

PTG/00518

Transport Impact Assessment 645 Rockingham Road, Lake Coogee - Proposed Local Structure Plan Amendment

26th August 2024 | Revision B

Prepared for Otherside Property

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REPORT DETAILS

Unique Document Identification

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1 INTRODUCTION

1.1 Background

PTG Consulting WA (PTG) has been commissioned by **Otherside Property** to prepare a Transport Impact Assessment (TIA) for the proposed amendment to the Munster – Phase 2 Local Structure Plan (the LSP) approved by the Western Australian Planning Commission (WAPC) in February 2010.

This report has been prepared in accordance with the Western Australian Planning Commission (WAPC) Transport Assessment Guidelines for Developments: Volume 2 – Planning Schemes, Structure Plans and Activity Centre Plans (2016) and the Transport Impact Assessment (TIA) Checklist is included at **Appendix A**.

Specifically, this report aims to assess the operations of the proposed LSP amendment internally and its connections to the adjacent road network, with a focus on traffic volumes, access and accessibility.

This report also outlines the requirements and opportunities associated with traffic and transport within the development, referencing relevant Council and WAPC policies and guidelines as well as best-practice planning within Western Australia.

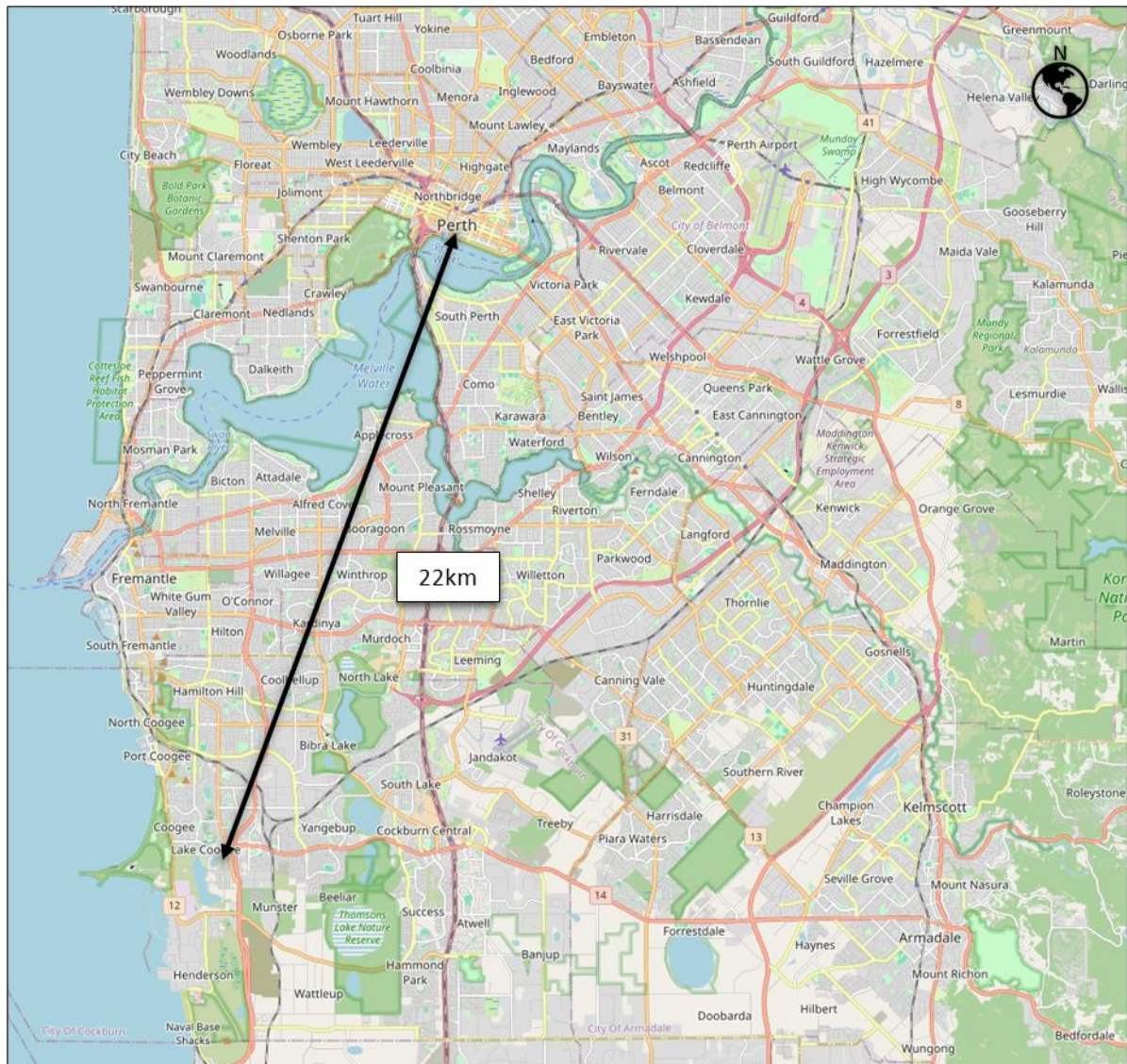
2 STRUCTURE PLAN PROPOSAL

2.1 Regional Context

The LSP area is located in the suburb of Lake Coogee, part of the City of Cockburn, situated in the southern suburbs of Perth, approximately 22 kilometres from the Perth CBD, as shown in **Figure 1**.

The suburb is primarily residential, with some additional light industrial and commercial areas towards the south. It is well connected to the Perth, Fremantle and Rockingham via the existing road network.

Figure 1 Regional Location



2.2 Proposed Land Uses

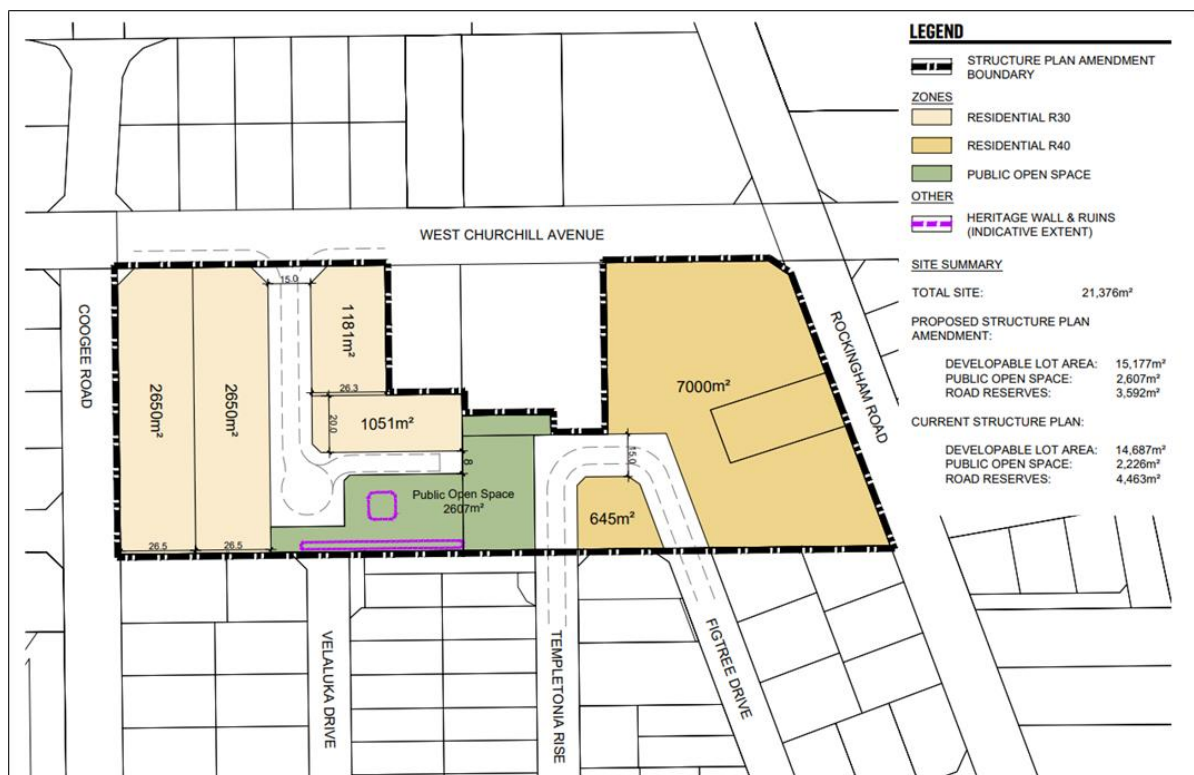
The proposed LSP amendment contemplates changes to the area shown in blue on Figure 2 below, with the proposed new LSP shown in Figure 3.

Figure 2 Existing Structure Plan – Munster Phase 2



Source: Urban Focus

Figure 3 Proposed Structure Plan Amendment Area



Source: Urbis

2.3 Table of Land Uses and Quantities

Table 1 provides a summary of the proposed land use yields within the amendment area.

Table 1 Land Uses

Land Uses	Yield
Residential (R30)	7,532 m ²
Residential (R40)	7,645 m ²
Public Open Space	2,607 m ²
Total	17,784 m ²

2.3.1 Comparison with Existing Local Structure Plan

The principal changes compared to the existing LSP include:

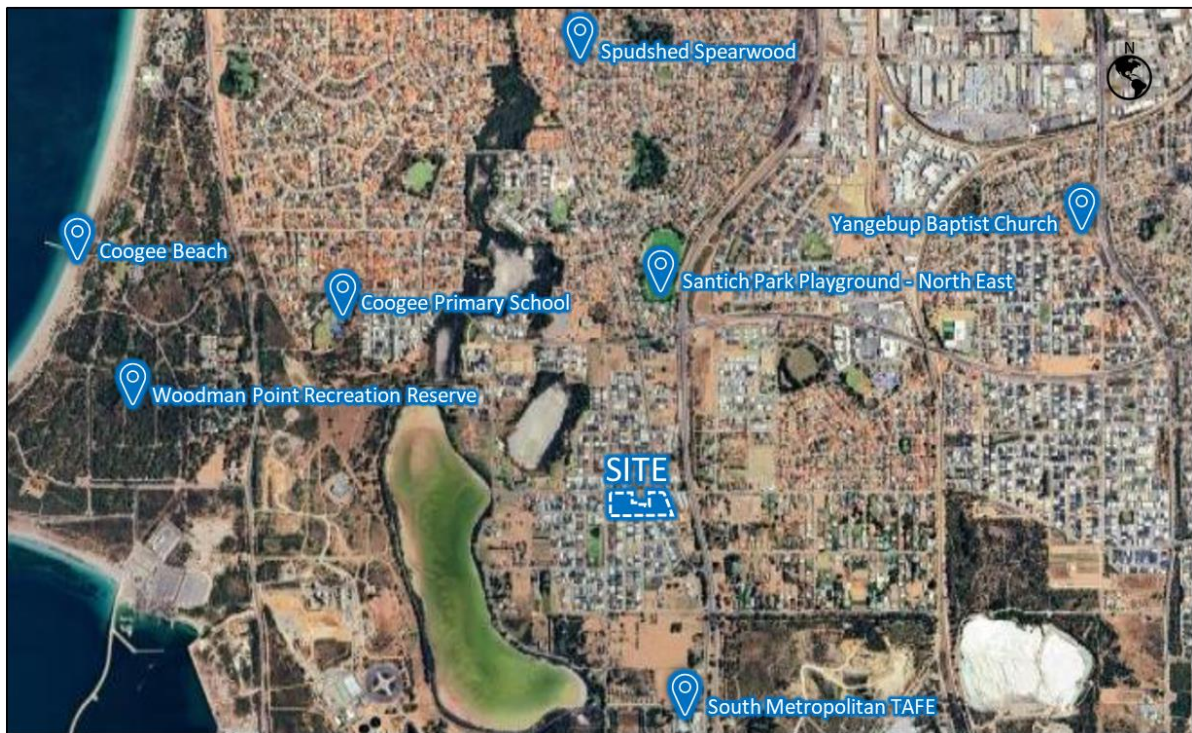
- » Increase in estimated dwelling yield from 44 to 60 based on changes to zoning.
- » Repositioning of the Public Open Space (POS).
- » Modifications to the internal road network, as follows:
 - The east-west access street along the southern boundary of the LSP Amendment area is deleted;
 - Velaluka Drive ends at the existing cul-de-sac and is not extended into the LSP Amendment area;
 - Figtree Avenue and Templetonia Rise are extended into the LSP Amendment area and connected together to form a loop road;
 - The extension of Figtree Avenue north to West Churchill Avenue is deleted; and
 - A new internal cul-de-sac access road extends south from West Churchill Avenue to the POS.

2.4 Major Attractors/Generators

Major attractors and generators within the surrounding area are shown in Figure 4 and listed below:

- » Coogee Beach
- » Woodman Point Recreation Reserve
- » Santich Park Playground
- » Spudshed Spearwood
- » Coogee Primary School
- » South Metropolitan TAFE
- » Yangebup Baptist Church

Figure 4 Major Attractors/Generators within the Surrounding Area

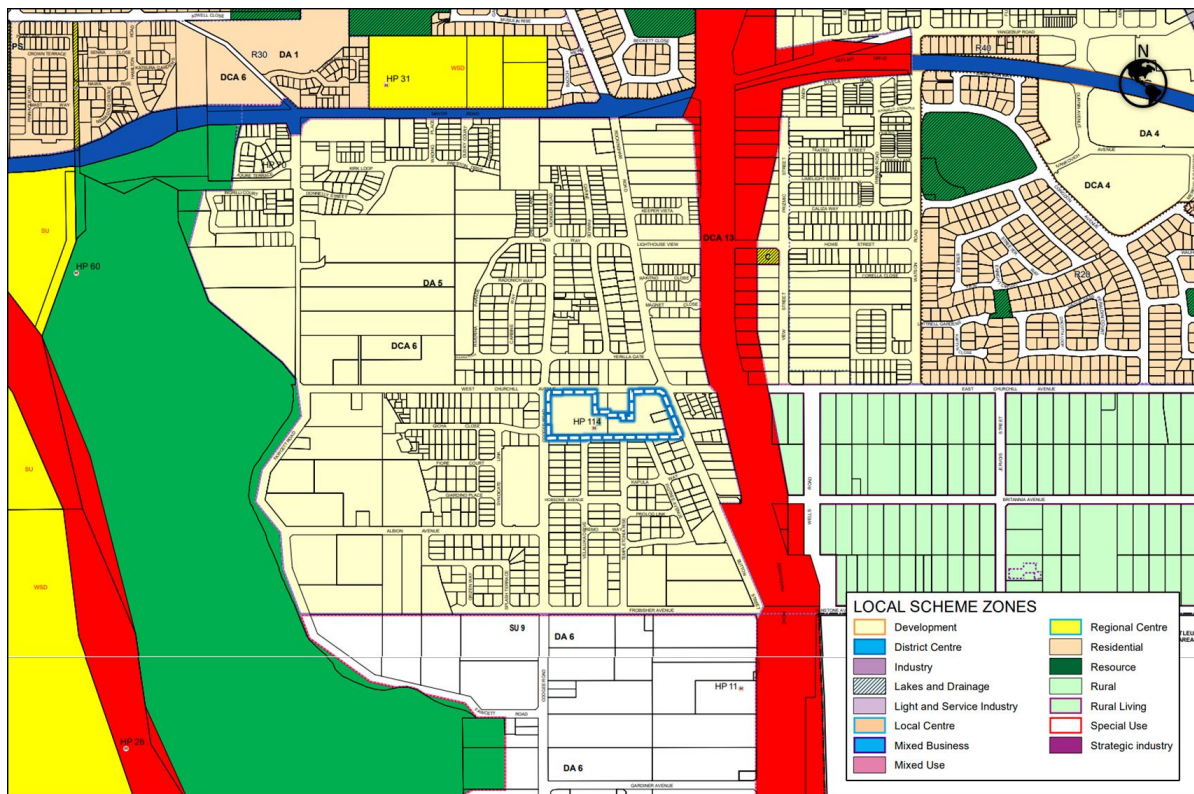


Source: Google Maps

2.5 Specific Issues

No specific issues are noted directly related to the LSP site.

Figure 6 Existing Land Use – 800 metres



Source: City of Cockburn Town Planning Scheme No. 3

3.3 Existing Road Network Within Structure Plan Area

The amendment area is currently mostly vacant with a few residential properties that front the external roads. As a result, there is no internal road network within the LSP Amendment area.

3.4 Existing Pedestrian/Cycle Networks Within Structure Plan Area

The amendment area is currently mostly vacant with a few residential properties that front the roads. As a result, there is no existing pedestrian/cycle networks within the LSP Amendment area..

3.5 Existing Public Transport Services Within Structure Plan Area

The amendment area is currently mostly vacant with a few residential properties that front the roads. As a result, there is no existing public transport network within the LSP Amendment area.

3.6 Existing Road Network Within 2 (or 5) km of Structure Plan Area

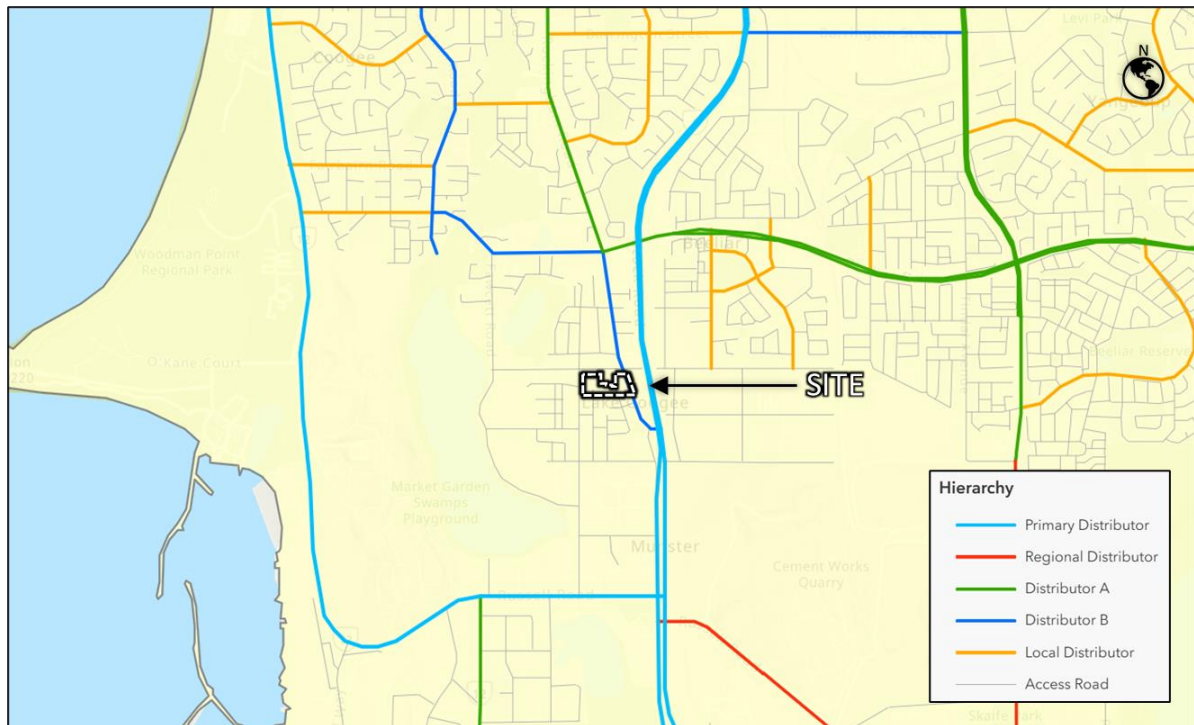
The road network within Western Australia is defined by Main Roads WA road hierarchy which describes the function, characteristic and management of each type of road. A description of each road type as per Main Roads WA Road Hierarchy criteria is summarised in Table 2 below.

Table 2 Road Hierarchy Description

Road Type	Description
Primary Distributors	Provide for major regional and inter-regional traffic movement and carry large volumes of generally fast moving traffic. Some are strategic freight routes, and all are State Roads. They are managed by Main Roads Western Australia.
District Distributor A	Carry traffic between industrial, commercial and residential areas and generally 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	Perform a similar function to type A District Distributors but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with a traffic demand in excess of that originally intended. District Distributor A and B roads run between land-use cells and generally not through them, forming a grid which would ideally space them around 1.5 kilometres apart. They are managed by local government.
Regional Distributor	Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by local government.
Local Distributor (Urban)	Roads that carry traffic within a cell and link District Distributors or Regional Distributors at the boundary, to access roads. The route of Local Distributors should discourage 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. Urban Local Distributor roads are managed by local government.
Local Distributor (Rural)	Connect to other Rural Distributors and to Rural Access Roads. Not Regional Distributors, but which are designed for efficient movement of people and goods within regional areas. Rural Local Distributor roads are managed by local government.
Access Roads	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 local government.

Figure 7 shows the road hierarchy network and Table 3 provides a summary of the road characteristics of the surrounding road network.

Figure 7 Road Hierarchy



Source: MRWA Road Information Mapping

Table 3 Existing Road Network

Road Name	Hierarchy	Lanes	Footpaths	Width (m)	Speed Limit (km/h)
Stock Road	Primary Distributor	4	-	21	70-90
Rockingham Road (north of Beeliar Drive)	Distributor A	2	2	7	60
Rockingham Road (south of Beeliar Drive)	Distributor B	2	2	7	60
West Churchill Avenue	Access Road	2	2	7.5	50
Coogee Road	Access Road	2	1	7.5	50
Templetonia Rise	Access Road	2	1	6	50
Figtree Avenue	Access Road	2	1	6	50
Velaluka Drive	Access Road	2	1	6	50

Source: MRWA Road Information Mapping

3.7 Traffic Flows on Roads Within Structure Plan Area (AM and/or PM Peak Hours)

There are no existing internal roads within the LSP area.

3.8 Traffic Flows on Roads Within 2 (or 5) km Of Structure Plan Area (AM and/or PM Peak Hours)

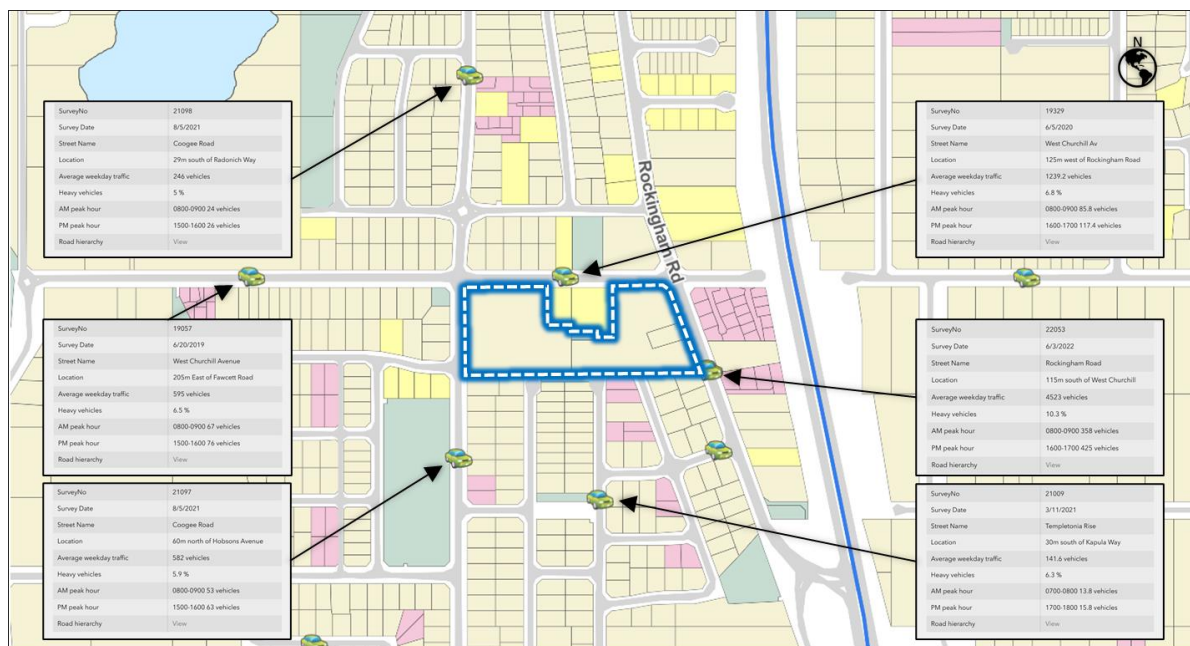
Existing traffic volumes were sourced from City of Cockburn and are summarised in Table 4 and illustrated in Figure 8.

Table 4 Existing Traffic Volumes

Road Name	Year	Weekday (HV%)	AM Peak Hour	PM Peak Hour
West Churchill Avenue (125m west of Rockingham Rd)	2020	1,239 (6.8%)	86	117
Coogee Road (60m north of Hobsons Ave)	2021	582 (5.9%)	53	63
Rockingham Road (115m south of West Churchill Ave)	2022	4,523 (10.3%)	358	425
Templetonia Rise (30m south of Kapula Way)	2021	142 (6.3%)	14	16

Source: City of Cockburn Maps

Figure 8 Existing Traffic Volumes

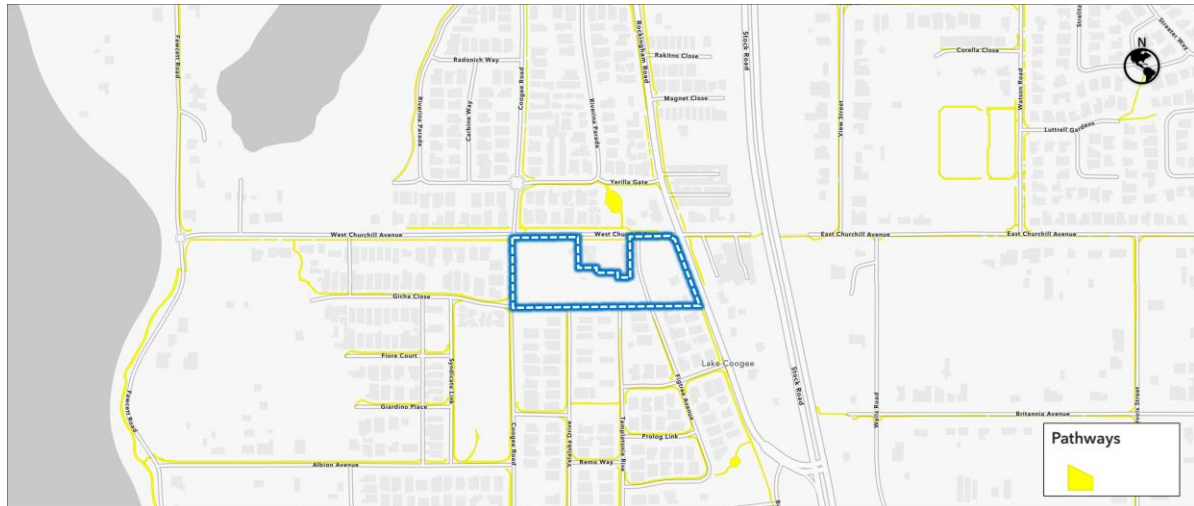


Source: City of Cockburn Maps

3.9 Existing Pedestrian/Cycle Networks Within 800m of Structure Plan Area

The pedestrian and cycling network within the surrounding area is well connected as shown in Figure 9.

Figure 9 Existing Pedestrian/Cycle Network



Source: City of Cockburn Maps

3.10 Existing Public Transport Services Within 800m of Structure Plan Area

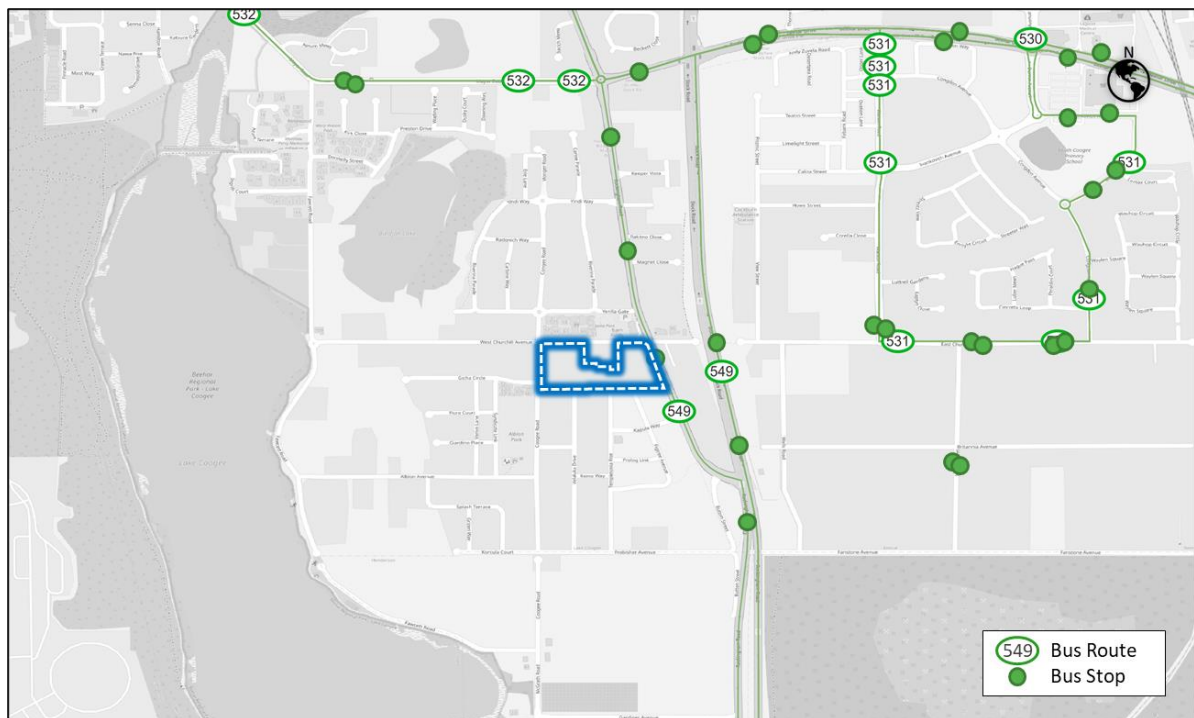
Bus Route 549 operates along Rockingham Road, which forms the eastern boundary of the amendment area. Additionally, there is a bus stop located at this boundary. The nearest bus routes and stops are illustrated in Figure 10.

Presently, this service only operates in the northbound direction along Rockingham Road, with southbound buses using Stock Road.

Table 5 Bus Route Description and Frequency

Bus Route	Route Description	Weekday Frequency	Saturday Frequency	Sunday and Public Holiday Frequency
549	Fremantle Stn - Rockingham Stn via Rockingham Rd & Kwinana Town Centre	10 -60 mins	30 - 60 mins	30 - 60 mins

Figure 10 Existing Public Transport



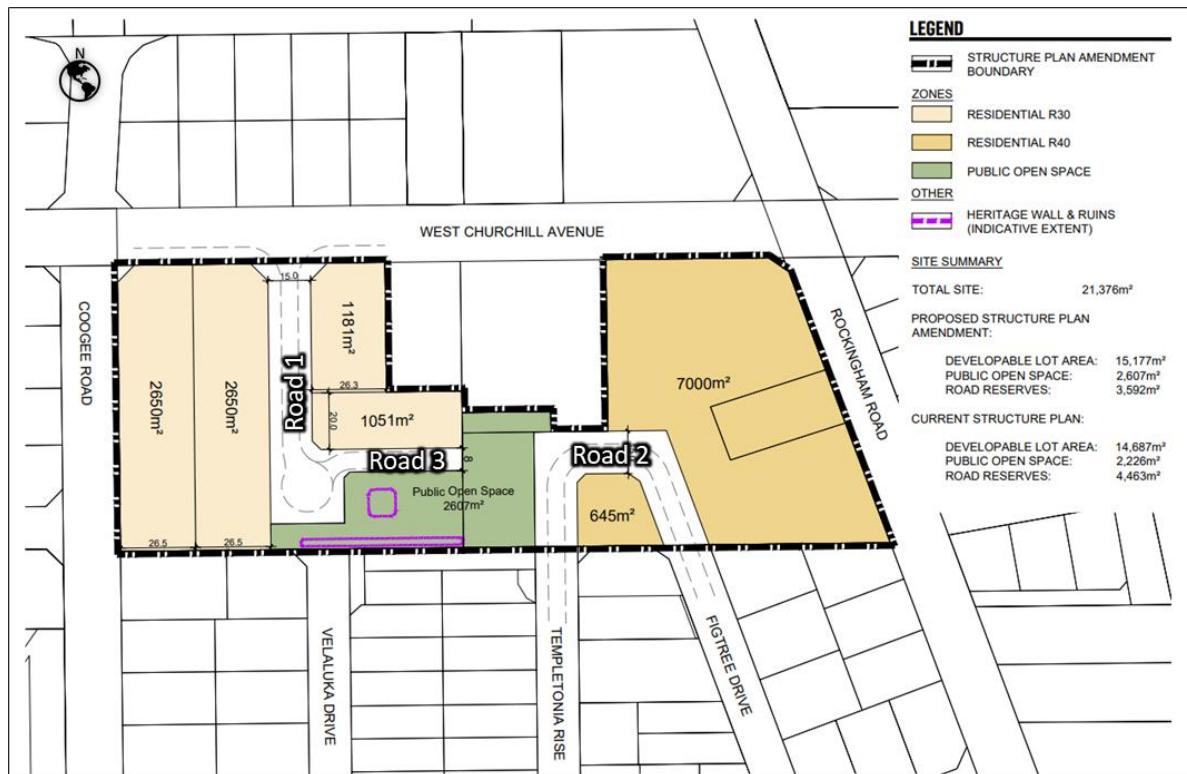
Source: Transperth

4 PROPOSED INTERNAL TRANSPORT NETWORKS

4.1 Changes/Additions to Existing Road Network or Proposed New Road Network

All roads within the amendment area will be newly constructed and classified as Access Roads, as shown in Figure 11. This includes Road 1, an access road perpendicular to West Churchill Avenue, Road 2, the extensions of both Templetonia Rise and Figtree Avenue that will form a loop, and Road 3, an access road perpendicular to Road 1.

Figure 11 Proposed Structure Plan Amendment Road Network



Source: Urbis

4.2 Road Reservation Widths

Roads 1 and 2 are indicated to be 15m wide, corresponding to an Access Street D in Liveable Neighbourhoods.

Road 3 is indicated to be 8m wide, functioning as a laneway to provide access to potential lots fronting the POS.

4.3 Road Cross-Sections & Speed Limits

Indicative cross sections for the proposed internal roads are shown in Figure 12 through to Figure 14.

All internal roads are anticipated to be subject to the default built-up area speed limit of 50km/h.

Figure 12 Indicative Cross Section – Road 1



Source: Streetmix

Figure 13 Indicative Cross Section – Road 2



Source: Streetmix

Figure 14 Indicative Cross Section – Road 3



Source: Streetmix

4.4 Intersection Controls

One new intersection will be created at West Churchill Avenue / Road 1. This intersection will be priority-controlled.

4.5 Pedestrian/Cycle Networks and Crossing Facilities

The pedestrian and cycle network will be determined later in the detail design or subdivision stage. Provision has been made in the road reserves for a footpath on at least one side of each internal road. Path links will also be provided through the POS to provide connectivity between Road 1, Road 2 and Road 3.

4.6 Public Transport Routes

There are no public transport routes planned within the amendment area or the LSP.

5 CHANGES TO EXTERNAL TRANSPORT NETWORKS

5.1 Road Network

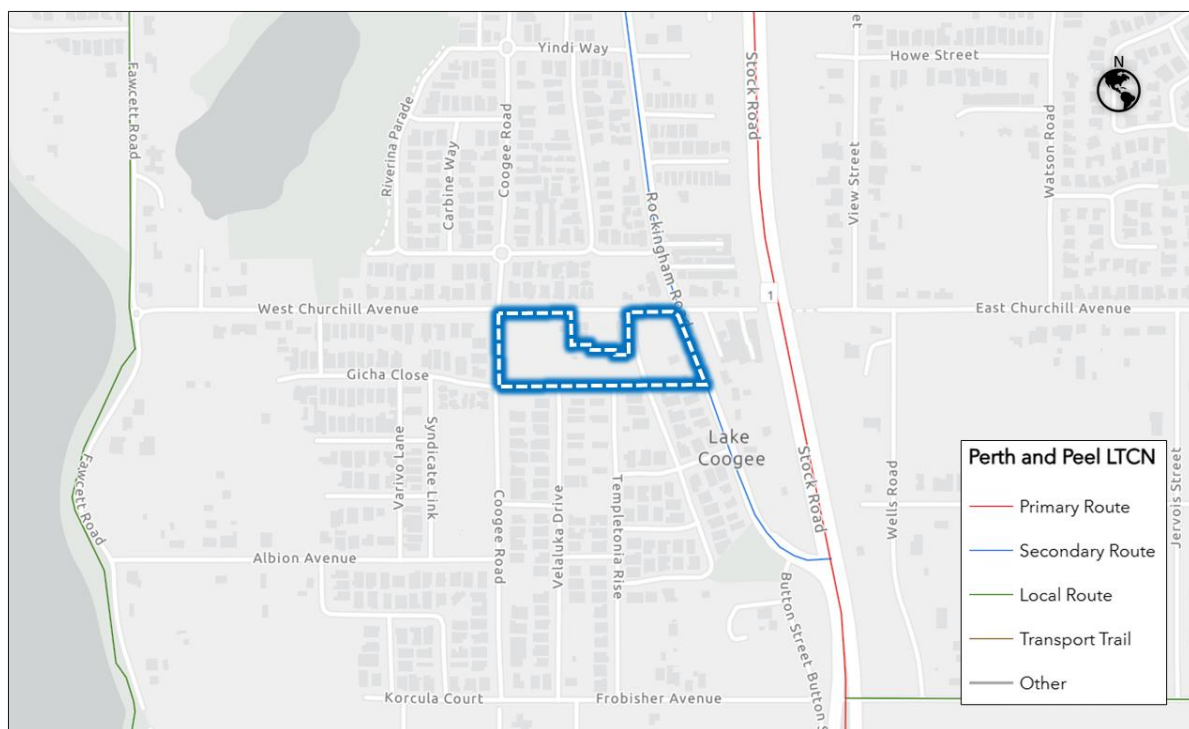
There are no planned changes to the road network within the area surrounding the Site.

5.2 Pedestrian/Cycle Networks and Crossing Facilities

Figure 15 shows the Department of Transport's aspirational future cycling network within the Perth metro region. The map shows the proposed cycle route hierarchy for the roads surrounding the LSP which is summarised below.

- » Stock Road - Primary Route
- » Rockingham Road - Secondary Route
- » Fawcett Road - Local Route

Figure 15 Perth and Peel Long-Term Cycle Network



Source: Department of Transport Long Term Cycle Network for Perth

5.3 Public Transport Services

The Public Transport Authority (PTA) were contacted who mentioned that there were no short to medium term changes to bus routes proposed.

6 INTEGRATION WITH SURROUNDING AREA

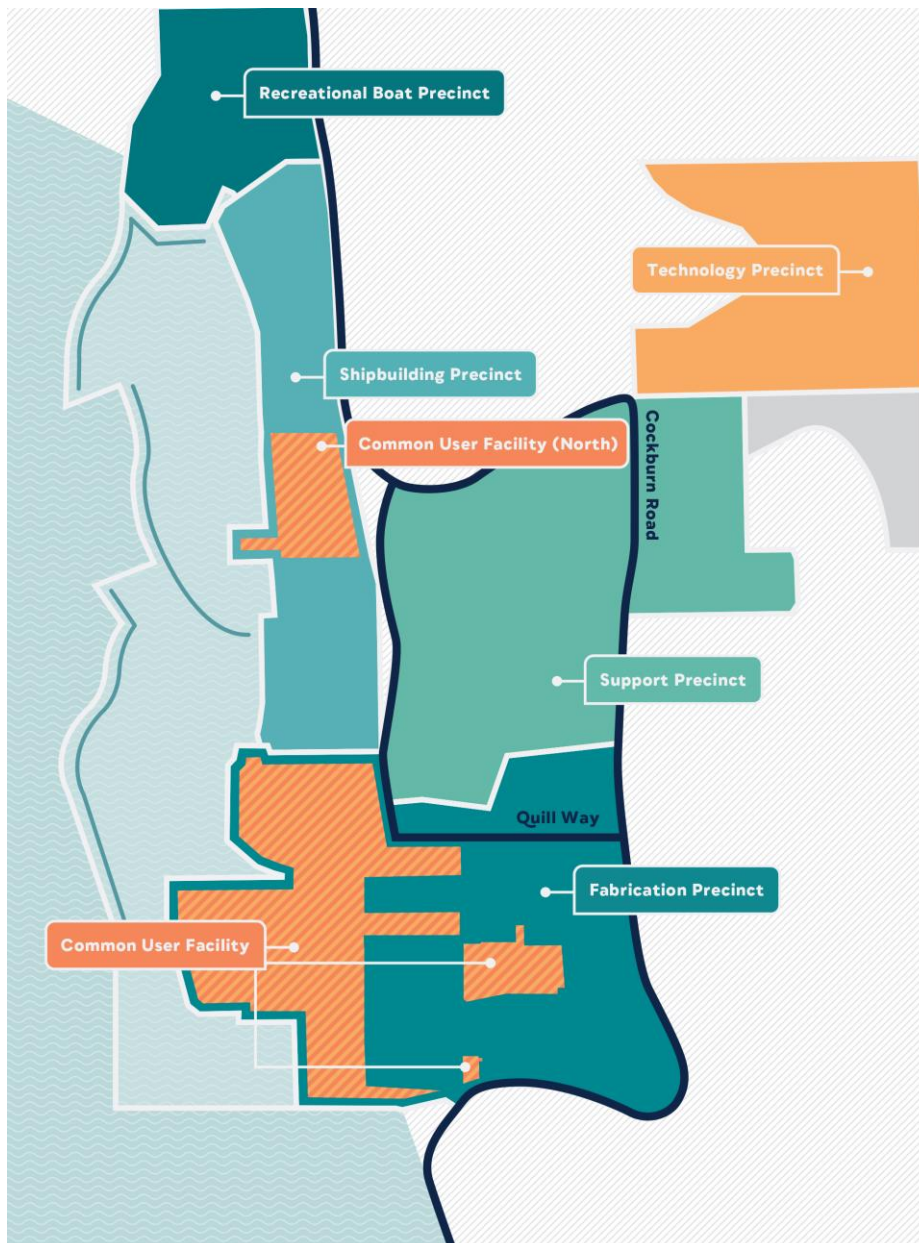
6.1 Trip Attractors/Generators Within 800 Metres

The LSP is located within a primarily residential area. Trip attractors within 800m indicate Lake Coogee, a passive recreational reserve, and the Australian Marine Complex (AMC) Technology Precinct to the south.

6.2 Proposed Changes to Land Uses Within 800 Metres

The AMC Technology Precinct is located approximately 500m south of the LSP. The majority of the Precinct is currently undeveloped, however a Structure Plan is in place to guide future development of the area to support the operations of the AMC. The location of the Technology Precinct in the context of the overall AMC is shown in Figure 16.

Figure 16 AMC Precincts



Source: Development WA

6.3 Travel Desire Lines from Structure Plan to These Attractors/Generators

Under the current road network arrangement, the main travel desire lines will be via West Churchill Avenue and Rockingham Road to reach the wider road network.

Currently there is no vehicular access from Coogee Road to the AMC Technology Precinct, however this may change in the future and provide convenient access for residents to services and employment within the Precinct.

6.4 Adequacy and Deficiencies of the External Transport Networks

The external transport is considered adequate to accommodate the proposed LSP Amendment.

7 ANALYSIS OF INTERNAL TRANSPORT NETWORKS

7.1 Assessment Year(s) and Time Period(s)

The assessment years adopted are as follows:

- » Year 2034 – Future year with LSP completed in its entirety, including amendment.

As per WAPC Transport Impact Assessment Guidelines for Structure Plans, the assessment will be undertaken only for the full build-out of the development. Peak times selected are 08:00 – 09:00 and 16:00pm – 17:00pm, which are the peak times of West Churchill Avenue and Rockingham Road intersections based on the traffic count data provided in the City of Cockburn Traffic Counts Map.

7.2 Structure Plan Generated Traffic

The trip generation rates for the subdivision were obtained from the following sources:

- » Roads and Maritime Services (RMS) TD2013/04a Guide to Traffic Generating Developments – Updated Traffic Surveys (trip generation rates)
- » Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition (trip distribution percentages).

The average site area per dwelling is 300m² for R30 and 220m² for R40. These figures were used in the calculation of the number of dwellings.

Table 6 shows the trip generation rates for the proposed land uses, **Table 7** shows the directional distribution and **Table 8** shows the total traffic generated by the amendment area.

Table 6 Trip Generation Rates

Land Use	Source	Yield	AM Peak	PM Peak	Daily
Residential R30	RMS	25 dwellings	0.95 trips/dwelling	0.99 trips/dwelling	10.7 trips/dwelling
Residential R40	RMS	35 dwellings	0.95 trips/dwelling	0.99 trips/dwelling	10.7 trips/dwelling

Table 7 Trip Distribution

Land Use	AM Peak		PM Peak		Daily	
	IN	OUT	IN	OUT	IN	OUT
Residential R30	26%	74%	64%	36%	50%	50%
Residential R40	26%	74%	64%	36%	50%	50%

Table 8 Total Trip Generation

Land Use	AM Peak		PM Peak		Daily	
	IN	OUT	IN	OUT	IN	OUT
Residential R30	6	18	16	9	134	134
Residential R40	9	25	22	12	187	187
Total	58		59		642	

The proposed LSP is estimated to generate approximately 58 vehicle trips in the AM peak period and 59 vehicle trips in the PM peak period.

As the trip generation associated with the LSP is less than 100 vehicle trips in the peak hour, it falls within the “moderate impact” range according to WAPC TIA guidelines and no detailed traffic analysis is warranted.

7.2.1 Trip Generation Comparison with the Existing Local Structure Plan

To provide a clearer understanding of the traffic impacts as a result of the proposed LSP amendment, a comparison of the traffic generated by the existing LSP and the proposed LSP amendment was conducted and summarised in **Table 9**.

Table 9 Total Trip Generation

Land Use	AM Peak		PM Peak		Daily	
	IN	OUT	IN	OUT	IN	OUT
Existing LSP	11	31	28	16	235	235
Proposed LSP	15	43	38	21	321	321
Net change	+4	+12	+10	+5	+86	+86
	16		15		192	

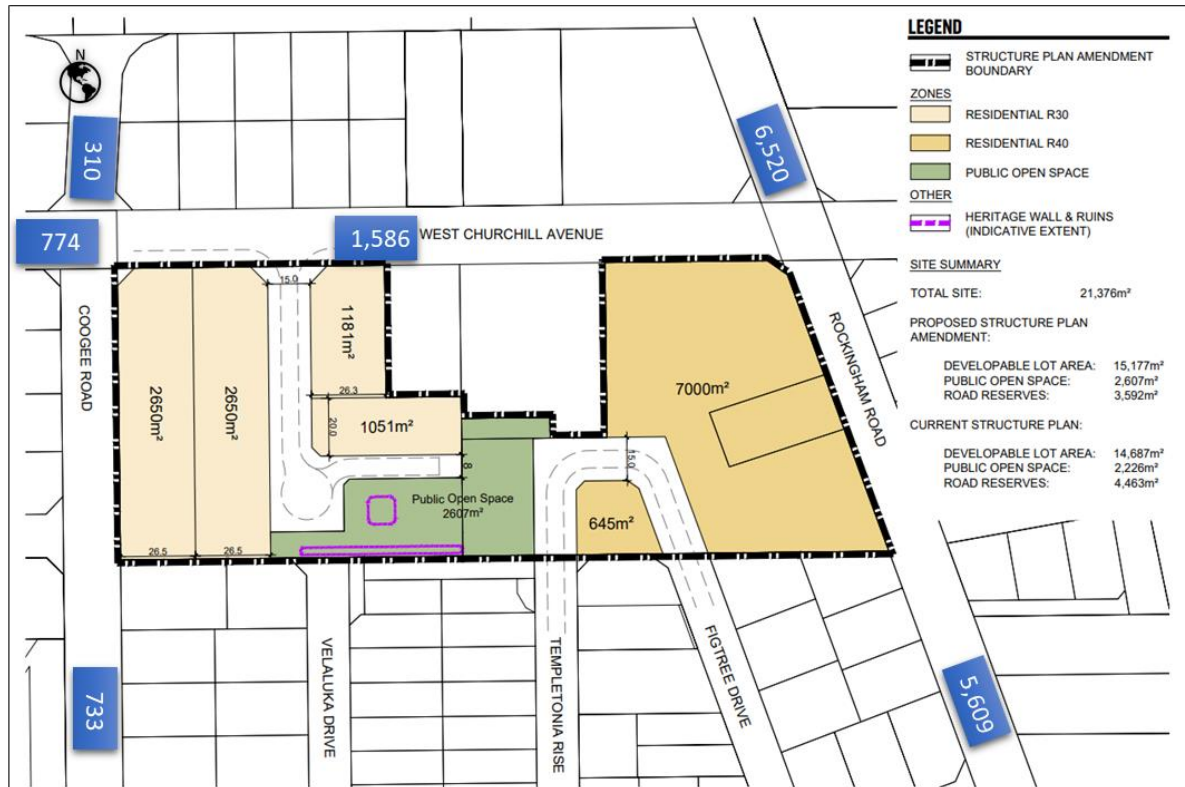
Overall, the amended LSP results in an additional 15-16 peak hour trips and approximately 171 daily trips, in comparison to the existing LSP. As the net trip generation associated with the LSP is less than 100 vehicle trips in the peak hour, it falls within the “moderate impact” range according to WAPC TIA guidelines and no detailed traffic analysis is warranted.

7.3 Extraneous (Through) Traffic

In order to project 2034 daily traffic volumes, an annual growth rate of 2% was applied to the through traffic sourced from City of Cockburn Traffic Counts Map. Refer to **Figure 17** for illustration.

Rockingham Road, north of West Churchill, does not have a count provided. The estimation is based on the count for Rockingham Road, south of West Churchill, plus the count for Yindi Way, west of Rockingham Road.

Figure 17 Daily Through Traffic – 2034



7.4 Design Traffic Flows

Figure 18 shows the development traffic while Figure 19 shows the total traffic flows generated by the structure plan amendment area throughout the network that is being assessed. The assumed distribution of the traffic volumes are as follows:

- » 2% to/from Coogee Road North
- » 6% to/from West Churchill West
- » 5% to/from Coogee Road South
- » 47% to/from Rockingham Road North
- » 40% to/from Rockingham Road South

All road sections remain within the capacity thresholds for the relevant road hierarchy.

Figure 18 Daily Development Traffic – 2034

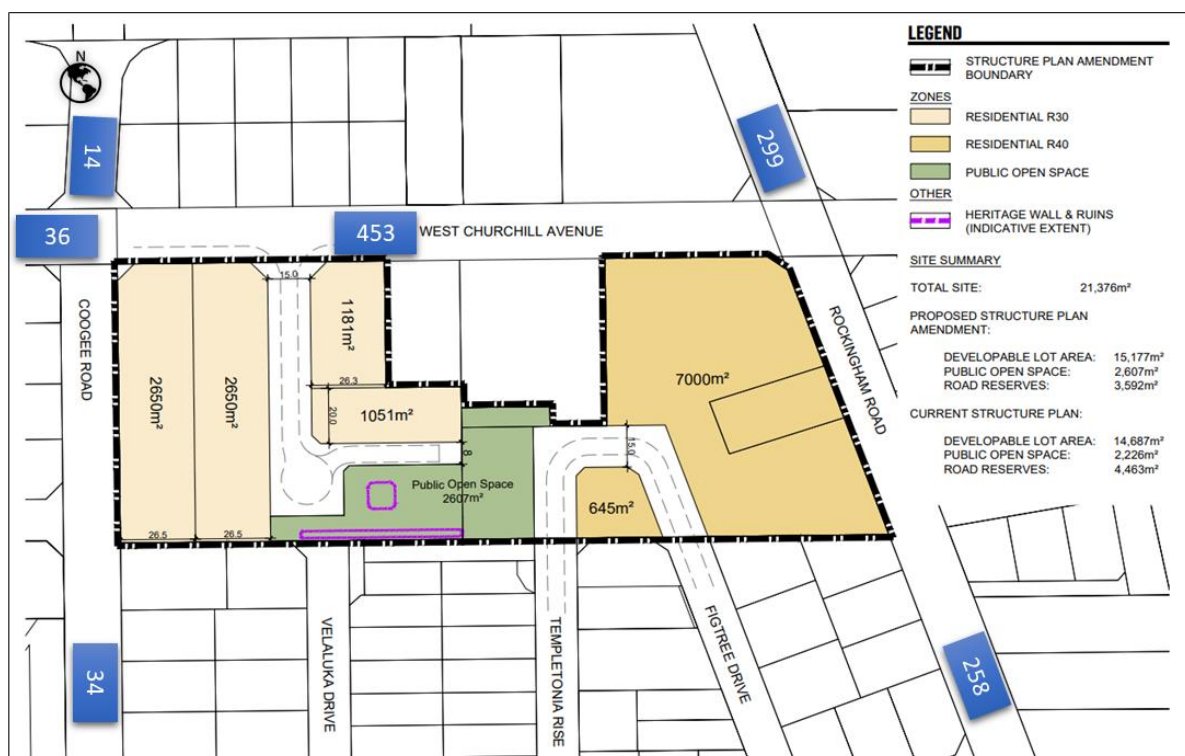
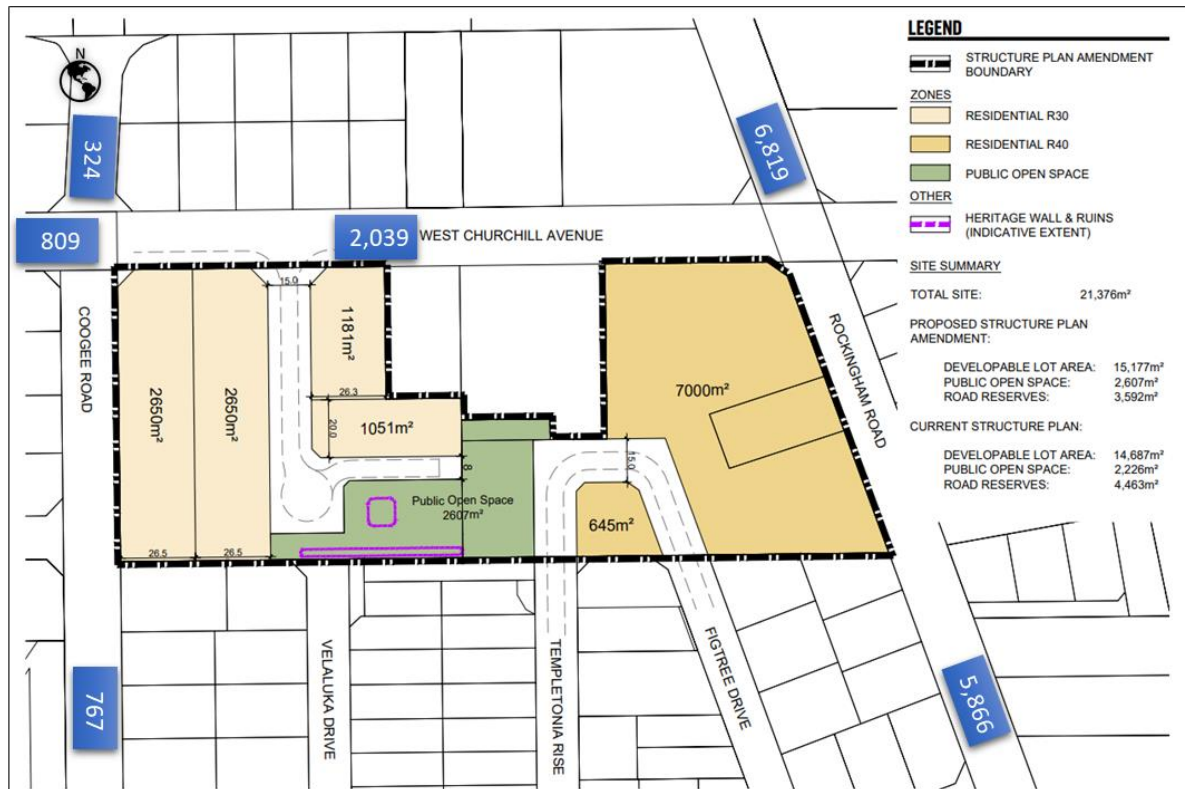


Figure 19 Daily Total Traffic – 2034



7.5 Road Cross-Sections

Section 4.3 discusses the indicative road cross sections based on Liveable Neighbourhoods guidelines.

7.6 Access Strategy

The LSP Amendment contemplates changes to the planned road network within the LSP. These changes can be summarised as follows:

- » The east-west access street along the southern boundary of the LSP Amendment area is deleted;
- » Velaluka Drive ends at the existing cul-de-sac and is not extended into the LSP Amendment area;
- » Figtree Avenue and Templetonia Rise are extended into the LSP Amendment area and connected together to form a loop road;
- » The extension of Figtree Avenue north to West Churchill Avenue is deleted; and
- » A new internal cul-de-sac access road extends south from West Churchill Avenue to the POS.

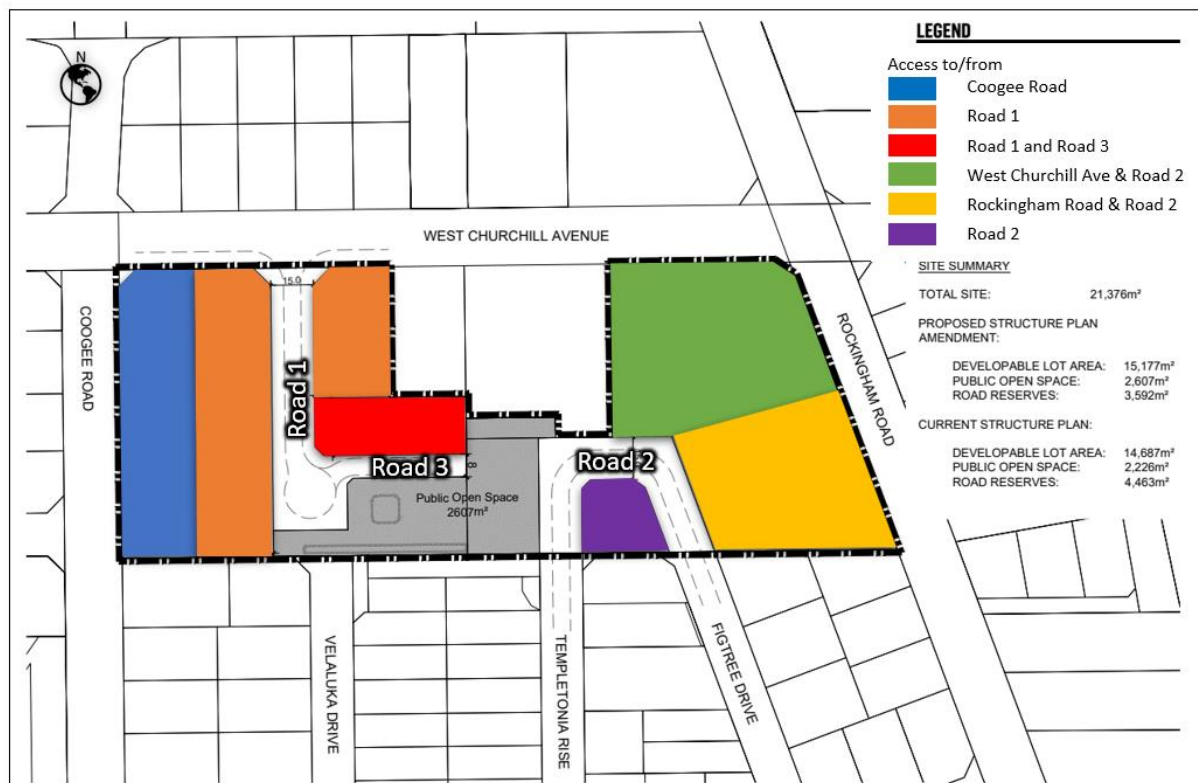
Overall, the proposed changes to the road network reduce the length of new road to be constructed and reduce the volume of traffic moving through the Site.

It is considered that the changes to the road network will have minimal impact on vehicular trips. Existing residents on Velaluka Drive, Templetonia Rise and Figtree Drive will see no change to their existing travel routes and minimal additional traffic using these streets.

Pedestrian connectivity between the existing residential areas and West Churchill Avenue will be provided via the POS, ensuring permeability for local walking and cycling journeys. It is likely that the R40 zoned area adjacent to Rockingham Road will have pedestrian access to Figtree Avenue for residents, ensuring convenient access to the POS.

An indicative access strategy is provided in Figure 20. It is noted that this is subject to future subdivision and development application processes. It is not proposed to implement access restrictions to any frontage road as part of the LSP.

Figure 20 Access Strategy



7.7 Pedestrian/Cycle Networks

As mentioned in Section 4.5, the pedestrian and cycle network will be determined later in the detail design or subdivision stage. The proposed pedestrian and cycle network should be consistent with the local character with sensible path connections both internally and externally.

7.8 Safe Routes to Schools

Not applicable as the proposed structure plan consists of only residential dwellings.

7.9 Pedestrian Permeability & Efficiency

The indicative path network is assumed to conform to the existing footpath layout along Templetonia Rise and Figtree Avenue.

7.10 Access To Public Transport

Not applicable as there are no public transport links or facilities within the proposed structure plan amendment area.

8 ANALYSIS OF EXTERNAL TRANSPORT NETWORKS

8.1 Extent of Analysis

A SIDRA assessment was not conducted because the volume of development traffic is below 100 vehicles per peak hour and is within the “moderate impact” range as per WAPC TIA guidelines. Given this relatively low traffic volume, it was determined that a detailed SIDRA analysis was not necessary to assess the impact on traffic flow and performance.

8.2 Base Flows for Assessment Year(s)

Not applicable as development traffic is less than 100 vehicles per peak hour.

8.3 Total Traffic Flows

Not applicable as development traffic is less than 100 vehicles per peak hour.

8.4 Road Cross-Sections

Not applicable as no changes are proposed to external transport networks.

8.5 Intersection Layouts & Controls

Not applicable as no changes are proposed to external transport networks.

8.6 Pedestrian/Cycle Networks

As volume of development traffic is fewer than 100 vehicles per peak hour, it is expected that there will be minimal to no impact on the surrounding pedestrian and cycle network.

9 SUMMARY AND CONCLUSIONS

This report has been prepared in accordance with the Western Australian Planning Commission (WAPC) Transport Assessment Guidelines for Developments: Volume 2 – Planning Schemes, Structure Plans and Activity Centre Plans (2016); the checklist is included at **Appendix A**.

The following conclusions can be drawn from this TIA:

- » The LSP amendment comprises of approximately 60 residential dwellings, with R30 and R40 zoning.
- » The LSP amendment is estimated to generate 58-59 peak hour trips and 642 daily trips. This represents a net increase of 15-16 peak hour trips and 192 daily trips compared to the existing LSP yield.
- » As the volume of traffic generated by the development is less than 100 peak hour vehicle trips, the impact is within the 'moderate' range as per WAPC TIA guidelines and no detailed traffic analysis is warranted.
- » The proposed changes to the internal road network are considered to have minimal impact on vehicle trips, while retaining pedestrian and cycling permeability for local journeys and access to the POS.
- » Public transport services in the vicinity of the LSP are limited, with only a single bus route towards Fremantle operating on Rockingham Road. There are no plans for the PTA to expand services in this area.
- » The existing pedestrians and cycling network in the area is improving in line with development occurring.
- » Overall, the proposed LSP Amendment is unlikely to have any material impact on the transport network.



Appendix A

WAPC CHECKLIST FOR INDIVIDUAL
DEVELOPMENT - TRANSPORT
IMPACT STATEMENT



APPENDIX A – WAPC CHECKLIST

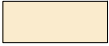
Item	Status	Comments/Proposal
Summary	Section 9	
Introduction/Background	Section 1	
Structure Plan Proposal		
Regional Context	Section 2	
Proposed Land Uses	Section 2	
Table Of Land Uses and Quantities	Section 2	
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Specific Issues	Section 2	
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Existing Public Transport Services Within Structure Plan Area	Section 3	
Existing Road Network Within 2 (Or 5) km of Structure Plan Area	Section 3	
Traffic Flows on Roads Within Structure Plan Area (PM and/or AM Peak Hours)	Section 3	
Traffic Flows on Roads Within 2 (Or 5) km of Structure Plan Area (AM and/or PM Peak Hours)	Section 3	
Existing Pedestrian/Cycle Networks Within 800m of Structure Plan Area	Section 3	
Existing Public Transport Services Within 800m of Structure Plan Area	Section 3	
Proposed Internal Transport Networks		
Changes/Additions to Existing Road Network or Proposed New Road Network	Section 4	
Road Reservation Widths	Section 4	
Road Cross-Sections & Speed Limits	Section 4	
Intersection Controls	Section 4	
Pedestrian/Cycle Networks and Crossing Facilities	Section 4	
Public Transport Routes	Section 4	
Changes to External Transport Networks		
Road Network	Section 5	
Intersection Controls	Section 5	
Pedestrian/Cycle Networks and Crossing Facilities	Section 5	
Public Transport Services	Section 5	

Integration With Surrounding Area		
Trip Attractors/Generators Within 800 Metres	Section 6	
Proposed Changes to Land Uses Within 800 Metres	Section 6	
Travel Desire Lines from Structure Plan to These Attractors/Generators	Section 6	
Adequacy of External Transport Networks	Section 6	
Deficiencies in External Transport Networks	Section 6	
Remedial Measures to Address Deficiencies	Section 6	
Analysis of Internal Transport Networks		
Assessment Year(s) and Time Period(s)	Section 7	
Structure Plan Generated Traffic	Section 7	
Extraneous (Through) Traffic	Section 7	
Design Traffic Flows (That is, Total Traffic)	Section 7	
Road Cross-Sections	Section 7	
Intersection Controls	Section 7	
Access Strategy	Section 7	
Pedestrian/Cycle Networks	Section 7	
Safe Routes to Schools	Section 7	
Pedestrian Permeability & Efficiency	Section 7	
Access to Public Transport	Section 7	
Analysis of External Transport Networks		
Extent of Analysis	Section 8	
Base Flows for Assessment Year(s)	Section 8	
Total Traffic Flows	Section 8	
Road Cross-Sections	Section 8	
Intersection Layouts & Controls	Section 8	
Pedestrian/Cycle Networks	Section 8	
Conclusions	Section 9	

APPENDIX B – CONCEPT LOCAL STRUCTURE PLAN



LEGEND

-  STRUCTURE PLAN AMENDMENT BOUNDARY
- ZONES**
 -  RESIDENTIAL R30
 -  RESIDENTIAL R40
 -  PUBLIC OPEN SPACE
- OTHER**
 -  HERITAGE WALL & RUINS (INDICATIVE EXTENT)



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