Metro Outer Joint Development Assessment Panel Agenda

Meeting Date and Time: Thursday, 4 January 2024; 9.30am
Meeting Number: MOJDAP/290
Meeting Venue: Electronic Means

To connect to the meeting via your computer - https://us06web.zoom.us/j/83340719250

To connect to the meeting via teleconference dial the following phone number - +61 8 7150 1149
Insert Meeting ID followed by the hash (#) key when prompted - 833 4071 9250

This DAP meeting will be conducted by electronic means (Zoom) open to the public rather than requiring attendance in person.

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Attendance

DAP Members

Eugene Koltasz (Presiding Member)
Ian Birch (A/Deputy Presiding Member)
Jason Hick (Third Specialist Member)
Cr John Keogh (Local Government Member, City of Armadale)
Cr Michael Hancock (Local Government Member, City of Armadale)

Officers in attendance

Christopher Valentine (City of Armadale)
Paul Rosser (City of Armadale)

Minute Secretary

Claire Ortlepp (DAP Secretariat)

Applicants and Submitters

Jozef Ewing (Planning Solutions)
Joshua Carmody (Planning Solutions)
Frank Iemma (Oldfield Knott Architects)

Members of the Public / Media

Nil.

1. Opening of Meeting, Welcome and Acknowledgement

The Presiding Member declares the meeting open and acknowledges the traditional owners and pay respects to Elders past and present of the land on which the meeting is being held.

This meeting is being conducted by electronic means (Zoom) open to the public. Members are reminded to announce their name and title prior to speaking.

2. Apologies

Karen Hyde (Deputy Presiding Member)

3. Members on Leave of Absence

Nil.

4. Noting of Minutes

Signed minutes of previous meetings are available on the DAP website.

5. Declarations of Due Consideration

The Presiding Member notes an addendum to the agenda was published to include details of a DAP request for further information and responsible authority response in relation to Item 8.1, received on 3 January 2024.

Any member who is not familiar with the substance of any report or other information provided for consideration at the DAP meeting must declare that fact before the meeting considers the matter.

6. Disclosure of Interests

Nil.

7. Deputations and Presentations

7.1 Joshua Carmody (Planning Solutions) & Frank Iemma (Oldfield Knott Architects) presenting in support of the recommendation for the application at Item 8.1. The presentation will address support for the development and requests for Condition changes.

The City of Armadale may be provided with the opportunity to respond to questions of the panel, as invited by the Presiding Member.

8. Form 1 – Responsible Authority Reports – DAP Applications

8.1 Lot 801, No. 600 Ranford Road, Forrestdale

Development Description:	Three Proposed Bulky Goods Showrooms
Applicant:	Planning Solutions
Owner:	EVA Investments Aust Pty Ltd
Responsible Authority:	City of Armadale
DAP File No:	DAP/23/02564

9. Form 2 – Responsible Authority Reports – DAP Amendment or Cancellation of Approval

Nil.

10. State Administrative Tribunal Applications and Supreme Court Appeals

Current SAT Applications				
File No. & SAT DR No.	**LG Name**	**Property Location**	**Application Description**	**Date Lodged**
DR75/2022 DAP/18/01543	City of Joondalup	Portion of 9040 (34) Kallatina Drive, Iluka	Mixed Commercial Centre (Iluka Plaza)	02/05/2022
DR135/2023 DAP/23/02447	City of Rockingham	Lot 622 (No.2) Aurea Boulevard, Golden Bay	Proposed mixed commercial development (Golden Bay Neighbourhood Centre)	11/08/2023

Current SAT Applications				
File No. & SAT DR No.	**LG Name**	**Property Location**	**Application Description**	**Date Lodged**
DR98/2023 DAP/22/02379	City of Swan	Lot 31 (No.1487) Neaves Road, Bullsbrook	Proposed roadhouse	16/06/2023
DR169/2023 DAP/23/02486	City of Swan	Lot 1 (No.9) Waterhall Road, South Guildford	Child Care Premises	13/11/2023

Current Supreme Court Appeals				
File No.	**LG Name**	**Property Location**	**Application Description**	**Date Lodged**
DAP/23/02496 CIV 2251 of 2023	City of Swan	Lot 2 & 67 (No.163) and Lot 18 (No.159) James Street, Guildford	Proposed redevelopment of Vaudeville Theatre	03/11/2023

11. General Business

In accordance with Section 7.3 of the DAP Standing Orders 2020 only the Presiding Member may publicly comment on the operations or determinations of a DAP and other DAP members should not be approached to make comment.

12. Meeting Closure

Direction for Further Services from the Responsible Authority

Regulation 13(1) and DAP Standing Orders 2020 cl. 3.3

Guidelines

A DAP Member who wishes to request further services (e.g. technical information or alternate recommendations) from the Responsible Authority must complete this form and submit to daps@dplh.wa.gov.au.

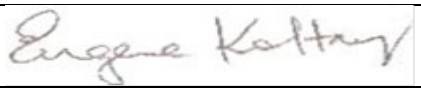
The request will be considered by the Presiding Member and if approved, the Responsible Authority will be directed to provide a response to DAP Secretariat within the form.

It is important to note that **the completed form containing the query, response and any accompanying documentation will be published on the DAP website** as an addendum to the meeting agenda.

DAP Application Details

DAP Name	Metro Outer JDAP
DAP Application Number	DAP/23/02564
Responsible Authority	City of Armadale
Property Location	Lot 801, No. 600 Ranford Road, Forrestdale

Presiding Member Authorisation

Presiding Member Name	Eugene Koltasz
Signature	
Date	3 January 2024
Response Due	**4 January 2024; 9:30am**

Nature of technical advice or information required*

1	**DAP query**	**Please respond to the requested changes that are outlined in the presentation request from Joshua Carmody.**
	Response	Please see response below

* Any alternate recommendation sought does not infer a pre-determined position of the panel.

From:	Christopher Valentine
To:	Development Assessment Panels
Cc:	Glen Windass; Paul Rosser
Subject:	RE: Updated Agenda v.2 | Presentation Approval | MOJDAP/290 | 4 January 2024 | City of Armadale
Date:	Wednesday, 3 January 2024 4:04:52 PM
Attachments:	image001.png image002.png image003.png image004.png

Hello,

The City of Armadale has recommend similar conditions to those applied to comparable Bulky Goods Showrooms that have been approved by the City in the Forrestdale Business Park. For example, at the adjacent Lot 9047 Celsius Road.

The City provides the following comments in response to the applicants requested amendments:

1. Condition 1.
   The applicant has extrapolated that the City will demand shade trees for car parking bays adjacent to buildings. This is not standard practice as is acknowledged by clause 4D.4.3 (c) the City's Town Planning Scheme No. 4. The City is happy to amend the wording of 1(f) as highlighted below to provide additional clarity for the applicant:

   (f) provision of shade trees at a rate of one (1) tree per four (4) parking bays planted at intervals of no greater than 10 metres along any line of car parking bays. Where those bays are immediately adjacent to a building, the City may permit the required trees in another location on site.

   The applicant has not presented a reasonable justification of why 1(f) should be reduced to a non-statutory advice note and this is not supported by the City. It should remain in Condition 1.

2. Condition 7
   Removal of the condition is not supported. The purpose of the condition is to ensure that internal footpaths and linkages to the public footpath network are constructed/retained, consistent with Clause 4D.4.2 (e) of TPS 4. This is a standard condition applied by the City for development of this nature.

   (e) the need for safe and convenient pedestrian access to and within the development site, including particularly access from the street and adjacent sites;

3. Condition 8
   Removal of the condition is not supported. The applicant has provided a schedule of finishes in the elevations provided however it is common for colours and finishes to be adjusted by developers prior to construction, particularly at a time of construction supply disruption and shortages. It is noted also that in this case that no tenants have been identified for this development. Compliance with the condition is not onerous. If ultimately there are no changes then the applicant can seek final clearance of the schedule provided. If there are colour/material changes, the condition provides a mechanism to deal with those via condition clearance, rather than via an entire amended application, which is far more efficient.

4. Condition 9
   Removal of the condition is not supported. The locality is affected by strong easterly katabatic winds during the summer months and dust complaints about development sites in the Forrestdale Business Park have been received by the City's Health Services. The applicant has commented that the City has the power to issue notices for poor dust management under its local law. The purpose of the condition is to prevent the nuisance from occurring in the first place in a proactive, rather

than reactive manner.

5. Condition 10

   Removal of the condition is not supported. The City's support for the proposed variation to the onsite parking requirement is predicated on the application of Condition 10 which should demonstrate suitable mitigating measures if parking demand does exceed the supply of available onsite parking bays. Clause 4D.5.1 of TPS 4 requires that *"Unless otherwise approved or required by the local government, required car parking is to be provided on the site of the proposed development"*. The applicant has argued for a parking variation based on shared use of parking facilities between tenancies. All the City is looking to do is formalise the arrangement proposed by the applicant Clause 4D.5.3 of TPS specifies that:

   When considering an application for planning consent, the local government shall have regard to and may impose, conditions with respect to the location of parking on the site, and the pedestrian and vehicle traffic circulation system proposed.

6. Condition 11

   The City accepts the deletion of the reference of the Executive Director Development Services. 11 b) is part of the City's standard drainage condition and is applied to account for the unlikely but not unknown circumstance where an existing title does not show a benefit to the City's drainage infrastructure. Although no detailed drainage plan has been provided with the application, no drainage infrastructure within the lot is immediately evident from the available records. 11 b) is accordingly considered to be low risk and the City is content to agree to its deletion in this case.

7. Condition 12

   Removal of the condition is not supported. Fencing can be installed at any point in the lifespan of a development due to a change of circumstance, be it ownership, tenant requirements, security or otherwise.

8. Condition 16

   Removal of the condition is not supported. The applicant is correct that Schedule 11B should read as Schedule 7B of Town Planning Scheme No. 4 and Condition 16 can be amended accordingly. The applicant is not correct that Schedule 7B does not address the land use; it lists the requirements for Retail Show Room. If it is determined that six or fewer bicycle places are not required then end of trip facilities are not necessary. It is noted that the applicant has not secured tenants at this stage so the final allocations of sales floor area and therefore the exact requirements for bicycle parking spaces are unknown.

Regards

Christopher Valentine
Senior Statutory Planning Officer | Statutory Planning

CITY OF Armadale

City of Armadale
7 Orchard Avenue, Armadale WA 6112
[redacted]
www.armadale.wa.gov.au

Government of **Western Australia**
Development Assessment Panels

Presentation Request Form

Regulation 40(3) and DAP Standing Orders 2020 cl. 3.5

Must be submitted at least 72 hours (3 ordinary days) before the meeting

Presentation Request Guidelines

Persons interested in presenting to a DAP must first consider whether their concern has been adequately addressed in the responsible authority report or other submissions. Your request will be determined by the Presiding Member based on individual merit and likely contribution to assist the DAP's consideration and determination of the application.

Presentations are not to exceed **5 minutes**. It is important to note that the presentation content will be **published on the DAP website** as part of the meeting agenda.

Please complete a separate form for each presenter and submit to daps@dplh.wa.gov.au

Presenter Details

Name	Joshua Carmody
Company (if applicable)	Planning Solutions
Name	Frank Iemma
Company (if applicable)	Oldfield Knott Architects
Please identify if you have any special requirements:	**YES** ☐ **NO** ☒ If yes, please state any accessibility or special requirements: Click or tap here to enter text.

Meeting Details

DAP Name	Metro Outer JDAP
Meeting Date	4 January 2024
DAP Application Number	DAP/23/02564
Property Location	Lot 801 (600) Ranford Road, Forrestdale
Agenda Item Number	8.1

Presentation Details

I have read the contents of the report contained in the Agenda and note that my presentation content will be published as part of the Agenda:	**YES** ☒
Is the presentation in support of or against the report recommendation)? *(contained within the Agenda)*	**SUPPORT** ☒ **AGAINST** ☐
Is the presentation in support of or against the proposed development?	**SUPPORT** ☒ **AGAINST** ☐

Will the presentation require power-point facilities?	**YES ☐ NO ☒** **If yes, please attach**

Presentation Content*

These details may be circulated to the local government and applicant if deemed necessary by the Presiding Member. Handouts or power points will not be accepted on the day.

Brief sentence summary for inclusion on the Agenda	*The presentation will address:* Request for minor modifications to the recommended conditions of approval.

In accordance with Clause 3.5.2 of the *DAP Standing Orders*, your presentation request must also be accompanied with a written document detailing the content of your presentation.

Please attach detailed content of presentation or provide below:

Refer **attached** presentation summary for Joshua Carmody.

Frank Iemma (Oldfield Knott Architects) will also be available to answer questions from an architectural perspective if required.

Presentation Summary

To:	Metro Outer JDAP	**From:**	Joshua Carmody
Date:	2 January 2024	**Job No:**	8287
Meeting:	MOJDAP/290 – 4 January 2024		
Item:	8.1 – Lot 801, No. 600 Ranford Road, Forrestdale **Three Bulky Goods Showrooms**		

Planning Solutions acts on behalf of EVA Investments, the proponents of the proposed Large Format Retail Extension at Lot 801(600) Ranford Road, Forrestdale (**subject site**).

We are pleased to receive the City of Armadale's recommendation for approval.

We request the Metro Outer JDAP adopts the recommendation for approval, with the various minor modifications to conditions outlined at **Attachment 1.** These will provide the proponent with the necessary clarity and certainty to proceed with the proposed expansion.

Thank you for your time and consideration. We would be pleased to answer any questions from the JDAP panel members at the meeting scheduled for 4 January 2024.

PLANNING SOLUTIONS
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PS

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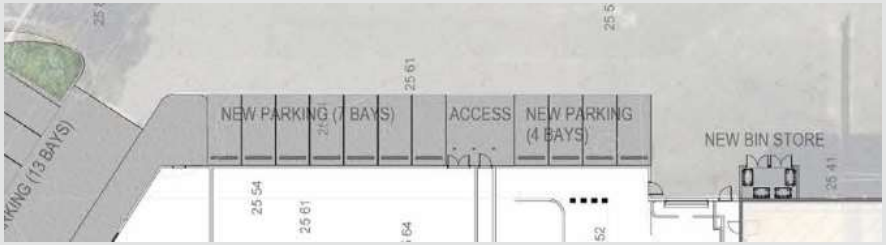
Planning Solutions (Aust) Pty Ltd

ATTACHMENT 1:
REQUESTED MODIFICATIONS TO CONDITIONS

Proposed condition of approval	Applicant comments
1. f) The provision of shade trees within the car park at the rates of at least 1 tree per 10 metre interval along any line of car parking;	The proposed wording restricts the location of trees to within the car parking areas. This is excessively restrictive and will result in issues with implementing the condition as worded. There isn't necessarily room to include trees within all new carparking areas.  For this reason we request the wording of condition 1(f) be transferred to an advice note to allow for flexibility in the location of trees, as follows: *"Advice Note A: In relation to Condition 1, the provision of shade trees within the car park at the rates of at least 1 tree per 10 metre interval along any line of car parking;"*
7. *Construction of the pedestrian paths (as indicated on the attached site plan) and ramps where appropriate to the satisfaction of the City of Armadale, seamlessly connecting the proposed development to existing paths on site and within the adjoining public footpath network.*	No new connections to the public footpath network have been proposed. Pedestrian footpaths linking with existing pedestrian paths are shown on the development plans. The City's planning assessment confirms all access (vehicle and pedestrian) are satisfactory. **This condition appears to be redundant and we request that it be deleted.**
8. *A finalised schedule of external colours and materials shall be submitted to the City's Planning Services department and approved by the City of Armadale. The development shall be completed and maintained in accordance with the approved schedule to the satisfaction of the City of Armadale.*	External colours and materials have already been shown on the submitted elevations. The City's assessment does not identify any aspect of the development which requires a change in materials or external treatment. The City's assessment of the proposed building design against LPP4.1 (The Design of Industrial Estates and Sites) concludes the proposed facades and visible building portions are compliant. **This condition appears to be redundant and we request that it be deleted.**

Proposed condition of approval	Applicant comments
9. *Prior to the commencement of any site works, a Dust Management Plan shall be prepared in accordance with Clause 43 of the City's Environment, Animals and Nuisance Local Laws 2002, submitted to the City's Health Services and approved by the City of Armadale. The approved plan shall be implemented and all work shall be carried out in accordance with the approved plan thereafter.*	Proposed Condition 9 appears to relate to separate legislation and is considered likely to be invalid. We have briefly reviewed Clause 43 of the City's *Environment, Animals and Nuisance Local Laws 2002* and it appears to relate to erosion matters by allowing the City to issue a notice requiring the submission of a Erosion or Air Quality Management Plan in relation to sand and dust escaping from a subject site. We request this condition be either deleted or otherwise replaced with a standard condition requiring the preparation and provision of a Construction Management Plan prior to the issuance of a building permit and to the satisfaction of the City. In our view, there are no particular constraints or proximity to sensitive uses that would make a Construction Management Plan necessary, however should the JDAP wish to proceed with this we have no objection.
10. *To ensure parking does not exceed the total number of parking bays available onsite at any one time and cause any significant adverse impacts on the amenity of the area, a car parking strategy shall be prepared by the applicant and/or landowner and approved by the City of Armadale to manage the demand for parking upon commencement of operations by staff and customers/clients, via appropriate management practises.*	Given that the City **supports** the proposed minor parking shortfall, it is not clear why they have requested the provision of a Parking Strategy. The site currently contains excessive levels of parking and there is simply no grounds to require additional management strategies. Whilst there is an on-paper shortfall for the City of Armadale, the amount of parking is wholly compliance with DPLH's Interim Guidelines on Parking Requirements which are based on research across the metropolitan area. **We therefore request deletion of this condition.**
11. *To meet drainage requirements, prior to occupation of the development the developer/owner shall, to the specifications and satisfaction of the Executive Director Technical Services:* *a) Submit a stormwater management plan incorporating water sensitive design principles for approval and implement the approved plan;* *b) Show any drainage easements as may be required on the Certificate of Title in favour of the City; and* *c) Relocate, remove or upgrade any drainage infrastructure on the lot or within the adjoining road reserve that is impacted by the proposed development.*	Clearances should not specify individual roles within the authority as it can delay and hold up the conditions clearance process. **Condition 11 should be reworded** to read: *"To meet drainage requirements, prior to occupation of the development the developer/owner shall, to the specifications and satisfaction of the City ~~Executive Director Technical Services~~."* **b) No explanation as to why this clause is required—it should be deleted.**

Proposed condition of approval	Applicant comments
12. *If new fencing is proposed, or where fencing that exists does not meet these standards, fencing shall be installed prior to occupation or the creation of multiple lots from the development (whichever is the earlier) in accordance with the following and maintained thereafter:* *a) Internal fencing and other property boundary fencing shall be at least 1.8m high measured from the new ground level / top of retaining walls in accordance with Part 2 of the City's Fencing Local Law 2011 (or superseding standard); and,* *b) Fencing within the front street setback area or abutting the public realm (i.e. streets or public open space) shall be visually permeable above 1.2m and truncated adjacent to driveways in accordance with Part 3 of the City's Fencing Local Law 2011 (or superseding standard).*	No fencing is proposed, **we request deletion of this condition as it is redundant.**
16. *The provision of 'end of trip bicycle facilities' in locations agreed to by the City and continuously maintained in accordance with Clause 5.11.1 and Schedule 11B of Town Planning Scheme No.4 to the satisfaction of the City of Armadale.*	We note there are no specific end of trip requirements for "Showroom" land uses under Schedule 7B and no Schedule 11B in TPS4. Given the nature and location of the proposed Showrooms, it is unlikely there will be demand for bicycle parking facilities. However, we propose providing three additional bicycle bays for visitors and three for staff be provided in addition to the existing. We therefore request Condition 16 to be replaced with the following words: *"An additional three bicycle parking bays for visitors and three for staff are to be provided to the satisfaction of the City of Armadale."*

LOT 801, NO. 600 RANFORD ROAD FORRESTDALE – THREE PROPOSED BULKY GOODS SHOWROOMS

Form 1 – Responsible Authority Report
(Regulation 12)

DAP Name:	Metro Outer	
Local Government Area:	City of Armadale	
Applicant:	Planning Solutions	
Owner:	EVA Investments Pty Ltd	
Value of Development:	$2 million ☐ Mandatory (Regulation 5) ☒ Opt In (Regulation 6)	
Responsible Authority:	City of Armadale	
Authorising Officer:	Paul Rosser	
LG Reference:	10.2023.235.1	
DAP File No:	DAP/23/02564	
Application Received Date:	22/09/2023	
Report Due Date:	14/12/2023	
Application Statutory Process Timeframe:	60 Days	
Attachment(s):	1. Development Plans 2. Applicants Planning Report 3. Justification for Parking Shortfall 4. Transport Impact Assessment 5. Bushfire Management Plan 6. Waste Management Plan 7. Water Corporation Comments 8. DPLH Comments	
Is the Responsible Authority Recommendation the same as the Officer Recommendation?	☐ Yes ☐ N/A	Complete Responsible Authority Recommendation section
	☐ No	Complete Responsible Authority and Officer Recommendation sections

Responsible Authority Recommendation

That the Metro Outer Joint Development Assessment Panel resolves to:

1. **Approve** DAP Application reference DAP/23/02564 and accompanying plans in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of the City of Armadale *Town Planning Scheme No. 4*, subject to the following conditions:

Conditions

1. A landscape plan shall be submitted to and approved by the City of Armadale. The landscape plan shall include:

a) Plant species (predominantly West Australian natives);
b) Numbers, location, container size;
c) Method of irrigation of the landscaped areas;
d) Landscaping and treatment of adjoining verge areas;
f) The provision of shade trees within the car park at the rates of at least 1 tree per 10 metre interval along any line of car parking;
g) Retention of existing trees as identified on the approved site plan;

All landscaping shall be installed prior to occupancy of the development and maintained as per the approved plan thereafter.

2. The Bushfire Management Plan submitted by Eco Logical dated 01/08/2023, shall be implemented including site preparation and establishment of the Asset Protection Zone (if applicable) prior to occupation of the development.

3. All vehicle manoeuvring spaces shall be constructed, sealed, kerbed and drained in accordance with the approved site plan to the satisfaction of the Executive Director Technical Services and continuously maintained thereafter. Relocation/removal of any services/infrastructure will be at the cost of the developer.

4. No materials shall be stored in car parking areas or landscaping areas.

5. Signage and car park pavement markings to be established within parking areas to adequately guide traffic flow throughout the site to the satisfaction of the City of Armadale.

6. In accordance with the requirements of Local Planning Policy PLN 3.12 - Percent for Public Art, prior to the occupancy of the development, the applicant and/or landowner is to either:

   a) make a monetary contribution to the City of Armadale Public Art Reserve Account equal to one per cent (1%) of the estimated total development cost; or,
   b) install public art work on site to the value of one per cent (1%) of the total development cost and continuously maintain the public art work thereafter.

7. Construction of the pedestrian paths (as indicated on the attached site plan) and ramps where appropriate to the satisfaction of the City of Armadale, seamlessly connecting the proposed development to existing paths on site and within the adjoining public footpath network.

8. A finalised schedule of external colours and materials shall be submitted to the City's Planning Services department and approved by the City of Armadale. The development shall be completed and maintained in accordance with the approved schedule to the satisfaction of the City of Armadale.

9. Prior to the commencement of any site works, a Dust Management Plan shall be prepared in accordance with Clause 43 of the City's *Environment, Animals and Nuisance Local Laws 2002*, submitted to the City's Health Services and approved by the City of Armadale. The approved plan shall be implemented and all work shall be carried out in accordance with the approved plan thereafter.

10. To ensure parking does not exceed the total number of parking bays available onsite at any one time and cause any significant adverse impacts on the amenity of the area, a car parking strategy shall be prepared by the applicant and/or landowner and approved by the City of Armadale to manage the demand for parking upon commencement of operations by staff and customers/clients, via appropriate management practises.

11. To meet drainage requirements, prior to occupation of the development the developer/owner shall, to the specifications and satisfaction of the Executive Director Technical Services:

    a) Submit a stormwater management plan incorporating water sensitive design principles for approval and implement the approved plan;
    b) Show any drainage easements as may be required on the Certificate of Title in favour of the City; and
    c) Relocate, remove or upgrade any drainage infrastructure on the lot or within the adjoining road reserve that is impacted by the proposed development.

12. If new fencing is proposed, or where fencing that exists does not meet these standards, fencing shall be installed prior to occupation or the creation of multiple lots from the development (whichever is the earlier) in accordance with the following and maintained thereafter:

    a) Internal fencing and other property boundary fencing shall be at least 1.8m high measured from the new ground level / top of retaining walls in accordance with Part 2 of the City's *Fencing Local Law 2011* (or superseding standard); and,
    b) Fencing within the front street setback area or abutting the public realm (i.e. streets or public open space) shall be visually permeable above 1.2m and truncated adjacent to driveways in accordance with Part 3 of the City's *Fencing Local Law 2011* (or superseding standard).

13. A Lighting Plan showing lighting to pathways and car parking areas shall be submitted to and approved by the City of Armadale. All lighting shall be installed and operated as per the approved plan.

14. All rubbish bin storage areas and servicing areas associated with the development shall be appropriately screened from public vantage points to the satisfaction of the City of Armadale.

15. Air conditioning units, compressors and other equipment related to utilities shall be screened from public view and positioned so as to avoid any adverse effects, including noise, on the occupants of nearby residential properties to the satisfaction of the City of Armadale.

16. The provision of 'end of trip bicycle facilities' in locations agreed to by the City and continuously maintained in accordance with Clause 5.11.1 and Schedule 11B of *Town Planning Scheme No.4* to the satisfaction of the City of Armadale.

17. Waste collection shall be carried out in accordance with the approved Waste Management Plan to the satisfaction of the City of Armadale.

18. Signage shall be erected in accordance with the approved plans (attached).

19. Signage shall be placed on the subject land and no part of a sign is to protrude onto the road verge.

20. The applicant and/or landowner shall be responsible for all maintenance, removal (within 24 hours should any sign be damaged), replacement and removal of graffiti (within 3 working days) and maintained to the satisfaction of the City of Armadale.

21. Signage shall not contain fluorescent, reflective or retro reflective colours or materials to the satisfaction of the City of Armadale.

22. Signage shall not be fully or partially projected, flashing or animated, moving or rotating to the satisfaction of the City of Armadale.

23. All conditions are to be complied with prior to exercising the right of this approval, to the satisfaction of the City of Armadale.

Advice Notes

A. Compliance with the *Environmental Protection (Noise) Regulations 1997* and the *Environmental Protection (Unauthorised Discharges) Regulations 2004* is required. The applicant and/or landowner is to liaise with Water Corporation regarding an Industrial Trade Waste Permit to allow discharge to sewer.

B. With regard to the condition requiring submission of a colour and material schedule, it is expected that the colour and material schedule will be submitted and approved prior to the submission of a Building Permit Application.

C. With regard to the condition requiring a Dust Management Plan to be prepared and implemented in accordance with Clause 43 of the City's *Environment, Animals and Nuisance Local Laws 200*2. In this regard, please liaise with the City's Health Department.

D. Lighting shall comply with Australian Standard 4282-1997 “Control of the obtrusive effects of outdoor lighting” or its equivalent and the City’s Environment, Animals and Nuisance Local Laws.

E. Compliance with the *Environmental Protection (Noise) Regulations 1999* and the *Health (Public Buildings) Regulations 1992* is required. In this regard, a Public Building application shall be submitted to the City's Health Department and approved prior to occupation of the proposed building.

F. The applicant and landowner are advised that it is a statutory requirement to comply with all conditions of this approval, and that not complying with any condition is therefore illegal. Failure to comply with any condition of this approval or the approved plans constitutes an offence under the Planning Development Act 2005. The City can issue a Planning Infringement Notice of $500 (without notice) and/or commence legal action with higher penalties up to $200,000 for each offence and a daily penalty of $25,000 per day for the continuation of that offence. It is the responsibility of the applicant and/or landowner to inform

Council in writing when they consider the development to be complete and all conditions of this approval have been satisfied.

G. Compliance with the Building Code of Australia is required. In this regard, a Building / Demolition Permit application is to be submitted to the City's Building Department and approved prior to the erection / demolition of any structure on the subject site.

H. The developer is reminded of the requirement under the provisions of the Environmental Protection Act that all construction work (which includes earthworks and similar) be managed with due regard for noise control. Works generating noise and rock breaking in particular, are not permitted:-

- Outside the hours of 7:00am to 7:00pm; or
- On a Sunday or Public Holiday

I. If the applicant is aggrieved by a Refusal to Approve his/her application, or, where Approved, is aggrieved by any Condition imposed in that Approval he/she may apply for a Review to the State Administrative Tribunal pursuant to the provisions of Part 14 of the Planning and Development Act 2005 against such refusal or imposition of such aggrieved Condition.

Such application for Review must be made not more than twenty eight (28) days after the date of Council's decision via the form available from the State Administrative Tribunal (copies available from the State Administrative Tribunal, Level 4, 12 St Georges Terrace, Perth or GPO Box U1991, Perth, WA, 6845, or www.sat.justice.wa.gov.au or from Council's offices), and should be accompanied by the relevant fee detailed in Schedule 18 of the State Administrative Tribunal Regulations 2004).

J. If the development the subject of this approval is not substantially commenced within a period of 24 months from the date of this letter, the approval shall lapse and be of no further effect.

K. Where the approval has so lapsed, no development shall be carried out without the further approval of the City having first been sought and obtained.

Details: outline of development application

Region Scheme	Metropolitan Region Scheme
Region Scheme - Zone/Reserve	Industrial
Local Planning Scheme	City of Armadale Town Planning Scheme No. 4 (TPS 4)
Local Planning Scheme - Zone/Reserve	Industrial Business
Structure Plan/Precinct Plan	NA
Structure Plan/Precinct Plan - Land Use Designation	NA
Use Class and permissibility:	Bulky Goods Showrooms (D)
Lot Size:	3.5260ha

Existing Land Use:	Vacant
State Heritage Register	No
Local Heritage	☒ N/A ☐ Heritage List ☐ Heritage Area
Design Review	☐ N/A ☒ Local Design Review Panel ☐ State Design Review Panel ☐ Other
Bushfire Prone Area	Yes
Swan River Trust Area	No

Proposal:

The application proposes the construction of a new building containing three (3) Bulky Goods Showroom tenancies with associated car parking and landscaping areas. The development is proposed on vacant land located adjacent to an existing complex of commercial tenancies also on Lot 801. Lot 801 is located at the junction of Ranford Road, Lake Road and Remisko Drive, Forrestdale in the City of Armadale's Industrial Business zone. The application proposes to utilise Lot 801's existing vehicle entry and exit points to Remisko Drive and Ranford Road.

Proposed Land Use	Bulky Goods Showrooms
Proposed Net Lettable Area	3987m2
Proposed No. Storeys	One
Proposed No. Dwellings	N/A

Background:

- Lot 801 forms part of the Forrestdale Industrial Business Park East. The then Armadale Redevelopment Authority (ARA) approved a Masters hardware retail outlet on Lot 801 in 2011.
- The successor to the ARA, the Metropolitan Redevelopment Authority (MRA) approved two showrooms and a Fast Food Outlet on the area of Lot 801 where the subject application is proposed in 2013. This development did not eventuate.
- After the Masters chain collapsed in 2016 the outlet was closed and the building remained vacant for several years.
- Development approvals were granted in 2022 by DevelopmentWA, the successor of the ARA, to change the former Masters building into multiple uses being Showroom, Warehouse, Childcare Premises and Recreation Private (gymnasium).
- Subsequently planning control of the Forrestdale Industrial Business Park East was returned to the City of Armadale in late 2022.
- The subject application is for the undeveloped area of land at the southeastern end of Lot 801 that is adjacent to the intersection of Lake Road, Remisko Drive and Ranford Road.

Legislation and Policy:

<u>Legislation</u>

Planning and Development Act 2005
Metropolitan Region Scheme (MRS)

City of Armadale Town Planning Scheme No. 4 (TPS 4)

State Government Policies

SPP 3.7 – Planning in Bush Prone Areas

Structure Plans/Activity Centre Plans

N/A

Local Policies

PLN 2.9 – Landscaping
PLN 3.12 – Percent for Public Art
PLN 3.13 – Design Review Panel
PLN 4.1 – Design of Industrial Sites and Estates
PLN 4.2 - Advertisements

Consultation:

Public Consultation

The Bulky Goods Showrooms land use is discretionary (D) in the City of Armadale's Industrial Business zone. As discretionary (D) land uses do not require mandatory public advertising under TPS 4 and the proposed development does not directly abut existing sensitive land uses, such as residential land, public advertising of the application was not considered necessary.

Referrals/consultation with Government/Service Agencies

Department of Planning Lands and Heritage (DPLH)

The application, including the Transport Impact Assessment prepared by Stantec dated 30/8/2023 was referred to the DPLH for comment as it involved increasing traffic movements to and from Ranford Road which is an Other Regional Road (ORR or 'blue road') through existing access points to Lot 801 from Ranford Road and Remisko Drive. The ORR designation is applied to this section of Ranford Road under the MRS. Referral of development applications that can significantly increase traffic movements to ORR roads to the DPLH is a statutory requirement under the Western Australian Planning Commission's Delegation Notice published in the Government Gazette of 18/01/2022.

The DPLH advised the City on 02/11/2023 that it had no objection to the proposal on ORR planning grounds. A copy of this advice is included as an attachment to this report.

Water Corporation

The application was referred to the Water Corporation for comment due to the proximity of significant water infrastructure to Lot 801. The Water Corporation advised the City on 18/10/2023 that it had no objection to the proposed development. A copy of this advice is included as an attachment to this report.

Design Review Panel Advice

As the application has been submitted to the JDAP it required consideration by the City's Design Review Panel (DRP) under the City's local planning policy PLN 3.13 Design Review Panel.

The DRP convened at its meeting of 09/11/2023 to discuss the application. The following comments were made by the DRP: The comments of the DRP and the applicant's response to each item are as follows:

1. *Context and Character- Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.*

    a) *It is noted the materials provided recognise the development context within the business park. Also noted that the development site is somewhat of an entry statement to the park.*
    b) *It would also be beneficial to recognise the Wungong River on the opposite side of Ranford Road, this is a defining natural feature of the region that can inform planting selection, landscape and built form materials and finishes etc.*
    c) *The proposed building finishes off the development of the site and this prominent corner appropriately.*

2. *Landscape Quality - Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.*
    a) *The retention of existing trees is noted and supported. However more explicit detail including location, height, spread, TPZ, type, retention and removal should be provided. The trees being removed were not identified or provided in any detail for consideration.*
    b) *The current poor state of the existing landscape within the carpark should be investigated. Improvements/repairs to existing tree pits and irrigation systems need to be completed before any new plantings.*
    c) *New tree species are generally supported. Suggest inclusion of some varieties that complement the Wungong River be considered for the boundary plantings.*
    d) *Consider shade structure over existing parking areas in addition to trees to immediately improve shade and reduce heat island effect.*
    e) *It was noted that the new car park areas do not meet the City's minimum requirements for trees. Additional trees are required.*
    f) *Also clarify the re-purposing of trolley bays for landscaping – some plans indicate additional car parking.*
    g) *The large trees visible on the plans are outside of the site on Main Roads land so it will be important that the proposed and augmented planting be consistent in species and size and maintained accordingly. Ideally the landscaping beds be designed to utilise surface drainage from the car parks.*

3. *Built Form and Scale - Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.*
    a) *The development is generally in keeping with the typology and precinct.*
    b) *Consider shade modelling to awnings and possible extensions to improve pedestrian amenity and thermal performance.*
    c) *The proposed development continues the scale and character of the existing building with appropriate articulation and facade differentiation.*

4. *Functionality and Build Quality - Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life-cycle.*
   a) *The arrangement of the form and location of entrances is logical. The slight redesign of the carpark to remove the trolley bays is also a good outcome. There is an opportunity to use slightly higher quality of materials and cladding than solely painted tilt up. As a corner element it is more visible and should take advantage of this opportunity.*

5. *Sustainability - Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.*
   a) *The re-purposing of the existing building noted. It would be good to see additional initiatives including roof top solar, car park shade etc.*
   b) *Additional draining information is required. Consider how the landscape areas can adopt Water Sensitive Urban Design principles to maximise water infiltration within the site.*
   c) *The large roof space is an opportunity for a significant solar array. Similarly, the large car park could be utilised to capture surface run off for the landscape areas.*

6. *Amenity - Good design provides successful places that offer a variety of uses and activities while optimising internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.*
   a) *The development will provide additional business opportunities for the estate.*

7. *Legibility - Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.*
   a) *The integrated signage (and its possible integrated illumination from uplighting from the awning) will ensure the businesses are easily identifiable.*

8. *Safety - Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.*
   a) *Consideration should be given to the form of target hardening during the design stage such as solid window plinths etc. This may avoid the proliferation of bollards, barrier rails and mesh as an after thought.*

9. *Community - Good design responds to local community needs as well as the wider social context, providing buildings and spaces that support a diverse range of people and facilitate social interaction.*
   a) *The addition of a small outdoor seating area perhaps along the Remisko Drive area would provide some amenity for employees and visitors.*
   b) *Consideration should be given to a 'lunch spot' in a shaded area where local employees can relax outside of their buildings. Without such amenity, there is literally nowhere for employees to go.*

10. *Aesthetics - Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.*
    a) *The development is a simple structure but consistent with the form required in this location.*

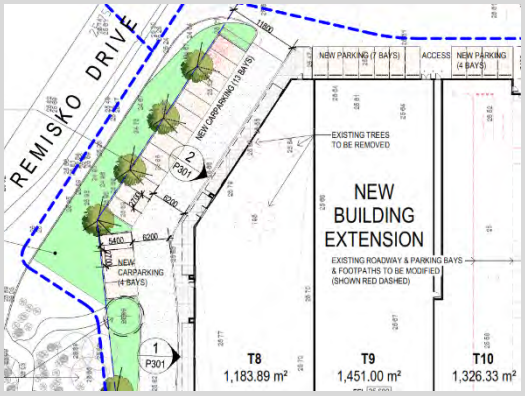
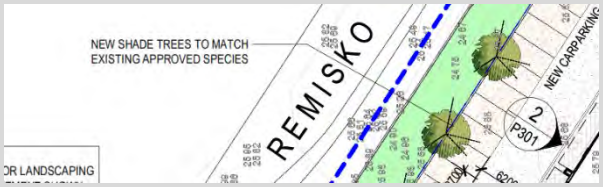
CHAIR'S COMMENTS

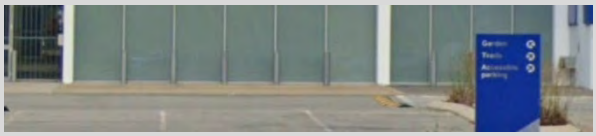
The Chair advised that:

- *The retaining of trees is supported, however the presentation and plans did not identify which trees were proposed to be removed, an assessment of their value and significance – what measures were being put in place to restore the tree shade canopy and visual appearance – These matters will need to be submitted as part of the application for the DA to be accepted for lodgement.*
- *The new parking areas do not comply with the TPS provision for the number of trees – additional tree locations are to be provided as part of the DA submission.*
- *The overall landscaping has deteriorated over the last 12 months, even since it was originally vacant. The overall car park and verge landscaping needs to comply with the DA approvals for the site and TPS requirements.*
- *Retention of trees on the southern boundary with the adjoining use will be required.*

The applicant has not made further amendments to the proposal following the advice provided by the DRP and has submitted the following comments in response to the Panel's considerations:

Design Element		***Summary of DRP recommendations***	***Applicant response***
1.	***Context and character***	*Recommendation for Wungong River to be recognised through plant selection, built form materials and building finishes.*	*It is not clear how this recommendation could be implemented with regard to building materials and cladding. If the City would like landscaping to include species consistent with the local ecosystem this is capable of being addressed via the approval of the final landscaping plan through the condition clearance process.*
2.	***Landscape quality***	*Provide more detail regarding location, height, spread, TPZ, type, retention and removal of trees.*	
		Investigate why current landscaping is in a poor state and fix any broken irrigation systems.	*Landscaping likely deteriorated because the site lost the primary tenant. The proponent has now converted the site into a viable bulky goods showroom destination and this application represents an investment in the site as a whole. Regardless of the current state, the proponent has proposed a new landscaping plan for the subject site. An approval will require them to implement and maintain this landscaping from this point forward.*
		Include tree species which complement Wungong River.	*This is capable of being addressed via the approval of the final landscaping plan through the condition clearance process.*
		Consider shade structure over existing parking areas.	*The development proposes significant canopy cover within the carparks. Shade structures represent a significant additional cost and do not form part of the proposed development.*
		Provide additional trees to meet the City's minimum requirements.	*The proponent would accept a condition requiring the delivery of 87 trees, with the final location and details to be shown on a revised landscaping plans.*
		Clarify the repurposing of trolley bays for	*Trolley bays are being repurposed for car bays, but also provide opportunity for diamond cuts allow for additional*

Design Element		Summary of DRP recommendations	Applicant response
		landscaping – inconsistent plans	*trees to be planted. Final locations to be confirmed through the condition clearance process.*
		Large trees shown on the plans are not within the site and new trees should be consistent in species and size.	*Whilst the survey/plans do not show canopy sizes to scale—trees are all correctly identified in the right location. The site plan clearly identifies that there are trees within the building envelope which cannot be retained.*  *With regard to tree species matching existing, we would accept the City crossing out the following label on the plans, or including a suitably worded condition allow the species to be confirmed on the final landscaping plans.* 
		Landscaping beds should be designed to utilise surface drainage from the carparks.	*The site is already largely constructed, and any new landscaping beds will need to be designed to work with the existing carpark drainage and levels.*
3.	***Built form and scale***	*Consider providing shade modelling to awnings and possible extensions to improve pedestrian amenity.*	*Awnings match the existing building and reflect the transitory nature of pedestrian movements between cars and the retail tenancies.*
4.	***Functionality and build quality***	*Provide slightly higher quality materials and cladding instead of solely painted tilt up at the corner element.*	*The façade treatment is consistent with the rest of the site and appropriate to the context and land use, as confirmed elsewhere within the DRP comments.*
5.	***Sustainability***	*Show additional initiatives including rooftop solar, carpark shade, etc.*	*There is no requirement under the local planning framework to provide solar installations, and shade is being provided through tree planting.*

Design Element		Summary of DRP recommendations	Applicant response
		Consider how the landscape areas can adopt Water Sensitive Urban Design principles to maximise water infiltration within the site.	*Capable of being addressed through the final landscaping plan and the condition clearance process.*
6.	***Amenity***	*Nil.*	
7.	***Legibility***	*Nil.*	
8.	***Safety***	*Consider providing solid window plinths instead of future bollards, barrier rails or mesh.*	*Window glazing has been provided consistent with the existing building. Any bollards would follow the same pattern of aligning with the window frames minimising visual prominence, as shown below:* 
9.	***Community***	*Consider provision of small outdoor eating area along Remisko Drive for employees and visitors.*	*The site does not provide any hospitality outlets and the proponent has no intention of maintain such an area. Furthermore, we would be concerned that a facility like this would attract anti-social behaviour.*
		Consider providing a "lunch spot" in a shaded areas for employees.	*There are already facilities for employees within the building and individual tenancies.*
10.	***Aesthetics***	*Nil.*	

The City's officers note the above response provided by the applicant. Given the proposal is substantially compliant with the provisions of the City's TPS 4 and PLN 4.1 the City does not consider that there are grounds to withhold support for the application pursuant to the recommendations by the DRP that lie outside of statutory provisions.

Other Advice

The City's Coordinator of Subdivision Engineering and Design has reviewed the TIA prepared by Stantec dated 30/8/2023 and has advised that there is no objection to the findings of the document and that the impacts of the proposal on the local road network were acceptable.

Planning Assessment:

City of Armadale Town Planning Scheme No. 4

Provision	Requirement	Proposal	Assessment
PART 3 — ZONES AND THE USE OF LAND	**3.2.9 Industrial Business** (a) To provide for a range of industrial business and related services to be accommodated in	Bulky Goods Showrooms is a discretionary (D) land use in the	The proposed use is consistent with the objectives of

	specific policy precincts and meet the needs of the district in relation to those goods and services which cannot be practically provided within commercial centres because of either the extensive land area requirements or the performance characteristics of the activity. (b) To ensure development and operation of businesses achieves relatively high environmental performance and amenity standards based on the level of public access and proximity to residential areas.	Industrial Business zone	the Industrial Business zone.
PART 4D — INDUSTRIAL BUSINESS AND GENERAL INDUSTRY ZONE REQUIREMENTS	**4D.1 Setbacks** 4D.1.1 Buildings are to be setback from boundaries having regard to: (a) any policy or Design Guidelines adopted by the local government for development in the industrial zones; (b) the setbacks of any adjoining or adjacent development with which the proposed building is likely to relate, and in the case of a site which adjoins land in another zone, the setback requirements for that zone; (c) the use or usability of the setback area, taking into consideration the nature of the adjoining street and the desirability or otherwise of direct vehicular access to that street, and from any adjoining property; (d) the desirability of continuous building frontages where pedestrian access is to be provided adjacent to the frontage of the building or where such access and associated pedestrian shelter would be desirable to facilitate movement between adjoining sites; (e) the space requirements for pedestrian access, and the need and/or desirability of segregating pedestrian access from vehicular access and parking areas; (f) the desirability of landscaping within the setback area in order to reduce any adverse visual impact associated with the proposed building façade and/or associated use of setback areas; and (g) the safety and convenience of pedestrian and vehicular access to	The proposed setback from the Ranford Road frontage/Remisko Drive corner is consistent with the alignment of the existing building and is reasonable in the context of development in the Industrial Business zone along Ranford Road. The building articulates its façade towards the intersection of Remisko Drive/Ranford Road. This is considered to be a suitable treatment as this is a prominent intersection that acts as an entry point to the Forrestdale Industrial Business Park East and is a transition zone from the residential zones to the east and north of the site.	The proposal is compliant with the provisions of 4D.1.

	the site from the adjoining street and from adjacent sites. 4D.1.2 Where the local government considers it appropriate, it may impose maximum or minimum setbacks as it thinks fit, or it may prescribe a building setback line for any building or part of a building.		
	4D.2 Building height 4D.2.1 The height of buildings is to be determined, having regard to: (a) any policy or Design Guidelines adopted by the local government for development in the industrial zones; (b) the height of any adjoining or adjacent development, and the desirability or otherwise of maintaining consistency in relation to the height and scale of buildings within the particular precinct; (c) in the case of a site which adjoins land in another zone, the height and setback requirements for that zone; (d) the need for safe and convenient pedestrian shelter, and the desirability of maintaining continuity and/or compatibility in relation to adjoining pedestrian facilities; (e) the design of the external façades of the building, including the height of any awnings or parapets and their relationship with those of adjacent buildings; and (f) the finished ground level proposed for the development site in relation to that of the adjoining sites.	The proposed building heights are consistent with the existing building and indeed are below the parapet of the adjoining existing building. The proposed new building has a maximum parapet height of 9.5m which is typical for development of this type.	The proposal is compliant with the provisions of 4D.2.
	4D.3 Building bulk 4D.3.1 Unless otherwise approved by the local government in accordance with the provisions of clause 4.5, the maximum plot ratio is to be 1.0.	The proposed plot ratio is less than 1.0, including the existing building across the 3.5ha site.	The proposal is compliant with the provisions of 4D.3.
	4D.4 Landscaping 4D.4.1 Landscaping is to be provided and maintained so as to enhance visual amenity and contribute towards the achievement of high environmental standards on all development sites. 4D.4.2 The area, distribution, and form of landscaping of individual sites is to be determined in	Much of the landscaping setting is established although plantings and infrastructure from the prior Masters approval has been neglected since the closure of the outlet in 2016.	A condition requiring the preparation and implementation of a new landscaping plan that shows suitable replacement

	conjunction with each proposed development, having regard to: (a) the layout of development, including particularly the extent and location of any uncovered car parking and service areas which may benefit from landscape screening; (b) the design of building façades and their relationship to adjacent streets and other public spaces; (c) the desirability of integrating landscape planting with stormwater management in order to achieve more water sensitive design outcomes; (d) the desirability of providing shade trees within or adjacent to the development so as to improve the microclimate for users of the facilities; (e) the need for safe and convenient pedestrian access to and within the development site, including particularly access from the street and adjacent sites; and (f) the desirability of providing areas within or adjacent to the site for respite and relaxation by users of the development site. 4D.4.3 Landscape planting is to be provided and maintained so as to minimise any adverse visual impact associated with the use and development of land, and is to include: (a) a minimum 2-metre-wide landscaping strip across all street boundaries; (b) a minimum 3-metre-wide landscape strip along all street boundaries within the 'General Industry' and 'Industrial Business' zone areas bound by Armadale Road, Ranford Road and Tonkin Highway. (c) provision of shade trees at a rate of one (1) tree per four (4) parking bays planted at intervals of no greater than 10 metres along any line of car parking bays. Where those bays are immediately adjacent to a building, the City may permit the required trees in another location on site.	The application includes a landscaping concept plan which indicates suitable treatments for refreshing car park plantings and a new verge treatment abutting Remisko Drive. The application of a condition for a finalised landscape plan is recommended should the DAP approve the application.	plantings and irrigation methods is necessary to ensure compliance with 4D.4 should the development be approved by the DAP.
	4D.5 Car parking and vehicular access 4D.5.1 Car parking is to be provided in accordance with the	Vehicular access arrangements are acceptable. The development	The application demonstrates compliance

	standards for respective uses detailed in Schedule 7A, unless otherwise approved by the local government in accordance with the provisions of clause 4.5. Unless otherwise approved or required by the local government, required car parking is to be provided on the site of the proposed development. 4D.5.2 Parking spaces and manoeuvring areas shall be designed in accordance with Australian Standard AS 2890.1 *Off-street parking*, and paved, kerbed, drained and marked to the satisfaction of the local government. 4D.5.3 When considering an application for planning consent, the local government shall have regard to and may impose, conditions with respect to the location of parking on the site, and the pedestrian and vehicle traffic circulation system proposed. 4D.5.4 Safe and convenient vehicular access is to be provided to all development sites, and where required by the local government, vehicular access is to be provided to service any required car parking or service areas provided on the development site. 4D.5.5 The location and design of vehicular access to any road is to be subject to the local government's approval in accordance with the provisions of the Scheme. In considering any proposal for new or modified vehicular access, the local government may, having regard to safety of pedestrian and vehicular traffic: (a) determine the width of the crossover and/or vehicular access way; (b) refuse to permit more than one vehicular access to any lot; (c) require separate entrances and exits, and the provision of appropriate signage indicating the direction of movement; (d) require that entrances and exits be placed in positions nominated by the local government; or (e) require an agreement to be entered into so as to provide for shared use of vehicular access	proposes the utilisation of existing exit and entry points to Remisko Drive and Ranford Road. The local road network is considered to be capable of accommodating the additional traffic movements generated by the proposal. No concern is raised with regard to the design of the alterations to the existing car park. The car parking requirement for Bulky Goods Showrooms is: *3 spaces per 100 square metres NLA of display or sales area, plus* *2 spaces per 100 square metres of storage area.* NLA means Net Lettable Area. It is noted that the application has not identified tenants so far so it is not possible to precisely delineate actual storage from sales area. The applicant has advised that the proposed variation is acceptable on the grounds that: - When a more realistic estimate of floor area is used rather than 100% of the floor area being NLA	with regard to access. The applicant has adequately demonstrated that a sufficient number of onsite parking spaces have been provided and that the proposed variation can be supported.

	ways in favour of users of adjacent properties.	then the shortfall is more likely to be 23 bays rather than 26. - While other uses in the complex operate during daytime business hours the Recreation Private use (gym) operates mainly in the evening; - Some users of the gym will cycle or walk from nearby residential areas; - A survey of 2023 aerial photography undertaken by the City indicates generally low levels of utilisation of the carpark with typically less than 10% of bays filled during business hours; and - A survey of aerial photography taken during 2016, the last year of operation of the Masters outlet indicates maximum usage of the car park of around 40% or less. The applicant has also argued in their	

		submission that the parking requirements of TPS 4 are excessive in comparison to other local planning schemes. The City notes the applicant's comments. The City has undertaken its own reviews of TPS 4's parking requirements in the past and considers its formulas to be in keeping with the norms of parking requirements. The City considers that the applicant has adequately argued that the proposed shortfall of onsite parking bays is capable of support. A condition requiring the preparation of a parking strategy to manage parking demand on site is recommended should the DAP approve this application.	
	4D.7 Access for Loading and Unloading Vehicles 4D.7.1 A person shall not construct or use a building for a Bulky Goods Showroom, a warehouse or an industry unless there is provided a paved access way for vehicles from the street to the rear of and to any other part of the building where provision is made in the external walls of the building for the entry of or the loading or unloading of vehicles. 4D.7.2 The access way referred to in clause 4D.7.1 shall be so constructed that all vehicles using it can enter from and return to a	The proposed loading area is located adjacent to Remisko Drive. This is consistent with the existing development. A Waste Management Plan has been provided that indicates arrangements for how private waste collection contractors will	The proposal is compliant with the provision of 4D.7.

	street in forward gear without reversing on to any part of the street. 4D.7.3 Except as hereinafter mentioned, the access way referred to in clause 4D.7.1 shall be not less than 6m in width; if the size of the lot makes the provision of a 6m wide access way impracticable the local government may permit an access way of a narrower width of not less than 3m in width.	collect waste from the development.	
	4D.9 Off-site buffers 4D.9.1 Where a proposed development is likely, if approved, to give rise to any significant off-site environmental impacts including pollution (gaseous emissions, odours or noise) or risk, which is likely to result in nuisance or adverse impacts on adjacent areas, the local government may: (a) refuse the application; or (b) approve the application subject to conditions designed to ameliorate any impact. 4D.9.2 In its determination of any application for development approval, the local government is to take into consideration the potential environmental impact on the use and enjoyment of adjacent land or property, having regard to: (a) the concentration of any pollutants (including gaseous emissions, odour and noise) or the level of risk, at the location of impact; (b) the frequency and duration of events associated with the environmental impact; (c) any relevant microclimatic factors likely to affect the distribution or dispersion of pollutants; (d) the practicability and effectiveness of any amelioration measures which form part of the proposed development; and (e) the zoning, use and likely future development or occupancy of the adjacent land or property upon which the environmental impacts will impinge.	The proposal does not contain any land uses which would require offsite buffers.	N/A
	4D.10 Minimum Lot Size 4D.10.1 The minimum lot size shall be 2000m².	The development is to be located on Lot 801 Ranford Road which is 3.5ha in area. This is	The proposal amply complies with 4D.10.

		considered to be sufficient.	
	4D.11 Effluent disposal 4D11.1 Where a proposed industry involves the discharge of effluent, other than that associated with staff toilet facilities, then either: (a) the premises must be connected to a reticulated sewerage system, or (b) where a connection to reticulated sewerage is not available, the premises are to be serviced by an on-site disposal and/or collection system of such capacity and design as to prevent pollution of (including nutrient discharge to) any ground or surface water systems in the vicinity of the site. 4D.11.2 Where, either because of the nature or quantity of effluent to be discharged, or the characteristics of the site and its environment, the requirements for effluent disposal referred to in clause 4D11.1 cannot be met to the satisfaction of the local government, the application may be refused notwithstanding that the use of the site may be designated 'P' in the Zoning Table.	The proposal is to be connected to the sewer network.	The proposal complies with the provisions of 4D.11.

City of Armadale Local Planning Policy PLN 2.9 – Landscaping

The proposal largely utilises the form of the existing landscaping areas that were established as part of the Masters development. The plantings and irrigation in part of the site have deteriorated since the closure of the Masters outlet in 2016. It is therefore considered appropriate that a condition be applied requiring a new landscaping plan to be provided and implemented should the DAP determine to approve the application.

A new landscaping plan should duly concentrate on the following areas of importance:

- The restoration of trees in planting diamonds within the car park area where trees have either died or have been removed;
- The restoration of irrigation systems around the car park and street boundary landscaping strips and verge areas along Ranford Road and Remisko Drive;
- The removal of redundant infrastructure in the car park from the Masters period that can be repurposed as landscaping space; and
- The improvement of pedestrian connections between the car park and buildings where the opportunity is present.

It is observed that the existing verge landscaping at the junction of Remisko Drive and Ranford Road at the southeastern end of Lot 801 is in good condition and contains mature trees.

City of Armadale Local Planning Policy PLN 3.12 – Percent for Public Art

As the proposed development cost is estimated at over one million dollars the City's PLN 3.12 is applicable. The City recommends the application of the relevant contribution condition of approval requiring a public art installation or monetary contribution equal to one percent of the estimated cost of the development.

City of Armadale Local Planning Policy PLN 3.13 – Design Review Panel
See page 3 onwards above.

City of Armadale Local Planning Policy PLN 4.1 – The Design of Industrial Estates and Sites
The City's PLN 4.1 expands upon the General Industry and Industrial Business zone provisions contained in Part 4B of TPS 4. PLN 4.1 also includes provisions that are specific to the Forrestdale Industrial Business Park East where the subject development is proposed.

The following table addresses the proposal's performance against key provisions of PLN 4.1.

Provision	Requirement	Proposal	Assessment
4.1. Building Setbacks	Forrestdale Business Park East (area bound by Tonkin Highway, Ranford Road and Armadale Road) Front Setback Minimum 15 metres Maximum 21 metres Secondary Street Setback Six metres	The proposal complies with the primary setback from Ranford Road of 15m in the majority. A variation is noted where the property boundary narrows for the widened road verge landscaping area adjacent to the intersection of Ranford and Remisko Drive. The secondary street setbacks to Remisko Drive are compliant at 6m.	The proposal is considered to be acceptable and the proposed variation is supported.
4.2. Building Design	4.2.1.Buildings shall be designed in accordance with Clauses 4D.2 and 4D.3 of TPS No. 4. 4.2.2.Development within Forrestdale Business Park East is to achieve a minimum site cover of 20% of the lot area for lots up to 1500m2 in area. 4.2.3.Lots greater than 1500m2 in area are to achieve a minimum site cover of 300m2 . 4.2.4.Buildings shall respond to the alignment of the lot boundaries. Where lots have non-rectangular shapes, alignment with the street frontage is the priority.	 The proposed development complies with regard to minimum site cover. The proposed building aligns generally to the street frontages.	The proposed development is compliant.

	4.2.5.The external surfaces of all walls that are on or near a property boundary shall be painted, rendered and painted or finished in face brick and be consistent with the schedule of colours approved by the City of the development. 4.2.6.Developments of two or more building/structures on a site shall create a cohesive, well-coordinated and complementary development of similar construction quality. 4.2.7.Building massing shall complement adjacent development to create a cohesive streetscape. 4.2.8.The facades and portions of all buildings that are visible from the street shall be designed and constructed in a manner which in the opinion of the City is to a human scale and provides visual interest. Buildings shall not be designed with blank walls facing the street or other public areas. The use of windows, variations in wall plane and articulation through the setting back of upper portions may be used to assist in achieving this outcome. Small scale design elements and features adjoining the exterior walls are encouraged to create human scale. Building materials that express a small scale may also be used around activated land uses and entrances to assist in breaking down any perceived mass of large wall planes. 4.2.9.Pedestrian entrances shall be covered to provide weather protection, and include well placed windows to enhance passive surveillance from within the development. If the pedestrian entrance directly abuts the car park, a pedestrian path / refuge area must be provided to separate the entrance from the car park. 4.2.11. All buildings shall be designed to incorporate CPTED principles to ensure surveillance of the street and public realm in accordance with the WAPC Designing Out Crime Planning Guidelines (June 2006).	No nil setback walls are proposed. The proposed development aligns with this provision. The building contains glass windows where it addresses primary street frontages and does not present blank walls to these vantage points. Pedestrian walkways have been provided with weather awnings. The applicant has completed a CPTED checklist.	

	4.2.15. Utilities infrastructure (e.g. air conditioner machinery and the like) shall be screened from public view. For example, roof mounted equipment could sit behind parapet walls that extend beyond roof height	The application of a suitable condition of approval is recommended.	
4.3. Vehicle Access	4.3.3.The City requires that vehicle access driveway systems facilitate all vehicles being able to leave the site in forward gear. Therefore, appropriate turning areas and/or through movement of traffic shall be provided to facilitate this. 4.3.6.All loading and unloading areas shall be provided in accordance with Clause 4D.7 of TPS No. 4. They shall be located behind the street setback area, screened from public view and appropriately marked. 4.3.7.Direct vehicle access is not permitted to major arterial roads including Tonkin Highway, Ranford Road and Armadale Road. Access shall be achieved via a side street, service road or coordinated reciprocal access way.	All vehicles can exit Lot 801 in a forward gear. The loading areas are adjacent to Remisko Drive in keeping with the existing development. Existing access points via Lot 801 to Ranford Road are available.	The proposed is considered to be compliant.
4.5. Fencing	4.5.1.Fencing within the primary and secondary street setbacks shall be no higher than 2.4 metres above the corresponding natural ground level of the adjacent footpath or road. 4.5.2.Front fencing within Forrestdale Business Park East shall be powder coated garrison style fencing or similar high quality open fencing to the satisfaction of the City of Armadale. 4.5.3.Fencing behind the building line will be in accordance with the City of Armadale Fencing Local Law.	The proposal does not incorporate boundary fencing.	N/A.
4.6. Lighting	4.6.1.Outdoor lighting shall be provided to illuminate entrances of development and key pedestrian areas and should comply with Australian Standard 4282-1997 “Control of the obtrusive effects of outdoor lighting” and the City’s	A suitable condition of approval requiring a lighting plan is recommended.	Compliance subject to a condition is feasible and is therefore recommended.

	Environment, Animals and Nuisance Local Law. 4.6.2.All applications for development shall be conditioned with a requirement to provide and obtain approval for an outdoor lighting plan prior to the issue of a Building Permit. Lighting shall be integrated into the built form to highlight architectural features, landscaping, main entrances and the corners of buildings.		

City of Armadale Local Planning Policy PLN 4.2 – Signage
The application proposes nominated signage areas as part of proposed development The City has assessed the application against PLN 4.2 and finds the signage to be capable of approval as part of this application, subject to suitable conditions.

State Planning Policy SPP 3.7 – Planning in Bushfire Prone Areas
Lot 801 in its entirety is designated as a bushfire prone site under the mapping associated with SPP 3.7. The application includes a Bushfire Management Plan (BMP) prepared by Eco Logical dated 01/08/2023. Maximum Bushfire Attack Level (BAL) ratings of BAL 12.5 and BAL-LOW are identified over Lot 801. Conditions of approval to implement the BMP are recommended.

Conclusion:
This application proposes the development of a building containing three Bulky Goods Showrooms at Lot 801, No. 600 Ranford Road, Forrestdale with associated landscaping, car parking areas and pedestrian pathways. The proposed development is to be built alongside a set of existing Bulky Goods Showrooms and Recreation Private land uses which have previously been approved in the former Masters building on Lot 801. The new development will share the existing car park and vehicular access points to Remisko Drive and Ranford Road.

The application has been assessed as being compliant with TPS 4's required boundary setbacks, building heights and site coverage. The application does propose a variation to the onsite parking requirements of Schedule 7A of TPS 4. A shortfall of 23 parking spaces is proposed. The applicant has provided evidence that the existing carpark is not regularly utilised to its full capacity which supports their proposition that the proposed parking space shortfall should not unduly compromise the operation of the entirety of the site.

The application has been assessed against the requirements of the City of Armadale's local planning policies including PLN 4.1 – The Design of Industrial Sites and Estates. The proposal is considered to perform well in accordance with the local policy framework. A variation is observed in relation to the required 15m setback from the primary street. This variation is considered to be minor and is deemed acceptable as it is a consequence of an irregular lot boundary alignment.

The application has provided a supporting TIA and it is considered that the development will not unduly impact the capacity of the local road network. Comments of non-objection from relevant state agencies have been obtained.

The City recommends that the application is conditionally approved.

AREA SUBJECT TO THIS APPLICATION

REMISKO DRIVE

LAKE ROAD

RANFORD ROAD

EXISTING VEHICLE ACCESS & CROSSOVER

EXISTING BOOSTER CABINETS

EXISTING LANDSCAPING

EXISTING EMERGENCY VEHICLE PARKING

EXISTING TRUCK ACCESS ROAD

EXISTING BUILDING SET BACK

EX. PUMPS & TANKS

EX. GATES

EX. LOADING

NEW PARKING (7 BAYS)

ACCESS

NEW PARKING (4 BAYS)

NEW BIN STORE (5 x 1100Lbins)

NEW SHADE TREES TO MATCH EXISTING APPROVED SPECIES

NEW CARPARKING (13 BAYS)

EXISTING TREES TO BE REMOVED

NOTE:
AREA FOR LANDSCAPING IMPROVEMENT SHOWN HATCHED GREEN

NEW CARPARKING (4 BAYS)

EXISTING TREES TO REMAIN

NEW BITUMEN ROAD WAY & PARKING

NEW BUILDING EXTENSION

EXISTING ROADWAY & PARKING BAYS & FOOTPATHS TO BE MODIFIED (SHOWN RED DASHED)

T8
1,183.89 m²

T9
1,451.00 m²
FFL 25.600

T10
1,326.33 m²

T1A

T1B

25.600 FFL

EXISTING APPROVED DEVELOPMENT / BUILDING FOOTPRINT

T2

T3

T4

T5

T6

T7 OVER

EXISTING DRIVE WAY & EMERGENCY VEHICLE CIRCULATION

NEW CARPARKING (3 BAYS)

NEW CARPARKING (16 BAYS)

NEW PROPRIATARY BICYLE PARKING RACK (12 BIKES) IN ACCORDANCE WITH AS2890.3

EXISTING VEHICLE ACCESS

NEW CARPARKING (3 BAYS)

NEW CARPARKING (5 BAYS)

NEW PROPRIATARY BICYLE PARKING RACK (12 BIKES) IN ACCORDANCE WITH AS2890.3

NEW CARPARKING (2 BAYS)

NEW CARPARKING (2 BAYS) TO REPLACE EX. TROLLEY BAYS

NEW CARPARKING (5 BAYS) TO REPLACE EX. TROLLEY BAYS

EXISTING PARKING

NEW CARPARKING (5 BAYS) TO REPLACE EX. TROLLEY BAYS

EXISTING TREES & LANDSCAPING TO REMAIN

EXISTING VEHICLE ACCESS & CROSSOVER

EX. PYLON SIGN

EXISTING LANDSCAPING

EXISTING APPROVED SHOWROOM SPACE
TENANCY 1a - 2160m2
TENANCY 2 - 1307m2
TENANCY 3 - 1303m2
TENANCY 4 - 972m2
TENANCY 6 - 2192m2
TOTAL APPROVED EXISTING SHOWROOM SPACE - 7934m2

EXISTING APPROVED WAREHOUSE SPACE
TENANCY 1b - 2320m2
TOTAL APPROVED EXISTING WAREHOUSE SPACE - 2320m2

EXISTING APPROVED RECREATION & SPORTING FACILITY SPACE
TENANCY 5 - 2312m2
TOTAL APPROVED EXISTING RECREATION & SPORTING FACILITY SPACE - 2312m2

EXISITNG APPROVED OFFICE SPACE
TENANCY 7- 284m2
TOTAL APPROVED EXISTING OFFICESPACE - 284m2

PROPOSED NEW SHOWROOM SPACE
TENANCY 8 - 1183.88m2
TENANCY 9 - 1451.00m2
TENANCY 10 - 1326.33m2
TOTAL PROPOSED NEW SHOWROOM SPACE - 3961.21m2

EXISTING REMAINING ONSITE CAR PARKING - 279 BAYS

PROPOSED NEW ONSITE CAR PARKING - 57 BAYS

PROPOSED NEW ONSITE CAR PARKING - (REPLACE EXISTING TROLLEY BAYS) 12 BAYS

TOTAL ONSITE CAR PARKING - 348 BAYS

TENANT LOCKER REQUIREMENTS

Showroom Space: 1 Staff Locker per 750m² of sales floor

Recreation Private: 1 Staff Locker per 4 employees

BICYCLE PARKING CALCULATIONS

SHOWROOM - 1 bike rack per 1000m² sales floor GFA
T1A, 2,3,4,6,8,9,10 = 11,895.21m2 /1000m2 = 11.89 BAYS

RECREATION PRIVATE - 1 bike rack per 200m² GFA
T5- 2312m2 / 200m2 = 11.56 BAYS.

BICYLE PARKING REQUIRED: 23.45 BAYS

BICYLE PARKING PROVIDED: 24 BAYS

N

1 - EXISTING / PROPOSED SITE PLAN
SCALE: 1 : 500

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OLDFIELD KNOTT ARCHITECTS PTY LTD
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Rev.	Date	Issued By	Revision Description
D	19-10-2022		PARKING LAYOUT & TENANCY REVISIONS
E	02-12-2022		T8,T9,T10 & PARKING LAYOUT
F	14-03-2023		SITE INFORMATION & PLAN AMENDMENTS
G	24-05-2023		1100L BINS
H	11-09-2023		T8 REVISIONS

Project Name: PROPOSED COMMERCIAL DEVELOPEMNT, 600 RANFORD RD, FORRESTDALE WA 6112

Drawing Name: SITE AND LOCATION PLAN

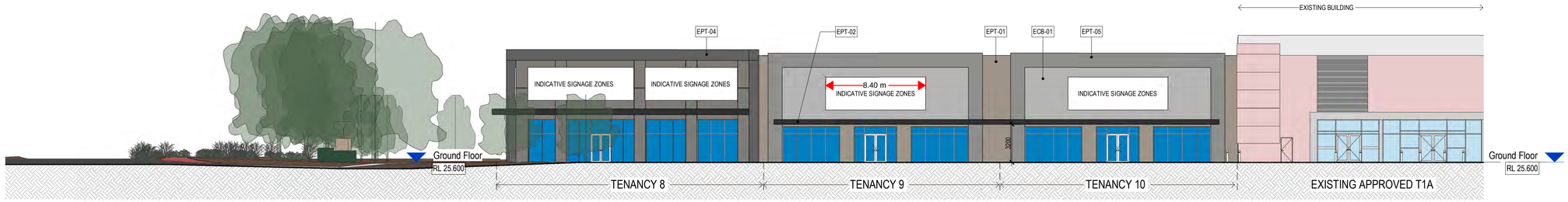
Project Number: 22007A

Drawing No.: P100

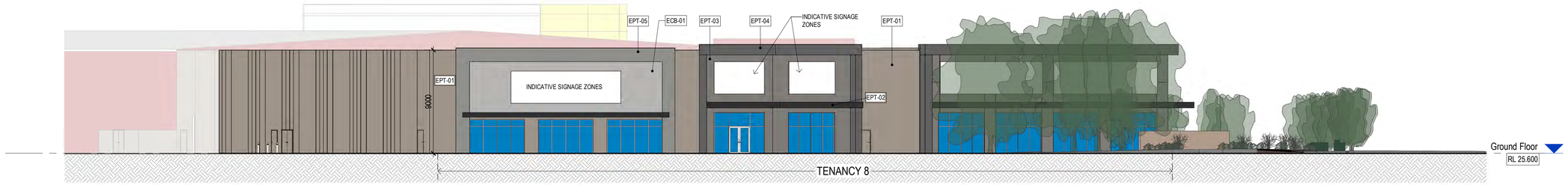
Rev.: H

Reduction | 25mm on A1 | Scale: As indicated | Date: Month 2022 | Drawn: OKA | Checked: OKA

5 P100 PROPOSED OVERALL ELEVATION
SCALE: 1 : 500



3 P100 ELEVATION
SCALE: 1 : 200



2 P100 ELEVATION
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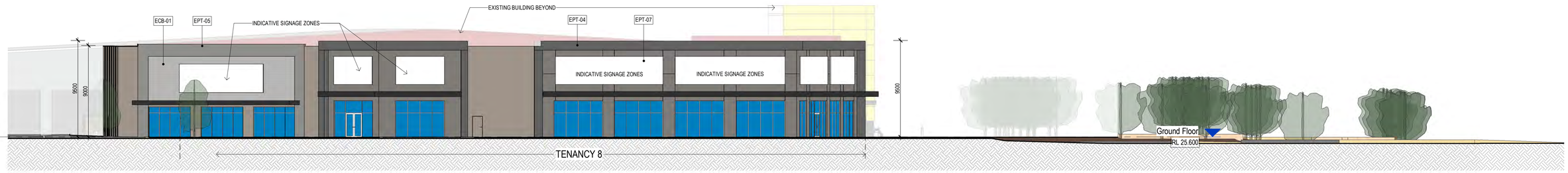
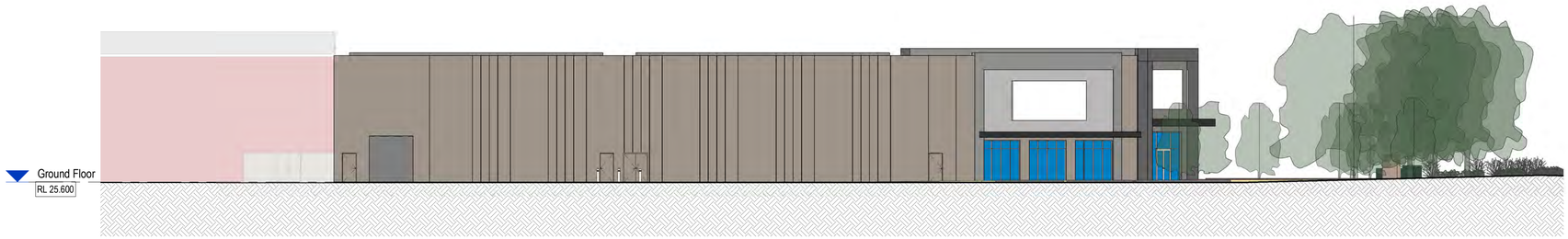


1 P100 ELEVATION
SCALE: 1 : 200



4 P100 ELEVATION
SCALE: 1 : 200

PROPOSED NEW BUILDING EXTENSION EXTERIOR FINISHES SCHEDULE

EPT - 01	PRODUCT: DULUX WEATHERSHIELD PROFILE: NAP ROLLER COLOUR: SAUDI SAND CODE: SB13B4	
EPC - 01	PRODUCT: DULUX POWDERCOAT COLOUR: PRECIOUSR CITI PEARL MATT - 97188471 ALL EXTERIOR ALUMINUM WINDOWS FRAMES & DOORS.	
ECB - 01	PRODUCT: COLORBOND CUSTOM ORB CLADDING COLOUR: SHALE GREY	
EPT - 02	PRODUCT: DULUX WEATHERSHIELD PROFILE: NAP ROLLER COLOUR: MONUMENT EXTERIOR CANOPIES	
EPT - 03	PRODUCT: DULUX WEATHERSHIELD PROFILE: NAP ROLLER COLOUR: WALLABY CODE: C35	
EPT - 04	PRODUCT: DULUX WEATHERSHIELD PROFILE: NAP ROLLER COLOUR: WESTERN MYALL CODE: SN4G7	
EPT - 05	PRODUCT: DULUX WEATHERSHIELD PROFILE: NAP ROLLER COLOUR: STEPNEY CODE: SN4H4	
EPT - 07	PRODUCT: DULUX WEATHERSHIELD PROFILE: NAP ROLLER COLOUR: VIVID WHITE CODE: 1W-SW1G1	

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D	02-12-2022		T8,T9,T10 & PARKING LAYOUT
E	11-09-2023		T8 REVISIONS

Project Name
PROPOSED COMMERCIAL DEVELOPEMNT, 600 RANFORD RD, FORRESTDALE WA 6112

Drawing Name
EXTERNAL ELEVATIONS

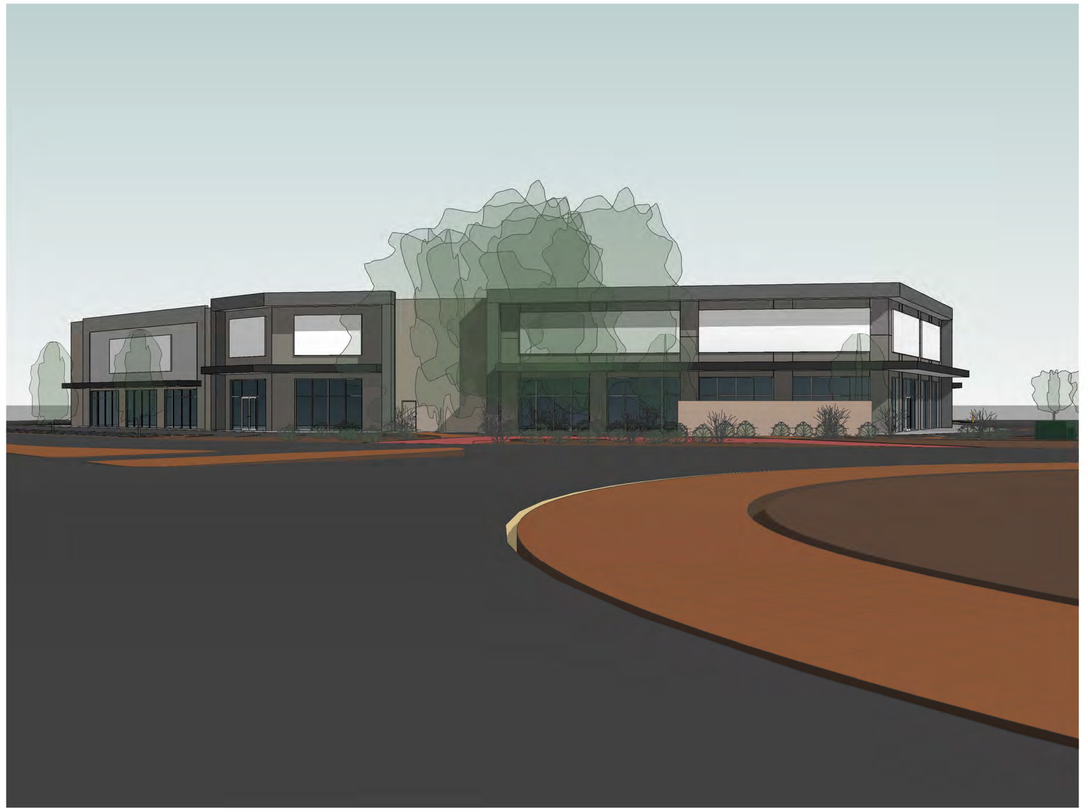
Project Number **22007A**

Drawing No. **P301**

Rev. **E**

Reduction 25mm on A1 | Scale **As indicated** | Date **Month 2022** | Drawn **OKA** | Checked **OKA**

OVERALL DEVELOPMENT



RANFORD RD TOWARDS REMISKO DRIVE

CNR LAKE RD & RANFORD RD

PROPOSED NEW & EXISTING

REMISKO DRIVE CROSSOVER

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E	11-09-2023		T8 REVISIONS

Project Name
PROPOSED COMMERCIAL DEVELOPEMNT, 600 RANFORD RD, FORRESTDALE WA 6112

Drawing Name
EXTERIOR PERSPECTIVES

Project Number **22007A**

Drawing No. **P310**

Rev. **E**

Reduction 25mm on A1 | Scale | Date **Month 2022** | Drawn **OKA** | Checked **OKA**

02 Eucalyptus leucoxylon

03 Eucalyptus maculata

04 Melaleuca leucadendra

EXISTING VEHICLE ACCESS & CROSSOVER
EXISTING LANDSCAPING
EXISTING EMERGENCY VEHICLE PARKING
EXISTING TRUCK ACCESS ROAD
EX. PUMPS & TANKS
REMISKO DRIVE
NEW CARPARKING (13 BAYS)
NEW PARKING (7 BAYS)
ACCESS
NEW PARKING (4 BAYS)
NEW BIN STORE
EX. LOADING
EXISTING TREES TO BE REMOVED
NEW BUILDING EXTENSION
T1B
EXISTING APPROVED DEVELOPMENT / BUILDING FOOTPRINT
T1A
T2
T3
T4
T5
T6
T8 1,209.77 m²
T9 1,451.00 m²
FFL 25.600
T10 1,326.33 m²
NEW CARPARKING (4 BAYS)
Existing carpark trees retained
T7 OVER
Existing carpark trees retained
EXISTING DRIVE WAY & EMERGENCY VEHICLE CIRCULATION
NEW CARPARKING (3 BAYS)
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NEW CARPARKING (2 BAYS)
RANFORD ROAD
NEW CARPARKING (2 BAYS) TO REPLACE EX. TROLLEY BAYS
EXISTING TREES & LANDSCAPING TO REMAIN
EXISTING VEHICLE ACCESS & CROSSOVER
NEW CARPARKING (5 BAYS) TO REPLACE EX. TROLLEY BAYS
EXISTING PARKING
NEW CARPARKING (5 BAYS) TO REPLACE EX. TROLLEY BAYS
EXISTING PARKING
EX. PYLON SIGN
EXISTING LANDSCAPING

LEGEND

01 NEW IRRIGATED NATIVE GROUNDCOVER PLANTING MIX TO VERGE AND NEW PARKING SURROUNDS
- Grevillea crithmifolia prostrate
- Hemiandra pungens
- Melaleuca huegelii prostrate
130mm pots @ 900mm spacing

02 NEW NATIVE TREES AND MULCH IN EXISTING TREE WELLS AND PARKING NIBS TO REPLACE MISSING TREES (8 no.)
- Eucalyptus leucoxylon - 75L pot

03 NEW LARGE TREES TO VERGE TO MATCH EXISTING ON CORNER
- Eucalyptus maculata -90L pot (5 no.)

04 NEW NATIVE TREES TO CARPARK EDGE TO REPLACE MISSING TREES (13 no.)
- Melaleuca leucadendra - 75L pot

05 EXISTING VERGE LANDSCAPING & TREES RETAINED

06 NEW BICYCLE RACKS

07 NEW INSITU CONCRETE PAVING TO MATCH EXISTING

600 RANFORD RD, FORRESTDALE

LANDSCAPE CONCEPT PLAN
JUNE 2023

JOB NO. 2218101
1:750 @ A3

C1.101 REV B

0 7.5 15 22.5 37.5m

PLAN E
LANDSCAPE ARCHITECTS
Level 1/278 Railway Pde, West Leederville
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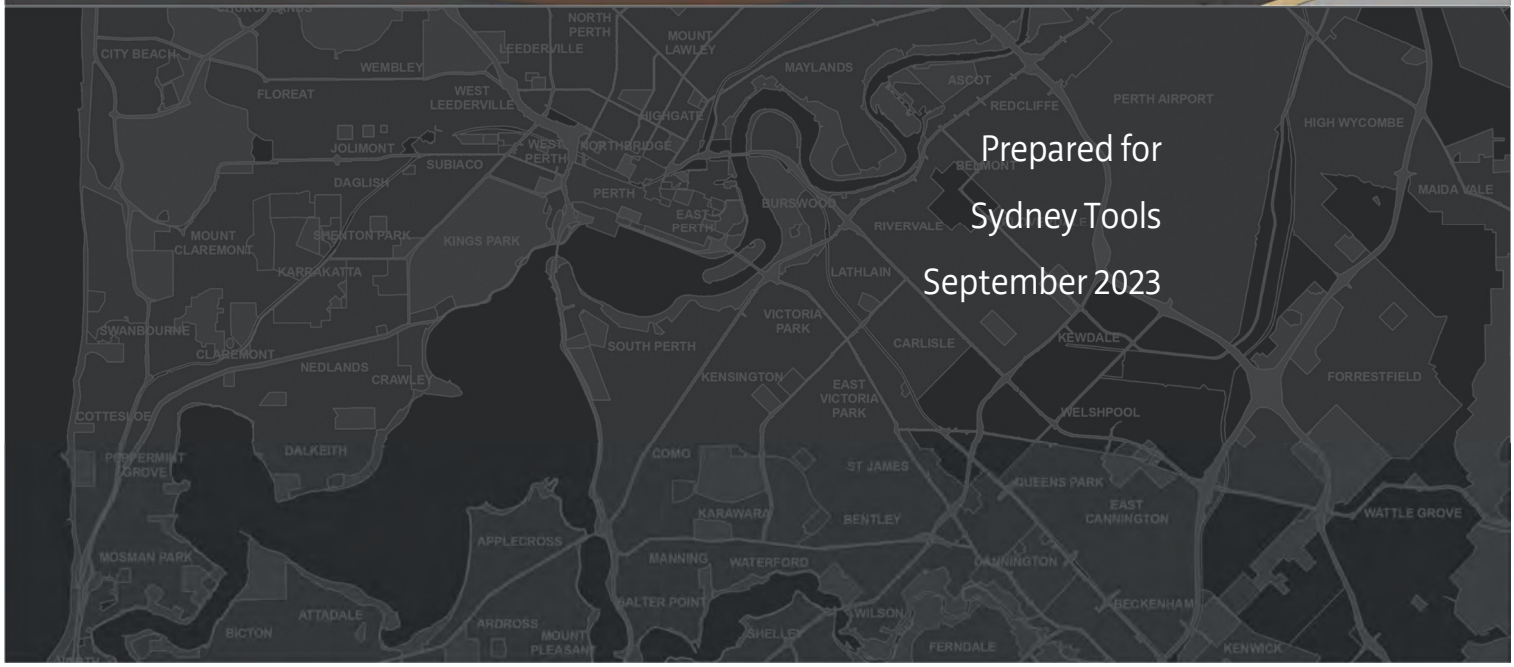
Development Application Report

Extension to existing commercial building (large format retail)

Lot 801 (600) Ranford Road
Forrestdale WA 6112

PLANNING SOLUTIONS
URBAN & REGIONAL PLANNING
PS



Prepared for
Sydney Tools
September 2023

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Project Details

Job number	8287	
Client	Sydney Tools c/- Oldfield Knott Architects Pty Ltd	
Prepared by	Planning Solutions	
Consultant Team	Town Planning Drafting and Design Traffic Engineering Landscaping Plan Bushfire Waste	Planning Solutions Oldfield Knott Architects Pty Ltd Stantec Plan E EcoLogical Australia Stantec

Document Control

Revision number	File name	Document date	Prepared by	Checked by
Rev 0	230922 8287 DA Report - Commercial Extension (Large format retail)	22 September 2023	JE	JC

Contents

Figures

Appendices

1 PRELIMINARY

1.1 Introduction

Planning Solutions acts on behalf of Sydney Tools, the proponent of the proposed extension of the existing multi-tenancy large format retail and commercial complex on Lot 801 (600) Ranford Road, Forrestdale (**subject site**).

Planning Solutions has prepared the following report in support of an application for development approval for extension of the existing building, including three new tenancies, additional parking bays and landscaping on the subject site.

This report will discuss various matters pertinent to the proposal, including:

- Site details.
- Proposed development.
- Statutory planning framework.

1.2 Background

1.2.1 Masters Home Improvement Redevelopment

On 6 July 2022, Planning Solutions obtained development approval for the redevelopment of the former Masters Home Improvement building at the subject site following closure of Masters operations in Western Australia. The seven approved tenancies include Showrooms, a Warehouse, a Gym and an Office. Minor façade alterations were also approved. The approved tenancies and their uses are depicted on the development plans provided but do not form part of this application.

1.2.2 Change of Use – Tenancies 5 & 6

On 14 March 2023, the City of Armadale issued an approval to "swap" the land uses for Tenancies 5 & 6, which are Recreation and Sporting Facilities (T5) and Showroom (T6) respectively.

2 SITE DETAILS

2.1 Land description

The subject site comprises a freehold property owned by EVA Investments Australia Pty Ltd.

Refer to **Table 1** below for the lot details and a description of the subject site.

Table 1 - Lot details

Lot	Deposited Plan	Volume	Folio	Area (m²)
801	66167	2747	797	35,260

Refer **Appendix 1** for a copy of the Certificate of Title and Deposited Plan.

The following easement is listed on the Certificate of Title:

1. Easement Burden (L406531) – an easement to Electricity Networks Corporations for transmission works purposes located along the Ranford Road frontage at the northern aspect of the subject site. The land above the easement is currently used for landscaping and does not have any impact on the proposed development.

2.2 Location

2.2.1 Location and Local Context

The subject site is located within the municipal boundaries of the City of Armadale (**City**). It benefits from its close proximity to a range of local amenities and primary road infrastructure, which connects the subject site to the surrounding locality. The subject site is located within the Forrestdale Business Park Precinct (**FBP**), which presently contains a mix of commercial, industrial, warehouse and showroom uses.

Nearby or adjacent land uses and activities include:

- Vacant land adjacent immediately to the northwest and southeast.
- Special rural land uses to the north, along the opposite side of Ranford Road
- Commercial and quick service retail uses to the south, including fast food, a service station and a medical centre.
- Bunnings Warehouse approximately 500 metres to the south.

Refer **Figure 1**, and **Photographs 1-3,** below for an aerial photograph and photographs of the site's surroundings illustrating the subject site's location and context.

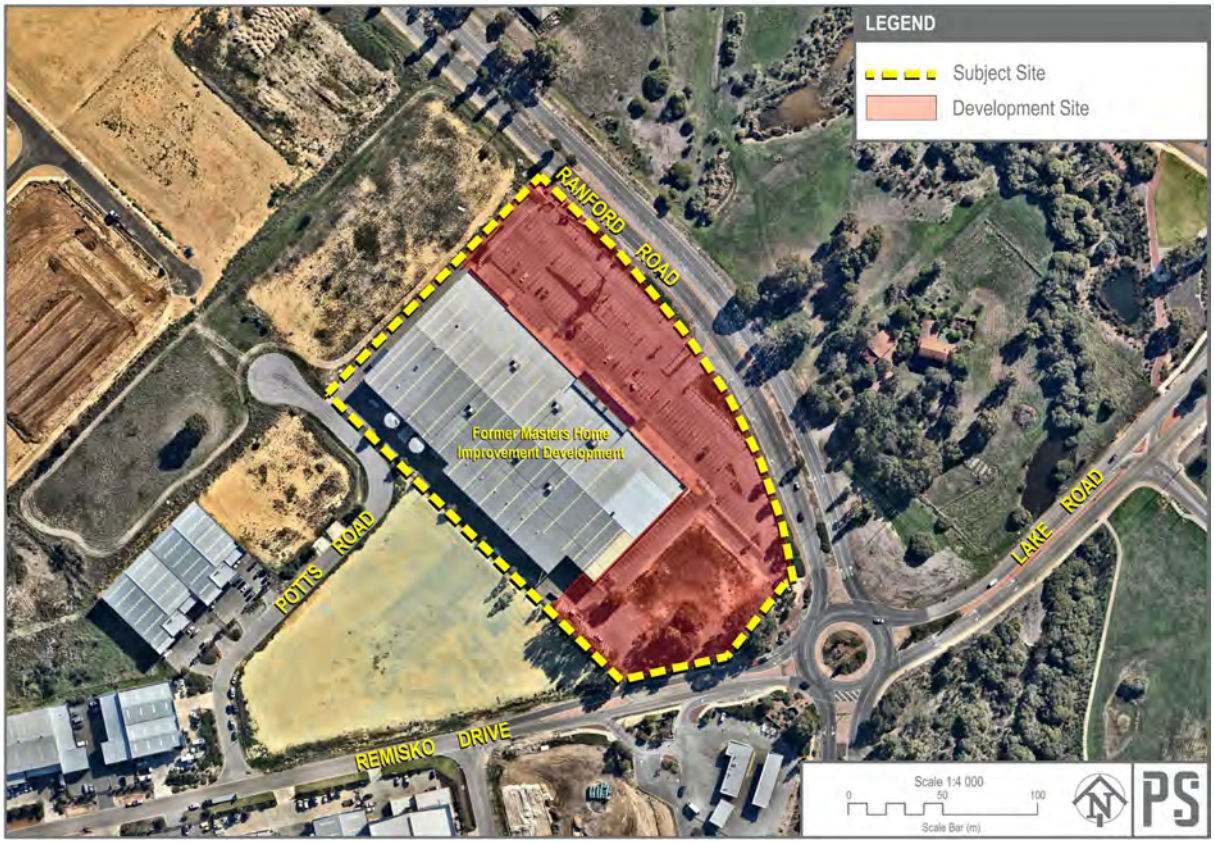

Figure 1 – Aerial of the subject site and surrounds (*Nearmap, 2023*).

Photograph 1 – Subject site, as viewed from Remisko Drive, looking north.

Photograph 2 – Intersection of Remisko Drive and Ranford Road with subject site in background, looking north-west.

Photograph 3 – Subject site, as viewed from Ranford Road, looking west.

2.3 Site conditions

The subject site forms a corner lot with Ranford Road and Remisko Drive. The site has approximately 258m of frontage to Ranford Road and 57m of frontage with Remisko Drive. It is presently occupied by large warehouse building (formerly occupied by Masters Home Improvement), and associated car parking and landscaping. The building has remained vacant since the closure of all Master Home Improvement stores in December 2016.

Three crossovers exist to the site. One fronting Ranford Road, one fronting Remisko Drive and one connecting to Potts Road at the north-western aspect of the subject site. The primary crossovers (Ranford Road and Remisko Drive) allow left in, left out, and right in movements. The Potts Road crossover allows full movement.

The subject site itself has a generally flat topography, with no notable features. This is likely due to site works undertaken during the initial development. The Ranford Road reserve slopes from north to south and is therefore slightly lower at ground level compared to the subject site.

There are numerous existing trees present on the property, generally along street frontages and within car parking areas.

The property is serviced by all necessary utilities' infrastructure, including power, reticulated water, wastewater and gas services. Services run along Ranford Road, adjacent to the subject site.

3 PROPOSED DEVELOPMENT

3.1 Development Summary

The proposal seeks to development the underutilised south eastern portion of the subject site and extend the existing Muli-tenancy building for an additional three large format retail showrooms. The extension has been designed to integrate with the existing built form and is positioned to address the three surrounding street frontages, located adjacent to a key entrance to the Forrestdale Business Park.

A detailed description of the proposed development is provided below.

3.2 Built form

The proposed extension comprises the following key components:

- Tenancy 8 – 1,183.9m2 GFA Showroom.
- Tenancy 9 – 1,451m2 GFA Showroom.
- Tenancy 10 – 1,326m2 GFA Showroom.
- Tenancy specific wall signage located above key access points and depicted using signage zones to allow flexibility for future tenants. It is also noted new tenants will utilise the existing pylon sign, as consistent with previous approvals.
- A new bin storage area at the western aspect of the existing building and within the existing servicing area.
- Reconfiguration of the existing car parking area to increase parking provision.
- Planting of 26 new trees to improve existing landscaping areas and frame the extension.
- A new 6.2m wide access road around the proposed extension.

Refer to **Appendix 2** for a copy of the development plans.

3.3 Landscaping

The development proposes to enhance the existing landscaping at the subject site, including the landscaping adjacent to the proposed extension and the street frontages to ensure consistent, high quality provision across the subject site. More specifically:

- 8 new native trees in existing tree wells within the existing car parking area.
- 5 new large native trees within the new landscaping area between the extension building line and the Ranford Road, Remisko Drive and Lake Road intersection, building upon the existing Forrestdale Business Park entrance statement.
- 13 new trees located along the Ranford Road lot boundary, within the existing landscaping areas.

Refer to **Appendix 3** for a copy of the landscaping plan prepared in support of the proposed development.

3.4 Traffic

A Transport Impact Assessment (**TIA**) has been prepared in support of this application. It outlines the transport aspects of the proposed development focusing on traffic operations, access, and parking provisions, and has been prepared in accordance with the Western Australian Planning Commission's (**WAPC's**) *Transport Assessment Guidelines for Developments: Volume 4 – Individual Developments* (2016).

The TIA concludes the following regarding the proposed development:

- The proposed development results in a shortfall of 26 parking bays, however the TIA concludes that the level of parking provided is acceptable.
- Swept paths demonstrate all proposed car parking bays are able to be accessed and the car parking areas adequately manoeuvred within. Swept paths also demonstrate MRV and HRV vehicles can access the existing servicing area via Remisko Drive.
- The development is expected to generate approximately 59 trips during the AM peak hour and 50 trips during the PM peak hour.
- The proposed development will not have a detrimental impact on surrounding road networks, which are expected to operate satisfactorily.

Overall, the assessment concludes that the proposed development will have a minimal impact on traffic operations and safety on the surrounding road network.

Refer to **Appendix 4** for a copy of the TIA.

3.5 Bushfire

The subject site is designated as bushfire prone, as per State Planning Policy 3.7 – Planning in Bushfire Prone Areas (**SPP3.7**). As such, a BAL assessment has been undertaken in relation to the proposed development, which concludes that a portion of the proposed Tenancy 8 is within the BAL–12.5 zone, requiring a Bushfire Management Plan (**BMP**) to be prepared.

Ecological was engaged to prepare a BMP. The BMP demonstrates that the proposed development is capable of achieving an adequate standard of bushfire protection if development in accordance with the recommended protection measures.

Refer to **Appendix 5** for a copy of the BMP.

3.6 Waste

A Waste Management Plan (**WMP**) has been prepared by Stantec in support of the development. The WMP identifies how waste is to be collected on site, stored on site, transported off site and handled appropriately.

The WMP identifies a bin storage area designed to accommodate five 1,100L bins, which are to be collected three times per week.

Refer to **Appendix 6** for a copy of the WMP.

4 STATUTORY PLANNING FRAMEWORK

4.1 Metropolitan Region Scheme

Under the provisions of the Metropolitan Region Scheme (**MRS**) the subject site is zoned Industrial. The proposed development is consistent with the intent of the Industrial zone and may be approved accordingly. the site has frontage to Ranford Road, an Other Regional Road Reservation under the MRS. Given the proposed development has the potential to increase traffic to Ranford Road, it is expected the application will be referred to the Department of Planning, Lands and Heritage for comment.

4.2 Local planning scheme

4.2.1 Zoning

The subject site is zoned 'Industrial Business' pursuant to the provisions of the City of Armadale *Town Planning Scheme No. 4* (**TPS4**). Refer to **Figure 2** showing an excerpt of the zoning map, **below**.

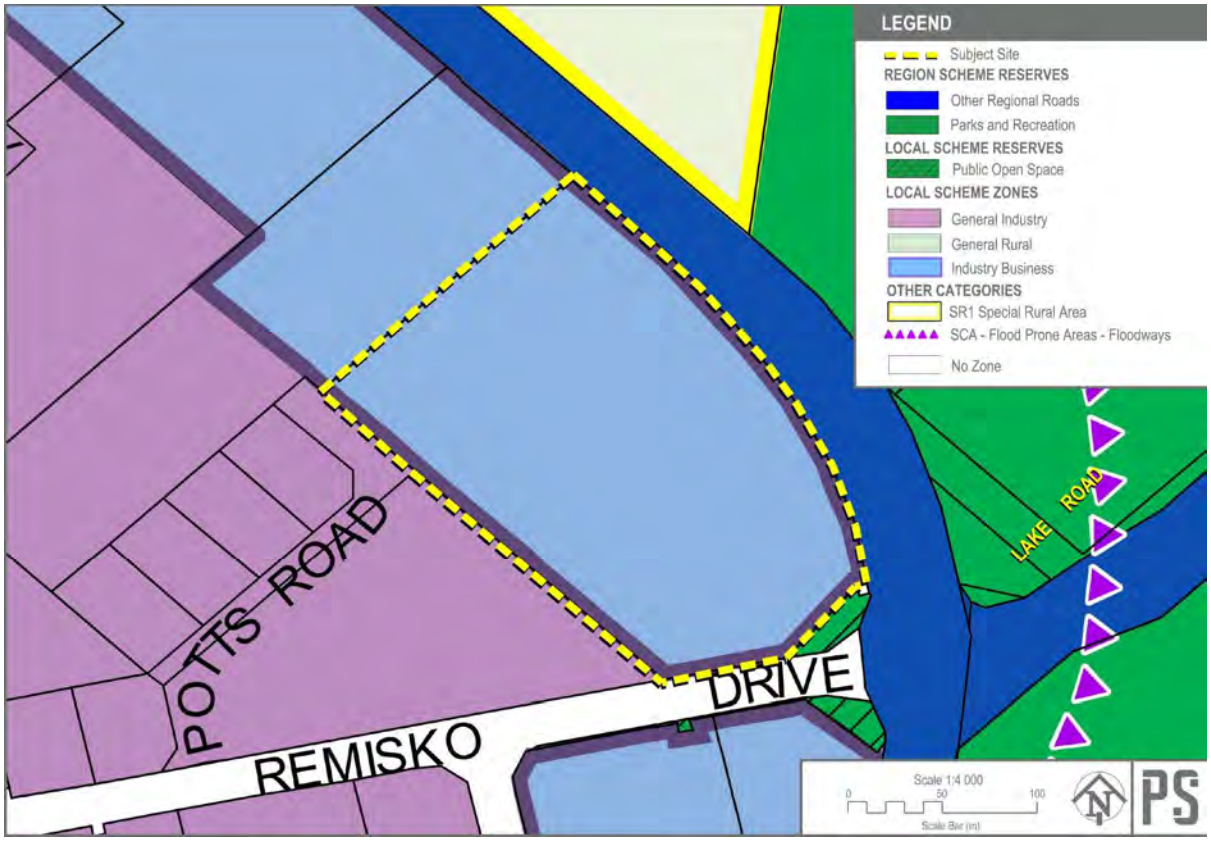

Figure 2 – Zoning Map

4.2.2 Land use permissibility

The development proposes three additional "Bulky Goods Showroom" tenancies, consistent with the existing approved use on the subject site.

Pursuant to TPS4, Bulky Goods Showroom is a 'D' (discretionary) use within the Industrial Business zone and is capable of approval at the City's discretion.

With regard to the exercise of discretion, the objectives of Industrial Business zone are relevant, and stated as follows:

(a) To provide for a range of industrial business and related services to be accommodated in specific policy precincts and meet the needs of the district in relation to those goods and services which cannot be practically provided within commercial centres because of either the extensive land area requirements or the performance characteristics of the activity.

(b) To ensure development and operation of businesses achieves relatively high environmental performance and amenity standards based on the level of public access and proximity to residential areas.

The proposed development is considered entirely acceptable and consistent with the objectives of the Industrial Business zone for the following reasons:

- Bulky Goods Showrooms, are by definition, uses which require large floor areas for the display of goods and direct vehicle access to allow for collection of purchased goods. They therefore cannot be provided for comfortably within commercial activity centres.
- The development ensures that a currently vacant and underutilised portion of the site is developed to a higher and better use delivering an improvement to the overall site amenity. The existing layout of the subject site was clearly intended to facilitate a future expansion.

The proposed development is capable of approval, consistent with the objectives of the zone and warrants the City's support and approval accordingly.

4.2.3 Development standards and requirements

Part 4D of TPS4 includes the requirements for development in the Industrial Business Zone. An assessment against the relevant requirements is provided in

Table 2 below.

Table 2 – Applicable Industrial Business Zone Requirements

Clause	Requirement	Assessment	Compliance
AD.1 Setbacks			
AD.1.1	*Buildings are to be setback from boundaries having regard to:* *i. any policy or Design Guidelines adopted by the local government for development in the industrial zones;* *ii. the setbacks of any adjoining or adjacent development with which the proposed building is likely to relate, and in the case of a site which adjoins land in another zone, the setback requirements for that zone;* *iii. the use or usability of the setback area, taking into consideration the nature of the adjoining street and the desirability or otherwise of direct vehicular access to that street, and from any adjoining property;*	i) Per Local Planning Policy 4.1, as outlined below. ii) The proposed development is aligned with the existing buildings already developed on the site. iii) The setback area is proposed to be used as carparking, aligned with the currently existing development. iv) The proposed development extends the frontage of the existing building and provides continuous access to facilitate movement between the adjoining sites.	✓

Clause	Requirement	Assessment	Compliance
	iv. the desirability of continuous building frontages where pedestrian access is to be provided adjacent to the frontage of the building or where such access and associated pedestrian shelter would be desirable to facilitate movement between adjoining sites; *v. the space requirements for pedestrian access, and the need and/or desirability of segregating pedestrian access from vehicular access and parking areas;* *vi. the desirability of landscaping within the setback area in order to reduce any adverse visual impact associated with the proposed building façade and/or associated use of setback areas; and* vii. *the safety and convenience of pedestrian and vehicular access to the site from the adjoining street and from adjacent sites.*	v) The proposed development accounts for the space requirements for segregating pedestrian and vehicular access where desirable. vi) Landscaping is provided in the setback area as per the requirements of Local Planning Policy 4.1, as outlined below. vii) The proposed development makes use of the existing vehicular access from the adjoining and adjacent streets, with the existing pedestrian pathways also extended upon.	
1.2	*Where the local government considers it appropriate, it may impose maximum or minimum setbacks as it thinks fit, or it may prescribe a building setback line for any building or part of a building.*	As per Local Planning Policy 4.1, as outlined below.	✓
AD.2 Building Height			
AD. 4.2.1	*The height of buildings is to be determined, having regard to:* *a) any policy or Design Guidelines adopted by the local government for development in the industrial zones;*	No policy or design guidelines provide a building height requirement.	✓
	b) the height of any adjoining or adjacent development, and the desirability or otherwise of maintaining consistency in relation to the height and scale of buildings within the particular precinct;	The proposed development is aligned with the existing building heights on the lot.	✓
	c) in the case of a site which adjoins land in another zone, the height and setback requirements for that zone;	The site does not adjoin land in another zone.	✓
	d) the need for safe and convenient pedestrian shelter, and the desirability of maintaining continuity and/or compatibility in relation to adjoining pedestrian facilities;	The proposed development extends the frontage of the existing building and provides continuous access to facilitate movement between the adjoining sites.	✓
	e) the design of the external façades of the building, including the height of any awnings or parapets and their relationship with those of adjacent buildings; and	The design of the external facilities of the new development extends upon the existing adjacent buildings.	✓
	f) the finished ground level proposed for the development site in relation to that of the adjoining sites.	The finished ground level for the development is aligned with the existing buildings on the subject site.	✓
AD.3 Building Bulk			

Clause	Requirement	Assessment	Compliance
AD.3.1	*Unless otherwise approved by the local government in accordance with the provisions of clause 4.5, the maximum plot ratio is to be 1.0.*	The proposed plot ratio is less than 1.0.	✓
AD.4 Landscaping			
AD.4.1	*Landscaping is to be provided and maintained so as to enhance visual amenity and contribute towards the achievement of high environmental standards on all development sites.*	Landscaping is proposed to enhance the visual amenity and contribute towards the environmental standard of the development site.	✓
AD.4.2	*The area, distribution and form of landscaping of individual sites is to be determined in conjunction with each proposed development, having regard to:* *a) the layout of development, including particularly the extent and location of any uncovered car parking and service areas which may benefit from landscape screening;*	Proposed landscaping includes the wider subject site to enhance landscaping as required.	✓
	b) the design of building façades and their relationship to adjacent streets and other public spaces;	The landscaping has been designed to frame the proposed extension and build upon the Forrestdale Business Park entrance statement.	✓
	c) the desirability of integrating landscape planting with stormwater management in order to achieve more water sensitive design outcomes;	Landscaping areas will be irrigated as consistent with existing practices.	✓
	d) the desirability of providing shade trees within or adjacent to the development so as to improve the microclimate for users of the facilities;	The proposed development provides additional trees to improve microclimate for visitors as required.	✓
	e) the need for safe and convenient pedestrian access to and within the development site, including particularly access from the street and adjacent sites; and	Pedestrian access is facilitated as per the existing arrangements.	✓
	f) the desirability of providing areas within or adjacent to the site for respite and relaxation by users of the development site.	Several new trees are proposed on the lot boundaries of the subject site to improve the pedestrian experience.	✓
AD.4.3	*Landscape planting is to be provided and maintained so as to minimise any adverse visual impact associated with the use and development of land, and is to include:* *b) a minimum 3-metre-wide landscape strip along all street boundaries within the 'General Industry' and 'Industrial Business' zone areas bound by Armadale Road, Ranford Road and Tonkin Highway.*	The provided landscaping includes a minimum 3-metre-wide landscape strip along all street boundaries;	✓
	c) provision of shade trees at a rate of one (1) tree per four (4) parking bays planted at intervals of no greater than 10 metres along any line of car parking bays. Where those bays are immediately adjacent to a building, the City may permit the required trees in another location on site.	The development includes the provision of shade trees at a rate of one tree per four parking bays planted at intervals of no greater than 10m along any line of car parking.	✓
AD.5 Car Parking and Vehicular Access			

Clause	Requirement	Assessment	Compliance
AD.5.1	*Car parking is to be provided in accordance with the standards for respective uses detailed in Schedule 7A, unless otherwise approved by the local government in accordance with the provisions of clause 4.5. Unless otherwise approved or required by the local government, required car parking is to be provided on the site of the proposed development.*	**Refer below for assessment and detailed justifications.**	
AD.5.2	*Parking spaces and manoeuvring areas shall be designed in accordance with Australian Standard AS 2890.1 Off-street parking, and paved, kerbed, drained and marked to the satisfaction of the local government.*	Parking spaces and manoeuvring areas are designed in accordance with Australian Standard AS 2890.1 Off-street parking, and paved, kerbed, drained and marked.	✓
AD.5.3	*When considering an application for planning consent, the local government shall have regard to and may impose, conditions with respect to the location of parking on the site, and the pedestrian and vehicle traffic circulation system proposed.*	N/A	N/A
AD.5.4	*Safe and convenient vehicular access is to be provided to all development any required car parking or service areas provided on the development site.*	The existing and proposed car parking spaces provide safe and convenient vehicular access to the development.	✓
AD.6 Shared Use of Parking Facilities			
AD.6.1	*Parking facilities may be shared between two or more owners or users of land or by one owner or user in respect of separate buildings or uses, subject to the satisfaction of the standards and requirements set out in this clause.*	Parking facilities are proposed to be shared between the tenancies active on the site, to the satisfaction of the standards and requirements set out.	✓
AD.6.2	*The local government may permit the parking spaces for a building or use to be provided jointly with any one or more other buildings or uses whether or not those others separately have the prescribed number of parking spaces, provided that the peak hours of operation of the buildings or uses so sharing do not substantially overlap.*	The parking facilities are proposed to be shared and used jointly, with the provided parking satisfying the prescribed number of parking spaces.	✓
AD.6.4	*The following requirements shall be complied with where off-site or shared parking is proposed:* *a) evidence shall be provided sufficient to satisfy the local government that no substantial conflict will exist in the peak hours or operation of the buildings or uses for which the joint use of parking spaces or the reciprocal access and circulation arrangements is proposed;* *b) the number of parking spaces to be provided off-site, is sufficient to meet the shortfall in parking in respect of the development the subject of the application; and* *c) shared use of off-site parking facilities will not result in any deficiency in parking for that site.*	The following requirements are complied with: a) no substantial conflict exists in the peak hours or operation of the buildings or uses for which the joint use of parking spaces or reciprocal access and circulation arrangements is proposed; b) the number of parking spaces provided is sufficient to satisfy the required parking numbers; c) n/a, as no off-site parking facilities are proposed.	✓
AD.7 Access for Loading and Unloading Vehicles			
AD.7.1	*A person shall not construct or use a building for a bulky goods showroom, a warehouse or an industry unless there is provided a paved access way for vehicles from the street to the rear of and to any other part of the building where provision is made in the external walls of the building for the entry of or the loading or unloading of vehicles*	A paved access way for vehicles from the street to the rear of and to any other part of the building where provision is made in the external walls of the building for the entry of or the loading or unloading of vehicles is provided.	✓

Clause	Requirement	Assessment	Compliance
AD.7.2	*The access way referred to in clause 4D.7.1 shall be so constructed that all vehicles using it can enter from and return to a street in forward gear without reversing on to any part of the street.*	The access way referred to in clause 4D.7.1 is constructed that all vehicles using it can enter from and return to a street in forward gear.	✓
AD.7.3	*Except as hereinafter mentioned, the access way referred to in clause 4D.7.1 shall be not less than 6m in width; if the size of the lot makes the provision of a 6m wide access way impracticable the local government may permit an access way of a narrower width of not less than 3m in width.*	The access way referred to in clause 4D.7.1 is not less than 6m in width.	✓
AD.8 Storage Yard			
AD.8.1	*A person shall not use land for open storage purposes unless it is screened from public view by a fence or wall to the satisfaction of the local government.*	The land will not be used for open storage purposes, except where screened from public view.	✓

As demonstrated above, the proposed development adequately addresses the development requirements of TPS4 and warrants support accordingly.

4.3 Local Planning Policies

4.3.1 Local Planning Policy 2.9 - Landscaping (LPP2.9)

Per Local Planning Policy 2.9, the proposed development takes into consideration Clauses 4D.4 and 4D.5 of Town Planning Scheme No. 4 (as above) and will satisfy the City's *Landscaping Guideline- Industrial and Commercial* as a condition of Planning Approval through the creation of a Landscaping Plan for those areas of the subject site impacted by the proposed development.

4.3.2 Local Planning Policy 4.1 - The Design of Industrial Sites and Estates (LPP4.1)

Table 3 – Local Planning Policy 4.1 – The Design of Industrial Sites and Estates (LPP4.1)

<table>
<tr><th>Clause</th><th>Requirement</th><th>Provided</th><th>Compliance</th></tr>
<tr><td colspan="4">AD.4.1 Building Setbacks</td></tr>
<tr><td>AD. 4.1.1</td><td>Buildings are to be setback from boundaries in accordance with Clause 4D.1 of TPS No. 4.</td><td>Buildings are set back in accordance with Clause 4D.1 of TPS No. 4.</td><td>✓</td></tr>
<tr><td>AD. 4.1.2</td><td>Minimum street setbacks shall be as per the table below:
<table>
<tr><th>Area</th><th>Front Setback</th><th>Secondary Street Setback</th></tr>
<tr><td>Forrestdale Business Park East</td><td>Minimum 15 meters Maximum 21 meters</td><td>6 meters</td></tr>
<tr><td>All other industrial areas</td><td>7.5 meters</td><td>Determined at the discretion of the City</td></tr>
</table></td><td>As part of the Forrestdale Business Park East Area, the required setbacks are 15m from the front setback, and 6m from the secondary street.

Front Setback: 16.5m

Secondary Setback: 11.6m</td><td>✓</td></tr>
</table>

Clause	Requirement	Provided	Compliance
AD. 4.1.4	*The street setback area is only to be used for landscaping, vehicular access and parking, not including the parking of vehicles which are being wrecked, repaired or stored. The street setback area must not be used for the storage of any goods or materials.*	The street setback area is proposed to be used for landscaping, vehicular access and parking.	✓
AD.4.2 Building Design			
AD. 4.2.1	*Buildings shall be designed in accordance with Clauses 4D.2 and 4D.3 of TPS No. 4.*	Buildings are be designed in accordance with Clauses 4D.2 and 4D.3 of TPS No. 4.	✓
AD. 4.2.3	*Lots greater than 1500m2 in area are to achieve a minimum site cover of 300m2.*	The proposed development achieves a site cover of greater than 300sqm.	✓
AD. 4.2.4	*Buildings shall respond to the alignment of the lot boundaries. Where lots have non-rectangular shapes, alignment with the street frontage is the priority.*	The proposed development responds to the alignment of the lot boundaries through it's irregular shape, which responds to the three surrounding street frontages.	✓
AD. 4.2.5	*The external surfaces of all walls that are on or near a property boundary shall be painted, rendered and painted or finished in face brick and be consistent with the schedule of colours approved by the City of the development.*	The external surfaces of all walls that are on or near a property boundary will be finished in a schedule of colours approved by the City.	✓
AD. 4.2.6	*Developments of two or more building/structures on a site shall create a cohesive, well-coordinated and complementary development of similar construction quality.*	The development creates a cohesive and complementary extension to the existing development on the site.	✓
AD. 4.2.7	*Building massing shall complement adjacent development to create a cohesive streetscape.*	The building massing complements the adjacent development to create a cohesive streetscape.	✓
AD. 4.2.8	*The facades and portions of all buildings that are visible from the street shall be designed and constructed in a manner which in the opinion of the City is to a human scale and provides visual interest.* *Buildings shall not be designed with blank walls facing the street or other public areas. The use of windows, variations in wall plane and articulation through the setting back of upper portions may be used to assist in achieving this outcome.* *Small scale design elements and features adjoining the exterior walls are encouraged to create human scale. Building materials that express a small-scale may also be used around activated land uses and entrances to assist in breaking down any perceived mass of large wall planes.*	The facades and portions of all buildings that are visible from the street are designed to a human scale. The development is designed with articulation and scale design elements to create visual interest and to assist in the breaking down of any perceived mass of large wall planes. The proposed extension has been designed to integrate with the existing built form at the subject site, which is characterised by a two storey scale, with variations in colour across the concrete façade and window frames to create a clear differentiation between tenancies. The proposed extension provides a higher level of façade detailing, whilst remaining compatible with the existing built form, using the following: • A continuous awning, which provides weather protection, as well as separating the second storey scale from the first, breaking up any large wall planes. • An extensive amount of glazing is provided to increase activation to the surrounding pedestrian areas.	✓

Clause	Requirement	Provided	Compliance
		• Framing/paneling to the second storey level, which accentuates the proposed signage zones. As such, the proposed extension is considered to provide a high level of detailing and an appropriate interface to the public realm. Refer below, which depicts the differentiation in façades.	

Clause	Requirement	Provided	Compliance
AD. 4.2.9	*Pedestrian entrances shall be covered to provide weather protection and include well placed windows to enhance passive surveillance from within the development. If the pedestrian entrance directly abuts the car park, a pedestrian path / refuge area must be provided to separate the entrance from the car park.*	Pedestrian entrances are covered to provide weather protection, include windows to enhance passive surveillance and include a pedestrian path / refuge area where the entrance directly abuts the car park.	✓
AD. 4.2.10	*Any activated customer-based land uses shall be set forward of the main building alignment. If all uses are integrated in one building, street frontages shall be broken up by varying wall planes, heights and material application.*	All uses are integrated in one building, with the street frontage broken up by varying wall planes, heights and material applications.	✓
AD. 4.2.11	*All buildings shall be designed to incorporate CPTED principles to ensure surveillance of the street and public realm in accordance with the WAPC Designing Out Crime Planning Guidelines (June 2006).*	CPTED principles have been incorporated to ensure surveillance of the street and public realm.	✓
AD. 4.2.12	*The external surfaces of all walls, including boundary walls, shall be finished to the same quality of the primary façades.*	All external surfaces are proposed to be finished to the same quality of the primary facades.	✓

Clause	Requirement	Provided	Compliance
AD. 4.2.13	*Buildings shall utilise materials that are durable and low maintenance.* *Appropriately contrasting materials and finishes that contribute positively to the area shall be used. The use of recycled and/or locally sourced materials is strongly encouraged.*	The proposed development is to be constructed of durable and low maintenance materials.	✓
AD. 4.2.14	*All developments shall maximise access to natural light and ventilation by incorporating windows, skylights and air vents in appropriate locations.* *The placement of shade structures on the building is encouraged, where they assist in reducing overheating in summer and adding visual interest to the façade.*	The development maximizes access to natural light and ventilation through windows and air vents in appropriate locations.	✓
AD. 4.2.15	*Utilities infrastructure (e.g., air conditioner machinery and the like) shall be screened from public view. For example, roof mounted equipment could sit behind parapet walls that extend beyond roof height.*	Utilities infrastructure is screened from public view.	✓
AD.4.3 Vehicle Access			
AD. 4.3.3	*The City requires that vehicle access driveway systems facilitate all vehicles being able to leave the site in forward gear. Therefore, appropriate turning areas and/or through movement of traffic shall be provided to facilitate this.*	The new vehicle access systems and pathways facilitate all vehicles to be able to leave the site in a forward gear.	✓
AD. 4.3.4	*All roads and trafficable pavements areas shall be designed in accordance with the requirements of the current Local Government Guidelines for Subdivisional Development (IPWEA WA Division Inc), and the City of Armadale annexure to these guidelines.*	All roads and trafficable pavements areas are designed in accordance with the requirements of the current Local Government Guidelines and the City of Armadale annexure to these guidelines.	✓
AD. 4.3.5	*Hard stand areas shall be paved, marked, kerbed and drained and could include permeable pavement.*	Hard stand areas will be paved, marked, kerbed and drained.	✓
AD. 4.3.6	*All loading and unloading areas shall be provided in accordance with Clause 4D.7 of TPS No. 4. They shall be located behind the street setback area, screened from public view and appropriately marked.*	Loading and unloading areas are provided in accordance with Clause 4D.7 of TPS No. 4, and are located behind the street setback area, screened from public view.	✓
AD. 4.3.7	*Direct vehicle access is not permitted to major arterial roads including Tonkin Highway, Ranford Road and Armadale Road. Access shall be achieved via a side street, service road or coordinated reciprocal access way.*	N/A, no change to the existing vehicle crossovers is proposed.	N/A
AD.4.4 Car Parking, Bicycle Parking and End of Trip Facilities			

Clause	Requirement	Provided	Compliance
AD. 4.4.1	*Car parking shall be provided in accordance with the provisions of the City of Armadale Town Planning Scheme No. 4 (Clauses 4D.5, 4D.6 and Schedule 7A).*	Car parking is provided in accordance with the provisions of the City of Armadale Town Planning Scheme No. 4.	✓
AD. 4.4.2	*A minimum of one 45 litre tree for every four parking bays is required to be provided within the lot to contribute to a high-quality street character and provide shading and cooling. Refer to the provisions of the City of Armadale Town Planning Scheme No. 4 (Part 4) and the City's Planning Policy PLN 2.9 Landscaping.*	A total of 6 additional trees are provided alongside the additional provided car parking bays, to a total of 4 bays per tree (where not adjacent to the building).	✓
AD. 4.4.3	*Bicycle parking and end of trip facilities shall be provided in accordance with the provisions of the City of Armadale Town Planning Scheme No. 4 (Clause 4.11 and Schedule 7B).*	Bicycle parking and end of trip facilities are provided in accordance with the provisions of the City of Armadale Town Planning Scheme No. 4.	✓
AD.4.6 Lighting			
AD. 4.6.1	*Outdoor lighting shall be provided to illuminate entrances of development and key pedestrian areas and should comply with Australian Standard 4282-1997 "Control of the obtrusive effects of outdoor lighting" and the City's Environment, Animals and Nuisance Local Law*	Outdoor lighting will be consistent with the relevant requirements of the Australian Standards	✓
AD.4.7 Landscaping			
AD. 4.7.1	*All applications for development shall include a landscaping plan that is prepared in accordance with this policy, Clause 4D.4 of TPS No. 4, Local Planning Policy PLN 2.9 Landscaping and the City's Industrial and Commercial Landscaping Guidelines.*	Please see the concept landscaping plan included in Appendix 3.	✓
AD. 4.7.2	*A minimum landscaping zone of two metres is to be provided along all street frontages (excluding Forrestdale Business Park East).*	N/A, subject site is within the Forrestdale Business Park East	N/A
AD. 4.7.3	*Within Forrestdale Business Park East, a minimum landscaping zone of three metres is to be provided along all street frontages and receive a minimum of 75% understorey planting coverage and 25% unplanted mulch area utilising native and waterwise species.*	A minimum landscaping zone of 3m is provided along all street frontages, and a minimum of 75% understory planting coverage and 25% unplanted mulch area is proposed utilizing native species.	✓
AD. 4.7.4	*All verge areas are to be landscaped and maintained in accordance with the City's Landscaping Guideline: Industrial Commercial and utilise native and water wise species.*	All verge areas are proposed to be landscaped and maintained in accordance with the City's Landscaping Guideline.	✓

Clause	Requirement	Provided	Compliance
AD. 4.7.5	*A minimum of one 45 litre tree shall be provided within the verge for every 10 metres of street frontage to all street frontages as well as a minimum of one 45 litre tree for every four parking bays within the lot as required by Clause 4D.4.3(b) of TPS No. 4 to contribute to a high-quality street character and provide shading and cooling.*	A minimum of one tree for every 10 meters of street frontage to all street frontages, as well as a minimum of one tree for every four parking bays within the lot, is proposed to be provided (using the existing trees and an additional 6 trees).	✓
AD. 4.7.6	*Street trees shall be setback a minimum of one metre from crossovers to maintain sightlines, include root barriers where located within one metre of services and be provided in accordance with the City's ENG6 – Street Tree policy.*	No Street trees are proposed within 1 metre of a crossover.	✓
AD. 4.7.7	*Landscaped areas shall be irrigated with a fit-for-purpose water source (e.g., rain water reuse and/or waste water recycling) and plans shall include detail in this regard. If bore water is proposed, it must be justified with a stormwater capture and infiltration plan capable of demonstrating on-going sustainability (i.e. extraction must be equal to or less than infiltration).*	Landscaping areas will be irrigated as per existing practices.	-
AD. 4.7.9	*Some rainwater from driveways and parking areas shall be directed into landscaped areas. Flush or gapped kerbing may be necessary in this regard.*	Stormwater will be managed as per existing practices.	-
AD.4.8 Signage			
AD. 4.8.1	*All signage shall be provided in accordance with Council Policy (PLN 4.2 – Advertisements – Signage).*	As per the signage requirements outlined below.	✓
AD.4.9 Storage Yards and Bin Areas			
AD. 4.9.3	*Designated bin storage areas shall be provided.*	Designated bin storage is provided to the rear of the lot.	✓
AD. 4.9.4	*Bin storage areas and outdoor storage yards shall be behind the front building line and constructed appurtenant to and be of the same material and colour scheme as the main building. These areas shall be screened so they are not clearly visible from the street and nearby or adjoining properties.*	The bin storage area is behind the front building line and constructed appurtenant to the main building. This area is screened and not clearly visible form the street or nearby adjoining properties.	✓
AD. 4.9.5	*No materials shall be stored in car parking areas or areas clearly visible from the street and nearby or adjoining properties.*	No materials shall be stored in car parking areas or areas clearly visible from the street and adjoining properties.	✓
AD.4.10 Bushfire			
AD. 4.10.1	*All development located within a Bushfire Prone Area must comply with* State Planning Policy 3.7 – Planning in Bushfire Prone Areas *and associated guidelines.*	The development complies with *State Planning Policy 3.7 – Planning in Bushfire Prone Areas.*	✓

4.3.3 Local Planning Policy 4.2 – Signage (LPP4.2)

The development proposes the a total of ten wall signage zones, located between the awning and roof lines of the three proposed tenancies, more specifically:

- Tenancy 8
  - Northern façade
    - 1 x 4.4m x 2.8m signage zone
    - 1 x 9.6m x 2.8m signage zone
  - North western façade
    - 2 x 10.6m x 2.8m signage zones
    - 1 x 4.4m x 2.8m signage zone
  - North Eastern façade
    - 1 x 7.75m x 2.8m signage zone
    - 1 x 9m x 2.8m signage zone
- Tenancy 9
  - North Eastern façade
    - 1 x 8.4m x 2.8m signage zone
  - South Western façade
    - 1 x 5.4m x 2.8m signage zone
- Tenancy 10
  - North Eastern façade
    - 1 x 8.4m x 2.8m signage zone

The proposed signage zones are intended to provide flexibility to future tenants and are consistent with the scale of the approved signage of the existing development. It is noted the dimensions of the proposed signage, in terms of height and length in some cases, exceeds the maximums outlined for horizontal signage within LPP4.2. With reference to the performance criteria, the proposed signage is considered appropriate for the following reasons:

- The signage is proposed in consistent locations and is dimensioned in reference to the façade on which they are attached. They are consistently located as per the signage on the existing building. As such, signage is located consistently and is keeping with the existing form and scale of the development and locality.
- Signage panels are integrated into the façade of the building, and will therefore not present safety issues, nor will they create light spill or obstruct any views.
- The eventual signs will display branding of the relevant tenants as required.

As such, the proposed signage is consistent with the performance criteria of LPP4.2, and warrants support accordingly.

4.4 State Planning Policies

4.4.1 State Planning Policy 3.7 – Planning in Bushfire Prone Areas

The subject site is designated bushfire prone, as per State Planning Policy 3.7 Planning in Bushfire Prone Areas (**SPP3.7**). A portion of the proposed Tenancy 8 is within a BAL-12.5 zone and therefore triggers the requirement for a Bushfire Management Plan (**BMP**) to be prepared.

EcoLogical Australia have prepared a BMP in support of the proposed development. The BMP provides a series of requirements and recommendations throughout the assessment, demonstrating the proposed extension is expected to be consistent with the requirements of SPP3.7 and the applicable guidelines.

4.4.2 State Planning Policy 4.2 – Activity centres

A revised *State Planning Policy 4.2 – Activity Centres* (**SPP4.2**) was gazetted in July 2023. SPP4.2 classified different land use activities as "Category A" and "Category B", with bulky goods showroom a Category B use. PP4.2 purports to limit bulky goods showroom development to designated activity centres, **however**, there are new provisions relevant to the proposed application. Specifically, Clause 7.4.3€ states that

> *"There are existing standalone [bulky goods showroom] precincts outside the activity centre network, often adjacent to industrial areas, and this policy does not prevent them from continuing").*

The subject site is a standalone bulky goods showroom development adjacent to an industrial. The continuation of this development is unambiguously supported by SPP4.2. With regard to the expansion of an existing bulky goods showroom development, clause 7.9(c) states the following:

> *Development applications for Category B activity centre uses are not considered to be out-ofcentre developments where the existing zoning contemplates (P, D, A) those land uses. They are not required to be assessed against this policy.*

This application is for a Category B use within a zone which contemplates bulky goods showrooms as a "D" use. This exempts the proposed development application from an assessment against the policy. In light of this, the proposed development is excluded from consideration against the policy objectives and warrant support accordingly.

5 KEY PLANNING CONSIDERATIONS

5.1 Parking Assessment

Table 4 – Parking assessment

Tenancy	Land use	Requirement	Total area (m^2)	Bays required by Armadale
Existing approved uses				
T1-5	Existing development	1 bay per 50m^2 min (DWA)	10,374	207 bays
T6	Recreation Private (Gym)	1 bay per 50m^2 min (DWA)	2,192	43.8 bays
T7	Office	1 bay per 50m^2 min (DWA)	284	6 bays
Proposed uses				
T8 – T10	Extension (Showroom)	3 spaces per 100m2 of display or sales area + 2 spaces per 100m2 of storage area. (Armadale)	3,961.2	119 bays required (worst case)
Total number of bays provided				**348 bays**
Total parking requirement for development (including extension and gym)				**376 bays**
Total parking shortfall for extension (excludes gym)				**28 bays**

As above, the proposed development results in a 28 bay shortfall. However, this is considered acceptable for the following reasons:

- The parking requirements for the proposed Showrooms consider the entire floor area to be used for display or sales and therefore represent a worst-case scenario. The practical showroom requirement will reduce the shortfall.
- Although not currently tenanted, the existing approved Gym use would typically be utilised at a differing peak period as compared to the Showrooms. Peak occupancy for a Gym is generally between the hours of 6pm and 10pm, outside the opening hours of the remainder of the subject site.
- Further, it is expected a portion of the Gym patronage would access the site via alternate means of transport (walking or cycling) given the proximity to Residential development to the east of the subject site.
- The Draft Interim Guidance for Non-Residential Car Parking, prepared by the DPLH, represents a future, consistent approach to calculating parking provision requirements. The minimum provision for the Bulky Goods Showroom use within Service Commercial zones is 1 bay per 50m^2, as consistent with the previously applied DWA standards. This results in a lesser 80 bays being required for the extension. Given this requirement has been drafted in specific reference to Service Commercial type zones, it is considered to demonstrate a realistic and contemporary approach to calculating parking requirements.

As such, the proposed parking is expected to sufficiently accommodate the requirements of the existing development and proposed extension, warranting support accordingly.

6 CONCLUSION

This application seeks approval for an extension of three showroom tenancies to the existing large format retail development at the subject site. The proposed use is consistent with the existing and approved uses and intends to utilise the currently vacant pad site, intended for future development, at the south eastern aspect of the subject site, improving the provision of commercial and recreational services to residents and visitors of the locality.

The proposal appropriately responds to the relevant aspects of the planning framework and therefore warrants approval as it:

- Is consistent with the relevant standards of the City of Armadale's Town Planning Scheme No.4 and the relevant Local Planning Policies.
- provides an enhanced façade to a key intersection of the Forrestdale Business Park and has been specifically designed in reference to the existing built form at the subject site and that of the surrounding locality.
- Is appropriately located within the locality and along a key access route to the broader surrounds.
- Utilises an undeveloped portion of the subject site, in an appropriate manner, enhancing the amenity of the locality.
- Satisfactorily demonstrates that the proposed parking provision is adequate and appropriate to the proposed development.

The proposed development is generally compliant with the prescribed planning and development standards as stipulated throughout this development application report, and warrants approval accordingly.

Appendix 1:
Certificate of Title

WESTERN AUSTRALIA

REGISTER NUMBER	
801/DP66167	
DUPLICATE EDITION **N/A**	DATE DUPLICATE ISSUED **N/A**

VOLUME **2747** FOLIO **797**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 801 ON DEPOSITED PLAN 66167

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

EVA INVESTMENTS AUST PTY LTD OF 30-44 EVA STREET RIVERWOOD NSW 2210
(T P026974) REGISTERED 31/1/2022

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. *EASEMENT BURDEN CREATED UNDER SECTION 167 P. & D. ACT FOR ABOVE GROUND ELECTRICITY PURPOSES TO ELECTRICITY NETWORKS CORPORATION - SEE DEPOSITED PLAN 66167 AS CREATED ON DEPOSITED PLAN 52127.
2. *L406531 EASEMENT TO ELECTRICITY NETWORKS CORPORATIONS FOR ELECTRICITY TRANSMISSION WORKS PURPOSES - SEE SKETCH ON DEPOSITED PLAN 66167. REGISTERED 20/8/2010.
3. *P026975 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD REGISTERED 31/1/2022.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: DP66167
PREVIOUS TITLE: 162-120A, 2645-296
PROPERTY STREET ADDRESS: 600 RANFORD RD, FORRESTDALE.
LOCAL GOVERNMENT AUTHORITY: CITY OF ARMADALE

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING K621188
NOTE 2: N487918 SECTION 138D TLA APPLIES TO CAVEAT N396439
NOTE 3: N677046 SECTION 138D TLA APPLIES TO CAVEAT N505658

END OF PAGE 1 - CONTINUED OVER

NOTE 4: N732904 SECTION 138D TLA APPLIES TO CAVEAT N701624
NOTE 5: N983511 SECTION 138D TLA APPLIES TO CAVEAT N957094

Briefing Note – Justification for parking shortfall

To:	City of Armadale	**From:**	Joshua Carmody
Attention:	Christopher Valentine	**Job No:**	8287
Copy to:		**Date:**	11 December 2023
Subject:	Additional information – Parking shortfall justification		

PLANNING SOLUTIONS
URBAN & REGIONAL PLANNING
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GPO Box 2709
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www.planningsolutions.com.au
ACN 143 573 184 ABN 23 143 573 184
Planning Solutions (Aust) Pty Ltd

Updated parking assessment

The parking assessment included within the DA report dated 22 September undertook an assessment of the proposed building extension with an assumption that 100% of the floorspace would be used for sales or display.

Table 1 below contains an updated assessment using an indicative floorplan of the proposed extension. The revised assessment shows a reduction in the shortfall from 28 to 23 bays.

Table 1 – Parking assessment

Tenancy	Land use	Requirement	Total area (m²)	Bays required by Armadale
Existing approved uses				
T1-5	Existing development (Showroom)	1 bay per 50m² min (DWA)	10,374	207 bays
T6	Existing development (Recreation Private (Gym))	1 bay per 50m² min (DWA)	2,192	44 bays
T7	Existing development (Office)	1 bay per 50m² min (DWA)	284	6 bays
Proposed uses				
T8 – T10	Extension (Showroom)	3 spaces per 100m² of display or sales area + 2 spaces per 100m² of storage area. (Armadale)	3,961.2 in total, as follows: – Display floor area: 3,666.2m² (109.9 bays) – Storage area: 183m² (3.66 bays) – Corridor/toilet area: 112m² (No bays)	114 bays
Total number of bays provided				**348 bays**
Total parking requirement				**371 bays**
Total parking shortfall for extension				**23 bays**
Shortfall as a percentage of overall parking provision				**6.6%**

As above, the proposed development results in a 23 bay shortfall. However, this is considered acceptable for the following reasons:

- Although not currently tenanted, the existing approved Gym use would typically be utilised at a differing peak period as compared to the Showrooms. Peak occupancy for a Gym is generally between the hours of 6pm and 10pm, outside the opening hours of the remainder of the subject site.

- A review of aerial surveys from 2016 and 2023 (refer Table 2 **below**) shows a relatively low level of parking occupancy with peak demand never exceeding 40.7% of available parking. Whilst traffic to the site has been growing since the site was converted from a former Masters store to a multi-tenancy commercial site with a variety of showrooms—it is unlikely result in significantly higher peak demand than can be observed in 2016 when Masters was operational.

Table 2 – Survey of parking occupancy using aerial photographs from Nearmap

Date	Day	Time	Number of cars	Bays	Parking occupancy
15/10/2023	Sunday	11:59am	33	329	10%
31/08/2023	Thursday	10:30am	30	329	9.1%
31/8/2023	Thursday	9:49am	22	329	6.6%
1/5/2023	Monday	9:45am	5	329	1.5%
26/2/2023	Sunday	2:56pm	0	329	0%
Site vacant between 2016 and early 2023					
22/11/2016	Tuesday	12:18pm	74	324	22.8%
10/10/2016	Monday	1.03pm	122	324	37.6%
29/9/2016	Thursday	12:11pm	132	324	40.7%
27/6/2016	Monday	12:34pm	64	324	19.7%

- The City of Armadale LPS4 minimum parking requirements are likely excessive for the following reasons:
  - Minimum parking requirements under local planning schemes are deliberately designed to ensure that smaller-scale land uses provided the necessary amount of parking. For this reason, minimum parking requirements typically result in an oversupply of parking bays for large-scale land uses (as demonstrated by the parking occupancy rates seen in the Table 2 above). Several other local authorities account for this with maximum parking provision rates (ie Vincent and Canning), however LPS4 does not.
  - LPS4 requires parking at a rate of 1 bay per 33.3m^2 of display area; and 1 bay per 50m^2 of storage area. This appears excessive when compared against a number of other local planning schemes (refer Table 3 **below**).

Table 3 – Review of minimum parking requirements for a Showroom under other local planning schemes

Authority	Minimum parking requirement	minimum number of bays
Bassendean	1 bay per 20m^2 GFA	198 bays
Mandurah	1 bay per 30m^2 GLA	132 bays
Armadale	1 bay per 33.3m^2 sales area + 1 bay per 50m^2 storage area	114 bays
Belmont	1 bay per 40m^2 NLA	99 bays
DPLH Interim Guidelines	1 bay per 50m^2 min	80 bays
Cockburn	1 bay per 50m^2 GLA	80 bays
Gosnells	1 bay per 50m^2 GLA	80 bays
Fremantle	1 bay per 50m^2 GLA	80 bays
Vincent	1.2-2 bays per 100m^2 NLA (max 1 per 50m^2)	80 bays
Rockingham	1 bay per 50m^2 NLA	80 bays
Kalgoorlie-Boulder	1 bay per 50m^2 for first 200m^2 NLA and then 1 bay per 100m^2 NLA thereafter	80 bays
August-Margaret River	1 bay per 50m^2 NLA	80 bays

Authority	Minimum parking requirement	minimum number of bays
Joondalup	1 bay per 50m² NLA	80 bays
Busselton	1 bay per 50m² NLA	80 bays
DevelopmentWA	1 bay per 50m² min	80 bays
Subiaco MRA area	0.5 bays per 50m² NFA	40 bays

- The *Draft Interim Guidance for Non-Residential Car Parking*, prepared by the DPLH represents a future, consistent approach to calculating parking provision requirements. The minimum provision for the Bulky Goods Showroom use within Service Commercial zones is 1 bay per 50m², as consistent with the previously applied DWA standards. This confirms that the most appropriate minimum parking requirements is 1 bay per 50m² or less. . Given this requirement has been drafted in specific reference to Service Commercial type zones, it is considered to demonstrate a realistic and contemporary approach to calculating parking requirements.

If the proposed extension was assessed against a one bay per 50m² minimum parking requirement, it would require only 80 bays to be provided in total and show an overall parking surplus of 11 bays.

As such, the proposed parking is expected to sufficiently accommodate the requirements of the existing development and proposed extension, warranting support accordingly.

Transport Impact Assessment

Proposed Showroom, Lot 801 (600)
Ranford Road, Forrestdale

CW1200775 - 300304846

30 August 2023

Rev A

Prepared for:

Eva Investments Australia Pty Ltd

Prepared by:

Stantec Australia Pty Ltd

Revision	DATE	Description	Author	Reviewed by	Approved by
A	30 August 2023	For Issue	LL	DH	RJC

This document entitled Transport Impact Assessment, Lot 801(600), Ranford Road, Forrestdale was prepared by Stantec Australia Pty Ltd("Stantec") for the account of Eva Investments Australia Pty Ltd (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____
Lovely Lal

Reviewed by _____
Desmond Ho

Approved by _____
Ray Cook

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1.0 INTRODUCTION

1.1 BACKGROUND

Stantec has been commissioned by Eva Investments Australia Pty Ltd (the Client) to prepare a Transport Impact Assessment (TIA) for the proposed Showroom Development at Lot 801(600), Ranford Road, Forrestdale which falls within the jurisdiction of the City of Armadale.

This report aims to assess the impacts of the proposed development on the adjacent road network with a focus on traffic operations, circulation, and car parking requirements.

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

2.0 EXISTING SITUATION

2.1 SITE LOCATION AND CONTEXT

The proposed Showroom is located within the suburb of Armadale and is situated approximately 30km southeast of the Perth Central Business District. The proposed development is located at the corner of Remisko Drive / Ranford Road / Lake Road roundabout and bounded by Remisko Drive to the south and Ranford Road to the east. **Figure 2-1** shows aerial image of the site.

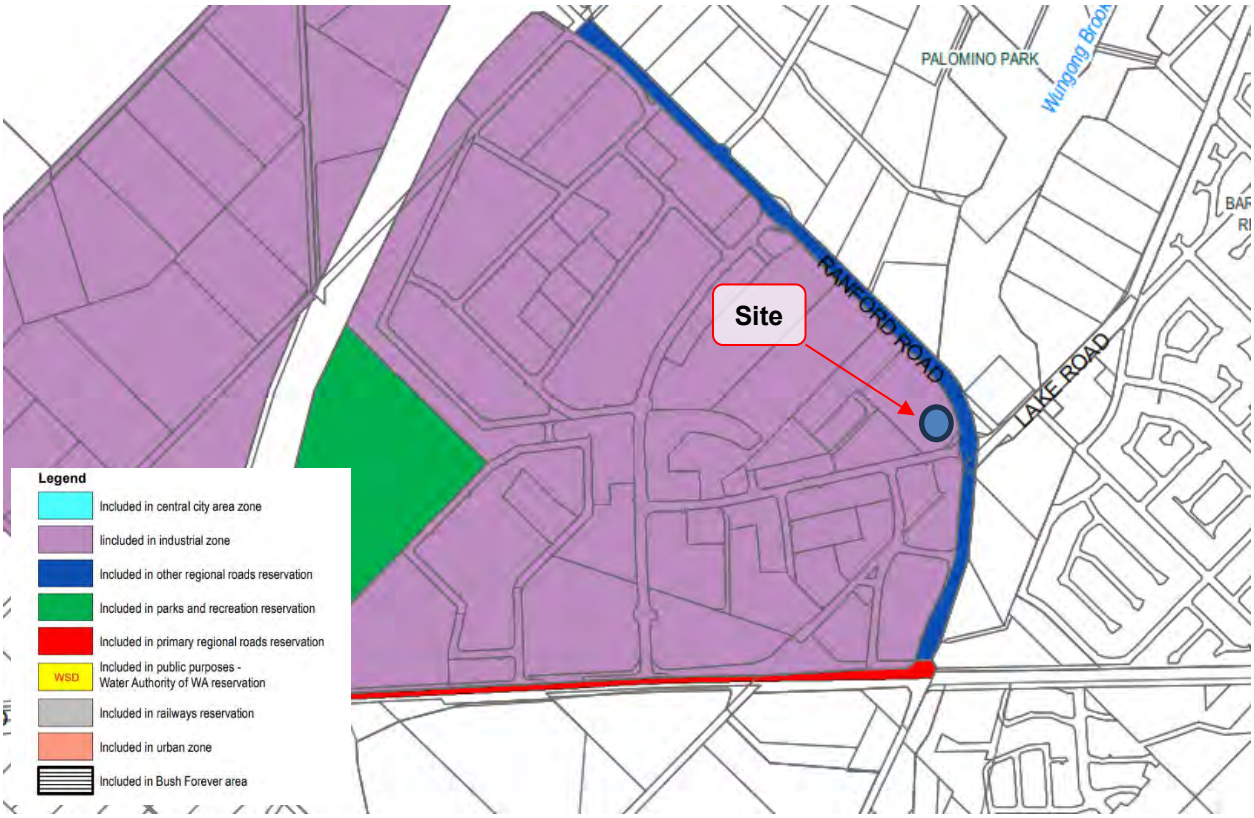
Figure 2-1 Aerial Image of Site

Source: MetroMap (2023)

2.2 ZONING

According to the City of Armadale's Town Planning Scheme No. 4 (TPS No.4), the Site is part of a local precinct cluster known as the Forrestdale Business Park East. Under Amendment No. 107 (*of the town planning scheme*) and is currently zoned as 'Industrial Business'. **Figure 2-2** provides the current zoning assignment for the Site and its surrounding area.

Figure 2-2 MRS Amendment Plan



Source: Amendment No.107 of the City of Armadale's Town Planning Scheme No. 4

2.3 EXISTING ROAD NETWORK

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

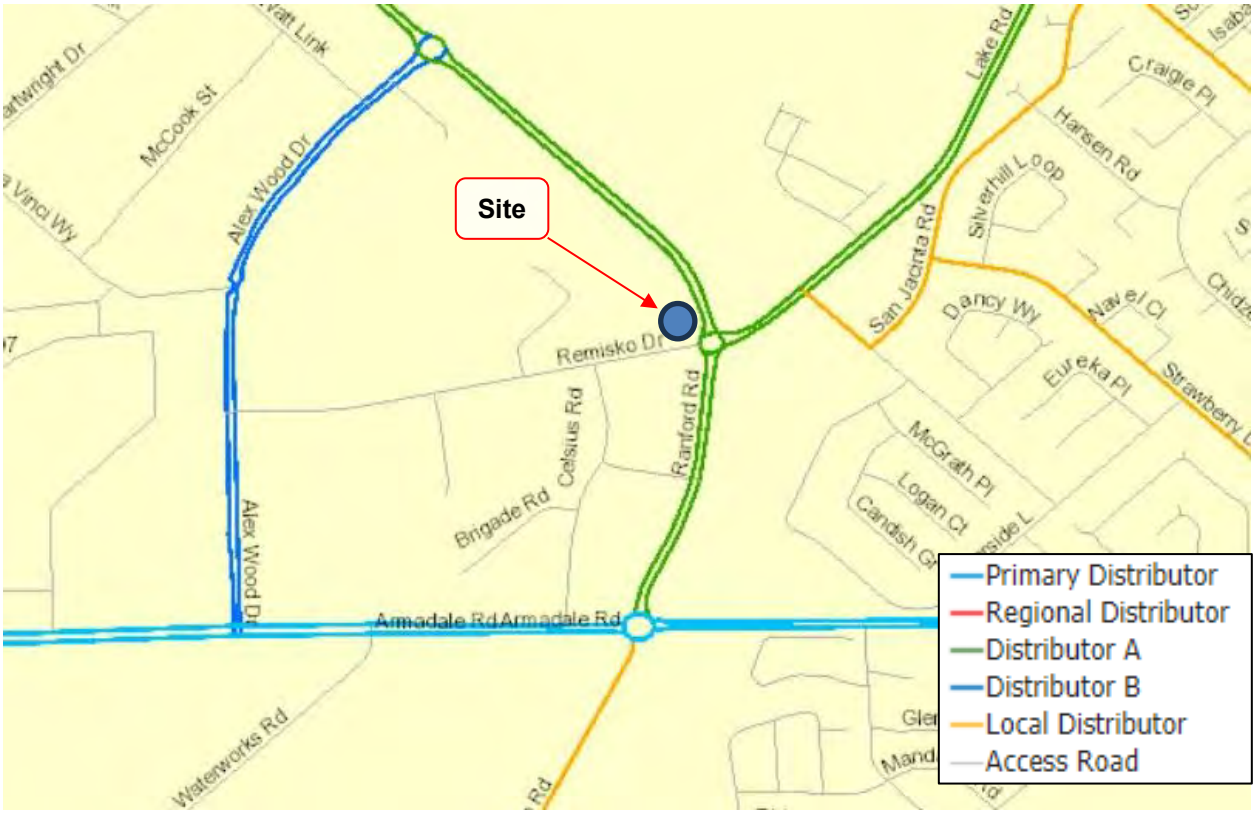
- **Primary Distributors (light blue):** Form the regional and inter-regional grid of Main Roads WA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes and all are National or State roads. They are managed by Main Roads.
- **Regional Distributors (red):** Roads that are not Primary Distributors, but 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.
- **District Distributor A (green):** These carry traffic between industrial, commercial and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.
- **District Distributor B (dark blue):** Perform a similar function to District Distributor A but with reduced capacity due to flow restrictions from access to and roadside parking alongside the adjoining property. These are often older roads with traffic demand in excess of what was originally intended. District Distributor A and B roads run between land-use cells and not through them, forming a grid that would ideally be around 1.5 kilometres apart. They are managed by Local Government.
- **Local Distributors (orange):** Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local government.
- **Access Roads (grey):** Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian-friendly. They are managed by Local government.

The surrounding road network is further described in **Table 2-1**and **Figure 2-3** shows the hierarchy as per the Main Roads WA Road Information Mapping System.

Table 2-1 Road Network Classification

Road Name	Road Hierarchy		Road Characteristics			
	Road Hierarchy	Road Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Posted Speed (km/h)
Ranford Road	Distributor A	Local Government	4	1	23.2m (including 5.8m median and 1.7m sealed shoulder on each direction)	70
Remisko Drive	Access Road	Local Government	2	1	9.3	50
Lake Road	Distributor A	Local Government	2	N/A	17.5m (including 2.2m median)	70

Figure 2-3 Road Hierarchy



Source: MRWA Information Mapping (2023)

2.4 EXISTING KEY INTERSECTIONS

2.4.1 Ranford Road / Remisko Drive / Lake Road Intersection

Ranford Rd / Remisko Dr / Lake Rd intersection is located to the south east of the site. The intersection is a four-legged roundabout as illustrated in **Figure 2-4.**

Figure 2-4 Ranford Rd / Remisko Dr / Lake Rd Intersection

Source: Metromap

2.4.2 Ranford Road / Site Access Intersection

Ranford Rd / Site Access Intersection is located to the east of the site. The intersection is a priority controlled intersection with priority given to Ranford Road as illustrated in **Figure 2-5.**

Figure 2-5 Ranford Rd / Site Access

2.5 EXISTING TRAFFIC VOLUMES

Existing traffic volumes were sourced from Main Road WA Traffic Map and the City of Armadale and are summarised in **Table 2-2**.

Table 2-2 Traffic Volumes

Road Name	Date	Source	Average Daily Traffic Volume	AM Peak Hour	PM Peak Hour	HV %
Ranford Road North of Lake Road	2022/22	Main Roads Traffic Map	14,524	1,122 (8:00AM)	1,248 (4:00PM)	7.9%
Lot 202 Lake Road Kelmscott NB only	2023	City of Armadale	3,898	326	306	-
Lot 202 Lake Road Kelmscott SB only	2023	City of Armadale	4,142	324	375	-

2.6 CRASH ASSESSMENT

A crash assessment for the surrounding road network of the Site has been completed using the Main Roads WA Reporting Centre. The assessment covers all the recorded accidents between 1 January 2018 and 31 December 2022 and the results are summarised in **Table 2-3** to **Table 2-7. Figure 2-6** illustrates the crash locations and their severity.

Table 2-3 Total Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	2	9	1	**12**
Sideswipe Same Direction	-	-	-	5	4	**9**
Hit Object	-	1	1	1	-	**3**
Non Collision	-	1	-	-	-	**1**
Right Angle	-	-	2	5	2	**9**
Right Turn Thru	-	-	-	1	1	**2**
Total	**-**	**2**	**5**	**21**	**8**	**36**

Table 2-4 Ranford Rd - Lake Rd & Remisko Dr Int. Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Sideswipe Same Direction	-	-	-	4	3	**7**
Rear End	-	-	1	7	1	**9**
Right Angle	-	-	2	5	2	**9**
Right Turn Thru	-	-	-	1	1	**2**
Total	**-**	**-**	**3**	**17**	**7**	**27**

Table 2-5 Ranford Road – Alexwood Drive Int. Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	1	2	-	**3**
Sideswipe Same Direction	-	-	-	-	1	**1**
Hit Object	-	1	-	-	-	**1**
Non Collision	-	1	-	-	-	**1**
Total	**-**	**2**	**1**	**2**	**1**	**6**

Table 2-6 Remisko Dr / Bessemer Rd Int. Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Sideswipe Same Direction	-	-	-	1	-	**1**
Total	**-**	**-**	**-**	**1**	**-**	**1**

Table 2-7 Midblock Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Ranford Rd	-	-	1	1	-	**2**
Total	**-**	**-**	**1**	**1**	**-**	**2**

Figure 2-6 Crash Locations

Source: Maps.co

The crashes recorded are summarised below:

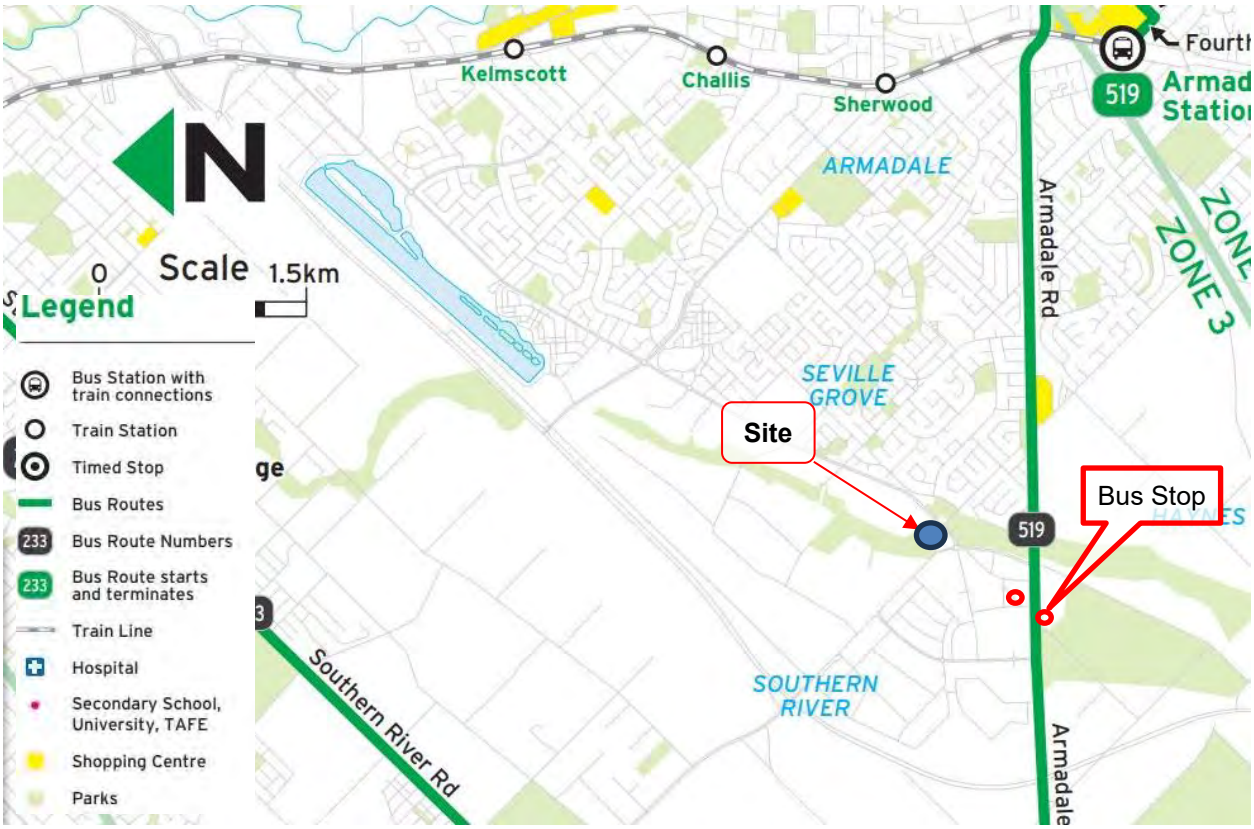
- A total of 36 crashes was recorded in close proximity to the Site.
- Majority of the crash severity recorded are Major Property Damage (21 incidents) and Minor Property Damage (8 incidents).
- 5 crashes required medical attention.
- No fatal crash was recorded near the Site.

It is very unlikely that this development would have any material impact on road safety in the area.

2.7 EXISTING PUBLIC TRANSPORT FACILITIES

The nearest public transport service available close to the Site is via a bus stop along Armadale Road; which is within a 500m walking/cycling distance from the Site. The bus stops are serviced by bus route 519 that runs between Armadale Station and Murdoch TAFE. Armadale train station is approximately 5km away from the Site but can be directly accessed via bus route 519. **Figure 2-7** provides the existing public transport network around the Site while **Table 2-8** provides service frequencies for bus route 519 and Armadale railway line while.

Figure 2-7 Bus Routes



Source: Transperth

Table 2-8 Transperth Service and Frequencies

Bus Route / Train Line	Service Description	Service Frequencies		
		Weekdays	*Saturdays*	*Sundays and Public Holidays*
519	Armadale Station to Murdoch TAFE Bus Service	30 mins	N/A	N/A
Armadale Line	Perth – Armadale Train Service	15 mins	30 mins	30 mins

2.8 EXISTING PEDESTRIAN/CYCLE NETWORKS

The Site is well located close to the routes of high-quality shard paths, particularly along Armadale Road and Tonkin Highway. It is evident that the Forrestdale Business Park (wherein the Sites are located) can be accessed via cycling. The high-quality shared path along Armadale Road provides an East-West movement to and from the Site; particularly Armadale station which is east of the proposed development. High quality shared paths run along a section of Ranford Road in front of the proposed site. **Figure 2-8** illustrates the pedestrian and cycling network.

Figure 2-8 Pedestrian & Cycling Network

Source: Department of Transport

3.0 DEVELOPMENT PROPOSAL

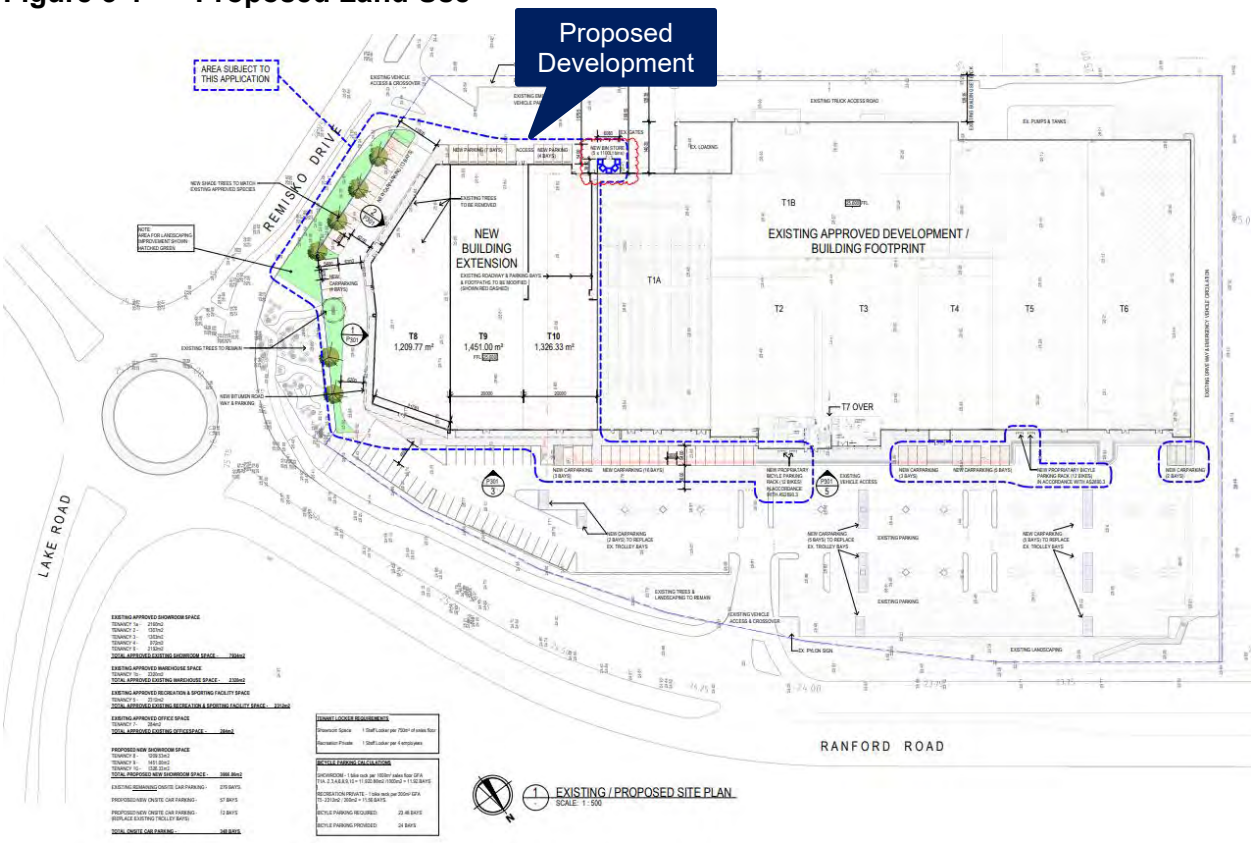
3.1 PROPOSED LAND USE

The proposal is a showroom facility as per below land use details:

- Showroom
  - Tenancy 8 – 1209.53 sqm
  - Tenancy 9 – 1451.00 sqm
  - Tenancy 10 – 1326.33 sqm
- Car Bays – 69

The layout of the proposed development on the subject Site is shown in **Figure 3-1**. Detailed development plans are provided in **Appendix B**.

Figure 3-1 Proposed Land Use



Source: Oldfield Knott Architects Pty Ltd

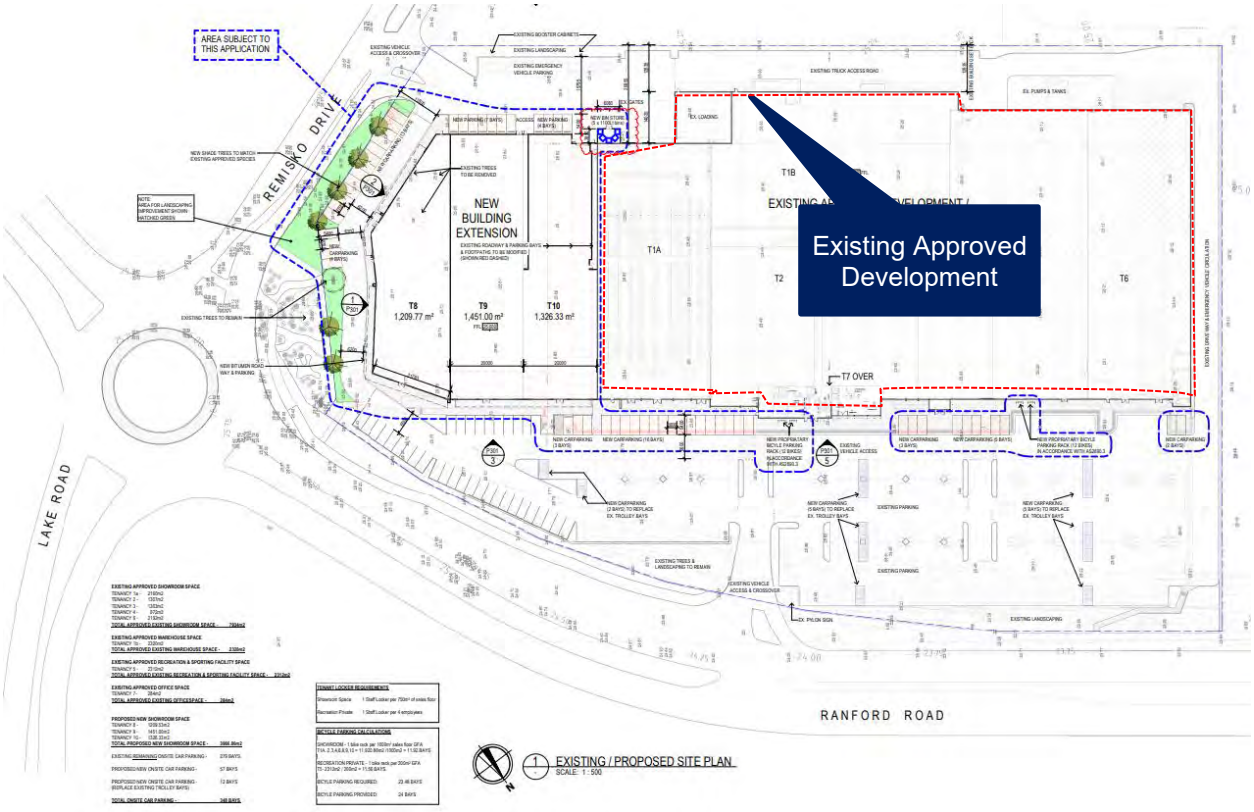
3.2 EXISTING APPROVED LANDUSE

It should be noted that the previously approved TIA land use adjacent to the proposed development have been incorporated in the analysis as it is not fully operational and includes the following specific components:

- Existing Showroom – 7,934 sqm
- Existing warehouse – 2,320 sqm
- Existing Recreation & Sporting Facility – 2,312 sqm
- Existing Office Space – 284 sqm
- On Site Car Parking Space – 279 bays

The layout of the existing development adjacent to the subject Site is shown in **Figure 3-2**. Detailed development plans are provided in **Appendix B**.

Figure 3-2 Existing Approved Development



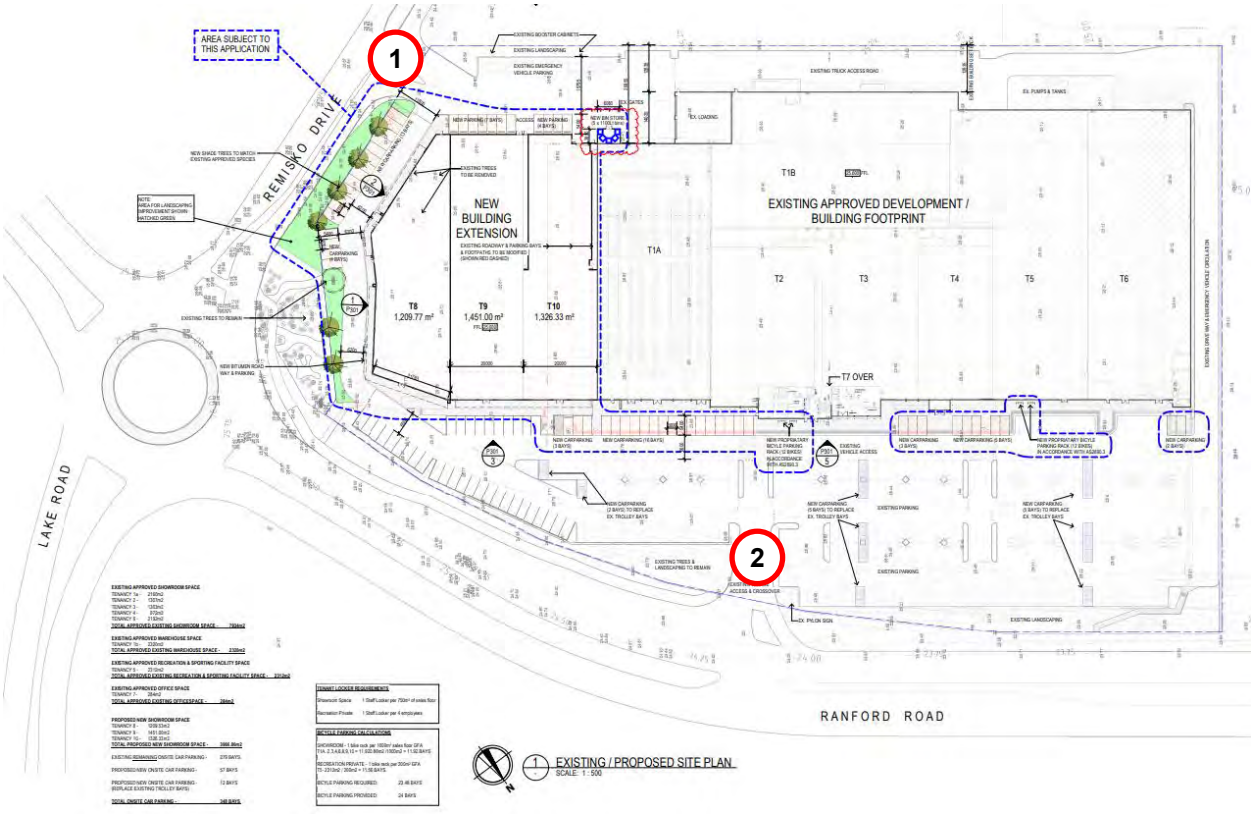
Source: Oldfield Knott Architects Pty Ltd

3.3 ACCESS ARRANGEMENTS

Vehicular access into the site is proposed to be via crossovers along Ranford Road and Remisko Drive as shown in **Figure 3-3.**

- Access 1 – Car Park & Heavy Vehicle Access – Left In, Left Out & Right in
- Access 2 – Car Park & Waste Truck Access (one way) – Left In, Left Out & Right in

Figure 3-3 Access Arrangement



Source: Oldfield Knott Architects Pty Ltd

3.4 SWEPT PATHS

3.4.1 PROVISION FOR SERVICE VEHICLES

Servicing for the site will be undertaken primarily via the access along Remisko Drive for access and egress to and from the loading docks. The largest vehicle anticipated to access the proposed site will be 12.5m HRV vehicles. 19m trucks will be accessing the adjacent site entering and exiting to and from the loading dock of the adjacent development located next to the bin enclosure area.

A swept path analysis was conducted for the HRV and an MRV vehicle and this is shown in **Figure 3-4** and **Figure 3-5.** Swept paths layout showing 19m semi trailer exit from the neighbouring loading dock area with an HRV parked on site is shown in **Figure 3-6.** Larger versions are provided at **Appendix C**.

Figure 3-4 MRV Swept Path

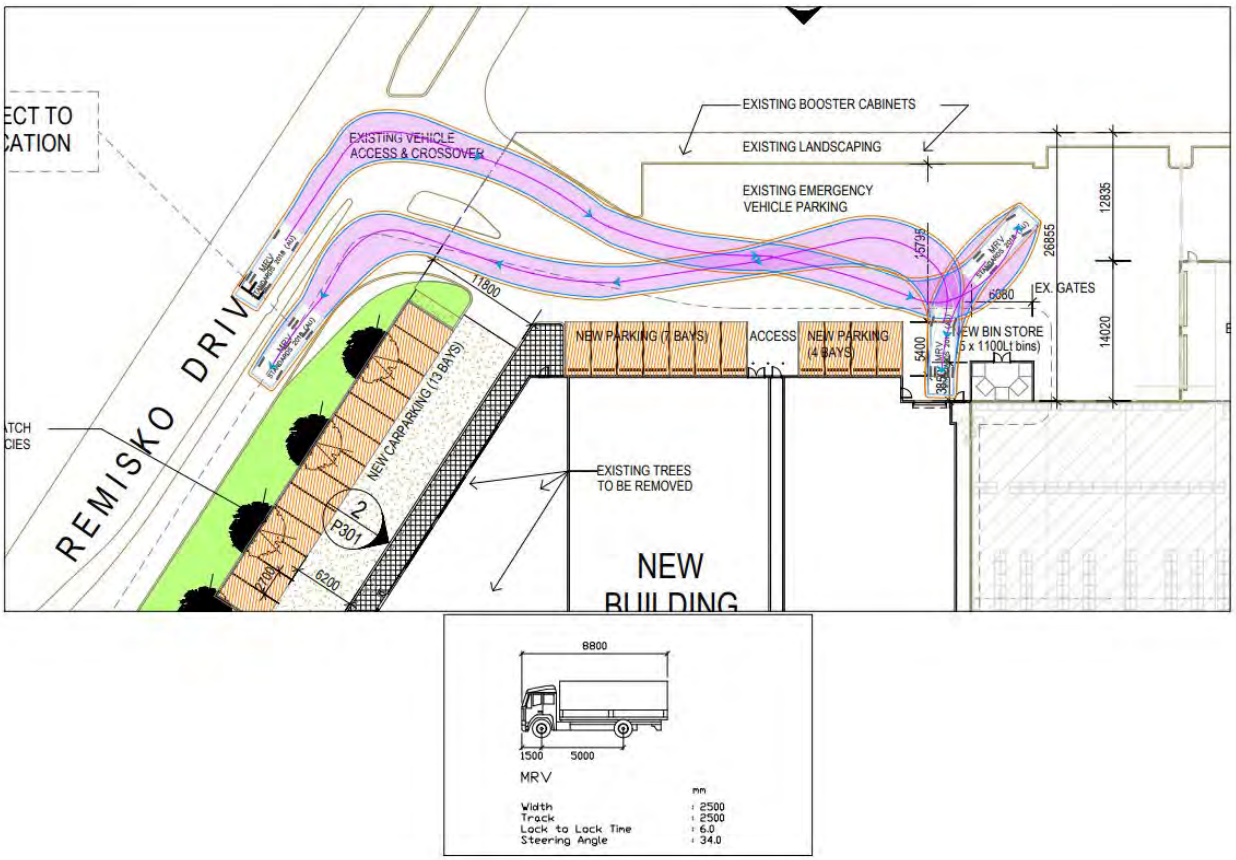


Figure 3-5 19m Semi Trailer passing with HRV parked

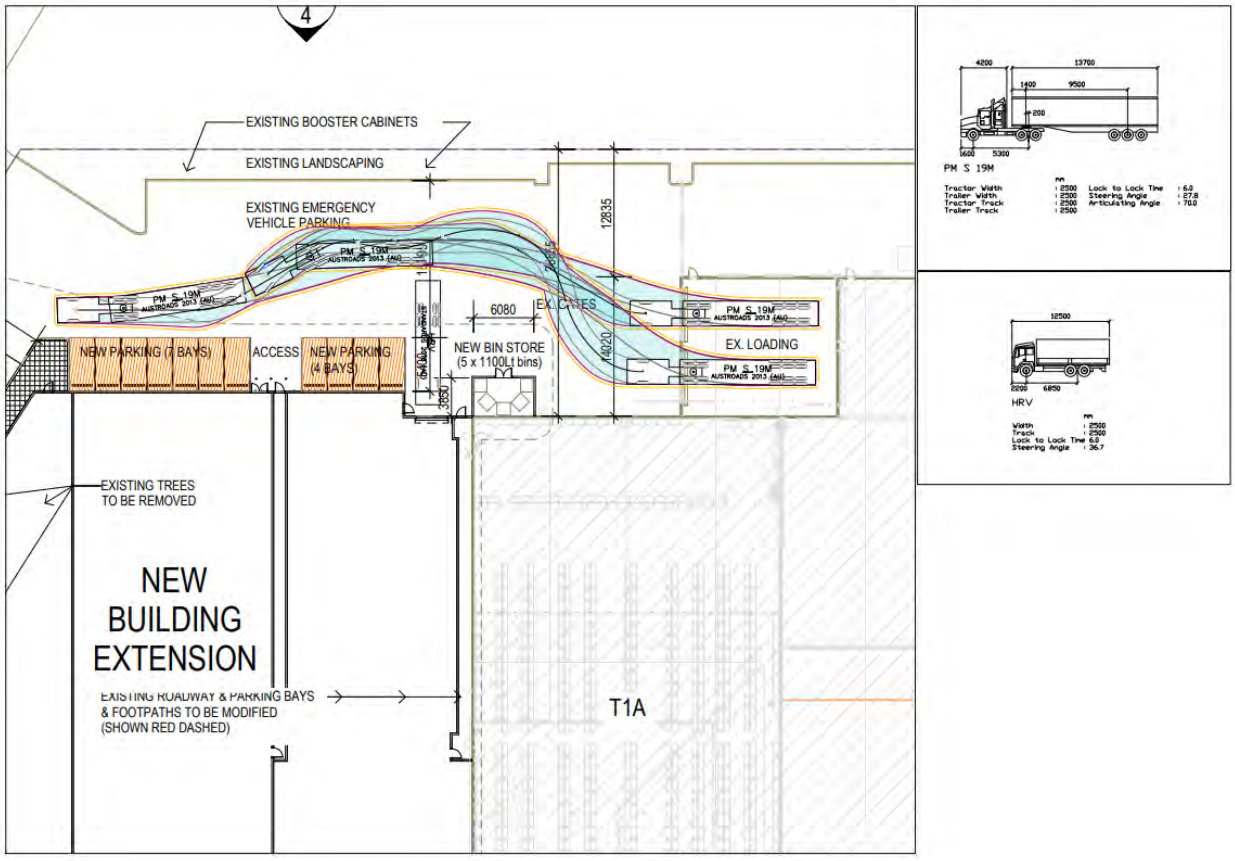
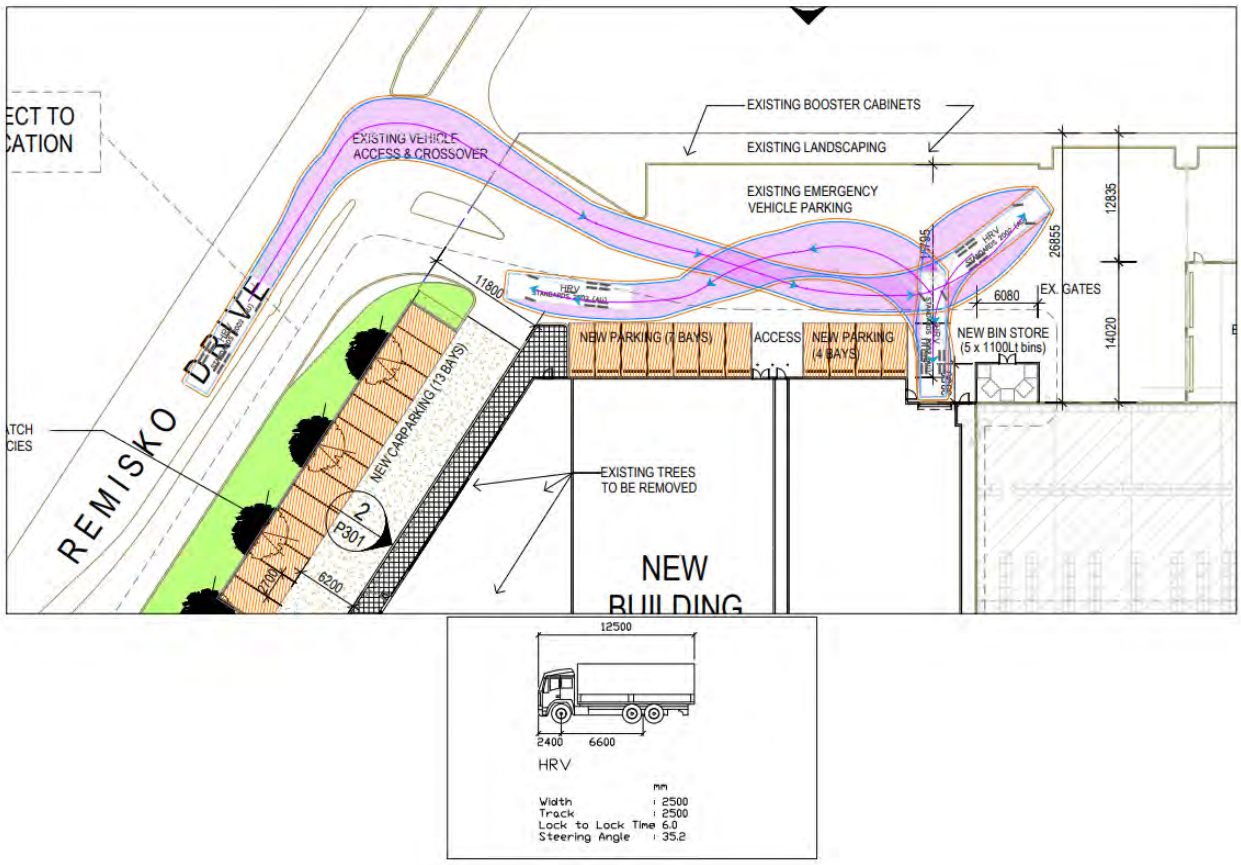


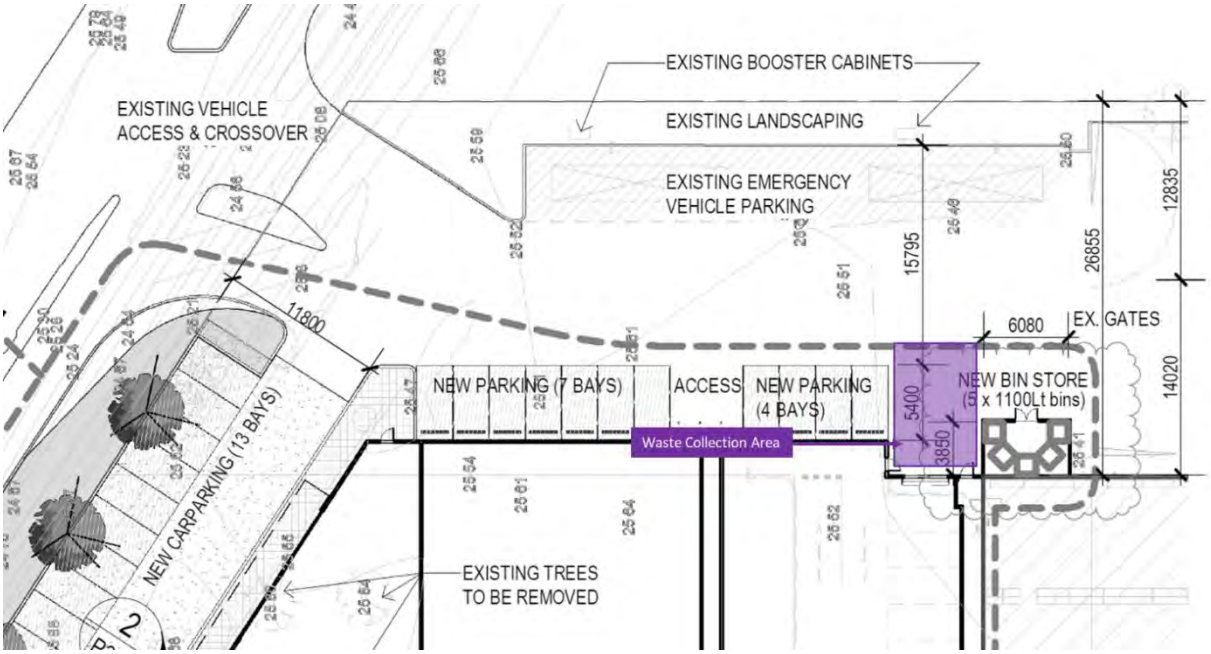
Figure 3-6 HRV Swept Path



3.4.2 WASTE AND RECYCLING COLLECTION SERVICES

Waste collection is proposed to be undertaken on-site near the bin enclosure as illustrated in **Figure 3-7.**

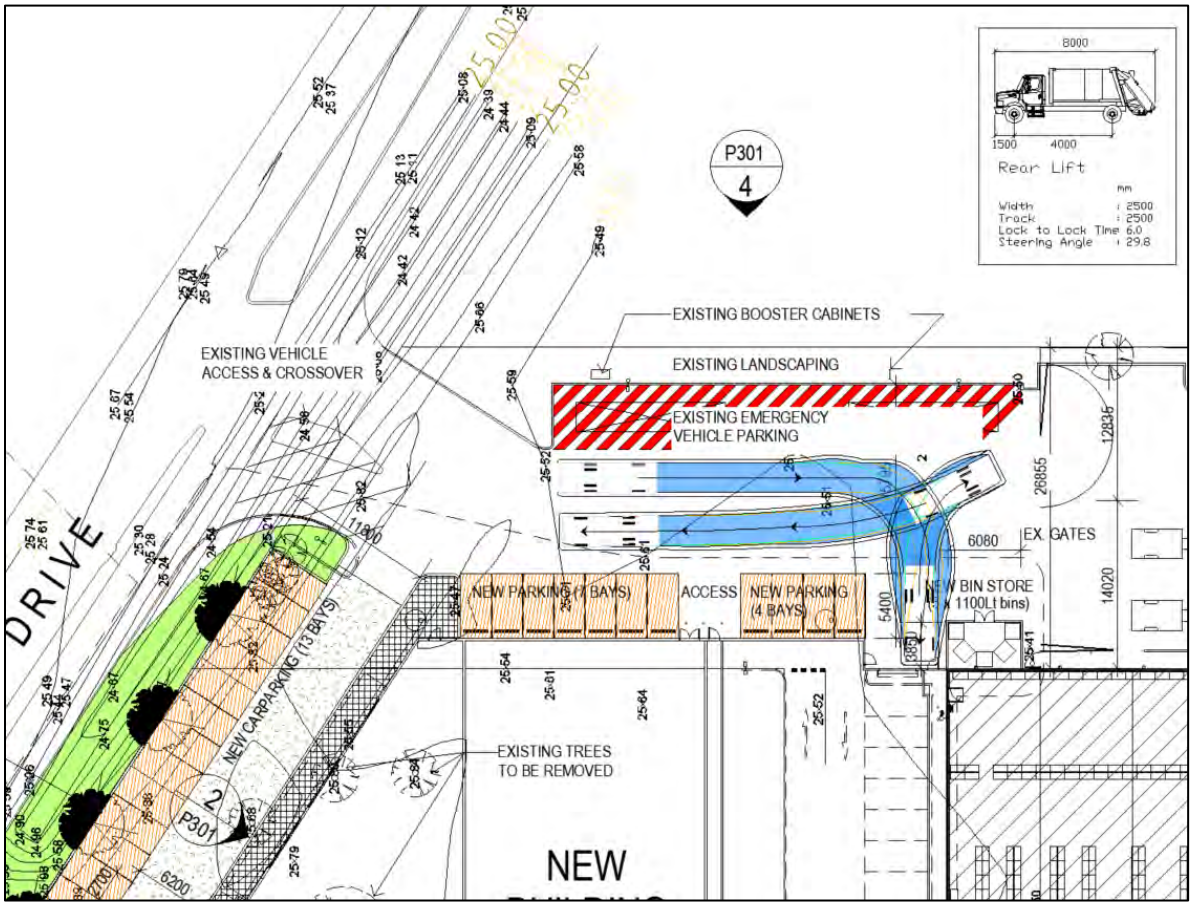
Figure 3-7 Waste Collection Area



A swept path analysis for a 8.0 m waste vehicle was undertaken as illustrated in **Figure 3-8**.The analysis indicates that a waste vehicle is able to adequately enter the site, manoeuvre and park at the waste collection area to collect the waste and exit in a forward direction.

Waste collections will be undertaken on-site by a private waste contractor and to be arranged to occur during off peak hours or after normal business hours to minimise disruption to traffic operations as well as minimise any impacts to staff and visitors.

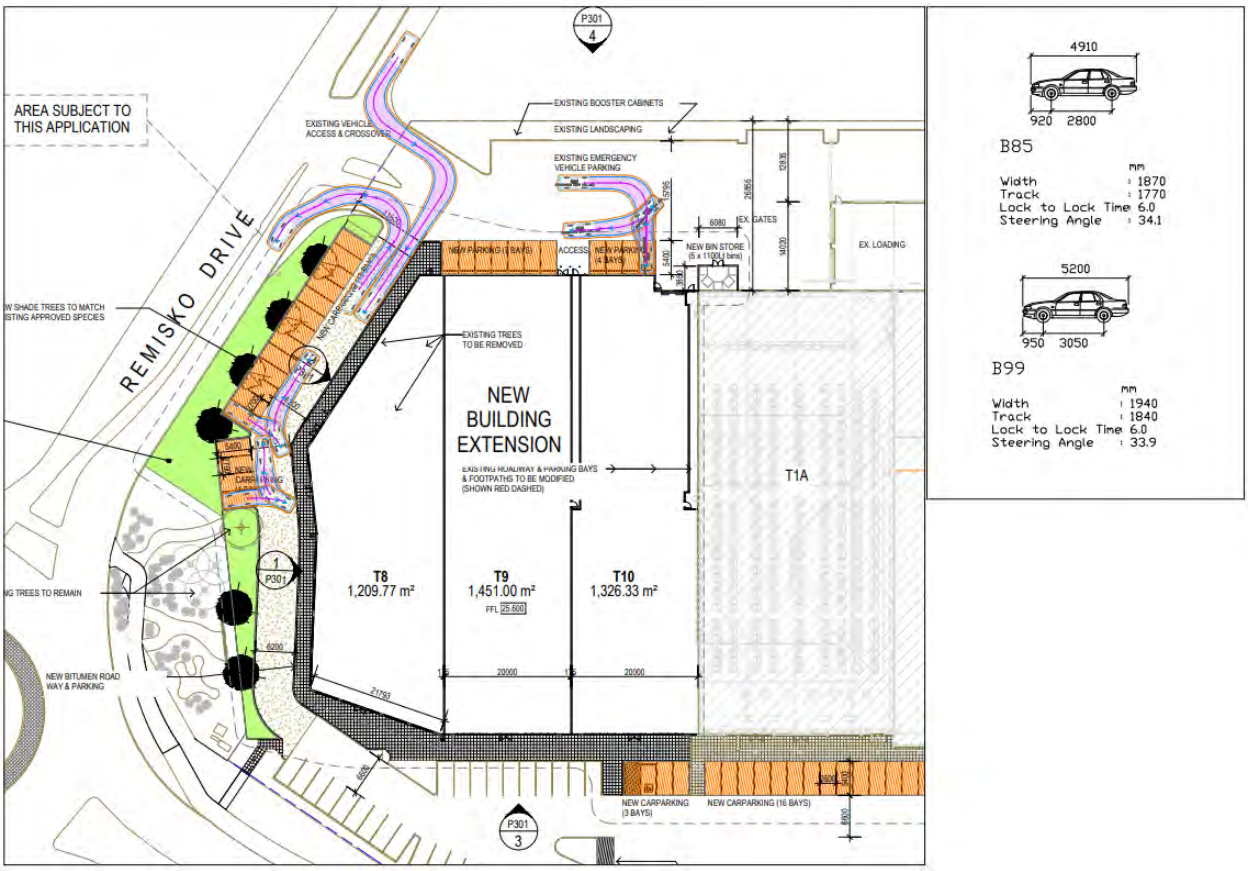
Figure 3-8 Swept Path – Waste Collection



3.4.3 B85 & B99 SWEPT PATHS

A swept path analysis was undertaken for B85/B99 passenger vehicles and illustrated in **Figure 3-9.** The swept path diagrams demonstrate that these design vehicles are able to adequately enter and exit the proposed parking without any encroachments.

Figure 3-9 B85 & B99 Swept Paths



3.5 CAR PARKING REQUIREMENTS

The car parking requirements for the development are prescribed in the *City of Armadale Town Planning Scheme No.4*. **Table 3-1** shows the car parking requirements and the on-site provision.

Table 3-1 Car Parking Requirements

Proposed Land Use	Parking Standard	Yield	Parking Requirement	Total Bays Provided	Total Bays Required	Total Parking Shortfall
Existing Development	1 bay per 50 sqm min (DWA)	12,656 sqm	254 bays	348 bays	374 bays	26 bays
Proposed Development (Showroom)	3 spaces per 100 square metres NLA of display or sales area, plus 2 spaces per 100 square metres of storage area.(Armadale)	3987.1 sqm	120 bays (worst case)			

A total of 348 parking bays is proposed for the overall site. Based on the TPS No.4 requirements a shortfall of 26 parking bays is recorded. However, given the nature of proposed land use and site context, the following points suggests that the proposed parking can meet the development requirements:

- The parking requirements for the proposed showrooms consider the entire floor area to be used for display or sales and therefore represent a worst-case scenario. The practical showroom requirement will reduce the shortfall.
- Although not currently tenanted, the existing approved Gym use would typically be utilised at a differing peak period as compared to the Showrooms. Peak occupancy for a Gym is generally between the hours of 6pm and 10pm, outside the opening hours of the remainder of the subject site.
- Further, it is expected a portion of the Gym patronage would access the site via alternate means of transport (walking or bicycle) given the proximity to Residential development to the east of the subject site.

Therefore, it is anticipated that the site can operate with the reduced vehicle parking requirement and trip attraction based on a combination of the above factors.

3.6 BICYCLE PARKING REQUIREMENTS

The bicycle parking requirements for the development are prescribed in the *City of Armadale Town Planning Scheme No.4*. **Table 3-2** shows the bicycle parking requirements and the on-site provision for the whole site.

Table 3-2 Bicycle Parking Requirements

Proposed Land Use	Parking Standard	Yield	Parking Requirement	Total Parking Required	Total Parking Provided
Showroom (T1A,2,3,4,6,8,9,10)	1 per 1000 sqm sales floor area	11,920 sqm	11.92 bays	23.48 bays	24 bays
Recreation Private (T5)	1 per 200 sqm GFA	2,312	11.56 bays		

The entire site proposed to provide a total of 24 bicycle bays which meets the requirements of the *City of Armadale Town Planning Scheme No.4.*

4.0 CHANGES TO SURROUNDING NETWORK

4.1 CHANGES TO SURROUNDING LAND USES

Stantec contacted City of Armadale and was advised that Lot 9047 development is intending to be developed as light commercial and light industrial as shown in **Figure 4-1.**

As part of the development there are plans to upgrade the intersection of Tesla Way and Celsius Road and will remain as priority controlled intersection.

Figure 4-1 Lot 9047 Development

Source: City of Armadale

4.2 PUBLIC TRANSPORT FACILITIES

Stantec contacted the relevant authorities and was advised that there will be no changes to the public transport services within the vicinity of the Site in the short term.

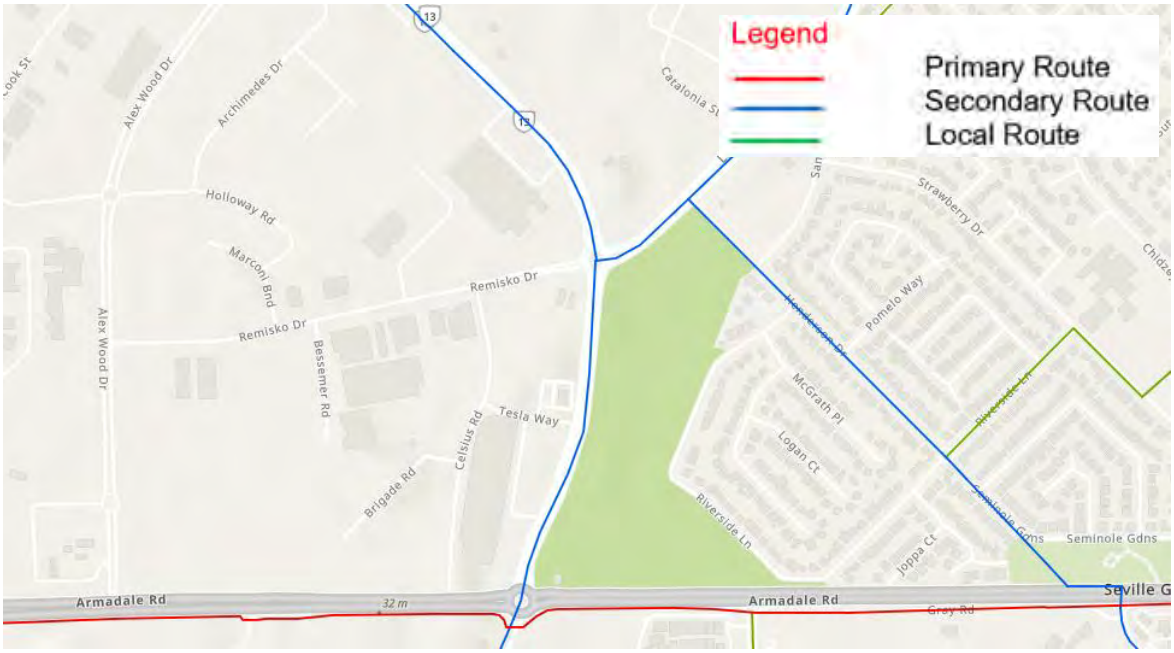
The nearest bus service is the Route 519 which is operating along Armadale Rd between Armadale Station and Murdoch Station. There are longer term plans for this service to operate marginally more frequently, however at this stage, these improvements are not funded. Later this year there is a possibility of a temporary service improvement along Armadale Rd as part of the LXR closure. This may result in a higher frequency of bus services along Armadale Rd during reconstruction works.

4.3 PEDESTRIAN / CYCLING NETWORKS

Stantec contacted City of Armadale and was advised that as part of the development in Lot 9047 there are plans to improve the pedestrian and cycling facilities on surrounding roads.

The City of Armadale sought the input of the public back in 2016 regarding its existing cycling facilities. It was done as part of the City's plan to prepare a cycling infrastructure strategy to make it accessible via cycling and walking. In line with the Long-Term Cycle Network for Perth, the City of Armadale has aligned its active transport objectives with the Western Australian Bicycle Network's (WABN) Plan. The LTCN shows Ranford Road and Lake Road as Secondary route connecting to Armadale Road. **Figure 4-2** shows the Long Term Cycle Network on the surrounding network in the proximity of the subject site

Figure 4-2 Long Term Cycle Network



Source: LTCN

5.0 INTEGRATION WITH SURROUNDING AREA

5.1 SURROUNDING ATTRACTORS / GENERATORS

Due to the nature of the development there are no significant traffic generators or attractors in the surrounding area. Traffic into and out of the subdivision would primarily be coming and going to the major routes such as Armadale Road and Tonkin Highway

6.0 ANALYSIS OF TRANSPORT NETWORK

6.1 ASSESSMENT YEARS AND TIME PERIOD

Three assessment years as indicated below was analysed:

- Existing Condition – 2023 traffic data
- Year 2025: Assumed opening year of the development:
- Year 2035: 10-year horizon after the completion of the development.

6.2 ANALYSIS OVERVIEW

To identify the impact of the proposed development on the surrounding road network, the intersection performance for the following intersection has been analysed using the SIDRA analysis software tool:

- Ranford Road / Lake Road / Remisko Drive Intersection
- Ranford Road / Alexwood Drive Intersection

The following scenarios have been analysed as part of this assessment:

Scenario 1 – Existing Traffic without Development;

Scenario 2 – 2025 Traffic with and without Development;

Scenario 3 – 2035 Traffic with and without Development.

6.3 ANALYSIS ASSUMPTIONS

The following provides a list of assumptions used in this assessment.

- For a robust assessment the trips generated from existing approved development adjacent to the site have been incorporated in the analysis scenarios.
- The proportion of heavy vehicles was based on the Traffic count data.
- A growth rate of 2% per annum of linear growth was adopted to represent increases in background traffic based on the observed 2020 traffic map data and 2023 traffic count data along Ranford Road. This growth was applied to the 2023 traffic map volumes for the relevant number of years for opening year and horizon year volumes.
- Traffic distribution from the proposed development was allocated to the network based on existing traffic flow proportions.

6.4 BACKGROUND TRAFFIC

Classified intersection counts were undertaken for Ranford Road / Lake Road / Remisko Dr intersection for the following time periods:

- Wednesday 24 May 2023 07:00 – 09:00
- Wednesday 24 May 2023 15:00 – 17:00

Based on the traffic data collected, the following peak times were identified for the key intersections:

- Wednesday AM peak: 07:45 – 08:45
- Wednesday PM peak: 15:45 – 16:45

Background traffic flow for Ranford Road / Alex Wood Drive is sourced from Main Roads WA Traffic Map intersection count data recorded in 2021.

Figure 6-1 shows the recorded traffic volume at the selected peak hours for existing scenario. **Figure 6-2** and **Figure 6-3** shows the opening and horizon year background traffic volumes.

Figure 6-1 Existing Traffic Volumes

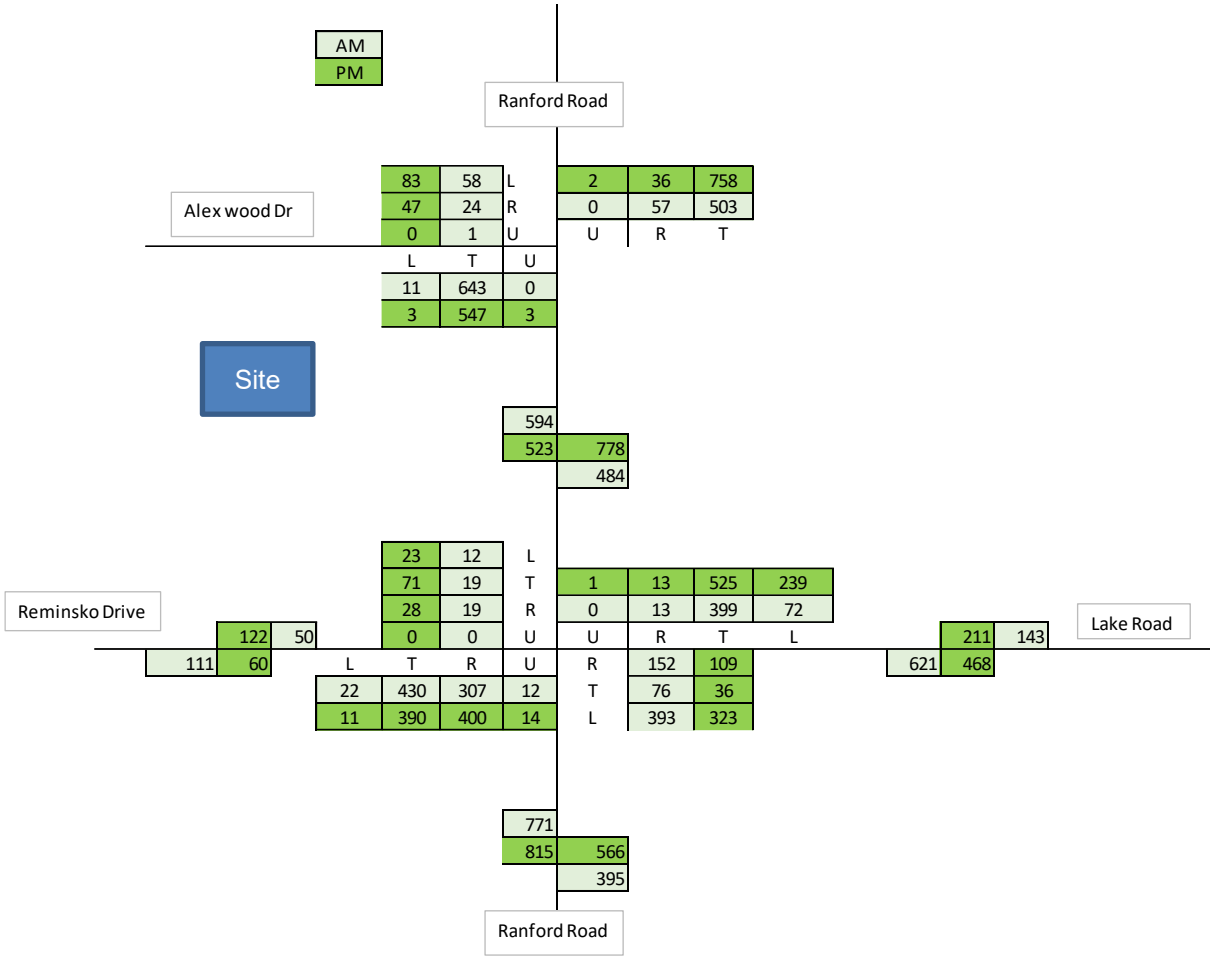


Figure 6-2 Background Traffic – 2025 (opening year)

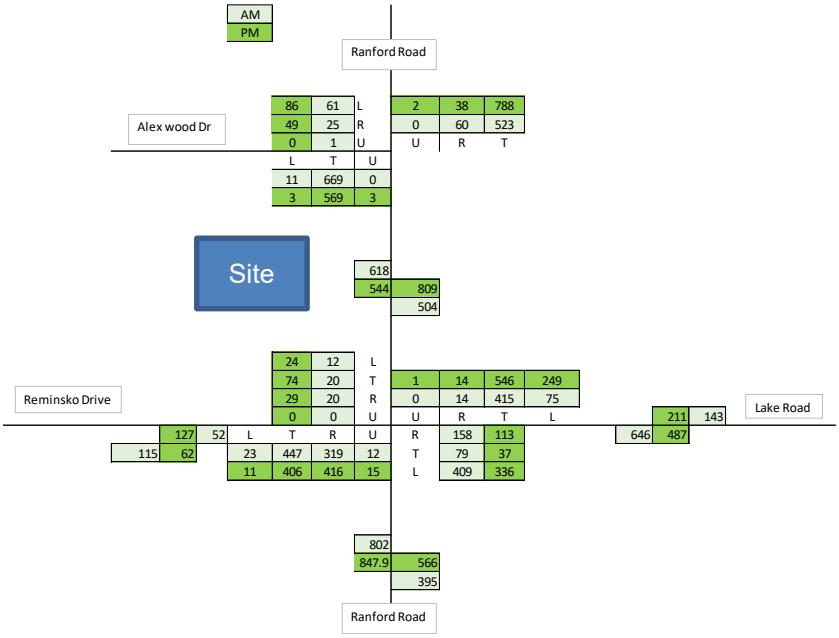
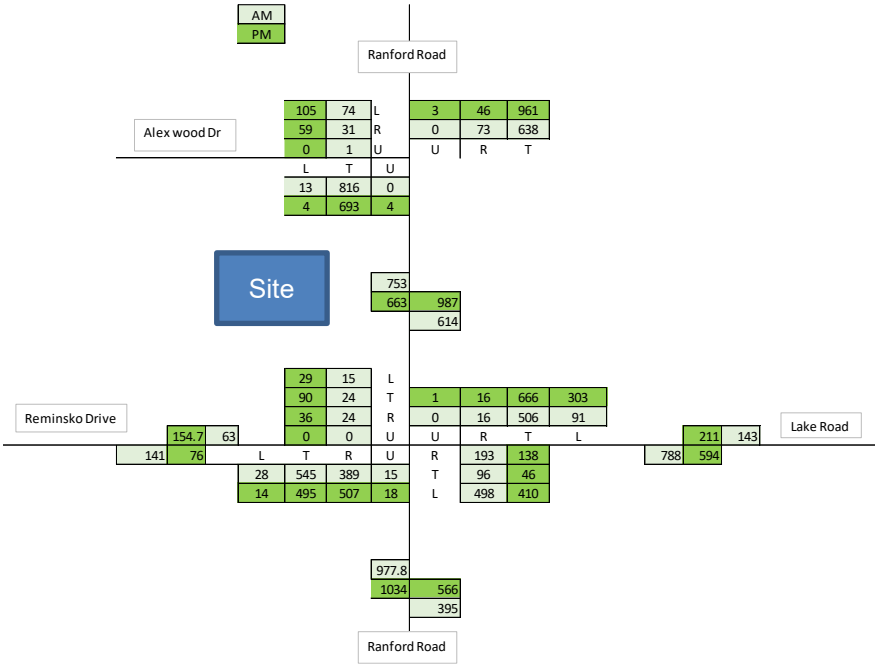


Figure 6-3 Background Traffic – 2035 (Horizon year)



6.5 DEVELOPMENT TRIP GENERATION

Trip generation has been calculated for the Site using trip generation rates from the *Institute of Transportation Engineers (ITE) "Trip Generation" 10th Edition*. **Table 6-1** shows the trip generation rates and development yield, **Table 6-2** shows the directional distribution and **Table 6-3** presents the potential trip generation of the proposed development.

Table 6-1 Trip Generation Rate

Land Use	Trip Requirements			
	Source	Yield	AM Trip Rate	PM Trip Rate
Showroom	ITE 816	39.86 per 100 sqm	1.46	1.22

Table 6-2 Directional Distribution

Land Use	AM Peak		PM Peak	
	In	Out	In	Out
Showroom	65%	35%	46%	54%

Table 6-3 Total Development Trips

Land Use	AM Peak		PM Peak	
	In	Out	In	Out
Showroom	38	21	23	27
	59		**50**	

The proposed development is expected to generate approximately 59 trips during the AM Peak hour and 50 trips during the PM Peak hour.

Existing approved development trips calculated is summarised in **Table 6-4.**

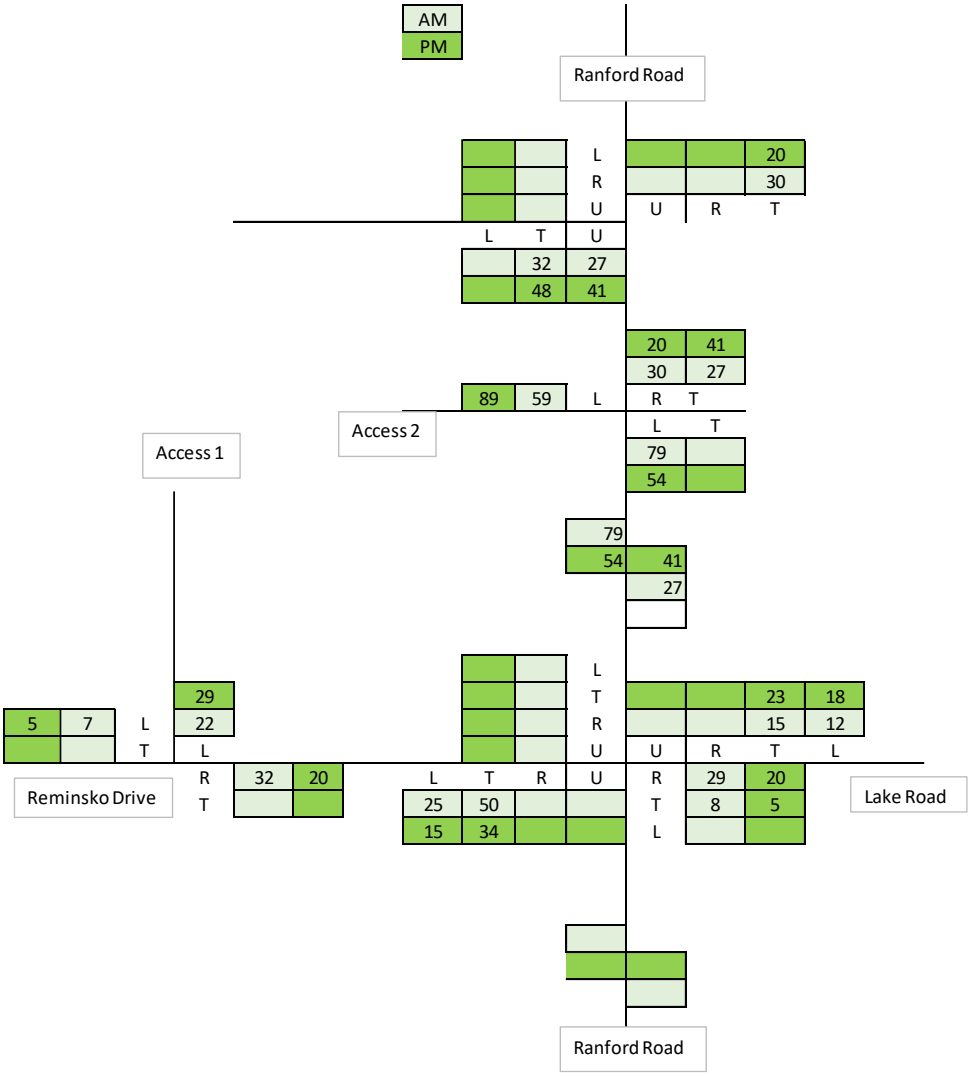
Table 6-4 Existing Approved Development Trips

Land Use	AM Peak		PM Peak	
	In	Out	In	Out
Showroom	78	42	47	55
Warehouse	4	2	2	5
Sports & Recreation	28	16	27	31
Total	**170**		**167**	

6.6 TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of proposed development traffic and existing approved development traffic is shown in **Figure 6-4.**

Figure 6-4 Development + Approved TIA Trips



The above volumes were used as input for the SIDRA analysis of the intersections as discussed in the succeeding sections.

6.7 TOTAL BACKGROUND AND DEVELOPMENT TRAFFIC

The background and development traffic adopted and shown in **Figure 6-5** and **Figure 6-6.**

Figure 6-5 Background + Development Traffic - 2025

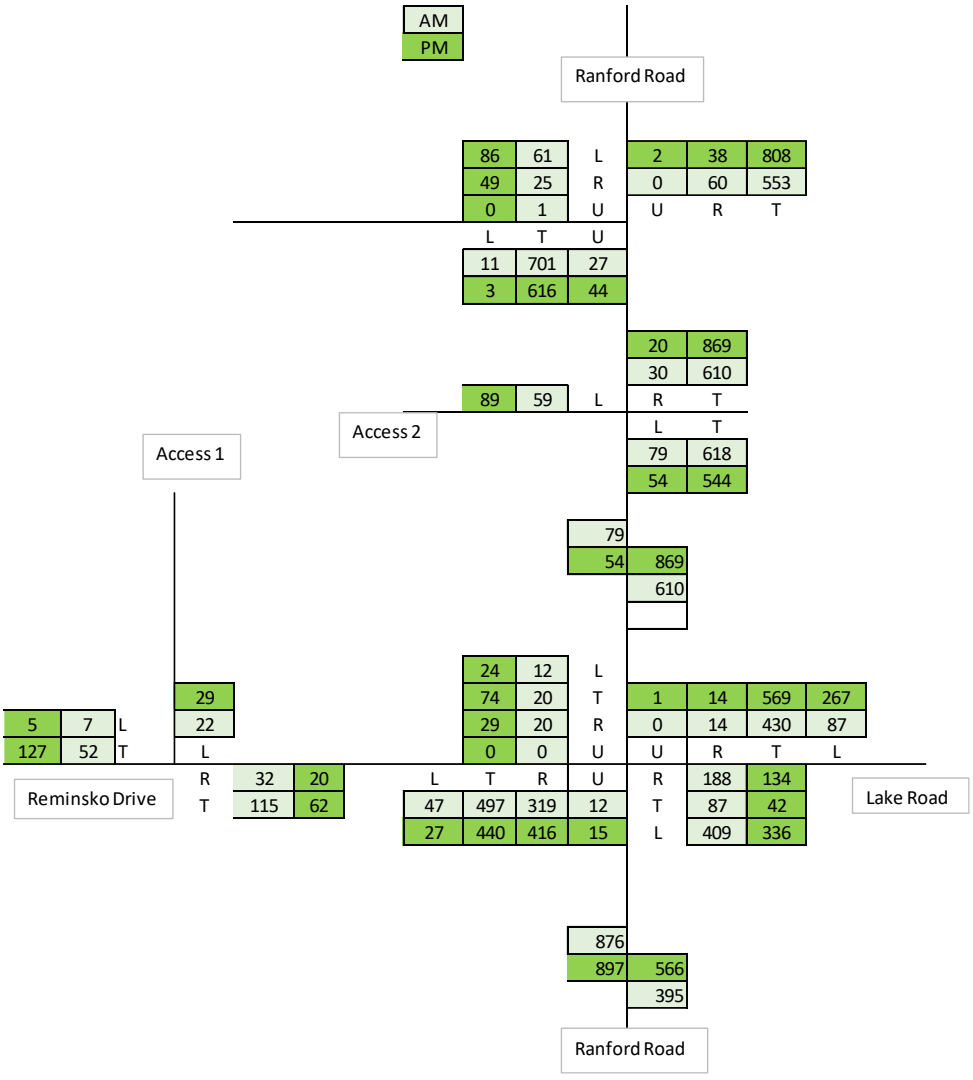
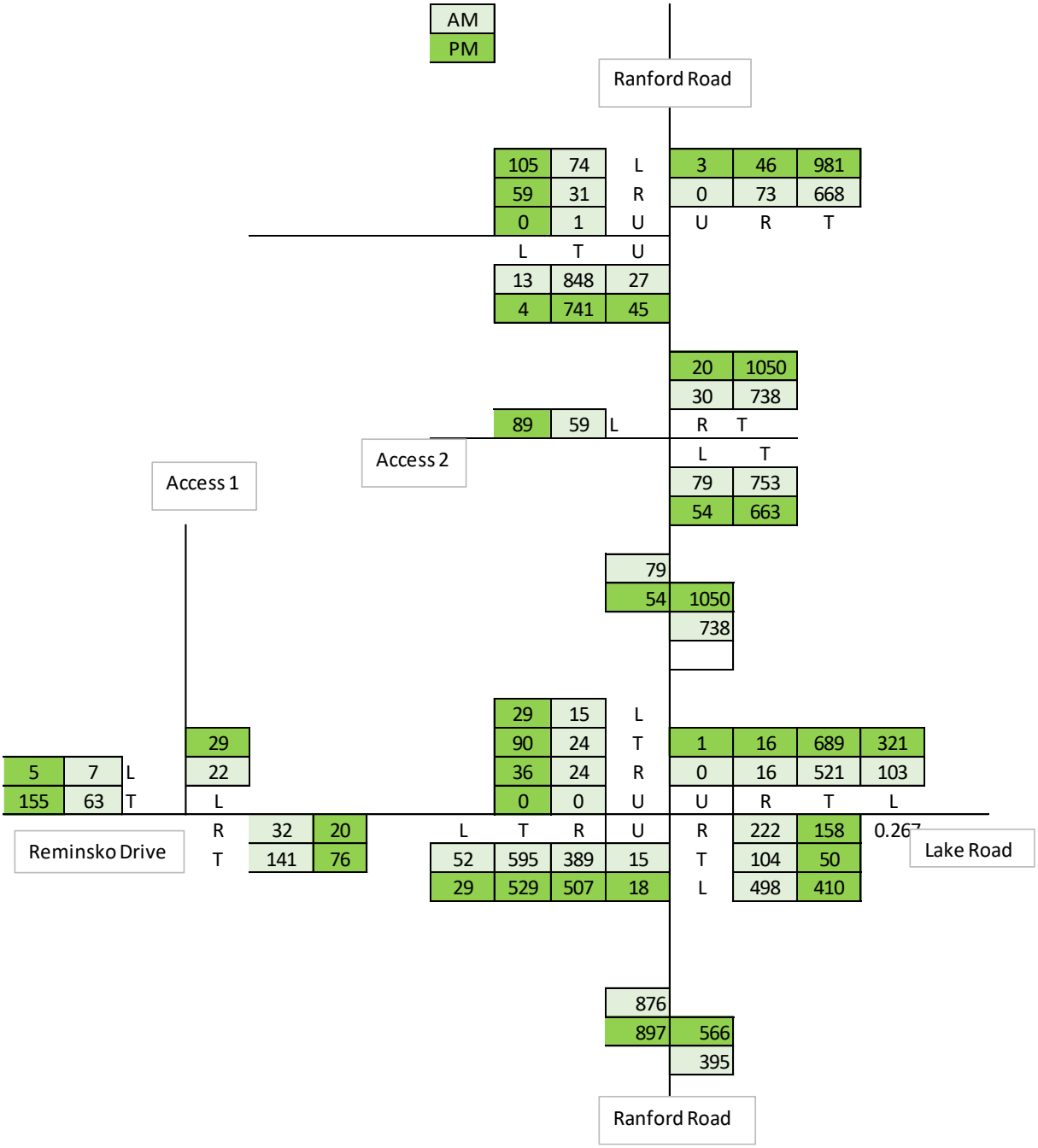


Figure 6-6 Background + Development Traffic - 2035



6.8 INTERSECTION PERFORMANCE

6.8.1 Parameters

SIDRA intersection analysis was undertaken for the subject intersection. SIDRA calculates the performance of intersections based on input parameters, including geometry and traffic volumes. As an output SIDRA provides values for the Degree of Saturation (DOS), queue lengths, delays, level of service, and 95th Percentile Queue. These parameters are defined as follows:

- Degree of Saturation (DOS): is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The theoretical intersection capacity is exceeded from an un-signalized intersection where DOS > 80.
- 95% Queue: is the statistical estimate of the queue length up to or below which 95% of all observed queues would be expected;
- Average Delay: is the average of all travel delays for vehicles through the intersection. An unsigned intersection can be operating at capacity where the average delay exceeds 40 seconds for any movement; and
- Level of Service (LOS): is the qualitative measure describing operational conditions within a traffic system and the perception by motorists and/or passengers.
- The different levels of service can generally be described as shown in **Table 6-5**. A LOS exceeding these values indicates that the road section is exceeding its practical capacity. Above these values, users of the intersections are likely to experience unsatisfactory queueing and delays during the peak hour periods.

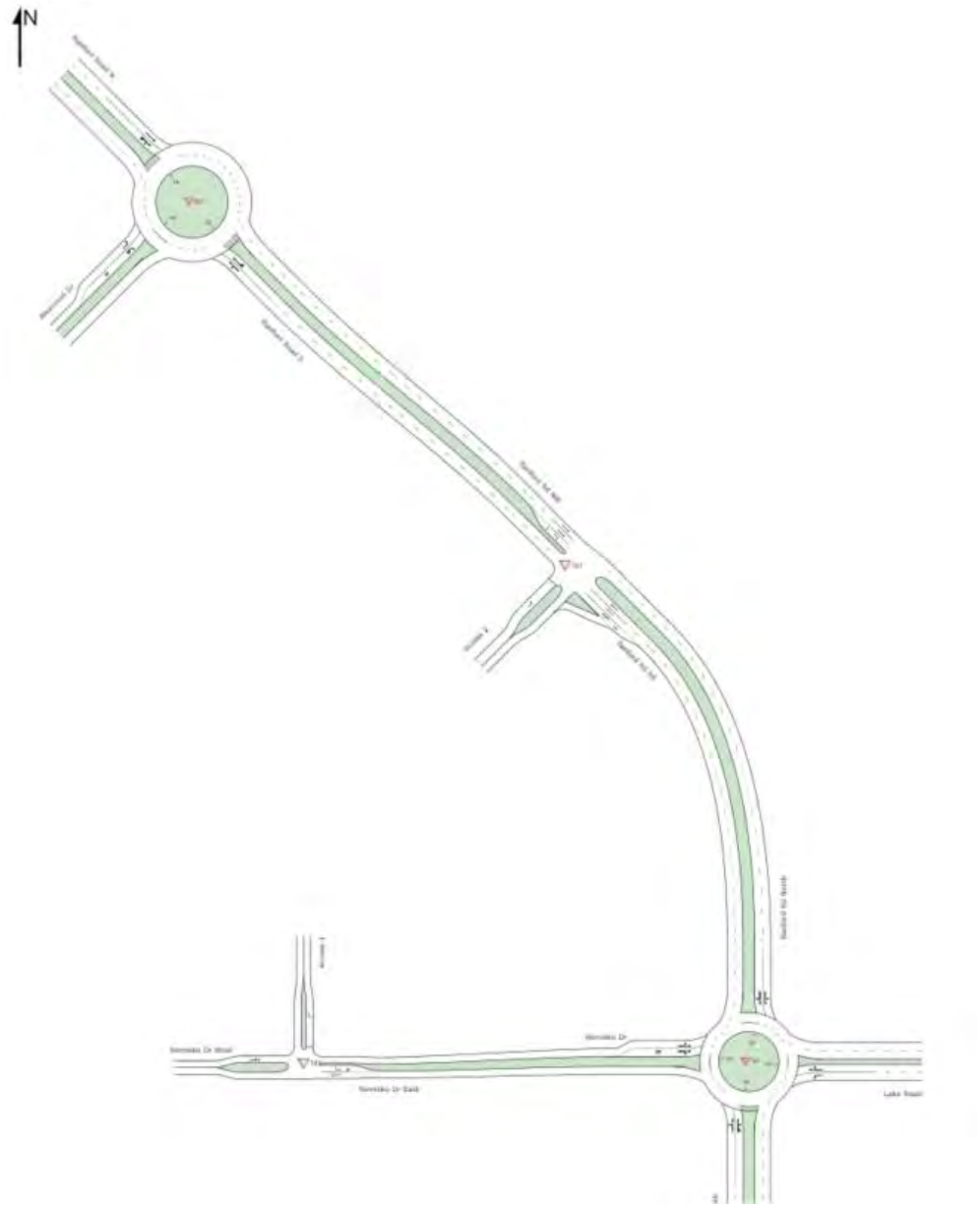
Table 6-5 Level of Service (LoS) Specifications

LOS	Description	Signalized Intersection	Unsignalized Intersection
A	Free flow conditions (best condition)	≤ 10 sec	≤ 10 sec
B	Reasonable free flow operations	10 – 20 sec	10 – 15 sec
C	At or near free flow operations	20 – 35 sec	15 – 25 sec
D	Decreasing free flow levels	35 - 55 sec	25 - 35 sec
E	Operations at capacity	55 – 80 sec	35 – 50 sec
F	A breakdown in vehicular flow (worst condition)	≤ 80 sec	≤ 50 sec

6.9 SIDRA ANALYSIS RESULTS

Analysis has been undertaken using the SIDRA traffic analysis software. The network layout of the three intersections considered in the analysis is illustrated in **Figure 6-7.** Details of the results are presented in **Appendix B**. Results for each intersection are detailed in the following sub-sections.

Figure 6-7 SIDRA Network Layout



6.9.1 Ranford Road / Lake Road / Remisko Drive

The SIDRA layout for this intersection is illustrated in **Figure 6-8**. The analysis results for the Remisko Drive / Ranford Road / Lake Road intersection are summarised in **Table 6-6** to **Table 6-10.**

Figure 6-8 Proposed Intersection Layout

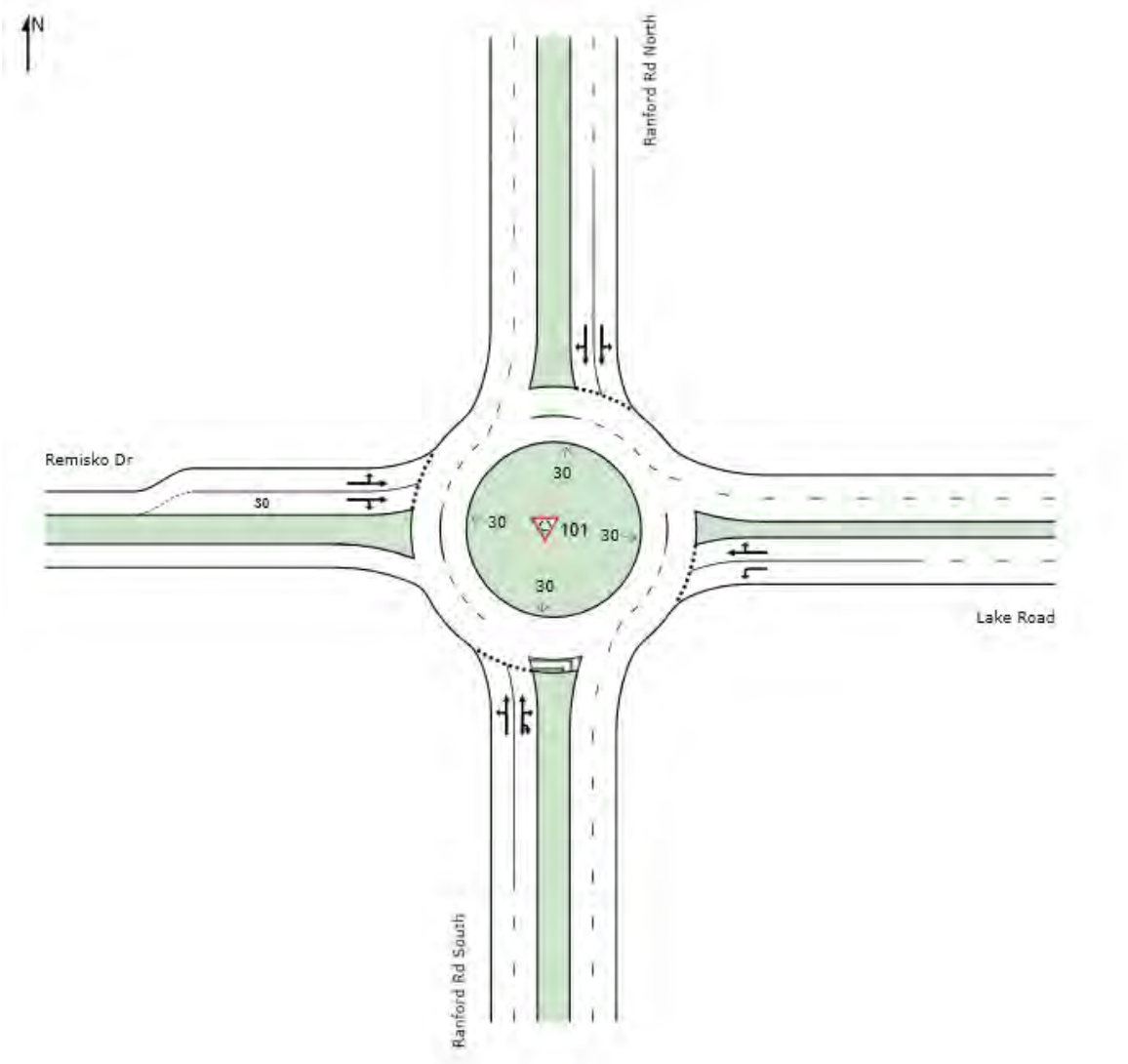


Table 6-6 SIDRA Results: Ranford Road / Lake Road – Existing (2023)

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
South: Ranford Rd South	L	0.317	5.8	A	17.8	0.306	5.6	A	16.2
	T	0.317	6.0	A	17.8	0.306	5.8	A	16.8
	R	0.317	12.2	B	17.0	0.306	11.4	B	16.8
	U	0.317	13.1	B	17.0	0.306	12.3	B	16.8
East: Lake Road	L	0.364	6.2	A	14.3	0.325	6.6	A	13.0
	T	0.262	6.8	A	9.1	0.195	7.3	A	6.6
	R	0.262	12.6	B	9.1	0.195	13.1	B	6.6
North: Ranford Rd North	L	0.236	6.0	A	9.6	0.409	6.8	A	18.1
	T	0.236	6.3	A	9.6	0.409	7.3	A	18.1
	R	0.236	12.2	B	9.3	0.409	13.2	B	17.5
West: Remisko Dr	L	0.040	5.2	A	0.0	0.082	4.9	A	3.0
	T	0.040	4.9	A	1.7	0.082	4.7	A	3.0
	R	0.040	11.1	B	1.7	0.082	10.6	B	2.8
All vehicles		0.364	7.8	A	17.8	0.409	7.9	A	18.1

Table 6-7 SIDRA Results: Ranford Road / Lake Road – 2025 Without Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
South: Ranford Rd South	L	0.333	5.9	A	19.0	0.321	5.7	A	17.2
	T	0.333	6.1	A	19.0	0.321	5.8	A	17.9
	R	0.333	12.3	B	18.0	0.321	11.4	B	17.9
	U	0.333	13.2	B	18.0	0.321	12.4	B	17.9
East: Lake Road	L	0.384	6.3	A	15.3	0.344	6.7	A	14.0
	T	0.276	6.8	A	9.7	0.206	7.4	A	7.1
	R	0.276	12.6	B	9.7	0.206	13.2	B	7.1
North: Ranford Rd North	L	0.249	6.1	A	10.2	0.434	7.0	A	19.9
	T	0.249	6.4	A	10.2	0.434	7.6	A	19.9
	R	0.249	12.3	B	9.9	0.434	13.6	B	19.5
West: Remisko Dr	L	0.042	5.2	A	0.0	0.087	5.0	A	3.2
	T	0.042	4.9	A	1.7	0.087	4.8	A	3.2
	R	0.042	11.2	B	1.7	0.087	10.8	B	3.0
All vehicles		0.384	7.8	A	19.0	0.434	8.0	A	19.9

Table 6-8 SIDRA Results: Ranford Road / Lake Road – 2025 With Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
South: Ranford Rd South	L	0.376	6.1	A	22.4	0.329	5.5	A	18.6
	T	0.376	6.4	A	22.4	0.329	5.7	A	18.6
	R	0.376	12.6	B	21.2	0.368	11.9	B	20.6
	U	0.376	13.6	B	21.2	0.368	12.8	B	20.6
East: Lake Road	L	0.387	6.4	A	15.5	0.350	6.7	A	14.4
	T	0.314	6.9	A	11.4	0.237	7.5	A	8.4
	R	0.314	12.7	B	11.4	0.237	13.3	B	8.4
North: Ranford Rd North	L	0.264	6.1	A	11.1	0.461	7.2	A	22.5
	T	0.264	6.4	A	11.1	0.461	7.8	A	22.5
	R	0.264	12.3	B	10.7	0.461	13.8	B	22.0
West: Remisko Dr	L	0.046	5.6	A	0.0	0.090	5.0	A	3.3
	T	0.046	5.2	A	2.0	0.090	4.9	A	3.3
	R	0.046	11.7	B	2.0	0.090	10.9	B	3.1
All vehicles		0.387	8.0	A	22.4	0.461	8.2	A	22.5

Table 6-9 SIDRA Results: Ranford Road / Lake Road – 2035 Without Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
South: Ranford Rd South	L	0.427	6.3	A	27.0	0.405	6.0	A	23.8
	T	0.427	6.5	A	27.0	0.405	6.2	A	24.9
	R	0.427	12.8	B	25.4	0.405	11.7	B	24.9
	U	0.427	13.8	B	25.4	0.405	12.6	B	24.9
East: Lake Road	L	0.496	7.1	A	23.5	0.464	7.7	A	22.5
	T	0.362	7.3	A	13.5	0.282	8.0	A	10.4
	R	0.362	13.1	B	13.5	0.282	13.8	B	10.4
North: Ranford Rd North	L	0.327	6.5	A	14.8	0.583	9.1	A	36.4
	T	0.327	6.9	A	14.8	0.583	9.9	A	36.4
	R	0.327	12.8	B	14.2	0.583	16.0	B	34.6
West: Remisko Dr	L	0.059	5.8	A	0.0	0.123	5.7	A	4.9
	T	0.059	5.5	A	2.6	0.123	5.6	A	4.9
	R	0.059	12.1	B	2.6	0.123	11.8	B	4.5
All vehicles		0.496	8.4	A	27.0	0.583	9.2	A	36.4

Table 6-10 SIDRA Results: Ranford Road / Lake Road – 2035 With Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
South: Ranford Rd South	L	0.476	6.6	A	31.5	0.406	5.8	A	25.1
	T	0.476	6.8	A	31.5	0.406	6.0	A	25.1
	R	0.476	13.2	B	29.4	0.465	12.2	B	29.0
	U	0.476	14.2	B	29.4	0.465	13.2	B	29.0
East: Lake Road	L	0.501	7.2	A	24.1	0.475	7.8	A	23.6
	T	0.404	7.6	A	16.1	0.318	8.1	A	12.2
	R	0.404	13.4	B	16.1	0.318	13.9	B	12.2
North: Ranford Rd North	L	0.344	6.5	A	15.9	0.617	9.5	A	41.3
	T	0.344	6.9	A	15.9	0.617	10.4	B	41.3
	R	0.344	12.9	B	15.3	0.617	16.5	B	39.0
West: Remisko Dr	L	0.063	6.1	A	0.0	0.126	5.7	A	5.0
	T	0.063	5.8	A	2.9	0.126	5.6	A	5.0
	R	0.063	12.5	B	2.9	0.126	11.8	B	4.6
All vehicles		0.501	8.6	A	31.5	0.617	9.4	A	41.3

The SIDRA analysis indicates that the intersection of Ranford Road / Lake Road / Remisko Dr will operate satisfactorily with overall level of service A or better (good operation) during all analysis years. The maximum reported 95% queue on Ranford Road (SB) is about 41.3m during the PM peak hour.

6.9.2 Ranford Road / Alex Wood Drive Intersection

The SIDRA layout for this intersection is illustrated in **Figure 6-9** and the analysis results for the Ranford Road / Alex Wood Drive intersection are summarised in **Table 6-11** to **Table 6-15.**

Figure 6-9 SIDRA Layout – Ranford Road / Alex Wood Drive Layout

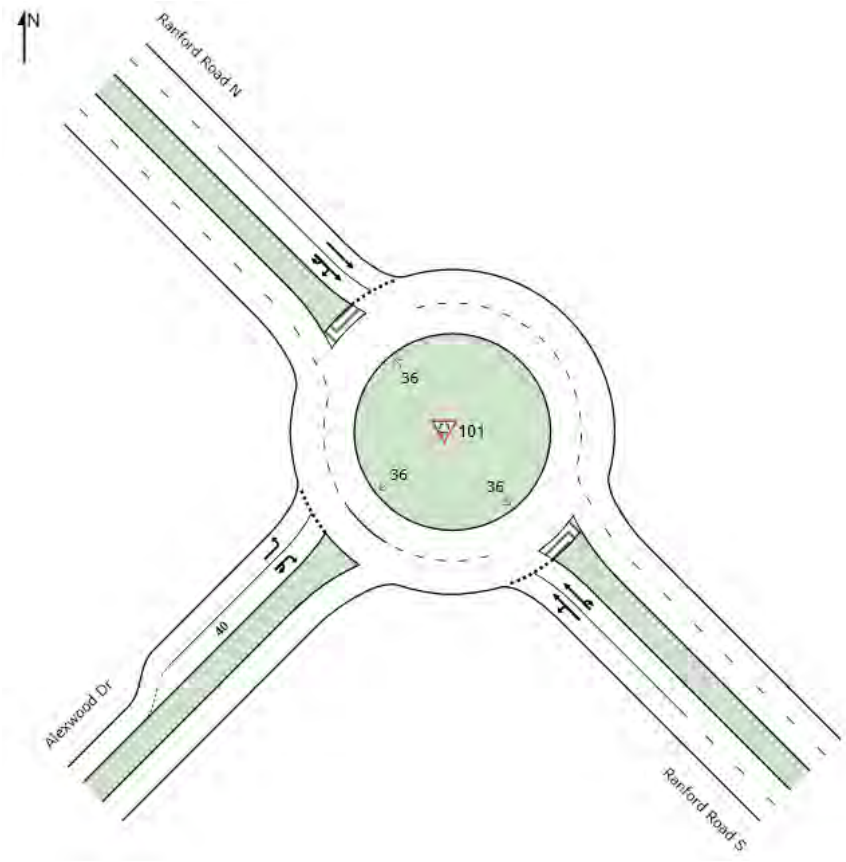


Table 6-11 SIDRA Results: Ranford Road / Alex Wood Drive - Existing

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
SouthEast: Ranford Road S	L	0.217	4.5	A	9.5	0.179	4.4	A	7.8
	T	0.217	4.5	A	9.5	0.179	4.4	A	7.8
	U	0.217	12.1	B	9.4	0.179	12.0	B	7.7
NorthWest: Ranford Road N	T	0.185	4.9	A	9.4	0.263	5.0	A	13.5
	R	0.185	11.0	B	9.1	0.263	11.1	B	13.2
	U	0.185	12.0	B	9.1	0.263	12.1	B	13.2
SouthWest: Alexwood Dr	L	0.065	6.6	A	2.5	0.078	5.9	A	2.5
	R	0.039	14.0	B	1.4	0.057	12.8	B	1.7
	U	0.039	14.9	B	1.4	0.057	13.8	B	1.7
All vehicles		0.217	5.2	A	9.5	0.263	5.2	A	13.5

Table 6-12 SIDRA Results: Ranford Road / Alex Wood Drive – 2025 Without Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
SouthEast: Ranford Road S	L	0.226	4.5	A	10.0	0.187	4.4	A	8.2
	T	0.226	4.5	A	10.0	0.187	4.4	A	8.2
	U	0.226	12.2	B	9.9	0.187	12.0	B	8.1
NorthWest: Ranford Road N	T	0.192	4.9	A	9.9	0.274	5.0	A	14.3
	R	0.192	11.1	B	9.6	0.274	11.2	B	14.0
	U	0.192	12.0	B	9.6	0.274	12.1	B	14.0
SouthWest: Alexwood Dr	L	0.069	6.7	A	2.7	0.081	5.9	A	2.6
	R	0.041	14.1	B	1.5	0.060	12.9	B	1.8
	U	0.041	15.1	B	1.5	0.060	13.9	B	1.8
All vehicles		0.226	5.3	A	10.0	0.274	5.3	A	14.3

Table 6-13 SIDRA Results: Ranford Road / Alex Wood Drive – 2025 With Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
SouthEast: Ranford Road S	L	0.243	4.5	A	11.2	0.213	4.4	A	9.8
	T	0.243	4.5	A	11.2	0.213	4.4	A	9.8
	U	0.243	12.1	B	11.0	0.213	12.0	B	9.7
NorthWest: Ranford Road N	T	0.208	5.0	A	10.0	0.292	5.2	A	14.5
	R	0.208	11.2	B	9.8	0.292	11.4	B	14.2
	U	0.208	12.1	B	9.8	0.292	12.4	B	14.2
SouthWest: Alexwood Dr	L	0.071	6.8	A	2.7	0.084	6.1	A	2.7
	R	0.042	14.3	B	1.5	0.063	13.1	B	1.9
	U	0.042	15.2	B	1.5	0.063	14.0	B	1.9
All vehicles		0.243	5.4	A	11.2	0.292	5.5	A	14.5

Table 6-14 SIDRA Results: Ranford Road / Alex Wood Drive – 2035 Without Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
SouthEast: Ranford Road S	L	0.279	4.6	A	13.2	0.229	4.4	A	10.6
	T	0.279	4.6	A	13.2	0.229	4.5	A	10.6
	U	0.279	12.2	B	13.0	0.229	12.1	B	10.5
NorthWest: Ranford Road N	T	0.237	4.9	A	12.9	0.337	5.1	A	19.0
	R	0.237	11.1	B	12.5	0.337	11.3	B	18.6
	U	0.237	12.1	B	12.5	0.337	12.2	B	18.6
SouthWest: Alexwood Dr	L	0.090	7.1	A	3.5	0.104	6.2	A	3.4
	R	0.056	14.6	B	2.0	0.077	13.3	B	2.4
	U	0.056	15.1	B	2.0	0.077	14.3	B	2.4
All vehicles		0.279	5.3	A	13.2	0.337	5.3	A	19.0

Table 6-15 SIDRA Results: Ranford Road / Alex Wood Drive – 2035 With Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
SouthEast: Ranford Road S	L	0.297	4.6	A	14.5	0.257	4.4	A	12.6
	T	0.297	4.6	A	14.5	0.257	4.5	A	12.6
	U	0.297	12.3	B	14.3	0.257	12.1	B	12.4
NorthWest: Ranford Road N	T	0.253	5.1	A	12.9	0.358	5.3	A	19.3
	R	0.253	11.2	B	12.7	0.358	11.5	B	18.9
	U	0.253	12.2	B	12.7	0.358	12.5	B	18.9
SouthWest: Alexwood Dr	L	0.092	7.2	A	3.6	0.107	6.4	A	3.5
	R	0.056	14.8	B	2.0	0.081	13.5	B	2.5
	U	0.056	15.2	B	2.0	0.081	14.5	B	2.5
All vehicles		0.297	5.5	A	14.5	0.358	5.6	A	19.3

The SIDRA analysis indicates that the Ranford Road/Alex Wood Drive intersection is anticipated to operate at satisfactory traffic operations with an overall level of service A for all scenarios.

6.9.3 Remisko Drive / Access 1 Intersection

The SIDRA layout for this intersection is illustrated in **Figure 6-10** and the analysis results for the Remisko Drive/Access 1 intersection are summarised in **Table 6-16** to **Table 6-17.**

Figure 6-10 SIDRA Layout – Remisko Drive / Access 1 Intersection

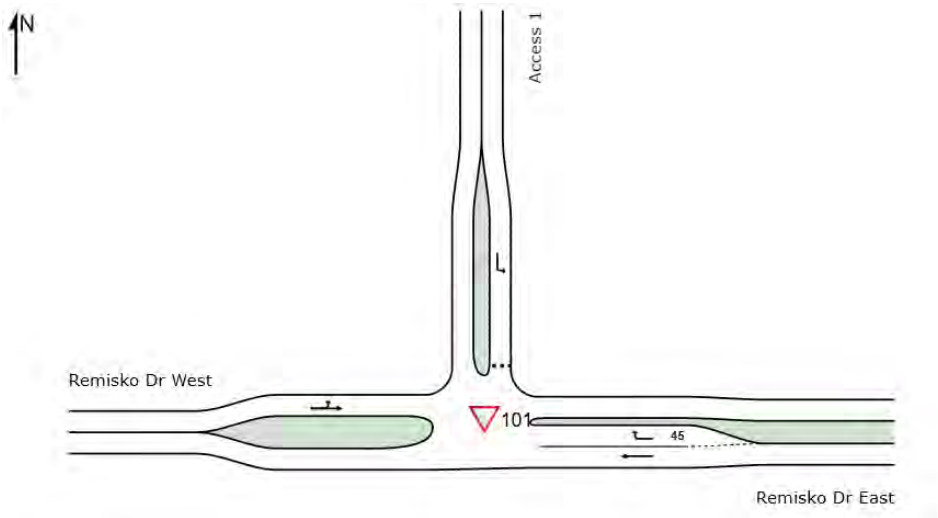


Table 6-16 SIDRA Results: Remisko Dr / Access 1 – 2025 With Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
East: Remisko Dr East	T	0.065	0.0	A	0.0	0.035	0.0	A	0.0
	R	0.020	4.8	A	0.7	0.014	5.0	A	0.5
North: Access 1	L	0.015	3.8	A	0.5	0.022	4.1	A	0.7
West: Remisko Dr West	L	0.044	4.6	A	0.0	0.081	4.6	A	0.0
	T	0.044	0.0	A	0.0	0.081	0.0	A	0.0
All vehicles		0.065	1.2	NA	0.7	0.081	1.0	A	0.7

Table 6-17 SIDRA Results: Remisko Dr / Access 1 – 2035 With Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
East: Remisko Dr East	T	0.080	0.0	A	0.0	0.042	0.0	A	0.0
	R	0.021	4.8	A	0.7	0.014	5.1	A	0.5
North: Access 1	L	0.016	3.9	A	0.5	0.022	4.2	A	0.7
West: Remisko Dr West	L	0.052	4.6	A	0.0	0.098	4.7	A	0.0
	T	0.052	0.0	A	0.0	0.098	0.0	A	0.0
All vehicles		0.080	1.0	NA	0.7	0.098	0.9	A	0.7

6.9.4 Ranford Road / Access 2 Intersection

The SIDRA layout for this intersection is illustrated in **Figure 6-11** and the analysis results for the Remisko Drive/Access 1 intersection are summarised in **Table 6-18** to

Table 6-19**.**

Figure 6-11 SIDRA Layout – Ranford Road / Access 2 Intersection

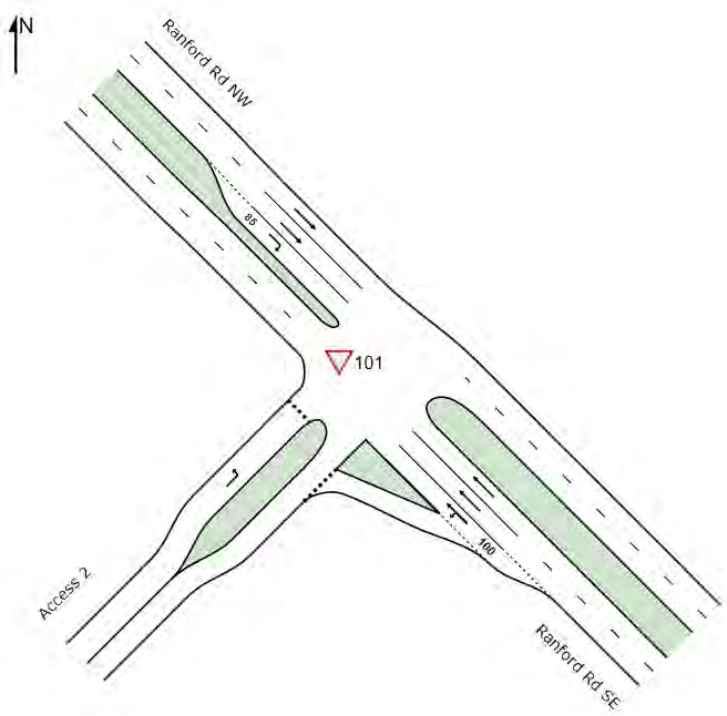


Table 6-18 SIDRA Results: Ranford Road / Access 2 – 2025 With Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
SouthEast: Ranford Rd SE	L	0.053	6.6	A	1.6	0.036	6.6	A	1.1
	T	0.173	0.1	A	0.0	0.154	0.1	A	0.0
NorthWest: Ranford Rd NW	T	0.181	0.1	A	0.0	0.246	0.1	A	0.0
	R	0.075	12.6	B	1.9	0.044	11.2	B	1.1
SouthWest: Access 2	L	0.048	3.4	A	0.0	0.072	3.4	A	0.0
All vehicles		0.181	0.9	NA	1.9	0.246	0.6	A	1.1

Table 6-19 SIDRA Results: Ranford Road / Access 2 – 2035 With Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
SouthEast: Ranford Rd SE	L	0.053	6.6	A	1.6	0.037	6.6	A	1.1
	T	0.211	0.1	A	0.0	0.185	0.1	A	1.1
NorthWest: Ranford Rd NW	T	0.219	0.1	A	0.0	0.311	0.2	A	0.0
	R	0.096	15.2	C	2.4	0.053	13.0	B	1.3
SouthWest: Access 2	L	0.048	3.4	A	0.0	0.073	3.4	A	2.1
All vehicles		0.219	0.8	NA	2.4	0.311	0.6	A	2.1

The SIDRA analysis indicates that the Ranford Road/Access 2 intersection is anticipated to operate at satisfactory traffic operations with an overall level of service A for all scenarios.

7.0 SUMMARY

This Transport Impact Assessment outlines the transport aspects of the proposed development focusing on traffic operations, access and provision of car parking. Included are discussions regarding pedestrian, cycle, and public transport considerations.

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

The following is concluded for the proposed development:

- Showroom
- Tenancy 8 – 1209.53 sqm
- Tenancy 9 – 1451.00 sqm
- Tenancy 10 – 1326.33 sqm
- Car Bays – 69

> The proposed car park provision for the development shows a shortfall of 26 parking bays in accordance with the statutory parking requirements set out in the City of Armadale Town Planning Scheme No.4. However, noting the parking requirements for the proposed showrooms consider the entire floor area to be used for display or sales and therefore represent a worst-case scenario. Further, it is expected a portion of the Gym patronage would access the site via alternate means of transport (walking or bicycle) given the proximity to Residential development to the east of the subject site. It is therefore anticipated that the parking supply provided is expected to satisfy the demand for the facility.

> The B85/B99 swept path analysis illustrate that the design vehicles would appear to be able to adequately manoeuvre through the proposed car park and parking bays;

> The swept path analysis also showed that an MRV and HRV vehicle is able to enter the service area from Remisko Drive.

> The proposed development is expected to generate approximately 59 trips during the AM Peak hour, 50 trips during the PM Peak hour.

> The traffic analysis showed all the intersections and accesses are expected to operate satisfactorily during the opening year and 2035 design year with the development traffic.

Overall, the proposed development is expected to have minimal impact on traffic operations and safety on the surrounding road network.

APPENDICES

Appendix A WAPC CHECKLIST

Item	Provided	Comments/Proposals
Summary		
Introduction/Background		
name of applicant and consultant	Section 1	
development location and context	Section 2	
brief description of development proposal	Section 2	
key issues	Section 2	
Background information	Section 1	
Existing situation		
existing site uses (if any)	Section 2	
existing parking and demand (if appropriate)	Section 2	
existing access arrangements	Section 3	
existing site traffic	Section 2	
surrounding land uses	Section 2	
surrounding road network	Section 2	
traffic management on frontage roads	NA	
traffic flows on surrounding roads (usually am and pm peak hours)	Section 2	
traffic flows at major intersections (usually am and pm peak hours)	Section 2	
operation of surrounding intersections	Section 6	
existing pedestrian/cycle networks	Section 2	
existing public transport services surrounding the development	Section 2	
Crash data	Section 2	
Development proposal		
proposed land uses	Section 3	
table of land uses and quantities	Section 3	
access arrangements	Section 3	

parking provision	Section 3	
end of trip facilities	NA	
any specific issues	Section 2	
road network	Section 2	
intersection layouts and controls	Section 4	
pedestrian/cycle networks and crossing facilities	Section 4	
public transport services	Section 4	
Integration with surrounding area	Section 5	
surrounding major attractors/generators	Section 5	
committed developments and transport proposals	N/A	
proposed changes to land uses within 1200 metres	N/A	
travel desire lines from development to these attractors/generators	N/A	
adequacy of existing transport networks	Section 2	
deficiencies in existing transport networks	N/A	
remedial measures to address deficiencies	N/A	
Analysis of transport networks		
assessment years	Section 6	
time periods	Section 6	
development generated traffic	Section 6	
distribution of generated traffic	Section 6	
parking supply & demand	Section 3	
base and "with development" traffic flows	Section 6	
analysis of development accesses	Section 6	
impact on surrounding roads	Section 6	
impact on intersections	Section 6	
impact on neighbouring areas	Section 6	
traffic noise and vibration	N/A	
road safety	N/A	
public transport access	Section 2	

pedestrian access / amenity	Section 2	
cycle access / amenity	Section 2	
analysis of pedestrian / cycle networks	Section 2	
safe walk/cycle to school (for residential and school site developments only)	N/A	
Traffic management plan (where appropriate)	N/A	

Appendix B SITE PLANS

AREA SUBJECT TO THIS APPLICATION

REMISKO DRIVE

LAKE ROAD

RANFORD ROAD

EXISTING VEHICLE ACCESS & CROSSOVER

EXISTING BOOSTER CABINETS

EXISTING LANDSCAPING

EXISTING EMERGENCY VEHICLE PARKING

EXISTING TRUCK ACCESS ROAD

EXISTING BUILDING SET BACK

EX. PUMPS & TANKS

EX. GATES

EX. LOADING

NEW PARKING (7 BAYS)

ACCESS

NEW PARKING (4 BAYS)

NEW BIN STORE (5 x 1100L bins)

NEW SHADE TREES TO MATCH EXISTING APPROVED SPECIES

NEW CARPARKING (3 BAYS)

EXISTING TREES TO BE REMOVED

NOTE:
AREA FOR LANDSCAPING IMPROVEMENT SHOWN HATCHED GREEN

NEW CARPARKING (4 BAYS)

NEW BUILDING EXTENSION

EXISTING ROADWAY & PARKING BAYS & FOOTPATHS TO BE MODIFIED (SHOWN RED DASHED)

EXISTING TREES TO REMAIN

NEW BITUMEN ROAD WAY & PARKING

T8
1,209.77 m²

T9
1,451.00 m²
FFL 25.600

T10
1,326.33 m²

T1A

T1B

25.600 FFL

EXISTING APPROVED DEVELOPMENT / BUILDING FOOTPRINT

T2

T3

T4

T5

T6

T7 OVER

EXISTING DRIVE WAY & EMERGENCY VEHICLE CIRCULATION

NEW CARPARKING (3 BAYS)

NEW CARPARKING (16 BAYS)

NEW PROPRIATARY BICYLE PARKING RACK (12 BIKES) IN ACCORDANCE WITH AS2890.3

EXISTING VEHICLE ACCESS

NEW CARPARKING (3 BAYS)

NEW CARPARKING (5 BAYS)

NEW PROPRIATARY BICYLE PARKING RACK (12 BIKES) IN ACCORDANCE WITH AS2890.3

NEW CARPARKING (2 BAYS)

NEW CARPARKING (2 BAYS) TO REPLACE EX. TROLLEY BAYS

NEW CARPARKING (5 BAYS) TO REPLACE EX. TROLLEY BAYS

EXISTING PARKING

EXISTING PARKING

NEW CARPARKING (5 BAYS) TO REPLACE EX. TROLLEY BAYS

EXISTING TREES & LANDSCAPING TO REMAIN

EXISTING VEHICLE ACCESS & CROSSOVER

EX. PYLON SIGN

EXISTING LANDSCAPING

EXISTING APPROVED SHOWROOM SPACE
TENANCY 1a - 2160m2
TENANCY 2 - 1307m2
TENANCY 3 - 1303m2
TENANCY 4 - 972m2
TENANCY 6 - 2192m2
TOTAL APPROVED EXISTING SHOWROOM SPACE - 7934m2

EXISTING APPROVED WAREHOUSE SPACE
TENANCY 1b - 2320m2
TOTAL APPROVED EXISTING WAREHOUSE SPACE - 2320m2

EXISTING APPROVED RECREATION & SPORTING FACILITY SPACE
TENANCY 5 - 2312m2
TOTAL APPROVED EXISTING RECREATION & SPORTING FACILITY SPACE - 2312m2

EXISITNG APPROVED OFFICE SPACE
TENANCY 7- 284m2
TOTAL APPROVED EXISTING OFFICESPACE - 284m2

PROPOSED NEW SHOWROOM SPACE
TENANCY 8 - 1209.53m2
TENANCY 9 - 1451.00m2
TENANCY 10 - 1326.33m2
TOTAL PROPOSED NEW SHOWROOM SPACE - 3986.86m2

EXISTING REMAINING ONSITE CAR PARKING - 279 BAYS

PROPOSED NEW ONSITE CAR PARKING - 57 BAYS

PROPOSED NEW ONSITE CAR PARKING - (REPLACE EXISTING TROLLEY BAYS) 12 BAYS

TOTAL ONSITE CAR PARKING - 348 BAYS

TENANT LOCKER REQUIREMENTS

Showroom Space: 1 Staff Locker per 750m² of sales floor

Recreation Private: 1 Staff Locker per 4 employees

BICYCLE PARKING CALCULATIONS

SHOWROOM - 1 bike rack per 1000m² sales floor GFA
T1A, 2,3,4,6,8,9,10 = 11,920.86m2 /1000m2 = 11.92 BAYS

RECREATION PRIVATE - 1 bike rack per 200m² GFA
T5- 2312m2 / 200m2 = 11.56 BAYS.

BICYLE PARKING REQUIRED: 23.48 BAYS

BICYLE PARKING PROVIDED: 24 BAYS

N

1 - EXISTING / PROPOSED SITE PLAN
SCALE: 1 : 500

Member Australian Institute of Architects
The Royal Australian Institute of Architects
OLDFIELD KNOTT ARCHITECTS PTY LTD
567 Hay Street DAGLISH WA 6008 | PO Box 849 SUBIACO WA 6904
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Rev.	Date	Issued By	Revision Description
C	13-10-2022		T9 & 10 ACCESS
D	19-10-2022		PARKING LAYOUT & TENANCY REVISIONS
E	02-12-2022		T8,T9,T10 & PARKING LAYOUT
F	14-03-2023		SITE INFORMATION & PLAN AMENDMENTS
G	24-05-2023		1100L BINS

Project Name: **PROPOSED COMMERCIAL DEVELOPEMNT, 600 RANFORD RD, FORRESTDALE WA 6112**

Drawing Name: **SITE AND LOCATION PLAN**

Project Number: **22007A**

Drawing No.: **P100**

Rev.: **G**

Reduction 25mm on A1 | Scale **As indicated** | Date **Month 2022** | Drawn **OKA** | Checked **OKA**

Appendix C SWEPT PATH

4

EXISTING BOOSTER CABINETS

EXISTING LANDSCAPING

EXISTING EMERGENCY
VEHICLE PARKING

PM S 19M
AUSTROADS 2013 (AU)

PM S 19M
AUSTROADS 2013 (AU)

PM S 19M
AUSTROADS 2013 (AU)

PM S 19M
AUSTROADS 2013 (AU)

12835

26855

19795

14020

6080

EX. GATES

EX. LOADING

NEW PARKING (7 BAYS)

ACCESS

NEW PARKING
(4 BAYS)

5400

STAIRWAYS 2 HR

NEW BIN STORE
(5 x 1100Lt bins)

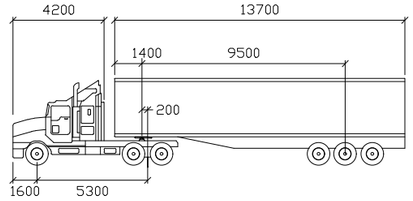
3850

EXISTING TREES
TO BE REMOVED

NEW
BUILDING
EXTENSION

EXISTING ROADWAY & PARKING BAYS
& FOOTPATHS TO BE MODIFIED
(SHOWN RED DASHED)

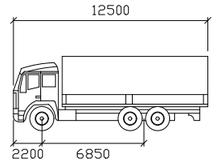
T1A



PM S 19M

mm

Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 27.8
Tractor Track	: 2500	Articulating Angle	: 70.0
Trailer Track	: 2500		



HRV

mm

Width	: 2500
Track	: 2500
Lock to Lock Time	6.0
Steering Angle	: 36.7

AREA SUBJECT TO
THIS APPLICATION

REMISKO DRIVE

EXISTING VEHICLE
ACCESS & CROSSOVER

EXISTING BOOSTER CABINETS

EXISTING LANDSCAPING

EXISTING EMERGENCY
VEHICLE PARKING

11600

15795

26855

12835

14020

6080

EX. GATES

EX. LOADING

NEW PARKING (7 BAYS)

ACCESS

NEW PARKING
(4 BAYS)

5400

3850

NEW BIN STORE
(5 x 1100Lt bins)

W SHADE TREES TO MATCH
ISTING APPROVED SPECIES

NEW CARPARKING (13 BAYS)

2
P301

2700

6200

EXISTING TREES
TO BE REMOVED

NEW
BUILDING
EXTENSION

EXISTING ROADWAY & PARKING BAYS
& FOOTPATHS TO BE MODIFIED
(SHOWN RED DASHED)

T1A

5400

6200

2700

NEW
CARPARKING
(4 BAYS)

1
P301

NG TREES TO REMAIN

T8
1,209.77 m²

T9
1,451.00 m²
FFL 25.600

T10
1,326.33 m²

6200

NEW BITUMEN ROAD
WAY & PARKING

175

20000

175

20000

21793

6600

2600

5400

NEW CARPARKING
(3 BAYS)

NEW CARPARKING (16 BAYS)

6600

P301
3

P301
4

4910

920 2800

B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

5200

950 3050

B99

	mm
Width	: 1940
Track	: 1840
Lock to Lock Time	: 6.0
Steering Angle	: 33.9

ECT TO
CATION

EXISTING VEHICLE
ACCESS & CROSSOVER

EXISTING BOOSTER CABINETS

EXISTING LANDSCAPING

EXISTING EMERGENCY
VEHICLE PARKING

REMISKO DRIVE

ATCH
CIES

11800

HRV
STANDARDS 2002 (AU)

NEW PARKING (7 BAYS)

ACCESS

NEW PARKING
(4 BAYS)

NEW CARPARKING (13 BAYS)

15795

5400

3850

6080

EX. GATES

NEW BIN STORE
(5 x 1100Lt bins)

26855

12835

14020

2

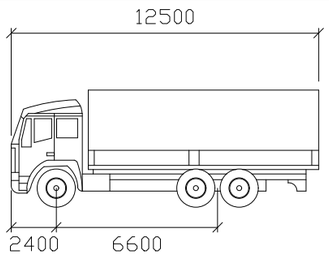
P301

2700

6200

EXISTING TREES
TO BE REMOVED

NEW
BUILDING



HRV

	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	6.0
Steering Angle	: 35.2

ECT TO
CATION

EXISTING VEHICLE
ACCESS & CROSSOVER

EXISTING BOOSTER CABINETS

EXISTING LANDSCAPING

EXISTING EMERGENCY
VEHICLE PARKING

MRV
STANDARDS 2018 (AU)

11800

15795

26855

12835

6080

EX. GATES

NEW PARKING (7 BAYS)

ACCESS

NEW PARKING
(4 BAYS)

5400

3850

NEW BIN STORE
(5 x 1100Lt bins)

14020

REMISKO DRIVE

ATCH
CIES

NEW CARPARKING (13 BAYS)

2

P301

2700

6200

EXISTING TREES
TO BE REMOVED

NEW
BUILDING

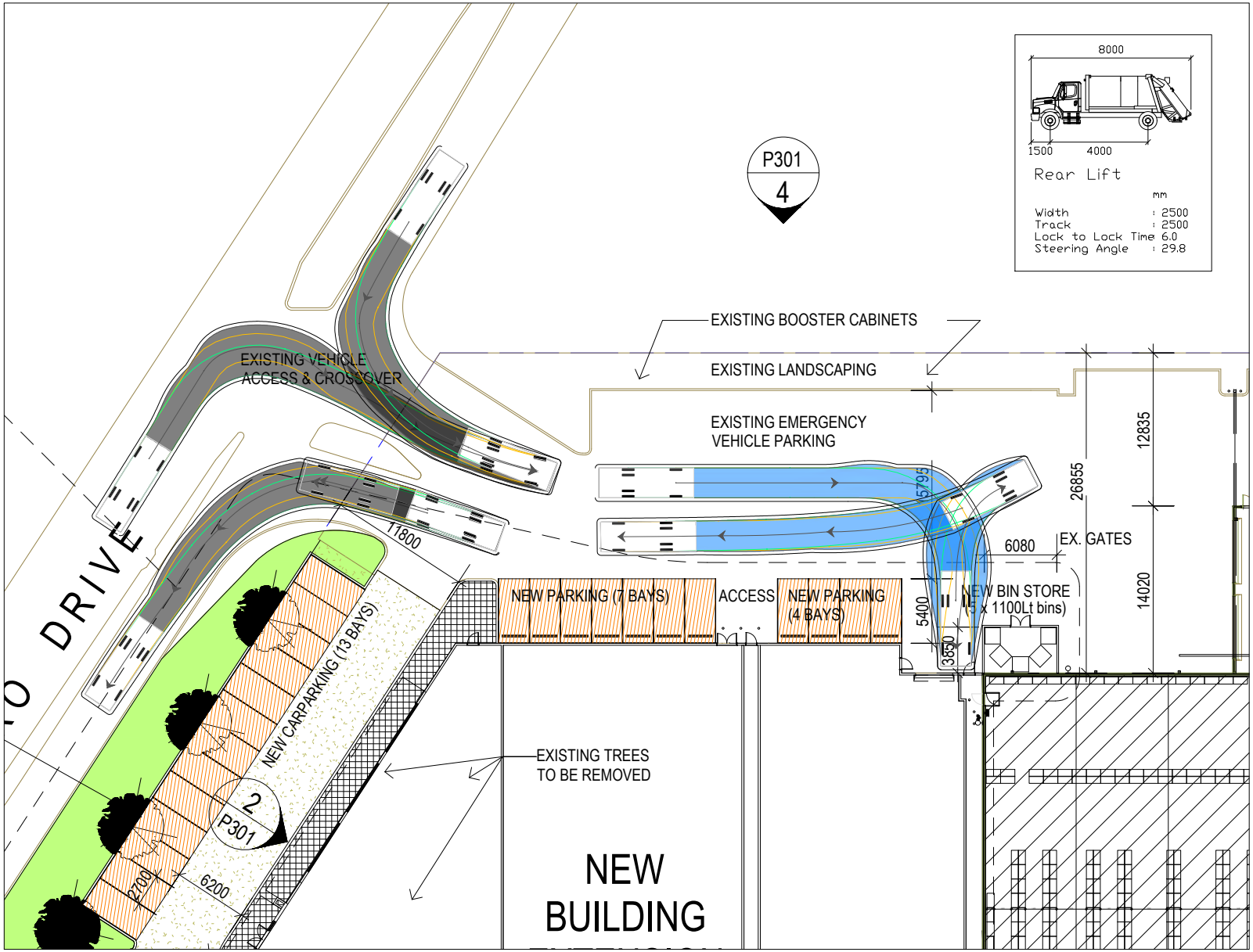
8800

1500

5000

MRV

	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 34.0


8000
1500
4000
Rear Lift
mm
Width : 2500
Track : 2500
Lock to Lock Time 6.0
Steering Angle : 29.8
P301
4
EXISTING BOOSTER CABINETS
EXISTING LANDSCAPING
EXISTING VEHICLE ACCESS & CROSSOVER
EXISTING EMERGENCY VEHICLE PARKING
11800
5795
26855
12835
6080
EX. GATES
14020
NEW PARKING (7 BAYS)
ACCESS
NEW PARKING (4 BAYS)
5400
3850
NEW BIN STORE (x 1100Lt bins)
NEW CARPARKING (13 BAYS)
2
P301
2700
6200
EXISTING TREES TO BE REMOVED
NEW BUILDING

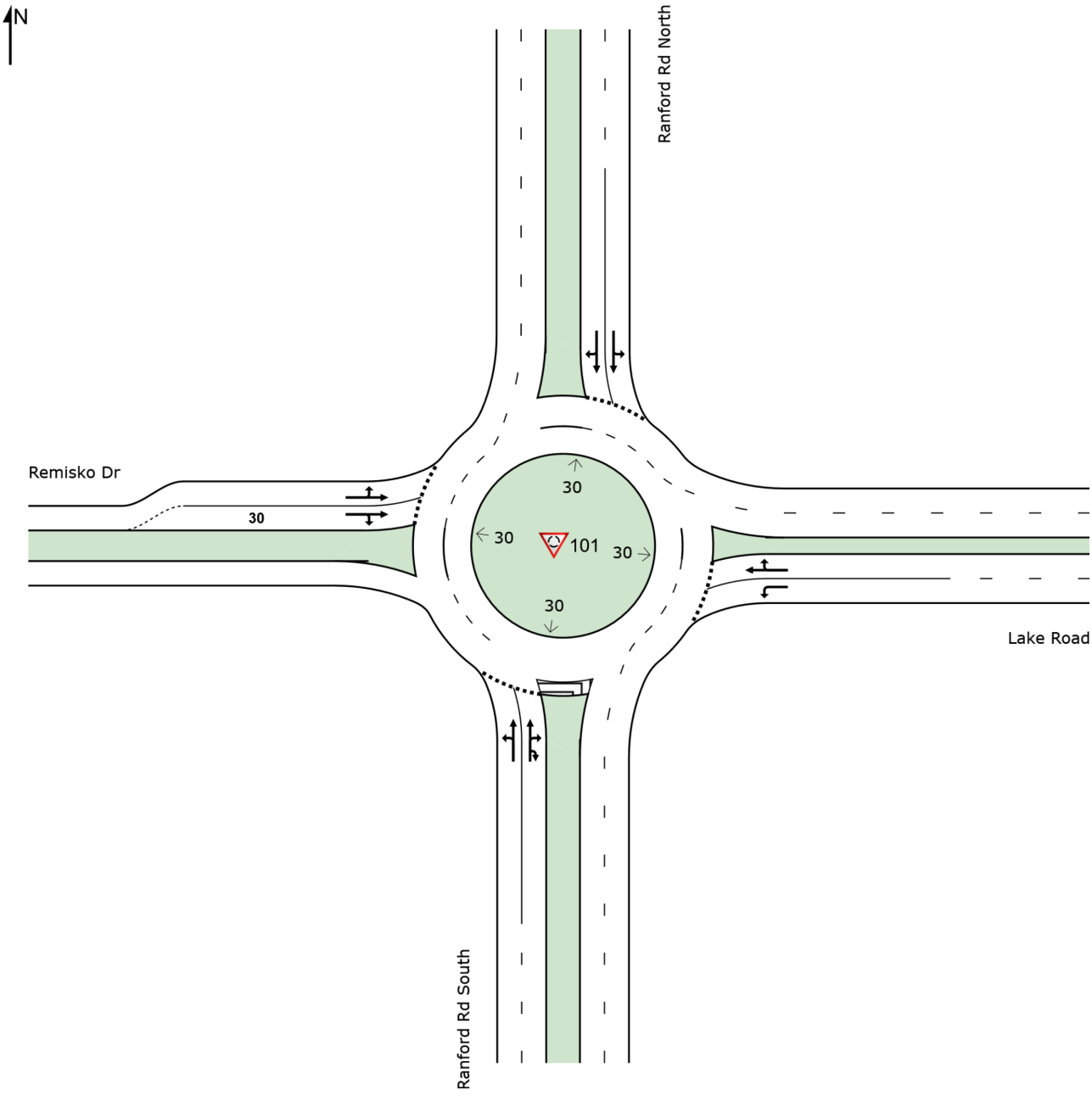
Appendix D SIDRA RESULTS

SITE LAYOUT

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd (Site Folder: EXISTING AM)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

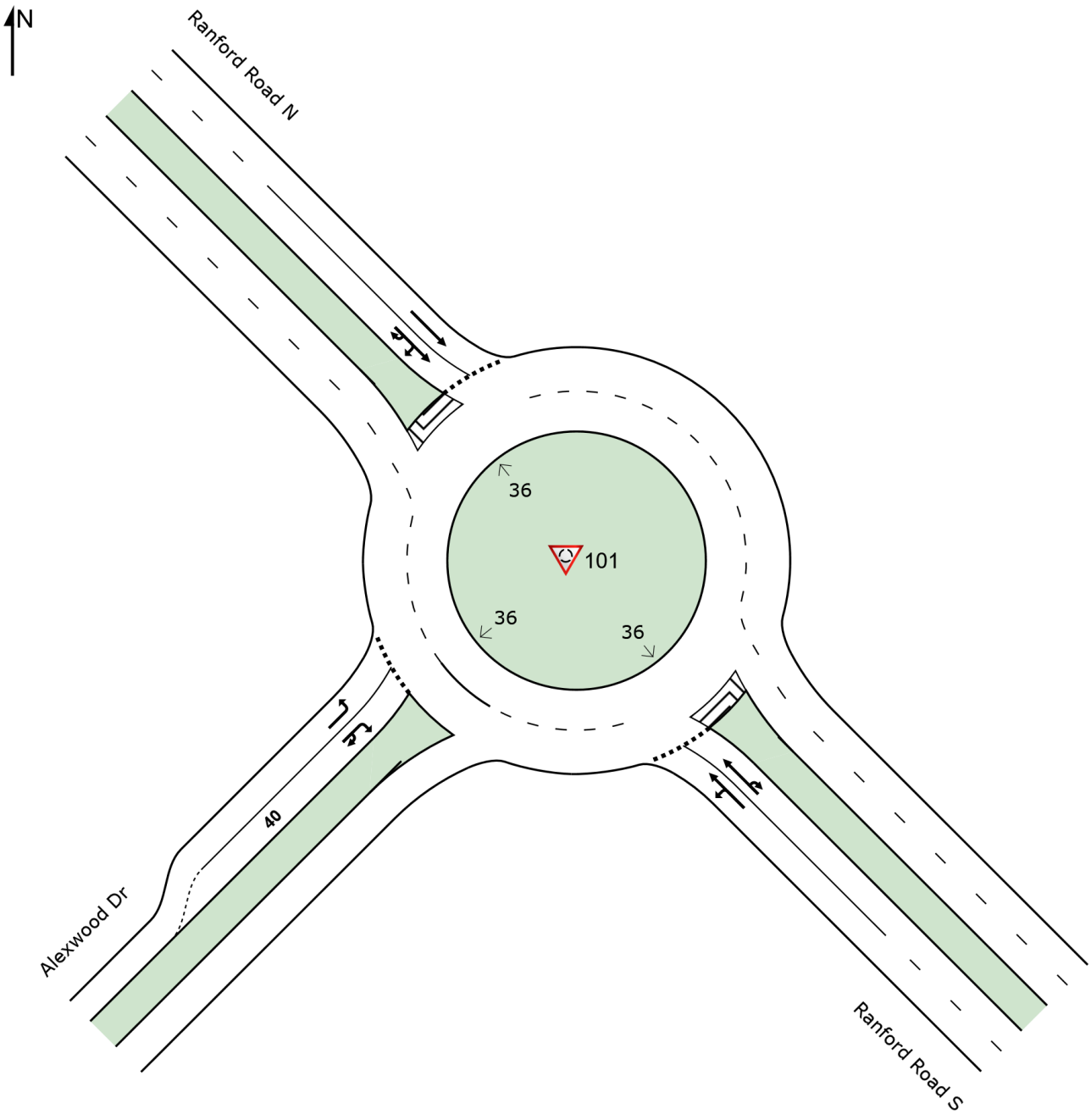


SITE LAYOUT

Site: 101 [Ranford Rd / Alexwood Drive (Site Folder: EXISTING AM)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd (Site Folder: EXISTING AM)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	22	7.0	23	7.0	0.317	5.8	LOS A	2.2	17.8	0.49	0.52	0.49	54.5
2	T1	430	7.0	453	7.0	0.317	6.0	LOS A	2.2	17.8	0.49	0.53	0.49	40.5
3	R2	307	7.0	323	7.0	0.317	12.2	LOS B	2.1	17.0	0.52	0.68	0.52	55.5
3u	U	12	7.0	13	7.0	0.317	13.1	LOS B	2.1	17.0	0.52	0.68	0.52	54.7
Approach		771	7.0	812	7.0	0.317	8.6	LOS A	2.2	17.8	0.50	0.59	0.50	47.5
East: Lake Road														
4	L2	393	4.0	414	4.0	0.364	6.2	LOS A	1.9	14.3	0.54	0.66	0.54	59.2
5	T1	76	4.0	80	4.0	0.262	6.8	LOS A	1.2	9.1	0.52	0.73	0.52	50.5
6	R2	152	4.0	160	4.0	0.262	12.6	LOS B	1.2	9.1	0.52	0.73	0.52	50.3
Approach		621	4.0	654	4.0	0.364	7.8	LOS A	1.9	14.3	0.53	0.69	0.53	56.4
North: Ranford Rd North														
7	L2	72	5.0	76	5.0	0.236	6.0	LOS A	1.2	9.6	0.49	0.56	0.49	53.8
8	T1	399	5.0	420	5.0	0.236	6.3	LOS A	1.2	9.6	0.50	0.57	0.50	56.2
9	R2	13	5.0	14	5.0	0.236	12.2	LOS B	1.2	9.3	0.50	0.58	0.50	22.1
Approach		484	5.0	509	5.0	0.236	6.4	LOS A	1.2	9.6	0.50	0.57	0.50	54.9
West: Remisko Dr														
10	L2	12	36.0	13	36.0	0.040	5.2	LOS A	0.2	1.7	0.59	0.59	0.59	37.4
11	T1	19	36.0	20	36.0	0.040	4.9	LOS A	0.2	1.7	0.60	0.61	0.60	43.9
12	R2	19	36.0	20	36.0	0.040	11.1	LOS B	0.2	1.6	0.61	0.75	0.61	39.3
Approach		50	36.0	53	36.0	0.040	7.3	LOS A	0.2	1.7	0.60	0.66	0.60	40.9
All Vehicles		1926	6.3	2027	6.3	0.364	7.8	LOS A	2.2	17.8	0.51	0.62	0.51	51.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive (Site Folder: EXISTING AM)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	11	4.0	12	4.0	0.217	4.5	LOS A	1.2	9.5	0.19	0.38	0.19	62.5
22	T1	643	4.0	677	4.0	0.217	4.5	LOS A	1.2	9.5	0.20	0.38	0.20	64.9
23u	U	1	4.0	1	4.0	0.217	12.1	LOS B	1.2	9.4	0.21	0.39	0.21	64.1
Approach		655	4.0	689	4.0	0.217	4.5	LOS A	1.2	9.5	0.20	0.38	0.20	64.9
NorthWest: Ranford Road N														
28	T1	503	6.0	529	6.0	0.185	4.9	LOS A	1.2	9.4	0.15	0.42	0.15	62.3
29	R2	57	6.0	60	6.0	0.185	11.0	LOS B	1.1	9.1	0.16	0.47	0.16	61.8
29u	U	1	5.0	1	5.0	0.185	12.0	LOS B	1.1	9.1	0.16	0.47	0.16	62.6
Approach		561	6.0	591	6.0	0.185	5.5	LOS A	1.2	9.4	0.15	0.43	0.15	62.3
SouthWest: Alexwood Dr														
30	L2	58	29.0	61	29.0	0.065	6.6	LOS A	0.2	2.5	0.48	0.64	0.48	54.2
32	R2	24	29.0	25	29.0	0.039	14.0	LOS B	0.1	1.4	0.51	0.75	0.51	50.9
32u	U	1	28.0	1	28.0	0.039	14.9	LOS B	0.1	1.4	0.51	0.75	0.51	55.7
Approach		83	29.0	87	29.0	0.065	8.9	LOS A	0.2	2.5	0.49	0.68	0.49	53.1
All Vehicles		1299	6.5	1367	6.5	0.217	5.2	LOS A	1.2	9.5	0.20	0.42	0.20	62.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd (Site Folder: EXISTING PM)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	11	5.0	12	5.0	0.306	5.6	LOS A	2.0	16.2	0.42	0.50	0.42	55.2
2	T1	390	5.0	411	5.0	0.306	5.8	LOS A	2.1	16.8	0.42	0.51	0.42	40.8
3	R2	400	5.0	421	5.0	0.306	11.4	LOS B	2.1	16.8	0.40	0.62	0.40	56.6
3u	U	14	5.0	15	5.0	0.306	12.3	LOS B	2.1	16.8	0.40	0.62	0.40	55.7
Approach		815	5.0	858	5.0	0.306	8.6	LOS A	2.1	16.8	0.41	0.57	0.41	49.4
East: Lake Road														
4	L2	323	3.0	340	3.0	0.325	6.6	LOS A	1.7	13.0	0.60	0.70	0.60	59.2
5	T1	36	3.0	38	3.0	0.195	7.3	LOS A	0.9	6.6	0.58	0.78	0.58	49.7
6	R2	109	3.0	115	3.0	0.195	13.1	LOS B	0.9	6.6	0.58	0.78	0.58	49.7
Approach		468	3.0	493	3.0	0.325	8.1	LOS A	1.7	13.0	0.60	0.73	0.60	56.7
North: Ranford Rd North														
7	L2	239	5.0	252	5.0	0.409	6.8	LOS A	2.3	18.1	0.62	0.68	0.62	53.2
8	T1	525	5.0	553	5.0	0.409	7.3	LOS A	2.3	18.1	0.63	0.67	0.63	55.2
9	R2	13	5.0	14	5.0	0.409	13.2	LOS B	2.3	17.5	0.63	0.66	0.64	21.7
Approach		777	5.0	818	5.0	0.409	7.3	LOS A	2.3	18.1	0.62	0.67	0.63	54.1
West: Remisko Dr														
10	L2	23	10.0	24	10.0	0.082	4.9	LOS A	0.4	3.0	0.59	0.56	0.59	40.0
11	T1	71	10.0	75	10.0	0.082	4.7	LOS A	0.4	3.0	0.60	0.62	0.60	51.7
12	R2	28	10.0	29	10.0	0.082	10.6	LOS B	0.3	2.8	0.61	0.71	0.61	49.1
Approach		122	10.0	128	10.0	0.082	6.1	LOS A	0.4	3.0	0.60	0.63	0.60	49.8
All Vehicles		2182	4.9	2297	4.9	0.409	7.9	LOS A	2.3	18.1	0.54	0.64	0.54	52.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive (Site Folder: EXISTING PM)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	3	3.0	3	3.0	0.179	4.4	LOS A	1.0	7.8	0.15	0.37	0.15	62.2
22	T1	547	3.0	576	3.0	0.179	4.4	LOS A	1.0	7.8	0.16	0.37	0.16	65.2
23u	U	3	3.0	3	3.0	0.179	12.0	LOS B	1.0	7.7	0.16	0.38	0.16	64.4
Approach		553	3.0	582	3.0	0.179	4.4	LOS A	1.0	7.8	0.16	0.37	0.16	65.2
NorthWest: Ranford Road N														
28	T1	758	4.0	798	4.0	0.263	5.0	LOS A	1.7	13.5	0.22	0.42	0.22	62.7
29	R2	36	4.0	38	4.0	0.263	11.1	LOS B	1.7	13.2	0.23	0.44	0.23	62.6
29u	U	2	4.0	2	4.0	0.263	12.1	LOS B	1.7	13.2	0.23	0.44	0.23	62.9
Approach		796	4.0	838	4.0	0.263	5.3	LOS A	1.7	13.5	0.22	0.42	0.22	62.7
SouthWest: Alexwood Dr														
30	L2	83	11.0	87	11.0	0.078	5.9	LOS A	0.3	2.5	0.44	0.61	0.44	58.6
32	R2	47	11.0	49	11.0	0.057	12.8	LOS B	0.2	1.7	0.46	0.73	0.46	55.2
32u	U	1	11.0	1	11.0	0.057	13.8	LOS B	0.2	1.7	0.46	0.73	0.46	56.9
Approach		131	11.0	138	11.0	0.078	8.4	LOS A	0.3	2.5	0.45	0.65	0.45	57.3
All Vehicles		1480	4.2	1558	4.2	0.263	5.2	LOS A	1.7	13.5	0.21	0.42	0.21	63.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd -2025 WOD (Site Folder: 2025 WOD AM)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	23	7.0	24	7.0	0.333	5.9	LOS A	2.3	19.0	0.51	0.52	0.51	54.3
2	T1	447	7.0	471	7.0	0.333	6.1	LOS A	2.3	19.0	0.51	0.53	0.51	40.4
3	R2	319	7.0	336	7.0	0.333	12.3	LOS B	2.2	18.0	0.53	0.68	0.53	55.5
3u	U	12	7.0	13	7.0	0.333	13.2	LOS B	2.2	18.0	0.53	0.68	0.53	54.7
Approach		801	7.0	843	7.0	0.333	8.7	LOS A	2.3	19.0	0.52	0.60	0.52	47.4
East: Lake Road														
4	L2	409	4.0	431	4.0	0.384	6.3	LOS A	2.0	15.3	0.56	0.67	0.56	59.1
5	T1	79	4.0	83	4.0	0.276	6.8	LOS A	1.3	9.7	0.54	0.74	0.54	50.4
6	R2	158	4.0	166	4.0	0.276	12.6	LOS B	1.3	9.7	0.54	0.74	0.54	50.3
Approach		646	4.0	680	4.0	0.384	7.9	LOS A	2.0	15.3	0.55	0.70	0.55	56.3
North: Ranford Rd North														
7	L2	75	5.0	79	5.0	0.249	6.1	LOS A	1.3	10.2	0.51	0.57	0.51	53.7
8	T1	415	5.0	437	5.0	0.249	6.4	LOS A	1.3	10.2	0.51	0.58	0.51	56.0
9	R2	14	5.0	15	5.0	0.249	12.3	LOS B	1.3	9.9	0.52	0.58	0.52	22.1
Approach		504	5.0	531	5.0	0.249	6.5	LOS A	1.3	10.2	0.51	0.58	0.51	54.8
West: Remisko Dr														
10	L2	12	36.0	13	36.0	0.042	5.2	LOS A	0.2	1.7	0.60	0.59	0.60	37.9
11	T1	20	36.0	21	36.0	0.042	4.9	LOS A	0.2	1.7	0.61	0.61	0.61	45.4
12	R2	20	36.0	21	36.0	0.042	11.2	LOS B	0.2	1.6	0.62	0.77	0.62	41.2
Approach		52	36.0	55	36.0	0.042	7.4	LOS A	0.2	1.7	0.61	0.67	0.61	42.5
All Vehicles		2003	6.3	2108	6.3	0.384	7.8	LOS A	2.3	19.0	0.53	0.63	0.53	51.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive - 2025 WOD (Site Folder: 2025 WOD AM)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	11	4.0	12	4.0	0.226	4.5	LOS A	1.3	10.0	0.20	0.38	0.20	62.4
22	T1	669	4.0	704	4.0	0.226	4.5	LOS A	1.3	10.0	0.21	0.39	0.21	64.8
23u	U	1	4.0	1	4.0	0.226	12.2	LOS B	1.3	9.9	0.22	0.39	0.22	64.0
Approach		681	4.0	717	4.0	0.226	4.5	LOS A	1.3	10.0	0.21	0.39	0.21	64.8
NorthWest: Ranford Road N														
28	T1	523	6.0	551	6.0	0.192	4.9	LOS A	1.2	9.9	0.15	0.42	0.15	62.3
29	R2	60	6.0	63	6.0	0.192	11.1	LOS B	1.2	9.6	0.16	0.47	0.16	61.7
29u	U	1	6.0	1	6.0	0.192	12.0	LOS B	1.2	9.6	0.16	0.47	0.16	62.5
Approach		584	6.0	615	6.0	0.192	5.5	LOS A	1.2	9.9	0.15	0.43	0.15	62.2
SouthWest: Alexwood Dr														
30	L2	61	29.0	64	29.0	0.069	6.7	LOS A	0.3	2.7	0.49	0.65	0.49	54.1
32	R2	25	29.0	26	29.0	0.041	14.1	LOS B	0.1	1.5	0.52	0.76	0.52	50.8
32u	U	1	29.0	1	29.0	0.041	15.1	LOS B	0.1	1.5	0.52	0.76	0.52	55.6
Approach		87	29.0	92	29.0	0.069	8.9	LOS A	0.3	2.7	0.50	0.69	0.50	53.1
All Vehicles		1352	6.5	1423	6.5	0.226	5.3	LOS A	1.3	10.0	0.20	0.42	0.20	62.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd -2025 WOD (Site Folder: 2025 WOD PM)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	11	5.0	12	5.0	0.321	5.7	LOS A	2.2	17.2	0.44	0.50	0.44	55.0
2	T1	406	5.0	427	5.0	0.321	5.8	LOS A	2.3	17.9	0.43	0.51	0.43	40.7
3	R2	416	5.0	438	5.0	0.321	11.4	LOS B	2.3	17.9	0.41	0.63	0.41	56.5
3u	U	15	5.0	16	5.0	0.321	12.4	LOS B	2.3	17.9	0.41	0.63	0.41	55.7
Approach		848	5.0	893	5.0	0.321	8.7	LOS A	2.3	17.9	0.42	0.57	0.42	49.4
East: Lake Road														
4	L2	336	3.0	354	3.0	0.344	6.7	LOS A	1.8	14.0	0.62	0.71	0.62	59.1
5	T1	37	3.0	39	3.0	0.206	7.4	LOS A	0.9	7.1	0.59	0.79	0.59	49.5
6	R2	113	3.0	119	3.0	0.206	13.2	LOS B	0.9	7.1	0.59	0.79	0.59	49.5
Approach		486	3.0	512	3.0	0.344	8.2	LOS A	1.8	14.0	0.61	0.74	0.61	56.6
North: Ranford Rd North														
7	L2	249	5.0	262	5.0	0.434	7.0	LOS A	2.6	19.9	0.64	0.70	0.65	53.0
8	T1	546	5.0	575	5.0	0.434	7.6	LOS A	2.6	19.9	0.65	0.70	0.67	55.1
9	R2	14	5.0	15	5.0	0.434	13.6	LOS B	2.5	19.5	0.65	0.70	0.68	21.6
Approach		809	5.0	852	5.0	0.434	7.5	LOS A	2.6	19.9	0.65	0.70	0.67	53.9
West: Remisko Dr														
10	L2	24	10.0	25	10.0	0.087	5.0	LOS A	0.4	3.2	0.61	0.58	0.61	39.9
11	T1	74	10.0	78	10.0	0.087	4.8	LOS A	0.4	3.2	0.61	0.63	0.61	51.6
12	R2	29	10.0	31	10.0	0.087	10.8	LOS B	0.4	3.0	0.62	0.73	0.62	49.0
Approach		127	10.0	134	10.0	0.087	6.2	LOS A	0.4	3.2	0.61	0.64	0.61	49.7
All Vehicles		2270	4.9	2389	4.9	0.434	8.0	LOS A	2.6	19.9	0.55	0.66	0.56	52.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive - 2025 WOD (Site Folder: 2025 WOD PM)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	3	3.0	3	3.0	0.187	4.4	LOS A	1.1	8.2	0.16	0.37	0.16	62.1
22	T1	569	3.0	599	3.0	0.187	4.4	LOS A	1.1	8.2	0.16	0.38	0.16	65.2
23u	U	3	3.0	3	3.0	0.187	12.0	LOS B	1.1	8.1	0.17	0.38	0.17	64.3
Approach		575	3.0	605	3.0	0.187	4.5	LOS A	1.1	8.2	0.16	0.38	0.16	65.2
NorthWest: Ranford Road N														
28	T1	788	4.0	829	4.0	0.274	5.0	LOS A	1.8	14.3	0.22	0.42	0.22	62.7
29	R2	38	4.0	40	4.0	0.274	11.2	LOS B	1.8	14.0	0.23	0.44	0.23	62.6
29u	U	2	3.0	2	3.0	0.274	12.1	LOS B	1.8	14.0	0.23	0.44	0.23	62.9
Approach		828	4.0	872	4.0	0.274	5.3	LOS A	1.8	14.3	0.22	0.42	0.22	62.7
SouthWest: Alexwood Dr														
30	L2	86	11.0	91	11.0	0.081	5.9	LOS A	0.3	2.6	0.45	0.62	0.45	58.6
32	R2	49	11.0	52	11.0	0.060	12.9	LOS B	0.2	1.8	0.47	0.74	0.47	55.2
32u	U	1	11.0	1	11.0	0.060	13.9	LOS B	0.2	1.8	0.47	0.74	0.47	56.8
Approach		136	11.0	143	11.0	0.081	8.5	LOS A	0.3	2.6	0.46	0.66	0.46	57.2
All Vehicles		1539	4.2	1620	4.2	0.274	5.3	LOS A	1.8	14.3	0.22	0.43	0.22	63.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd -2035 WOD (Site Folder: 2035 WOD AM)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	28	7.0	29	7.0	0.427	6.3	LOS A	3.3	27.0	0.61	0.56	0.61	53.5
2	T1	545	7.0	574	7.0	0.427	6.5	LOS A	3.3	27.0	0.61	0.57	0.61	40.0
3	R2	389	7.0	409	7.0	0.427	12.8	LOS B	3.1	25.4	0.64	0.73	0.64	55.0
3u	U	15	7.0	16	7.0	0.427	13.8	LOS B	3.1	25.4	0.64	0.73	0.64	54.2
Approach		977	7.0	1028	7.0	0.427	9.1	LOS A	3.3	27.0	0.62	0.64	0.62	47.0
East: Lake Road														
4	L2	498	4.0	524	4.0	0.496	7.1	LOS A	3.1	23.5	0.66	0.78	0.72	58.7
5	T1	96	4.0	101	4.0	0.362	7.3	LOS A	1.8	13.5	0.62	0.79	0.62	49.9
6	R2	193	4.0	203	4.0	0.362	13.1	LOS B	1.8	13.5	0.62	0.79	0.62	49.8
Approach		787	4.0	828	4.0	0.496	8.6	LOS A	3.1	23.5	0.64	0.78	0.68	55.9
North: Ranford Rd North														
7	L2	91	5.0	96	5.0	0.327	6.5	LOS A	1.9	14.8	0.60	0.62	0.60	53.0
8	T1	506	5.0	533	5.0	0.327	6.9	LOS A	1.9	14.8	0.61	0.62	0.61	55.3
9	R2	16	5.0	17	5.0	0.327	12.8	LOS B	1.8	14.2	0.61	0.63	0.61	21.8
Approach		613	5.0	645	5.0	0.327	7.0	LOS A	1.9	14.8	0.61	0.62	0.61	54.1
West: Remisko Dr														
10	L2	15	36.0	16	36.0	0.059	5.8	LOS A	0.3	2.6	0.67	0.66	0.67	37.2
11	T1	24	36.0	25	36.0	0.059	5.5	LOS A	0.3	2.6	0.67	0.68	0.67	45.0
12	R2	24	36.0	25	36.0	0.059	12.1	LOS B	0.2	2.4	0.68	0.84	0.68	40.5
Approach		63	36.0	66	36.0	0.059	8.1	LOS A	0.3	2.6	0.67	0.74	0.67	41.9
All Vehicles		2440	6.3	2568	6.3	0.496	8.4	LOS A	3.3	27.0	0.63	0.68	0.64	51.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive - 2035 WOD (Site Folder: 2035 WOD AM)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	13	4.0	14	4.0	0.279	4.6	LOS A	1.7	13.2	0.24	0.39	0.24	62.2
22	T1	816	4.0	859	4.0	0.279	4.6	LOS A	1.7	13.2	0.25	0.40	0.25	64.6
23u	U	1	0.0	1	0.0	0.279	12.2	LOS B	1.7	13.0	0.26	0.40	0.26	63.9
Approach		830	4.0	874	4.0	0.279	4.6	LOS A	1.7	13.2	0.25	0.40	0.25	64.5
NorthWest: Ranford Road N														
28	T1	638	6.0	672	6.0	0.237	4.9	LOS A	1.6	12.9	0.18	0.42	0.18	62.1
29	R2	73	6.0	77	6.0	0.237	11.1	LOS B	1.6	12.5	0.19	0.47	0.19	61.5
29u	U	1	5.0	1	5.0	0.237	12.1	LOS B	1.6	12.5	0.19	0.47	0.19	62.4
Approach		712	6.0	749	6.0	0.237	5.6	LOS A	1.6	12.9	0.19	0.43	0.19	62.1
SouthWest: Alexwood Dr														
30	L2	74	29.0	78	29.0	0.090	7.1	LOS A	0.3	3.5	0.54	0.70	0.54	53.9
32	R2	32	29.0	34	29.0	0.056	14.6	LOS B	0.2	2.0	0.56	0.80	0.56	50.5
32u	U	1	22.0	1	22.0	0.056	15.1	LOS B	0.2	2.0	0.56	0.80	0.56	55.5
Approach		107	28.9	113	28.9	0.090	9.4	LOS A	0.3	3.5	0.55	0.73	0.55	52.8
All Vehicles		1649	6.5	1736	6.5	0.279	5.3	LOS A	1.7	13.2	0.24	0.43	0.24	62.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd -2035 WOD (Site Folder: 2035 WOD PM)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	14	5.0	15	5.0	0.405	6.0	LOS A	3.0	23.8	0.53	0.54	0.53	54.3
2	T1	495	5.0	521	5.0	0.405	6.2	LOS A	3.2	24.9	0.52	0.55	0.52	40.4
3	R2	507	5.0	534	5.0	0.405	11.7	LOS B	3.2	24.9	0.50	0.64	0.50	56.2
3u	U	18	5.0	19	5.0	0.405	12.6	LOS B	3.2	24.9	0.50	0.64	0.50	55.4
Approach		1034	5.0	1088	5.0	0.405	9.0	LOS A	3.2	24.9	0.51	0.59	0.51	49.0
East: Lake Road														
4	L2	410	3.0	432	3.0	0.464	7.7	LOS A	3.0	22.5	0.74	0.84	0.81	58.6
5	T1	46	3.0	48	3.0	0.282	8.0	LOS A	1.4	10.4	0.68	0.86	0.68	48.9
6	R2	138	3.0	145	3.0	0.282	13.8	LOS B	1.4	10.4	0.68	0.86	0.68	49.0
Approach		594	3.0	625	3.0	0.464	9.1	LOS A	3.0	22.5	0.72	0.85	0.77	56.0
North: Ranford Rd North														
7	L2	303	5.0	319	5.0	0.583	9.1	LOS A	4.7	36.4	0.78	0.90	0.95	51.6
8	T1	666	5.0	701	5.0	0.583	9.9	LOS A	4.7	36.4	0.79	0.93	0.97	53.6
9	R2	16	5.0	17	5.0	0.583	16.0	LOS B	4.5	34.6	0.79	0.95	0.98	21.0
Approach		985	5.0	1037	5.0	0.583	9.8	LOS A	4.7	36.4	0.79	0.92	0.96	52.5
West: Remisko Dr														
10	L2	29	10.0	31	10.0	0.123	5.7	LOS A	0.6	4.9	0.69	0.66	0.69	39.0
11	T1	90	10.0	95	10.0	0.123	5.6	LOS A	0.6	4.9	0.69	0.71	0.69	51.0
12	R2	36	10.0	38	10.0	0.123	11.8	LOS B	0.5	4.5	0.69	0.82	0.69	48.1
Approach		155	10.0	163	10.0	0.123	7.1	LOS A	0.6	4.9	0.69	0.73	0.69	48.9
All Vehicles		2768	4.9	2914	4.9	0.583	9.2	LOS A	4.7	36.4	0.66	0.77	0.74	51.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive - 2035 WOD (Site Folder: 2035 WOD PM)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	4	3.0	4	3.0	0.229	4.4	LOS A	1.4	10.6	0.18	0.38	0.18	62.0
22	T1	693	3.0	729	3.0	0.229	4.5	LOS A	1.4	10.6	0.19	0.38	0.19	65.0
23u	U	4	3.0	4	3.0	0.229	12.1	LOS B	1.4	10.5	0.20	0.38	0.20	64.1
Approach		701	3.0	738	3.0	0.229	4.5	LOS A	1.4	10.6	0.19	0.38	0.19	65.0
NorthWest: Ranford Road N														
28	T1	961	4.0	1012	4.0	0.337	5.1	LOS A	2.5	19.0	0.27	0.43	0.27	62.4
29	R2	46	4.0	48	4.0	0.337	11.3	LOS B	2.4	18.6	0.28	0.45	0.28	62.3
29u	U	1	4.0	1	4.0	0.337	12.2	LOS B	2.4	18.6	0.28	0.45	0.28	62.6
Approach		1008	4.0	1061	4.0	0.337	5.4	LOS A	2.5	19.0	0.27	0.43	0.27	62.4
SouthWest: Alexwood Dr														
30	L2	105	11.0	111	11.0	0.104	6.2	LOS A	0.4	3.4	0.49	0.66	0.49	58.4
32	R2	59	11.0	62	11.0	0.077	13.3	LOS B	0.3	2.4	0.51	0.78	0.51	55.0
32u	U	1	11.0	1	11.0	0.077	14.3	LOS B	0.3	2.4	0.51	0.78	0.51	56.7
Approach		165	11.0	174	11.0	0.104	8.8	LOS A	0.4	3.4	0.50	0.70	0.50	57.1
All Vehicles		1874	4.2	1973	4.2	0.337	5.3	LOS A	2.5	19.0	0.26	0.43	0.26	62.8

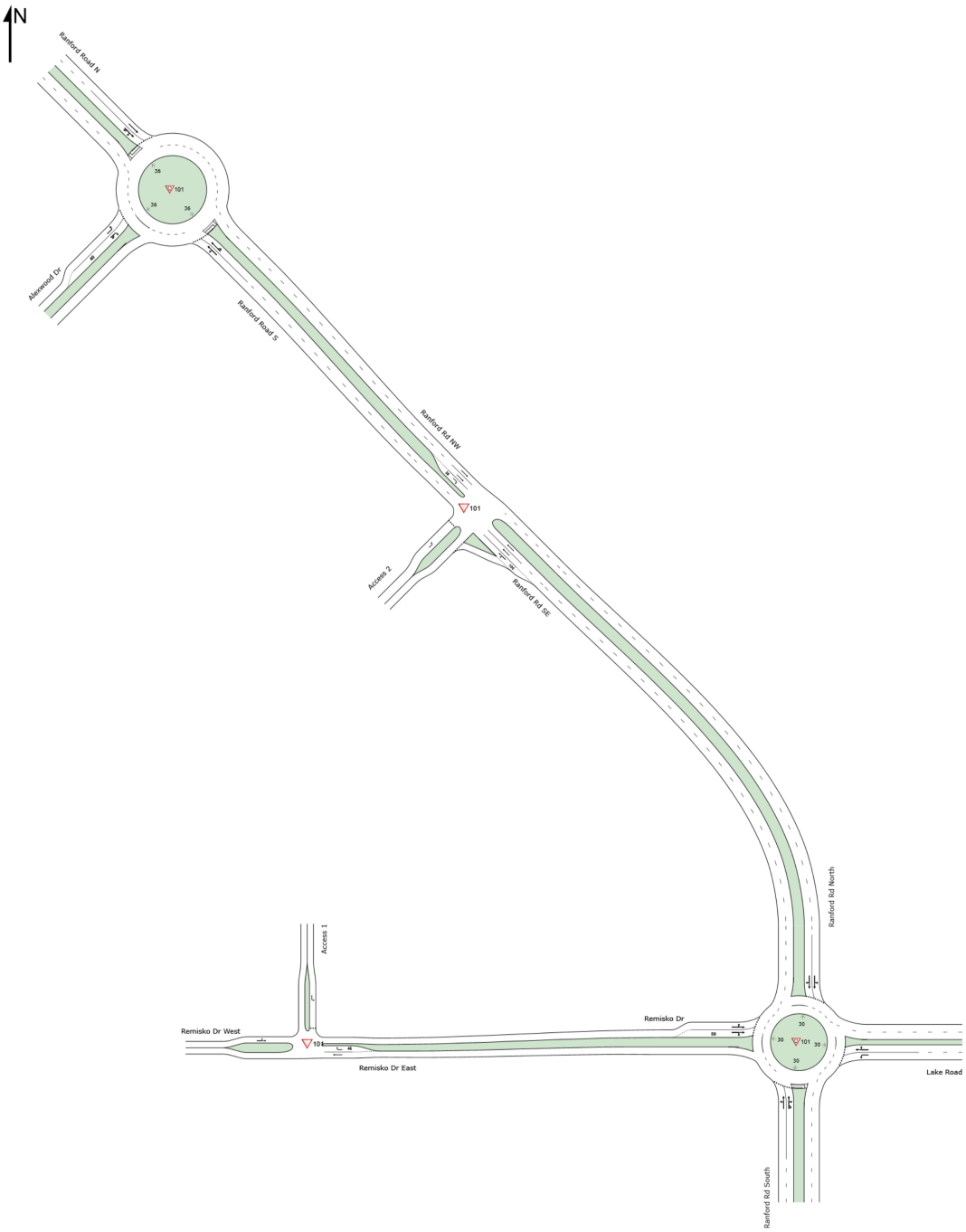
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

NETWORK LAYOUT

Network: N101 [2025 WD AM (Network Folder: NETWORK)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101	NA	Ranford Rd / Remisko Dr / Lake Rd -2025 WD
101	NA	Remisko Dr / Access 1 - 2025 WD
101	NA	Ranford Road/Access 2 - 2025 WD
101	NA	Ranford Rd / Alexwood Drive - 2025 WD

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd -2025 WD (Site Folder: 2025 WD AM)]

Network: N101 [2025 WD AM (Network Folder: NETWORK)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	49	7.0	49	7.0	0.376	6.1	LOS A	2.8	22.4	0.56	0.55	0.56	53.8
2	T1	523	7.0	523	7.0	0.376	6.4	LOS A	2.8	22.4	0.57	0.57	0.57	53.2
3	R2	336	7.0	336	7.0	0.376	12.6	LOS B	2.6	21.2	0.59	0.70	0.59	55.6
3u	U	13	7.0	13	7.0	0.376	13.6	LOS B	2.6	21.2	0.59	0.70	0.59	54.8
Approach		921	7.0	921	7.0	0.376	8.7	LOS A	2.8	22.4	0.58	0.62	0.58	54.5
East: Lake Road														
4	L2	431	4.0	431	4.0	0.387	6.4	LOS A	2.0	15.5	0.57	0.68	0.57	59.1
5	T1	92	4.0	92	4.0	0.314	6.9	LOS A	1.5	11.4	0.56	0.75	0.56	50.3
6	R2	198	4.0	198	4.0	0.314	12.7	LOS B	1.5	11.4	0.56	0.75	0.56	50.3
Approach		720	4.0	720	4.0	0.387	8.2	LOS A	2.0	15.5	0.56	0.71	0.56	56.4
North: Ranford Rd North														
7	L2	92	5.0	92	5.0	0.264	6.1	LOS A	1.4	11.1	0.52	0.58	0.52	53.6
8	T1	453	5.0	453	5.0	0.264	6.4	LOS A	1.4	11.1	0.53	0.58	0.53	56.0
9	R2	15	5.0	15	5.0	0.264	12.3	LOS B	1.4	10.7	0.53	0.58	0.53	37.2
Approach		559	5.0	559	5.0	0.264	6.5	LOS A	1.4	11.1	0.52	0.58	0.52	55.4
West: Remisko Dr														
10	L2	13	36.0	13	36.0	0.046	5.6	LOS A	0.2	2.0	0.64	0.63	0.64	28.7
11	T1	21	36.0	21	36.0	0.046	5.2	LOS A	0.2	2.0	0.64	0.65	0.64	43.7
12	R2	21	36.0	21	36.0	0.046	11.7	LOS B	0.2	1.9	0.65	0.78	0.65	38.9
Approach		55	36.0	55	36.0	0.046	7.8	LOS A	0.2	2.0	0.64	0.69	0.64	40.2
All Vehicles		2255	6.3	2255	6.3	0.387	8.0	LOS A	2.8	22.4	0.56	0.64	0.56	55.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Remisko Dr / Access 1 - 2025 WD (Site Folder: 2025 WD AM)] Network: N101 [2025 WD AM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Remisko Dr East														
5	T1	121	4.0	121	4.0	0.065	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	34	4.0	34	4.0	0.020	4.8	LOS A	0.1	0.7	0.17	0.52	0.17	28.0
Approach		155	4.0	155	4.0	0.065	1.0	NA	0.1	0.7	0.04	0.11	0.04	47.8
North: Access 1														
7	L2	23	4.0	23	4.0	0.015	3.8	LOS A	0.1	0.5	0.15	0.48	0.15	25.7
Approach		23	4.0	23	4.0	0.015	3.8	LOS A	0.1	0.5	0.15	0.48	0.15	25.7
West: Remisko Dr West														
10	L2	7	4.0	7	4.0	0.044	4.6	LOS A	0.0	0.0	0.00	0.06	0.00	41.6
11	T1	55	36.0	55	36.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	49.0
Approach		62	32.2	62	32.2	0.044	0.6	NA	0.0	0.0	0.00	0.06	0.00	47.9
All Vehicles		240	11.3	240	11.3	0.065	1.2	NA	0.1	0.7	0.04	0.14	0.04	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Road/Access 2 - 2025 WD (Site Folder: 2025 WD AM)]

Network: N101 [2025 WD AM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Rd SE														
21	L2	83	2.0	83	2.0	0.053	6.6	LOS A	0.2	1.6	0.10	0.55	0.10	37.1
22	T1	651	4.0	651	4.0	0.173	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	69.4
Approach		734	3.8	734	3.8	0.173	0.8	NA	0.2	1.6	0.01	0.07	0.01	61.6
NorthWest: Ranford Rd NW														
28	T1	642	6.0	642	6.0	0.181	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	69.2
29	R2	32	4.0	32	4.0	0.075	12.6	LOS B	0.2	1.9	0.60	0.84	0.60	45.6
Approach		674	5.9	674	5.9	0.181	0.7	NA	0.2	1.9	0.03	0.05	0.03	67.4
SouthWest: Access 2														
30	L2	62	4.0	62	4.0	0.048	3.4	LOS A	0.0	0.0	0.00	0.51	0.00	27.1
Approach		62	4.0	62	4.0	0.048	3.4	LOS A	0.0	0.0	0.00	0.51	0.00	27.1
All Vehicles		1469	4.8	1469	4.8	0.181	0.9	NA	0.2	1.9	0.02	0.08	0.02	65.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive - 2025 WD (Site Folder: 2025 WD AM)]

Network: N101 [2025 WD AM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	12	4.0	12	4.0	0.243	4.5	LOS A	1.5	11.2	0.21	0.38	0.21	62.4
22	T1	733	4.0	733	4.0	0.243	4.5	LOS A	1.5	11.2	0.22	0.40	0.22	64.3
23u	U	28	0.0	28	0.0	0.243	12.1	LOS B	1.4	11.0	0.23	0.42	0.23	56.6
Approach		773	3.9	773	3.9	0.243	4.8	LOS A	1.5	11.2	0.22	0.40	0.22	64.1
NorthWest: Ranford Road N														
28	T1	582	6.0	582	6.0	0.208	5.0	LOS A	1.2	10.0	0.20	0.43	0.20	56.9
29	R2	63	6.0	63	6.0	0.208	11.2	LOS B	1.2	9.8	0.21	0.47	0.21	61.5
29u	U	1	5.0	1	5.0	0.208	12.1	LOS B	1.2	9.8	0.21	0.47	0.21	62.3
Approach		646	6.0	646	6.0	0.208	5.6	LOS A	1.2	10.0	0.20	0.43	0.20	57.7
SouthWest: Alexwood Dr														
30	L2	64	29.0	64	29.0	0.071	6.8	LOS A	0.3	2.7	0.51	0.67	0.51	54.1
32	R2	26	29.0	26	29.0	0.042	14.3	LOS B	0.1	1.5	0.53	0.77	0.53	47.6
32u	U	1	29.0	1	29.0	0.042	15.2	LOS B	0.1	1.5	0.53	0.77	0.53	55.4
Approach		92	29.0	92	29.0	0.071	9.1	LOS A	0.3	2.7	0.52	0.70	0.52	52.7
All Vehicles		1511	6.3	1511	6.3	0.243	5.4	LOS A	1.5	11.2	0.23	0.43	0.23	61.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd -2025 WD (Site Folder: 2025 WD PM)]

Network: N101 [2025 WD PM (Network Folder: NETWORK)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	28	5.0	28	5.0	0.329	5.5	LOS A	2.4	18.6	0.45	0.50	0.45	54.9
2	T1	463	5.0	463	5.0	0.329	5.7	LOS A	2.4	18.6	0.45	0.50	0.45	54.9
3	R2	438	5.0	438	5.0	0.368	11.9	LOS B	2.6	20.6	0.49	0.66	0.49	55.8
3u	U	16	5.0	16	5.0	0.368	12.8	LOS B	2.6	20.6	0.49	0.66	0.49	55.0
Approach		945	5.0	945	5.0	0.368	8.7	LOS A	2.6	20.6	0.47	0.58	0.47	55.5
East: Lake Road														
4	L2	354	3.0	354	3.0	0.350	6.7	LOS A	1.9	14.4	0.64	0.72	0.64	59.1
5	T1	44	3.0	44	3.0	0.237	7.5	LOS A	1.1	8.4	0.61	0.80	0.61	49.4
6	R2	141	3.0	141	3.0	0.237	13.3	LOS B	1.1	8.4	0.61	0.80	0.61	49.4
Approach		539	3.0	539	3.0	0.350	8.5	LOS A	1.9	14.4	0.63	0.75	0.63	56.6
North: Ranford Rd North														
7	L2	281	5.0	281	5.0	0.461	7.2	LOS A	2.9	22.5	0.67	0.73	0.69	52.9
8	T1	599	5.0	599	5.0	0.461	7.8	LOS A	2.9	22.5	0.67	0.73	0.71	54.9
9	R2	15	5.0	15	5.0	0.461	13.8	LOS B	2.8	22.0	0.68	0.73	0.72	35.4
Approach		895	5.0	895	5.0	0.461	7.7	LOS A	2.9	22.5	0.67	0.73	0.71	54.1
West: Remisko Dr														
10	L2	25	10.0	25	10.0	0.090	5.0	LOS A	0.4	3.3	0.62	0.58	0.62	29.0
11	T1	78	10.0	78	10.0	0.090	4.9	LOS A	0.4	3.3	0.62	0.64	0.62	51.5
12	R2	31	10.0	31	10.0	0.090	10.9	LOS B	0.4	3.1	0.63	0.74	0.63	48.9
Approach		134	10.0	134	10.0	0.090	6.3	LOS A	0.4	3.3	0.62	0.65	0.62	49.3
All Vehicles		2513	4.8	2513	4.8	0.461	8.2	LOS A	2.9	22.5	0.58	0.67	0.60	55.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Remisko Dr / Access 1 - 2025 WD (Site Folder: 2025 WD PM)]

Network: N101 [2025 WD PM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Remisko Dr East														
5	T1	65	4.0	65	4.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	21	4.0	21	4.0	0.014	5.0	LOS A	0.1	0.5	0.25	0.52	0.25	27.5
Approach		86	4.0	86	4.0	0.035	1.2	NA	0.1	0.5	0.06	0.13	0.06	47.4
North: Access 1														
7	L2	31	4.0	31	4.0	0.022	4.1	LOS A	0.1	0.7	0.23	0.49	0.23	24.8
Approach		31	4.0	31	4.0	0.022	4.1	LOS A	0.1	0.7	0.23	0.49	0.23	24.8
West: Remisko Dr West														
10	L2	5	4.0	5	4.0	0.081	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	42.2
11	T1	134	10.0	134	10.0	0.081	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.8
Approach		139	9.8	139	9.8	0.081	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.4
All Vehicles		256	7.1	256	7.1	0.081	1.0	NA	0.1	0.7	0.05	0.11	0.05	47.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Road/Access 2 - 2025 WD (Site Folder: 2025 WD PM)]

Network: N101 [2025 WD PM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Rd SE														
21	L2	57	2.0	57	2.0	0.036	6.6	LOS A	0.1	1.1	0.08	0.56	0.08	37.3
22	T1	573	5.0	573	5.0	0.154	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	69.3
Approach		629	4.7	629	4.7	0.154	0.7	NA	0.1	1.1	0.01	0.06	0.01	63.0
NorthWest: Ranford Rd NW														
28	T1	915	3.0	915	3.0	0.246	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	69.5
29	R2	21	3.0	21	3.0	0.044	11.2	LOS B	0.1	1.1	0.54	0.77	0.54	47.1
Approach		936	3.0	936	3.0	0.246	0.3	NA	0.1	1.1	0.01	0.03	0.01	68.7
SouthWest: Access 2														
30	L2	94	4.0	94	4.0	0.072	3.4	LOS A	0.0	0.0	0.00	0.51	0.00	27.1
Approach		94	4.0	94	4.0	0.072	3.4	LOS A	0.0	0.0	0.00	0.51	0.00	27.1
All Vehicles		1659	3.7	1659	3.7	0.246	0.6	NA	0.1	1.1	0.01	0.07	0.01	66.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive - 2025 WD (Site Folder: 2025 WD PM)]

Network: N101 [2025 WD PM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	3	3.0	3	3.0	0.213	4.4	LOS A	1.3	9.8	0.16	0.37	0.16	62.1
22	T1	642	3.0	642	3.0	0.213	4.4	LOS A	1.3	9.8	0.17	0.40	0.17	64.4
23u	U	46	3.0	46	3.0	0.213	12.0	LOS B	1.3	9.7	0.18	0.44	0.18	56.1
Approach		692	3.0	692	3.0	0.213	4.9	LOS A	1.3	9.8	0.17	0.40	0.17	64.0
NorthWest: Ranford Road N														
28	T1	851	4.0	851	4.0	0.292	5.2	LOS A	1.9	14.5	0.29	0.44	0.29	56.3
29	R2	40	4.0	40	4.0	0.292	11.4	LOS B	1.8	14.2	0.30	0.47	0.30	62.1
29u	U	2	4.0	2	4.0	0.292	12.4	LOS B	1.8	14.2	0.30	0.47	0.30	62.4
Approach		893	4.0	893	4.0	0.292	5.5	LOS A	1.9	14.5	0.29	0.44	0.29	56.8
SouthWest: Alexwood Dr														
30	L2	91	11.0	91	11.0	0.084	6.1	LOS A	0.3	2.7	0.47	0.64	0.47	58.5
32	R2	52	11.0	52	11.0	0.063	13.1	LOS B	0.2	1.9	0.49	0.76	0.49	48.4
32u	U	1	9.0	1	9.0	0.063	14.0	LOS B	0.2	1.9	0.49	0.76	0.49	56.8
Approach		143	11.0	143	11.0	0.084	8.7	LOS A	0.3	2.7	0.48	0.68	0.48	55.6
All Vehicles		1727	4.2	1727	4.2	0.292	5.5	LOS A	1.9	14.5	0.26	0.45	0.26	60.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd -2035 WD (Site Folder: 2035 WD AM)]

Network: N101 [2035 WD AM (Network Folder: NETWORK)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	55	7.0	55	7.0	0.476	6.6	LOS A	3.9	31.5	0.67	0.59	0.67	52.8
2	T1	626	7.0	626	7.0	0.476	6.8	LOS A	3.9	31.5	0.67	0.61	0.67	52.3
3	R2	409	7.0	409	7.0	0.476	13.2	LOS B	3.6	29.4	0.69	0.75	0.69	55.1
3u	U	16	7.0	16	7.0	0.476	14.2	LOS B	3.6	29.4	0.69	0.75	0.69	54.3
Approach		1106	7.0	1106	7.0	0.476	9.3	LOS A	3.9	31.5	0.68	0.66	0.68	53.8
East: Lake Road														
4	L2	524	4.0	524	4.0	0.501	7.2	LOS A	3.1	24.1	0.67	0.79	0.73	58.6
5	T1	109	4.0	109	4.0	0.404	7.6	LOS A	2.1	16.1	0.64	0.82	0.67	49.6
6	R2	234	4.0	234	4.0	0.404	13.4	LOS B	2.1	16.1	0.64	0.82	0.67	49.6
Approach		867	4.0	867	4.0	0.501	8.9	LOS A	3.1	24.1	0.66	0.80	0.71	55.9
North: Ranford Rd North														
7	L2	108	5.0	108	5.0	0.344	6.5	LOS A	2.0	15.9	0.62	0.62	0.62	52.9
8	T1	548	5.0	548	5.0	0.344	6.9	LOS A	2.0	15.9	0.62	0.63	0.62	55.2
9	R2	17	5.0	17	5.0	0.344	12.9	LOS B	2.0	15.3	0.63	0.63	0.63	36.0
Approach		674	5.0	674	5.0	0.344	7.0	LOS A	2.0	15.9	0.62	0.63	0.62	54.6
West: Remisko Dr														
10	L2	16	36.0	16	36.0	0.063	6.1	LOS A	0.3	2.9	0.70	0.69	0.70	27.7
11	T1	25	36.0	25	36.0	0.063	5.8	LOS A	0.3	2.9	0.70	0.71	0.70	44.8
12	R2	25	36.0	25	36.0	0.063	12.5	LOS B	0.3	2.6	0.70	0.86	0.70	40.2
Approach		66	36.0	66	36.0	0.063	8.4	LOS A	0.3	2.9	0.70	0.76	0.70	41.2
All Vehicles		2714	6.3	2714	6.3	0.501	8.6	LOS A	3.9	31.5	0.66	0.70	0.67	54.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Remisko Dr / Access 1 - 2035 WD (Site Folder: 2035 WD AM)] Network: N101 [2035 WD AM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Remisko Dr East														
5	T1	148	4.0	148	4.0	0.080	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	34	4.0	34	4.0	0.021	4.8	LOS A	0.1	0.7	0.19	0.52	0.19	27.9
Approach		182	4.0	182	4.0	0.080	0.9	NA	0.1	0.7	0.03	0.10	0.03	48.1
North: Access 1														
7	L2	23	4.0	23	4.0	0.016	3.9	LOS A	0.1	0.5	0.16	0.48	0.16	25.5
Approach		23	4.0	23	4.0	0.016	3.9	LOS A	0.1	0.5	0.16	0.48	0.16	25.5
West: Remisko Dr West														
10	L2	7	4.0	7	4.0	0.052	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	41.7
11	T1	66	36.0	66	36.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.1
Approach		74	32.8	74	32.8	0.052	0.5	NA	0.0	0.0	0.00	0.05	0.00	48.2
All Vehicles		279	11.6	279	11.6	0.080	1.0	NA	0.1	0.7	0.04	0.12	0.04	47.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Road/Access 2 - 2035 WD (Site Folder: 2035 WD AM)]

Network: N101 [2035 WD AM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Rd SE														
21	L2	83	2.0	83	2.0	0.053	6.6	LOS A	0.2	1.6	0.10	0.55	0.10	37.1
22	T1	793	4.0	793	4.0	0.211	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	69.4
Approach		876	3.8	876	3.8	0.211	0.7	NA	0.2	1.6	0.01	0.06	0.01	62.7
NorthWest: Ranford Rd NW														
28	T1	777	6.0	777	6.0	0.219	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	69.2
29	R2	32	4.0	32	4.0	0.096	15.2	LOS C	0.3	2.4	0.69	0.88	0.69	43.0
Approach		808	5.9	808	5.9	0.219	0.7	NA	0.3	2.4	0.03	0.05	0.03	67.4
SouthWest: Access 2														
30	L2	62	4.0	62	4.0	0.048	3.4	LOS A	0.0	0.0	0.00	0.51	0.00	27.1
Approach		62	4.0	62	4.0	0.048	3.4	LOS A	0.0	0.0	0.00	0.51	0.00	27.1
All Vehicles		1746	4.8	1746	4.8	0.219	0.8	NA	0.3	2.4	0.02	0.07	0.02	65.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive - 2035 WD (Site Folder: 2035 WD AM)]

Network: N101 [2035 WD AM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	14	4.0	14	4.0	0.297	4.6	LOS A	1.9	14.5	0.25	0.39	0.25	62.1
22	T1	887	4.0	887	4.0	0.297	4.6	LOS A	1.9	14.5	0.26	0.41	0.26	64.1
23u	U	28	4.0	28	4.0	0.297	12.3	LOS B	1.9	14.3	0.27	0.43	0.27	56.5
Approach		929	4.0	929	4.0	0.297	4.8	LOS A	1.9	14.5	0.26	0.41	0.26	64.0
NorthWest: Ranford Road N														
28	T1	703	6.0	703	6.0	0.253	5.1	LOS A	1.6	12.9	0.23	0.44	0.23	56.6
29	R2	77	6.0	77	6.0	0.253	11.2	LOS B	1.6	12.7	0.24	0.48	0.24	61.3
29u	U	1	6.0	1	6.0	0.253	12.2	LOS B	1.6	12.7	0.24	0.48	0.24	62.1
Approach		781	6.0	781	6.0	0.253	5.7	LOS A	1.6	12.9	0.23	0.44	0.23	57.4
SouthWest: Alexwood Dr														
30	L2	78	29.0	78	29.0	0.092	7.2	LOS A	0.4	3.6	0.56	0.72	0.56	53.9
32	R2	33	29.0	33	29.0	0.056	14.8	LOS B	0.2	2.0	0.57	0.81	0.57	47.1
32u	U	1	22.0	1	22.0	0.056	15.2	LOS B	0.2	2.0	0.57	0.81	0.57	55.3
Approach		112	28.9	112	28.9	0.092	9.5	LOS A	0.4	3.6	0.56	0.74	0.56	52.5
All Vehicles		1822	6.4	1822	6.4	0.297	5.5	LOS A	1.9	14.5	0.26	0.44	0.26	61.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Remisko Dr / Lake Rd -2035 WD (Site Folder: 2035 WD PM)]

Network: N101 [2035 WD PM (Network Folder: NETWORK)]

Ranford Rd / Remisko Dr / Lake Rd
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ranford Rd South														
1	L2	31	5.0	31	5.0	0.406	5.8	LOS A	3.2	25.1	0.53	0.52	0.53	54.1
2	T1	557	5.0	557	5.0	0.406	6.0	LOS A	3.2	25.1	0.53	0.52	0.53	54.1
3	R2	534	5.0	534	5.0	0.465	12.2	LOS B	3.7	29.0	0.59	0.69	0.59	55.5
3u	U	19	5.0	19	5.0	0.465	13.2	LOS B	3.7	29.0	0.59	0.69	0.59	54.6
Approach		1140	5.0	1140	5.0	0.465	9.0	LOS A	3.7	29.0	0.56	0.60	0.56	55.0
East: Lake Road														
4	L2	432	3.0	432	3.0	0.475	7.8	LOS A	3.1	23.6	0.76	0.86	0.83	58.5
5	T1	53	3.0	53	3.0	0.318	8.1	LOS A	1.6	12.2	0.70	0.86	0.70	48.7
6	R2	166	3.0	166	3.0	0.318	13.9	LOS B	1.6	12.2	0.70	0.86	0.70	48.7
Approach		651	3.0	651	3.0	0.475	9.4	LOS A	3.1	23.6	0.74	0.86	0.79	56.0
North: Ranford Rd North														
7	L2	338	5.0	338	5.0	0.617	9.5	LOS A	5.3	41.3	0.81	0.94	1.01	51.3
8	T1	725	5.0	725	5.0	0.617	10.4	LOS B	5.3	41.3	0.82	0.96	1.03	53.1
9	R2	17	5.0	17	5.0	0.617	16.5	LOS B	5.0	39.0	0.82	0.97	1.04	32.8
Approach		1080	5.0	1080	5.0	0.617	10.2	LOS B	5.3	41.3	0.82	0.96	1.02	52.4
West: Remisko Dr														
10	L2	31	10.0	31	10.0	0.126	5.7	LOS A	0.6	5.0	0.70	0.66	0.70	28.1
11	T1	95	10.0	95	10.0	0.126	5.6	LOS A	0.6	5.0	0.70	0.71	0.70	50.9
12	R2	38	10.0	38	10.0	0.126	11.8	LOS B	0.5	4.6	0.70	0.82	0.70	48.1
Approach		163	10.0	163	10.0	0.126	7.0	LOS A	0.6	5.0	0.70	0.73	0.70	48.5
All Vehicles		3034	4.8	3034	4.8	0.617	9.4	LOS A	5.3	41.3	0.70	0.79	0.78	54.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Remisko Dr / Access 1 - 2035 WD (Site Folder: 2035 WD PM)]

Network: N101 [2035 WD PM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Remisko Dr East														
5	T1	80	3.0	80	3.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
6	R2	21	3.0	21	3.0	0.014	5.1	LOS A	0.1	0.5	0.28	0.52	0.28	27.4
Approach		101	3.0	101	3.0	0.042	1.1	NA	0.1	0.5	0.06	0.11	0.06	47.8
North: Access 1														
7	L2	31	4.0	31	4.0	0.022	4.2	LOS A	0.1	0.7	0.26	0.50	0.26	24.5
Approach		31	4.0	31	4.0	0.022	4.2	LOS A	0.1	0.7	0.26	0.50	0.26	24.5
West: Remisko Dr West														
10	L2	5	4.0	5	4.0	0.098	4.7	LOS A	0.0	0.0	0.00	0.02	0.00	42.2
11	T1	163	10.0	163	10.0	0.098	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.8
Approach		168	9.8	168	9.8	0.098	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.5
All Vehicles		300	6.9	300	6.9	0.098	0.9	NA	0.1	0.7	0.05	0.10	0.05	48.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Road/Access 2 - 2035 WD (Site Folder: 2035 WD PM)]

Network: N101 [2035 WD PM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Rd SE														
21	L2	57	2.0	57	2.0	0.037	6.6	LOS A	0.2	1.1	0.08	0.54	0.08	14.8
22	T1	698	4.0	698	4.0	0.185	0.1	LOS A	0.2	1.1	0.00	0.01	0.00	69.2
Approach		755	3.8	755	3.8	0.185	0.5	NA	0.2	1.1	0.01	0.05	0.01	50.9
NorthWest: Ranford Rd NW														
28	T1	1105	6.0	1105	6.0	0.311	0.2	LOS A	0.0	0.0	0.00	0.02	0.00	69.1
29	R2	21	4.0	21	4.0	0.053	13.0	LOS B	0.2	1.3	0.62	0.84	0.62	45.1
Approach		1126	6.0	1126	6.0	0.311	0.4	NA	0.2	1.3	0.01	0.03	0.01	68.3
SouthWest: Access 2														
30	L2	94	4.0	94	4.0	0.073	3.4	LOS A	0.3	2.1	0.02	0.50	0.02	26.8
Approach		94	4.0	94	4.0	0.073	3.4	LOS A	0.3	2.1	0.02	0.50	0.02	26.8
All Vehicles		1975	5.1	1975	5.1	0.311	0.6	NA	0.3	2.1	0.01	0.06	0.01	63.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ranford Rd / Alexwood Drive - 2035 WD (Site Folder: 2035 WD PM)]

Network: N101 [2035 WD PM (Network Folder: NETWORK)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Ranford Road S														
21	L2	4	3.0	4	3.0	0.257	4.4	LOS A	1.6	12.6	0.19	0.38	0.19	61.9
22	T1	773	3.0	773	3.0	0.257	4.5	LOS A	1.6	12.6	0.20	0.40	0.20	64.3
23u	U	47	3.0	47	3.0	0.257	12.1	LOS B	1.6	12.4	0.21	0.44	0.21	56.1
Approach		824	3.0	824	3.0	0.257	4.9	LOS A	1.6	12.6	0.20	0.40	0.20	64.0
NorthWest: Ranford Road N														
28	T1	1033	4.0	1033	4.0	0.358	5.3	LOS A	2.5	19.3	0.33	0.46	0.33	55.9
29	R2	48	4.0	48	4.0	0.358	11.5	LOS B	2.4	18.9	0.35	0.48	0.35	61.8
29u	U	3	4.0	3	4.0	0.358	12.5	LOS B	2.4	18.9	0.35	0.48	0.35	62.1
Approach		1084	4.0	1084	4.0	0.358	5.6	LOS A	2.5	19.3	0.33	0.46	0.33	56.3
SouthWest: Alexwood Dr														
30	L2	111	11.0	111	11.0	0.107	6.4	LOS A	0.4	3.5	0.52	0.68	0.52	58.3
32	R2	62	11.0	62	11.0	0.081	13.5	LOS B	0.3	2.5	0.53	0.80	0.53	48.2
32u	U	1	11.0	1	11.0	0.081	14.5	LOS B	0.3	2.5	0.53	0.80	0.53	56.6
Approach		174	11.0	174	11.0	0.107	9.0	LOS A	0.4	3.5	0.52	0.72	0.52	55.4
All Vehicles		2082	4.2	2082	4.2	0.358	5.6	LOS A	2.5	19.3	0.30	0.46	0.30	60.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Bushfire Management Plan:
Development Application:
Lot 801 (600) Ranford Road, Forrestdale

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BPAD Bushfire Planning & Design
Accredited Practitioner
Level 2
www.ecoaus.com.au

DOCUMENT TRACKING

Project Name	Bushfire Management Plan: Development Application: Lot 801 (600) Ranford Road, Forrestdale
Project Number	600-22PER4005
Project Manager	Lee Galer (BPAD Level 2 - 55096)
Prepared by	Lee Galer (BPAD Level 2 - 55096)
Reviewed by	Eva Cronin (BPAD Level 2 – 45482)
Approved by	Eva Cronin (BPAD Level 2 – 45482)
Status	Draft
Version Number	v1
Last saved on	1 August 2023

This report should be cited as 'Eco Logical Australia 2023. *Bushfire Management Plan: Development Application:* Lot 801 (600) Ranford Road, Forrestdale. Prepared for Eva Investments Aust P/L

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Eva Investments Aust P/L (the client) and Planning Solutions.

Template 2.8.1

Version control	
Version	**Purpose**
v1	Draft – Submission to client

Contents

List of Figures

List of Tables

1. Introduction

1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Eva Investments Aust P/L to prepare a Bushfire Management Plan (BMP) to support a development application (DA) for Lot 801 (600) Ranford Road, Forrestdale (hereafter referred to as the subject site, Figure 1). The proposed development will result in the Extension of showrooms (T8, T9 & T10) to existing commercial premises. (Figure 2).

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2021; Figure 3), which triggers bushfire planning requirements *under State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; Western Australian Planning Commission [WAPC] 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.4* (the Guidelines; WAPC 2021).

The subject site is located in the City of Armadale and is zoned 'Industrial business' under the City of Armadale Town Planning Scheme (TPS) No. 4 and 'Industrial' under the Metropolitan Regional Scheme (MRS). The subject site is serviced by Ranford Road and Remisko Drive where two existing entrances lead into the lot accessing the carpark.

This assessment has been prepared by ELA Bushfire Consultant Lee Galer (FPAA BPAD Level 2 Certified Practitioner No. BPAD55096) with quality assurance undertaken by Senior Bushfire Consultant Eva Cronin (BPAD Level 2 – 45482).

1.2 Purpose and application of the plan

The primary purpose of this BMP is to act as a technical supporting document to inform planning assessment. This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

1.3 Environmental considerations

SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.

Any clearing (including re-clearing) of native vegetation onsite may require discussions with the local government, the Department of Water and Environmental Regulation and potentially the Department of Biodiversity, Conservation and Attractions to determine approvals requirements, during/post-approval of DA.

All landscaping proposed within the subject site shall be maintained to a low threat vegetation state as per Exclusion 2.2.3.2 (f) from the Guidelines.

Figure 1: Site Overview

Subject site

100m site assessment

150m site assessment

N

0 100 200 400

Metres

Datum/Projection:
GDA 1994 MGA Zone 50

23PER4005-SM Date: 13/07/2023

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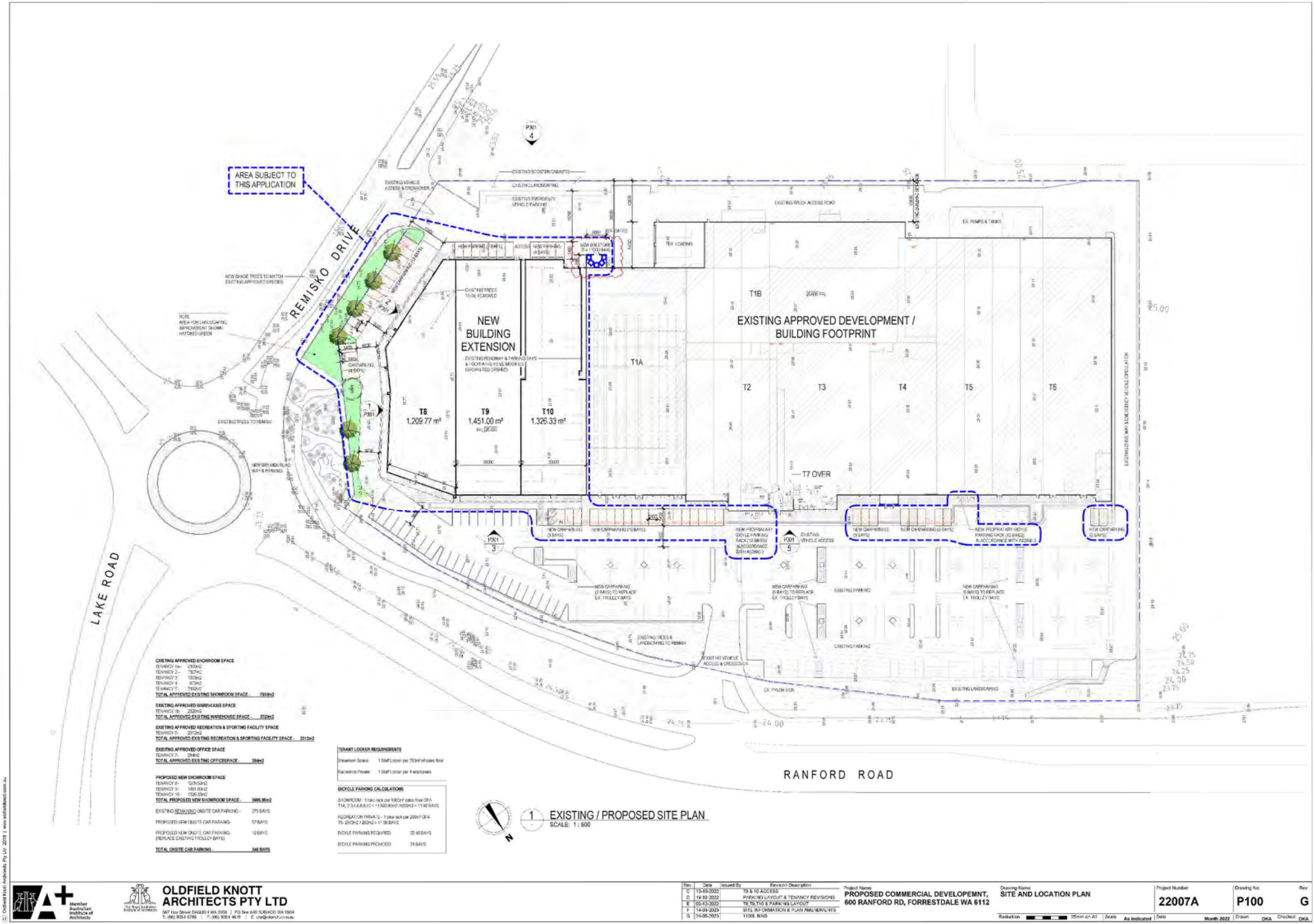

EXISTING APPROVED SHOWROOM SPACE
TENANCY 1a- 1530m2
TENANCY 2- 1527m2
TENANCY 3- 1533m2
TENANCY 4- 972m2
TENANCY 5- 2152m2
TOTAL APPROVED EXISTING SHOWROOM SPACE - 7934m2

EXISTING APPROVED WAREHOUSE SPACE
TENANCY 1b- 2322m2
TOTAL APPROVED EXISTING WAREHOUSE SPACE - 2322m2

EXISTING APPROVED RECREATION & SPORTING FACILITY SPACE
TENANCY 6- 2212m2
TOTAL APPROVED EXISTING RECREATION & SPORTING FACILITY SPACE - 2212m2

EXISTING APPROVED OFFICE SPACE
TENANCY 3- 264m2
TOTAL APPROVED EXISTING OFFICESPACE - 264m2

PROPOSED NEW SHOWROOM SPACE
TENANCY 8- 1239.52m2
TENANCY 9- 1451.00m2
TENANCY 10- 1326.33m2
TOTAL PROPOSED NEW SHOWROOM SPACE - 3996.85m2

EXISTING REMAINING ONSITE CAR PARKING - 275 BAYS
PROPOSED NEW ONSITE CAR PARKING - 57 BAYS
PROPOSED NEW ONSITE CAR PARKING - (REPLACE EXISTING TROLLEY BAYS) 12 BAYS
TOTAL ONSITE CAR PARKING - 348 BAYS

TENANT LOCKER REQUIREMENTS
Showroom Space: 1 Staff Locker per 750m² of sales floor
Recreation Private: 1 Staff Locker per 4 employees

BICYCLE PARKING CALCULATIONS
SHOWROOM - 1 bike rack per 1000m² sales floor GFA
T1A, 2,3,4,5,6 & 9 = 11,920.80m2 /1000m2 = 11.92 BAYS
RECREATION PRIVATE - 1 bike rack per 200m² GFA
T6- 2212m2 / 200m2 = 11.06 BAYS
BICYCLE PARKING REQUIRED: 23.48 BAYS
BICYCLE PARKING PROVIDED: 24 BAYS

1 EXISTING / PROPOSED SITE PLAN
SCALE: 1 : 500

N

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The Royal Australian Institute of Architects

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Rev.	Date	Issued By	Revision Description
C	13-10-2022		T9 & 10 ACCESS
D	19-10-2022		PARKING LAYOUT & TENANCY REVISIONS
E	02-12-2022		T8,T9,T10 & PARKING LAYOUT
F	14-03-2023		SITE INFORMATION & PLAN AMENDMENTS
G	04-05-2023		11006 BINS

Project Name: PROPOSED COMMERCIAL DEVELOPEMNT, 600 RANFORD RD, FORRESTDALE WA 6112
Drawing Name: SITE AND LOCATION PLAN
Project Number: 22007A
Drawing No.: P100
Rev: G
Reduction: 35mm on A1 | Scale: As indicated | Date: Month 2022 | Drawn: DKA | Checked: DKA

Figure 2: Site Plan

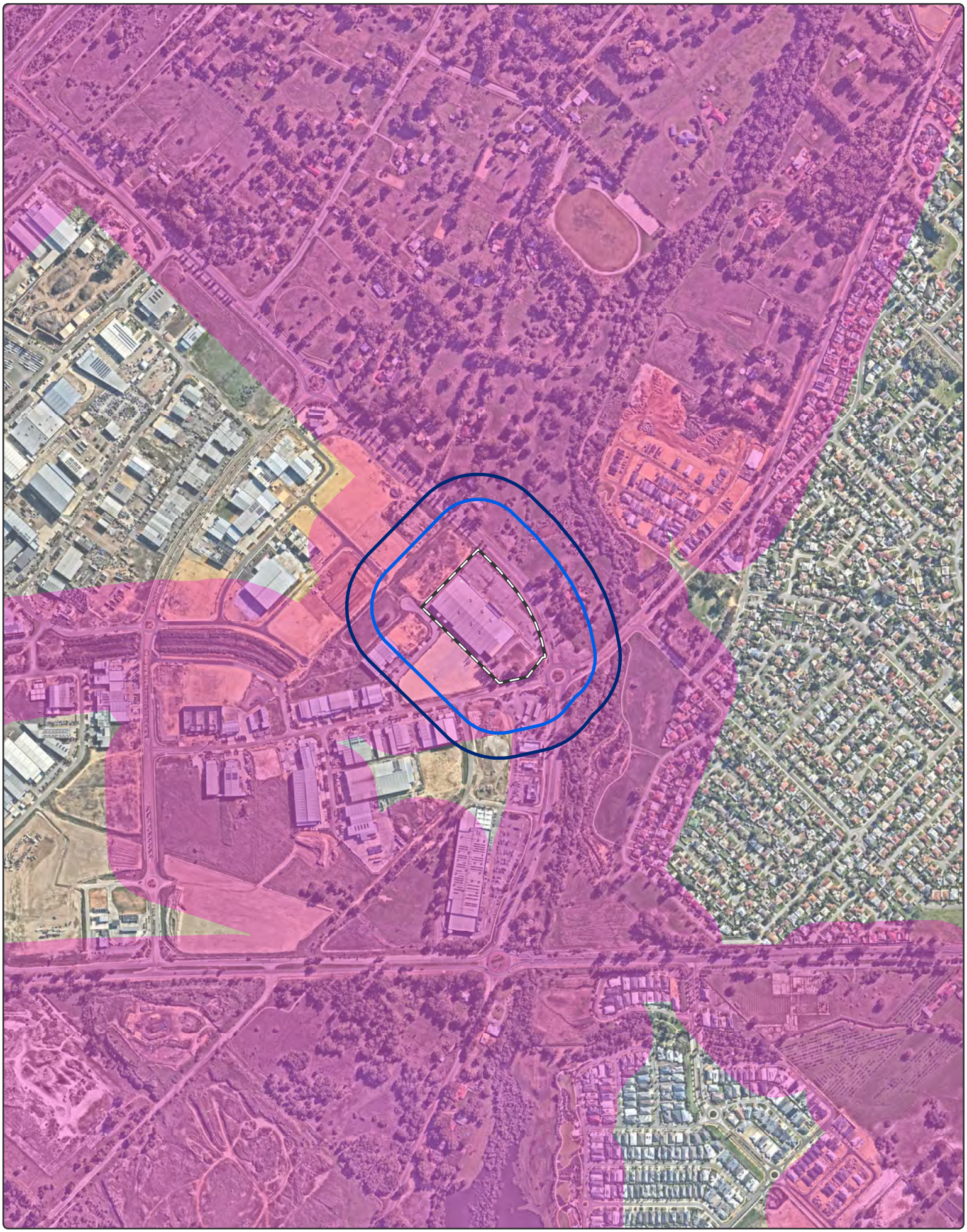

Figure 3: Bushfire Prone Areas

Subject site
100m site assessment
150m site assessment
Bushfire Prone Mapping (DFES 2021)

N

0 100 200 400
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

23PER4005-SM Date: 13/07/2023

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2. Bushfire assessment results

2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

2.1.1 Fire Danger Index

A blanket Fire Danger Index (FDI) 80 is adopted for Western Australia, as outlined in Australian Standard *AS 3959: 2018 Construction of Buildings in Bushfire Prone Areas* (SA 2018) and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

2.1.2 Vegetation classification and slope under vegetation

Vegetation and effective slope (i.e. slope under vegetation) within the subject site and surrounding 150 m (the assessment area) were assessed in accordance with the Guidelines and *AS 3959: 2018* with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016). Site assessment was undertaken on 17 May 2023.

The classified vegetation and effective slope for the subject site from each of the identified vegetation plots are identified below in Table 1 and Figure 4.

Table 1: Classified vegetation as per AS 3959: 2018

Plot	Vegetation Classification	Effective Slope
1	Class D Scrub	All upslopes and flat land (0 degrees)
2	Class G Grassland	All upslopes and flat land (0 degrees)
3	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)	

Photographs relating to each area and vegetation type are included in Appendix B.

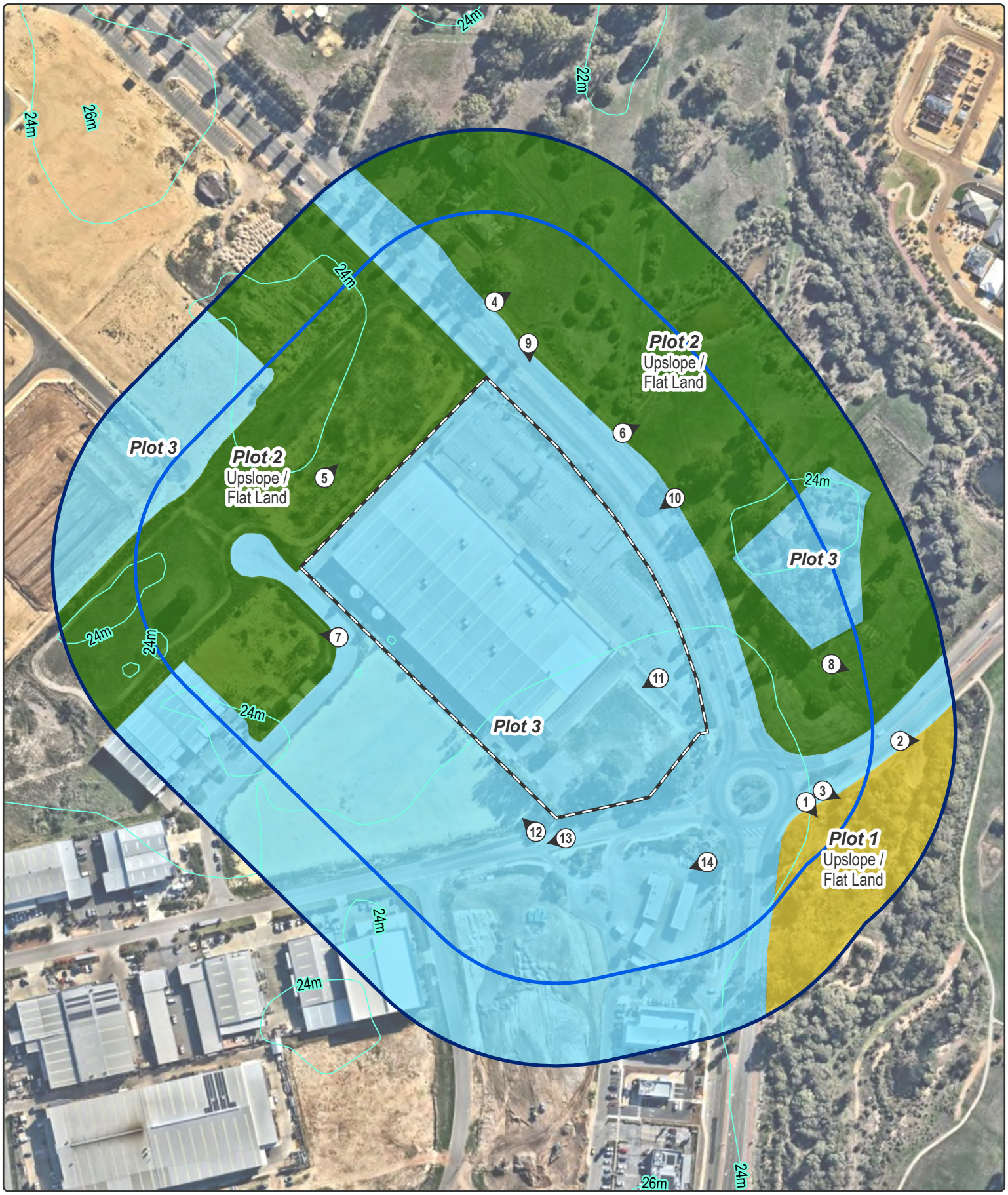

Figure 4: Vegetation Classification

Subject site
100m site assessment
150m site assessment
Photo location
Contour (2m)

Vegetation classification

Class D Scrub
Class G Grassland
Excluded as per clause 2.2.3.2 (e) and (f)

0 25 50 100
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

23PER4005-SM Date: 1/08/2023

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2.2 Bushfire assessment outputs

A Bushfire Attack Level (BAL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959: 2018 and the bushfire assessment inputs in Section 2.1.

2.2.1 BAL assessment

All land located within 100 m of the classified vegetation depicted in Figure 4 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959: 2018.

A Method 1 BAL assessment (as outlined in AS 3959: 2018) has been completed for the proposed development and incorporates the following factors:

- Fire Danger Index (FDI) rating;
- Vegetation class;
- Slope under classified vegetation; and
- Distance between subject site and the classified vegetation.

Based on the identified BAL, construction requirements for proposed buildings can then be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability (where applicable).

2.2.2 Method 1 BAL assessment

Table 2 and Figure 5 display the Method 1 BAL assessment that has been completed for the proposed development in accordance with AS 3959: 2018 methodology.

Table 2: Method 1 BAL calculation

Plot	Vegetation Classification	Assessed Effective Slope (degrees)	Effective Slope	Assessed Separation Distance (m)	Bushfire Attack Level (BAL)
1	Class D Scrub	0	All upslopes and flat land (0 degrees)	87 m	BAL-12.5
2	Class G Grassland	0	All upslopes and flat land (0 degrees)	49 m	BAL-12.5
3	Excluded AS 3959: 2018 2.2.3.2 (f)	No separation distances required – BAL-LOW			

Based on the site assessment inputs and BAL assessment (Table 2), the extension to the existing structure as per Figure 2 within the subject site are exposed to BAL ratings of BAL-12.5.

The Guidelines state:

> *The bushfire construction requirements of the Building Code of Australia only apply to certain types of residential buildings (being Class 1, 2 or 3 buildings and/or Class 10a buildings or decks associated with a Class 1, 2 or 3 building) in designated bushfire prone areas. As such, AS 3959 does not apply to all buildings. Only vulnerable or high-risk land uses that fall within the relevant classes of buildings as set out in the Building Code of Australia will be required to comply with the bushfire construction requirements of the Building Code of Australia. As such, the planning process focuses on the location and siting of vulnerable and high-risk land uses rather than the application of bushfire construction requirements.*

As none of the proposed structures within the development area are a Class 1, 2 or 3 building and/or Class 10a building or deck associated with a Class 1, 2 or 3 building, construction to AS 3959: 2018 is not required for this proposal.

ELA's professional opinion is that the proposed showrooms do not need to be constructed in accordance with AS 3959: 2018 as the general fire safety construction provisions within the National Construction Code (NCC) are considered suitable for bushfire construction measures. However, ember protection measures in sections 3 and 5 of AS 3959: 2018 are recommended to be incorporated where possible.

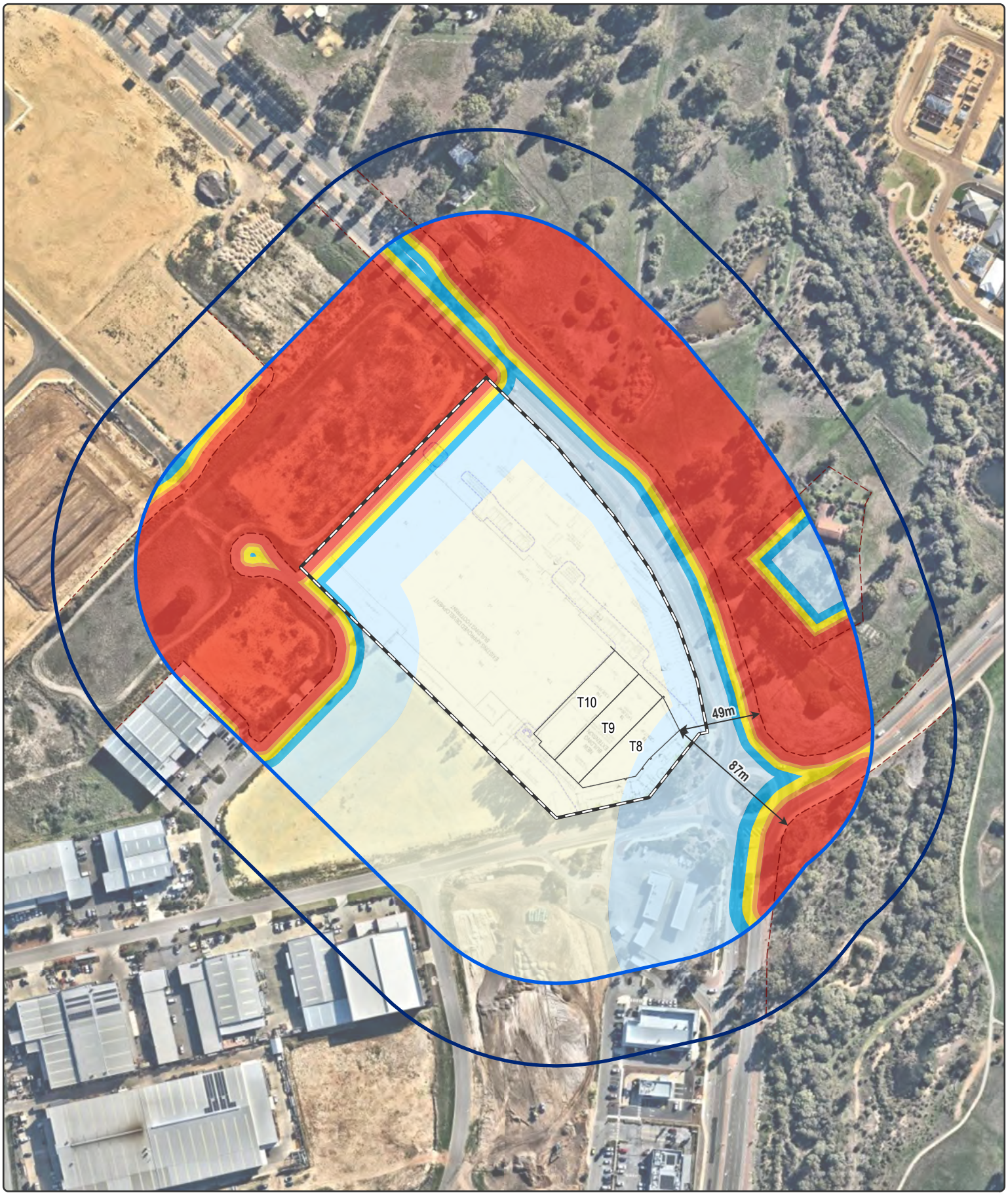

Figure 5: Bushfire Attack Level (BAL) Contours

Subject site
100m site assessment
150m site assessment
Bushfire hazard interface

Bushfire Attack Level (BAL)

BAL - FZ
BAL - 40
BAL - 29
BAL - 19
BAL - 12.5
BAL - LOW

0 25 50 100
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

23PER4005-SM Date: 1/08/2023

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3. Assessment against the Bushfire Protection Criteria

3.1 Compliance

The proposed development is required to comply with policy measures 6.2 and 6.5 of SPP 3.7 and the Guidelines. Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire risk management measures, as outlined, have been devised for the proposed development in accordance with Guideline acceptable solutions to meet compliance with bushfire protection criteria.

Table 3 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summarises how the intent of each Bushfire Protection Criteria has been achieved. No Performance Solutions (PS) have been proposed for this proposal. These management measures are depicted in Figure 6 where relevant.

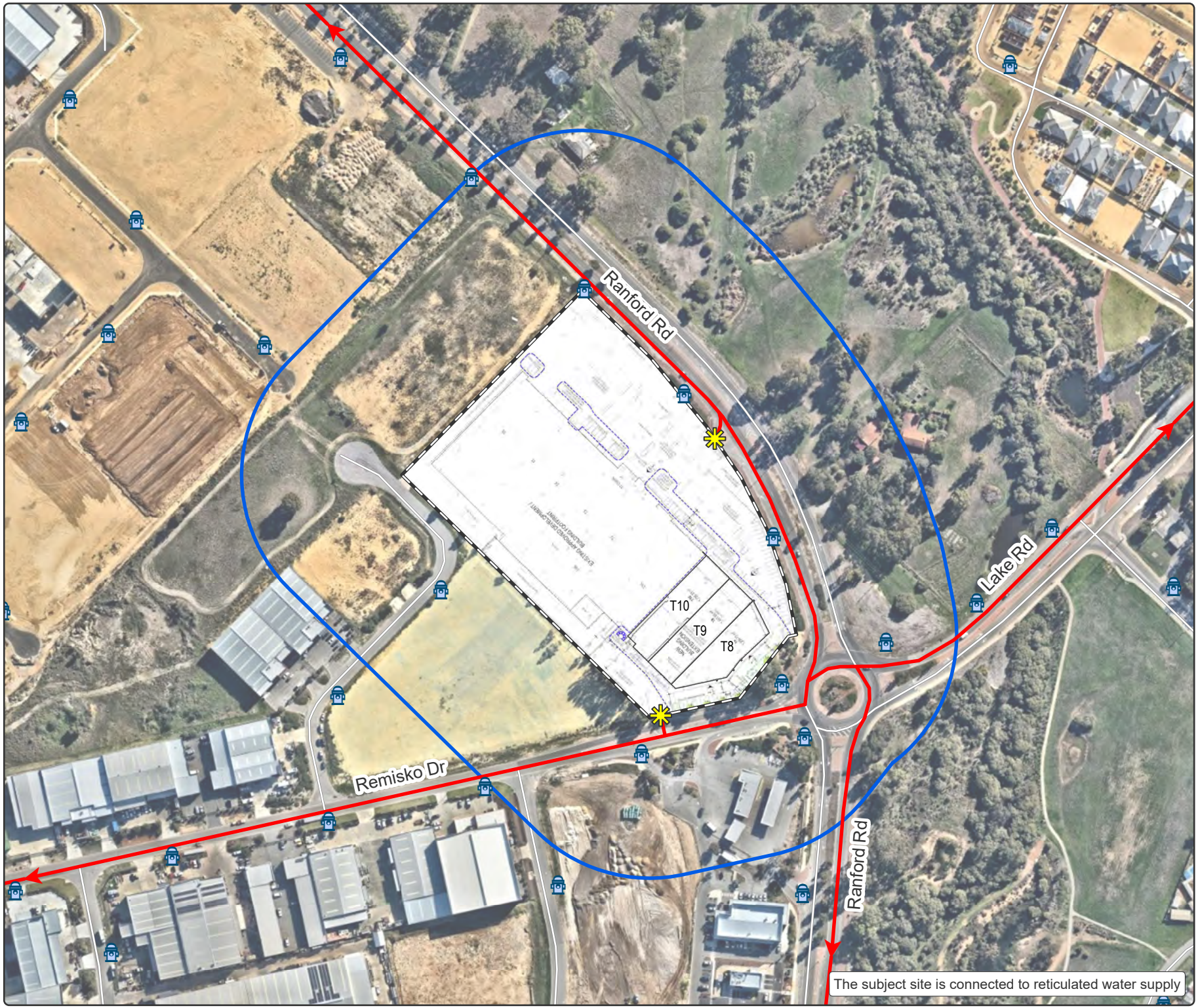
Table 3: Summary of solutions used to achieve bushfire protection criteria

Bushfire Protection Criteria	AS	PS	N/A	Comment
Element 1: Location A1.1 Development location	☒	☐	☐	The proposed showroom extension is located in areas subject to BAL ratings of ≤BAL-29 (Figure 5). The proposed development is considered to be compliant with A1.1.
Element 2: Siting and design of development A2.1 Asset Protection Zone (APZ)	☐	☐	☒	The proposed Extension does not require an APZ given the existing development of the subject site and proposed development. A2.1 is not applicable to this proposed development.
Element 3: Vehicular access A3.1 Public Roads	☒	☐	☐	The subject site is accessed via Ranford Road and Remisko Drive. The Guidelines do not prescribe values for the trafficable (carriageway/pavement) width of public roads as they should be in accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area. ELA are not traffic/civil engineers so cannot comment on whether these existing roads comply with Local Government Guidelines for Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad standards and/or any applicable standards for the local government area. ELAs assessment, however, has identified that the roads surrounding the development are bitumen with estimated width of the sealed surface achieving a minimum width of 6 m and therefore consider the existing road network would provide suitable access and egress for the community and emergency services personnel in the event of a bushfire. Vehicular access technical requirements in accordance with the Guidelines are detailed in Appendix C. The proposed development is considered to be compliant with A3.1.

Bushfire Protection Criteria	AS	PS	N/A	Comment
A3.2a Multiple access routes	☒	☐	☐	Multiple access routes are available via Ranford Road north and Remisko Drive east (Figure 6). The proposed development is considered to be compliant with A3.2a.
A3.2b Emergency Access way	☐	☐	☒	An Emergency Access Way is not required as the proposed development achieves compliance with A3.2a. A3.2b is not applicable to this proposed development.
A3.3 Through-roads	☐	☐	☒	Acceptable Solution A3.3 applies to the strategic planning proposal, structure plan or subdivision application stage of the planning process. This proposal involves a development application for a proposed Showroom extension at the subject site. A3.3 is not applicable to this proposed development.
A3.4a Perimeter roads	☐	☐	☒	Acceptable Solution A3.4a applies to the strategic planning proposal, structure plan or subdivision application stage of the planning process. This proposal involves a development application for a Showroom extension at the subject site. A3.4a is not applicable to this proposed development.
A3.4b Fire service access route	☐	☐	☒	Acceptable Solution A3.4b applies to the strategic planning proposal, structure plan or subdivision application stage of the planning process. This proposal involves a development application for a proposed Showroom extension at the subject site. A3.4b is not applicable to this proposed development.
A3.5 Battle-axe access legs	☐	☐	☒	Acceptable Solution A3.5 applies to the strategic planning proposal, structure plan or subdivision application stage of the planning process. This proposal involves a development application for a proposed Showroom extension at the subject site. A3.5 is not applicable to this proposed development.
A3.6 Private driveways	☒	☐	☐	The subject site is serviced by a private driveway extending from Ranford Road and Remisko Drive. The private driveway provides an internal access loop around the existing and proposed showrooms. The existing private driveway is at least 6 m wide and has sufficient space within to provide turn around areas. The subject site also has an emergency vehicle parking area. The proposed development is considered to be compliant with A3.5.
A4.1 Identification of future water supply	☐	☐	☒	Acceptable Solution A41.1 applies to the strategic planning proposal, structure plan or subdivision application stage of the planning process. This proposal involves a development application for a proposed extension to existing structures at the subject site. A4.1 is not applicable to this proposed development.

Bushfire Protection Criteria	AS	PS	N/A	Comment
A4.2 Provision of water for firefighting purposes	☒	☐	☐	Reticulated water is present with hydrants located on Ranford and Remisko (Figure 6). The proposed development is considered to be compliant with A4.2.
Element 5: Vulnerable tourism land uses	☐	☐	☒	This development application is not considered vulnerable tourism land use. Element 5 is not applicable to this proposed development.

NOTE – AS- ACCEPTABLE SOLUTION, PS- PERFORMANCE SOLUTION, N/A- NOT APPLICABLE



Legend

- Subject site
- 100m site assessment
- Hydrant
- Access point
- Access / egress route

Figure 6: Spatial representation of the bushfire management strategies

0 25 50 100
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

23PER4005-SM Date: 1/08/2023

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4. Implementation and enforcement

Implementation of the BMP applies to the developer, future owners within the subject site and the local government to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 4. These measures will be implemented to ensure the ongoing protection of life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 4: Proposed work program

No	Bushfire management measure	Responsibility
Prior to occupancy		
1	Place Section 165 Notification on Title advising the site is located within a Bushfire Prone Area and subject to a BMP.	Developer
2	Construct proposed Extension to relevant construction standard in the NCC and if considered relevant, AS 3959: 2018.	Builder
3	Install and maintain landscaped areas to the standard of the Guidelines.	Developer & Owner
4	Maintain site in line with the City of Armadale's Fire-break and hazard reduction notice.	Owner
Ongoing management		
5	Maintain landscaped areas to the standard of the Guidelines.	Owner

5. Conclusion

In the author's professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed Showroom extension. As such, the proposed extension is expected to be consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.

6. References

Department of Planning (DoP), 2016, *Visual guide for bushfire risk assessment in Western Australia*. DoP, Perth.

Department of Fire and Emergency Services (DFES), 2021, *Map of Bush Fire Prone Areas, [Online]*, Government of Western Australia, available from: http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx

Landgate, 2022, *Locate V5, [Online]*, Government of Western Australia, available from: https://maps.slip.wa.gov.au/landgate/locate/.

City of Armadale (CoA). Fire-break and hazard reduction notice, 2021, [Online]. Available from: A4 Firebreak Notice 2021-2022 (armadale.wa.gov.au)

Standards Australia (SA), 2018, *Construction of buildings in bushfire-prone areas, AS 3959-2018*. SAI Global, Sydney.

Water Corporation (Watercorp) ,2021, D*esign Standard DS 63*, Watercorp, Perth.

Western Australian Planning Commission (WAPC), 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. WAPC, Perth.

Western Australian Planning Commission (WAPC), 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4 (including appendices),* WAPC, Perth.

Appendix A – Standards for Asset Protection Zones

The following standards have been extracted from the *Guidelines for Planning in Bushfire Prone Areas v 1.4* (WAPC 2021).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

a. Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29) in all circumstances.

b. Location: the APZ should be contained solely within the boundaries of the lot on which a building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).

c. Management: the APZ is managed in accordance with the requirements of '*Standards for Asset Protection Zones*' (below):

- Fences within the APZ:
  - Should be constructed from non-combustible materials or bushfire-resisting timber referenced in Appendix F of AS 3959.
- Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness):
  - Should be managed and removed on a regular basis to maintain a low threat state;
  - Should be maintained at <2 tonnes per hectare (on average); and
  - Mulches should be non-combustible (e.g. stone, gravel or crushed mineral earth) or wood mulch >6 millimetres in thickness.
- Trees (>6 metres in height):
  - Trunks at maturity should be a minimum distance of six metres from all elevations of the building;
  - Branches at maturity should not touch or overhand a building or powerline;
  - Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation;
  - Canopy cover within the APZ should be <15 per cent of the total APZ area; and
  - Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ.

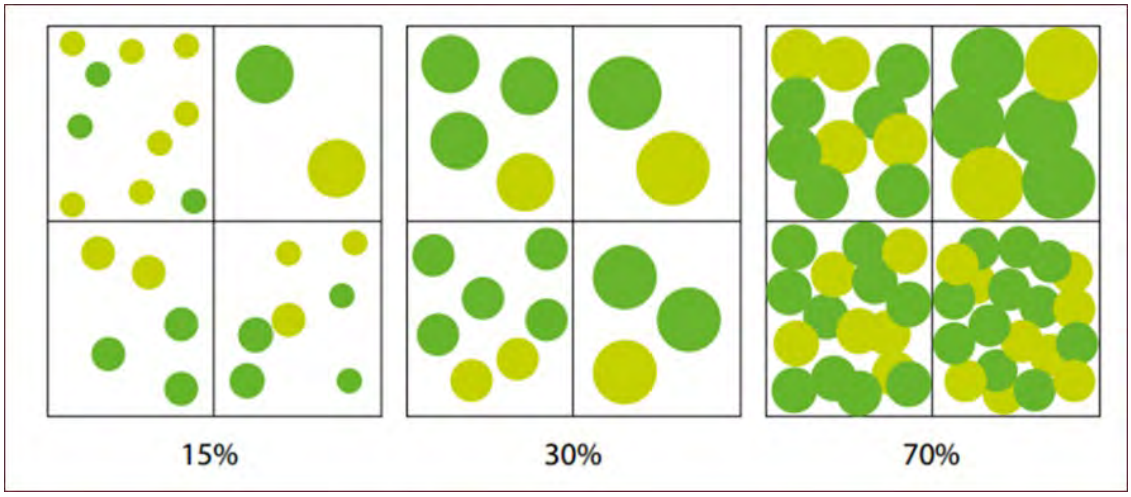


Figure 7: Illustrated tree canopy cover projection (WAPC 2021)

- Shrub and scrub 0.5 metres to six metres in height (shrub or scrub >6 metres in height are to be treated as trees):
  - Should not be located under trees or within three metres of buildings;
  - Should not be planted in clumps >5 square metres in area; and
  - Clumps should be separated from each other and any exposed window or door by at least 10 metres.
- Ground covers <0.5 metres in height (ground covers >0.5 metres in height are to be treated as shrubs):
  - Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above; and
  - Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
- Grass:
  - Grass should be maintained at a height of 100 millimetres or less, at all times; and
  - Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
- Defendable space:
  - Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
- LP Gas Cylinders:
  - Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building;
  - The pressure relief valve should point away from the house;
  - No flammable material within six metres from the front of the valve; and
  - Must site on a firm, level and non-combustible base and be secured to a solid structure.

Additional notes

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

Plant flammability, landscaping design and maintenance should also be considered for trees, shrub, scrub and ground covers with the APZ. Please refer to explanatory notes 'E2 Managing an Asset Protection Zone (APZ) to a low threat state,' 'E2 Landscaping and design of an asset protection zone,' and 'E2 Plant flammability' in the Guidelines for further information relating to APZ standards.

Appendix B - Classified Vegetation Photos

Plot	1	Classification or Exclusion Clause	Class D Scrub

Photo Point 1

Vegetation identified within this plot is comprised of shrubs between 2 m and 6 m in height.

The vegetation is located on upslope/ flat land.

Plot	1	Classification or Exclusion Clause	Class D Scrub

Photo Point 2

Vegetation identified within this plot is comprised of shrubs between 2 m and 6 m in height.

The vegetation is located on upslope/ flat land.

Plot	1	Classification or Exclusion Clause	Class D Scrub

Photo Point 3

Vegetation identified within this plot is comprised of shrubs between 2 m and 6 m in height.

The vegetation is located on upslope/ flat land.

Plot	2	Classification or Exclusion Clause	Class G Grassland

Photo Point 4

Vegetation identified within this plot is grassland with foliage cover from the overstorey less than 10%.

Slope under vegetation was assessed as upslope/ flat land.

Plot	2	Classification or Exclusion Clause	Class G Grassland

Photo Point 5

Vegetation identified within this plot is grassland.

Slope under vegetation was assessed as upslope/ flat land.

Plot	2	Classification or Exclusion Clause	Class G Grassland

Photo Point 6

Vegetation identified within this plot is grassland with foliage cover from the overstorey less than 10%.

Slope under vegetation was assessed as upslope/ flat land.

Plot 2	Classification or Exclusion Clause	Class G Grassland

Photo Point 7

Vegetation identified within this plot is grassland.

Slope under vegetation was assessed as upslope/ flat land.

Plot 2	Classification or Exclusion Clause	Class G Grassland

Photo Point 8

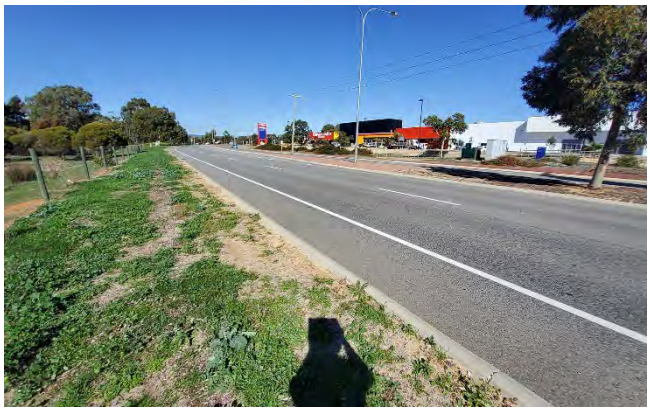
Vegetation identified within this plot is grassland with foliage cover from the overstorey less than 10%.

Slope under vegetation was assessed as upslope/ flat land.

Plot 3	Classification or Exclusion Clause	Excluded AS 3959-2018 2.2.3.2 (e & f)

Photo Point 9

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.



Plot	3	Classification or Exclusion Clause	Excluded AS 3959-2018 2.2.3.2 (e & f)

Photo Point 10

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.

This image is of the Subject site.

Plot	3	Classification or Exclusion Clause	Excluded AS 3959-2018 2.2.3.2 (e & f)

Photo Point 11

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation.

This image is of the location of the proposed Extension within the Subject site.

Plot	3	Classification or Exclusion Clause	Excluded AS 3959-2018 2.2.3.2 (e & f)

Photo Point 12

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.

Plot	3	Classification or Exclusion Clause	Excluded AS 3959-2018 2.2.3.2 (e & f)

Photo Point 13

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.

Plot	3	Classification or Exclusion Clause	Excluded AS 3959-2018 2.2.3.2 (e & f)

Photo Point 14

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.

Appendix C - Vehicular access technical requirements (WAPC 2021)

Technical requirements	Public road	Emergency access way[1]	Fire service access route[1]	Battle-axe and private driveways[2]
Minimum trafficable surface (m)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (m)	N/A	6	6	6
Minimum vertical clearance (m)	4.5			
Minimum weight capacity (t)	15			
Maximum grade unsealed road[3]	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum grade sealed road[3]	As outlined in the IPWEA Subdivision Guidelines	1:7 (14.3%)		
Maximum average grade sealed road	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Minimum inner radius of road curves (m)	As outlined in the IPWEA Subdivision Guidelines	8.5		

[1] To have crossfalls between 3 and 6 %.

[2] Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

[3] Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle

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1300 646 131
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Waste Management Plan

Proposed Commercial Development – Lot 801 (#600) Ranford Road, Forrestdale

CW1200775/30034846 Rev A

21 July 2023

Prepared for:

Eva Investment Aus P/L

Revision	DATE	Description	Author	Reviewed by	Approved by
A	21 July 2023	For Issue	JD	DH	RJC

This document entitled Waste Management Plan was prepared by Stantec Australia Pty Ltd. ("Stantec") for the account of Eva Investment Aus P/L (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____

Reviewed by _____
Desmond Ho

Approved by _____
Ray Cook

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1.0 INTRODUCTION

1.1 BACKGROUND

Stantec has been commissioned by EVA Investment Aus P/L ("the Client") to prepare a Waste Management Plan (WMP) for the proposed commercial development (the Development) located at Lot 801 (#600) Ranford Road, Forrestdale within the City of Armadale.

The scope of this WMP is limited to the estimation of general waste, and recycling volumes generated by the Development and includes recommendations for the appropriate collection, storage, handling and transportation of waste and recycling, in accordance with the requirements outlined in the City and the WALGA's Commercial and Industrial Waste Management Plan Guidelines.

Estimations of generated volumes of liquid and bulk rubbish are not provided. Specialist contractors will need to be commissioned by the Development operators for the collection and disposal of liquid waste and bulk rubbish, as necessary.

1.2 SITE LOCATION

The Site is located at Lot 801 Ranford Road, Forrestdale within the City of Armadale. **Figure 1-1** shows an aerial image of the Site.

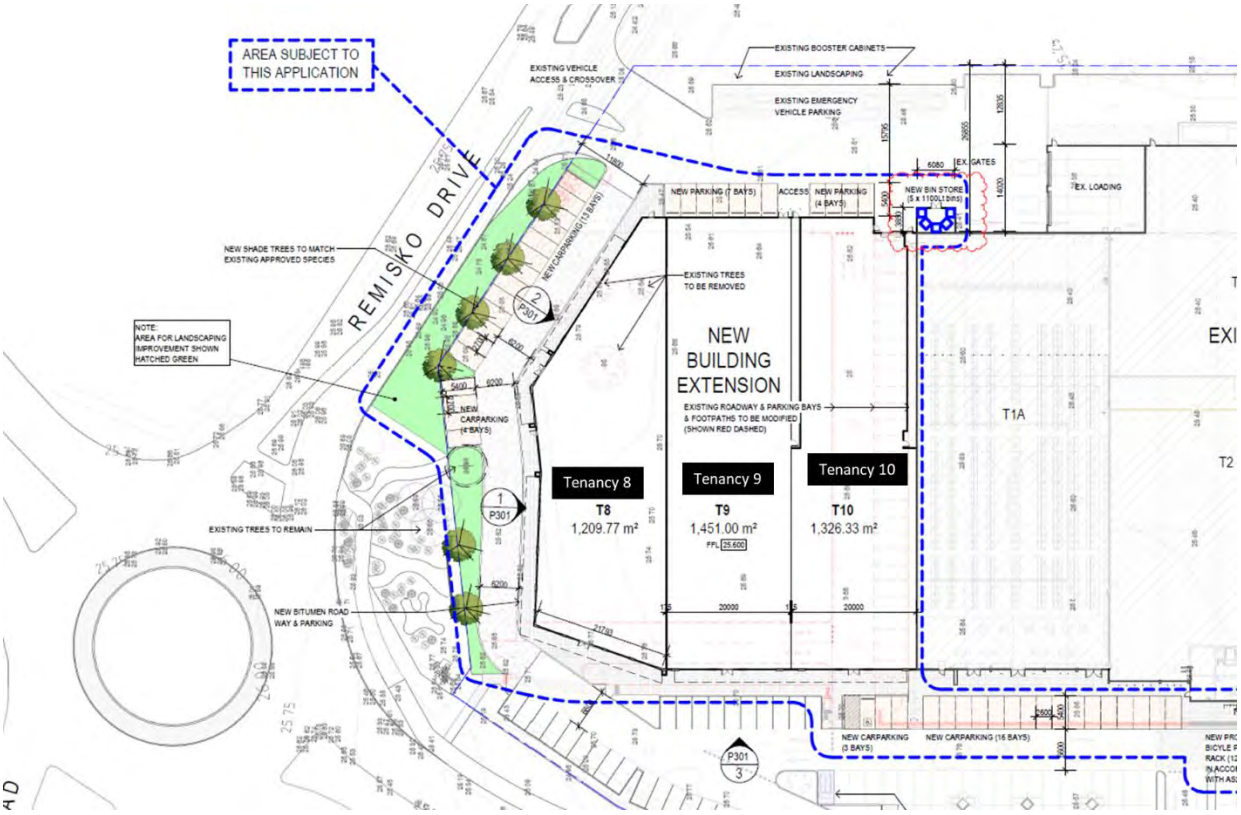
Figure 1-1 Aerial Image of Site

Source: MetroMap (2023)

Plans for the Development outlines a one-storey building with majority of the premises dedicated for a showroom tenancy. The anticipated development yield for the Development is tabulated in **Table 1-1**. Architectural plans outlining the usage of floor space are provided in **Appendix A**.

The proposed Development will front onto Ranford Road as shown in **Figure 1-2**. The bin enclosure for the development is proposed to be located on the ground floor and accessible from an access at Remisko Drive.

Figure 1-2 Overall Site Plan



Source: Oldfield Knott Architects Pty Ltd (June 2023)

Table 1-1 Floor Area

Type of Premises	Quantity
Tenancy 8	1,209.77
Tenancy 9	1,451.00
Tenancy 10	1,326.33
Total	**3,987.10**

1.3 WASTE AND RECYCLING COLLECTION SERVICES

The proposed development will use a waste collection service provided by a private waste contractor. It is proposed that the frequency of waste collection be as indicated in **Table 2-2**. It is proposed that the bins will be collected on-site at the proposed waste collection area as illustrated in **Figure 2-2**.

General and recycle waste collections will be undertaken on-site and arranged to occur during off-peak hours to minimise disruption to traffic operations as well as minimise any impacts to visitors and tenants.

1.4 BIN ENCLOSURE

The Mobile Garbage Bin (MGB) storage for the Development will be in a bin enclosure located on the ground floor.

1.4.1 Construction Considerations

The bin enclosures for the Development will be designed with the following considerations:

- The bin store area will have concrete slab floor with a graded floor to a waste drain that is connected to sewer. Floors to be even and flat for safe storage of bins;
- Access doors will be self-closing to prevent access to vermin;
- Adequate aisle width for easy manoeuvring of bins;
- No double stacking of rows of bins;
- All wall joins will be sealed to a height of 150 mm for ease of washing;
- Walls are to be painted with washable paint;
- A hose cock will also be included to facilitate washout of bins and washout of the area.
- Drainage of waste water from washing facilities will drain to main sewers;
- Sufficient lighting for the bin enclosure should be provided by motion detected automatic artificial lighting in order to facilitate access to the bin enclosure;
- Adequate ventilation will be provided to the bin enclosure to ensure sufficient turnover of the air mass to prevent odour nuisance;
- Appropriate signage to be provided;
- To be designed to not permit stormwater to enter into the drain;
- Bins not to be visible from the property boundary or areas trafficable by the public;
- Any external bin store greater than 20m is to be roofed as per Water Authority requirement; and
- Bins are reasonably secured from theft and vandalism.

2.0 WASTE GENERATION AND MANAGEMENT

In order to ensure that the waste from the Development is properly managed, it was necessary to estimate the volume of waste that is likely to be generated on the premises. The City provided the waste generation rates applicable to the Development.

Using these general and recycling waste generation rates, a broad estimation of the daily waste to be generated for the Development has been calculated.

2.1 WASTE STREAMS

2.1.1 General and Recycling

Waste and recyclables will be sorted on-site and as close to source as possible. Sorting will rely on appropriate education of tenants and staff in addition to adequate signage for bins located in the bin enclosures. Waste and recycling will be based on the following streams:

- General Waste.
- Co-mingled Recycling, which includes clean aluminium foil and trays, glass bottles and jars, long-life milk and juice cartons, cardboard, plastic containers, tins and cans.

2.1.2 Other Streams

Storage, handling and collection of liquid wastes such as wastewater and cooking oil are not covered in this WMP. The Development operator will need to source and enter into an agreement with an appropriate registered and accredited waste collection contractor from the City.

2.2 WASTE STREAMS ESTIMATE

The estimated weekly waste to be generated has been calculated using the waste generation rates for each waste stream indicated in **Table 2-1.** Waste estimates were obtained by way of calculations outlined in **Appendix B.**

Table 2-1 Waste Generation Rates for the Development

Type of Premises	Days of Operation	Source	General Waste	Co-mingled Recycling	Weekly Waste	Recycling
Showroom	7 days	City of Armadale (Showroom)	40 L/100m^2/day	10 L/100m^2/day	11,163.88	2,790.97

The waste volumes presented are estimates only and are representative of the design drawings of the Development provided in June 2023.

2.3 BIN REQUIREMENT

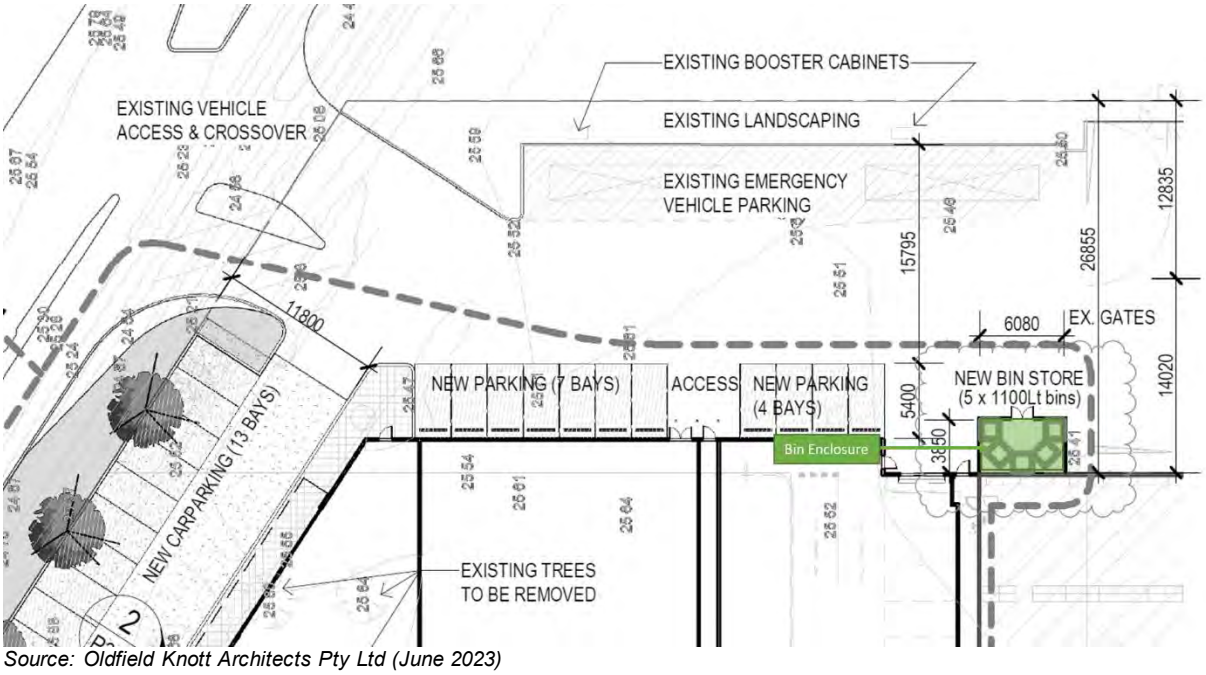
A summary of the breakdown of the anticipated MGB requirements, the proposed bin sizes, and the proposed collection frequencies for the proposed commercial development are provided in **Table 2-2.**

Table 2-2 Bin Requirements for Enclosure of Proposed Site

	Size (L)	Collection	No of Bins
General Waste	1100	3 times a week	4
Co-mingled Recycling	1100	3 times a week	1
Total	**5 x1100L**		

A layout of the anticipated bin enclosure is illustrated in **Figure 2-1**.

Figure 2-1 Bin Enclosure



Source: Oldfield Knott Architects Pty Ltd (June 2023)

2.4 BIN ENCLOSURE LAYOUT

MGBs will be stored in an allocated enclosure within the Ground Floor of the Development and will be easily and safely accessible from within the development. The waste bins will generally be stored directly abutting the walls of the enclosures.

2.4.1 Design Considerations

A number of problems can arise from inadequate consideration of waste management in developments. Some of these problems include noise, odour, hygiene issues, vermin, negative impacts on the health, safety, environment and security. To avoid these issues, it is vital to consider waste management in the design and planning of the proposed Development.

2.4.1.1 Odour

The enclosure is located away from public areas which will prevent odour nuisance.

2.4.1.2 Noise

The bin enclosure is located away from public areas to limit noise that may otherwise disturb surrounding premises when materials are placed in the bins.

2.4.1.3 Vermin

The use of lidded MGBs will eliminate access by vermin. The use of bait stations will also be considered by the Development operator if required.

2.4.1.4 Aesthetics

The bin enclosure has been designed with the Development and as such will be consistent with the overall aesthetics, avoiding the placement of bins along the external faces of the building.

2.4.1.5 Protection from Vandalism

The bin enclosure will be closed off from public access and will use secured doors. No bins will remain or be stored outside of the enclosure.

2.4.1.6 Regular Washing of Bins and Enclosure

An assigned staff/cleaner will be responsible for the organisation of regular washing of bins and for maintenance of the storage area. The washing area will have graded floors that drain to the sewer which will allow for the cleaning of the store and bins.

2.5 TRANSFER OF WASTE AND RECYCLING

2.5.1 Commercial Waste Transfer

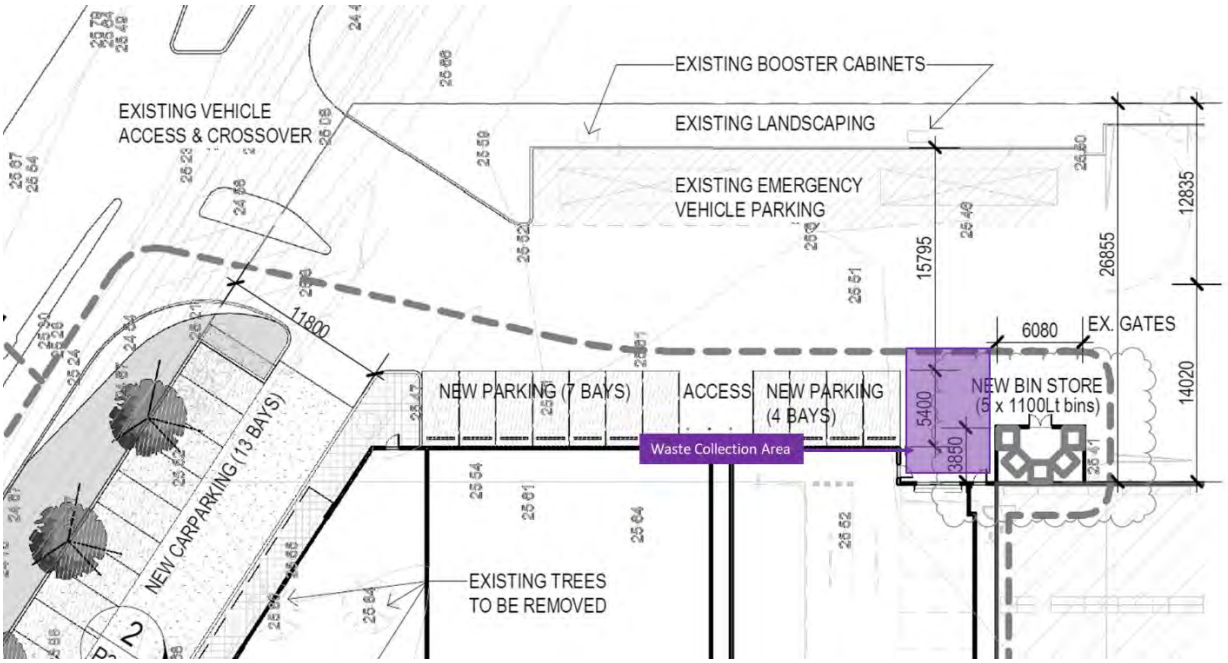
The tenant/staff of the commercial tenancies will transfer waste to the dedicated bin enclosure located on the site as required. The waste will be emptied into their respective bins within the associated bin enclosure.

2.6 COLLECTION OF WASTE AND RECYCLING

2.6.1 Waste Collection

A private waste contractor will service the proposed development as per the collection frequencies indicated in **Table 2-2**. Waste collection is proposed to be undertaken on-site near the bin enclosure as illustrated in **Figure 2-2**.

Figure 2-2 Waste Collection Area



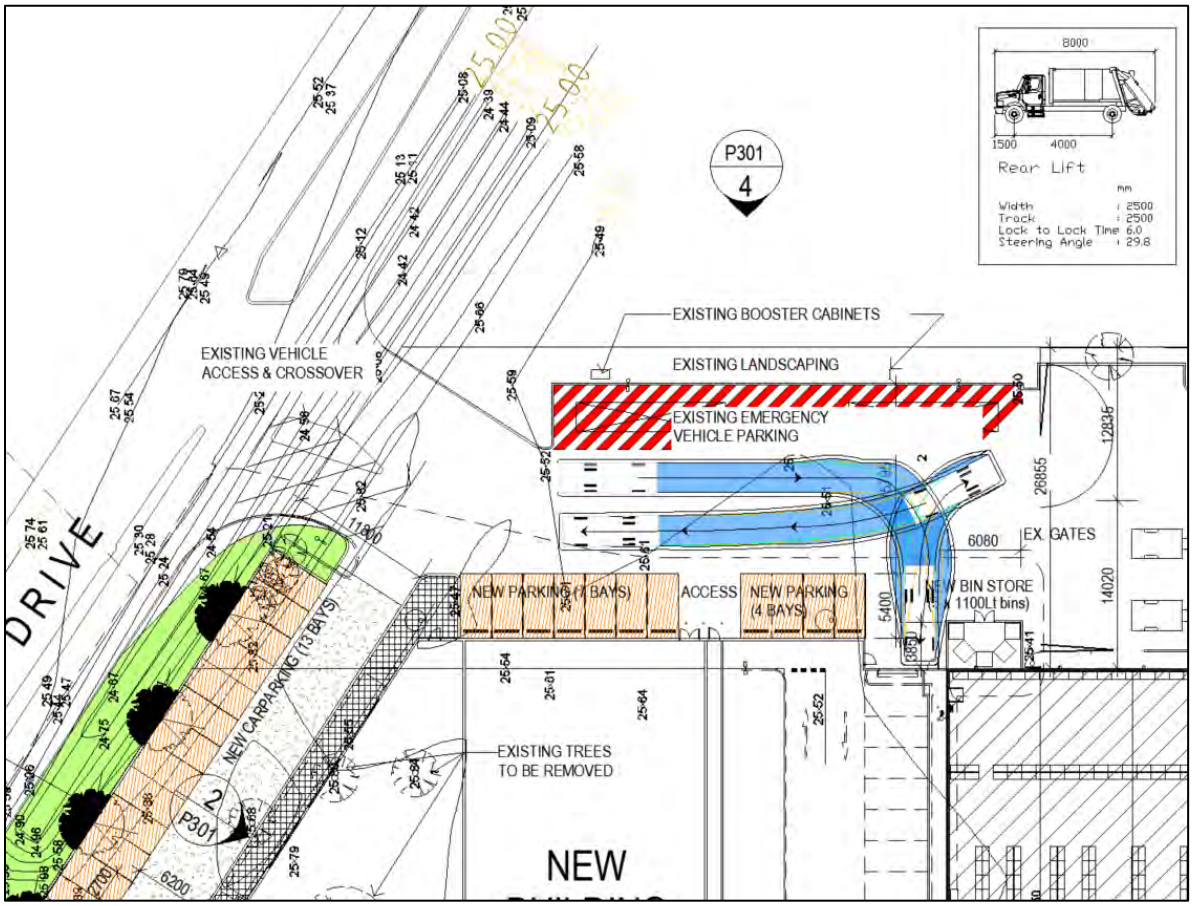
The Facility Manager or staff will provide access to the proposed bin enclosure. The private contractor staff will ferry loaded MGBs from the bin enclosure to the waste truck for disposal on the days of collection and return the empty MGBs back to the respective bin enclosure.

2.6.2 Provision of Service Vehicle

A swept path analysis for an 8.0 m waste vehicle was undertaken as illustrated in **Figure 2-3.** The analysis indicates that a waste vehicle is able to adequately enter the site, manoeuvre and park in the waste collection area and exit in a forward direction.

Waste collection is be undertaken on-site by a private waste contractor and is to be arranged to occur during off peak hours or after normal business hours to minimise disruption to traffic operations as well as minimise any impacts to staff and visitors.

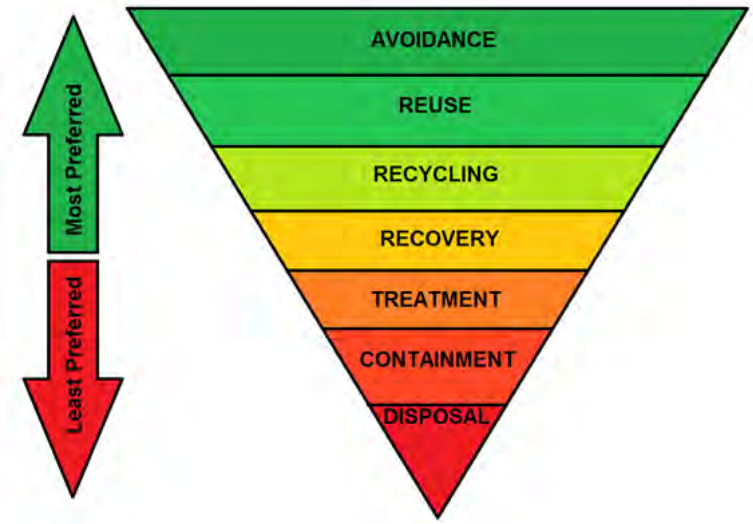
Figure 2-3 Swept Path – Waste Collection



3.0 WASTE REDUCTION AND MANAGEMENT

This waste management plan has been developed with the strategic approach of reducing waste through best practices and education of tenants and staff. Best practices for waste minimisation will optimise the Development's use of the waste minimisation hierarchy, which seeks to encourage sustainable options for waste. The waste hierarchy is demonstrated in **Figure 3-1.**

Figure 3-1 Waste Hierarchy



3.1 PROVISION OF INFORMATION

Information dissemination is essential in order to communicate well the best practices of waste management. Suitable types of information which can be provided includes:

- Sufficient labelling of bins, signage of bin enclosure areas and equipment to reinforce waste separation.
- Marketing materials such as posters and leaflets demonstrating procedures of waste segregation and waste collection days; and
- Staff manual detailing proper waste segregation and management.

However, information on its own is not enough and it must be paired with initiatives to be effective.

3.2 ENGAGEMENT

A regular engagement between the staff of the Development should take place in order to remind everyone the proper and best practices of waste management. The engagement should include:

- Demonstration of waste management systems pertinent to an individual's role;
- Distribution of waste management strategy documents in relevant locations;
- An explanation of the benefits of waste separation and recycling; and
- Training on all pertinent equipment related to waste management.

3.3 MONITORING AND REVIEW

The Facility Manager/nominated staff who will oversee the implementation of the Waste Management Plan should continually monitor and review the waste management plan activities.

The Facility Manager/nominated staff will be responsible for the following:

1. Monitoring and maintenance of bins and the bin enclosure area;
2. Conduct regular training on waste segregation, reduction and waste management;
3. Conduct regular waste audits to improve waste management;
4. Providing access to the bin enclosure area for the waste contractor staff; and
5. Engage with the local authority to ensure efficient and effective waste service for the Development.

In the event that waste generation rates for the Development change, a waste audit may be required by the City or other regulatory bodies. Similarly, should a change to the waste regulations be implemented by the City or other regulatory bodies, a waste audit may be required in addition to further waste stream separation.

4.0 CONCLUSION

This Waste Management Plan demonstrates that the proposed development provides a sufficiently sized Bin Storage Area for the storage of general and recyclables waste based on the estimated waste generation and a suitable configuration of bins.

The collection of general and recyclables waste is achieved using:

- 4x1100L bins for general waste to be collected three times a week; and
- 1x1100L bin for recycling waste to be collected three times a week.

Waste Collection is proposed to be collected on-site by a private waste contractor and to be arranged to occur during off-peak hours or after normal business hours to minimise disruption to traffic operations as well as minimise any impacts to staff and visitors. Facility Manager/staff will provide access to the bin enclosure. The private contractor staff will ferry loaded MGBs from the bin enclosure to the waste truck for disposal on the days of collection and return the empty MGBs back to the respective bin enclosure.

5.0 REFERENCE

-City of Armadale's Waste Management Plan Specifications, Armadale (August 2015)

APPENDICES

Appendix A SITE PLAN

AREA SUBJECT TO THIS APPLICATION

REMISKO DRIVE

LAKE ROAD

RANFORD ROAD

EXISTING VEHICLE ACCESS & CROSSOVER

EXISTING BOOSTER CABINETS

EXISTING LANDSCAPING

EXISTING EMERGENCY VEHICLE PARKING

EXISTING TRUCK ACCESS ROAD

EXISTING BUILDING SET BACK

EX. PUMPS & TANKS

EX. GATES

EX. LOADING

NEW PARKING (7 BAYS)

ACCESS

NEW PARKING (4 BAYS)

NEW BIN STORE (5 x 1100L bins)

NEW SHADE TREES TO MATCH EXISTING APPROVED SPECIES

NEW CARPARKING (3 BAYS)

EXISTING TREES TO BE REMOVED

NOTE:
AREA FOR LANDSCAPING IMPROVEMENT SHOWN HATCHED GREEN

NEW CARPARKING (4 BAYS)

NEW BUILDING EXTENSION

EXISTING ROADWAY & PARKING BAYS & FOOTPATHS TO BE MODIFIED (SHOWN RED DASHED)

EXISTING TREES TO REMAIN

NEW BITUMEN ROAD WAY & PARKING

T8
1,209.77 m²

T9
1,451.00 m²
FFL 25.600

T10
1,326.33 m²

T1A

T1B

25.600 FFL

EXISTING APPROVED DEVELOPMENT / BUILDING FOOTPRINT

T2

T3

T4

T5

T6

T7 OVER

EXISTING DRIVE WAY & EMERGENCY VEHICLE CIRCULATION

NEW CARPARKING (3 BAYS)

NEW CARPARKING (16 BAYS)

NEW PROPRIATARY BICYLE PARKING RACK (12 BIKES) IN ACCORDANCE WITH AS2890.3

EXISTING VEHICLE ACCESS

NEW CARPARKING (3 BAYS)

NEW CARPARKING (5 BAYS)

NEW PROPRIATARY BICYLE PARKING RACK (12 BIKES) IN ACCORDANCE WITH AS2890.3

NEW CARPARKING (2 BAYS)

NEW CARPARKING (2 BAYS) TO REPLACE EX. TROLLEY BAYS

NEW CARPARKING (5 BAYS) TO REPLACE EX. TROLLEY BAYS

EXISTING PARKING

EXISTING PARKING

NEW CARPARKING (5 BAYS) TO REPLACE EX. TROLLEY BAYS

EXISTING TREES & LANDSCAPING TO REMAIN

EXISTING VEHICLE ACCESS & CROSSOVER

EX. PYLON SIGN

EXISTING LANDSCAPING

EXISTING APPROVED SHOWROOM SPACE
TENANCY 1a - 2160m2
TENANCY 2 - 1307m2
TENANCY 3 - 1303m2
TENANCY 4 - 972m2
TENANCY 6 - 2192m2
TOTAL APPROVED EXISTING SHOWROOM SPACE - 7934m2

EXISTING APPROVED WAREHOUSE SPACE
TENANCY 1b - 2320m2
TOTAL APPROVED EXISTING WAREHOUSE SPACE - 2320m2

EXISTING APPROVED RECREATION & SPORTING FACILITY SPACE
TENANCY 5 - 2312m2
TOTAL APPROVED EXISTING RECREATION & SPORTING FACILITY SPACE - 2312m2

EXISITNG APPROVED OFFICE SPACE
TENANCY 7- 284m2
TOTAL APPROVED EXISTING OFFICESPACE - 284m2

PROPOSED NEW SHOWROOM SPACE
TENANCY 8 - 1209.53m2
TENANCY 9 - 1451.00m2
TENANCY 10 - 1326.33m2
TOTAL PROPOSED NEW SHOWROOM SPACE - 3986.86m2

EXISTING REMAINING ONSITE CAR PARKING - 279 BAYS

PROPOSED NEW ONSITE CAR PARKING - 57 BAYS

PROPOSED NEW ONSITE CAR PARKING - (REPLACE EXISTING TROLLEY BAYS) 12 BAYS

TOTAL ONSITE CAR PARKING - 348 BAYS

TENANT LOCKER REQUIREMENTS

Showroom Space: 1 Staff Locker per 750m² of sales floor

Recreation Private: 1 Staff Locker per 4 employees

BICYCLE PARKING CALCULATIONS

SHOWROOM - 1 bike rack per 1000m² sales floor GFA
T1A, 2,3,4,6,8,9,10 = 11,920.86m2 /1000m2 = 11.92 BAYS

RECREATION PRIVATE - 1 bike rack per 200m² GFA
T5- 2312m2 / 200m2 = 11.56 BAYS.

BICYLE PARKING REQUIRED: 23.48 BAYS

BICYLE PARKING PROVIDED: 24 BAYS

N

1 - EXISTING / PROPOSED SITE PLAN
SCALE: 1 : 500

Member Australian Institute of Architects
The Royal Australian Institute of Architects
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Rev.	Date	Issued By	Revision Description
C	13-10-2022		T9 & 10 ACCESS
D	19-10-2022		PARKING LAYOUT & TENANCY REVISIONS
E	02-12-2022		T8,T9,T10 & PARKING LAYOUT
F	14-03-2023		SITE INFORMATION & PLAN AMENDMENTS
G	24-05-2023		1100L BINS

Project Name: **PROPOSED COMMERCIAL DEVELOPEMNT, 600 RANFORD RD, FORRESTDALE WA 6112**

Drawing Name: **SITE AND LOCATION PLAN**

Project Number: **22007A**

Drawing No.: **P100**

Rev.: **G**

Reduction 25mm on A1 | Scale **As indicated** | Date **Month 2022** | Drawn **OKA** | Checked **OKA**

Appendix B WASTE CALCULATIONS

Commercial Waste Generation

Commercial: General Waste and Recycling Generation Rates

Type of Premises	General Waste	Co-mingled Recycling
Showroom	40 L/100m^2/day	10 L/100m^2/day

The following equation was used to calculate the anticipated weekly waste generation for commercial waste for the proposed development:

$$\boldsymbol{Total\ Weekly\ Waste\ Generated\ (Floor\ Area \times Waste\ Rate) \times no\ of\ days\ per\ week}$$

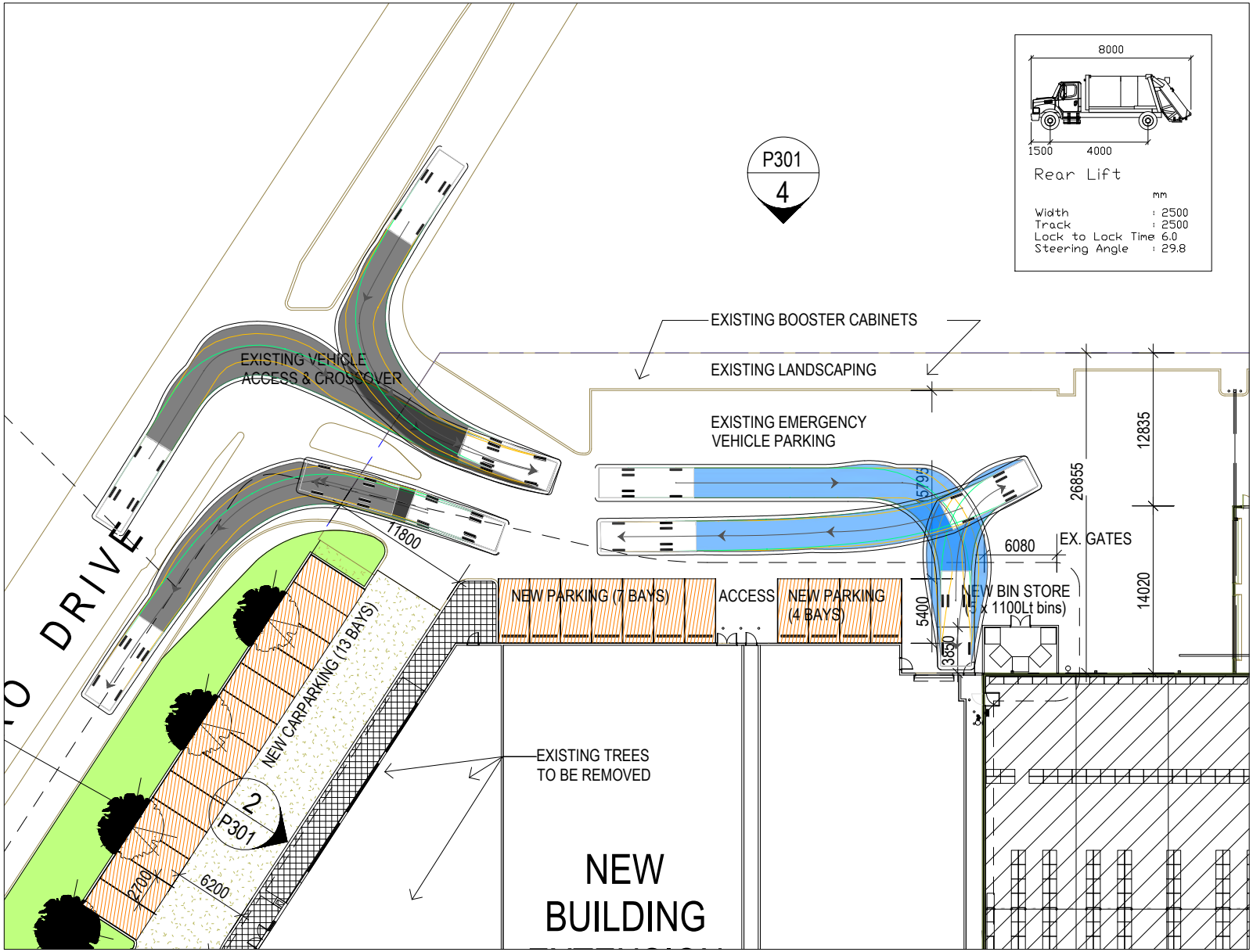
The total number of bins required for the collection of general waste three times a week for the proposed showrooms was calculated using the following equation:

$$\boldsymbol{Total\ Number\ of\ General\ Bins\ Required} = \frac{\boldsymbol{Total\ Weekly\ Waste\ Generated}}{\boldsymbol{1100\ L}} \times \frac{\mathbf{1}}{\mathbf{3}}$$

The total number of bins required for the collection of recycling waste three times a week for the proposed showrooms was calculated using the following equation:

$$\boldsymbol{Total\ Number\ of\ Recycling\ Bins\ Required} = \frac{\boldsymbol{Total\ Weekly\ Waste\ Generated}}{\boldsymbol{1100\ L}} \times \frac{\mathbf{1}}{\mathbf{3}}$$

Appendix C WASTE TRUCK SWEPT PATH


8000
1500
4000
Rear Lift
mm
Width : 2500
Track : 2500
Lock to Lock Time 6.0
Steering Angle : 29.8
P301
4
EXISTING BOOSTER CABINETS
EXISTING LANDSCAPING
EXISTING VEHICLE ACCESS & CROSSOVER
EXISTING EMERGENCY VEHICLE PARKING
11800
5795
26855
12835
6080
EX. GATES
14020
NEW PARKING (7 BAYS)
ACCESS
NEW PARKING (4 BAYS)
5400
3850
NEW BIN STORE (x 1100Lt bins)
NEW CARPARKING (13 BAYS)
2
P301
2700
6200
EXISTING TREES TO BE REMOVED
NEW BUILDING

Development Services
629 Newcastle Street Leederville WA 6007
PO Box 100 Leederville WA 6902
T (08) 9420 2099
F (08) 9420 3193

Your Ref: 10.2023.235.1
Our Ref: 161557518 - DAP403171
Enquiries: Julie Doessel
Direct Tel: 9420 3303
Email: land.planning@watercorporation.com.au

14 December 2023

City Of Armadale
7 Orchard Ave
ARMADALE WA 6112

Attention of: Paul Rosser

Re: JDAP Referral - Bulky Goods Showrooms - Lot 801 (600) Ranford Road FORRESTDALE

Thank you for your referral dated 10 October 2023. We offer the following comments regarding this proposal.

Water Supply

Reticulated water is currently available to the subject land.

The applicant will be responsible for funding any costs of an additional water connection (meter) as a result of the additions and make payment of the appropriate Standard infrastructure contributions attributed to the nominated size and flow rate of the connection/s required.

The applicant will be responsible for funding the cost of any additional fire service connection/s (meter) and the appropriate fees and charges attributed to the nominated size of the connection/s required. New fire service/s (meter) will also be subject to an agreement at the time of application.

Any changes to the sites water connections may result in the installation of a backflow protection device. The applicant must consult a suitably qualified licensed plumbing contractor or hydraulic consultant to assess the developments requirements. The cost of the installation and ongoing testing and maintenance is the responsibility of the lot owner.

Wastewater

Reticulated wastewater connections are currently available to the subject land.

Approval for works

Any works carried out in proximity to our Assets must receive prior approval by applying for an Asset Protection Risk Assessment (APRA) To assess whether the proposed development will require and APRA details of the Prescribed Proximities and relevant legislation are available in our guidelines. The current turnaround is up to 28 days, please allow for this turnaround time when planning your work.

Application

The applicant is required to submit a Commercial application by using our online portal BuilderNet. Attachments required for approval will include:

- Final for construction site & architectural floor plans
- Any certified and signed engineering piling detail plans
- Hydraulic Plans for water and wastewater
- Trade Waste Application form
- Trade Waste Supplement Form
- Plumbing plans showing the waste fixtures/grease arrestor connections

The information provided above is subject to review and may change. If the proposal has not proceeded within the next 12 months, please contact us to confirm that this information is still valid.

Please provide the above comments to the landowner, developer and/or their representative.

Should you have any queries or require further clarification on any of the above issues, please do not hesitate to contact the Enquiries Officer.

Julie Doessel

Julie Doessel
Advisor - Land Use Planning
Development Services

CC

Department of **Planning, Lands and Heritage**

GOVERNMENT OF WESTERN AUSTRALIA

City of Armadale
Locked Bag 2
Armadale WA 6992

Your ref: 10.2023.235.1
Our ref: DPI/09/01796
Enquiries: Liang Ming Lee Ph: 6551 9844

2 November 2023

Attention: Paul Rosser

Dear Paul,

Re: Lot 801 Ranford Road, Forrestdale

I refer to your correspondence dated 10 October 2023. In accordance with the Western Australian Planning Commission's (WAPC) Notice of Delegation dated 18 January 2022, the following comments are provided. This proposal seeks approval for the extension of a large format retail building.

Land Requirements

The site abuts Ranford Road, which is classified as an *Other Regional Road* (ORR) in the Metropolitan Region Scheme (MRS) and Category 2 in the subject location per Plan Number SP 694/6. The site is not affected by the ORR reservation per Land Requirement Plan 1.3880/1.

Access

No changes to access arrangements are proposed to Ranford Road. This is in accordance with the Commission's Regional Roads (Vehicular Access) Policy D.C. 5.1, which seeks to minimise the number of new access point onto regional roads.

Transport Impact Assessment

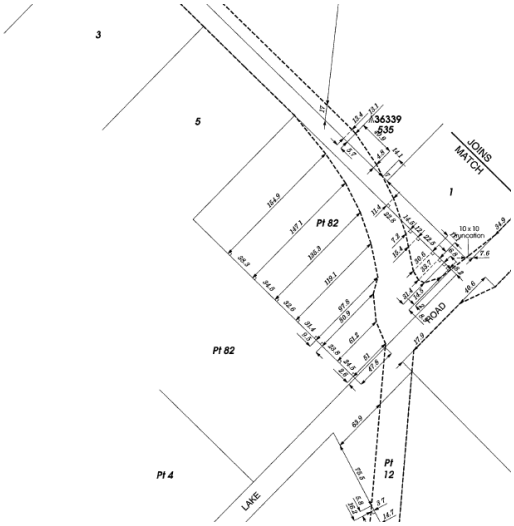
The above report by Stantec (August 2023), states that the development will generate 59 trips during the AM Peak hour and 50 trips during the PM Peak hour. ITE Trip Generation 11th Edition states that the development will generate 346 trips per day, 39 trips during the AM peak hour and 127 trips during the PM peak hour period.

Recommendation

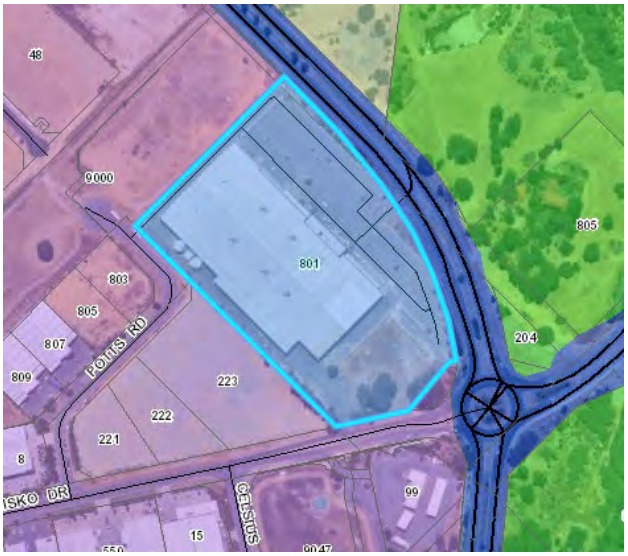
The Department has no objection to the proposal on ORR planning grounds. Thank you for your correspondence. Should you have any further queries, please contact me on 6551 9844 or via email liangming.lee@dplh.wa.gov.au.

Regards,

Simon Luscombe
Principal Planning Officer
Strategy and Engagement



Land Requirement Plan 1.3880/1



Metropolitan Region Scheme