

Traffix Group

Traffic Engineering Assessment

Proposed Residential Development
(Social Housing)

18 Mason Street, Warragul

Prepared for
Housing Choices Australia

May 2023

G32628R-01B

Document Control

Our Reference: G32628R-01B

Issue No.	Type	Date	Prepared By	Approved By
A	For Consultation	21/04/2023	K. Ballantyne	M. O'Shea
B	For Consultation	01/05/2023	K. Ballantyne	M. O'Shea

COPYRIGHT: The ideas and material contained in this document are the property of Traffic Group (Traffic Group Pty Ltd – ABN 32 100 481 570). Use or copying of this document in whole or in part without the written permission of Traffic Group constitutes an infringement of copyright.

LIMITATION: This report has been prepared on behalf of and for the exclusive use of Traffic Group's client and is subject to and issued in connection with the provisions of the agreement between Traffic Group and its client. Traffic Group accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

Table of Contents

1.	Introduction.....	5
2.	Proposal.....	5
3.	Existing Conditions	6
3.1.	<i>Subject Site.....</i>	<i>6</i>
3.2.	<i>Transport Network</i>	<i>10</i>
3.2.1.	<i>Road Network</i>	<i>10</i>
3.2.2.	<i>Car Parking Conditions</i>	<i>12</i>
3.3.	<i>Alternative Transport Modes</i>	<i>13</i>
3.3.1.	<i>Public Transport</i>	<i>13</i>
3.3.2.	<i>Bicycle Infrastructure</i>	<i>15</i>
3.3.3.	<i>Walking.....</i>	<i>16</i>
4.	Traffic Engineering Assessment	18
4.1.	<i>Statutory Car Parking Assessment.....</i>	<i>18</i>
4.2.	<i>Bicycle Parking Provision.....</i>	<i>19</i>
4.3.	<i>Review of Carpark Layout and Vehicle Access Arrangements</i>	<i>20</i>
4.4.	<i>Loading and Waste Collection Arrangements</i>	<i>20</i>
4.4.1.	<i>Loading.....</i>	<i>20</i>
4.4.2.	<i>Waste Collection.....</i>	<i>21</i>
4.5.	<i>Traffic Impacts</i>	<i>21</i>
5.	Conclusions.....	22

List of Figures

Figure 1: Locality Plan	7
Figure 2: Aerial Photograph (Source: Nearmap)	7
Figure 3: Subject site – view southeast from Mason Street	8
Figure 4: Land Use Zoning Map (Source: Planning Schemes Online)	9
Figure 5: Mason Street – view north	11
Figure 6: Mason Street – view south	11
Figure 7: Williams Street – view east	11
Figure 8: Williams Street – view west	11
Figure 9: ROW – view east	11
Figure 10: ROW – view west	11
Figure 11: Parking survey area	12
Figure 12: Public Transport Map (Source: PTV)	13
Figure 13: Public Transport and Path Network (Source: Warragul Precinct Structure Plan)	15
Figure 14: Map of 20-minute cycling distance (Source: Targomo.com)	16
Figure 15: Map of 20-minute walking distance (Source: Source: Targomo.com)	17

List of Tables

Table 1: Development Summary	5
Table 2: Subject Site Description	6
Table 3: Local Road Network	10
Table 4: Summary of Public Transport Services	14
Table 5: Statutory Car Parking Assessment – Clause 52.20-6.7	18
Table 6: Statutory Bicycle Parking Assessment - Clause 52.34	19
Table 7: Carpark Layout and Access Assessment	27

List of Appendices

Appendix A Development Plans

Appendix B Car Parking Inventory

Appendix C Swept Path Diagrams

Appendix D Carpark Layout and Vehicle Access Review

1. Introduction

Traffix Group has been engaged by Housing Choices Australia to undertake a traffic engineering assessment for a proposed residential development (social housing) (social housing) at 18 Mason Street, Warragul.

2. Proposal

The proposal is for a residential development on the site as set out in the following table.

A copy of the development plans prepared by Freadman White Architects (Revision SD1, dated 21 April) are attached at Appendix A.

Table 1: Development Summary

Characteristics	Description		
Uses	Size/No.	Car Parking	Notes
<u>Dwellings:</u> One-bedroom Apt. Two-bedroom Apt. Three-bedroom Apt. TOTAL	25 19 7 51	38	Car parking to be allocated on an as-needs basis and not tied to specific dwellings, with some spaces used by staff
Community space	151m ²	-	For shared use by residents
Social housing office	58m ²	-	Ancillary to the building
Car Parking Provision	-	38 car spaces	Located in basement
Motorcycle Parking Provision	-	6 motorcycle spaces	Located in basement
Bicycle Parking Provision	-	56 bicycle spaces	21 in basement 25 at ground level 8 along Mason St frontage
Other	Notes		
Vehicle Access	6.2m wide opening to ROW		
Changes to on-street parking	None		
Loading Provision	Loading is proposed to occur on-street in the nearby area		
Waste Collection	Waste collection is proposed on-site via private contractor using a 6.4m mini waste collection vehicle		

3. Existing Conditions

3.1. Subject Site

The subject site is 18 Mason Street, Warragul. The table below summarises the key characteristics of the subject site.

Table 2: Subject Site Description

Characteristic	Description
Address	18 Mason Street, Warragul
Area	1,661m ²
Frontages	45.4m to Mason Street 36.6m to ROW
Zoning	Commercial Zone – C1Z
PPTN Area	Outside PPTN
Activity Centre	Warragul Town Centre
Current use of site	Vacant
On-street parking along frontage	11 x 60 degree unrestricted car spaces along Mason Street

A locality plan, aerial photograph, photograph of the site's frontage, and land use zoning map are provided at Figure 1 to Figure 4, respectively.

Significant nearby land uses include:

- **TAFE Gippsland – Warragul Campus** located 150m walking distance south,
- **Coles Warragul** – Located 200m walking distance northwest, and
- **Warragul Railway Station** – Located 250m walking distance south.

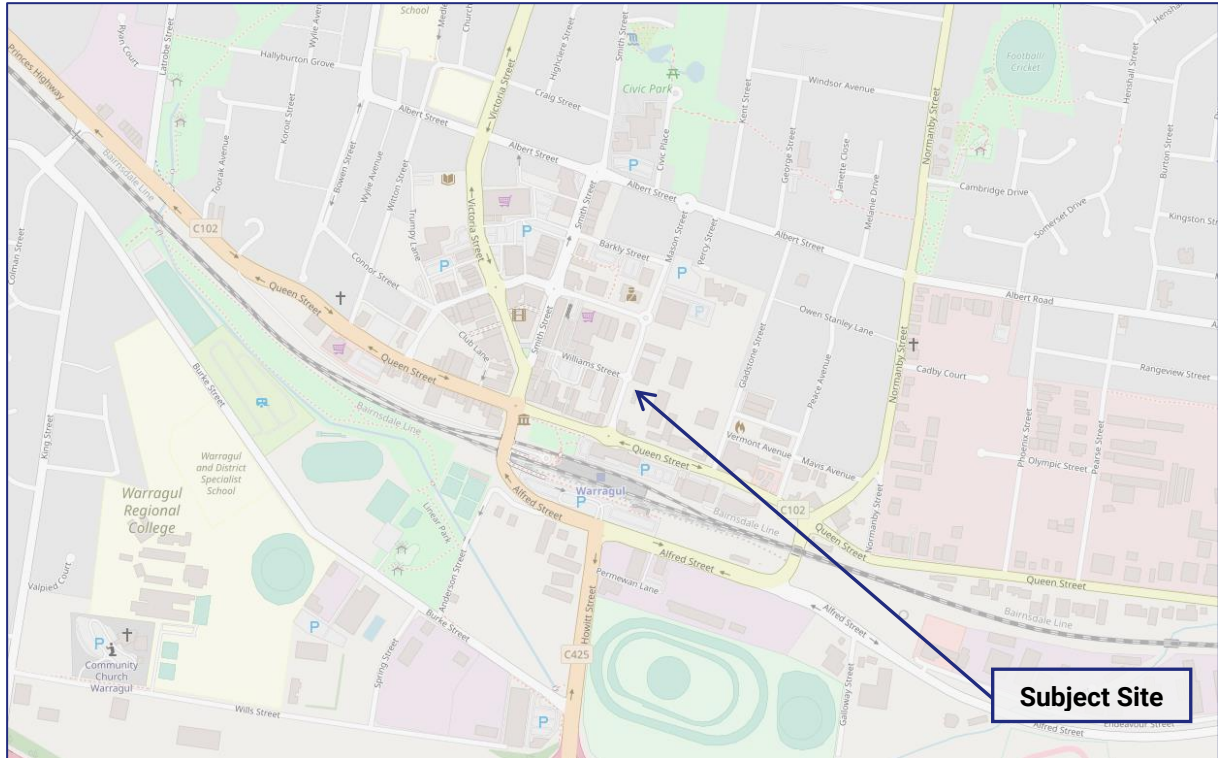


Figure 1: Locality Plan



Figure 2: Aerial Photograph (Source: Nearthmap)



Figure 3: Subject site – view southeast from Mason Street

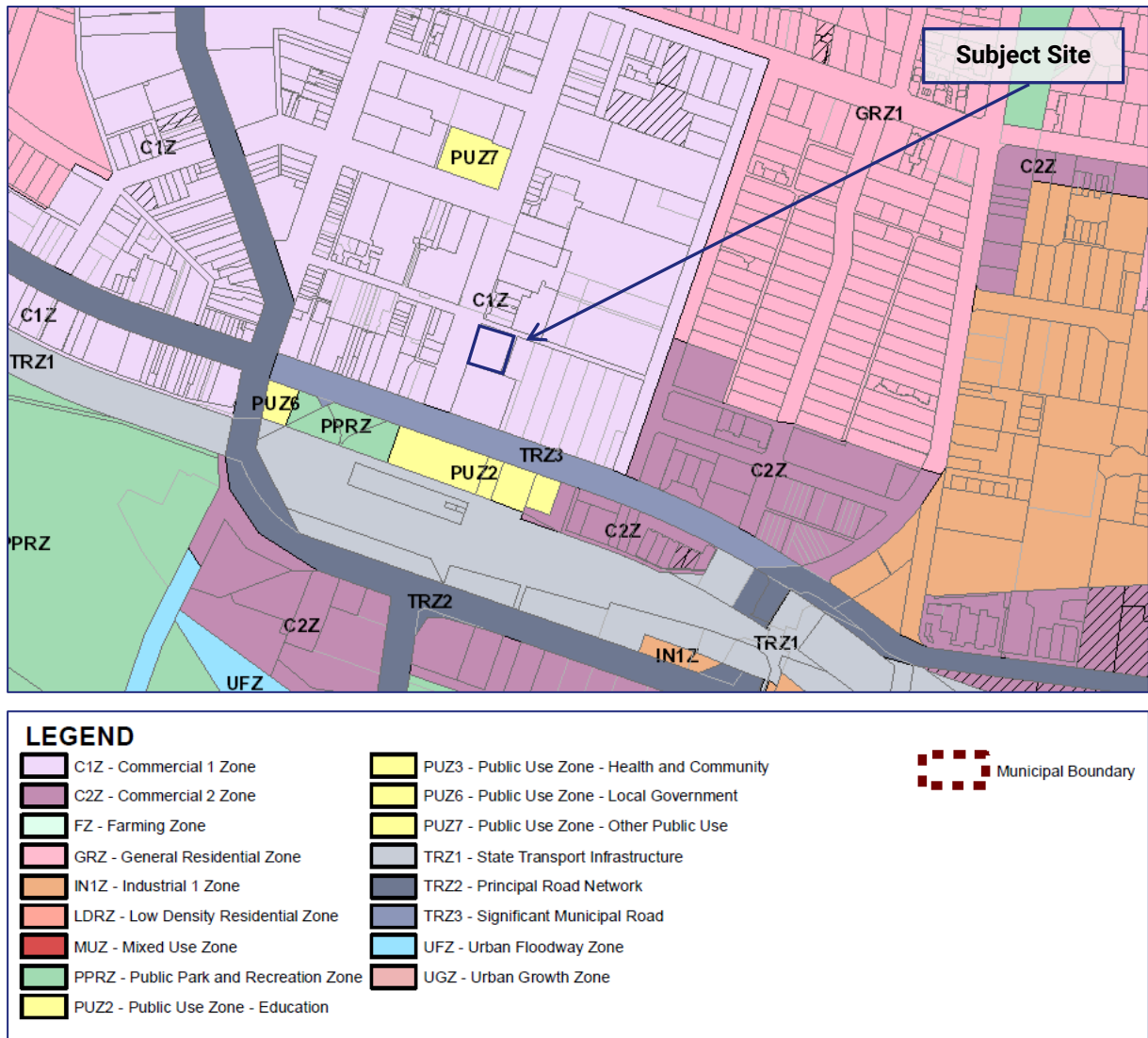


Figure 4: Land Use Zoning Map (Source: Planning Schemes Online)

3.2. Transport Network

3.2.1. Road Network

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

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

Table 3: Local Road Network

Road Name	Agency	Classification	Transport Zone	Configuration	Speed Limit	On-Street Parking
Mason Street	Council	'Local' Road	No	One traffic lane in each direction 60 degree parking on both sides Footpaths on both sides	Default 50km/h	Mixture of short-term (2P) and unrestricted angled parking on both sides
Williams Street	Council	'Local' Road	No	2 traffic lanes Undivided carriageway Footpaths on both sides	Default 50km/h	Mixture of short-term (1/4P, 1P and 2P) and Loading Zone restrictions Provides access to private and public off-street short-term carparks (2P or 3P)
ROW	Council	Laneway	No	5.7m wide Constructed with concrete	N/A	None



Figure 5: Mason Street – view north



Figure 6: Mason Street – view south



Figure 7: Williams Street – view east



Figure 8: Williams Street – view west

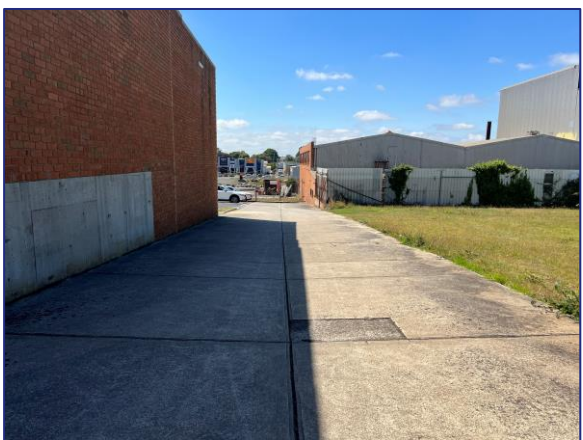


Figure 9: ROW – view east

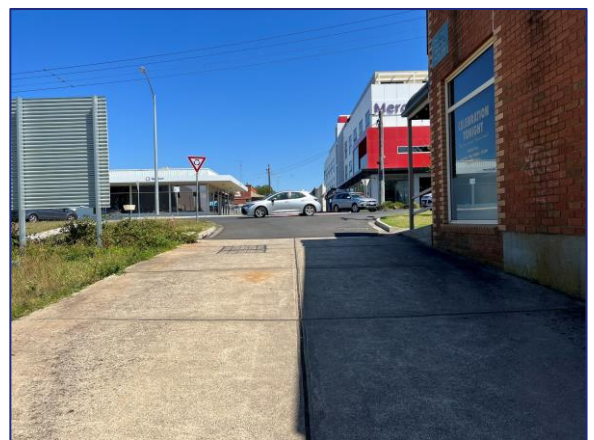


Figure 10: ROW – view west

3.2.2. Car Parking Conditions

Traffic Group completed an inventory of on-street parking during the site inspection on Thursday 9th February, 2023 at 11:30pm.

The purpose of the inventory was to ascertain the supply and management of car parking in the area, not to assess the demand for car parking.

The detailed parking inventory is presented at Appendix B. The parking inventory area is presented in the figure below.

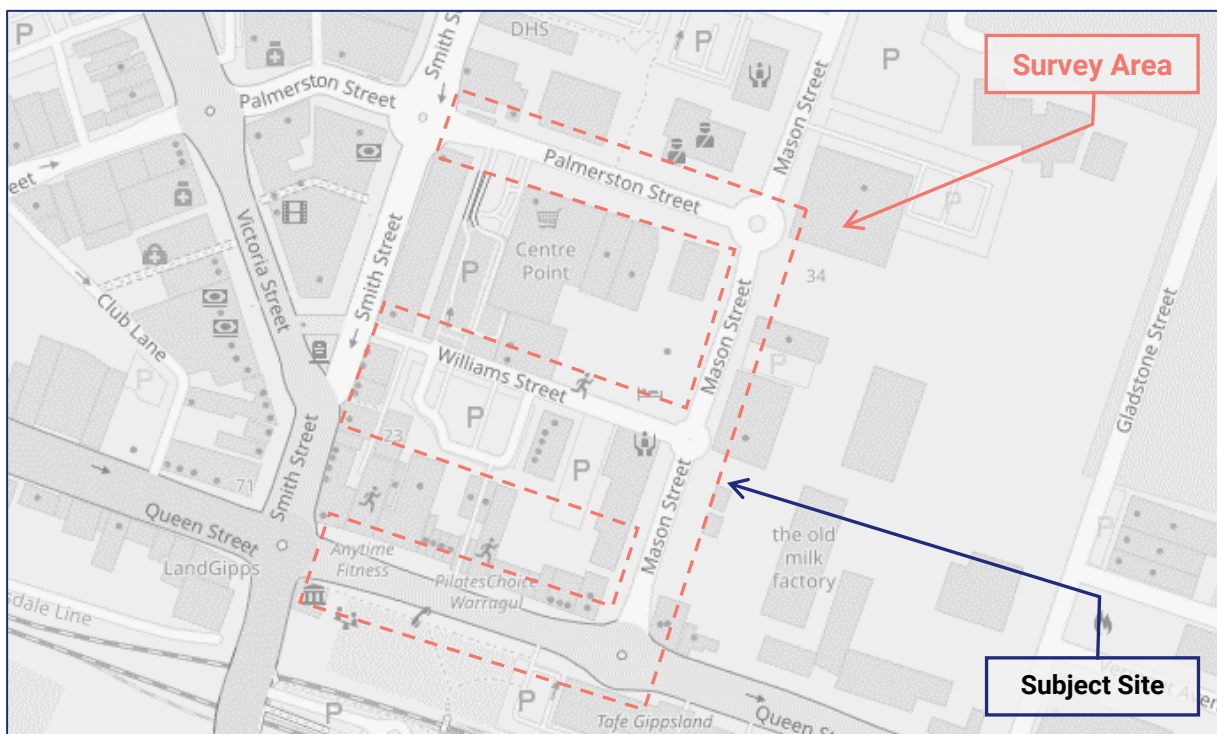


Figure 11: Parking survey area

The key findings of the inventory were:

- There are 160 on-street car spaces within approximately 200m of the subject site.
- At the time of the parking inventory, on-street parking was 83% occupied (133 parked cars, 27 vacant spaces).
- On-street parking is highly controlled, with most car spaces controlled by short-term (1P or 2P) restrictions during business hours and Saturdays.
- The only long-term on-street parking is located at the site's frontage to Mason Street and was 100% occupied at the time of the parking inventory.
- There are 101 off-street public car spaces within approximately 200m of the subject site, accessed via Williams Street. At the time of the parking inventory, off-street parking was 93% occupied (94 parked cars, 7 vacant spaces).
- Off-street parking is highly controlled, with all car spaces controlled by short-term (2P or 3P) restrictions during business hours and weekends.

3.3. Alternative Transport Modes

3.3.1. Public Transport

The site has good accessibility to public transport in the context of a rural township, with Warragul Railway Station located 250m south of the site. The site is also well served by bus services.

The available public transport services within proximity of the site are shown in Figure 12. A summary of services is provided at Table 4.

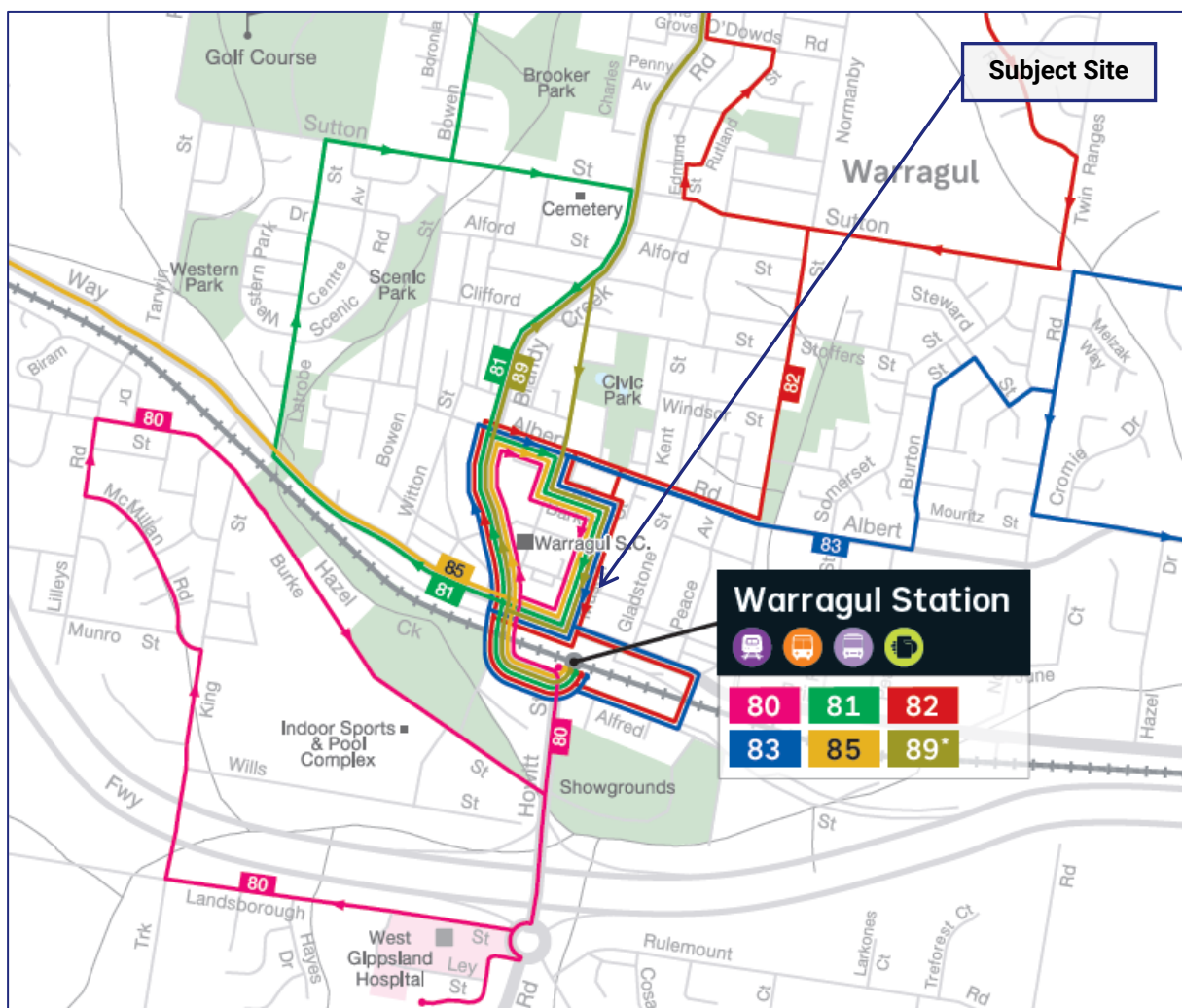


Figure 12: Public Transport Map (Source: PTV)

Table 4: Summary of Public Transport Services

Service	Between	Via
Palmerston Street/Mason Street – 70m walking distance north of the site		
Bus Route 81	Warragul Station & Warragul North	Latrobe Street
Bus Route 82	Warragul Station & Warragul North	Stoddarts Road
Bus Route 83	Warragul Station & Warragul East	Copelands Road
Bus Route 85	Warragul Station & Drouin Station	Drouin South
Warragul Station Bus Stop – 250m walking distance south of the site		
Bus Route 80	Warragul Station & Warragul South	West Gippsland Hospital
Bus Route 89	Warragul Station	Buln Buln
Warragul Station – 250m walking distance south of the site		
Bairnsdale Line	Bairnsdale & Melbourne	Sale, Traralgon, Warragul & Dandenong
Batemans Bay Line	Batemans Bay & Melbourne	Genoa & Mallacoota
Canberra Line	Canberra Melbourne	Albury
Marlo Line	Marlo & Melbourne	Lake Tyers Beach & Bairnsdale
Paynesville Line	Paynesville & Melbourne	Sale & Bairnsdale
Traralgon Line	Traralgon & Melbourne	Dandenong, Warragul & Morwell
Sale/Maffra Line	Sale/Maffra & Melbourne	Traralgon

3.3.2. Bicycle Infrastructure

The site has access to Warragul's bicycle network, including Queen Street and Albert Street. Warragul's Precinct Structure Plan (PSP) proposes to redesign all streets and arterial roads in order to give priority to pedestrians and cyclists. The Public Transport and Path Network as per the PSP is shown in Figure 13.

Figure 14 indicates the area that is within a 20-minute bike ride of the site.

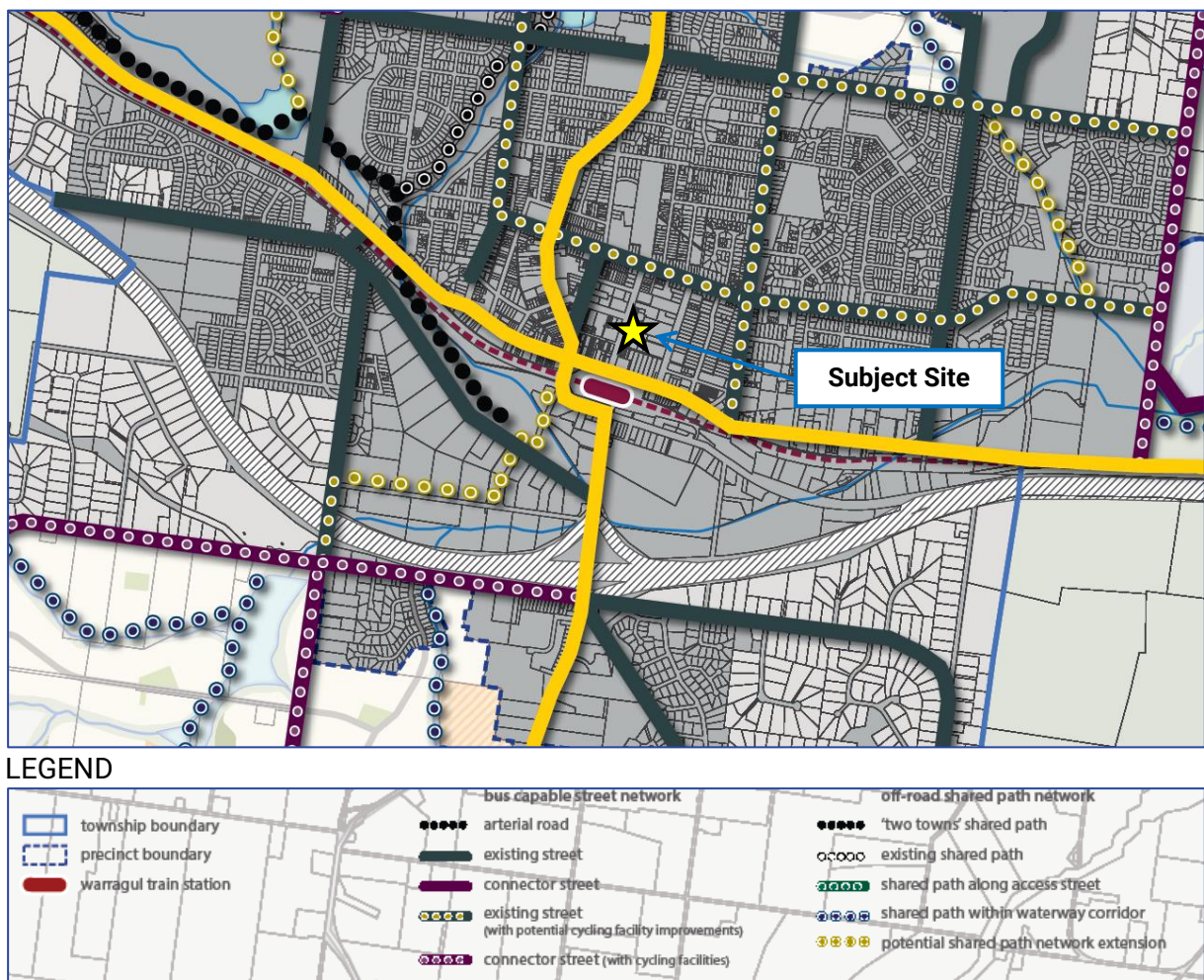


Figure 13: Public Transport and Path Network (Source: Warragul Precinct Structure Plan)

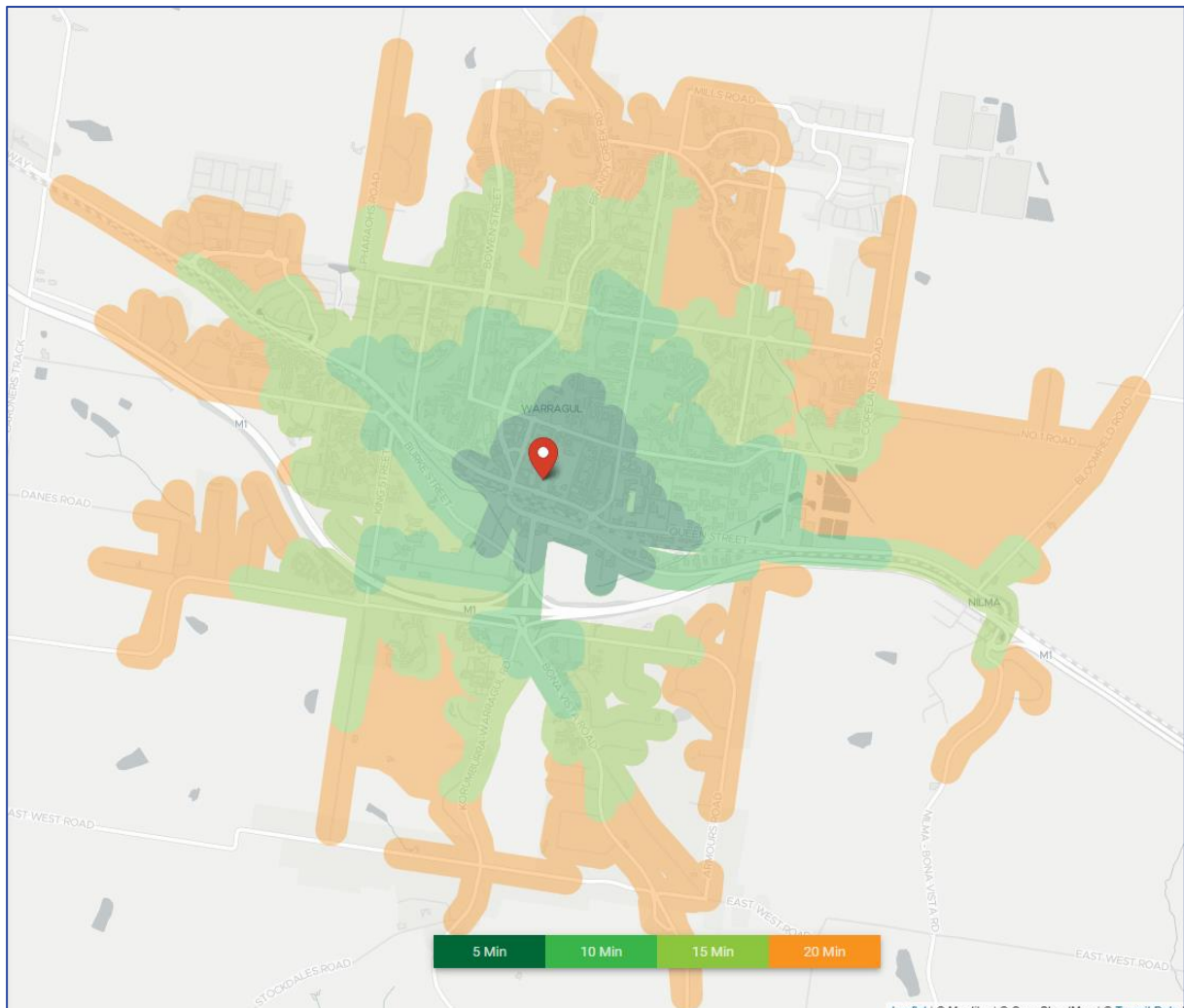


Figure 14: Map of 20-minute cycling distance (Source: Targomo.com)

3.3.3. Walking

The site is highly walkable, with many everyday services located within walking distance of the site. Figure 15 below indicates the area that is within a 20-minute walk of the site.

The following significant uses are within this 20-minute walk:

- Warragul Railway Station
- Warragul Coles
- Warragul Safeway
- TAFE Gippsland - Warragul Campus
- Warragul Town Hall
- Services Australia

The land uses detailed above demonstrate that there are a high level of everyday land uses in close proximity to the site, which would reduce the dependence on vehicular travel within the area.

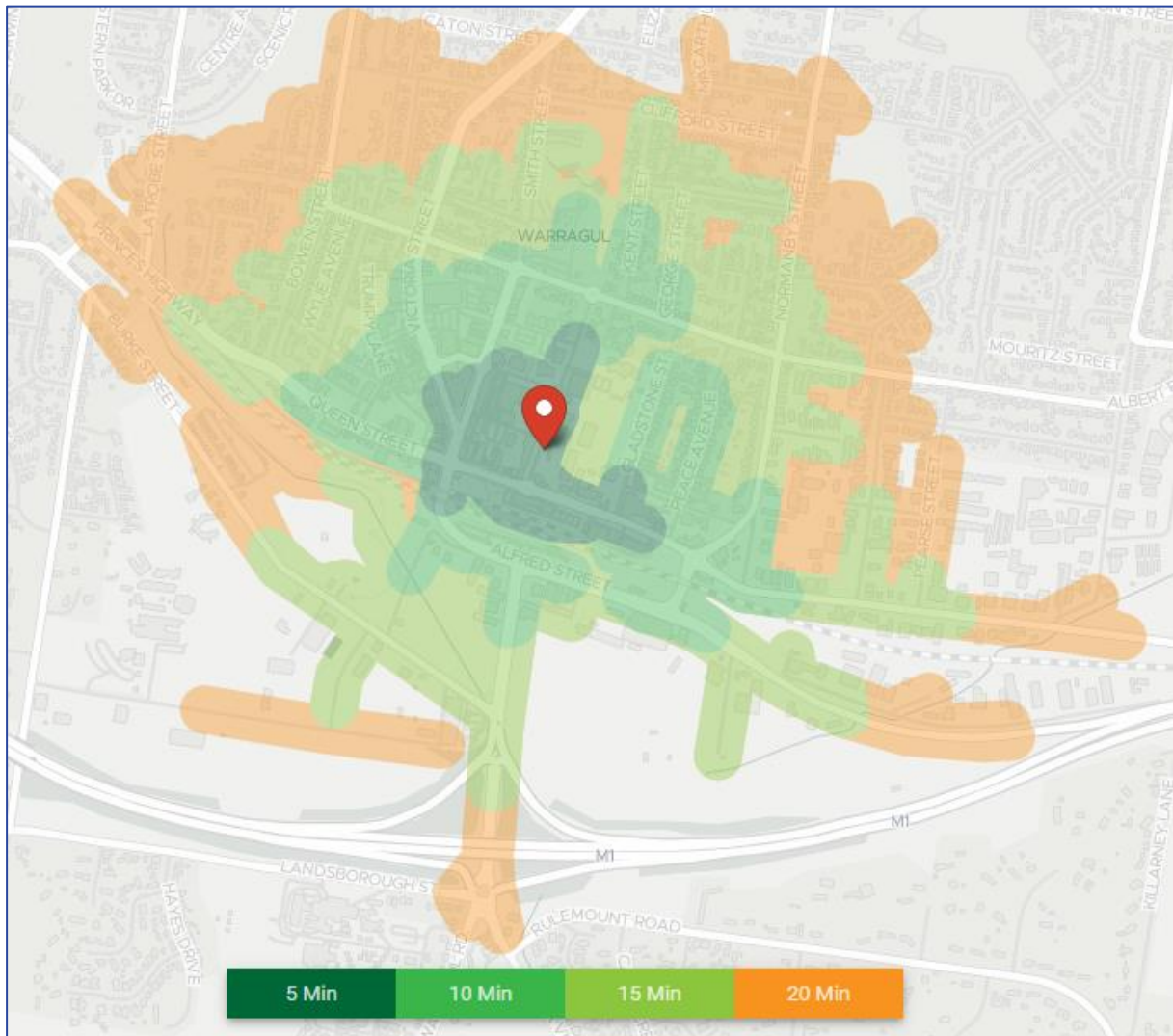


Figure 15: Map of 20-minute walking distance (Source: Source: Targomo.com)

4. Traffic Engineering Assessment

4.1. Statutory Car Parking Assessment

This application is to be assessed under Clause 52.20 of the Planning Scheme, being part of Victoria's Big Housing Build program. The purpose of Clause 52.20 is:

- *To facilitate the use and development of land for housing projects funded by Victoria's Big Housing Build Program.*
- *To ensure the development does not unreasonably impact on the amenity of adjoining dwellings.*

The Planning Scheme sets out the parking requirements at Clause 52.20-6.7. In this regard, Clause 52.20-6.7 states:

- *A minimum 0.6 car spaces should be provided to each dwelling. A minimum 1 car space should be provided to each 4 bedrooms of a residential building.*
- *Car parking for other land uses must be to the satisfaction of the Minister for Planning.*
- *Car spaces may be covered or uncovered.*
- *If in calculating the number of car parking spaces the result is not a whole number, the required number of car parking spaces is to be rounded down to the nearest whole number greater than 1.*

The statutory car parking assessment of the development is set out in Table 5 below.

Table 5: Statutory Car Parking Assessment – Clause 52.20-6.7

Use	Size / No.	Statutory Parking Rate	Parking Requirement ⁽¹⁾	Parking Provision	Shortfall / Surplus
Dwelling (one, two and three-bedroom dwellings)	51	0.6 car spaces per dwelling	30	38	+8
TOTAL			30	38	+8
Notes:					
1. Clause 52.20-6.7 specifies that where a car parking calculation results in a requirement that is not a whole number, then number of spaces should be rounded down to the nearest whole number.					

The provision of 38 car spaces exceeds the statutory minimum requirement for 30 car spaces under Clause 52.20-6.7 and a car parking reduction is not required.

Disabled Parking

Clause 52.06-9 states that:

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

Disabled car parking is not required for residential developments under the Planning Scheme or the National Construction Code (NCC). Notwithstanding, given the nature of the use (social housing), one disabled car space has been provided within the basement carpark. The design of the disabled car space accords with AS2890.6-2022 and is considered satisfactory.

Motorcycle Parking

Motorcycle parking is not strictly required for developments under the Planning Scheme. Notwithstanding, six motorcycle spaces have been provided within the basement carpark. The design of the motorcycle spaces accords with AS2890.1-2004 and is considered satisfactory.

4.2. Bicycle Parking Provision

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

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

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

Table 6: Statutory Bicycle Parking Assessment - Clause 52.34

Use	Size/No.	Statutory Bicycle Parking Requirement		No. Bicycle spaces required
		Residents or Employees	Visitors or Customers	
Dwelling	51	1 space to each 5 dwellings	1 space to each 10 dwellings	10 resident 5 visitor
TOTAL				15 spaces

The development provides 53 bicycle parking, exceeding the requirements of Clause 52.34. Bicycle spaces are provided as follows:

- 21 secure bicycle spaces within the basement for residents and staff as follows:
 - 21 x 'Ned Kelly' style wall mounted racks
- 25 secure bicycle spaces at ground level for residents and staff as follows:

- 17 x 'Ned Kelly' style wall mounted racks
- 8 x spaces in horizontal rails
- 8 x spaces in horizontal rails along the site's frontage to Mason Street within the verge. These spaces are for public use and are to be provided to the satisfaction of Council.

All bicycle spaces have been designed in accordance with AS2890.3-2015 and the manufacturers specifications. Additionally, a minimum of 20% of the spaces provided (16 of 53) are horizontal rails in accordance with AS2890.3-2015 requirements.

Based on the above, we are satisfied that the provision and design of bicycle parking accords with the requirements of Clause 52.34 and AS2890.3-2015 (where relevant).

4.3. Review of Carpark Layout and Vehicle Access Arrangements

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

- Clause 55.03-9 (Access Objective) and Clause 55.03-10 (Parking Location Objective),
- Clause 52.06-9 of the Planning Scheme (Design Standards for car parking), noting that these design standards are identical to those outlined at 52.20-6.7,
- AS2890.1-2004 – Part 1: Off-Street Car Parking (where relevant), and
- AS2890.6-2022 – Part 6: Off-Street Car Parking for People with Disabilities (where relevant)

Swept path diagrams demonstrating vehicle access to/from the site and access to car spaces are attached at Appendix C.

An assessment against the relevant design standards of the Planning Scheme and Australian Standards (where relevant) is provided at Appendix D.

We are satisfied that the carpark layout and vehicle access arrangements are designed in accordance with the relevant design standards and are appropriate from a traffic engineering perspective.

4.4. Loading and Waste Collection Arrangements

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

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

4.4.1. Loading

The proposal does not include an on-site loading bay. All loading activities will occur on-street in the nearby area, including the unrestricted car spaces along the site's frontage to Mason Street.

Loading activities for the dwellings will be associated with furniture movers/removalists when residents move in/out are anticipated to occur infrequently. We are satisfied that these activities can readily occur on-street.

4.4.2. Waste Collection

Traffix Group has prepared a Waste Management Plan for the proposal (ref: G32628-R02B(WMP)), which sets out that waste collection can occur within the basement carpark by private contractor using a 6.4m mini waste collection vehicle or within the ROW by an 8.8m waste collection vehicle.

We have checked access to the site by 6.4m mini waste collection vehicle and are satisfied that the vehicle can enter and exit the site in a forwards direction. Swept path diagrams are attached at Appendix C demonstrating this movement.

Based on the above, we satisfied the loading and waste collection arrangements of the proposal are acceptable from a traffic engineering perspective.

4.5. Traffic Impacts

Traffic associated with social housing style residential developments typically generate traffic at lower rates than 'standard' residential developments.

Conservatively adopting a daily traffic generation rate of 4 trips per car space and 10% of daily traffic occurring during the peak hours, the proposal is estimated to generate in the order of 152 vehicle trips per day and 15 vehicle trips during each peak hour.

These volumes can be accommodated by Mason Street (Council 'Local' Road) and the rear ROW, noting that two-way passing is available within the ROW and at the site access point.

5. Conclusions

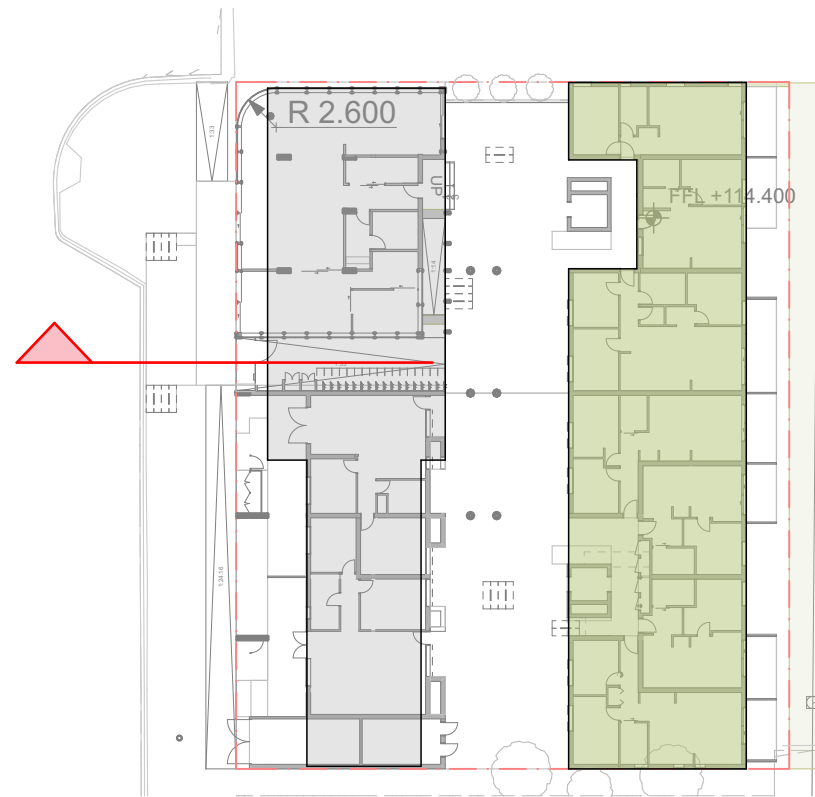
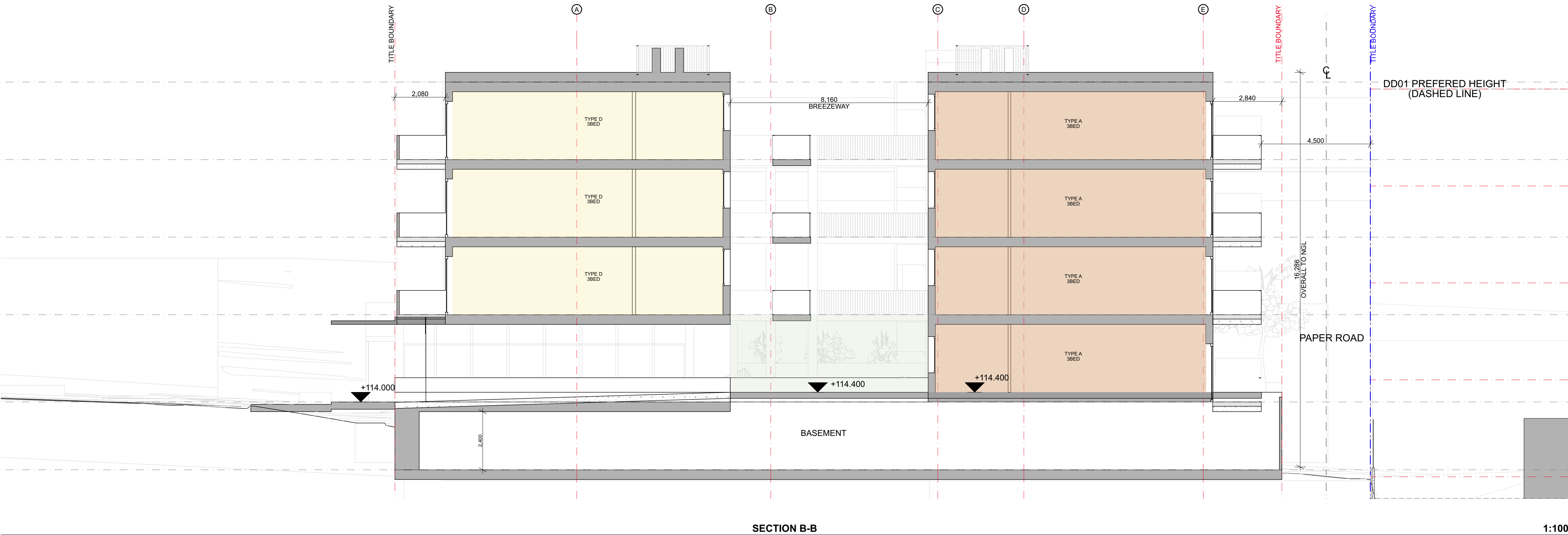
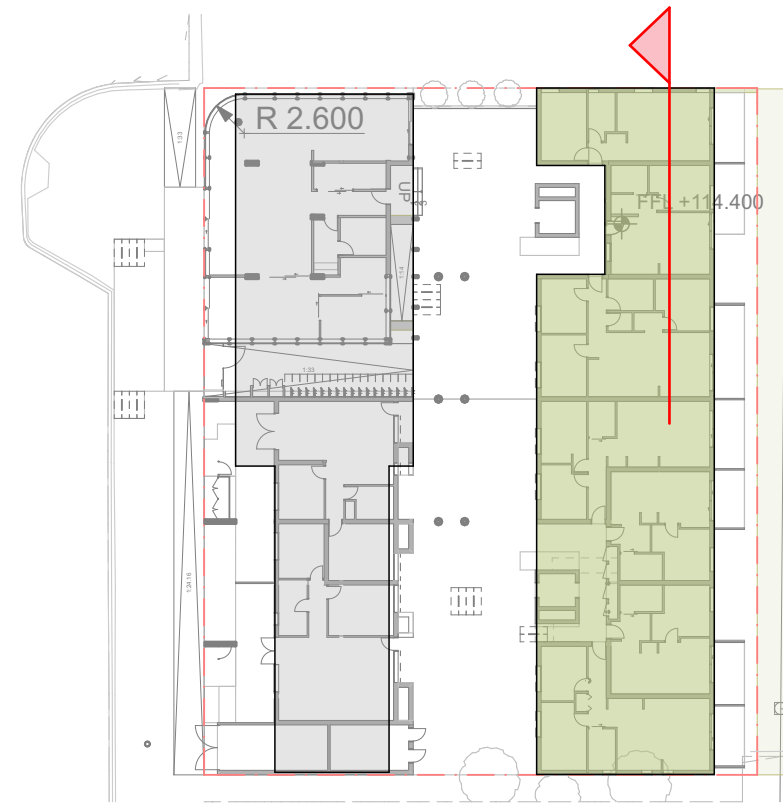
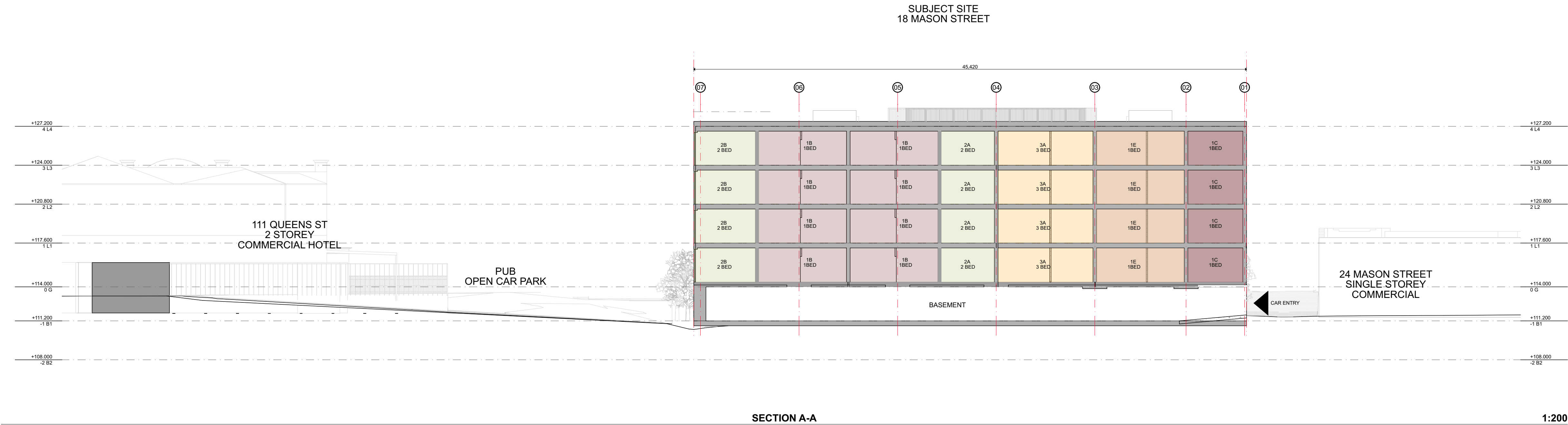
Having undertaken a detailed traffic engineering assessment of the proposed residential development (social housing) at 18 Mason Street, Warragul, we are of the opinion that:

- a) the proposed development has a statutory car parking requirement of 30 car spaces under Clause 52.20-6.7, which is satisfied by the provision of 38 car spaces,
- b) the proposed parking layout and vehicle access arrangements accord with the requirements of the Planning Scheme, Australian Standards (where relevant) and current practice,
- c) bicycle parking is provided in accordance with the Clause 52.34 of the Planning Scheme and accords with the design requirements of AS2890.3-2015,
- d) the level of traffic generated by the proposal can be accommodated without any adverse impacts to the operation of the local road network,
- e) a dedicated loading bay is not warranted for a residential development of this scale,
- f) waste collection can be undertaken via private contractor either from within the basement using a 6.4m mini waste collection vehicle or from within the rear ROW using an 8.8m waste collection vehicle, and
- g) there are no traffic engineering reasons why a planning permit for the proposed residential development (social housing) at 18 Mason Street, Warragul should be refused, subject to appropriate conditions.



Appendix A

Development Plans



Freadman White

81 Crown Street, Richmond VIC 3121
Mobile: +61 411 559 748 Office: +61 3 9942 3359
office@freadmanwhite.com www.freadmanwhite.com
ABn: 81 751 505 936 ACn: 147 872 348

REVISION		
SD1	Preliminary for Review	Work in Progress
WORK IN PROGRESS		

CLIENT
Housing Choices Australia
18 Mason Street, Warragul,
VIC, 3820

18 Mason Street,
Warragul

DWG No
TP.4.1

TITLE
SECTION A & B

STATUS
Town Planning

ISSUE DATE
21/4/2023

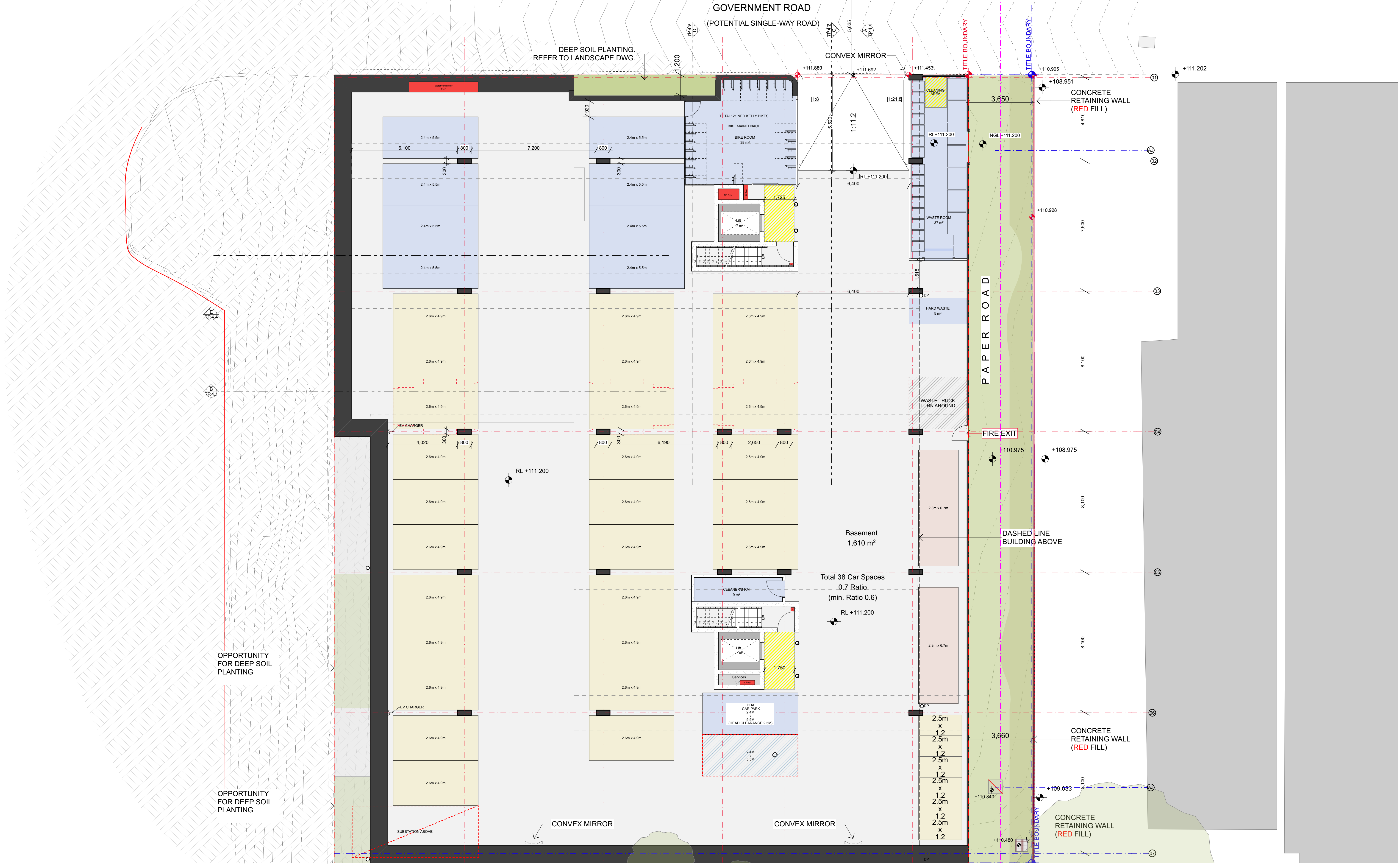
SCALE
1:200, 1:100, 1:500 @ A1

GENERAL NOTES

- Builder and or Subcontractor to supply one sample each of the proprietary items, finishes, samples materials and shop drawings for sign off prior to placement of order, fabrication or construction. Once approved one signed item is to be held by the Builder and one duplicate item to be forwarded to Client's Representative.
- Do not scale from this drawing - use figured dimensions
- A signed original of this drawing is retained in Freadman White Architects Offices for verification purposes.
- Information detailed in drawing revisions is for information only and may not be indicative of all changes made.
- Builder and or Subcontractor to confirm set outs, levels, setbacks and critical dimensions on site including all services fixtures and fittings prior to and during the works. Notify Architect to any conflicts discovered prior to proceeding.

COPYRIGHT © FREADMAN WHITE PTY LTD

These drawings are approximate only. Assessments and evaluations must be verified by the relevant authorities. Figured dimensions shall be used in preference to scaled dimensions. The Architect must be notified of any discrepancies. All work shall be carried out in accordance with the relevant Planning and Building authorities, Building code of Australia, local laws and all relevant Australian Standards. Copyright all rights reserved. This work is copyright and cannot be reproduced or copied in any form or by any other means (graphic, electronic or mechanical including photocopying) without the written permission of Freadman White Architects. Any licence, express or implied, to use this document for any purpose whatsoever is restricted to the terms and of the agreement or implied agreement between Freadman White Architects and the instructing party. These drawings cannot be used for construction purposes without the written permission of Freadman White Architects.



REVISION		
SD1	Preliminary for Review	Work in Progress
WORK IN PROGRESS		

CLIENT
Housing Choices Australia
18 Mason Street, Warragul,
VIC, 3820

18 Mason Street,
Warragul

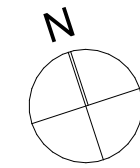
DWG No
TP.2.2

TITLE
BASEMENT PLAN

STATUS
Town Planning

ISSUE DATE
21/4/2023

SCALE
1:100 @ A1



GENERAL NOTES

- Builder and or Subcontractor to supply one sample each of the proprietary items, finishes, samples materials and shop drawings for sign off prior to placement of order, fabrication or construction. Once approved one signed item is to be held by the Builder and one duplicate item to be forwarded to Client's Representative.
- Do not scale from this drawing - use figured dimensions
- A signed original of this drawing is retained in Freadman White Architects Offices for verification purposes.
- Information detailed in drawing revisions is for information only and may not be indicative of all changes made.
- Builder and or Subcontractor to confirm set outs, levels, setbacks and critical dimensions on site including all services fixtures and fittings prior to and during the works. Notify Architect to any conflicts discovered prior to proceeding.

COPYRIGHT © FREADMAN WHITE PTY LTD

These drawings are approximate only. Assessments and evaluations must be verified by the relevant authorities. Figured dimensions shall be used in preference to scaled dimensions. The Architect must be notified of any discrepancies. All work shall be carried out in accordance with the relevant Planning and Building authorities, Building code of Australia, local laws and all relevant Australian Standards. Copyright all rights reserved. This work is copyright and cannot be reproduced or copied in any form or by any other means (graphic, electronic or mechanical including photocopying) without the written permission of Freadman White Architects. Any licence, express or implied, to use this document for any purpose whatsoever is restricted to the terms and of the agreement or implied agreement between Freadman White Architects and the instructing party. These drawings cannot be used for construction purposes without the written permission of Freadman White Architects.



Appendix B

Car Parking Inventory

Surveyed By: Lily Green

Survey Dates & Times: See below

Location		Restriction	Capacity Min - Max	Thur 9th Feb 2023
				11:30am
ON-STREET CARPARKING				
Map Ref.	Palmerston Street			
	North Side			
A	Smith Street to Mason Street	No Stopping	-	0
		Council and Aus Post Vehicles Excepted	1	0
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	2	1
		No Stopping	-	0
		2P 9am-5pm Mon-Fri, 9am-12noon Sat	13	12
		No Stopping	-	0
		No Stopping (Police Vehicles Excepted)	4	4
		No Stopping (Police Station Visitors Excepted)	4	4
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	6	6
		No Stopping (10m)	-	0
	South Side			
B	Mason Street to Smith Street	No Stopping (10m)	-	0
		Emergency Vehicles Only	-	0
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	6	7
		Disabled Only	1	1
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	11	11
		2P Disabled Only 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	1	1
		Loading Zone 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	1	1
		No Stopping (10m)	-	0
Palmerston Street	Capacity		40 - 40	40
	Total Number of Cars Parked		39	
	Total Number of Vacant Spaces		1	
	Percentage Occupancy		98%	

Surveyed By: Lily Green

Survey Dates & Times: See below

Location		Restriction	Capacity Min - Max	Thur 9th Feb 2023
				11:30am
Map Ref.	Williams Street			
	North Side			
C	Mason Street to Smith Street	No Stopping	-	0
		Loading Zone 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	1	1
		1P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	2	1
		Taxi Zone	1	1
		No Stopping	0	0
		1/4P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	1	1
		No Stopping	-	0
South Side				
D	Smith Street to Mason Street	No Stopping	-	0
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	2	1
		No Stopping (10m)	-	0
Williams Street		Capacity	4 - 4	4
		Total Number of Cars Parked		2
		Total Number of Vacant Spaces		2
		Percentage Occupancy		50%
Map Ref.	Queen Street			
	North Side			
E	Mason Street to Victoria Street	No Stopping (10m)	-	0
		Disabled	1	1
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	14	11
		1/4P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	4	2
		1P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	10	7
		No Stopping (10m)	-	0
		South Side		
F	Victoria Street to Mason Street	No Stopping (10m)	-	0
		Bus Zone (Taxi Exempt 11pm-6am)	-	0
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	15	12
		No Stopping (10m)	-	0
Queen Street		Capacity	40 - 40	40
		Total Number of Cars Parked		31
		Total Number of Vacant Spaces		9
		Percentage Occupancy		78%

Surveyed By: Lily Green

Survey Dates & Times: See below

Location		Restriction	Capacity Min - Max	Thur 9th Feb 2023
				11:30am
Map Ref.	Mason Street			
	East Side			
G	Queen Street to SB #18	No Stopping (10m)	-	0
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	8	2
		No Stopping	-	0
	SB #18 to NB #18 (Subject Site)	P angle	14	14
		No Stopping (10m)	-	0
H	Williams Street to Palmerston Street	No Stopping (10m)	-	0
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	14	14
		Bus Zone	-	0
		No Stopping (10m)	-	0
		West Side		
I	Palmerston Street to Williams Street	No Stopping (10m)	-	0
		Disabled	2	1
		2P 8:30am-5:30pm Mon-Sat	8	7
		No Stopping	-	0
		2P 8:30am-5:30pm Mon-Sat	1	1
		Disabled	1	1
		2P 8:30am-5:30pm Mon-Sat	7	6
		No Stopping	-	0
J	Williams Street to Queen Street	No Stopping (10m)	-	0
		Disabled	2	0
		2P 8:30am-5:30pm Mon-Sat	13	9
		No Stopping	-	0
		2P 8:30am-5:30pm Mon-Sat	3	3
		No Stopping	-	0
		2P 8:30am-5:30pm Mon-Sat	3	3
		No Stopping (10m)	-	0
Mason Street		Capacity	76 - 76	76
		Total Number of Cars Parked		61
		Total Number of Vacant Spaces		15
		Percentage Occupancy		80%

Surveyed By: Lily Green

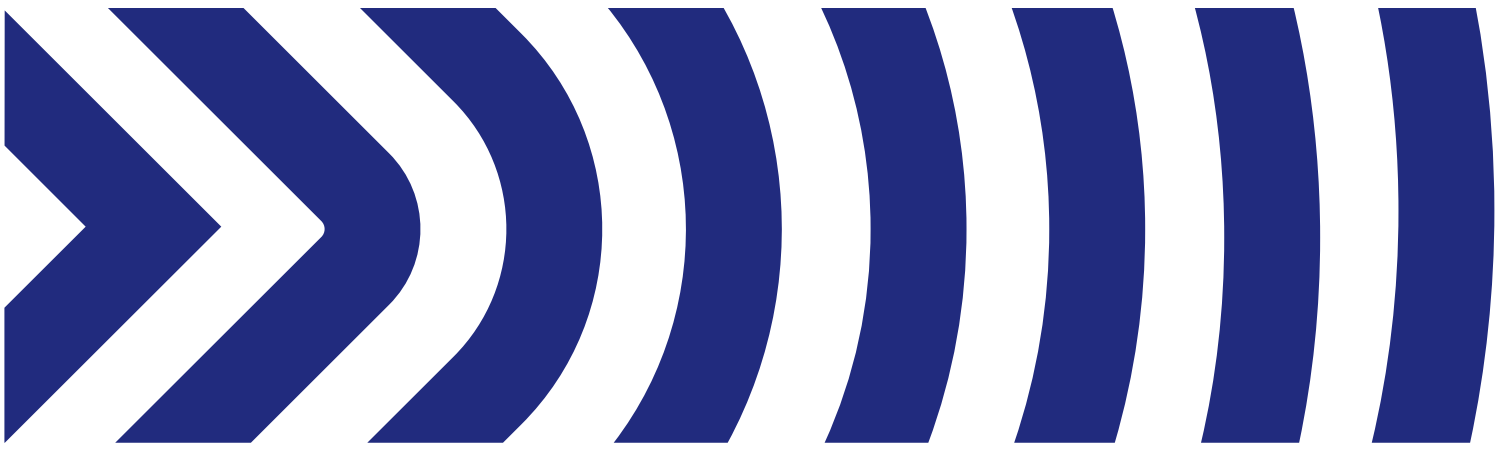
Survey Dates & Times: See below

Location	Restriction	Capacity Min - Max	Thur 9th Feb 2023
			11:30am
SUMMARY => ON-STREET CARPARKING			
Car Parking Supply		160 - 160	160
Total Number of Cars Parked			133
Total Number of Vacant Spaces			27
Percentage Occupancy			83%

Surveyed By: Lily Green

Survey Dates & Times: See below

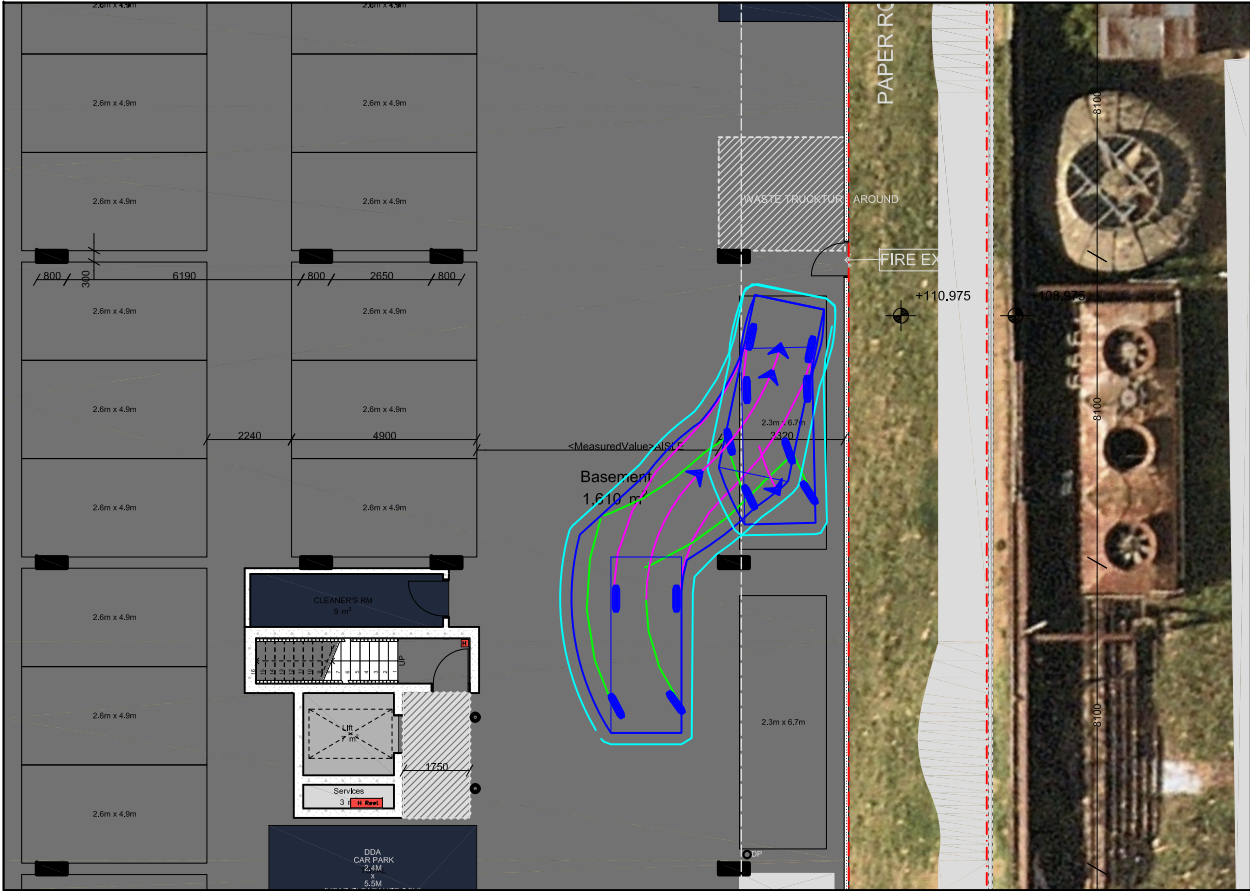
Location		Restriction	Capacity Min - Max	Thur 9th Feb 2023
OFF-STREET CARPARKING				
Map Ref.	3P Williams Street Carpark			
AA	Both aisles	3P 9am-5:30pm	36	33
3P Williams Street Carpark		Capacity	36 - 36	36
		Total Number of Cars Parked		33
		Total Number of Vacant Spaces		3
		Percentage Occupancy		92%
Map Ref.	2P Williams Street Carpark			
BB	East most aisle	2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	22	19
CC	Inner east aisle	2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	22	21
DD	Inner west aisle	2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	14	14
EE	West most aisle	Disabled	1	1
		2P 8:30am-5:30pm Mon-Fri, 8:30am-12noon Sat	6	6
2P Williams Street Carpark		Capacity	65 - 65	65
		Total Number of Cars Parked		61
		Total Number of Vacant Spaces		4
		Percentage Occupancy		94%
SUMMARY => OFF-STREET CARPARKING				
Car Parking Supply			101 - 101	101
Total Number of Cars Parked			94	
Total Number of Vacant Spaces			7	
Percentage Occupancy			93%	
Note: Public parking includes spaces that are available to the general public and excludes 'No Stopping', 'Loading Zones' and 'No Parking'				
LEGEND: Public Parking Not available to the general public Not Available, illegally parked cars included in analysis No Stopping / Other No Parking				



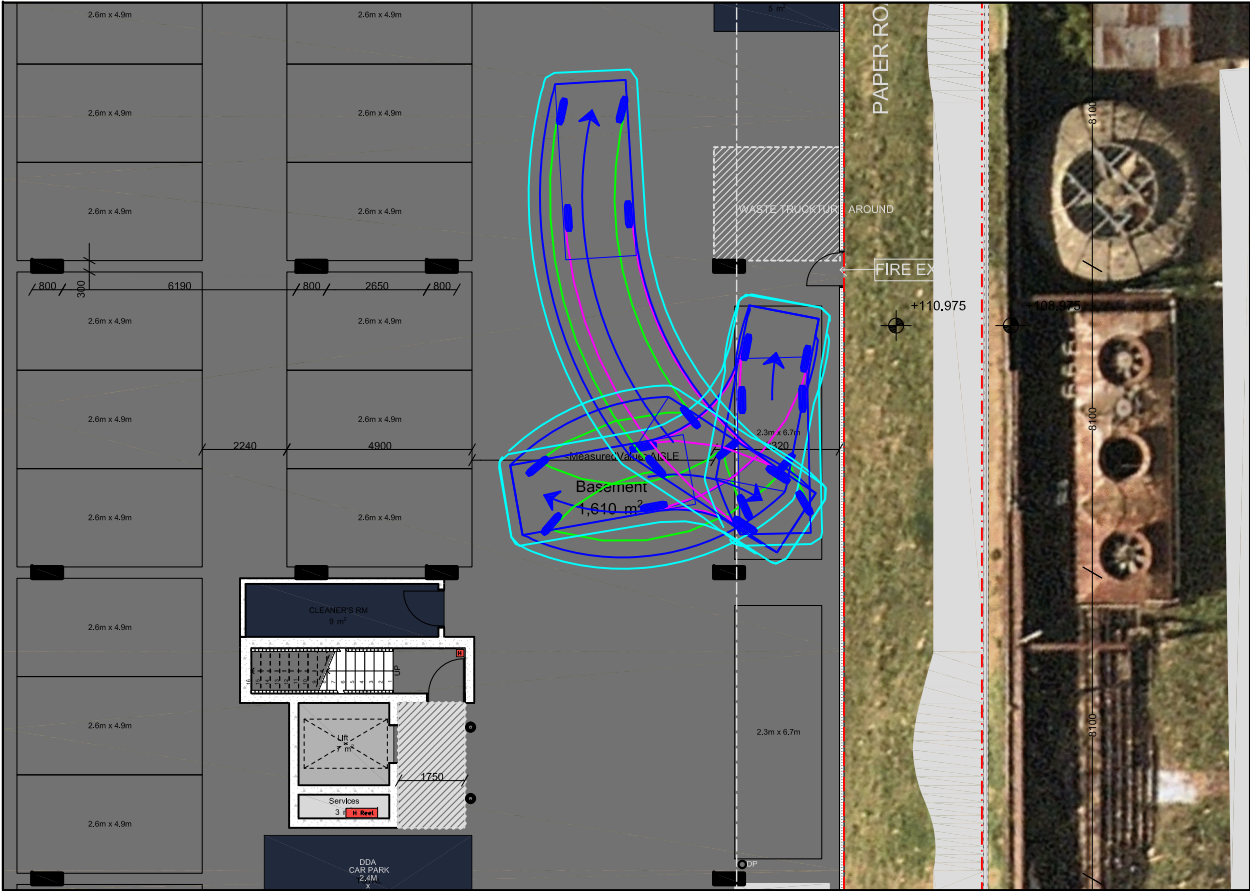
Appendix C

Swept Path Diagrams

PARALLEL CAR SPACE 01 - INGRESS



PARALLEL CAR SPACE 01 - EGRESS



VEHICLE PROFILE

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

4.91*

0.92 2.80

85th percentile
(AS/NZS 2890.1:2004)

Width : 1.87m
Track : 1.77m
Kerb to Kerb Radius : 11.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

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

5.20*

0.95 3.05

99th percentile
(AS/NZS 2890.1:2004)

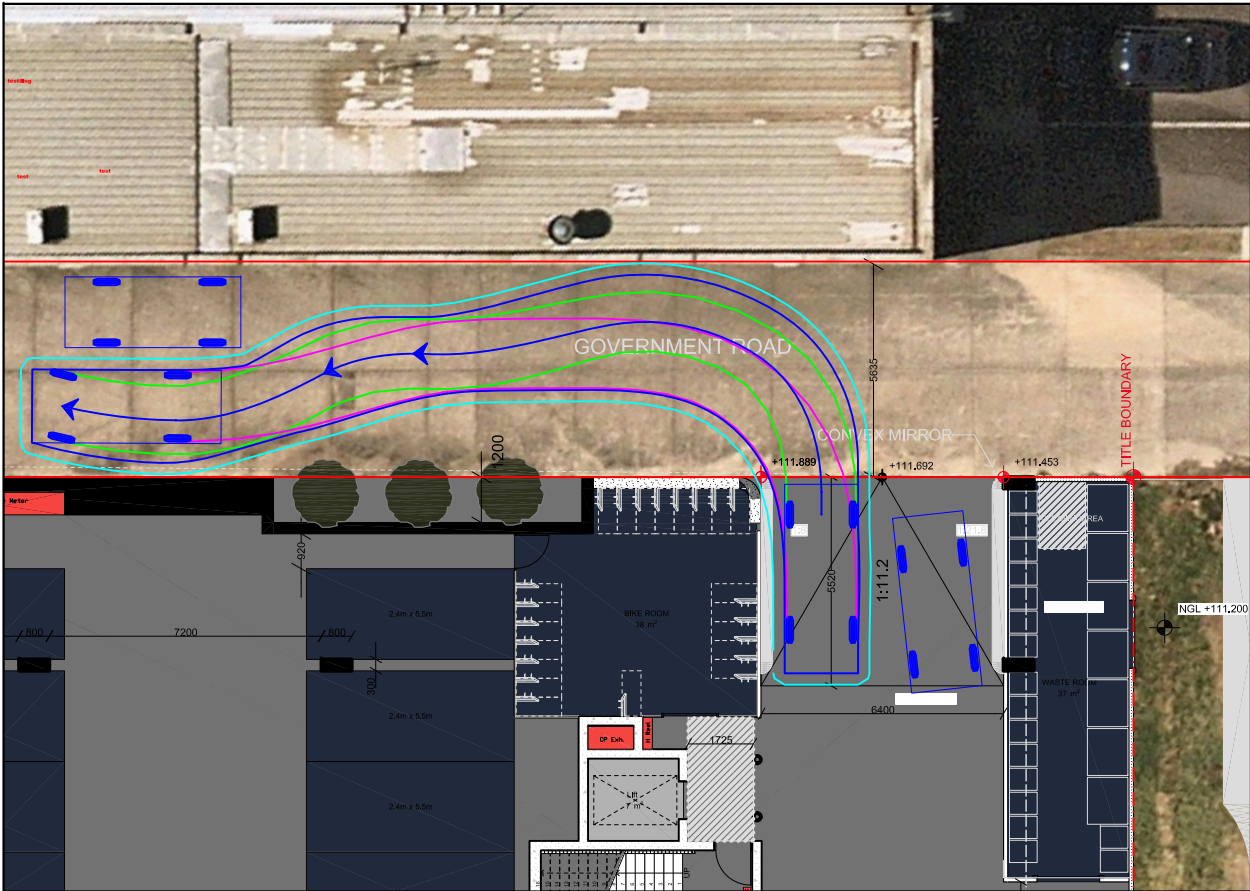
Width : 1.94
Track : 1.84
Kerb to Kerb Radius : 12.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

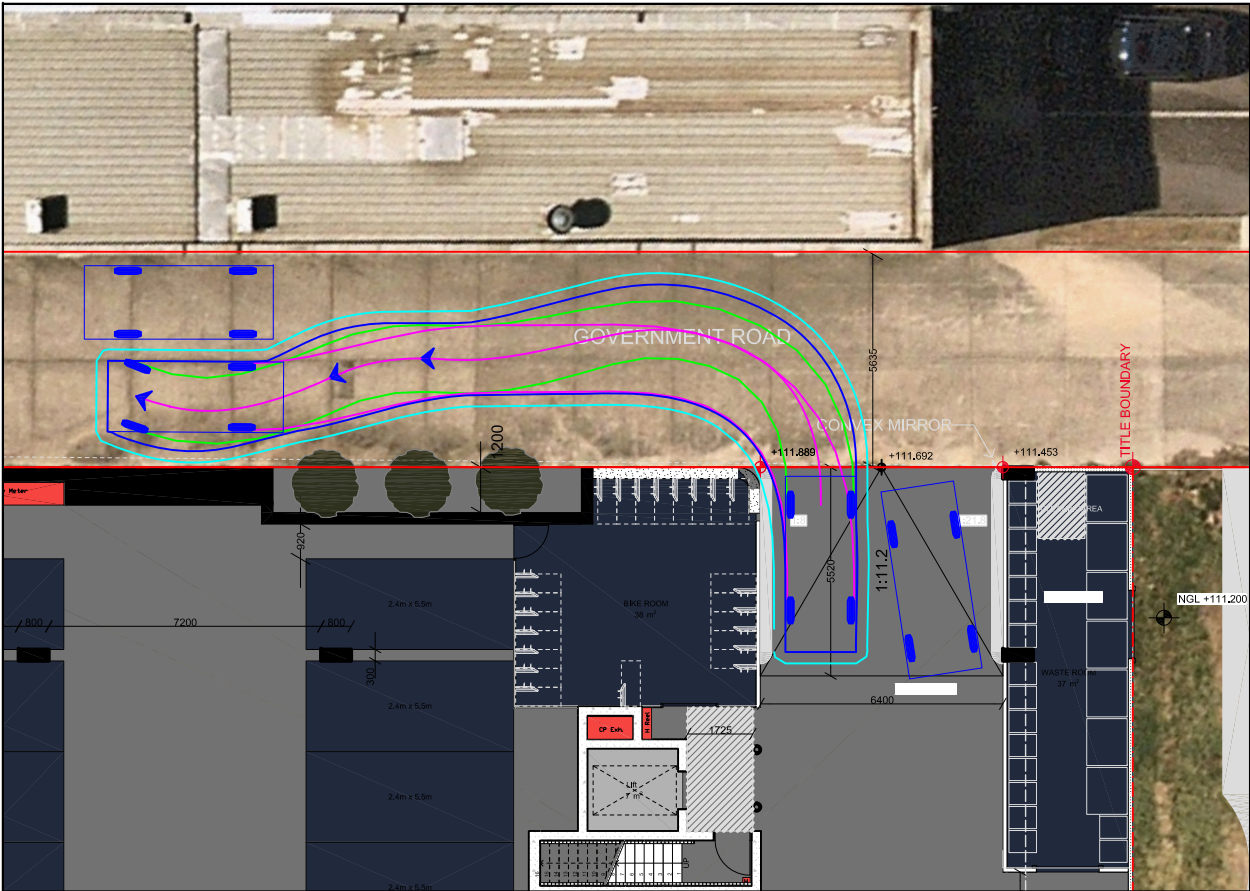
LEGEND

REAR WHEELS FRONT WHEELS VEHICLE BODY BODY CLEARANCE

B99 & B85 - PASSING



B85 & B99 - PASSING



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	01/05/2023	TOWN PLANNING	K. BALLANTYNE	M. O'SHEA

18 MASON STREET, WARRAGUL
PROPOSED MIXED USE DEVELOPMENT

GENERAL NOTES:
BASE PLANS: TP.2.2 BASEMENT PLAN
PREPARED BY: FREAMAN WHITE

FILE NAME: G32628-01
SHEET NO.: 01

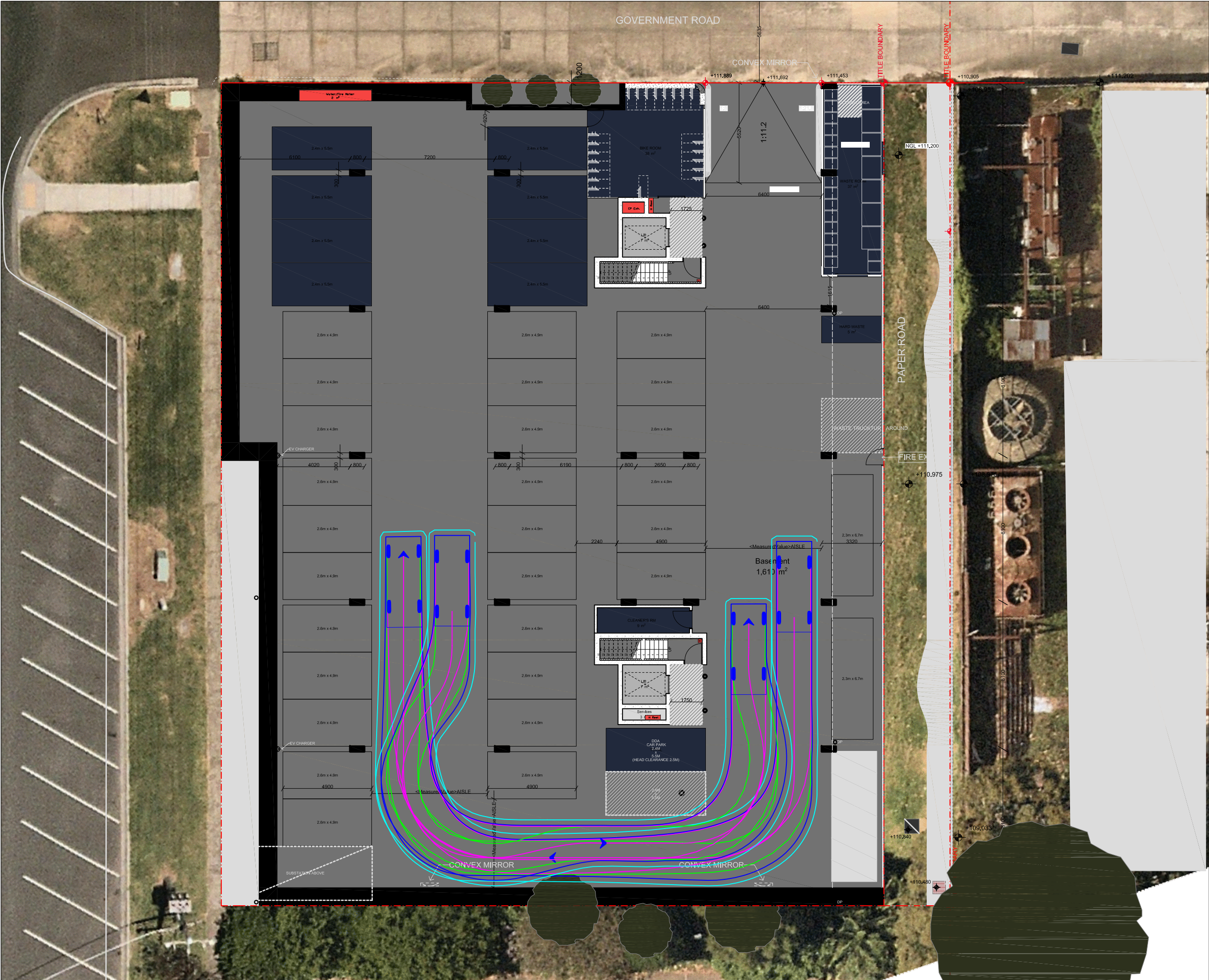


SCALE:
1:200 (A3)

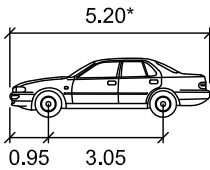
COPYRIGHT: The ideas and material contained in this document are the property of Traffix Group (Traffix Group Pty Ltd - ABN 32 100 481 570). Use or copying of this document in whole or in part without the written permission of Traffix Group constitutes an infringement of copyright.

Traffix Group

Level 28, 459 Collins St, MELBOURNE VIC 3000
T: (03) 9622 2888
www.traffixgroup.com.au



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



99th percentile
(AS/NZS 2890.1:2004)

Width : 1.94
Track : 1.84
Kerb to Kerb Radius : 12.5m

* actual template based on 'relevant longitudinal dimensions that affect swept path' as set out in Section B2.1 of AS/NZS 2890.1:2004

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE

18 MASON STREET, WARRAGUL
PROPOSED MIXED USE DEVELOPMENT

GENERAL NOTES:

BASE PLANS: TP.2.2 BASEMENT PLAN
PREPARED BY: FREADMAN WHITE

DESIGNED BY
K. BALLANTYNE

CHECKED BY
M. O'SHEA

REV DATE
A 01/05/2023

NOTES
TOWN PLANNING

FILE NAME: G32628-01
SHEET NO.: 02

SCALE: 1:400 (A3)

COPYRIGHT: The ideas and material contained in this document are the property of Traffix Group (Traffix Group Pty Ltd - ABN 32 100 481 570). Use or copying of this document in whole or in part without the written permission of Traffix Group constitutes an infringement of copyright.

Architectural site plan of a building complex. The plan shows a large building with multiple rooms, including a 'SWE ROOM 38 m²'. The building is surrounded by a parking lot with several cars. A 'GOVERNMENT ROAD' is located to the right of the building. A 'CONCRETE MIRROR' is indicated near the road. The plan includes dimensions for rooms and parking spaces, and a scale bar.

Key features and dimensions:

- Rooms:**
 - SWE ROOM: 38 m²
 - Room 1: 2.4m x 5.9m
 - Room 2: 2.4m x 5.9m
 - Room 3: 2.4m x 5.9m
 - Room 4: 2.4m x 5.9m
 - Room 5: 2.4m x 5.9m
 - Room 6: 2.4m x 5.9m
 - Room 7: 2.4m x 5.9m
 - Room 8: 2.4m x 5.9m
 - Room 9: 2.4m x 5.9m
 - Room 10: 2.4m x 5.9m
 - Room 11: 2.4m x 5.9m
 - Room 12: 2.4m x 5.9m
 - Room 13: 2.4m x 5.9m
 - Room 14: 2.4m x 5.9m
 - Room 15: 2.4m x 5.9m
 - Room 16: 2.4m x 5.9m
 - Room 17: 2.4m x 5.9m
 - Room 18: 2.4m x 5.9m
 - Room 19: 2.4m x 5.9m
 - Room 20: 2.4m x 5.9m
 - Room 21: 2.4m x 5.9m
 - Room 22: 2.4m x 5.9m
 - Room 23: 2.4m x 5.9m
 - Room 24: 2.4m x 5.9m
 - Room 25: 2.4m x 5.9m
 - Room 26: 2.4m x 5.9m
 - Room 27: 2.4m x 5.9m
 - Room 28: 2.4m x 5.9m
 - Room 29: 2.4m x 5.9m
 - Room 30: 2.4m x 5.9m
 - Room 31: 2.4m x 5.9m
 - Room 32: 2.4m x 5.9m
 - Room 33: 2.4m x 5.9m
 - Room 34: 2.4m x 5.9m
 - Room 35: 2.4m x 5.9m
 - Room 36: 2.4m x 5.9m
 - Room 37: 2.4m x 5.9m
 - Room 38: 2.4m x 5.9m
 - Room 39: 2.4m x 5.9m
 - Room 40: 2.4m x 5.9m
 - Room 41: 2.4m x 5.9m
 - Room 42: 2.4m x 5.9m
 - Room 43: 2.4m x 5.9m
 - Room 44: 2.4m x 5.9m
 - Room 45: 2.4m x 5.9m
 - Room 46: 2.4m x 5.9m
 - Room 47: 2.4m x 5.9m
 - Room 48: 2.4m x 5.9m
 - Room 49: 2.4m x 5.9m
 - Room 50: 2.4m x 5.9m
 - Room 51: 2.4m x 5.9m
 - Room 52: 2.4m x 5.9m
 - Room 53: 2.4m x 5.9m
 - Room 54: 2.4m x 5.9m
 - Room 55: 2.4m x 5.9m
 - Room 56: 2.4m x 5.9m
 - Room 57: 2.4m x 5.9m
 - Room 58: 2.4m x 5.9m
 - Room 59: 2.4m x 5.9m
 - Room 60: 2.4m x 5.9m
 - Room 61: 2.4m x 5.9m
 - Room 62: 2.4m x 5.9m
 - Room 63: 2.4m x 5.9m
 - Room 64: 2.4m x 5.9m
 - Room 65: 2.4m x 5.9m
 - Room 66: 2.4m x 5.9m
 - Room 67: 2.4m x 5.9m
 - Room 68: 2.4m x 5.9m
 - Room 69: 2.4m x 5.9m
 - Room 70: 2.4m x 5.9m
 - Room 71: 2.4m x 5.9m
 - Room 72: 2.4m x 5.9m
 - Room 73: 2.4m x 5.9m
 - Room 74: 2.4m x 5.9m
 - Room 75: 2.4m x 5.9m
 - Room 76: 2.4m x 5.9m
 - Room 77: 2.4m x 5.9m
 - Room 78: 2.4m x 5.9m
 - Room 79: 2.4m x 5.9m
 - Room 80: 2.4m x 5.9m
 - Room 81: 2.4m x 5.9m
 - Room 82: 2.4m x 5.9m
 - Room 83: 2.4m x 5.9m
 - Room 84: 2.4m x 5.9m
 - Room 85: 2.4m x 5.9m
 - Room 86: 2.4m x 5.9m
 - Room 87: 2.4m x 5.9m
 - Room 88: 2.4m x 5.9m
 - Room 89: 2.4m x 5.9m
 - Room 90: 2.4m x 5.9m
 - Room 91: 2.4m x 5.9m
 - Room 92: 2.4m x 5.9m
 - Room 93: 2.4m x 5.9m
 - Room 94: 2.4m x 5.9m
 - Room 95: 2.4m x 5.9m
 - Room 96: 2.4m x 5.9m
 - Room 97: 2.4m x 5.9m
 - Room 98: 2.4m x 5.9m
 - Room 99: 2.4m x 5.9m
 - Room 100: 2.4m x 5.9m
- Parking Spaces:**
 - Space 1: 2.5m x 4.9m
 - Space 2: 2.5m x 4.9m
 - Space 3: 2.5m x 4.9m
 - Space 4: 2.5m x 4.9m
 - Space 5: 2.5m x 4.9m
 - Space 6: 2.5m x 4.9m
 - Space 7: 2.5m x 4.9m
 - Space 8: 2.5m x 4.9m
 - Space 9: 2.5m x 4.9m
 - Space 10: 2.5m x 4.9m
 - Space 11: 2.5m x 4.9m
 - Space 12: 2.5m x 4.9m
 - Space 13: 2.5m x 4.9m
 - Space 14: 2.5m x 4.9m
 - Space 15: 2.5m x 4.9m
 - Space 16: 2.5m x 4.9m
 - Space 17: 2.5m x 4.9m
 - Space 18: 2.5m x 4.9m
 - Space 19: 2.5m x 4.9m
 - Space 20: 2.5m x 4.9m
 - Space 21: 2.5m x 4.9m
 - Space 22: 2.5m x 4.9m
 - Space 23: 2.5m x 4.9m
 - Space 24: 2.5m x 4.9m
 - Space 25: 2.5m x 4.9m
 - Space 26: 2.5m x 4.9m
 - Space 27: 2.5m x 4.9m
 - Space 28: 2.5m x 4.9m
 - Space 29: 2.5m x 4.9m
 - Space 30: 2.5m x 4.9m
 - Space 31: 2.5m x 4.9m
 - Space 32: 2.5m x 4.9m
 - Space 33: 2.5m x 4.9m
 - Space 34: 2.5m x 4.9m
 - Space 35: 2.5m x 4.9m
 - Space 36: 2.5m x 4.9m
 - Space 37: 2.5m x 4.9m
 - Space 38: 2.5m x 4.9m
 - Space 39: 2.5m x 4.9m
 - Space 40: 2.5m x 4.9m
 - Space 41: 2.5m x 4.9m
 - Space 42: 2.5m x 4.9m
 - Space 43: 2.5m x 4.9m
 - Space 44: 2.5m x 4.9m
 - Space 45: 2.5m x 4.9m
 - Space 46: 2.5m x 4.9m
 - Space 47: 2.5m x 4.9m
 - Space 48: 2.5m x 4.9m
 - Space 49: 2.5m x 4.9m
 - Space 50: 2.5m x 4.9m
 - Space 51: 2.5m x 4.9m
 - Space 52: 2.5m x 4.9m
 - Space 53: 2.5m x 4.9m
 - Space 54: 2.5m x 4.9m
 - Space 55: 2.5m x 4.9m
 - Space 56: 2.5m x 4.9m
 - Space 57: 2.5m x 4.9m
 - Space 58: 2.5m x 4.9m
 - Space 59: 2.5m x 4.9m
 - Space 60: 2.5m x 4.9m
 - Space 61: 2.5m x 4.9m
 - Space 62: 2.5m x 4.9m
 - Space 63: 2.5m x 4.9m
 - Space 64: 2.5m x 4.9m
 - Space 65: 2.5m x 4.9m
 - Space 66: 2.5m x 4.9m
 - Space 67: 2.5m x 4.9m
 - Space 68: 2.5m x 4.9m
 - Space 69: 2.5m x 4.9m
 - Space 70: 2.5m x 4.9m
 - Space 71: 2.5m x 4.9m
 - Space 72: 2.5m x 4.9m
 - Space 73: 2.5m x 4.9m
 - Space 74: 2.5m x 4.9m
 - Space 75: 2.5m x 4.9m
 - Space 76: 2.5

Architectural site plan of a building complex. The plan includes a building with a BHE ROOM (38 m²), OP. Rm., and a staircase. A parking lot with 10 spaces is located to the right of the building. A government road is at the top, with a convex mirror at the intersection. Dimensions and room names are labeled throughout the plan.

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

6.345

0.98 3.40

Waste Wise Mini (Hino 300)

Width	: 1.7m
Front Track	: 1.4m
Rear Track	: 1.44m
Kerb to Kerb Radius	: 12.4m

LEGEND

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

[illegible]

Traffix Group
Level 28, 459 Collins St, MELBOURNE VIC 3000
T: (03) 9822 2888
www.traffixgroup.com.au



Appendix D

Carpark Layout and Vehicle Access Review

Table 7: Carpark Layout and Access Assessment

Requirement	Assessment	Design Response
Clause 55.03-9 – Access Objective		
The width of accessways or car spaces should not exceed: <ul style="list-style-type: none"> 33% of the street frontage, or If the width of the street frontage is less than 20m, 40% of street frontage. 	✓	Accessway comprises approximately 17% of the site's frontage to ROW.
No more than one single-width crossover should be provided for each dwelling fronting a street.	✓	Only one access point to the ROW.
The location of crossovers should maximise the retention of on-street car parking spaces.	✓	No on-street parking is lost.
The number of access points to a road in a Transport Zone 2 or Transport Zone 3 should be minimised.	N/A	Access to Council ROW
Developments must provide for access for service, emergency and delivery vehicles.	✓	Access available via Mason Street
Clause 55.03-10 – Parking Location Objective		
Car parking facilities should: <ul style="list-style-type: none"> Be reasonably close and convenient to dwellings and residential buildings. Be secure and well ventilated if enclosed. 	✓	Car parking is located in a basement and is to be ventilated in accordance with relevant standards (determined by others)
Shared accessways or car parks of other dwellings and residential buildings should be located at least 1.5m from the windows of habitable rooms. This setback may be reduced to 1m where there is a fence at least 1.5m high or where window sills are at least 1.4m above the accessway.	N/A	N/A – Car parking located within basement
Clause 52.06-9 Design Standard 1 – Accessways		
Must be at least 3m wide	✓	Accessways are greater than 3m in width
Have an internal radius of at least 4m at changes of direction or intersection or be at least 4.2m wide.	o	B99 design car can navigate all bends. Objective achieved.

Requirement	Assessment	Design Response
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forwards direction with one manoeuvre.	N/A	Private carpark
Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8m.	✓	Complies.
If the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or Transport Zone 3, the accessway must be designed so that cars can exit the site in a forward direction.	✓	Complies.
Provide a passing area at the entrance at least 6.1m wide and 7m long if the accessway serves ten or more car parking spaces and is either more than 50m long or connects to a road in a Transport Zone 2 or Transport Zone 3.	✓	Two-way passing achieved at site access to ROW
Have a corner splay or area at least 50% clear of visual obstructions extending at least 2m along the frontage road from the edge of an exit lane and 2.5m along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	o	<p>Exiting vehicles have sightlines available to the east (splay achieved within entry lane).</p> <p>To assist with sightlines to the west, a convex mirror has been provided to supplement sightlines.</p> <p>At the intersection of the ROW and Mason Street, a corner splay has been provided to assist with sightlines to the south for exiting vehicles.</p> <p>We are satisfied the proposed sightlines are acceptable from a traffic engineering perspective, particularly given the low volumes of traffic and pedestrians within the ROW.</p>

Requirement	Assessment	Design Response																													
If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or Transport Zone 3, the access to the car spaces must be at least 6m from the road carriageway.	N/A	Access to Council local road																													
If entry to the car space is from a road, the width of the accessway may include the road.	N/A	N/A																													
Clause 52.06-9 Design Standard 2 – Car Parking Spaces																															
<div>Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 under Clause 52.06-9.</div> <table><tr><th>Angle of car spaces to accessway</th><th>Accessway width</th><th>Car park width</th><th>Car park length</th></tr><tr><td>Parallel</td><td>3.6 m</td><td>2.3 m</td><td>6.7 m</td></tr><tr><td>45°</td><td>3.5 m</td><td>2.6 m</td><td>4.9 m</td></tr><tr><td>60°</td><td>4.9 m</td><td>2.6 m</td><td>4.9 m</td></tr><tr><td rowspan="4">90°</td><td>6.4 m</td><td>2.6 m</td><td>4.9 m</td></tr><tr><td>5.8 m</td><td>2.8 m</td><td>4.9 m</td></tr><tr><td>5.2 m</td><td>3.0 m</td><td>4.9 m</td></tr><tr><td>4.8 m</td><td>3.2 m</td><td>4.9 m</td></tr></table> <div>Note to Table 2: Some dimensions in Table 2 vary from those shown in the Australian Standard AS2890.1-2004 (off street). The dimensions shown in Table 2 allocate more space to aisle widths and less to marked spaces to provide improved operation and access. The dimensions in Table 2 are to be used in preference to the Australian Standard AS2890.1-2004 (off street) except for disabled spaces which must achieve Australian Standard AS2890.6-2009 (disabled).</div>	Angle of car spaces to accessway	Accessway width	Car park width	Car park length	Parallel	3.6 m	2.3 m	6.7 m	45°	3.5 m	2.6 m	4.9 m	60°	4.9 m	2.6 m	4.9 m	90°	6.4 m	2.6 m	4.9 m	5.8 m	2.8 m	4.9 m	5.2 m	3.0 m	4.9 m	4.8 m	3.2 m	4.9 m	✓	<div>Car spaces are typically provided in accordance with Clause 52.06-9 and are satisfactory.</div> <div>There is a small provision of car spaces in the northwest corner of the basement provided with dimensions in accordance with AS2890.1-2004. This is due to the column grid layout in this area.</div> <div>Access to and from car spaces within the basement carpark has been checked by the B85 design car, as specified at Appendix B of AS2890.1-2004.</div> <div>We are satisfied that the design of car spaces accords with the relevant design standards and provides a functional carpark layout.</div>
Angle of car spaces to accessway	Accessway width	Car park width	Car park length																												
Parallel	3.6 m	2.3 m	6.7 m																												
45°	3.5 m	2.6 m	4.9 m																												
60°	4.9 m	2.6 m	4.9 m																												
90°	6.4 m	2.6 m	4.9 m																												
	5.8 m	2.8 m	4.9 m																												
	5.2 m	3.0 m	4.9 m																												
	4.8 m	3.2 m	4.9 m																												

Requirement	Assessment	Design Response
<p>A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1, other than:</p> <ul style="list-style-type: none"> A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1. A structure, which may project into the space if it is at least 2.1 metres above the space. <p>Diagram 1 Clearance to car parking spaces</p> <p>Dimensions in millimetres</p> <p>▨ Clearance required</p> <p>■ Tree or column permitted</p>	✓	Complies.
Car spaces in garages/carports must be at least 6m long and 3.5m wide for a single space and 5.5m wide for a double space measured inside the garage/carport.	N/A	No garages proposed.
Where parking spaces are provided in tandem, an additional 0.5m in length must be provided between each space.	N/A	No tandem car spaces.
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	✓	All car spaces are under cover.
Disabled car parking spaces must be designed in accordance with AS2890.6-2009 and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 by 0.5m. A minimum headroom of 2.5m is to be provided above the disabled car space in accordance with AS2890.6-2009.	✓	Disabled car space provided in accordance with AS2890.6-2022

Requirement	Assessment	Design Response													
Clause 52.06-9 Design Standard 3 - Gradients															
<p>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.</p> <p>This does not apply to accessways serving three dwellings or less.</p>	0	<p>Due to the slope of the ROW from west to east, the grades along the high and low side of the ramp differ.</p> <p>A maximum grade of 1:8 is provided along the high side and 1:21.8 along the low side. This achieves an average grade of 1:11.2 through the centre of the ramp.</p> <p>We are satisfied that the grades are satisfactory and achieve the intentions of this design standard.</p>													
<p>Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 and be designed for vehicles travelling in a forward direction.</p> <table border="1"> <thead> <tr> <th>Type of car park</th><th>Length of ramp</th><th>Maximum grade</th></tr> </thead> <tbody> <tr> <td rowspan="2">Public car parks</td><td>20 metres or less</td><td>1:5 (20%)</td></tr> <tr> <td>longer than 20 metres</td><td>1:6 (16.7%)</td></tr> <tr> <td rowspan="2">Private or residential car parks</td><td>20 metres or less</td><td>1:4 (25%)</td></tr> <tr> <td>longer than 20 metres</td><td>1:5 (20%)</td></tr> </tbody> </table>	Type of car park	Length of ramp	Maximum grade	Public car parks	20 metres or less	1:5 (20%)	longer than 20 metres	1:6 (16.7%)	Private or residential car parks	20 metres or less	1:4 (25%)	longer than 20 metres	1:5 (20%)	✓	Complies.
Type of car park	Length of ramp	Maximum grade													
Public car parks	20 metres or less	1:5 (20%)													
	longer than 20 metres	1:6 (16.7%)													
Private or residential car parks	20 metres or less	1:4 (25%)													
	longer than 20 metres	1:5 (20%)													
Where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5 per cent) for a summit grade change, or greater than 1:6.7 (15 per cent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.	✓	Complies.													
Plans must include an assessment of grade changes of greater than 1:5.6 (18 per cent) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority	✓	Complies.													

Requirement	Assessment	Design Response
Clause 52.06-9 Design Standard 4 – Mechanical Parking		
At least 25 per cent of the mechanical car parking spaces can accommodate a vehicle height of at least 1.8 metres.	N/A	No mechanical car parking
Car parking spaces that require the operation of the system are not allocated to visitors unless used in a valet parking situation.	N/A	
The design and operation is to the satisfaction of the responsible authority.	N/A	
Clause 52.06-9 Design Standard 5 – Urban Design		
Ground level car parking, garage doors and accessways must not visually dominate public space.	N/A	These matters are more related to urban design, rather than specifically traffic engineering.
Car parking within buildings (including visible portions of partly submerged basements) must be screened or obscured where possible, including through the use of occupied tenancies, landscaping, architectural treatments and artworks.		
Design of car parks must take into account their use as entry points to the site.		
Design of new internal streets in developments must maximise on street parking opportunities.	N/A	No internal streets proposed
Clause 52.06-9 Design Standard 6 – Safety		
Car parking must be well lit and clearly signed.	N/A	Car parking is all private for use by residents and staff, and we are satisfied that signage is not strictly required. Sensor lights or similar would be provided within the basement carpark and can be addressed at the detailed design stage.
The design of car parks must maximise natural surveillance and pedestrian visibility from adjacent buildings.	✓	We are satisfied that the common accessway naturally provides good sightlines.

Requirement	Assessment	Design Response
Pedestrian access to car parking areas from the street must be convenient.	✓	Car parking is located within a basement carpark which can be accessed via the lift cores.
Pedestrian routes through car parking areas and building entries and other destination points must be clearly marked and separated from traffic in high activity parking areas.	✓	We are satisfied that separated pedestrian lanes are not required for the low level of traffic expected (15 trips per peak hour).
Clause 52.06-9 Design Standard 7 - Landscaping		
The layout of car parking areas must provide for water sensitive urban design treatment and landscaping.	N/A	These requirements are not strictly related to traffic engineering matters.
Landscaping and trees must be planted to provide shade and shelter, soften the appearance of ground level car parking and aid in the clear identification of pedestrian paths.		
Ground level car parking spaces must include trees planted with flush grilles. Spacing of trees must be determined having regard to the expected size of the selected species at maturity.		