

# TRANSPORT IMPACT STATEMENT

No 45 Bainbridge Avenue

Alkimos

June 2019

Rev A Draft



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**Appendix 1** - The layout of the proposed development

**Appendix 2** - Transport Planning and Traffic Plans

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## 1. Executive Summary

### Site Context

- The site is located within North Alkimos Structure Plan area zoned Mixed/Commercial R30-R80 and is currently vacant. It forms part of a larger Alkimos Eglinton District Structure Plan area.
- Significant changes to transportation networks are planned in the area, some of which are:
  - Construction on Mitchell Freeway Extension east of the subject site
  - Construction of Yanchep Rail Line extension west of the subject site
  - Several new roads surrounding the subject site, one of the most important ones being the future Alkimos Drive which will provide connection to Mitchell Freeway
- More details on this is provided in the Section 2.5

### Technical Findings

- The proposed development is expected to generate up to 306 vehicular trips per day, 34 vehicular trips in the morning peak and 29 vehicular trips in the evening peak hour. According to the WAPC Guidelines this is considered a moderate impact on transport network.
- KCTT believe that the surrounding existing network and the planned upgrades in the vicinity will successfully absorb generated traffic.

### Relationship with Policies

- The plans for the proposed development show a total of 17 parking bays.
- City of Wanneroo stipulates a requirement of 22 parking bays, thereby leading to a nominal shortfall of 5 parking bays. However, given the nature of the proposed land use and site context, the following points inform KCTT's opinion that the proposed parking can meet the development requirements:
  - There are 4 on street bays fronting the proposed development to the south on Bainbridge Avenue.
  - Additional on street parking (≈100bays) available within a 400m radius on Bainbridge Avenue, Coram Street, Decatur Street, Barney Road, Magellan Road.
  - The capacity of the childcare centre is 70 children. It is highly unlikely that the childcare centre would always operate at the maximum capacity.
  - The peak time for childcare centres is typically a 2-hour period. The average length of stay, as stated in NSW RTA - Guide to Traffic Generating Developments, is 6.8 minutes. Even assuming conservative 10 minutes average length of stay, the actual arrivals/departure rate of parents with vehicles is likely to be spread throughout the 2-hour peak time.
  - It is expected that some staff members could get dropped off to work (or possibly cycle/walk once the network is completed), therefore not requiring a parking bay for the duration of their shift. Not all staff members will work at one time.
  - Parents who live in vicinity of the proposed development could drop-off their children on-foot or park near the Northshore Christian Grammar School if they have older children who attend it.

## **Transport Impact Statement**

KC01030.000 No 45 Bainbridge Avenue, Alkimos

- KCTT believe that pick up / drop off function of the childcare centre can be effectively catered for on premises and available on-street parking; therefore, it is highly unlikely that this shortfall would have a negative impact.
- The plans for the proposed development show 4 bicycle parking racks in order to promote alternative transportation modes.
- Building Code of Australia ACROD Provision – the proposed development meets the requirement for 1 ACROD bay.

## 2. Transport Impact Statement

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### 2.1 Location

Lot Number	1580
Street Number	No. 45
Road Name	Bainbridge Avenue
Suburb	Alkimos
Description of Site	The site is located within North Alkimos Structure Plan area, zoned Mixed/Commercial R30-R80 and is currently vacant.

### 2.2 Technical Literature Used

Local Government Authority	City of Wanneroo
Type of Development	Childcare Centre - Individual Development
Are the R-Codes referenced?	NO
Is the NSW RTA Guide to Traffic Generating Developments Version 2.2 October 2002 (referenced to determine trip generation / attraction rates for various land uses) referenced?	YES
Which WAPC Transport Impact Assessment Guideline should be referenced?	Volume 4 - Individual Developments
Are there applicable LGA schemes for this type of development?	YES
<i>If YES, Nominate:</i>	
Name and Number of Scheme	District Planning Scheme No. 2
Are Austroads documents referenced?	YES
Is there an applicable Local Development Plan scheme for this type of development?	YES
<i>If YES, Nominate:</i>	
Number and Name of Scheme	North Alkimos - Local Development Plan No. 21
Is the Perth Transport Plan for 3.5 million and Beyond referenced?	NO

## 2.3 Land Uses

Are there any existing Land Uses	NO
<b>Proposed Land Uses</b>	
How many types of land uses are proposed?	One (1)
Nominate land use type and yield	Childcare Centre <ul style="list-style-type: none"> <li>- 70 children</li> <li>- 13 staff members</li> </ul>
Are the proposed land uses complimentary with the surrounding land-uses?	YES

## 2.4 Local Road Network Information

How many roads front the subject site?	Three (3)
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*Name of Roads Fronting Subject Site / Road Classification and Description:*

### Road 1

<b>Road Name</b>	Cushing Road
Number of Lanes	two way, one lane (no linemarking), undivided
Road Reservation Width	approximately 9m
Road Pavement Width	approximately 5.5m
Classification	N/A
Speed Limit	N/A
Bus Route	NO
On-street parking	NO

### Road 2

<b>Road Name</b>	Bainbridge Avenue
Number of Lanes	two way, one lane (no linemarking), undivided
Road Reservation Width	approximately 18m
Road Pavement Width	approximately 6
Classification	N/A
Speed Limit	N/A
Bus Route	NO
On-street parking	YES – 2.3m parallel parking on both sides of the road reservation

### Road 3

<b>Road Name</b>	Magellan Road
Number of Lanes	two way, one lane (no linemarking), undivided
Road Reservation Width	approximately 16m
Road Pavement Width	approximately 6m
Classification	N/A
Speed Limit	N/A
Bus Route	NO
On-street parking	NO

## **2.5 Planned changes to the surrounding road network**

The proposed development is located in an area that is about to undergo a significant transformation in coming years. Transportation networks are going to be extended and enhanced in next 10 years. Below are quotations from some of the current documentation showing the extent of planned network upgrades.

### **Alkimos Eglinton District Structure Plan March 2016**

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#### **“ 7.3 PROPOSED ROAD NETWORK**

*The proposed ultimate road network incorporates the transport framework included in the current MRS, with the following features:*

- The Mitchell Freeway will form the eastern boundary of the Alkimos Eglinton DSP. It is a Primary Regional Road under the MRS. There will be grade separated crossings to the Mitchell Freeway at Romeo Road, Alkimos Drive and Eglinton Avenue.*
- Marmion Avenue is proposed as a north-south integrator arterial. It is designated as an Other Regional Road under the MRS.*
- Romeo Road is proposed as an east-west integrator arterial, connecting Marmion Avenue to the Mitchell Freeway, through the Alkimos Town Centre. It is proposed as an Other Regional Road under the MRS. Romeo Road has been realigned in the DSP compared to the MRS. This allows for the road to better service the Alkimos Secondary Centre and the Alkimos Coastal Village by providing more direct access to and from the Mitchell Freeway and Marmion Avenue. The realignment of the road reserve will be part of a future MRS Amendment.*
- The Alkimos EW Coastal Village Connector is proposed as an integrator arterial (B), connecting the Alkimos Coastal Village to the Alkimos Town Centre. It is planned to connect with Marmion Avenue at the same location as Romeo Road, providing a continuous link between the coast and the Mitchell Freeway.*
- Alkimos Drive is proposed as an east west integrator arterial (A) for the section east of Marmion Avenue. It will connect Marmion Avenue to the Mitchell Freeway. This section of Alkimos Drive is proposed as an Other Regional Road under the MRS. West of Marmion Avenue, Alkimos Drive is proposed as an integrator arterial.*
- Eglinton Avenue is proposed as an east west integrator arterial (A). It will connect Marmion Avenue to the Mitchell Freeway. This section of Eglinton Avenue is proposed as an Other Regional Road under the MRS. West of Marmion Avenue, Eglinton Avenue is proposed as an integrator arterial (B).*
- Neighbourhood connectors throughout Alkimos Eglinton will form the local road linkages to the district roads.*
- Wherever practical a coastal road, is to be provided to clearly delineate the boundary between the foreshore and the land to be developed for urban purposes. This road is not intended to be a major thoroughfare (indeed it is to be a lower order road) although it must provide full public recreational access to the coast and assist in the provision of coastal parking facilities.*

*Marmion Avenue, Eglinton Avenue, Romeo Road and parts of Alkimos Drive (district distributor roads) will ultimately all be four lane divided roads with reserve widths varying from 36 to 53 m. The design will be based on an ultimate operating speed of 60-70 kph, with the lower speeds applying through the Secondary and District Centres.*

*The district roads will have operating speeds of 50-60 kph and reserve widths of 20 to 30 m. Carriageway configurations vary from two lane boulevards to single, two-way carriageways to accommodate traffic volumes of between 2,000-15,000 vehicles per day.”*

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#### **“ 7.5 PUBLIC TRANSPORT**

*The proposed ultimate public transport network will include three components:*

- The northern suburbs railway line for line-haul movements to district and regional destinations. Within Alkimos*

*Eglinton it is planned to have 2 rail stations: Alkimos Town Centre and Eglinton District centre. The two stations will provide a high quality service.*

*The Alkimos Eglinton second tier public transport system which will link the main demand centres within the area and also act as a collector service to the railway stations. The indicative alignment and stopping pattern of the CAT service (Figure 13) provides a high quality public transport service.*



- *Conventional Transperth bus services would provide a public transport service to areas outside of the catchment of the CAT.*

*Figures 14, 15 and 16 shows the walkable catchments for each public transport services proposed. The large majority of the project area is within 800 m of a rail station, CAT stop or bus route.*

*At the DSP level, the route alignments are indicative and subject to refinement as detailed planning progresses for each of the development stages.*

*The DSP includes an alignment for the extension of the Northern Suburbs Railway through the area. The horizontal railway alignment adopted in the DSP includes provision for the tracks, a principal shared path, access road, earthworks and retaining walls, generally within a 35 metre wide reserve. The alignment has been designed for train speeds up to 140 kph."*

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#### **" 7.5.1 RAILWAY ALIGNMENT**

*The GHD definition work identified the provision of three rail stations within the DSP: Alkimos Town Centre, Eglinton District Centre and a Park and Ride Station at Alkimos Drive. Through the design process for the Alkimos City Centre Activity Centre Structure Plan (ASP) and the LandCorp landholding to the north, known as Central Alkimos, it was advised by the Department of Transport that the Park and Ride Station at Alkimos Drive was no longer required."*

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### **North Alkimos Local Structure Plan No. 73 March 2017**

#### **" 6.6 MOVEMENT NETWORK**

- *Local bus routes will connect Eglinton Station to Alkimos Station and thus provide good access to district and regional shopping, employment and education. One of the routes has been designated as a 'CAT type' route along which higher density development is seen as most appropriate.*
- *Alkimos North Station – a longer term possible station with significant park n' ride (in order of 1000 bays). The subject land residents will be able to drive to station for kiss n' ride and park n' ride transfer to rail network. The service is highly valuable, and the North Alkimos Station would take park n' ride pressure off the Alkimos Regional Centre station. The train service provides links to district and regional shopping, employment and education.*
- *Marmion Avenue and Alkimos Drive provide high capacity, high speed vehicle connections to the regional road network (including future Mitchell Freeway) and will serve commuter and commercial vehicle movements generated from the subject land.*
- *Freeway and rail line present opportunities for a principal shared path in north-south direction (as documented in DSP).*
- *Marmion Avenue and Alkimos Drive (east of Marmion Avenue) are access controlled roads and thus the number and location of intersections are strictly regulated (especially signalised or roundabout controlled intersections). No direct property access on these roads and Main Roads have advised that CAP roads are not considered suitable on Marmion Avenue.*
- *Marmion Avenue, Alkimos Drive and the Mitchell Freeway will all have noise mitigation issues/requirements. Marmion Avenue and Alkimos Drive pose severance issues for the communities on either side of these roads.*
- *The rail line poses a physical barrier and grade separated vehicle/pedestrian crossings should be provided at no greater than 800 m spacing but ideally at no greater than 500 m spacing.*
- *The subject land doesn't have an intersection with signal control on its Marmion Avenue frontage and relies on roads through other properties for access to signalised intersections on Marmion Avenue.*
- *The Freeway is likely to be constructed after the rail line (thus is likely to be at least ten years away). With the service commercial land located to the east side of Alkimos Drive (near the freeway) it will not benefit from Freeway access for some time."*

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#### **" 10.2 THE ROAD HIERARCHY, INTERNAL CROSS SECTIONS AND RESERVATIONS**

*Road Hierarchy and Arterial Access Plan:*

- *Mitchell Freeway – Primary Distributor*
- *Alkimos Drive – District Distributor A*
- *Scotthorn Drive – District Distributor B*
- *Bainbridge Avenue – Neighbourhood Connector*

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#### **" 10.9 SHARED PATHS**

*Shared paths are proposed for along all District Distributors and Local Distributors.*

*The Alkimos Eglinton DSP shows a principal shared path along the Mitchell Freeway and along the rail line. It is*

*also expected that there will be a shared path along the coast. In addition, all District Distributors are expected to have shared paths along both sides through urban areas. Neighbourhood Connectors generally have a shared path on one side and footpath on the other side. Local Access Streets would generally have a footpath on both sides except for those with very low traffic and low pedestrian demand. Those low order streets would have a footpath on one side only.*

*Road Hierarchy and Arterial Access Plan:*

- *Mitchell Freeway – Principal Shared Path*
- *Alkimos Drive – Shared Path and Paved Shoulder/Cycle Lane*
- *Scotthorn Drive – Shared Path and Paved Shoulder/Cycle Lane*
- *Bainbridge Avenue – Shared Path*

## **2.6 Traffic Volumes**

Are traffic volumes available on Main Roads WA website?

NO

What are the expected traffic volumes on surrounding roads?

Alkimos-Eglinton District Structure Plan No. 18 – Amendment 2 Appendix 4 Transport Impact Assessment (GTA Traffic Consultants) dated 12/09/18 states the following:

*“A summary of adjacent road categories and forecast volumes on the surrounding road networks as described above and extracted from the adjacent LSP reports noted as follows:*

- *Mitchell Freeway (Primary Regional Road)*
  - *70,000 vehicles per day north of Alkimos Drive*
- *Wanneroo Road (Primary Regional Road)*
  - *14,250 vehicles per day north of Alkimos Drive*
- *Marmion Avenue (District Distributor A Road)*
  - *31,000 vehicles per day north of Alkimos Drive*
- *Alkimos Drive (District Distributor A/B road)*
  - *32,000 vehicles per day west of Mitchell Freeway*
  - *17,500 vehicles per day east of Marmion Avenue*
- *Eglinton Drive (District Distributor A/B road)*
  - *19,000 vehicles per day west of Mitchell Freeway*
  - *(Pipidinny Road) up to 7,000 vehicles per day east of Mitchell Freeway*
- *Scotthorn Drive (Neighbourhood Connector Road)*
  - *7,650 vehicles per day north of Alkimos Drive”*

## **2.7 Vehicular Crash Information**

Is Crash Data Available on Main Roads WA website?

NO

## 2.8 Vehicular Parking

Local Government

City of Wanneroo

Local Government Document Utilised

Local Planning Policy 2.3: Child Care Centres

Description of Parking Requirements in accordance with Scheme:

*1 bay per staff member + 9 bays for 65-72 children*

### Calculation of Parking

Land Use	Requirements	Yield	Total Parking
Childcare	9 bays for 65-72 children; 1 bay per staff member	70 children; 13 staff members	22 bays
Total Car Parking Requirement			22
Total Volume of Parking Provided by Proponent			17 on site bays

### Justification

The plans for the proposed development show a total 17 parking bays.

City of Wanneroo stipulates a requirement of 22 parking bays, thereby leading to a nominal shortfall of 5 parking bays. However, given the nature of the proposed land use and site context, the following points inform KCTT's opinion that the proposed parking can meet the development requirements:

- There are 4 on street bays fronting the proposed development to the south on Bainbridge Avenue.
- Additional on street parking (≈100bays) available within a 400m radius on Bainbridge Avenue, Coram Street, Decatur Street, Barney Road, Magellan Road.
- The capacity of the childcare centre is 70 children. It is highly unlikely that the childcare centre would operate at the maximum capacity at all times.
- The peak time for childcare centres is typically a 2-hour period. The average length of stay, as stated in NSW RTA - Guide to Traffic Generating Developments, is 6.8 minutes. Even assuming conservative 10 minutes average length of stay, the actual arrivals/departure rate of parents with vehicles is likely to be spread throughout the 2-hour peak time.
- It is expected that some staff members could possibly cycle/walk or get dropped off to work, therefore not requiring a parking bay for the duration of their shift. Not all staff members will work at one time.
- Parents who live in vicinity of the proposed development could drop-off their children on-foot or park near the Northshore Christian Grammar School if they have older children who attend it.

KCTT believe that pick up / drop off function of the childcare centre can be effectively catered for on premises and available on-street parking; therefore, it is highly unlikely that this shortfall would have any negative impact.

**Have Vehicle Swept Paths been checked for Parking?** YES

*If YES, provide description of performance:*

The plans have been checked with a B99 Passenger Vehicle 5.2m, with no navigability issues found. Refer to Appendix 3 for swept paths.

## 2.9 Bicycle Parking

Local Government

City of Wanneroo

Reference Document Utilised

District Planning Scheme No. 2

Description of Parking Requirements in accordance with Scheme:

*“ Council may require the provision of bicycle parking and end of trip facilities such as showers, change rooms and lockers in commercial developments and other employment centres in accordance with Austroads’ Guide to Engineering Practice Part 14: Bicycles.”*

Austroads’ Guide to Engineering Practice Part 14: Bicycles has been replaced by Guide to Traffic Management Part 11: Parking, therefore KCTT have referenced the latter document:

*“ Child day care centre: Bicycles (long-stay) -1 space”*

Justification

The plans for the proposed development show 4 bicycle parking racks.

## 2.10 ACROD Parking

Class of Building

Class 9b

Does this building class require specific provision of ACROD Parking?

YES

Reference Document Utilised

Building Code of Australia

Description of Parking Requirements:

Class 9b — (b) Other assembly building — (i) up to 1000 carparking spaces; - 1 space for every 50 carparking spaces or part thereof

**Parking Requirement in accordance with regulatory documents**

Land Use	Requirements	Yield	Total Parking
Childcare	<i>1 space for every 50 carparking spaces or part thereof</i>	17	1
<b>Total Volume of ACROD Parking Required</b>			<b>1</b>
<b>Total Volume of ACROD Parking Provided by Proponent</b>			<b>1</b>

Justification

The proposed development meets the requirement for 1 ACROD bay.

## 2.11 Delivery and Service Vehicles

Guideline Document used as reference  
 Requirements

NSW RTA Guide to Traffic Generating Developments

*“ Other uses - 1 space per 2,000m<sup>2</sup>”*

**Parking Requirement in accordance with regulatory documents**

Land Use	Minimum Requirements	Yield	Total Parking
Childcare	<i>1 space per 2,000m<sup>2</sup></i>	<2,000m <sup>2</sup>	1
<b>Total Volume of Service and Delivery Parking Required</b>			<b>1</b>
<b>Total Volume of Service and Delivery Parking Provided by Proponent</b>			<b>N/A</b>

Justification

The above requirements are only stated as a guide. KCTT believe that a childcare centre does not require a specific bay, since all deliveries can be conducted outside of peak hours of operation, when all drop-off parking bays will be empty. Furthermore, the waste collection can be conducted safely within the road reserve.

## 2.12 Calculation of Development Generated / Attracted Trips

What are the likely hours of operation?	07:00 – 18:00
What are the likely peak hours of operation?	AM 08:00 – 09:00; PM 16:00 – 17:00
Do the development generated peaks coincide with existing road network peaks?	N/A
Guideline Document Used	NSW RTA Guide to Traffic Generating Developments
Rates from above document:	<b>Child Day Care</b> – 0.8 trips in AM Peak and 0.7 trips in PM Peak per child  It should be noted that these rates are given for a 2-hour peak period. For the purposes of this report KCTT assumes that for no more than 60% of the two-hour traffic volume will be attracted to the development in an hour that will represent the peak for the subject site.

Given that the WAPC Transport Assessment Guidelines and NSW RTA Guide to Traffic Generating Developments do not offer daily vehicular trip generation rate for these land uses KCTT have assumed the following to apply:

**Childcare centres** vehicular daily trips can be assumed to be 4 VPD per child and 2 VPD per employee. Each parent will make 2 vehicular trips when dropping off the child to the day care centre and 2 vehicular trips when picking the child up. Employees will make 1 vehicular trip arriving to work, and another vehicular trip when leaving work.

In our experience, childcare centres tend to operate with an 85% utilisation rate of the licenced capacity over the year due to a number of days that children attend (this ranges from 2 to 5 days a week) and seasonal adjustments (end of year and when people return to work from maternity leave). Therefore, the expected average daily operative maximum of this childcare facility can be estimated as 60 children. However, in the calculations below, a conservative approach has been applied **showing the theoretical maximum number of children, under assumption that all children are driven to school and there are no siblings in the centre.**

Land Use Type	Rate above	Yield	Daily Traffic Generation	Peak Hour Traffic Generation	
				AM	PM
Childcare	4 VPD per child+2 VPD per employee 0.48 VPH AM Peak per child 0.42 VPH PM Peak per child	70 children 13 employees	306	34	29
<b>Total:</b>			<b>306</b>	<b>34</b>	<b>29</b>

Does the site have existing trip generation / attraction?	NO
What is the total impact of the new proposed development?	The proposed development is expected to generate up to 306 vehicular trips per day, 34 vehicular trips in the morning peak and 29 vehicular trips in the evening peak hour. According to the WAPC Guidelines this is considered a moderate impact.  KCTT believe that the surrounding network will successfully absorb the generated traffic.

## 2.13 Traffic Flow Distribution

How many routes are available for access / egress to the site? Two routes  
 306 VPD/ 34 AM VPH / 29 PM VPH

### Route 1

Provide details for Route No 1 To/from Cushing Road via Barney Road and Bainbridge Avenue to the west

Percentage of Vehicular Movements via Route No 1 80% - 245 VPD / 27 AM VPH / 23 PM VPH

### Route 2

Provide details for Route No 2 To/from Cushing Road via Magellan Road and Bainbridge Avenue to the west

Percentage of Vehicular Movements via Route No 2 20% - 61 VPD / 7 AM VPH / 6 PM VPH

Note - Following completion of construction of the structure plan area traffic flow may be redistributed to the east via Scotthorn Drive and Future Alkimos Drive.

## 2.14 Vehicle Crossover Requirements

Are vehicle crossovers required onto existing road networks? YES

How many existing crossovers? None

How many proposed crossovers? One

*If there are greater numbers of new crossovers, than existing, provide justification:*

An access to the road network via crossover must be provided for each development.

How close are proposed crossovers to existing intersections? Approximately 20m

Does this meet existing standards? YES

## 2.15 Public Transport Accessibility

How many bus routes are within 400 metres of the subject site? None

How many rail routes are within 800 metres of the subject site? None – 2 bus routes within 1km\*

Bus / Rail Route	Description	Peak Frequency	Off-Peak Frequency
490	Butler Station - Two Rocks via Marmion Avenue	5 minutes	1 hour
491	Butler Station – Yanchep via Marmion Avenue	6 minutes	2 hours

\* 490 N Operates on school days only and deviates via Northshore Christian Grammar School.

\* 491 D Operates on school days only and departs from Yanchep Beach Rd near St Andrews Dr and deviates via Yanchep Secondary College, Northshore Christian Grammar School and St James' Anglican School.

\* 490 J Operates on school days only and departs from St James Anglican College at 3:15pm and deviates via Northshore Christian Grammar School.

\* 491 S Operates on school days only and deviates via St James' Anglican School, Northshore Christian Grammar and Yanchep Secondary College.

Is the development in a Greenfields area? YES

Refer to section 2.5 for details on future improvements.

## 2.16 Pedestrian Infrastructure

Describe existing local pedestrian infrastructure within a 400m radius of the site:

Classification	Road Name
<i>Unclassified path</i>	Bainbridge Avenue, Magellan Road, McGiffen Avenue, Buchanan Avenue, Coram Street, Decatur Street, Barney Road
Does the site have existing pedestrian facilities	YES – pedestrian path along Magellan Road and Bainbridge Avenue
Does the site propose to improve pedestrian facilities?	YES – internal pedestrian paths
What is the Walk Score Rating?	
0   Car-Dependent. Almost all errands require a car. Refer to section 2.5 for details on future improvements.	

## 2.17 Cyclist Infrastructure

Are there any PBN Routes within an 800m radius of the subject site?	NO
Are there any PBN Routes within a 400m radius of the subject site?	NO
Does the site have existing cyclist facilities?	NO
Does the site propose to improve cyclist facilities?	NO
Refer to section 2.5 for details on future improvements.	

## 2.18 Site-Specific Issues and Proposed Remedial Measures

How many site-specific issues need to be discussed?

### Site-Specific Issue No 1

Remedial Measure / Response

One

Parking demand

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