

Wearne Cottages Redevelopment

MASTER PLAN



Prepared for **Curtin Care**
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Wearne Cottesloe Master Plan

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TABLE OF CONTENTS

INTRODUCTION	4	URBAN DESIGN FRAMEWORK	
BACKGROUND	5	LAND USE	34
SITE, LOCATION AND CONTEXT	6	AGED CARE ACCOMMODATION	36
PLANNING FRAMEWORK		HERITAGE BUILDING	37
STATUTORY		BUILT FORM HEIGHT AND SCALE	38
METROPOLITAN REGION SCHEME	8	GIBNEY STREET	40
TOWN OF COTTESLOE LOCAL PLANNING SCHEME NO.3	8	MARINE PARADE	44
PLANNING AND DEVELOPMENT	10	WARTON STREET	48
LOCAL PLANNING SCHEME	10	OVERSHADOWING	52
HERITAGE FRAMEWORK	11	SUSTAINABILITY	54
SITE CONDITIONS AND ANALYSIS		LANDSCAPE AND PUBLIC DOMAIN	
LANDFORM	12	STREETS	56
LANDSCAPE	14	SPACES	58
ISSUES AND OPPORTUNITIES		MOVEMENT NETWORK	
LAND USE	15	ACCESS	59
BUILT FORM	15	PEDESTRIAN AND CYCLING NETWORK	59
MOVEMENT	15	PUBLIC TRANSPORT	59
PUBLIC DOMAIN	15	PARKING	60
HERITAGE	16	INFRASTRUCTURE & SERVICING	62
STAKEHOLDER AND COMMUNITY CONSULTATION		URBAN WATER MANAGEMENT	62
TOWN OF COTTESLOE	18	SITE SERVICING	63
PLANNING APPROVAL FRAMEWORK	18	ELECTRICAL	63
LANDOWNER ENGAGEMENT	18	TELECOMMUNICATIONS	64
COMMUNITY CONSULTATION	18	HYDRAULIC	64
MASTER PLAN		WASTE WATER	64
MASTER PLAN DESIGN PRINCIPLES	22	GAS SUPPLY	64
PROVIDE COMMUNITY FOCUSED AGED CARE	24	DEVELOPMENT SEQUENCING	65
CREATE A HARMONIOUS RESIDENTIAL		IMPLEMENTATION	
NEIGHBOURHOOD	25	MASTER PLAN	66
INTEGRATING WITH THE EXISTING RESIDENTIAL		LOCAL PLANNING POLICY	66
NEIGHBOURHOOD	26	AMENDMENT TO LOCAL PLANNING SCHEME	66
COMMITTING TO SUSTAINABILITY	27	PROPOSED DEVELOPMENT STANDARDS	67
MASTER PLAN PRECINCTS		PLANNING FRAMEWORK	
HERITAGE PRECINCT	28	TRANSPORT @ 3.5 MILLION	77
RESIDENTIAL AGED CARE & RETIREMENT		DRAFT DESIGN WA	77
LIVING PRECINCT	30	TOWN OF COTTESLOE LOCAL PLANNING STRATEGY	78
MARINE PARADE ACTIVATION PRECINCT	32	TOWN OF COTTESLOE STRATEGIC COMMUNITY PLAN 2013-2013	78
		STATUTORY PLANNING FRAMEWORK	
		POLICIES	79
		LOCAL PLANNING SCHEME NO.3	82
		LOCAL PLANNING POLICY NO.1 - PARKING MATTERS	84
		TOWN OF COTTESLOE POLICY - STREET TREES	85
		HERITAGE FRAMEWORK	86

INTRODUCTION

This Master Plan, has been commissioned by Curtin Care (the Client) to establish a vision and describe the proposed Wearne redevelopment project. The intent is to establish a new aged care and retirement living development at the current Wearne site in Cottesloe.

The Master Plan provides flexibility for future development within the permitted land uses of the site, particularly in terms of land uses and activities, built form and architecture, and the design of the public domain. The Master Plan is focused on ensuring that the urban structure, built form scale, public realm interfaces and land use configuration are designed to achieve the best outcomes for the area.

This report contains broad level design guidance, which provides the foundation for the future development of detailed statutory planning documents and associated guidelines.

The Master Planning process commenced in early 2017 and the publication of this document represents the conclusion of this phase of work.

Consultation has been undertaken through a series of workshops, briefings, formal and informal meetings with a wide range of stakeholders, including the local community and immediate neighbours, the four local government authorities that own the land, the Project Steering Committee and Curtin Care Board, members of Curtin Care, families of existing Wearne residents, operational personnel, industry experts and advisors to reach this milestone.

Importantly, the site will continue to deliver aged care services to the local community. Curtin Care, is a local community-based, not-for-profit, charitable organisation founded in 1979.

OBJECTIVES

The objective of this report is the preparation of a Master Plan that explores options for the redevelopment and delivery of an aged care facility that:

- Responds sensitively to interface issues, particularly between existing residential development adjacent to the site and the subject land.
- Delivers an optimal residential aged care facility having regard to the statutory and operational requirements of such a facility.
- Examines and improves the existing movement network including site access.
- Defines appropriate building envelopes, typologies, form and heights having specific regard for existing and surrounding development.
- Identifies the amount, locations for and functions of key open spaces and considers the opportunity for public realm for aged care, independent living and communal spaces.
- Is implementable in the context of a phased project delivery.

BACKGROUND

Wearne Cottesloe is an existing aged persons' facility which comprises residential aged care accommodation and associated amenities. Curtin Care is a not-for-profit, charitable organisation which holds the lease to the Wearne Cottesloe site and is the approved provider responsible for all operations.

Curtin Care is focused on meeting the needs of aged and less able residents and their families of the Western district of Perth. Curtin Care aims to provide high quality and contemporary accommodation, care related services on a not-for-profit basis.

The population in Cottesloe and surrounding suburbs is rapidly ageing, and insufficient capacity exists to meet demand for aged care and complementary services. The Cottesloe region is expected to demonstrate a 40 percent increase in the population of people aged 75 to 84 years over the next decade, and the cohort of people aged 65 to 74 years is projected to increase by 13 percent over the same period (Australian Bureau of Statistics).

The proposed redevelopment has been brought about to satisfy the unmet need of the local ageing population and anticipated future growth. Curtin Care sought and was granted provisional allocation of an additional 22 bed

licences at the outset of its aspiration to increase the availability of aged care places to the local community, and is required to provide justification to the Department of Health for each year that the provisionally allocated licences are not available. Further application will be made to the Department of Health for the remaining bed licences to accommodate the total required residential aged care capacity.

Curtin Care's project deliverables and requirements for the redevelopment of Wearne Cottesloe are summarised below.

- Providing 129 residential aged care places
- Phased construction to enable continuity of care for existing residents
- Delivering complementary care related services
- 76 retirement apartments for independent living
- Designing to meet the National Construction Code and Australian Standards.
- Achieve a sustainable development outcome
- Approvals through the relevant aged care approval framework
- Integration with the adjacent community



Wearne House 2017

SITE, LOCATION AND CONTEXT

The subject site is 2.0649ha in area and currently accommodates an aged persons' facility, comprising residential aged care accommodation and associated facilities.

The subject site is located on Lot 555 (No. 1) Gibney Street Cottesloe, approximately 13km south-west of the Perth CBD within the jurisdiction of the Town of Cottesloe (**Figure 1**) and is owned by the Towns of Cottesloe, Claremont, Mosman Park and the Shire of Peppermint Grove.

The four Councils and Curtin Care have signed an Agreement to Lease and Redevelop in relation to Wearne Cottesloe. The Agreement extends Curtin Care's tenure on the basis that the site will be redeveloped by Curtin Care and the Councils will work with Curtin Care to facilitate the redevelopment of the site. The Agreement requires the four Councils to approve a Master Plan for the project. The Report constitutes the Master Plan.

The subject site is bound by Gibney Street to the North, Marine Parade to the West, Warton Street to the South and the WA Foundation for Deaf Children to the East.

The subject site is located to the west of the Perth to Fremantle passenger railway line, and is approximately 550 metres south-west of the Mosman Park Railway Station and 350 metres north-west of the Victoria Street Railway Station.

The Sea View Golf Club is located approximately 800 metres to the north of the subject site. The surrounding locality consists predominantly of residential development.



Figure 1 - Location and Context



PLANNING FRAMEWORK

STATUTORY

The following planning framework overview is provided as context to define the purpose of the Master Plan. A more detailed overview of the framework can be found in Appendix 1.

METROPOLITAN REGION SCHEME

The subject site is zoned 'Urban' under the Metropolitan Region Scheme (MRS) (**Figure 2**). The land to the north, east and south is also zoned 'Urban'. The land immediately to the west is reserved for 'Parks and Recreation' and 'Waterways'.

Curtin Avenue is located to the east of the subject site and is reserved for 'Primary Regional Roads' under the MRS.

The Perth to Fremantle 'Railway Reserve' and Stirling Highway 'Primary Regional Road' Reservation are located to the East of the subject site.



Figure 2 - Metropolitan Region Scheme

TOWN OF COTTESLOE LOCAL PLANNING SCHEME NO. 3

Zoning

The subject site is zoned 'Development C' under the Town of Cottesloe Local Planning Scheme No. 3 (LPS3) (**Figure 3**). The lot to the east is zoned 'Development D' (School for the Deaf site). The land to the north and south is zoned 'Residential' and coded R30.



Figure 3 - Town of Cottesloe LPS 3

Development Zone Objectives

LPS3 states that the objectives of the Development zone are to:

(a) provide for detailed planning to guide the use and development of land or buildings that are of a size, location, nature, character or significance warranting a comprehensive, coordinated and integrated approach to planning and design;

(b) ensure that land use and development within the zone is compatible with the amenity of the surrounding locality;

(c) ensure that any development does not unduly adversely affect the amenity of the adjoining and surrounding properties or locality, including by reason of height, built form, overshadowing, traffic, parking or other relevant aspects;

(d) allow for land use and development to contribute to the provision or enhancement of community facilities and services and to the public domain; and

(e) give consideration to the maintenance and enhancement of important views to and from public places as a contributor to the character and amenity of the locality and the district overall.

Schedule 14 - Development Zone Provisions

'Schedule 14 – Development Zone Provisions' of LPS3 states the following in relation to 'Development C':

- Comprehensive planning for the area shall be undertaken through the preparation and approval of a Structure Plan, in accordance with Clause 6.2, to guide subdivision and development.
- Land uses shown on the Structure Plan shall apply in accordance with Clause 6.2.8.
- The Structure Plan will apply to the entire site and will provide for additional residential development comprising a range of dwelling types, sizes and densities to take full advantage of the opportunity for more intense urban infill on this site, particularly with regard to its close proximity to regional public transport routes.
- The Structure Plan may also provide for additional aged care dwellings and any associated ancillary buildings that may be required.
- The Structure Plan will have regard for, and if possible integrate with, the Structure Plan for Area 'D'.
- 'Schedule 14 – Development Zone Provisions' of LPS3 states the following in relation to 'Development D':
 - Comprehensive planning for the area shall be undertaken through the preparation and approval of a Structure Plan, in accordance with Clause 6.2, to guide subdivision and development.
 - Land uses shown on the Structure Plan shall apply in accordance with clause 6.2.8.

PLANNING AND DEVELOPMENT (REGULATIONS 2015)

Regulations define a structure plan as a plan for the coordination of future subdivision and zoning of any land. In this respect, it is noted that Curtin Care does not propose to subdivide or rezone the land, which is controlled by a restrictive covenant on the title that prohibits the subdivision and sale of the land. The Regulations also provide as follows:

When a structure plan may be prepared

A structure plan in respect of an area of land in the Scheme area may be prepared if:

- a. The area is:
 - i. All or part of a zone identified in this Scheme as an area suitable for urban or industrial development; and
 - ii. Identified in this Scheme as an area that required a structure plan to be prepared before any future subdivision or development is undertaken;

This raises inconsistency between the Scheme which requires a structure plan and the Regulations which provide that a structure plan may be prepared. This provides a level of interpretation that a structure plan may not be mandated but is a mechanism that can be selected.

The regulations provide further as follows:

Effect of structure plan

- i. A decision-maker for an application for development approval or subdivision in an area that is covered by a structure plan that has been approved by the Commission is to have due regard to, but is not bound by, the structure plan when deciding the application
- ii. A decision-maker for an application for development approval or subdivision approval in an area referred to in Clause 15 as being an area for which a structure plan may be prepared, but for which no structure plan has been approved by the Commission, may approve the application if the decision maker is satisfied that:
 - a. The proposed development or subdivision does not conflict with the principle of orderly and proper planning; and
 - b. The proposed development or subdivision would not prejudice the overall development potential of the area.

LOCAL PLANNING SCHEMES

This means that a structure plan has the effect only as a policy instrument to be had due regard to, rather than having the statutory force of scheme provisions. It also means that the absence of a structure plan does not prevent the determination of appropriate development proposals.

Curtin Care therefore proposed that a Master Plan be prepared instead of a structure plan to satisfy its obligation under the Agreement to Lease and Redevelop and avoid the duplication of planning processes. A Master Plan will perform the same function as a structure plan in outlining the statement of intent for the redevelopment of the site. The Master Plan will incorporate development standards which the Town can refine and include in a Local Planning Policy. A Local Planning Policy is advertised for public comment and approved by the Town. The Joint Development Assessment Panel must have regard to a Local Planning Policy in determining a major development application for the site. Similarly, the Town is required to have regard to the Local Planning Policy when determining a minor development application for the site.

On the basis of the above, the Town considered a revised planning framework proposal at its meeting on 25 July 2017, where it resolved to:

1. Note that the Planning and Development (Local Planning Schemes) Regulations 2015 have reduced the status of the structure plan and changed the process such that the local authority does not determine structure plans.
2. Note the function of the proposed Master Plan and local planning policy is to provide the Town of Cottesloe with authority over planning parameters and development requirements in relation to development; and
3. Advise Curtin Care that Council would accept a local planning policy incorporating the agreed Master Plan instead of a structure plan, subject to the Master Plan having undergone extensive community consultation prior to Council's consideration.

HERITAGE FRAMEWORK

Griffiths Architects, Heritage Architects, have prepared the heritage requirements for this development as follows;

The whole of the existing Wearne Hostel site is listed on the State Register of Heritage Places (Place no. 00603), the Local Planning Scheme No.3 – Heritage List and the Town of Cottesloe Municipal Heritage Inventory – Category 1.

Construction commenced on the building in 1897, and was used for the Ministering Children’s League, which was a world-wide organisation founded by the Countess of Meath in England.

Key points of the heritage listings are:

- The inclusion on the State Register of Heritage Places reflects the significance of the place at State level.
- Inclusion in the Local Planning Scheme provides protection under the heritage provisions of the TPS.
- The inclusion on the Town’s Municipal Heritage Inventory as a Category 1 entry indicates the importance of the place to the local community in addition to its State significance.
- The statutory listings will be applicable during the approval process. The State Register listing will involve the Heritage Council of Western Australia in the approval process for any development on the site as a decision-making authority under the Heritage Act. The advice of HCWA must be sought by the Town of Cottesloe, for whichever avenue is chosen to submit for planning approval, before a decision is made. Decisions on development must be consistent with HCWA advice.

The conservation management plan (CMP) for the place has been updated to reflect changes to the place and in practice for the preparation of conservation management plans since the CMP was originally prepared. The CMP is the guiding document for development to the place and will be referred to by the HCWA when considering the proposal for development of the site.

The CMP contains detailed information on the history and significance of the place. The updated conservation management plan has been submitted to the State Heritage Office, now within The Department of Planning, Lands and Heritage.

A Master Plan package was submitted to the State Heritage Office on the 6 October 2017 and was considered by the October Development Committee for preliminary comment in regard to impact on the Heritage Significance of the place.

The Development Committee commented on the Master Plan package and found that the proposed master plan had a positive heritage impact. The main points were; the proposed Master Plan allowed for the building to be revealed in the round; the level of demolition required could be supported as it was fabric that generally did not contribute to the significance of the place; and, the development height did not impact on the significant views to the heritage building and responded to the sites contours. For the development application stage, the Development Committee requested information be provided to the details of conservation, landscaping and interpretation to be provided as part of the development.



Wearne House 2017

SITE CONDITIONS AND ANALYSIS

LANDFORM

The landform gradually rises from the western boundary then rises steeply to the north eastern corner. The general slope of the land from the highest point in the north eastern corner at RL+26.50 is steep for approximately 60m down to RL+18.00.

At the elevated point expansive views are obtained across the whole site, the rooftops of existing buildings across to the ocean horizon. Within this broad landform there is a perception of a lower gently rising area which is presently the foreground of the heritage buildings. In the south west corner, each side of the existing entry gates, there is localised mounding.

These mounds although in contrast to the general landform, reinforce a sense of enclosure to the internal space and protect the grounds from south westerly wind exposure. The topography of the site rises more predominantly adjacent the eastern boundary with the Deaf School site.



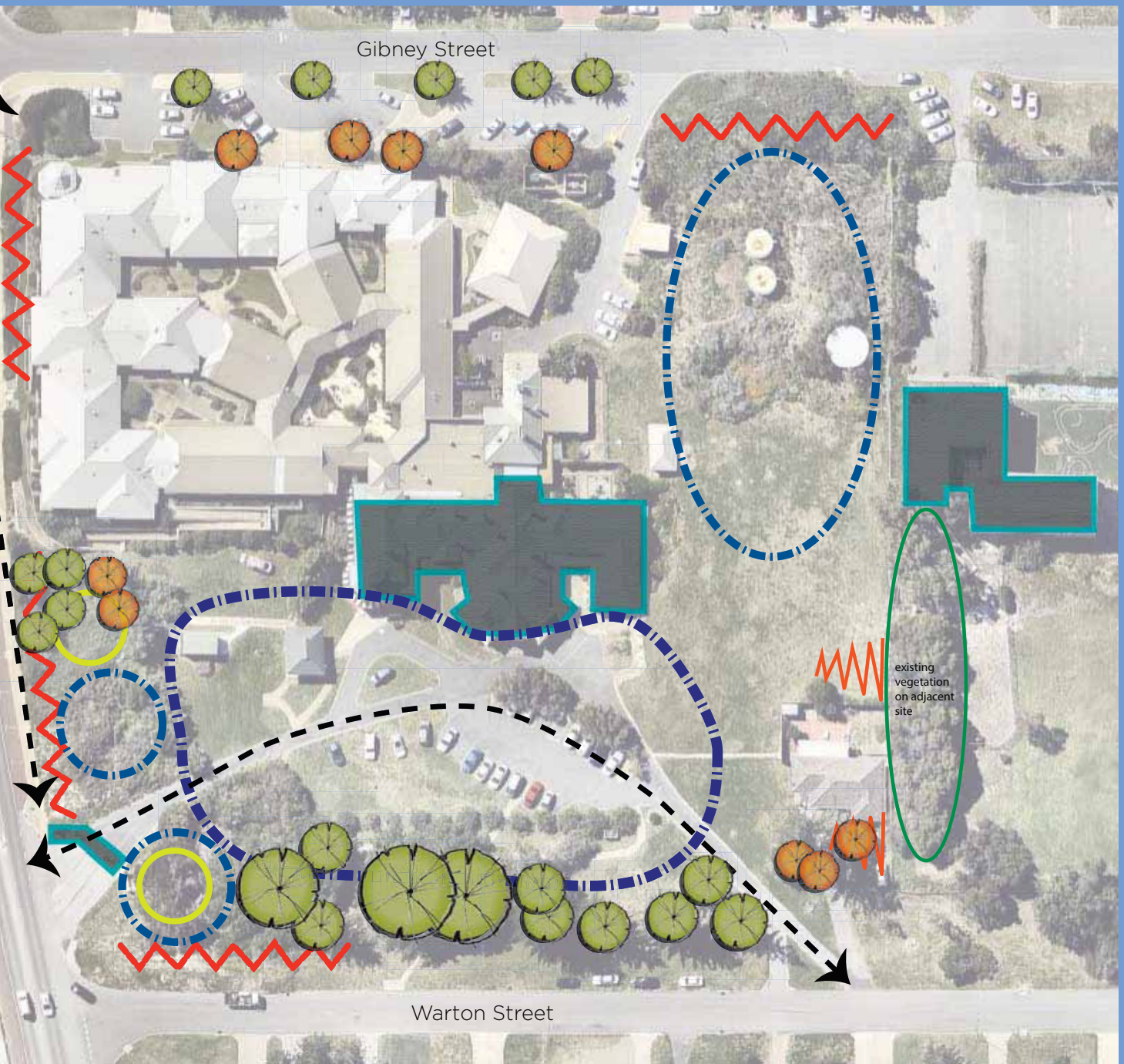
Elevated views north west towards the coast from the Eastern boundary of the property



View east along Warton Street gently rising towards Curtin Avenue



Figure 4 - Site and Landscape considerations



GENERAL SITE INFORMATION

There has been a geotechnical study by GALT in 2016, and a geotechnical investigation by GBGMAPS in 2017. These have reported the following site conditions:

- The site is underlain either by sand or by sand over limestone;
- The east park of the site has a top layer of sand varying in depth from approximately 0.5 to 4.0m.
- The north west part of the site has a top layer of sand fill approximately 1.8m deep overlying a layer of insitu sand approximately 0.5m deep.
- Site topography ranges between RL 12m AHD in the south west to RL 27m AHD in the north east.

LANDSCAPE

The existing landscape has developed over many years and reflects both heritage values and more contemporary treatments. The mature trees within the site are mainly related to the southern perimeter zone where very large Ficus dominate and frame the broad grass lawn areas that are the buildings foreground.

The south side of the site along Warton Street has a number of trees that exhibit good health and structure. A small group of Melaleuca trees along the south west corner of the site provide a level of defence against the strong south westerly wind.

The western interface along Marine Parade has large Casuarina specimens that also provide protection and shade. Along the North of the site in the Gibney Street road reserve there are large Norfolk Island Pine specimens creating a typical Cottesloe streetscape.

Recent planting of Bottlebrush trees associated with car parking off the driveway, interfere with views of the building from the street and are an intrusion within the broad space created by more mature vegetation.



Existing large ficus tree



Mature Norfolk Island Pines in the Warton Street Reserve



Existing Bottlebrush located within car park

ISSUES AND OPPORTUNITIES

Examination of the site and its surrounds gives rise to the identification of a number of issues and opportunities to be considered when formulating a Master Plan, refer figures 4 & 5.

LAND USE

- Requirement to continue to provide services to the local aging population through the redevelopment.
- Requirement to accommodate Residential Aged Care Facility and Independent Living and consider opportunities for associated health services.
- Consider providing communal facilities in heritage building and on ground floor to provide activation to Marine Parade and interface to Heritage Zone.
- Opportunity to consider a range of open space types to cater for a range of purposes.
- Consider phasing of residential aged care facility to ensure existing residents are not displaced during construction.
- Important to activate street frontages by providing a combination of community facilities and residential activities to promote passive surveillance of the public realm.

BUILT FORM

- Requirement to retain existing heritage building and respecting its curtilage.
- Consider built form interface to adjacent streets.
- Built form response to consider topographical opportunities of the site in responding and managing building height.
- Opportunity to increase height of buildings to capture ocean views to the west.
- Important to consider the scale and massing of the building and the interface with Marine Parade.
- Height of buildings to consider the height of the adjacent WA School for the Deaf site and associated buildings.

MOVEMENT

- The increased density of development and likely associated vehicle movements creates the need for improved vehicular connections in order to improve general legibility and accessibility to the site.
- Creation of a safe street environment adjacent the site by exploring strategic access points to minimise crossovers.
- Opportunity to reduce the frequency and provide clarity for access to the site.
- Potential to consolidate car parking as part of the built form response away from public view.
- Opportunity to integrate improved pedestrian and cycle network connections with the surrounding neighbourhood.

PUBLIC DOMAIN

- Important to activate the street front on to Marine Parade and facilitate the community interface.
- Potential to enhance the existing streetscape by forming a strong pedestrian link, rearranging parking and landscaping along northern edge of site.
- Consider extension of perimeter landscape buffer, and utilise landscaping to provide visual screening.
- Opportunity to retain and enhance existing heritage gardens.
- Important to consider sun path when considering orientation and location of buildings and open spaces.
- Opportunity to retain existing trees along southern edge of site to provide a visual buffer.
- Consider opportunities to provide visual and physical linkages with the adjoining Deaf School site.

HERITAGE

- Maintaining the important vistas to and from the significant fabric of the original Wearne building.
- Determination of significant fabric to be retained.
- Transitioning from the scale and massing of the heritage hostel sections to that of the new buildings without negatively impacting on the significance.
- Careful consideration of physical connections to the heritage fabric.
- Assessment and documentation of conservation works to the significant fabric for the redevelopment.
- Coordination of new services installation to the significant fabric.
- Determination of compatible future use for the significant fabric.
- Approval of the development by the Heritage Council of Western Australia.
- Consider boundary interface to Deaf School site heritage building.

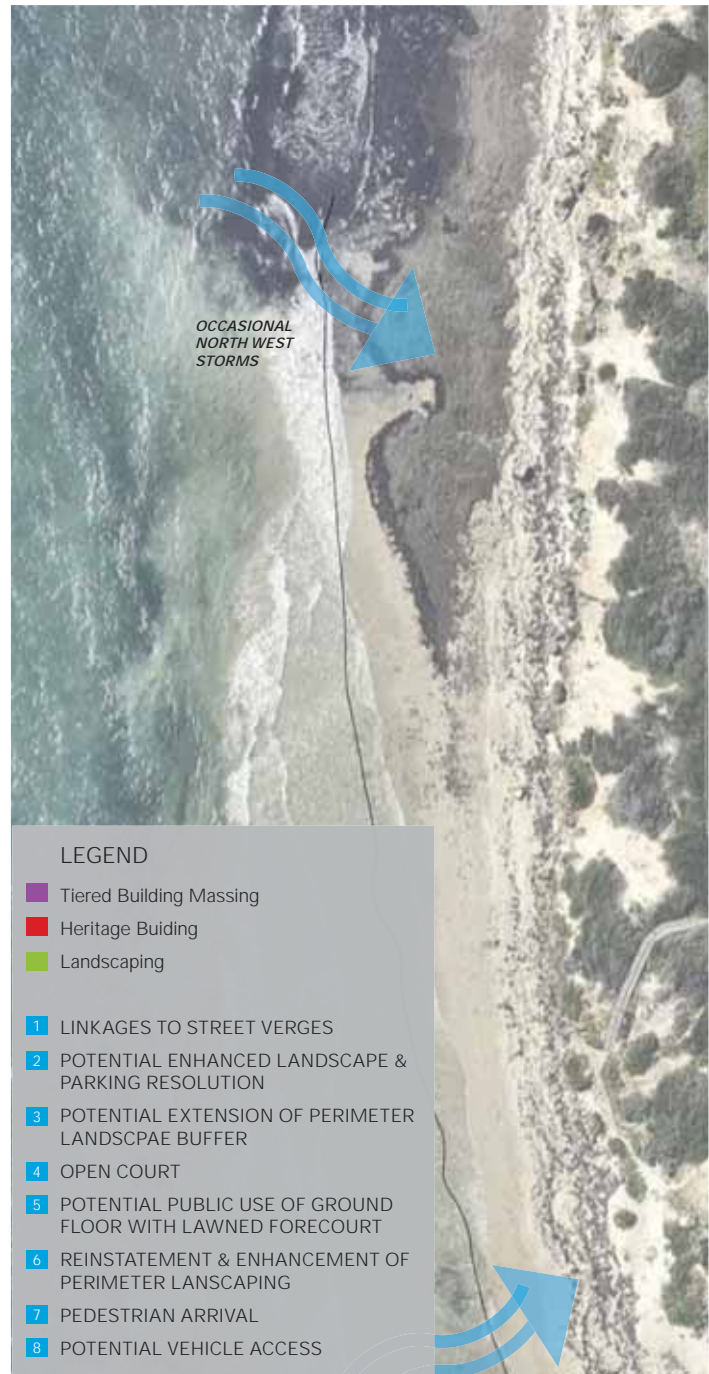


Figure 5 - Issues and Opportunities



STAKEHOLDER AND COMMUNITY CONSULTATION

Curtin Care has engaged extensively with the key government agencies, the landowner group and the local community throughout the process of formulating the Master Plan for the site. A summary of the consultation is outlined below:

TOWN OF COTTESLOE

Curtin Care and its consultants have appraised the Town of Cottesloe of progress on the planning process and Master Plan formulation for the site and briefed Council at the 6th June 2017 Briefing Forum and the 20th June 2017 Agenda Forum, which:

- Summarised the community consultation Vision Workshop Outcomes, Design Scenarios Workshop Outcomes and provided an overview of the Preferred Scenario; and
- Outlined the future formal phases of the project including scoping the potential planning methods and processes involved.

A revised planning framework analysis was subsequently submitted for Council's consideration.

PLANNING APPROVAL FRAMEWORK

On 25th July 2017 a further presentation was made to Town of Cottesloe Council outlining the proposed revised planning framework having regard to Local Planning Scheme No. 3 and the Planning and Development Regulations 2015. Concurrently, the Department of Planning, Lands and Heritage were consulted to confirm the proposed revised planning framework was consistent with their interpretation and also acceptable to the Department. The Town of Cottesloe, subsequently resolved to accept a local planning policy incorporating the agreed Master Plan instead of a structure plan, subject to the Master Plan having undergone extensive community consultation prior to Council's consideration.

LANDOWNER ENGAGEMENT

Curtin Care and its consultants having been working with the four local government land owners, including the Towns of Cottesloe, Claremont, Mosman Park and the Shire of Peppermint Grove to satisfy the requirements of the Lease Agreement in relation to formulation of a Master Plan for the site. This has involved various meetings with the CEOs of the four Councils' to confirm and agree a process to obtain support for the Master Plan being suitable to proceed to advertising. Presentation of the Draft Master Plan to each of the Councils' elected member groups occurred during the month of September 2017.

COMMUNITY CONSULTATION

Curtin Care undertook a voluntary engagement process with the interested members of the local Cottesloe community, neighbouring residents on Gibney and Warton Streets and existing care residents and their families to inform the Master Plan formulation phase. A summary of this process is outlined below.

Visioning Workshop

A Visioning Workshop was held as the first phase of the community's involvement (non-statutory) in the redevelopment of Wearne Cottesloe. A total of 22 attendees participated in the Visioning Workshop.

The purpose of the Visioning Workshop was to:

- Establish key values;
- Identify opportunities to be considered during the redevelopment; and
- Establish draft design principles to guide the design scenarios and ultimately the preferred design scenario for the redevelopment of Wearne Cottesloe.

The workshop involved two exercises: the first involved identifying the existing site assets, values and key considerations to inform the future development; and the second required participants to consider and provide input into draft design principles. The design principles were generally supported by the community and will assist in informing formulation of the development application.

Design Scenarios Workshop

A Design Scenarios Workshop was the second step of the community's involvement in the redevelopment of Wearne Cottesloe. A total of 29 attendees participated in the Design Scenarios Workshop.

The design process and preferred design scenario was presented to the group, which was informed by and aligned with the site assets and values, key design considerations and preferred design principles identified by the attendees of the Visioning Workshop.

The purpose of the Design Scenarios Workshop was to present the design process and evolve a preferred design scenario for the redevelopment of Wearne Cottesloe.

In particular, the Workshop involved:

Presenting the design process:

- Evolving the preferred scenario by presenting design options for development by the Workshop attendees; and
- Undertaking two workshop exercises to develop the preferred scenario in relation to building envelope and the landscape strategy.

The outcomes from the Design Scenarios Workshop enabled the preferred design scenario to be refined.

Presentation of Master Plan

The Master Plan was informed by and aligned with the site assets and values, key design considerations and preferred design principles identified by the attendees at the Visioning Workshop, and refined at the Design Scenarios Workshop.

It is intended to present the Master Plan back to the workshop participants prior to formal consideration by the four local government land owners.

Further statutory processes and community engagement will be completed by the Town of Cottesloe as part of its consideration of the Local Planning Policy.



Community members participating in the vision and design scenario workshops

WEARNE COTTESLOE REDEVELOPMENT MASTER PLAN



Figure 6 - Aerial concept massing model (view from South West)



MASTER PLAN DESIGN PRINCIPLES

The Master Plan is based on four main strategic planning principles that specifically guide development of the site. These are the major principles which deal with the overall pattern of development, the character of the development, and the unique opportunities of the location. The principles also serve as the design rationale for the Master Plan.

PROVIDE COMMUNITY FOCUSED AGED CARE

To provide benevolent care of aged persons in the local community that integrates with the residential neighbourhood in a non-institutional way.

CREATING A HARMONIOUS RESIDENTIAL NEIGHBOURHOOD

Optimise the appeal of the site as a great place to live and work, with a focus for community life, new and improved open spaces, good internal connections and links to its surrounds.

INTEGRATING WITH THE EXISTING NEIGHBOURHOOD

Provide an appropriate land use, built form and public domain interface between the site and the adjacent residential neighbourhood.

COMMITTING TO SUSTAINABILITY

The redevelopment of the site should be undertaken with consideration of environmental sensitivity and resource-efficient design, lifestyle, diversity of dwelling types, economic viability and efficient use of existing services.



LEGEND

- 1 Retirement living apartments scale down from Gibney Street to Marine Parade in response to the natural topography of the site
- 2 Individual building masses to respect the scale of the surrounding neighbourhood
- 3 The proposed building height reflects and takes its cues from the existing WA School for the Deaf heritage building
- 4 Visual breaks between buildings to provide view and access corridors and reduce building mass
- 5 Mixed use development Retirement living Parade
- 6 Activated frontage – the gateway to the site
- 7 Internalised open spaces between buildings
- 8 Rooftop terraces and recreation spaces



development at the ground level with
apartments above along Marine

to Marine Parade
the Wearne Redevelopment
space opportunities within and
contributes to the variety of

- 8** Residential Aged Care Facility (RAC) that sits within the elevation of the site and respects Wearne House and addresses the Heritage Gardens and Warton Street
- 10** Enhanced verge landscape including additional planting of Norfolk Island Pines to supplement street tree theme
- 11** Entrance to Residential Aged Care Facility via Warton Street
- 12** Buildings adjacent Wearne House positioned to complement the Heritage status
- 13** Restoration of Wearne House and repurposing for resident and possible community access
- 14** Rehabilitation and enhancement of the Heritage Gardens for resident and community use and events
- 15** Retain Heritage gates and celebrate heritage of the past use of the site

PROVIDE COMMUNITY FOCUSED AGED CARE

To provide benevolent care of aged persons in the local community that integrates with the residential neighbourhood in a non-institutional way. The special characteristics of the existing development and the site should be used as the basis for development. The Master Plan proposes to foster a sense of belonging and build upon the strong community relationship with the existing community.

The Master Plan proposes to:

- Acknowledge the existing aged care activities on the site.
- Relocate, improve and expand the provision of aged care services.
- Include retirement living accommodation and associated services.
- Enable “ageing-in-community” where local residents can stay in the area as they age.
- Provide variety and choice of accommodation to current and future residents through diversity of built form.
- Include space for uses that are complementary to aged care and accessible by the local community.
- Retain and restore the heritage hostel to ensure its use for future generations.
- Retain and upgrade public open space within the site for use by both residents and the community.



Catering for existing residents



Expand the provision of aged care services

CREATE A HARMONIOUS RESIDENTIAL NEIGHBOURHOOD

Optimise the appeal of the site as a great place to live and work, with a focus for aged care community life, new and improved open spaces, good internal connections and links to its surrounds.

The Master Plan proposes to:

- Deliver resident focused aged care.
- Create a place for people of all ages and abilities, with a focus on aging well.
- Promote a sense of belonging and ownership to increase wellbeing and safety.
- Encourage passive surveillance through considered building layout and design.
- Encourage community harmony through improved open spaces and heritage restoration.
- Adapt the existing heritage buildings for reuse to preserve them for future generations.
- Establish an inviting setting for social interaction with quality public spaces.
- Provide simple wayfinding with visual cues and pedestrian linkages to points of significance.



Spaces for community life to flourish



Providing a variety of facilities for the residents



Providing a variety of spaces for outdoor socialising



Provision of a variety of services for the community

INTEGRATING WITH THE EXISTING RESIDENTIAL NEIGHBOURHOOD

Provide an appropriate land use, built form and public domain interface between the site and the adjacent residential neighbourhood.

The key built form and public space objectives of the Master Plan are:

- To balance building heights and scale to create a pleasant experience at the street level whilst optimising opportunities to capture views of the ocean and internal open spaces.
- To develop the heritage gardens as the central open space feature which will be a major focus for community life, with flexibility for a range of functions.
- To create a diverse range of open spaces for different uses and with varied character to provide amenities for residents, workers and visitors.
- To form a cohesive development in terms of quality whilst ensuring the massing reflects the natural slope of the site through tiered built form.



Public realm designed to emphasise landscape quality and pedestrian amenity.



Built form responding to the topography of the site
The Village at Coorparoo (SS Architects)



High landscape amenity and opportunities for community enjoyment in parkland setting

COMMITTING TO SUSTAINABILITY

The redevelopment of the site will be undertaken with consideration of environmental sensitivity and resource-efficient design, with an emphasis on lifestyle, diversity of dwelling types, economic viability and efficient use of existing services.

ENVIRONMENTAL

The following environmentally sustainable features are intended to be included. These initiatives and opportunities will be developed as the technical specification for the design is established.

- Refine passive solar design principles to efficiently heat and light buildings.
- Further harness local conditions, combined with the natural elements to heat, cool and ventilate buildings.
- Design low-energy heating and cooling systems, incorporating external sun shades, operable windows and mixed-mode ventilation.
- Incorporate systems that allow the generation of energy from alternative sources.
- Provide a Building Management System (BMS) that monitors and adjusts heating, ventilation and air conditioning to within optimum parameters and reports on energy use.
- Provide sub-metering for all substantive energy uses.
- Specify materials that are environmentally sustainable with low volatile organic compounds (VOCs) and minimise the use of materials containing formaldehyde.
- Reduce potable water use through efficient design of building systems, rainwater collection and water reuse.
- Specify WELS rated hydraulic fixtures and appliances
- Water-wise species for landscaping.
- Augment irrigation with recycled water.
- Operations will incorporate initiatives such as waste separation for recycling and end of trip facilities.
- Sensitive, integrated stormwater drainage management.
- Residents' Welcome Pack / Building Users Guide to include information on energy minimisation, waste management, public transport.
- Employ efficient technologies to minimise power use in buildings including LED lighting, infrared sensors and solar control glazing.

- Undertake life-cycle costing for building systems, to ensure energy cost are considered.
- Construction Waste Management Plan to encourage the reuse / recycling of construction waste.

The design will comply with Section J Energy Efficiency of the National Construction Code (NCC) of Australia and be benchmarked against the requirements of the relevant Green Building Council (GBCA) rating tool.

SOCIAL

- Adopt an intergenerational approach through providing accommodation, services and activities for a wide range of age groups and income levels.
- Provide a range of dwelling types to accommodate a variety of residents with various care needs and socioeconomic means.
- Achieve a flexible built form that has the ability to be adapted as a residents needs change allowing aging in place.
- Minimise safety and security concerns without sanitising the environment, public realm and community facilities.

ECONOMIC

- Generate a critical mass of activity to support the continued viability of the aged care and allied health services.
- Create the appropriate development conditions to assure the feasibility and operational efficiency of an aged care development.
- Provide adaptable built form, particularly for communal areas, with space that can be reconfigured and changed over time.

The above items describe the design intent and are all for further consideration as the design develops from a master plan level of detail into a detailed design.

MASTER PLAN PRECINCTS

HERITAGE PRECINCT

The heritage precinct will be the centre for community life for the development. The heritage precinct incorporates Wearne House and the heritage gardens which will comprise a combination of open parklands, civic and nature play spaces.

Vehicles will travel slowly into the space mixing harmoniously with pedestrians to service the high care facility with emergency access, drop off and a small amount of convenience parking. The heritage precinct will be integrated with links between the residential Aged Care facility, Wearne House communal facilities and the commercial activities along Marine Parade. Pedestrian connections will also be provided to the adjacent residential neighbourhood ensuring safe pedestrian crossings, a well-lit public domain, and activated edges that will help to make the Heritage precinct the 'heart' and focus of the development.

The Heritage Park will be attractively landscaped with a mix of hard and soft treatments surrounding by significant existing mature trees and elegant built form with alfresco opportunities, entries and access ways. The space will provide shade and shelter, and be suitable to become an important event and gathering space for the residents, visitors and local community.

The Heritage Park will provide a place to:

- Gather with neighbours, family and friends;
- Take an evening stroll;
- Exercise and an area for children to play;
- Simply sit and contemplate in the landscape.

The buildings surrounding the Heritage Park will be a mix of lower scale (Wearne House), with buildings generally setback from the park to respect Wearne House. The buildings on the northern side of the Heritage Park will be a combination of communal and commercial at the ground level, to the east, the main access into the Residential Aged Care Facility providing activation at street and pedestrian level with residents above, promoting 24 hour passive surveillance.



Heritage garden for community enjoyment in parkland setting



Pedestrian pathways linking with the Heritage Precinct designed to emphasise landscape quality and pedestrian amenity



Spaces for community life to flourish



Heritage Precinct including Wearne House and Heritage gardens at the 'heart' of the development



Restore and re-purpose heritage as part of an integrated retirement living development
Regis North Fremantle (STH Architects)



Juxtaposition between heritage and contemporary retirement living
The Village at Coorparoo (SS Architects)

RESIDENTIAL AGED CARE & RETIREMENT LIVING PRECINCT

The aged care precinct incorporates all of the residential aged care and retirement living development within the site and is the focus for community life in the precinct.

The site will comprise two types of aged care:

- Residential Aged Care Facility; and
- Retirement Living Apartments

within a number of accommodation typologies including:

Retirement Living Apartments - Accommodation	
2 Bed Room 1.5 Bathroom	9
2 Bed Room 2 Bathroom	12
2 Bed Room 2 Bathroom 1 Study	36
3 Bed Room 2 Bathroom	9
3 Bed Room 2.5 Bathroom	10
	76

Residential Aged Care Accommodation	
Bed Room Standard	24
Bed Room Deluxe	54
Bed Room Suite	18
Bed Room Dementia	24
Bed Room Dementia Deluxe	8
Family Room	1
	129

The aged care precinct will be supported by a variety of private open spaces, combined with essential community facilities and services.

The residential precinct will be linked with the surrounding pedestrian and cycle network connecting to the Ocean and adjacent residential areas. All residential buildings are encouraged to address the street edge and internal public realm with 'human scale' built form.



Seamless integration of aged care and retirement living into the existing community



Offering a variety of indoor spaces for the residents to enjoy



A variety of outdoor spaces for residents and visitors to enjoy



Residential aged care & retirement living precinct



Aged care development addressing the street



Built form to respond to amenity of the site and enhance residents experience



Residential aged care reception

MARINE PARADE ACTIVATION PRECINCT

The Marine Parade interface represents the public façade to the community for the Wearne Redevelopment. The Marine Parade frontage will include a variety of uses that will support and complement the aged care development and its service offer to its residents.

It provides a unique opportunity for mixed use development that can also be utilised by the existing community. Development of this frontage will benefit from the amenity and views offered of the Coastline and the energy generated along Marine Parade.

A key aim for this area is to provide an activated interface with improved conditions for pedestrians, cyclists and businesses. This will be achieved by including street trees, improved pathways for cyclists and safe pedestrian crossings, structures for shade and shelter and opportunities for alfresco dining within the street verge.

A key opportunity for this frontage is to establish some mixed use land uses that address Marine Parade and the beach front. All buildings are encouraged to front the street edge with 'human scale' built form and will comprise mixed use land uses on the ground floor with retirement living above. Mid-rise buildings are supported along this edge, with buildings proposed as an entry statement at the intersection with Gibney Street to emphasis arrival to the site.



Mixed use development on the ground floor addressing Marine Parade with residential above



Opportunities for cafes, art galleries and allied health services



Alfresco dining to activate Marine Parade



Marine Parade Activation Precinct



Buildings designed to provide an activated frontage to Marine Parade

URBAN DESIGN FRAMEWORK

LAND USE

An appropriate land use framework for the site is required to set the scene for the physical development of the site.

The Master Plan specifies a mix of uses commensurate with an aged care development, which can essentially be broken down into the following:

- Residential Aged Care Facility;
- Retirement Living Apartments;
- Heritage Building; and
- Public Realm.

Access and parking will also have a significant bearing on the amount of development that can be accommodated on the site. The Master Plan therefore provides a framework for the built form and the variety of land uses that could be established over time.

The overarching objectives for the site's land use is to:

- Prioritise the existing aged care activities on the site;
- Introduce retirement living accommodation and associated services;
- Provide variety and choice of accommodation to current and future residents; and
- Include space for uses that are complementary to aged care and accessible by the local community.

Priority should be given to the relationship of ground floor uses and building design with the public domain to ensure that considerations such as space activation, passive surveillance and personal security are optimised.



Figure 7 - Precinct land use



AGED CARE ACCOMMODATION

The Master Plan provides for an intimate aged care and retirement living yield of 129 beds and 76 apartments, which could result in the redevelopment accommodating between 280-330 residents at full occupancy. The Master Plan provides for a range of accommodation options.

RESIDENTIAL AGED CARE

The Residential Aged Care Facility will accommodate up to 129 places and will provide accommodation and personal or nursing care for the aged including recreational, health, laundry and catering facilities, and services for residents.

RETIREMENT LIVING APARTMENTS

The retirement living apartments will provide accommodation for people over 55 years of age, and may include up to 76 apartments.

NON-RESIDENTIAL USES

A range of non-residential uses that will service and provide for the needs of the Aged Care residents will be provided for throughout the development. These uses will occupy the ground floor of buildings along Marine Parade and overlooking the Heritage Garden and within Wearne House.

Whilst these uses will serve the needs of the existing residents and their visitors and families, these facilities will also be made available to the surrounding community. Uses may include café, shop, gallery, business centre for residents and allied health facilities. The specific use and amount of space will be determined in the future.

Key Land Use Facts

129 Residential Aged Care Beds (including family room)

76 Retirement Living Apartments

46 Staff (Max at Peak time)

A total population of up to 280-330 at full occupancy

550m² of resident communal facilities (associated with the Retirement Living Apartments)

1400m² of non-residential facilities (Allied Health and Public Access Community Facilities)



Residential aged care to provide a range of resident facilities



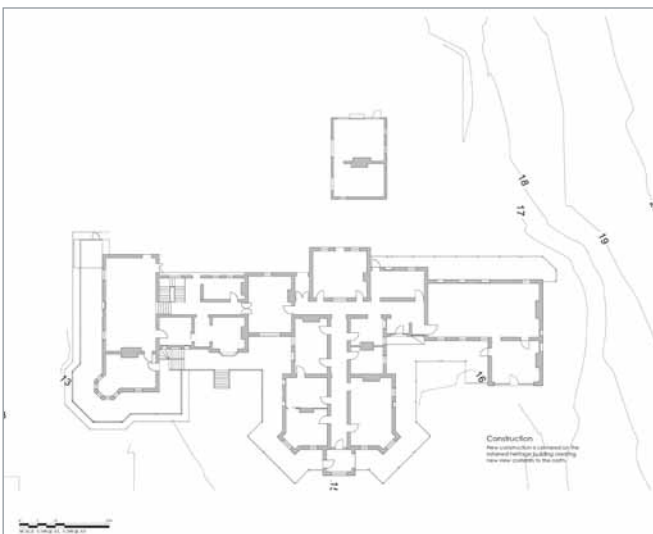
Opportunity for gallery spaces to be provided

HERITAGE BUILDING

“Wearne House” is a remarkable and imposing building with considerable landscape and architectural value, and social and cultural significance. In line with its recognition as a Place of State significance, it will be retained and restored to provide a valuable focal point to the development. The building will be repurposed to accommodate communal facilities containing meeting/activity spaces which will provide a place for the community to gather.

The conservation work to the fabric of Wearne Hostel provides the opportunity to reveal significant internal spaces of Wearne Hostel. This will be achieved through the removal with removal of later intrusive partitions and additions, retention and conservation of original fabric, and, where opportunity presents, reinstatement of lost detail based on documentary evidence.

The original internal spaces were large volumes set to take advantage of ocean views and fresh sea breezes. Over time the reading of the internal spaces has been obscured through creation of smaller cellular spaces within the original volumes.



Opportunity to restore Wearne House to reinstate the original elements of the floorplan



The MCL Convalescent Home c. 1910
(Battye Library Photographic Collection)



The dining room at the MCL Convalescent Home c. 1912
(A.H. Walton)



The Committee Room at the MCL Convalescent Home c. 1912 (A.H. Walton)

BUILT FORM-HEIGHT AND SCALE

The building heights and scale proposed under the Master Plan are designed to provide human scale to the street and break up the visual mass of the development. This will create a pleasant experience at the street level for the pedestrian whilst optimising opportunities to gain views of the Ocean, internal open spaces and courtyards, and promote development fitting of its location.

Building heights and scale have been strategically allocated to minimise overshadowing impacts, and respond to the amenity considerations of the adjacent existing development. The Master Plan proposes buildings with 3-4 storeys fronting Gibney Street and Marine Parade and 5 storeys fronting Warton Street. The upper levels will be setback and designed not to dominate the adjacent streetscape, whilst promoting views and providing for passive surveillance.

All buildings are encouraged to address the street edge with a podium, with the bulk of the height not being visible from the street edge. Compatible building heights and scale have been provided along the interface with the adjoining WA Deaf School, taking cues from the existing Heritage Building located adjacent the eastern boundary of the site.

The site topography, wide verges and existing landscape of Gibney Street and Warton Street assist in mitigating against the visual impact on adjacent development. To further minimise impact on the adjacent sites, the taller building has been placed along the eastern boundary, nestled into the natural slope. In addition, surrounding development is well setback and will not be impacted upon by overshadowing and/or overlooking. Lower building heights are proposed on Gibney Street. This creates a human scale of development thereby minimising the potential impacts on the existing development.

The architecture will seek to respond to the recommended variety of building heights and articulation will be used to allow a human scale outcome. A diversity of façades and form will be implemented to minimise a monotonous streetscape appearance.



Figure 8 - Height and Setback Study



GIBNEY STREET

The Master Plan describes a tiered development along Gibney Street reflecting the topography of the site. The retirement living apartments vary in height from three to four storeys along Gibney Street and will be residential in scale and character.

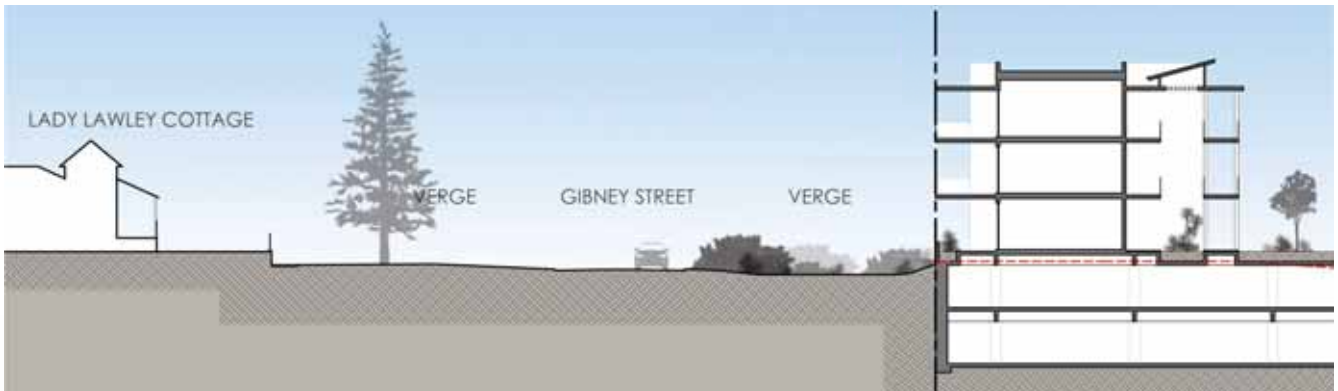
A minimum setback of 2.0m is proposed along Gibney Street with the balcony's at nil. Upper levels to Gibney Street are proposed to be articulated with a change of materiality, colour and minor articulation to break down the perception of mass and internal landscaped courtyards provide articulation of built form and passive surveillance of the public realm.

The Gibney Street elevation is tiered and includes a break in the built form half way along the property boundary and will provide for vehicle access into the development at two locations.

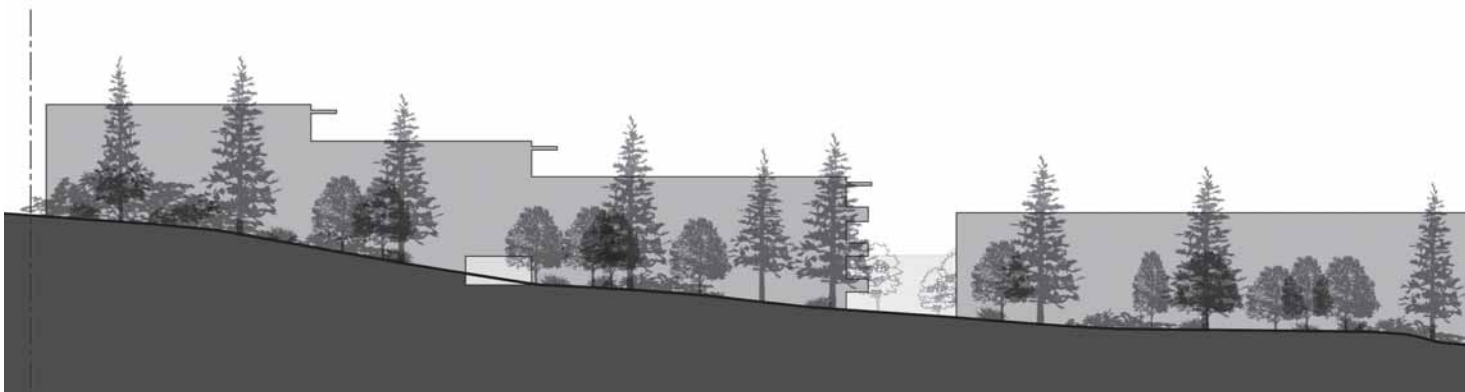
The landscaping within the existing verge will be enhanced and supplemented with a landscaped buffer along Gibney Street which is intended to soften this edge of the development and provide better amenity in comparison to the current state.



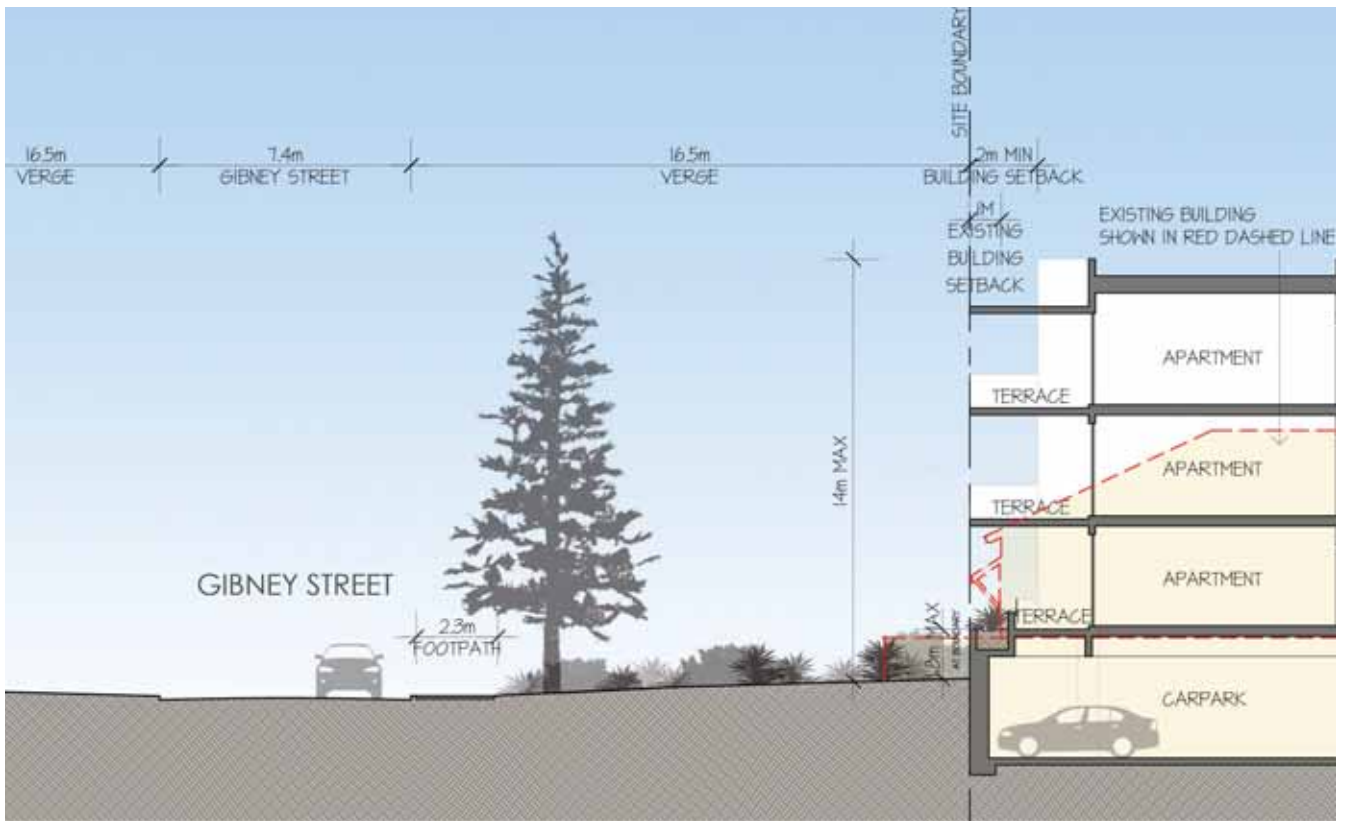
Example of upper floor articulated to break down building mass



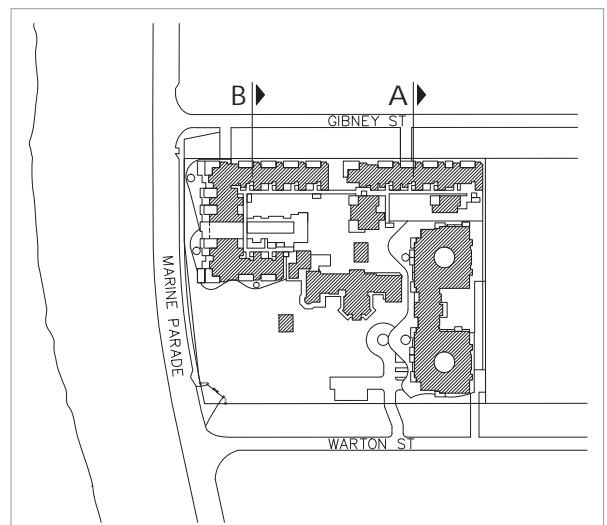
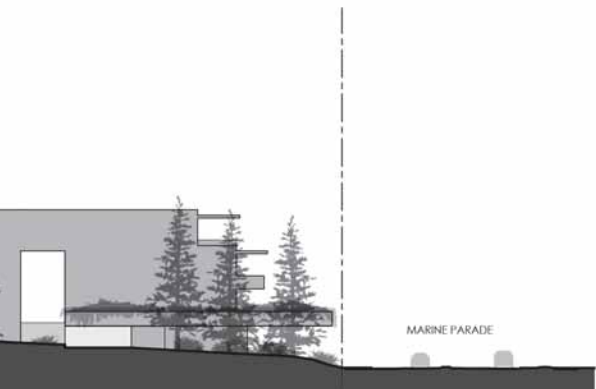
SECTION A



View South from Gibney Street showing the elevation along Gibney Street and demonstrating the general bulk and scale of the development.



SECTION B



KEY PLAN



Artist impression of view along Gibney Street, provided to assist in visualising a development outcome.



MARINE PARADE

The built form addressing Marine Parade will vary between three and four storeys. The development will comprise of mixed use activity at the street level to activate the ground plane.

A minimum setback of 6.0m is proposed to the building with upper levels setback a further 4.0m to provide for a terrace. Balcony's are proposed to be generally setback to 4.5m with the exception of level 1 which can come to 1.0m to provide for shade and shelter to the ground floor plane.

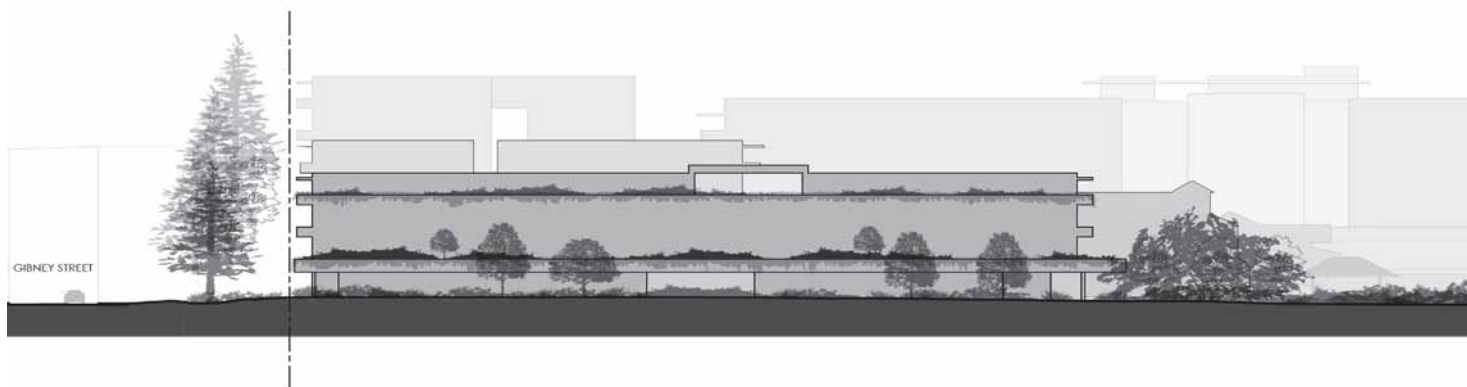
The upper levels are set back from lower levels and a terrace with outdoor rooftop pool provides a distinct break in the western façade at the upper level. The apartments feature balconies of varying depths incorporating planters in some locations to introduce landscape at the upper levels and articulate the façade. At the street level a landscaped interface is proposed to soften this edge and provide a visual buffer for pedestrians from the traffic and shelter from the sea breeze.



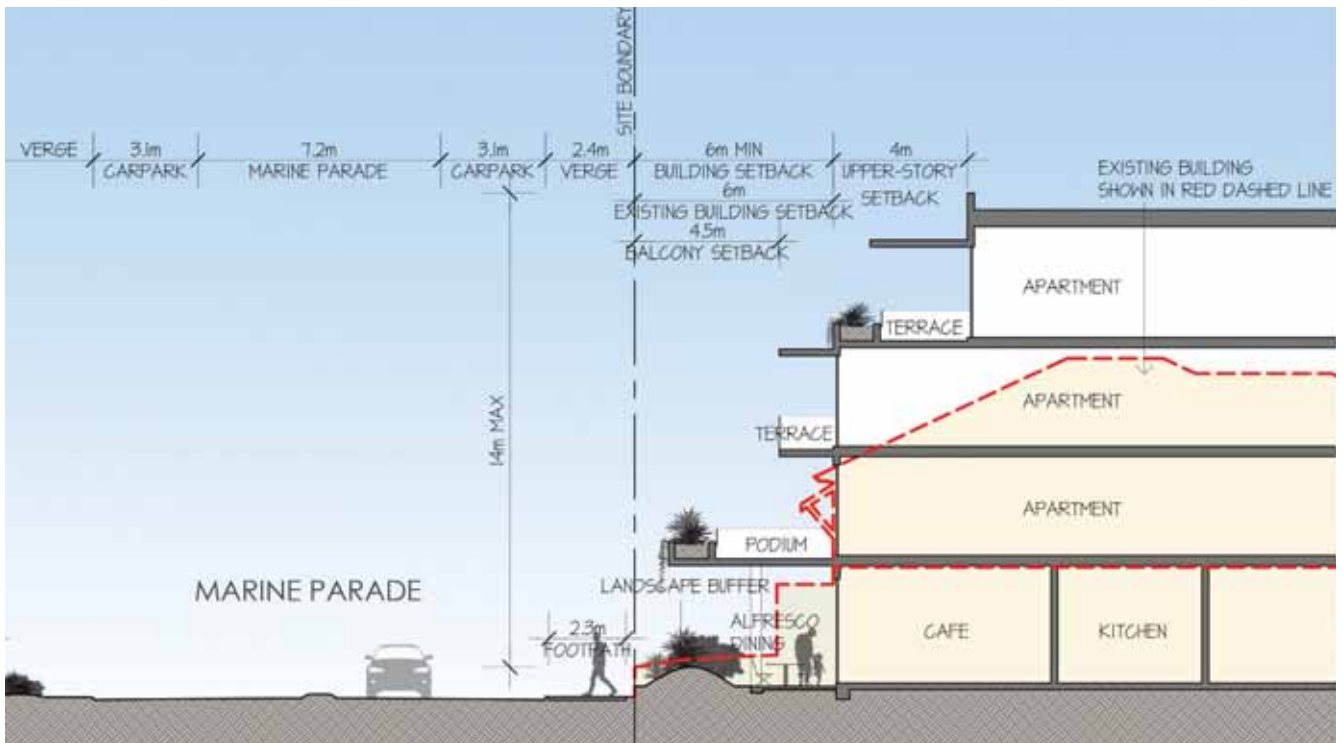
Tiered built form to minimise impact to Marine Parade, and beach



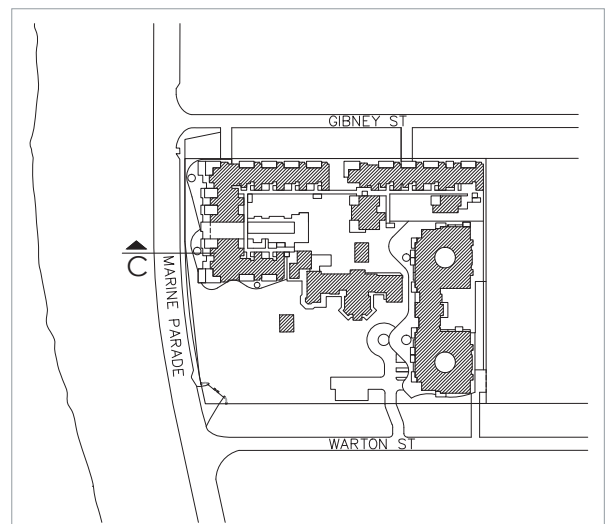
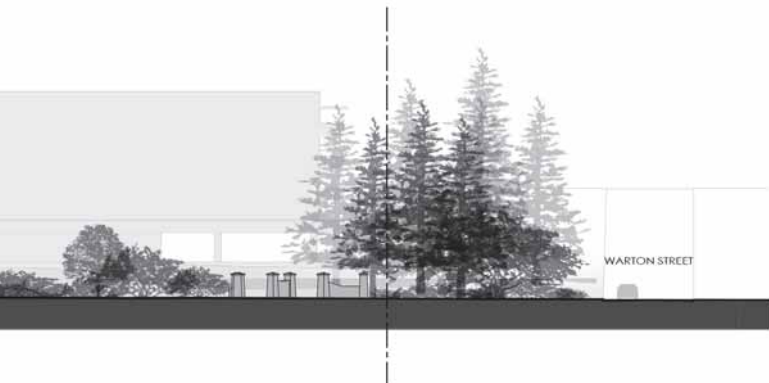
Example of activated street level, with setback to upper level to Marine Parade



View east from Marine Parade with the Mixed Use building in the foreground, the Residential Aged Care building in the background and the Retirement Living apartments behind the mixed use building.



SECTION C



KEY PLAN



Artist impression of view along Marine Parade, provided to assist in visualising a development outcome.



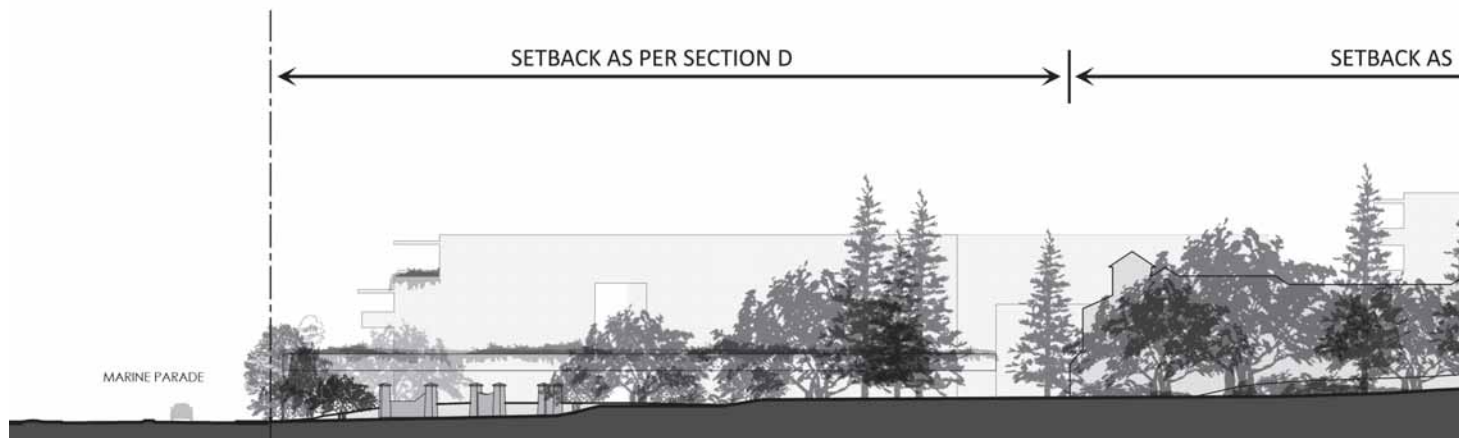
WARTON STREET

The Residential Aged Care building is positioned along the eastern boundary of the site and is the only building with direct frontage to Warton Street. The building is proposed to be five storeys and will occupy only 20% of the frontage with the remaining 80% of the frontage dedicated to the Heritage gardens.

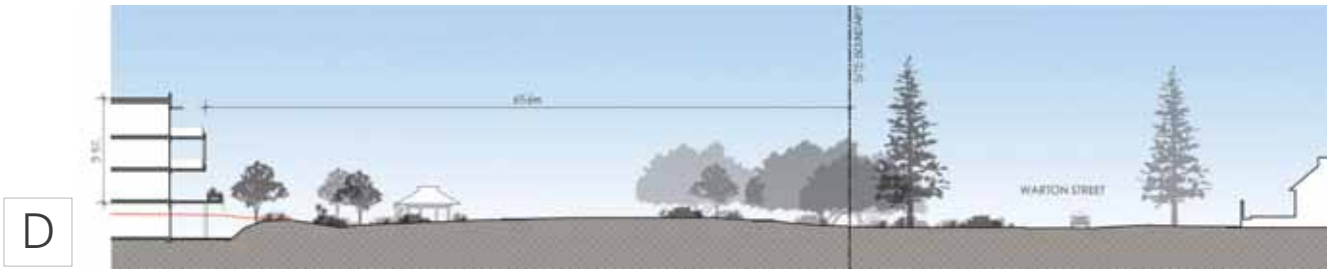
The height of the Residential Aged Care building has taken its cues from the existing heritage building on the WA School for the Deaf site adjacent the boundary. At the ground level, the building will be setback 2.5m with the level 1 balcony able to come to within 1.0m of the property boundary. The remainder of the building will be setback 4.5m with balcony's able to come to within 2.5m of the property boundary.

The bulk of this building is broken down by articulating the façade. The form of the building is split into two wings with a glazed west facing link connecting the two halves of the building. This more transparent appearance is intended to break down the mass of the overall building. The design is based on a courtyard layout with a large east facing landscaped space. Internal courtyards provide additional amenity to residents.

A curved landscaped podium on the first storey breaks the west facing façade, separating the ground level from the floors above. This podium will provide a landscaped transition featuring planting and sensory garden elements for residents to engage with. This also references the landscaped green space beyond.



View north from Warton Street with Residential Aged Care building located on the eastern boundary and the majority of the Warton Street



D

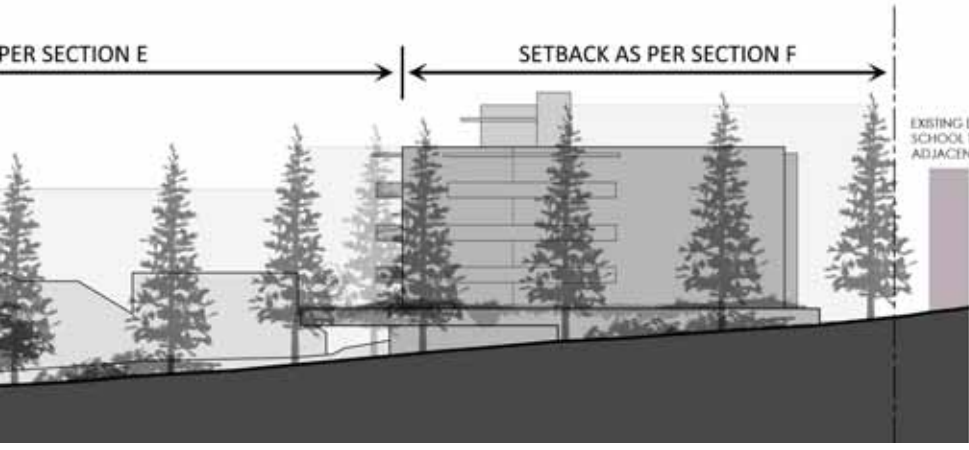


E



F

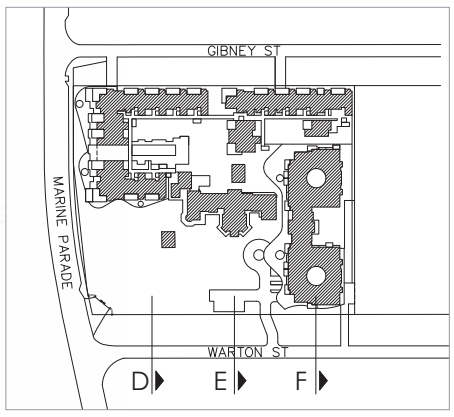
Minimal built form (20%) proposed with frontage to Warton Street



PER SECTION E

SETBACK AS PER SECTION F

EXISTING DEAF SCHOOL TO ADJACENT SITE



KEY PLAN

Set frontage accommodating the Heritage gardens



Artist impression of view from corner of Marine Parade and Warton Street, provided to assist in visualising a development outcome

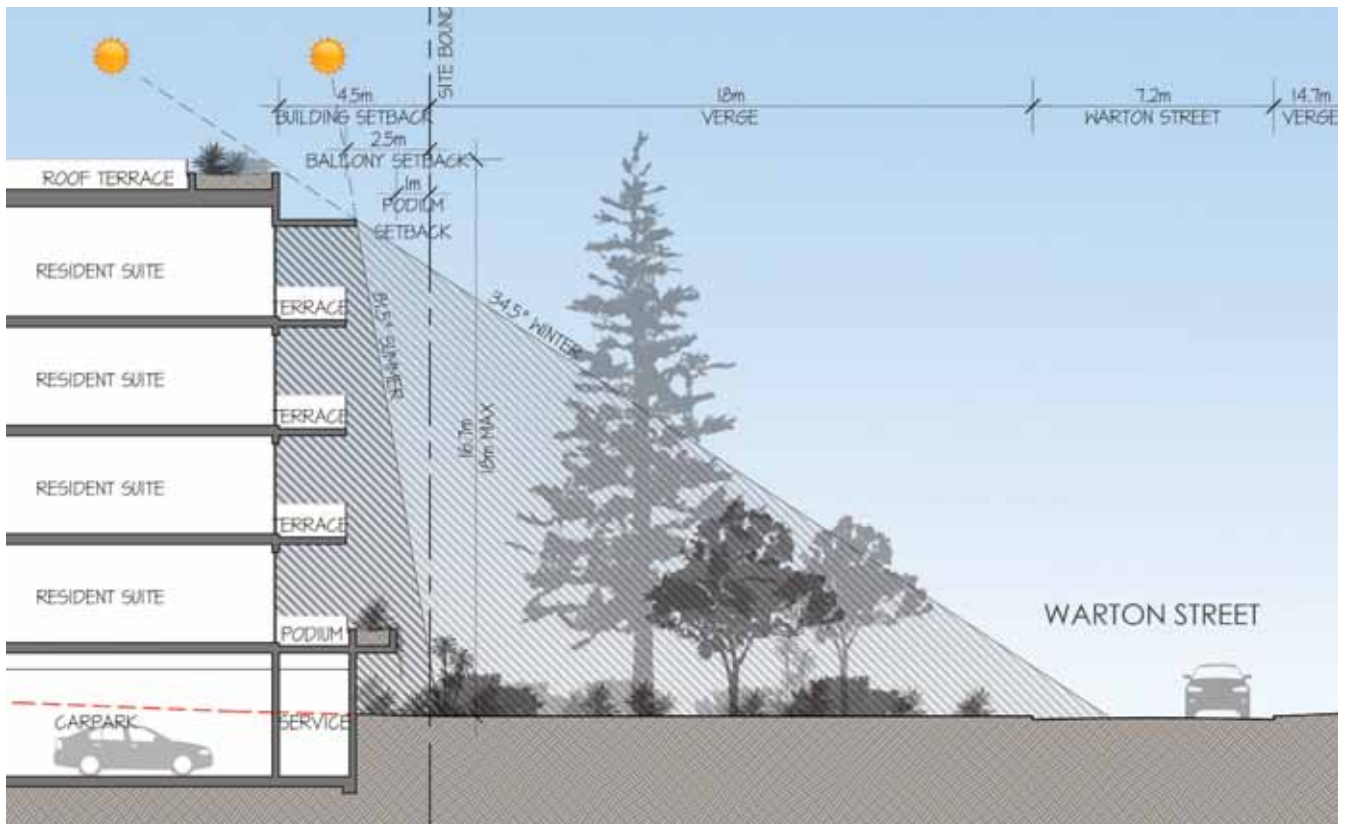


OVERSHADOWING

An overshadowing assessment has been undertaken modelling the shadows cast at midday on 21 June for the development. This demonstrates that overshadowing of neighbouring properties including the WA School for the Deaf does not occur. The only notable impact is on a small portion of the Warton Street verge as it relates to the Residential Aged Care building.

With respect to internal open space areas, whilst the southern courtyards and balconies of apartments fronting Gibney Street will be overshadowed, a significant portion of the site, comprising a variety of outdoor spaces will not be impacted and therefore available to residents.

In addition, apartments fronting Gibney Street, that have both northern and southern aspects, will have access to northern daylight via the Gibney Street frontage.



Over Shadowing at winter solstice, for only approx 20% of Warton Street frontage.



- | | | |
|---|---|--|
| <p>1 EASTERN COURTYARD
EAST FACING COURTYARD PROVIDES MORNING SUN TO RESIDENTIAL AGED CARE FACILITY</p> <p>2 WESTERN PODIUM (BALCONY)
A MIRROR PODIUM BALCONY PROVIDES AFTERNOON OUTDOOR SPACE TO THE RESIDENTIAL AGED CARE FACILITY</p> <p>3 PODIUM</p> <p>4 OVERSHADOWING
TALLEST ON SITE BUILDING SHADOW IS CAST ONTO THE SITE AND VERGE. NIL OVERSHADOWING OF ROAD OR NEIGHBOURING BUILDINGS.</p> | <p>5 PORTE-COCHERE</p> <p>6 HERITAGE GARDEN LANDSCAPED ZONE</p> <p>7 HERITAGE BUILDING
REPURPOSED TO COMMUNAL FACILITIES</p> <p>8 SHADED LANDSCAPED ZONES
OUTDOOR SPACES ARE PROVIDED WITH SHADING FROM SURROUNDING BUILDINGS TO ALLOW USE DURING HOT SUMMER MONTHS</p> | <p>9 COURTYARD SURROUNDING HERITAGE BUILDING</p> <p>10 ROOFTOP POOL</p> <p>11 TERRACE + VIEW</p> <p>12 HERITAGE COURTYARD
NORTH FACING ENTRY AND OPENING BETWEEN BUILDINGS ENSURES NATURAL LIGHT TO THE HERITAGE BUILDING AND CONNECTED COURTYARD</p> <p>13 PUBLIC PEDESTRIAN GARDEN ACCESS</p> |
|---|---|--|

Over Shadowing Diagram measured at 21 June at 12:00pm

SUSTAINABILITY

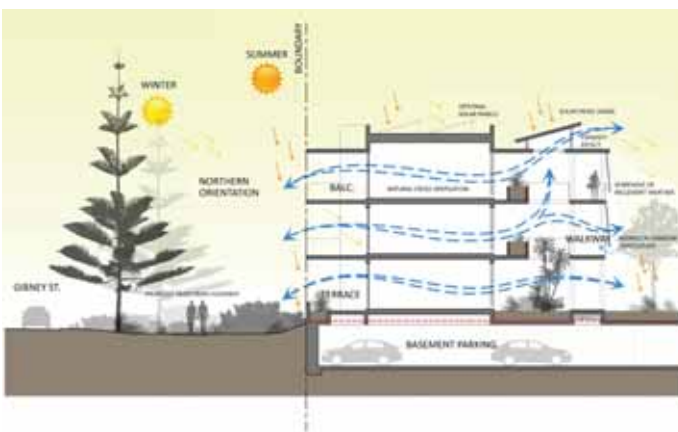
The Master Plan design principles, as noted earlier in the report, identify a strong commitment to sustainability.

The following outlines which key design principles have been incorporated into the Master Plan.

The built form is broken down into smaller elements to allow solar access throughout the entire scheme, with shading of windows to provide optimum solar performance. This breakdown of massing also offers good cross ventilation throughout, with single loaded walkways allowing ventilation to apartments as seen in the section included below.

Walkability of the site, as well as permeability of the built form is also integral to the design approach. This provides an opportunity to incorporate sustainability initiatives and enhance social interaction.

Key sustainability and environmental design principles have been noted on the adjacent plan.



Built Form Response to Sustainability Principles

Legend

-  Northern Light
-  Views
-  Cross Ventilation
-  Public Circulation
-  Private Ventilation

- 1** Passive solar design:
 - Maximise Northern orientation
 - Allow good solar access throughout development, through broken up building mass / courtyard spaces
 - Minimise the dependence on artificial lighting.
- 2** Open up a portion of heritage building northern face to allow good solar access
- 3** Light-wells provide solar access to internal spaces.
- 4** Staggered story heights allow for greater solar access and ocean views.
- 5** Maximise cross ventilation through courtyard spaces and separated link-ways
- 6** Single loaded corridors promote cross ventilation reducing heat load and reliance on mechanical ventilation systems.
- 7** Landscaped courtyards to provide shade trees for respite and cooling effects for cross ventilation
- 8** Building form and landscaping reduces the impact of strong sea breezes whilst maximising views.
- 9** Public realm designed to emphasise landscape quality and pedestrian amenity.
- 10** Environmental commitments to sustainability through operations
 - separated waste chutes to enable recycling
- 11** Walkability of the site:
 - Removal of carparking / vehicle access to heritage garden zone
 - Public access through Heritage Garden, and around perimeter of site
 - Focus on resident walkability throughout age care facility, and nodal landscape / rest areas
- 12** Ground level public facilities interact with major shared-use paths along Marine Parade facilitating street activation and promoting public interaction.
- 13** Access to a high frequency public transport node reduces dependence on personal vehicles.
- 14** Variety of open spaces experiences, promotes communal activities and social interaction. Internal courtyards promote interaction between residents improving social sustainability.
- 15** Specify low water use species for landscaping and use recycled water for irrigation

Sustainability Principles



LANDSCAPE AND PUBLIC DOMAIN

The overall landscape approach is to fully integrate the development with the three surrounding streets, engaging with the public realm and ensuring a seamless transition of character while ensuring definition of ownership.

STREETS

Gibney Street is presently dominated by the Norfolk Island Pines that line the verges. The verge immediately adjacent the site is presently mostly parking and service road. It is proposed that this is rearranged to create a strong quality pedestrian environment by retaining and supplementing the existing trees.

The Marine Parade interface will utilise coastal dune species and extend the strong coastal character to the face of buildings. The coastal vegetation will also be carried through to the terrace plantings above the ground floor.

Warton Street is important as its mature trees form the enclosure of internal open space and are a primary element of the heritage setting. The proposal creates pedestrian access within shaded interface zones and supplements existing retained trees with additional screening at the eastern end of the site. The broad grass verges accommodate some parking on reinforced grass and a small number of parking bays closely associated with the footpath system.



Existing mature trees to be retained within road verges

Legend	
1	New dual use path and soft landscape upgrade to Gibney St verge.
2	Street trees retained with rationalised on street parking for highest streetscape appeal.
3	Key landscaped vista with shade trees between built form. Vista provides public access if required, and breaks up built form along streetscape.
4	Central piazza with public and private interface. Paved in low glare non slip surfaces with universal access ramps to assist with level change.
5	Pavilion retained for possible garden storage or gardening activities.
6	Location of community gardens, veggie gardens or fruit trees.
7	Internal courtyard spaces with shade trees, seating and feeling of intimacy and reflection.
8	Outdoor dining area.
9	Location of sensory or heritage style gardens.
10	Retained gazebo as shade structure or family picnic area.
11	Nature play areas with shade trees.
12	Key open turf area for community gatherings, events or markets. Retention of sunken landform for protection from south westerly winds.
13	Frontal dune planting and dune formation provides a buffer from the coast.
14	Corner node highlights main pedestrian entry and encourages access into the open space from those walking to the beach. Retention and reinstatement of heritage gate.
15	Retained trees to have new ground level landscape upgrade with shade tolerant species and consideration of streetscape aspect.
16	Meandering drive services high care facility with emergency access drop off and small amount of parking. Pavement material to be considered suitable for pedestrian use, drawing the public into the open space.
17	Podium level landscaping to cope with coastal environment and provide visually pleasing outlook and sensory gardens.
18	Secure internal courtyard space for high care residents.
19	Possible controlled pedestrian crossing points to beach.
20	Reinforced soft landscape provides overflow on street parking.

Landscape Master Plan



SPACES

The spaces within the development are structured to provide both private, and publicly accessible quality places. The main private garden spaces are defined by level changes and built form with publicly accessible zones predominantly to the south of the heritage buildings. The spaces inferred and structured by the built form provide a series of experiences, the nature and character changing related to the use. Formal shaded vistas when entering from Gibney Street, lead to an arrival garden space. Intimate private courtyards relate to residential areas and shared spaces include community gardens and orchard. The private spaces are on multiple levels with a major formal pool deck and westward vista space overlooking the ocean.

Heritage Gardens

The broad open lawn areas maintain the character and qualities of the heritage zone. This open park like space is uncluttered to ensure views to the building are maintained and the space can be used for community events. The landform is smoothly graded minimising retaining requirements and circulation is accommodated within shaded walkways under mature tree canopies around the perimeter of the space. The entry gateway in the south west corner of the site is configured to present a civic space and reinforce a classic vista of the heritage buildings.

Aged Care Development

The landscape treatments of all the development are designed as a cohesive whole, however there are semi secure and secure spaces that will provide residents in care with gardens that are specially designed for their needs. These areas will include planter and seating arrangements that cater for aged access, sensory gardens and food gardens. As with all of the spaces at Wearne there will be landscaped terraces and courtyards designed to meet the needs of the user.

Fences and Boundaries

Fencing and boundary walls to be integrated with the built form and articulated to minimise visual barriers, adopting use of open aspect fencing where possible. Controlled access points to be integrated with the architectural language and designed in conjunction with landscape elements such as planters and the like. Solid walls extending above ground from basements to sloped frontages shall not exceed 2.0m above natural ground.



Rooftop pool deck with views overlooking the ocean



Open parklands within heritage gardens provides opportunity for community events



Private courtyards provide for shade and shelter in landscape setting

MOVEMENT NETWORK

Traffic consultants have prepared the traffic and transport information for the site having regard to the built form requirements of the proposal. Refer Appendix 2 Transport Impact Assessment.

The key transport planning objectives considered in the development of the Master Plan include:

- Encouraging walking and cycling transport modes through the provision of safe, high-quality paths.
- Understanding the accessibility requirements for aged care and mobility impaired users and ensuring that these facilities are provided and constructed in accordance with the relevant standards.
- Safe and convenient connections to existing networks and key generators/attractors such as the nearby public transport services and the Cottesloe Foreshore.
- Ensure visitors and tenants have safe and convenient access when arriving or departing from the Site and minimising the traffic impacts within the local road network.
- The provision of optimal parking to ensure parking demand is satisfied while limiting the number of vehicle trips.

ACCESS

The Master Plan proposes four accesses to the Site with two crossovers located along Gibney Street and two located along Warton Street. The Gibney Street access is for visitors and tenants while the access along Warton Street are for visitors to the aged care facility, staff and deliveries. The proposed Master Plan access arrangement provides an overall improvement compared to the existing access arrangement by reducing the number of crossovers along Gibney Street thereby reducing the number of potential conflict points.

PEDESTRIAN AND CYCLING NETWORK

Existing pedestrian and cycling infrastructure within the vicinity of the Site include the Sunset Coast Route which provides a high quality path for both pedestrians and cyclists and is well suited for all user types (commuter, casual and recreation).

With the Cottesloe Foreshore located to the west, it is a popular scenic route with a large number of patrons. Curtin Avenue also has a 1.5m sealed shoulder shared path along both sides of the road. Overall, the existing pedestrian and cycling network provides a comprehensive network which encourages active transport modes.

Additionally, to further establish a connected system that allows for safe and legible pedestrian movement and supports the accessibility requirements of tenants and visitors, footpaths are proposed along the frontages of the Site along Gibney Street and Warton Street.

PUBLIC TRANSPORT

Public transport serving within the vicinity of the Site is provided by Transperth bus and train services. There are three bus routes serving the Site, consisting of Route 103, 998, and 999. The closest bus stops to these routes are located approximately 300m east of the Site along Stirling Highway. Overall, the bus routes have only moderate frequencies during the peak period. However, collectively these routes form a high frequency bus service to the Perth CBD, with peak frequency of between 5 to 15 minutes.

The closest train stations to the Site are Victoria Street Station and Mosman Park Station which is serviced by the Fremantle train line. Walking distances to these stations are approximately 300m and 500m respectively which is within the standard 800m walking catchment.

PARKING

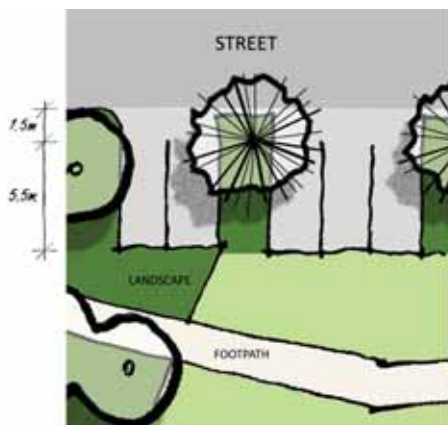
There will be approximately 200 parking bays provided at the site, including parking for residents, visitors, service vehicles and staff, and minibuses. All resident and staff parking is to be located in basement areas so to not be visible from streets, supplemented by a small number of 'on street' parking bays. Car parking, accessed via Gibney Street will be provided to parking bays that will be predominantly in covered basement areas, with limited uncovered bays.

It has been identified that there is currently a number of vehicles parked locally on verges along Gibney Street, but note that these existing bays, given their design, takes over the bulk of the wide verge area, restricting vegetation and pedestrian circulation.

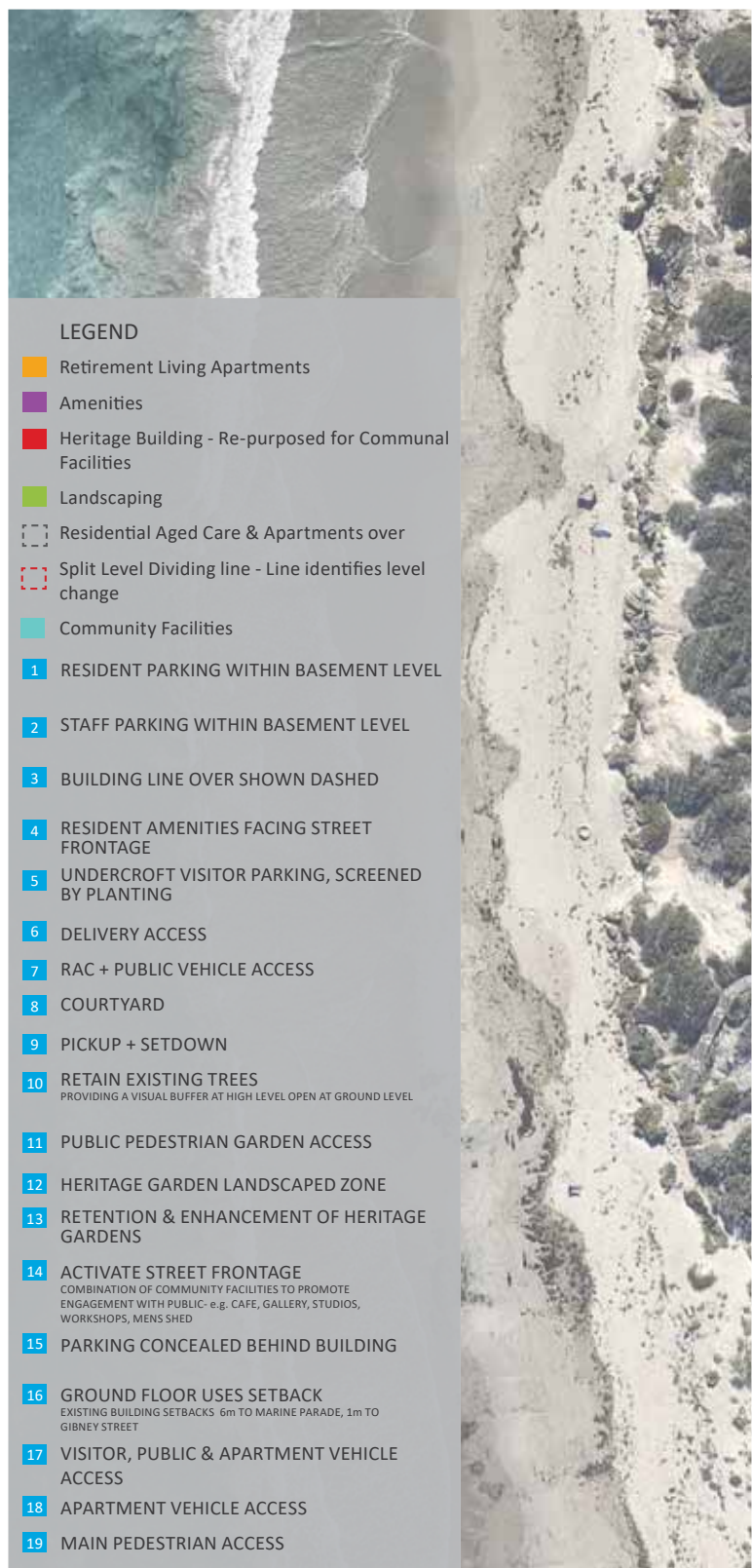
The proposed revised layout includes perpendicular bays which enables a greatly improved amenity of the verge, with the ability to incorporate significant vegetation and include a new pedestrian pathway access set amongst generous landscaping, adding to the walkability of the site and the greater neighbourhood.

The on street perpendicular car bays are designed in consideration of their location and the slope of the site, planned as overlength bays (refer cameo layout) allowing an additional clear zone for safety of reversing the cars, enabling greatly improved visibility. It is also noted that perpendicular bays can provide traffic calming and considered an appropriate solution with increased benefits to the public domain.

The parking strategy for this development is to ensure that the development does not increase on street parking demand, and to improve the public interface through a considered design resolution.



Increased length to car bays for safety of reversing the cars and enabling improved visibility



LEGEND

- Retirement Living Apartments
- Amenities
- Heritage Building - Re-purposed for Communal Facilities
- Landscaping
- Residential Aged Care & Apartments over
- Split Level Dividing line - Line identifies level change
- Community Facilities
- 1 RESIDENT PARKING WITHIN BASEMENT LEVEL
- 2 STAFF PARKING WITHIN BASEMENT LEVEL
- 3 BUILDING LINE OVER SHOWN DASHED
- 4 RESIDENT AMENITIES FACING STREET FRONTAGE
- 5 UNDERCROFT VISITOR PARKING, SCREENED BY PLANTING
- 6 DELIVERY ACCESS
- 7 RAC + PUBLIC VEHICLE ACCESS
- 8 COURTYARD
- 9 PICKUP + SETDOWN
- 10 RETAIN EXISTING TREES
PROVIDING A VISUAL BUFFER AT HIGH LEVEL OPEN AT GROUND LEVEL
- 11 PUBLIC PEDESTRIAN GARDEN ACCESS
- 12 HERITAGE GARDEN LANDSCAPED ZONE
- 13 RETENTION & ENHANCEMENT OF HERITAGE GARDENS
- 14 ACTIVATE STREET FRONTAGE
COMBINATION OF COMMUNITY FACILITIES TO PROMOTE ENGAGEMENT WITH PUBLIC- e.g. CAFE, GALLERY, STUDIOS, WORKSHOPS, MENS SHED
- 15 PARKING CONCEALED BEHIND BUILDING
- 16 GROUND FLOOR USES SETBACK
EXISTING BUILDING SETBACKS 6m TO MARINE PARADE, 1m TO GIBNEY STREET
- 17 VISITOR, PUBLIC & APARTMENT VEHICLE ACCESS
- 18 APARTMENT VEHICLE ACCESS
- 19 MAIN PEDESTRIAN ACCESS



INFRASTRUCTURE & SERVICING

URBAN WATER MANAGEMENT

Airey Taylor Civil Engineers has prepared the civil engineering services information for the local water management strategy.

This report details the civil engineering services information for the Local Water Management Strategy for the Wearne Redevelopment. This information comprises:

- General site information;
- Stormwater Management;
- Groundwater Management.

The information provided in this report will be incorporated in a comprehensive and detailed Local Water Management Strategy for the Wearne Redevelopment by others.

The Civil Local Water Management Strategy for the Wearne Redevelopment has used the following publications as guidelines:

- Stormwater Management Manual for Western Australia;
- Better Urban Water Management;
- Urban Water Management Plans

General Site Information

The Civil Local Water Management Strategy incorporates the following site information:

- The site is underlain either by sand or by sand over limestone;
- Site topography ranges between RL 12m AHO in the south west to RL 27m AHO in the north east. The site is less than 100m from the Indian Ocean; The sands have good permeability with test results ranging between 15 m/day and 23 m/day; The Perth groundwater atlas shows the historic maximum groundwater level to be close to sea level between RL 0m AHO and RL 1 m AHO;
- Groundwater underlying the site flows west towards the Indian Ocean; Acid sulphate soils (ASS) risk mapping classifies the site as having no known risk of encountering ASS within 3m of the surface.

Earthworks

The site earthworks Management Strategy incorporates the following:

- The earthworks will predominantly involve excavation with only a small amount of filling;
- The east part of the site will be excavated for building basements with excavation depths varying from approximately 0m to 8m;
- The west part of the site will be excavated for building basements with excavation depths varying from approximately 0m to 3m;
- The earthworks will be conducted such that dust and wind-borne material, and noise and vibration will be controlled and minimised.

Stormwater Management

The Civil Local Water Management Strategy incorporates the following stormwater management:

- The site will retain the 100 year ARI within soakwells Infiltration tanks and swales;
- The flow paths for the 100 year ARI will be contained on the roads, carparks and within drainage pipes;
- A minimum clearance of 300mm will be maintained between stormwater storage areas and adjoining habitable building floor levels;
- Stormwater draining from roof areas will be drained into soakwells and Infiltration tanks;
- Stormwater draining from roads and carpark areas will be treated to remove pollutants by being drained into vegetated swales or gross pollutant traps. The discharge from gross pollutant traps will be drained into soakwells and Infiltration tanks. The swales and pollutant traps will be sized to treat the 1 year 1 hour ARI event. The swales will be designed as biofilters;

- The infiltration tanks are proposed to be permeable plastic tanks wrapped in geotextile such as Graf or similar such tanks that can be inspected and cleaned periodically. The soakwells are proposed to be standard concrete soakwells wrapped in geotextile.
- Gully and trench grate covers will be “cyclesafe” and “heelguard” as required to ensure safety.

Runoff modelling will comprise:

- Drainage design to standard AS/NZS 3500.3 Plumbing and drainage - Stormwater drainage;
- Stormwater runoff will be calculated for the 100 year ARI events and all proposed drainage structures will be designed to cater for these events. The impermeable area generating runoff will be calculated using a runoff coefficient of 1 for buildings and a runoff coefficient of 0.9 for pavements.

Drawings will comprise:

- Plan layout drawings showing site road, carpark, pavement and earthwork levels;
- Drainage drawings showing plans and details of the pipes, drainage gullies and trenches, soakwells, swales and gross pollutant traps;
- Catchment areas;
- Flow paths for the 100 year ARI.

Groundwater Management

The Civil Local Water Management Strategy incorporates the following groundwater management:

- Treatment of polluted stormwater before discharging to groundwater. This will be done by treating stormwater draining from roads and carpark areas by draining these into vegetated swales or gross pollutant traps. The swales and pollutant traps will be sized to treat the 1 year 1 hour ARI event. The swales will be designed as biofilters and will be underlain by soil media suitable for pollutant and nutrient removal;

SITE SERVICING

Floth Sustainable Building Consultants has prepared the servicing information for the site.

ELECTRICAL

The existing site is serviced by a Western Power District substation that includes a 1000kVA transformer and low voltage kiosk, which is located on Gibney Street. The existing substation is an open type and is not fire rated. The existing substation provides power to the site, as well as the local area. The free standing residence on the site is supplied by a uni pillar (green dome), located on Warton Street. During the redevelopment works, the supply to the residence will need to be removed as part of the initial construction phase.

In order to determine the exact operational and spare capacity of the existing substation, it is anticipated that a Western Power feasibility study be submitted. This study will determine how the existing transformer is operating and what spare capacity is available for the redevelopment. The options available are as follows;

1. The existing transformer has enough capacity to service the whole redevelopment, as well as the existing district electrical load. The substation will remain in its current location and the existing electrical site infrastructure will be designed to coincide with the staging of the construction. This will include re-directing the electrical supply cables around the site to avoid the construction areas, as well as introduce a new site main switchboard, appropriately sized to serve the whole site.
2. The existing transformer does not have enough capacity and the existing arrangement is utilised during the initial construction phase and a new 2MVA substation is installed on the site. The existing substation is retained until the new substation is constructed and energised, and then the existing substation is decommissioned and removed. The new substation is located to coincide with the staging of the works and architectural intent for the site.

TELECOMMUNICATIONS

The current site includes both an incoming Telstra optical fibre and copper connection. The existing lead in services are fed from Gibney Street. It is expected that new services will be provided during the stage 1 works and the existing services will remain, until the new lead in services are operational.

It can be confirmed that NBN Co. are in the area of Cottesloe and a new lead in optical fibre will be installed to service the number of buildings across the site. It is anticipated that a single provision will be brought into the site and will service the independent living units/apartments, as well as the Aged Care facilities.

WATER SUPPLY

The Water Corporation have a 100mm Cast Iron water main running along Gibney St with a dedicated 100mm water main and Meter servicing the existing site. A new water meter will be required with an above ground testable backflow device to comply with current standards and to serve the additional loads required for the proposed new development and should be completed for the initial construction phase. During the initial construction phase consideration should be given to the installation of a ring main to serve the whole site with isolation valves and connections for the implementation of staged works.

A survey of existing water services sizes and condition will be carried out to determine the extent of new works required.

WASTE WATER

The Water Corporation have a network of Sewage reticulation surrounding the proposed development. There is currently an existing 150mm Sewer Junction servicing the property through a gravity internal sewerage system.

With a 610mm Water corporation Sewer main along Marine Parade and a 460mm concrete Sewer main in Warton Street the infrastructure is capable of accepting additional demands from the proposed new development.

A new Sewer extension of Warton Street designed by a Civil engineer will be undertaken to serve the initial construction phase depending on final design and demand loads. A survey of the existing Sewer service will be required to determine the extent of new works and the use of existing service for the subsequent construction phases.

GAS SUPPLY

ATCO Gas have a Major network of Medium Pressure gas mains servicing the surrounding area which would be capable of providing adequate capacity to supply the extra demand loads of the proposed new Development.

There is currently a 50mm Gas main servicing the property of Warton Street which may be required to be upgraded and / or relocated. This service can be in operation during staged works with the redirection of some internal gas reticulation during initial construction phase. Final design and demand loads will determine the extent of the incoming service upgrade and relocation.

DEVELOPMENT SEQUENCING

Development of the site will proceed as a single staged development with multiple construction phases in order to provide continuing care to the current residents at Wearne. The new residential aged care building is intended to be the first phase. This will allow the current residents to transition into new aged care accommodation, making way for future construction phases. This sequencing of construction is very typical of aged care and retirement living developments, as it allows for continuity of care to be provided during redevelopment.

Phase	Yield
Initial Construction Phase (Early 2021)	129 Residential Aged Care beds
	33 Retirement Living Apartments
	Basement Parking and
	Public Entry Porte Cochere
Subsequent Construction Phase (Late 2022)	43 Retirement Living Apartments
	Heritage Building - Re-purposing & Enhancement
	Public Community Landscaping
	Public Entry Porte Cochere



PLANNING IMPLEMENTATION

This section provides an outline of the planning implementation tasks to facilitate redevelopment of the site.

A number of core statutory and policy documents will provide a planning framework to facilitate development of the site, include the following:

1. Master Plan
2. Local Planning Policy (incorporating development standards and requirements)
3. Amendment to local planning scheme

MASTER PLAN

The Master Plan will perform two functions in the planning framework:

1. Landowner Endorsement - as being suitable for lodgement with the Town of Cottesloe, consistent with the requirements of the Lease Agreement; and
2. Statutory planning framework – the Master Plan will be adopted by the Town of Cottesloe and will be used to inform the preparation of a Local Planning Policy.

The Town of Cottesloe has supported a request to consider a master plan as a pre-requisite to the formulation of a local planning policy. This document constitutes the Master Plan document.

LOCAL PLANNING POLICY

In accordance with the Scheme, the local government may prepare a Local Planning Policy in respect of any matter related to the planning and development of the area so as to apply:

- a. Generally, or for a particular class or classes of matters;
- b. Throughout the scheme area or in one or more parts of the Scheme area; and
- c. And may amend or add to or rescind the Policy.

Local Planning Policies are guidelines used to assist the local government in making decisions under the Scheme. In considering an application for planning approval, the local government must have due regard to relevant Local Planning Policies as required under Clause 10.2 of the Scheme.

AMENDMENT TO LOCAL PLANNING SCHEME

Subsequent to the Development Approval, the Town of Cottesloe may consider an amendment to the Scheme to ensure alignment and consistency with the new policy framework for the site. A Scheme Amendment may look to modify:

- Schedule 14 Development Zone provisions in relation to Development Site C and recognition of the local planning framework, remove the reference for the need for the Local Structure Plan; and
- Consider the appropriateness of the Development Zone and implement a suitable alternative if appropriate.

PROPOSED DEVELOPMENT STANDARDS & REQUIREMENTS

A suggested framework and set of development standards and requirements have been prepared to inform the Town of Cottesloe's preparation of a Local Planning Policy. These are intended as a guide only and should be developed in more detail through the formulation of a Local Planning Policy.

Architectural Expression and Articulation

Objectives:

- To convey a contemporary and high quality architectural response with active edges at ground level and articulated façades.
- To promote appropriate building form design to street frontages to achieve vibrant and stimulating pedestrian experiences.
- To provide for variety, articulation and high-quality building outcomes that will enhance the visual amenity of the area.

Development Controls:

- The Marine Parade ground level building façades shall be designed to address the street via entries and windows to create interest and a sense of activity within the building.
- Upper storeys to be articulated with a change of materiality, colour and variation throughout articulation to break down the perception of mass.



Example of high quality architectural response



The use of recessed and projecting forms coupled with a variety of colours and textures creates an interesting built form



A cafe will contribute to the activation of Marine Parade

Site planning, orientation and setbacks

Objectives:

- Buildings should be designed to ensure they are appropriately located and oriented to all adjoining street frontages.
- Ensure that development suitably considers the existing topography of the site.
- Ensure that development respects the heritage building and its curtilage.
- Lower levels should engage with the street and open space areas and promote passive surveillance opportunities.
- Loading and service areas shall be located and designed to minimise their visibility from public street and public spaces.

Development Controls:

- Building orientation must consider the site, the street and neighbouring buildings to maximise amenity, including architectural form to the street, solar access and visual privacy.
- Where level changes occur on the site, ensure floor levels and entrances to buildings appropriately interface with the ground plane.
- Consider the opportunities for the Marine Parade setback zone to benefit the areas building and streetscape responses.
- New development is to be located adjacent the Heritage Building having regard to the requirements of the Conservation Plan.



At ground level, the building frontage is designed for maximum exposure to the street via windows and opening



Development responds to the topography of the site

Marine Parade

Objectives:

- Ensure building design and retail areas facilitate the creation of street level activity and vitality of Marine Parade.
- Achieve a high quality public realm streetscape to encourage appropriate development interfaces.

Development Controls:

- Footpaths, landscaping and awning shelters are encouraged to be included to support activation of Marine Parade.
- Consider landscaping to road verge areas for public realm enhancement.

Corners

Objectives:

- To address and activate street corners and promote public interface.

Development Controls:

- Buildings on corners must address both street frontages and include strong architectural expression to both façades.
- No blank walls to corner frontages will be permitted.

Heritage

Objectives:

- To respect the existing significant buildings and their setting .

Development Controls:

- Integrating with proposed development.
- Usability and functionality.
- Ensure building can be reused and repurposed and contribute to the residential community.



Example of mixed use activities that can generate street level activity



Balcony structures can be utilised to support activation of Marine Parade

Car Parking and Vehicle access

Objectives:

- Ensure vehicle crossovers and parking areas do not visually dominate the site.
- Ensure that on-site vehicle parking and access are appropriately located to minimise adverse visual impact on the streetscape.
- Upgrade existing verge parking.

Development Context

Objectives:

- Development should improve, acknowledge and be responsive to surrounding development, with appropriate consideration of adjacent site amenity where applicable.

Development Controls:

- Site design must be responsive to neighbouring sites, the existing context and neighbouring public realm resulting in a positive contribution to the neighbourhood.

Building Services

Objectives:

- To ensure services are well integrated and have minimum visual impact from the public realm and adjacent streets and buildings.
- To provide efficient and effective building servicing while minimising visual and acoustic impact.

Development Controls:

- Waste management and storage designs shall minimise the impact on adjoining residences, and be screened from view.
- Building mechanical services including plant and service equipment shall be integrated into and not be visible from street level.
- Lift overrun minor projections may be considered above the building height plane subject to design merit.



Example of access to parking area with minimal impact on public realm



Plant louvre screening



Example of equipment screening

Landscape Design and Public Domain Interface

Objectives:

- To contribute to the activation and vitality of the public realm.
- To create an attractive landscape environment that is complementary to the wider neighbourhood.
- To ensure that the development integrates with the surrounding urban context, streets, parks and neighbouring properties.
- To create attractive public realms areas that are respectful of adjacent public realm and streetscapes and present a landscape character cohesive with the wider community aesthetic.

Communal Open Space

Objectives:

- To provide communal open space that is useable and attractive and can incorporate hard and soft landscaping.
- The use of roof gardens and terraces for residents is encouraged.

Development Controls:

- To provide residents a place for passive and active recreation.
- To allow for soft landscaping including the planting of shade trees.
- To create visual amenity for residents and provide a pleasant outlook that is consolidated and attractive communal open space.
- To design communal open space that is easy and cost effective to maintain on an ongoing basis for the benefits of the owners/occupants of the development.



Example of tree planting opportunities in front setback



Contemporary roof garden in a modern urban environment



Hard and soft landscaping can enhance public realm

**WEARNE COTTESLOE REDEVELOPMENT MASTER PLAN
DEVELOPMENT STANDARDS**

Land Use Permissability	Aged Persons Dwelling Cinema/Theatre Community Purpose Consulting Rooms Convenience store Exhibition centre (Gallery) Hospital Medical Centre Market Multiple Dwelling	Nursing Home Office Place of Worship Reception Centre Recreation private Restaurant/Café Retirement Village Serviced Apartment Shop Small bar
Plot Ratio	n/a	
Site Cover	n/a	
Building Setbacks (minimum distance from property boundary)	Location	Requirement
1. Basement	Marine Parade	NIL
	Gibney Street	NIL
	Warton Street	NIL
2. Ground Floor/Podium	Marine Parade	Wall setback - 6m (Existing Wearne 6m) Balcony / podium – 1m
	Gibney Street	Wall setback - 2m (Existing Wearne 6m) Balcony - NIL (Existing Wearne varies Nil @ entry / 0.9m / 3m)
	Warton Street	Wall setback – 4.5m Balcony – 2.5m
Setback from heritage building for detached buildings	Heritage building	4m single storey 5m for above single storey
3. Upper Floors	Marine Parade	Wall setback - 6m 10m upper level/s (4th level or higher) Balcony – 4.5m
	Gibney Street	Wall setback - 2m Balcony - NIL
	Warton Street	4.5m wall Balcony – 2.5m (development only for 20% of Warton St)

**WEARNE COTTESLOE REDEVELOPMENT MASTER PLAN
DEVELOPMENT STANDARDS**

Building Height	Location	Requirement
	Marine Parade and Gibney Street	(i) Building Height – 15.5 metres maximum height. (ii) Wall Height (to level of roof) – 13.0 metres maximum height (iii) Wall Height (to top of a parapet) – 14.0 metres maximum height
	Warton Road	(v) Building Height – 19.5 metres maximum height. (ii) Wall Height (to level of roof) – 17.0 metres maximum height (iii) Wall Height (to top of a parapet) – 18.0 metres maximum height
	Existing Wearne House	Estimated 17m to ridge of turret (to facilitate reinstatement of 'pepper pot roof' turret.
Vehicle Access		
	Primary vehicle access shall be located from Warton Street and Gibney Street only	
	Residential vehicle parking is restricted to basement only	
	Visitor parking – majority to basement, possible allowance for some on-grade or verge depending on Council approval	
Private Open Space		
Overall minimum open space	50% site area	
Landscaping	A detailed landscape plan for the development site and adjoining road verge shall be lodged with and approved by the Town prior to commencement of the development. Landscaping for the development shall be undertaken in accordance with the approved landscaping plans prior to the occupation or use of the development and landscaping can be phased having regard to the phasing of the development.	

**WEARNE COTTESLOE REDEVELOPMENT MASTER PLAN
DEVELOPMENT STANDARDS**

Car Parking Requirements				
Land Use	Scheme Requirements	Proposed Development	Required Parking	Proposed Master Plan Provision
Commercial and Office Space	1 bay per 50 square metres of gross floor area.	1,400 sqm	28 bays	14 shared bays (50% ancillary use)
Communal Facilities	Communal facilities supplied for retirement and residential aged care use only.			
Retirement Living Apartments	As per R-Codes for <i>Multiple Dwellings</i> : Deemed-to-comply rate - 1 bay per dwelling, plus 0.25 visitor bays per dwelling	76 dwellings	76 bays (residents) 19 bays (visitors)	114 resident / visitor bays
Residential Aged Care Facility	The Town's LPS3 does not specify parking requirements for a RACF land use. Research of other Council's local planning schemes suggests a representative requirement: - 1 bay per 4 beds, plus 1 bay for each staff member	129 places 46 staff	46 bays (staff) 32 bays (patients / visitors)	46 bays (staff) 26 bays (patients / visitors) on site 7 (patient / visitors) Warton Street verge
Total			201 bays	200 bays on site 7 bays Warton Street verge 13 bays Gibney Street verge

Ancillary Uses

With respect to the commercial land uses, activity is expected to be primarily or wholly generated from residents, visitors and staff associated with the Retirement and Aged Care Facility. These land uses will therefore generate very little parking demand.

For the purpose of assessment, only 50% of external service providers are assumed to be ancillary to the retirement living land uses. This includes the associated requirement for staff parking.

Parking Location

Parking is to be provided in a combination of on-site and on-street facilities and can be managed to support flexibility and to maximise efficiency. The existing at-grade parking within the Gibney Street reserve, which is currently allocated exclusively for use by the Wearne development, will be reconfigured to support visitor demand. Additional resident, visitor and staff parking is proposed to be located on-site in designated basement parking areas.

Temporal Parking Demand

It should be noted that the above projections for staff and visitor parking demand represent the maximum projected at full build-out of the Masterplan development. The nature of the development means that evening and night-time staff can share parking bays, reducing the requirement for dedicated staff supply.

Given that occupancy will fluctuate throughout the day, and the staff parking peak does not necessarily coincide with the visitor parking peak, the above provision is considered to be more than sufficient for this development. By creating a supply of shared parking bays, available to all visitors to the development, the utility of onsite parking can be maximised. This will ensure that the proposed development does not reduce the availability of on-street parking for adjacent land uses.

Efficiency through Parking Management

Effective management of the on-site parking supply is proposed, with shared and reciprocal parking arrangements between the on-site uses. This will allow the development to take advantage of the different profiles in staff and visitor occupancy across the day and to support multi-purpose trips.

APPENDIX 1

PLANNING FRAMEWORK

The following planning framework information is provided to supplement the information contained in the report as context to define the purpose of the Master Plan.

STRATEGIC PLANNING FRAMEWORK

PERTH AND PEEL @ 3.5 MILLION

Perth and Peel @3.5million is a high level suite of strategic documents published by the Western Australian Planning Commission (WAPC) in May 2015, that seek to realise the vision encapsulated in the preceding Directions 2031 and Beyond and State Planning Strategy 2050 documents for the future growth of the Perth and Peel Regions. It incorporates a series of draft planning frameworks that respond to emerging challenges with a coordinated, long-term growth strategy for land use and infrastructure.

The Town of Cottesloe is located within the central sub-region, which will contribute to 32.5% of the population by 2050, bringing the central sub-region's population close to 1.2 million people. This growth is to be achieved through a combination of infill and greenfields development and presumes that all 'Urban' zoned land within the central sub-region is made available to accommodate this objective. It recognises that infill development will need to increase to 47% by 2050 and gross urban zone dwelling density needs to continue to rise.

The Strategy acknowledges that the population is ageing, with 13% of the population within Perth and Peel aged over 65 and this is expected to rise to 22% by 2051, thereby presenting a challenge for all capital cities.

The Strategy notes that the forecast average increase in life expectancy for all Australians is 6 years (84.2 years for males and 87.7 years for females). Accordingly, there is an increase in demand for housing in areas with highly accessible services, particularly community and health, and for different forms of housing to allow downsizing to occur within the same suburb.

DRAFT CENTRAL SUB-REGIONAL PLANNING FRAMEWORK (2015)

The draft Central Sub-Regional Planning Framework (SRPF) which was released for advertising will be formalised as a Central Sub-Regional Structure Plan and will ultimately be recognised under the SPP 1 State Planning Framework. The SRPF identifies a strategic plan of actions, stakeholder responsibilities and timeframes for delivery. The SRPF also expresses housing targets for each of the local governments within the sub-region based on a proportional take-up of the anticipated growth. The Town of Cottesloe has been identified within the central sub-region to accommodate an additional 1,000 dwellings.

The SRPF states that an ageing population is a national trend and accommodating the ageing population is significant challenge for all Australian capital cities. Given the demographic changes there will be growing demand for housing to accommodate the ageing population particularly in areas which have convenient access to services. The Wearne Redevelopment directly responds to the need identified in both Perth & Peel and the SRPF to provide aged persons housing in an area with established and accessible services.

The SRPF identifies the subject site within the Mosman Park and Victoria Street Station Precinct. Station Precincts are identified within the SRPF as having the potential to accommodate increased development. The SRPF also outlines the aims of transit-orientated development (development around public transport infrastructure):

- promote and facilitate public transport use;
- capitalise on the investment made in public transport infrastructure;
- encourage spatial development patterns that make it easier to both operate and access public transport;
- create transit stations as destination;
- ensure development of complementary land uses around transit stations; and
- establish high levels of amenity, safety and permeability of the urban form.

The Wearne Redevelopment is considered consistent with the objectives of the Station Precinct by intensifying development that will make use of the existing public transport infrastructure.

TRANSPORT @ 3.5 MILLION

The release of Perth and Peel @ 3.5 million provided the structure to prepare a strategic transport network plan, referred to as Transport @ 3.5 million. The draft plan has recently been advertised for comment and addresses:

- Public transport rail network;
- Public transport on-road network;
- Cycling network;
- Freeway network; and
- Freight network.

Transport @ 3.5 million identifies a secondary freight network traversing Cottesloe and connecting with the primary freight network. A secondary freight network is defined as 'A system of roads designed to carry freight vehicles connecting major industrial areas. Also called the major freight network.' Curtin Avenue is referenced as a freight road and specifically identified in relation to strategic investment priorities.

Accordingly, consideration will need to be given to the implications of freight traffic, particularly in relation to access and noise.

DRAFT DESIGN WA

Design WA is a State Government initiative aimed to ensure good design is central to all development within WA. The draft documents were released for comment in December 2016 and has yet to be approved and gazetted. Stage 1 of Draft Design WA includes:

- **State Planning Policy for Design of the Built Environment (SPP7)** – the lead policy which includes the 10 principles of good design to inform plans and policy;
- **Updated Apartment Design policy** – a policy for apartments and mixed-use developments to replace the Residential Design Codes for multiple dwellings;

- **Design Review Guide** – a guide to assist the operation of design review, particularly to assist local governments to establish design review processes; and
- **Design Skills Discussion Paper** – a paper which seeks feedback regarding the requirement for skilled designers to design complex developments.

Design WA promotes a framework of three fundamental elements to achieve good design outcomes:

- a universal set of design principles;
- an integrated design review process for complex development types; and
- the use of skilled practitioners.

The universal design principles include:

- context and character;
- landscape quality;
- sustainability;
- functionality and building quality;
- community;
- amenity;
- legibility;
- built form and scale;
- safety and;
- aesthetics

The Apartment Design policy has been developed to encourage good quality and liveable apartments which respond to their site considerations and local context.

Importantly, the policy has more flexibility than the R-Codes with a performance based focus. It offers clear objectives and guidance for design practitioners and decision makers who propose alternative and innovative design solutions. The document does contain a default set of primary building controls which define the development envelope, however there is guidance for local governments to make appropriate modifications to these controls to suit local context.

Whilst in draft form, the universal design principles and Draft Apartment Design Policy have informed the design of the Wearne Cottesloe redevelopment.

TOWN OF COTTESLOE LOCAL PLANNING STRATEGY

A local planning strategy sets out the long term planning directions for the local government Scheme area. A local planning strategy in turn forms the basis of the Town's Local Planning Scheme.

The Town of Cottesloe Local Planning Strategy (LPS) of January 2008 specifically references the Wearne Hostel site and identifies the site as mainly single and grouped dwellings. The LPS recognises the ageing population in the Town and the expected increase to the population aged 65 years or older. The LPS states that 'The Institute for Deaf Education and Wearne Hostel sites may provide surplus land in the future which may provide opportunity for additional housing and also a local shop.' A strategy/action resulting from the LPS is to 'Provide for aged persons housing but with attention to residential character and amenity.'

The subject site is acknowledged as a community facility in the LPS and expansion of the existing development or accommodation of other development on the site is foreshadowed.

The proposed redevelopment of Wearne is therefore considered consistent with the direction of the Town's LPS.

TOWN OF COTTESLOE STRATEGIC COMMUNITY PLAN 2013-2023

The Strategic Community Plan has been prepared in accordance with the provisions of the Local Government Act and Regulations and sets out broad objectives of the local government that allows the Council and staff to formulate specific resource plans to achieve these objectives. The Plan acknowledges the aging population with 16% aged 65 years or older, which compares to 13% for the Perth Metropolitan area. Council has identified six strategic priorities to underpin the Strategic Community Plan, the majority of which have recognised and addressed the needs of the aging population. Priority Area 1 – Protecting and

enhancing the wellbeing of residents and visitors identifies a major strategy as "continuing to improve access and inclusion of aged persons and those with disabilities". Priority Area 5 – Providing sustainable infrastructure and community amenities acknowledges that new services will be required to meet the needs of an increasingly aged population.

Redevelopment of the Wearne Site support these objectives of the Strategic Community Plan.

POLICIES

State Planning Policy 2.6 State Coastal Planning Policy

State Planning Policy 2.6 (SPP 2.6) and associated guidelines have been prepared to guide decision making and policy in relation to planning along the State's coastline. Amongst other matters, SPP 2.6 seeks to ensure coastal hazard risk management and adaptation planning is established to guide the location and form of development along the coast.

The relevant objectives of the current gazetted and operational version of SPP 2.6 are to:

- Ensure that the location of coastal facilities takes into account coastal processes, landform stability, coastal hazards, climate change and biophysical criteria;
- Ensure the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities;
- Provide for public coastal foreshore reserves and access to them on the coast; and
- Protect, conserve and enhance coastal zone values, particularly in areas of landscape, biodiversity and ecosystem integrity, indigenous and cultural significance.

The policy establishes a hierarchy for undertaking coastal hazard and risk adaptation planning. The adaptation measures of "Avoid, Planned or Managed Retreat, Accommodate and Protect" are to operate on a sequential and preferential basis starting with avoid as part of the coastal hazard risk management adaptation planning process.

SPP 2.6 includes requirements for development to be undertaken with regard to the possible impacts of sea level change and outlines the requirements in terms of the application of coastal foreshore reserves and development setbacks for physical processes. SPP 2.6 includes reference to a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP). Typically the scope of a CHRMAP involves confirming the specific extent of coastal hazards, evaluating the risks associated with a proposal, and to establish and provide guidance on the future risk management and adaptation measures.

The Department of Planning has indicated that the preparation of a CHRMAP for the proposed development is considered onerous as risk management and adaptation planning for the subject site will require assessment at the coastal sediment cell level, which will require management and adaptation to be considered at a larger extent than simply the subject site. Accordingly, the Department of Planning advised that the applicant should not have to undertake such an extent of planning (at their own expense) which would benefit a large number of private land owners along the coastline within the Town of Cottesloe as this is not considered a fair and equitable outcome to place on an individual applicant.

SPP 2.6 also provides a framework for the consideration of building height limits for areas within 300m of the horizontal shoreline datum. The policy indicates that "maximum height limits should be specified as part of planning controls in a local planning scheme and/or structure plan, in order to achieve outcomes which respond to the desired character, built form and amenity of the locality." Furthermore, when determining building height controls, due regard should be given to the following criteria:

- a) Development is consistent with the overall visual theme identified as part of land use planning for a locality or in an appropriate planning control instrument such as a local planning strategy;
- b) Development takes into account the built form, topography and landscape character of the surrounding area;
- c) The location is part of an identified coastal node;
- d) The amenity of the coastal foreshore is not detrimentally affected by any significant overshadowing of the foreshore; and
- e) There is overall visual permeability of the foreshore and ocean from nearby residential areas, roads and public spaces.

The determination of building heights controls as part of the potential development of the site is discussed in the Master Plan report.

State Planning Policy 3.7 Planning for Bushfire Risk Management

SPP 3.7 assists in reducing the risk of bushfire to people, property, and infrastructure by encouraging a conservative approach to strategic planning, subdivision, development, and other planning decisions proposed in bushfire-prone areas.

Specifically it:

- Addresses the land use planning elements of the Keelty report;
- Elevates bushfire issues to be addressed by the highest level of planning policy available, giving it clear status and effect in the land use planning policy framework;
- Emphasises the need to consider bushfire management measures in strategic level policy documents, including regional and local planning schemes, sub-regional and local planning strategies and Structure Plans, as well as during statutory planning processes for subdivision and development applications; and
- Seeks to achieve the consistent implementation of bushfire management measures across the community.

SPP 3.7 applies to all land which has been designated as bushfire prone by the Fire and Emergency Services (FES) Commissioner as identified on the Map of Bush Fire Prone Areas. The western portion of the subject site is identified as bushfire prone on the Map of Bush Fire Prone Areas. The designation of the area as bushfire prone highlights the potential for bushfire to affect the site and is a trigger for further assessment to occur.

Guidelines for Planning in Bushfire Prone Areas have also been prepared and are designed to supplement the objectives and policy measures established in SPP 3.7, to assist in their interpretation and provide advice on how bushfire risk is to be addressed when designing or assessing a proposal within a bushfire-prone area.

SPP 3.7 requires the preparation of a Bushfire Attack Level (BAL) Contour Map for local structure plans within designated bushfire prone areas, where a BAL rating above BAL-LOW apply. Assuming a BAL Contour Map is required, this will

need to be prepared by an accredited Bushfire Planning Practitioner and in accordance with the Guidelines.

Pedragon Environmental Solutions have completed a BAL to provide guidance during the planning stages of the development, refer appendix 3.

The BAL report details what is currently on site and gives an indication of potential vegetation issues that will need to be addressed for future planning applications.

The vegetation that is creating an elevated BAL assessment is isolated to the Western corner, options to reduce the rating are detailed below:

- Remove this vegetation;
- Alter the existing vegetation to create a managed landscaped area;
- Build proposed development outside of the area of risk (leaving at least 19m buffer);
- Alternatively if only one of these areas was retained then the BAL assessment risk would be reduced to Low and so with no impact on the development.

State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning

State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning (SPP 5.4) seeks to minimise the adverse impact of transport noise, without placing unreasonable restrictions on noise-sensitive residential development. This Policy is applied where the proposal includes:

- a proposed new noise-sensitive development in the vicinity of an existing or future major road, rail or freight handling facility;
- a proposed new major road or rail infrastructure project in the vicinity of existing or future noise-sensitive land uses;
- a proposed major redevelopment of existing major road or rail infrastructure in the vicinity of existing or future noise sensitive land uses, or;
- a proposed new freight handling facility.

Schedule 1 of SPP 5.4 identifies Curtin Avenue as a primary freight road/future primary freight road (Main Roads jurisdiction) and identifies the Perth to Fremantle passenger railway line.

The project site is in a largely residential area, with Gibney Street to the North, Marine Parade to the West. Stirling Highway which is the dominant noise source runs towards the east of the development which is circa 200m from the project site. A detailed site survey will be carried out to identify the noise sources impacting the proposed development. Where the noise targets and/or limits of SPP 5.4 are exceeded, mitigation measures may be required to ensure that future residents are not subjected to unacceptable noise levels. When a schedule of equipment and the proposed location for all building plant is available, it will be reviewed in order to comply with the EPNR levels. Noise emissions from BOH/Loading areas will be assessed and treatments provided to achieve compliance to EPNR.

The façade of the proposed development will be designed to achieve compliance to internal noise levels as per Australian Standard *AS2107:2016 - Acoustics - Recommended design sound levels and reverberation times for building interiors*.

Noise emissions from the development are required to comply with the Environmental Protection (Noise) Regulation 1997 (EPNR) at each nearest sensitive receiver. By ensuring compliance to the EPNR to the nearest noise sensitive receiver locations, compliance will be extensive to any noise sensitive receiver located at greater distance. The nearest noise sensitive developments to the project location are the residential receivers along Gibney Street and Warton Street.

Noise emissions from the development are expected to be associated with the following sources;

- Mechanical plant and other building services
- Noise emissions from the use of back of house / loading areas

LOCAL PLANNING SCHEME NO. 3

The Local Planning Scheme currently documents development standards for Building Height, Land Use, Development and Car Parking Requirements, refer below, however also recognises that variations can be applied through a Local Structure Plan. This Master Plan replaces the Structure Plan and details the proposed Development Standards applicable to the development of this site (refer Pages 72 and 73).

Building Height

The local planning scheme currently documents development standards for Building Height, Land Use, Development and Car Parking Requirements, refer below, however also recognises that variations can be applied through a Local Structure Plan. This Master Plan replaces the Structure Plan and details the proposed Development Standards applicable to the development of this site (refer Pages 72 and 73).

Clause 5.7 of LPS3 addresses building height. Clause 5.7.1 defines building height, storey and wall height. Clause 5.7.2 and clause 5.7.3 state the following in relation to building height.

5.7.2 All buildings shall comply with each of the following maximum heights, as applicable to the building —

- (a) 1 storey (i) Building Height (inclusive of wall and roof height; including to top of a parapet) – 6 metres maximum height*
- (b) 2 storeys (i) Building Height – 8.5 metres maximum height.*
 - (ii) Wall Height (to level of roof) – 6.0 metres maximum height.*

(iii) Wall Height (to top of a parapet) – 7.0 metres maximum height.

(c) More than 2 storeys (i) Building Height 8.5 metres, plus 3.0 metres for each storey more than 2, maximum height

(ii) Wall Height (to level of roof) – 6.0 metres, plus 3.0 metres for each storey more than 2, maximum height.

(iii) Wall Height (to top of a parapet) – 3.0 metres for each storey up to the highest storey, plus 4.0 metres for the highest storey, maximum height.

5.7.3. Unless otherwise provided for in the Scheme, all development shall comply with the requirements of Table 2 in relation to height.

Development in the Development Zone is subject to the requirements in Schedule 14 and any approved Structure Plan, as required by clause 6.2. The Master Plan will replace the structure plan and specifies the proposed heights for the development.

Table 1 – Zoning Table

'Table 1 – Zoning Table' contained in LPS3 states that development and use of land within the 'Development' zone is to be in accordance with an approved Structure Plan prepared and adopted under clause 6.2.

Aged or dependent persons' dwelling is not included in Table 1 or defined in LPS3.

Table 2 - Development Requirements

'Table 2 – Development Requirements' in LPS3 addresses plot ratio, site cover, boundary setbacks and height. Table 2 states the following in relation to the 'Development' zone:

Development in the Development Zone is subject to the requirements in Schedule 14 and any approved Structure Plan, as required by clause 6.2...'

Table 3 - Car Parking Requirements

'Table 3 – Vehicle Parking Requirements' within LPS3 identifies land uses and the corresponding parking requirement. Aged or dependent persons dwelling is not listed in this table. In relation to all other uses which are not specified, Table 3 states:

To be determined by the local government considering the likely demand for parking by the proposed use having regard to the nature of the proposed use, the likely volumes of goods or materials and the numbers of people moving to or from the land, and the likelihood of traffic congestion on roads or in public places in the locality.

Clause 5.8 of LSP3 addresses vehicle parking requirements in relation to Table 3. Clause 5.8.2 of LSP3 states:

In the case of a use not listed in Table 3, car parking spaces shall be provided of a number determined by the local government considering the likely demand for parking by the proposed use having regard to the proposed use, the likely volumes of goods or materials and the numbers of people moving to or from the land, and the likelihood of traffic congestion on roads or in public places in the locality.

Clause 5.8.3 of LPS3 also provides for the local government to approve development within the 'Development' zone without the required number of parking bays subject to the applicant making satisfactory arrangements to enable the local government to provide public off-street parking in the vicinity equivalent to the deficiency and in this regard the local government may accept cash in lieu subject to certain conditions.

Schedule 13 of LPS3 addresses variations to site and development standards and requirements. Clause 7.1 of Schedule 13 provides for parking variations, as outlined below.

Subject to the following, the parking requirements set out in Table 3 may be varied, so as to reduce the number of parking spaces required in respect of a particular development by up to 20% of the number of parking spaces that would otherwise be required by the application of the provisions of Table 3, subject to the provision of a traffic impact assessment, to the satisfaction of the Council, addressing the matters referred to in clause 5.5.4(c).

There will be approximately 200 parking bays (TBC) provided at the site. This will include parking for residents, visitors, service vehicles and staff. There will also be off street parking provided for coaches. All on-site car parking accessed via Gibney Street will be covered. The on-site car parking accessed from Warton Street is both covered and uncovered.

It has been identified that there is currently a number of vehicles parked locally on verges along Gibney Street. The parking strategy for this development is to ensure that the development does not increase on street parking demand.

LOCAL PLANNING POLICY NO. 1 - PARKING MATTERS

Local Planning Policy No. 1 (LPP1) – Parking Matters addresses the parking provisions in LPS3 that involve discretion and require a policy to become operative. Of relevance to the Wearne Redevelopment, is the LPS3 provision providing for cash in lieu parking. LPP1 provides guidance regarding the appropriateness and extent of cash in lieu for proposals and how the funds are to be utilised.

LPP1 includes a table to assist Council in exercising discretion to grant cash in lieu. The criteria applicable to the Development zone are included below.

Criteria	Development Zone
Public off-street parking in vicinity.	Good supply of public parking for Development Zone 'A' (OBH site).
Deficiency in parking spaces.	Maximum 25% as determined by Council.
Planned infrastructure including land.	New surface or multi-level car parks, including basements, under-crofts or decks.
Planned timing of expenditure.	Upon development of private, Government or institutional land.
Public parking stations on Town-controlled land.	Surface or decked parking integral to development of these sites, subject to good access and quality design.
Public transport infrastructure on Town –controlled land	Provision for local bus, taxi or shared bike facilities. Cott Cat bus stops and signs.
Land in lieu of cash in lieu, identified for public parking.	Council will consider land capable to parking development, which is well located and accessible, subject to residential amenity.

LPP1 specifically references the subject site and states that 'cash in lieu may be applicable subsequent to future structure planning, subdivision and development proposals'.

LPP1 also includes a table outlining how Council will exercise discretion to grant parking reductions in relation to Schedule 13 of LPS3. If a parking reduction is sought, LPP1 requires a traffic and parking statement to be prepared which addresses the criteria.

A Traffic Impact Assessment has been undertaken in accordance to the Western Australian Planning Commission (WAPC) Transport Impact Guidelines Volume 4 - Individual Developments (2016) which outline the transport aspects of the proposed redevelopment with a focus on accessibility, traffic operation, circulation and car parking.

TOWN OF COTTESLOE POLICY– STREET TREES

The Town of Cottesloe Street Tree policy's key principle is: 'Street trees should be established on every street and road in the Town of Cottesloe, with one tree fronting every property, supported by proper systems of protection, watering, pruning and processes for species selection.' The policy provisions are outlined below and will need to be considered at the Development Application stage.

1. The Norfolk Island Pine tree is the icon or symbol of Cottesloe and shall be preserved.
2. The Town of Cottesloe shall aim at planting and maintaining one street tree per property frontage.
3. All individual street tree planting will be undertaken by Council staff. All other planting on verges, other than a lawn, will require a submission to the Town of Cottesloe for approval.
4. Tree pruning shall be aimed at producing a full canopy typical of the species, whilst still addressing legal obligations and the preservation of public safety. Major pruning may require the Manager Engineering Services to seek professional advice.
5. Tree removal must be seen as a last resort, used for dead and/or dangerous trees. The Manager Engineering Services must give approval for any tree removal.

The following reasons do not justify tree removals:

- i. Tree litter/leaf fall ('messy' tree),
- ii. Restoration of a view,
- iii. Alternative species requested by resident,
- iv. A desire to re-landscape,
- v. House alterations requiring crossover relocation,
- vi. Shading of lawns, pools,
- vii. Swimming pool installation – root or falling leaf problems,
- viii. Perception that tree may fall in a storm.

6. A proposal to remove or replace multiple street trees in one street shall require an expert's report, public consultation and consideration by Council.
7. For development or building approvals, plans and drawings submitted must include the locations of all street trees on abutting road verges for the consideration of the effects of such land or building changes on these street trees.
8. A person or company identified as having damaged or removed a street tree(s) without Council approval, shall be required to provide full compensation to Council for all costs associated with the re-establishment of an advanced tree of that same species together with an assessed value determined by the Manager Engineering Services for the loss of amenity/aesthetic value of that tree(s).
9. The Town of Cottesloe will maintain a street tree species list of the most suitable tree species for the different soil and micro climate areas of the town, plus species determined as being unacceptable as street trees.

Such undesirable species would exhibit the following characteristics:

- i. Intolerance to drought or low watering conditions;
- ii. Self pruning of larger limbs;
- iii. Suckering or adventitious growth patterns;
- iv. Roots that cause damage to paths, roads, buildings, pipelines;
- v. Susceptibility to insect and pathogen infestation;
- vi. Aggressive self seeding; and
- vii. Unacceptable toxicity.

HERITAGE FRAMEWORK

The whole of the existing Wearne Hostel site is listed on the State Register of Heritage Places (Place no. 00603), the Local Planning Scheme No.3 – Heritage List and the Town of Cottesloe Municipal Heritage Inventory – Category 1 Construction commenced on the building in 1897, and was used for Ministering Children’s League, which was a world-wide organisation founded by the Countess of Meath in England.

The Statement of Significance as listed in the State Register entry is as follows:

Wearne Hostel, a group of buildings in a large relatively open landscape comprising the original Ministering Children’s League Convalescent Home completed in 1897 in the Federation Queen Anne style; the 1901 additions in a matching style; the 1909 Meath wing in a sympathetic variant of the same style; various minor utilitarian additions and structures such as toilet blocks; a single residence and the large additions and conversion works to the 1897- 1909 buildings constructed in 1984 in a simplified style derived in part from the existing buildings, has cultural heritage significance for the following reasons:

- The place is one of the largest and most successful philanthropic institutions of the nineteenth and twentieth centuries. As the Ministering Children’s League Convalescent Home, it provided a necessary service to the people of this State for almost 60 years, and in particular, to those from the Goldfields in the late nineteenth and early twentieth centuries;
- To women, for whom there were few medical facilities available prior to the construction of King Edward Memorial Hospital in 1916;
- The place exhibits the aesthetic characteristics and is a fine example of the Federation Queen Anne style, with individual elements constructed between 1897 and 1909 making an increasingly exuberant use of the elements of the style;

- The place has a landmark quality and is an integral part of the vista in Cottesloe, a distinctive section of Metropolitan beach frontage; and
- The place is valued by the community for the role it has played in the health and ancillary services in this State; the place has strong historic associations with many eminent Western Australians, principally Anglicans, who gave their support to the place, including Mrs. Waylen, Walter Padbury, Mr. and Mrs. H. D. Holmes, and their daughters, Phoebe and Emmie; Lady Onslow; P.W. Harrison, Architect; Edith Cowan, Lady Mitchell, John Tonkin; and the wives of all the Governors of Western Australia in the late nineteenth century and the first half of the twentieth century, particularly Lady Lawley; and, the place is rare as an early and large cottage style convalescent home and represents a building type and mode of health care that is no longer practiced.

The post World War Two additions, alterations, and hostel additions are considered to have little cultural heritage significance. The Statement of Significance is referred to by the Heritage Council when assessing a proposals impact on the heritage values of a place and guides decisions on development. The Conservation Management Plan is also a key document in the assessment process.

Conservation and Development Policies

Generally, for a place listed on the State Register of Heritage Places a Conservation Plan (CP)/ Conservation Management Plan (CMP) is prepared to guide conservation, assess development and manage change. A CMP will contain information about the history of the place, its physical condition, analysis of the evidence, assessment of significance, statements of significance, zones and elements of significance, conservation policies, and policy implementation. Where a CMP for a place hasn't been prepared it will usually be required by the Department of Planning, Lands and Heritage (DLPH) prior to further development occurring on the site.

The original Conservation Plan (CP) for Wearne Hostel was prepared in October 2000. The 2000 CP was out of date, being unaware of development on the site since it was completed and not reflective of current practise in preparation of CP's. As part of the Master Plan process it was decided to update the Conservation Plan to capture the changed conditions on site and reflect current practise in its preparation.

The main changes from the 2000 CP were:

- Updated history of the place to capture changes since 2000;
- Updated physical description of the place to include the additional development on site and its current physical condition; and
- The Policies around development and conservation were updated to provide guidance with respect to maintenance of heritage values as opposed to the earlier more prescriptive policies that set hard limits for development.

The Master Plan process was guided by the updated CP. The identified zones and elements of significance provided clear guidance on acceptable change to the heritage fabric and guided the overall shape of the development through policy on acceptable development zones. The documentary evidence in the CP will be utilised as the project progresses to inform conservation works.

The updated CP was provided to the State Heritage Office in the Department of Planning, Lands and Heritage and will be used as a further tool to assist in the assessment of the proposed developments impact on the heritage significance of the site and in preparation of Statutory planning documents, such as, a Heritage Impact Statement.

APPENDIX 2

Wearne Redevelopment

Transport Impact Assessment



Prepared for
Curtin Care

23 January 2018

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Table of Contents

1	Introduction/Background	1
2	Existing Situation	2
2.1	Site Location	2
2.2	Existing Land Uses	2
2.3	Existing Parking Provision	4
2.4	Existing Road Network	4
2.5	Existing Traffic Volumes	6
2.6	Existing Pedestrian/Cycle Network	7
2.7	Existing Public Transport Services	8
2.8	Crash Data	9
3	Development Proposal	10
3.1	Proposed Land Uses	10
3.2	Proposed Development Land Use Yield	10
3.3	Access Arrangements	11
3.4	Parking Provision	12
4	Changes to surrounding transport networks	14
4.1	Changes to Pedestrian/cycle networks and crossing facilities	14
4.2	Changes to Public Transport services	14
5	Integration with Surrounding Land Uses	15
5.1	Surrounding Major Attractors/Generators	15
5.2	Committed Developments and Transport Proposals	15
5.3	Proposed Changes to Land Uses within 1200 Metres	15
5.4	Travel Desire Lines from Development to These Attractors/Generators	16
5.5	Adequacy of Existing Transport Networks	16
5.6	Deficiencies in Existing Transport Networks	16
5.7	Remedial Measures to Address Deficiencies	16
6	Analysis of Transport Networks	17
6.1	Assessment Years and Time Period	17
6.2	Development Trip Generation	17
6.3	Background Traffic Growth Scenario	18
6.4	Development Traffic Distribution	18
6.5	Intersection Performance	21
6.5.2	Key Intersections	22
6.5.3	Marine Parade/Gibney Street	23
6.5.4	Marine Parade/Warton Street Intersection	25
6.5.5	Access 1/Gibney Street Intersection	27
6.5.6	Access 2/Gibney Street Intersection	28
6.5.7	Access 3/Warton Street Intersection	29
7	Mitigation Measures	30
8	Conclusion	31

Appendices

Appendix A WAPC Transport Impact Assessment Checklist

Appendix B Site Plans

Appendix C SIDRA Results

Tables

Table 2-1	Daily Traffic Volumes	6
Table 2-2	Bus Service Frequency	8
Table 2-3	Crash Statistics at Gibney Street/Marine Parade Intersection	9
Table 2-4	Crash Statistics along Marine Parade between MacArthur Street and Beach Street	9
Table 3-1	Proposed Development Land Use Yields	11
Table 3-2	Proposed Parking Requirements	12
Table 6-1	Trip Generation Rates	17
Table 6-2	Estimated Base Trip Generation	17
Table 6-3	Estimated Base Trip Generation	18
Table 6-4	Level of Service (LOS) Performance Criteria	22
Table 6-5	Marine Parade/Gibney Street AM and PM Intersection Performance – Scenario 1	23
Table 6-6	Marine Parade/Gibney Street AM and PM Intersection Performance – Scenario 2	24
Table 6-7	Marine Parade/Gibney Street AM and PM Intersection Performance – Scenario 3	24
Table 6-8	Marine Parade/Warton Street AM and PM Intersection Performance – Scenario 1	25
Table 6-9	Marine Parade/Warton Street AM and PM Intersection Performance – Scenario 2	26
Table 6-10	Marine Parade/Warton Street AM and PM Intersection Performance – Scenario 3	26
Table 6-11	Access 1/Gibney Street AM and PM Intersection Performance – Scenario 3	27
Table 6-12	Access 2/Gibney Street AM and PM Intersection Performance – Scenario 3	28
Table 6-13	Access 3/Warton Street AM and PM Intersection Performance – Scenario 3	29

Figures

Figure 2-1	Site Location	2
Figure 2-2	Existing Land Use	3
Figure 2-3	Parking availability on-street (indicative)	4
Figure 2-4	Existing Road Network	5
Figure 2-5	Existing Pedestrian/Cycle Network	7
Figure 2-6	Existing Bus Services	8
Figure 3-1	Proposed Development Land Uses	10
Figure 5-1	Key Attractors and Generators	15
Figure 5-2	Extent of Cottesloe Foreshore Renewal	16
Figure 6-1	Scenario 1 – Background (2017)	19
Figure 6-2	Scenario 2 – Background (2020) + Development	20
Figure 6-3	Scenario 3 – Background (2030) + Development	21
Figure 6-4	Marine Parade/Gibney Street – Existing Intersection Layout	23

Figure 6-5	Marine Parade/Warton Street – Existing Intersection Layout	25
Figure 6-6	Access 1/Gibney Street – Existing Intersection Layout	27
Figure 6-7	Access 2/Gibney Street – Existing Intersection Layout	28
Figure 6-8	Access 3/Warton Street – Existing Intersection Layout	29

1 Introduction/Background

Curtin Care have commissioned Cardno to prepare a Transport Impact Assessment for the proposed Wearne Redevelopment located in Cottesloe.

Preparation of this report is in accordance with the Western Australian Planning Commission (WAPC) *Transport Assessment Guidelines for Developments Volume 4: Individual Developments*. **Appendix A** of this report includes a checklist of the WAPC guidelines.

This report will focus specifically around traffic access, circulation and safety as well as discussion regarding consideration of pedestrians, cyclists and public transport.

The scope of work comprises of the following:

- > Summary of the existing and proposed infrastructure within the context of the surrounding area.
- > Background information for the proposed development
- > Desktop assessment to determine the traffic generation, distribution and assignment for the proposed development
- > SIDRA assessment of key intersections
- > Mitigation measure and recommendations (if required)
- > Conclusions and summary

2 Existing Situation

2.1 Site Location

The Site is located within the Town of Cottesloe LGA, in the suburb of Cottesloe. **Figure 2-1** shows the extent of the Site. The Site is bounded by Gibney Street to the north, Marine Parade to the west, Warton Street to the south and the WA Foundation for Deaf Children to the east.

Figure 2-1 Site Location

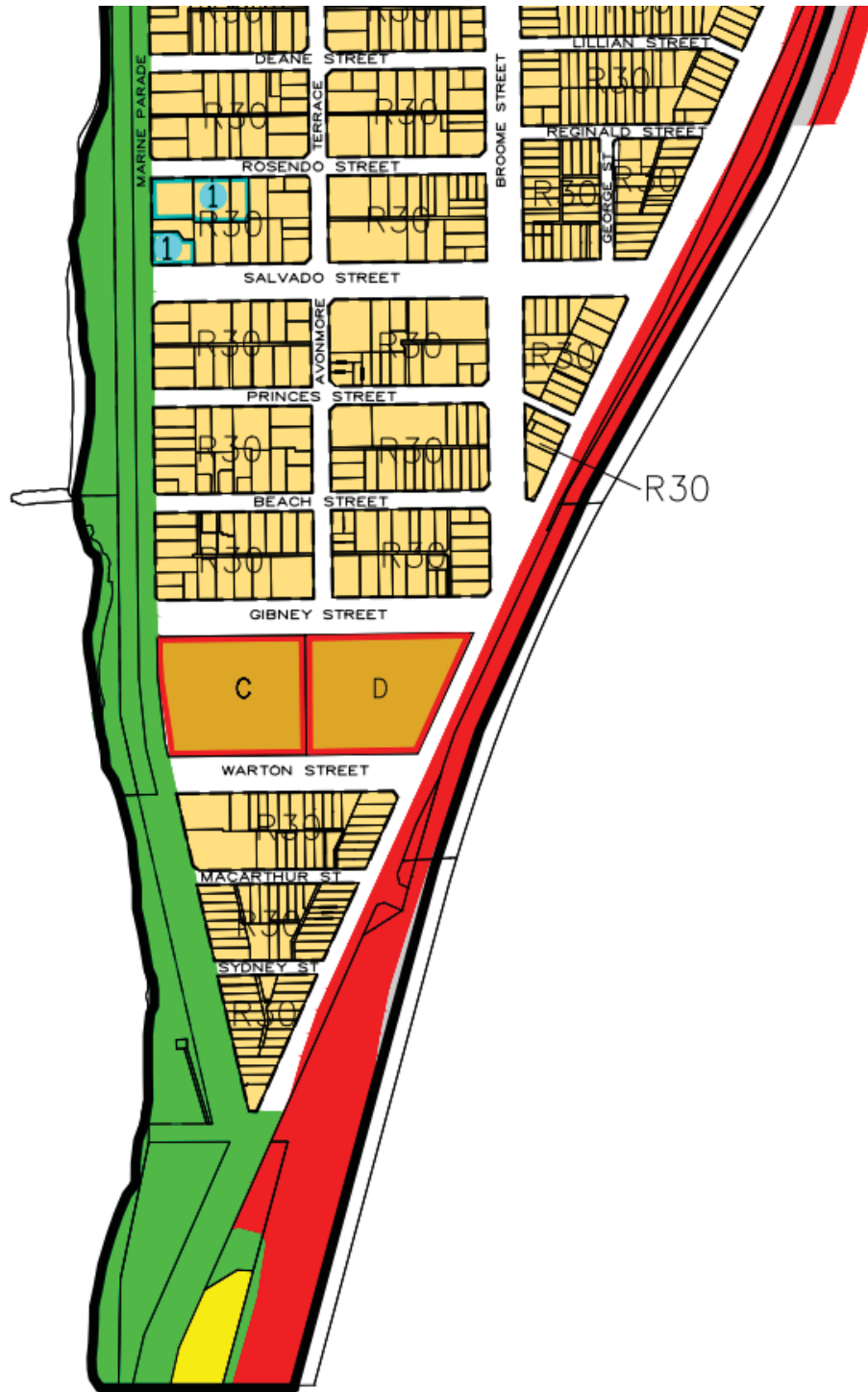


Source: Nearmap (2017)

2.2 Existing Land Uses

The Site is zoned as “development”. **Figure 2-2** shows the existing land uses in proximity to the Site, with the surrounding land uses consisting of mostly low to medium density residential. To the west of the Site is the Cottesloe Foreshore.

Figure 2-2 Existing Land Use



Source: Town of Cottesloe Local Planning Scheme No.3

2.3 Existing Parking Provision

The existing off-street parking for the quantum is as follows:

- > Approximately 24 parking bays accessed via the crossovers along Gibney Street
- > Approximately 19 parking bays accessed via the crossovers along Warton Street

A large supply of on-street parallel parking bays is available along both sides of Marine Parade, Gibney Street and Warton Street, located in close proximity to the Site and shared between all local uses. Demand consists of local residential, beachgoers, Lady Lawley visitors/staff and Wearne staff. **Figure 2-3** shows on street parking available to the Site.

The extent of this on-street parking along the lot frontage alone (within 100m walking distance) includes:

- > 30 marked parking bays along Marine Parade
- > Approximately 24 unmarked parking bays along Gibney Street
- > Approximately 29 unmarked parking bays along Warton Street

It should be noted that along Gibney Street, verge parking has been constructed within the road reserve. This provides 21 bays exclusively to be used by the Site.

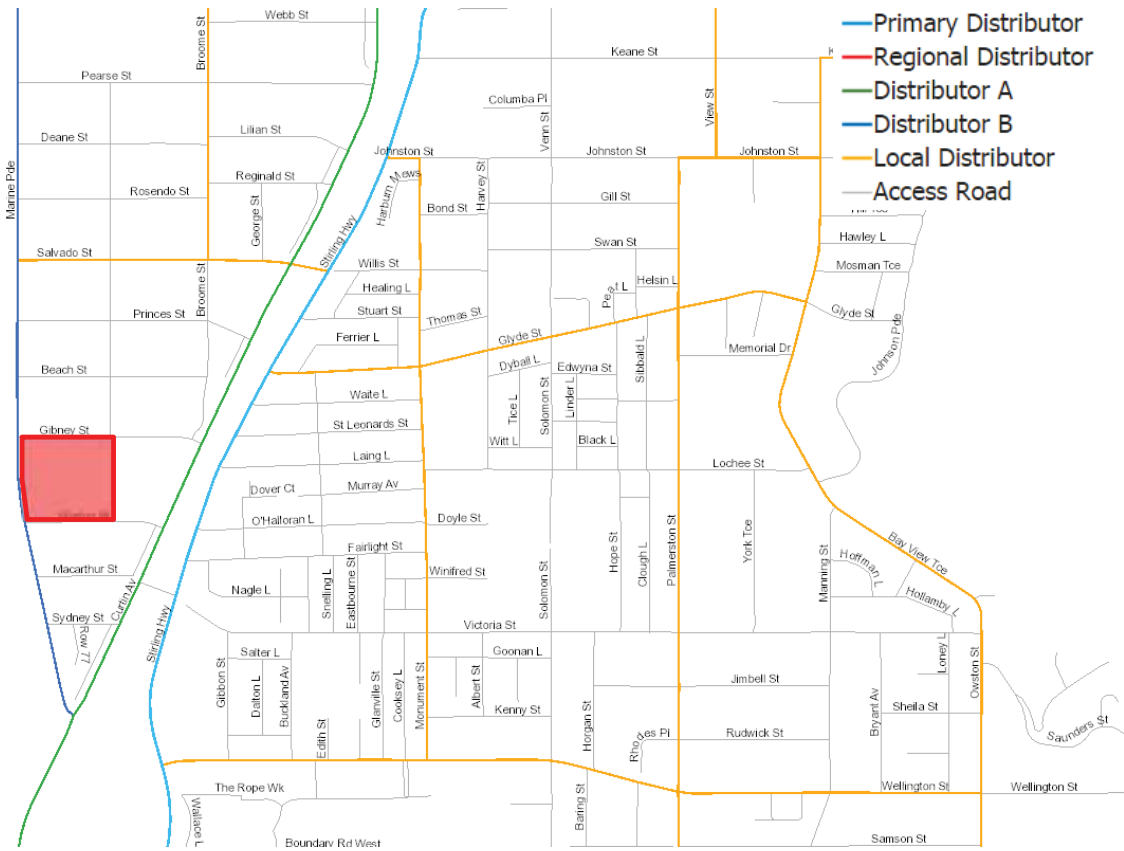
Figure 2-3 Parking availability on-street (indicative)



2.4 Existing Road Network

The Main Roads WA Metropolitan Functional Road Hierarchy (MFRH) classifies the roads bounding Site as shown in **Figure 2-4**.

Figure 2-4 Existing Road Network



Source: Main Roads WA (2016)

The definitions of road classification in the Main Roads Functional Hierarchy (MRFH) as follows:

- > **Primary Distributors:** Managed by Main Roads, these provide for major regional and inter-regional traffic movement and carry large volumes of generally fast moving traffic. Some are strategic freight routes and all are National or State roads. These are.
- > **Regional Distributors:** These roads, which are Local Government managed, are not Primary Distributors, but link significant destinations and designed for efficient movement of people and goods within and beyond regional areas.
- > **District Distributor A:** Managed by Local Government, these carry traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are.
- > **District Distributor B:** Perform a similar function to District Distributor A, but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. Managed by Local Government, these are often older roads with a traffic demand in excess of that originally intended. District Distributor A and B roads run between Land-use cells and generally not through them, forming a grid which would ideally space them around 1.5 Kilometres apart.
- > **Local Distributors:** Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. Local Government managed, these roads should accommodate buses but discourage heavy vehicles.
- > **Access Roads:** These bicycle and pedestrian friendly roads provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function and are managed by Local Government.

Gibney Street

Gibney Street is an *Access Road* under the MRWA Metropolitan Functional Road Hierarchy (MFRH) and bounds the northern frontage of the Site. It is a two-way, two lane road with unmarked on-street parking along both sides of the road. Gibney Street has a kerb-to-kerb width of 7.2m and a posted speed limit of 50km/h.

Warton Street

Warton Street is an *Access Road* under the MRWA Metropolitan Functional Road Hierarchy (MFRH) and bounds the southern frontage of the Site. It is a two-way, two lane road with unmarked on-street parking along both sides of the road. Warton Street has a kerb-to-kerb width of 7.2m and a posted speed limit of 50km/h.

Marine Parade

Marine Parade is a *Distributor B Road* under the MRWA Metropolitan Functional Road Hierarchy (MFRH) and bounds the western frontage of the Site. It is a two-way, two lane carriageway separated by a central median with marked on-street parking along both sides of the road. Warton Street has a kerb-to-kerb width of 13m and a posted speed limit of 50km/h.

2.5 Existing Traffic Volumes

Obtained from the Town of Cottesloe, **Table 2-1** shows existing traffic volume data. AM and PM peak hours were determined to be 8:00am-9:00am and 5:00pm-6:00pm, respectively.

Table 2-1 Daily Traffic Volumes

Road Name	Year of Data	AM Peak Volumes	PM Peak Volumes	Average Daily Volumes
Marine Parade	2012	543	497	5,436
Warton Street	2015	29	39	398
Curtin Avenue (Between Jarrad Street and Finey Street)	2012	1,900	2,110	21,052

The existing intersections within the vicinity of the Site are as follows:

- > Marine Parade/Gibney Street intersection
- > Gibney Street/Curtin Avenue intersection
- > Warton Street/Curtin Avenue intersection
- > Marine Parade/Warton Street intersection

2.6 Existing Pedestrian/Cycle Network

The existing pedestrian/cycle network in the immediate area surrounding the Site as shown in **Figure 2-5**.

Figure 2-5 Existing Pedestrian/Cycle Network



Source: Department of Transport (2014)

The Sunset Coast Route provides a high quality path for both pedestrians and cyclists and is well suited for all user types (commuter, casual and recreation). With the Cottesloe Foreshore located to the west, it is a popular scenic route with a significant number of pedestrians and cyclists.

Curtin Avenue also has 1.5m sealed shoulder cycling lanes along both sides of the road.

2.7 Existing Public Transport Services

Public transport serving within the vicinity of the Site is provided by Transperth bus and train services. There are three bus routes serving the Site, consisting of Route 103, 998, and 999. The closest bus stops to these routes are located approximately 300m east of the Site along Stirling. **Figure 2-6** shows the bus routes within the site and **Table 2-2** shows the typical frequencies of Route 103, 998, and 999.

Figure 2-6 Existing Bus Services



Source: Transperth (2016)

Table 2-2 Bus Service Frequency

Route	Peak Frequency	Off-peak Frequency
103	20-30min	60min
998	10min	30min
999	10min	30min

As shown in **Table 2-2**, the bus routes have only moderate frequencies during the peak period. However, as these routes pass through the local vicinity of the Site using the same stops, combining these routes forms a high frequency bus service to the Perth CBD, with a peak frequency of five to 15 minutes. There are also bus stops along Marine Parade not connected to any public bus service.

The closest train stations to the Site are Victoria Street Station and Mosman Park Station. Walking distances to these stations are approximately 300m and 500m respectively, which is within the standard 800m walking catchment.

2.8 Crash Data

Crash data from Main Roads WA (MRWA) for nearby intersections and roads covers a five-year period between January 2012 and December 2016 and has been summarised and presented in **Table 2-3** and **Table 2-4**. No crashes were recorded at the Warton Street/Marine Parade intersection however, there were two crashes were also recorded within the surrounding area of the Site.

The information analysed indicates that the area has a low crash rate.

Table 2-3 Crash Statistics at Gibney Street/Marine Parade Intersection

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Not Stated	Total Crashes
Right Angle			1				1
Total			1				1

Table 2-4 Crash Statistics along Marine Parade between MacArthur Street and Beach Street

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Not Stated	Total Crashes
Rear End				1			1
Total				1			1

3 Development Proposal

3.1 Proposed Land Uses

The development proposed land use changes at the current Wearne Hostel site in Cottesloe aims to establish a new aged care and retirement living facilities. The masterplan proposes the following:

- > Providing 129 residential aged care places;
- > Phased construction to enable continuity of care for existing residents;
- > Delivering complementary care-related services; and
- > 76 retirement apartments for independent living

Figure 3-1 Proposed Development Land Uses



Source: *Wearne Masterplan Report (2018)*

3.2 Proposed Development Land Use Yield

Table 3-1 shows the proposed land use yields of the development sourced from the latest information provided from the *Wearne Masterplan Report*. **Table 3-1** summarises the land use yields.

Table 3-1 Proposed Development Land Use Yields

Land Use	Yield
Residential Aged Care places (inc. family room)	129 places (including a approximately 46 staff)
Residential Retirement Living Apartments	76 Apartments
Communal facilities (Aged care and retirement living)	550m ²
Non-residential use	1400m ²

Source: *Wearne Masterplan Report (2018)*

3.3 Access Arrangements

As shown in **Figure 3-1**, there are six entry accesses proposed for the site and listed as follows:

- > Along Gibney Street:
 - Visitor, public & apartment vehicle entry*
 - Apartment pedestrian entry
 - Apartment vehicle entry*
- > Along Warton Street:
 - RACF Staff & Public Entry*
 - Deliveries Entry
- > Along Marine Parade:
 - Public Pedestrian garden access

*accesses assessed in Section 6

The proposed masterplan access arrangement provides an overall improvement compared to the existing access arrangement by reducing the number of crossovers along Gibney Street thereby reducing the number of potential conflict points.

3.4 Parking Provision

The proposal includes a total of 200 on-site parking bays, with additional reconfigured on-street parking bays provided for the use of residents, visitors, service vehicles and staff, and off-street parking provided for coaches.

A proposed parking management regime based on the current Masterplan is defined below in **Table 3-2**. There may also be an opportunity through the Development Application process to refine the allocation of bays and ensure optimal efficiency of the on-site provision.

There are currently a number of vehicles parked along Gibney Street during typical business hours. The current usage of this parking has been considered in the proposed design, with on-street parking to be maintained at existing levels.

Table 3-2 summarises the parking requirements as defined by the Town of Cottesloe *Scheme* requirements.

Table 3-2 Proposed Parking Requirements

Land Use	Scheme Requirements	Proposed Development	Required Parking	Masterplan Provision
Commercial and office space	1 bay per 50sq.m GFA	1,400sq.m	28 bays	14 shared bays (50% ancillary use)
Communal Facilities	Supplied for retirement and residential aged care use only (100% ancillary use)			
Retirement Living Apartments	<i>As per R-Codes for Multiple Dwellings:</i> Deemed-to-comply rate - 1 bay per dwelling, plus 0.25 visitor bays per dwelling	76 dwellings	76 bays (residents) 19 bays (visitors)	114 resident / visitor bays
Land Use	Uses not Listed in LPS3 Scheme Text	Proposed Development	Required Parking	Proposed Parking Supply
Residential Aged Care Facility	<i>The Town's LPS3 does not specify parking requirements for a RACF land use. Research of other council's local planning schemes suggests a representative requirement:</i> – 1 bay per 4 beds, plus 1 bay for each staff member	129 places 46 staff	46 bays (staff) 32 bays (patients/visitors)	46 bays (staff) 26 bays (patients / visitors) 7 bays (patients / visitors) <i>Warton Street verge</i>
TOTAL			201 bays	200 bays on-site <i>plus</i> 7 bays Warton Street verge <i>plus</i> 13 Bays Gibney Street verge

Sources: *Wearne Masterplan Report (2018) / Town of Cottesloe (2018)*

The number of parking bays in the proposal should satisfy peak parking demand; however, this demand could potentially be less. A number of points identifying how this reduction can occur are as follows:

> Ancillary Uses

With respect to the communal and commercial land uses, activity is expected to be primarily or wholly generated from residents, visitors and staff associated with the Retirement and Aged Care Facility. These land uses will therefore generate very little parking demand.

For the purpose of assessment, 50% of commercial and office uses are assumed to be ancillary to the retirement living land uses. This includes the associated requirement for staff parking.

> Parking Location

Parking will be a combination of on-site and on-street facilities and managed to support flexibility and to maximise efficiency. The existing at-grade parking within the Gibney Street reserve currently allocated exclusively for use by the Wearne development and reconfigured to support visitor demand. Additional resident, visitor and staff parking will be located on-site in designated basement parking areas.

> Temporal Parking Demand

It should be noted that the above projections for staff and visitor parking demand represent the maximum projected at full build-out of the Masterplan development. The nature of the development means that evening and night-time staff can share parking bays, reducing the requirement for dedicated staff supply.

Given that occupancy will fluctuate throughout the day, and the staff parking peak does not necessarily coincide with the visitor parking peak, the above provision is considered to be more than sufficient for this development.

By creating a supply of shared parking bays, available to all visitors to the development, the utility of on-site parking can be maximised. This will ensure that the proposed development does not reduce the availability of on-street parking for adjacent land uses.

> Efficiency through Parking Management

Effective management of the on-site parking supply, with shared and reciprocal parking arrangements between the on-site uses is proposed. This will allow the development to take advantage of the different profiles in staff and visitor occupancy across the day and to support multi-purpose trips.

4 Changes to surrounding transport networks

4.1 Changes to Pedestrian/cycle networks and crossing facilities

To provide satisfactory connectivity for safe and legible pedestrian movement and to support the accessibility requirements of tenants and visitors, footpaths along the frontages of the Site along Gibney Street and Warton Street are proposed.

4.2 Changes to Public Transport services

Realignment of the Fremantle train line will occur at some point in the future. Though it is unknown what the extent, form and timeframe of the proposed realignment is currently, the realignment will not interrupt vehicles passing through Jarrad Street to/from Cottesloe.

5 Integration with Surrounding Land Uses

5.1 Surrounding Major Attractors/Generators

Major attractors/generators within the vicinity of the Site include the Sea View Golf Club, Cottesloe Beach and various commercial and retail areas along Stirling Highway. **Figure 5-1** marks the location of these attractions.

Figure 5-1 Key Attractors and Generators



5.2 Committed Developments and Transport Proposals

The Draft Cottesloe Foreshore Renewal Masterplan aims to revitalise the Cottesloe foreshore area with improved amenities, pedestrian accessibility and the effective planning of the public open spaces.

5.3 Proposed Changes to Land Uses within 1200 Metres

There are two major projects proposed within 1200m of the site area. These include the Cottesloe Foreshore Renewal Masterplan and the rail re-alignment on Curtin Avenue.

The Cottesloe Foreshore Renewal Masterplan aims to improve accessibility and revitalise the Cottesloe area. This involves improving pedestrian experience, accesses to the beach and an interface between the private and public domain for the indicated area highlighted in **Figure 5-2**. There are also plans to increase public car parking, to provide more shade and grassed areas close the beach and to rejuvenate public infrastructure.

Figure 5-2 Extent of Cottesloe Foreshore Renewal



5.4 Travel Desire Lines from Development to These Attractors/Generators

The main transport corridors are Marine Parade, Curtin Avenue and Stirling Highway. Travel from the Site to these key generators will most likely be along these roads.

5.5 Adequacy of Existing Transport Networks

The Site is located within close proximity to public transport facilities such as trains and buses that are easily accessible within relatively short walking distance.

The Site frontage roads connect directly to the major roads (Marine Parade and Curtin Avenue). Stirling Highway is also easily accessible with provides a direct link to the Perth CBD.

5.6 Deficiencies in Existing Transport Networks

No deficiencies have been identified in the existing transport network.

5.7 Remedial Measures to Address Deficiencies

There are no remedial measures proposed for the existing transport network. However, the following key design elements for any future transport proposals need consideration.

- > Establishing a connected system that allows for safe and legible pedestrian movement and supports the accessibility requirements of tenants and visitors, with footpaths along the frontages of the Site along Gibney Street and Warton Street.
- > Road design should reduce vehicle speeds, support the movement economy and allow for safe pedestrian and cycle crossings that maximise the benefits of the readily accessible public transportation infrastructure.

6 Analysis of Transport Networks

6.1 Assessment Years and Time Period

The assessment undertaken in this study considers the following scenarios for the AM (8 – 9AM) and PM (4 – 5PM) peak period. For the purpose of this assessment, the opening year of the development is 2020 has been assumed. Future traffic conditions have been analysed for year 2030, which is the approximate 10-year horizon after development commencement. In summary, the following scenarios assessed are as follows:

- > Scenario 1 – Background (2017)
- > Scenario 2 – Background (2020) + Development
- > Scenario 3 – Background (2030) + Development

6.2 Development Trip Generation

The estimates for trip generation rate for the Activity centre is presented in **Table 6-1**, which are sourced from the *ITE Trip Generation Manual (7th Edition)* and the *RTA Guide to Traffic Generating Developments*. **Section 3** describes the application of these rates to the estimated maximum development yield scenario.

Table 6-1 Trip Generation Rates

Land Use	Source of Trip Generation Rate	AM Peak	PM Peak
Senior Adult Housing – Attached	ITE 252	0.06 per dwelling	0.11 per dwelling
Assisted Living	ITE 254	0.18 per bed	0.35 per bed
Clinic	RTA Guide to Traffic Generating Developments, Version 2.2 (Oct 2002)	10.4 per 100m ²	8.8 per 100m ²
Restaurant/Café	ITE 932	14.56 per 100m ²	20.24 per 100m ²
Community Centre	ITE 495	2.89 per 100m ²	2.57 per 100m ²

Table 6-2 presents the trip distribution for the proposed development.

Table 6-2 Estimated Base Trip Generation

Land Use	AM Peak		PM Peak	
	IN	OUT	IN	OUT
Senior Adult Housing – Attached	50%	50%	53%	43%
Assisted Living	67%	33%	46%	54%
Clinic	50%	50%	50%	50%
Restaurant/Café	52%	48%	55%	45%
Community Centre	53%	47%	40%	60%

Table 6-3 presents the total estimated base trip generation.

Table 6-3 Estimated Base Trip Generation

Land Use	AM Peak		PM Peak	
	IN	OUT	IN	OUT
Senior Adult Housing – Attached	3	3	5	4
Assisted Living	16	8	21	25
Clinic	17	17	14	14
Restaurant/Café*	27	25	40	33
Community Centre	5	5	4	5
Total	55	46	64	65

*Assumed 50% of trips are generated internally by tenants

As summarised above, the proposed development will generate approximately **101** and **129** trips (two-way) during the AM and PM peak hours, respectively.

6.3 Background Traffic Growth Scenario

Traffic counts conducted on May 2017 for the AM and PM peak periods provided the 2017 background volumes. A 2% per annum conservative growth rate of the background traffic volumes provided the opening year (2020) and 10-year horizon (2030) background volumes.

6.4 Development Traffic Distribution

Adopted are the following assumptions in regards to the traffic distribution:

- > The majority of development traffic is to arrive/depart from the Site via Marine Parade.
- > The trip distribution is based on the proposed arrangement for tenant access and described as follows;
 - 20% of traffic will access/egress to Site from the access on Warton Street, this access is mainly for staff and drop-offs/pick-ups at the port cochere.
 - 80% of traffic will be evenly split between the two Gibney Street accesses, these two accesses serve as the primary Site accesses where the majority of traffic will be arriving/departing from.

Figure 6-1 to **Figure 6-3** shows the network traffic volumes for the three analysis scenarios.

Figure 6-1 Scenario 1 – Background (2017)

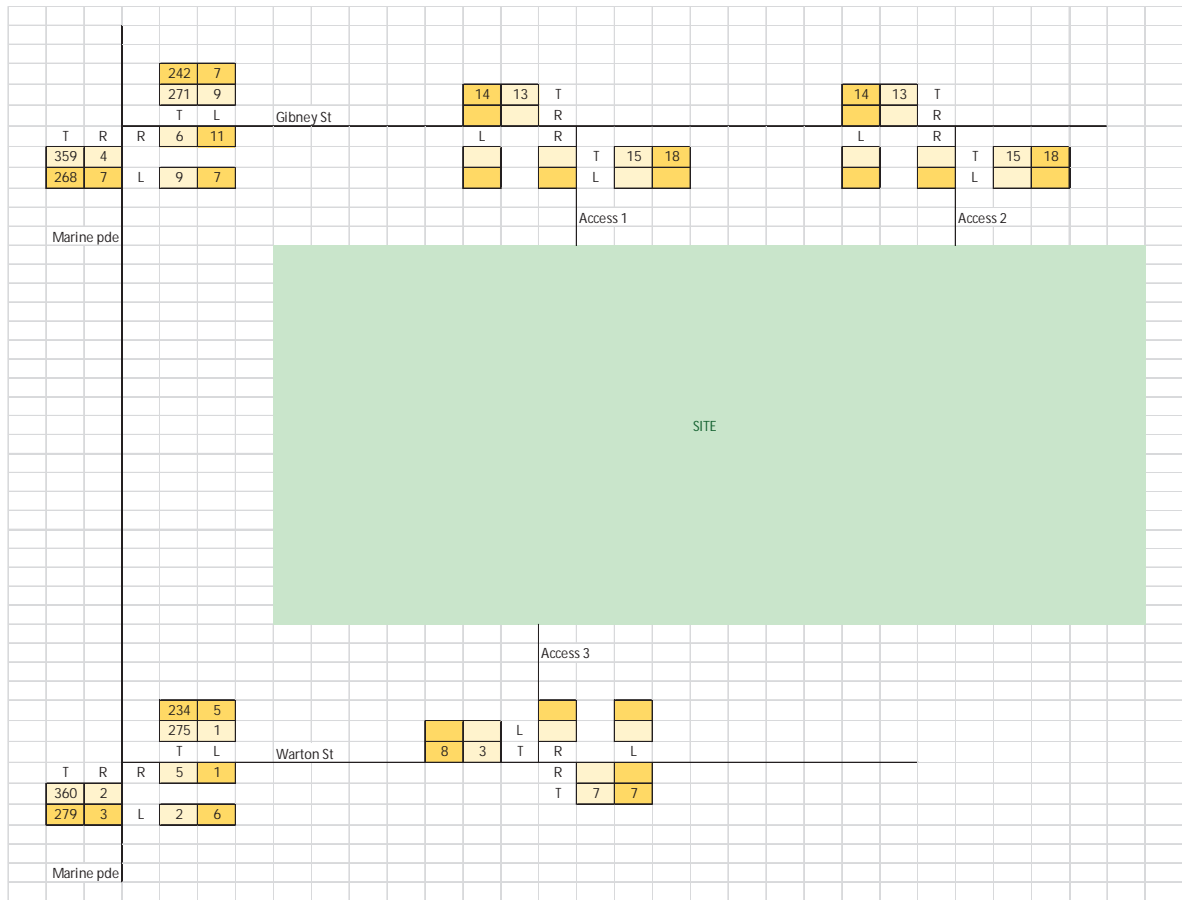
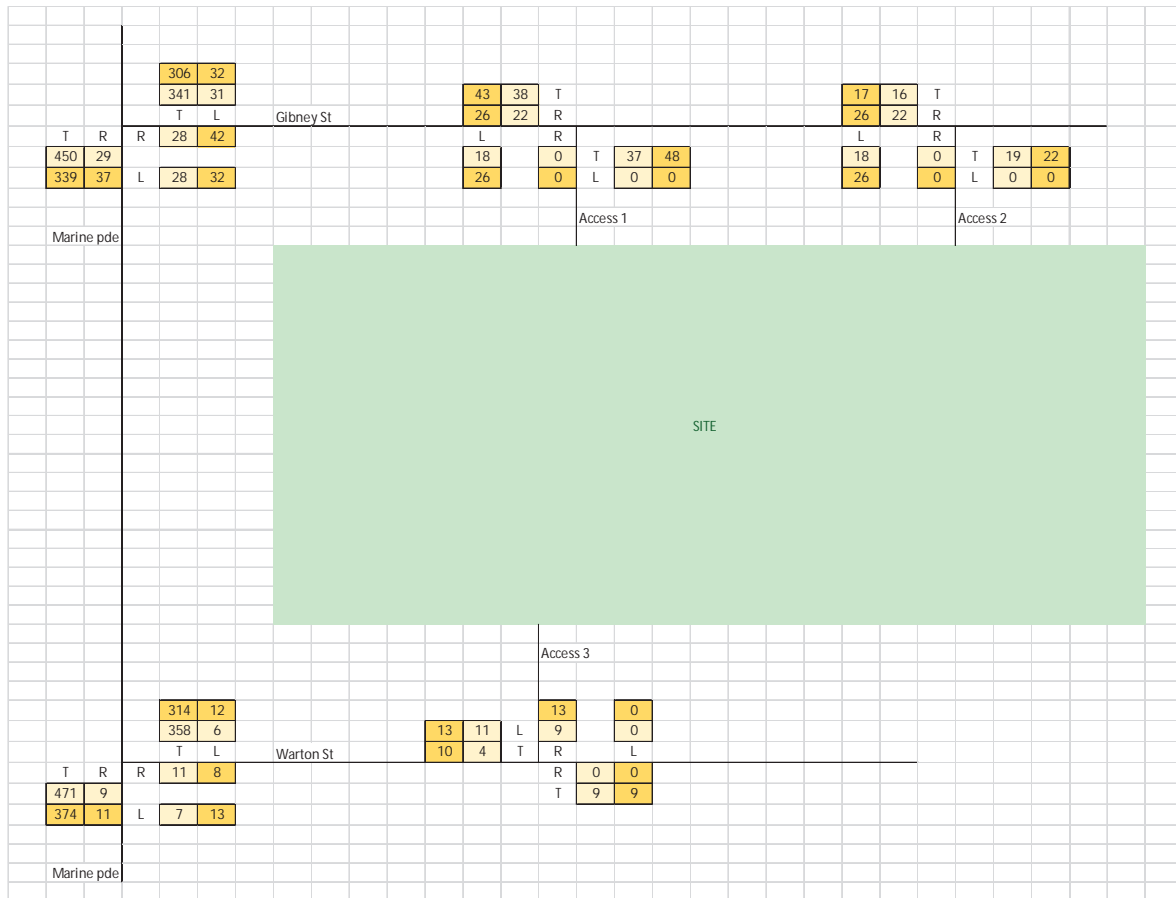


Figure 6-3 Scenario 3 – Background (2030) + Development



6.5 Intersection Performance

SIDRA outputs for each approach to evaluate the impact of the increased volumes anticipated for the ultimate development scenario (including background), are presented in the form of Degree of Saturation (DOS), Average Delay, Level of Service (LOS) and 95th Percentile Queue. A definition of these characteristics are as follows:

- > **Degree of Saturation (DOS):** is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The Degree of Saturation ranges from close to zero for varied traffic flow, up to one for saturated flow or capacity. The theoretical intersection capacity is exceeded for an un-signalised intersection where $DOS > 0.80$;
- > **95% Queue:** is the statistical estimate of the queue length up to or below which 95% of all observed queues would be expected;
- > **Average Delay:** is the average of all travel time delays for vehicles through the intersection. An un-signalised intersection can be considered to be operated at capacity where the average delay exceeds 40 seconds for any movement;
- > **Level of Service (LOS):** is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. **Table 6-4** provides a description of the different levels of service.

Table 6-4 Level of Service (LOS) Performance Criteria

LOS	Description	Signalised Intersection	Unsignalised Intersection
A	Free-flow operations (best condition)	≤10 sec	≤10 sec
B	Reasonable free-flow operations	10-20 sec	10-15 sec
C	At or near free-flow operations	20-35 sec	15-25 sec
D	Decreasing free-flow levels	35-55 sec	5-35 sec
E	Operations at capacity	55-80 sec	35-50 sec
F	A breakdown in vehicular flow (worst condition)	≥80 sec	≥50 sec

6.5.2 Key Intersections

SIDRA intersection operation analysis was undertaken for a series of key intersections with peak hour traffic volumes determined through the desktop modelling process described above. Intersections were assessed for the three scenarios including the estimated background traffic growth.

The following intersections were assessed in this analysis:

- > Marine Parade/Gibney Street
- > Marine Parade/Warton Street
- > Access 1/Gibney Street*
- > Access 2/Gibney Street*
- > Access 3/Warton Street*

Only the worst case has been assessed for the Site access intersections (i.e. Scenario 3)

6.5.3 Marine Parade/Gibney Street

Figure 6-4 shows the SIDRA representation of Marine Parade/Gibney Street intersection. Table 6-5 to Table 6-7 summarises the SIDRA results of Marine Parade/Gibney Street intersection performance for all three scenarios. Refer to Appendix C for full SIDRA outputs.

Figure 6-4 Marine Parade/Gibney Street – Existing Intersection Layout

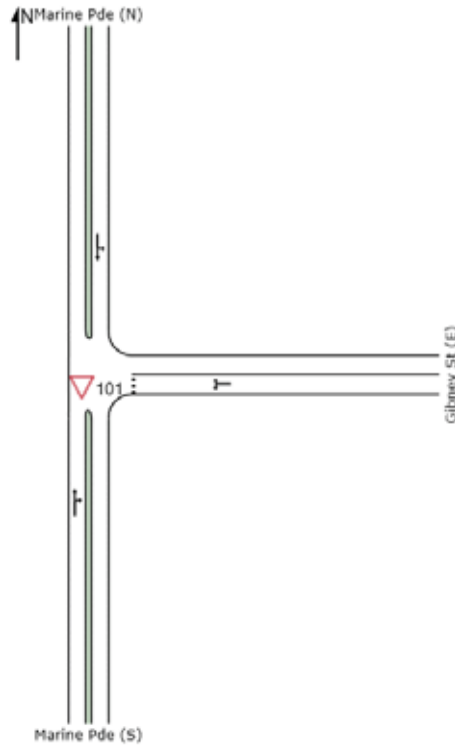


Table 6-5 Marine Parade/Gibney Street AM and PM Intersection Performance – Scenario 1

Intersection Approach		Scenario 1 – Background (2017)							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Marine Parade (S)	T	0.193	0	A	0.2	0.146	0	A	0.4
	R	0.193	5.4	A	0.2	0.146	5.3	A	0.4
Gibney Street (E)	L	0.009	5	A	0.2	0.011	5	A	0.2
	R	0.009	5.3	A	0.2	0.011	5.1	A	0.2
Marine Parade (N)	L	0.149	4.6	A	0	0.132	4.6	A	0
	T	0.149	0	A	0	0.132	0	A	0

Table 6-6 Marine Parade/Gibney Street AM and PM Intersection Performance – Scenario 2

Intersection Approach		Scenario 2 – Background (2020) + Development							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Marine Parade (S)	T	0.217	0.1	A	1.6	0.171	0.1	A	1.8
	R	0.217	5.6	A	1.6	0.171	5.4	A	1.8
Gibney Street (E)	L	0.032	5.1	A	0.7	0.043	5	A	0.9
	R	0.032	5.4	A	0.7	0.043	5.2	A	0.9
Marine Parade (N)	L	0.168	4.6	A	0	0.153	4.6	A	0
	T	0.168	0	A	0	0.153	0	A	0

Table 6-7 Marine Parade/Gibney Street AM and PM Intersection Performance – Scenario 3

Intersection Approach		Scenario 3 – Background (2030) + Development							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Marine Parade (S)	T	0.256	0.1	A	1.8	0.201	0.2	A	2.1
	R	0.256	5.9	A	1.8	0.201	5.7	A	2.1
Gibney Street (E)	L	0.037	5.2	A	0.8	0.047	5.1	A	1
	R	0.037	5.6	A	0.8	0.047	5.4	A	1
Marine Parade (N)	L	0.198	4.6	A	0	0.18	4.6	A	0
	T	0.198	0	A	0	0.18	0	A	0

The results of the SIDRA analysis show that the intersection will operate at an acceptable level of service for all three scenarios.

6.5.4 Marine Parade/Warton Street Intersection

Figure 6-5 shows the SIDRA representation of Marine Parade/Warton Street intersection. Table 6-8 to Table 6-10 summarises the SIDRA results of Marine Parade/Warton Street intersection performance for all three scenarios. Refer to Appendix C for full SIDRA outputs.

Figure 6-5 Marine Parade/Warton Street – Existing Intersection Layout

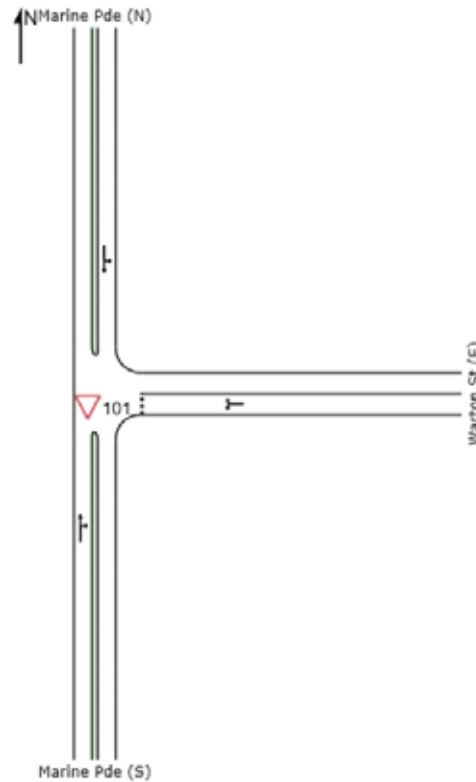


Table 6-8 Marine Parade/Warton Street AM and PM Intersection Performance – Scenario 1

Intersection Approach		Scenario 1 – Background (2017)							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Marine Parade (S)	T	0.15	0	A	0.2	0.15	0	A	0.2
	R	0.15	5.4	A	0.2	0.15	5.2	A	0.2
Warton Street (E)	L	0.004	5	A	0.1	0.003	4.9	A	0.1
	R	0.004	5.1	A	0.1	0.003	5.1	A	0.1
Marine Parade (N)	L	0.147	4.6	A	0	0.127	4.6	A	0
	T	0.147	0	A	0	0.127	0	A	0

Table 6-9 Marine Parade/Warton Street AM and PM Intersection Performance – Scenario 2

Intersection Approach		Scenario 2 – Background (2020) + Development							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Marine Parade (S)	T	0.217	0	A	0.5	0.174	0	A	0.5
	R	0.217	5.6	A	0.5	0.174	5.4	A	0.5
Warton Street (E)	L	0.011	5.1	A	0.2	0.011	5	A	0.3
	R	0.011	5.4	A	0.2	0.011	5.2	A	0.3
Marine Parade (N)	L	0.164	4.6	A	0	0.148	4.6	A	0
	T	0.164	0	A	0	0.148	0	A	0

Table 6-10 Marine Parade/Warton Street AM and PM Intersection Performance – Scenario 3

Intersection Approach		Scenario 3 – Background (2030) + Development							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Marine Parade (S)	T	0.256	0	A	0.6	0.205	0	A	0.6
	R	0.256	5.9	A	0.6	0.205	5.6	A	0.6
Warton Street (E)	L	0.013	5.2	A	0.3	0.012	5.1	A	0.3
	R	0.013	5.6	A	0.3	0.012	5.4	A	0.3
Marine Parade (N)	L	0.194	4.6	A	0	0.173	4.6	A	0
	T	0.194	0	A	0	0.173	0	A	0

The results of the SIDRA analysis show that the intersection will operate at an acceptable level of service for all three scenarios.

6.5.5 Access 1/Gibney Street Intersection

Figure 6-6 shows the SIDRA representation of Access 1/Gibney Street intersection. Table 6-11 summarises the SIDRA results of Access 1/Gibney Street intersection for Scenario 3. Refer to Appendix C for full SIDRA outputs.

Figure 6-6 Access 1/Gibney Street – Existing Intersection Layout

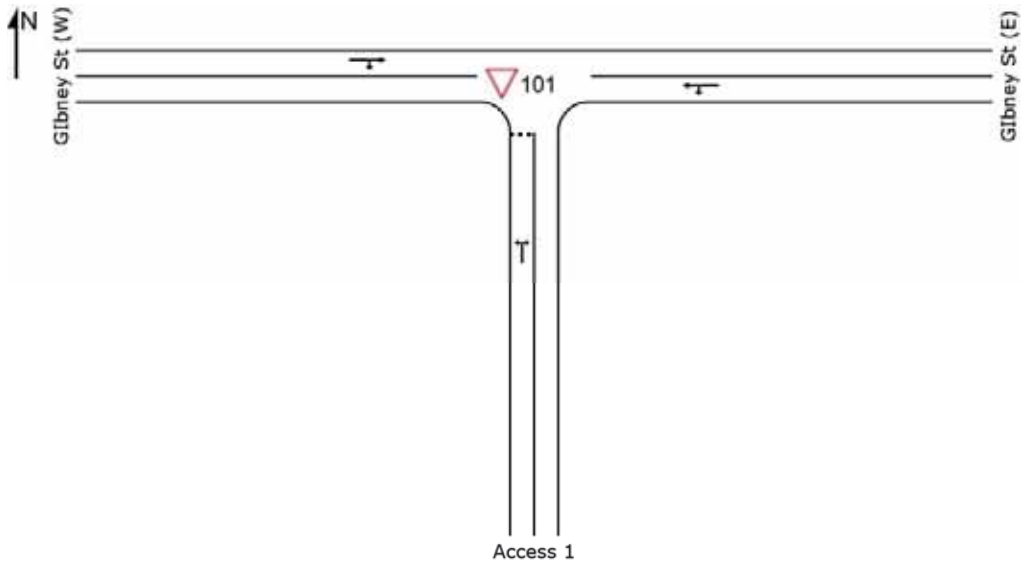


Table 6-11 Access 1/Gibney Street AM and PM Intersection Performance – Scenario 3

Intersection Approach		Scenario 3 – Background (2030) + Development							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Access 1 (S)	L	0.008	4.6	A	0.3	0.011	4.6	A	0.4
	R	0.008	4.6	A	0.3	0.011	4.7	A	0.4
Gibney Street (E)	L	0.02	4.6	A	0	0.026	4.6	A	0
	T	0.02	0	A	0	0.026	0	A	0
Gibney Street (W)	T	0.029	0	A	0.7	0.034	0.1	A	0.8
	R	0.029	4.6	A	0.7	0.034	4.7	A	0.8

The results of the SIDRA analysis show that the intersection will operate at an acceptable level of service for the assessed scenario.

6.5.6 Access 2/Gibney Street Intersection

Figure 6-7 shows the SIDRA representation of Access 2/Gibney Street intersection. Table 6-12 summarises the SIDRA results of Access 2/Gibney Street intersection for Scenario 3. Refer to Appendix C for full SIDRA outputs.

Figure 6-7 Access 2/Gibney Street – Existing Intersection Layout

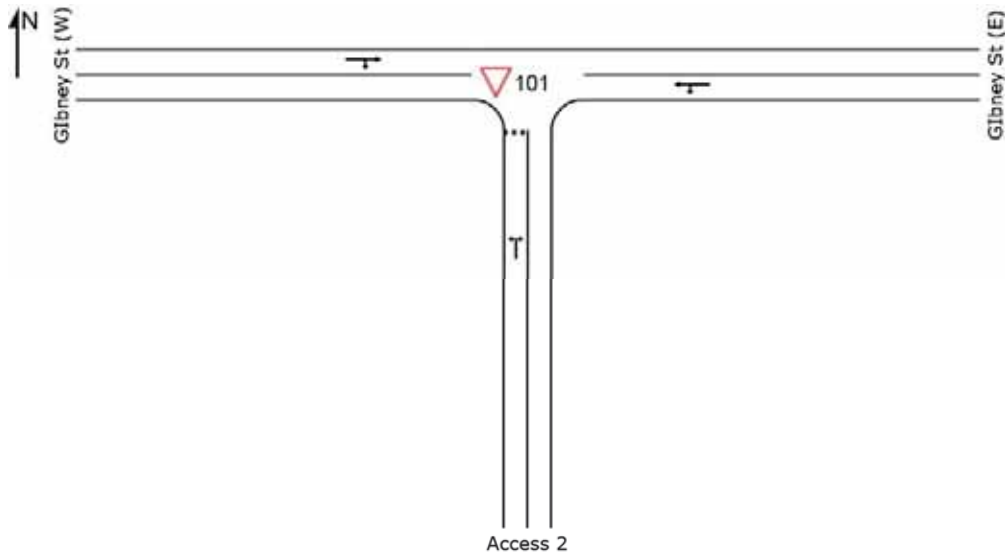


Table 6-12 Access 2/Gibney Street AM and PM Intersection Performance – Scenario 3

Intersection Approach	Scenario 3 – Background (2030) + Development								
	AM Peak				PM Peak				
	DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)	
Access 2 (S)	L	0.008	4.6	A	0.3	0.011	4.6	A	0.4
	R	0.008	4.6	A	0.3	0.011	4.6	A	0.4
Gibney Street (E)	L	0.01	4.6	A	0	0.012	4.6	A	0
	T	0.01	0	A	0	0.012	0	A	0
Gibney Street (W)	T	0.018	0	A	0.6	0.02	0	A	0.7
	R	0.018	4.6	A	0.6	0.02	4.6	A	0.7

The results of the SIDRA analysis show that the intersection will operate at an acceptable level of service for the assessed scenario.

6.5.7 Access 3/Warton Street Intersection

Figure 6-8 shows the SIDRA representation of Access 3/Warton Street intersection. Table 6-13 summarises the SIDRA results of Access 3/Warton Street intersection performance for all three scenarios. Refer to Appendix C for full SIDRA outputs.

Figure 6-8 Access 3/Warton Street – Existing Intersection Layout

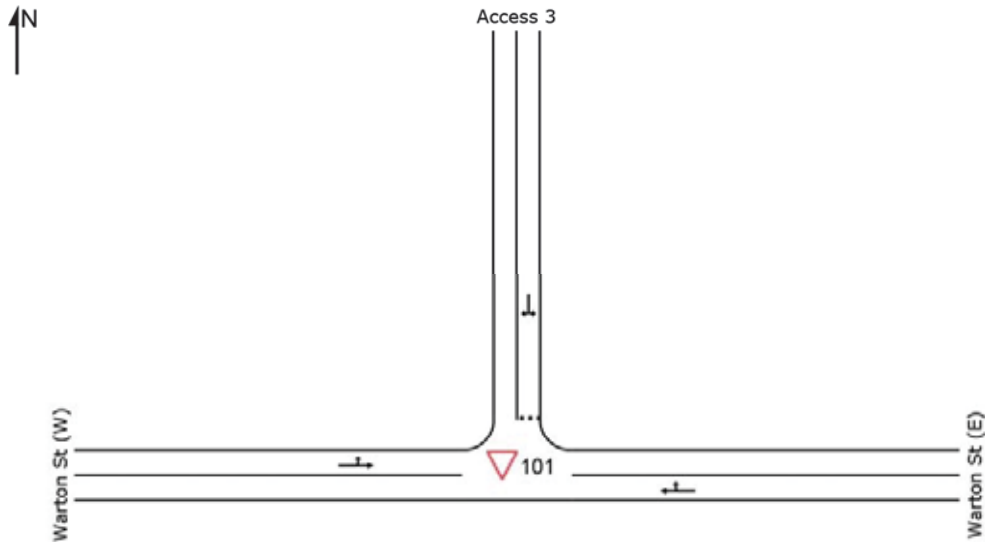


Table 6-13 Access 3/Warton Street AM and PM Intersection Performance – Scenario 3

Intersection Approach		Scenario 3 – Background (2030) + Development							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Warton Street (E)	T	0.005	0	A	0	0.005	0	A	0
	R	0.005	4.6	A	0	0.005	4.6	A	0
Access 3 (N)	L	0.005	4.6	A	0.1	0.008	4.6	A	0.1
	R	0.005	4.6	A	0.1	0.008	4.6	A	0.1
Warton Street (W)	L	0.008	4.6	A	0	0.012	4.6	A	0
	T	0.008	0	A	0	0.012	0	A	0

The results of the SIDRA analysis show that the intersection will operate at an acceptable level of service for the assessed scenario.

7 Mitigation Measures

Based on the results of the SIDRA results discussed in **Section 6** of this report, the proposed development will have minimal traffic impacts on the local road network. All intersections assessed operated at an acceptable level of service with minimal delays and queues. Therefore, no mitigating measures would be required.

8 Conclusion

Total Project Management have commissioned Cardno to prepare a Transport Impact Assessment for the proposed Wearne Redevelopment located in Cottesloe.

Preparation of this report is in accordance with the Western Australian Planning Commission (WAPC) Transport Assessment Guidelines for Developments Volume 4: Individual Developments. **Appendix A** of this report includes a checklist form included in the WAPC guidelines.

This report focuses specifically around traffic access, circulation and safety as well as discussion regarding consideration of pedestrians, cyclists and public transport.

A summary of the transport assessment are as follows:

- > The proposed development is expected to generate approximately 101 and 129 trips (two-way) during the AM and PM peak hours, respectively.
- > The Site is well serviced by public transport facilities with bus and train services located within walking distance.
- > The proposed redevelopment will provide a suitable parking provision for the Site with appropriately located accesses. No safety issues were identified in regards to Site accesses and parking.
- > Analysis were undertaken on key intersections within the vicinity of the Site to assess the traffic impacts on surrounding road network. The results showed that all key intersections operated at an acceptable level of service for all analysis scenarios.

Transport Impact Assessment

APPENDIX

A

WAPC TRANSPORT IMPACT
ASSESSMENT CHECKLIST

Item	Provided	Comments/Proposals
Summary		
Introduction/Background		
name of applicant and consultant	Section 1	
development location and context	Section 2	
brief description of development proposal	Section 3	
key issues	N/A	
Background information	Section 1	
Existing situation		
existing site uses (if any)	Section 2	
existing parking and demand (if appropriate)	Section 2	
existing access arrangements	Section 2	
existing site traffic	Section 2	
surrounding land uses	Section 2	
surrounding road network	Section 2	
traffic management on frontage roads	Section 2	
traffic flows on surrounding roads (usually am and pm peak hours)	Section 2	
traffic flows at major intersections (usually am and pm peak hours)	Section 2	
operation of surrounding intersections	Section 2	
existing pedestrian/cycle networks	Section 2	
existing public transport services surrounding the development	Section 2	
Crash data	Section 2	
Development proposal		
regional context	Section 3	
proposed land uses	Section 3	
table of land uses and quantities	Section 3	
access arrangements	Section 3	
parking provision	Section 3	
end of trip facilities	N/A	
any specific issues	N/A	
road network	Section 2	
intersection layouts and controls	Section 2	
pedestrian/cycle networks and crossing facilities	Section 2 & 4	

public transport services	Section 2 & 4	
Integration with surrounding area		
surrounding major attractors/generators	Section 5	
committed developments and transport proposals	Section 5	
proposed changes to land uses within 1200 metres	Section 5	
travel desire lines from development to these attractors/generators	Section 5	
adequacy of existing transport networks	Section 5	
deficiencies in existing transport networks	Section 5	
remedial measures to address deficiencies	Section 5	
Analysis of transport networks		
assessment years	Section 6	
time periods	Section 6	
development generated traffic	Section 6	
distribution of generated traffic	Section 6	
parking supply & demand	Section 3	
base and "with development" traffic flows	Section 6	
analysis of development accesses	Section 6	
impact on surrounding roads	Section 6	
impact on intersections	Section 6	
impact on neighbouring areas	Section 6	
road safety	Section 6	
public transport access	Section 2 & 4	
pedestrian access / amenity	Section 2 & 4	
cycle access / amenity	Section 2 & 4	
analysis of pedestrian / cycle networks	Section 2 & 4	
safe walk/cycle to school (for residential and school site developments only)	N/A	
Traffic management plan (where appropriate)	N/A	

Transport Impact Assessment

APPENDIX

B

SITE PLANS

Transport Impact Assessment

APPENDIX

C

SIDRA RESULTS

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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APPENDIX 3

Bushfire Attack Level (BAL)

Wearne, Cottesloe

Revision No 2
March 2017



Leaders in Environmental Practice

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Report

Title:	Bushfire Attack Level (BAL) Wearne, Cottesloe
File:	PES17003
Author(s):	Ryan Lawrence
Client:	Curtin Aged Persons Homes Inc. T/as Curtin Care
Contact:	Tome Nunes
Synopsis:	This document details a bushfire attack level assessment for Wearne, Cottesloe.
BPAD Accredited Practitioner Details	Ryan Lawrence 

Document Control

Revision No	Date	Author(s)	Reviewer(s)
2	March 2017	Ryan Lawrence	CvDW

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Table of Contents

1. Introduction	5
1.1 Site Particulars	5
1.2 Limitations	5
2. Methodology	6
2.1 Vegetation Assessment	6
2.2 Slope Assessment	6
3. Assessment	10
3.1 Potential Bushfire Impacts	10
3.2 Determined Bushfire Attack Level (BAL)	10
4. Conclusion	10

Appendices

Appendix A

Site Assessment Plan

Appendix B

Additional Information

1. Introduction

Pendragon Environmental Solutions was engaged by Curtin Aged Persons Homes Inc. T/as Curtin Care to undertake a bushfire attack level (BAL) assessment at Wearne Cottesloe (herein referred to as the site).

This report has been prepared to provide guidance during planning stages for development to identify the current Bushfire Attack Levels (BALs) at the site ahead of assessing redevelopment options, which will require a separate BAL to be undertaken and supplied with planning documents.

This report has been prepared by an Accredited BPAD Practitioner using the Simplified Procedure (method 1) as detailed in Section 2 of AS 3959-2009 (Incorporating Amendment Nos 1, 2 and 3).

1.1 Site Particulars

Site Details			
Address	1 Gibney St, Cottesloe WA 6011		
Suburb	Cottesloe	State	WA
Local Government Area	Town of Cottesloe		
Description of Building Works	TBA		
Assessment Date	20 th January 2017		

A full site plan is available as Figure 1 and 2.

1.2 Limitations

This report and the associated works undertaken by Pendragon Environmental Solutions Pty Ltd, have been completed in a conscientious and professional manner and in accordance with the scope of services defined in the contract entered between Pendragon Environmental Solutions and the Principal. Pendragon Environmental Solutions derived the data in this report based primarily upon visual inspections, examination of available records, information provided by site personnel and selective sampling and analysis.

In preparing this report and undertaking all associated works, Pendragon Environmental Solutions has relied upon information provided by external bodies and whilst Pendragon Environmental Solutions believes that all information presented herein is reliable and accurate at the time of preparing this report, it does not warrant its accuracy or completeness and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the Principal arising from or in connection with the supply or use of the whole or any part of the information in the report through any cause whatsoever.

2. Methodology

A thorough site inspection was undertaken on the 20th January 2017 to undertake ground assessments and truthing in general. Key parts of the inspection methodology is detailed below.

This assessment has been undertaken utilising a Fire Danger Index of 80.

All vegetation within 100m of the site/proposed development was classified in accordance with clause 2.2.3 of AS 3959-2009. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below.

The slopes leading away from the site have been evaluated to identify both the average slope and by identifying the maximum slope present. On site confirmation of contouring was undertaken using field measurement techniques utilising a hand held calibrated laser measurement tool. These values help determine the level of gradient which will most significantly influence the fire behaviour of the site.

2.1 Vegetation Assessment



Vegetation surveys and vegetation mapping carried out on the site has been undertaken as follows:



- Aerial Photograph Interpretation to map vegetation cover and extent.
- Confirmation of the vegetation assemblage typology present via a site inspection.



2.2 Slope Assessment

Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation in conjunction with analysis of electronic contour maps with a contour interval of 10m.
- On site confirmation of slope measurements using field measurement techniques utilising a hand held calibrated laser measurement tool.

Plot	Picture ID	Description Justification	Sample Photograph
1	1	<p>Excluded Clause 2.2.3.2 (D)</p> <p>Vegetation is linear and less than 20m in width and not occurring within 20m of another classifiable vegetation class on site.</p>	
1	2	<p>Excluded Clause 2.2.3.2 (D)</p> <p>Vegetation is linear and less than 20m in width and not occurring within 20m of another classifiable vegetation class on site.</p>	

2	3	<p>Shrubland</p> <p>Closed Heath shrubland, common in areas of poor soils and areas adjoin dunes in the littoral zone.</p>	
2	4	<p>Shrubland</p> <p>Closed Heath shrubland, common in areas of poor soils and areas adjoin dunes in the littoral zone.</p>	

3	5	<p>Excluded Clause 2.2.3.2 (F)</p> <p>Low threat vegetation managed grassland resulting on minimal fuel storage.</p>	
3	6	<p>Excluded Clause 2.2.3.2 (F)</p> <p>Low threat vegetation managed grassland resulting on minimal fuel storage.</p>	

3. Assessment

3.1 Potential Bushfire Impacts

The potential bushfire impact to the site/proposed development from each of the identified vegetation plots are identified below.

Potential Bushfire Impacts				
Plot	Vegetation Classification	Effective Slope	Separation (m)	BAL
2	Shrubland	0.0°	9	29

This suggests that the existing building wouldn't get planning permission to be built as it is under the current Australian Standards.

3.2 Determined Bushfire Attack Level (BAL)

The Determined Bushfire Attack Level (highest BAL) for the site/proposed development has been determined in accordance with clause 2.2.6 of AS3959-2009 using the above analysis.

Potential Bushfire Impacts	BAL - 29
----------------------------	----------

4. Conclusion

There have been a number of factors included in the assessment which will be further utilised in the BAL assessing development application. In this instance the buffer was taken from the whole Lot and so is generic in nature, when the proposed footprint is known the 100m buffer will be taken from that. Should development be within an elevated BAL rated area then shielding practises can be applied to reduce overall build costs.

As this report is detailing what is currently on site the BAL assessment gives an indication of potential vegetation issues on site that will need to be addressed for future planning applications.

- The vegetation that is creating an elevated BAL assessment is isolated to the Western corner, options to reduce the rating are detailed below:
- Remove this vegetation.
- Alter the existing vegetation to create a managed landscaped area.
- Build proposed development outside of the area of risk (leaving at least a 19m buffer).
- Alternatively if only one of these areas was retained then the BAL assessment risk would be reduced to Low and so with no impact on development.

Appendices

Appendix A

Site Assessment Plan

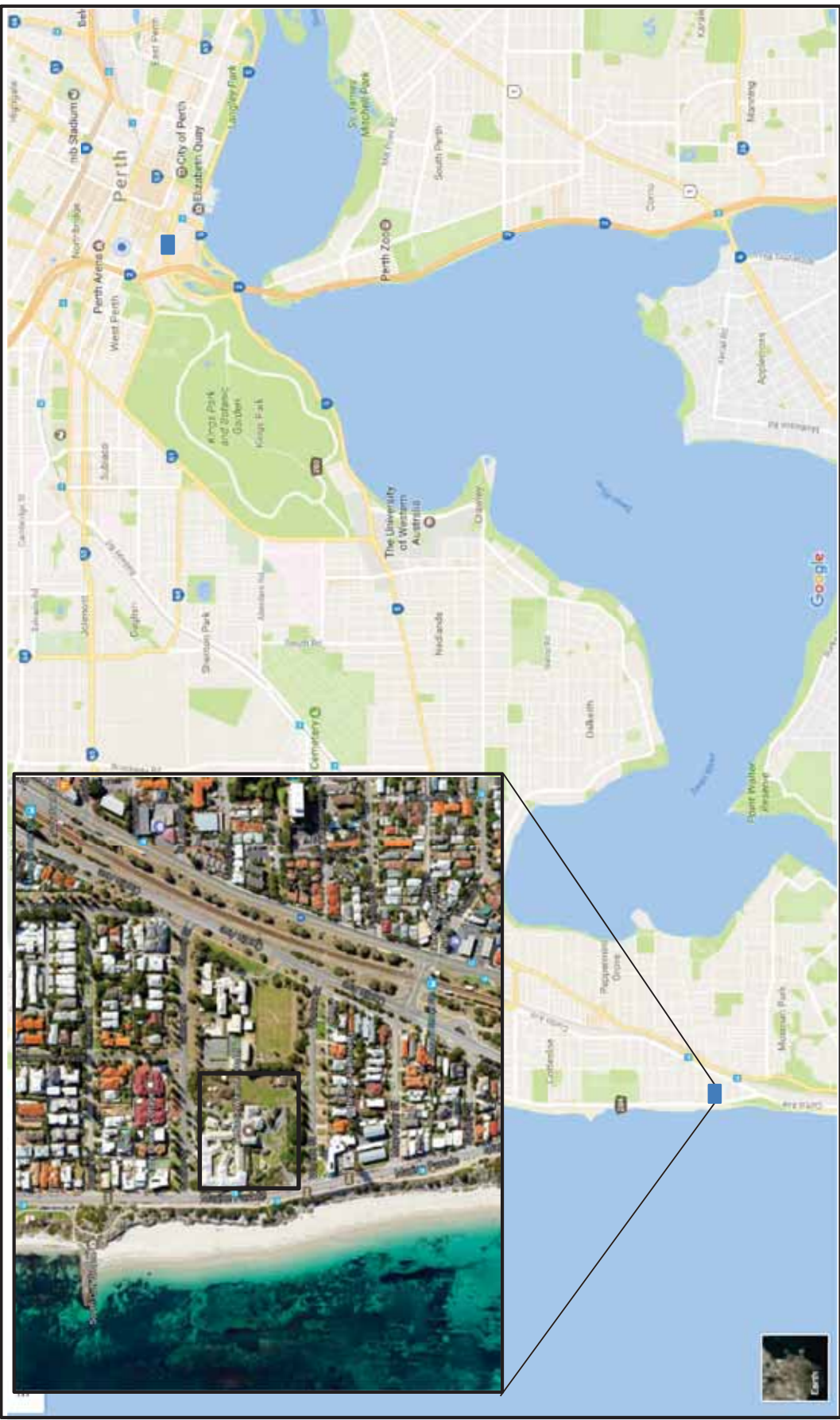


Figure Number: 1

Drawing Title: Site Location

Revision: 2 – March 2017

Legend:

■ Indicative Site Location



□ Site Boundary

Notes:

The aerial imagery was obtained from Google Map (2016).

Scale: 0 1 km



NORTH





Plot 1
 Excluded Clause 2.2.3.2 (D)
 Strip Vegetation

Plot 2
 Class C
 Shrubland
 Flat

Plot 3
 Excluded Clause 2.2.3.2 (F)
 Managed Grassland

31m
 0.8°

9m
 0.0°



Indicative bushfire risk area
 Photo and Direction

100m Wide Buffer
 Vegetation Extents

Site Boundary
 Building Boundary

Scale: 0 50 m

Notes:
 The aerial imagery was obtained from Google Earth (2016).

Figure Number: 2
Drawing Title: Site Plan
Revision: 2 – March 2017

Appendix B

Additional Information

Bushfire Attach Level Assessment Explained

A bushfire Attach Level (BAL) Assessment is a means of measuring the severity of a buildings potential exposure to ember attack, radiant heat and direct flame contact in a bushfire event, and thereby determining the construction measures required for the dwelling.

The methodology used for the determination of the BAL rating, and the subsequent building construction standards, are directly referenced from Australian Standard AS3959:2009 Construction of buildings in bushfire prone areas.

The BAL rating is determined through identification and assessment of the following parameters:

- Fire Danger Index (FDI) rating; assumed to be FDI-80 for WA;
- All classified vegetation **within 100m** of the subject building;
- Separation distance between the building and the classified vegetation source/s; and
- Slope of the land under the classified vegetation.

AS3959:2009 has six (6) levels of BAL, based on the radiant heat flux exposure to the building, and also identifies the relevant sections for building construction, as detailed below:

Bushfire Attach Level (BAL)	Classified vegetation within 100m of the site and heat flux exposure thresholds	Description of predicted bushfire attack and levels of exposure	Construction Section (within AS3959)
BAL-LOW	See clause 2.2.3.2	There is insufficient risk to warrant specific construction requirement	4
BAL-12.5	$\leq 12.5 \text{ kW/m}^2$	Ember attack	3&5
BAL-19	$> 12.5 \text{ kW/m}^2$ to $\leq 19 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux	3&6
BAL-29	$> 19 \text{ kW/m}^2$ to $\leq 29 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux	3&7
BAL-40	$> 29 \text{ kW/m}^2$ to $\leq 40 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux with the increased likelihood of exposure to flames	3&8
BAL-FZ	$> 40 \text{ kW/m}^2$	Direct exposure to flames from fire front in addition to heat flux and ember attack	3&9