

TRANSPORT IMPACT STATEMENT

Lot 9 (No 29) Stirling Crescent,
High Wycombe

August 2024

Rev B



PART OF  **Premise**

HISTORY AND STATUS OF THE DOCUMENT

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
Rev A Draft	21.06.2024	M Kleyweg	M Kleyweg	21.06.2024	Issued for Review
Rev A	1.08.2024	M Kleyweg	M Kleyweg	1.08.2024	Issued for Review
Rev B	13.08.2024	M Kleyweg	M Kleyweg	13.08.2024	Proposed layout amended

DISTRIBUTION OF COPIES

Revision	Date of issue	Quantity	Issued to
Rev A Draft	21.06.2024	1 (PDF)	David Jones (Planning Solutions)
Rev A	1.08.2024	1 (PDF)	David Jones (Planning Solutions)
Rev B	13.08.2024	1 (PDF)	David Jones (Planning Solutions)

Document Printed	13/08/2024 2:13 PM		
File Name	C:\Users\User\Box\KCTT Projects\KC00000 Current Projects\KC01905.000 29 Stirling Crescent High Wycombe TIS\Outgoing\Report\Rev B\KC01905.000 29 Stirling Crescent High Wycombe.docx		
Author of the Rev A Draft	Jelena Simic		
Author of the Current Revision	Jelena Simic		
Project Team	/		
Project Director / Project Manager	Marina Kleyweg		
Name of Project	Lot 9 (No 29) Stirling Crescent, High Wycombe		
Name of the Document	Lot 9 (No 29) Stirling Crescent, High Wycombe - Transport Impact Statement		
Document Version	KC01905kk.000_R01_ Rev B		

Table of Contents

1. Executive Summary	4
2. Transport Impact Statement	5
2.1 Proposal	5
2.2 Location.....	5
2.3 Technical Literature Used.....	5
2.4 Land Uses.....	6
2.5 Local Road Network Information	6
2.6 Traffic Volumes.....	7
2.7 Current And Projected Traffic Situation	8
2.8 Vehicular Crash Information	9
2.9 Vehicular Parking.....	11
2.10 Compliance with AS2890 Parking facilities	12
2.10.1 Compliance Overview.....	12
2.10.2 Comparison of proposed layout to AS2890.01 requirements.....	13
2.10.3 Vehicle Swept Paths.....	14
2.11 Bicycle Parking	14
2.12 ACROD Parking.....	15
2.13 Delivery and Service Vehicles.....	15
2.14 Restricted Access Vehicles (RAV) Network.....	16
2.15 Calculation of Development Generated / Attracted Trips.....	18
2.16 Traffic Flow Distribution.....	19
2.17 Vehicle Crossover Requirements	19
2.18 Public Transport Accessibility	20
2.19 Pedestrian Infrastructure	21
2.20 Cyclist Infrastructure.....	21
2.21 Site-Specific Issues and Proposed Remedial Measures	23

Appendices

Appendix 1 - The layout of the proposed development

Appendix 2 - Transport Planning and Traffic Plans

Appendix 3 - Vehicle Turning Circle Plans

1. Executive Summary

Site Context

- The subject site is currently occupied by a residential dwelling and accompanying facilities. The development plans show warehouse facilities with an internal office and amenity area. Existing network allows access for heavy vehicles not exceeding 19m in length.

The subject site will be accessible from Stirling Crescent via two proposed crossovers, allowing shared access for both passenger and heavy vehicles. Proposed crossovers allow full movement for passenger vehicles, while heavy vehicles have a directional flow through the site, accessing via the eastern crossover and egressing via the western crossover only.

Technical Findings

- Proposed dimensions of car parking bays comply with the AS 2890.01.
- The swept paths have been checked for a B99 Passenger Vehicle (5.2m), a Semi-trailer (19.0m), a Service Vehicle (8.8 m) and a Fire Truck (12.4m). No navigability issues have been detected. Movement of heavy vehicles will be streamlined so the eastern crossover is used as access only and western crossover is used for egress only.

Relationship with Policies

- The plans show 62 parking bays (employees', visitors', deliveries') which is deemed to be sufficient to cater for the operational requirements.
- Building Code of Australia ACROD Provision – One ACROD parking bay is provided in line with the requirements.

Conclusion

- The total traffic from the proposed development will be up to 224 vehicular trips per day and 30 vehicular trips per hour in peak hours. The proposed development is expected to generate additional 215 vehicular movements per day with a forecasted impact of around 29 vehicular movements per hour in the peak hours. According to WAPC guidelines, all developments generating 10-100 VPH can be deemed to have a moderate impact on the network.
- Stirling Crescent is classified as Local Distributor as per MRWA classification with the maximum desirable volume of 6,000 vehicles per day. Currently there are around 4,500 vehicles per day on weekdays. Therefore, with the added traffic from the subject site the street would remain well under the maximum desirable traffic volume for Local Distributor roads. Other surrounding roads would absorb significantly less traffic than Stirling Crescent moreover, the traffic would be dispersed so that the impact can be considered negligible.
- In summary KCTT believe that the proposed development will not have a negative impact on the surrounding road network.

2. Transport Impact Statement

2.1 Proposal

Planning Solutions engaged KCTT to prepare a TIS (Transport Impact Statement) for the proposed commercial development (light industrial / warehouse) at Lot 9 (No 29) Stirling Crescent High Wycombe.

The proposed development includes two warehouse facilities with accompanying offices, accessible from Stirling Crescent through two planned crossovers, allowing shared access for both standard and heavy vehicles. Proposed crossovers allow full movement for passenger vehicles, while heavy vehicles have a directional flow through the site, accessing via the eastern crossover and egressing via the western crossover only.

This report will primarily address the level impact of the proposed development and the requirements for integration of the proposed development with the surroundings, namely the existing and planned immediate road network.

2.2 Location

Lot Number	9
Street Number	29
Road Name	Stirling Crescent
Suburb	High Wycombe
Description of Site	The subject site is currently occupied by a residential dwelling and accompanying facilities. The development proposes the establishment of a warehouse facilities with internal office and amenity area.

2.3 Technical Literature Used

Local Government Authority	City of Kalamunda
Type of Development	Warehouse / Light industry
Are the R-Codes referenced?	NO
<i>If YES, nominate which:</i>	-
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 Volume 5 - Technical Guidance
Are there applicable LGA schemes for this type of development?	YES
<i>If YES, Nominate:</i>	
Name and Number of Scheme	Local Planning Scheme No 3
Are Austroads documents referenced?	YES
Is the Perth Transport Plan for 3.5 million and Beyond referenced?	YES

2.4 Land Uses

Are there any existing Land Uses

YES

If YES, Nominate:

Single residential dwelling with ancillary facility

Proposed Land Uses

How many types of land uses are proposed?

As below

Nominate land use type and yield

Proposed facility:

- Warehouse 1: 2,345m² NLA/ 2,472m² GFA including 360m² NLA of internal office and amenity area
- Warehouse 2: 2,530m² NLA/ 2,565m² GFA

Proposed development plans are provided in Appendix 1 of this report for clarity.

Are the proposed land uses complimentary with the surrounding land-uses?

YES

Warehouse is a permitted use for Light Industry Zone under the City's Local Planning Scheme No.3.

2.5 Local Road Network Information

How many roads front the subject site?

Name of Roads Fronting Subject Site / Road Classification and Description:

Road Name	Stirling Crescent
Number of Lanes	two way, one lane each direction, undivided
Road Reservation Width	App. 21m
Road Pavement Width	App. 7m
Classification	Local Distributor
Speed Limit	60kph
Bus Route	NO
If YES Nominate Bus Routes	-
On-street parking	NO

Name of Other Roads within 400m radius of site, or roads likely to take increased traffic due to the development.

Road Name	Kalamunda Road
Number of Lanes	two way, one lane per direction, divided
Road Reservation Width	App. 21m
Road Pavement Width	App. 12.5m
Classification	Distributor A
Speed Limit	60kph
Bus Route	YES
If YES Nominate Bus Routes	278
On-street parking	NO

2.6 Traffic Volumes

Road Name	Location of Traffic Count	Vehicles Per Day (VPD)	Vehicles per Peak Hour (VPH)				Heavy Vehicle %	Date of Traffic Count	If older than 3 years multiply with a growth rate
			AM Peak Time	AM Peak - Peak VPH	PM Peak Time	PM Peak - Peak VPH	If HV count is Not Available, are HV likely to be in higher volumes than generally expected?		
Stirling Crescent	North of Kalamunda Road (SLK 0.08)	4,507	07:30 – 385		15:45 – 400		8.8	2018/19	5,224
	South of Great Eastern Highway Bypass (SLK 0.56)	6,007	11:30 – 445		16:00 – 532		14.9	2021/22	–
Kalamunda Road	North of Abernethy Road (SLK 3.07)	12,151	07:15 – 933		16:00 – 1,182		11.4	2021/22	–
	West of Hawkevale Road (SLK 5.93)	16,909	07:45 – 1,236		16:00 – 1,507		7.7	2023/24	–
	South of Abernethy Road (SLK 7.46)	11,819	07:15 – 918		15:45 – 1,005		10.4	2021/22	–
Abernethy Road	North of Kalamunda Road (SLK 6.20)	10,937	07:15 – 812		16:00 – 909		34.1	2021/22	–
	South of Kalamunda Road (SLK 6.54)	16,742	07:15 – 1,318		16:00 – 1,546		28.5	2021/22	–
Newburn Road	South of Kalamunda Road (SLK 0.08)	5,885	08:15 – 463		16:00 – 556		4.8	2018/19	6,823
Wittenoom Road	South of Kalamunda Road (SLK 0.05)	3,428	08:00 – 297		15:00 – 336		8.7	2018/19	3,974

Note- These traffic volumes have been derived through Main Roads

2.7 Current And Projected Traffic Situation

Current Traffic Volume:

- Stirling Crescent (north of Kalamunda Road): 4,507 vehicles/day (including ~400 trucks).
- Stirling Crescent (south of Great Eastern Highway Bypass): 6,007 vehicles/day (including ~900 trucks).
- Significant through traffic due to current road layout.

Infrastructure and Traffic Changes:

- Planned closure of Stirling Crescent at Great Eastern Highway Bypass.
- Connection of Adelaide Street to Abernethy Road, improving local access.
- Expected reduction in through traffic on Stirling Crescent.
- Redistribution of non-residential traffic, including trucks, primarily to Adelaide Street and the northern section of Stirling Crescent.



Figure 1 – Existing short-cut for heavy vehicles to GEH (orange path) and expected change in traffic flow (red path) after the planned closure of the Great Eastern/Stirling Crescent intersection, construction of the Bypass and construction of the Adelaide Street/Abernethy Road intersection

According to Main Roads data from 2018/19, Stirling Crescent, north of Kalamunda Road, carried on average 4,507 vehicles per weekday, including nearly 400 trucks daily (8.8%). Additionally, the segment of Stirling Crescent south of the Great Eastern Highway Bypass carried an average of 6,007 vehicles per weekday, based on the data from 2021/22. Despite the low density of development along Stirling Crescent between Kalamunda Road and Adelaide Street, these traffic volumes indicate a significant amount of through traffic to and from the Great Eastern Highway Bypass.

Assuming an annual growth rate of 3%, the projected traffic volume for Stirling Crescent in 2024 is approximately 5,224 vehicles per weekday. With 8.8% of these vehicles being heavy vehicles, this translates to around 460 trucks daily.

The planned closure of Stirling Crescent at the Great Eastern Highway Bypass and the connection of Adelaide Street to Abernethy Road are expected to drastically reduce this through traffic on Stirling Crescent. It is anticipated that Adelaide Street and the northern section of Stirling Crescent (north of Adelaide) will absorb the majority of non-residential traffic, including trucks. Consequently, if Lot 9 becomes the sole site with direct access to Stirling Crescent, it would be challenging to argue that any additional traffic generated by the development of Lot 9 would significantly impact the road capacity with overall reduced traffic volumes compared to current levels.

Additionally, the City of Swan and Greater Connect Alliance have confirmed that the proposed roundabout at Stirling Crescent and Adelaide Street will be designed to RAV 7 network standards. This design will facilitate truck access to the site from Abernethy Road via Adelaide Street and Stirling Crescent, eliminating the need for trucks to use Kalamunda Road.

2.8 Vehicular Crash Information

Is Crash Data Available on Main Roads WA website?

YES

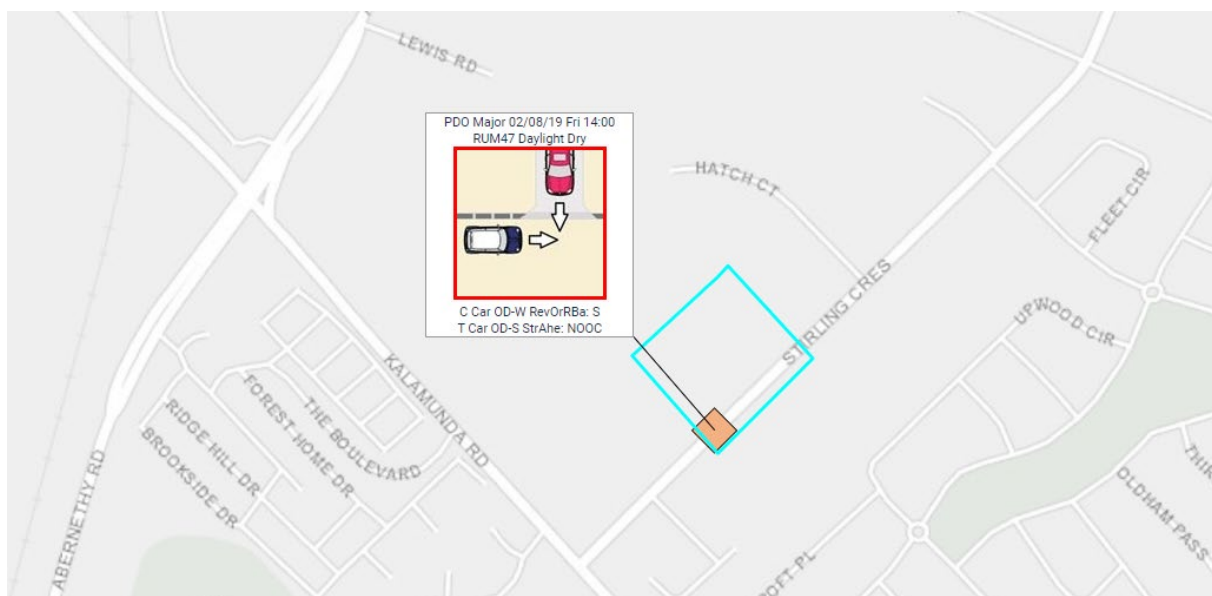
If YES, nominate important survey locations:

Location 1

Stirling Crescent (SLK 0.27-0.41)

Period of crash data collection

01/01/2019 - 31/12/2023



The following tables shows crash rates and crash densities in Perth Metropolitan area on local roads and state roads for the period from 2018 to 2022, as obtained from Main Roads WA on the 31st May 2022 by email request:

Crash Density and Crash Rate on Metropolitan State Roads Network only				
	All Crashes		Serious Injury Crashes (Fatal+Hospital)	
	Average Annual Crash Density (All Crashes/KM)	Average Annual Crash Rate (All Crashes/MVKT)	Average Annual Crash Density (Ser. Inj. Crashes/KM)	Average Annual Crash Rate (Ser. Inj. Crashes/MVKT)
Metro State Roads - Midblock	20.12	0.37	0.89	0.02
Metro State Roads - All	46.28	0.85	1.80	0.03

Note: Based on 5-years data for the period 2017 to 2021.

Definitions of acronyms and terms used in this analysis can be found below:

- PDO Crash - a crash that results in property damage only (major or minor) and does not require hospitalisation or medical treatment, as listed in Main Roads WA's Crash Analysis Reporting System (CARS).
- KSI Crashes - Killed and serious injury crash
- MVKT - Million Vehicle Kilometres Travelled.

Road Name	SLK	Road Hierarchy	Speed Limit	Crash Statistics			
				No of KSI Crashes	No of Medical Attention Crashes	No of PDO Major Crashes	No of PDO Minor Crashes
Stirling Crescent	0.27-0.41	Local Distributor	60kph	0	0	1	0

MR Type	Involving Overtaking	Involving Parking	Involving Animal	Involving Pedestrian	Entering / Leaving Driveway	Other / Unknown
Count	0	0	0	0	0	0
No of MVKT Travelled at Location				App. 5,500 VPD * 365 * 5 years * 0.14 km = 1.4 MVKT		
KSI Crash Rate				0 KSI crashes/MVKT		
All Crash Rate				1 crashes / 1.4 MVKT = 0.71 crashes/MVKT		
Comparison with Crash Density and Crash Rate Statistics				All crashes rate of 0.71 is higher than the network average of 0.37 Crashes per MVKT for Metropolitan State Roads Network		

In order to identify black spots being the locations noted for a high incidence of crashes involving death and injury, it is important to conduct the crash criteria analysis as shown in the table below. If the below crash criteria are met, there is a way to measure the cost-effectiveness of the proposed treatment. It is called BCR and it ensures that the black spot exhibits a significant number of crashes that are correctable by infrastructure treatment.

Table 3.1: Crash criteria for the State Black Spot Program

Crash Criteria	Highway and Main Roads		Local Roads	
	Metro	Rural	Metro	Rural
Intersection or Mid-block or Short road section (<3km)	10 crashes over 5 years	3 crashes over 5 years	5crashes over 5 years	3 crashes over 5 years
Road length (>3km)	Average of 3 crashes per km over 5 years	Average of 1 crash per km over 5 years	Average of 2 crashes per km over 5 years	Average of 1 crash per km over 5 years
Benefit-cost ratio (BCR)	1			

(Main Roads/ WALGA 2004)

2.9 Vehicular Parking

Local Government	City of Kalamunda
Local Government Document Utilised	Local Planning Scheme No 3
Other Documents Used	Car parking requirements for non-residential land uses in Perth and Peel - draft Interim Guidance document, WAPC

Description of Parking Requirements in accordance with Scheme:

- Warehouse - 3 bays for up to the first 200m² of floor area and thereafter 1 bay for every 100m² of NLA or part thereof.
- Office- 4 bays per 100m² of NLA.

Description of Parking Requirements in accordance with Car parking requirements for non-residential land uses in Perth and Peel - draft Interim Guidance document:

- Warehouse - 1 bay for every 100m² of Floor Area or part thereof.
- Office – 1 bay per 60m² of FA – minimum and 1 bay per 25m² of FA - maximum.

Calculation of Parking

Land Use	Requirements	Yield	Total Parking
Warehouse / Storage and Distribution Centre	3 bays for up to the first 200m ² of floor area and thereafter 1 bay for every 100m ² of NLA or part thereof.	2,530 + 2,075m ² NLA	47.05
Warehouse / Office Area	4 bays per 100m ² of NLA	360m ² NLA	14.4
Total Car Parking Requirement			61
Total Volume of Parking Provided by Proponent			62

Justification

Car parking requirements for non-residential land uses in Perth and Peel - draft Interim Guidance document provide guidance similar to LPS, with the proposed office parking component being considered as a maximum parking provision. The development can be deemed to have a statutory surplus of 1 parking bay, while practically it is likely to have a significant spare capacity.

Considering anticipated traffic generation, the proposed parking can easily cater to the requirements of the proposed development.

It is recommended that visitor and employee parking be clearly marked with signage. Parking along the southern and northern lot boundaries should be designated for staff and employees. Long-term parking in these areas will have minimal vehicle movement throughout the day, reducing the potential for safety issues since the proposed crossovers and circulation lanes for these bays are shared with delivery vehicles, including 19-meter semitrailers.

Please refer to Appendix 3 for a Suggested Parking Management Plan.

2.10 Compliance with AS2890 Parking facilities

Which Austroads documents are referenced?	- Australian/New Zealand Standard, Parking facilities, Part 1: Off-street car parking - AS 2890.01 - Australian/New Zealand Standard, Parking facilities, Part 6: Off-street parking for people with disabilities – AS2890.06
Number of Parking Bays on-site	62 bays
Proposed development User Class	1A - Residential, domestic and employee parking 3 - Short-term city and town centre parking, parking stations, hospital, and medical centres 4 - Parking for people with disabilities
Driveway category and dimensions	- Category 2 access driveway 11.0m driveway width 6.2m driveway length

2.10.1 Compliance Overview

FULL COMPLIANCE				PARTIAL DEPARTURE				FULL DEPARTURE				NOT APPLICABLE			
Element				Compliance				Comment							
Car Bay Class 1A				FULL COMPLIANCE											
Car Bay Class 1				NOT APPLICABLE											
Car Bay Class 2				NOT APPLICABLE											
Car Bay Class 3				NOT APPLICABLE											
Car Bay Class 3A				FULL COMPLIANCE											
Car Bay Class 4 (ACROD)				FULL COMPLIANCE											
Aisle width				FULL COMPLIANCE											
Blind Aisle Extension				NOT APPLICABLE											
Single-sided aisle width				NOT APPLICABLE											
Reversing bay				NOT APPLICABLE											
Driveway grade				NOT APPLICABLE											
Parking grade				NOT APPLICABLE											
Ramp grade				NOT APPLICABLE											
Columns location				NOT APPLICABLE											
Vertical Clearance				FULL COMPLIANCE											
Location of driveway				FULL COMPLIANCE											
Sight distance requirements at access driveways				FULL COMPLIANCE											
Minimum sight lines for pedestrian safety				FULL COMPLIANCE											

2.10.2 Comparison of proposed layout to AS2890.01 requirements

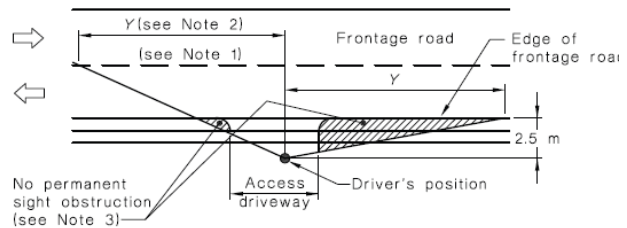
Parking Bay Type	AS2890.1:2004 Off-street car parking AS2890.6 Off-street parking for people with disabilities					
	Parking Bay Length		Parking Bay Width		Aisle Width	
	Required	Proposed	Required	Proposed	Required	Proposed
All bays at 90° (User Class 1A) STAFF	5.4m	4.8+0.6m	2.4m	2.5m	5.8m +0.5m*	6.0m / 7.0m
All bays at 90° (User Class 2) VISITORS	5.4m	4.8+0.6m	2.5m	2.5m	5.8m +0.5m*	6.0m / 7.0m
All bays at 0° (intermediate space)	5.9m	6.0m	2.1m	2.5m	3.6m (one- way)	7.0m
All bays at 0° (obstructed end space)	6.2m	5.6+0.6m	2.1m	2.5m	3.6m (one- way)	7.0m
ACROD Parking	5.4m	4.8+0.6m	2.4m–ACROD 2.4m–shared space	2.5m–ACROD 2.5m–shared space	5.8m	6.0m / 7.0m

Note*: AS2890.1:2004 stipulates that for combination of parallel parking at one side and angle parking at the other side, the aisle width should be taken from the table for the relevant angle parking and another 0.5m added to that value.

Name other requirements in the AS2890.1:2004 document.

“Entering sight distance

Unsignalized access driveways shall be located so that the intersection sight distance along the frontage road available to drivers leaving the car park or domestic driveway is at least that shown in Figure 3.2.”



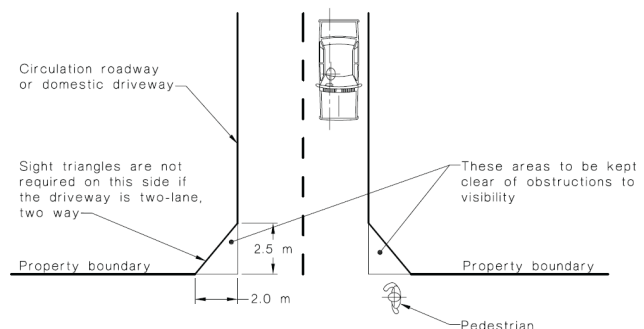
Frontage road speed (Note 4) km/h	Distance (Y) along frontage road m		
	Access driveways other than domestic (Note 5)		Domestic property access (Note 6)
	Desirable 5 s gap	Minimum SSD	
40	55	35	30
50	69	45	40
60	83	65	55

Sight distance requirements at access driveways

65m sight distance achievable as required

“Sight distance to pedestrians

Clear sight lines as shown in Figure 3.3 shall be provided at the property line to ensure adequate visibility between vehicles leaving the car park or domestic driveway and pedestrians on the frontage road footpath.”



Minimum sight lines for pedestrian safety

Clear pedestrian sightlines provided

“ Width requirements at low volume (Category 1) access driveways and connecting roadways:

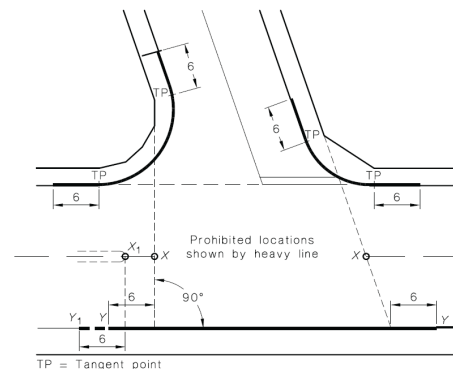
Where the circulation roadway leading from a Category 1 access driveway is 30 m or longer, or sight distance from one end to the other is restricted, and the frontage road is an arterial or sub-arterial road, both the access driveway and the circulation roadway for at least the first 6 m from the property boundary shall be a minimum of 5.5 m wide. In other cases subject to consideration of traffic volumes on a case-by-case basis, lesser widths, down to a minimum of 3.0 m at a domestic property, may be provided. As a guide, 30 or more movements in a peak hour (in and out combined) would usually require provision for two vehicles to pass on the driveway, i.e. a minimum width of 5.5 m. On long driveways, passing opportunities should be provided at least every 30 m. Reversing movements to public roads shall be prohibited wherever possible.”

Access driveway width

Both crossovers have 11.0m width

“ Access driveway location

Driveway Categories 1 and 2 At unsignalized intersections of sub-arterial, collector or local streets with each other or with an arterial road, access driveways in Categories 1 and 2 (see Table 3.1) shall not be located in the sections of kerb shown by heavy lines in Figure 3.1. This requirement shall not apply to accesses to domestic driveways in the kerb section opposite the entering road at any intersection including signalized intersections. Furthermore, it shall not apply to any access driveway serving a property which would otherwise be denied access due to the physical impossibility of meeting the requirement.”



Access driveway location

The proposed crossovers will be located more than 6m from the neighbouring intersections tangent points.

2.10.3 Vehicle Swept Paths

Have Vehicle Swept Paths been checked for Parking? YES

If YES, provide description of performance:

The swept paths have been checked for a B99 Passenger Vehicle (5.2m), a Semi-trailer (19.0m), a Service Vehicle (8.8 m) and a Fire Truck (12.4m). No navigability issues have been detected.

The proposed driveways are sufficiently wide to accommodate movement of largest anticipated vehicles. However, simultaneous two-way movement is not possible for larger heavy vehicles. The movement of heavy vehicles will be streamlined so that the eastern crossover will be used as an entry crossover and the other, western crossover used as an exit crossover. Both crossovers allow full movement for passenger vehicles.

For swept path drawings please refer to Appendix 3.

2.11 Bicycle Parking

Local Government

City of Kalamunda

Reference Document Utilised

Local Planning Scheme No.3

Description of Parking Requirements in accordance with Scheme:

The City of Kalamunda does not stipulate requirements for the provision of bicycle parking.

Justification

The proponent's plans indicate provision of 7 bicycle racks adjacent to the staff room.

2.12 ACROD Parking

Class of Building Class 5 - An office building
Class 7(b) – a storage building or building where goods are wholesaled (eg: a warehouse);

Does this building class require specific provision of ACROD Parking? YES

Reference Document Utilised Building Code of Australia

Description of Parking Requirements:

Class 5: An office building;

- 1 space for every 100 carparking spaces or part thereof

Class 7(b) – a storage building or building where goods are wholesaled (eg: a warehouse);

- 1 space for every 100 carparking spaces or part thereof.

Parking Requirement in accordance with regulatory documents

Land Use	Requirements	Yield	Total Parking
Warehouse/ Storage and Distribution Centre	1 space for every 100 carparking spaces or part thereof	63 parking bays	1
Warehouse/ Office Area			
Total Volume of ACROD Parking Required			1

One ACROD parking bay is provided in line with the requirements stipulated by the BCA.

2.13 Delivery and Service Vehicles

Guideline Document used as reference NSW RTA Guide to Traffic Generating Developments Requirements

Wholesale, Industrial (all spaces adequate for trucks):

- 1 space per 800m² (if GFA < 8,000m²); 10 + 1 space per 1,000m² (over 8,000 m²).

Other uses (50% of spaces adequate for trucks):

- 1 space per 2,000m².

Parking Requirement in accordance with regulatory documents

Land Use	Minimum Requirements	Yield	Total Parking
Warehouse/ Storage and Distribution Centre	1 space per 800m ² (if GFA < 8,000m ²)	2,565 + 2,104m ² GFA	5.84
Warehouse/ Office Area	1 space per 2,000m ²	368m ² GFA	0.18
Total Volume of Service and Delivery Parking Required			6

Total Volume of Service and Delivery Parking Provided by Proponent

-

Justification

The plans for the proposed development feature a large, covered loading and unloading zone tailored to meet the logistics demands for container deliveries. KCTT believes this solution is suitable for the scale and intended use of the development. It is assumed that tenants' logistics departments will manage delivery schedules to ensure trucks arrive at reasonable intervals, thereby minimizing waiting costs and preventing larger delivery vehicles from

obstructing parking spaces designated for staff and visitors. Additionally, the proposed driveways and internal lanes provide ample space for waste trucks to manoeuvre. It is anticipated that visitors' parking will be used by smaller delivery vehicles conducting deliveries to the office. Therefore, KCTT believes the proposed development will offer sufficient parking to meet all delivery and service needs.

2.14 Restricted Access Vehicles (RAV) Network

Description of RAV Networks:

The Restricted Access Vehicle Network (RAV) is a network of roads approved by Main Roads Western Australia that can cater to certain heavy vehicles' safe movement. There are several types of RAV networks:

- **Standard RAVs** are those vehicle combinations specified as Category 1 to 10 vehicle combinations under the Prime Mover, Trailer Combinations and Truck, Trailer Combinations Notice. The standard width of the RAV vehicle will not exceed 2.5m, while standard height will not exceed 4.6m.
- **Tri-drive Restricted Access Vehicle (RAV) Network** are required to meet the requirements under the Standard Restricted Access Vehicle (RAV) Route Assessment Guidelines, with the exception of the structures assessments, gradient assessments and swept path assessments, which must be assessed in accordance with these Tri-drive Route Assessment Guidelines.
- **Concessionally loaded RAVs** provide the quantitative limits recommended to ensure additional safety margins for concessionally loaded RAVs, as the extra mass considerably impacts the vehicle's performance characteristics. For this reason, additional road width, stopping distances etc. are required.
- **Over Size Over Mass Vehicles** must have relevant Main Roads WA permits and may require pilot vehicles and/or police escorts if they exceed Main Roads WA specified size thresholds.

1.

Existing RAV Networks surrounding subject site: YES ([MRWA RAV Network Map](#))

If YES Nominate RAV Networks in vicinity of the subject site

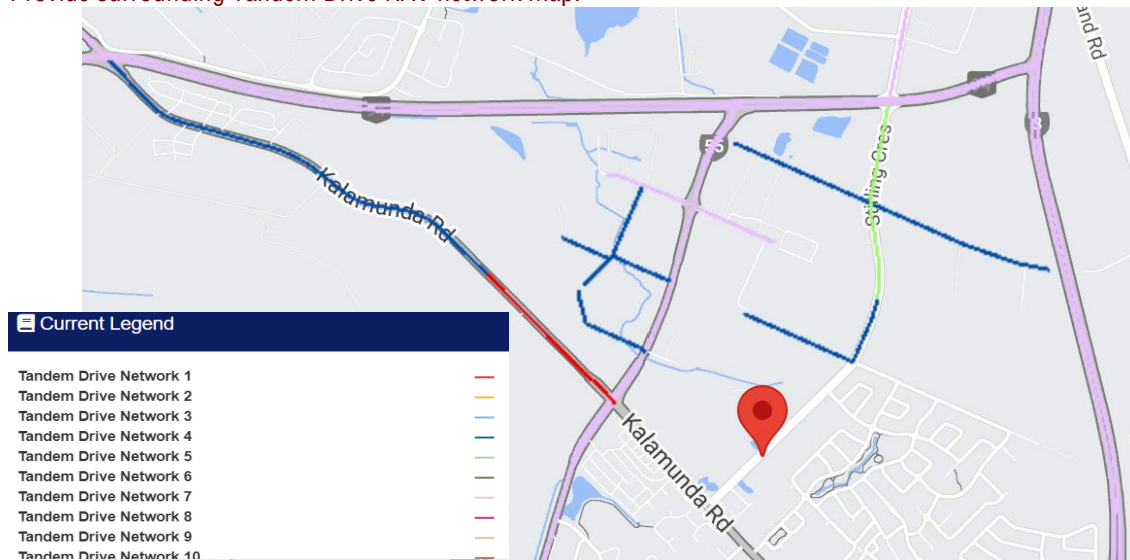
Stirling Crescent north of the intersection with the Adelaide Street is approved for Tandem Drive Network 4 and further north to Tandem Drive Network 5 RAV access. Section of Stirling crescent, between the intersections with Adelaide Street and Kalamunda Road, adjacent to the subject site area, has not been approved for RAV access; therefore the largest vehicle that can access the site on current network is a semi-trailer (19m), as the largest as-of-right vehicle. Additionally, Stirling Crescent north of the intersection with the Adelaide Street is approved for Tri Drive Network 1.

What is the largest vehicle allowed on this network?

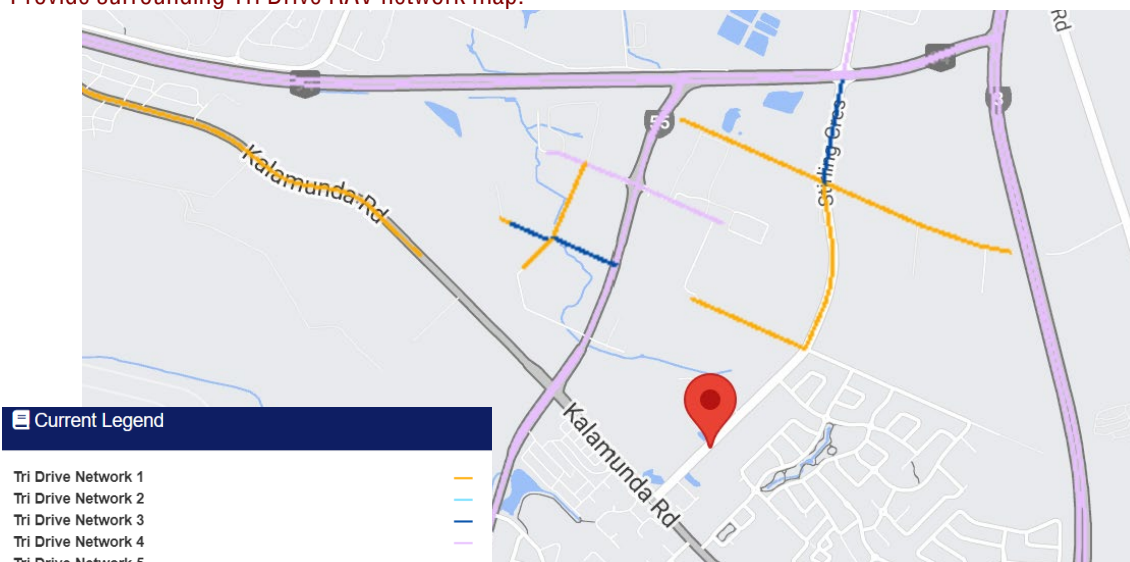
Tri Dive RAV Category 1 - a vehicle that would otherwise be a general access vehicle if it was tandem drive, this category has access to the tandem drive RAV Network 2. The larger vehicle that could use Tandem Drive Network 4 is less or equal to 27.5m in length.

The section of Stirling Crescent adjacent to the subject site is not a part of RAV network, therefore the largest vehicle that can legally access the site on current network is semi-trailer (19m). Swept path analysis is provided in Appendix 3 confirmed that semi-trailer (19m) could use the facility, approach and depart the site in forward motion.

Provide surrounding Tandem Drive RAV network map:



Provide surrounding Tri Drive RAV network map:



What is the largest vehicle planned to utilise the site?

A semi-trailer up to 19 meters in length. It is considered as an "as-of-right" vehicle in Western Australia. Such vehicles can operate on the road network without the need for special permits as long as they comply with the general mass and dimension limits set out in the Road Traffic (Vehicles) Regulations 2014. (Width: Up to 2.5 meters, Height: Up to 4.3 meters, Length: Prime mover and semi-trailer combinations: Up to 19 meters, Mass: Axle loads and gross vehicle mass (GVM) must comply with the limits specified in the regulations.)

If a vehicle exceeds these dimensions or mass limits, it would be classified as a Restricted Access Vehicle (RAV) and would require specific permits and adherence to designated RAV networks.

What are the expected routes for large vehicles entering and exiting the site?

19m semi-trailers will be able to approach the site from both, east and west along Stirling Crescent.

2.15 Calculation of Development Generated / Attracted Trips

What are the likely hours of operation?	The proposed development is expected to be operational from 00:00 to 24:00 Monday to Friday.
What are the likely peak hours of operation?	The expected peak usage of the facility will be between 07:00 - 08:00 in the AM Peak and between 16:00 - 17:00 in the PM Peak. It is expected that this land usage will be operational on all days of the week.
Do the development generated peaks coincide with existing road network peaks?	YES
If YES, Which:	Both peaks

Guideline Document Used	WAPC Transport Assessment Guidelines for Developments
<i>Rates from above document:</i>	Office and Commercial Area - 2 per 100m ² of GFA in the PM Peak hour. The same rate is assumed for the AM peak. An 80% IN / 20% OUT split has been assumed for the AM peak and the reverse for the PM peak.

Guideline Document Used	NSW RTA Guide to Traffic Generating Developments
<i>Rates from above document:</i>	Office and Commercial Area – 10 vehicular trips per 100m ² of GFA. Warehouse - 4 vehicular trips per 100m ² GFA per day and 0.5 vehicular trips in the peak hour per 100m ² GFA. KCTT is assumed same rate for the PM peak.

Does the site have existing trip generation / attraction?	YES
No of Daily Trips	9 VPD
No of AM/PM Peak Hour Trips	1 VPH

Land Use Type	Rate above	Yield	Daily Traffic Generation	Peak Hour Traffic Generation	
				AM	PM
Existing					
Residential		1 dwelling	9	1	1
Proposed					
Warehouse/ Storage and Distribution Centre	4 VPD per 100m ² GFA AM Peak 0.5 VPH per 100m ² GFA. PM Peak 0.5 VPH per 100m ² GFA;	2,565 + 2,104m ² GFA	187	23	23
Warehouse/ Office Area	10 vehicle trips per 100m ² GFA AM Peak - 2 vehicle trips per 100m ² GFA; PM Peak - 2 vehicle trips per 100m ² GFA;	368m ² GFA	37	7	7
Total traffic from the proposed development (A)			224	30	30
Total Existing Traffic from the subject site (A ⁰)			9	1	1
Total Additional traffic from the proposed development (A-A ⁰)			215	29	29

What is the total impact of the new proposed development?	The total traffic from the proposed development will be up to 224 vehicular trips per day and 30 vehicular trips per hour in peak hours. The proposed development is expected to generate additional 215 vehicular movements per day with a forecasted impact of around 29 vehicular movements per hour in the peak hours. According to WAPC guidelines, all developments generating 10-100 VPH can be deemed to have a moderate impact on the network. KCTT believes the surrounding road network can accommodate additional traffic from the proposed development.
---	--

2.16 Traffic Flow Distribution

How many routes are available for access / egress to the site?

Route 1 / Movement 1

Provide details for Route No 1	From/to north via Stirling Crescent
Percentage of Vehicular Movements via Route No 1	60%

Route 2 / Movement 2

Provide details for Route No 2	From/to south via Stirling Crescent
Percentage of Vehicular Movements via Route No 2	40%

Note - For more detailed plans of the estimated vehicular traffic volumes and distribution please refer to the plans provided in Appendix 2.

2.17 Vehicle Crossover Requirements

Are vehicle crossovers required onto existing road networks?	YES
How many existing crossovers?	One unpaved crossover on Stirling Crescent
How many proposed crossovers?	Two on Stirling Crescent • Eastern Crossover - Heavy vehicle access & Light vehicle access/egress – 11m wide • Western Crossover - Heavy vehicle egress & Light vehicle access/egress – 11m wide

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

The proposed warehouse facility will accommodate movement of heavy vehicles. Two planned crossovers will facilitate forward-only truck movements. Trucks will enter the site via the eastern crossover, access the covered loading/unloading area between the two warehouse storage facilities and exit the site using the western crossover.

How close are proposed crossovers to existing intersections?

Below are listed the distances of the proposed crossovers to nearest intersections:

- Eastern Crossover – app. 100m south of the intersection with Hatch Court
- Western Crossover – app. 290m north of the intersection with Kalamunda Road

Does this meet existing standards?

YES – The AS 2890.1 stipulates that crossovers should be at least 6m from the tangent point of the intersection.

Crossover Dimensions

City of Kalamunda standard specifies the minimum width of 5m and a maximum width of 11m for industrial crossovers.

Therefore, the width of the proposed crossovers complies to City of Kalamunda standard.

2.18 Public Transport Accessibility

How many bus routes are within 400 metres of the subject site?

One

How many rail routes are within 800 metres of the subject site?

None

Bus Route	Description	Peak Frequency	Off-Peak Frequency
278	High Wycombe Station - Midland Station via Wittenoom Road & Abernethy Road	30 minutes	60 minutes

Walk Score Rating for Accessibility to Public Transport

32 | Some Transit. A few nearby public transportation options.

Is the development in a Greenfields area?

NO

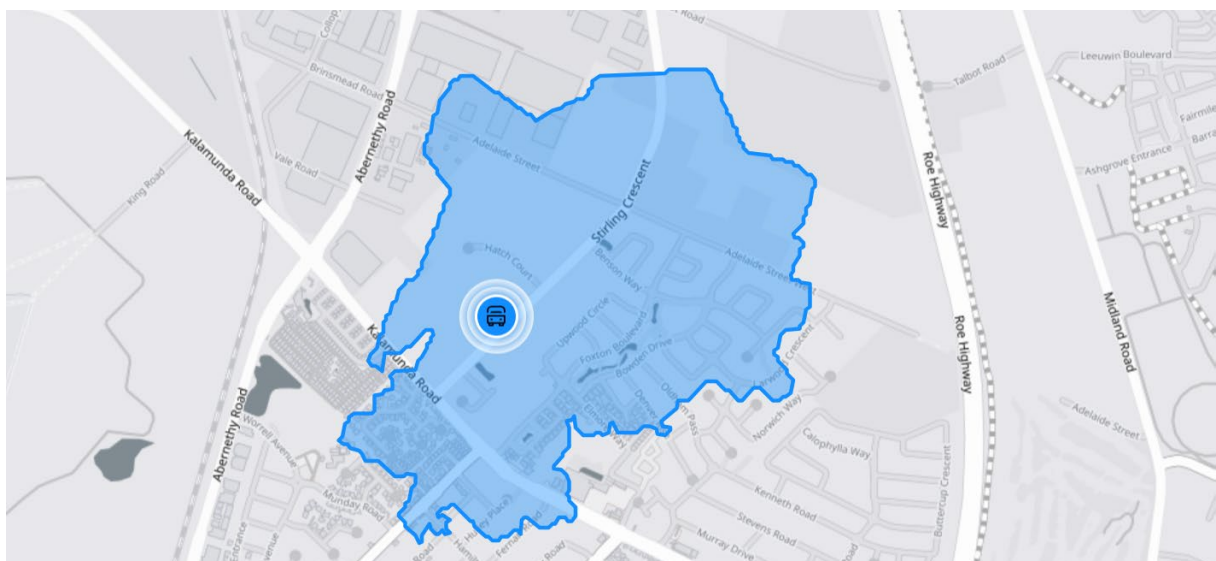


Figure 2 - Public Transport catchment - 15minutes (source: TravelTime app)

2.19 Pedestrian Infrastructure

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

Classification	Road Name
"Other Shared Path (Shared by Pedestrians and Cyclists)"	Stirling Crescent, Benson Way, Foxton Boulevard, Kalamunda Road

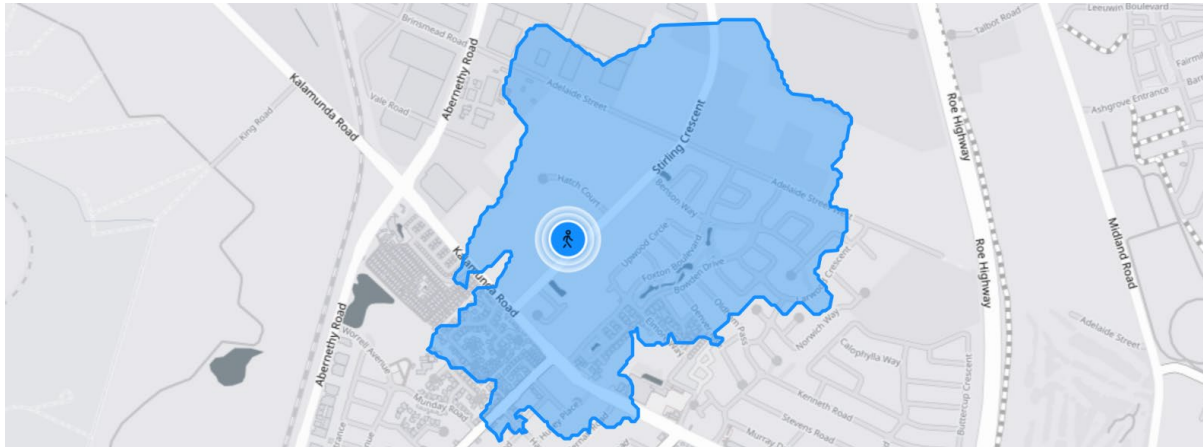


Figure 3 – Pedestrian walking catchment – 15 minutes (source: Travel Time app)

Does the site have existing pedestrian facilities NO
 Does the site propose to improve pedestrian facilities? YES

If YES, describe the measures proposed.

Internal pedestrian zones as shown on proposed plans enclosed in Appendix 1.

What is the Walk Score Rating?

31 | Car-Dependent. Most errands require a car.

2.20 Cyclist Infrastructure

Are there any PBN Routes within an 800m radius of the subject site? YES

If YES, describe:

Classification	Road Name
"Other Shared Path (Shared by Pedestrians and Cyclists)"	Stirling Crescent, Benson Way, Foxton Boulevard, Kalamunda Road, Adelaide Street, Hamilton Road, etc
"Good Road Riding Environment"	Wittenoom Road, Newburn Road
"Bicycle Lanes or Sealed Shoulder Either Side"	Kalamunda Road, Abernethy Road

Are there any PBN Routes within a 400m radius of the subject site? YES

If YES, describe:

Classification	Road Name
"Other Shared Path (Shared by Pedestrians and Cyclists)"	Stirling Crescent, Benson Way, Foxton Boulevard, Kalamunda Road
"Good Road Riding Environment"	Wittenoom Road

Transport Impact Statement

KC01905.000 Lot 9 (No 29) Stirling Crescent, High Wycombe

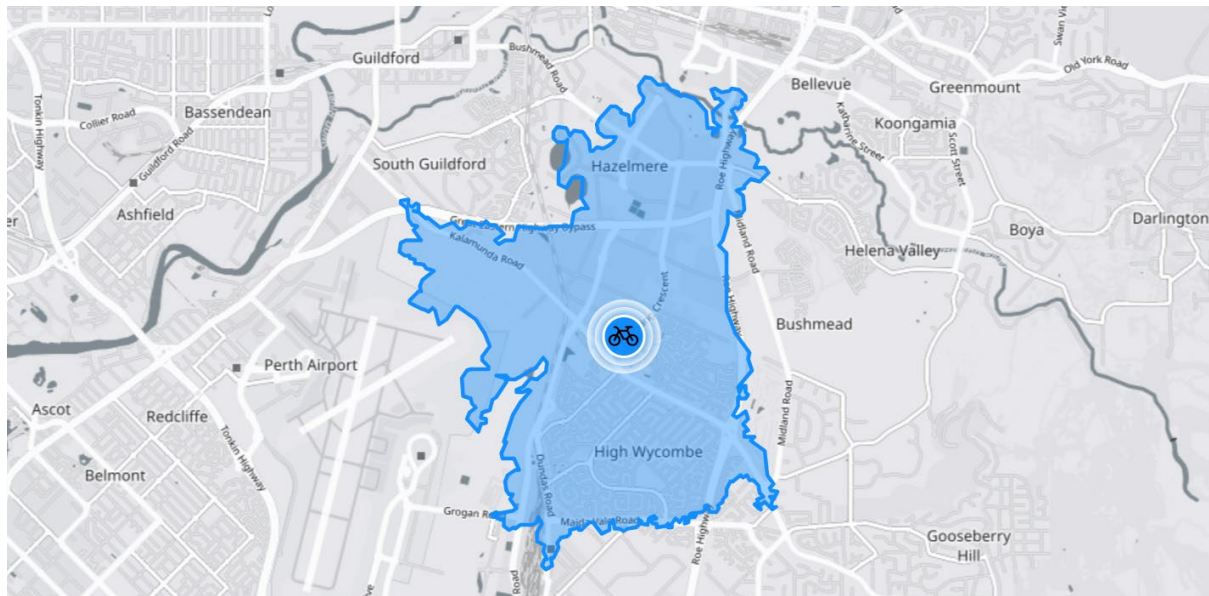


Figure 4 – Cycling walking catchment - 15minutes (source: TravelTime app)

Are there any Perth and Peel Long-term cycle network in the vicinity of the subject site? YES

If YES, describe:

The long-term cycle network (LTCN) identifies an aspirational blueprint for all ages and abilities cycling infrastructure. It seeks to make sure state and local governments work together to deliver continuous bicycle networks throughout Western Australia that will:

- provide additional transport options
- contribute to recreational opportunities
- support tourism and commercial activity.

The cycle networks identify routes according to the WA Cycling Network Hierarchy; routes are designated by function rather than built form:

- **Primary routes** are high demand corridors connecting major destinations and are the backbone of cycle networks. Primary routes are often located next to major roads and railways.
- **Secondary routes** have a moderate level of demand and connect primary routes and major activity centres such as shopping precincts, industrial areas, as well as health, education and sporting facilities.
- **Local routes** experience a lower level of demand than primary and secondary routes, and provide access to other routes, local amenities and recreational spaces.

Road cycling routes and transport trails form part of the complementary network, supporting more select user groups, primarily for recreational, sport and/or tourism purposes. *Road cycling routes* are designated routes for bike riders undertaking long distance rides in (predominantly) on-road environments, for training, sport or recreational purposes. *Transport trails* provide long-distance, off-road (predominantly unsealed) riding experiences through natural settings, away from motorised traffic. They often support recreational and tourism trips between towns and regions.

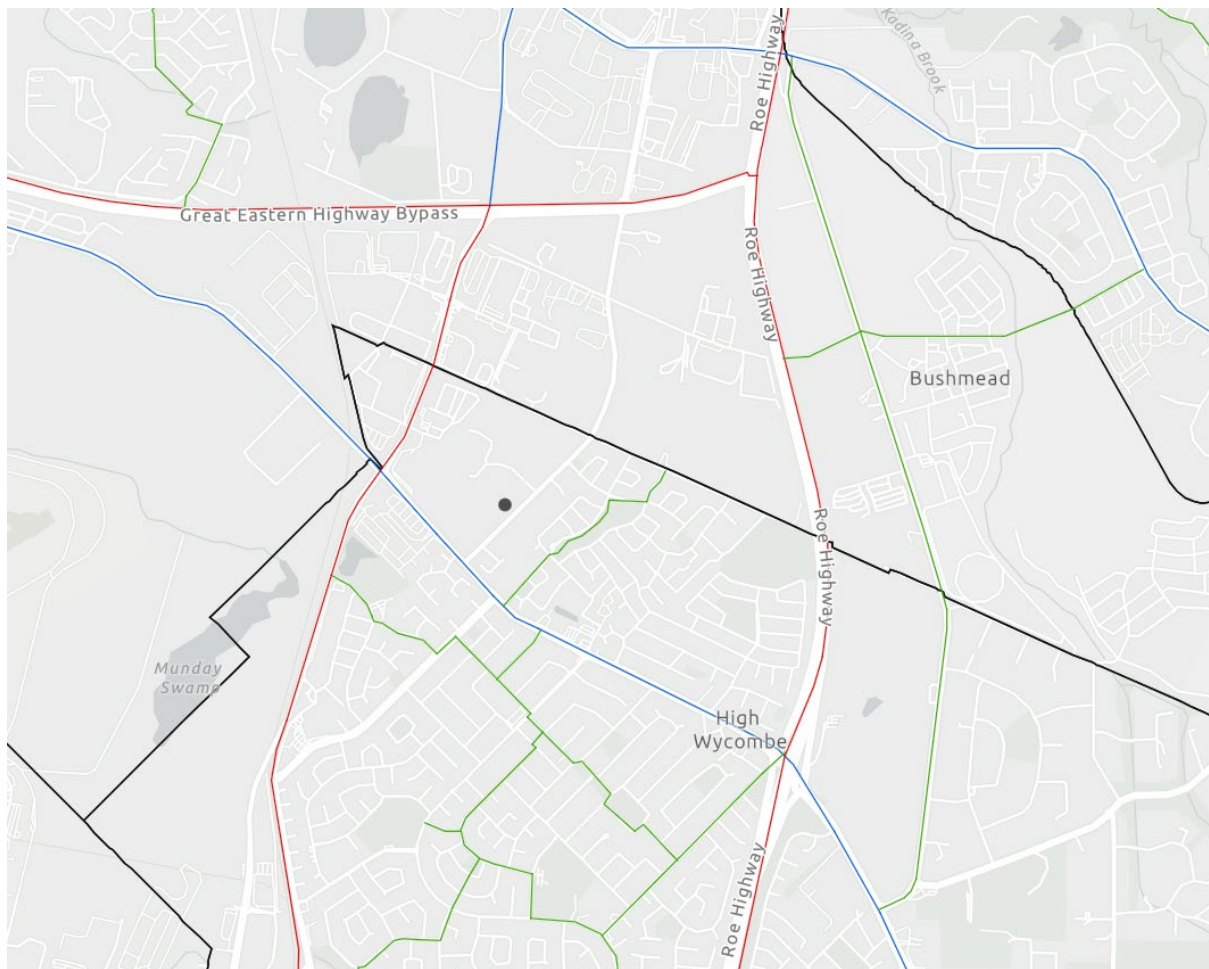


Figure 5 - Long Term Cycling Network (LTCN) for the Project Area and immediate surroundings

Does the site have existing cyclist facilities? NO

Does the site propose to improve cyclist facilities? YES

If YES, describe the measures proposed.

The proposed plans indicate provision of 7 bicycle racks.

LTCN designates Kalamunda Road as a Secondary Cycling Route, while Abernethy Road is designated as a Primary Cycling Route. While the area is not conducive to cycling at present, this is likely to change in future.

2.21 Site-Specific Issues and Proposed Remedial Measures

How many site-specific issues need to be discussed?

Site-Specific Issue No 1 none

Remedial Measure / Response

/