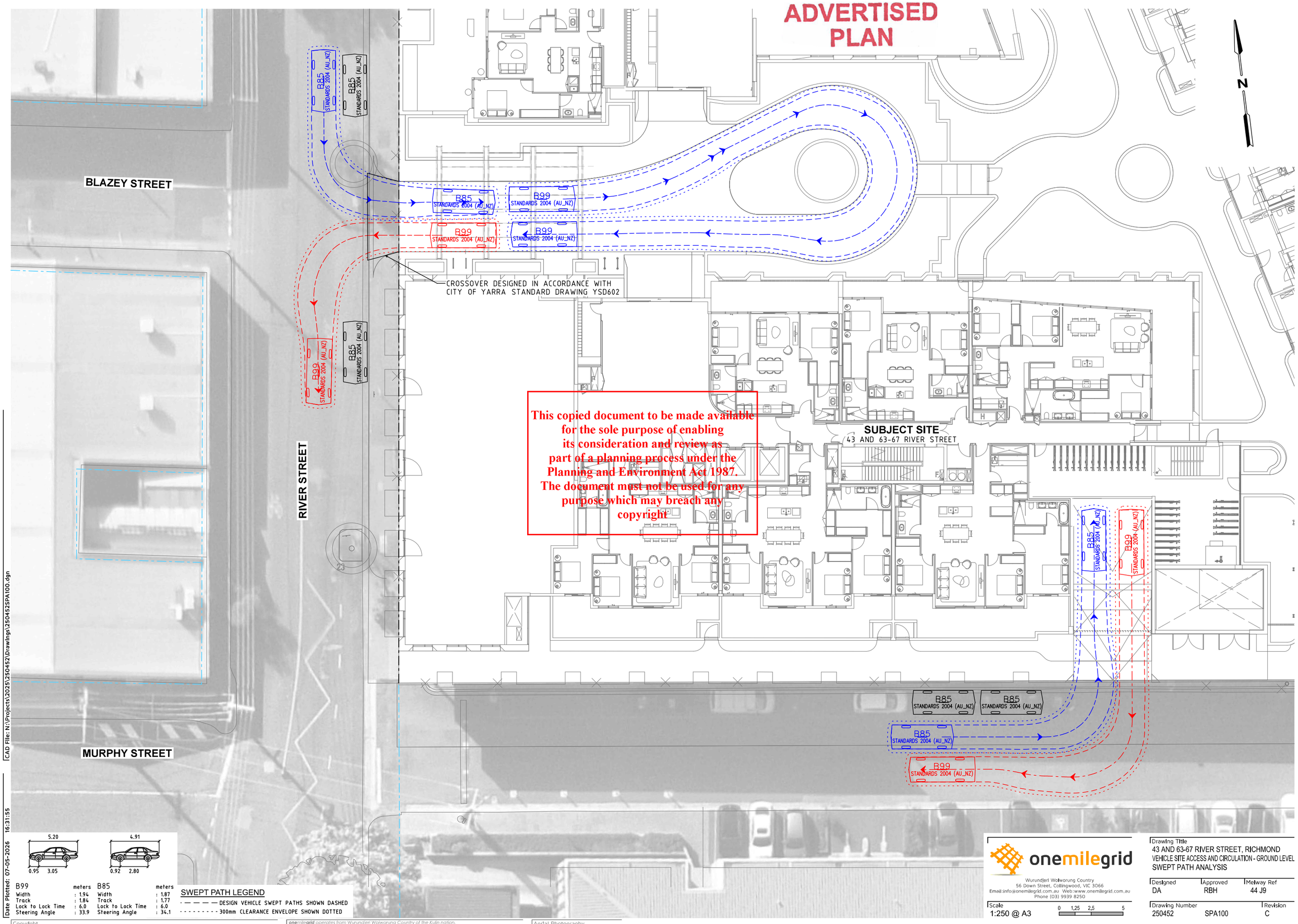
It is proposed to develop the subject site for the purposes of a multi-level residential development, with a total of 300 car parking spaces provided within a basement car park.

Considering the analysis presented above, it is concluded that:

- The proposed car parking, bicycle parking and access design is considered appropriate;
- The proposed provision of resident and visitor bicycle parking exceeds the requirements of the Planning Scheme, and is therefore considered appropriate;
- The proposed supply of car parking is appropriate for the proposed development;
- The proposed loading arrangements are considered appropriate;
- The proposed provision of car parking for the 2 bedroom and 3 bedroom dwellings meets the statutory requirements and is considered acceptable;
- It is proposed to provide some of the one bedroom dwellings with no car parking which is considered appropriate based on the ABS car ownership data;
- A parking waiver is sought for the commercial component of the proposed development which is considered appropriate given the excellent access to public transport and bicycle and pedestrian network; and
- The existing road network is capable of accommodating the traffic generated by the proposed development.

Appendix A Swept Path Diagrams

ADVERTISED PLAN



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Lock to Lock Time	: 6.0	Lock to Lock Time	: 6.0
Steering Angle	: 33.9	Steering Angle	: 34.1

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

CAD File: N:\Projects\2025\250452\Drawings\250452SPA100.dgn
Date Plotted: 07-05-2026 16:31:55

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Aerial Photography
Aerial photography provided by Nearmap

onemilegrid
Wurundjeri Woiwurung Country
56 Down Street, Collingwood, VIC 3066
Email:info@onemilegrid.com.au Web:www.onemilegrid.com.au
Phone (03) 9939 8250

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

Drawing Title
43 AND 63-67 RIVER STREET, RICHMOND
VEHICLE SITE ACCESS AND CIRCULATION - GROUND LEVEL
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
DA	RBH	44 J9

Drawing Number		Revision
250452	SPA100	C

ADVERTISED PLAN

BLAZEY STREET

RIVER STREET

MURPHY STREET

B85 STANDARDS 2004 (AU_NZ)

B85 STANDARDS 2004 (AU_NZ)

CROSSOVER DESIGNED IN ACCORDANCE WITH CITY OF YARRA STANDARD DRAWING YSD602

SUBJECT SITE
43 AND 63-67 RIVER STREET

N

B85 STANDARDS 2004 (AU_NZ)

B85 STANDARDS 2004 (AU_NZ)

Mini Loader (V) onemilegrid

Mini Loader (V) onemilegrid

Mini Loader (V) onemilegrid

Mini Loader (V) onemilegrid

6.41

0.98 3.40

WASTE MINI LOADER	meters
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Track	: 1.85
Lock to Lock Time	: 4.0
Steering Angle	: 33.6

SWEPT PATH LEGEND

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

onemilegrid
Wurundjeri Woiworung Country
56 Down Street, Collingwood, VIC 3066
Email:info@onemilegrid.com.au Web:www.onemilegrid.com.au
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Scale 1:250 @ A3 (0 1.25 2.5 5)

Drawing Title
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VEHICLE SITE ACCESS AND CIRCULATION - GROUND LEVEL
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
DA	RBH	44 J9

Drawing Number		Revision
250452	SPA101	C

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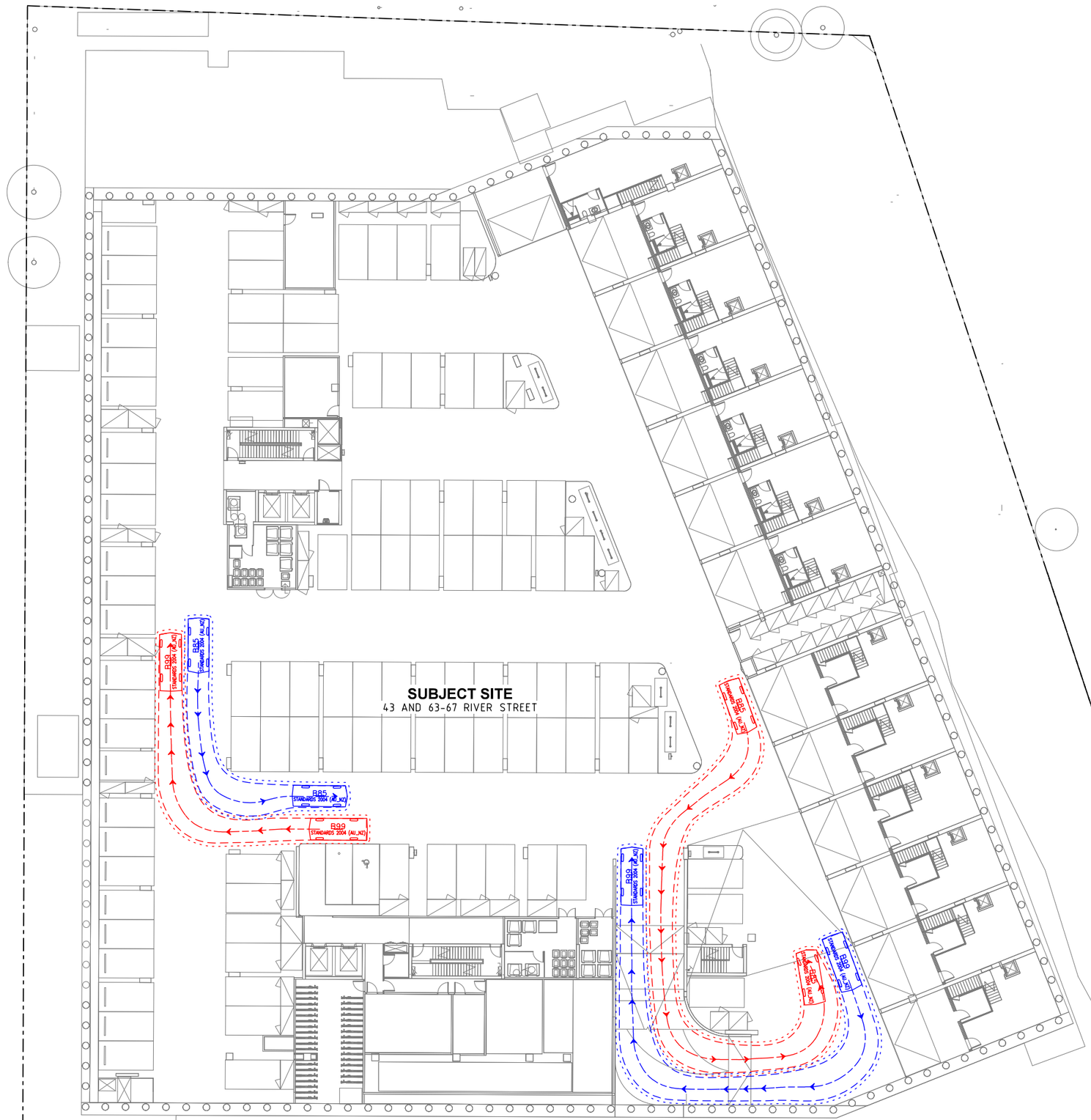
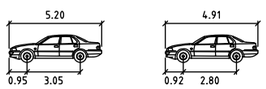
Aerial Photography
Aerial photography provided by Nearmap

ADVERTISED
PLAN





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

SWEPT PATH LEGEND

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

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Aerial Photography
Aerial photography provided by Nearmap

onemilegrid
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56 Down Street, Collingwood, VIC 3066
Email:info@onemilegrid.com.au Web:www.onemilegrid.com.au
Phone (03) 9939 8250

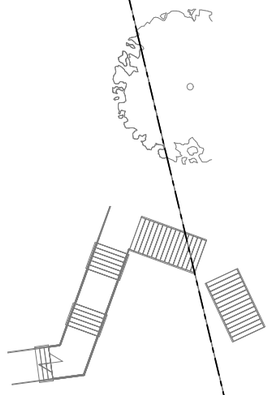
Scale
1:400 @ A3
0 2 4 8

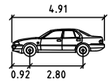
Drawing Title
43 AND 63-67 RIVER STREET, RICHMOND
VEHICLE SITE CIRCULATION - BASEMENT LEVEL 1
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
DA	RBH	44 J9

Drawing Number		Revision
250452	SPA200	C

ADVERTISED
PLAN





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

ENTRY MANOEUVRES

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

CAD File: N:\Projects\2025\250452\Drawings\250452SPA201.dgn
Date Plotted: 07-05-2026 16:33:24

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Aerial Photography
Aerial photography provided by Nearmap

onemilegrid
Wurundjeri Woiwurung Country
56 Down Street, Collingwood, VIC 3066
Email:info@onemilegrid.com.au Web:www.onemilegrid.com.au
Phone (03) 9939 8250

Scale
1:400 @ A3
0 2 4 8

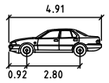
Drawing Title
43 AND 63-67 RIVER STREET, RICHMOND
VEHICLE SITE CIRCULATION - BASEMENT LEVEL 1
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
DA	RBH	44 J9

Drawing Number	Revision
250452 SPA201	C

CAD File: N:\Projects\2025\250452\Drawings\250452SPA202.dgn

Date Plotted: 07-05-2026 16:33:40



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

EXIT MANOEUVRES

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

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Drawing Title
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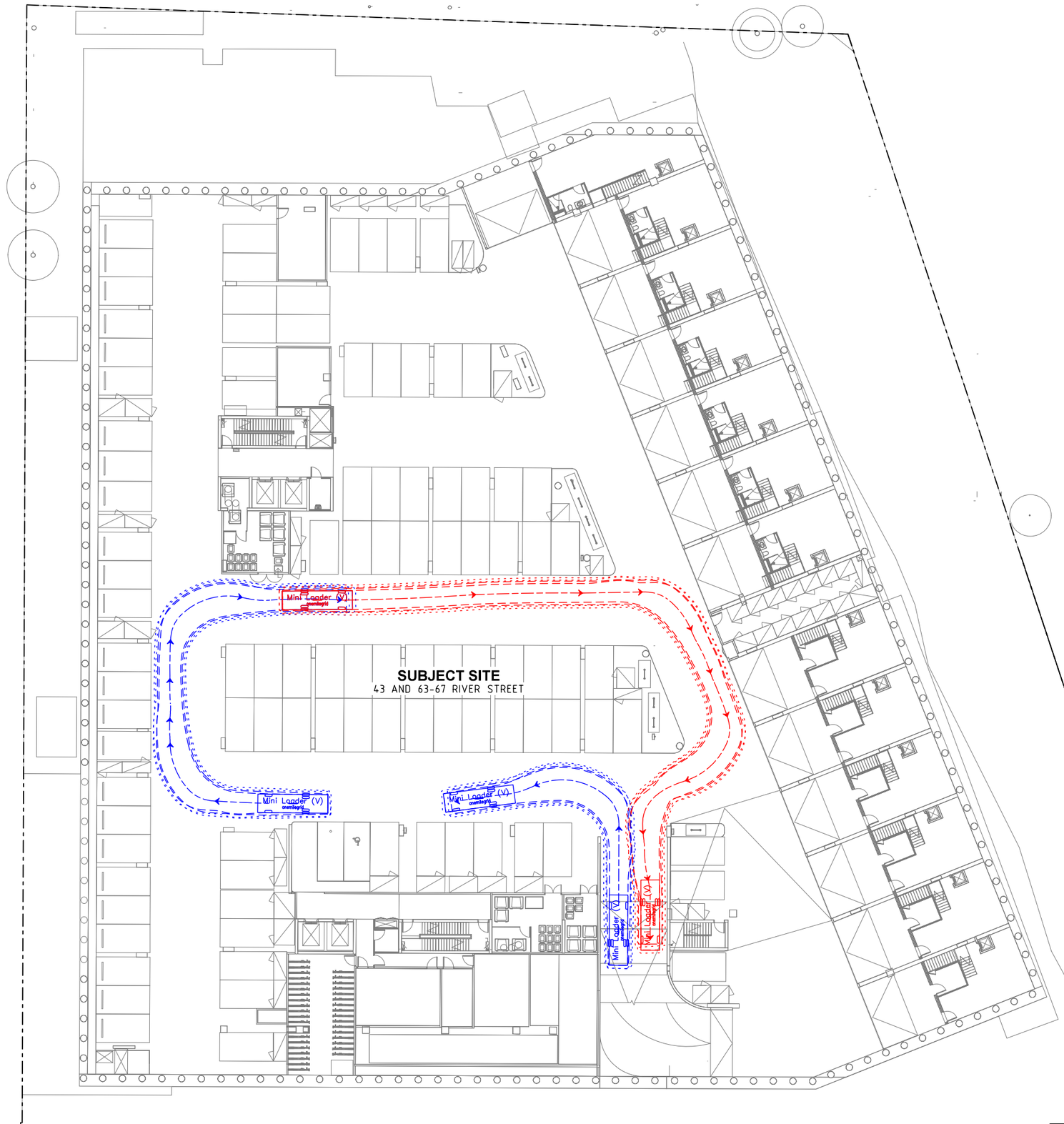
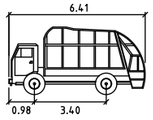
VEHICLE SITE CIRCULATION - BASEMENT LEVEL 1
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
DA	RBH	44 J9

Drawing Number		Revision
250452	SPA202	C





WASTE MINI LOADER meters

Width	: 1.85
Track	: 1.85
Lock to Lock Time	: 4.0
Steering Angle	: 33.6

SWEPT PATH LEGEND

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

CAD File: N:\Projects\2025\250452\Drawings\250452SPA203.dgn

Date Plotted: 07-05-2026 16:33:56

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onemilegrid
Wurundjeri Woiwurung Country
56 Down Street, Collingwood, VIC 3066
Email:info@onemilegrid.com.au Web:www.onemilegrid.com.au
Phone (03) 9939 8250

Scale
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0 2 4 8

Drawing Title
43 AND 63-67 RIVER STREET, RICHMOND
VEHICLE SITE CIRCULATION - BASEMENT LEVEL 1
SWEPT PATH ANALYSIS

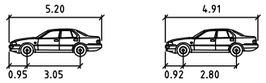
Designed	Approved	Melway Ref
DA	RBH	44 J9

Drawing Number	Revision
250452 SPA203	B

N

CAD File: N:\Projects\2025\250452\Drawings\250452SPA300.dgn

Date Plotted: 07-05-2026 16:34:34



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

ENTRY MANOEUVRES

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

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Wurundjeri Woiwurung Country
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Email:info@onemilegrid.com.au Web:www.onemilegrid.com.au
Phone (03) 9939 8250

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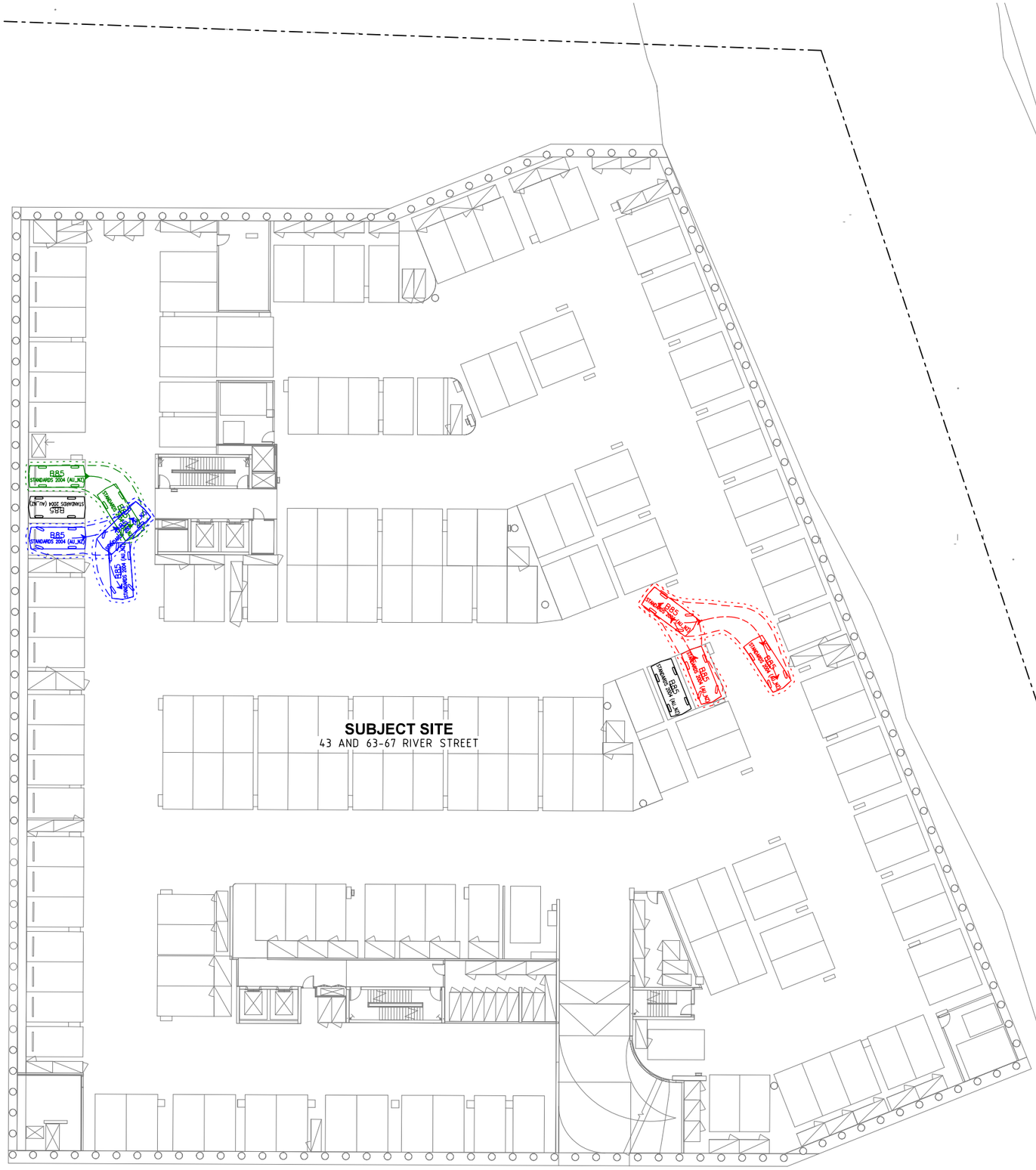
Drawing Title
43 AND 63-67 RIVER STREET, RICHMOND
VEHICLE SITE CIRCULATION - BASEMENT LEVEL 2
SWEPT PATH ANALYSIS

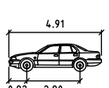
Designed	Approved	Melway Ref
DA	RBH	44 J9

Drawing Number		Revision
250452	SPA300	C



CAD File: N:\Projects\2025\250452\Drawings\250452SPA301.dgn

Date Plotted: 07-05-2026 16:39:50



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

EXIT MANOEUVRES

— — — — DESIGN VEHICLE SWEPT PATHS SHOWN DASHED

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

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Drawing Title
43 AND 63-67 RIVER STREET, RICHMOND
VEHICLE SITE CIRCULATION - BASEMENT LEVEL 2
SWEPT PATH ANALYSIS

Designed	Approved	Melway Ref
DA	RBH	44 J9

Drawing Number	Revision
250452 SPA301	C