EAST WANNEROO CELL 5 (LANDSDALE) AGREED LOCAL STRUCTURE PLAN 7

STRUCTURE PLAN AMENDMENT 20

7 SEPTEMBER 2018
PREPARED FOR VV NOMINEES PTY LTD

URBIS

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Tim Dawkins
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Project Code	PA1090
Report Number	Final for Lodgement

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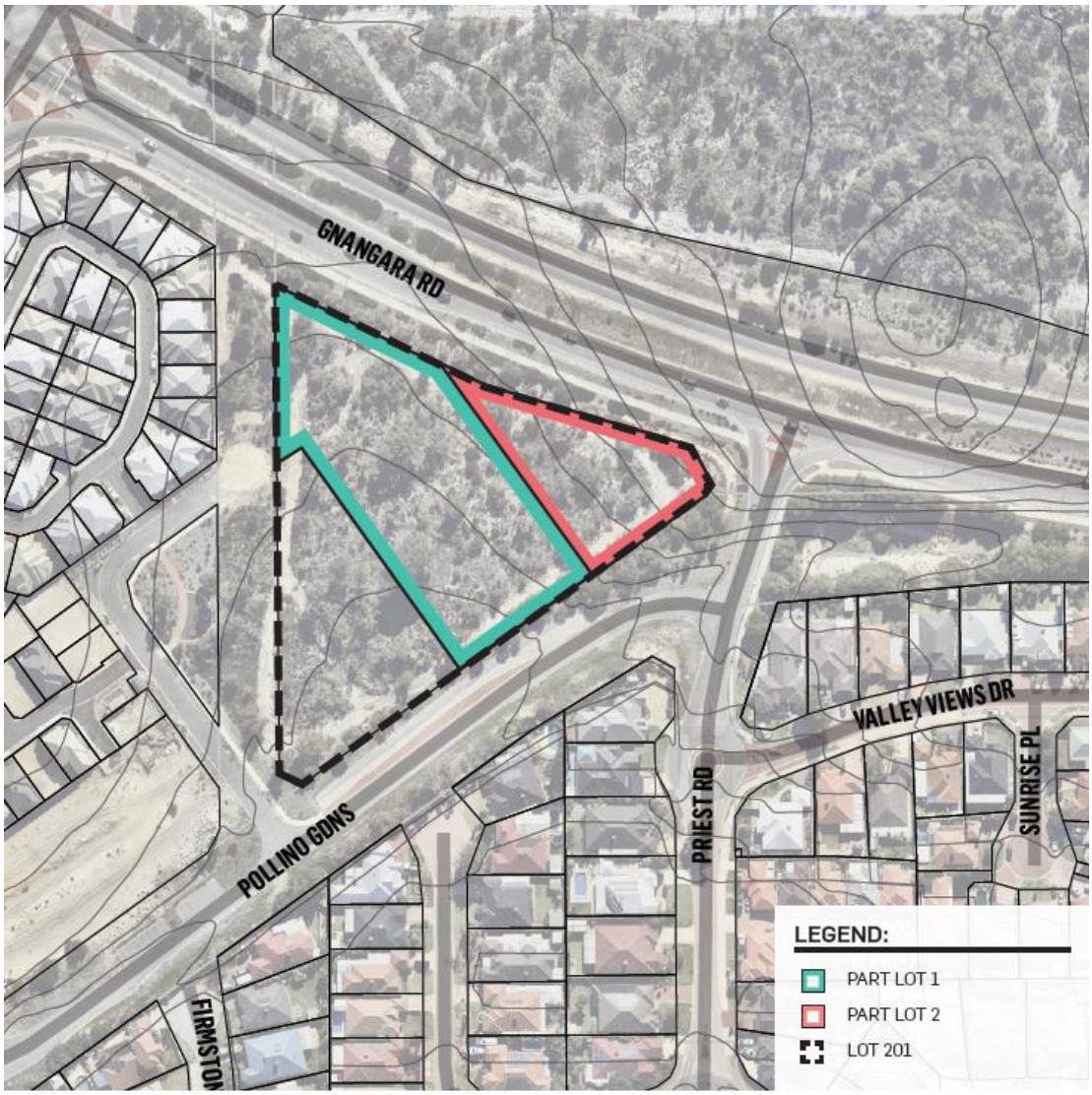
INTRODUCTION

Urbis, on behalf of our client VV Nominees Pty Ltd, is pleased to provide this request to modify the East Wanneroo Cell 5 - Agreed Structure Plan No.7 (**ASP7**). Urbis acts for VV Nominees Pty Ltd who are the land owners and developers for the subject site being Lot 201 Pollino Gardens, Landsdale (refer **Figure 1**); which is located within the ASP7 area.

This proposed Structure Plan amendment seeks to include 'Medical Centre', 'Pharmacy' and 'Restaurant' as Discretionary ('D') uses over Part Lot 2 of the subject site. In addition, the proposed amendment seeks to undertake consequential amendments to reconcile the Structure Plan to be in line with the existing approved development within Part Lot 1.

A copy of the proposed Structure Plan amendments is enclosed at **Appendix A**.

Figure 1 – Subject Site

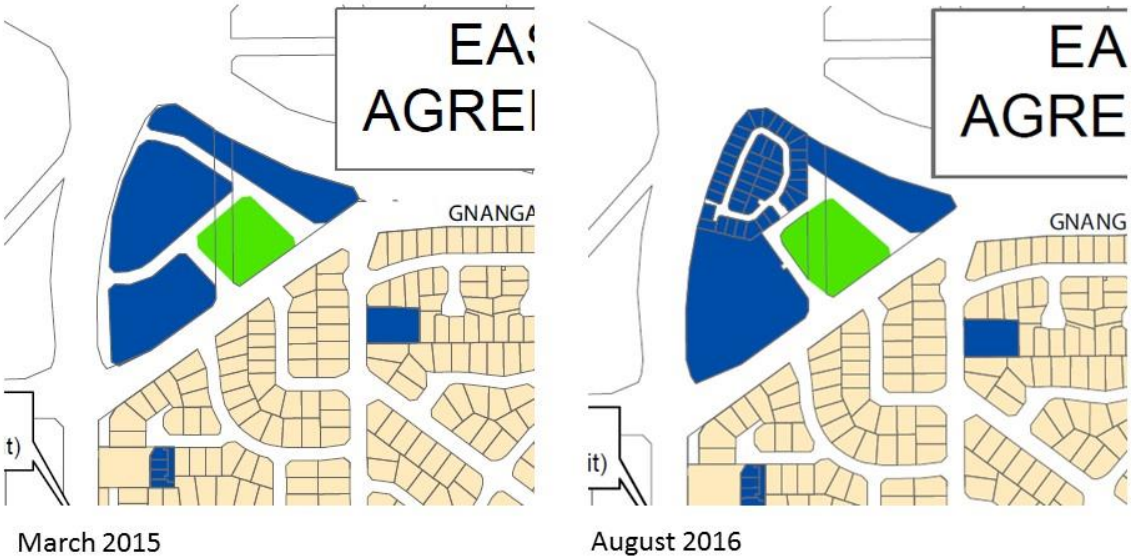


Source: Nearmap, Urbis

1. BACKGROUND

ASP7 was originally adopted by the City of Wanneroo for the whole of Cell 5 in November 2002. Cell 5 covers an area of approximately 2,882ha and forms part of the broader East Wanneroo area. Certain areas of Cell 5 have recently been subject to structure plan amendments, including neighbouring land surrounding the subject landholding of this amendment. As a result of a development approval for 100 grouped dwellings at Lot 702 (364) Gnangara Road, Landsdale, a structure plan amendment was initiated to accommodate this new development layout that was not consistent with the approved Structure Plan (refer **Figure 2**). This amendment closed two envisaged roads in the most north – western area of the Structure Plan Area. These roads were envisaged to intersect Bakana Loop and connect through to Gnangara Road.

Figure 2 – 2015 Cell 5 Structure Plan Vs 2016 Cell 5 Structure Plan



Source: City of Wanneroo 2017

In addition to proposing the additional uses, this proposed amendment seeks to undertaken a consequential amendment to rationalise the spatial layout so that it is consistent with the approval granted by the JDAP in November 2017 (Ref DAP/17/01271). The development approval achieves a better design outcome, particularly in the context of the departures from ASP7 that were approved for the adjoining land to the west and provides an overall better spatial resolution for a difficult developable area.

The area (Part Lot 2) proposed to include the additional uses of Medical Centre, Pharmacy and Restaurant, over 2,494m^2 a triangular that fronts Gnangara Road and is subject to significant level changes as a result of redundant roadworks carried out to realign Gnangara Road. Part Lot 2 only adjoins one other lot, which is owned by the same entity. The land is well separated from existing residential uses, as it was previously on the northern side of Gnangara Road, before it was realigned. Due to the noise and exposure to Gnangara Road, residential uses are unsuited and at best will 'turn their back' on the Gnangara Road, which has a great outlook and northern aspect. Therefore, the best resolution for the site and its surrounding locality is to develop a commercial use that provides a strong relationship to the Structure Plan area and will creates a landmark on the entry into the precinct within creating any undue impacts on the existing residents of the locality.

2. SUBJECT SITE

The subject site is located at Lot 201 (No. 42) Pollino Gardens, Landsdale (**subject site**) and is bounded by Gnangara Road, Bakana Loop, Pollino Gardens. The Certificate of Title is attached at **Appendix B**.

Table 1 – Legal Details of Land

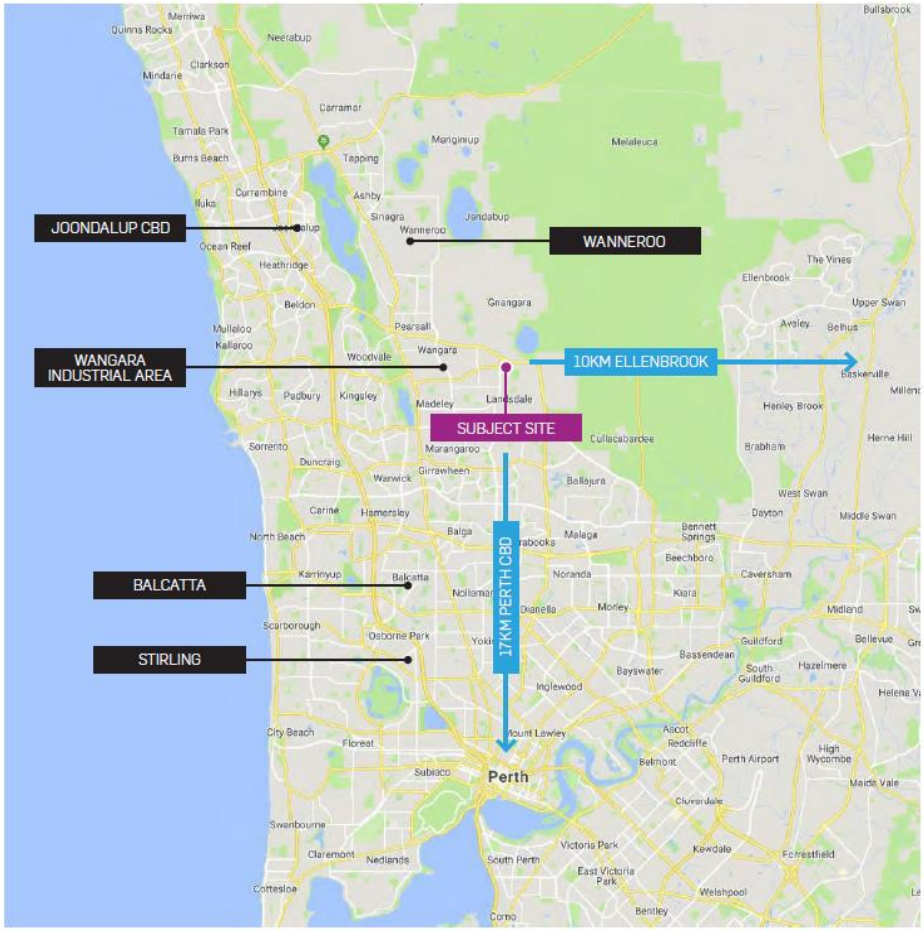
Lot No.	Plan/Diagram	Vol/Folio	Encumbrances	Proprietor
201	77793	2879/146	Covenant burden to the City of Wanneroo Covenant relates to no access to and from Gnangara Road.	VV Nominees Pty Ltd

The subject site is currently vacant and is subject to a subdivision approval (WAPC Ref: 154343) that will create two freehold lots and a POS (refer **Appendix C**). The two freehold lots will be cleared and earthworked prior to the lodgement of a Deposited Plan.

2.1. REGIONAL CONTEXT

The subject site is located approximately 17 kilometres north of the Perth CBD and is regionally accessible via the Mitchell Freeway (7.5km west of subject site) or Alexandre Drive (1.3km east of the subject site). The Joondalup Strategic Metropolitan Centre is approximately 10km north-west of the subject site and the Landsdale Industrial area more immediately to the west of Mirrabooka Ave. To the north and north-east of the subject site is primarily rural and special rural landholdings.

Figure 3 – Regional Context



Source: Google Maps, Urbis

2.2. LOCAL CONTEXT

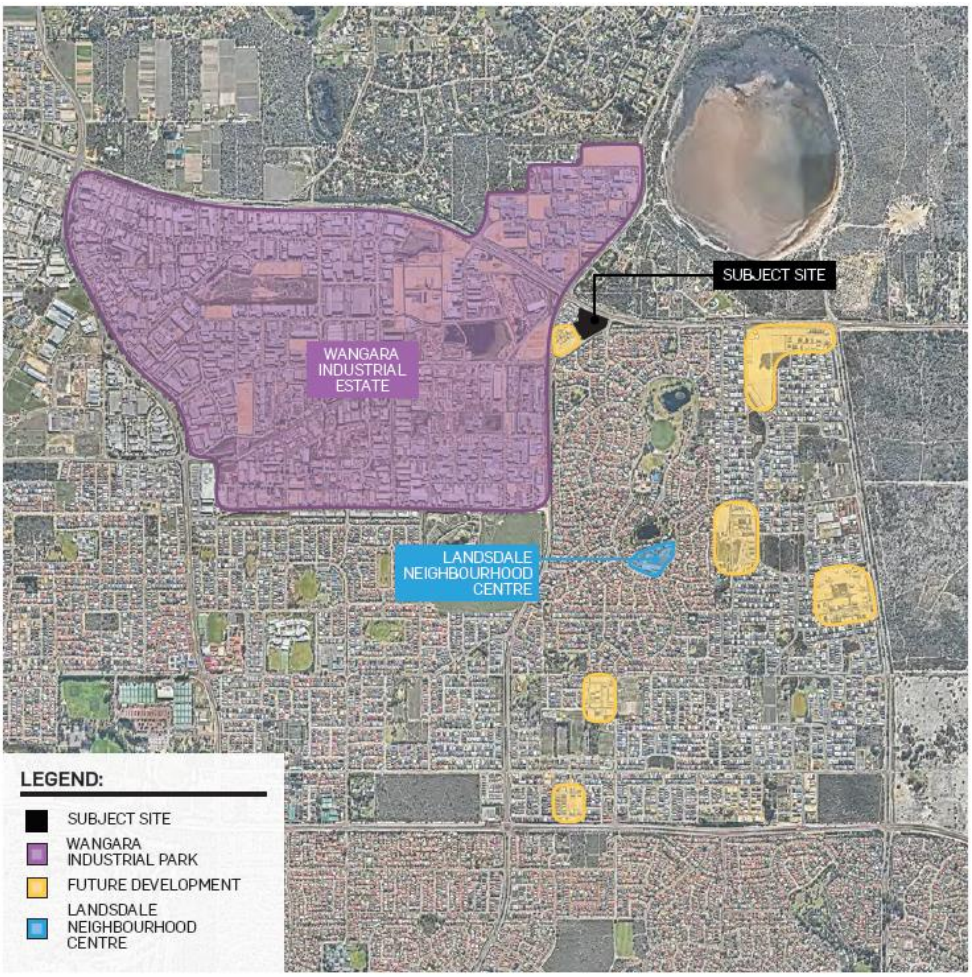
The subject site is surrounded by a diverse mix of land uses (refer **Table 2**). More immediately, the subject site contains 3,917 sq. m of POS allocated under the Structure Plan and Developer Contribution Scheme, a 6,490m^2 site (Part Lot 1) approved for 29 grouped dwellings and Part Lot 2, 2,494m^2 site subject to proposed additional uses as part of this application.

The subject site is bordered by the realigned Gnangara Road, Pollino Gardens and a 100 grouped dwelling survey strata development under development. The diversity of land uses encourages the demand that informs this proposed amendment for medium density and commercial uses. As will be discussed in more detail later in the report. The local community within the northern portion of the ASP7 is deprived of accessible commercial and retail options such as child care, medical and café facilities, that can service the employment and residential function of this area.

Table 2 – Surrounding Land Uses

Orientation	Immediate	Beyond
North	Life Style Lots/Northlink Industrial Park	Lake Gnangara/Lake Gnangara Regional Park
East	Residential	Public Purpose/Regional Reserve
South	Residential	Residential
West	Industrial/commercial	Residential

Figure 4 – Local Context



Source: Near Maps, Urbis

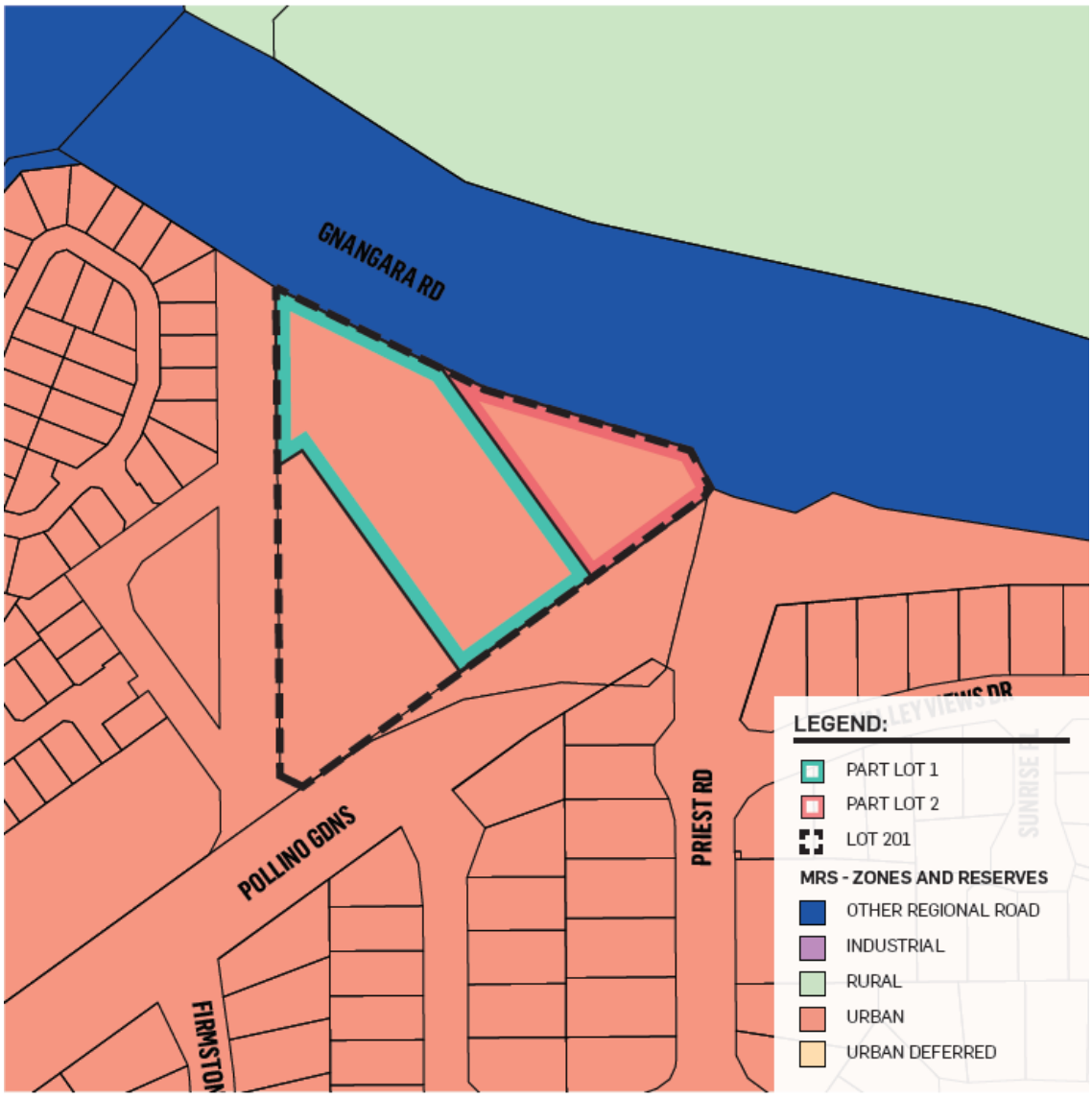
3. PLANNING FRAMEWORK

3.1. STATUTORY FRAMEWORK

3.1.1. Metropolitan Region Scheme

The subject site is zoned 'Urban' under the Metropolitan Region Scheme (MRS) (refer **Figure 5**). The 'Urban' zone allows for a range of activities including residential, commercial, recreational and light industry. The development of the site for residential uses and POS is considered to be consistent with the intent and purpose of the zone.

Figure 5 – Metropolitan Region Scheme

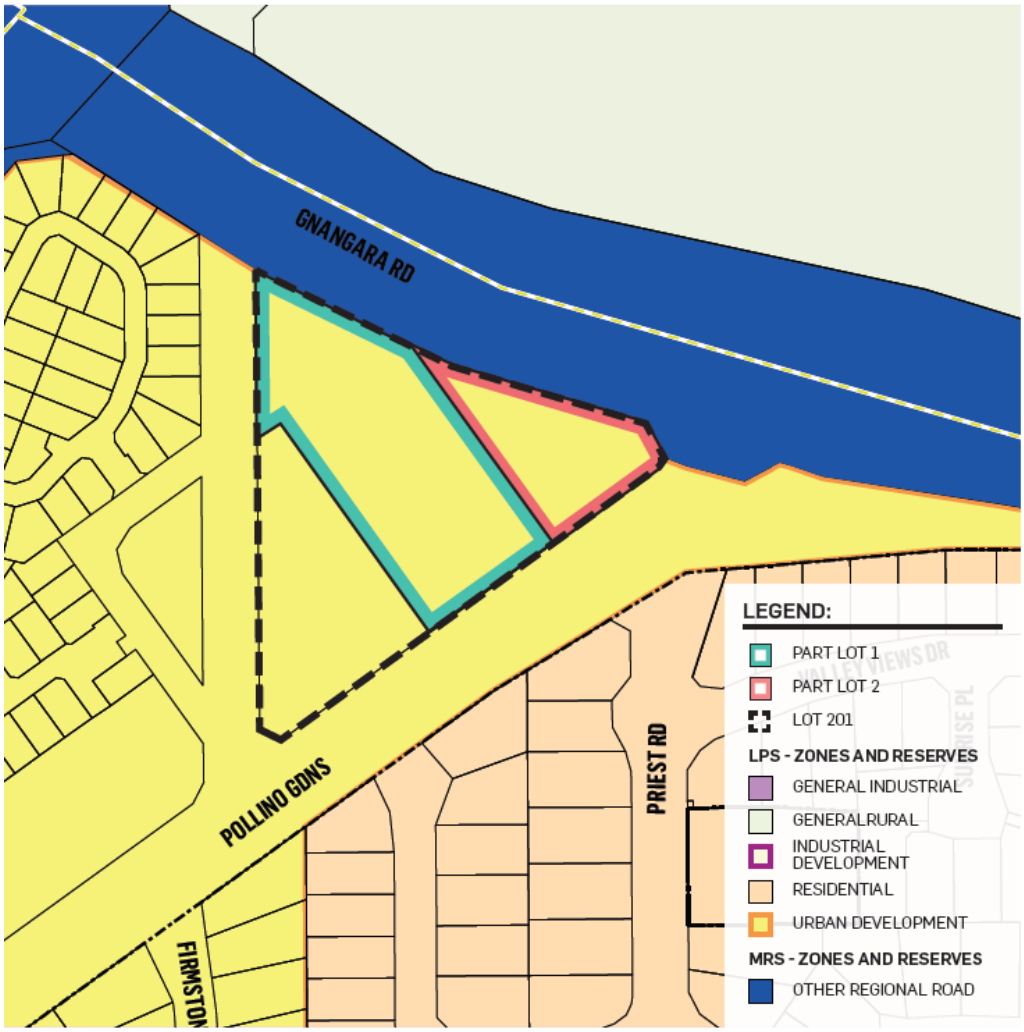


Source: WAPC, Urbis

3.1.2. City of Wanneroo District Planning Scheme No. 2

The subject site is zoned 'Urban Development' under the City of Wanneroo's District Planning Scheme No. 2 (DPS2) (refer **Figure 6**), and is located in East Wanneroo Cell 5 – Agreed Structure Plan No. 7 (**ASP7**). The urban development zone defers most planning controls to the relevant structure plan.

Figure 6 – City of Wanneroo DPS2



Source: WAPC & Urbis 2018

3.1.3. Structure Plan

The East Wanneroo Cell 5 – Agreed Structure Plan No. 7 (Structure Plan) was endorsed originally by the Western Australian Planning Commission on August 28, 2001, and was prepared to facilitate subdivision and development in the area.

The latest endorsed Structure Plan allocates the site as a mixture of Residential R40 and Public Open Space. The Structure Plan requires 3,917 sq. m of POS from this parent lot and this conditionally approved subdivision provides exactly this, to be ceded to the City of Wanneroo when titles are created.

3.2. STATE PLANNING FRAMEWORK

3.2.1. Directions 2031 and Beyond

Directions 2031 - Metropolitan Planning Beyond the Horizon (**Directions 2031**) establishes a vision for the future growth of the Perth and Peel area, which is expected to grow from 1.65 million people to 2.2 million people by 2031. Directions 2031 provides the framework that can achieve the delivery of affordable housing needs of this population.

Directions 2031 identifies the connected city model to deliver on desirable medium density targets around services in walkable catchments. The provision of commercial uses, provides an economic base for the area and promotes employment in close proximity to the residential uses. The services proposed in this application encourage a walkable neighbourhood through provisions of complimentary uses of child care, café and medical facilities near residential living and parks.

3.2.2. Liveable Neighbourhoods

Liveable Neighbourhoods (**LN**) is the WAPC's primary policy for assessing structure plans and subdivision. The Policy promotes urban structure and walkability. LN sets six interrelated design elements including, community design, movement, activity centres, lot design, public open space and education. The amendment addresses these elements via the following means:

- LN promotes safe, convenient and attractive neighbourhoods and towns that meet the diverse and changing needs of the community and offer a wide choice of housing, leisure, local employment and associated community and commercial facilities. The proposed amendment achieves this through promoting:
    - Housing diversity provided through diversity of product - Part Lot 1.
    - Safe neighbourhoods through passive surveillance over the POS area - Part Lot 1.
    - Deletion of the local road which allows lots to front onto the park and therefore improve surveillance – Part Lot 1.
    - Commercial uses that provides community with opportunities that don't currently exist within a walkable catchment - Part Lot 2.
- LN seeks to ensure a site-responsive approach to urban development that supports and enhances the context in which it is located, strengthens local character and identity, integrates with its context and promotes sense of community. The proposed amendment achieves this through the provision of lots that interact directly with the POS, provide an entry point development from Gnangara Road into Landsdale via the proposed commercial development.
- LN seeks to develop a coherent urban system of compact walkable neighbourhoods which cluster to form towns with relatively intense mixed-use town centres that are capable of catalysing a broad range of employment and social opportunities. The proposed amendment achieves this through promoting:
    - Walkability through connections provided through the deletion of a road are the POS. This also encourages pedestrian and cycle focused connections through the POS to the residential areas to the west of the POS.
    - Allowing Commercial uses will encourage the community to walk from their nearby homes to the services such as the café, drop children off at child care, walk to a medical appointment or source that medicine required.

3.3. LOCAL STRATEGIC FRAMEWORK

3.3.1. City of Wanneroo Economic Development Strategy & Action Plan

The City's Economic Development Strategy 'Strategic Economic Growth 2016-2021' (**Strategy**) outlines the economic drivers and challenges the City of Wanneroo faces and in turn provides a strategic direction and action plan towards achieving this. One of the major drivers of the Strategy is for increased local employment as the population in the City continue to develop are rapid pace.

The subject site neighbours the Wangara Industrial Zone which caters for 12,000 current jobs and a further 15,000 jobs projected. Together with the increasing residential population, the subject site has an opportunity to cater for the medical and child care needs of the workers and residents in the area.

An in depth Economics Needs Analysis carried out by Urbis Property Economics (**Appendix D**) is discussed in more detail later and provides a clear demonstration of the shortage all types of medical practitioners and child care in the area surrounding the subject site. This proposed Structure Plan amendment can enable the development of a commercial destination to support this need.

3.3.2. City of Wanneroo Strategic Community Plan 2017/18 – 2026/27

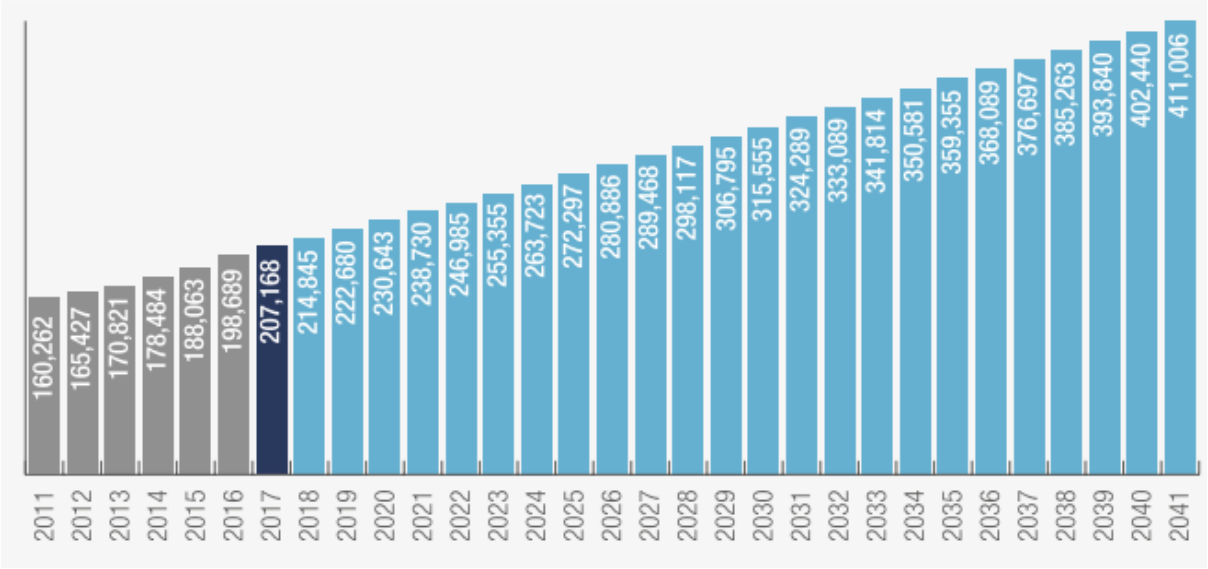
The City of Wanneroo Strategic Community Plan 2017/18 – 2026/27 (**Community Plan**) is a long-term vision document that constantly evolves as the community evolves. The Community Plan sets out to identify the key aspirations of the community and how these can be achieved.

Some of the key outcomes to meet the community's aspirations that are directly supported by this proposed amendment are:

- The provision of local jobs;
- Access to services close to home and locally; and
- The facilitation of connectedness that can build on social interaction and the community spirit that comes from access to walkable services and facilities.

Figure 7 demonstrates the projected population growth in the City of Wanneroo and not only does this demonstrate the need for integral local services such as Medical Centre and Pharmacy for residents, it also demonstrates the natural increase in local employment that also requires these services near their workplace. The Wangara industrial area is and will continue to be a major employer in the local area.

Figure 7 – Actual and projected estimated resident population for the City of Wanneroo (2011–2041)



Source: City of Wanneroo Strategic Community Plan 2017/18 – 2026/27

4. PROPOSAL

4.1. VISION AND CONCEPT

VV Nominees Pty Ltd, in collaboration with Urbis, have been working to develop the most appropriate resolution of this site for over four years. This journey has been in constant consultation with the City of Wanneroo. With more than 80% of the site now resolved through existing subdivision and development approvals, the last remain portion (Part Lot 2) forms the most integral portion subject to this application. The site is heavily constrained in shape (as a result of the road realignments), levels and acoustic exposure to Gnangara Road.

With consideration to the sites challenges, market research, substantial economic analysis and design opportunities and constraints, a commercial development that is sensitive and complimentary to residential uses is most appropriate. With this in mind, the proposed amendment seeks the first step towards realising a commercial development that would provide Medical, Pharmacy, Child Care and Café uses to the surrounding residents and workers. A development concept is included at **Appendix E**.

As has been demonstrated in the grouped dwelling development on Part Lot 1, VV Nominees Pty Ltd are committed to providing design and quality built form outcomes that can promote this site as an entry statement into Landsdale. Part Lot 2 has significant exposure to Gnangara Road and currently the neighbouring strata development west of the site, turns its back in Gnangara Road via continuous colorbond fencing. A commercial development will allow the frontage along Gnangara Road to be addressed via glazing and overlooking from play areas of the Child Care Centre. Using the levels of the site, the commercial development sits below the roof line of the neighbouring grouped dwellings on Part Lot 1. This ensures minimising any overshadowing and further allows a unified streetscape that ties the two developments together. The built form itself provides an effective acoustic barrier, to reduce the noise impacts of Gnangara Road for all residential dwellings to the south. This development will also provide an opportunity to negotiate the rectification of redundant road and earthwork issues that have inhibited this site since the road realignment.

The vision of quality and diversity is represented in the renders below (refer **Figure 8 to Figure 11**).

Figure 8 – Café, corner Gnangara Road and Priest Road

Figure 9 – Main Entry, via Pollino Gardens

Figure 10 – Corner Priest Road and Pollino Gardens

Figure 11 – Gnangara Road frontage

4.2. PROPOSED STRUCTURE PLAN AMENDMENT

This application proposes two amendments to the City of Wanneroo's Agreed Local Structure Plan No. 7 – East Wanneroo Cell 5 (**ASP 7**). The amendment relates to our client's landholding Lot 201 Gnangara Road Landsdale, that currently hold conditional subdivision approval for POS, Part Lot 1 and Part Lot 2.

The subject area is currently designated POS, Road and Residential with a density coding of R40. Permissibility of uses is to in line with the City of Wanneroo District Planning Scheme No. 2 (DPS 2). The uses outlined in the above have the following permissibility under 'Residential':

Medical Centre – 'X'

Pharmacy – 'X'

Child Care – 'D'

Restaurant (Café) – 'X'

The amendment application seeks the support of the additional uses of 'Medical Centre', 'Pharmacy' and 'Restaurant' to be considered 'Discretionary' ('D') uses over Part Lot 2 only.

In addition, the amendment application seeks to undertake consequential amendments to the Structure Plan so that it is consistent with the approval granted for 29 grouped dwellings across Part Lot 1 only. This deleted the road east of the POS in Lot 201 and to extend the residential R40 zoning across to abut the POS.

4.3. ECONOMIC NEEDS ASSESSMENT

In the interests of providing evidence that a proposed Medical Centre would not prejudice the ability for the Local Neighbourhood Centre Medical Centre to operate, the City and DoPLH recommended the proposed Structure Plan amendment be supported by an economic evidence. Based on this advice, VV Nominees, engaged the Urbis Property Economics and Research team to carry out an Economics Needs Assessment (**ENA**) which can be viewed in detail in **Appendix D**.

In addition to Medical Centre, the ENA also took the opportunity to assess the need for Child Care demand and supply in the area. The key findings of the assessment were as follows:

Medical Centre

- The subject site and surrounding catchment currently has a shortage of doctor between 2016-2018 across nine categories, including GPs.
- No new medical centres are known to be currently subject to a development application or under construction in the catchment area.
- There is an estimated future demand for GPs in the catchment equivalent to an additional 8 GPs (full time equivalent) by 2021 and an additional 10 GPs by 2026. This is sufficient to develop a new centre of approximately eight consulting rooms.
- Demand for ancillary primary medical care land uses, such as pharmacy and pathology, has not been modelled, however these often trade off a GP clinic.

Child Care

- There is sufficient projected demand within the catchment to support a new long day child care centre within the subject site.
- Current vacancy rates within a 10 km drive are around 4%. A low vacancy rate implies there is limited choice and flexibility for child care options.
- No new known long child care centres are planned within the catchment area.
- There is an estimated demand by 2021 for an additional 156 places and by 2026 for an additional 387 places within the catchment, with most of the additional demand driven by population growth near the subject site.
- If the new centre were to take up around 50% of the modelled demand by 2021, a centre of around 80 places can be built.
- It is expected that the July 2018 change in Commonwealth Government legislation will further increase demand for long child care in the future.

The ENA demonstrates that despite not modelling the demand generated by the neighbouring Industrial Estate or general workforce in the area, there is an existing need for General Practitioners (GP) and associated medical professions in the area. Purely on the developing residential catchment, this need is projected to be at 8 GPs by 2021 and an additional 10 GPs by 2026. Further, there is no existing supply of Child Care to cater for the demand created by future residential development identified in the catchment area.

4.4. ENVIRONMENTAL NOISE ASSESSMENT

On advice of the City, VV Nominees Pty Ltd engaged *Lloyd George Acoustics* to carry out an Environmental Noise Assessment based on the concept, site and context. The assessment considers the noise levels of the child care use as the predominant permitter of noise of all uses. Specifically, the assessment measures the noise emissions of child play (indoor and outdoor), car doors opening and closing, location of those car bays and plant equipment (albeit generally as this is assessed at development application and building permit stage).

Figure 12 – Noise Model Assessment Locations

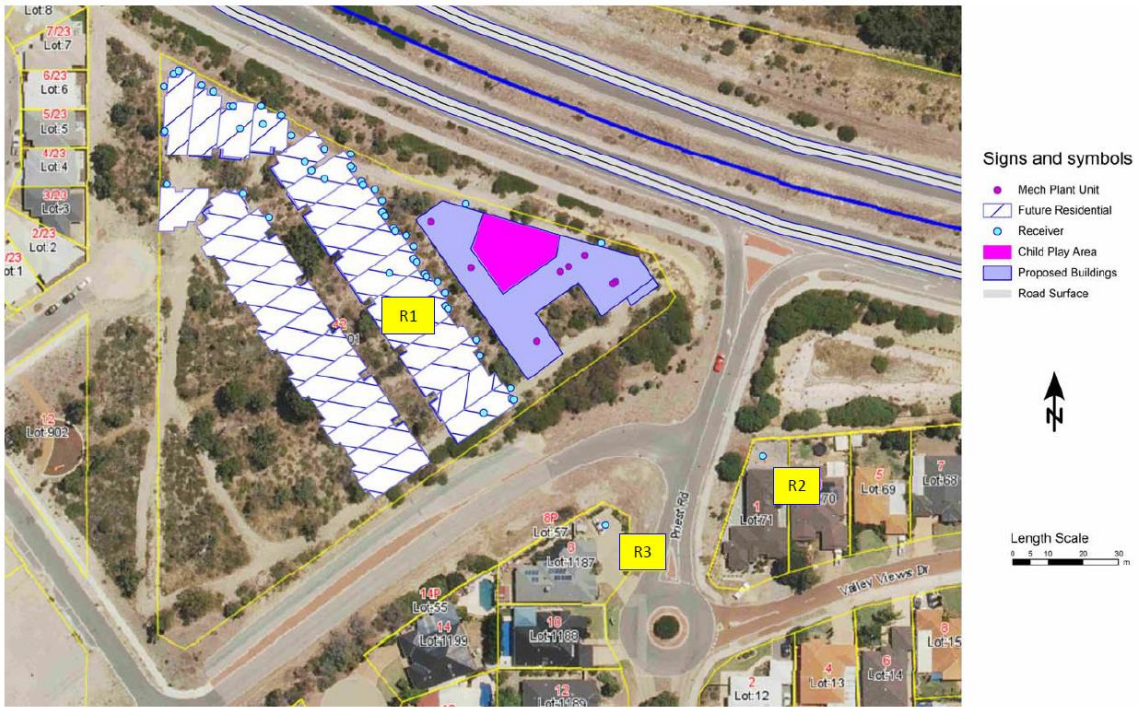


Figure 2-1 2D Image of Noise Model

Source: Environmental Noise Assessment (Lloyd George Acoustics 2018)

Figure 13 – Assessment of Child Play and AC Unit

Table 5-1 Assessment of Noise Levels Against L_{A10}

Location	Assigned Noise Level[1] dB L_{A10}	Assessable Noise Level[2] dB L_{A10}	Calculated Exceedance
R1	53	**43**	*Complies*
R2	53	**28**	*Complies*
R3	53	**31**	*Complies*

Notes:
1. The assigned noise level is as defined in *Table 2-4*.
2. Overall levels from *Table 4-1*.

Source: Environmental Noise Assessment (Lloyd George Acoustics 2018)

Figure 14 – Assessment of Vehicle Doors

Table 5-2 Assessment of Car Door Closing Against L_{Amax}

Location	Assigned Noise Level dB L_{Amax}	Assessable Noise Level dB L_{Amax}	Calculated Exceedance
R1	63	33 + 10 = 43	*Complies*
R2	63	33 + 10 =43	*Complies*
R3	63	37 + 10 = 47	*Complies*

Source: Environmental Noise Assessment (Lloyd George Acoustics 2018)

In summary, and as demonstrated by **Figures 12 and 14** the assessment concludes that all noise emissions comply with the Environmental Protection (Noise) Regulations 1997 (Regulations). The Report makes a series of recommendations that are all deemed to be acceptable by VV Nominees Pty Ltd, including the impact of Gnangara Road on the Child Care use, and will be reassessed at the time of a development application. Considering the assessment has been based on a 'worst case' scenario, the Report is fully supportive of the use.

The full Acoustic Report is attached at **Appendix F**.

4.5. TRANSPORT IMPACT STATEMENT

VV Nominees Pty Ltd also engaged *Cardno* to prepare a Transport Impact Statement (TIS) to assess the access, parking and traffic impacts associated with the proposed structure plan amendment.

In summary the TIS makes the following conclusions:

- the Site will generate approximately 149 vehicles during the peak AM period and 108 vehicle during the peak PM period (which is stated to be a conservative estimate due to the high level of multi-purpose trips expected for the site due to the complementary uses that will support cross-visitation. The proposed amendment to include additional uses of Medical Centre and Pharmacy is likely to generate higher traffic volumes when compared to residential uses. However, despite higher volumes, the traffic impact on the surrounding network will be minimal.
- the public transport amenity within the area is considered to be satisfactory, with the nearest bus stop located approximately 350m away from the site
- the Site benefits from good pedestrian and cycling infrastructure with wide pedestrian footpaths and good shared paths within the surrounding area.
- based on the concept plan that has been prepared, the on-site car parking provision falls short of the requirements set out in the City of Wanneroo planning framework. However, given the high degree of shared and reciprocal parking that is expected to occur within the site, the parking demand is likely to be reduced. Additionally, 18 verge bays are proposed at the front of the Site along Pollino Gardens/Priest Road which are available to visitors.

The full Traffic Impact Statement is attached at **Appendix G**.

5. CONCLUSION

Amendment No. 20 seeks to amend the East Wanneroo Cell 5 (Landsdale) Agreed Structure Plan No.7 to bring the Structure Plan in line with the approved development (Ref DAP/17/01271) over Part Lot 1 of Lot 201 Pollino Gardens, Landsdale and to allow the additional uses of 'Medical Centre', Pharmacy' and 'Restaurant' as 'D' uses over Part Lot 2 of Lot 201 Pollino Gardens, Landsdale.

The Amendment represents the initial step in facilitating the development of the site for a commercial development to service the local area. The Amendment is justified based on the following grounds:

- The proposal is not inconsistent with the MRS Zoning of 'Urban'
- The proposal is not inconsistent with the DPS2 Zoning of 'Urban Development'
- An indicative concept plan and renders have been submitted with the proposal to provide a vision for the development that provides for a site resolution that demonstrates a high-quality built form response that is appropriate in terms of its interface to Gnangara Road as well as the relationship to nearby residential properties.
- The site will provide for a range of services including Medical, Pharmacy, Child Care and Cafe.
- In considering the City of Wanneroo's Economic and Community Strategies the Additional Uses will encourage local employment and support the nearby residents and workers within the Industrial Park. The uses are compatible with surrounding land uses in the area and will cater for services and convenience required by the local population.
- The Traffic Impact Assessment concluded that the existing road network can accommodate the traffic from the proposed development without undermining traffic operations and safety and the traffic impact on the surrounding network will be minimal.
- An Economic Needs Assessment has been prepared which concludes that the surrounding context is in need of all types of Medical Practitioners. The ENA also concluded that there is currently no known supply of Child Care for the fast developing residential and working population surrounding the subject site.
- An Environmental Noise Assessment has concluded the development complies with the Environmental Protection (Noise) Regulations 1997 based on the implementation of the agreed recommendations.

On this basis, it is respectfully requested that the City of Wanneroo have regard to the high degree merit of the proposal and the broad benefit; and initiate the amendment and forward to the Department of Planning, Lands and Heritage for determination.

DISCLAIMER

This report is dated 7 September 2018 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of VV Nominees Pty LTd (**Instructing Party**) for the purpose of Structure Plan Amendment (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

In preparing this report, Urbis may rely on or refer to documents in a language other than English, which Urbis may arrange to be translated. Urbis is not responsible for the accuracy or completeness of such translations and disclaims any liability for any statement or opinion made in this report being inaccurate or incomplete arising from such translations.

Whilst Urbis has made all reasonable inquiries it believes necessary in preparing this report, it is not responsible for determining the completeness or accuracy of information provided to it. Urbis (including its officers and personnel) is not liable for any errors or omissions, including in information provided by the Instructing Party or another person or upon which Urbis relies, provided that such errors or omissions are not made by Urbis recklessly or in bad faith.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

APPENDIX A PROPOSED STRUCTURE PLAN AMENDMENT DOCUMENTATION AND MAP

AMENDMENT NO. 20

TO THE

EAST WANNEROO CELL 5

AGREED STRUCTURE PLAN NO. 7

(LANDSDALE)

This Amendment to the Agreed Structure Plan has been prepared under in accordance with Part 4 of the Deemed Provisions of the City of Wanneroo District Planning Scheme No. 2

Amendment No. 20 to the East Wanneroo Agreed Structure Plan No. 7 is prepared under the provisions of the City of Wanneroo's District Planning Scheme No. 2

IT IS CERTIFIED THAT AMENDMENT NO. 20 TO THE EAST WANNEROO CELL 5 AGREED STRUCTURE PLAN NO. 7

WAS APPROVED BY

RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON

……

Signed for and on behalf of the Western Australian Planning Commission

……..

an officer of the Commission duly authorised by the Commission pursuant to section 16 of the *Planning and Development Act 2005* for that purpose, in the presence of:

……. Witness

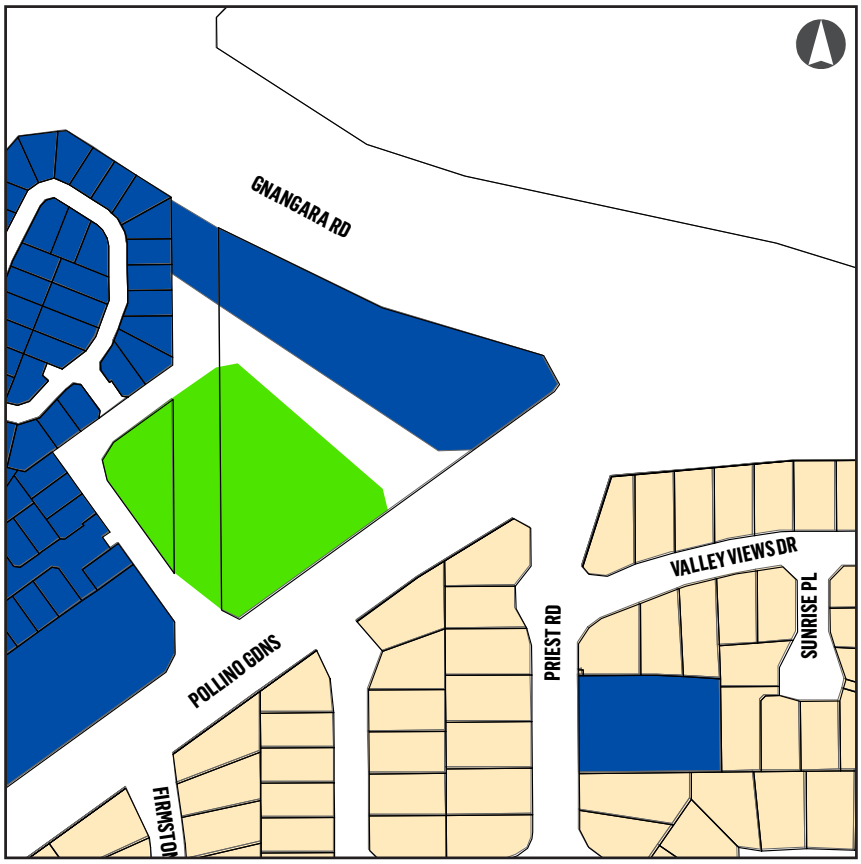
…….. Date

…….. Date of Expiry

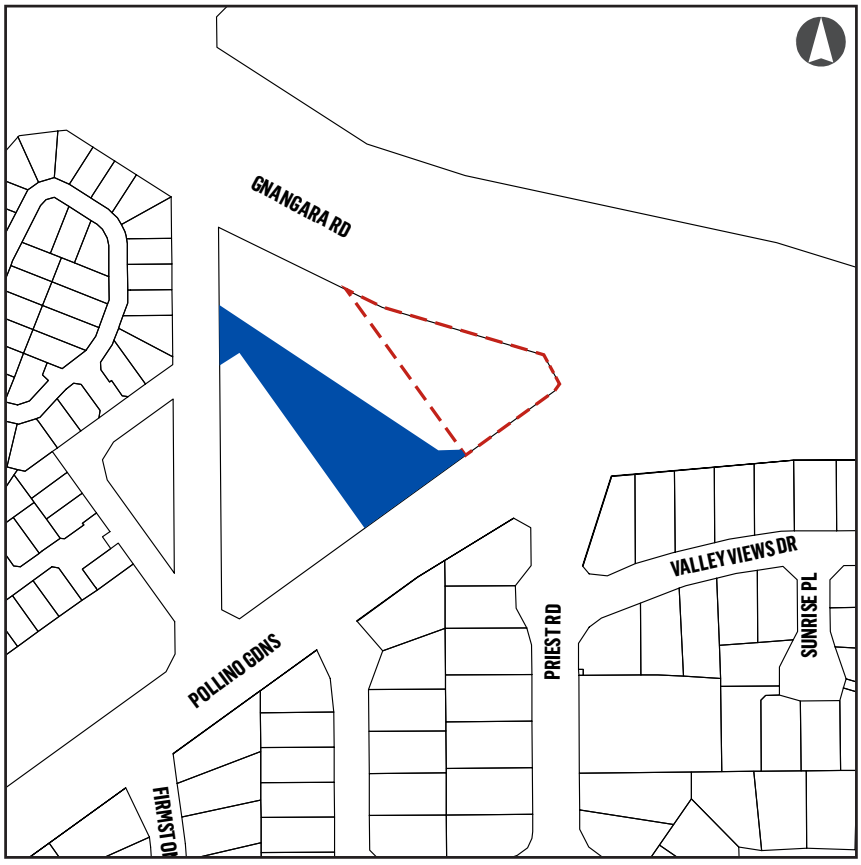
RECORD OF AMENDMENTS MADE TO THE EAST WANNEROO CELL 5 (LANDSDALE)

AGREED STRUCTURE PLAN NO. 7

Amendment No.	Summary of Amendment	Amendment Type	Date approved by the WAPC
20	Replace designated road east of POS with 'Residential - R40' zoning on Lot 201 (Part Lot 1) (No.42) Pollino Gardens, Landsdale. Include 'Medical Centre', 'Pharmacy' and 'Restaurant' as additional uses ('D') for Lot 201 (Part Lot 2) (No. 42) Pollino Gardens, Landsdale.	Standard	



EXISTING STRUCTURE PLAN



PROPOSED STRUCTURE PLAN

LEGEND:

- R40
- POS
- R20
- ADDITIONAL USE

URBIS

STRUCTURE PLAN AMENDMENT
LOT 201 GNANGARA ROAD

DATE: 27.08.2018
JOB NO: PA1090
DWG NO: FIG 1
REV: B

APPENDIX B CERTIFICATE OF TITLE

WESTERN AUSTRALIA

REGISTER NUMBER	
201/DP77793	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
1	25/6/2015

RECORD OF CERTIFICATE OF TITLE

VOLUME 2879 FOLIO 146

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.

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 201 ON DEPOSITED PLAN 77793

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

V V NOMINEES PTY LTD OF PO BOX 204, BENTLEY

(T N074911) REGISTERED 28 JULY 2015

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

1. COVENANT BURDEN CREATED UNDER SECTION 150 P&D ACT TO CITY OF WANNEROO - SEE DEPOSITED PLAN 77793
2. *N074912 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA REGISTERED 28.7.2015.

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----------

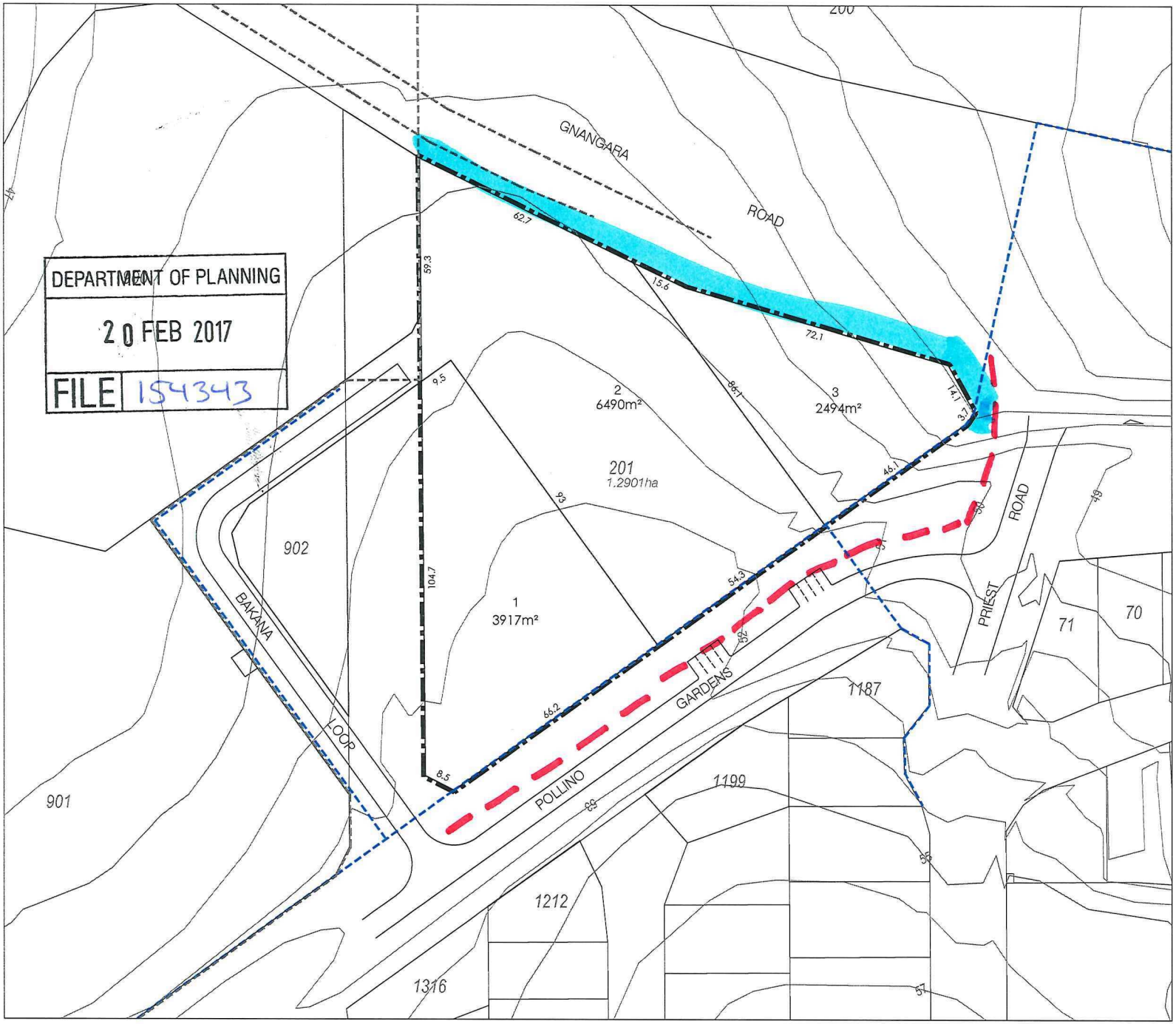
STATEMENTS:

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.

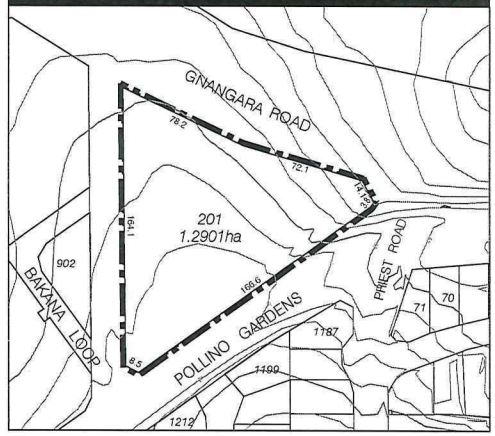
SKETCH OF LAND: DP77793.
PREVIOUS TITLE: 2169-154.
PROPERTY STREET ADDRESS: 42 POLLINO GDNS, LANDSDALE.
LOCAL GOVERNMENT AREA: CITY OF WANNEROO.

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING N074912

APPENDIX C APPROVED PLAN OF SUBDIVISION



LOCATION PLAN



LEGEND

DEVELOPMENT BOUNDARY

ELECTRICAL INFRASTRUCTURE

HIGH VOLTAGE CABLE

LOW VOLTAGE CABLE

NOTE: EXISTING TREES TO BE REMOVED

CONDITION 9 SHARED PATH

CONDITION 10 ACCESS RESTRICTION

LOT YIELD TABLE

Zone	Lot Range	No:
Urban Development	2000-2999m²	1
	3000-3999m²	1
	5000-9999m²	1
	Total Lots	3

urbis
Perth
Level 1, 55 St Georges Terrace
Perth WA 6000
t 08 9346 0500
Urbis Pty Ltd ABN 50 105 256 228

Proposed Subdivision Plan - Green Title

Lot 201 Pollino Gardens, Landsdale

Scale 1:1,000 @ A3

0 10 20 50m

PROJECT NO:	PA1090
DATE:	03.02.17
DRAWING NO:	SUB-02
REV:	e

APPENDIX D ECONOMIC NEEDS ASSESSMENT

LANDSDALE CHILDCARE AND MEDICAL CENTRE NEEDS ASSESSMENT - FINAL REPORT

URBIS

Valeview Nominees

AUGUST 2018

This report is dated **August 2018** and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (Urbis) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of **Valeview Nominees** (Instructing Party) for the purpose of a **Childcare and Medical Centre Need Assessment** (Purpose) and not for any other purpose or use. Urbis expressly disclaims any liability to the Instructing Party who relies or purports to rely on this report for any purpose other than the Purpose and to any party other than the Instructing Party who relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events including wars, civil unrest, economic disruption, financial market disruption, business cycles, industrial disputes, labour difficulties, political action and changes of government or law, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or made in relation to or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

Urbis has made all reasonable inquiries that it believes is necessary in preparing this report but it cannot be certain that all information material to the preparation of this report has been provided to it as there may be information that is not publicly available at the time of its inquiry.

In preparing this report, Urbis may rely on or refer to documents in a language other than English which Urbis will procure the translation of into English. Urbis is not responsible for the accuracy or completeness of such translations and to the extent that the inaccurate or incomplete translation of any document results in any statement or opinion made in this report being inaccurate or incomplete, Urbis expressly disclaims any liability for that inaccuracy or incompleteness.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the belief on reasonable grounds that such statements and opinions are correct and not misleading bearing in mind the necessary limitations noted in the previous paragraphs. Further, no responsibility is accepted by Urbis or any of its officers or employees for any errors, including errors in data which is either supplied by the Instructing Party, supplied by a third party to Urbis, or which Urbis is required to estimate, or omissions howsoever arising in the preparation of this report, provided that this will not absolve Urbis from liability arising from an opinion expressed recklessly or in bad faith.

Urbis staff responsible for this report were:

Director	Tim Connoley
Senior Consultant	Suzie Turner
Research Assistant	Natasha Van Dyke

Project code	PA 1090
Report number	Final

CONTENTS

KEY FINDINGS

KEY FINDINGS

CHILDCARE NEED

- There is sufficient projected demand within the catchment to support a new long daycare centre within the subject site.
- Current vacancy rates within a 10 km drive are around 4%. A low vacancy rate implies there is limited choice and flexibility for daycare options.
- No new known long daycare centres are planned within the catchment area.
- There is an estimated demand by 2021 for an additional 156 places and by 2026 for an additional 387 places within the catchment, with most of the additional demand driven by population growth near the subject site.
- If the new centre were to take up around 50% of the modelled demand by 2021, a centre of around 80 places can be built.
- It is expected that the July 2018 change in Commonwealth Government legislation will further increase demand for long daycare in the future.

MEDICAL CENTRE NEED

- The subject site and surrounding catchment currently has a shortage of doctors between 2016-2018 across nine categories, including GPs.
- No new medical centres are known to be currently subject to a development application or under construction in the catchment area.
- There is an estimated future demand for GPs in the catchment equivalent to an additional 8 GPs (full time equivalent) by 2021 and an additional 10 GPs by 2026. This is sufficient to develop a new centre of approximately eight consulting rooms.
- Demand for ancillary primary medical care land uses, such as pharmacy and pathology, has not been modelled, however these often trade off a GP clinic.

KEY CONCLUSIONS

- There is sufficient demand for development of a medical centre and a long daycare centre.
- Scale of these centres depends partially on the configuration on the site.
- Modelling is based on current and future population, however given the large scale of the workforce in Wangara industrial area this may also be likely to be significant source of demand for both land uses.
- Demand for other medical land uses, such as pathology, pharmacy and physiotherapy has not been modelled – but these may trade off other primary care land uses, such as a GP clinic.

INTRODUCTION & PURPOSE

INTRODUCTION

BACKGROUND

Landsdale has experienced notable population growth over the past decade and is expected to continue to grow over the coming years. Improved connectivity to the area and strong population growth however are perceived to have not yet translated into a commensurate increase in population amenities.

Against this backdrop, Urbis was engaged assess the opportunities for medical centre and childcare uses. This task affords focus to understanding:

- The current and future residential and population context of the area;
- The merit and constraints of the subject site to accommodate medical centre and childcare uses;
- Current and projected need for childcare places and medical centre services; and
- The potential scale and timing of childcare and medical centre uses within the subject site.

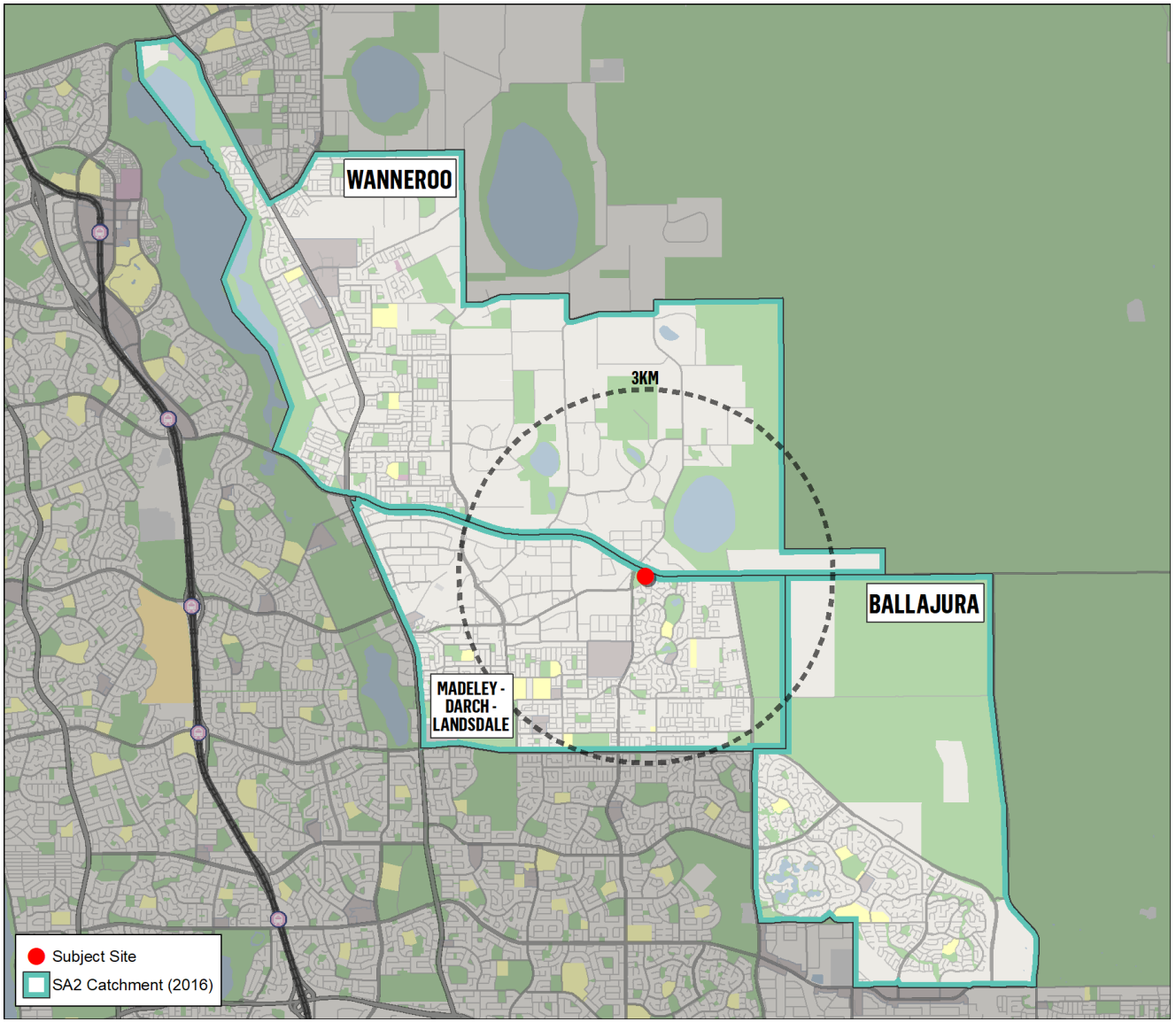
STUDY STRUCTURE

This study is comprised of the following sections:

- **Key Findings** – summary of findings and recommendations for the subject site;
- **Catchment Definition** – overview of identified study area;
- **Childcare Needs Analysis** – analysis of current and projected demand for childcare places; and
- **Medical Centre Needs Analysis** – analysis of current and projected demand for general practitioner services.

CATCHMENT DEFINITION

DEFINED STUDY AREA

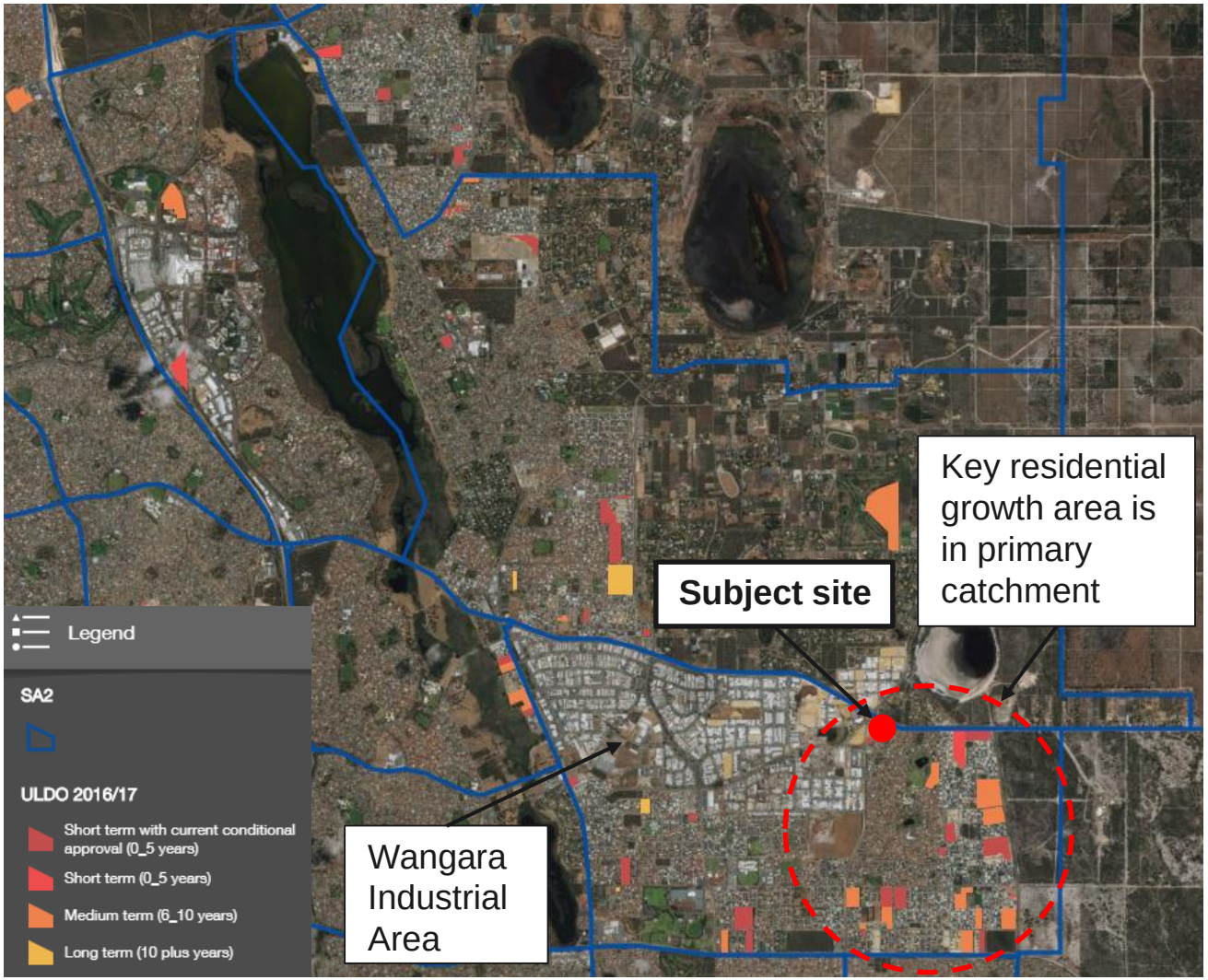


Source: Urbis, Urbis analysis of ABS spatial areas

Key Findings:

- The study area used to model both childcare and medical centre demand is the following SA2s:
  - Ballajura
  - Madeley-Darch-Landsdale
  - Wanneroo
- Supply and population growth data used in the modelling relates to these spatial areas.
- Existing and planned childcare and medical facilities within a 3 km radius of the subject site are considered the most important for the analysis.

DEFINED PRIMARY CATCHMENT



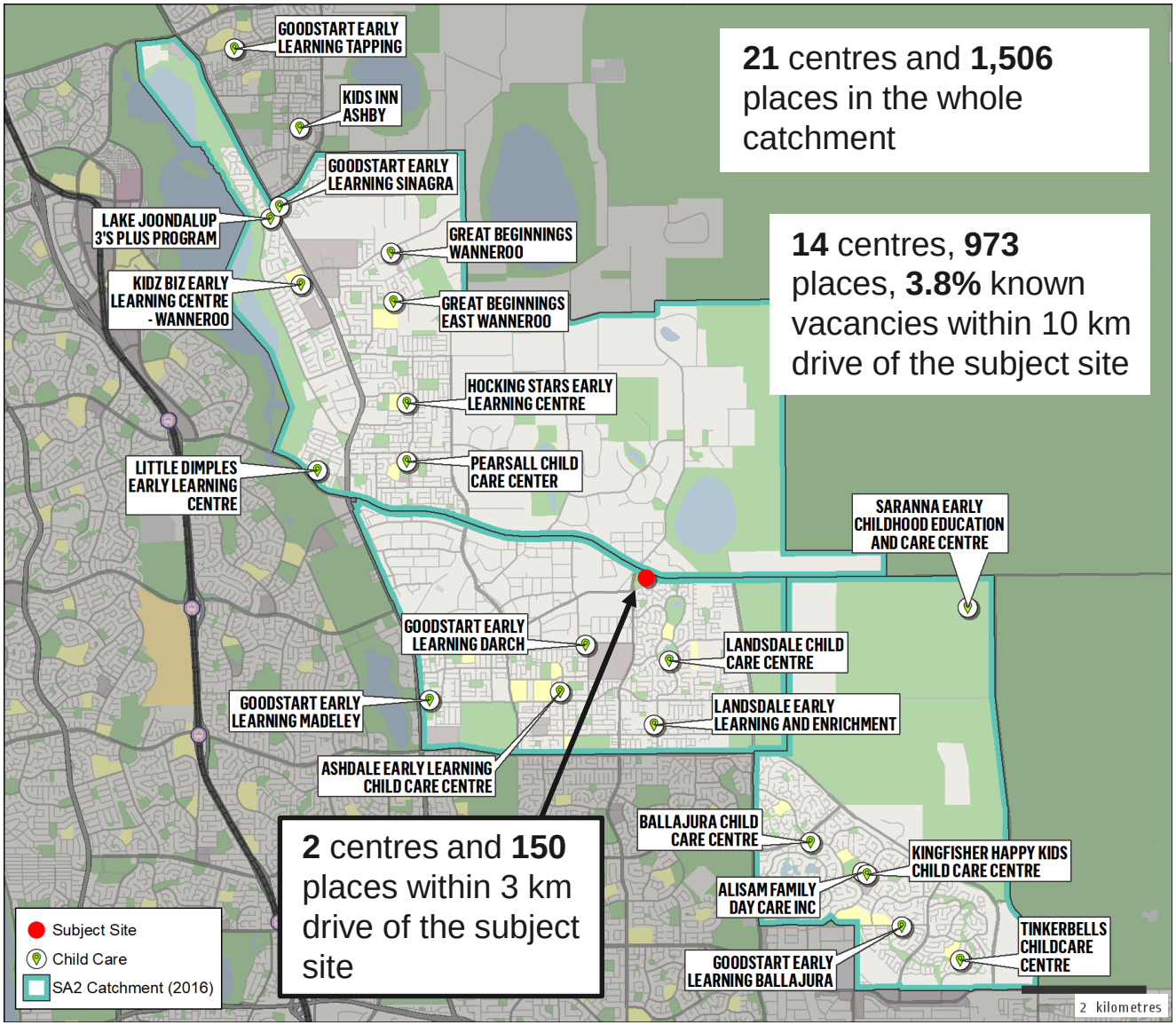
Key Findings:

- The primary catchment contains the majority of population growth for the study area.
- Land within this area is projected for development within the next 10 years.
- 18,357 people work within the Madeley-Darch-Landsdale SA2, which includes Wangara Industrial Area. This is also expected to be a significant source of demand for childcare and medical needs.

Source: Urbis, Urban Land Development Outlook 2016-17, Urbis analysis of ABS Census 2016

CHILDCARE ANALYSIS

LONG DAYCARE SUPPLY

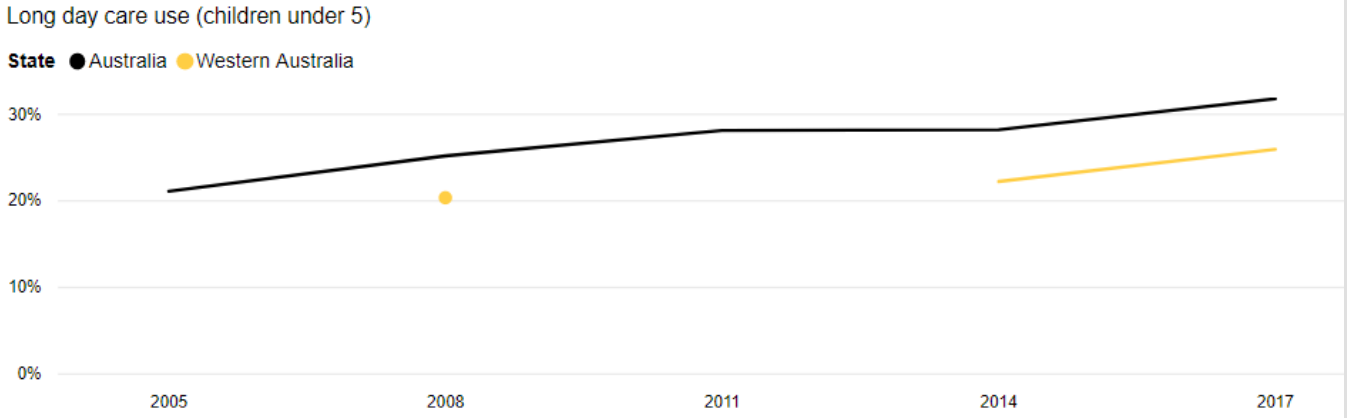


Key Findings:

- Currently childcare demand appears to match supply in most of the catchment – 3.8% known vacancy rate.
- People want choice of providers – some centres have a long waitlist, others as high as 20% vacancies.
- The ideal vacancy rate is not too low – otherwise it will be very hard for parents to get childcare when convenient.
- Some days are more favoured than others – Tuesday, Wednesday, Thursday are most popular days for childcare.

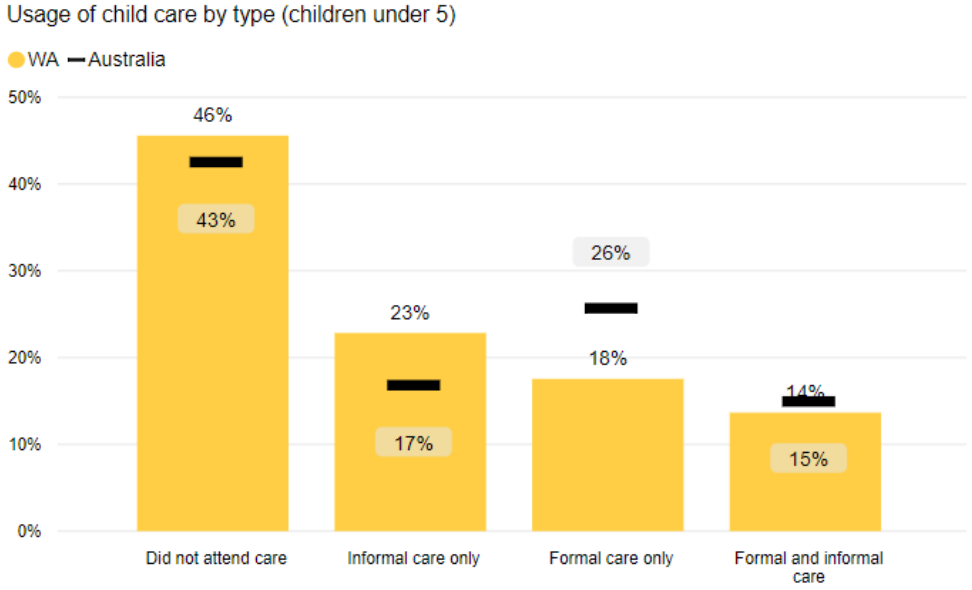
Source: Urbis, Urbis analysis of Australian Children's Education & Care Quality Authority

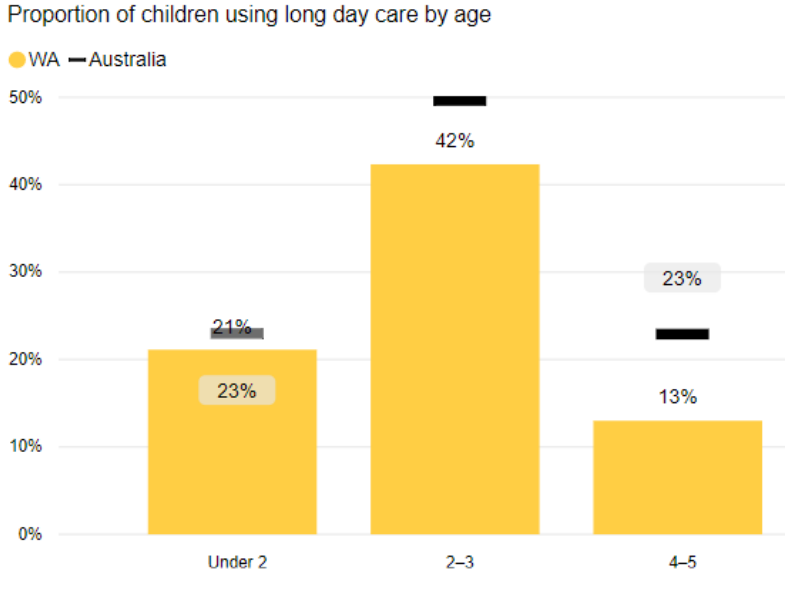
CHILDCARE USAGE



Key Findings:

- Childcare usage has been increasing over time – a greater proportion of children are using long day care.
- The majority of children in long day care are aged 2-3 years old.
- There is potential for both the proportion of children in childcare and the number of hours of childcare used to increase from July 2019 due to Federal legislation changes which uncapped the Childcare Rebate.





Source: Urbis analysis of ABS Childhood Education and Care 2017

CHILDCARE USAGE

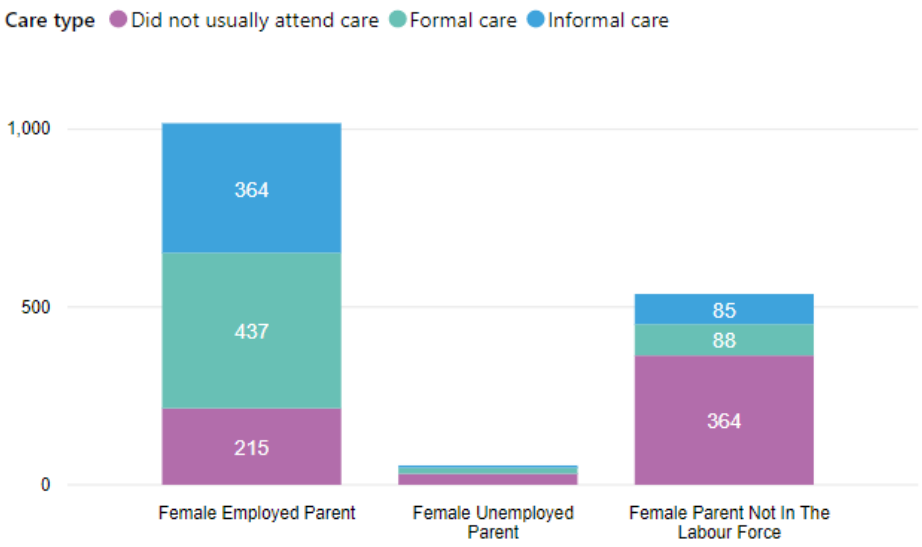
Children age 0-5 years using care

Parent sex	Female							
Child/Family type (ex sex)	Parent		Employed Parent		Unemployed Parent		Parent Not In The Labour Force	
State	2014	2017	2014	2017	2014	2017	2014	2017
Australia	35%	39%	47%	54%	33%	35%	19%	17%
New South Wales	38%	40%	51%	56%			23%	18%
Victoria	32%	37%	42%	51%			18%	19%
Queensland	36%	45%	50%	61%			24%	13%
South Australia	33%	36%	41%	54%				
Western Australia	29%	31%	42%	48%				

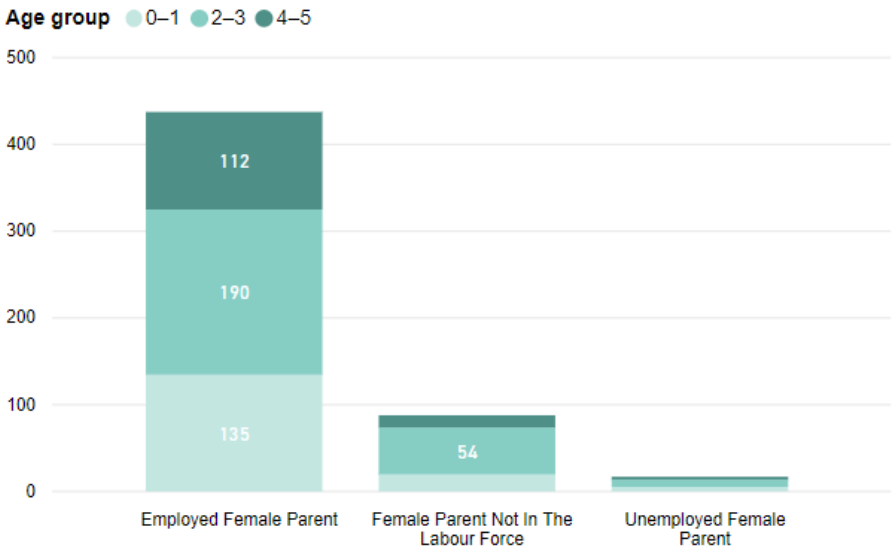
Key Findings:

- Childcare usage varies across Australia – the trend is increasing in all areas.
- Childcare usage is highest by employed parents.
- Parents not in workforce (on career break, leave, etc.) are also a key user of childcare.

Children age 0-5 years using care



Children in formal care - age of youngest child by parents employment

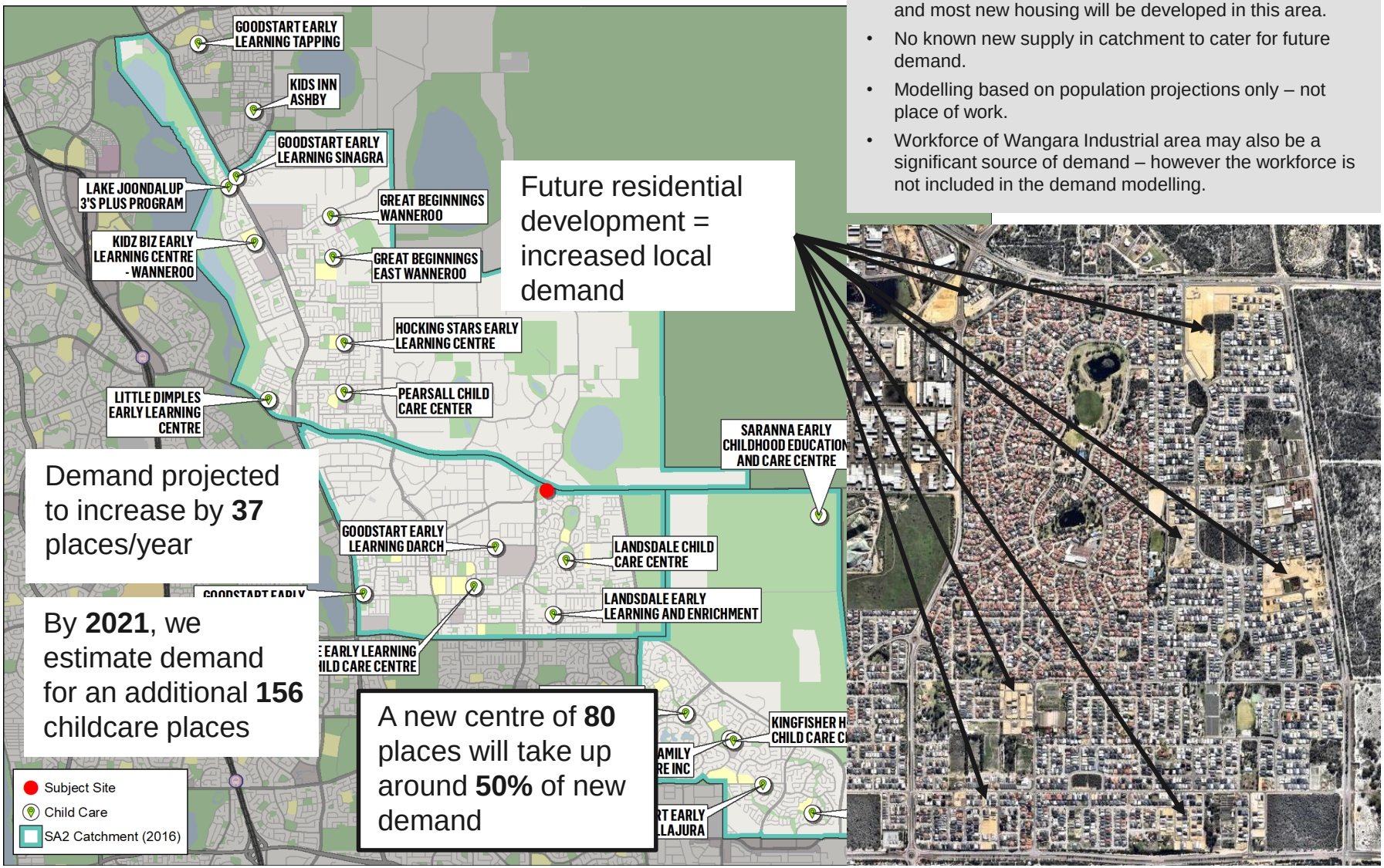


Source: Urbis analysis of ABS Childhood Education and Care 2017

FUTURE CHILDCARE DEMAND

Key Findings:

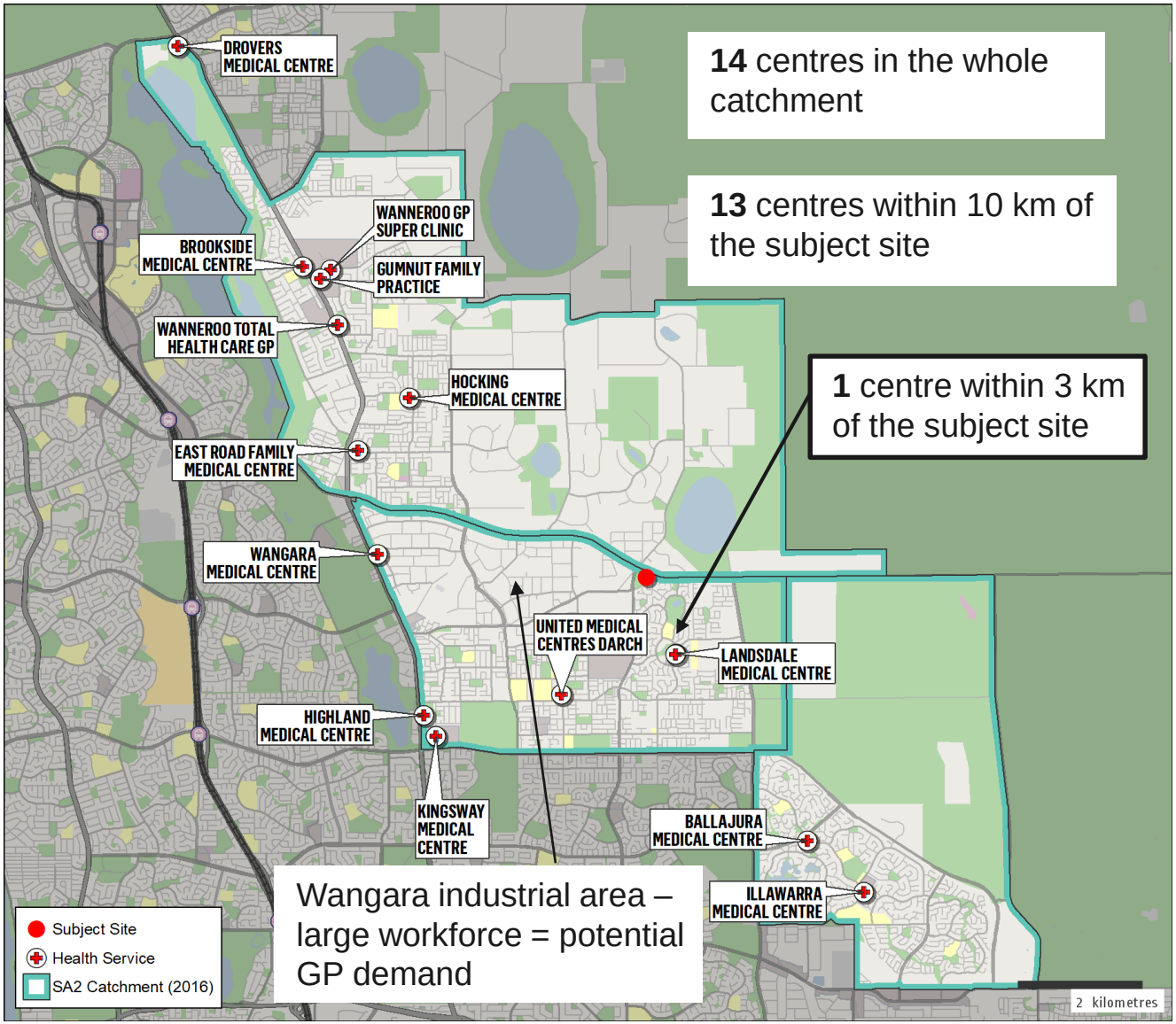
- Supply is limited within a 3 km radius of the subject site – and most new housing will be developed in this area.
- No known new supply in catchment to cater for future demand.
- Modelling based on population projections only – not place of work.
- Workforce of Wangara Industrial area may also be a significant source of demand – however the workforce is not included in the demand modelling.



Source: Urbis, Urbis analysis of Australian Children's Education & Care Quality Authority

MEDICAL CENTRE ANALYSIS

CATCHMENT MEDICAL CENTRE SUPPLY



Source: Urbis

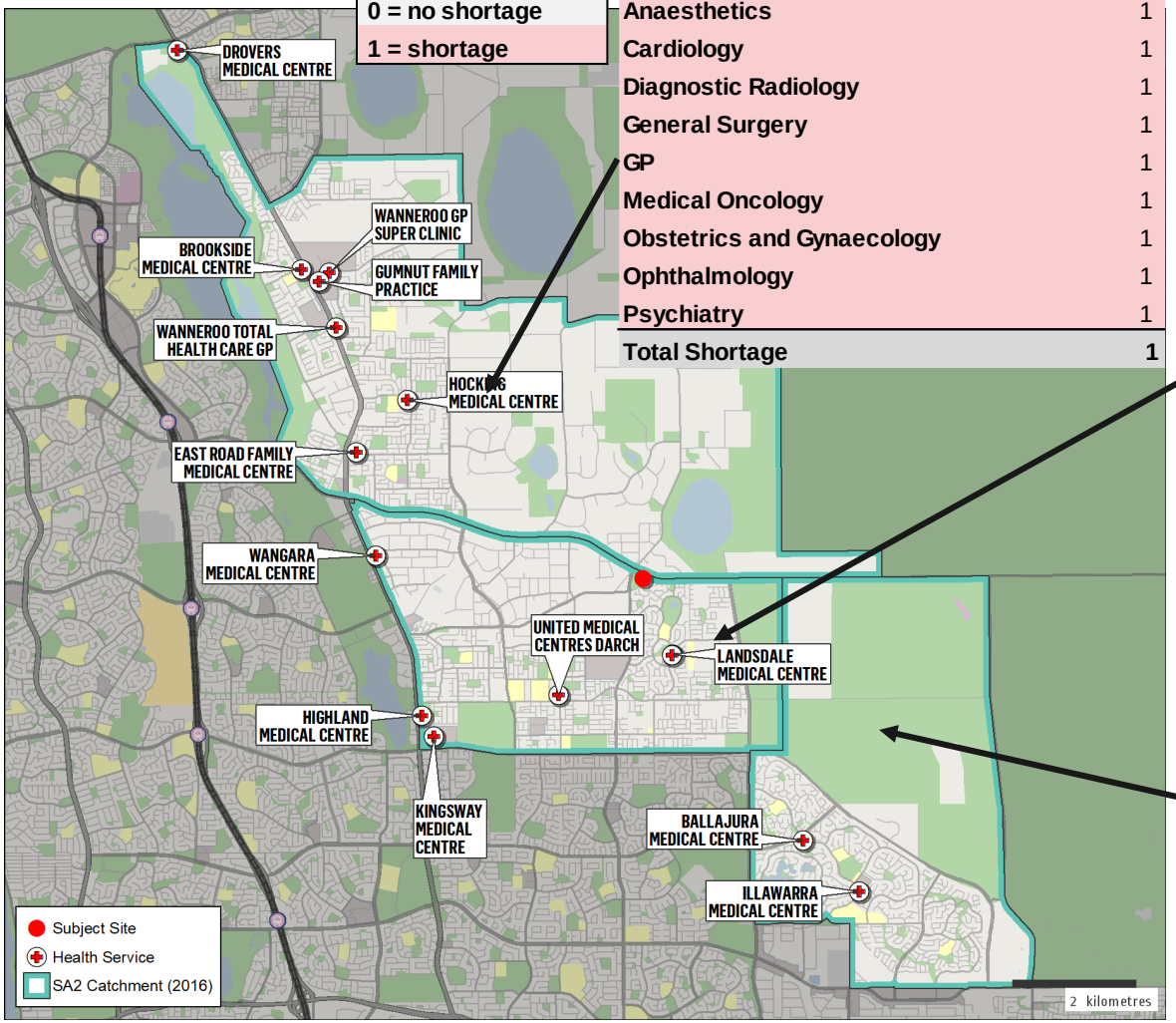
Key Findings:

- Fills a geographic supply gap.
- No known new medical centre developments within the catchment.
- Location near a major arterial road good for access – especially for people coming from rural residential areas to the north-east.
- Grattan Institute report identified reduction of geographic barriers as a key priority for improving Australia's primary care services[1].

1. Hal Swerissen, Stephen Duckett, and Greg Moran. (2018). Mapping primary care in Australia. Grattan Institute. https://grattan.edu.au/wp-content/uploads/2018/07/906-Mapping-primary-care.pdf

CATCHMENT DOCTOR WORKFORCE SHORTAGE (DWS)

Note: A DWS is an area identified as having below average access to services attracting a Medicare rebate. This is determined using population data and Medicare billing information to get a GP-to-population ratio (Department of Health, 2018).



Doctor Type	Wanneroo
Anaesthetics	1
Cardiology	1
Diagnostic Radiology	1
General Surgery	1
GP	1
Medical Oncology	1
Obstetrics and Gynaecology	1
Ophthalmology	1
Psychiatry	1
Total Shortage	1

Key Findings:

- From 2016 to 2018 there has been a sustained shortage of doctors across the catchment.
- Only diagnostic radiology and GPs in Ballajura have shown sufficient supply across this time period.

Doctor Type	Madeley - Darch - Landsdale
Anaesthetics	1
Cardiology	1
Diagnostic Radiology	1
General Surgery	1
GP	1
Medical Oncology	1
Obstetrics and Gynaecology	1
Ophthalmology	1
Psychiatry	1
Total Shortage	1

Doctor Type	Ballajura
Anaesthetics	1
Cardiology	1
Diagnostic Radiology	0
General Surgery	1
GP	0
Medical Oncology	1
Obstetrics and Gynaecology	1
Ophthalmology	1
Psychiatry	1
Total Shortage	0.8

Source: Urbis analysis of Department of Health Doctor Workforce Shortage data 2016-2018

GP FUTURE DEMAND

KEY FINDINGS

- An estimated additional 8 GPs will be needed in the catchment by 2021, and an additional 10 by 2026.
- Compared to other Australian States, Western Australia has lower access to primary health care services. This translates to a lower GP ratio per capita[1].
- Rapid growth in Australia's medical practitioner workforce in recent years has resulted in a short-term oversupply of medical graduates by 2017. However, this is expected to be followed by a shortage by the early 2020s as high levels of retirement are expected due to the age of existing workforce[2].
- GPs typically drive the demand for other types of medical practitioners or land uses, such as specialist doctors, allied health and pharmacies.

FUTURE GP DEMAND ESTIMATE – FULL TIME EQUIVALENT

Year	Population Projections	Projected GPs	Ideal GPs	Shortfall
2026	83,910	71	81	-10
2021	81,809	71	79	-8

Source: Urbis analysis of ABS Census and Department of Health

1. General practice workforce supply and training in Western Australia, 2018, Government of Western Australia: Department of Health.
2. Australia's Future Health Workforce – Doctors, 2014, Health Workforce Australia, Commonwealth of Australia.

URBIS

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APPENDIX E DEVELOPMENT CONCEPT

Site Considerations

The existing Pollino Gardens street needs to be remedied (see above). This proposal cleans up the road and utilises the land at the intersection of Pollino Gardens and Priest Rd as effective car parking.

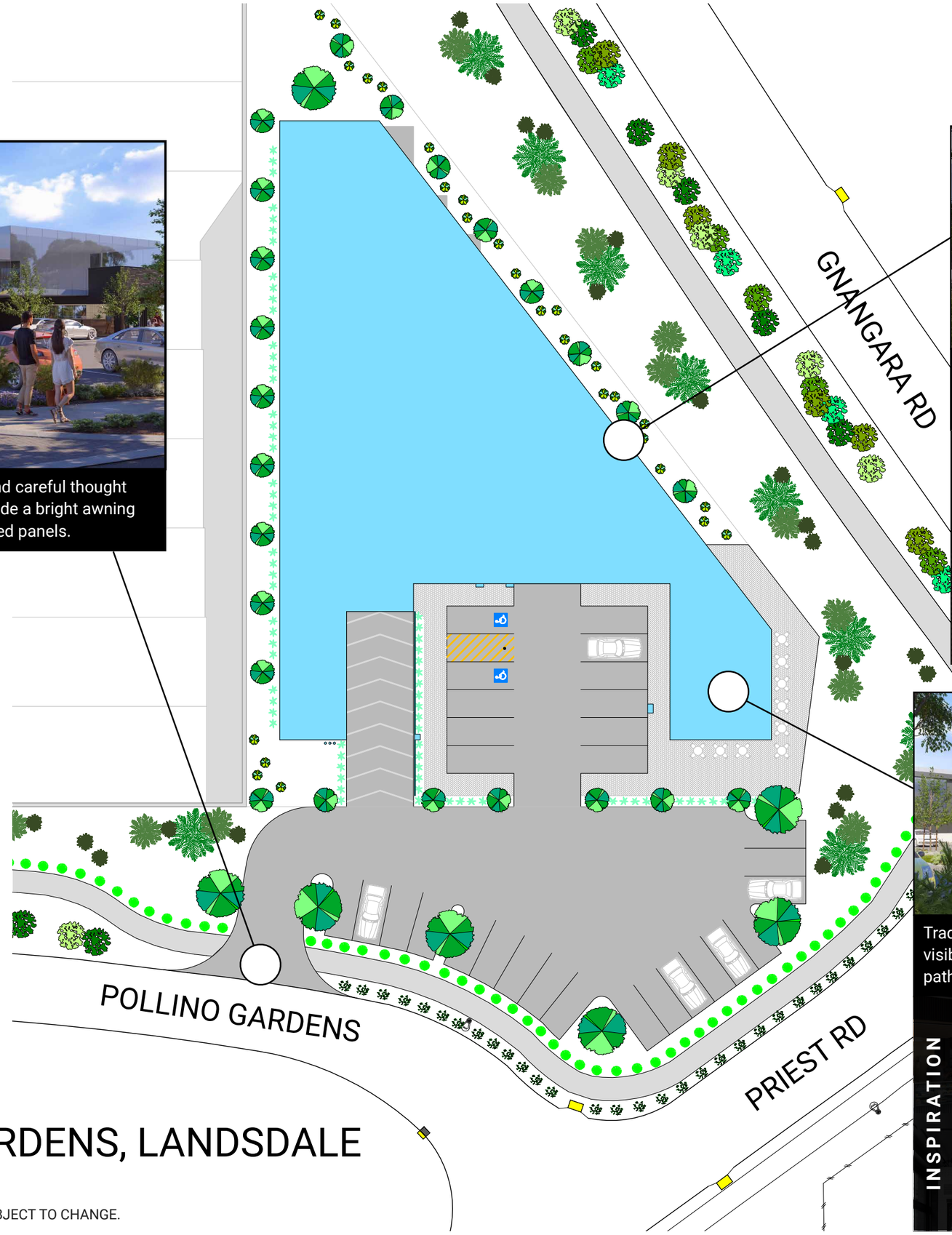
Screenshot from indicative 3D model showing the modern corner landmark element used to showcase the entrance to Landsdale.

LOT 201 POLLINO GARDENS, LANDSDALE

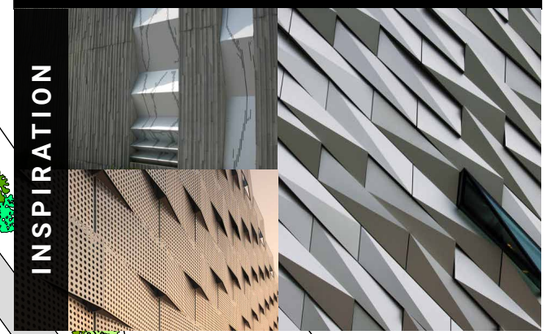
PROPOSED DEVELOPMENT

Exterior

The building design features plenty of landscaping and careful thought into the use of the land. Modern design features include a bright awning over the entry for easy wayfinding and reflective angled panels.



Facade to Gnangara Rd features an array of arranged angled panels that is both good for diffusing road noise and as a design aesthetic.

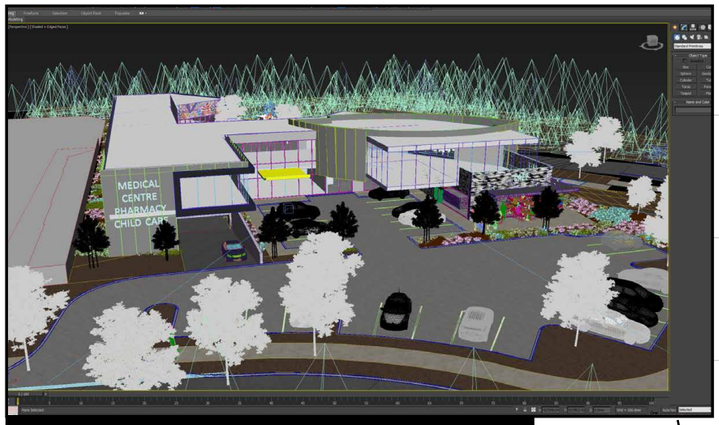


Traditional corner cafe has prominent street visibility and accessibility from principal shared paths to act as a central meeting point.

LOT 201 POLLINO GARDENS, LANDSDALE

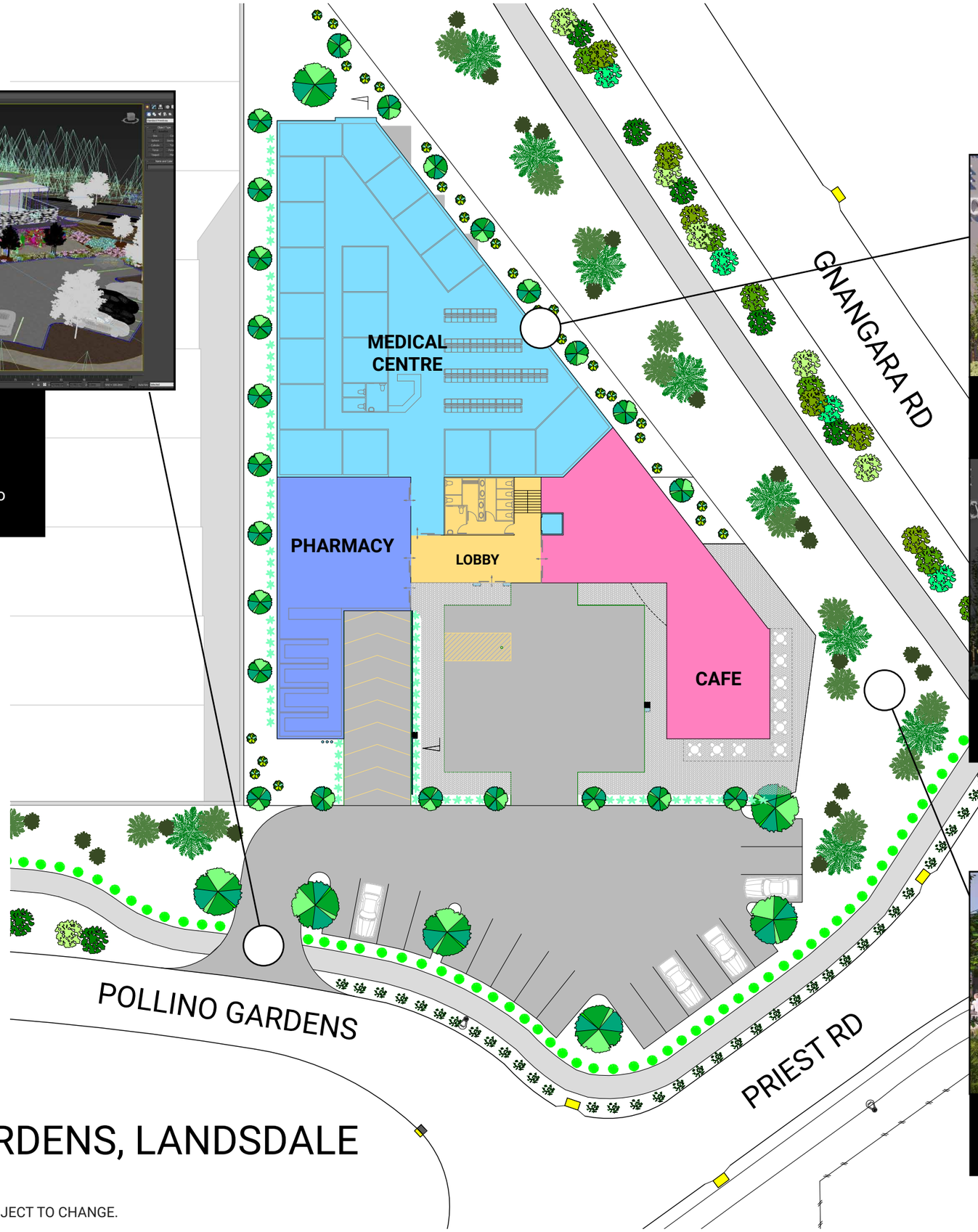
PROPOSED DEVELOPMENT

Ground Level



Main entry enhances the existing network of walking and cycle paths - the carpark is also landscaped to soften visual impact.

Discreet undercover parking has been used to minimise the visual impact of parked cars.



Glazing to allow natural light (Northerly aspect) to be used to light the interior spaces - great for reducing electricity usage.

At night, lights placed behind the tilted panels provide visual interest and highlights the design feature along the Gnangara Rd facade.

A large area has been dedicated to landscaping, creating a tranquil setting to encourage outdoor/alfresco dining at the corner cafe.

LOT 201 POLLINO GARDENS, LANDSDALE

PROPOSED DEVELOPMENT

Upper Level

The large upper level Child Care area allows for separate zones to cater for various age groups. The outdoor play area is safe and secure, and with an aspect to the main road, minimises noise and visual impact to residents.

"Leaf" design element extends skyward to provide a landmark/destination reference and also ensures that the design has more organic shapes as opposed to the standard "boxy" feel.

LOT 201 POLLINO GARDENS, LANDSDALE

PROPOSED DEVELOPMENT

APPENDIX F ACOUSTIC ASSESSMENT

Lloyd George Acoustics
PO Box 717
Hillarys WA 6923
T: 9300 4188 F:9300 4199
www.lgacoustics.com.au

Environmental Noise Assessment

Lot 201 Pollino Gardens, Landsdale

Mixed Commercial Development and Child Care Centre

Reference: 18054433-01

Prepared for:
V V Nominees Pty Ltd C/- Urbis Planning

Report: 18054433-01

Lloyd George Acoustics Pty Ltd

ABN: 79 125 812 544

PO Box 717
Hillarys WA 6923

T: 9300 4188 / 9401 7770
F: 9300 4199

Contacts	Daniel Lloyd	Terry George	Matt Moyle	Olivier Mallié
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M:	0439 032 844	0400 414 197	0412 611 330	0439 987 455

Date:	Rev	Description	Prepared By	Verified
24-Aug-18	-	Issued to Client	Matt Moyle	Terry George

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Appendices

1 INTRODUCTION

A mixed commercial and childcare centre (CCC) development is proposed at Lot 201 Pollino Gardens, in Wanneroo - refer *Figure 1-1*. The site is located within an established residential area with the closest noise sensitive premises being located to the south, east and west.

The proposed mixed commercial development will be comprised of the following components:

- Underground car parking for up to 41 bays;
- Cafe Restaurant;
- Medical centre;
- Pharmacy; and
- Childcare Centre.

The proposed CCC will accommodate up to 80 children distributed across three main age groups approximately as follows:

- Babies (0-2 years), 20 children;
- Toddlers (2-3 years), 30 children;
- Pre-Kindy and Kindy (3+ years), 30 children;

The proposed hours of operation are likely to be within 7am to 7pm Monday to Friday. However, it is considered that the carpark will be in use prior to 7am. Car parking spaces are provided for staff and parents to the south of the proposed building with entry from Pollino Gardens.

It is noted that noise emissions from new mechanical plant are only generally assessed as this is Development Approval stage only and details of the plant (i.e. type, noise levels and location) are not known. A detailed review of the noise emissions from mechanical plant will be conducted during Building Permit stage to ensure compliance with the Regulations.

This report assesses noise emissions from child play, and car doors closing at the proposed site against the *Environmental Protection (Noise) Regulations 1997* (the Regulations).

Appendix A shows the site layout and plans this assessment is based on.

Appendix C contains a description of some of the terminology used throughout this report.

Figure 1-1 Project Locality (City of Wanneroo IntraMaps)

2 CRITERIA

2.1 Environmental Protection (Noise) Regulations 1997

Environmental noise in Western Australia is governed by the *Environmental Protection Act 1986*, through the *Environmental Protection (Noise) Regulations 1997* (the Regulations).

Regulation 7 defines the prescribed standard for noise emissions as follows:

"7. (1) Noise emitted from any premises or public place when received at other premises –

(a) Must not cause or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind; and

(b) Must be free of –

i. tonality;

ii. impulsiveness; and

iii. modulation,

when assessed under regulation 9"

A "…noise emission is taken to significantly contribute to a level of noise if the noise emission … exceeds a value which is 5 dB below the assigned level…"

Tonality, impulsiveness and modulation are defined in Regulation 9. Noise is to be taken to be free of these characteristics if:

(a) The characteristics cannot be reasonably and practicably removed by techniques other than attenuating the overall level of noise emission; and

(b) The noise emission complies with the standard prescribed under regulation 7 after the adjustments of *Table 2-1* are made to the noise emission as measured at the point of reception.

Table 2-1 Adjustments Where Characteristics Cannot Be Removed

Where Noise Emission is Not Music			Where Noise Emission is Music	
Tonality	Modulation	Impulsiveness	No Impulsiveness	Impulsiveness
+ 5 dB	+ 5 dB	+ 10 dB	+ 10 dB	+ 15 dB

Note: The above are cumulative to a maximum of 15dB.

The baseline assigned levels (prescribed standards) are specified in Regulation 8 and are shown in *Table 2-2*.

Table 2-2 Baseline Assigned Noise Levels

Premises Receiving Noise	Time Of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises: highly sensitive area[1]	0700 to 1900 hours Monday to Saturday (Day)	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays (Sunday)	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days (Evening)	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35 + influencing factor	45 + influencing factor	55 + influencing factor
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial	All hours	60	75	80

1. ***highly sensitive area*** means that area (if any) of noise sensitive premises comprising —
   (a) a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and
   (b) any other part of the premises within 15 metres of that building or that part of the building.

The influencing factor, applicable at the noise sensitive premises has been calculated 8 dB, as shown in *Table 2-3*. The transport factor has been calculated as 6 dB, due to Gnangara Rd being considered a major road (>30,000 vehicles per day – 2015/2016 Site 6735) within 100 metres of the most affected residences.

Table 2-3 Influencing Factor Calculation

Description	Within 100 metre Radius	Within 450 metre Radius	Total
Industrial Land	0 %	0 %	0 dB
Commercial Land	15 %	1 %	0.6 dB
Industrial Land	0 %	15%	1.5 dB
Transport Factor (Gnangara Road)			**6 dB**
Total			**8 dB**

Table 2-4 shows the assigned noise levels including the influencing factor and transport factor at the receiving locations. Refer to *Figure 2-1* for the noise model overview and aerial map of each receiver as identified throughout this report. *Appendix B* contains a screenshot zoning map of the subject area. It is noted that surrounding land use is primarily residential with industrial to the west and north west (Wangara) of the subject site.

Table 2-4 Assigned Noise Levels

Premises Receiving Noise	Time Of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
All Residences	0700 to 1900 hours Monday to Saturday (Day)	53	63	73
	0900 to 1900 hours Sunday and public holidays (Sunday)	48	58	73
	1900 to 2200 hours all days (Evening)	48	58	63
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	43	53	63
Commercial	All hours	60	75	80

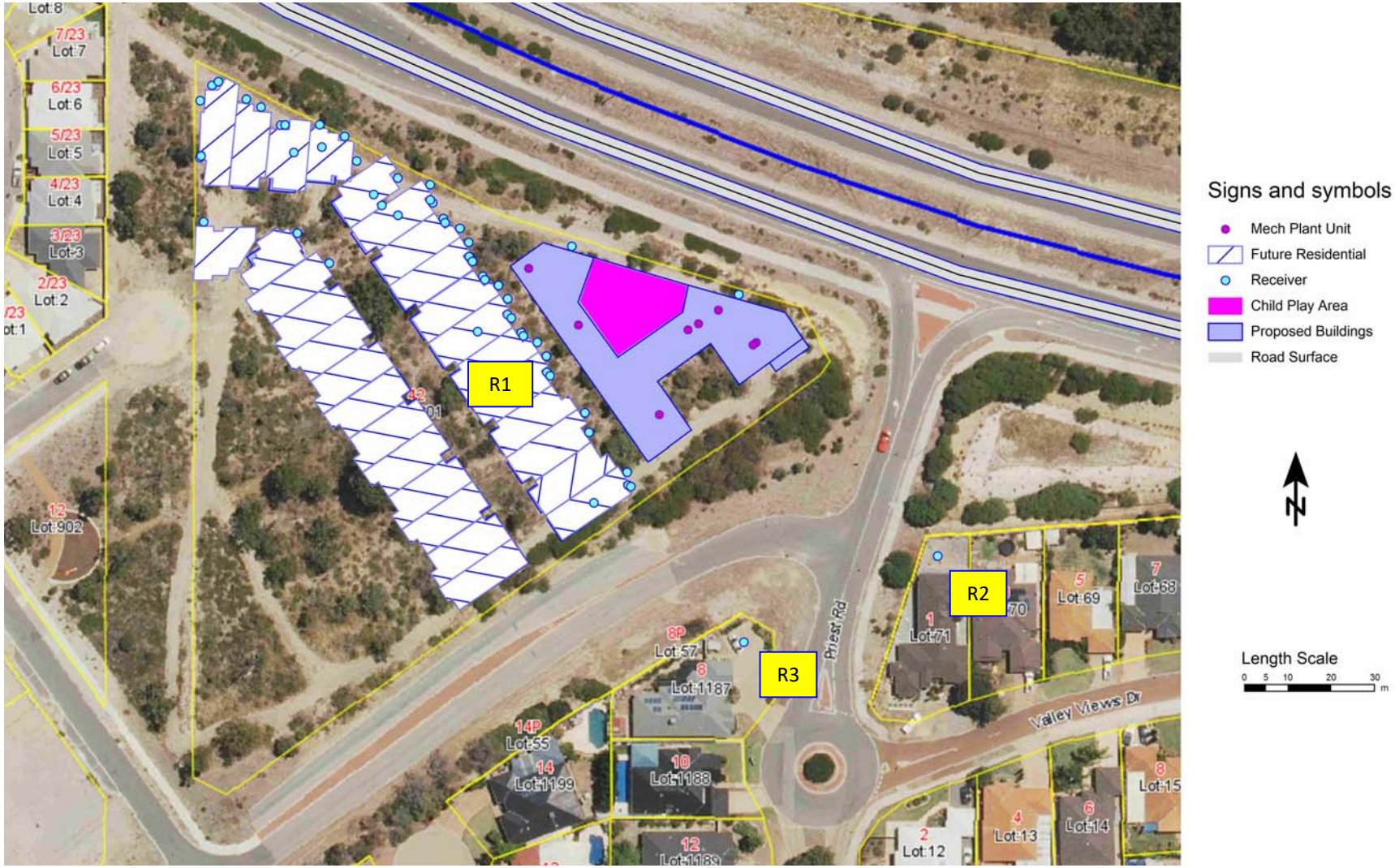


Figure 2-1 2D Image of Noise Model

It must be noted the assigned noise levels above apply outside the receiving premises and at a point at least 3 metres away from any substantial reflecting surfaces. Given the close proximity of existing buildings and fences, where the noise emissions were assessed at a point 1 metre away from building facades and a -2 dB adjustment was made to the predicted noise levels to account for reflected noise.

It is noted the assigned noise levels are statistical levels and therefore the period over which they are determined is important. The Regulations define the Representative Assessment Period (RAP) as *a period of time of not less than 15 minutes, and not exceeding 4 hours*, which is determined by an *inspector* or *authorised person* to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission. An *inspector* or *authorised person* is a person appointed under Sections 87 & 88 of the *Environmental Protection Act 1986* and include Local Government Environmental Health Officers and Officers from the Department of Environment Regulation. Acoustic consultants or other environmental consultants are not appointed as an *inspector* or *authorised person*. Therefore, whilst this assessment is based on a 4 hour RAP, which is assumed to be appropriate given the nature of the operations, this is to be used for guidance only.

2.2 City of Wanneroo - Child Care Centres LPP 2.3

The City of Wanneroo LPP 2.3 is acknowledged, in particular provision 9.2 in relation to windows to activity rooms and provision 9.3 in relation to childcare nuisance noise (noise impact onto neighbours), which will be satisfied in accordance with the Regulations.

3 METHODOLOGY

Computer modelling has been used to predict the noise emissions from the development at all nearby receivers. The software used was *SoundPLAN 8.0* with the ISO 9613 algorithms selected. These algorithms have been selected as they include the influence of wind.

3.1 Meteorological Information

Meteorological information utilised is provided in *Table 3-1* and is considered to represent worst-case conditions for noise propagation. At wind speeds greater than those shown, sound propagation may be further enhanced, however background noise from the wind itself and from local vegetation is likely to be elevated and dominate the ambient noise levels.

Table 3-1 Modelling Meteorological Conditions

Parameter	Day (0700-1900)	Night (1900-0700)
Temperature (°C)	20	15
Humidity (%)	50	50
Wind Speed (m/s)	Up to 5m/s	Up to 5m/s
Wind Direction*	All	All

* Note that the modelling package used allows for all wind directions to be modelled simultaneously.

It is generally considered that compliance with the assigned noise levels needs to be demonstrated for 98% of the time, during the day and night periods, for the month of the year in which the worst-case weather conditions prevail. In most cases, the above conditions occur for more than 2% of the time and therefore must be satisfied.

3.2 Topographical Data

Based on the site plan provided and civil concept drawings for the adjacent residential lot, combined with *Google Earth* publicly available elevation data, a 3-dimensional model of the surroundings was developed. This included ground elevations, the existing residences and the proposed buildings. It is noted that the site is situated on a slope and the design of the new buildings will incorporate this into the underground car park.

3.3 Buildings and Receivers

Surrounding existing buildings were included in the noise model as these can provide noise shielding as well as reflection paths.

It is noted that all residential buildings to the east and south are single storey houses while those to the west are soon to be developed double storey residences. Single storey dwellings were modelled as 3.5 metres high with the receiver at 1.5 metres above local ground. Double storey dwellings were modelled at 7 metres high with an upper floor receiver at 4.4m above local ground.

3.4 Walls and Fences

Solid 1.8 metre high fencing atop a 2 metre high retaining wall on the western boundary is assumed in the model. Neighbourhood fencing is also included where verified by site photographs.

On the open side of the outdoor play area, a 1.5m high wall/balustrade is modelled as a solidstyle fence e.g. clear *Plexiglass* fencing which provides some acoustic benefits.

3.5 Ground Absorption

Ground absorption varies from a value of 0 to 1, with 0 being for an acoustically reflective ground (e.g. asphalt, concrete) and 1 for acoustically absorbent ground (e.g. grass/sand). In this instance, a value of 1 has been used for the outdoor grassed area and 0.1 for the surroundings (including the carpark).

3.6 Childcare Source Sound Levels

The sound power levels used in the modelling are provided in *Table 3-2*.

Table 3-2 Source Sound Power Levels, dB

Description	Octave Band Centre Frequency (Hz)								Overall dB(A)
	63	125	250	500	1k	2k	4k	8k	
Child Care Centre									
Closing Car Door, L_{max}	71	74	77	81	80	78	72	61	**84**
Child Play Toddlers (30 kids), L_{10}	49	58	68	75	81	80	73	65	**85**
Child Play 4 years (30 kids), L_{10}	52	61	75	82	88	87	80	72	**88**
Typical A/C Condenser unit, L_{10}	-	75	74	73	71	67	65	60	**76**
Pharmacy, Medical Centre, Cafe									
Typical A/C Condenser unit, L_{10}	-	75	74	73	71	67	65	60	**76**
Exhaust Fan General, L_{10}	68	73	67	65	59	55	59	47	**67**
Exhaust Fan Kitchen, L_{10}	71	77	77	79	77	74	69	61	**81**

With regard to the above, the following is noted:

- Car doors closing were modelled as a point source 1.0 metre above ground level. These were placed both underground and in the open-air carparks. Since noise from a car door closing is a short term event, only the L_{Amax} level is applicable;
- Child Play source levels represent the full group of children playing outside at the same time. It is noted that based on observations and measurements, the noise levels tend to increase with the children's age and therefore Kindy and Pre-Kindy children (3 years and above) were considered noisier than Toddlers children (2-3 years). Noise from babies was considered negligible. Outdoor child play was modelled as area sources at various heights to account for the slight difference in height between age groups as follows:
  - Kindy 3+ yrs: 1.0 metre above ground plane;
  - Toddlers: 0.8 metre above ground plane.

It is noted that noise emissions from mechanical plant is assessed in general in this early stage, being Development Approval. However, a full review of the noise emissions from mechanical plant will be conducted during Building Permit stage when details of plant type, noise levels and location are known. Typical sound power levels and approximate roof mounted locations have been utilised at this stage.

4 RESULTS

4.1 Child Play and Mechanical Plant

The predicted noise levels from Child Play and the roof mounted mechanical plant are presented in *Table 4-1*. Note that mechanical plant results are an indication only, as this information will need further assessment when more details of location and specification are available at building permit stage.

Table 4-1 Predicted Noise Levels of Child Play and AC Plant

Location	Child Play, dB L_{A10}	AC Plant, dB L_{A10}	Overall, dB L_{A10}
R1*	41	39	**43**
R2	17	28	**28**
R3	20	31	**31**

*Represents the worst case level of a group of dwellings

In regard to the Child Play, the results assume that all age groups are playing outside at the same time and at a location that results in the highest noise levels for any receiver. The results above are therefore conservative, as each age group will generally be split at playtime resulting in smaller number of children playing outside simultaneously.

In regard to the roof mounted AC plant, the results assume all units making up the plant run simultaneously and at full capacity. In reality, the plant will cycle on and off as necessary so that again, the calculations are a worst-case scenario.

4.2 Indoor Child Play

An assessment of noise levels from indoor child play was carried out and the resulting noise levels at all locations were predicted to be well below that of outdoor child play considered in *Section 4.1*. This assessment was carried out based on the following considerations:

- External doors will be closed during indoor activity / play;
- Internal noise levels within activity rooms would not exceed those from outdoor play for each age group;
- Any music played within the internal activity areas would be 'light' music with no significant bass content and played at a relatively low level; and,
- External glazing is assumed to be minimum 6mm thick for child play rooms.

4.3 Carpark Bays

The proposed carpark includes 41 car bays located to the south of the main building and in the underground level. The assessable noise emissions are from car doors closing which are short events and therefore only assessed against the L_{Amax} criteria. The resulting predicted levels to each receiver are displayed in *Table 4-2*.

Table 4-2 Predicted Noise Levels of Car Doors

Location	Car Doors, dB L_{Amax}
R1*	33
R2	33
R3	37

*Represents the worst case level of a group of dwellings

5 ASSESSMENT

5.1 Child Play and AC plant

Table 5-1 presents an assessment of the predicted noise levels from the overall emissions from the proposed Child Care Centre that is, child play and roof mounted AC plant combined, against the daytime assigned noise level of 53 dB L_{A10}. Plant noise is assumed negligible in the night period due to the commercial enterprises being closed at these times.

Noise from child play is not considered to contain intrusive characteristics within the definition of the Regulations. In addition, AC plant noise is generally considered to be tonal and a penalty should be applied however, this would only be the case when the AC plant noise is considered in isolation (i.e. without child play noise). Therefore no penalties were added to the overall predicted L_{A10} levels. Note that if a tonality adjustment were applied to the mechanical plant noise only, noise levels would still be compliant during the day.

Table 5-1 Assessment of Noise Levels Against L_{A10}

Location	Assigned Noise Level[1] dB L_{A10}	Assessable Noise Level[2] dB L_{A10}	Calculated Exceedance
R1	53	**43**	*Complies*
R2	53	**28**	*Complies*
R3	53	**31**	*Complies*

Notes:
1. The assigned noise level is as defined in *Table 2-4*.
2. Overall levels from *Table 4-1*.

It can be seen from the above, the daytime L_{A10} assigned level is complied with at all receivers by at least 10 dB. As such, the mechanical plant and child play noise would also comply with the more stringent night time assigned level (which is 10dB lower). The predicted level is dominated by mechanical plant noise and can be minimised by using solid screening on the rooftop and where possible, collocating of plant.

5.2 Car park

Table 5-2 presents an assessment of the predicted noise levels from car park use (doors closing).

Car door closing noise is a short-term event and is therefore assessed against the L_{Amax} night time assigned noise level of 63 dB in the event some vehicles park prior to 7am (such as staff). An adjustment for impulsiveness may be applicable for car door closing noise, which is a +10 dB adjustment.

Table 5-2 Assessment of Car Door Closing Against L_{Amax}

Location	Assigned Noise Level dB L_{Amax}	Assessable Noise Level dB L_{Amax}	Calculated Exceedance
R1	63	33 + 10 = 43	*Complies*
R2	63	33 + 10 =43	*Complies*
R3	63	37 + 10 = 47	*Complies*

It can be seen from the above tables that the L_{Amax} assigned levels will be complied with at all receivers, even at night-time when the carpark is used before 7am. After 7am the assigned noise level is higher and therefore compliance will also be achieved. Note that the design of the carpark has been assumed open on the east and north sides (following the sloping terrain) and enclosed on the western side (nearest to houses).

5.3 Noise Intrusion

Due to the nature and location of the development, traffic noise intrusion from Gnangara Road is considered likely. Noise is predicted to be 63 to 65 dB $L_{Aeq,day}$ based on noise modelling completed for the adjacent residential subdivision.

Therefore the 6mm thick glass specified in *Section 4.2*, will assist in minimising external noise intrusion to commercial spaces. It is recommended that this glazing be increased to 10mm minimum or equivalent to all sleeping areas of the CCC. A more detailed assessment should also be carried out when architectural drawings are available at building permit stage.

6 RECOMMENDATIONS

Based on the noise modelling and the assessment carried out, it can be seen the predicted overall noise levels from the proposed Commercial Development, including Child Care Centre can comply with the Regulations at all receivers.

It is expected that noise levels from the development will be lower where the following common 'good practices' are implemented:

- Plan duration of play and stagger play times where practicable so that:
  - all age groups do not play simultaneously for long periods of time; and,
  - not all children within one age group congregate within one area for long periods of time.
- The behaviour and 'style of play' of children should be monitored to prevent particularly loud activity e.g. loud banging/crashing of objects, 'group' shouts/yelling;
- Crying children should be taken inside to be comforted;
- No amplified music should be played outside; and
- Consider signage in the drop-off/pick-up area advising parents to keep noise to a minimum and behave in a courteous manner, given the close proximity of neighbouring dwellings.
- Property fencing on shared boundaries is to be selected to be free of gaps and minimum *colorbond* type material.

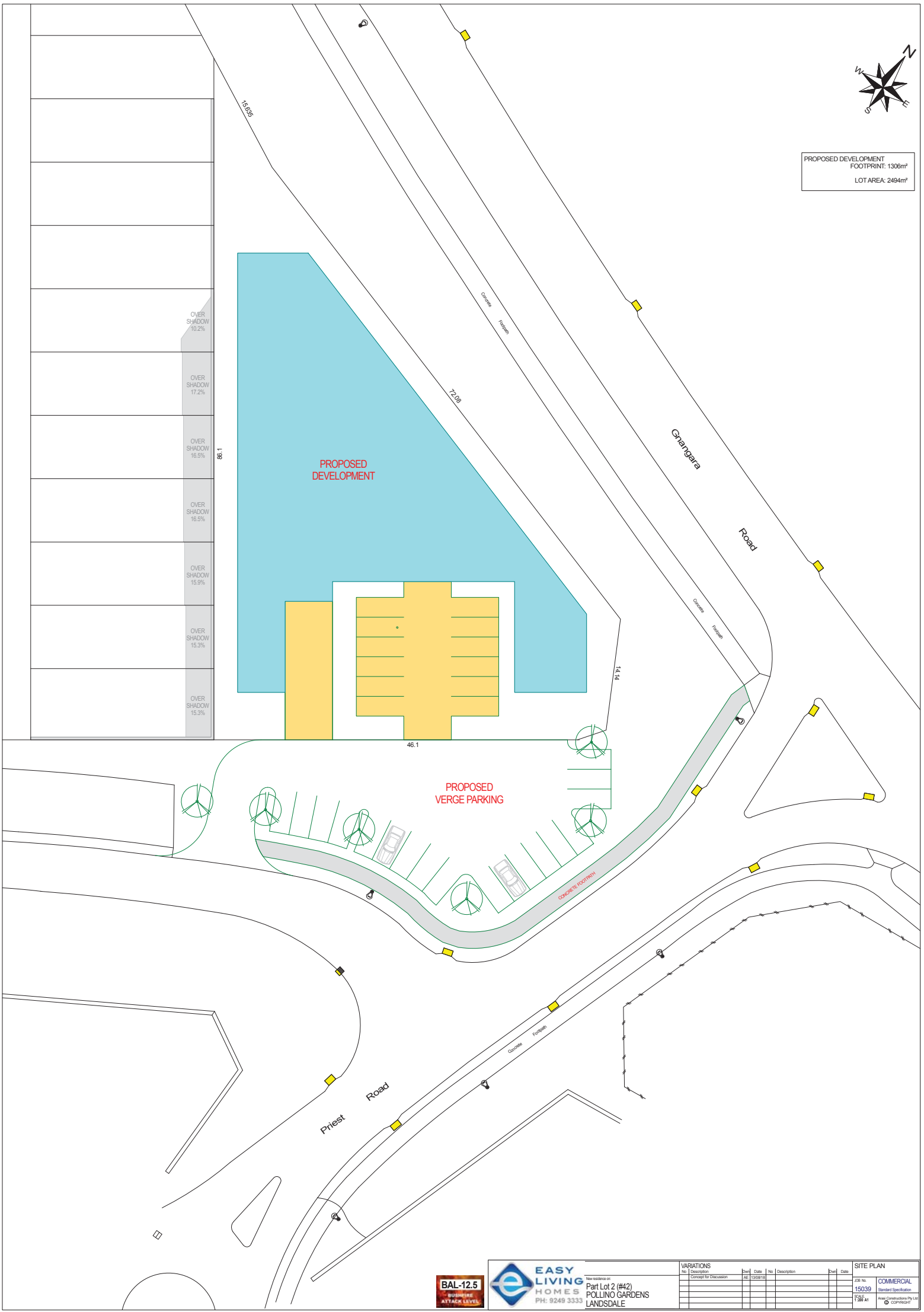
Should any speed humps be implemented, these shall be designed to have a gradual slope so that they are sufficient to slow vehicles but will not result in unnecessary noise generation as vehicles drive over.

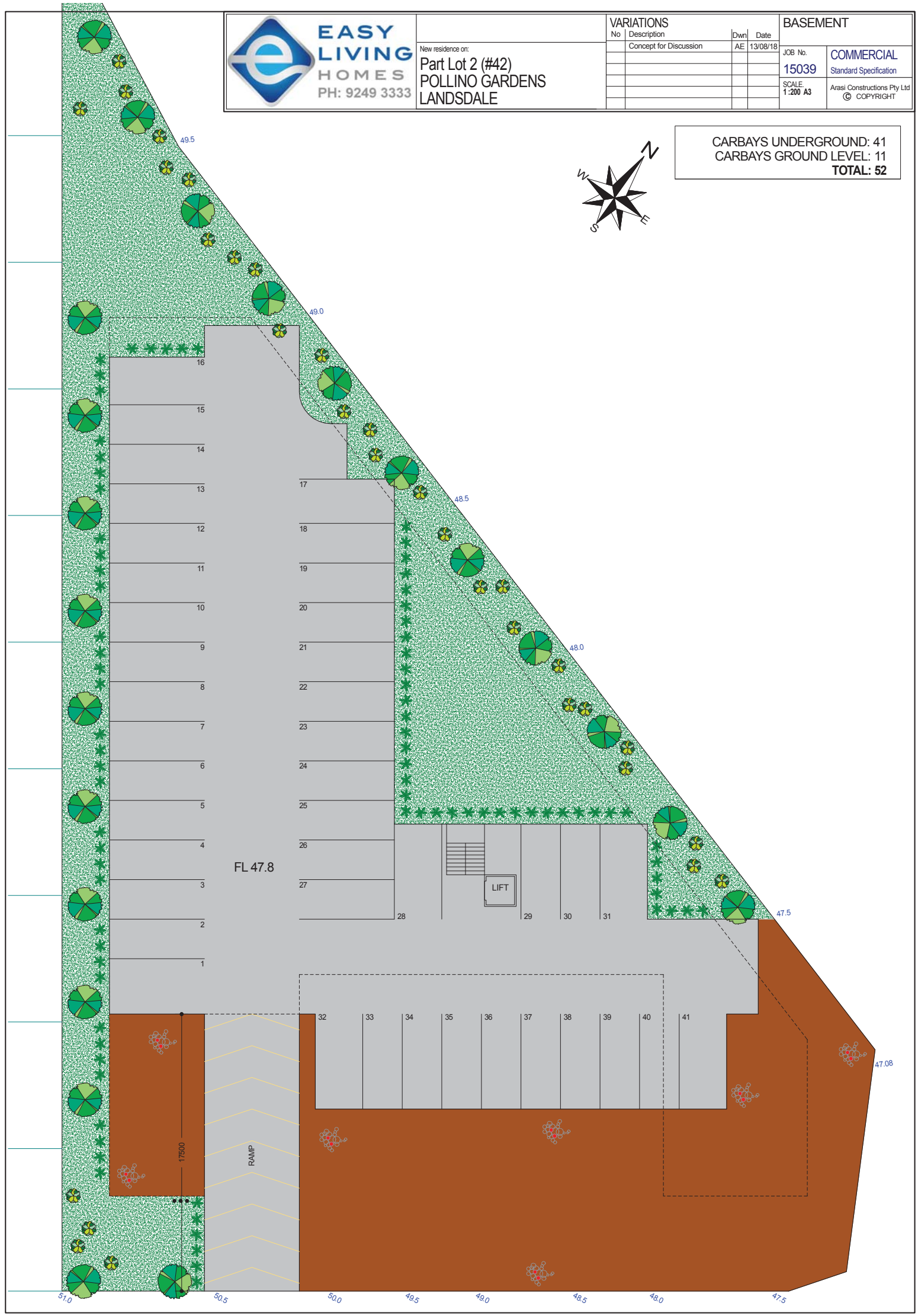
With regards to mechanical plant, we note the following:

- Installed plant shall have sound power levels no greater than those in *Table 3-2*.
- Air-conditioning mechanical plant are to be located on the rooftop, where this is not the case, a follow up assessment of selected plant should be undertaken by a qualified acoustic consultant;
- All mechanical plant shall be vibration isolated sufficient to achieve 97% isolation efficiency. Appropriate isolation mounts shall be selected by a mount supplier such as Embelton's taking into account the structure, weight of the equipment and operating frequency.

Appendix A

Site Plans


N
W
E
S
PROPOSED DEVELOPMENT
FOOTPRINT: 1306m²
LOT AREA: 2494m²
15.635
72.09
14.14
46.1
86.1
OVER SHADOW 10.2%
OVER SHADOW 17.2%
OVER SHADOW 16.5%
OVER SHADOW 16.5%
OVER SHADOW 15.9%
OVER SHADOW 15.3%
OVER SHADOW 15.3%
PROPOSED DEVELOPMENT
PROPOSED VERGE PARKING
Concrete Footpath
Concrete Footpath
Concrete Footpath
CONCRETE FOOTPATH
Ghangara Road
Priest Road
BAL-12.5
BUSHFIRE ATTACK LEVEL
EASY LIVING HOMES
PH: 9249 3333
New residence on:
Part Lot 2 (#42)
POLLINO GARDENS
LANDSDALE
VARIATIONS
No Description Dwn Date
Concept for Discussion AE 13/08/18
SITE PLAN
JOB No. 15039
COMMERCIAL
Standard Specification
SCALE 1:200 A1
Arasi Constructions Pty Ltd
© COPYRIGHT


EASY LIVING HOMES
PH: 9249 3333
New residence on:
Part Lot 2 (#42)
POLLINO GARDENS
LANDSDALE
VARIATIONS
No | Description | Dwn | Date
Concept for Discussion | AE | 13/08/18
BASEMENT
JOB No. 15039
COMMERCIAL
Standard Specification
SCALE. 1 :200 A3
Arasi Constructions Pty Ltd
© COPYRIGHT
CARBAYS UNDERGROUND: 41
CARBAYS GROUND LEVEL: 11
TOTAL: 52
N
W
E
S
49.5
49.0
48.5
48.0
47.5
47.08
FL 47.8
LIFT
RAMP
17500
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
51.0
50.5
50.0
49.5
49.0
48.5
48.0
47.5

EASY LIVING HOMES
PH: 9249 3333

New residence on:
Part Lot 2 (#42)
POLLINO GARDENS
LANDSDALE

VARIATIONS

No	Description	Dwn	Date
	Concept for Discussion	AE	13/08/18

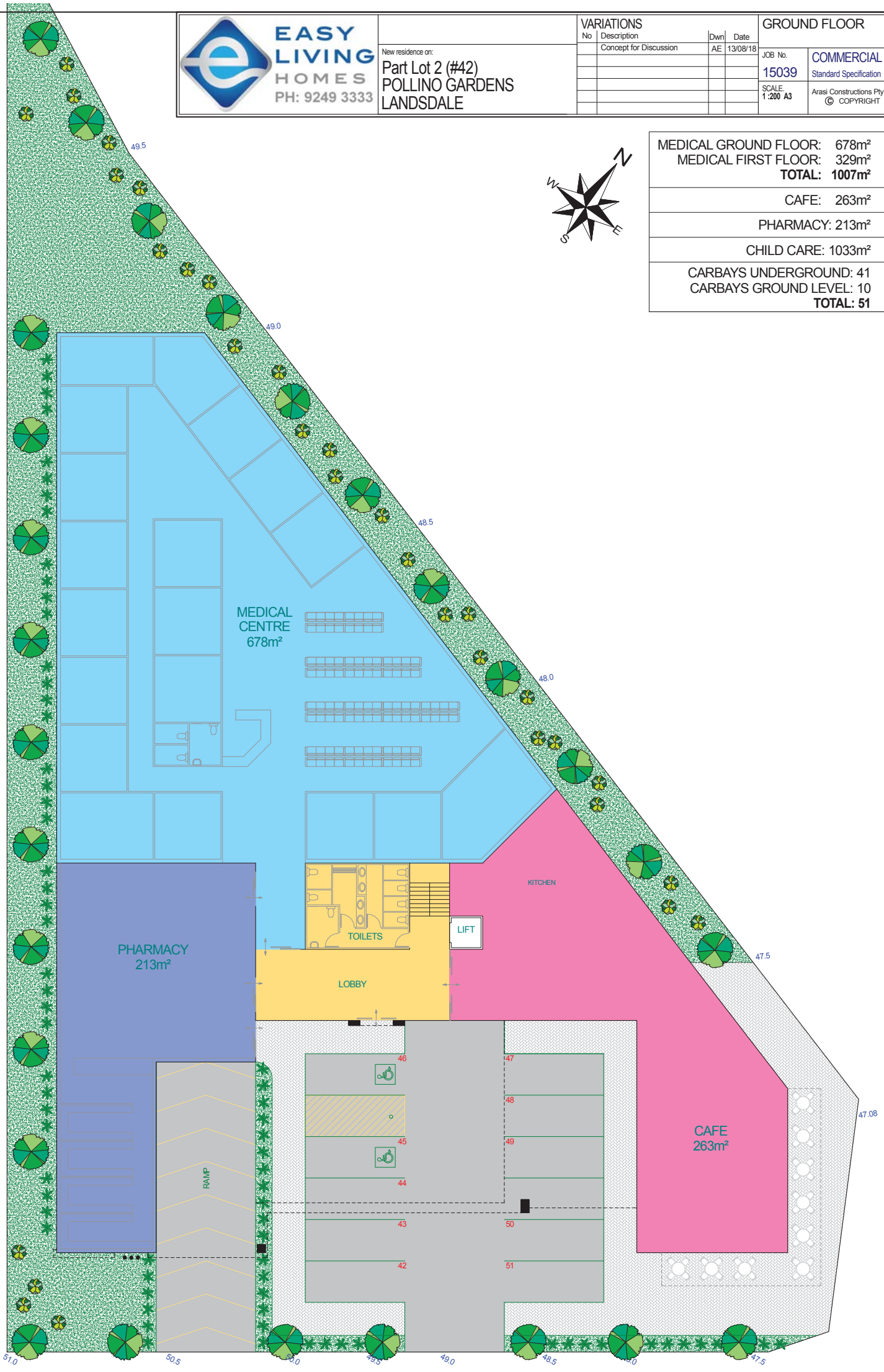
GROUND FLOOR

JOB No. 15039

COMMERCIAL
Standard Specification

SCALE. 1 :200 A3

MEDICAL GROUND FLOOR:	678m²
MEDICAL FIRST FLOOR:	329m²
TOTAL:	**1007m²**
CAFE:	263m²
PHARMACY:	213m²
CHILD CARE:	1033m²
CARBAYS UNDERGROUND:	41
CARBAYS GROUND LEVEL:	10
TOTAL:	**51**



EASY LIVING HOMES
PH: 9249 3333

New residence on:
Part Lot 2 (#42)
POLLINO GARDENS
LANDSDALE

VARIATIONS			
No	Description	Dwn	Date
	Concept for Discussion	AE	13/08/18

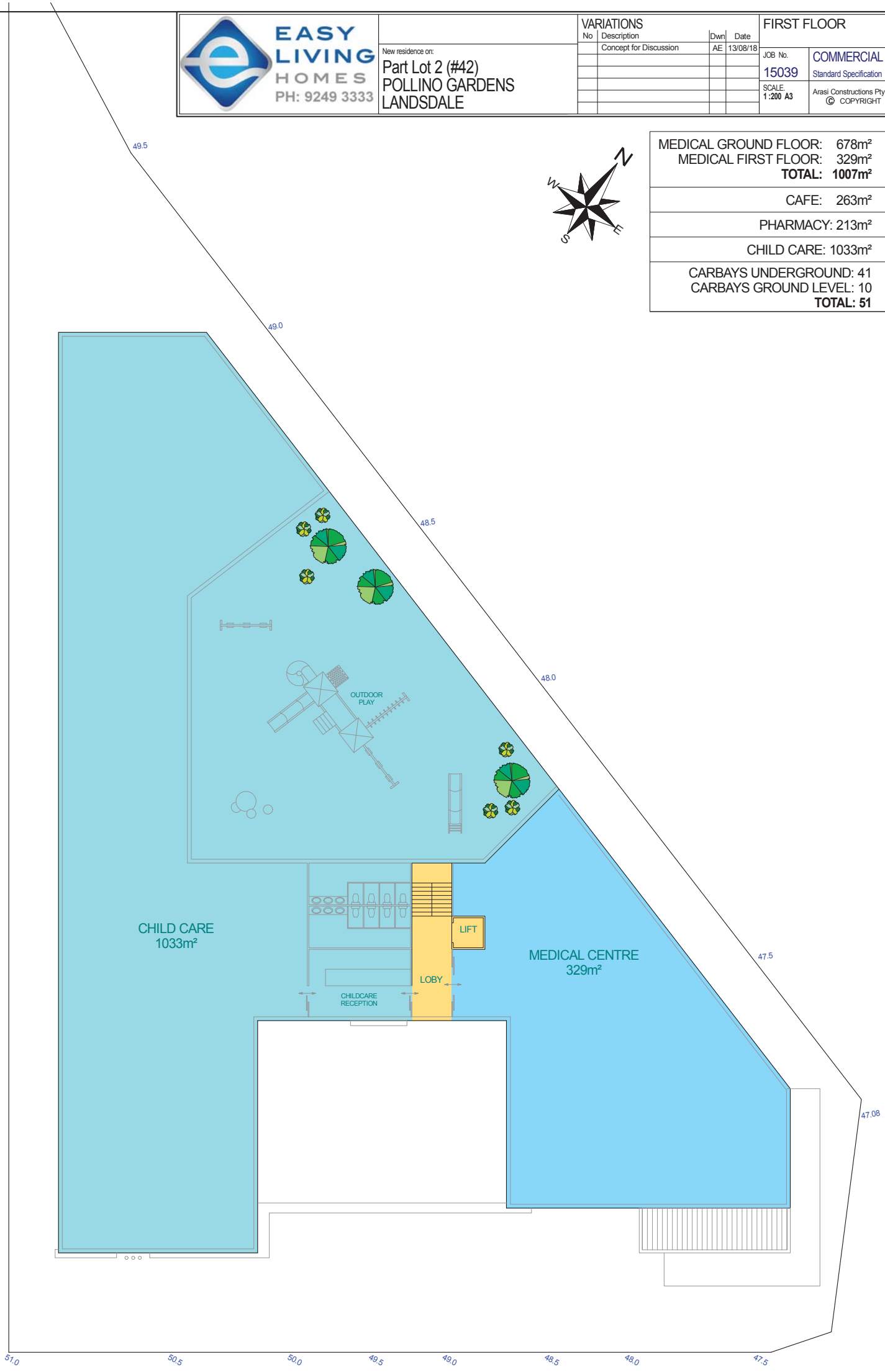
FIRST FLOOR

JOB No. 15039

COMMERCIAL
Standard Specification

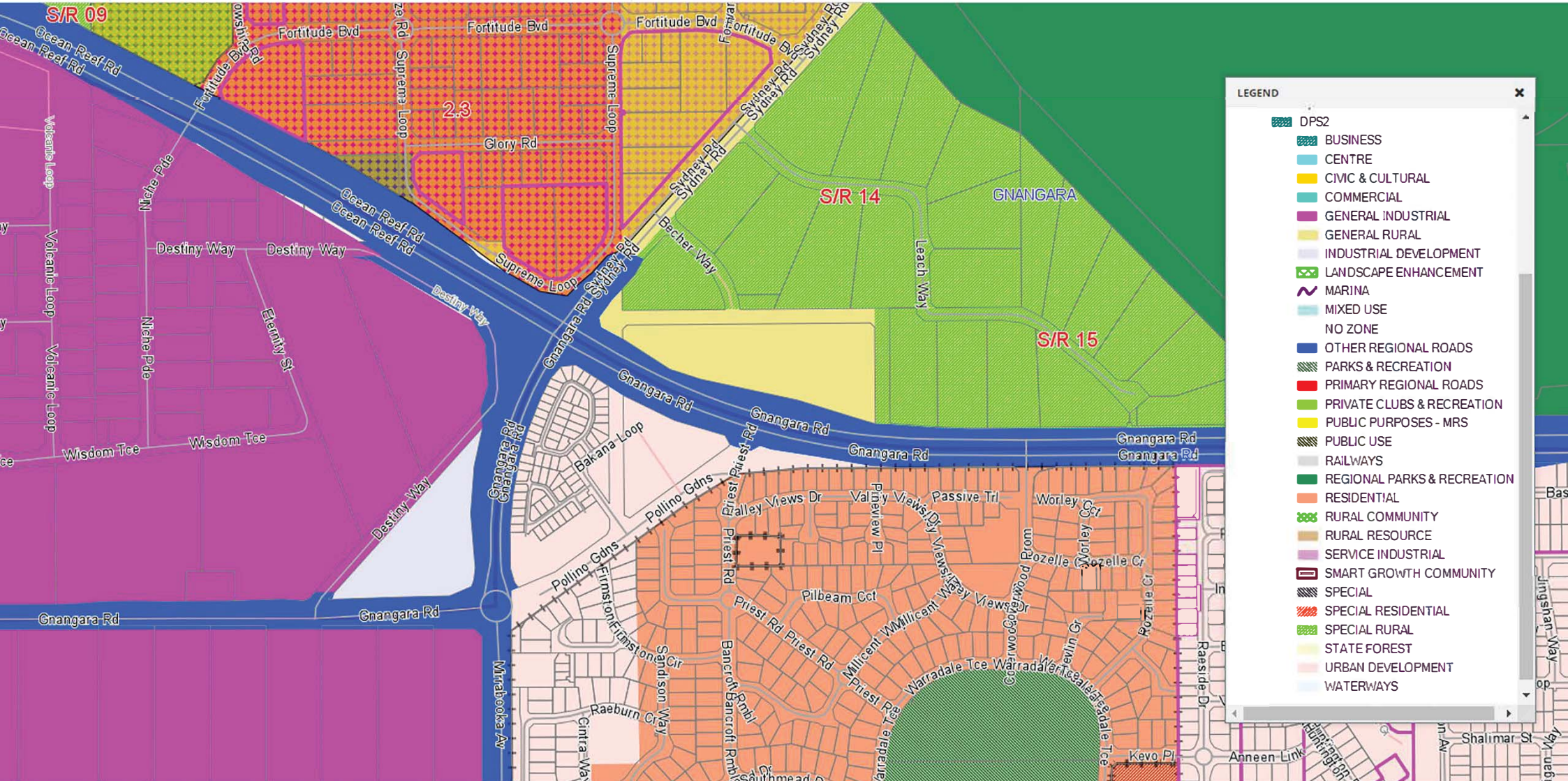
SCALE. 1 :200 A3

MEDICAL GROUND FLOOR:	678m²
MEDICAL FIRST FLOOR:	329m²
TOTAL:	**1007m²**
CAFE:	263m²
PHARMACY:	213m²
CHILD CARE:	1033m²
CARBAYS UNDERGROUND:	41
CARBAYS GROUND LEVEL:	10
TOTAL:	**51**



Appendix B

Zoning Map


S/R 09
Ocean Reef Rd
Fortitude Bvd
Supreme Loop
2.3
Glory Rd
S/R 14
GNANGARA
Sydney Rd
Bacher Way
Leach Way
S/R 15
Destiny Way
Volcanic Loop
Niche Pde
Eternity St
Wisdom Tce
Gnangara Rd
Bakana Loop
Pollino Gdns
Priest Rd
Valley Views Dr
Passive Trl
Worley Cct
Pineview Pl
Rozelle Cr
Pilbeam Cct
Millicent Way
Warradale Tce
Firmston Cir
Sandison Cir
Bancroft Rmbl
Raeburn Cry
Mirabooka Av
Raeside Dr
Kevo Pl
Anneen Link
Shalimar St
LEGEND
DPS2
BUSINESS
CENTRE
CIVIC & CULTURAL
COMMERCIAL
GENERAL INDUSTRIAL
GENERAL RURAL
INDUSTRIAL DEVELOPMENT
LANDSCAPE ENHANCEMENT
MARINA
MIXED USE
NO ZONE
OTHER REGIONAL ROADS
PARKS & RECREATION
PRIMARY REGIONAL ROADS
PRIVATE CLUBS & RECREATION
PUBLIC PURPOSES - MRS
PUBLIC USE
RAILWAYS
REGIONAL PARKS & RECREATION
RESIDENTIAL
RURAL COMMUNITY
RURAL RESOURCE
SERVICE INDUSTRIAL
SMART GROWTH COMMUNITY
SPECIAL
SPECIAL RESIDENTIAL
SPECIAL RURAL
STATE FOREST
URBAN DEVELOPMENT
WATERWAYS

Appendix C

Terminology

The following is an explanation of the terminology used throughout this report.

Decibel (dB)
The decibel is the unit that describes the sound pressure and sound power levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

A-Weighting
An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as L_A dB.

Sound Power Level (L_w)
Under normal conditions, a given sound source will radiate the same amount of energy, irrespective of its surroundings, being the sound power level. This is similar to a 1kW electric heater always radiating 1kW of heat. The sound power level of a noise source cannot be directly measured using a sound level meter but is calculated based on measured sound pressure levels at known distances. Noise modelling incorporates source sound power levels as part of the input data.

Sound Pressure Level (L_p)
The sound pressure level of a noise source is dependent upon its surroundings, being influenced by distance, ground absorption, topography, meteorological conditions etc and is what the human ear actually hears. Using the electric heater analogy above, the heat will vary depending upon where the heater is located, just as the sound pressure level will vary depending on the surroundings. Noise modelling predicts the sound pressure level from the sound power levels taking into account ground absorption, barrier effects, distance etc.

L_{ASlow}
This is the noise level in decibels, obtained using the A frequency weighting and the S (Slow) time weighting as specified in IEC 61672-1:2002. Unless assessing modulation, all measurements use the slow time weighting characteristic.

L_{AFast}
This is the noise level in decibels, obtained using the A frequency weighting and the F (Fast) time weighting as specified in IEC 61672-1:2002. This is used when assessing the presence of modulation only.

L_{APeak}
This is the greatest absolute instantaneous sound pressure in decibels using the A frequency weighting as specified in IEC 61672-1:2002.

L_{Amax}
An L_{Amax} level is the maximum A-weighted noise level during a particular measurement.

L_{A1}
An L_{A1} level is the A-weighted noise level which is exceeded for one percent of the measurement period and is considered to represent the average of the maximum noise levels measured.

L_{A10}
An L_{A10} level is the A-weighted noise level which is exceeded for 10 percent of the measurement period and is considered to represent the "*intrusive*" noise level.

L_{Aeq}
The equivalent steady state A-weighted sound level ("equal energy") in decibels which, in a specified time period, contains the same acoustic energy as the time-varying level during the same period. It is considered to represent the "average" noise level.

L_{A90}
An L_{A90} level is the A-weighted noise level which is exceeded for 90 percent of the measurement period and is considered to represent the "*background*" noise level.

One-Third-Octave Band
Means a band of frequencies spanning one-third of an octave and having a centre frequency between 25 Hz and 20 000 Hz inclusive.

L_{Amax} assigned level
Means an assigned level which, measured as a $L_{A\ Slow}$ value, is not to be exceeded at any time.

L_{A1} assigned level
Means an assigned level which, measured as a $L_{A\ Slow}$ value, is not to be exceeded for more than 1% of the representative assessment period.

L_{A10} assigned level
Means an assigned level which, measured as a $L_{A\ Slow}$ value, is not to be exceeded for more than 10% of the representative assessment period.

Tonal Noise
A tonal noise source can be described as a source that has a distinctive noise emission in one or more frequencies. An example would be whining or droning. The quantitative definition of tonality is:

the presence in the noise emission of tonal characteristics where the difference between -

(a) the A-weighted sound pressure level in any one-third octave band; and

(b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ levels.

This is relatively common in most noise sources.

Modulating Noise
A modulating source is regular, cyclic and audible and is present for at least 10% of the measurement period. The quantitative definition of modulation is:

a variation in the emission of noise that —

(a) is more than 3 dB $L_{A\ Fast}$ or is more than 3 dB $L_{A\ Fast}$ in any one-third octave band;

(b) is present for at least 10% of the representative.

Impulsive Noise
An impulsive noise source has a short-term banging, clunking or explosive sound. The quantitative definition of impulsiveness is:

a variation in the emission of a noise where the difference between $L_{A\ peak}$ and $L_{A\ Max\ slow}$ is more than 15 dB when determined for a single representative event;

Major Road
Is a road with an estimated average daily traffic count of more than 15,000 vehicles.

Secondary / Minor Road
Is a road with an estimated average daily traffic count of between 6,000 and 15,000 vehicles.

Influencing Factor (IF)

$$= \frac{1}{10}(\%\ \text{Type}\ A_{100} + \%\ \text{Type}\ A_{450}) + \frac{1}{20}(\%\ \text{Type}\ B_{100} + \%\ \text{Type}\ B_{450})$$

where:

$\%\ \text{Type}\ A_{100}$ = the percentage of industrial land within a 100m radius of the premises receiving the noise

$\%\ \text{Type}\ A_{450}$ = the percentage of industrial land within a 450m radius of the premises receiving the noise

$\%\ \text{Type}\ B_{100}$ = the percentage of commercial land within a 100m radius of the premises receiving the noise

$\%\ \text{Type}\ B_{450}$ = the percentage of commercial land within a 450m radius of the premises receiving the noise

+ Traffic Factor (maximum of 6 dB)

= 2 for each secondary road within 100m

= 2 for each major road within 450m

= 6 for each major road within 100m

Representative Assessment Period
Means a period of time not less than 15 minutes, and not exceeding four hours, determined by an inspector or authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission.

Background Noise
Background noise or residual noise is the noise level from sources other than the source of concern. When measuring environmental noise, residual sound is often a problem. One reason is that regulations often require that the noise from different types of sources be dealt with separately. This separation, e.g. of traffic noise from industrial noise, is often difficult to accomplish in practice. Another reason is that the measurements are normally carried out outdoors. Wind-induced noise, directly on the microphone and indirectly on trees, buildings, etc., may also affect the result. The character of these noise sources can make it difficult or even impossible to carry out any corrections.

Ambient Noise
Means the level of noise from all sources, including background noise from near and far and the source of interest.

Specific Noise
Relates to the component of the ambient noise that is of interest. This can be referred to as the noise of concern or the noise of interest.

Peak Component Particle Velocity (PCPV)
The maximum instantaneous velocity in mm/s of a particle at a point during a given time interval and in one of the three orthogonal directions (x, y or z) measured as a peak response. Peak velocity is normally used for the assessment of structural damage from vibration.

Peak Particle Velocity (PPV)

The maximum instantaneous velocity in mm/s of a particle at a point during a given time interval and is the vector sum of the PCPV for the x, y and z directions measured as a peak response. Peak velocity is normally used for the assessment of structural damage from vibration.

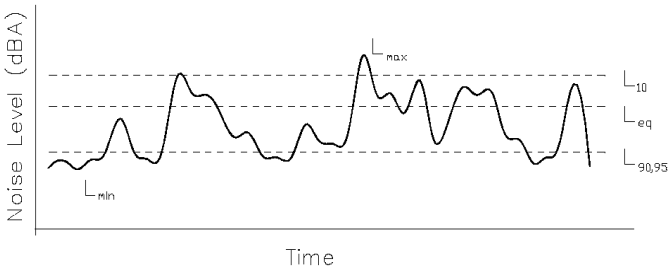
RMS Component Particle Velocity (PCPV)

The maximum instantaneous velocity in mm/s of a particle at a point during a given time interval and in one of the three orthogonal directions (x, y or z) measured as a root mean square (rms) response. RMS velocity is normally used for the assessment of human annoyance from vibration.

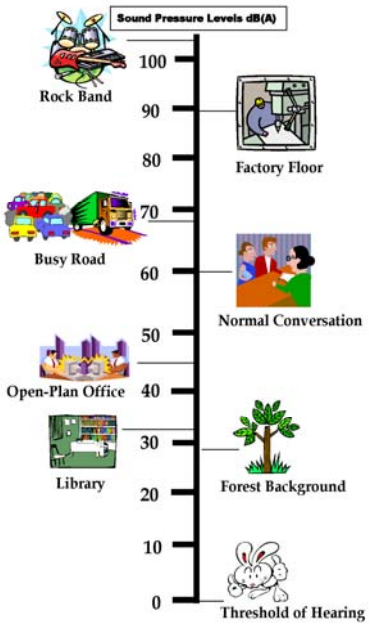
Peak Particle Velocity (PPV)

The maximum instantaneous velocity in mm/s of a particle at a point during a given time interval and is the vector sum of the PCPV for the x, y and z directions measured as a root mean square (rms) response. RMS velocity is normally used for the assessment of human annoyance from vibration.

Chart of Noise Level Descriptors



Typical Noise Levels



APPENDIX G TRAFFIC IMPACT ASSESSMENT

Lot 201 Gnangara Road, Landsdale

Transport Impact Statement

CW1042900

Prepared for

VV Nominees Pty Ltd

29 August 2018

Cardno

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Appendices

Tables

Figures

1 Introduction

1.1 Background

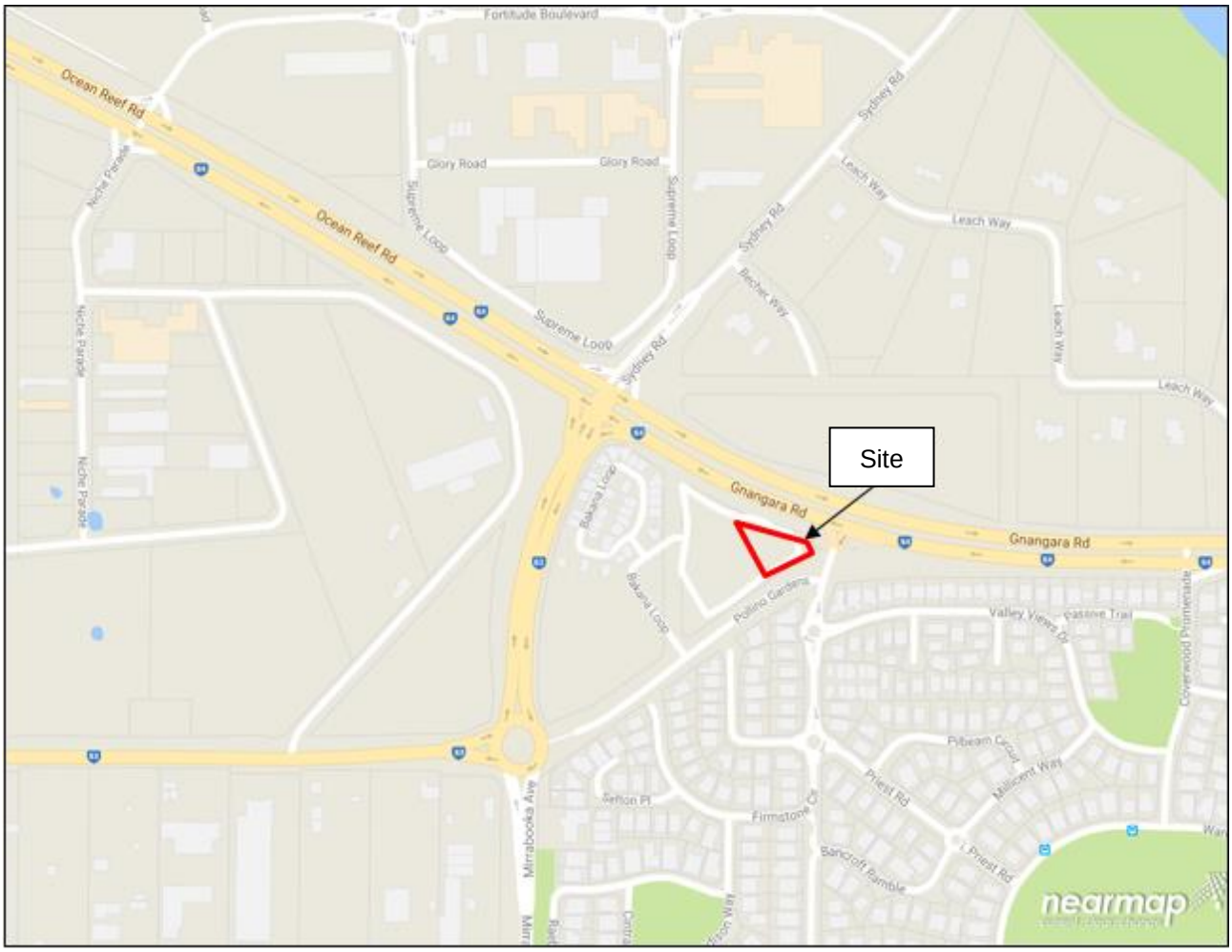
Cardno was commissioned by Urbis, on behalf of VV Nominees Pty Ltd ('the Client'), to prepare a Transport Impact Statement (TIS) to support the proposed structure plan amendment of Lot 3 ('the Site') from R40 residential to R40 residential with additional uses of Medical Centre and Pharmacy.

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

1.2 Existing Site

The Site is located on the corner of Pollino Gardens, Priest Road and Gnangara Road in the suburb of Landsdale within the City of Wanneroo, as shown in **Figure 1-1**.

Figure 1-1 Site Location



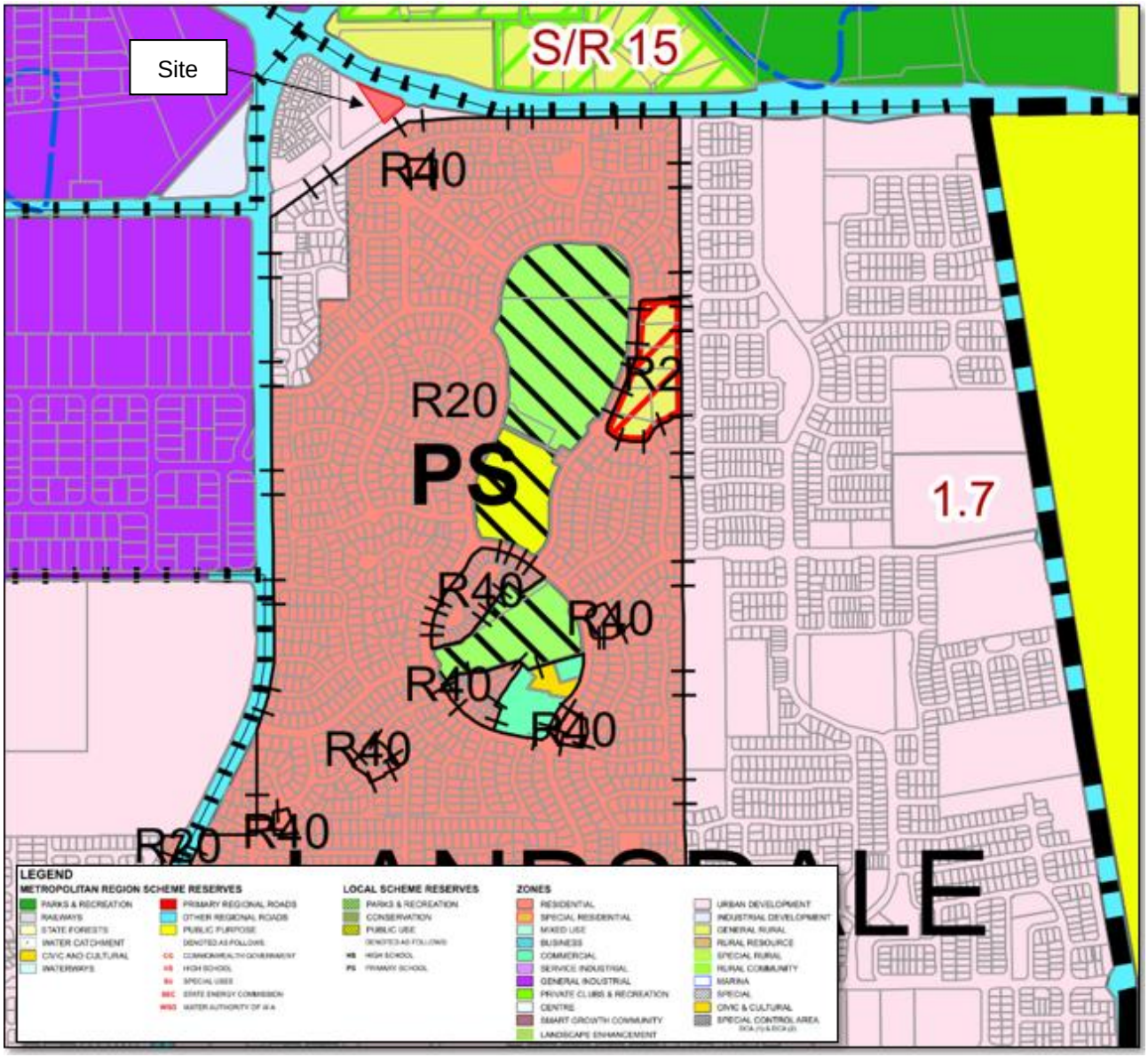
Source of base: Nearmap (2018)

The Site currently consists of vacant land. The surrounding area currently consists of residential developments and some vacant land.

In the City of Wanneroo's *District Planning Scheme No. 2*, the Site is situated within the "Urban Development" zone as shown in **Figure 1-2**.

Additionally, the existing structure plan, East Wanneroo Cell 5 – Agreed Structure Plan No.7, classifies the area as R40 residential as shown in **Figure 1-3.**

Figure 1-2 Zoning Map



Source: City of Wanneroo District Planning Scheme Map No. 2 (2017)

Figure 1-3 East Wanneroo Cell 5 – Agreed Structure Plan No. 7

Source: City of Wanneroo (2018)

1.3 Existing Road Network

The surrounding road network is summarised in **Table 1-1**.

Table 1-1 Road Network Description

	Road Hierarchy		Road Network			
	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Posted Speed (km/h)
Gnangara Road	Distributor A	Local Govt.	4	1	31 divided	80
Priest Road	Access Road	Local Govt.	2	1	8.2	50
Pollino Gardens	Access Road	Local Govt.	2	1	6	50
Bakana Loop	Access Road	Local Govt.	2	1	6	50

1.4 Traffic Volumes

Existing traffic volumes were sourced from the City of Wanneroo (“the City") and Main Roads WA (MRWA) Traffic Map. Recent traffic flow data on the local road network is shown in **Table 1-2** below.

Table 1-2 Existing Traffic Volumes (two-way)

Road Name	Date	Average Daily Two-way Traffic Volume	Vehicles per AM Peak Hour	Vehicles per PM Peak Hour
Gnangara Road (west of Alexander Drive)	2016	30,531	2,655	2,950
Priest Road (South of Valley Views)	2015	400	36 Northbound = 21 Southbound = 15	38 Northbound = 24 Southbound = 14

Source: City of Wanneroo and Main Roads WA

There are no recorded traffic volumes for Pollino Gardens and Bakana Loop available from the City or MRWA; however, it can be expected that existing volumes on these roads would be very low as these roads only provide access to approximately 40 dwellings.

2 Public Transport Facilities

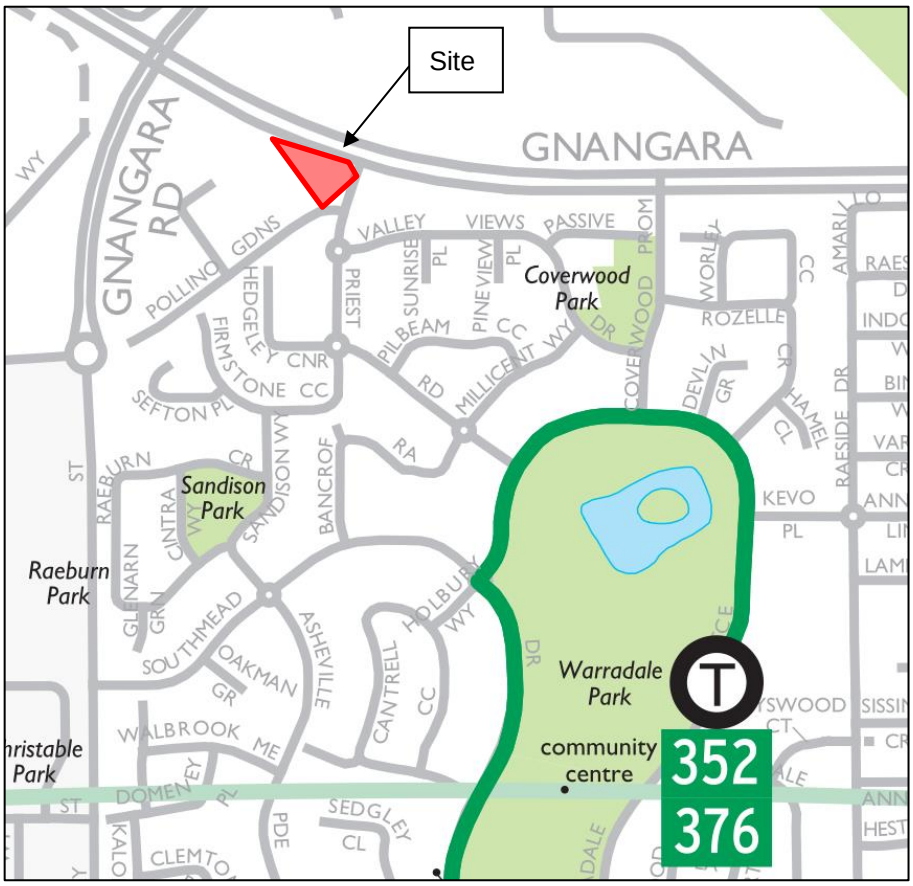
2.1 Existing Public Transport Facilities

The nearest available public transport stops are the bus stops located along Gnangara Road located approximately 350m west of the Site which provides services from Ellenbrook Transfer Station to Whitfords Station. Additional services are located approximately 500m south-east of the Site on Warradale Terrace and provide services on routes between; Warradale Terrace and Whitfords Station; Mirrabooka Bus Station and Warradale Terrace. The frequencies of the bus services are as follows:

- Peak period: 10 minutes (Bus 352), 10 minutes (Bus 376) and 30 minutes (Bus 355).
- Off-peak period: an hour (Bus 352), 30 minutes (Bus 376) and 1 hour (Bus 355).

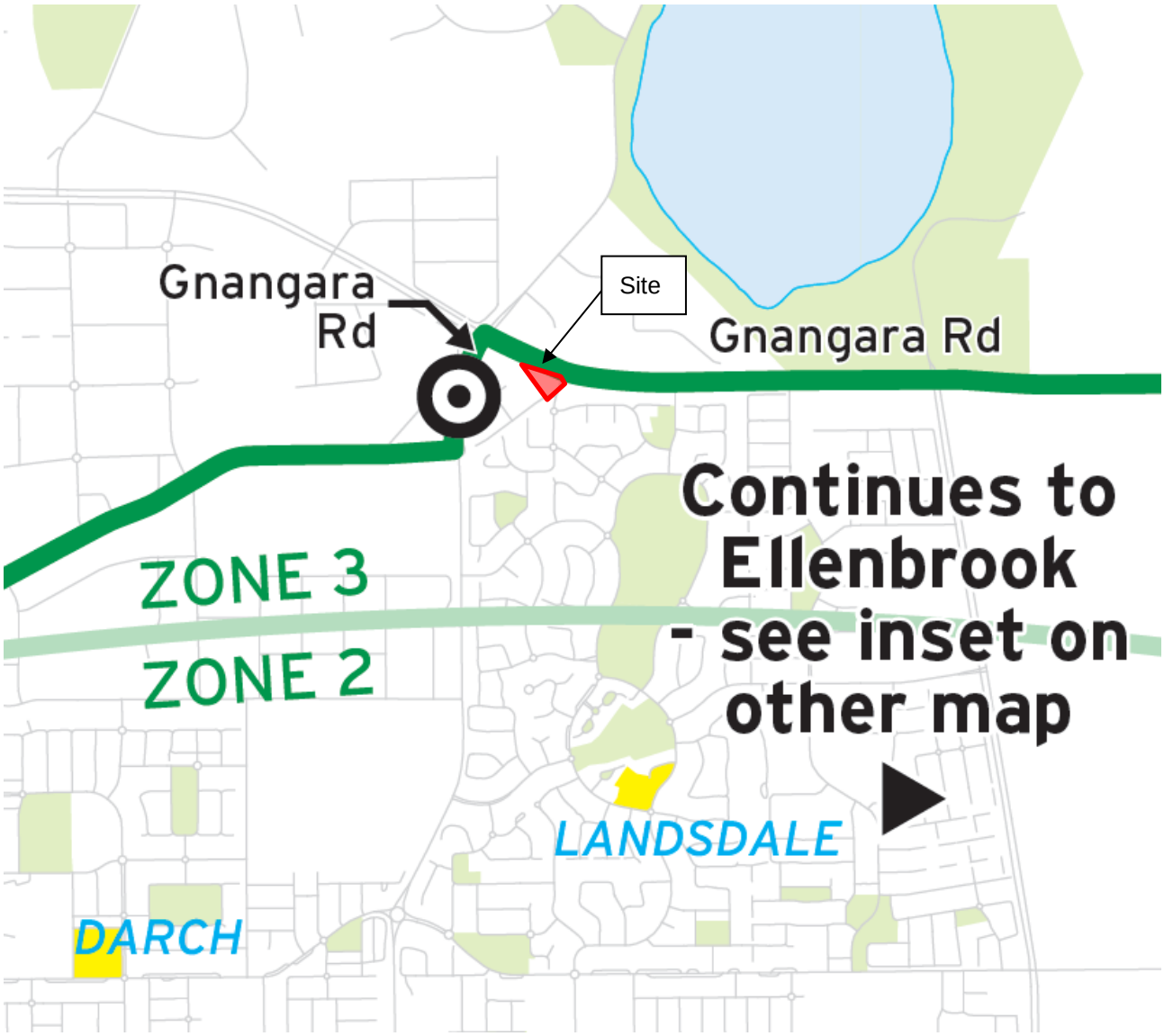
Figure 2-1 and **Figure 2-2** shows the bus service routes and **Figure 2-3** shows the location of bus stops near the Site.

Figure 2-1 Bus Routes 352 and 376



Source: Transperth (2018)

Figure 2-2 Bus Route 355



Source: Transperth (2018)

Figure 2-3 Bus Stop Locations

Source: Nearmap (2018)

2.2 Future Public Transport Facilities

There are currently no new planned changes to the public transport within the area.

3 Pedestrian/Cycle Networks and Facilities

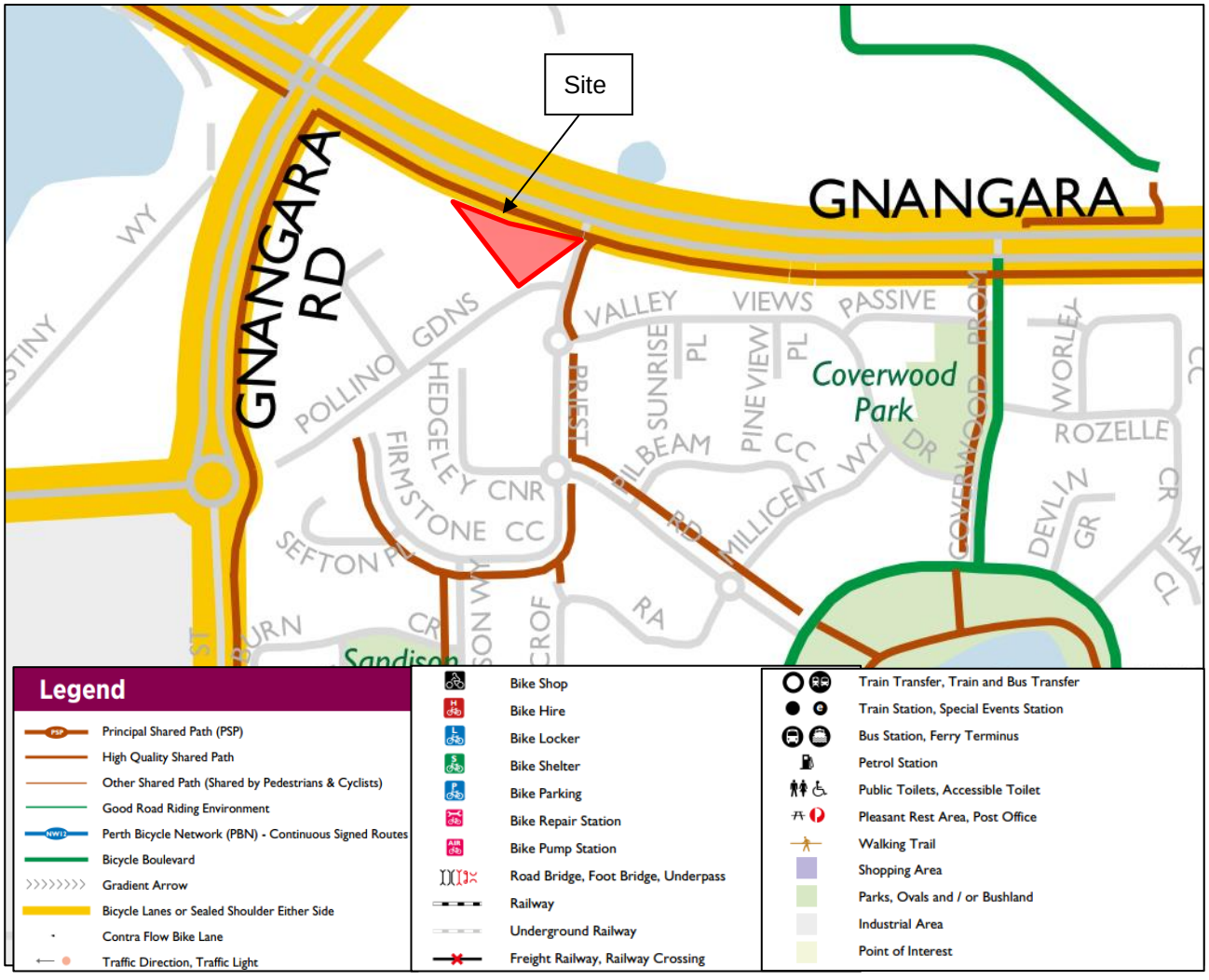
3.1 Existing Pedestrian/Cycle Network Facilities

High quality shared paths are provided on the southern side of Gnangara Road and eastern side of Priest Road as shown on the Department of Transport's "*Joondalup Bike Map*" (refer **Figure 3-1**). Along Bakana Loop, a wide footpath (approximately 1.8 metres) is present on the eastern side of the road; although this is not shown in the Joondalup Bike Map, it is nevertheless sufficient for shared pedestrian and cyclist usage according to the descriptions in "*Liveable Neighbourhoods*", 2009.

"*Liveable Neighbourhoods*" gives a standard footpath width of 1.5 metres, stating that this "*enables two pedestrians to pass with comfort, and enables ease of use by people with prams, wheelchairs and other mobility aids".* As this path is of sufficient width for "*ease of use by people with prams, wheelchairs and other mobility aids*", this suggests that cyclists would also be able to use this path, albeit at low speed.

As shown in **Figure 3-1**, the pedestrian and cycle networks provide good connectivity to the surrounding areas around the Site.

Figure 3-1 Cycling Network Within the Vicinity of the Site



Source: Department of Transport WA (2017)

3.2 Future Pedestrian/Cycle Network Facilities

The City of Wanneroo Draft *Cycling Strategy and Plan 2015* aims to provide a strategic framework in developing recreational, sport and commuter cycling facilities in the future. It is understood that there are currently no planned changes to the cycling and walking network in the immediate vicinity of the Site from the draft plan.

However, a new concrete shared path is proposed along the eastern and southern boundaries of the Site which will connect to the shared path at the southern side of Gnangara Road as indicated in **Figure 3-2**.

Figure 3-2 Proposed New Concrete Shared Path

Source: VV Nominees Pty Ltd

4 Proposed Development

4.1 Proposed Land Uses

The amended Site proposal consists of mixed use development which include the following land uses:

- Child Care
- Medical Centre
- Café
- Pharmacy

The concept layout plans for the Site are provided in **Appendix B**.

4.2 Access Arrangements

Pedestrian access will be via the new shared path along Pollino Gardens which will connect to the existing shared path at Priest Road and Gnangara Road.

Vehicular access to the Site will also be along Pollino Gardens. **Figure 4-1** shows the location of the Site access.

Figure 4-1 Vehicle Access

Source of base: VV Investments Pty Ltd

4.3 Development Traffic Generation

Trip generation has been calculated for the Site, utilising trip generation rates from the *Institute of Transportation Engineers (ITE) "Trip Generation" 10th Ed and the RTA Guide to Traffic Generating Developments*. **Table 4-1** shows the trip generation rates, **Table 4-2** shows the directional distribution and **Table 4-3** presents the resultant potential trip generation of the proposed development.

Table 4-1 Trip Generation Rate – Peak hour of Generator

Land Use	ITE Code/Source	AM Peak	PM Peak
Child Care	RTA	0.8 trips per child	0.3 trips per child
Medical Centre	ITE	5.62 trips per 100m^2	4.99 trips per 100m^2
Pharmacy	ITE	8.3 trips per 100m^2	11.92 trips per 100m^2
Café	RTA	5 trips per 100m^2	5 trips per 100m^2

Table 4-2 Directional Distribution

Land Use	AM Peak		PM Peak	
	In	**Out**	**In**	**Out**
Child Care	50%	50%	50%	50%
Medical Centre	58%	42%	46%	54%
Pharmacy	50%	50%	50%	50%
Café	51%	49%	50%	50%

Table 4-3 Total Trip Generation of the Proposed Development

Land Use	AM Peak		PM Peak	
	In	**Out**	**In**	**Out**
Child Care	32	32	12	12
Medical Centre	33	24	24	28
Pharmacy	7	7	9	9
Café	7	7	7	7
Total	**79**	**70**	**52**	**56**

The proposed development represents a trip generation of approximately 149 vehicles in the AM peak and 108 vehicles in the PM peak hour. It should be noted that this trip generation is considered to be conservative and actual trip generation could be lower. A high degree of multi-purpose trips is expected for this area due to the synergy between the proposed land uses which would reduce the number of car trips overall.

As the Site is proposed to be "mixed use", the traffic generated will be higher when compared to the potential traffic generated by residential uses. However, despite higher volumes, the traffic impact on the surrounding road network will be minimal.

The Site will also have reasonable access to public transport, as well as access to shared paths.

4.4 Development Trip Distribution

As Pollino Gardens is the only road connected to the wider surrounding road network, it is expected that all inbound and outbound traffic will be through this road. From Pollino Garden, a majority of the Site generated trips are most likely to travel north to Gnangara Road.

The trips generated to and from the Site are very low and therefore are expected to have minimal impact to the surrounding road network.

5 Parking

5.1 Parking Requirements

The car parking provision required for the Site is set out in the City of Wanneroo's District Planning Scheme No.2 which are summarised in **Table 5-1**.

Table 5-1 Car Parking Requirements

Land Use	Car Parking Requirements
Child Care	9 bays plus 1 per 7 children accommodated in excess of 72, including 1 bay per staff member
Medical Centre	5 per practitioner plus 7 per 100m^2 of pharmacy
Pharmacy	
Café	1 per 4 people accommodated or 1 per 5m^2 seating area.

Table 5-2 summarises the parking provision and requirements for the Site.

Table 5-2 Car Parking Requirements and Provision

Land Use	Car Parking Requirements	Car Parking Provision
Child Care	26*	52 bays (including 2 ACROD bays) on-site 18 bays along the verge
Medical Centre	40**	
Pharmacy	11***	
Café	13****	
Total	**90**	**52 bays + 18 verge bays**

** Assuming 79 children and 16 staff*

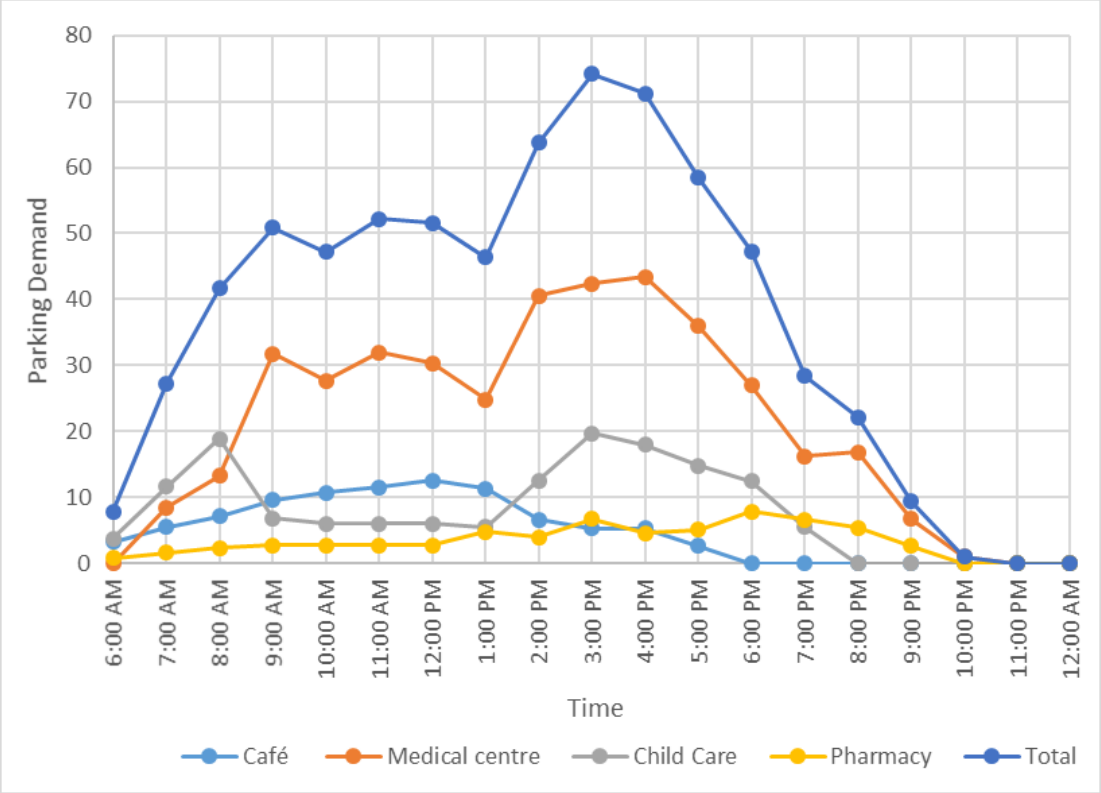
*** Assuming 8 medical practitioners*

**** Pharmacy area is 150m^2 NLA*

***** Assuming seating for 50 people for the café*

Based on the proposed land uses for the Site, there will be a high potential for shared and reciprocal parking on-site which reduces the parking demand (e.g. visitors of the medical centre are also likely to visit the pharmacy). A parking demand analysis was conducted using Cardno's in-house parking model with the results shown in **Figure 5-1**.

Figure 5-1 Estimated Parking Demand (Total)



In general, reciprocity and shared parking has the potential to reduce the parking demand by up to 10-15%. The peak demand is approximately 74 vehicles and occurs during the afternoon. Regarding the child care, parents are likely to do a quick drop-off/pick-up resulting in a higher parking turnover during these periods. Overall, the proposed parking supply should be sufficient to accommodate the estimated demand.

In addition to the 18 bays that are proposed within the verge in front of the Site along Pollino Gardens/Priest Road as shown in **Figure 5-2**, there are a further 18 existing on street parking bays within 200m west of the site that could provide supplementary parking during peak activity if required.

Figure 5-2 Proposed Verge Parking

6 Site-Specific Issues

A search of the Main Roads WA Reporting Centre for traffic crash data was undertaken for reported crashes between 1 January 2013 and 31 December 2017 for the following sections of road:

> Gnangara Road midblock between Ocean Reef Road and Coverwood Promenade; and

> Gnangara Road and Ocean Reef Road intersection.

There are no data from the Main Roads WA Reporting Centre for Pollino Gardens and Priest Road, including the Gnangara Road/Priest Road intersection.

The crash data are summarised in **Table 6-1** and **Table 6-2**.

Table 6-1 Gnangara Road midblock between Ocean Reef Road and Coverwood Promenade

Type of Crash	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	-	2	1	**3**
Sideswipe Same Direction	-	-	-	2	1	**3**
Hit Object	-	-	-	1	-	**1**
Total	**0**	**0**	**0**	**5**	**2**	**7**

Table 6-2 Gnangara Road and Ocean Reef Road intersection

Type of Crash	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	7	15	12	**34**
Sideswipe Same Direction	-	-	-	1	1	**2**
Right Turn Thru	-	-	1	1	-	**2**
Right Angle	-	2	3	1	-	**6**
Total	**0**	**2**	**11**	**18**	**13**	**44**

A summary of the crash data is as follows:

> The Gnangara Road and Ocean Reef Road intersection is rank 358 in the Main Roads WA Intersection Crash Ranking.

> A total of 51 crashes were recorded along Gnangara Road between Ocean Reef Road and Coverwood Promenade including the intersection of Gnangara Road and Ocean Reef Road.

> The majority of crashes occurred at the Gnangara Road/ Ocean Reef Road intersection.

> Most crashes led to property damage.

> Two crashes resulting in hospital attention were recorded at Gnangara Road/ Ocean Reef Road intersection and were right angle crashes.

> A total of 11 crashes were recorded that required medical attention at Gnangara Road/ Ocean Reef Road intersection and these were mostly rear end crashes.

> It is unlikely that the Site will cause any material impact to traffic safety of the surrounding road network.

7 Summary

This Transport Impact Statement outlines the transport aspects of the proposed development focusing on traffic operations, loading vehicle operations, access and car parking. Discussions regarding pedestrian, cycle, and public transport considerations are also provided.

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

The following conclusions are made in regards to the proposed development:

- The nearest bus stop is located approximately 350m away from the Site. Overall the public transport amenity within the area is considered to be satisfactory.
- The Site benefits from good pedestrian and cycling infrastructure with wide pedestrian footpaths and good shared paths within the surrounding area.
- The Site will generate approximately 149 vehicles during the peak AM period and 108 vehicle during the peak PM period. This is considered to be a conservative estimate due to the high level of multi-purpose trips expected for the Site. The proposed amendment to include additional uses of Medical Centre and Pharmacy is likely to generate higher traffic volumes when compared to residential uses. However, despite higher volumes, the traffic impact on the surrounding network will be minimal.
- The on-site car parking provision falls short of the statutory requirements. However, given the high degree of shared and reciprocal parking that is expected to occur within the Site, the parking demand is likely to be reduced. Additionally, 18 verge bays are proposed at the front of the Site along Pollino Gardens/Priest Road which are available to visitors.

APPENDIX

A

WAPC TRANSPORT STATEMENT CHECKLIST FOR DEVELOPMENT

WAPC Checklist for a Transport Statement, Individual Development, August 2016

Item	Status	Comments/Proposals
Proposed subdivision		
proposed land use	Section 4	
existing land uses	Section 1	
context with surrounds	Section 1	
Vehicular access and parking		
access arrangements	Section 4	
public, private, disabled parking set down / pick up	N/A	
Service vehicles (non-residential)		
access arrangements	Section 4	
on/off-site loading facilities	N/A	
Service vehicles (residential)		
Rubbish collection and emergency vehicle access	N/A	
Hours of operation (non-residential only)	N/A	
Traffic volumes		
daily or peak traffic volumes	Section 1	
type of vehicles (e.g. cars, trucks)	Section 1	
Traffic management on frontage streets	Section 1	
Public transport access		
nearest bus/train routes	Section 2	
nearest bus stops/train stations	Section 2	
pedestrian/cycle links to bus stops/train station	Section 2 and 3	
Pedestrian access/facilities		
existing pedestrian facilities within the development (if any)	Section 3	
proposed pedestrian facilities within development	Section 3	
existing pedestrian facilities on surrounding roads	Section 3	
proposals to improve pedestrian access	Section 3	
Cycle access/facilities		
existing cycle facilities within the development (if any)	Section 3	
proposed cycle facilities within the development	Section 3	
existing cycle facilities on surrounding roads	Section 3	
proposals to improve cycle access	Section 3	
Site specific issues	Section 6	
Safety issues		
identify issues	Section 6	
remedial measures	N/A	

APPENDIX

B

PROPOSED DEVELOPMENT LAYOUT PLANS

About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

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