

134 Drummond Street, Oakleigh

Transport Impact Assessment



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20 September 2024

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CONTENTS

1	INTRODUCTION.....	5
2	EXISTING CONDITIONS	5
2.1	Site Location	5
2.2	Planning Zones and Overlays.....	7
2.3	Road Network.....	8
2.3.1	Drummond Street	8
2.3.2	Palmer Street	9
2.3.3	Laneway	10
2.4	Public Transport.....	11
3	DEVELOPMENT PROPOSAL.....	12
4	DESIGN ASSESSMENT	13
4.1	Monash Planning Scheme – Clause 52.06.....	13
4.1.1	Design Standard 1: Accessways	13
4.1.2	Design Standard 2: Car Parking Spaces	14
4.1.3	Design Standard 4: Mechanical Parking	15
4.2	Waste Collection.....	15
4.3	Bicycle Parking	15
5	LOADING	16
6	BICYCLE PARKING	16
7	CAR PARKING	17
7.1	Statutory Car Parking Requirements.....	17
7.2	Accessible Car Parking.....	17
8	TRAFFIC.....	18
8.1	Traffic Generation	18
8.1.1	Case Study	18
8.1.2	Diverted Trips	19
8.1.3	Anticipated Traffic Generation	19
8.2	Traffic Impact	19
9	CONCLUSIONS.....	20

TABLES

Table 1	Public Transport Provision.....	11
Table 2	Clause 52.06-9 Design Assessment – Design Standard 1	13
Table 3	Clause 52.06-9 Design Assessment – Design Standard 2	14
Table 4	Clause 52.06-9 Design Assessment – Design Standard 4	15
Table 5	Clause 52.06 – Car Parking Requirements.....	17
Table 6	Child Care Case Study – Traffic Generation (Movements/Child)	18
Table 7	Anticipated Traffic Generation – Total Generation	19
Table 8	Diverted Trips Proportion – VISTA 2012-2016.....	19
Table 9	Anticipated Traffic Generation – Unique Generation	19

FIGURES

Figure 1	Site Location	5
Figure 2	Site Context (10 November 2023)	6
Figure 3	Planning Scheme Zones.....	7
Figure 4	Principal Public Transport Network Area Map	7
Figure 5	Drummond Street, looking north adjacent to the subject site	8
Figure 6	Drummond Street, looking south adjacent to the subject site	8
Figure 7	Palmer Street, looking east adjacent to the subject site	9
Figure 8	Laneway, looking north adjacent to the subject site	10
Figure 9	Public Transport Provision.....	11
Figure 10	Proposed Site Layout.....	12
Figure 11	Child Care Case Study – Traffic Generation	18

APPENDICES

APPENDIX A SWEPT PATH DIAGRAMS

1 INTRODUCTION

onemilegrid has been requested by C. Kairouz Architects to undertake a Transport Impact Assessment of the proposed child care centre at 134 Drummond Street, Oakleigh.

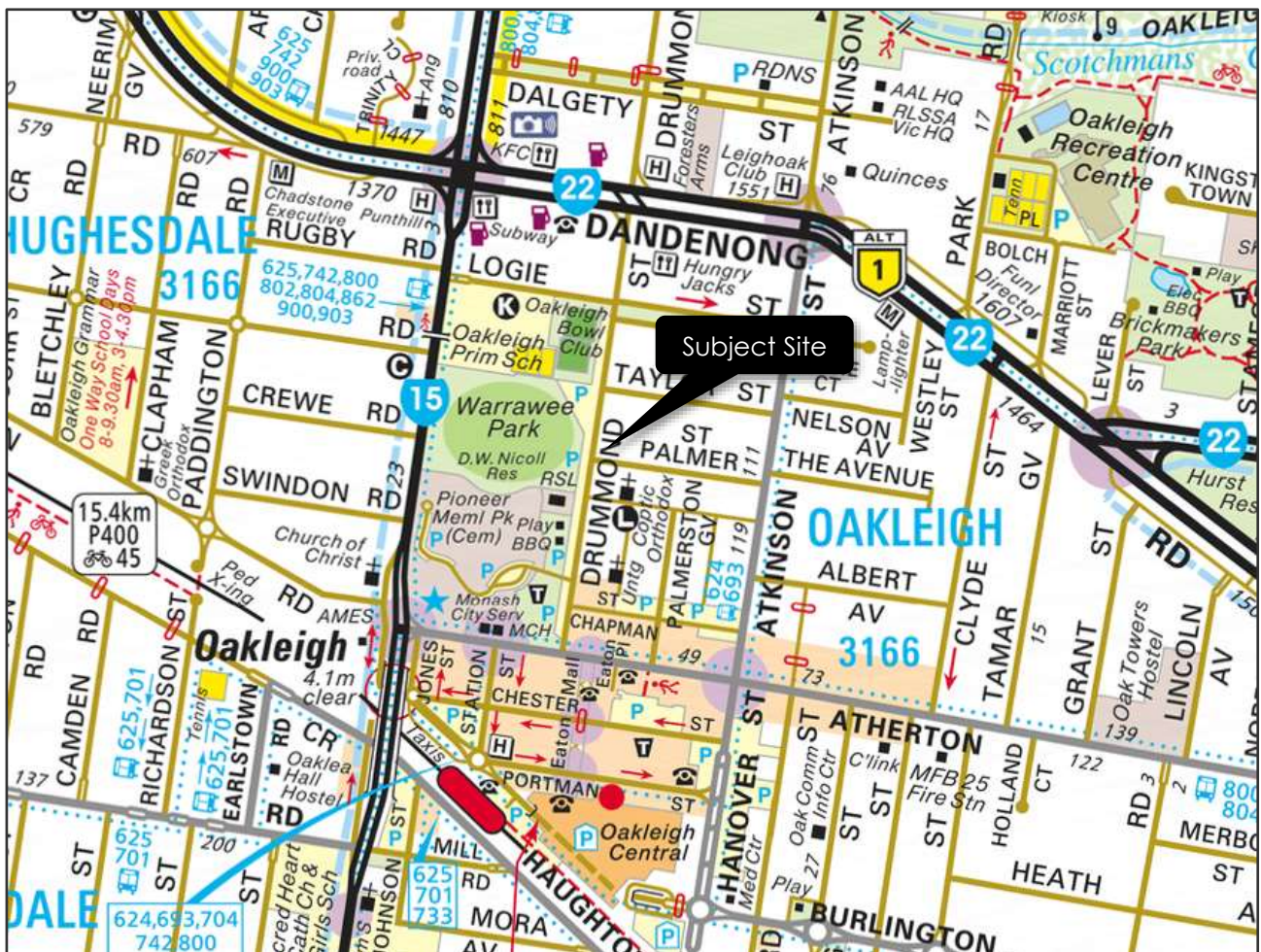
As part of this assessment the subject site has been inspected with due consideration of the development proposal, parking data has been sourced, and relevant background information has been reviewed.

2 EXISTING CONDITIONS

2.1 Site Location

The [subject site](#) is located on the northeast corner of the intersection between Drummond Street and Palmer Street, as shown in Figure 1.

Figure 1 Site Location



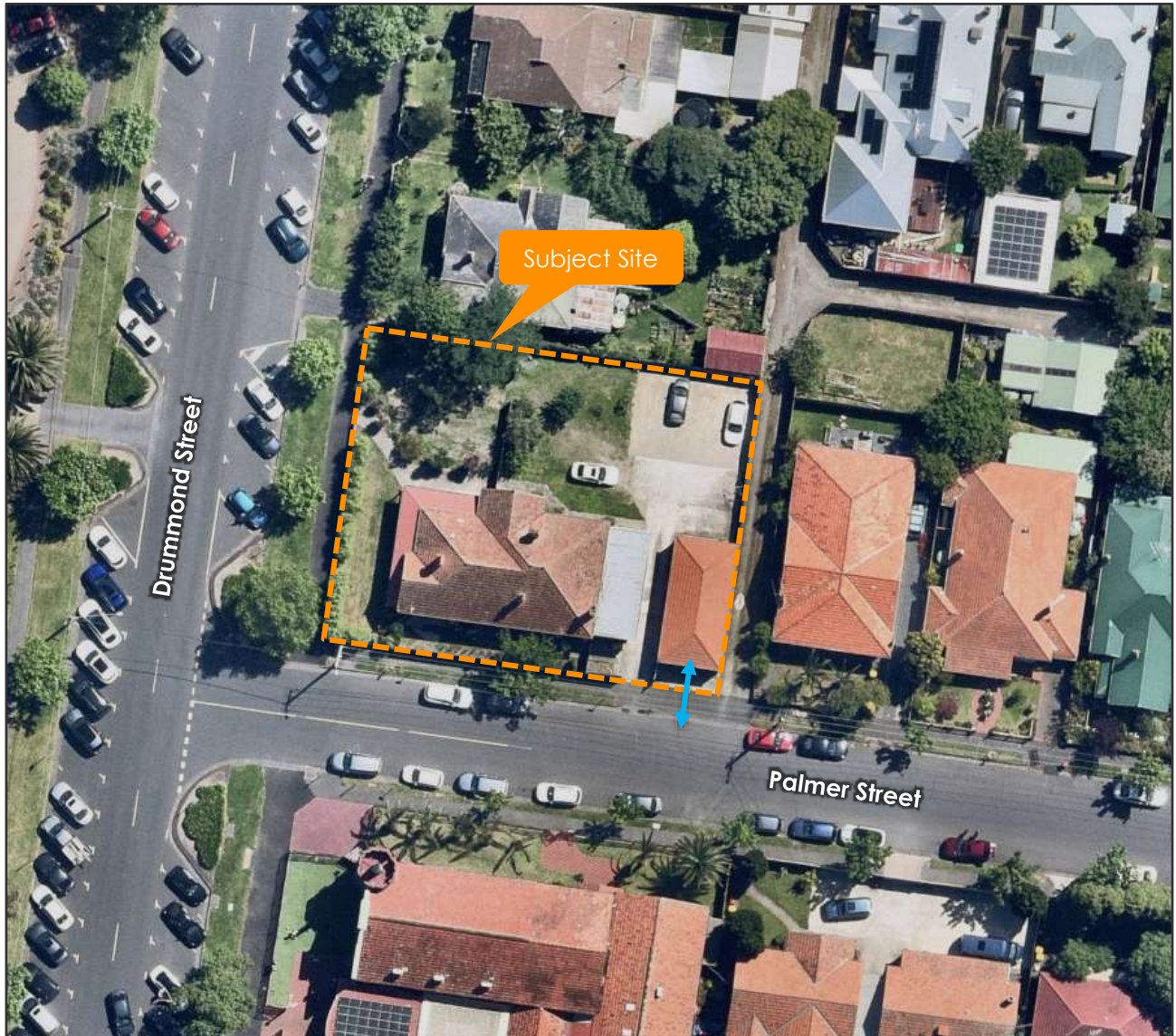
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The site is generally rectangular in shape, and includes a frontage to Palmer Street along the southern boundary and Drummond Street along the western boundary.

The site is currently occupied by a single storey residential dwelling, with vehicle access provided towards the southeast corner of the site to Palmer Street. The connection to Palmer Street provides direct access to a double space garage.

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

Figure 2 Site Context (10 November 2023)



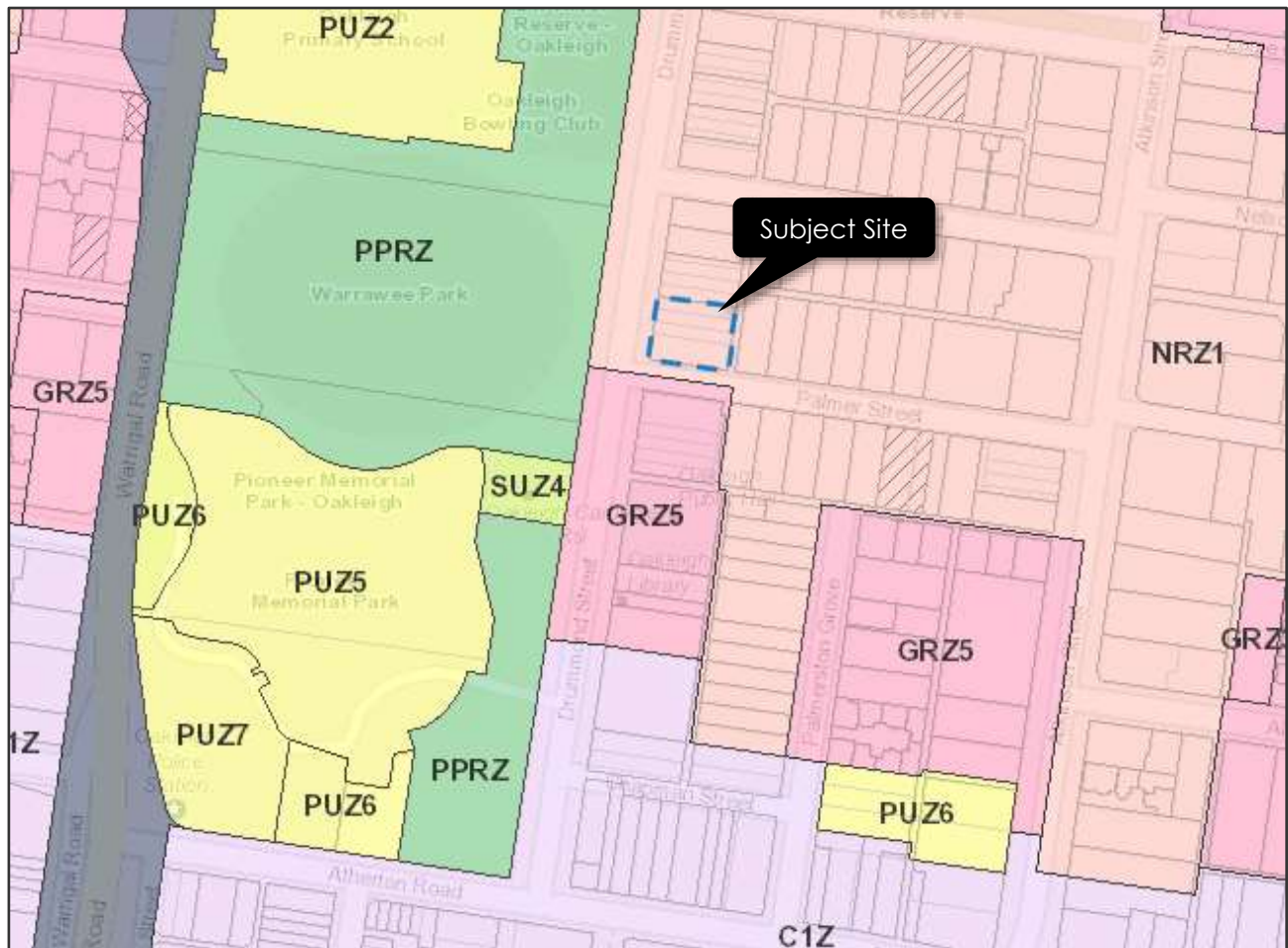
Copyright Nearmap

Land use in the immediate vicinity of the site is mixed in nature, and includes residential dwellings to the north and east, Warrawee Park Oval to the west and a mix of various commercial and residential uses to the south.

2.2 Planning Zones and Overlays

It is shown in Figure 3 that the site is located within a Neighbourhood Residential Zone (NRZ1).

Figure 3 Planning Scheme Zones



The site falls within the Principal Public Transport Network Area, as shown in Figure 4.

Figure 4 Principal Public Transport Network Area Map



2.3 Road Network

2.3.1 Drummond Street

Drummond Street is a local road generally aligned north-south, running between Kelly Street in the north and Atherton Road in the south. Drummond Street provides a single traffic lane in each direction adjacent to the site.

Indented angled parking is provided on both sides of the road, generally restricted to 2-hour parking between 8:00 am and 6:00 pm, Monday to Friday.

The cross-section of Drummond Street at the frontage of the site is shown in Figure 5 and Figure 6.

Figure 5 Drummond Street, looking north adjacent to the subject site



Figure 6 Drummond Street, looking south adjacent to the subject site



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

2.3.2 Palmer Street

Palmer Street is a local road generally aligned east-west, running between Atkinson Street in the east and Drummond Street in the west. Palmer Street provides a single traffic lane in each direction adjacent to the site.

Kerbside parking is provided on both sides of the road, generally restricted to 2-hour parking between 8:00 am and 6:00 pm, Monday to Friday. Authorised Oakleigh Halls users are excepted from the parking restrictions.

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

Figure 7 Palmer Street, looking east adjacent to the subject site



The default 50km/h speed limit applies to Palmer Street in the vicinity of the site.

2.3.3 Laneway

An unnamed laneway generally aligned north-south runs along the east boundary of the site. The laneway is unsealed with a varying width of approximately 3.3 m, and includes a bluestone central drainage channel.

The laneway runs between Palmer Street in the south and Taylor Street in the east, and continues north looping behind the properties with a frontage to Taylor Street.

The cross-section of the laneway at the frontage of the site is shown in Figure 8.

Figure 8 Laneway, looking north adjacent to the subject site



2.4 Public Transport

The public transport provision in the vicinity of the site is shown in Figure 9 and detailed in Table 1.

Figure 9 Public Transport Provision

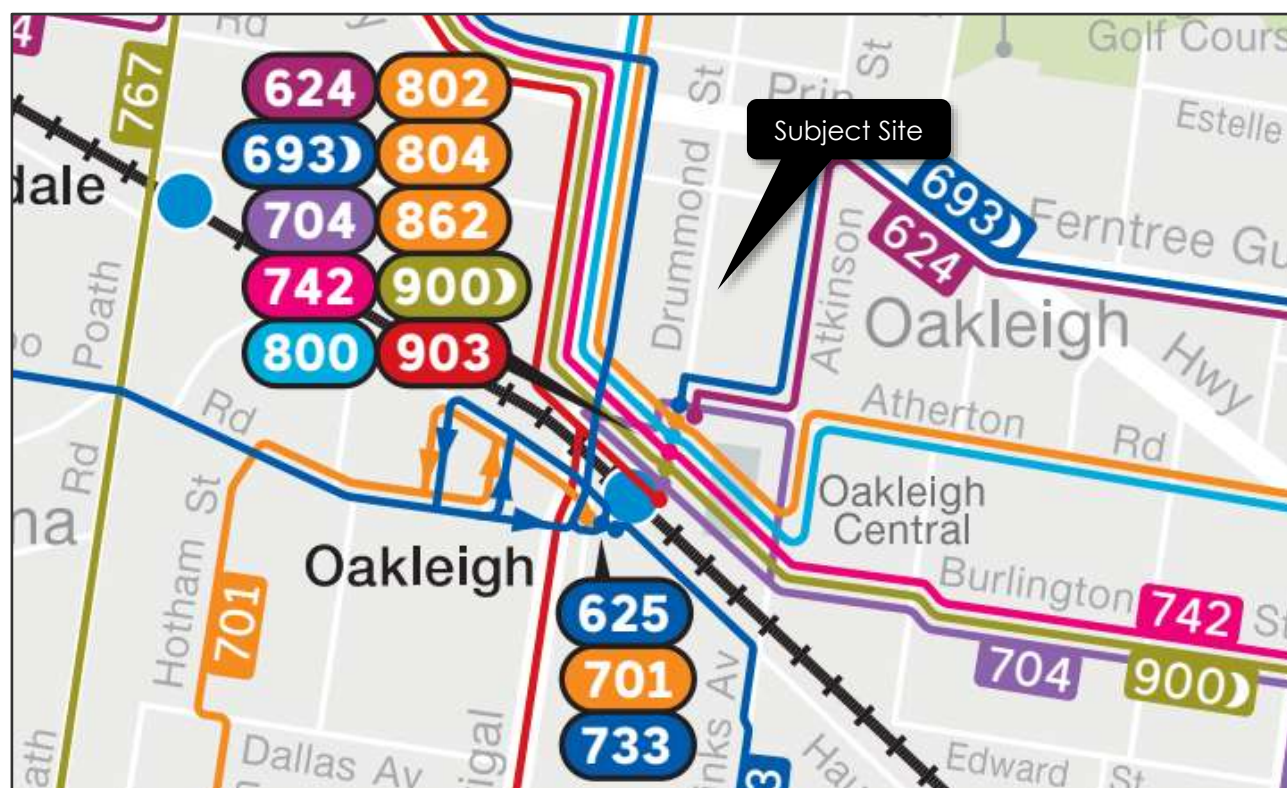


Table 1 Public Transport Provision

Mode	Route No.	Route Description	Nearest Stop/Station
Train		Cranbourne Line	Oakleigh Railway Station
		Pakenham Line	
Bus	624	Kew - Oakleigh via Caulfield & Carnegie & Darling and Chadstone	Atkinson Street
	625	Elsternwick - Chadstone via Ormond & Oakleigh	Warrigal Road
	693	Belgrave - Oakleigh via Ferntree Gully & Brandon Park	Atkinson Street
	704	Oakleigh Station - Westall Station via Clayton	Atherton Road
	742	Ringwood - Chadstone SC via Vermont South & Glen Waverley & Oakleigh	Atherton Road
	800	Dandenong - Chadstone via Princes Highway & Oakleigh	Atherton Road
	802	Dandenong - Chadstone via Mulgrave & Oakleigh	Atherton Road
	804	Dandenong - Chadstone via Wheelers Hill & Oakleigh	Atherton Road
	862	Dandenong - Chadstone via North Dandenong & Oakleigh	Atherton Road
	903	Altona - Mordialloc (SMARTBUS Service)	Warrigal Road

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

3 DEVELOPMENT PROPOSAL

It is proposed to demolish the existing dwelling and develop the site for the purpose of a childcare centre with a capacity for 86 children.

The childcare centre includes 18 car parking spaces, inclusive of one accessible parking space, and 10 spaces within 5 dependant car stackers. A turnaround bay is provided at the northern end of the car park.

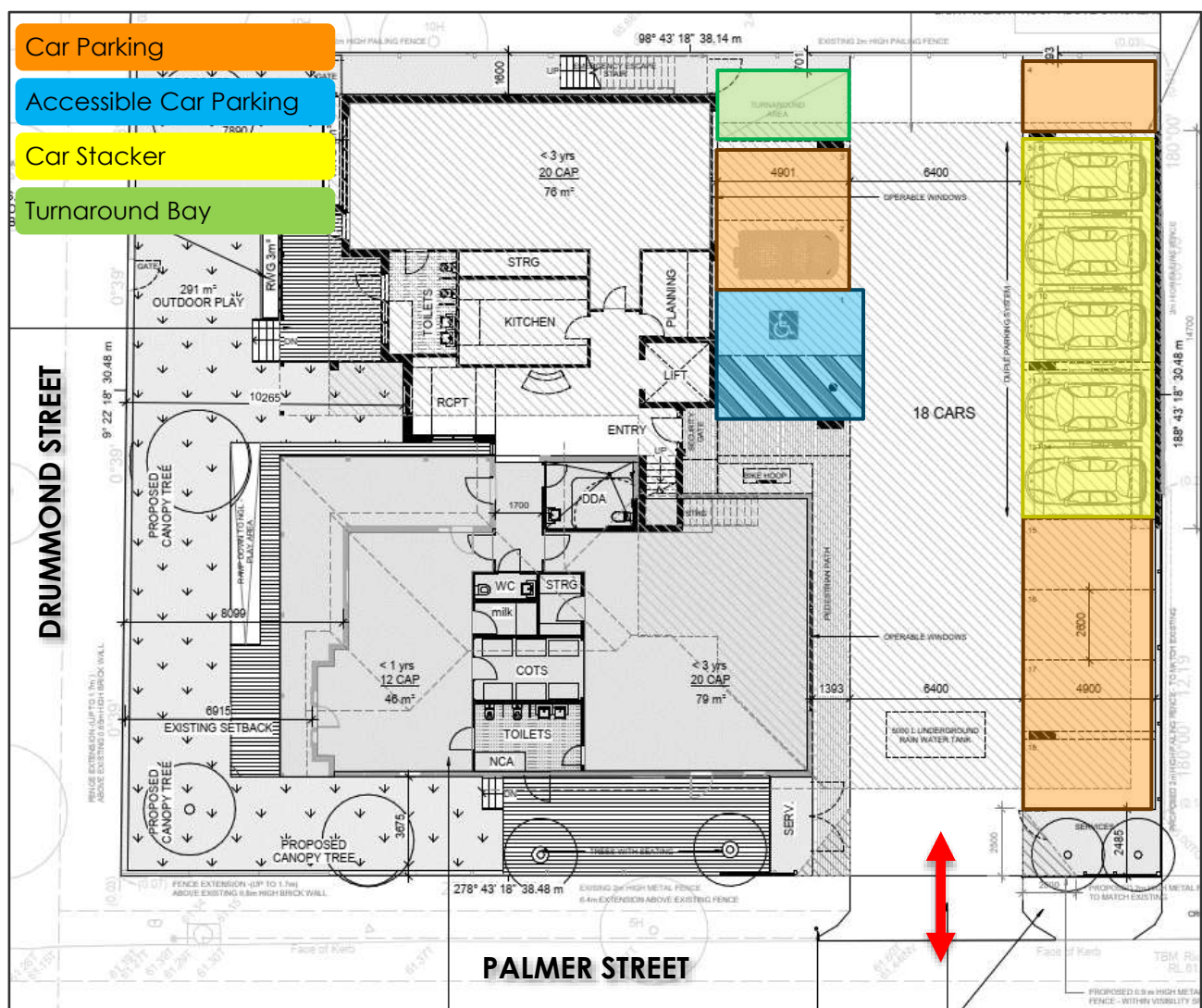
Vehicle access to the childcare centre is proposed via a modification of the existing crossover to Palmer Street towards the southeast corner of the site.

Bicycle parking is provided adjacent to the pedestrian entrance, which includes a single ground mounted bicycle hoop, providing parking for 2 bikes.

Pedestrian access is provided through an internal footpath leading to the building entrance from Palmer Street.

The proposed site layout is shown below in Figure 10.

Figure 10 Proposed Site Layout



4 DESIGN ASSESSMENT

4.1 Monash Planning Scheme – Clause 52.06

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

4.1.1 Design Standard 1: Accessways

A summary of the assessment for Design Standard 1 is provided in Table 2.

Table 2 Clause 52.06-9 Design Assessment – Design Standard 1

Requirement	Comments
Be at least 3 metres wide.	Satisfied
Have an internal radius of at least 4 metres at changes of direction or intersection or be at least 4.2 metres wide.	N/A – no change in direction along accessway
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre.	Satisfied
Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8 metres.	Satisfied
If the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or Transport Zone 3, the accessway must be designed so that cars can exit the site in a forward direction.	Satisfied
Provide a passing area at the entrance at least 6.1 metres wide and 7 metres long if the accessway serves ten or more car parking spaces and is either more than 50 metres long or connects to a road in a Transport Zone 2 or Transport Zone 3.	N/A – does not connect to a Transport Zone and is not longer than 50 m. Notwithstanding, a width of 6.4 m is provided throughout the accessway, which allows for passing of entering/exiting vehicles.
Have a corner splay or area at least 50 per cent clear of visual obstructions extending at least 2 metres along the frontage road from the edge of an exit lane and 2.5 metres along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	Satisfied
If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or Transport Zone 3, the access to the car spaces must be at least 6 metres from the road carriageway.	N/A – does not connect to a Transport Zone

4.1.2 Design Standard 2: Car Parking Spaces

A summary of the assessment for Design Standard 2 is provided in Table 3.

Table 3 Clause 52.06-9 Design Assessment – Design Standard 2

Requirement	Comments
Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 of Design Standard 2.	Satisfied - Car parking spaces are dimensioned generally in accordance with Table 2.
A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1 of Design Standard 2, other than: - A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1. - A structure, which may project into the space if it is at least 2.1m above the space.	Satisfied - The car park is designed in accordance with Diagram 1. Height clearances of in excess of 2.1m are provided for standard parking bays. Refer to Table 4 for details on the stacker height clearance.
Car spaces in garages or carports must be at least 6m long and 3.5m wide for a single space and 5.5m wide for a double space measured inside the garage or carport.	N/A – Spaces are within a car park.
Where parking spaces are provided in tandem (one space behind the other) an additional 500mm in length must be provided between each space.	N/A – No tandem spaces are provided
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	N/A – No residential parking is provided
Disabled car parking spaces must be designed in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 of Design Standard 2 by 500mm.	Satisfied – The accessible space is provided with a length of 5.4m

4.1.2.1 Dead-End Aisles

The dead-end access aisle has been provided with a dedicated turn around bay in accordance with the Australian Standard for Off-street Parking.

4.1.3 Design Standard 4: Mechanical Parking

A review of the stacker design against the specific Planning Scheme requirements is provided in Table 4 below.

Table 4 Clause 52.06-9 Design Assessment – Design Standard 4

Requirement	Comments
At least 25 per cent of the mechanical car parking spaces can accommodate a vehicle clearance height of at least 1.8 metres.	Satisfied – the Car Stackers International Duplé dependant car stacker is proposed, which will be provide a vehicle height clearance of 1.8 m on the lower level and 1.5 m on the upper level, with an overall total clear height of 3.55 m.
Car parking spaces that require the operation of the system are not allocated to visitors unless used in a valet parking situation.	Satisfied - All stacker spaces will be allocated to staff of the childcare centre. The stacker systems provide dependent car parking, so staff will be required to coordinate internally if the staff member parked on the upper level of the stacker is required to leave prior to the staff member parked on the lower level.

Swept paths demonstrating access to the stacker spaces with a B85 vehicle have been prepared and are enclosed in Appendix A. It is noted that each space requires a corrective manoeuvre on entry and exit. Acknowledging that each space within the stacker will be allocated to staff, employees will be aware of the vehicle access conditions associated with these spaces.

Based on the above, the proposed arrangement is considered to be acceptable.

4.2 Waste Collection

It is proposed to provide two bin storage areas, located to the south of the car park. Waste will be collected from the Palmer Street frontage by a private contractor.

Refer to the Waste Management Plan for further information.

4.3 Bicycle Parking

The bicycle hoop has been designed in accordance with the Australian Standard; specifically, the hoop is provided with a 500 mm clearance on either side, with an envelope of 1.8 m provided for bicycles and a 1.5 m access aisle.

5 LOADING

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

Given the use of the site as a child care centre, it is not considered practical or necessary to provide an on-site loading bay. It is expected that the any deliveries will occur via small vans and utility vehicles, which can utilise the on-site car parking.

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

6 BICYCLE PARKING

The bicycle parking requirements for the subject site are identified in Clause 52.34 of the Monash Planning Scheme. The Planning Scheme does not specifically refer to parking requirements for child care centre uses, therefore, no bicycle parking is required.

Regardless, it is proposed to provide 2 bicycle spaces on-site located adjacent to the pedestrian entrance to the building, for shared use by staff or visitors.

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

7 CAR PARKING

7.1 Statutory Car Parking Requirements

The car parking requirements for the subject site are identified in Clause 52.06 of the Monash Planning Scheme. In this regard, Clause 52.06 also identifies that where any part of the land is identified as being within the Principal Public Transport Network Area, the Column B car parking rates apply to the proposed development. As shown in Figure 4, the site is located within the Principal Public Transport Network Area, and therefore, the Column B rates apply, as shown in Table 5 below.

Table 5 Clause 52.06 – Car Parking Requirements

Use	No.	Rate	Car Parking Measure	Total
Child care centre	86	0.22	to each child	18

Based on the above calculations, a total of 18 parking spaces are required for the proposed development.

It is proposed to provide a total of 18 car parking spaces on-site, which is in accordance with the Planning Scheme requirements.

7.2 Accessible Car Parking

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

The proposed child care development, classified as a Class 9B building, requires provision of one accessible car space for every 50 car parking spaces or part thereof for the first 1,000 spaces, and then 1 space per 100 car parking spaces or part thereof in excess of 1,000 spaces.

Noting the proposed provision of 18 car spaces on-site, the National Construction Code (NCC) requires at least one accessible car space on-site.

The proposed provision of one space thus satisfies the NCC requirements.

8 TRAFFIC

8.1 Traffic Generation

8.1.1 Case Study

In order to establish traffic generation rates for similar uses, **onemilegrid** undertook turning movement surveys of existing child care centres at 418 Mt Dandenong Rd, Croydon (Goodstart Early Learning Croydon) and 18 Grange Road, Alphington (Smart Start Early Learning and Development Centre).

The surveys were undertaken at both sites on Tuesday 10th October 2017 from 6:30am to 6:30pm.

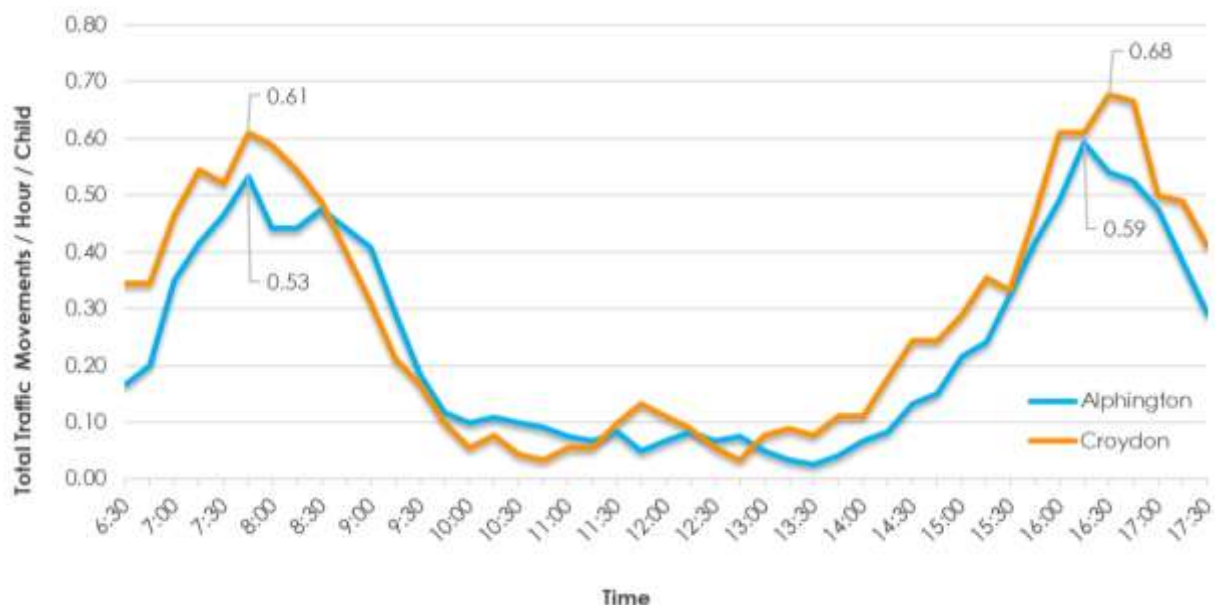
Both sites were specifically selected because of a large supply of on-site car parking, and their location along a main road where on-street parking could not be utilised for parent pick-up and drop-off.

A summary of the case-study results is provided in Table 6 below, representing the peak traffic generation in relation to the maximum number of child care places.

Table 6 Child Care Case Study – Traffic Generation (Movements/Child)

Site	No. Places	AM Peak				PM Peak			
		Time	In	Out	Total	Time	In	Out	Total
Alphington	120	7:45am-8:45am	0.28	0.25	0.53	4:15pm-5:15pm	0.28	0.32	0.59
Croydon	90	7:45am-8:45am	0.33	0.28	0.61	4:30pm-5:30pm	0.32	0.36	0.68
Average			0.31	0.27	0.57		0.30	0.34	0.64

Figure 11 Child Care Case Study – Traffic Generation



Information provided by the operator suggests that both centres were effectively operating at capacity during the survey periods.

Adopting the average traffic generation rate per child provides the following anticipated traffic generated by the proposed child care centre.

Table 7 Anticipated Traffic Generation – Total Generation

<i>Period</i>	<i>Inbound</i>	<i>Outbound</i>	<i>Total</i>
AM Peak	27	23	50
PM Peak	26	29	55

8.1.2 Diverted Trips

It is commonly acknowledged that a high proportion of vehicle trips to a child care centre are as a result of diverted trips; from a vehicle which is already on the road network as part of another trip (i.e., a vehicle diverting to a pick-up/drop-off their child on their way to/from work).

In order to ascertain the proportion of unique trips versus diverted trips generated by the proposed development, data collected as part of the Victorian Integrated Survey of Travel and Activity (VISTA) was analysed specifically for child care centres, with the results shown in Table 8.

Table 8 Diverted Trips Proportion – VISTA 2012-2016

<i>Use</i>	<i>Daily</i>	<i>AM Peak</i>	<i>PM Peak</i>	<i>Off Peak</i>
Child Care	49%	42%	74%	39%

It is shown above that a high proportion of daily trips generated to a child care centre are diverted trips, and further, during the PM peak hour, the percentage of diverted trips increases.

Consequently, the number of unique vehicles trips generated by the proposed child care centre will be much lower than the total traffic generation of the site.

8.1.3 Anticipated Traffic Generation

Based on the diverted trip proportion for child care centres listed above, the proposed child care centre is expected to generate the following unique movements (non-diverted trips), as shown in Table 9.

Table 9 Anticipated Traffic Generation – Unique Generation

<i>Period</i>	<i>Inbound</i>	<i>Outbound</i>	<i>Total</i>
AM Peak	16	13	29
PM Peak	7	8	15

8.2 Traffic Impact

Reviewing the volumes above, it is noted that a unique traffic generation of up to 29 vehicle movements are expected during the morning peak hour, equivalent to an average of less than 1 movement every 2 minutes. Even when focussed into one access point, the traffic volumes generated by the proposed child care centre are low, and are expected to be easily absorbed into the surrounding road network.

The proposed child care centre is therefore expected to have a minimal impact on the existing traffic conditions in the vicinity of the site.

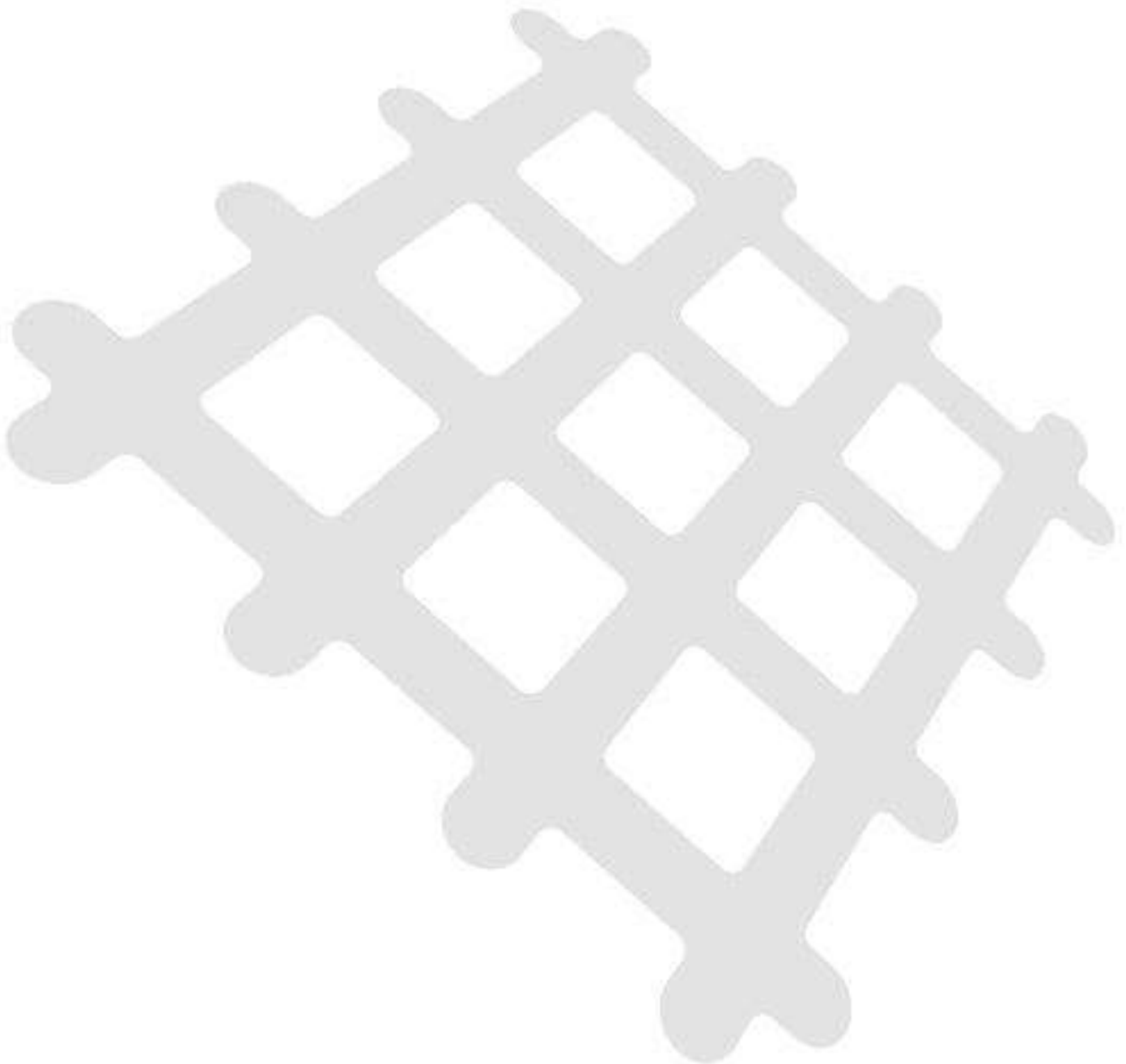
9 CONCLUSIONS

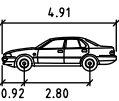
It is proposed to demolish the existing dwelling and develop the site for the purpose of a childcare centre with a capacity for 86 children.

Considering the analysis presented above, it is concluded that:

- The car parking layouts and accesses have been designed generally in accordance with the requirements of the Planning Scheme and are considered appropriate;
- The provision for loading is considered appropriate for the proposed use;
- The provision of bicycle parking exceeds the requirements of the Planning Scheme, and is considered appropriate;
- The provision of car parking is in accordance with the Planning Scheme requirements;
- The provision of one accessible parking space satisfies the NCC requirements;
- The traffic volumes generated by the proposed child care centre are low, and are expected to be easily absorbed into the surrounding road network; and
- The proposed child care centre is therefore expected to have a minimal impact on the existing traffic conditions in the vicinity of the site.

Appendix A Swept Path Diagrams



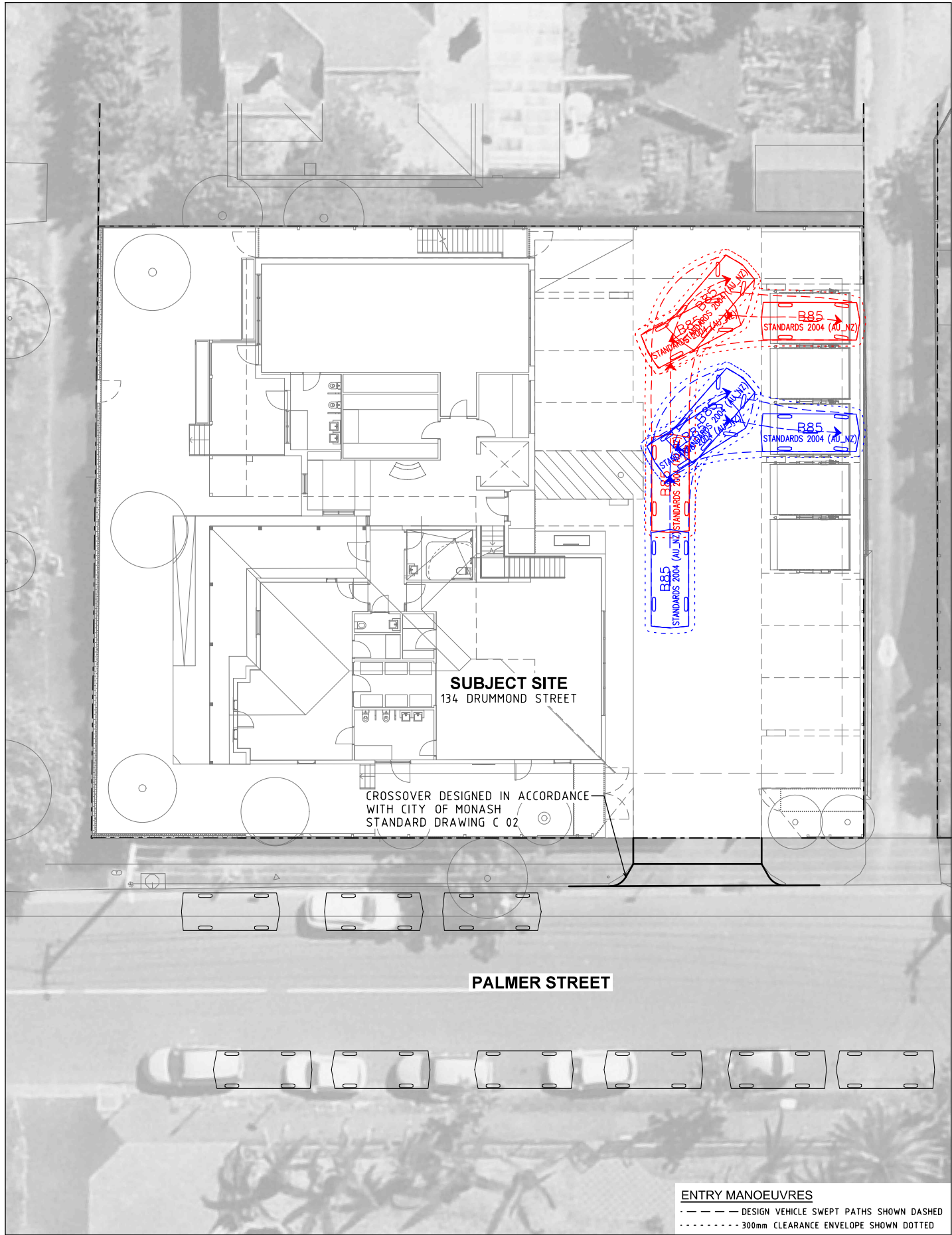


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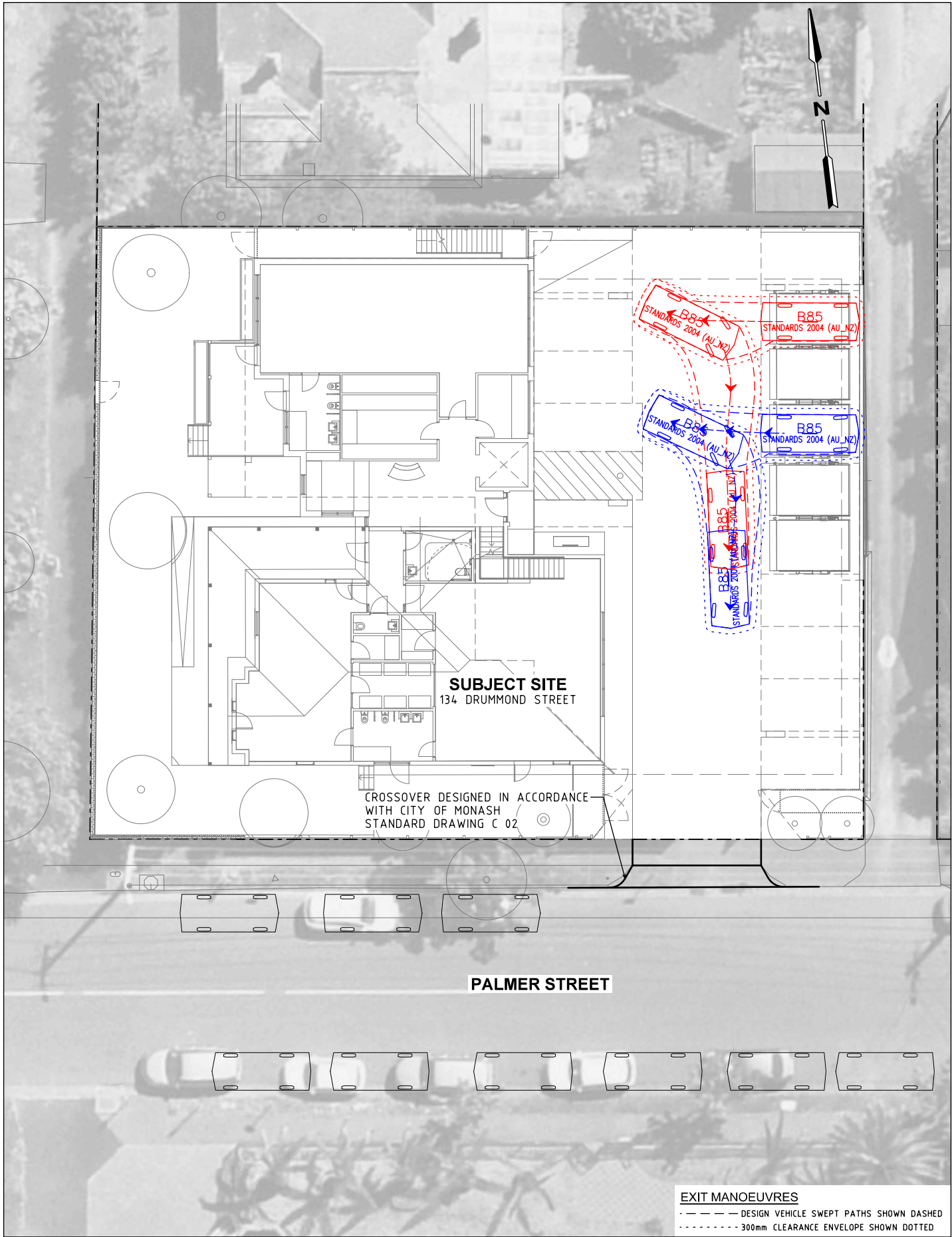
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Aerial Photography
Aerial photography provided by Nearmap



ENTRY MANOEUVRES

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



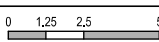
EXIT MANOEUVRES

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



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Scale
1:250 @ A3



Drawing Title
134 DRUMMOND STREET, OAKLEIGH
VEHICLE PARKING ACCESS
SWEEP PATH ANALYSIS

Designed DA	Approved RBH	Melway Ref 69 F6
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Project Number 240051	Drawing Number SPA100	Revision C
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