Traffix Group

Traffic Engineering Assessment

Proposed Childcare Centre

1A Gear Avenue, Mount Evelyn

[redacted]

August 2022

G31933R-01B

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A	Draft	19/08/2022	D. Economou	J. Stone
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1. Introduction

Traffix Group [redacted] to undertake a Traffic Engineering Assessment for a proposed childcare centre at 1A Gear Avenue, Mount Evelyn.

2. Proposal

The proposal is for a childcare centre accommodating 96 childcare places.

The development provides 21 on-site car spaces for staff and parents, including 1 disabled car space. A total of 10 of the car spaces within the carpark are provided as tandem pairs (5 pairs), located along the southern side of the carpark aisle. The rear spaces are allocated specifically to staff (along with car spaces 9 and 21), whilst the remaining car spaces within the carpark are not labelled, maximising the efficiency of the carpark.

Vehicle access to the site is proposed via a two-way double width crossover to Gear Avenue, located near the site's northern boundary. We expect that the ultimate design of the proposed crossover will be done in consultation with Council to ensure any necessary drainage and construction requirements are also satisfied in this location.

All redundant crossovers are to be reinstated with kerb and channel to the satisfaction of the Responsible Authority.

No formal bicycle parking is proposed on the site.

Post-development, no on-street spaces will be available along the site's frontage to Gear Avenue, due to the configuration of the road kerbside not accommodating a parked vehicle in its current form (i.e. no net change).

A separate pedestrian access is proposed along at the southern side of the vehicle crossover via Gear Avenue.

The proposed operating hours of the childcare centre are 7am to 7pm, Monday to Friday.

A copy of the development plans prepared by Dovetail Developments (dated August, 2022) is attached at Appendix A to this report.

3. Existing Conditions

3.1. Subject Site

The subject site is 1A Gear Avenue, Mount Evelyn. The table below summarises the key characteristics of the subject site.

Table 1: Subject Site Description

Characteristic	Description
Address	1A Gear Avenue, Mount Evelyn
Area	1,387m^2
Frontages	46.1m to Gear Avenue
Zoning	Low Density Residential Zone (LDRZ)
Activity Centre	100m south-east of the Mount Evelyn Town Centre
Current use of site	Single-storey dwelling
Car parking and loading provision	Informal car parking areas located within the site, along with a single width garage shed
Vehicle access	Single width gravel crossover to Gear Avenue located towards the site's southern boundary
On-street parking along site frontage	No on-street car spaces are available along the site's frontage to Gear Avenue, given the configuration of the road kerbside not accommodating a parked vehicle in its current form

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

Significant nearby land uses include:

- **Warburton Trail,** located directly north-east of the site,
- **Mount Evelyn Town Centre,** located approximately 100m north-west of the site,
- **Mount Evelyn Tennis Club,** located approximately 450m north-west of the site,
- **Mount Evelyn Aqueduct,** located approximately 500m south of the site, and
- **Mount Evelyn Primary School,** located approximately 950m south-east of the site.

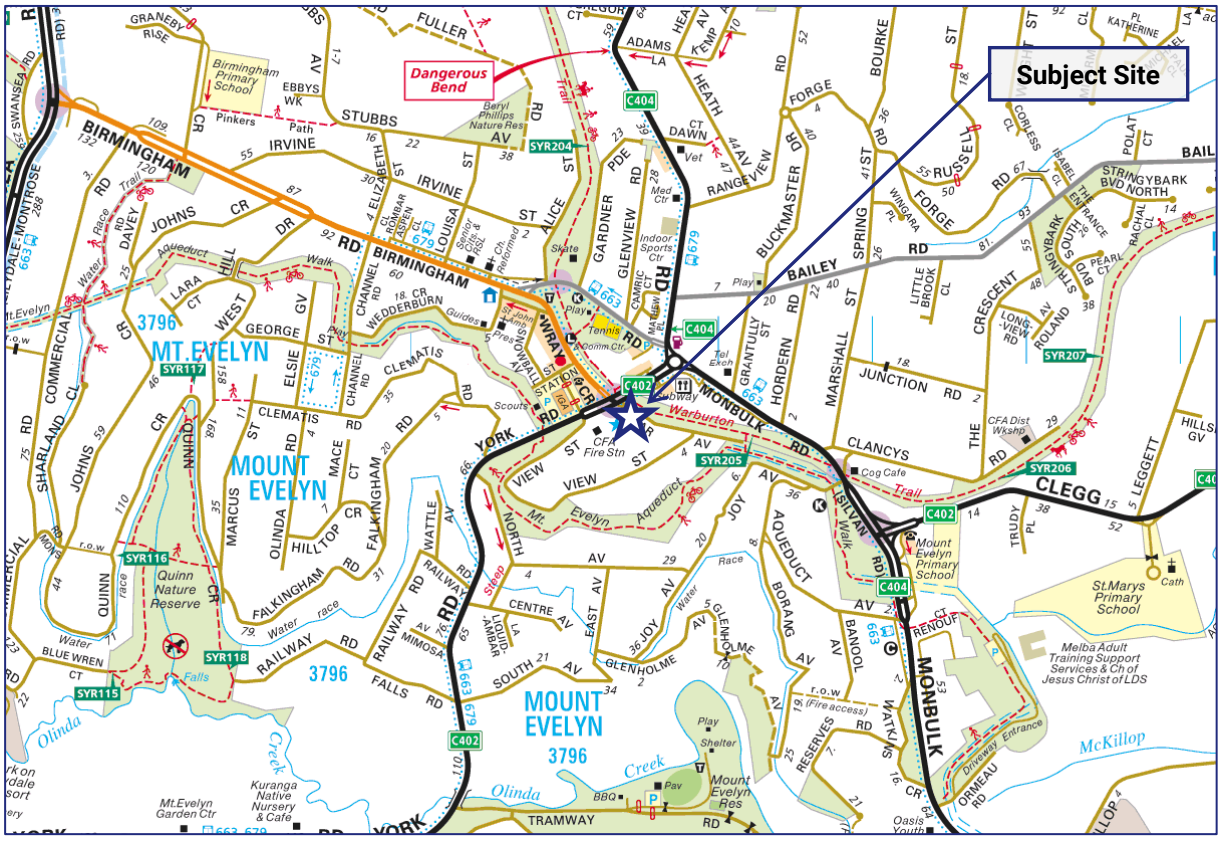


Figure 1: Locality plan (Source: Melway)

Figure 2: Aerial photograph (Source: Nearmap)

Figure 3: Subject site (view south-east from Gear Avenue)

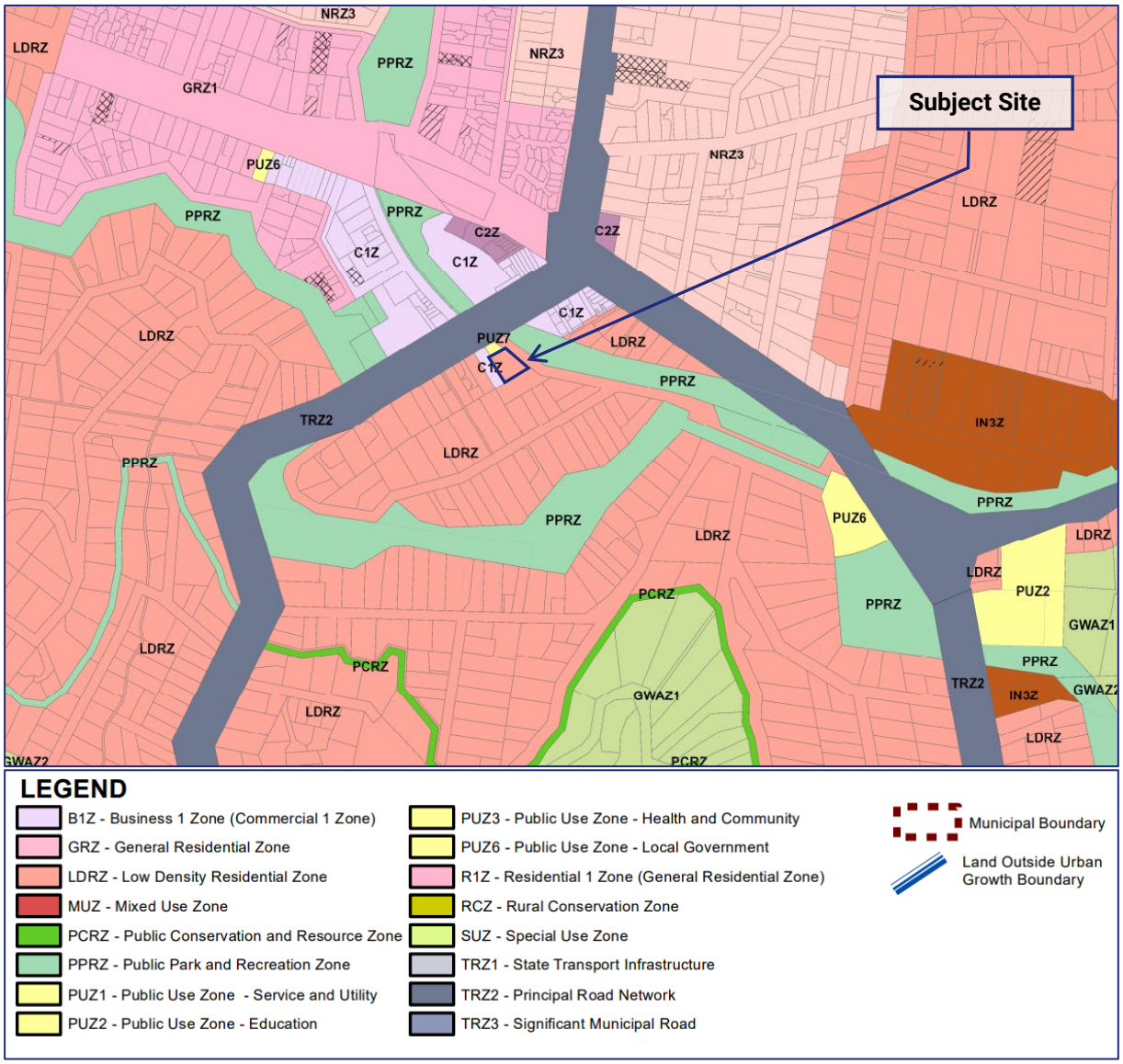


Figure 4: Land use zoning map (Source: Planning Schemes Online)

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 in Figure 5 to Figure 8 below.

Table 2: Local Road Network

Road Name	Agency	Classification	Transport Zone	Configuration	Speed Limit	On-Street Parking
Gear Avenue	Council	Local Road(1)	-	5.9m wide carriageway. This width allows for one lane of traffic in each direction with no on-street parking on either side of the carriageway. At the intersection with York Road the carriageway splits into exiting and entering lanes. Pedestrian footpaths are not provided on either side of the carriageway.	50km/h	Kerbside parking is not formally provided on either side of the carriageway due to the kerbside configuration.
York Road	DoT	State Arterial	Transport Zone 2	York Road provides two traffic lanes in each direction separated by a central median. An additional right-turn lane is provided in both directions at the intersection with Wray Crescent.	60km/h	On-street parking is not permitted on either side of the carriageway.

Note 1: As referenced in the Yarra Ranges Council Road Register – dated 28th June, 2021

Figure 5: Gear Avenue – view south-east

Figure 6: Gear Avenue – view north-west

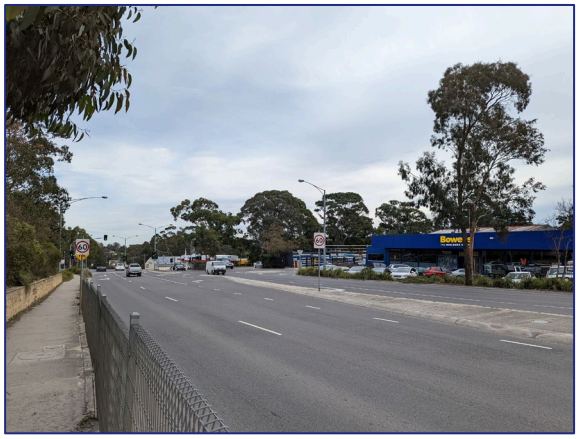


Figure 7: York Road – view south-west

Figure 8: York Road – view north-east

3.2.2. Existing Traffic Conditions

Traffix Group commissioned for 2 x 1-day automatic tube counters which commenced on Thursday 18th August, 2022, including:

- 1 x counter located along Gear Avenue, at the site's proposed crossover, and
- 1 x counter located along Gear Avenue, to the south-east of the site, at the top of the carriageway crest.

The traffic counters were placed in the locations shown at Figure 9. A summary of results of the 1-day automatic tube count surveys is provided at Table 3.

The full set of data from the traffic counters are attached at Appendix D.

Source: Neamap.com

Figure 9: Aerial photograph of tube count locations along Gear Avenue

Table 3: Tube count data summary

Road	Two-Way Daily Traffic Volumes (Wednesday 17th August, 2022)	Speed (km/h)	
		85th Percentile	Mean
Gear Avenue, Mt. Evelyn – at the location of the proposed crossover	213	41.0	36.1
Gear Avenue, Mt. Evelyn – located to the south-east of the site, at the carriageway crest	208	40.4	35.6

Gear Avenue has a cross section consistent with an Access Street – Level 1 under Clause 56.06, with an environmental capacity of between 1,000 to 2,000 vehicles per day.

Accordingly, both Gear Avenue currently operates well within its environmental capacity as per Clause 56.06 of the Yarra Ranges Planning Scheme.

3.2.3. Car Parking Conditions

Traffix Group completed an inventory of on-street parking during the site inspection on Wednesday 10th August, 2022 at 12pm.

The purpose of the inventory was to ascertain the supply and management of car parking in the area. As set out at Section 4.1, the development satisfies the statutory car parking requirements of Clause 52.06. Accordingly, the demand for on-street car parking is not a strong consideration for this proposal.

The detailed parking inventory and map is presented at Appendix B.

The survey area is presented in the figure below, which comprises an area of approximately 200m around the subject site.

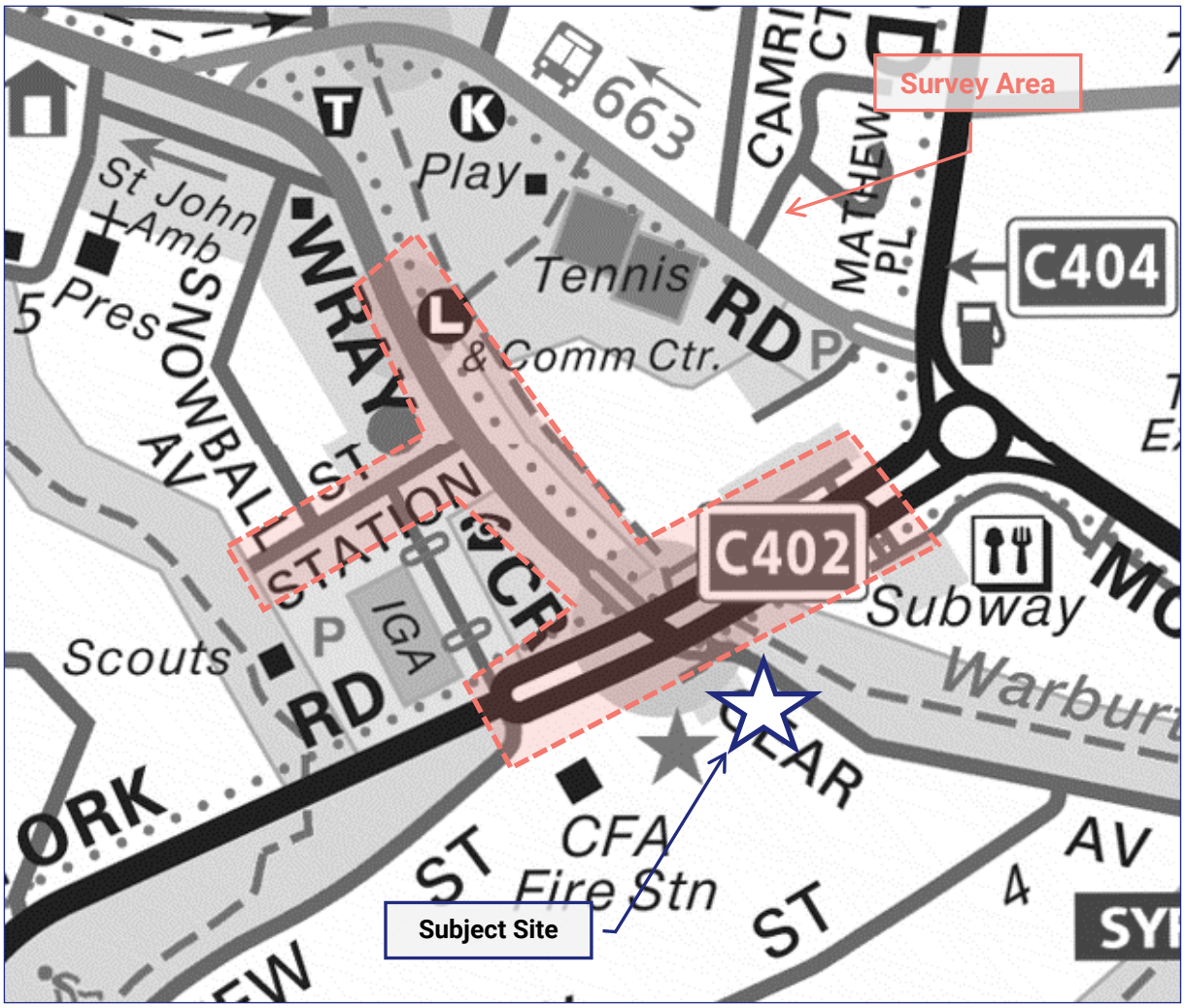


Figure 10: Parking inventory area (Source: Melway)

The key findings of the inventory were:

- There were 182 publicly available on-street/off-street car spaces within approximately 200m walking distance of the site during the site inspection.
- The demand for on-street parking during the site inspection was moderate, with 133 spaces recorded as occupied (73% occupancy).
- On-street/Off-street parking is primarily generally subject to short-term (1/4P, 1P and 2P) and unrestricted parking, along with areas subject to private parking.

3.2.4. Road Safety Review

A review of the State Road Accident Records (Crashstats) has been undertaken in the vicinity of the site for the past 5 years of available data (01/07/2015 to 30/06/2020)[1]. The review area is shown in Figure 11. A summary of the crash history is provided in Table 4.

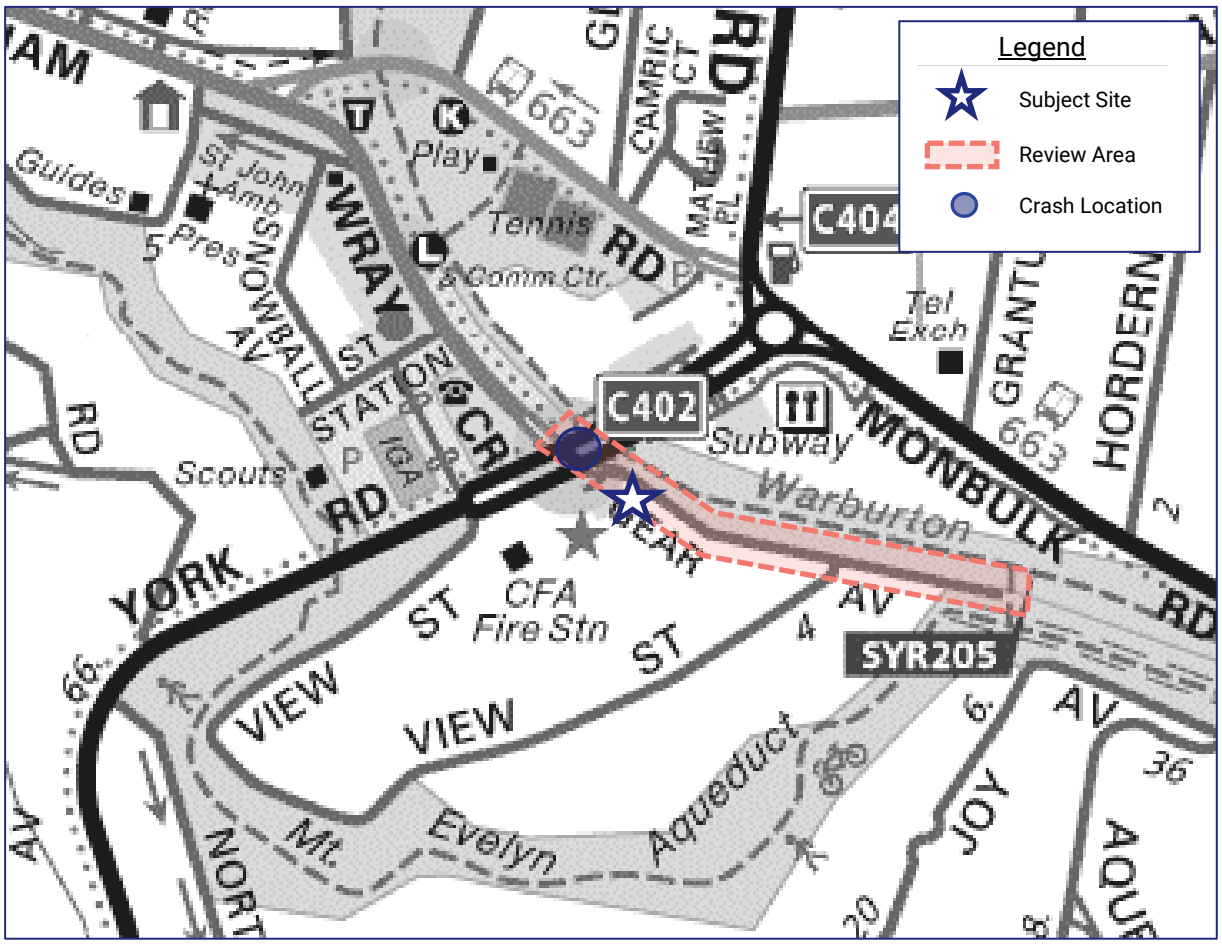


Figure 11: Crash History Investigation Area (Source: Melways)

[1] Casualty crash data is contained in the VicRoads' *Crashstats Internet Database* and includes all reported casualty crashes (i.e. injury crashes), which are classified into Fatal Injury, Serious Injury and Other Injury (i.e. minor injury) crashes. Property damage only or non-injury crashes are not included in the database.

Table 4: Casualty Crash History

Location	Date	Time	Severity	Conditions	DCA Code	Type of Accident
York Road at Wray Crescent	Thursday 16/06/2016	6:10 PM	OI	Dark, clear, dry	121	Right through. Involving one north-eastbound and one south-westbound vehicle
	Tuesday 18/10/2016	3:50 PM	OI	Day, clear, dry	102 (P)	Far side. Pedestrian hit by vehicle from the left. Involving one north-eastbound vehicle
	Tuesday 20/12/2016	10:30 AM	OI	Day, clear, dry	121	Right through. Involving one westbound and one north-eastbound vehicle
	Monday 29/05/2017	3:33 PM	SI	Day, clear, dry	121	Right through. Involving one eastbound and one westbound vehicle
	Friday 08/12/2017	12:50 PM	OI	Day, clear, dry	121	Right through. Involving one north-eastbound and one south-westbound vehicle
	Wednesday 20/12/2017	10:40 AM	SI	Day, clear, dry	100 (P)	Pedestrian near side. Pedestrian hit by vehicle from the right. Involving one south-eastbound vehicle

LEGEND:
OI: Other Injury SI: Serious Injury F: Fatality
(B): Bicyclist (M): Motorcyclist (P): Pedestrian
(C): Bus/Coach (RT): Rigid Truck (ST): Semi-trailer

A total of 6 casualty crashes have been recorded within the review area. All of the crashes are located at the signalised intersection between York Road/Wray Crescent and Gear Avenue, located to the north-west of the site. A total of 4 of the crashes at this intersection are the same crash type (DCA code 121), being 'right through' crashes. It is noted that not all 4 of the crashes are in the same direction.

Given the volume of traffic travelling through this intersection each day (York Road carries 22,000 vehicles per day in 2020)[2], crashes at the intersection of a major arterial road is not uncommon. We do not consider that this represents any safety concerns which warrant refusal of the application. The road authority, being the Department of Transport, should continue to monitor the intersection into the future to determine if there are any safety improvements that need to be taken.

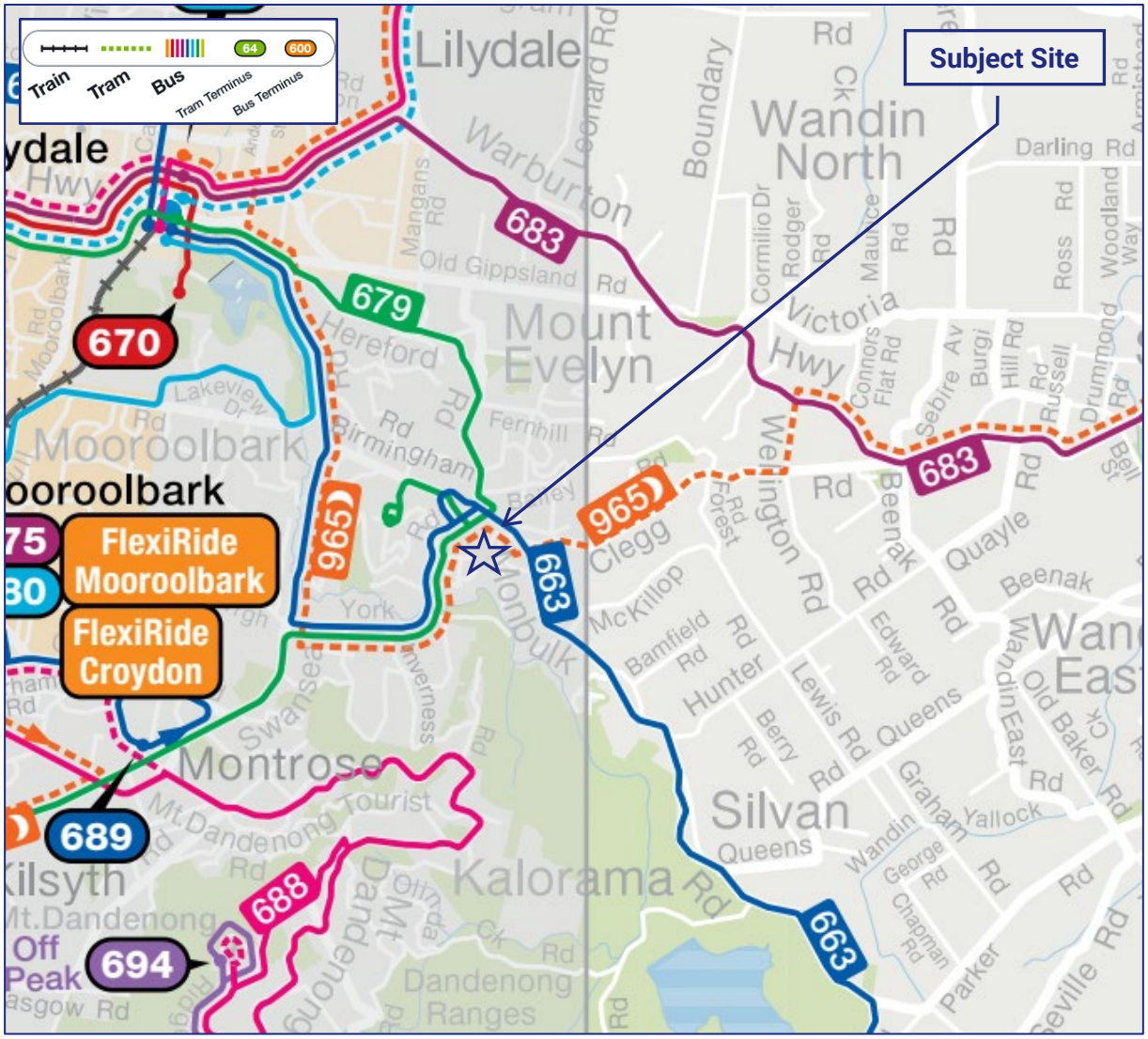
[2] According to vicroadsopendata-vicroadsmaps.opendata.arcgis.com/datasets/traffic-volume/ - sourced 17th August, 2022

3.3. Alternative Transport Modes

3.3.1. Public Transport

The site is not located within the Principal Public Transport Network (PPTN) area however has access to public transport services, including Bus Route 663, 679 and 965 operating along York Road.

Figure 12 details the public transport routes within the vicinity of the site. A summary of available public transport services is provided in Table 5.



Source: ptv.vic.gov.au

Figure 12: Public transport map (Source: PTV)

Table 5: Public Transport Services

Service	Between	Via
York Road – located approximately 150m walking distance north-east of the site		
Bus Route 663	Belgrave & Lilydale	Kallista, The Patch, Monbulk & Mount Evelyn
Bus Route 679	Chirnside Park Shopping Centre & Ringwood	Canterbury Road
Bus Route 965 (Nightbus)	Lilydale & Yarra Glen Loop	Woori Yallock & Healesville

3.3.2. Bicycle Infrastructure

The site is well served by bicycle infrastructure with off-road shared paths surrounding the site. Off-road bicycle lanes are provided along the Warburton Trail and Mount Evelyn Aqueduct Walk, which forms part of the Principal Bicycle Network (PBN).

These off-road shared paths provide a link to nearby activity centres and municipalities.

4. Traffic Engineering Assessment

4.1. Statutory Car Parking Assessment

The proposed development falls under the land-use category of 'childcare centre' under Clause 73.03 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.*

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

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

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

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

Table 6: Statutory car parking assessment

Use	No.	Statutory Parking Rate (Column A)	Car Parking Req. (Note 1)	Car Parking Provision	Shortfall/Surplus
Childcare Centre	96 places	0.22 spaces to each childcare place	21	21	0

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

The development has a statutory requirement under Clause 52.06-5 of 21 car spaces. Based on the provision and allocation of 21 car spaces, the development meets the statutory requirements of Clause 52.06-5 of the Planning Scheme. Accordingly, a car parking reduction is not required for the application.

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.*

One disabled car space is required under the NCC for the childcare centre. As one disabled car space is provided for the development in accordance with AS2890.6-2009, the requirements of the NCC have been met on-site.

4.2. Bicycle Parking Provision

Clause 52.34 of the Planning Scheme specifies bicycle parking requirements for new developments.

No bicycle parking is required for the land use of a childcare centre under Clause 52.34 and no formal rails are proposed for this development.

4.3. Carpark Layout and Vehicle Access Arrangements

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

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

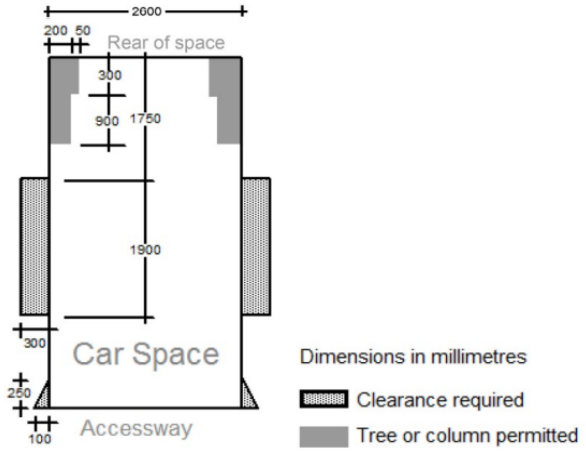
An assessment against the relevant design standards of the Planning Scheme and Australian Standards (where relevant) is provided in the table below.

Table 7: Carpark Layout and Access Assessment

Requirement	Assessment	Design Response
Clause 52.06-9 Design Standard 1 – Accessways		
Must be at least 3m wide	✓	Complies.
Have an internal radius of at least 4m at changes of direction or intersection or be at least 4.2m wide.	✓	Complies. All accessways greater than 4.2m wide.
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forwards direction with one manoeuvre.	✓	Complies.
Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8m.	✓	Complies. Carpark is open and does not have any overhead obstructions.
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.	N/A	While not strictly required under Clause 52.06-9, a passing area has been provided at the site access to allow for two-way passing.
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.	✓	A pedestrian sight triangle is shown on the exit (north) side of the accessway to Gear Avenue. While not strictly required a pedestrian sight triangle has also been provided on the southern side of the accessway.

<table>
<tr><th>Requirement</th><th>Assessment</th><th>Design Response</th></tr>
<tr><td>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.</td><td>N/A</td><td>N/A</td></tr>
<tr><td>If entry to the car space is from a road, the width of the accessway may include the road.</td><td>N/A</td><td>N/A</td></tr>
<tr><td colspan="3">Clause 52.06-9 Design Standard 2 – Car Parking Spaces</td></tr>
<tr><td>Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 under Clause 52.06-9.
<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>90°</td><td>6.4 m</td><td>2.6 m</td><td>4.9 m</td></tr>
<tr><td></td><td>5.8 m</td><td>2.8 m</td><td>4.9 m</td></tr>
<tr><td></td><td>5.2 m</td><td>3.0 m</td><td>4.9 m</td></tr>
<tr><td></td><td>4.8 m</td><td>3.2 m</td><td>4.9 m</td></tr>
</table>
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).</td><td>✓</td><td>All car spaces are provided in accordance with Clause 52.06-9.

Access to car spaces within the carpark has been checked for the B85 design vehicle, as shown in the swept path diagrams attached at Appendix C.

We are satisfied that access to all car spaces can be achieved and is satisfactory.</td></tr>
<tr><td>A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked ‘clearance required’ on Diagram 1, other than:
• A column, tree or tree guard, which may project into a space if it is within the area marked ‘tree or column permitted’ on Diagram 1.
• A structure, which may project into the space if it is at least 2.1 metres above the space.
Diagram 1 Clearance to car parking spaces
 
</td><td>✓</td><td>Complies.</td></tr>
</table>

<table>
<tr><th>Requirement</th><th>Assessment</th><th>Design Response</th></tr>
<tr><td>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.</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Where parking spaces are provided in tandem, an additional 0.5m in length must be provided between each space.</td><td>✓</td><td>Complies.</td></tr>
<tr><td>Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.</td><td>N/A</td><td>N/A</td></tr>
<tr><td>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.</td><td>✓</td><td>Complies.</td></tr>
<tr><td colspan="3">Clause 52.06-9 Design Standard 3 - Gradients</td></tr>
<tr><td>Accessway grades must not be steeper than 1:10 (10 per cent) within 5 metres of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage.
This does not apply to accessways serving three dwellings or less.</td><td>✓</td><td>The grades over the first 5m into the site do not exceed 1:10 (10%).

Complies.</td></tr>
<tr><td>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.
<table>
<tr><th>Type of car park</th><th>Length of ramp</th><th>Maximum grade</th></tr>
<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>
</table></td><td>✓</td><td>Complies.</td></tr>
<tr><td>Where the difference in grade between two sections of ramp or floor is greater that 1:8 (12.5 per cent) for a summit grade change, or greater than 1:6.7 (15 per cent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.</td><td>✓</td><td>Complies.</td></tr>
</table>

Requirement	Assessment	Design Response
Plans must include an assessment of grade changes of greater than 1:5.6 (18 per cent) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority	✓	Complies.
Clause 52.06-9 Design Standard 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.	✓	Lighting of the carpark can be addressed as part of the detailed design stage. The signage within the carpark can be addressed within a Car Parking Management Plan, if required.
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.	✓	Pedestrian access to the carpark is available to Gear Avenue located directly south of the main vehicle access, however it is noted that formal footpaths are not currently provided along Gear Avenue.
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.	✓	Hatched areas are shown on the plans to denote pedestrian access routes through the carpark.
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 specifically 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.		

A turning bay (3.455m wide) located adjacent to car space 15 has been designed to cater for the B85 design vehicle as per Appendix B of AS2890.1-2004. A swept path diagram showing this movement can be found at Appendix C.

Based on the above, we are satisfied that the layout of the proposed carpark and vehicle access arrangements as detailed in the plans at Appendix A are satisfactory and that the access arrangements for the development will provide for safe and efficient movements to and from the development.

4.4. Sight Distance/Safety Assessment

Traffix Group has undertaken a detailed on-site review of the sight distance available at the proposed site access point.

Traffix Group has undertaken a review of the sight distance available at the proposed access point to the site. This involved undertaking a measurement of the available sight distance from where a vehicle would be propped waiting to turn left or right onto Gear Avenue at the proposed access location, as well as for a car approaching along Gear Avenue.

All measurements were undertaken at a height of 1.15m, which represents a driver's eye height and a driver seeing the upper parts of an approaching car.

The speed limit of Gear Avenue adjacent to the site is 50km/h (being the default urban speed limit), whilst the 85th percentile speed recorded via the two tube counters as highlighted at Section 3.2.2 indicates a speed of 40km/h for vehicles at the top of the crest along Gear Avenue, when travelling in a westbound direction towards the intersection with York Road.

The sight distance towards the south-east for a vehicle exiting the proposed crossover of the site (and for a vehicle approaching from the south-east viewing a car exiting) was recorded as 63m based on the existing conditions of Gear Avenue. This is shown at Figure 13 and Figure 14.

Figure 13: Sight distance towards the south-east - Proposed sight access location (2.5m setback from carriageway)

Figure 14: Sight distance measurement looking south-east along Gear Avenue

The Australian Standard (AS2890.1-2004) requires a minimum SSD of 45m for a 50km/h speed road and 35m for a 40km/h speed road. The AustRoads Guide to Road Design - Extended Design Domain Table A9 requires a Safe Intersection Sight Distance (SISD) of 63m for a 50km/h speed road (1.5 second Observation Time and Reaction Time) and 47m for a 40km/h speed road.

There is a downgrade along the site frontage which adds 1m to 2m of additional length required for vehicles approaching from the south-east along Gear Avenue. The available sight distance of 63m is in our view acceptable in the context of it complying with the minimum SSD from the Australian Standard and the SISD requirement from the AustRoads Guide to Road Design when considering the speed of vehicles in this location as per the traffic surveys. Vehicles approaching from the north-west (and vehicles looking towards the north-west from the site access) have good sight distance to the signalised intersection.

The current sight distance is acceptable in our view for a number of reasons (slower speeds recorded along Gear Avenue when compared to the posted speed limit of the road as per Section 3.2.2) and the low level of traffic which travels along Gear Avenue, meaning that there will be a lower level of potential vehicle conflicts occurring along the road. Accordingly, we are satisfied with the sight distance provision at the proposed site access location.

4.5. Loading and Waste Collection Arrangements

Loading

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

> *Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate:*
>
> – *The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.*

In practice, loading activities associated with the proposed childcare centre will be undertaken by smaller type vehicles, such as vans, which can be accommodated within the on-site carpark during off-peak times when parent demand is low. We are satisfied that a childcare centre does not warrant the inclusion of a dedicated on-site loading bay.

Based on the above, we are satisfied with the loading arrangements for the proposed childcare centre.

Waste Collection

Waste bins for the childcare centre will be stored in a bin refuse area in the south-western section of the carpark, adjacent to car space 21. Waste will be collected outside of operating hours when the carpark is empty, providing sufficient space to turn the truck around within the carpark.

Swept path diagrams demonstrating the 6.4m long x 2.08m high waste collection vehicle undertaking entry and exit movements within the carpark are attached at Appendix C.

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

4.6. Traffic Impact Assessment

4.6.1. Traffic Generation Rates

Proposed Childcare Centre

Traffix Group has undertaken extensive studies of existing childcare centres to produce empirical data for peak traffic generation rates and to better understand how they operate. Childcare centres typically generate peak hour traffic in the order of 0.5 to 0.8 vehicle trip ends per child during the commuter peak hours.

Childcare centres operate differently compared to primary schools and kindergartens. Staff members arrive initially before the childcare centre opens, with staff numbers increasing slowly as child attendance increases throughout the day.

As childcare centres do not have set start or finish times (only operating hours), parents do not drop off or pick up children at the same time. Rather, the manner in which children are dropped off and picked up is spread throughout the morning and evening periods. Parents will often drop kids off or pick them up on the way to dropping/collecting other children from nearby schools, on the way to work (which can have varying start times) and on the way home from work (which can also have varying finish times). This is in sharp contrast to primary schools or kindergartens where set start and finish times result in a high level of traffic generated within a relatively short timeframe.

Conservatively adopting the higher rate of 0.8 vehicle trips per childcare place, the proposed 96 place childcare centre is expected to generate 77 vehicle trip ends during the commuter peak hours. This equates to approximately 39 vehicle entry and 39 exit manoeuvres in the peak hour (i.e. 1 entry or exit movement every 1-2 minutes).

The traffic impacts associated with the proposed childcare centre will be primarily limited to Gear Avenue, York Road and Wray Crescent.

For the daily traffic generation rate, a highly conservative assessment would be to assume all parents drive their child singularly to the site and pick them up. Accordingly, each childcare place would generate four movements per day, or 384 movements for the 96 place childcare centre. Staff demands associated with the childcare centre will be additional to this and may account for up to 80 movements across the day, allowing for staff changeover between morning and afternoon shifts.

These assumptions are conservative as they do not allow for any ‘car sharing’ (i.e. more than one child per parent) or the use of alternative transport modes (i.e. walking from nearby properties or public transport modes).

Summary

For the purpose of the following traffic analysis, a total of 77 vehicle trip ends are expected in each of the commuter peak hours. A total daily traffic volume of approximately 464 vehicle trip ends is expected.

4.6.2. Peak Hour Traffic Distribution

It is assumed that 50% of childcare traffic departs and 50% arrives during all peak commuter periods. Traffic impacts from the proposed development will be generally limited to Gear Avenue, York Road and Wray Crescent.

Based on the surrounding road connections and residential catchment areas, it is expected that traffic accessing the site will arrive generally evenly from all directions around the site, with approximately 33% of traffic expected to arrive/depart from the west side of York Road via a right-turn into Gear Avenue, east side of York Road via a left-turn into Gear Avenue and from Wray Crescent to the north, respectively. All traffic will therefore move through the signalised intersection between York Road/Wray Crescent and Gear Avenue.

Given that 77 vehicle trip ends are expected in each of the commuter peak hours, this equates to 39 entry and 39 exit movements. As a result, a total of 13 right-turn entry movements from York Road to Gear Avenue are expected during the peak hour, which equates to 1 movement every 4-5 minutes. The southern leg (Gear Avenue) of the signalised intersection will experience a total of 39 exit movements in the peak hours, (with less outside the peak) distributed between the 3-legs of York Road and Wray Crescent, respectively. This equates to 1 movement every 1-2 minutes or 1-2 movements per cycle of the signalised intersection during the AM and PM peak hours, given an average cycle time of approximately 120 seconds for a standard signalised intersection. Outside of peak hours this will be significantly lower. We do not consider that the impacts on the intersection will be significant.

We are satisfied that the peak hour traffic distribution of the proposal on the nearby road network is acceptable.

4.6.3. Daily Traffic Impacts

The following section reviews the daily impacts of the traffic generated by the proposal.

As per Section 4.6.1, the childcare centre is expected to generate a total of 464 vehicle trips per day and assumes all traffic will travel to and from the north. Some local traffic may arrive from the south but for a conservative analysis, we have assumed that all traffic will come from the signalised intersection to the north.

The existing and post-development daily traffic volumes for the nearby local roads are detailed at Table 8.

Table 8: Existing and post-development daily traffic volumes

Street	Existing Daily Volume (vpd) (Note 1)	Post-Development Daily Volume (vpd) (Notes 1 & 3)	Environmental Capacity of Road (vpd) (Note 2)	Within Environmental Capacity?
Gear Avenue, Mt. Evelyn – at the location of the proposed crossover	213	677	1,000 to 2,000	Yes.
Gear Avenue, Mt. Evelyn – located to the south-east of the site, at the carriageway crest	208	208	1,000 to 2,000	Yes.

Notes:
1. As described at Section 3.2.
2. As described at Section 3.2.
3. As described at Section 4.6.

Based on the above, Gear Avenue will continue to operate within its environmental daily capacity.

Accordingly, we are satisfied that the daily traffic impacts of the proposal on the nearby road network are acceptable.

5. Conclusions

Having undertaken a detailed traffic engineering assessment of the proposed childcare centre at 1A Gear Avenue, Mount Evelyn, we are of the opinion that:

a) the proposed development has a statutory car parking requirement of 21 car spaces under Clause 52.06-5,

b) the provision and allocation of 21 car spaces accords with the statutory requirements of Clause 52.06 and a car parking reduction is not required,

c) bicycle parking is not required under Clause 52.34 for the proposed childcare centre and no formal bicycle spaces have been provided,

d) the layout of the on-site parking areas is acceptable and accords with the relevant requirements of Clause 52.06-9, AS2890.1-2004 (where relevant) and AS2890.6-2009 (where relevant),

e) vehicle access is provided by a two-way crossover which will provide for convenient vehicle movements to and from the carpark,

f) the current sight distance at the proposed crossover is acceptable for a number of reasons (slower speeds recorded along Gear Avenue when compared to the posted speed limit of the road and the low level of traffic which travels along Gear Avenue), when comparing with the Australian Standards and Austroads Guide.

g) traffic associated with the development will be moderate, spread across the peak periods and will be accommodated by the surrounding road connections,

h) waste collection will occur on-site, outside of peak operating hours and does not pose any significant traffic engineering issues, and

i) there are no traffic engineering reasons why a planning permit for the proposed childcare development at 1A Gear Avenue, Mount Evelyn, should be refused.

Appendix A

Development Plans

DEVELOPMENT SUMMARY
CHILD CARE CENTRE

AREAS

SUBJECT SITE	**1387M2 (100%)**
SITE COVERAGE	**699.0M2 (50.4%)**
TOTAL IMPERVIOUS AREA	**957.5M2 (69%)**
TOTAL PERMEABLE AREA	**429.5M2 (31%)**
GROUND FLOOR AREA	**348.3M2**
FIRST FLOOR AREA	**288.3M2**
BALCONY PLAY AREA	**318.0M2**
TOTAL FLOOR AREA	**954.6M2**
TOTAL CHILD CARE PLACES	**96**
OUTDOOR AREA REQUIRED	**672M2**
OUTDOOR AREA PROVIDED	**716M2**
CARPARK SPACES REQUIRED	**21**
CARPARK SPACES PROVIDED	**21**

ALL LEVELS TO AHD

GROUND FLOOR PLAN

SCALE 1:100

DOVETAIL DEVELOPMENTS

issue	date	note
A	AUG22	TOWN PLANNING SUBMISSION

project: proposed development @ **1A GEAR AVE MT EVERLYN**
client: DOVETAIL
title: GROUND FLOOR
project no: X
date: AUG22
scale: 1 : 100 @ A0
TP03

Appendix B

Parking Inventory

Traffix Group

Surveyed By: Dimitri Economou/Jason Stone **Survey Dates & Times:** See below

1A Gear Avenue, Mount Evelyn		Restriction	Capacity Min - Max	Wednesday 10th August, 2022 1pm
ON-STREET CARPARKING				
Map Ref.	**WRAY CRESCENT**			
	West Side			
	York Road to Station Street	No Stopping	-	0
		2P Parallel 8am-6pm Mon-Fri, 9am-12noon Sat	12	10
		No Stopping (10m)	-	0
	Station Street to Pedestrian Lights	No Stopping (10m)	-	0
		2P Parallel 8am-6pm Mon-Fri, 9am-12noon Sat	6	6
		No Stopping (10m)	-	0
	East Side			
	Pedestrian Lights to Carpark Exit	2P Parallel 9am-6pm Mon-Fri, 9am-12noon Sat	12	9
	Carpark Exit to York Road	2P Parallel 9am-6pm Mon-Fri, 9am-12noon Sat	5	3
WRAY CRESCENT		**Capacity**	**35 - 35**	**35**
		Total Number of Cars Parked		**28**
		Total Number of Vacant Spaces		**7**
		Percentage Occupancy		**80%**
Map Ref.	**STATION STREET**			
	North Side			
	Wray Crescent to Snowball Avenue	No Stopping (10m)	-	0
		Loading Zone	1	0
		1P 9am-6pm Mon-Fri	1	1
		1/4P 9am-6pm Mon-Fri	3	1
		Unrestricted	2	0
		No Stopping (10m)	-	0
	Snowball Avenue to End of Street	No Stopping (10m)	-	0
		Unrestricted	1	0
	South Side			
	End of Street to Wray Crescent	No Stopping	-	0
		Unrestricted	6	5
		2P 9am-5pm Mon-Fri, 9am-12noon Sat	1	0
		No Stopping	-	0
STATION STREET		**Capacity**	**11 - 11**	**11**
		Total Number of Cars Parked		**6**
		Total Number of Vacant Spaces		**5**
		Percentage Occupancy		**55%**

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Traffix Group

Surveyed By: Dimitri Economou/Jason Stone **Survey Dates & Times:** See below

1A Gear Avenue, Mount Evelyn		Restriction	Capacity Min - Max	Wednesday 10th August, 2022
				1pm
Map Ref.	**GEAR AVENUE NEAR YORK ROAD INTERSECTION**			
	Overall Area			
	West Side of Area	Unrestricted	4	1
GEAR AVENUE NEAR YORK ROAD INTERSECTION		**Capacity**	**4 - 4**	**4**
		Total Number of Cars Parked		**1**
		Total Number of Vacant Spaces		**3**
		Percentage Occupancy		**25%**
Map Ref.	**GRAVEL AREA SOUTH SIDE OF YORK ROAD**			
	Overall Area			
	Overall Area	Unrestricted	6	1
GRAVEL AREA SOUTH SIDE OF YORK ROAD		**Capacity**	**6 - 6**	**6**
		Total Number of Cars Parked		**1**
		Total Number of Vacant Spaces		**5**
		Percentage Occupancy		**17%**
Map Ref.	**Off-Street Carpark - East side of Wray Crescent, North of York Road**			
	Northern Area			
	Northern Area	P Disabled	2	1
		2P 9am-6pm Mon-Fri, 9am-12pm Sat	21	18
	Middle Area	2P 9am-6pm Mon-Fri, 9am-12pm Sat/Not Signed	21	13
	Far Southern Area	2P 9am-6pm Mon-Fri, 9am-12pm Sat/Not Signed	15	10
		2P 9am-6pm Mon-Fri, 9am-12pm Sat	16	11
Off-Street Carpark - East side of Wray Crescent, North of York Road		**Capacity**	**75 - 75**	**75**
		Total Number of Cars Parked		**53**
		Total Number of Vacant Spaces		**22**
		Percentage Occupancy		**71%**
Map Ref.	**GRAVEL CARPARK - NORTH-EAST CORNER OF YORK ROAD AND WRAY CRESCENT**			
	East Side			
	Whole Area	Unrestricted	7	6
GRAVEL CARPARK - NORTH-EAST CORNER OF YORK ROAD AND WRA		**Capacity**	**7 - 7**	**7**
		Total Number of Cars Parked		**6**
		Total Number of Vacant Spaces		**1**
		Percentage Occupancy		**86%**

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Traffix Group

Surveyed By: Dimitri Economou/Jason Stone **Survey Dates & Times:** See below

1A Gear Avenue, Mount Evelyn		Restriction	Capacity Min - Max	Wednesday 10th August, 2022 1pm
Map Ref.	**YORK ROAD SERVICE ROAD - NORTHERN SIDE**			
	North Side			
	Wray Crescent to Eastern End	1P 8:30am-12:30pm Sat	16	13
	South Side			
	Western End	Unrestricted	8	8
	Eastern End	2P 9am-6pm Mon-Fri	6	6
YORK ROAD SERVICE ROAD - NORTHERN SIDE		**Capacity**	**30 - 30**	**30**
		Total Number of Cars Parked		**27**
		Total Number of Vacant Spaces		**3**
		Percentage Occupancy		**90%**
Map Ref.	**YORK ROAD SERVICE ROAD - SOUTHERN SIDE**			
	North Side			
	Carpark Entry from York Road to Eastern Corner	2P 9am-5pm	4	2
		1/4P 9am-10pm	2	1
		2P 9am-5pm	4	4
		1/4P 9am-10pm	2	2
	South Side			
	Carpark Entry from York Road to Eastern Corner	Mt Evelyn Pizza Customers 10min Parking	4	1
		Forget-Me-Not Customer Parking	2	0
		Unrestricted (Unsigned)	6	5
		Private	2	1
YORK ROAD SERVICE ROAD - SOUTHERN SIDE		**Capacity**	**14 - 14**	**14**
		Total Number of Cars Parked		**11**
		Total Number of Vacant Spaces		**3**
		Percentage Occupancy		**79%**
SUMMARY => ON-STREET CARPARKING				
Car Parking Supply			**182 - 182**	**182**
Total Number of Cars Parked				**133**
Total Number of Vacant Spaces				**49**
Percentage Occupancy				**73%**

Note: Public parking includes spaces that are available to the general public and excludes '1/4P', 'No Stopping' and 'Loading Zone' areas, etc., during the relevant enforcement periods

LEGEND:	
Public Parking	
Not available to the general public	
Not Available, illegally parked cars included in analysis	
No Stopping/ Other No Parking	

Nb/Sb - Northern/Southern Property Boundary
Eb/Wb - Eastern/Western Property Boundary
Mid pt - Mid point
ROW - Right of Way

Appendix C

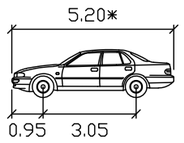
Swept Path Diagrams

VEHICLE PROFILE

B99 VEHICLES PASSING AT THE SITE ENTRY VIA GEAR AVENUE - RIGHT-IN/LEFT-OUT

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



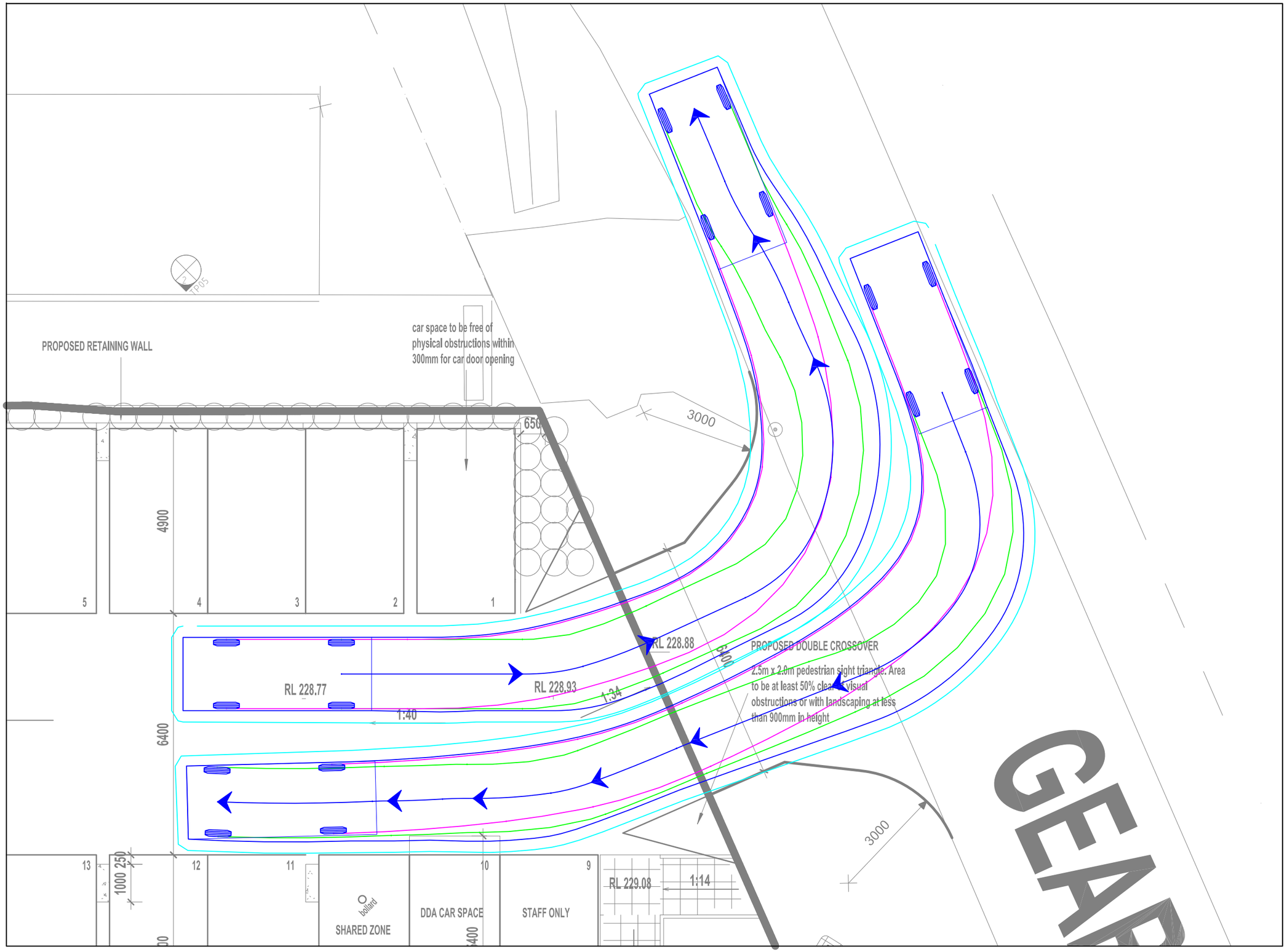
99th percentile
(AS/NZS 2890.1:2004)

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



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	15/08/2022	Town Planning	D. ECONOMOU	J. STONE

1A GEAR AVENUE, MOUNT EVELYN

PROPOSED CHILDCARE CENTRE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM: 220815_1A Gear Ave_Mt Everlyn_Town Planning-Sheet - TP03 - GROUND FLOOR.dwg
DRAWINGS BY: Dovetail Developments - dated August, 2022

FILE NAME: G31933-01A

SHEET NO.: 01

SCALE: 1:100 (A3)

0 1 2

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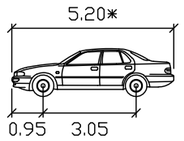
T: (03) 9822 2888
www.traffixgroup.com.au

VEHICLE PROFILE

B99 VEHICLES PASSING AT THE SITE ENTRY VIA GEAR AVENUE - LEFT-IN/LEFT-OUT

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



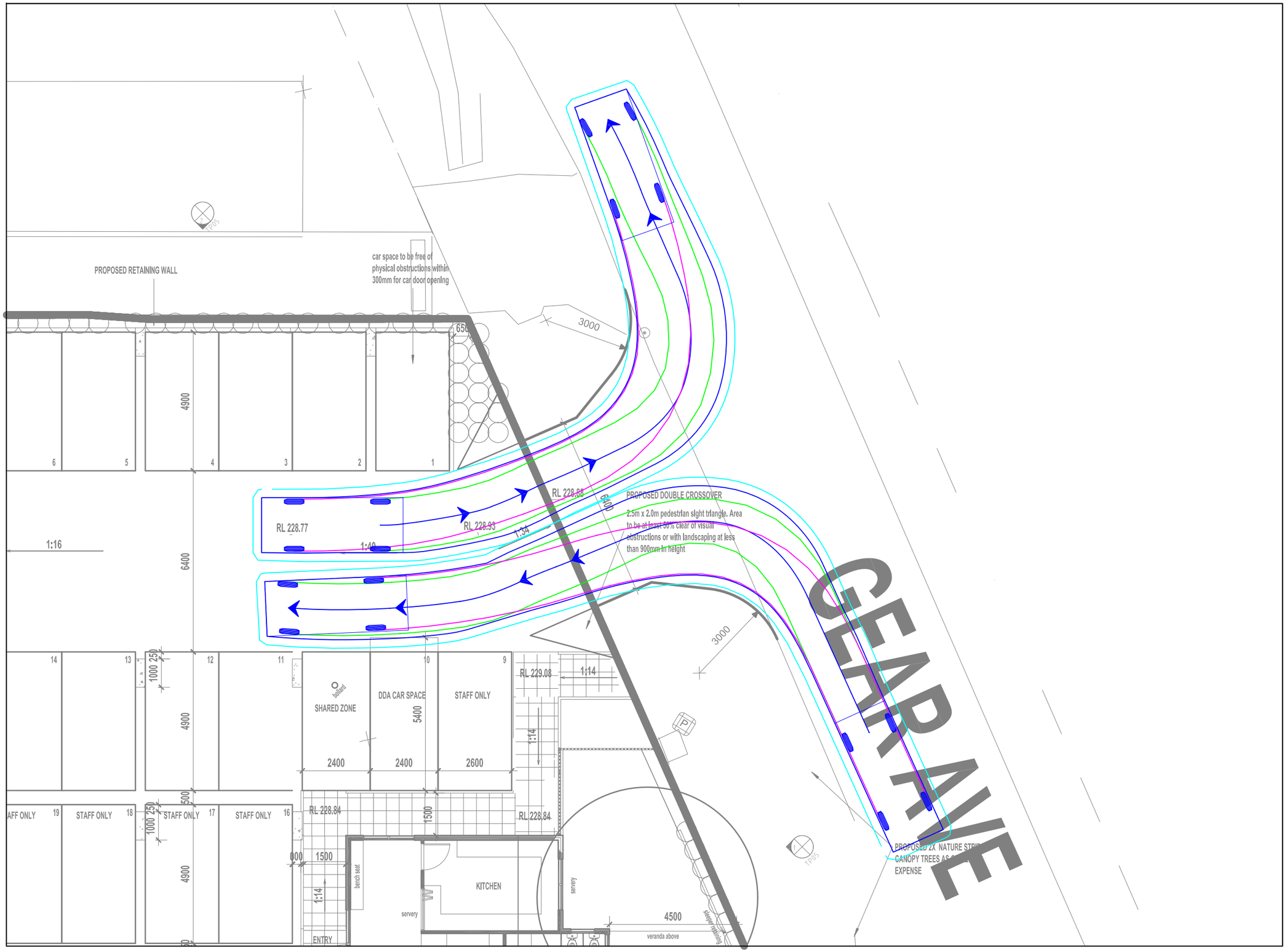
99th percentile
(AS/NZS 2890.1:2004)

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



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	15/08/2022	Town Planning	D. ECONOMOU	J. STONE

1A GEAR AVENUE, MOUNT EVELYN

PROPOSED CHILDCARE CENTRE DEVELOPMENT

GENERAL NOTES:

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DRAWINGS BY: Dovetail Developments - dated August, 2022

FILE NAME: G31933-01A

SHEET NO.: 02

SCALE: 1:150 (A3)

0 1.5 3

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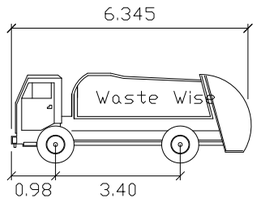
VEHICLE PROFILE

6.4m LONG WASTE TRUCK - INGRESS

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



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

PROPOSED RETAINING WALL

car space to be free of physical obstructions within 300mm for car door opening

RL 227.80 RL 228.77 RL 228.93 RL 228.88 RL 229.08 RL 228.84 RL 229.08

1:16 1:40 1:34 1:14

TURNING BAY 3455

SHARED ZONE 2400 | DDA CAR SPACE 2400 | STAFF ONLY 2600

STAFF ONLY 3000 | STAFF ONLY 2600 | STAFF ONLY | STAFF ONLY | STAFF ONLY | STAFF ONLY

bollard

KITCHEN

servery

bench seat

ENTRY

PROPOSED DOUBLE CROSSOVER
2.5m x 2.0m pedestrian sight triangle. Area to be at least 50% clear of visual obstructions or with landscaping at less than 900mm in height

PROPOSED 2X NATURE STRIP CANOPY TREES AS PER COUNCIL EXPENSE

GEAR AVE

veranda above

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	15/08/2022	Town Planning	D. ECONOMOU	J. STONE

1A GEAR AVENUE, MOUNT EVELYN

PROPOSED CHILDCARE CENTRE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM: 220815_1A Gear Ave_Mt Everlyn_Town Planning-Sheet - TP03 - GROUND FLOOR.dwg
DRAWINGS BY: Dovetail Developments - dated August, 2022

FILE NAME: G31933-01A
SHEET NO.: 03

SCALE: 1:150 (A3) 0 1.5 3

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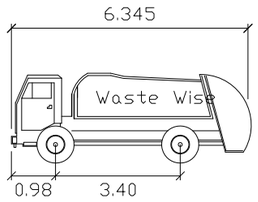
VEHICLE PROFILE

6.4m LONG WASTE TRUCK - EGRESS

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



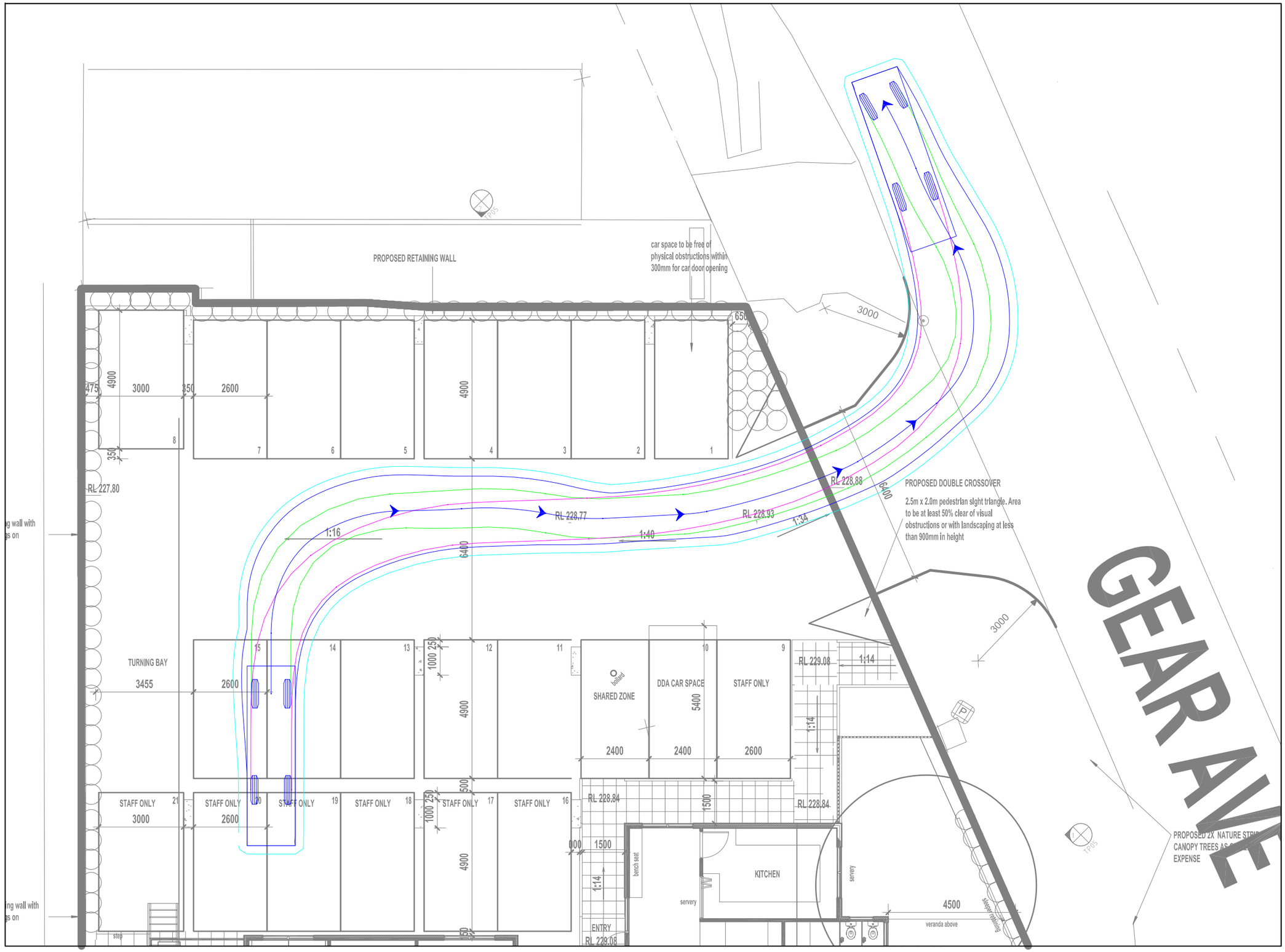
Waste Wise Mini (Hino 300)

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



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	15/08/2022	Town Planning	D. ECONOMOU	J. STONE

1A GEAR AVENUE, MOUNT EVELYN

PROPOSED CHILDCARE CENTRE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM: 220815_1A Gear Ave_Mt Everlyn_Town Planning-Sheet - TP03 - GROUND FLOOR.dwg

DRAWINGS BY: Dovetail Developments - dated August, 2022

FILE NAME: G31933-01A

SHEET NO.: 04

N

SCALE: 1:150 (A3)

0 1.5 3

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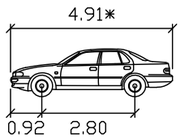
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



85th percentile
(AS/NZS 2890.1:2004)

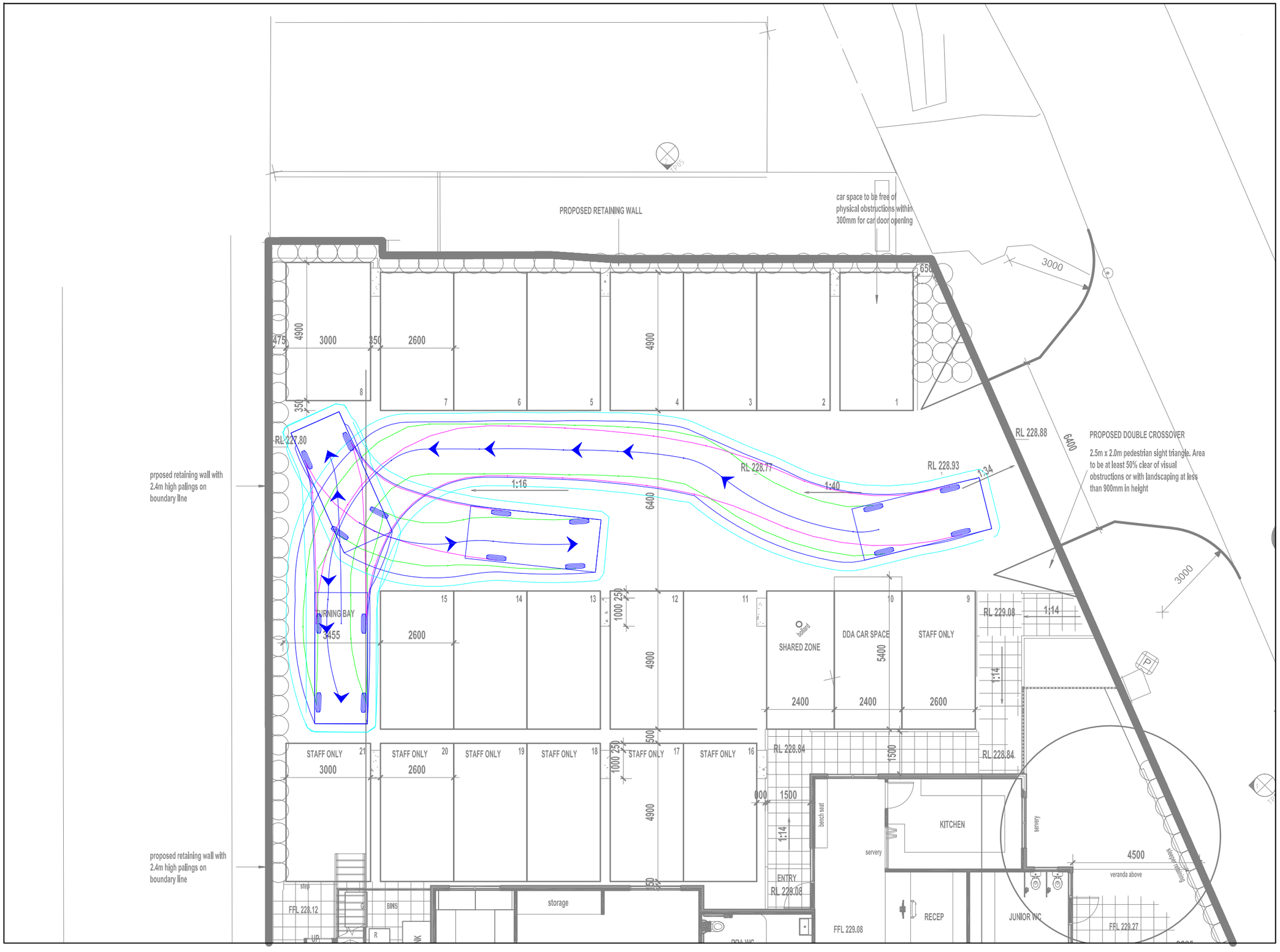
Width : 1.87m
Track : 1.77m
Kerb to Kerb Radius : 5.5m

* 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

B85 VEHICLE - TURNING BAY MOVEMENT



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	15/08/2022	Town Planning	D. ECONOMOU	J. STONE

1A GEAR AVENUE, MOUNT EVELYN

PROPOSED CHILDCARE CENTRE DEVELOPMENT

GENERAL NOTES:

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DRAWINGS BY: Dovetail Developments - dated August, 2022

FILE NAME: G31933-01A
SHEET NO.: 05

SCALE: 1:150 (A3)

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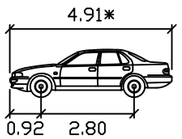
VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



85th percentile
(AS/NZS 2890.1:2004)

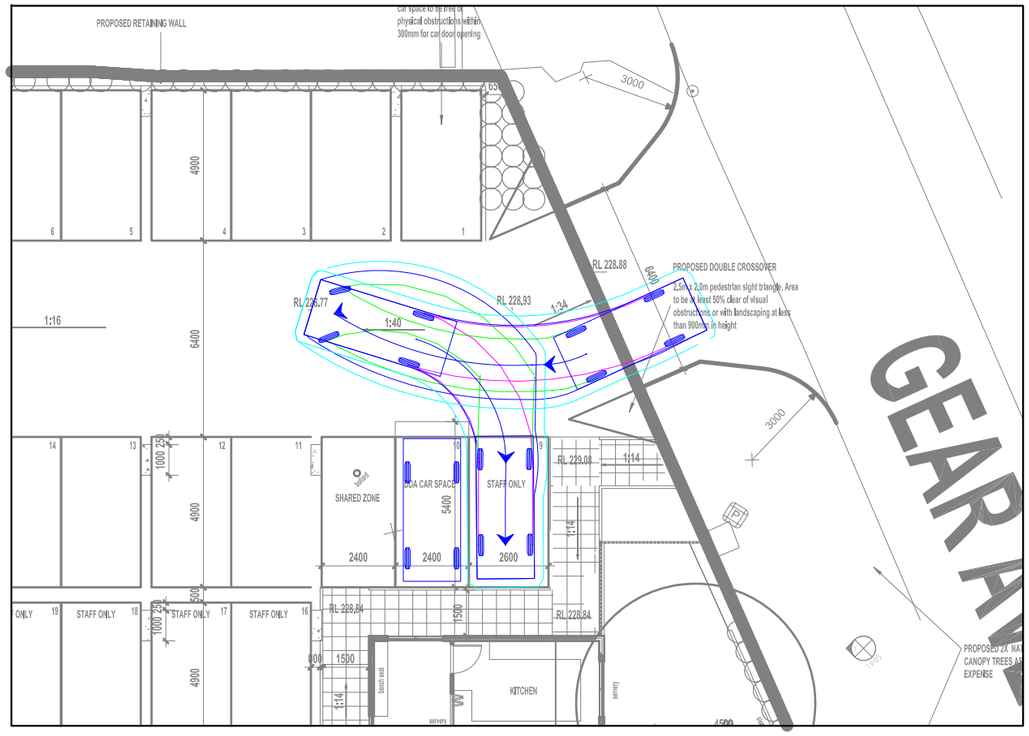
Width : 1.87m
Track : 1.77m
Kerb to Kerb Radius : 11.5m

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

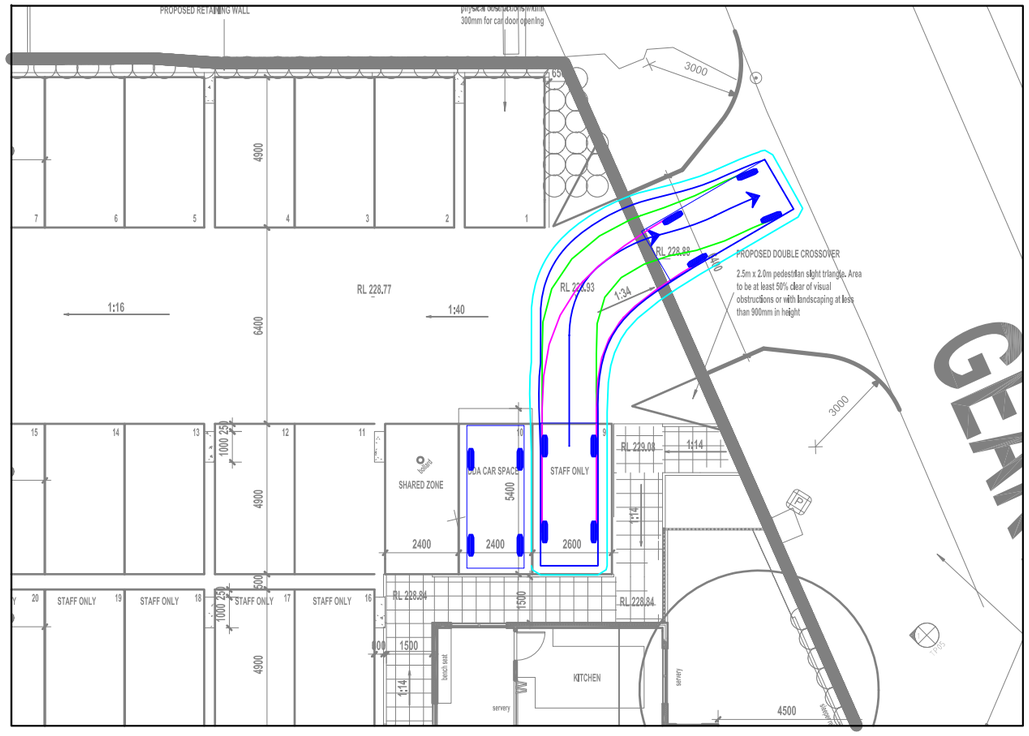
LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE

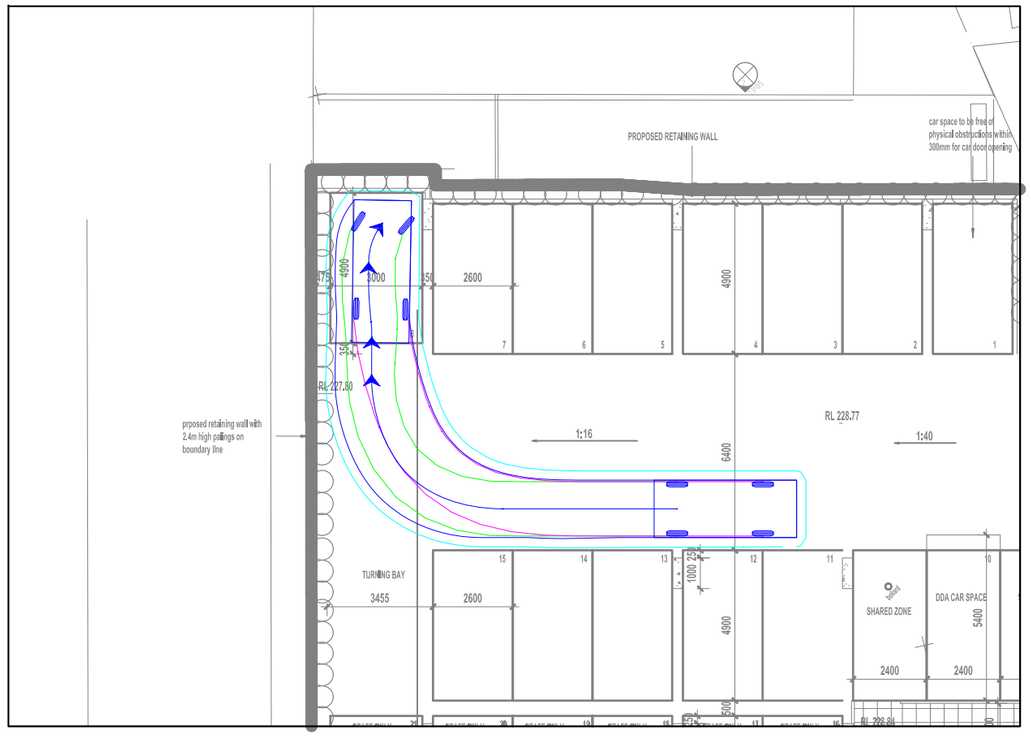
CAR SPACE 08 - INGRESS



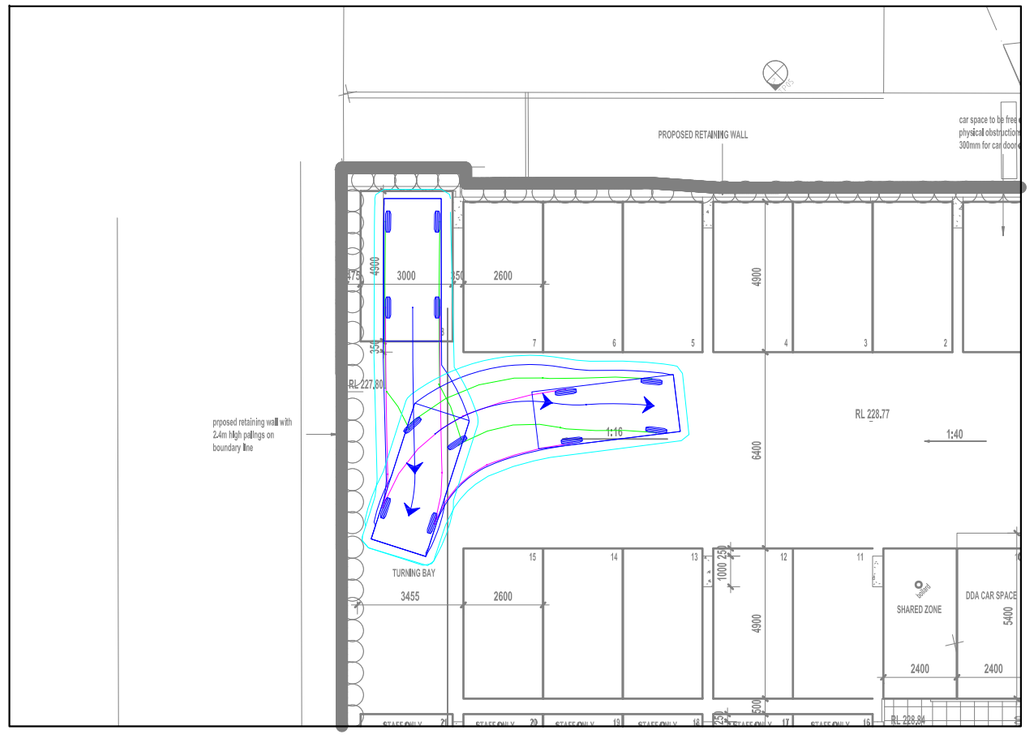
CAR SPACE 08 - EGRESS



CAR SPACE 09 - INGRESS



CAR SPACE 09 - EGRESS



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	15/08/2022	Town Planning	D. ECONOMOU	J. STONE

1A GEAR AVENUE, MOUNT EVELYN

PROPOSED CHILDCARE CENTRE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM: 220815_1A Gear Ave_Mt Everlyn_Town Planning-Sheet - TP03 - GROUND FLOOR.dwg
DRAWINGS BY: Dovetail Developments - dated August, 2022

FILE NAME: G31933-01A
SHEET NO.: 06

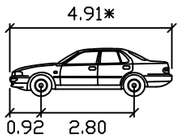
SCALE: 1:200 (A3)

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

VEHICLE PROFILE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



85th percentile
(AS/NZS 2890.1:2004)

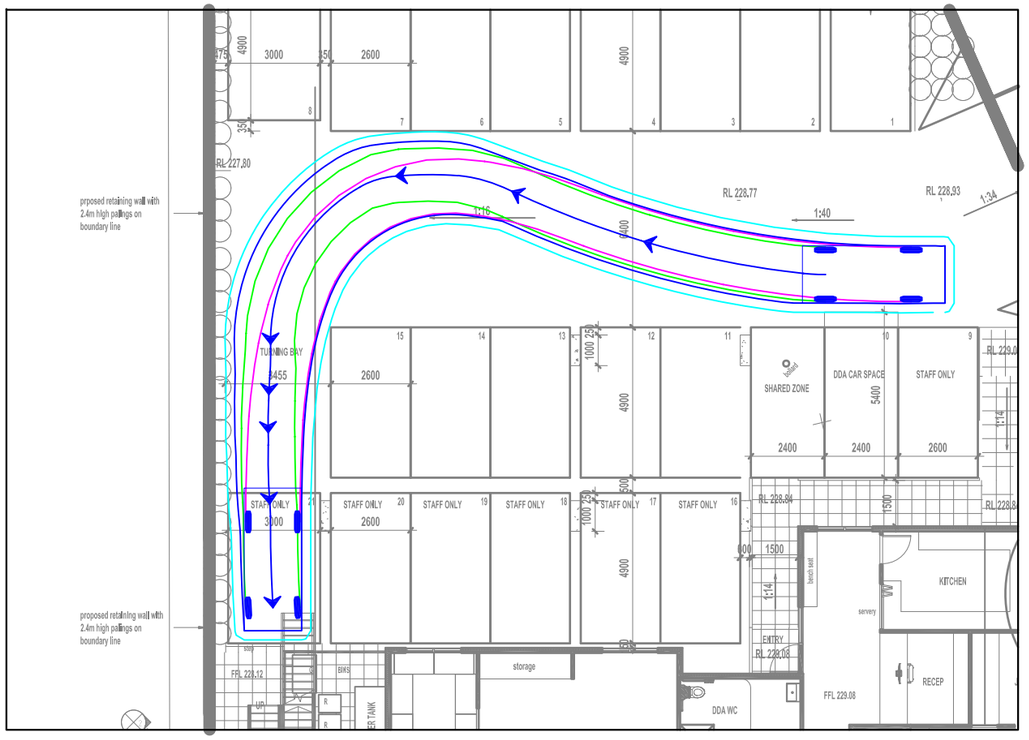
Width : 1.87m
Track : 1.77m
Kerb to Kerb Radius : 11.5m

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

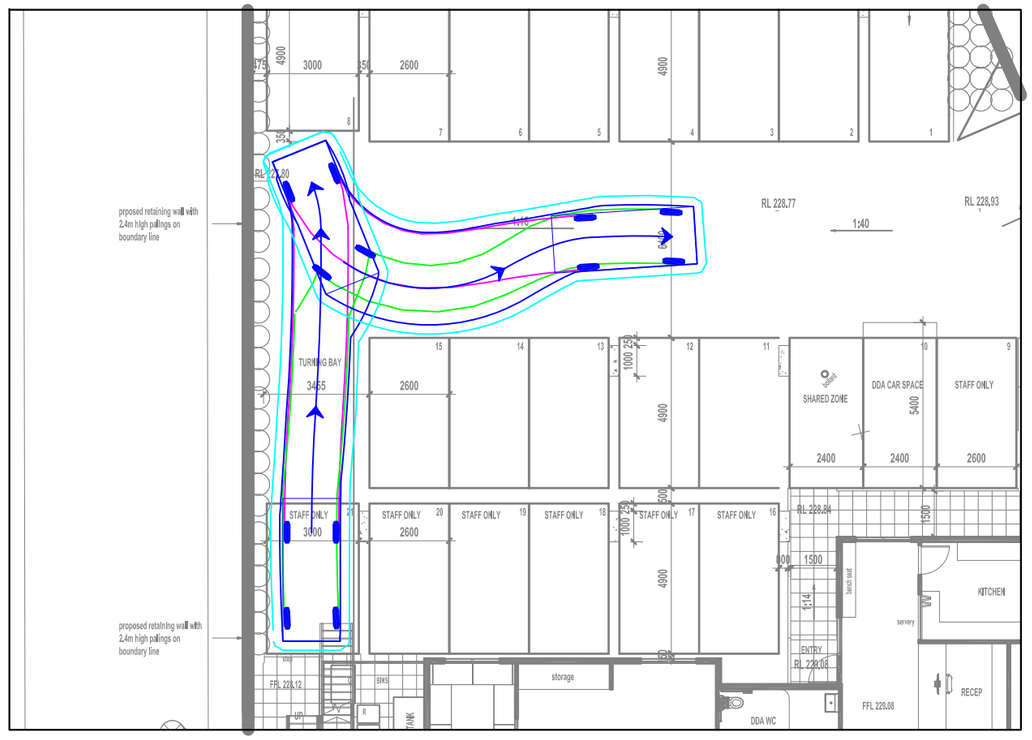
LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE

CAR SPACE 21 - INGRESS



CAR SPACE 21 - EGRESS



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	15/08/2022	Town Planning	D. ECONOMOU	J. STONE

1A GEAR AVENUE, MOUNT EVELYN
PROPOSED CHILDCARE CENTRE DEVELOPMENT

GENERAL NOTES:

BASE INFORMATION FROM: 220815_1A Gear Ave_Mt Everlyn_Town Planning-Sheet - TP03 - GROUND FLOOR.dwg
DRAWINGS BY: Dovetail Developments - dated August, 2022

FILE NAME: G31933-01A
SHEET NO.: 07

SCALE: 1:200 (A3)

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

Appendix D

Traffic Count Data

TRANS TRAFFIC SURVEY
trafficsurvey.com.au
T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

AUTOMATIC COUNT SUMMARY

Street Name :	Gear Ave	**Location :**	Outside Property 1A
Suburb :	Mount Evelyn	**Start Date :**	00:00 Wed 17/August/2022
Machine ID:	K354KXNE	**Finish Date :**	00:00 Wed 24/August/2022
Site ID:	14191	**Speed Zone :**	50 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 37° 47' 13.65 South Long 145° 22' 50.92 East	Direction of Travel		
			Both directions	**Westbound**	**Eastbound**
Traffic Volume :		Weekdays Average	42	23	19
(Vehicles/Day)		7 Day Average	31	16	15
Weekday	**AM**	08:00	5	4	1
Peak hour start	**PM**	15:00	5	2	2
Speeds :		85th Percentile	41.0	40.5	41.3
(Km/Hr)		Average	36.1	35.3	36.6
Classification % :		Light Vehicles up to 5.5m	93.3%	93.8%	92.9%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-37.787124, 145.380811

Speed Data	Speed Graph	Speed Bin
Volume Data	Volume Graph	Classification

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001
SAFETY SYSTEM CERTIFICATION DNV·GL AS/NZS 4801
ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Gear Ave

Direction Westbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	22/08/2022	23/08/2022	17/08/2022	18/08/2022	19/08/2022	20/08/2022	21/08/2022	Total	Average	Total	Average	Total	Average
AM Peak	00:00	00:00	08:00	00:00	00:00	00:00	00:00	N/A	08:00	N/A	08:00	N/A	00:00
PM Peak	12:00	12:00	15:00	12:00	12:00	12:00	12:00	N/A	15:00	N/A	12:00	N/A	12:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	1	0	0	0	0	1	0	1	0	0	0
04:00	0	0	1	0	0	0	0	1	0	1	0	0	0
05:00	0	0	5	0	0	0	0	5	1	5	1	0	0
06:00	0	0	9	0	0	0	0	9	1	9	2	0	0
07:00	0	0	13	0	0	0	0	13	2	13	3	0	0
08:00	0	0	18	0	0	0	0	18	3	18	4	0	0
09:00	0	0	7	0	0	0	0	7	1	7	1	0	0
10:00	0	0	2	0	0	0	0	2	0	2	0	0	0
11:00	0	0	8	0	0	0	0	8	1	8	2	0	0
12:00	0	0	8	0	0	0	0	8	1	8	2	0	0
13:00	0	0	3	0	0	0	0	3	0	3	1	0	0
14:00	0	0	7	0	0	0	0	7	1	7	1	0	0
15:00	0	0	12	0	0	0	0	12	2	12	2	0	0
16:00	0	0	3	0	0	0	0	3	0	3	1	0	0
17:00	0	0	4	0	0	0	0	4	1	4	1	0	0
18:00	0	0	5	0	0	0	0	5	1	5	1	0	0
19:00	0	0	4	0	0	0	0	4	1	4	1	0	0
20:00	0	0	2	0	0	0	0	2	0	2	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	112	0	0	0	0	112	16	112	23	0	0
% Heavy	0.00%	0.00%	6.25%	0.00%	0.00%	0.00%	0.00%	6.25%		6.25%		#DIV/0!	

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Gear Ave

Direction Eastbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	22/08/2022	23/08/2022	17/08/2022	18/08/2022	19/08/2022	20/08/2022	21/08/2022	Total	Average	Total	Average	Total	Average
AM Peak	00:00	00:00	10:00	00:00	00:00	00:00	00:00	N/A	08:00	N/A	10:00	N/A	00:00
PM Peak	12:00	12:00	17:00	12:00	12:00	12:00	12:00	N/A	15:00	N/A	17:00	N/A	12:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	2	0	0	0	0	2	0	2	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	2	0	0	0	0	2	0	2	0	0	0
07:00	0	0	1	0	0	0	0	1	0	1	0	0	0
08:00	0	0	5	0	0	0	0	5	1	5	1	0	0
09:00	0	0	6	0	0	0	0	6	1	6	1	0	0
10:00	0	0	10	0	0	0	0	10	1	10	2	0	0
11:00	0	0	4	0	0	0	0	4	1	4	1	0	0
12:00	0	0	6	0	0	0	0	6	1	6	1	0	0
13:00	0	0	6	0	0	0	0	6	1	6	1	0	0
14:00	0	0	5	0	0	0	0	5	1	5	1	0	0
15:00	0	0	12	0	0	0	0	12	2	12	2	0	0
16:00	0	0	10	0	0	0	0	10	1	10	2	0	0
17:00	0	0	13	0	0	0	0	13	2	13	3	0	0
18:00	0	0	9	0	0	0	0	9	1	9	2	0	0
19:00	0	0	2	0	0	0	0	2	0	2	0	0	0
20:00	0	0	4	0	0	0	0	4	1	4	1	0	0
21:00	0	0	4	0	0	0	0	4	1	4	1	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	101	0	0	0	0	101	15	101	19	0	0
% Heavy	0.00%	0.00%	6.93%	0.00%	0.00%	0.00%	0.00%	6.93%		6.93%		#DIV/0!	

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Gear Ave

Direction Both directions

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	22/08/2022	23/08/2022	17/08/2022	18/08/2022	19/08/2022	20/08/2022	21/08/2022	Total	Average	Total	Average	Total	Average
AM Peak	00:00	00:00	08:00	00:00	00:00	00:00	00:00	N/A	08:00	N/A	08:00	N/A	00:00
PM Peak	12:00	12:00	15:00	12:00	12:00	12:00	12:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	1	0	0	0	0	1	0	1	0	0	0
04:00	0	0	3	0	0	0	0	3	0	3	1	0	0
05:00	0	0	5	0	0	0	0	5	1	5	1	0	0
06:00	0	0	11	0	0	0	0	11	2	11	2	0	0
07:00	0	0	14	0	0	0	0	14	2	14	3	0	0
08:00	0	0	23	0	0	0	0	23	3	23	5	0	0
09:00	0	0	13	0	0	0	0	13	2	13	3	0	0
10:00	0	0	12	0	0	0	0	12	2	12	2	0	0
11:00	0	0	12	0	0	0	0	12	2	12	2	0	0
12:00	0	0	14	0	0	0	0	14	2	14	3	0	0
13:00	0	0	9	0	0	0	0	9	1	9	2	0	0
14:00	0	0	12	0	0	0	0	12	2	12	2	0	0
15:00	0	0	24	0	0	0	0	24	3	24	5	0	0
16:00	0	0	13	0	0	0	0	13	2	13	3	0	0
17:00	0	0	17	0	0	0	0	17	2	17	3	0	0
18:00	0	0	14	0	0	0	0	14	2	14	3	0	0
19:00	0	0	6	0	0	0	0	6	1	6	1	0	0
20:00	0	0	6	0	0	0	0	6	1	6	1	0	0
21:00	0	0	4	0	0	0	0	4	1	4	1	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	213	0	0	0	0	213	31	213	43	0	0
% Heavy	0.00%	0.00%	6.57%	0.00%	0.00%	0.00%	0.00%	6.57%		6.57%		#DIV/0!	

TRANS TRAFFIC SURVEY
trafficsurvey.com.au
T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

AUTOMATIC COUNT SUMMARY

Street Name :	Gear Ave	**Location :**	Outside Property 3
Suburb :	Mount Evelyn	**Start Date :**	00:00 Wed 17/August/2022
Machine ID:	L790N9JW	**Finish Date :**	00:00 Wed 24/August/2022
Site ID:	14192	**Speed Zone :**	50 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 37° 47' 14.71 South Long 145° 22' 54.01 East	Direction of Travel		
			Both directions	**Westbound**	**Eastbound**
Traffic Volume :		Weekdays Average	42	23	19
(Vehicles/Day)		7 Day Average	31	16	15
Weekday	**AM**	08:00	5	4	1
Peak hour start	**PM**	15:00	5	2	2
Speeds :		85th Percentile	40.4	39.1	41.4
(Km/Hr)		Average	35.6	34.7	36.4
Classification % :		Light Vehicles up to 5.5m	93.3%	93.8%	92.9%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-37.787420, 145.381670

Speed Data	Speed Graph	Speed Bin
Volume Data	Volume Graph	Classification

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001
SAFETY SYSTEM CERTIFICATION DNV·GL AS/NZS 4801
ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

TRANS TRAFFIC SURVEY
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Site Gear Ave

Direction Westbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	22/08/2022	23/08/2022	17/08/2022	18/08/2022	19/08/2022	20/08/2022	21/08/2022	Total	Average	Total	Average	Total	Average
AM Peak	00:00	00:00	08:00	00:00	00:00	00:00	00:00	N/A	08:00	N/A	08:00	N/A	00:00
PM Peak	12:00	12:00	15:00	12:00	12:00	12:00	12:00	N/A	15:00	N/A	12:00	N/A	12:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	1	0	0	0	0	1	0	1	0	0	0
04:00	0	0	1	0	0	0	0	1	0	1	0	0	0
05:00	0	0	5	0	0	0	0	5	1	5	1	0	0
06:00	0	0	9	0	0	0	0	9	1	9	2	0	0
07:00	0	0	13	0	0	0	0	13	2	13	3	0	0
08:00	0	0	18	0	0	0	0	18	3	18	4	0	0
09:00	0	0	7	0	0	0	0	7	1	7	1	0	0
10:00	0	0	2	0	0	0	0	2	0	2	0	0	0
11:00	0	0	8	0	0	0	0	8	1	8	2	0	0
12:00	0	0	8	0	0	0	0	8	1	8	2	0	0
13:00	0	0	3	0	0	0	0	3	0	3	1	0	0
14:00	0	0	6	0	0	0	0	6	1	6	1	0	0
15:00	0	0	12	0	0	0	0	12	2	12	2	0	0
16:00	0	0	3	0	0	0	0	3	0	3	1	0	0
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18:00	0	0	4	0	0	0	0	4	1	4	1	0	0
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20:00	0	0	2	0	0	0	0	2	0	2	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	110	0	0	0	0	110	16	110	23	0	0
% Heavy	0.00%	0.00%	4.55%	0.00%	0.00%	0.00%	0.00%	4.55%		4.55%		#DIV/0!	

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Gear Ave

Direction Eastbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	22/08/2022	23/08/2022	17/08/2022	18/08/2022	19/08/2022	20/08/2022	21/08/2022	Total	Average	Total	Average	Total	Average
AM Peak	00:00	00:00	10:00	00:00	00:00	00:00	00:00	N/A	08:00	N/A	10:00	N/A	00:00
PM Peak	12:00	12:00	17:00	12:00	12:00	12:00	12:00	N/A	15:00	N/A	17:00	N/A	12:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	2	0	0	0	0	2	0	2	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	2	0	0	0	0	2	0	2	0	0	0
07:00	0	0	1	0	0	0	0	1	0	1	0	0	0
08:00	0	0	5	0	0	0	0	5	1	5	1	0	0
09:00	0	0	6	0	0	0	0	6	1	6	1	0	0
10:00	0	0	9	0	0	0	0	9	1	9	2	0	0
11:00	0	0	4	0	0	0	0	4	1	4	1	0	0
12:00	0	0	5	0	0	0	0	5	1	5	1	0	0
13:00	0	0	6	0	0	0	0	6	1	6	1	0	0
14:00	0	0	4	0	0	0	0	4	1	4	1	0	0
15:00	0	0	12	0	0	0	0	12	2	12	2	0	0
16:00	0	0	10	0	0	0	0	10	1	10	2	0	0
17:00	0	0	13	0	0	0	0	13	2	13	3	0	0
18:00	0	0	9	0	0	0	0	9	1	9	2	0	0
19:00	0	0	2	0	0	0	0	2	0	2	0	0	0
20:00	0	0	4	0	0	0	0	4	1	4	1	0	0
21:00	0	0	4	0	0	0	0	4	1	4	1	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	98	0	0	0	0	98	15	98	19	0	0
% Heavy	0.00%	0.00%	8.16%	0.00%	0.00%	0.00%	0.00%	8.16%		8.16%		#DIV/0!	

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Gear Ave

Direction Both directions

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	22/08/2022	23/08/2022	17/08/2022	18/08/2022	19/08/2022	20/08/2022	21/08/2022	Total	Average	Total	Average	Total	Average
AM Peak	00:00	00:00	08:00	00:00	00:00	00:00	00:00	N/A	08:00	N/A	08:00	N/A	00:00
PM Peak	12:00	12:00	15:00	12:00	12:00	12:00	12:00	N/A	15:00	N/A	15:00	N/A	12:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	1	0	0	0	0	1	0	1	0	0	0
04:00	0	0	3	0	0	0	0	3	0	3	1	0	0
05:00	0	0	5	0	0	0	0	5	1	5	1	0	0
06:00	0	0	11	0	0	0	0	11	2	11	2	0	0
07:00	0	0	14	0	0	0	0	14	2	14	3	0	0
08:00	0	0	23	0	0	0	0	23	3	23	5	0	0
09:00	0	0	13	0	0	0	0	13	2	13	3	0	0
10:00	0	0	11	0	0	0	0	11	2	11	2	0	0
11:00	0	0	12	0	0	0	0	12	2	12	2	0	0
12:00	0	0	13	0	0	0	0	13	2	13	3	0	0
13:00	0	0	9	0	0	0	0	9	1	9	2	0	0
14:00	0	0	10	0	0	0	0	10	1	10	2	0	0
15:00	0	0	24	0	0	0	0	24	3	24	5	0	0
16:00	0	0	13	0	0	0	0	13	2	13	3	0	0
17:00	0	0	17	0	0	0	0	17	2	17	3	0	0
18:00	0	0	13	0	0	0	0	13	2	13	3	0	0
19:00	0	0	6	0	0	0	0	6	1	6	1	0	0
20:00	0	0	6	0	0	0	0	6	1	6	1	0	0
21:00	0	0	4	0	0	0	0	4	1	4	1	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	208	0	0	0	0	208	30	208	43	0	0
% Heavy	0.00%	0.00%	6.25%	0.00%	0.00%	0.00%	0.00%	6.25%		6.25%		#DIV/0!	