Transport Impact Statement

Proposed Childcare Centre – 1785 Keane Street East, Mount Helena

CW1200857/300306999

Revision A

25 July 2023

Prepared for:

Valm Pty Ltd

Prepared by:

Stantec Australia Pty Ltd

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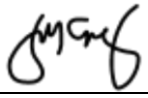
Prepared by 
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1.0 INTRODUCTION

1.1 BACKGROUND

Stantec has been commissioned by Valm Pty Ltd ('the Client') to undertake a Transport Impact Statement for a Proposed Childcare Centre located at 1785 Keane Street East, Mount Helena (the 'Site').

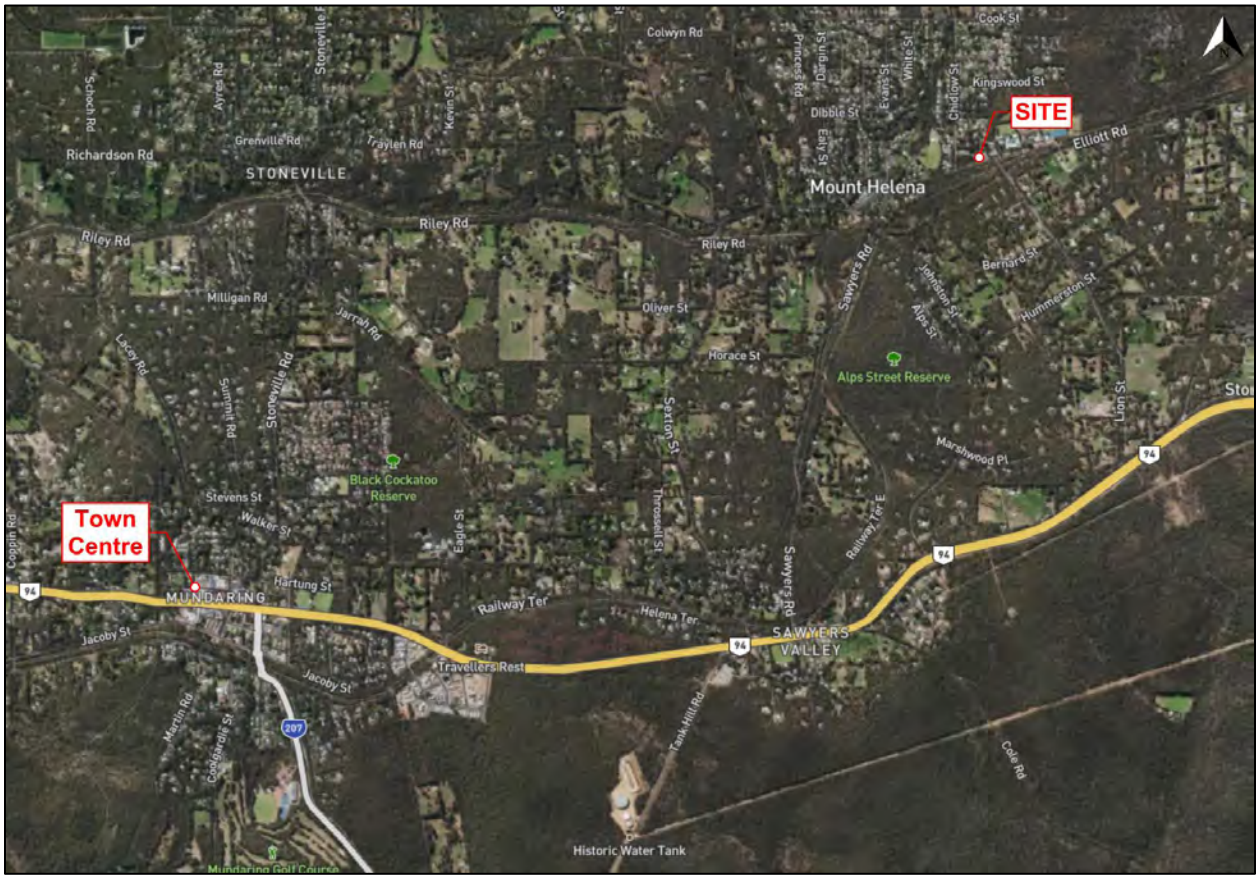
This report aims to assess the impact of the development on the adjacent road network. The report will focus on access, public transport, pedestrian and cycle networks, circulation, and car parking requirements.

This report has been prepared following the *Western Australian Planning Commission (WAPC) Transport Impact Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016)* and the checklist is included in **Appendix A**.

1.2 SITE LOCATION

The proposed development is located within Keane Street East, Mount Helena within the Shire of Mundaring, as shown in **Figure 1-1**. The Site is located approximately 10km Northeast of Mundaring Town Centre and 45km from Perth CBD.

Figure 1-1 Site Location



Source: Metromap (base map)

2.0 EXISTING SITUATION

2.1 SITE CONTEXT

Currently, the subject Site contains a residential dwelling unit and is bounded by Keane Street East and Blair Place as shown in **Figure 2-1**. The Mount Helena Primary School and the Eastern Hills Senior High School, both of which are to the East of the Site, are located at the eastern end of Keane Street East.

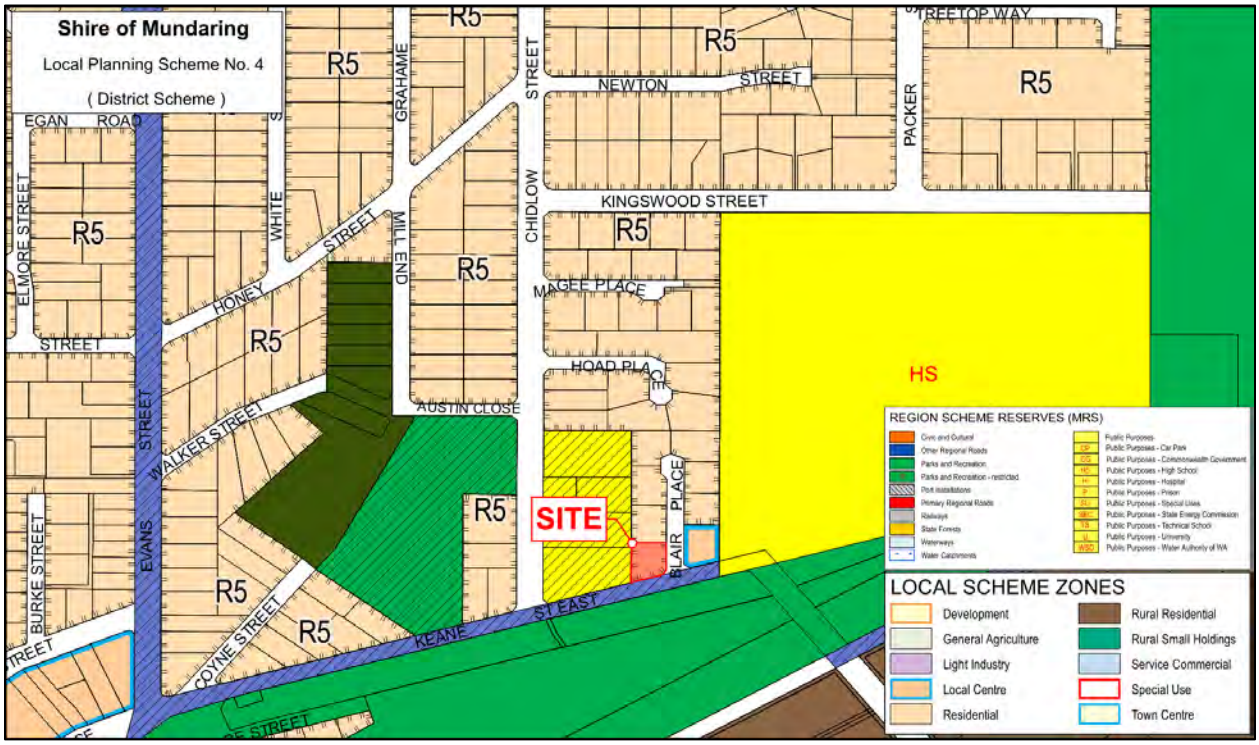
Figure 2-1 Aerial Overview of the Site

Source: Metromap (base map)

2.2 EXISTING LAND USES

According to the *Shire of Mundaring's Local Planning Scheme No. 4*, the subject Site is currently zoned as a 'Residential' area as shown in **Figure 2-2**. The existing land uses surrounding the subject Site are primarily classified as residential areas as well with 'R5' zoning. In addition, the Site is also surrounded by properties that are used for public purposes and a small local centre.

Figure 2-2 Site Zoning Map



Source: City of Joondalup's Local Planning Scheme No. 3

2.3 EXISTING ROAD NETWORK

Road Classifications defined in the Main Roads Functional Hierarchy are as follows:

- **Primary Distributors (light blue):** Form the regional and inter-regional grid of MRWA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes, and all are National or State roads. They are managed by Main Roads.
- **Regional Distributors (red):** Roads that are not Primary Distributors, but link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government.
- **District Distributor A (green):** These carry traffic between industrial, commercial, and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.
- **District Distributor B (dark blue):** Perform a similar function to District Distributor A but with reduced capacity due to flow restrictions from access to and roadside parking alongside the adjoining property. These are often older roads with traffic demand more than what was originally intended.

District Distributor A and B roads run between land-use cells and not through them, forming a grid that would ideally be around 1.5 kilometres apart. They are managed by Local Government.

- **Local Distributors (orange):** Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by the Local government.
- **Access Roads (grey):** Provide access to abutting properties with amenity, safety, and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian-friendly. They are managed by the Local government.

The Site is primarily accessible to vehicles via Keane Street East. The surrounding road network is further characterised in **Table 2-1,** while **Figure 2-3** shows the hierarchy as per Main Roads WA Road Information Mapping System.

Table 2-1 Characteristics of Existing Road Network

Road Name (Road ID)	Road Hierarchy		Road Characteristics			
	Road Hierarchy	Road Jurisdiction	No. of Lanes	No. of Footpaths	Road Width[a] (m)	Posted Speed (km/h)
Keane Street East (1063248)	Regional Distributor	Local Government	2	1	7.5	50[bc]
Lion Street (1310372)	Regional Distributor	Local Government	2	1	7.5	50[c]
Chidlow Street (1063071)	Local Distributor	Local Government	2	N/A	7.0	50[c]
Blair Place (1063070)	Access Road	Local Government	2	1	7.0	50[c]

[a] *Sealed carriageway width*
[b] *School zone speed restrictions apply*
[c] *50kph in built-up areas, 110kph otherwise*
Source: MRWA Road Information Mapping System

Figure 2-3 Existing Road Network around the Site

Source: MRWA Road Information Mapping System

2.4 EXISTING TRAFFIC VOLUMES

Existing traffic count data near the Site, particularly along Keane Street East and Evans Street were not available on Main Roads WA's Traffic Map database. In addition, the Shire has not given any indication of existing traffic counts within the vicinity of the Site.

2.5 EXISTING PUBLIC TRANSPORT FACILITIES

The Site along Keane Street East is accessible via public transport due to the presence of bus stops nearby. **Figure 2-4** shows the location of these bus stops relative to the Site. The bus stops nearby are serviced by two Transperth bus routes that run between Midland Station, Mundaring, Chidlow, and Wundowie. Details of the existing bus routes are provided in **Table 2-2**. In general, public transport access to the Site is relatively poor given the limited number of operational bus routes near the Site and the low frequency of the existing bus services.

Figure 2-4 Location of Nearest Bus Stop

Source: Landgate (base map)

Table 2-2 Bus Route Characteristics

Route Number	Route Details	Direction	Peak Hour Service Frequency		
			Weekday	*Saturdays*	*Sunday / Holiday*
Route 328	Midland Station to Wundowie	To Chidlow / Wundowie	60 minutes	> 60 minutes	N/A
		To Midland	60 minutes	> 60 minutes	N/A
Route 331	Mundaring to Wundowie	To Chidlow / Wundowie	30 minutes	N/A	N/A
		To Mundaring	30 minutes	N/A	N/A

Source: TransPerth Bus Timetables

2.6 EXISTING PEDESTRIAN/CYCLING FACILITIES

The existing road network surrounding the Site has at least one (1) footpath, particularly along Keane Street East as mentioned in **Table 2-1**. Generally, the Site is fairly accessible for pedestrians due to the presence of footpaths along Keane Street East and the adjoining roads within the existing road network.

As for cycling routes, the existing road network around the Site is currently not part of any cycling route identified by the Shire. However, the Long-Term Cycling Network (LTCN) for Perth identifies Keane Street East, Chidlow Street, and Lion Street as a viable local-level cycling route from Mount Helena to its adjacent suburbs. The long-term cycling network map relative to the location of the Site is presented in **Figure 2-5**. Overall, the existing pedestrian and cycling facilities would make the Site fairly accessible and convenient for active transport users (i.e., cycling and walking).

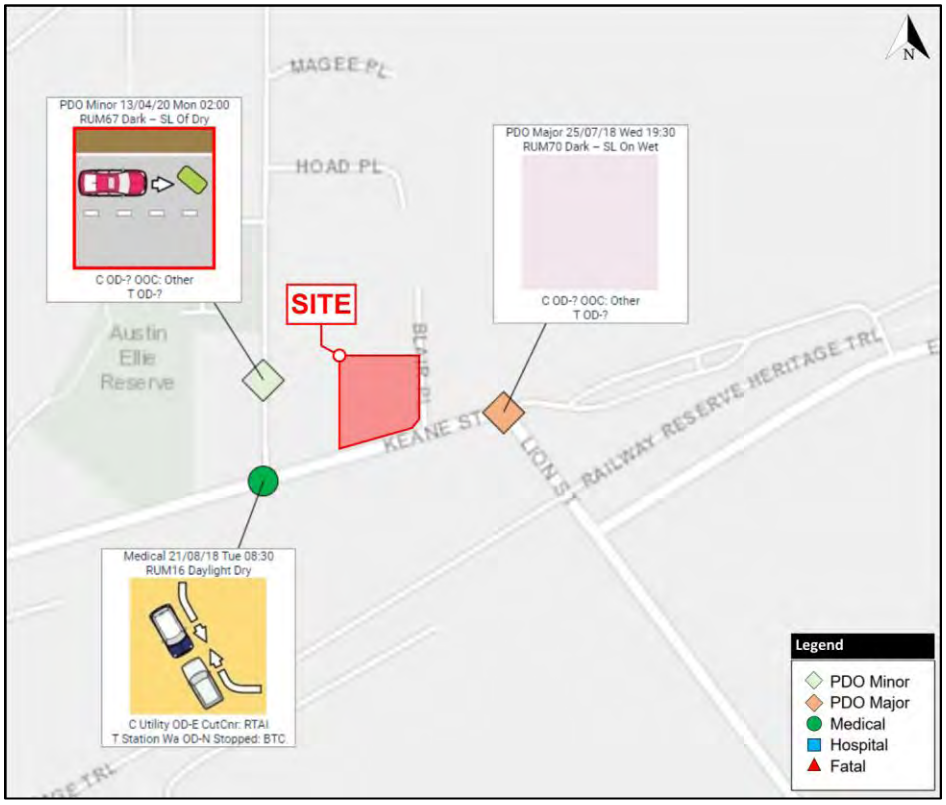
Figure 2-5 Long-Term Cycling Network Map

Source: WA Department of Transport - Long-Term Cycling Network for Perth (base map)

2.7 CRASH ASSESSMENT

Recorded crashes for the last 5 years on the existing road network surrounding the Site were extracted from the MRWA database between 2018 and 2022. Results indicate that there were three (3) crash incidents within the vicinity of the Site. These crashes are detailed in **Table 2-3 to Table 2-5**. **Figure 2-6** illustrates the location and severity of these crashes.

Figure 2-6 Crash Location and Severity Map



Source: MRWA Crash Reporting Centre

Table 2-3 Total Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Right Angle	-	-	1	-	-	1
Hit Object	-	-	-	1	-	1
Unspecified	-	-	-	-	1	1
Total	-	-	1	1	1	**3**

Table 2-4 Intersection Crashes

Intersection Name	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Lion St – Keane St East	-	-	-	1	-	1
Keane St East – Chidlow St	-	-	1	-	-	1
Total	-	-	1	1	-	**2**

Table 2-5 Midblock Crashes

Road Name	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Chidlow St	-	-	-	-	1	1
Total	-	-	-	-	1	**1**

From the conducted assessment, three (3) crash incidents were recorded along the surrounding road network; observations are summarised as follows:

- There were no serious crashes recorded in the Site's surrounding area;
- One incident required medical attention as a result of a right-angle crash at the intersection of Chidlow Street and Keane Street East;
- Another incident occurred at the intersection of Keane Street East and Lion Street wherein a vehicle hit an object during a downpour, which resulted in major property damage to the nearby school;
- A crash incident resulting in minor property damage was recorded along the midblock of Chidlow Street wherein a vehicle hit an unknown object that was temporarily placed within the carriageway.

The low number of recorded crashes around the Site within the assessment period indicates that there are unlikely to be any significant deficiencies with the existing network geometry or activity.

3.0 CHANGES TO THE SURROUNDING AREA

3.1 CHANGES IN LAND USES

Stantec has contacted the Shire of Mundaring and sought their advise on imminent and planned changes to the land uses surrounding the Site. The Shire has not given any indication of changing the existing land uses surrounding the Site.

3.2 CHANGES TO THE ROAD NETWORK

Stantec has contacted the relevant authorities and was advised that there are no imminent planned changes to the existing road network, including the modification of existing traffic control measures along Keane Street East and its intersection with Chidlow Street, Blair Place, and Lion Street.

3.3 CHANGES TO THE PUBLIC TRANSPORT NETWORK

Stantec has contacted the Public Transport Authority and has advised that there are no planned changes to the existing public transport network.

3.4 CHANGES TO THE PEDESTRIAN AND CYCLING NETWORK

The Shire of Mundaring has not given any indication of imminent changes to the existing pedestrian and cycling network surrounding the subject Site.

4.0 PROPOSED DEVELOPMENT

4.1 PROPOSED LAND USES

The proposed development is for a childcare centre situated at the corner of Keane Street Est and Blair Place in Mount Helena. The development plan of the Site is shown in **Figure 4-1**, detailed development plans are also provided in **Appendix B**. Details of the proposed development are provided below:

- maximum capacity of 80 children;
- with 14 staff members; and
- 23 car parking bays

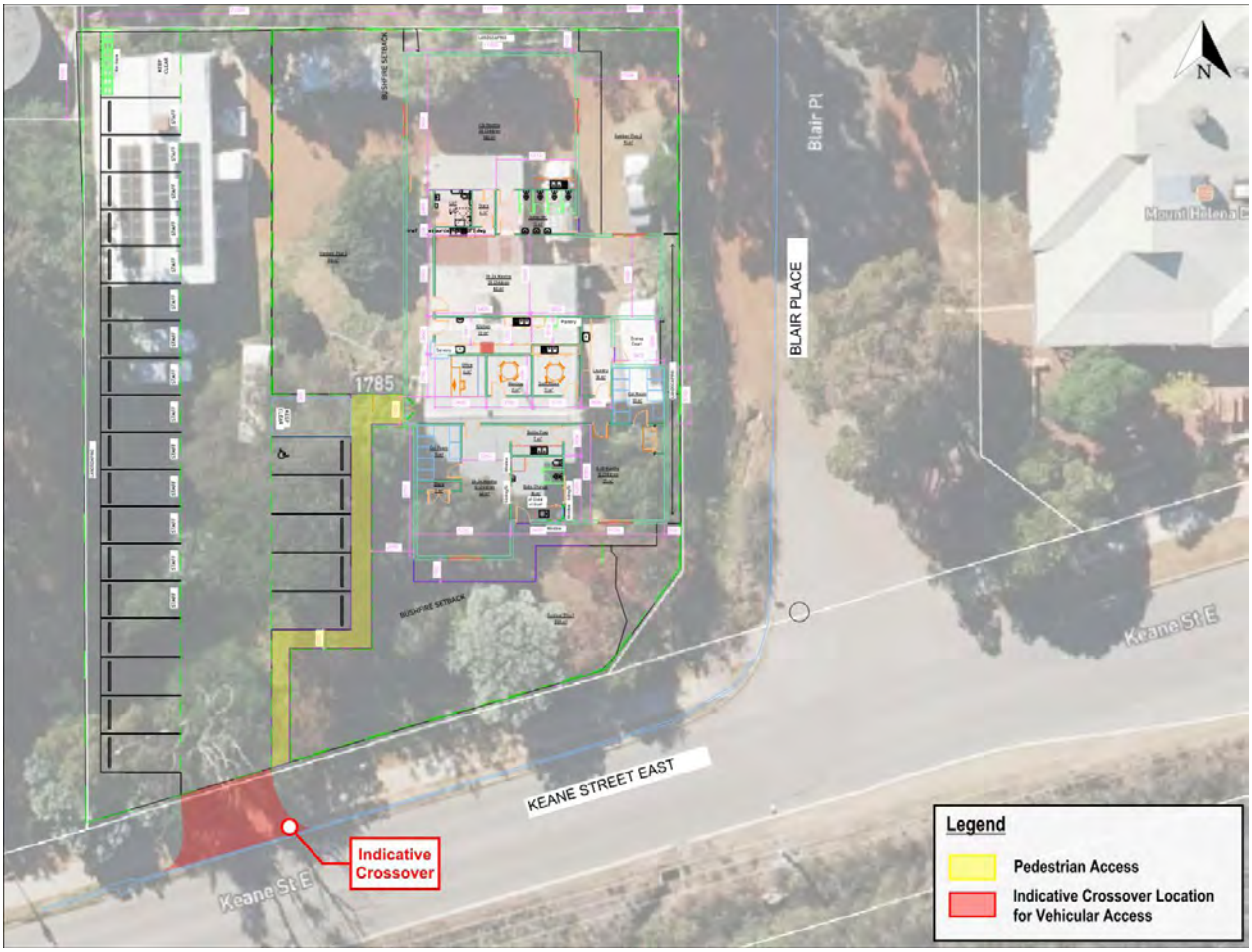
Figure 4-1 Proposed Site Development Plan

Source: Valm Pty Ltd

4.2 ACCESS ARRANGEMENTS

The proposed development is mainly accessible to vehicles via Keane Street East as illustrated by the indicative crossover shown in **Figure 4-2**. Pedestrian access to the Site is also proposed to be along the existing footpath of Keane Street East.

Figure 4-2 Site Access Arrangement



Source: Valm Pty Ltd (base map)

There are currently no restrictions for turning movements along Keane Street East. As such, all turning movements to and from the Site are suggestively allowed. It is also unlikely that development-generated trips will cause traffic disruptions in the nearby intersection since the vicinity can be generally characterised as a low-volume residential area.

4.3 PARKING REQUIREMENTS AND PROVISIONS

4.3.1 Car Parking

The statutory car parking requirements for the proposed development were estimated using car parking rates prescribed by the *Shire of Mundaring's Local Planning Scheme No. 4*. **Table 4-1** shows the car parking requirements and the on-site parking provision for the proposed development.

Table 4-1 Car Parking Requirements

Land Use	Development Yield	Car Parking Requirements		Parking Provided	Remarks (Excess/Shortfall)
Child Care Premises	80 Children	1 space per 8 children	10	9	-1
Staff	14 Staff	1 space per staff	14	14	
Total			**24**	**23***	*Shortfall*

** One (1) ACROD bay included*

The total car parking requirement following the Shire's guideline is 24 bays. However, the Site had only provided 23 parking bays, wherein 14 are dedicated to staff and 9 (including 1 ACROD bay) are for visitors. This parking shortfall can be considered negligible due to the following arguments:

- The requirements were computed using the development's full operating capacity. On a typical day, the development is anticipated to operate below peak capacity;
- The nature of the development expects high turnover usage of visitor parking bays, with RTA parking surveys showing average length of stay of a parent being less than 7 minutes. Hence, the likelihood of all bays being full for an extended time is low;
- Staff parking is fully allocated on the plan. However, full utilisation of staff parking bays is not absolute daily and could be less than estimated where carpooling occurs or staff arrive via walking, riding or public transport; and
- Visitor parking demand for the Site may be lower due to the presence of the nearby schools and parents may instead choose to walk their children to and from the childcare centre when also picking up older children.

4.4 PARKING GEOMETRY ASSESSMENT

The Site's proposed parking layout and dimensions were compared against the prescribed geometry requirements of the Australian/New Zealand Standards for off-street parking facilities. The results of these assessments are summarised in **Table 4-2**.

Table 4-2 Parking Geometry Assessment

Parameter	Layout	*Staff Parking*[1]		*Visitor Parking*[1]		*ACROD*[2]	
		Minimum Dimension	*Remarks*	*Minimum Dimension*	*Remarks*	*Minimum Dimension*	*Remarks*
Bay Width, m	**2.5** *(staff)* **2.6** *(visitor)*	2.4	***Compliant***	2.6	***Compliant***	2.4	***Compliant***
Bay Length, m	**5.4**	5.4	***Compliant***	5.4	***Compliant***	5.4	***Compliant***
Shared Area Width, m	**2.5**					2.4	***Compliant***
Shared Area Length, m	**5.4**					5.4	***Compliant***
Bollard from Aisle, mm	**N/A**					800±50	***Bollard location not indicated***
Aisle Width, m	**6.1**	5.8	***Compliant***	5.8 *(Class 3)*	***Compliant***		
Circulation Roadway Width, m	**6.1**	5.5 *(two-way)*	***Compliant***	5.5 *(two-way)*	***Compliant***		
Access Width, m	**6.1**	3.0 – 5.5	***Compliant***	3.0 – 5.5	***Compliant***		

[1] *from AS2890.1:2004 – Parking Facilities Part 1: Off-street Car Parking*
[2] *from AS2890.6:2009 – Parking Facilities Part 1: Off-street Car Parking for People with Disabilities*

As shown in the table above, the parking bay dimensions of the proposed development are mostly compliant with the requirements set out by AS2890.1 and AS2890.6. The minimum aisle width dimension for single manoeuvre entry and exit on bays is defined by User Class 3 to be 5.8m and 6.1m is being provided.

The 'keep clear' area adjacent to the ACROD bay is suggested to be the shared space for ACROD users. However, this space lacks a bollard as required by *AS2890.6* to protect users from traffic. Considering the nature of the proposed development, this minor non-compliance is unlikely to impose any material hazard within the parking area.

4.5 PROVISION FOR SERVICE VEHICLES

The Site development plan has not provided any indication of on-site parking bays specific for service vehicles. At this time, the client is yet to provide definitive details on waste collection methods for the proposed development. One option that can be considered is an arrangement with the council on-street waste pickup along Keane Street East is utilised. Another option that can be considered is the use of a private contractor to collect waste during the weekends wherein the Site is not operational and parking bays within the car park are not occupied. A swept path of a waste collection vehicle is provided in the next section (**Section 5.3**) to verify its manoeuvrability within the Site's parking area.

5.0 SWEPT PATH ANALYSIS

5.1 SWEPT PATHS ON THE SITE ACCESS

Swept path checks were conducted to assess the manoeuvrability of design vehicles along the access driveways and parking areas of the proposed development. Swept path checks were conducted using B85 and B99 design vehicles. **Figure 5-1** provides the resulting swept paths along the Site's access point while **Figure 5-2** illustrates circulation swept paths.

Figure 5-1 Swept Path – Site Access

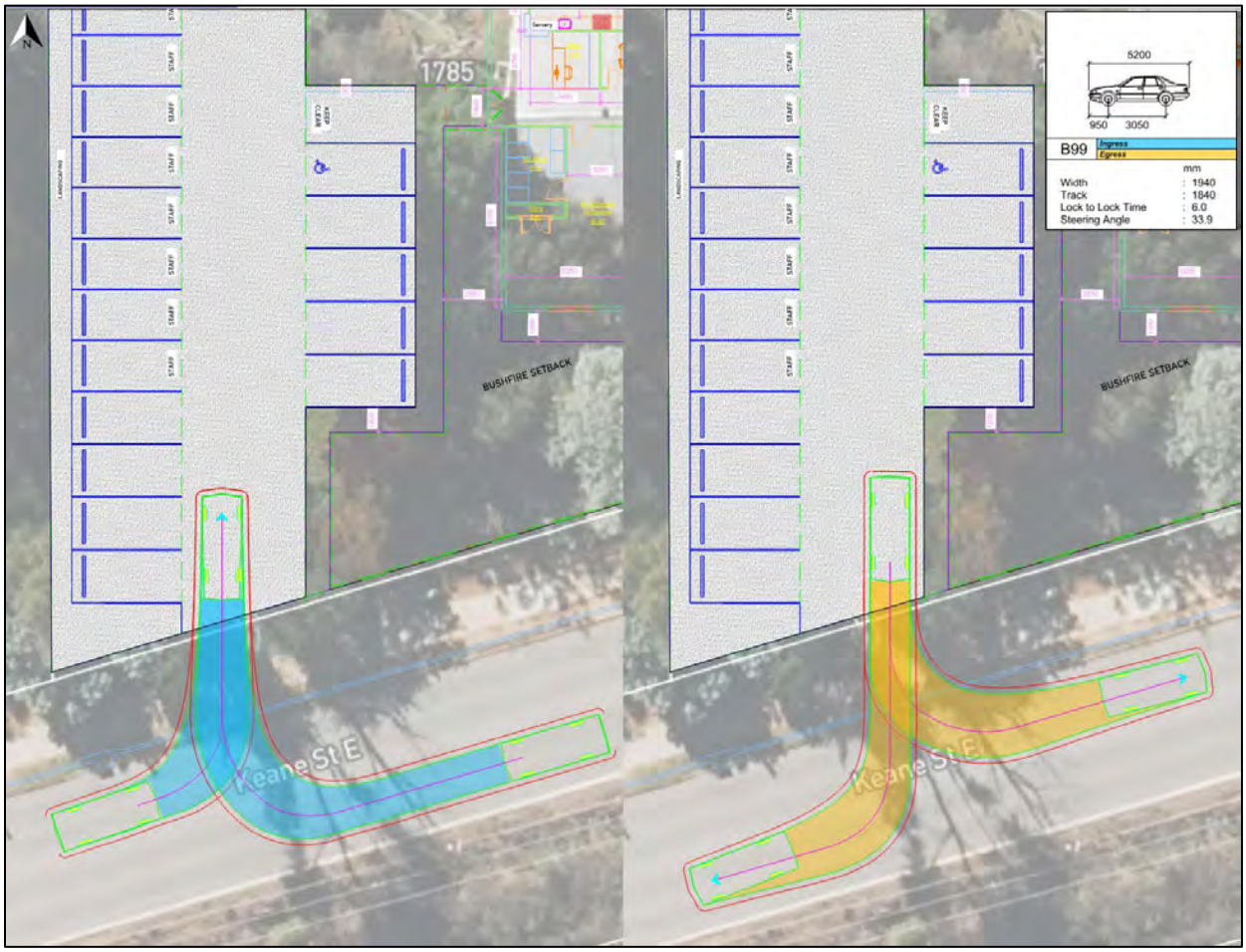
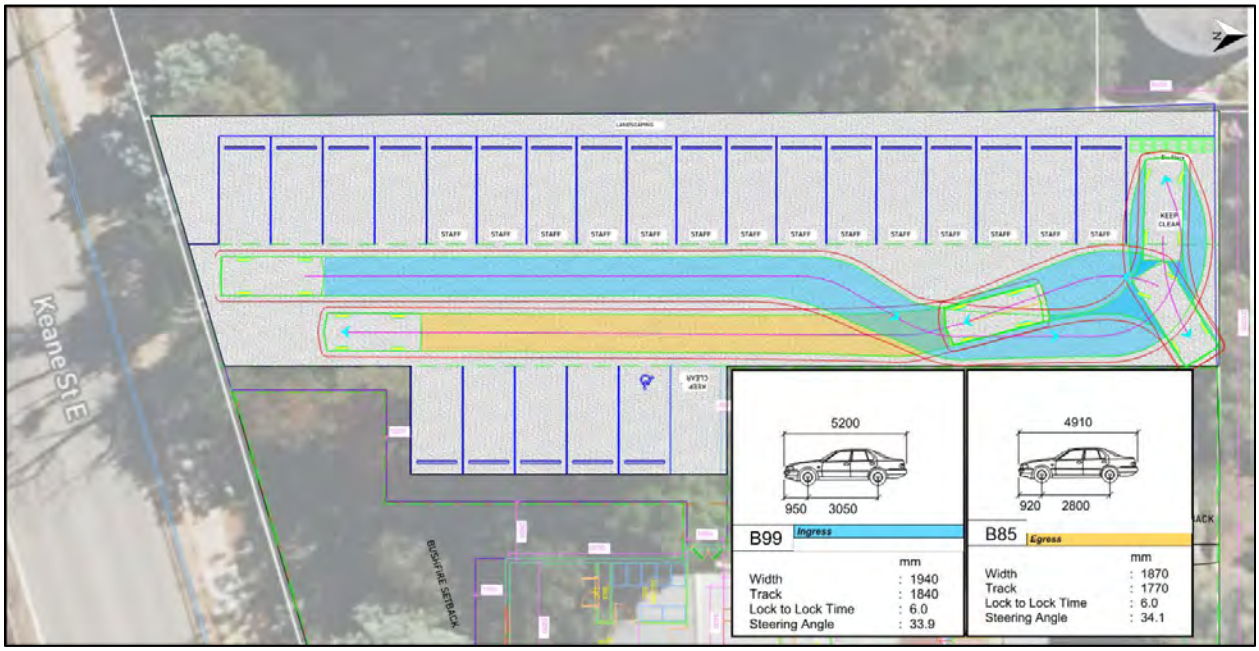


Figure 5-2 Swept Path – Circulation



As shown in the figure above, it is indicative that a B85 and B99 can safely pass each other along the parking aisle of the proposed development. It is noted that the bin storage space has enough space to be used as a reversing bay so that vehicle circulation within the parking area is as shown in the figure.

5.2 SWEPT PATHS AT THE PARKING BAYS

B85 and B99 design vehicles were also tested to check manoeuvrability within the car parking bays of the proposed development. **Figure 5-3** and **Figure 5-4** provide the swept paths for these assessments.

It is indicative that smaller vehicles are capable of entering and exiting the parking bays in a single manoeuvre as shown by the B85 swept paths. Larger vehicles as represented by the B99 vehicle would require multiple manoeuvres to safely enter and exit parking bays without encroaching onto adjacent parking bays.

Figure 5-3 Swept Path – B99 Parking

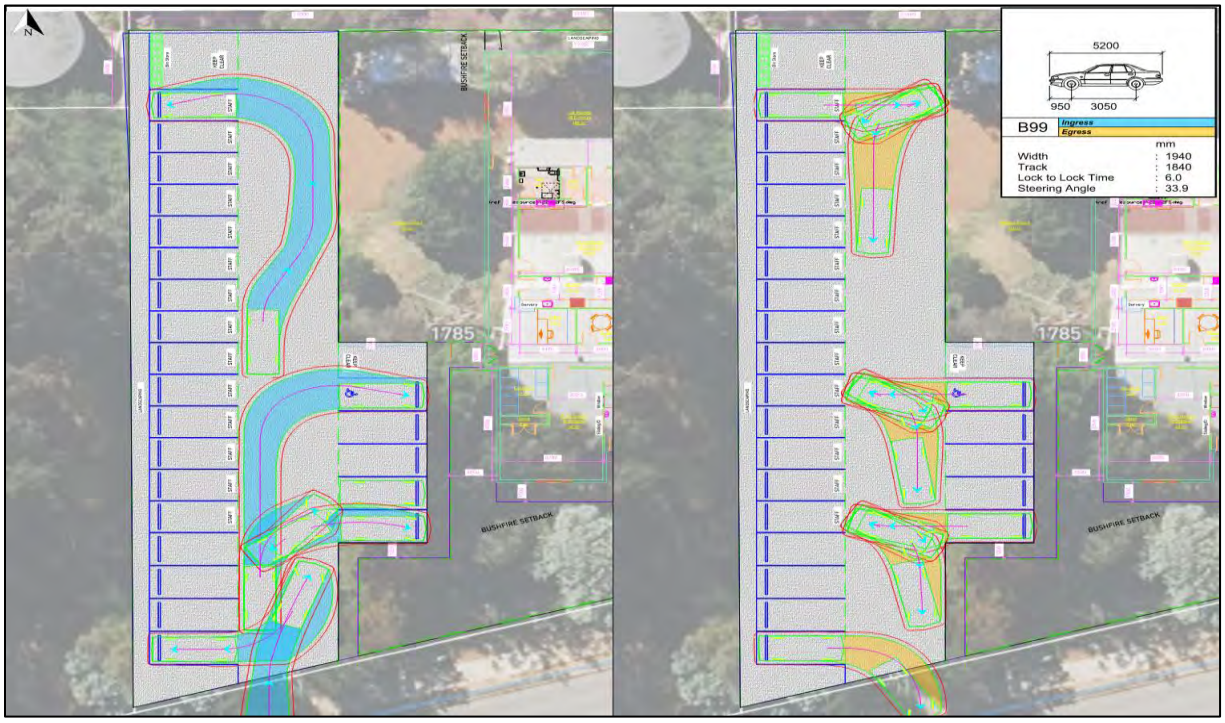
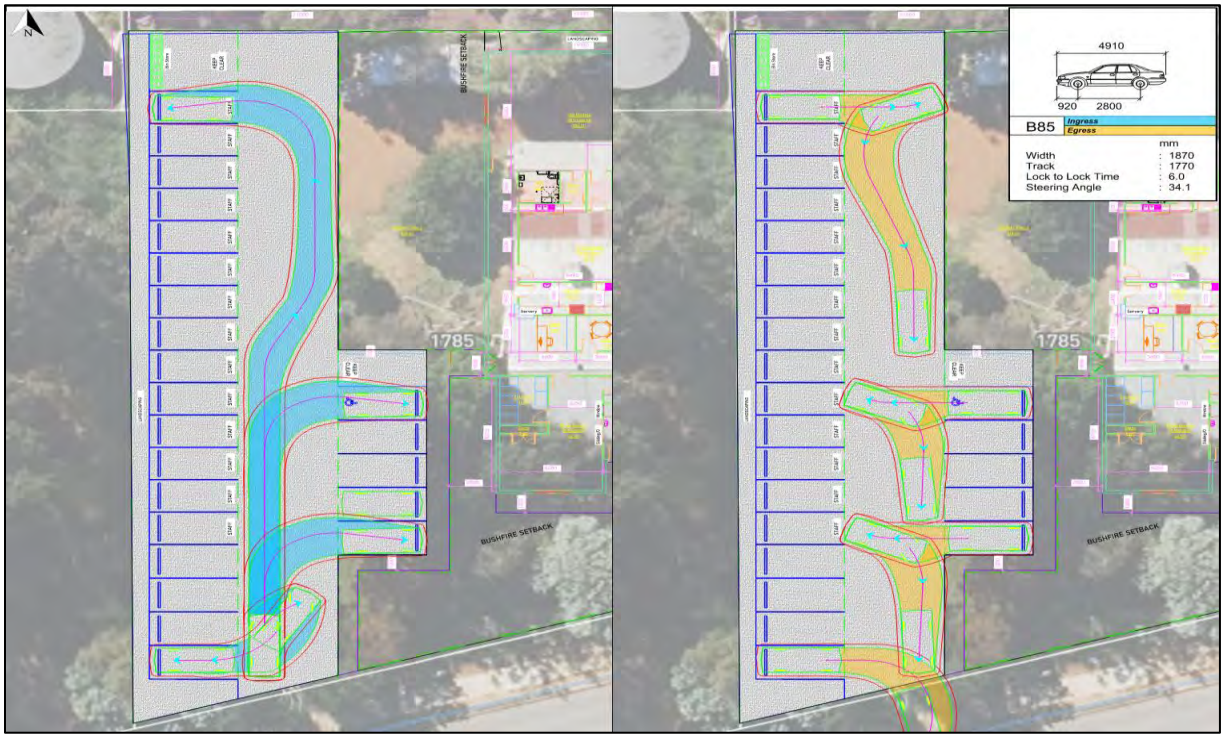


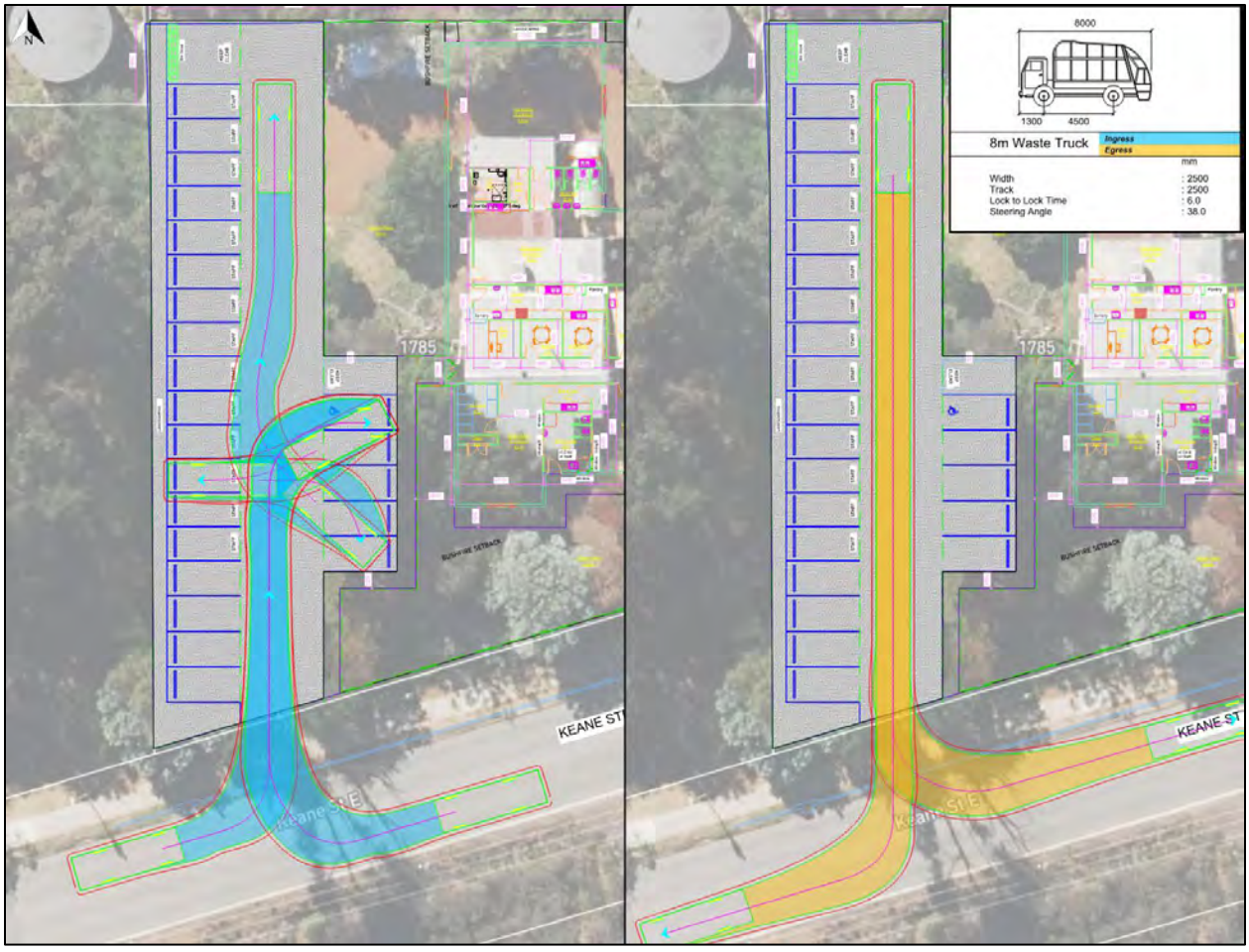
Figure 5-4 Swept Path – B85 Parking



5.3 SWEPT PATHS OF WASTE COLLECTION VEHICLE

An 8m truck was used to demonstrate a typical waste collection vehicle's manoeuvrability within the Site's parking area. It is noted that waste collection should only occur only on weekends wherein the Site is not operational and that parking bays are not occupied.

Figure 5-5 Swept Path – 8m Waste Collection Vehicle



6.0 TRIP GENERATION

6.1 ESTIMATED TRIP GENERATION

The maximum number of children that the proposed childcare centre can ammodate is 80 children. Using the trip generation rates suggested in the *Guide to Traffic Generating Developments – V2.2 (RTA),* the potential trips generated by the proposed development can be estimated. **Table 6-1** and **Table 6-2** provides the adopted trip generation rates and directional distribution, respectively. **Table 6-3** summarises the estimated trips generated by the proposed development.

Table 6-1 Trip Generation Rates – Peak Hour Generator

Land Use	Source	AM Peak	PM Peak
Long-day Care	RTA – Table 3.6	0.8 trips per child	0.7 trips per child

Table 6-2 Directional Distribution

Land Use	Yield	AM Peak		PM Peak	
		In	*Out*	*In*	*Out*
Child Care Premises	80 Children	53%	47%	47%	53%

Table 6-3 Estimated Trip Generation

Land Use	Yield	AM Peak		PM Peak	
		In	*Out*	*In*	*Out*
Child Care Premises	80 Children	34	30	26	30
Total		**64**		**56**	

6.2 IMPACT ON THE SURROUNDING ROAD NETWORK

As summarised in the table above, the development which is proposed to cater for a maximum of 80 children is expected to generate 64 and 56 trips during the weekday AM and PM peak hour periods, respectively. Following the *WAPC Traffic Impact Assessment Guidelines*, the estimated trips are expected to only impose moderate impacts on the surrounding road network. Hence, the proposed development is anticipated to only have a modest impact on the existing road network.

7.0 SUMMARY

This Transport Impact Assessment outlines the transport aspects of the proposed redevelopment focusing on traffic operations, access, and parking provisions. Included are discussions regarding pedestrian, cycling, and public transport considerations.

This statement has been prepared following the *WAPC Transport Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016).*

The following conclusions are made for the proposed development:

- The proposed development is for a childcare centre with a capacity of 80 children;
- The Site is widely accessible by vehicles given its connection with the existing road network;
- The Site is also fairly accessible via the existing public transport, pedestrian, and cycling networks;
- Recorded crash incidents within the Subject area are minimal and are less likely to impose significant changes in overall road safety;
- A total of 23 car parking bays are provided on-site and can be considered sufficient to meet the minimum parking requirements;
- Swept path results suggest that vehicles can adequately manoeuvre in and out of the Site's car parking area;
- The proposed development is anticipated to generate 64 trips (AM) and 56 trips (PM) during the weekday peak hour periods, which can be considered to only cause a moderate impact on the surrounding road network.

Overall, the proposed childcare centre at 1785 Keane Street East is unlikely to impose any substantial impact on traffic operations and the safety of the surrounding road network.

APPENDICES

APPENDIX A WAPC CHECKLIST

Item	Status	Comments/Proposals
Proposed Development		
Proposed Land Use	Section 3	
Existing Land Uses	Section 2	
Context with Surrounds	Section 2	
Vehicular Access and Parking		
Access Arrangements	Section 4	
Public, Private, and Disabled Parking Set Down / Pick-up	Section 2 / 4	
Service Vehicles (non-residential)		
Access Arrangements	Section 4	
On/Off-site Loading Facilities	Section 4	
Service Vehicles (residential)		
Rubbish Collection and Emergency Vehicle Access	N/A	
Hours of Operation (non-residential only)	N/A	
Traffic Volumes		
Daily or Peak Traffic Volumes	Section 6	
Type of Vehicles (e.g., cars, trucks)	Section 5	
Traffic Management on Frontage Streets	N/A	
Public Transport Access		
Nearest Bus/Train Routes	Section 2	
Nearest Bus Stops/Train Stations	Section 2	
Pedestrian/Cycle Links to Bus Stops/Train Station	Section 2	
Pedestrian Access/Facilities		
Existing Pedestrian Facilities Within The Development (If Any)	N/A	
Proposed Pedestrian Facilities Within Development	Section 2	
Existing Pedestrian Facilities On Surrounding Roads	Section 2	
Proposals To Improve Pedestrian Access	N/A	
Cycle Access/Facilities		
Existing Cycle Facilities Within The Development (If Any)	N/A	
Proposed Cycle Facilities Within The Development	N/A	
Existing Cycle Facilities On Surrounding Roads	Section 2	
Proposals To Improve Cycle Access	N/A	
Site-specific Issues	N/A	
Safety Issues		
Identify Issues	N/A	
Remedial Measures	N/A	

APPENDIX B DEVELOPMENT PLAN