

Traffix Group

Traffic Engineering Assessment

Proposed Aged Care and Retirement Village
62 – 94 Jacksons Road, Mulgrave

Prepared for
Ryman Healthcare (Australia)

Document Control

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1. Introduction

Traffix Group has been engaged by Ryman Healthcare (Australia) to prepare a traffic engineering assessment for the proposed aged care and retirement village at 62 – 94 Jacksons Road, Mulgrave.

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

2. Proposal

The proposal is to develop the site at 62 – 94 Jacksons Road, Mulgrave for an aged care and retirement village.

The aged care component of the village will include care beds and assisted living suites, categorised as ‘nursing home’ style accommodation. Independent living units will provide for ‘retirement village’ style accommodation and be for aged persons who are able to live more independently. These are to be provided as both apartments within the main building, and as single storey townhouses around the village.

The proposed village will consist of:

Aged Care:

- 60 care beds, and
- 54 assisted living suits

Retirement Village:

- 175 independent living units:
 - 63 x 2-bedroom apartments,
 - 42 x 3-bedroom apartments, and
 - 70 x 3-bedroom townhouses.

The proposed village will provide a total of 367 parking spaces. Carparking will be provided both at-grade and within a basement carpark. The townhouses will each have a dedicated single or double garages, with some private driveways of sufficient length to accommodate an additional parked vehicle.

The proposed car parking provision is detailed in Table 1 below.

Table 1: Proposed Carparking Provision

Component	Description	Number	Parking Provision
Aged Care	Care Beds	60	34 spaces
	Assisted Living Suites	54	
Independent Living Units	2-Bedroom Apartments (ILU)	63	147 spaces
	3-Bedroom Apartments (ILU)	42	
	3-Bedroom Townhouses	70	150 spaces
Independent Living Units – Visitors (includes accessible spaces)			36 spaces
Aged Care and Retirement Village			367 spaces

Parking spaces will be provided on the site as follows:

- 145 spaces within the basement carpark,
- 60 spaces within the main at-grade carpark located at the southwestern corner of the site (within the electricity easement),
- 2 accessible spaces, and 3 regular spaces provided adjacent the porte cochere,
- 4 spaces provided along the northernmost accessway,
- 3 spaces provided adjacent the main building in the centre of the site, and
- 150 spaces within townhouse garages and private driveways.
- **Total – 367 spaces**

It is noted that 10 townhouses have an additional car space located on their private driveway in a tandem arrangement with their resident parking provision of two (2) spaces.

An additional three (3) spaces have been provided on-site for village vehicles (one medium size bus and two smaller vans) that will shuttle residents within the village and to nearby activity centres.

Secure bicycle parking is provided within a room in the basement of the main building which has capacity for up to 12 wall mounted bicycles. In addition, mobility scooter parking is provided within the main building basement and at ground level.

A footpath network is provided within the site which connects the private townhouses around the site with the main building, Jacksons Road and the bowling green / green space at the southern end of the site.

Vehicular access to the proposed village will provided via the existing signalised intersection of Jacksons Road / Gate Seven Drive.

A package of external works along Jacksons Road is included as part of the proposed development, and will include:

- An upgrade of the existing bus stop on the east side of Jacksons Road, including the DDA compliance, bus shelter and pedestrian accessibility,
- A 3.0m wide share path along the east side of Jacksons Road, extending from the service road at the south end of the site to the signalised pedestrian crossing of the eastern leg of the Jacksons Road / Gate Seven Drive intersection, and
- A left turn deceleration lane on the north approach of the Jacksons Road / Gate Seven Drive intersection including associated traffic signal works and footpath realignment.

A designated loading bay is located on the south of the main building which also incorporates an adjacent waste collection area for the aged care component of the development. Additional bin areas are provided in the basement of the main building for residents of the apartments.

A copy of the development plans prepared by Via Architects (dated 2 March 2022) are attached at Appendix A of this report.

3. Background Information

3.1. Current Planning Permit (TPA/47359)

A Planning Permit (TPA/47359) was issued by Monash City Council on 1 April 2020 for a retirement village, residential aged care facility and medical centre that provided for:

- 128 bed aged care facility,
- 216 retirement village dwellings,
- A medical centre,
- Other ancillary uses, and
- 520 car spaces.

The Planning Permit including a number of conditions, with matters relevant to traffic and transport works as outlined below.

- Condition 21 – Construction of Bus Shelter:

This condition requires the existing bus stop adjacent to the site to be rebuilt as fully DDA compliant including a shelter, seating and walkways.

- Condition 22 & 23 – Construction of Public Footpaths

This condition requires the construction of a 3.0m wide shared path along Jacksons Road to the south of the signalised intersection.

In addition, there is requirement to set aside the existing footpath to the north of the signalised intersection for construction of a road and transfer to the appropriate Road Manager.

- Condition 32 – VicRoads Conditions

This condition requires the construction of a left turn deceleration lane on Jacksons Road north approach to the signalised intersection at the site access including associated traffic

signal remodel works. The layout for the intersection works must be generally in accordance with the FLP prepared by Cardno as part of the application process.

It is noted that these traffic and transport related works are included in the development proposal.

4. Existing Conditions

4.1. Subject Site

The subject site is located on the east side of Jacksons Road, opposite Gate Seven Drive, in Mulgrave.

The subject site is rectangular in shape, has an area of approximately 4.7ha and is currently vacant. A 36.6m electrical easement is located on the southern portion of the site. High voltage wires extend through the easement, which includes one (1) pylon situated within the southwestern corner of the site.

A locality plan and aerial photograph of the site are provided at Figure 1 and Figure 2.

The subject site is zoned Neighbourhood Residential Zone – Schedule 4 under the Monash Planning Scheme whilst nearby land use is generally residential, with Stirling Theological College to the north of the site. A Planning Scheme map is provided at Figure 3.

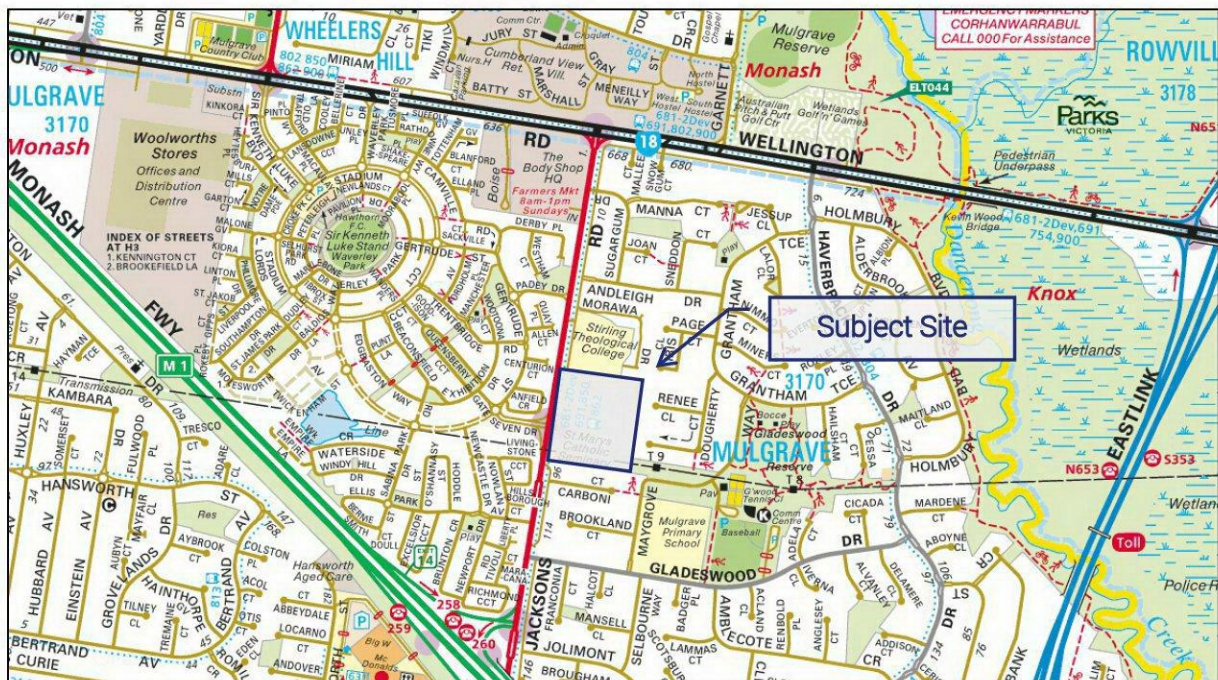


Figure 1: Locality Plan



Source: Nearmap (September, 2021)

Figure 2: Aerial Photograph

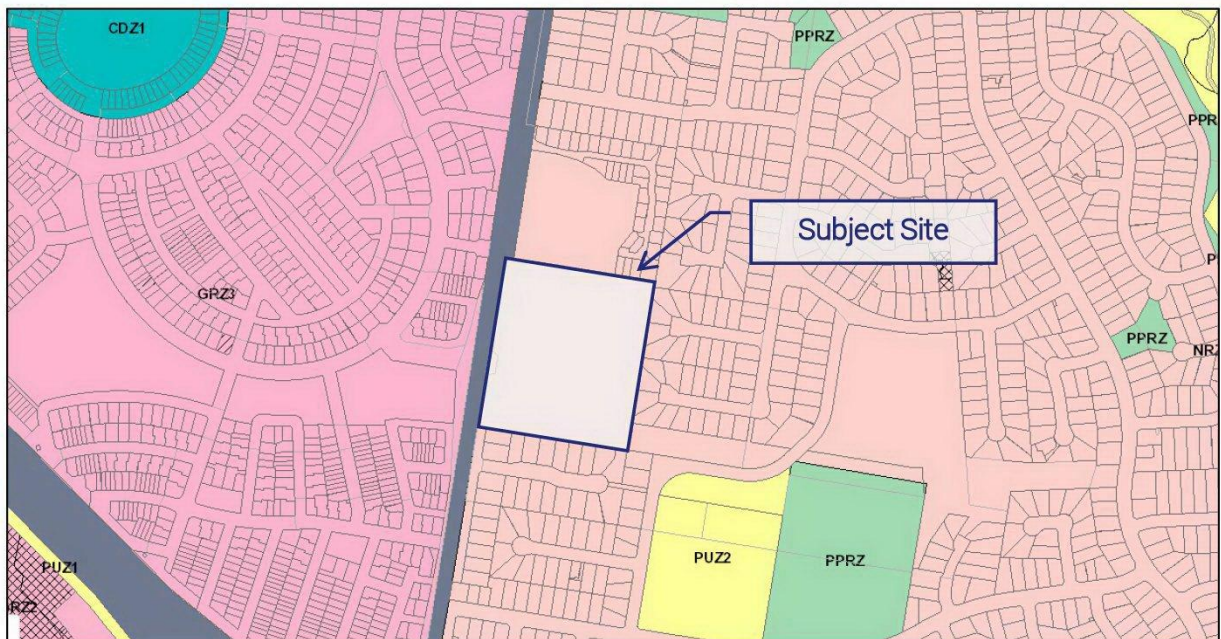


Figure 3: Planning Scheme Map

4.2. Road Network

Jacksons Road is a state arterial road and Transport Zone 2 that extends from Wellington Road in the north to Elonera Road in the south.

Adjacent to the subject site, Jacksons Road provides two (2) traffic lanes in each direction. Jacksons Road narrows to a single lane in each direction to the immediate north and south of the site.

No parking is permitted along Jacksons Road whilst provides footpaths on both sides of the road.

A posted speed limit of 70km/h applies to Jacksons Road.

Photographs of Jacksons Road are provided at Figure 4 and Figure 5 below.



Figure 4: Jacksons Road – View South



Figure 5: Jacksons Road – View North

The intersection of Jacksons Road / Gate Seven Drive intersection is controlled by traffic signals and includes a leg to the east that provides access to the subject site. An aerial photograph of the intersection is provided at Figure 6 below.



Figure 6: Jacksons Road / Gate Seven Drive Intersection

4.3. Traffic Conditions

Intersection turning movement volumes have been obtained at the Jacksons Road / Gate Seven Drive intersection using SCATS signal data via the VicRoads Open Data portal. The data was extracted for Thursday, 25 November 2021, which we consider to be reasonably representative of typical operating conditions.

Analysis of the turning movement data indicated that the AM and PM peak hours at the intersection are 8:00am to 9:00am and 3:15pm to 4:15pm, respectively.

Daily traffic volumes along Jacksons Road are in the order of 17,000 vehicles per day whilst Gate Seven Drive experiences daily traffic volumes around 2,000 vehicles per day.

The turning movement volumes for the AM and PM peak hours at the intersection of Jacksons Road / Gate Seven Drive are shown below in Figure 7.

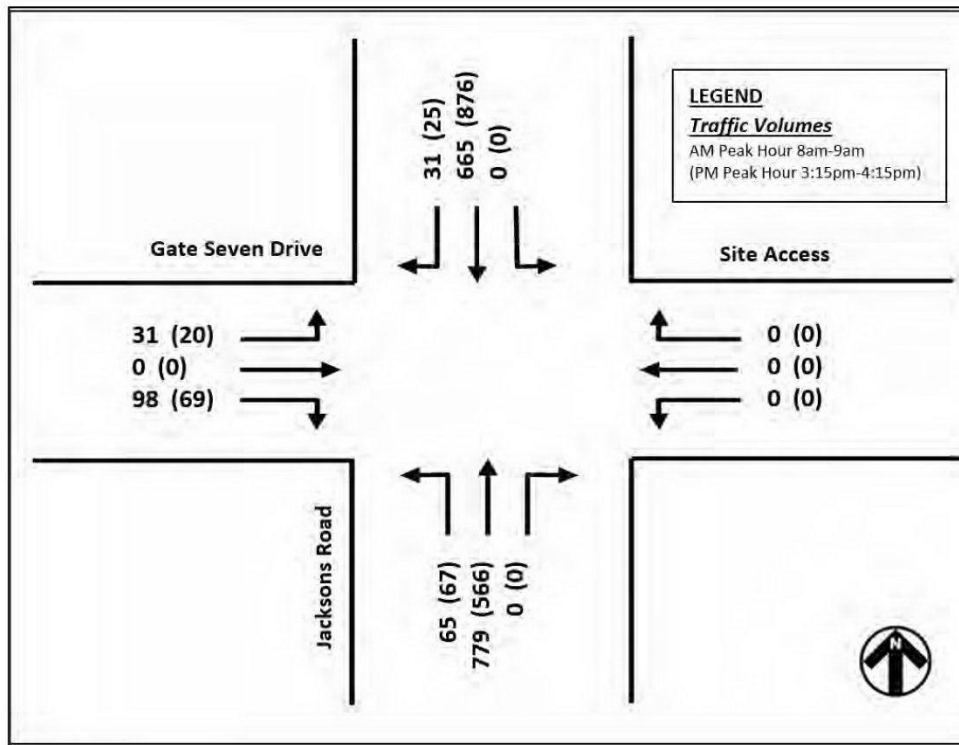


Figure 7: Existing Turning Movement Volumes – Jacksons Road / Gate Seven Drive

4.4. Public Transport

The subject site is serviced by public transport with multiple bus routes running directly adjacent to the site along Jacksons Road. The nearest bus stops are located along the site’s frontage to Jacksons Road as shown in Figure 8 below.

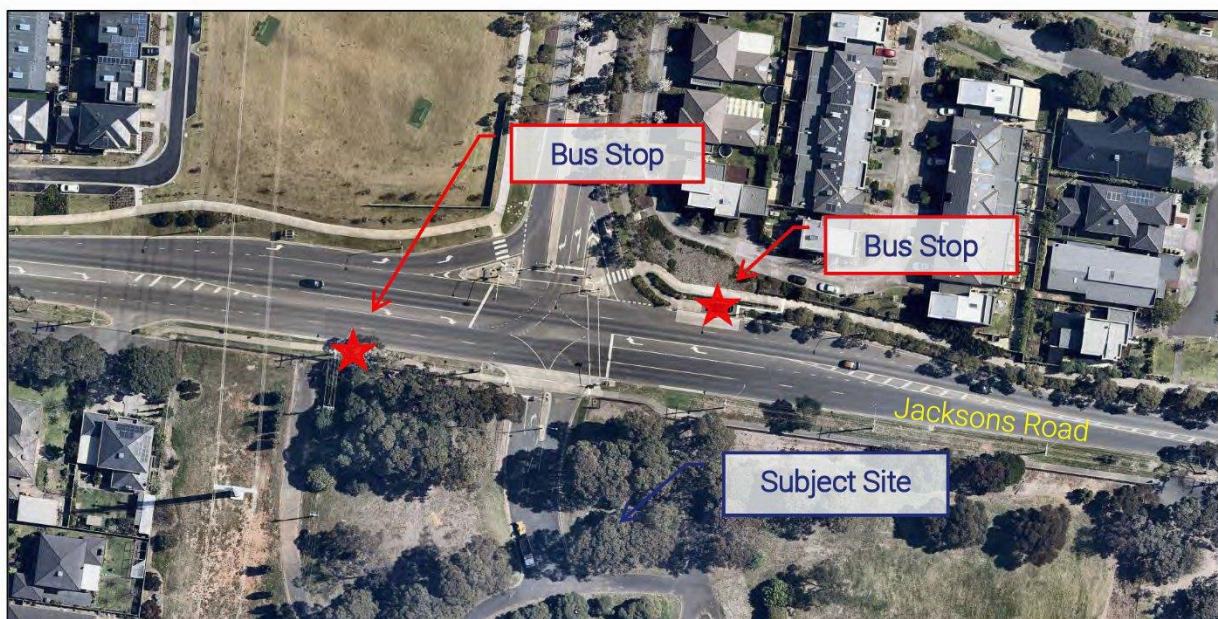


Figure 8: Bus Stop Locations

Traffic Engineering Assessment

62 – 94 Jacksons Road, Mulgrave

A summary of the available services is provided below with the public transport map shown in Figure 9 below.

Bus Services:

- **Bus Route 850** operates between Dandenong and Glen Waverley via Mulgrave and Brandon Park, at approximately 30 minute headways.
- **Bus Route 691** operates between Boronia and Waverley Gardens via Ferntree Gully and Stud Park, at approximately 20-30 minute headways.
- **Bus Route 862** operates between Dandenong and Chadstone via North Dandenong and Oakleigh, at approximately 40 minute headways.
- **Bus Route 681/682** operates between Lysterfield and Knox City via Wantirna, Scoresby and Rowville. Bus Route 681 operates in a clockwise direction whilst 682 operates in an anticlockwise direction. Bus Route 681 and 682 operates at approximately 90 minute headways.

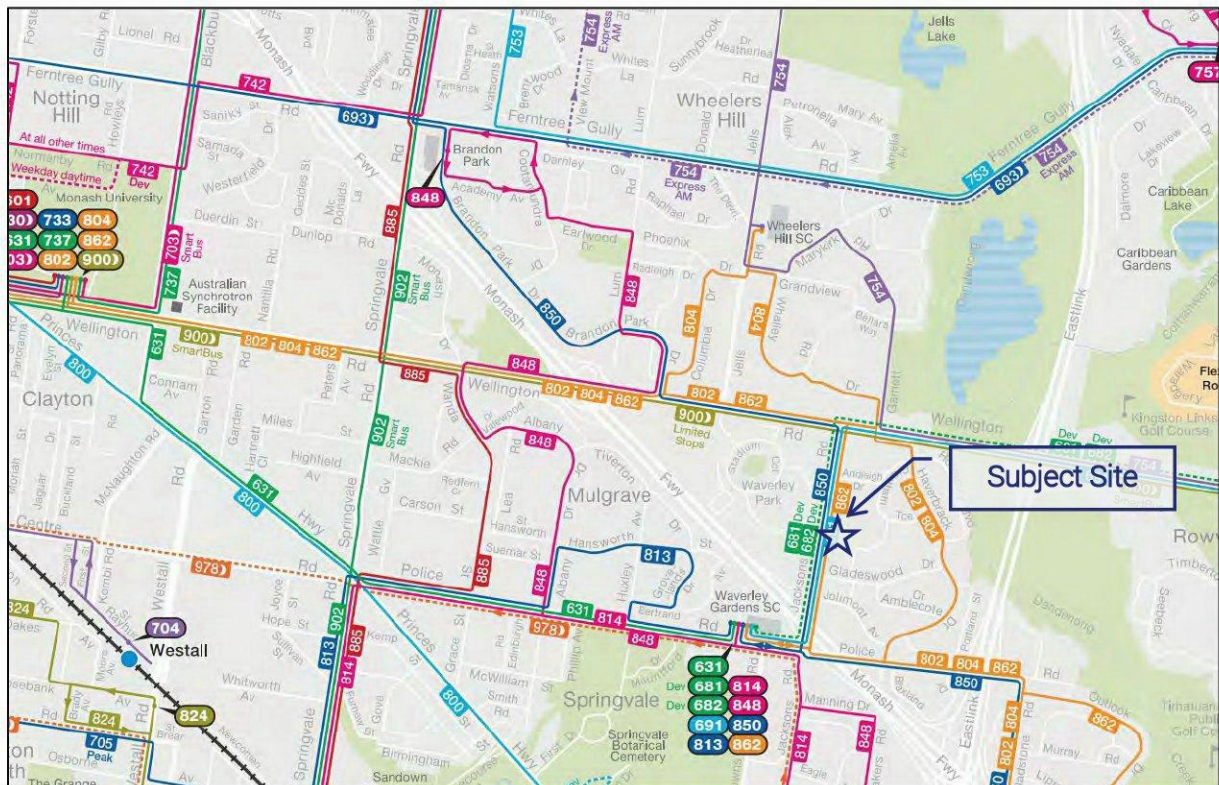


Figure 9: City of Monash Public Transport Map

5. Traffic Engineering Assessment

5.1. Statutory Parking Requirements

The proposed aged care and retirement village falls under the land-use category of 'Residential Aged Care Facility' and 'Retirement Village' under Clause 73 of the Planning Scheme.

The Planning Scheme sets out the parking requirements for new developments under Clause 52.06.

The purpose of Clause 52.06 is:

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

Table 1 in Clause 52.06 contains two sets of statutory parking rates (Column A and Column B) for various land uses. Column A rates apply the standard parking rate to all zones, while Column B applies if the land is within the Principal Public Transport Network (PPTN) Area or where specified in a schedule to the Parking Overlay. The subject site is not within the PPTN Area nor is it subject to any Parking Overlay, hence the statutory parking requirement is determined using the Column A rates in Table 1 of Clause 52.06-5.

The statutory car parking assessment for the proposed development is set out in Table 2 below.

Table 2: Statutory Car Parking Assessment

Use	Component	Size / No	Statutory Parking Rate	Parking Req.	Provision	Surplus / Shortfall
Residential Aged Care Facility	Aged Care	60	0.3 spaces per bed	34 spaces	34 spaces	-
	Assisted Living Suites	54				
Retirement Village	2-bedroom apartments	63	1 space per 1 or 2-bedroom apartment	63 spaces	63 spaces	-

Use	Component	Size / No	Statutory Parking Rate	Parking Req.	Provision	Surplus / Shortfall
	3-bedroom apartments	42	2 spaces per 3-bedroom apartment	84 spaces	84 spaces	-
	3-bedroom townhouses	70	2 spaces per 3-bedroom dwelling	140 spaces	150 spaces	10* spaces
	Visitor Parking	165*	1 space per 5 dwellings	33 spaces	36 spaces including 2 accessible spaces)	3 spaces
Total				354 spaces	367 spaces	13* spaces

Note:

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

* 10 townhouses are provided with their own private visitor parking in a tandem arrangement with their garage.

Based on the above, the statutory parking requirement for the aged care facility and retirement village is 354 car spaces which is satisfied by the proposed parking provision.

5.2. Parking Requirements & Allocation

The allocation of parking demands within the village for each component is outlined as follows.

5.2.1. Main Building – Aged Care and Residential Apartments

The main building has the following carparking requirements:

- Residential – 147 spaces,
- Aged care (visitors and staff) – 34 spaces,
- Residential (visitors) – 21 spaces.

Total – 202 spaces

Parking provision for the main building users is as follows:

- Main building basement carpark – 145 spaces
 - Apartments – residents.
- Porte cochere – 5 spaces
 - Aged care.

- Main At-Grade Carpark (southwest)– 55 spaces (of 60 spaces available)
 - Apartments – residents (2 spaces)
 - Apartments – visitors (24 spaces)
 - Aged care – 29 spaces

Total – 205 spaces (3 space surplus allocated to visitors)

5.2.2. Townhouses

The townhouses have the following carparking requirements:

- Residential – 140 spaces,
- Residential (visitors) – 12 spaces.

Each townhouse has been provided with either a double garage, or a single garage with adequate driveway length (5.4m) to accommodate a second parked car in a tandem arrangement. These arrangements will allow each townhouse to accommodate its own carparking demand of two (2) spaces.

10 townhouses are provided with their own private visitor parking in a tandem arrangement with their garage, accordingly 60 townhouses require visitor parking at a rate of 1 space per 5 dwellings, i.e.12 visitor spaces.

- Northern accessway - 4 spaces
- Central accessway (shared area) - 3 spaces, and
- Main at-grade carpark (south-west) – 5 spaces.
- **Total – 12 spaces**

A summary of the visitor carparking locations are provided in Figure 10 below.

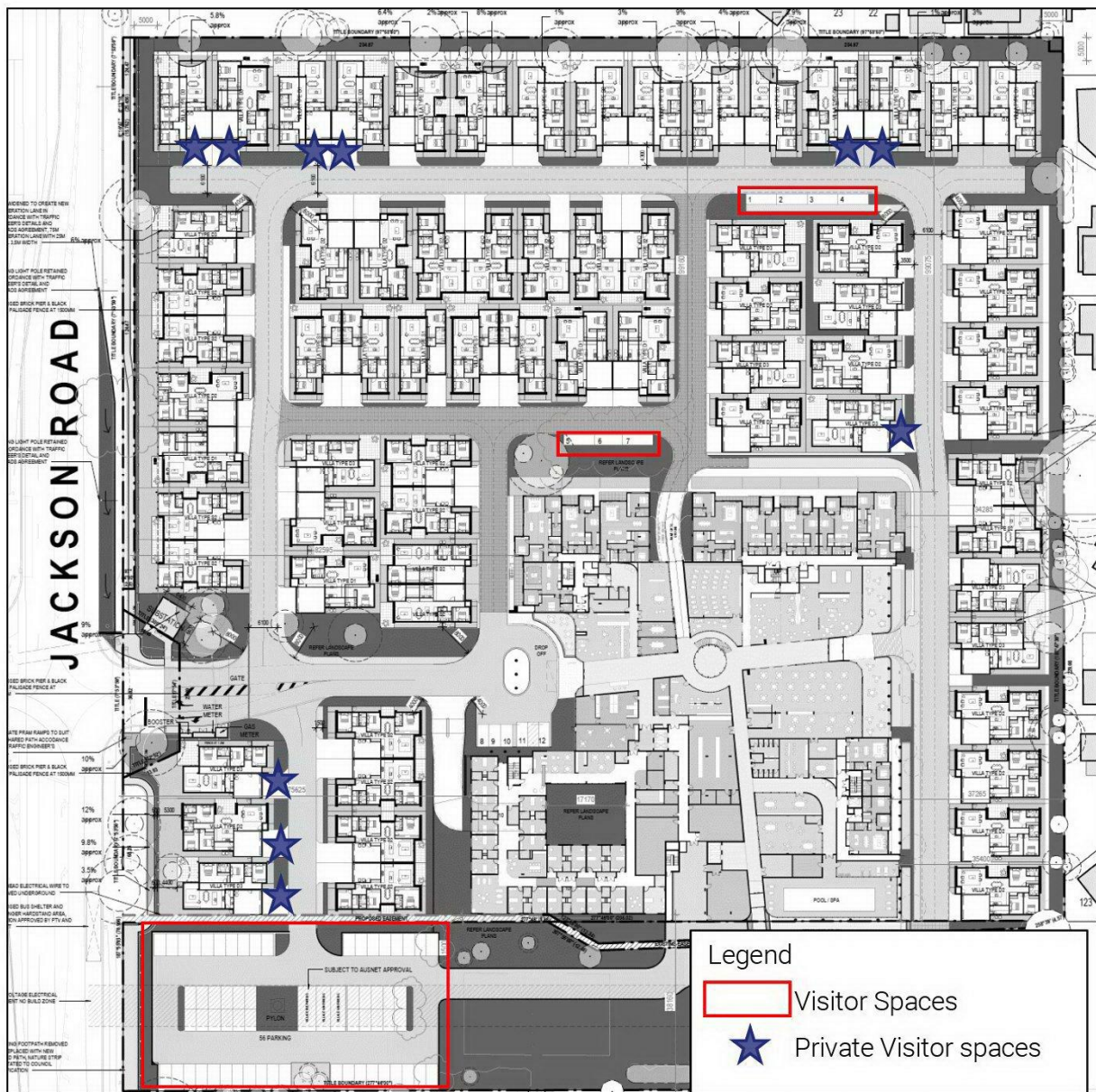


Figure 10: Visitor Parking Locations

5.3. Accessible Parking

The Building Code of Australia (BCA) sets out the requirements for the provision of accessible parking.

Under the BCA, the components of the development fall under the following categories:

- Apartments / Townhouses: Class 2, and
- Assisted Living Suites / Care Beds: Class 3 & 9c

The BCA code states that accessible parking is required for Class 3 and Class 9c uses (with rates of 1 for every 100 spaces or part thereof and 1 for every 50 spaces or part thereof, respectively).

On this basis, there is a requirement to provide one (1) accessible parking space on the development site.

A total of four (4) accessible parking spaces have been provided within the development, two (2) are located at-grade adjacent the porte cochere and two (2) are located within the main building basement carpark. We expect the accessible spaces within the main basement carpark to be allocated to the residents in most need of an accessible space.

5.4. Bicycle Parking

Clause 52.34 of the Monash Planning Scheme specifies bicycle parking requirements for new developments and changes in use.

As identified previously, the proposed village is classified under 'retirement village' (Independent Living Units) and 'residential aged care facility' (Aged Care and Assisted Living Suites) under the definitions identified in Clause 73. Bicycle facilities are required if the use is listed in Column 1 of Table 1 to Clause 52.34-5.

Neither 'Retirement Village' nor 'Residential Aged Care Facility' are listed use under Table 1 and hence there is no requirement for bicycle parking.

On this basis, the proposed development does not have a statutory bicycle parking requirement, however a secure bicycle parking area has been provided in the basement of the main building with capacity for 12 bicycles (mostly for staff).

5.5. Active Transport

Up to three (3) village vehicles (one medium size bus and two smaller vans) are proposed as part of the development which will provide regular shuttle bus services for the residents to nearby activity centres such as the Waverly Gardens Shopping Centre or Chadstone Shopping Centre.

The village vehicles will be parked in designated spaces located in the main at-grade carpark in the southwestern corner of the village, as shown below in Figure 11.

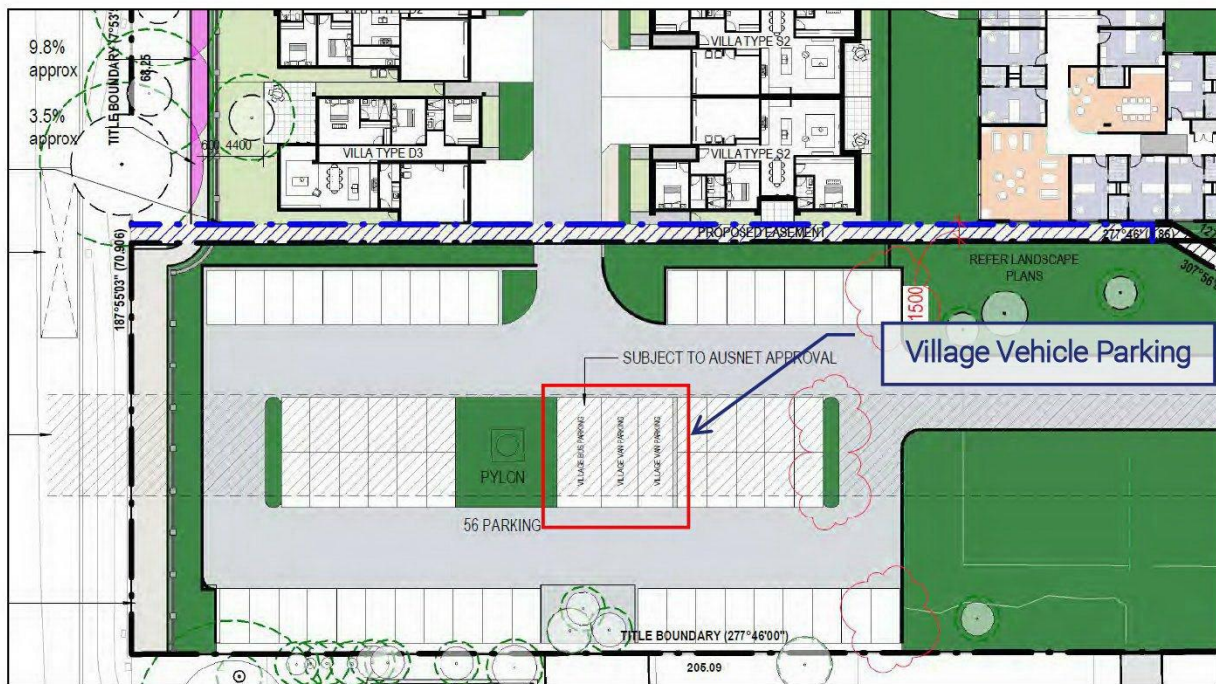


Figure 11: Village Bus Parking Location

5.6. Review of Parking Layout and Access Arrangements

5.6.1. Design Review

The proposed parking and access layouts have been assessed under the following guidelines:

- Clause 52.06 of the Monash Planning Scheme,
- AS2890.1-2004 'Parking Facilities, Part 1: Off-Street Parking'
- AS2890.2-2018 'Off-Street Commercial Vehicle Facilities', and
- AS2890.6-2009 'Parking Facilities: Off-Street Parking for People with Disabilities'.

The following sections detail the key components of the assessment.

Clause 52.06-9 Design Standard 1 – Accessways

- All vehicles will be able to enter and exit the basement car parks in a forwards direction in accordance with Clause 52.06-9 (Design Standard 1).
- A minimum headroom clearance of at least 2.2m is provided within the basement carpark, accessways and each townhouse garage in accordance with Clause 52.06-9 (Design Standard 1) and AS2890.1-2004.
- The site access points to Jacksons Road provides ample site distance to pedestrians, and are more than 50% clear of obstructions in accordance with Clause 52.06-9 (Design Standard 1) It is noted that the intersection of Jacksons Road / Gate Seven Drive includes fully controlled pedestrian crossings on all approaches.

Clause 52.06-9 Design Standard 2 – Car Parking Spaces

- Car space dimensions accord with Clause 52.06-9 (Design Standard 2) with minimum dimensions provided at 4.9m long, 2.6m wide with a 6.4m width access aisle for 90-degree spaces. Parallel spaces have been provided at the minimum dimensions of 6.7m long and 2.3m wide with access aisles of at least 3.6m width.
- Tandem spaces are provided with an additional 500mm length which accords with Clause 52.06-9.
- Double garages have been provided with internal dimensions of 6.0m long and 5.5m wide, whilst single garages have been provided with internal dimensions of 6.0m long and 3.5m wide.
- Where double garages are less than 3.5m from the roadway, wider garage door openings of 5.2m have been provided for improved accessibility. The remaining double garage door openings are a standard width of 4.8m.
- The proposal includes four (4) DDA compliant car spaces which are designed in accordance with AS2890.6-2009.
- Car spaces located adjacent to the walls or other obstructions are provided with 300mm clearance in accordance with Diagram 1 of Clause 52.06-9 (Design Standard 2).
- Column locations comply with Diagram 1 of Clause 52.06-9 (Design Standard 2).
- Critical car spaces at the end of blind parking aisles are located at least 1.0m from the end of the aisle, providing sufficient space for access and egress movements in accordance with Clause 2.4.2 of AS2890.1-2004

Clause 52.06-9 Design Standard 3 – Gradients

- Access into the site is provided with flat gradients, satisfying the requirement for the provision of a 1:10 (10%) grade for a minimum of 5m into the site as per Clause 52.06-9 (Design Standard 3).
- The site accessways are all to be constructed at flat gradients and will accommodate vehicles all of sizes throughout the village.
- The basement ramp grades comply with the requirements of Clause 52.06-9 (Design Standard 3) as follows:
 - 5m @ 1:20 (5%)
 - 3m @ 1:10 (10%)
 - 14.1m @ 1:6 (16.7%)
 - 3m @ 1:10 (10%)
- These grades achieve a critical headroom clearance of at least 2.5m as the ramp passes under the overhang of the ground floor.

5.6.2. Porte-Cochere (Main Building)

A porte-cochere is proposed adjacent to the aged care component and is accessed off the main accessway. The porte-cochere will be used for drop off/pick up of residents, small delivery vehicles, ambulances and village buses.

Swept path assessments have been undertaken through the porte-cochere showing the medium size village bus (the largest design vehicle for this area) accessing the drop off area which are shown at Appendix B.

5.6.3. External Site Access

Vehicular access to the proposed village will provided via the existing signalised intersection of Jacksons Road / Gate Seven Drive. The intersection currently provides two (2) approach lanes on the eastern leg to provide separate right turn and left/through turn lanes, as well as a single exit lane separated by a short median island.

The proposed development will match into the existing access arrangements, with the traffic signal phasing already programmed with a green phase for all movements on the eastern leg, and left turn movements on the north approach.

A minor realignment of the existing site approach will be required to align to the proposed internal accessways. These works will be made in conjunction with current planning permit conditions related to the construction of a left turn deceleration lane and associated traffic signal works and footpath realignment.



Figure 12: Jacksons Road / Gate Seven Drive – Eastern Approach



Figure 13: Jacksons Road / Gate Seven Drive – Eastern Exit

5.7. Pedestrians

A pedestrian network is provided within the site with paths connecting residents with the main building, Jacksons Road and the bowling green at the south end of the site. The pedestrian network includes footpaths around the site, with a connection extending east-west path to Jacksons Road.

Designated 'shared areas' will be provided as shown in Figure 15 below, which allow pedestrians to share road space with vehicles at low speed. Surface treatments will clearly identify the shared

areas for pedestrians and vehicles. Vehicle traffic through the shared areas is expected to be low, as they only provide access to 15 townhouses and 3 parking spaces.

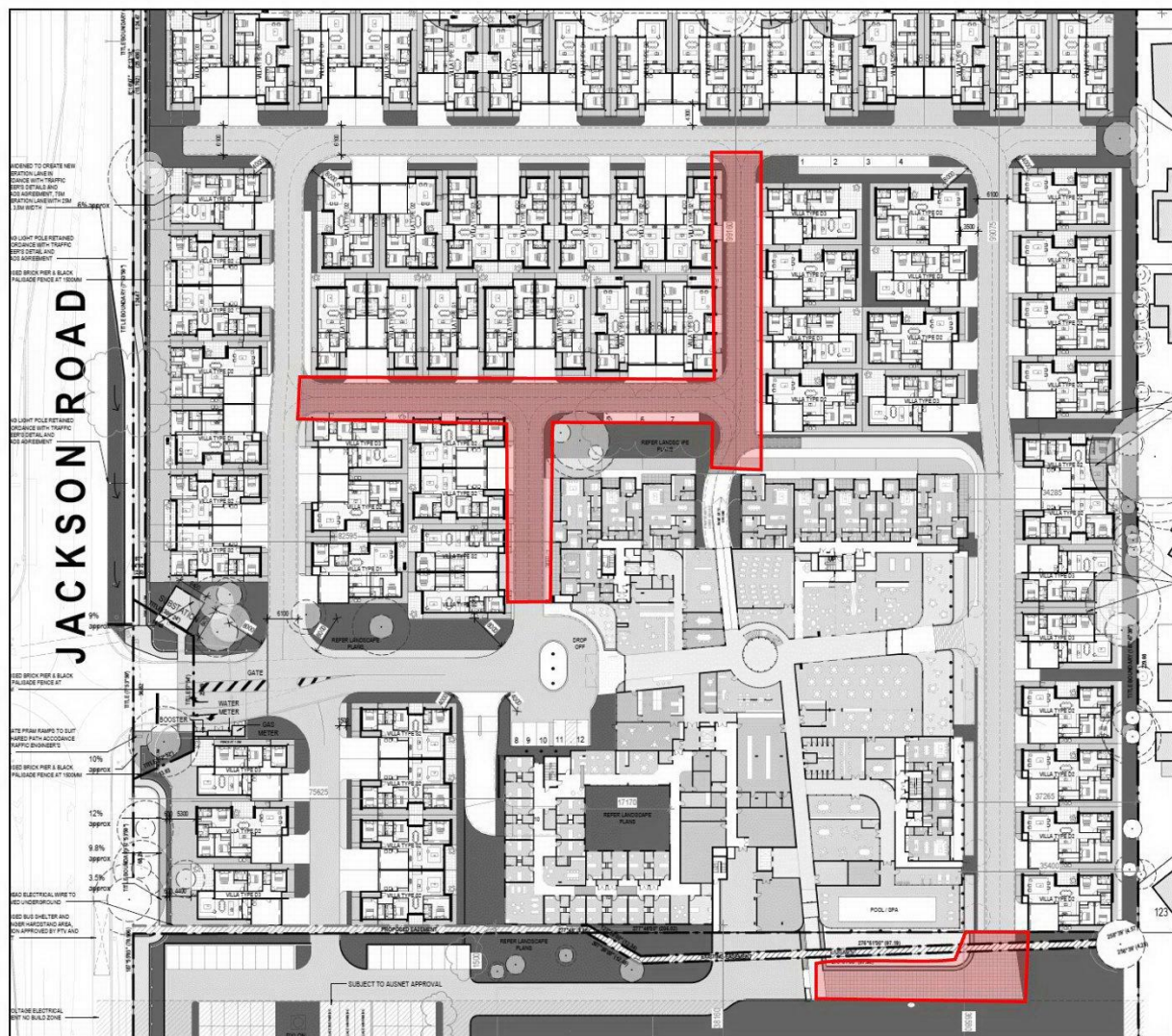


Figure 14: Shared Areas

5.8. Loading

Clause 65.01 of the Monash Planning Scheme specifies the following in respect to loading considerations:

Before deciding on an application or approval of a plan, the responsible authority, as appropriate:

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

Small loading activities (such as vans and small cars) will take place via the porte-cochere of the main building.

Larger loading activities will take place via the loading bay on the south side of the main building as shown in Figure 15 below. Loading vehicles will access the loading bay by circulating the southwestern portion of the site, with reverse entry movements into the loading bay and forwards exit movements demonstrated to be suitable via swept path assessments. The relevant swept path assessments are provided at Appendix B.

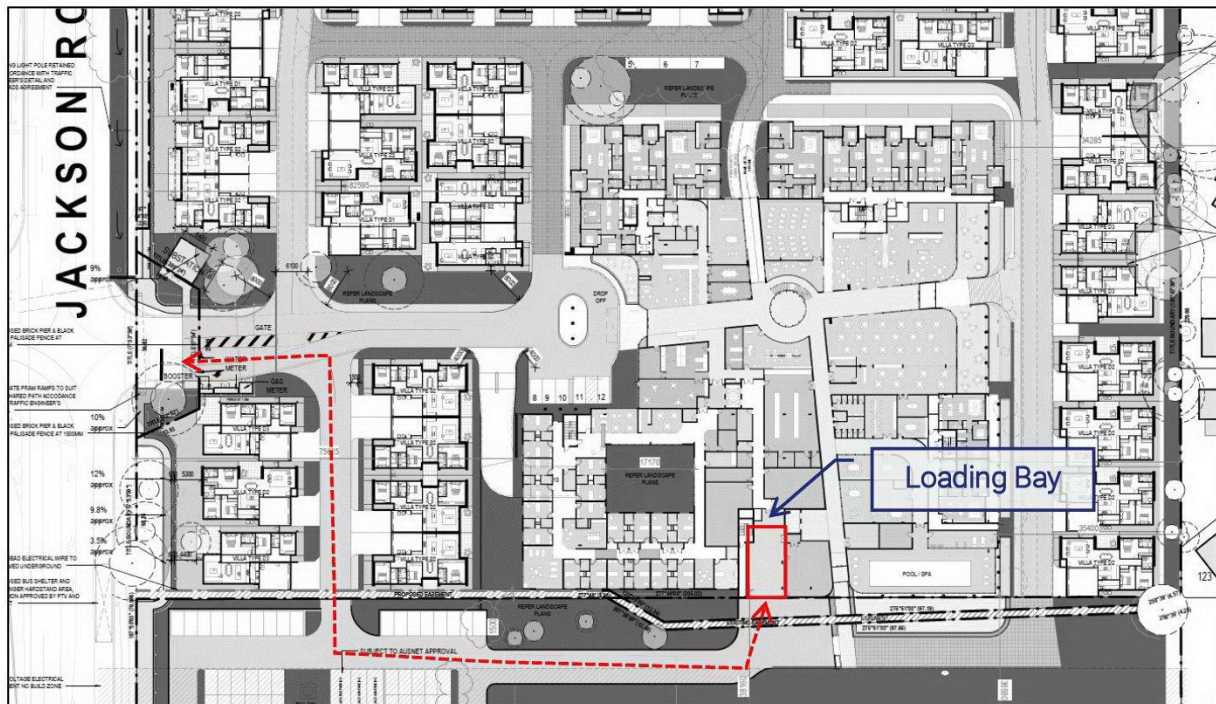


Figure 15: Loading Bay and Access Routes

5.9. Waste Collection

A waste management plan (WMP) has been developed by LID Consulting for the development. The following section details the traffic implications of the WMP on the proposed development.

5.9.1. Main Building

Waste collection for the aged care component of the main building will occur via the loading bay located on the southern side of the main building with an adjacent waste collection area. The largest waste collection vehicle that is expected to service the development is the 9.7m long rear loader.

In addition, three (3) dedicated bin stores are located within the basement of the main building that will be serviced by a 6.4m waste master mini vehicle, that can access the basement car park, collect the waste and then exit in a forwards direction. The 6.4m waste collection vehicle can operate with a minimum headroom clearance of 2.2m, which is provided.

5.9.2. Townhouses

Waste collection for the residential townhouses will occur via kerbside collection of household bins, with the 9.7m long waste collection vehicle to circulate the village via the internal road network.

Swept path assessments detailing the waste collection movements within the village are provided at Appendix B.

6. Traffic Assessment

6.1. Traffic Generation

Traffic generation rates for the proposed village have been based on the RTA Guide to Traffic Generating Developments, as well as data sourced from similar Ryman Healthcare villages in New Zealand. The rates experienced at the Ryman Healthcare villages in New Zealand have been further supported by research reports from the New Zealand Transport Agency (No. 209 and 210).

The Road Traffic Authority (RTA) of NSW outlines traffic generation rates for various land-uses within the *RTA Guide to Traffic Generating Developments, 1993*. An update to the guide was released in August 2013 that provides the following rates for housing for aged and disabled persons which are considered applicable:

- Weekday daily vehicle trips: 2.1 trips per dwelling, and
- Weekday peak hour vehicle trips: 0.4 trips per dwelling.

These rates are generally supported by the NZTA research reports. A relevant comparison to the proposed village is the 'Birchleigh Resthome', which includes townhouse units, serviced rooms and rest home beds. The Birchleigh Resthome experienced daily traffic generation rates as follows:

- Aged care beds: 1.5 trips per bed, and
- Independent apartments/townhouses: 2.0 trips per dwelling.

Adopting these rates for the proposed village results in an anticipated daily traffic generation from the subject site of 521 trips per day, as summarised in Table 3 below.

Table 3: Expected Traffic Generation

Use	No. of Dwellings/Beds	Traffic Generation Rate	Daily Traffic Generation
Dwellings (ILUs)	175 dwellings	2.0 trips per dwelling	350 daily trips
Aged Care (Nursing Home)	114 beds	1.5 trips per bed	171 daily trips
Total			521 daily trips

These rates are less than the typical level of traffic generated by standard residential units, due to the age of residents and consequently lower rates of car ownership and vehicle trips per household (i.e. no work or school trips and smaller household sizes).

Case studies undertaken on similar retirement villages have established the following profile for vehicle movements across the day (as a percentage of the daily traffic generation).

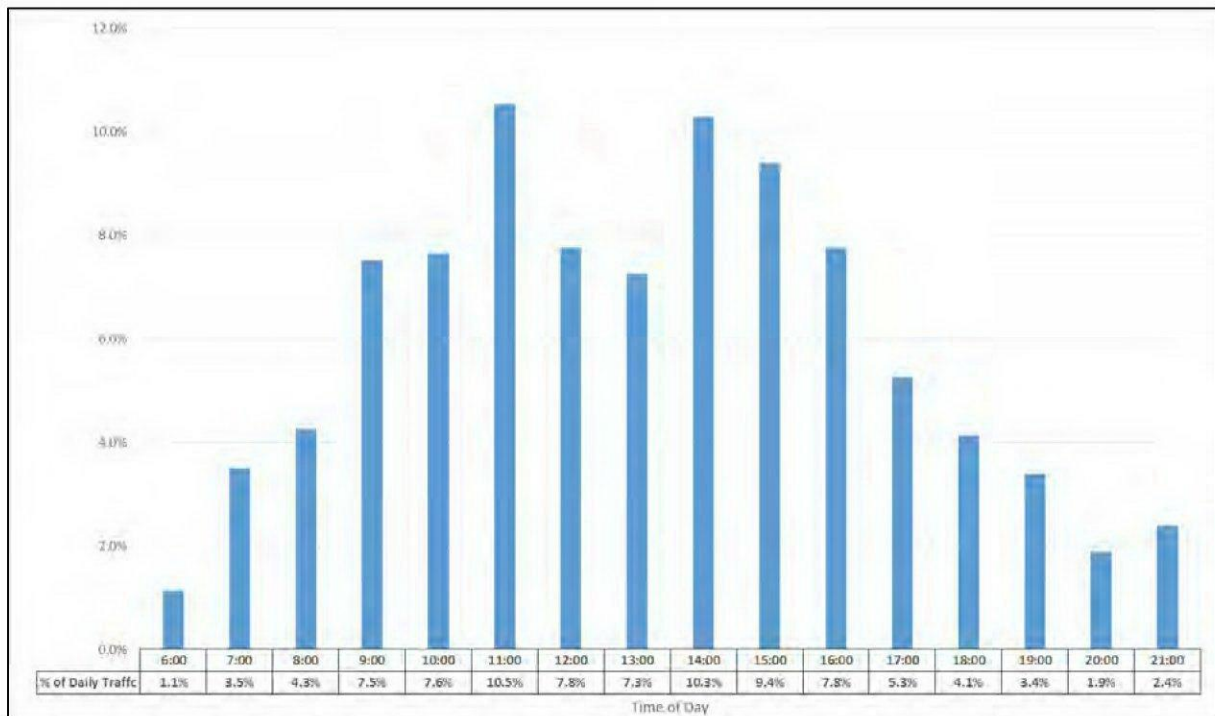


Figure 16: Profile of Traffic Activity (Case Study)

As such, for the purposes of this assessment we will conservatively adopt the following vehicle trips generated during each of the Jacksons Road peak hours and the subject site morning and afternoon peak hours. This is summarised in Table 4 below.

Table 4: Site Generated Traffic - Commuter and Site Peak Hours

Peak Hour	Time	% of Daily Traffic	Vehicle Trips
AM Peak	8:00am-9:00am	4.3%	22 trips
Site Peak	11:00am-12:00pm	10.5%	55 trips
PM Peak	3:00pm-4:00pm	9.4%	49 trips

Adopting the above In/Out splits observed for the case study will result in traffic movements shown below in Table 5.

Table 5: Total In/Out Directional Splits

Time Period	In		Out	
	Percentage	Volume	Percentage	Volume
AM Peak	62%	14 trips	38%	8 trips
Site Peak	49%	27 trips	51%	28 trips
PM Peak	48%	24 trips	52%	25 trips

In consideration of the broader travel destinations and road network arrangement, we have assumed trips to and from the development will be evenly split between northbound and southbound movements on Jacksons Road. We do not expect any movements to occur to/from Gate Seven Drive, as this only provides access to a small residential pocket.

On this basis, below details the estimate vehicle movements at the signalised intersection of Jacksons Road / Gate Seven Drive during both the AM (8-9am) and PM (3:15-4:15pm) peaks.

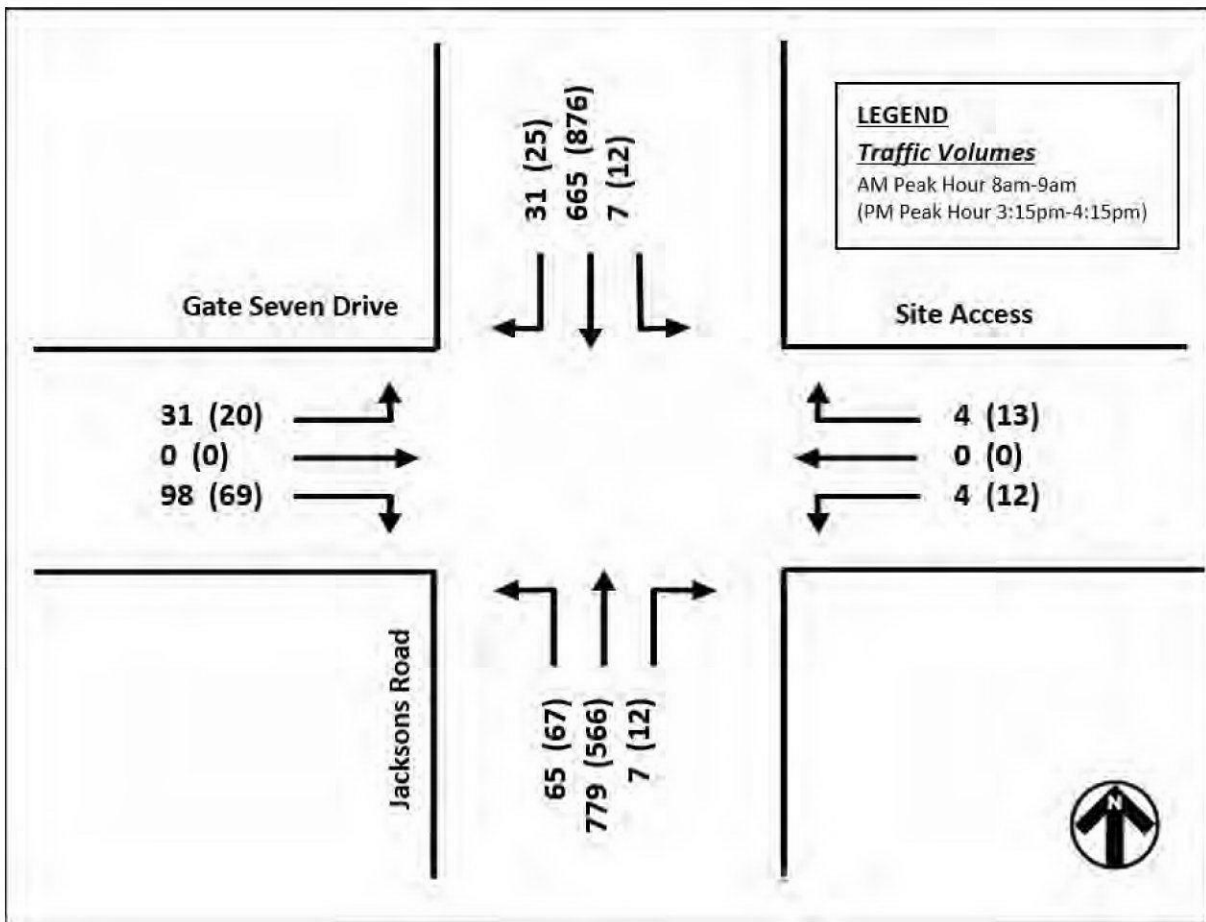


Figure 17: Post Development Traffic Volume Movements

6.2. Traffic Impacts

SIDRA Intersection 9.0 was used to model the expected post development traffic conditions at the Jacksons Road / Gate Seven Drive intersection.

The SIDRA Intersection 9.0 software package provides several key indicators to measure intersection performance. These include:

- Degree of saturation (DOS),
- Average delay (in seconds),
- Maximum queue length (in metres), and
- Level of Service (LOS).

The LOS criteria for intersections found in the *RMS Guide to Traffic Generating Developments* is shown below in Table 6.

Table 6: Level of Service Criteria

Level of Service	Average Delay (seconds per vehicle)
A	Less than 14
B	15 to 28
C	29 to 42
D	43 to 56
E	57 to 70
F	Greater than 71

Table 7 provides a summary of the SIDRA intersection analysis results for the intersection, with the full results provided at Appendix C.

Table 7: SIDRA Intersection Performance Results

Approach	AM Peak (8-9am)				PM Peak (3:15-4:15pm)				
	DOS	Average Delay (s)	95 th Queue (m)	%ile Level of Service	DOS	Average Delay (s)	95 th Queue (m)	%ile Level of Service	
North	0.41	18	110	LOS B	0.53	18	162	LOS B	
East	0.05	61	2	LOS E	0.17	64	7	LOS E	
South	0.50	15	156	LOS B	0.37	15	101	LOS B	
West	0.26	52	29	LOS D	0.19	52	20	LOS D	
Total	0.50	19	156	LOS B	0.53	19	162	LOS B	

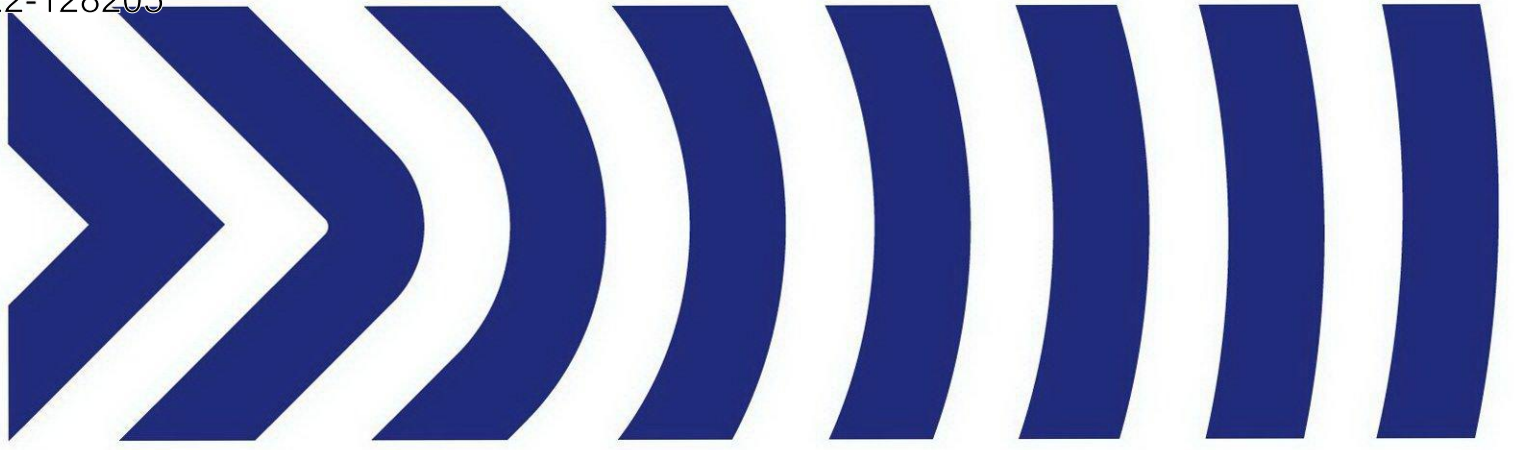
As shown in Table 7, the post development intersection performs well during both peak periods, with a low degree of saturation of around 0.5. This is a key indicator that the intersection has ample capacity for additional traffic volumes. It is noted that vehicles exiting the site experience reasonable delays of around 60 seconds, akin to waiting most of the phase cycle for a green phase.

In view of the above, we are satisfied that the development will have minimal impact to the intersection performance of Jacksons Road / Gate Seven Drive and the surrounding road network.

7. Conclusions

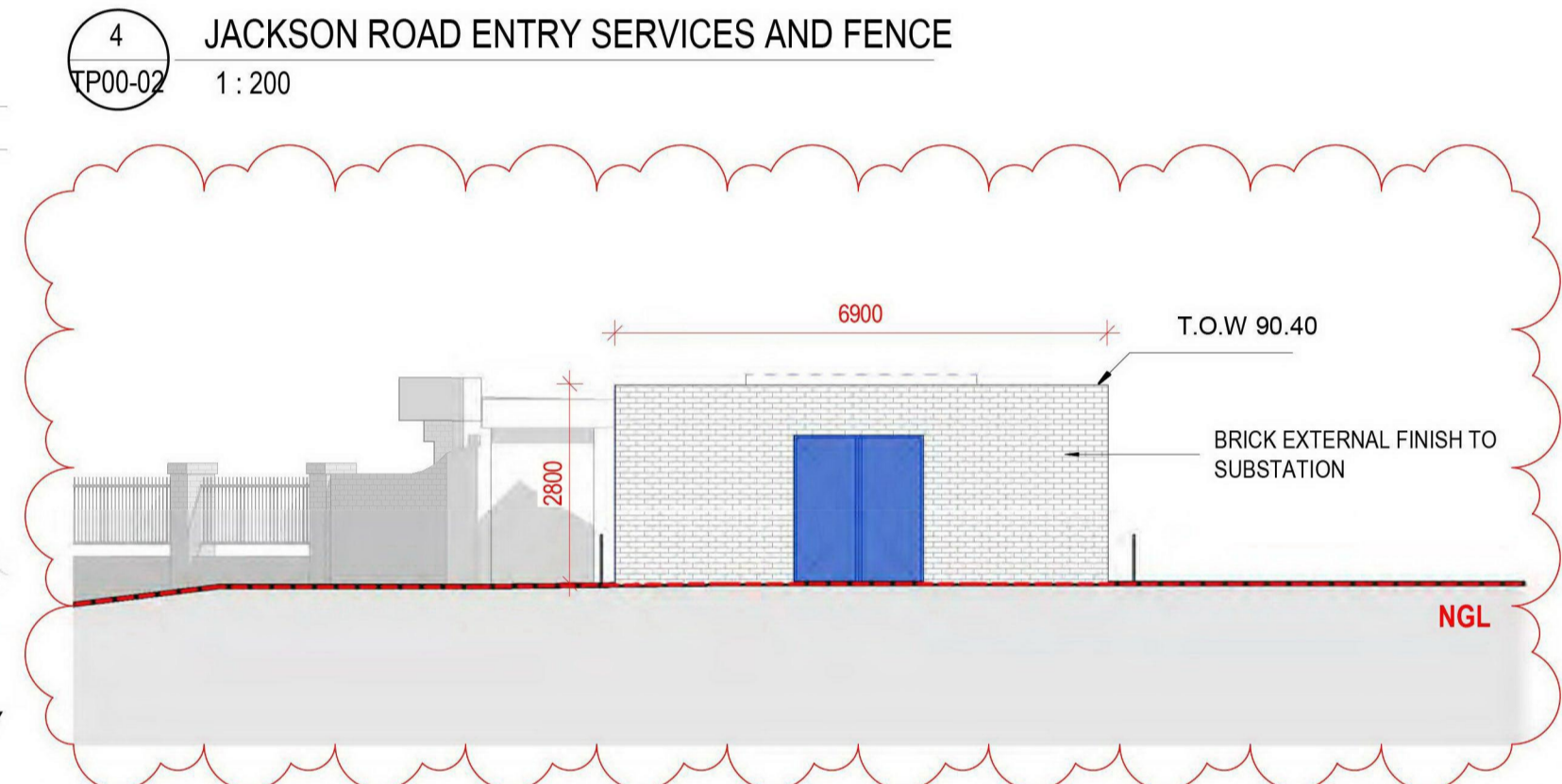
Having undertaken a detailed traffic engineering assessment of the proposed aged care and retirement village at 62 – 94 Jacksons Road, Mulgrave, we are of the opinion that:

- a) the proposed development has a statutory car parking requirement of 354 car spaces under Clause 52.06-5 of the Planning Scheme and the provision of 367 car spaces meets this requirement,
- b) whilst no statutory bicycle parking requirement is triggered by Clause 52.34 of the Planning Scheme, 12 bicycle parking spaces have been provided in the basement of the main building,
- c) the proposed car parking layout and access arrangements accords with the requirements of the Planning Scheme, AS2890 (where relevant) and current practice,
- d) the rear loading area of the main building, the basement bin stores and the kerbside waste collection arrangements has been demonstrated to operate effectively with swept path analysis showing appropriate design arrangements
- e) the existing signalised site access arrangements to Jacksons Road provide for appropriate site access arrangements for the proposed development.
- f) the level of traffic generated as a result of this proposal is relatively modest, generally spread throughout the day and will not have a detrimental impact on Jacksons Road, the Jacksons Road / Gate Seven Drive intersection or the surrounding road network, and
- g) there are no traffic engineering reasons why a planning permit for the proposed aged care and retirement village at 62 – 94 Jacksons Road, Mulgrave, should be refused, subject to appropriate conditions.



Appendix A

Development Plans



- NOTE:**
- REFER TO LANDSCAPE PLANS FOR PROPOSED TREES & LANDSCAPED AREAS;
 - EXISTING TREES SHOWN ONLY;
 - LANDSCAPING AREAS SHOWN INDICATIVELY ONLY.
- SITE BOUNDARY** [Symbol]
- PROPOSED EASEMENT** [Symbol]
- MAIN ROAD** [Symbol]
- NEW SHARED FOOTPATH** [Symbol]
- SHARED PEDESTRAIN ROAD** [Symbol]
- FOOTPATH** [Symbol]
- COMMUNAL LANDSCAPE** [Symbol]
- POS TO VILLAS & APARTMENTS** [Symbol]
- OVER GROUND DECKING TO VILLAS** [Symbol]
- PLANTER TO DECKING** [Symbol]
- EXISTING TREES** [Symbol]

STATUS FOR REVIEW

REV	DESCRIPTION	DATE	BY
A	ISSUE FOR TOWN/PLANNING SUBMISSION	21/12/2021	TM
B	RESPONSE TO RFI FOR REVIEW	16/02/2022	TM
C	ISSUE FOR ARBORIST COORDINATION	23/02/2022	TM
D	ISSUE FOR CLIENT	02/03/2022	TM

KEY PLAN



PROJECT
MULGRAVE RETIREMENT VILLAGE

ADDRESS
62 - 94 JACKSONS ROAD, MULGRAVE

CLIENT
RYMAN

DRAWING TITLE
PROPOSED SITE PLAN

SCALE (@A1) / DRAWN BY / CHECKED BY / PROJECT No. / DRAWING No. / REV

As indicated / KC / TM / 2110053 / TP00-02 / D

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CENTURION COURT

687 686

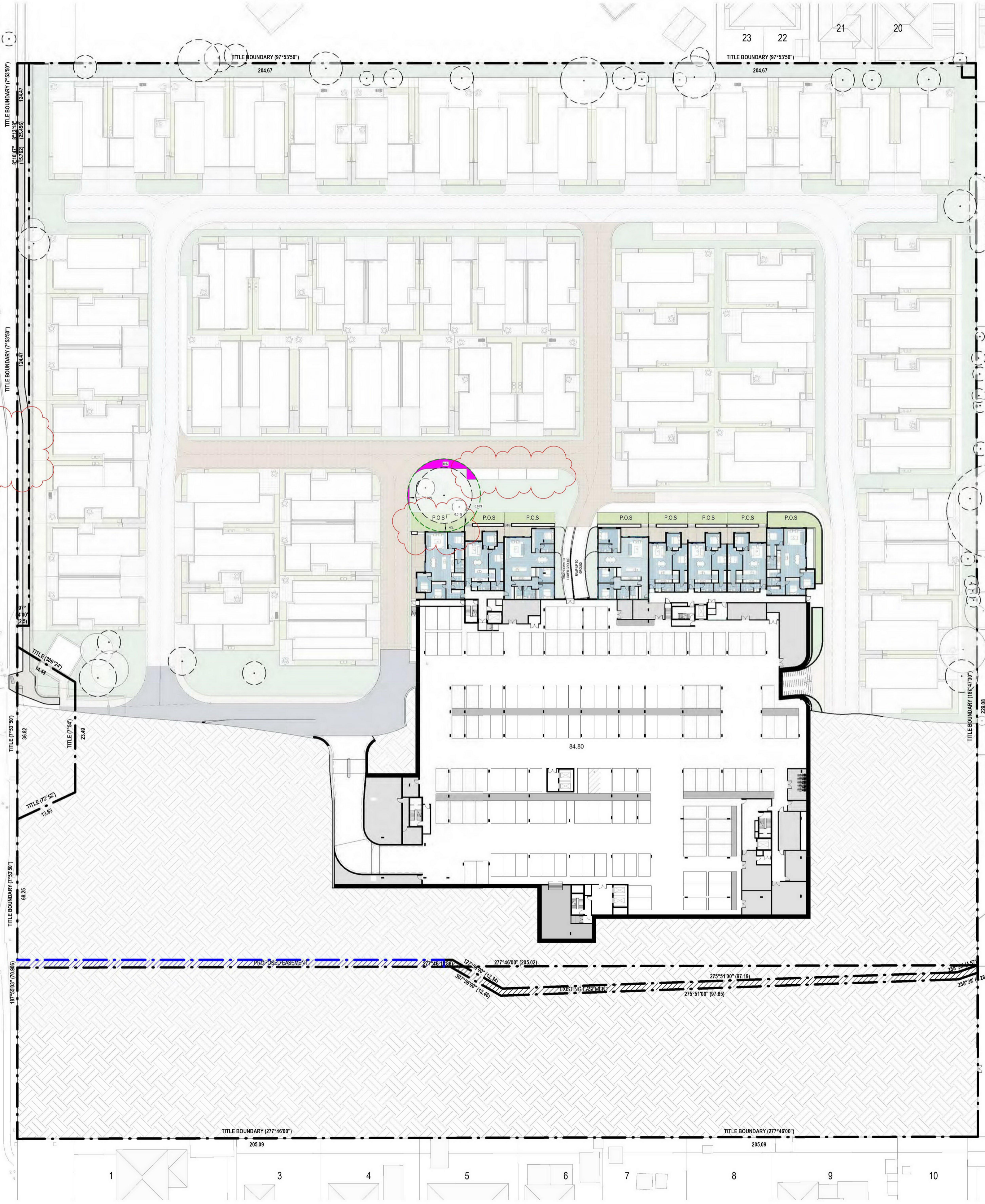
1182 1183

ANFIELD CRESCENT

1184

1195

JACKSON ROAD



- NOTE:
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KEY PLAN

PROJECT REF: C:\Users\mhondrogian\Documents\2110053 - RYMAN - 62 - 94 JACKSONS ROAD, MULGRAVE_SITE_CENTRAL_22_Mhondrogian.rvt
TIMESTAMP: 10/03/2022 3:48:56 PM

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NORTH POINT



PROJECT MULGRAVE RETIREMENT VILLAGE
ADDRESS 62 - 94 JACKSONS ROAD, MULGRAVE

CLIENT RYMAN
DRAWING TITLE MASTERPLAN LOWER GROUND

SCALE (@A1) As indicated / DRAWN BY KC / CHECKED BY TM / PROJECT No. 2110053 / DRAWING No. TP00-10 / REV B



CENTURION COURT
687 686

1182 1183

ANFIELD CRESCENT
1184 1195

JACKSON ROAD

101 102 103 104

RENEE CLOSE

105 106

119 120 121 122 123 124

DOUGHERTY CT

ROAD WIDENED TO CREATE NEW DECELERATION LANE IN ACCORDANCE WITH TRAFFIC ENGINEER'S DETAILS AND VICROADS AGREEMENT. 7M DECELERATION LANE WITH 25M TAPER 3.5M WIDTH 6% approx

EXISTING LIGHT POLE RETAINED IN ACCORDANCE WITH TRAFFIC ENGINEER'S DETAIL AND VICROADS AGREEMENT

PROPOSED BRICK PIER & BLACK METAL PALISADE FENCE AT 1500MM

EXISTING LIGHT POLE RETAINED IN ACCORDANCE WITH TRAFFIC ENGINEER'S DETAIL AND VICROADS AGREEMENT

9% approx

PROPOSED BRICK PIER & BLACK METAL PALISADE FENCE AT 1500MM

RELOCATE PRAM RAMPS TO SUIT NEW SHARED PATH ACCORDANCE WITH TRAFFIC ENGINEER'S DETAIL

PROPOSED BRICK PIER & BLACK METAL PALISADE FENCE AT 1500MM

10% approx

12% approx

9.8% approx

3.5% approx

OVERHEAD ELECTRICAL WIRE TO BE MOVED UNDERGROUND

PROPOSED BUS SHELTER AND PASSENGER HANDSTAND AREA. LOCATION APPROVED BY PTV AND AUSNET

HIGH VOLTAGE ELECTRICAL EASEMENT NO BUILD ZONE

EXISTING FOOTPATH REMOVED AND REPLACED WITH NEW SHARED PATH NATURE STRIP REINSTATED TO COUNCIL SPECIFICATION

- NOTE:
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 - LANDSCAPING AREAS SHOWN INDICATIVELY ONLY.
- SITE BOUNDARY
- MAIN ROAD
- SHARED PEDESTRAIN ROAD
- FOOTPATH
- COMMUNAL LANDSCAPE
- POS TO VILLAS & APARTMENTS

STATUS FOR REVIEW

VIA ARCHITECTS

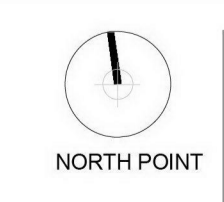
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C	ISSUE FOR ARBORIST COORDINATION	23/02/2022	TM

KEY PLAN

PROJECT REF: C:\Users\mhondrogan\Documents\2110053 - RYMAN - 62 - 94 JACKSONS ROAD, MULGRAVE_SITE_CENTRAL_22_Mhondrogan.rvt
TIMESTAMP: 10/03/2022 3:49:13 PM

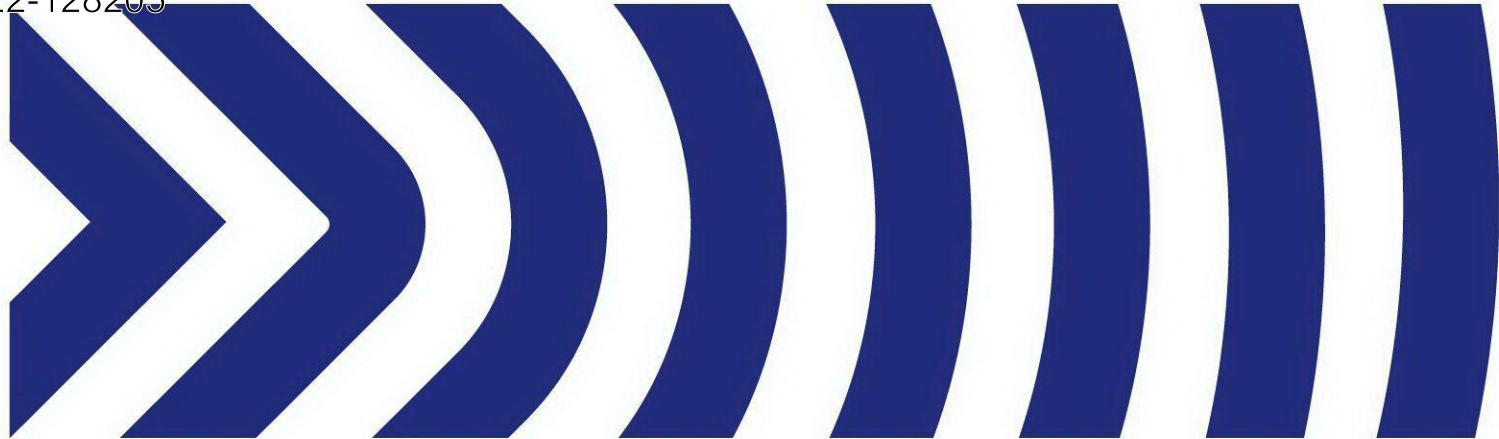
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PROJECT
MULGRAVE RETIREMENT VILLAGE
ADDRESS
62 - 94 JACKSONS ROAD, MULGRAVE

CLIENT
RYMAN
DRAWING TITLE
MASTERPLAN GROUND LEVEL

SCALE (@A1) / DRAWN BY / CHECKED BY / PROJECT No. / DRAWING No. / REV
As indicated / KC / TM / 2110053 / TP00-11 / C



Appendix B

Swept Path Assessments



VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)
(VEHICLE SPEED - 9891)

1422 5190
Volvo FE (E64 R B) Waste
Collection Rear Load

Width : 2800
Track : 2800
Look to Lock Time : 6.0
Steering Angle : 40.3

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE
- BIN LOCATIONS

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62 - 94 JACKSONS ROAD, MULGRAVE
PROPOSED AGED CARE AND RETIREMENT VILLAGE

GENERAL NOTES:
500MM VEHICLE BODY CLEARANCE USED
FOR SIMULATION

FILE NAME: G30064-02
SHEET NO.: 01



SCALE: 1:400 (A3)
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VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)
9891

Volvo FE (E64 R B) Waste Collection Rear Load

Width : 2800
Track : 2800
Look to Lock Time : 6.0
Steering Angle : 40.3

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE
- BIN LOCATIONS

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PROPOSED AGED CARE AND RETIREMENT VILLAGE

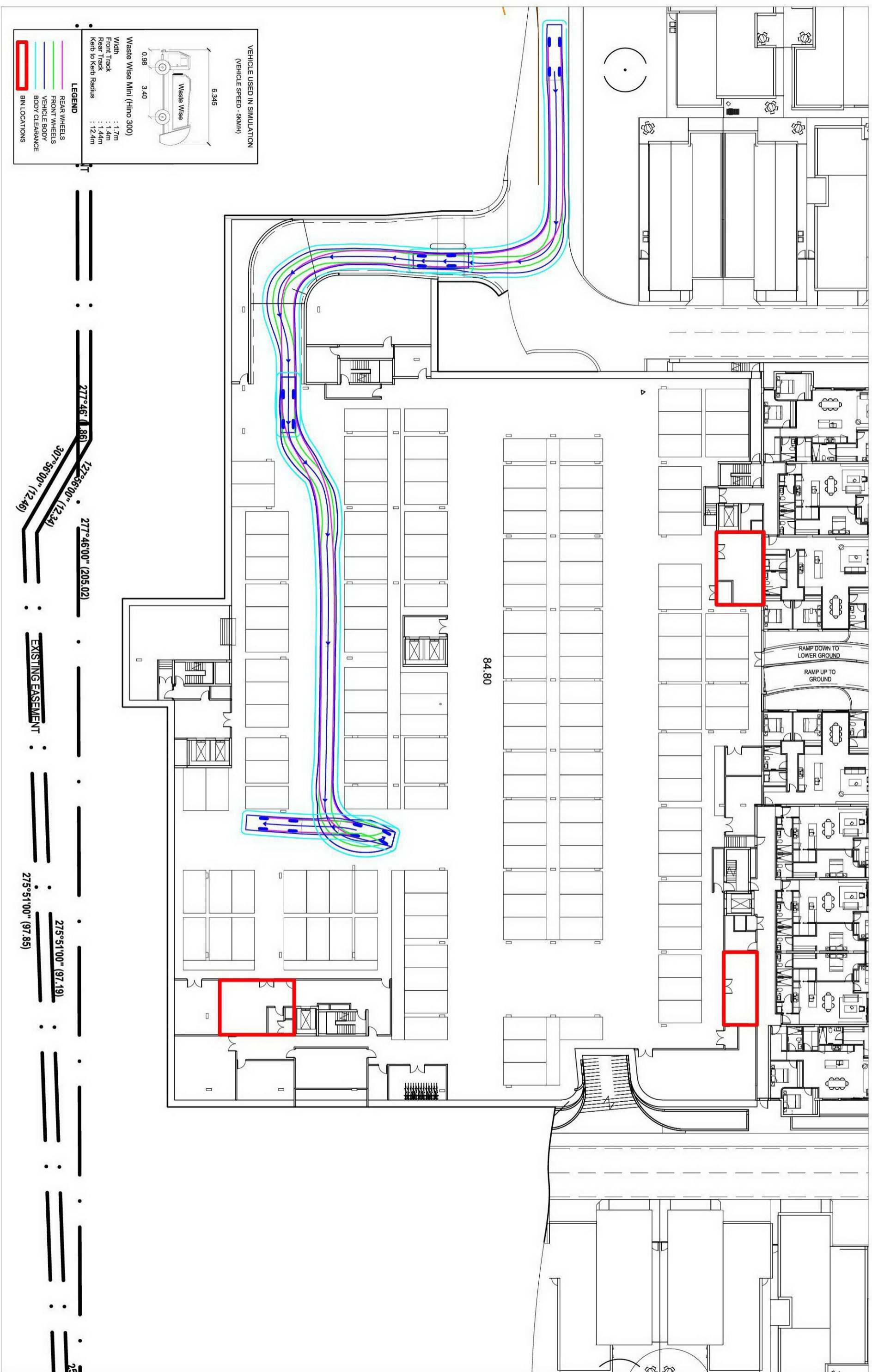
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FILE NAME: G30064-02
SHEET NO.: 02

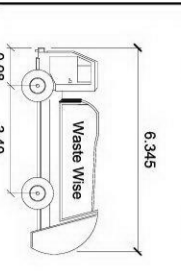


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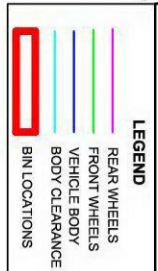
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VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)



Waste Wise Mini (Hino 300)
Width : 3.40m
Front Track : 1.4m
Rear Track : 1.44m
Keel to Keel Radius : 12.4m



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62 - 94 JACKSONS ROAD, MULGRAVE
PROPOSED AGED CARE AND RETIREMENT VILLAGE

GENERAL NOTES:
500MM VEHICLE BODY CLEARANCE USED FOR SIMULATION

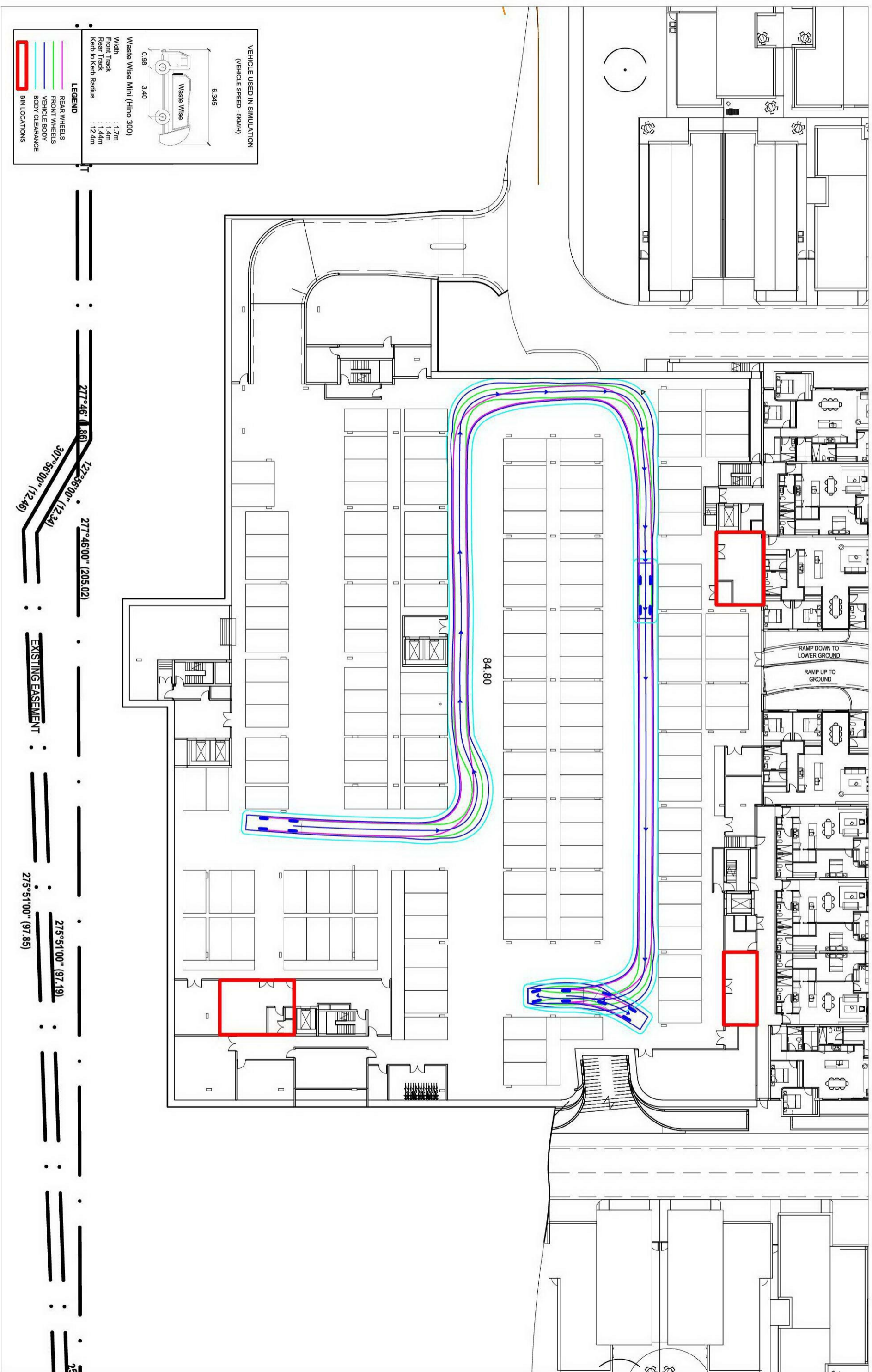
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VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

6.345

3.40

0.98

Waste Wise Mini (Hino 300)

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

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE
- BIN LOCATIONS

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PROPOSED AGED CARE AND RETIREMENT VILLAGE

GENERAL NOTES:
500MM VEHICLE BODY CLEARANCE USED FOR SIMULATION

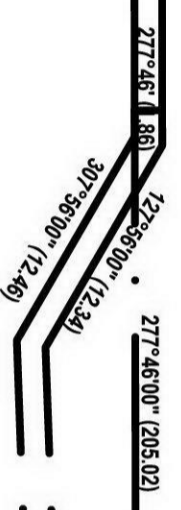
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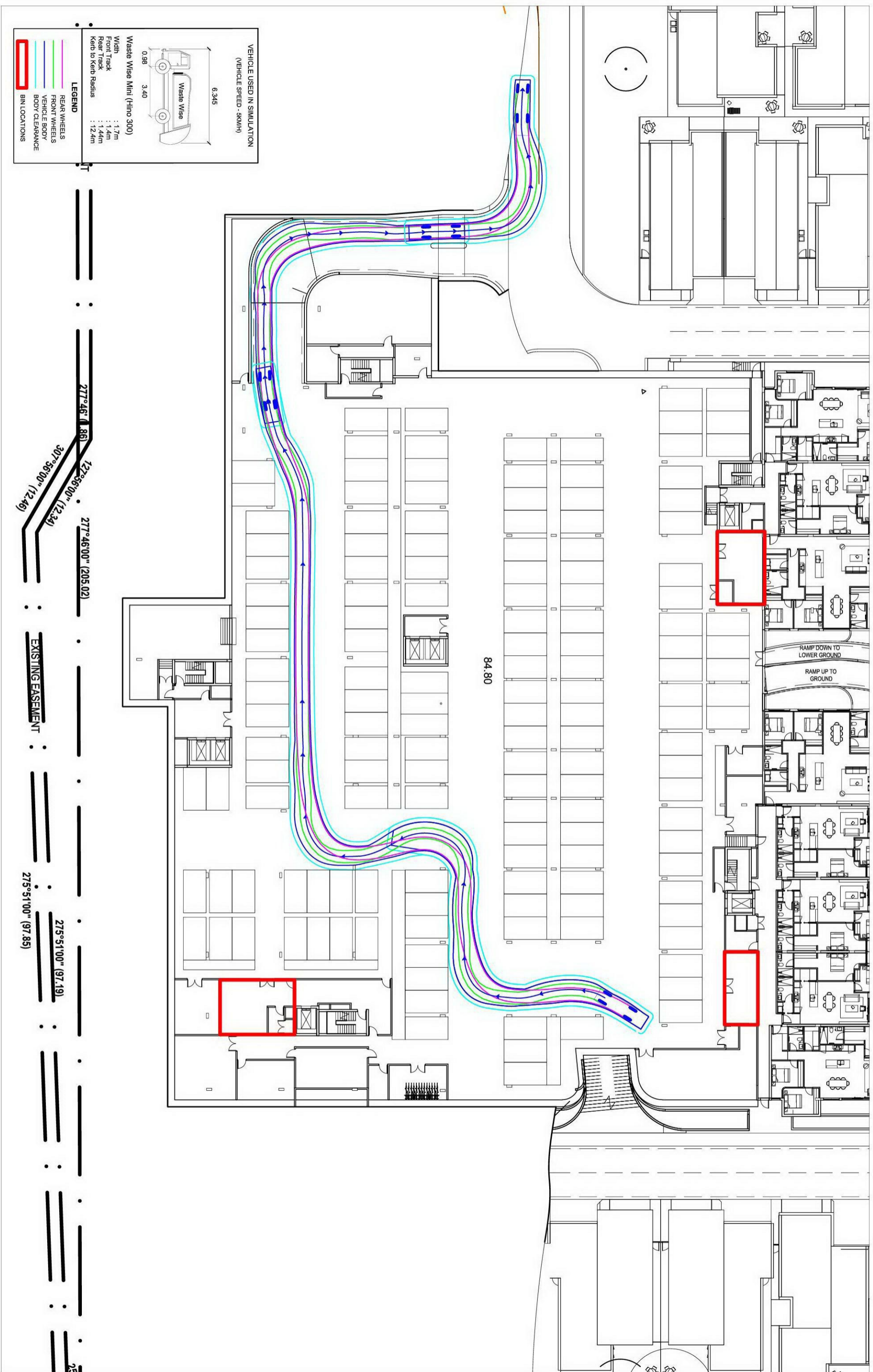
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EXISTING EASEMENT



84.80



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

6.345

3.40

0.98

Waste Wise Mini (Hino 300)

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

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE
- BIN LOCATIONS

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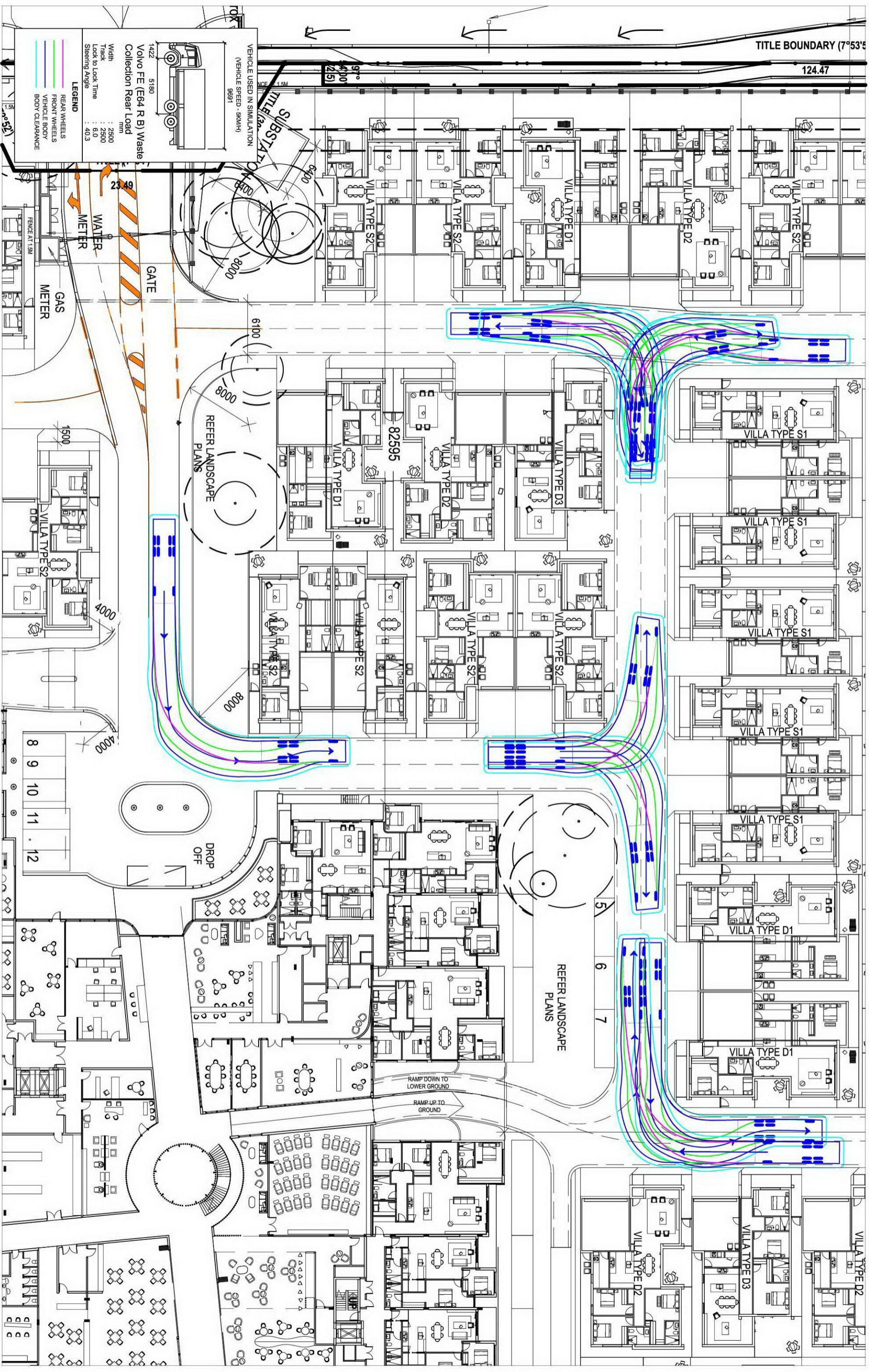
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PROPOSED AGED CARE AND RETIREMENT VILLAGE

GENERAL NOTES:
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PROPOSED AGED CARE AND RETIREMENT VILLAGE

GENERAL NOTES:
 500MM VEHICLE BODY CLEARANCE USED FOR SIMULATION

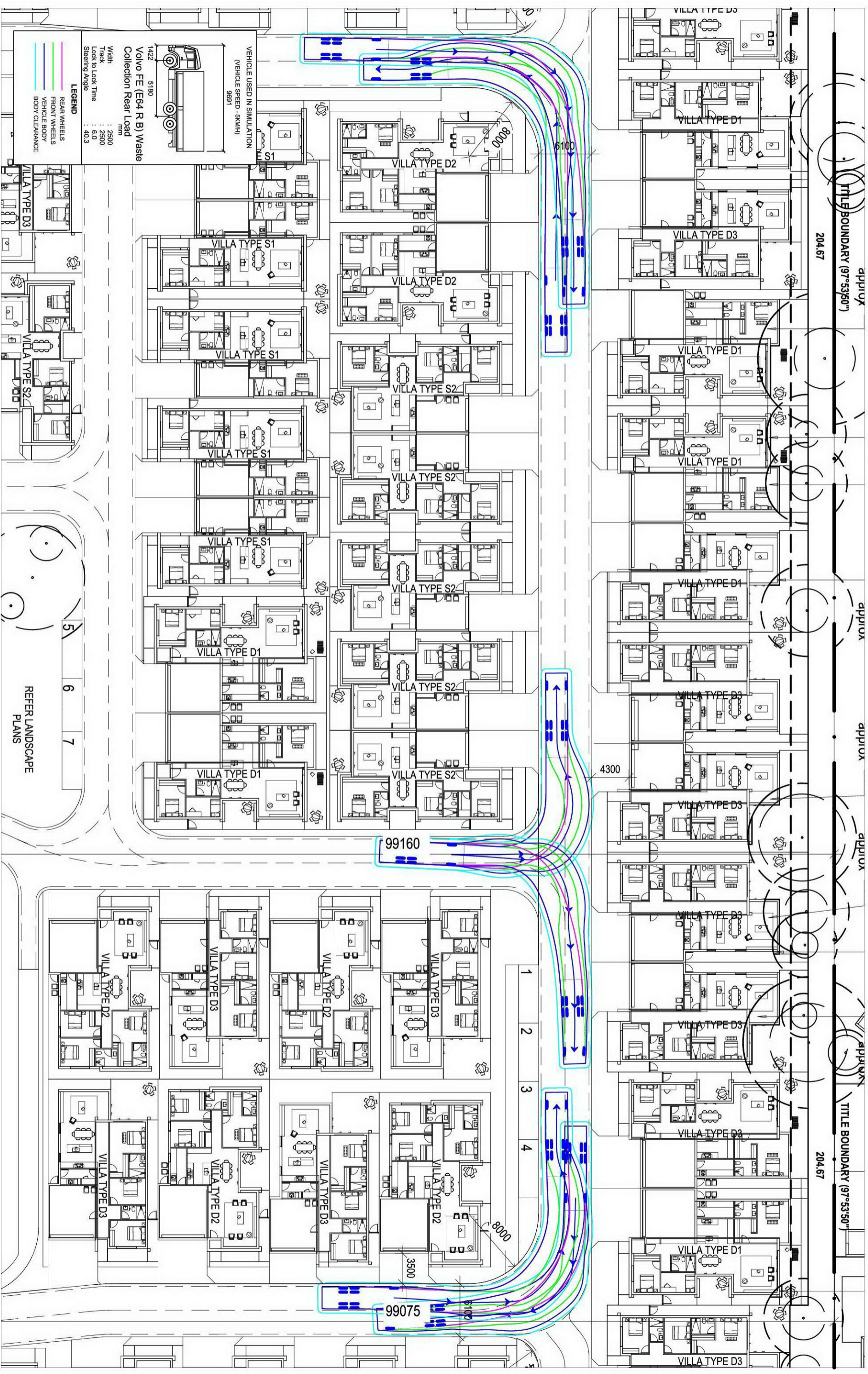
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62 - 94 JACKSONS ROAD, MULGRAVE
PROPOSED AGED CARE AND RETIREMENT VILLAGE

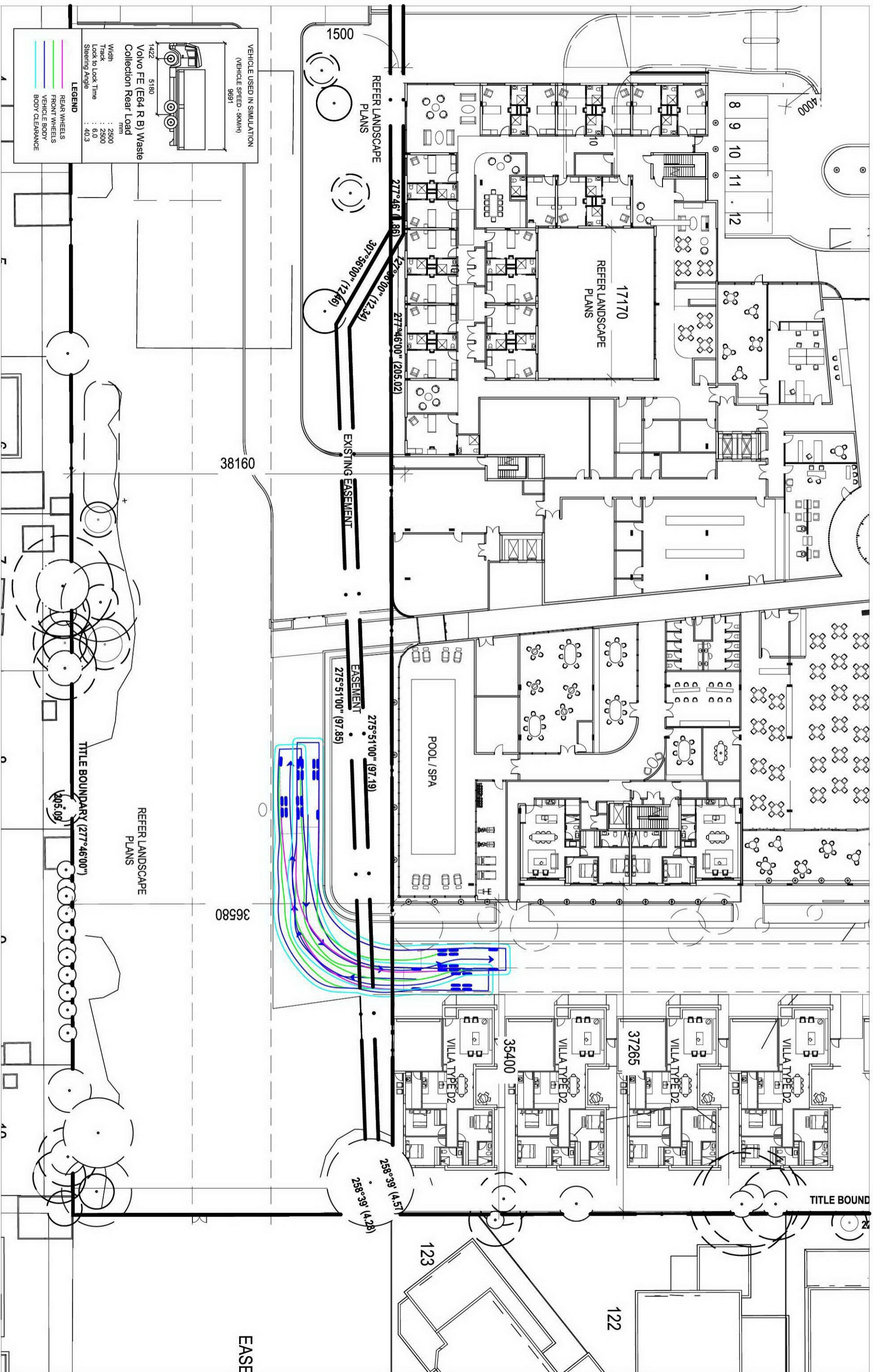
GENERAL NOTES:
 500MM VEHICLE BODY CLEARANCE USED FOR SIMULATION

FILE NAME: G30064-02
 SHEET NO.: 07



SCALE: 1:400 (A3)
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VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)
9891

Volvo FE (E64 R B) Waste Collection Rear Load

Width : 2800
Track : 2800
Lock to Lock Time : 6.0
Steering Angle : 40.3

LEGEND

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

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PROPOSED AGED CARE AND RETIREMENT VILLAGE

GENERAL NOTES:
500MM VEHICLE BODY CLEARANCE USED FOR SIMULATION

FILE NAME: G30084-02
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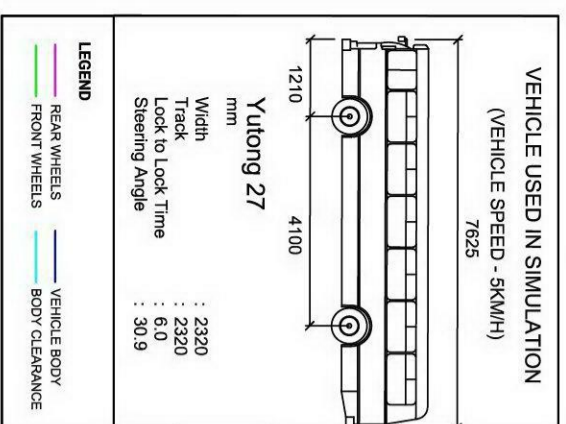
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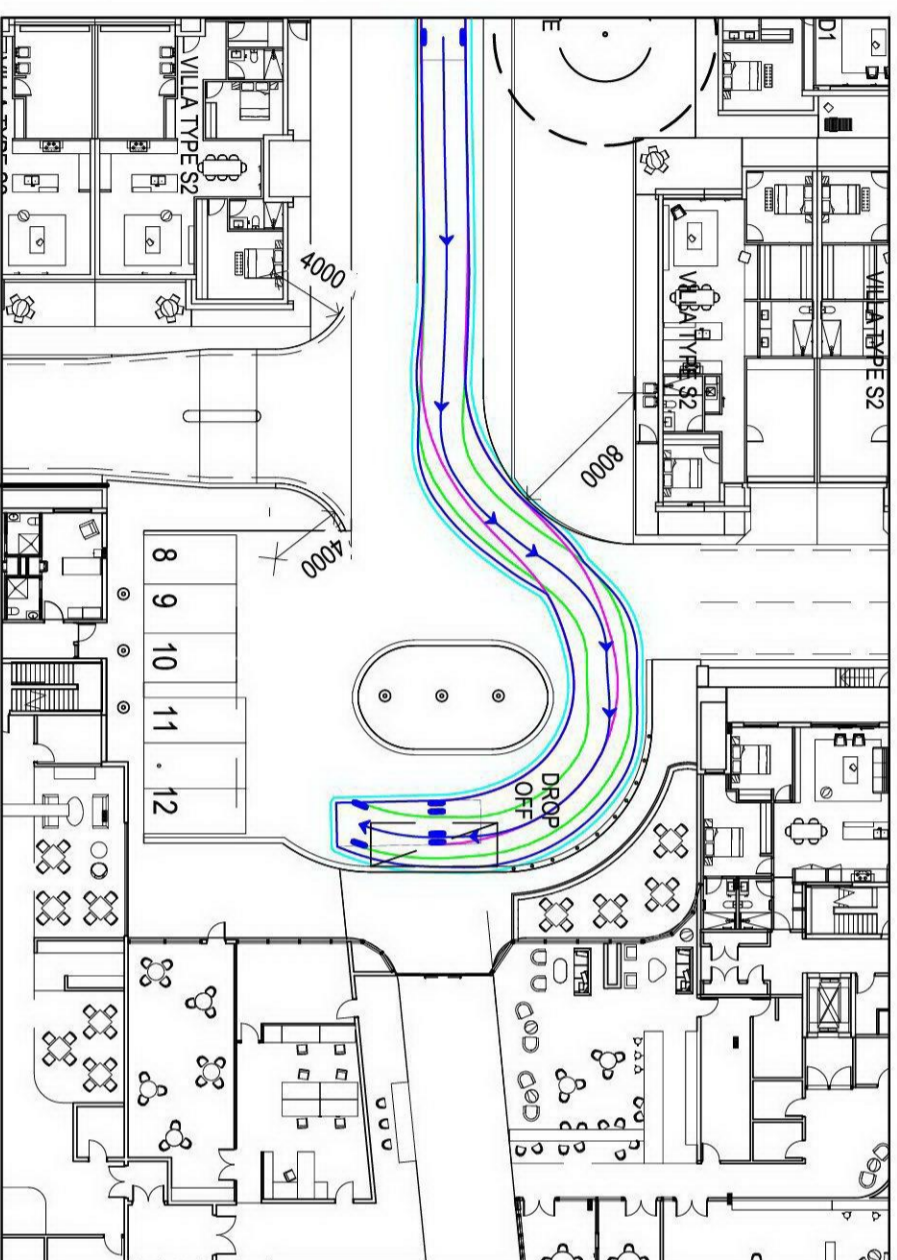


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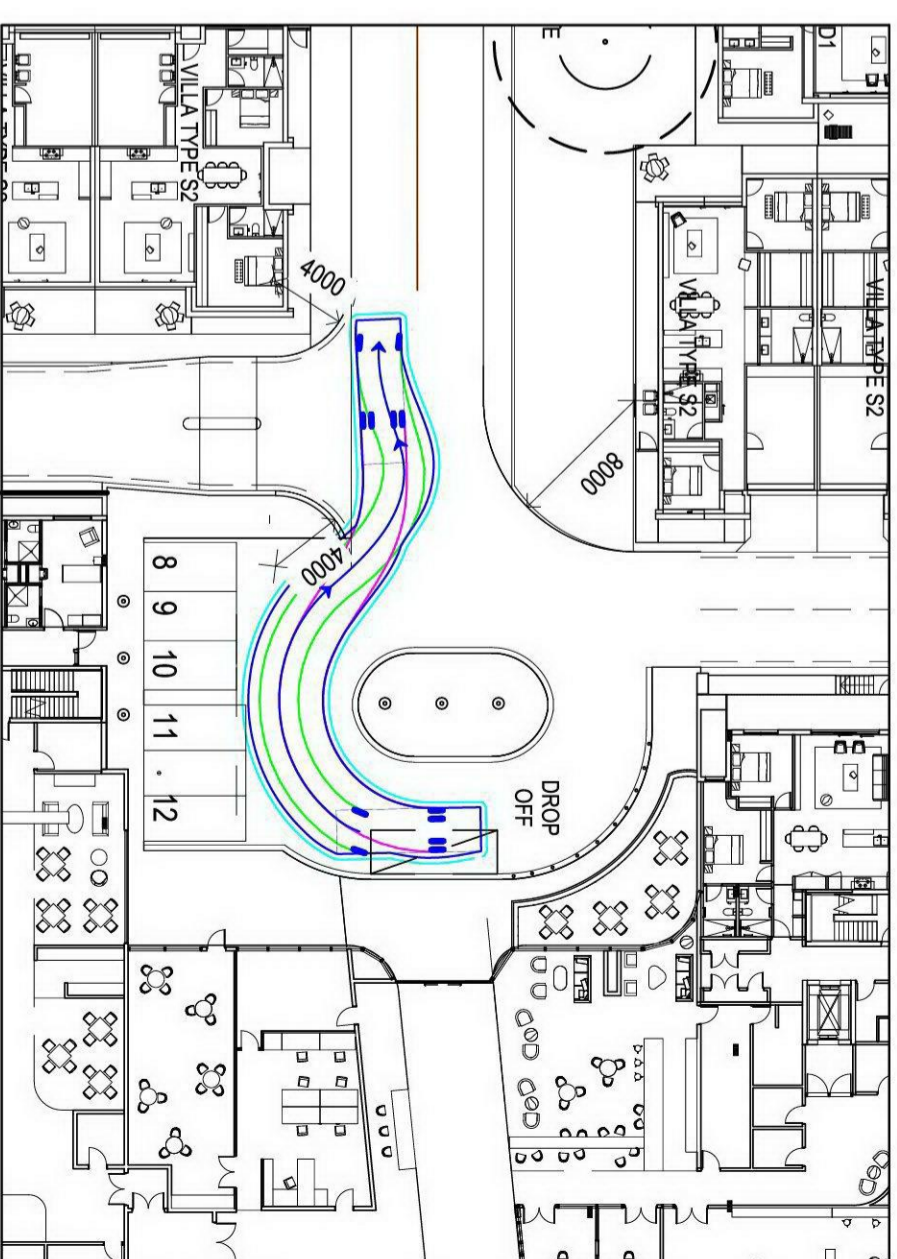
VEHICLE PROFILE



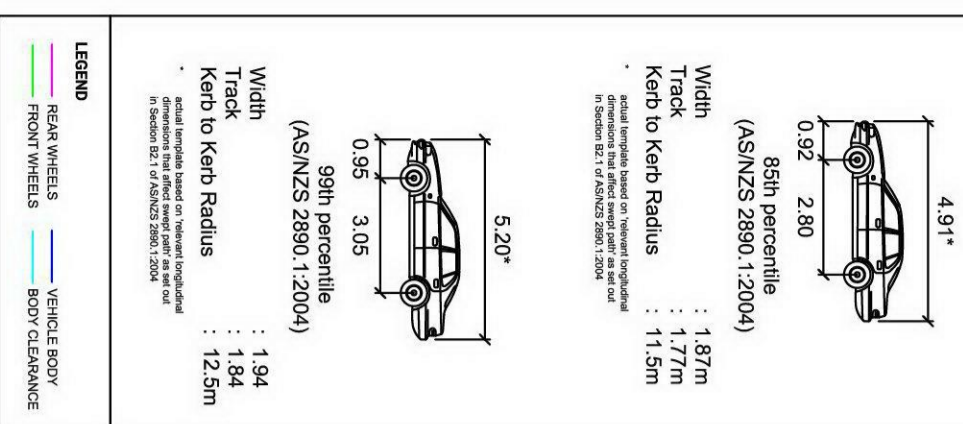
VILLAGE BUS - PORTE COCHERE INGRESS



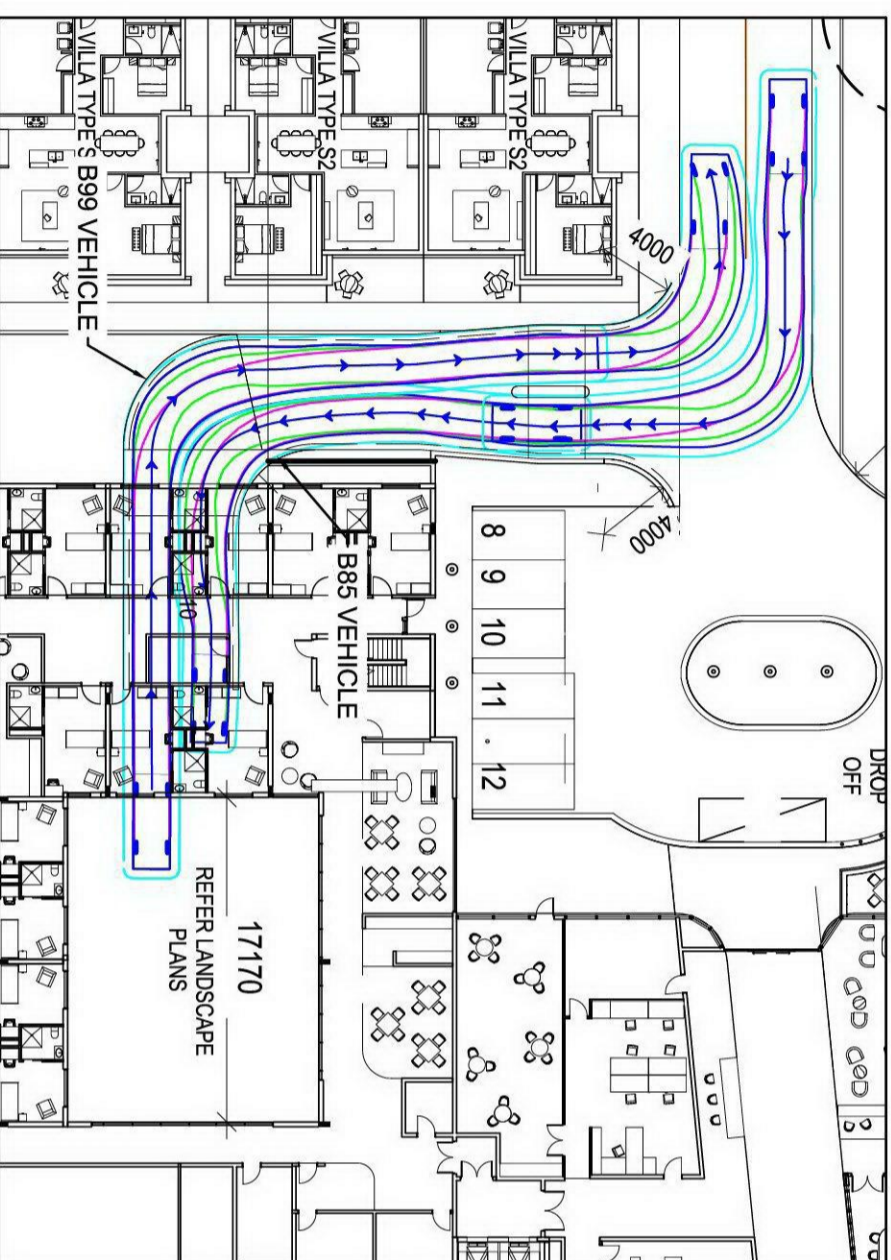
VILLAGE BUS - PORTE COCHERE EGRESS



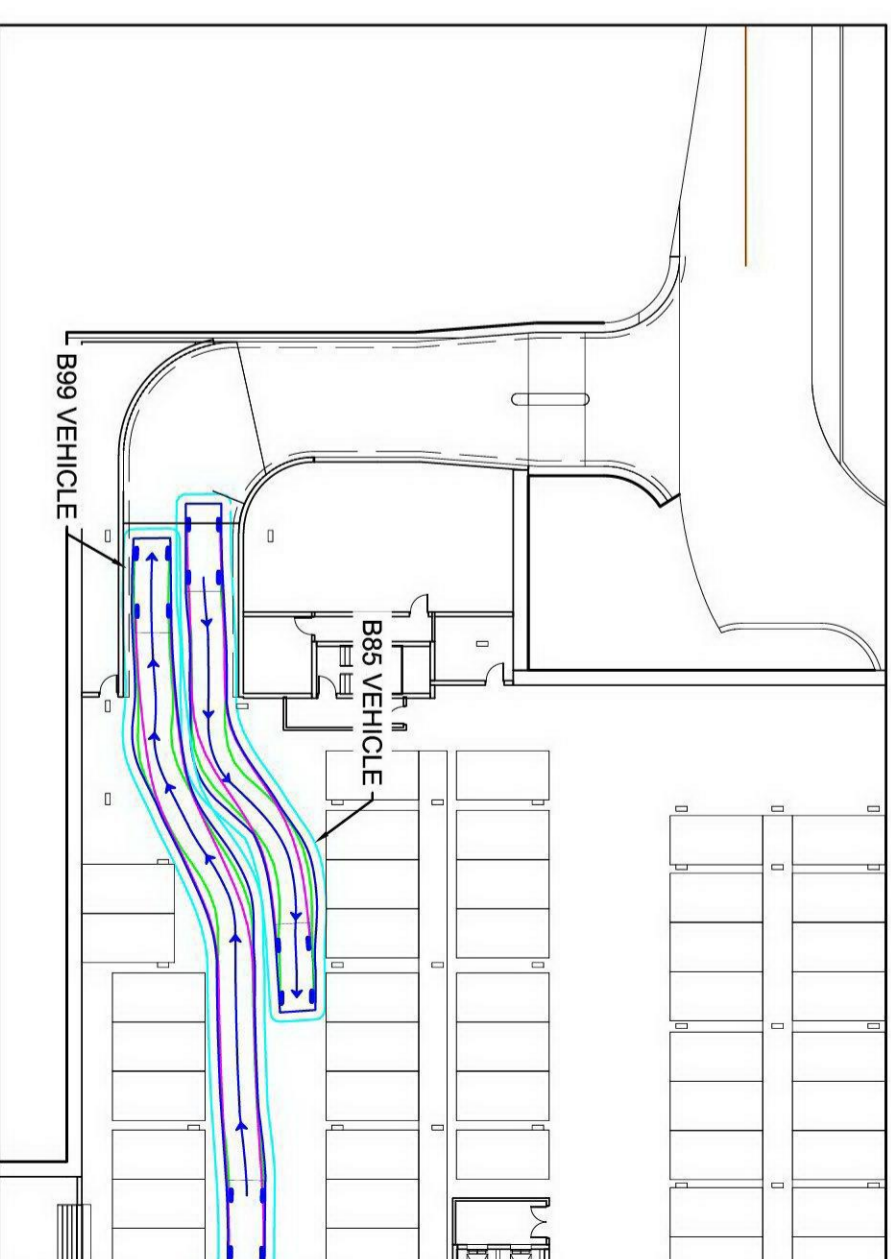
VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)



SIMULTANEOUS RAMP MOVEMENTS - GROUND LEVEL



SIMULTANEOUS RAMP MOVEMENTS - BASEMENT LEVEL



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PROPOSED AGED CARE AND RETIREMENT VILLAGE

GENERAL NOTES:
500MM VEHICLE BODY CLEARANCE USED FOR SIMULATION

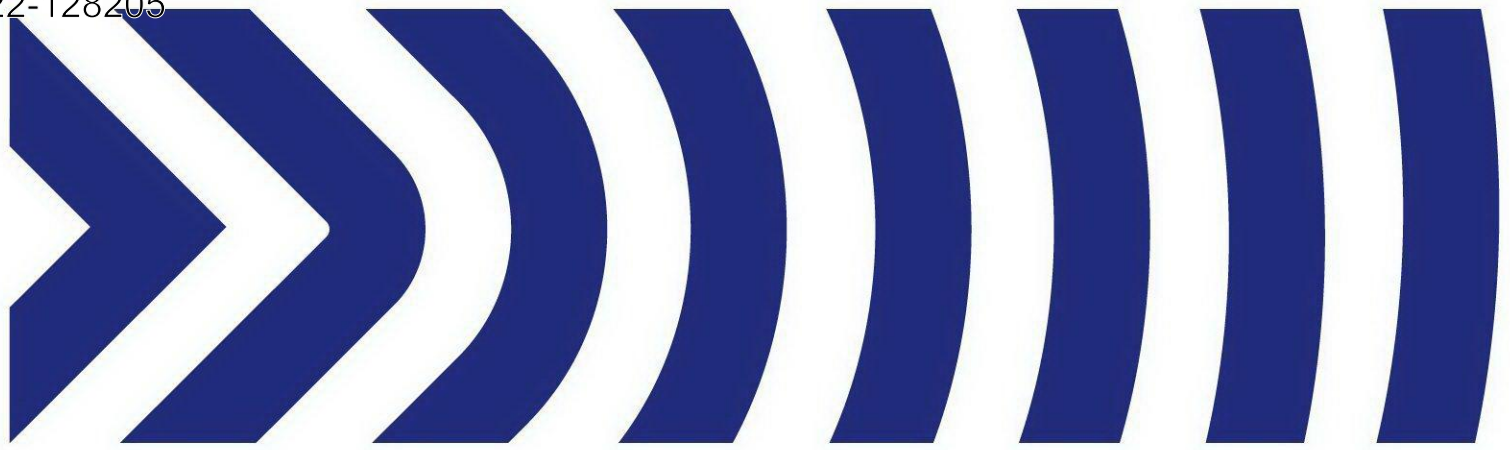
FILE NAME: G30064-02
SHEET NO.: 09



SCALE: 1:400 (A3)
0 4 8

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Appendix C

SIDRA Intersection 9 Results

USER REPORT FOR SITE

All Movement Classes



Project: G30064-01

Template: Traffic Group
Template - VIC Signals (4 Legs)

Site: 1207 [Jacksons Road / Gate Seven Drive / Site Access - 8am to 9am (Site Folder: Post Dev Conditions)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Sequence1

Reference Phase: Phase A

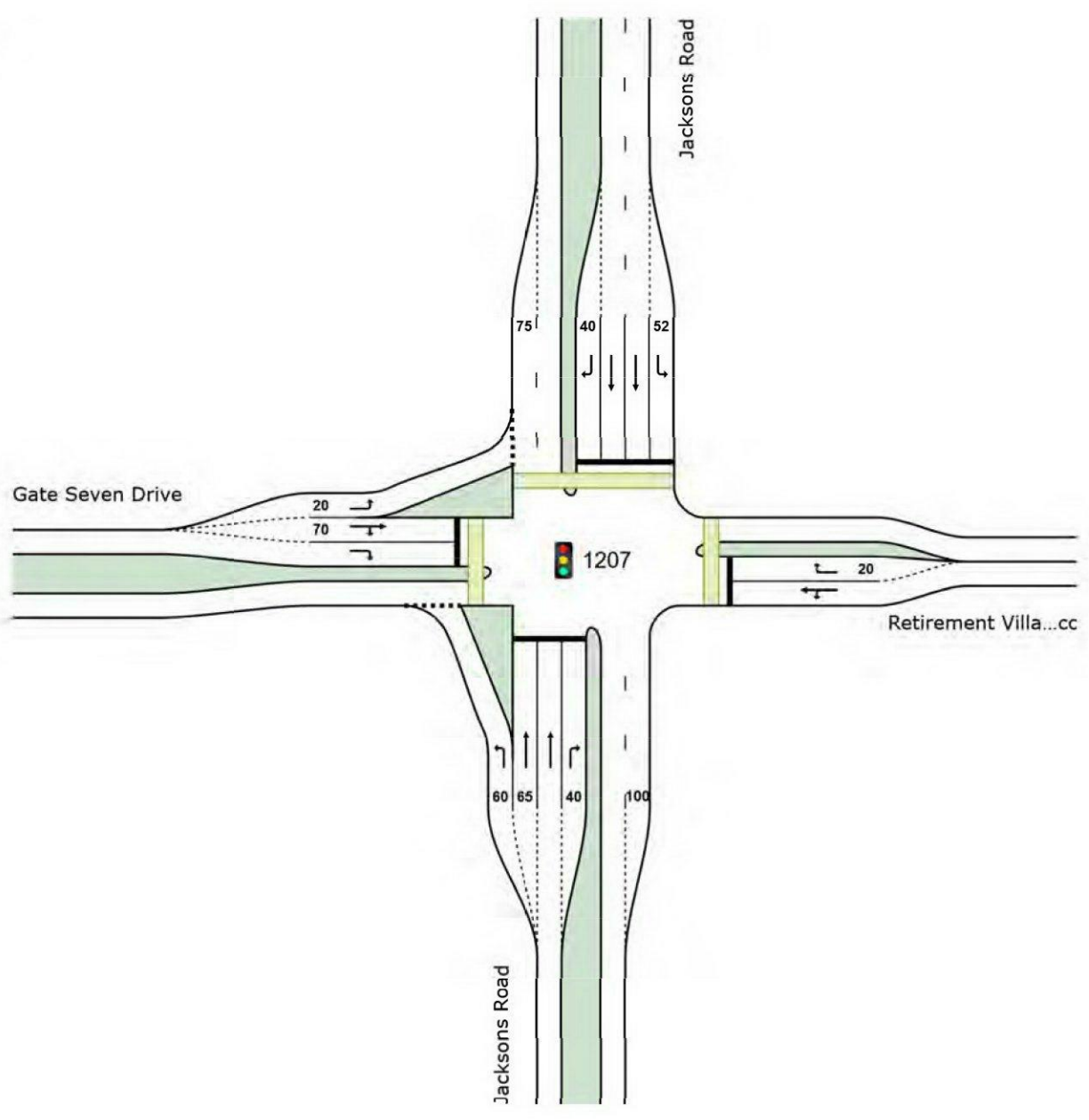
Input Phase Sequence: A, B*, C, D1*, D2*, D3*

Output Phase Sequence: A, B*, C, D1*

(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Jacksons Road														
1	L2	65	0.0	68	0.0	0.041	6.0	LOS A	0.3	1.9	0.11	0.58	0.11	49.1
2	T1	779	5.0	820	5.0	* 0.502	15.8	LOS B	21.4	156.1	0.57	0.51	0.57	48.0
3	R2	7	0.0	7	0.0	0.093	78.3	LOS E	0.5	3.6	0.99	0.66	0.99	25.9
Approach		851	4.6	896	4.6	0.502	15.5	LOS B	21.4	156.1	0.54	0.51	0.54	47.7
East: Retirement Village Access														
4	L2	4	0.0	4	0.0	0.038	49.5	LOS D	0.3	1.8	0.95	0.64	0.95	33.3
5	T1	1	0.0	1	0.0	* 0.038	42.7	LOS D	0.3	1.8	0.95	0.64	0.95	26.4
6	R2	4	0.0	4	0.0	0.053	77.8	LOS E	0.3	2.0	0.98	0.64	0.98	26.2
Approach		9	0.0	9	0.0	0.053	61.3	LOS E	0.3	2.0	0.96	0.64	0.96	29.1
North: Jacksons Road														
7	L2	7	0.0	7	0.0	0.006	12.4	LOS B	0.1	1.0	0.32	0.61	0.32	48.7
8	T1	665	5.0	700	5.0	0.409	14.7	LOS B	15.0	109.7	0.53	0.46	0.53	48.7
9	R2	31	0.0	33	0.0	* 0.410	80.8	LOS F	2.3	16.3	1.00	0.72	1.00	18.5
Approach		703	4.7	740	4.7	0.410	17.6	LOS B	15.0	109.7	0.55	0.48	0.55	46.6
West: Gate Seven Drive														
10	L2	31	0.0	33	0.0	0.029	10.7	LOS B	0.5	3.4	0.28	0.61	0.28	47.2
11	T1	1	0.0	1	0.0	0.150	58.0	LOS E	2.3	16.2	0.92	0.73	0.92	22.2
12	R2	98	0.0	103	0.0	* 0.263	64.8	LOS E	4.1	28.8	0.93	0.75	0.93	21.7
Approach		130	0.0	137	0.0	0.263	51.8	LOS D	4.1	28.8	0.77	0.71	0.77	25.0
All Vehicles		1693	4.3	1782	4.3	0.502	19.4	LOS B	21.4	156.1	0.56	0.51	0.56	45.0

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

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA Standard.

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

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

* Critical Movement (Signal Timing)

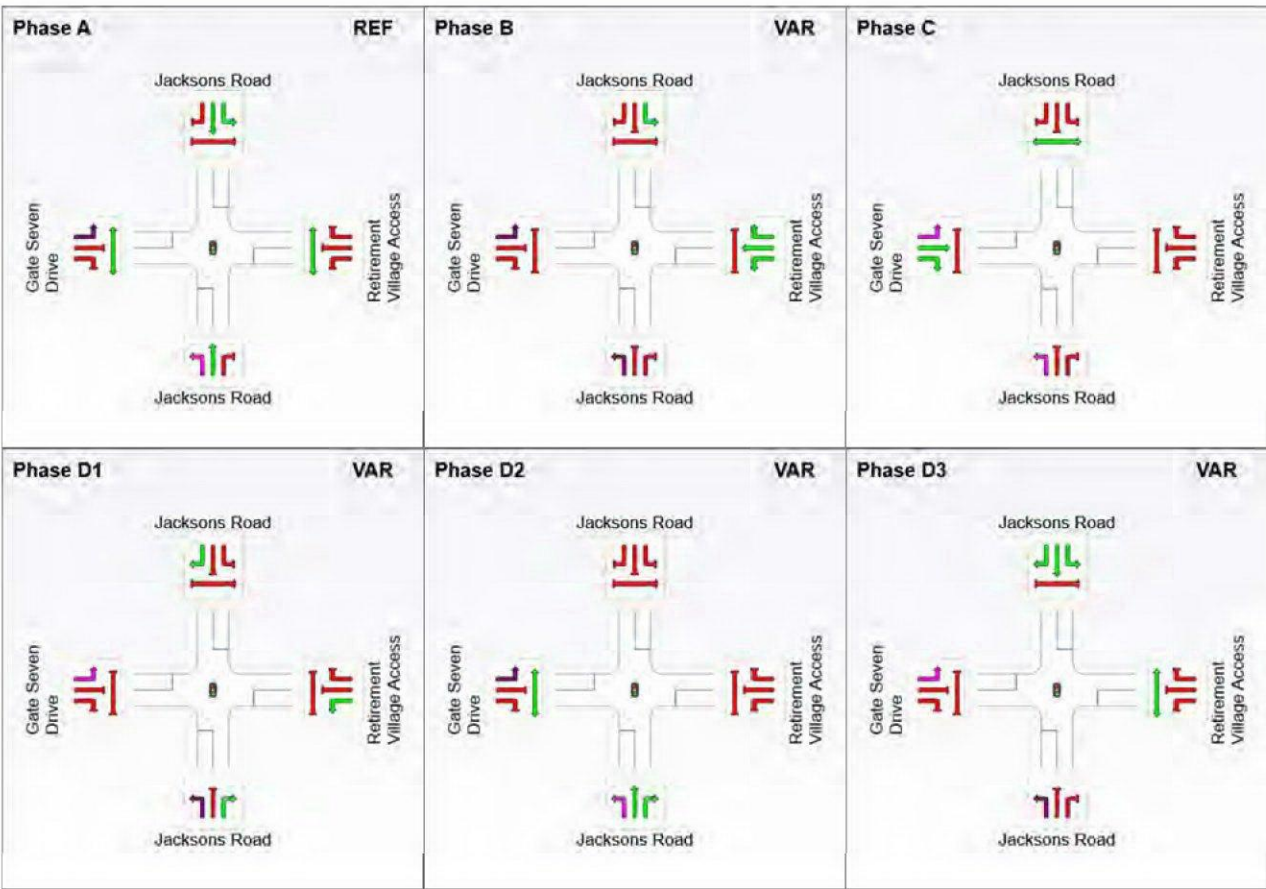
Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
						[Ped ped	Dist] m					
East: Retirement Village Access												
P2	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.8	213.9	0.93
North: Jacksons Road												
P3	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	236.4	223.8	0.95
West: Gate Seven Drive												
P4	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.8	213.9	0.93
All Pedestrians		150	158	64.3	LOS F	0.2	0.2	0.96	0.96	231.3	217.2	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

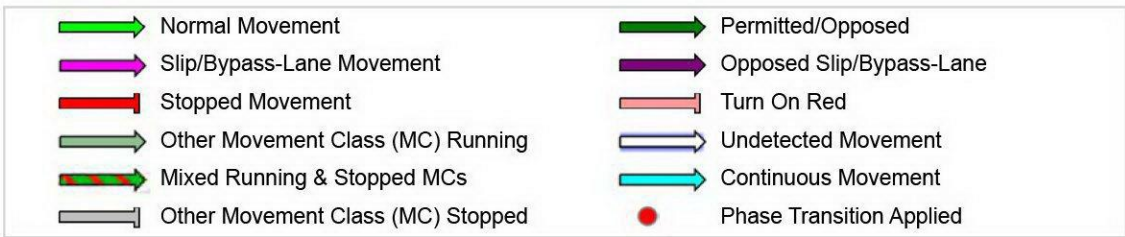
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Input Phase Sequence

Phase Sequence: Sequence1
 Reference Phase: Phase A
 Input Phase Sequence: A, B*, C, D1*, D2*, D3*



REF: Reference Phase
 VAR: Variable Phase



Phase Timing Summary

Phase	A	B	C	D1
Phase Change Time (sec)	0	91	103	128
Green Time (sec)	85	6	19	6
Phase Time (sec)	91	12	25	12
Phase Split	65%	9%	18%	9%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Site: 1207 [Jacksons Road / Gate Seven Drive / Site Access - 3:15pm to 4:15pm (Site Folder: Post Dev Conditions)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Phase Sequence: Sequence1

Reference Phase: Phase A

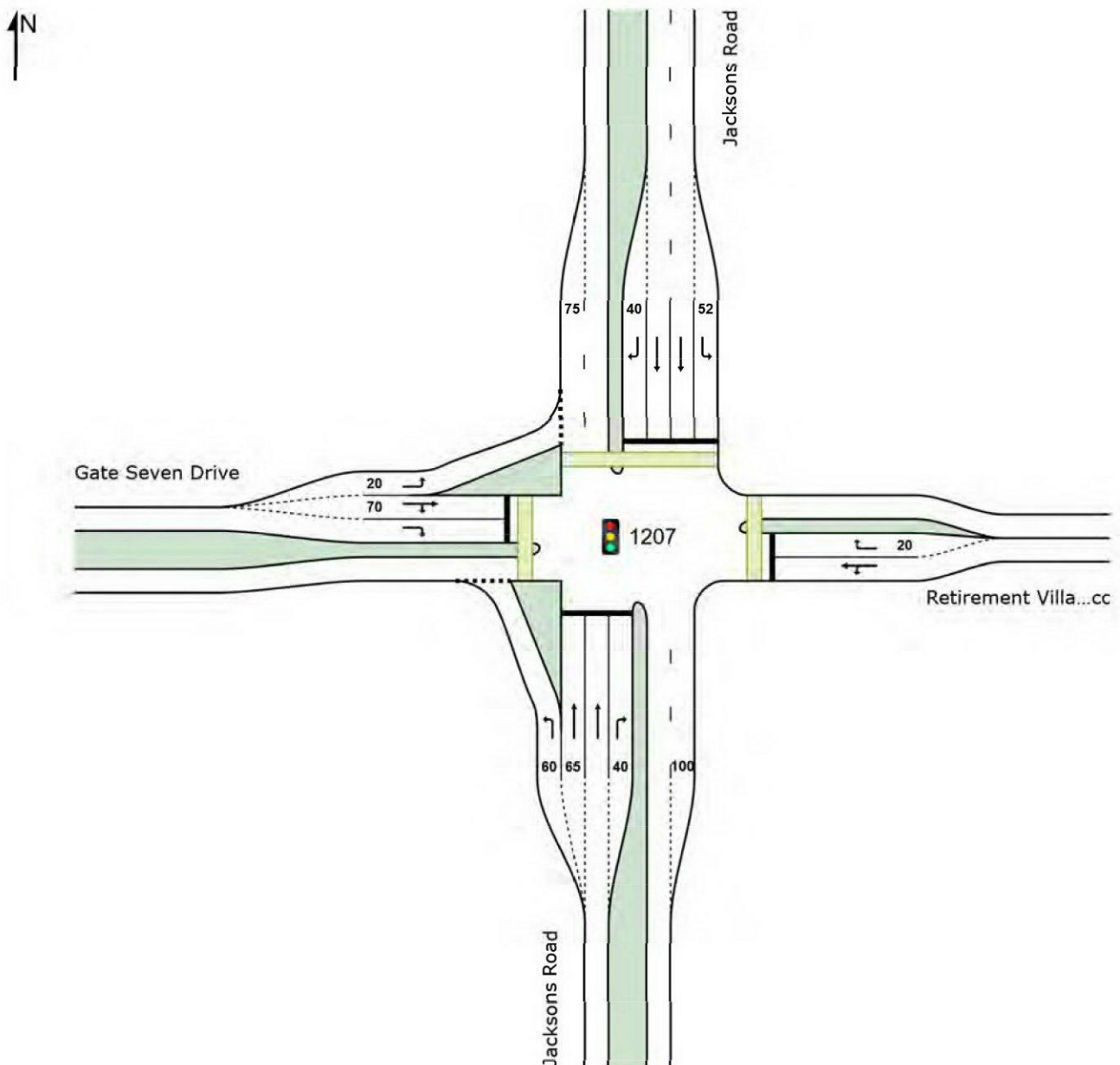
Input Phase Sequence: A, B*, C, D1*, D2*, D3*

Output Phase Sequence: A, B*, C, D1*

(* Variable Phase)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Jacksons Road														
1	L2	67	0.0	71	0.0	0.042	5.9	LOS A	0.2	1.7	0.10	0.57	0.10	49.1
2	T1	566	5.0	596	5.0	0.369	14.2	LOS B	13.8	100.7	0.52	0.45	0.52	48.9
3	R2	12	0.0	13	0.0	0.159	79.0	LOS E	0.9	6.2	0.99	0.68	0.99	25.8
Approach		645	4.4	679	4.4	0.369	14.5	LOS B	13.8	100.7	0.48	0.47	0.48	48.0
East: Retirement Village Access														
4	L2	12	0.0	13	0.0	0.087	50.1	LOS D	0.7	4.8	0.95	0.68	0.95	33.2
5	T1	1	0.0	1	0.0	* 0.087	42.5	LOS D	0.7	4.8	0.95	0.68	0.95	26.2
6	R2	13	0.0	14	0.0	0.172	79.2	LOS E	1.0	6.7	0.99	0.68	0.99	25.9
Approach		26	0.0	27	0.0	0.172	64.3	LOS E	1.0	6.7	0.97	0.68	0.97	28.9
North: Jacksons Road														
7	L2	12	0.0	13	0.0	0.010	12.4	LOS B	0.3	1.8	0.32	0.62	0.32	48.7
8	T1	876	5.0	922	5.0	* 0.530	16.3	LOS B	22.2	162.2	0.58	0.52	0.58	47.8
9	R2	25	0.0	26	0.0	* 0.331	80.3	LOS F	1.9	13.0	1.00	0.71	1.00	18.6
Approach		913	4.8	961	4.8	0.530	18.0	LOS B	22.2	162.2	0.59	0.52	0.59	46.6
West: Gate Seven Drive														
10	L2	20	0.0	21	0.0	0.017	8.5	LOS A	0.2	1.6	0.21	0.59	0.21	48.9
11	T1	1	0.0	1	0.0	0.106	57.5	LOS E	1.6	11.3	0.91	0.71	0.91	22.3
12	R2	69	0.0	73	0.0	* 0.186	64.4	LOS E	2.9	20.1	0.92	0.73	0.92	21.9
Approach		90	0.0	95	0.0	0.186	51.9	LOS D	2.9	20.1	0.76	0.70	0.76	25.0
All Vehicles		1674	4.3	1762	4.3	0.530	19.2	LOS B	22.2	162.2	0.56	0.51	0.56	45.3

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

Vehicle movement LOS values are based on average delay per movement.

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* Critical Movement (Signal Timing)

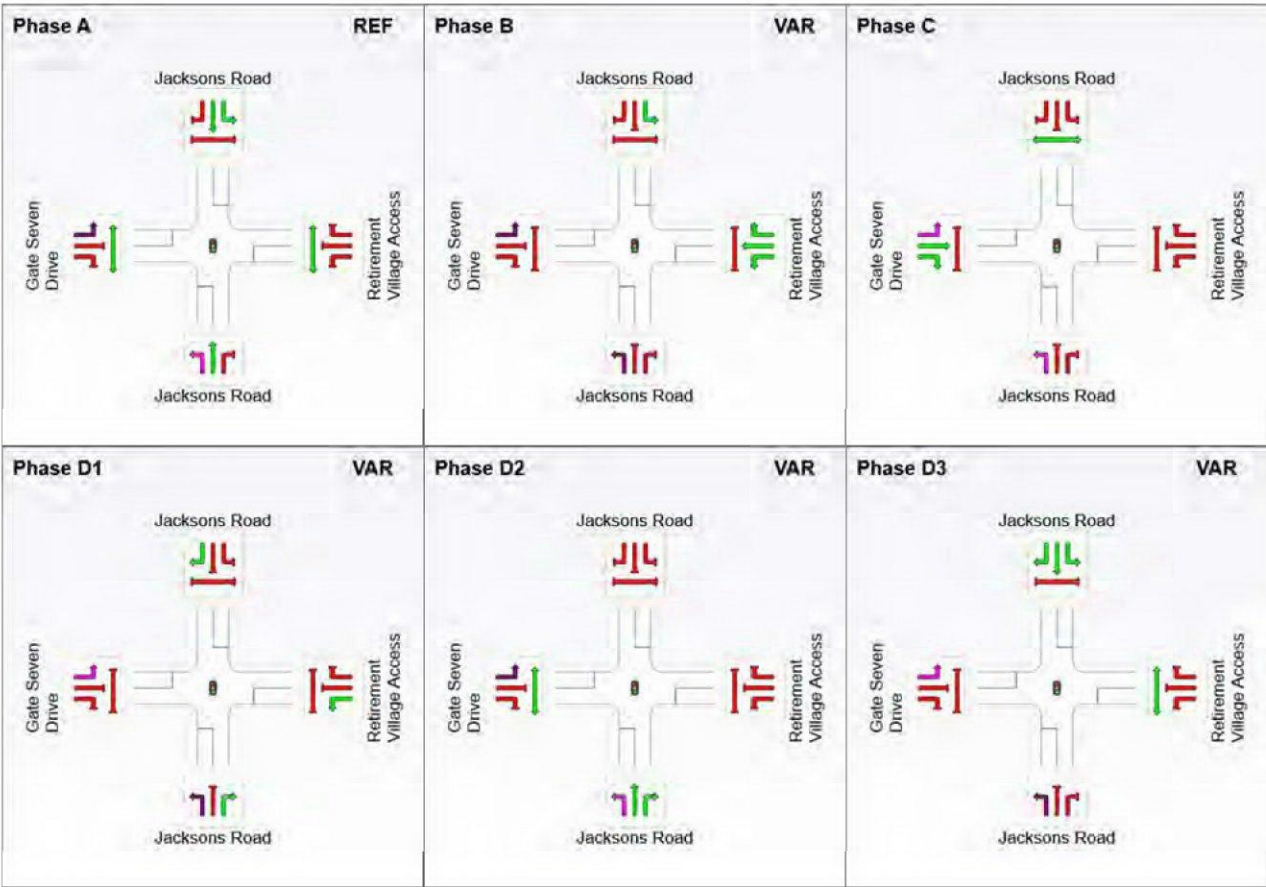
Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
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P2	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.8	213.9	0.93
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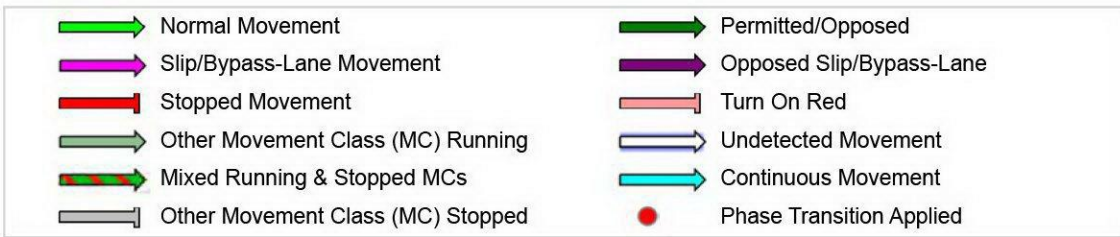
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REF: Reference Phase
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