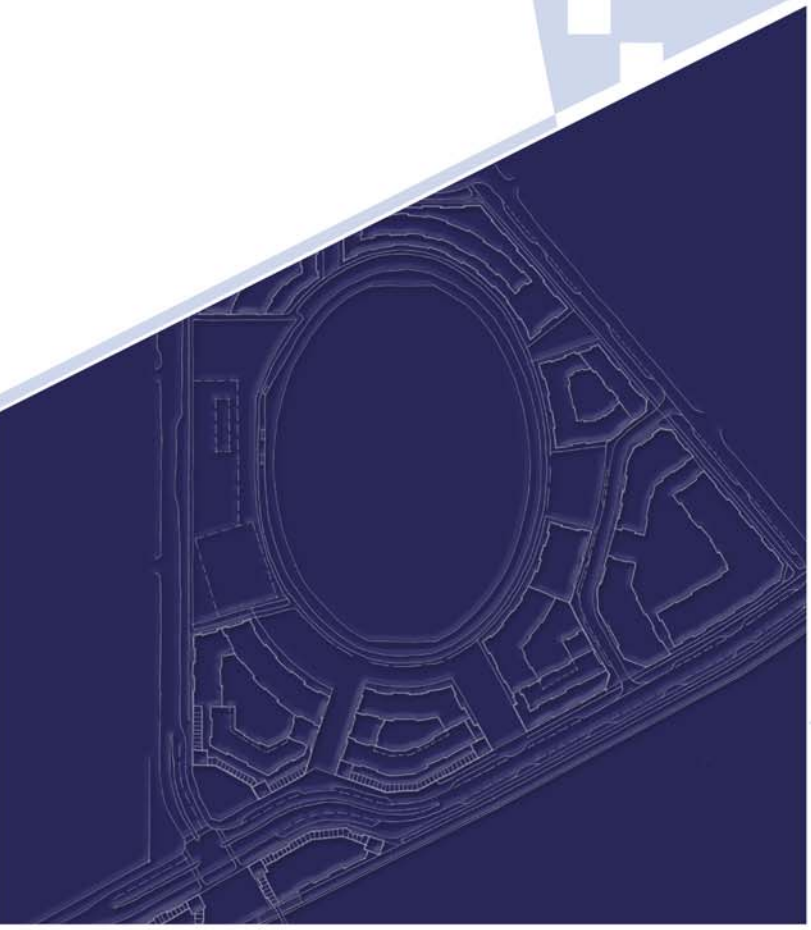
Claremont North East Precinct
Proposed Structure Plan

August 2010

Prepared for
Town of Claremont



Taylor Burrell Barnett
Town Planning & Design

Town of Claremont

Claremont North East Precinct

Proposed Structure Plan

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ENDORSEMENT PAGE

This structure plan is prepared under the provision of the Town of Claremont Local Planning Scheme No. 3

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

JUNE 2010

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

Date of Expiry: **19 OCTOBER 2028**

DOCUMENT HISTORY AND STATUS

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	GHD		
	Plan E		
	Oldfield Knott		
	McMullen Nolan		
	Pracsys		
	Strategen		
	Colliers International		

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

In September 2006, the Minister for Planning and Infrastructure announced that the State Government and the Town of Claremont (ToC) had agreed to form a partnership to progress planning for a public transport oriented, urban renewal development in Claremont.

A working group comprising representatives from the ToC, the Public Transport Authority (PTA), Department for Planning and Infrastructure (DPI) and LandCorp was formed to review planning options developed in preceding years. Planning consultants Taylor Burrell Barnett were engaged by the ToC to assist with the review.

Feasibility assessments have subsequently been carried out and have been provided to the Minister for Planning and Infrastructure.

Having proven the feasibility of an urban renewal development on the subject land, it was apparent that zoning the subject land to Urban under the Metropolitan Region Scheme (MRS) should be the first and appropriate step in progressing planning for the site.

The MRS Amendment proposes that the entire site, with the exception of the Claremont Football Club (CFC) oval, be excluded from existing reservations and included with the 'Urban' zone to facilitate a Transit Oriented Development (TOD) for the Claremont North East Precinct (NEP). Following significant background work and assessment the Amendment was initiated in August 2008 (see section 3.1.1 for further detail).

Under section 126(3) of the *Planning and Development Act 2005* the ToC may request the Western Australian Planning Commission (WAPC) to concurrently rezone the subject land under Local Planning Scheme No. 3 (LPS3), to 'Development' zone or similar. Accordingly, the rezoning of the land to 'Development', will occur in tandem with the MRS Amendment, with the support of the ToC Council.

This Structure Plan has been prepared to support and proceed concurrently with the MRS Amendment and Amendment to LPS3.

1.2 PURPOSE OF STRUCTURE PLAN

The Claremont North East Precinct (NEP) Structure Plan has been prepared jointly by Taylor Burrell Barnett and the ToC with input from various government departments, and the following multidisciplinary consultant team, compiled to ensure the most successful outcomes for the project:

Taylor Burrell Barnett	Town Planning and Urban Design
Oldfield Knott	Architect
Plan E	Landscape Architect
SKM	Transport Engineer
GHD	Civil Engineer
Strategen	Environmental Consultant
Pracsys	Real Estate/Economics Consultant
Colliers International	Commercial Consultant

The Structure Plan has been prepared to comply with clause 75E of the LPS3. It proposes a mixed use and residential development surrounding the Claremont Football Oval, in close proximity to the Claremont Train Station. It provides for the redevelopment of underutilised landholdings to facilitate a TOD.

The proposed Structure Plan is the culmination of seven years of planning for this general area, and the document will be instrumental in the delivery of the project.

It is considered that the outcomes of the NEP project will have regional significance for the Perth Metropolitan Region, in that it will set a standard and define a benchmark for similar projects to be undertaken elsewhere along the metropolitan rail network.

The Structure Plan, once adopted, will guide the development of the NEP and provide the framework for further detailed planning.

1.3 SITE DESCRIPTION

The subject land comprises approximately 9.4 hectares on the northern side of the Claremont Train Station, bound by the railway line, Graylands Road, Davies Road and Lapsley Road. The subject land is shown in **Figure 1**.

The land is well located for a TOD as it is within walking distance of the Claremont Town Centre and within very close proximity to the Claremont Train Station.

The subject land consists of both freehold land and reserves, the majority of which is owned by the State of Western Australia (refer below, **Figure 2** and **Tables 1 and 2**).

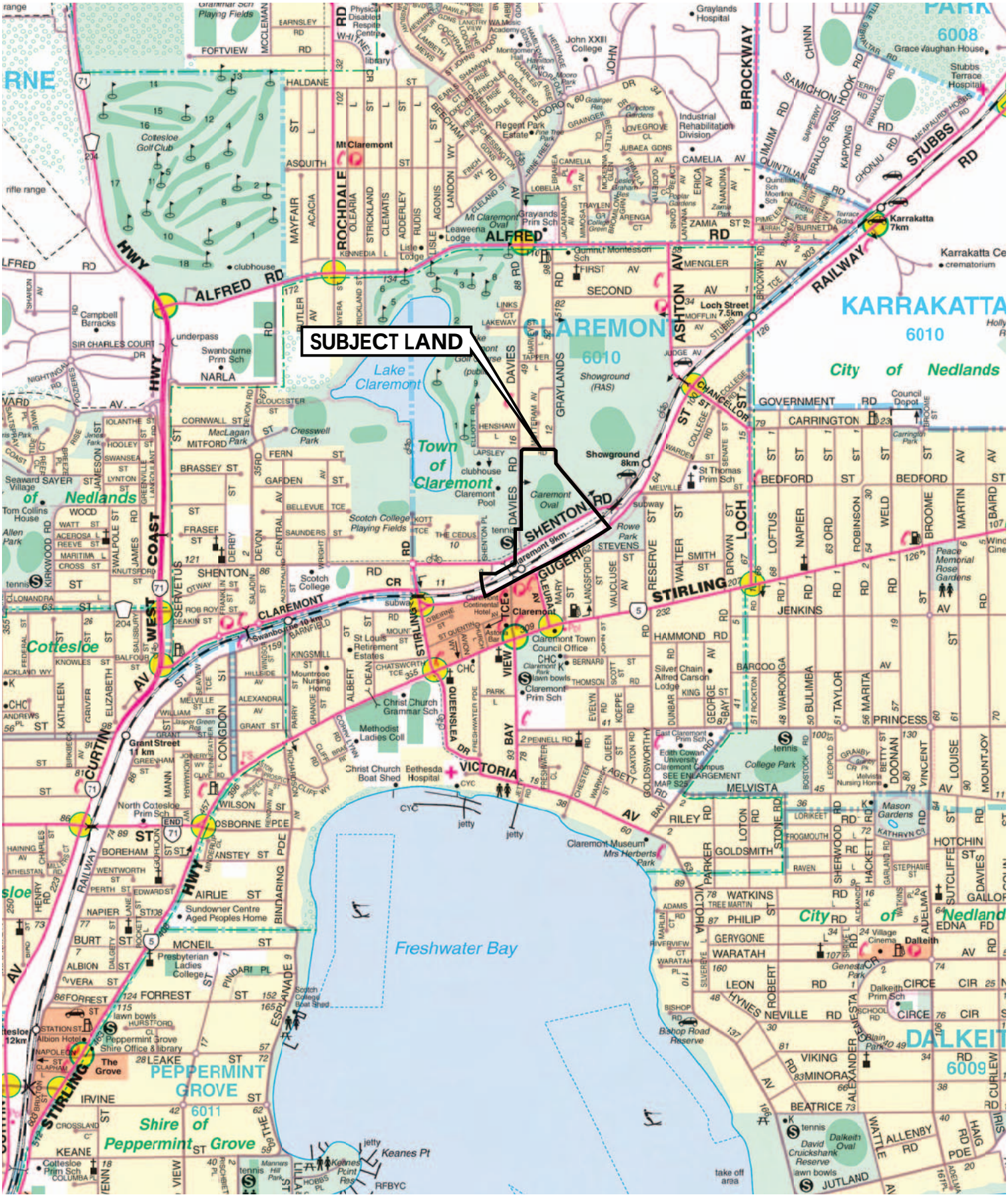
TABLE 1: LOT DESCRIPTIONS

Lot Number Plan/Diagram	Plan/Diagram	Certificate of Title
Lot 13936	190162	Volume LR3120 Folio 973
Lot 6156	207374	Volume 1313 Folio 677
Lot 1	52741	Volume LR3141 Folio 496
Lot 2112	117028	Volume LR3121 Folio 794
Lot 2511	89740	Volume LR3121 Folio 795
Lot 1798	207374	Volume LR LR3147 Folio 332
Lot 11578	190162	Volume 2667 Folio 388

TABLE 2: LAND USE TENURE

Land	Status	Owner	Controlling Authority	Permitted Uses
Claremont Football Oval and Council Depot	C class Reserve	State of WA	Management Order – ToC	Recreation/Depot
Police and Community Youth Centre (PCYC)	Freehold title	PCYC*	PCYC Federation	N/A
Public Transport Authority (PTA)	Railway Reserve	State of WA	Public Transport Authority	Railways

* ToC has first right of refusal should this site be sold.



LEGEND

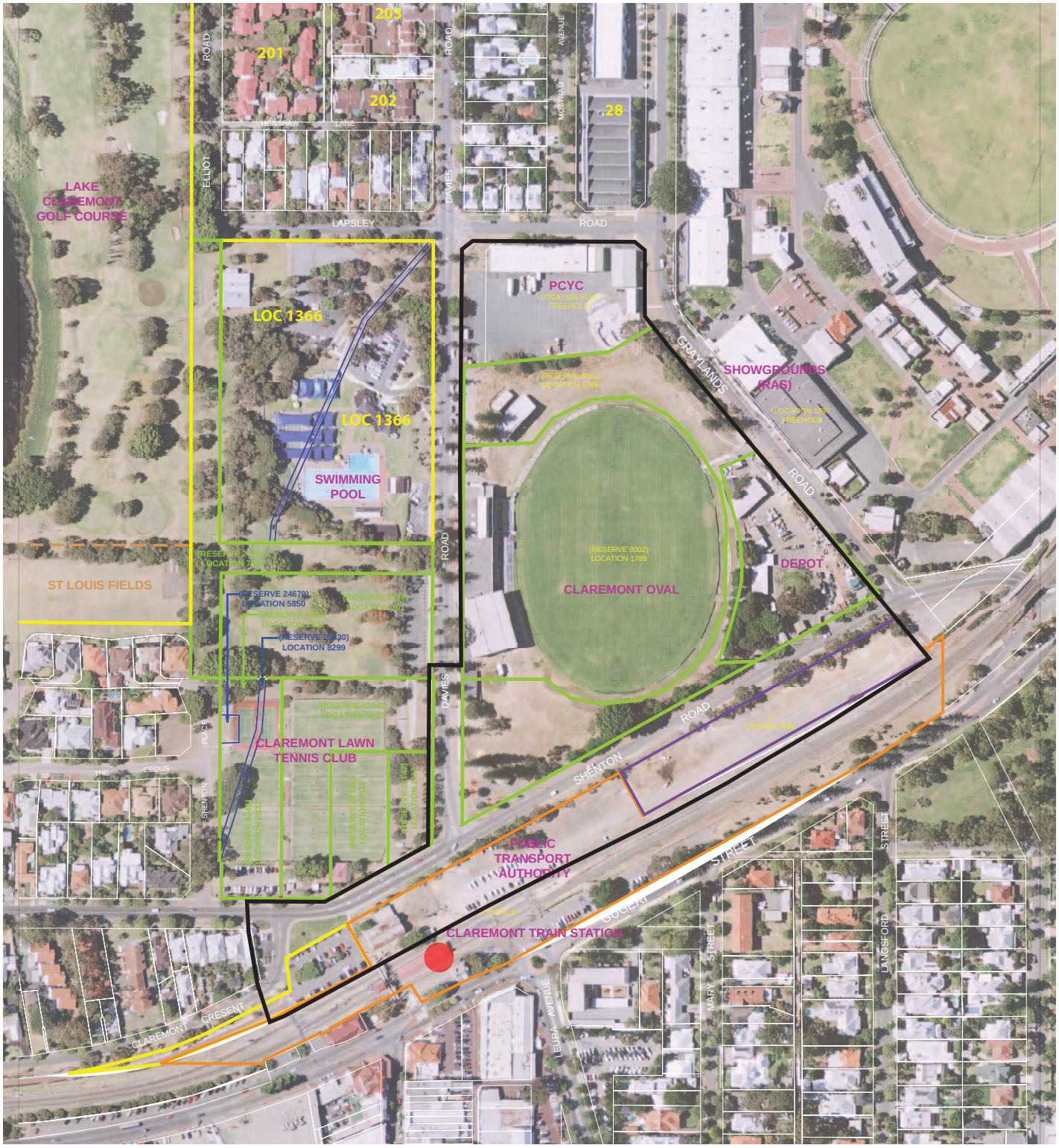
NORTH EAST PRECINCT BOUNDARY

Source: Streetsmart

LOCATION PLAN

Claremont North East Precinct Structure Plan

FIGURE ONE 1



LEGEND

- NORTH EAST PRECINCT BOUNDARY
- FREEHOLD LOTS HELD BY THE TOWN OF CLAREMONT
- WATER CORPORATION RESERVES
- RESERVES VESTED IN THE TOWN OF CLAREMONT
- UNALLOCATED CROWN LAND
- PUBLIC TRANSPORT AUTHORITY

Source: Town of Claremont

LAND OWNERSHIP PLAN

Claremont North East Precinct Structure Plan

FIGURE TWO

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2 PREVIOUS STUDIES AND CONSULTATION

Significant planning has been undertaken for the land surrounding the Claremont Train Station over the last seven years. These works are summarised below.

2.1 CLAREMONT JUNCTION STRUCTURE PLAN

The draft Claremont Junction Structure Plan was prepared in 2001/02 and proposed 100-150 residential units, 1,700 m^2 of commercial floor space, and public open space (refer **Figure 3**). The draft Structure Plan applied to PTA landholdings and was submitted to the ToC with a request to advertise the Plan in conjunction with initiation of an Amendment to the ToC LPS3.

In October 2003, the ToC resolved not to proceed with advertising the draft Structure Plan. ToC's concerns included the need for a broader strategic vision for Claremont that included the Claremont Football Oval, and the need to ensure redevelopment was compatible with possible future under-grounding of the rail line.

Figure 3: Claremont Junction Concept Plan 2002

2.2 URBAN DESIGN CENTRE CONCEPT PLAN PROCESS

In 2005, the ToC engaged the Urban Design Centre of Western Australia (UDC), a non profit partnership of The University of Western Australia and Curtin University of Technology, to work with stakeholders and the community to prepare a design concept for the NEP (see section 2.2.1 for further detail on this community consultation process).

2.2.1 URBAN DESIGN CENTRE COMMUNITY CONSULTATION

The ToC commissioned the UDC to facilitate a participatory planning process with the aim of producing a community-supported vision for the future of the Claremont NEP.

A public workshop was held in August 2005 to introduce the UDC team to community members, and to share perceptions and ideas about the NEP. In order to establish a shared understanding of the objectives, key stakeholders (representatives of each of the major landowners and tenants in the area) were invited to give a short presentation on their current situation and the issues they faced, after which the floor was opened for general discussion of development possibilities and ideas for the future.

In response to the outcomes of the first workshop, the UDC prepared a set of four preliminary design concepts, which were reviewed by the community in a second public workshop, where participants were invited to write comments and sketch alternative ideas over the UDC's drawings.

The second workshop produced a number of clear directives, which allowed the team to focus on alternative design approaches for the preferred design concept. Three scenarios were then developed from the preferred design concept and presented at a third and final workshop.

Each of the three scenarios featured:

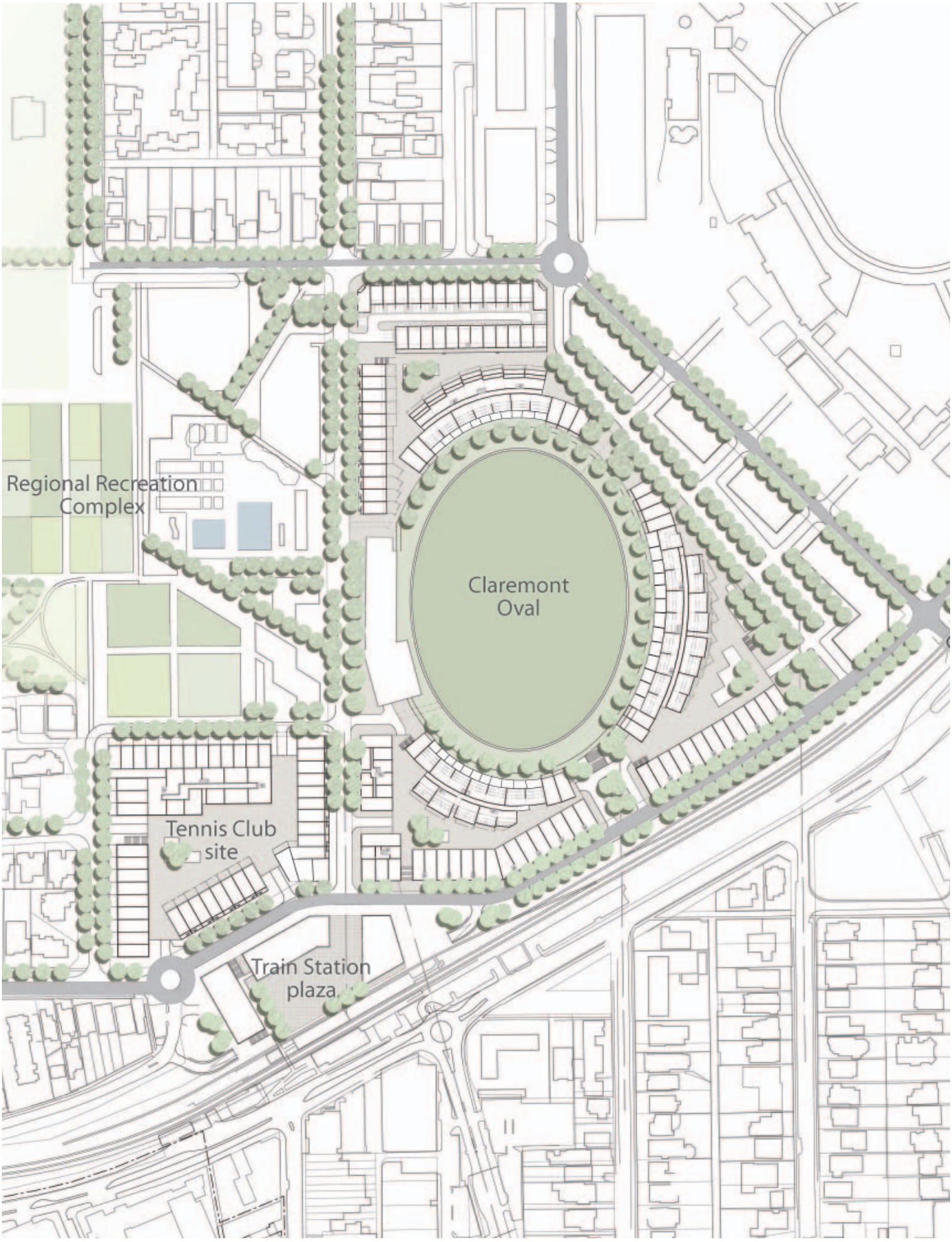
- Shenton Road as a through-route adjacent to the rail line. In Options 2 and 3, the Shenton Avenue alignment is moved to separate new development from the rail line;
- Claremont Football Oval developed for medium and high density, two and three storey townhouses and/or apartments;
- Nearby tennis and pool facilities consolidated on the Lake Claremont Reserve, with potential new shared club facilities. The current tennis facilities redeveloped for townhouses, apartments and mixed use;
- Royal Agricultural Society land adjacent to Graylands Road proposed for commercial and business development; and
- Public park and ride facility provided under new development on the PTA site.

A key variation between the scenarios was the treatment of the PTA site, as follows:

Option 1: Proposed three and five storey apartments.
Option 2: Proposed townhouses.
Option 3: Proposed mixed use development.

The workshop participants were again asked to write and draw over the UDC's sketches to record their comments and suggestions.

From the results of this third and final workshop, the UDC weighed the various comments to identify the design scenario that had the most support. This design was then further refined to produce the 'preferred' design concept (which was based on Option 3) (refer **Figure 4**) and a supporting report.



URBAN DESIGN CENTRE PLAN - PREFERRED OPTION 3

Claremont North East Precinct Structure Plan

Source: Urban Design Centre

0m 10 20 30 40 50m

FIGURE FOUR

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Preferred Option 3 was released for wider public comment from 30 April – 2 June 2006. 4,800 information brochures were distributed to local residents and businesses, seeking comments on the redevelopment concept principles and design scenario.

A total of 626 responses were received by the ToC and forwarded to Curtin University for professional (external) analysis. The responses were generally supportive of Option 3, with significant concerns about density and height. The ToC noted the results of the consultation and also acknowledged that further work needed to be undertaken to support any future Plan.

2.3 REVIEW OF URBAN DESIGN CENTRE CONCEPT

At a meeting held in August 2006 between the Honourable Minister for Planning and Infrastructure, LandCorp, the ToC and the PTA, the following actions were agreed:

- To facilitate further discussions with the PCYC and Claremont Lawn Tennis Club (CLTC);
- PTA be requested to undertake a review of its park and ride requirements at Claremont Train Station and advise of alternative options;
- Feasibility assessment of UDC preferred design scenario and market advice to commence, involving LandCorp in partnership with the ToC; and
- Technical studies and design modification to the UDC preferred design scenario, to be undertaken by LandCorp in conjunction with the ToC, with costs recoverable through the project if it proceeds.

LandCorp tested the viability of the UDC preferred design scenario and advised the Minister it was economically unviable. Further feasibility work was undertaken favouring a higher proportion of multiple dwellings and having regard to solar orientation.

In September 2006, the Minister announced that the State Government and the ToC had agreed to form a partnership to progress planning for an economically viable, public transport oriented, urban renewal development in Claremont. The ToC established a working group to oversee the review, comprising the Town's CEO as chairperson, LandCorp as project adviser, and relevant staff from the ToC, Department for Planning and Infrastructure (DPI) and the PTA.

Taylor Burrell Barnett were engaged by the ToC to provide planning advice for the project, and the UDC was retained to ensure the design development and testing respected outcomes of the previous work and community consultation.

The initial stage of this process required a review of the preferred concept design developed by the UDC, in order to refine design parameters and to provide additional detail necessary to consider the initiation of appropriate statutory planning changes, structure planning and development of a preliminary business case by LandCorp.

2.4 CONSULTATION

The ToC has been in close consultation with stakeholders and the community throughout the Structure Planning process. As discussed, extensive community and stakeholder consultation was conducted in the initial stages of the project to inform the UDC design concept, and the community has continued to be kept informed through the TOC local newsletter, *'Town Talk'*. The UDC design concept has provided the basis for further detailed study and design has been undertaken by appointed technical consultants, including planners, architects, engineers and economists.

2.5 DESIGN REFINEMENT PROCESS

2.5.1 CONCEPT PLAN

In February 2008 the ToC assembled a consultant team to develop a concept plan consistent with the requirements of the then proposed structure plan provisions to LPS3 and the UDC preferred design scenario. The provisions were included within Amendment 107 to LPS3, which has now been gazetted (as discussed within section 3.1.2 of this report).

In May 2008 a design workshop was held involving the technical consultants, the ToC and representatives from LandCorp, DPI and PTA, to develop a draft concept plan. A copy of the minutes relating to this meeting are included within **Appendix 1** of this report. The Concept Plan has since undergone review and refinement in a process which has involved ToC Officers and Elected Members, a Peer Review Panel and Stakeholder consultation.

2.5.2 PEER REVIEW PANEL

To increase the rigour of the Structure Plan recommendations and development principles, the ToC assembled a Peer Review Panel to provide independent design advice. The Peer Review Panel was comprised of three leading members of Western Australia's design professions - Ruth Durack, Geoffrey London and Carolyn Marshall.

In order to maximise the Peer Review Panel involvement and opportunity for design input, the ToC sought Peer Review Panel commentary on the initial concept phase. The Peer Review Panel reviewed and commented on multiple draft Concept Plans, providing highly valuable feedback for the formulation of the DPP and Structure Plan. The review process and discussions between the project team and the Peer Review Panel has resulted in a highly robust design which incorporates strong elements of functionality, connectivity and sustainability.

2.5.3 STAKEHOLDER CONSULTATION

The ToC arranged a key stakeholder meeting on 10 June 2008 to provide feedback in relation to the Concept Plan. Attendance at the stakeholder meeting comprised representatives from:

- Town of Claremont
- Public Transport Authority
- Lake Claremont Precinct Association
- Claremont Football Club
- Royal Agricultural Society of WA
- Police and Community Youth Centre
- WA Police

- WA Football Commission
- Department for Sport and Recreation
- Claremont Lawn Tennis Club

Agreement with the fundamental principles and direction of the Concept Plan was expressed. This in-principle acceptance by stakeholders provided a level of certainty to continue with the Structure Plan.

2.5.4 TOC ELECTED MEMBERS AND OFFICERS

The Concept Plan was presented to the Claremont Elected Members in the form of two power point presentations at the draft concept plan stage and the final Concept Plan stage. The first presentation, which showcased the draft Concept Plan, demonstrated the careful distribution of height and provision of a public realm. The final Concept Plan was presented at the second presentation which included shadow diagrams and massing models to show how the design has provided for solar orientation and street interface.

3 PLANNING CONTEXT

3.1 STATUTORY PLANNING CONTEXT

3.1.1 METROPOLITAN REGION SCHEME

The MRS identifies the subject land as predominantly within the 'Parks and Recreation' reserve (restricted), with the balance of the land being zoned 'Urban' and reserved as 'Other Regional Roads' and 'Railways'. The existing reservations, along with those proposed under the MRS Amendment initiated in August 2008 (see below) are shown at **Figure 5**.

3.1.1.1 Proposed Metropolitan Region Scheme Amendment

A proposal has been presented to the WAPC to amend the MRS relating to the NEP. It is proposed that the entire site, with the exception of the Claremont Football Oval (playing surface), be excluded from the existing reservations and included within an 'Urban' zone, to facilitate a TOD for the NEP.

The MRS Amendment was considered by the Metropolitan Region Planning Committee (MRPC) under delegated authority of the WAPC on 12 August 2008, which resolved to refer the MRS Amendment to the Environmental Protection Authority and the Minister for Planning and Infrastructure in order to obtain approval for advertising.

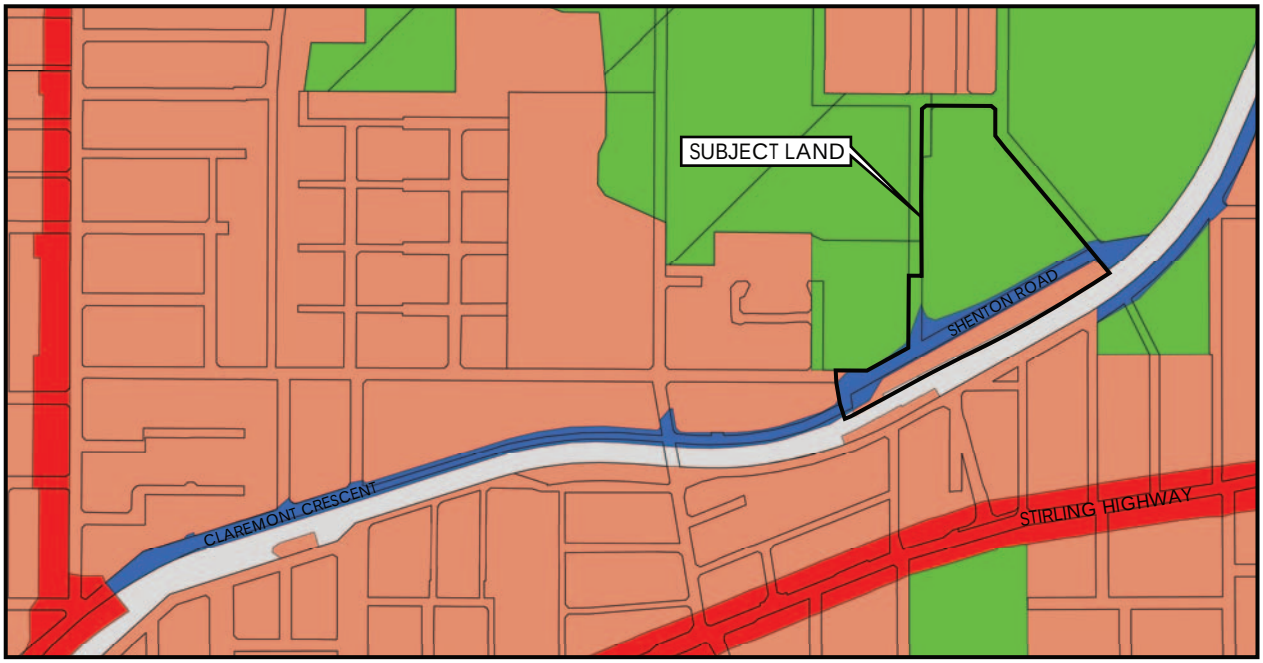
3.1.1.2 Proposed Removal of 'Other Regional Roads' Reservation

In 2002, the WAPC's Sustainable Transport Committee (STC) authorised the DPI to negotiate with the ToC regarding possible amendments to the MRS that would maintain regional connectivity, whilst permitting removal of the Regional Road Reservation over Claremont Crescent and Shenton Road. Since 2002, the State Government has adopted Network City as its overarching planning strategy for Perth and Peel. This policy notes that *"the major elements of Network City are activity corridors, activity centres and transport corridors".*

The Minister for Planning and Infrastructure has requested government agencies to work collaboratively with the ToC to develop the NEP as a TOD. The NEP project is considered by the Minister for Planning and Infrastructure to be a demonstration project for implementation of Network City principles.

The recent work in relation to development of a TOD in the Claremont NEP reinforces the STC's resolution of 2002 to consider an amendment to the MRS that would remove the 'Other Regional Roads' (ORR) reservation from Claremont Crescent and a portion of Shenton Road.

Accordingly, the proposed MRS Amendment to include the NEP within the 'Urban' zone also involves the removal of the 'Other Regional Roads' (ORR) reservation from Claremont Crescent and a portion of Shenton Road (see **Figure 5**). This is a critical element of the Amendment and the rationale for the removal is detailed within a Precinct Transport Plan prepared by Sinclair Knight Merz (refer **Appendix 2**). In summary, the existing ORR reservation severely restricts the functioning of the area as a TOD, as it reduces access and creates a significant barrier between the NEP and the Claremont Train Station. It is considered that failure to amend the MRS to remove the ORR designation would seriously compromise the TOD.



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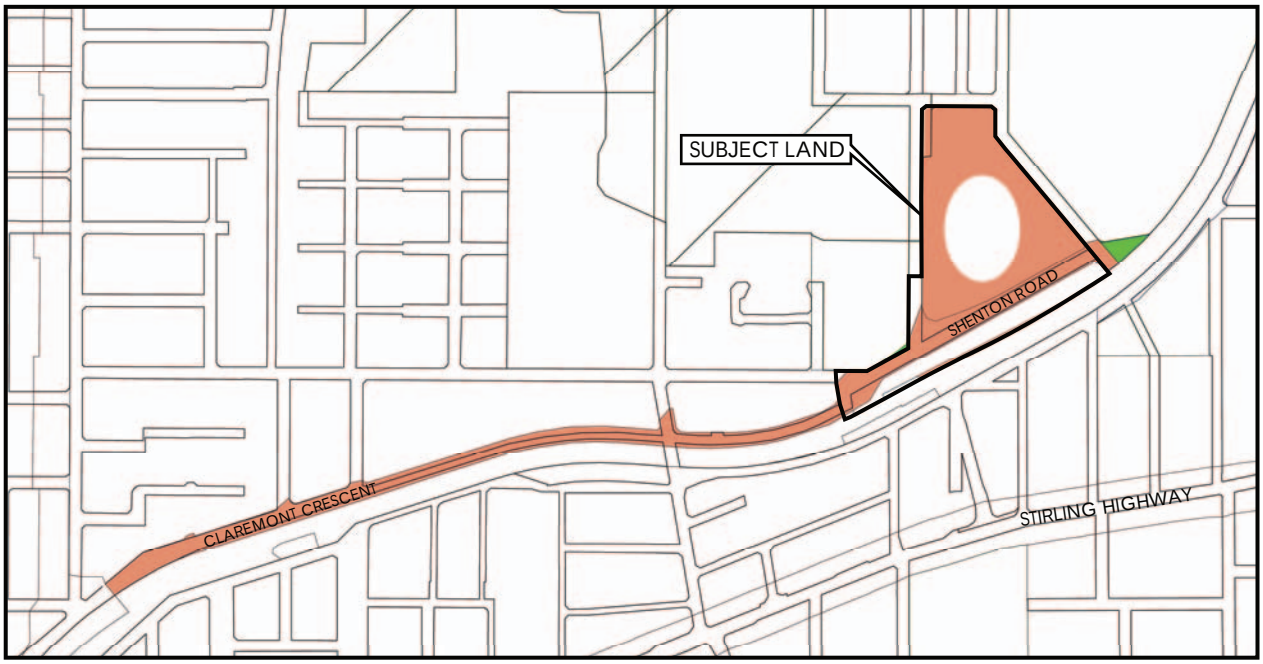


PROPOSED

LEGEND

- NORTH EAST PRECINCT BOUNDARY
- URBAN
- PRIMARY REGIONAL ROADS
- RAILWAYS
- PARKS AND RECREATION
- OTHER REGIONAL ROADS

Source: WAPC

MRS MAP - CURRENT & PROPOSED ZONINGS

Claremont North East Precinct Structure Plan

FIGURE FIVE
5

The Precinct Transport Plan was prepared to provide background on the movement network and also to present preliminary supporting evidence for the MRS Amendment. A more comprehensive transport study is being undertaken whilst the proposed MRS amendment is being progressed through the relevant administrative referral process. This study is being undertaken jointly by the DPI and ToC and will further assess future traffic movement and volumes within the area and the ability of the surrounding network to accommodate this traffic.

As mentioned above, on 12 August 2008 the MRPC initiated an Amendment to the MRS supporting the removal of the Shenton Road and Claremont Crescent 'Other Regional Roads' reservation.

3.1.2 TOWN OF CLAREMONT LOCAL PLANNING SCHEME NO. 3

Land use and development within the ToC is generally controlled by LPS3, where the majority of the NEP land is identified as a MRS 'Parks and Recreation' reservation. The PCYC and the ToC Depot are reserved for 'Parks and Recreation – Restricted Access', and the balance of the land is reserved 'Other Regional Roads', 'Railways' and zoned 'No Zone' (refer **Figure 6**).

The land between Shenton Road and the railway line has undergone previous changes in zoning. The MRS was amended in September 1999 to transfer portions of the land between Shenton Road and the railway line from the Rail Reservation to 'Urban' zone. This formed part of the Claremont Junction proposals and the land is currently zoned 'No Zone' under the LPS3.

Amendment 107 to LPS3, gazetted on 25 June 2008, created a 'Development' zone for LPS3, with associated scheme text additions to facilitate development of land within any land zoned 'Development'. As described in section 1.1, it is intended to include a portion of the site within the 'Development' zone simultaneously with the 'Urban' zoning of the MRS Amendment (also shown at **Figure 6**).

Amendment 107 also inserted clause 75D within LPS3, which requires an approved Structure Plan prior to the Town recommending subdivision or approving development within a 'Development' zone. This Structure Plan report addresses the requirements for a Structure Plan as outlined within clause 75F of LPS3.

3.2 STRATEGIC PLANNING CONTEXT

The Local Structure Plan has been developed in accordance with a number of relevant State strategic planning policies to ensure that the proposal is consistent with the government's vision for infill development. The relevant provisions of these policies have been considered within the design development of the Claremont NEP and are detailed below.

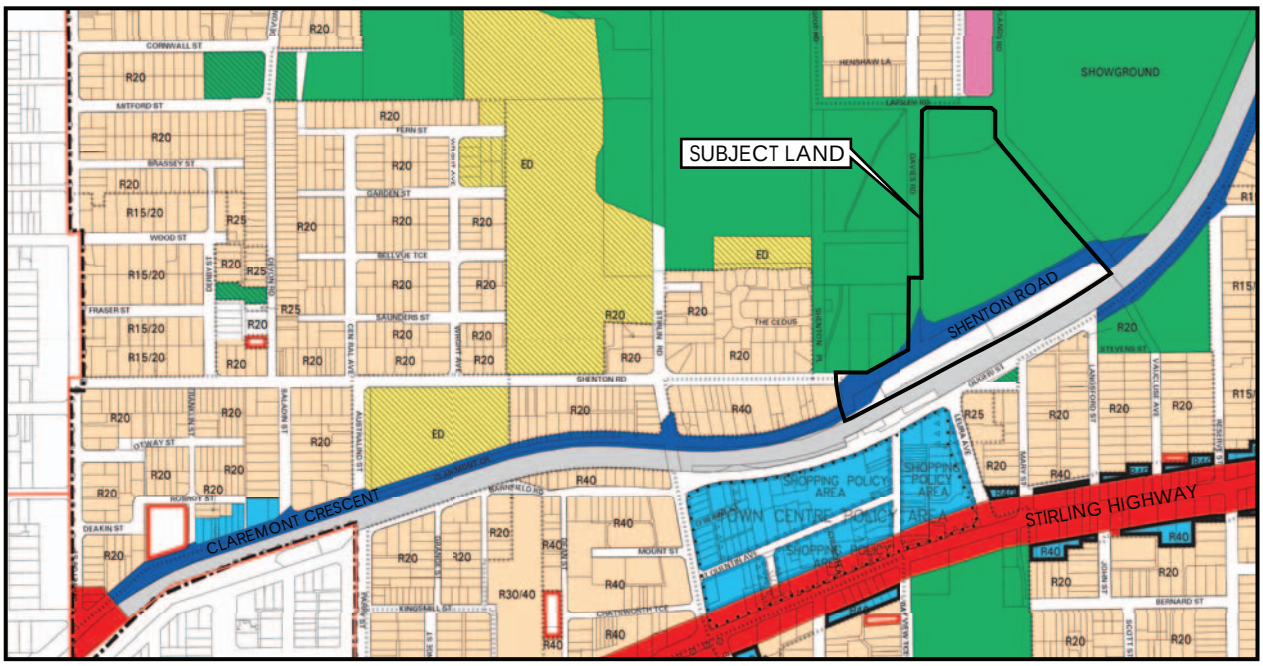
3.2.1 STATE GOVERNMENT POLICY FRAMEWORK

3.2.1.1 Network City

Network City highlights key elements of planning for the future of Perth, Mandurah and Murray.

The NEP Structure Plan is consistent with the key objectives of Network City – Community Planning Strategy for Perth and Peel (WAPC, 2004), including the need to:

AMENDMENT No. 112



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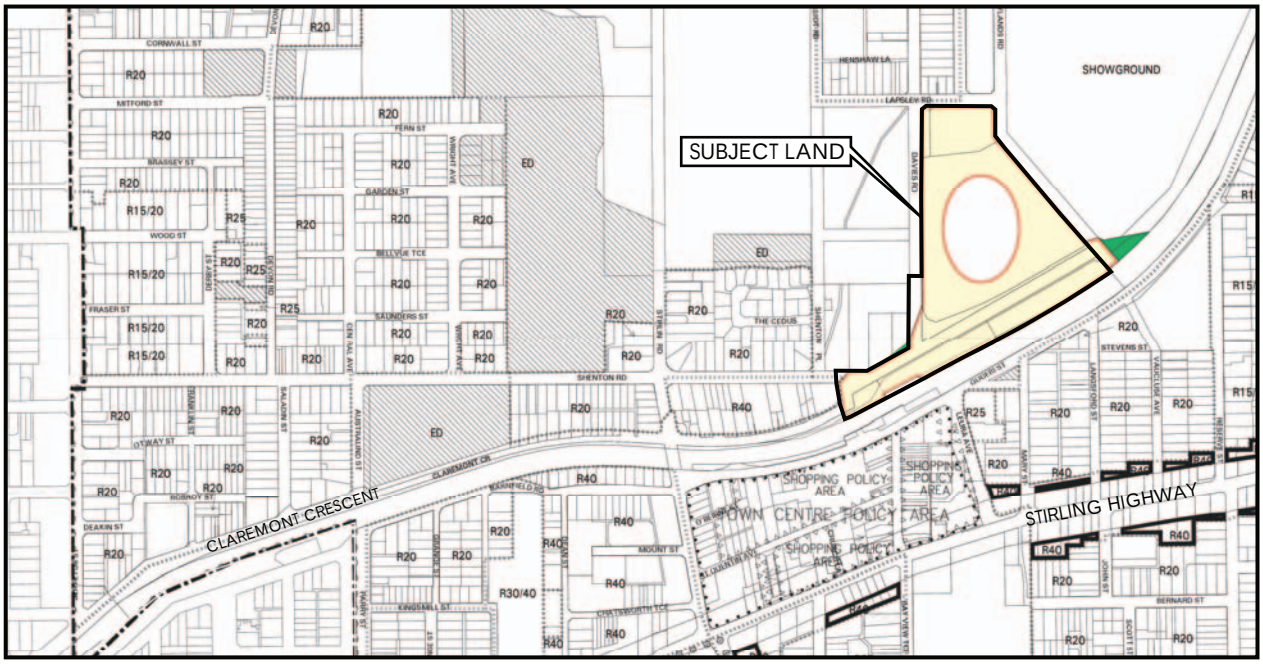


PROPOSED

LEGEND

NORTH EAST PRECINCT BOUNDARY

METROPOLITAN REGION SCHEME RESERVES

PARKS AND RECREATION

ZONES

DEVELOPMENT

OTHER

R CODES

NO ZONE

Source: Town of Claremont

TPS ZONINGS - PROPOSED & EXISTING ZONINGS

Claremont North East Precinct Structure Plan

FIGURE SIX

6

- *"Accommodate urban growth primarily within a Network City pattern, incorporating communities."* Claremont is identified as an activity centre in Network City, and the proposed Structure Plan will facilitate residential development within close proximity to the town centre and the train station.

- *"Align transport systems and land use to optimise accessibility and amenity".* The proposed Structure Plan seeks to provide for residential development, with higher densities to be concentrated in close proximity to the Claremont Train Station.

- *"Deliver a city with 'urban' energy, creativity and cultural vitality".* The proposed Structure Plan seeks to allow development over underutilised land and surplus railway reserve, to create uses that will provide energy and vitality into the area. It is also proposed that the oval, which currently has restricted access, will be open to the public as a village green when not required for football related purposes.

- *"Protect and enhance the natural environment, open space and heritage."* The proposed development seeks to retain culturally and environmentally significant trees through either integration with the design or relocation within or close to the project area. Significant areas of open space will be provided and heritage buildings will also be retained and celebrated.

3.2.1.2 Liveable Neighbourhoods

The Liveable Neighbourhoods policy manual is a Western Australian Government sustainable cities initiative (WAPC October 2007). It sets out policies and practices that encourage a sustainable urban structure of walkable neighbourhoods, clustering to support town centres with compactness of form, compatibility of mixed uses, reduced car dependence and ease of access to employment, retail and community facilities.

The principal aims of Liveable Neighbourhoods are as follows:

- To foster a sense of community and strong local identity in neighbourhoods and towns.
- To provide access generally by way of an interconnected network of streets.
- To ensure an active street/land use interface.
- To facilitate new development that supports efficiency of public transport systems and safe and direct access to the system for residents.
- To facilitate mixed use development which is robust and can change over time.
- To protect environmental areas and to include significant cultural and physical features into design.
- To provide a comprehensive open space and urban water management network.
- To facilitate cost effective and resource efficient development.

The vital ingredients of neighbourhood design include:

- Compactness so most people can walk to local centres in five minutes;

- Streets that are built to encourage people to walk, cycle or take public transport rather than drive;

- Streets that are connected in a simple pattern so people can choose different routes and make short trips to local facilities;

- Windows and balconies which overlook streets to deter crime;

- Opportunities for local employment in shops and businesses close to people's homes;

- A neighbourhood heart with shops, business and community facilities;
- Sustainable town centres made by developing clusters of about six neighbourhoods with a wide range of services, facilities and jobs;
- Public transport stops at town centres and neighbourhood centres;
- A wide choice of housing and lot sizes within a flexible layout so the area can be changed to meet future needs;
- Reinforced local character and protected natural features through responding to the physical characteristics of the site;
- Neighbourhood parks of different sizes and types for a variety of uses within a five minute walk for most people; and
- Streets that are laid out in a modified grid or connected network of streets, so that there are alternate routes to every destination. This permits most streets to be of human scale with slower traffic, and it means that streets are equitable for both vehicles and pedestrians.

3.2.1.3 State Planning Policy 3: Urban Growth and Settlement

Statement of Planning Policy No. 3 (SPP3) 'Urban Growth and Settlement', prepared by the WAPC in March 2006, sets out the principles and considerations which apply to planning for urban growth and settlement in Western Australia. The policy supports consolidated development in appropriate locations, where it is consistent with neighbourhood character and where the necessary services are available and can be provided.

Whilst it is recognised that the majority of people still prefer a suburban home, more people are being attracted to compact, mixed use developments which free them from maintaining large gardens and dependency on motor vehicle transport. Greater consolidated development also reduces the spread of urban development that intensifies pressures on valuable land and water resources, imposes costs in the provision of infrastructure and services, increases dependence on private cars, and creates potential inequities for those living in the outer suburbs where job opportunities and services are not so readily available.

Thus, SPP3 aims to create more liveable neighbourhoods in the new suburbs; revitalise and enhance neighbourhoods in existing urban areas; provide for variety of housing and living environments; widen the range of transport choices; conserve water and other natural resources; and provide for wider social interaction and opportunity.

The overall aim of the policy is to facilitate sustainable patterns of urban growth and settlement. The purpose of the NEP Project is to allow for consolidated development to occur within the land north of the Claremont Train Station, consistent with the objectives of SPP3. The redevelopment of the NEP will provide a variety of housing choices and affordable housing and will utilise existing infrastructure and underutilised land in a location that is well connected by public transport.

3.2.1.4 Development Control Policy 1.6: Planning to Support Transit Use and Transit Oriented Development (2005)

DC1.6 seeks to maximise the benefits to the community of an effective and well used public transit system by promoting planning and development outcomes that will support and sustain public transport use, and will achieve a more effective integration of land use and public transport infrastructure.

Amendments to this policy were adopted by the WAPC in 2005 to reflect the Government's vision for a sustainable future as outlined in Network City and the State Sustainability Strategy, and it is an integral part of a range of policies directed towards greater sustainability, in accordance with the State Planning Strategy.

Within developed areas, there are clear opportunities to intensify existing activities and to promote new uses that will make better use of transit facilities and services. There are obvious benefits of a planning policy that encourages the integration of land use and transit facilities. High residential densities and mixed use development in the walkable catchments of transit facilities have the potential to reduce car dependence; to increase accessibility for those without access to private cars; to reduce congestion on the road network and the demand for new road space; to reduce fuel consumption and air pollution; and to provide quality, diverse and affordable forms of housing and development. These benefits combine to produce an attractive and viable alternative to car-based suburban and urban fringe development.

The policy contains the following main policy measures relevant to the subject land:

1. Transit-Supportive Development Patterns

   Urban structure is the foundation of a transit supportive environment. Effective transit is fostered by a more compact urban form, mixed uses, higher development densities and activity levels, and especially by spatial patterns of development that make it easier to plan and efficiently operate transit services, and for users to access those services once they are in place.

2. Land Use to Support Transit

   The level of transit patronage is closely linked to the quality and frequency of the service provided and, in turn, the service able to be provided is a function of the density and mix of land uses that generate potential transit users. An appropriate mix and balance of land uses can be a major contributor to the use and effectiveness of transit facilities. Within transit-oriented precincts, the emphasis should be on uses which are likely to promote transit use and which will benefit by being accessible to, and by, transit facilities.

   - Residential development should be encouraged close to transit facilities, to assist in creating a sense of place that makes a TOD precinct more than just a place where transit is available. Higher density residential development places greater numbers of residents close to transit services, which correlates to an increase in transit patronage.

   - Other uses that are likely to be significant generators of transit trips should also be located close to transit facilities whenever possible. Relevant uses include offices and other higher density employment generating activities, intensive leisure facilities and retailing.

3. The Public Domain in TOD Precincts

Almost all transit users are pedestrians for at least part of their journey, even if it is only for a short walk. The amenity, quality and safety of the public domain within transit oriented precincts are therefore important factors in establishing and maintaining an environment that will encourage people to access transit facilities on foot, as well as promoting walking generally within these neighbourhoods.

4. Transit Supportive Design

An appropriate framing urban structure in transit oriented precincts is important. Land use that promotes interest, interaction and activity should be used to animate frontages along the principal pedestrian routes leading to and from the transit facility.

5. Integrating Transit Infrastructure

The design and operation of transit infrastructure should assist in integrating transit facilities with their surroundings.

Given the location of the NEP in close proximity to the Claremont Train Station, DC1.6 has a significant bearing on the project and provides the foundation for the development of an effective TOD for the project. The proposed development will provide for a mix of uses at an appropriate density which, combined with the quality of the public domain, will meet all of these policy measures.

3.2.1.5 Development Control Policy 2.3: Public Open Space in Residential Areas (1998)

A Structure Plan should provide for areas of public open space (POS) to preserve amenity and to contribute to the quality of life in urban areas. This Policy sets out the requirements of the WAPC for POS and the provision of land for community facilities in residential areas.

The basic component of this Policy is the requirement that a minimum 10 percent of the gross subdivisible area shall be given up free of cost to the Crown by the subdivider for POS. This requirement is consistent with clause 152 of the *Planning and Development Act 2005*.

The Policy's main objectives are to:

- Ensure provision of adequate and well located areas of POS that will enhance the amenity of the area;
- Facilitate the provision of community facilities in conjunction with land ceded for POS; and
- Protect and conserve wetlands, water courses and foreshores adjacent to residential development.

The design, location and provision of POS within the NEP Structure Plan has been based on the objectives and requirements of this Policy.

3.2.1.6 Draft Statement of Planning Policy – Road And Rail Transport Noise 2005

This Policy aims to minimise the negative impacts of transport noise on adjacent development. It identifies a range of mechanisms (engineering, separation distances, notification and building design) to achieve such minimisation. The Policy adopts a pragmatic approach to the application of these measures and encourages alternative means to meet its objectives.

With the Claremont Train Station abutting the southern boundary of the subject land, there is potential for noise attenuation to be required. The exact nature of these measures would be determined at detailed design stage through negotiations with the Department of Environment and Conservation, and could be addressed through development control such as the Design Guidelines and Detailed Area Plans.

3.2.2 LOCAL GOVERNMENT POLICY FRAMEWORK

3.2.2.1 ToC Local Planning Policy DS33 – Claremont Train Station

The Claremont Train Station is an historic place acknowledged to have cultural heritage significance and has been listed by the National Trust of Australia (WA) and the Australian Heritage Commission.

The ToC values the station as culturally significant and has prepared this Policy to promote the conservation of all the elements which comprise the place in accordance with the principles of the BURRA CHARTER.

3.2.2.2 ToC Local Planning Policy TS03 – Development of Recreational Reserves/Parks

The purpose of this Policy is to ensure that local residents are consulted if any proposed major change within a recreational reserve, other than general maintenance, is considered. The Policy sets out that the consultation will be in the form of an advertisement in the local press or Council's newsletter, *Town Talk*, placement of a notice in the affected reserve and notification of householders in the immediate locality.

4 SITE ANALYSIS

4.1 PHYSICAL DESCRIPTION

The subject land comprises approximately 9.4 hectares of land on the northern side of the Claremont Train Station bounded by the railway line; Graylands Road; Davies Road and Lapsley Road (see **Figure 1**).

The land along Davies Road will allow for development to enjoy extensive views over Lake Claremont, with good proximity to the Claremont Train Station. Views of the oval will be able to be enjoyed by the majority of the development.

The site currently contains the PCYC, Council Depot and CFC (see **Figure 2**). The ToC is negotiating with two neighbouring Councils to operate a joint Depot facility which will allow for relocation and the sharing of resources. Council is also working closely with the PCYC to find an appropriate site to which it can relocate.

4.2 SITE CONTEXT

The NEP is located immediately north of the existing Claremont Town Centre and is separated from it by Claremont Train Station and the railway line (**Figure 7**). Two at-grade pedestrian crossings and an overhead footbridge provide pedestrian and cycle linkages from the site direct to the existing town centre, while two underpasses provide vehicular access beneath the railway line, just east and west of the project area, into the town centre.

The site is located predominantly within a sport and recreation precinct, flanked to the east by the Royal Agricultural Society Showgrounds, to the west by Claremont Lawn Tennis Club, Claremont Pool and Lake Claremont Golf Course, and to the north by residential and light industrial development.

The Claremont Train Station is an all-stops station on the Perth to Fremantle line. To the east is the Shenton Road subway connecting the project area to Railway Road from which Subiaco, West Perth and the City are easily accessible. To the north, Davies Road turns into Montgomery Avenue which connects with Stephenson Avenue. The NEP is very well serviced by retail and commercial activities, public transport, road linkages, recreational activities and civic uses in the Claremont Town Centre.

4.3 EXISTING SERVICE INFRASTRUCTURE

4.3.1 ROADS

The existing road pavements surrounding the site are trafficable but will need to be upgraded to match the new roads required by the redevelopment and to repair some existing defects.

Source: Taylor Burrell Barnett

LOCAL CONTEXT PLAN

Claremont North East Precinct Structure Plan

FIGURE SEVEN

7

4.3.2 DRAINAGE AND STORMWATER MANAGEMENT

Based on information available, existing drainage infrastructure is very limited. Two drainage sumps, one in the Town's Depot on Shenton Road and one on the southern side of Shenton Road, provide the only existing storage/disposal sites.

Several piped drainage outlets from Davies Road and Lapsley Road discharge to the north and east and ultimately into Lake Claremont.

Significant improvements will be required to provide detention, storage, compensation and infiltration of surplus stormwater flows, along with stormwater harvesting and reuse where shown as possible on the Structure Plan.

4.3.3 WATER AND SEWER SERVICES

4.3.3.1 Water

The existing DN100CI water main in Davies Road and the existing DN100 RC water main in Lapsley Road provide only the minimum diameter allowed in new subdivision design, and are likely to be required to be upgraded for the proposed higher density redevelopment (refer **Figure 8**).

The existing DN535S water main in Shenton Road will provide for the proposed redevelopment and will connect to new reticulation mains and to the upgrading of the existing DN100 lines. This main will require relocation with any relocation of Shenton Road and must be located within a dedicated road reserve.

4.3.3.2 Sewer

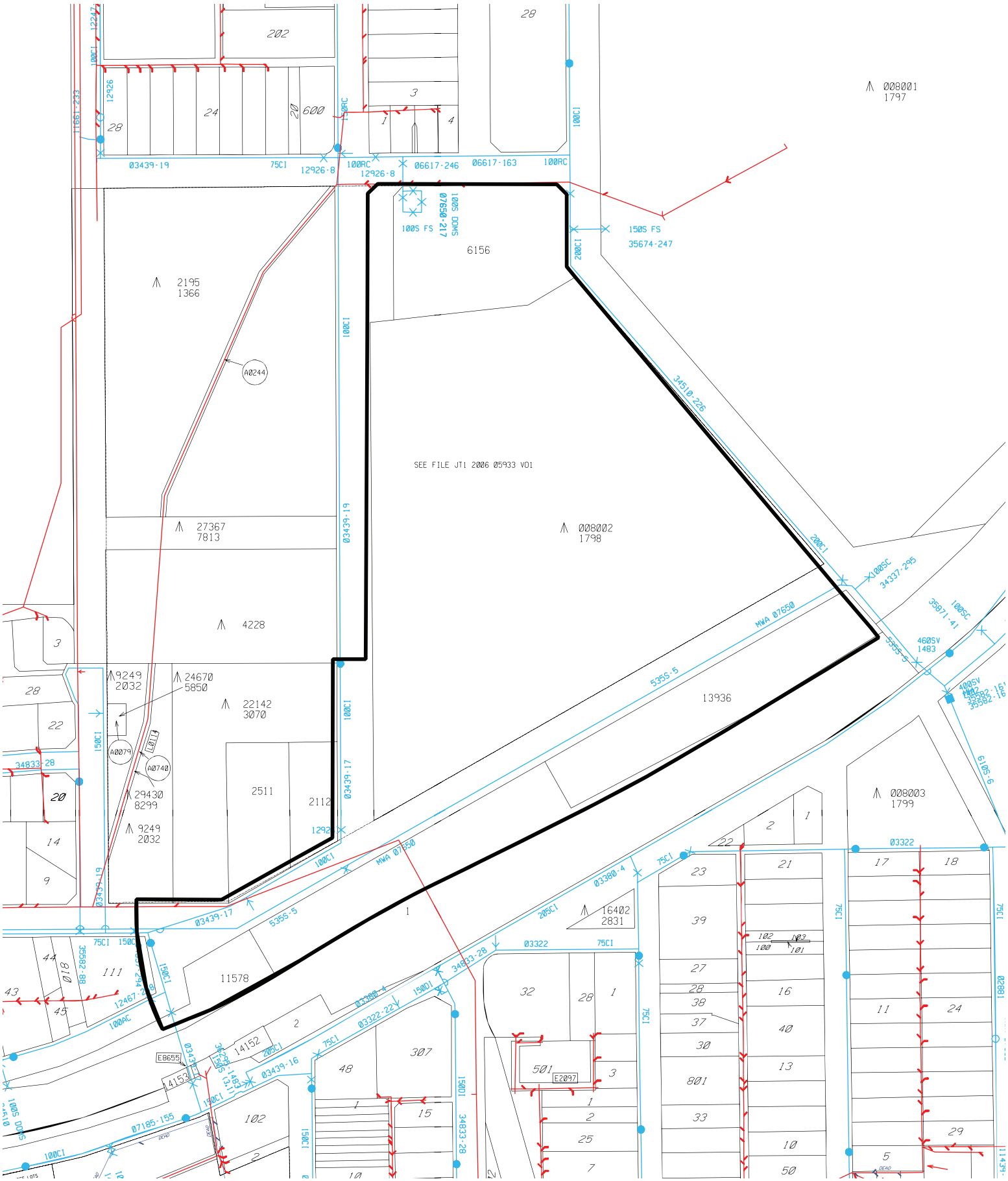
The existing DN380RC Davies Road Collection Sewer traverses north to south through both the Claremont Lawn Tennis Club site and the Claremont Pool site, and the existing DN610RC Claremont Main Sewer runs in Shenton Road south of the Claremont Lawn Tennis Club site (refer **Figure 8**).

The existing DN225 VC sewer in Lapsley Road also takes sewer flows from the RAS showground site and has previously been identified by the Water Corporation as under capacity at peak loads. Pipes of this type and age are also prone to failure when disturbed. To cater for the proposed redevelopment, a new reticulation sewer will be required along Graylands Road to serve the proposed developments fronting that road.

4.3.4 POWER SUPPLY

All existing overhead power lines within the redevelopment area are required by Western Power standards to be replaced with underground power cables, and all new power reticulation cables required to serve the redevelopment must be underground.

The existing 132 KV overhead lines in Shenton Road can be transferred to underground cables, or relocated to the new alignment of Shenton Road with Western Power approval, the former being the preferred option.



LEGEND

NORTH EAST PRECINCT BOUNDARY

EXISTING SEWER ALIGNMENT

EXISTING WATER ALIGNMENT

Source: Watercorporation

EXISTING SERVICES PLAN

Claremont North East Precinct Structure Plan

FIGURE EIGHT

8

0m 10 20 30 40 50m

4.3.5 TELECOMMUNICATIONS

Existing Telstra lines run along Shenton Road, Davies Road and Lapsley Road. In Graylands Road, only a short section of cables to the south and to the north currently exist.

An Optic Fibre line exists in Davies Road, which will prove a suitable connection for extensions to all of the proposed developments.

4.3.6 MOVEMENT NETWORK

4.3.6.1 Existing Roads & Traffic Volume

Shenton Road is a two lane road that is presently designated as an 'Other Regional Roads' reservation under the MRS. As mentioned in section 3.1.1.2, recent strategic transport analyses conducted by SKM for the DPI found that Shenton Road is actually of low importance within the regional road network. A Road Network Analysis Study being undertaken by SKM for the ToC and DPI, which will include a significant modelling component, will further assess the function of Shenton Road. Claremont Crescent, west of its intersection with Shenton Road is likewise reserved 'Other Regional Road', despite the only permitted vehicle movement at the intersection of Claremont Crescent and Stirling Road being a left turn from the former onto the latter. This movement restriction compromises the connectivity of the 'Other Regional Road'.

In 2003/2004, traffic counts undertaken by Main Roads Western Australia found that Shenton Road carried 5,540 vehicles per day at the rail underpass and 10,220 vehicles per day west of Davies Road. Claremont Crescent was found to carry 4,910, 6,600 and 9,590 vehicles per day at the railway bridge, west of Stirling Road and to the east of Servetus Street, respectively.

More recent traffic counts conducted by the ToC (September 2007) found an average of 8,408 weekday vehicle trips along Shenton Road, to the west of Claremont Train Station and 6,965 near the underpass.

Of the other roads within the NEP, Lapsley Road and Graylands Road are classified as local distributors within the Main Roads Western Australia Functional Road Hierarchy. Davies Road is classified as a local access road, although it serves an important function for north/south traffic flows. Traffic counts conducted in 2007 by the ToC found that Lapsley Road east of Motteram Avenue carried 687 vehicles per day; Graylands Road, outside the Showgrounds South Gate Two carried 2,867 vehicles per day; and Davies Road north of Shenton Road carried 6,468 vehicles per day.

Within the broader movement network, the following are designated as 'Primary Regional Roads':

- Stirling Highway – caters for movement between Perth City and Fremantle
- West Coast Highway – caters for the north/south regional traffic along the coast

For reference, 2003/2004 Main Roads Western Australia traffic count data showed Stirling Highway, east of Bay View Terrace carried 27,680 vehicles per day and West Coast Highway, south of Alfred Road carried 28,810 vehicles per day.

Aside from Shenton Road/Claremont Crescent, within the broader movement network, 'Other Regional Roads' include:

- Thomas Street/Winthrop Avenue – provides a strong connection between Wanneroo Road and Stirling Highway in Nedlands on a north/south alignment;
- Hay Street/Underwood Avenue/Rochdale Road – provides an east/west connection between Perth City, West Perth and Thomas Street and West Coast Highway; and
- Aberdare Road/Railway Road/Shenton Road/Claremont Crescent – provides a secondary east/west connection between Thomas Street and West Coast Highway (Servetus Street).

Other important roads in the broader movement network are:

- Broadway– for north/south traffic; and
- Alfred Road – for east/west traffic.

Together, these roads provide a reasonable level of connectivity for local and regional movement in the Claremont NEP and its surrounds. Connectivity is, however, disrupted to a degree by the Perth-Fremantle rail line. Nevertheless, connectivity will improve before the end of 2008, with the construction of a new underpass linking Stubbs Terrace to Railway Road in Karrakatta.

Overall, traffic flows through and in the immediate vicinity of the NEP are variable and fairly low. They do not demonstrate a strong regional traffic movement on this part of the network, which would typically be associated with 'Other Regional Roads'.

4.3.6.2 Pedestrian and Principal Shared Path

Existing pedestrian infrastructure is variable. Whilst there are several pedestrian linkages between the Claremont Town Centre on the south side of the rail line and the NEP, including at-grade crossings and the footbridge adjacent to the Claremont Train Station, the pedestrian network through the NEP is presently disconnected. Whilst most nearby streets feature at least one footpath and the ToC has recently invested in footpath improvements along Shenton Road, the principal constraint to pedestrian movement is the car parking areas adjacent to the rail line, which interrupt the principal shared path. The length of disconnect between the two ends of the principal shared path is around 480 metres, although it is the intention of Main Roads Western Australia to remedy this. The principal shared path, which is sited parallel to the rail line to the east and west of the NEP, is a strong commuter cycling linkage between Perth City and the western suburbs.

4.3.6.3 Public Transport

The NEP is adjacent to an existing, strong rapid transit service; the Perth-Fremantle rail line. Services along this line operate at 10 minute intervals during peak periods, every 15 minutes during the day and every 30 minutes in the evening. From Claremont, the journey time to Perth City (assuming stops at all stations except The Showgrounds) is 15 minutes and to Fremantle is 14 minutes. Claremont Train Station, which is in the south-east corner of the NEP, is the anchor point for the planned TOD.

The rapid transit services are supported by several bus services, including the number 28. The 28 service operates from the Claremont Train Station and loops through Mount Claremont and Subiaco, eventually terminating at the Western Australian Cricket Association (WACA) oval in East Perth. The service skirts the NEP via Davies Road and operates every 30 minutes during peak periods and every hour otherwise. Several other bus services operate in the vicinity, including the 23, 24 and 25 on the southern side of the rail line, which add to regional access.

4.3.6.4 Car Parking

There is currently space to informally park 300 vehicles, to the north-east of the Claremont Train Station and adjacent to the rail line, along the south-eastern extent of the NEP. Presently, this area is used as park-and- ride (and some as spill-over parking from the Claremont Town Centre). Vehicles that park here are neither subject to tariffs or dwell time limits. The car parking area itself is not sealed and therefore vehicle parking is not well formalised.

There is also a car parking area to the north-west of the Claremont Train Station. This sealed car park is sited on land owned and administered by the ToC and includes 70 bays, two of which are for disabled use. This car parking is also not subject to tariffs or any dwell time limits and accommodates park-and-ride, and some spill-over car parking from the Claremont Town Centre.

There is some limited on-street and on-site parking available elsewhere in the NEP and some opportunities for parking on the south side of the rail line.

4.4 ENVIRONMENTAL CONSIDERATIONS

In 2007, under Strategen project management, Golder Associates Pty Ltd (Golder) was engaged to undertake a preliminary site investigation (PSI) of the proposed Claremont NEP development site. The PSI consisted of a review of existing information, a site visit and limited field sampling. A summary of the key findings of the PSI is provided below.

4.4.1 GEOLOGY AND SOILS

The Perth sheet of the 1:50,000 Environmental Geology Series shows the site is primarily underlain by sand originally derived from Tamala Limestone. This is consistent with the geology of the broader Swan Coastal Plain which primarily consists of sand dunes formed from sands derived from either marine deposits or the weathering of rock formations. The sand is typically yellow brown, medium to coarse grained, sub-angular, moderately well sorted and has a trace of feldspar. A preliminary geotechnical report indicated that in the location of the Claremont Train Station the bitumen surface is underlain by crushed limestone (fill) which overlies a grey sand that extends to approximately 1 metre depth (GHD 2002). The grey sand is in turn underlain by a yellow sand which extended beyond 3 metres depth. This sand is typical of that which is found in the general area.

The proposed development area has been assessed as having a low to no risk of acid sulphate soils (ASS) generally at depths of greater than 3 metres.

4.4.2 HYDROGEOLOGY

Due to the large range in existing ground levels in the general vicinity of the site, groundwater levels may vary between 5 and 17 m below existing ground level (bgl). The depth to groundwater in the area of the Claremont Train Station is likely to range between 13.5 m bgl and 15.3 m bgl (ENV Environmental, 2002). It is assessed that the groundwater is likely to flow in a southerly direction towards the Swan River.

4.4.3 VEGETATION

The site of the proposed development has been highly modified and does not contain any remnant bushland, however there are established introduced trees within the site. Lake Claremont and surrounding area is categorised as a Bush Forever Protection Area (BFS220). The protected area is immediately adjacent and to the north of the Claremont Lawn Tennis Club and includes a portion of Davies Road which falls within the subject area.

A number of trees may require removal to allow for on-street parking along the road reserve. The Bush Forever office has recommended an offset of the clearing of any trees on at least 2:1 ratio (i.e. If five trees were to be cleared, then ten plants of the same species are to be replanted).

4.4.4 FAUNA

Due to the significant modification of any potential habitat in the area, limited native fauna inhabits the area. A search of the Environmental Protection and Biodiversity Conservation (EPBC) website indicates the potential for three threatened species and two migratory species and five listed marine species in the area. If present, these species would mostly be located within the Lake Claremont wetland at various times of the year.

4.4.5 WETLANDS AND SURFACE WATER

The closest body of permanent surface water is Lake Claremont, located approximately 195 m northwest of the Site. Lake Claremont is classed as a 'Wetland Protection Area – Conservation Category Wetlands'.

The EPBC Act website was consulted for information relating to the site area. The search reported that within 1 km of the site is a wetland of international significance. In addition, the search reported 1 parcel of Commonwealth Land, 1 Commonwealth Heritage place, 14 places on the RNE (Register of the National Estate) and 5 listed marine species, as other matters protected by the EPBC Act that relate to the nominated area.

4.4.6 WATER BALANCE AND HYDROGEOLOGICAL REGIME

As the current site is largely devoid of vegetation the majority of rainfall infiltrates directly to the groundwater system. Water sensitive urban design principles will be employed to minimise any change in the volume of infiltrated water and therefore it is anticipated that the development should have minimal impact on the groundwater regime in the area.

While not required for this Structure Plan, issues to be addressed in a future Local Water Management Strategy (LWMS) will include:

- A total water cycle management plan with principles and objectives;
- A site water balance;
- A water reuse strategy;
- Drinking water conservation and efficiency;
- Flood management;
- Groundwater levels;
- Allowable surface and groundwater discharges;
- Nutrient balance and water quality best practice management and treatment drains;
- Monitoring and assessment; and
- Commitments and maintenance schedules.

This future LWMS will be undertaken as outlined in the State Planning Policy 2.9: Water Resources 2006, Liveable Neighbourhoods (WAPC 2007), the Stormwater Management Manual for WA (DoW 2004-2007) and Best Urban Water Management (WAPC 2008).

The future LWMS should include sections headed:

- The Existing Environment
- Design Criteria
- Water Sustainability Issues
- Stormwater management
- Groundwater management
- Monitoring program
- Implementation program

4.4.7 WATER QUALITY

The PSI identified a requirement to conduct a Sampling and Analysis Plan (SAP) and subsequent Detailed Site Investigation (DSI), to address contamination concerns (see following sections). As part of the future DSI, an assessment of the potential on-site and off-site impacts to the groundwater will be undertaken.

For example, given the proximity of the site to Lake Claremont, there may be a requirement to complete acid sulphate soils (ASS) testing onsite should dewatering be required as part of construction. Clarification of this requirement shall be sought from the Department of Environment and Conservation and an appropriate management strategy developed to mitigate risks of ASS.

Potential contamination of the ground and surface water quality could also occur due to the ongoing application of nutrients for the maintenance of the Claremont Football Oval. A Drainage and Nutrient Management Plan will be developed in consultation with the Department of Environment and Conservation and management strategies integrated into the urban design features.

4.4.8 VEGETATION CLEARING

The development of the proposed site will not require any clearing of any native remnant bushland. To minimise any impact on aesthetics and fauna habitats, mature trees currently on site have been surveyed for significance and appropriate assessments undertaken, with a view to maximising retention through the structure planning and development process.

4.4.9 CONTAMINATION

Based on the results of the PSI, it was determined that there are seven areas of potential contamination to address. Further investigation of these areas will be required as part of a DSI, to assess whether they present an actual risk to human health or the environment. Once a DSI has determined the extent and variability of contamination, a remediation programme will be implemented prior to the development commencing.

The main contamination concerns arising from the PSI include the following:

- The previous and current activities at the Claremont Depot have the potential to produce contamination of the site including:

- Storage and use of hydrocarbon fuels on-site;
- Storage and use of agricultural chemicals (pesticides, fertilisers and herbicides);
- Storage and maintenance of vehicles and equipment;
- Former location of underground storage tank; and
- Presence of asbestos containing materials (ACM) on surface soil adjacent to condemned buildings with fibro cement roof in poor repair.

- The potential presence of landfill materials on the western side of the site associated with the Lake Claremont Golf Course landfill.
- The banks of the oval due to the presence of fill materials, including the presence of glass, construction rubble, ash and clinker.
- The presence of ACM on the surface of the north-eastern bank of the oval and on the surface soil within the northern part of the Claremont Depot.
- The presence of heavy metal contamination identified in soils at the Claremont Train Station.
- The presence of fibro cement sheeting on the roofs of the toilet blocks within the grounds of the Claremont Football Oval.
- The presence of elevated nutrient levels within the surface soils.

Given the age of the buildings in the subject area and based on the observed presence of fibro cement sheeting, it is recommended that a Hazardous Building Material Survey is also conducted.

4.5 HERITAGE

4.5.1 INDIGENOUS HERITAGE

The NEP project area does not incorporate any sites registered under the Aboriginal Heritage Act 1972, although it is in close proximity to Lake Claremont (previously known as Butler's Swamp or Galbamaanup), which is a registered site.

According to Noongar tradition, Lake Claremont is one of the wetlands created by the Waugal and it continues to be of religious significance to Noongar people. The abundance of food around the lake meant that traditionally, Noongar people used Lake Claremont for camping and hunting. Fresh water, turtles, ducks, lizards, mud fish, gilgies, snakes, possums, birds, zamia plants, fruits and berries could all be obtained in and around the lake. For this reason the lake retains its significance as an important camp site.

After European settlement, Noongar people continued to camp at various sites around the lake. Some of these sites were on private property and the Noongar people were able to camp with the permission of land owners. Other sites were on vacant land, such as the current Swanbourne Primary School site. Many Aboriginal people visited Claremont for the Royal Show and camped on the land which is now occupied by the Claremont Pool. The last camps were in Mt Claremont just to the north of the lake. Noongar families continued to camp around the lake until they were moved on by the Government of the day in 1951.

4.5.2 EUROPEAN HERITAGE

A heritage assessment of the CFC grounds was undertaken by the ToC in December 2006.

Several mature trees within the study area have been assessed for heritage significance based on review of the 1929 Metropolitan Sewerage Diagram, 1963 aerial photograph, current aerial photograph, and inspection of the site. The following trees are assessed as culturally significant because they appear to date from the time of construction of the oval in 1927:

a) Two Washington Palms (*Washingtonia* sp) outside the CFC site boundary at the corner of Shenton Road and Davies Road.

b) Two Norfolk Island Pines (*Araucaria heterophylla*) inside the CFC site boundary at the corner of Shenton Road and Davies Road.

c) Two Western Australian Peppermints (*Agonis flexuosa*) in the south-west corner of the site.

d) One Lemon Scented Gum (*Corymbia citriodora*) along the western boundary of the site outside the R J Kyle Pavilion.

An arboricultural study has been conducted for the trees which has advised that they are capable of being relocated. The final outcome as to whether to relocate any trees will be determined on a case by case basis and will take into consideration site works, relocation of services, timing of works, preparation time and costs.

The Claremont Train Station is listed on the State Heritage Register and is one of the most visible landmarks in Claremont (refer **Figure 9**). The two railway platforms linked by a footbridge, goods shed and Camphor Laurel tree on the site of the former third platform and areas of formal cattle yards, also have cultural heritage significance. These heritage sites will be retained and celebrated within the development. A brick extension of the Goods Shed has been identified as having little significance and its location impedes upon the realignment of Shenton Road. The Structure Plan therefore, proposes the removal of the brick extension.

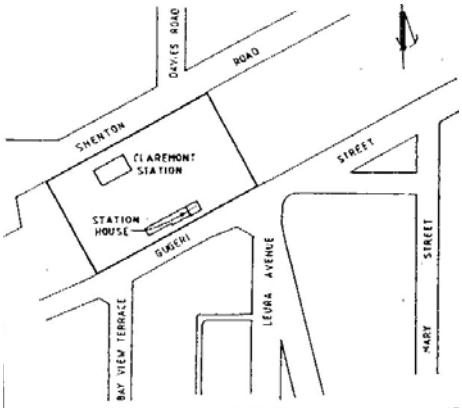
4.6 CURRENT PROVISION OF PUBLIC OPEN SPACE

The project area does not currently provide any officially accessible POS for passive or active recreation. The site includes the Claremont Football Oval, PCYC and informal train station parking facilities .

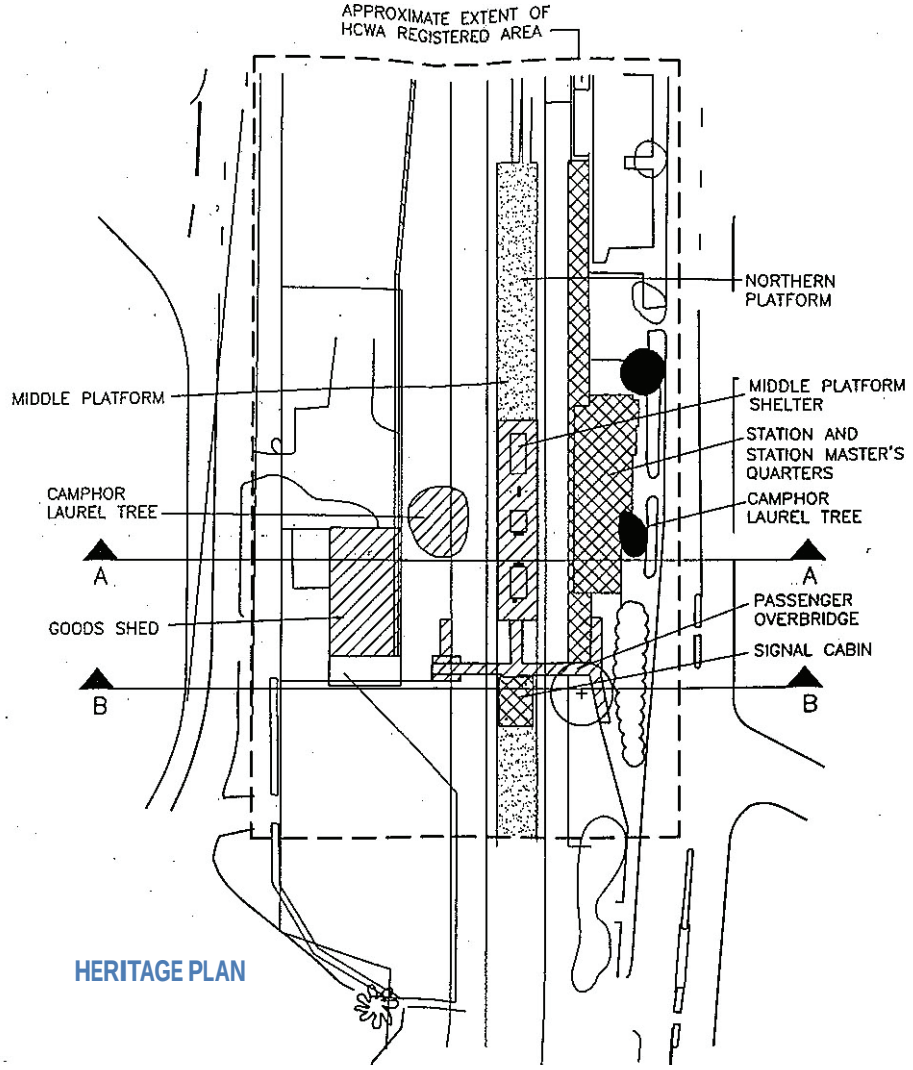
The Claremont Football Oval is not generally accessible to the public other than during an event when an entrance fee is incurred.

The PCYC includes a skateboard facility that is fenced off from the street, however the fence has been cut and rolled back for illegal access. The site is graffitied, and presents as a degraded and hostile environment towards the street and public domain.

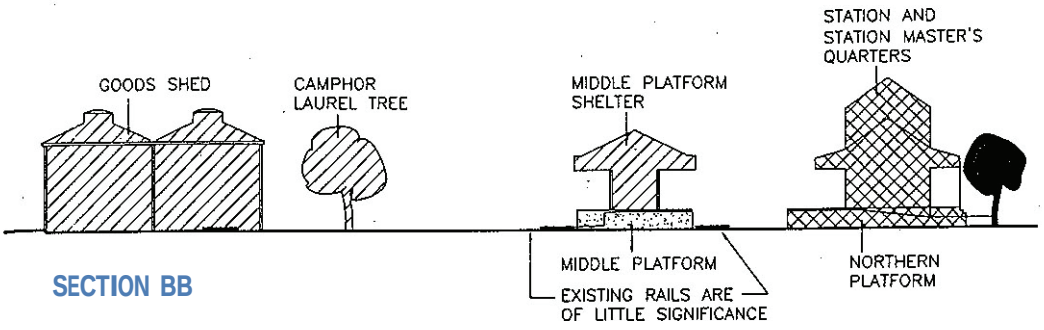
Many of the fences and walls around the site are old and degraded, creating an unwelcoming aesthetic and feel throughout this precinct.



LOCATION PLAN



HERITAGE PLAN



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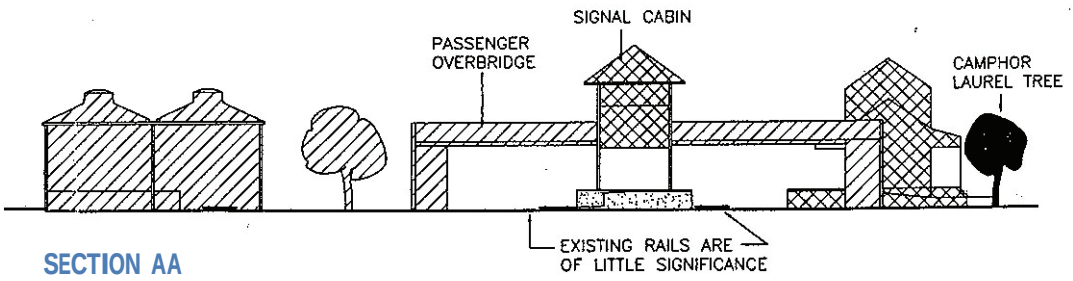


SECTION AA

LEGEND

EXCEPTIONAL SIGNIFICANCE

CONSIDERABLE SIGNIFICANCE

SOME SIGNIFICANCE

LITTLE SIGNIFICANCE

INTRUSIVE

Source: Heritage Council

HERITAGE SITES PLAN

Claremont North East Precinct Structure Plan

FIGURE NINE 9

5 DESIGN FRAMEWORK

5.1 OPPORTUNITIES AND ISSUES

Based on the results of the site analysis outlined above, an assessment was undertaken to identify existing opportunities and issues within the project area that should inform the Structure Plan design. The site's key opportunities and issues are depicted in **Figure 10**, and an existing Feature Survey Plan is shown at **Figure 11.**

5.1.1 OPPORTUNITIES

There are many opportunities within and around the Claremont NEP project area. These opportunities range from environmental and visual to historical and cultural. These are described in more detail within the following sections.

5.1.1.1 Significant Trees

The project area contains many significant mature trees that contribute visual, physical and cultural amenity. These are identified on the feature survey (refer **Figure 11**) and illustrated within **Appendix 3**. The majority of the trees are exotic species (predominantly Figs, Coral Trees, Plane Trees, Canary Island Palms and Washington Palms) and non-West Australian natives (predominantly Lemon Scented Gums, Norfolk Island Pines, Broad Leaved Paperbarks). West Australian native species include Rottnest Island Tea Trees and WA Peppermints.

Several trees have been identified as having heritage significance in a report prepared for the ToC and these have been noted on the DPP. They include two iconic Norfolk Island Pines and two tall Washington Palms on the corner of Davies Road and Shenton Road. There are also two mature Canary Island Palms in this location that are visually significant.

The avenue of Norfolk Island Pines along Davies Road is a dominant visual element that defines the western boundary of the project area and directs views and movement to the town centre, as well as providing valuable streetscape amenity in the form of shade.

There are numerous Coral Trees on the site that could be re-used as transplant specimens if they cannot be retained in their current positions. There is also a significant Fig tree which will be retained within public open space and a Camphor Laurel tree that will be retained within the north side of the station precinct.

5.1.1.2 Landform and Views

The bulk of the project area has been significantly earthworked to accommodate Claremont Football Oval, which is enclosed by a 2-3 metre high viewing mound, and to accommodate the bus depot (now PCYC) to the north of the oval. The site straddles a low east-west ridge line, with the ground dropping away more steeply to the north of the ridge. From the northern and western parts of the site are attractive views to the north-west across the tree-studded valley occupied by Lake Claremont.

OPPORTUNITIES

- EXTENT OF SITE
- ZONE OF INFLUENCE
- INTERFACE WITH CLAREMONT SHOWGROUNDS
- INTERFACE WITH WEATHERBOARD WORKERS COTTAGES
- VIEWS / VISTAS
- CREST IN ROAD (VIEWS)
- RESIDENTIAL STREET - MATURE STREET TREES;GOOD AESTHETIC VALUE

CONSTRAINTS

- 125 X 175 PROPOSED FOOTBALL OVAL (COMMON WAFL STANDARD)
- PROPOSED FOOTBALL FACILITY (SHARED CLAREMONT/POTENTIAL WEST COAST)
- RAILWAY
- INTERFACE WITH INDIVIDUAL FACTORIES
- SIGNIFICANT TREES (TRANSPLANTING TO BE INVESTIGATED)
- NON SIGNIFICANT TREES (TRANSPLANTING TO BE INVESTIGATED)
- LARGE SHADE TREES
- NORFOLK ISLAND PINES
- DRAINAGE SUMP
- WATER MAIN
- SEWER MAIN

ISSUES

- POSSIBLE MULTI-DECK CARPARK
- HERITAGE SIGNIFICANT AREAS
- POTENTIAL RAIL RESERVE CLOSURE
- NORTHERN BOUNDARY OF PROPOSED SHENTON ROAD RESERVE (23.5M ROAD RESERVE)
- RAIL FENCELINE
- STEEP GRADIENT
- 3M EMBANKMENT AROUND FOOTBALL OVAL

NOTES

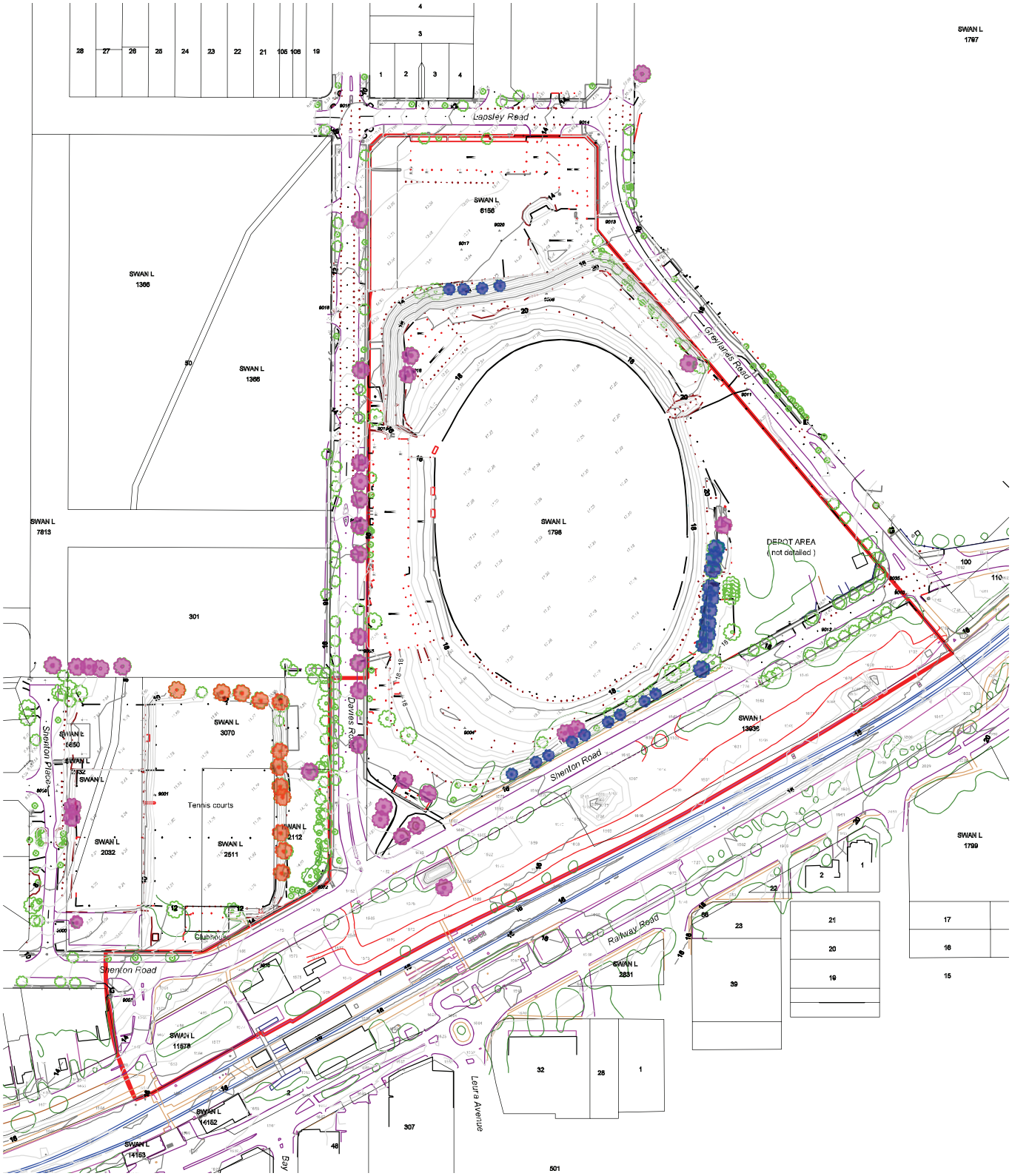
1. CLAREMONT TRAIN STATION (SIGNIFICANT HERITAGE VALUE)
2. GOODS SHED (SIGNIFICANT HERITAGE VALUE)
3. POSSIBLE MULTI-DECK CARPARK
4. VALLEY VISTAS
5. VIEWS TOWARDS CLUSTER OF HISTORIC BUILDINGS AND STREETSCAPES IN CLAREMONT TOWN CENTRE
6. ATTRACTIVE OUTLOOK OVER CLAREMONT GOLF COURSE
7. VIEWS TOWARDS NEIGHBOURING SUBURBS
8. NORFOLK ISLAND PINES ALONG DAVIES ROAD ARE DOMINANT VISUAL ELEMENTS
9. RAILWAY NOISE ISSUES BUILDINGS TO BE DESIGNED TO REDUCE NOISE IMPACT
10. MAINTAIN HISTORIC VIEWSCAPE (LANGFORD STREET)
11. MAINTAIN HISTORIC VIEWSCAPE (MARY STREET)
12. RAIL LINE CREATES A BARRIER BETWEEN SITE AND CLAREMONT TOWN CENTRE

OPPORTUNITIES AND ISSUES PLAN

Claremont North East Precinct Structure Plan

Source: Taylor Burrell Barnett

FIGURE TEN 10



LEGEND

- NORTH EAST PRECINCT BOUNDARY
- RAILWAY TRACKS
- CADASTRE
- VEGETATION
- BUILDINGS
- RETAINING WALL
- SPOT HEIGHTS
- CONTOURS
- FENCELINE
- UNSEALED ROAD
- CARRIAGEWAY
- 307 LOT NUMBERS
- SURVEYED TREES
- SIGNIFICANT TREES
- ERYTHRINA INDICA (POSSIBLE TRANSPLANT)
- AGONIS FLEXUOSA (LARGE SHADE TREES)

FEATURE SURVEY PLAN

Claremont North East Precinct Structure Plan

Source: MAPS

0m 10 20 30 40 150m

FIGURE ELEVEN

11

5.1.1.3 Existing Character and Heritage

The project area is set within a broader precinct abundant in built form heritage that dates back to the late 19th Century, in terms of public buildings, commercial buildings and private residences. This rich built form heritage is enhanced by a landscape dominated by mature, well established trees and gardens in both the public and private domain, which creates a sense of permanence and provides a high level of visual and physical amenity. The Claremont Train Station provides the pedestrian and cycle gateway from the project area to the town centre, and the strong heritage value of the station precinct provides a wonderful opportunity to develop this area as a significant public space.

5.1.1.4 Existing Infrastructure, Site Access & Movement

The existing town centre is considered a pedestrian oriented environment that has the potential to spread north of the railway line into the project area. Opportunities should be explored to improve both pedestrian and vehicular access and circulation within the project area and into adjoining areas.

The existing train station is a pivotal link between the existing Claremont Town Centre and the project area, and provides an opportunity to create a formal public meeting place integrated into a new urban fabric.

The existing vacant land that provides informal parking between Shenton Road and the railway line will be developed to enhance the interface between the railway reserve and the road.

5.1.2 ISSUES

5.1.2.1 Oval

Claremont Football Oval is a major issue in the future planning and design of the area. The existing embankment around the Claremont Football Oval creates an unfriendly and undesirable atmosphere from outside the oval, heightening the perception that this is a privately used space that is not accessible to the public. Future treatment of the oval surrounds should take this into consideration, ensuring that it becomes an integrated element within the urban fabric of the area.

5.1.2.2 Rail Line

The railway line creates a distinct barrier between the town centre and the NEP. Visual and physical connections across the railway line will need to be enhanced to minimise this perceived barrier. The informal car parking along the railway line currently adds to the degraded aesthetics of the area, reinforcing the perception of a barrier. Landscape treatment of this interface would assist in minimising this perception.

5.1.2.3 Significant Trees

Whilst the significant trees within the site create great opportunities, their retention is an issue in the planning and design of the area, as they will impact on site layout, earthworks, servicing and infrastructure. Several species present on site are suitable for relocation (including palms, Norfolk Island Pines and Coral Trees), and this should be considered as an option for maintaining the site character while allowing greater planning and design flexibility.

5.2 DESIGN PRINCIPLES

Design development of the NEP has been respectful of the overarching principles as identified in the UDC preferred design scenario, which were developed in close association with the local community and key land stakeholders through the public consultation activities undertaken as part of its formulation. The UDC design concept report identifies the key parameters of the preferred concept (refer **Figure 4**) as:

- Maintain the oval and ensure access to POS;
- Realign Shenton Road along the railway and around the station;
- Retain historic station structures;
- Develop a mix of uses and housing types;
- Sensitive building height; and
- Maintain 'Claremont character'.

The overarching design principles were identified in the first public workshop held by the UDC. These principles of land use, circulation and character have been intrinsic to the design development of the final Structure Plan, as outlined below and illustrated in **Figure 12**:

LAND USE

- Balance public and private activities
- Mix uses, where appropriate
- Maintain the recreation tradition of the area
- Provide community and cultural facilities
- Expand the range of housing options

CIRCULATION

- Rationalise movement patterns
- Exploit transit opportunities
- Create pedestrian-friendly streets
- Ensure ample, screened parking
- Provide universal access to all facilities

CHARACTER

- Integrate north and south sides of the tracks
- Celebrate heritage
- Ensure landscape quality
- Cluster development in open space
- Maximise safety and sense of security

Best practice urban design fundamentals were then applied to the site when assessing and developing detailed design of the preferred Concept Design produced by the UDC. These key design principles establish the vision for the development of the NEP and have been at the foundation of the Concept Plans and ultimately the DPP and the Structure Plan (**Figure 13**) and included, but were not limited to, the following key aspects:

PRINCIPLES

Places for People; Enrich the Existing; Make Connections; Work with the Landscape; Mix Uses and Forms; Design for Change

- Maintain access to public open space and oval
- Realign Shenton Road along the railway and use available land for development
- Retain historic station structures
- Develop a mix of uses and housing types
- Maintain "Claremont Character"
- Sensitive building height

OBJECTIVES

Land Use
- Provide good balance between private and public realm/activities
- Mix uses, where appropiate
- Provide alternatives and variety in housing options
- Maintain the oval and historic recreation elements
- Maintain access to Public Open Space
- Investigate "better" use of land adjoining railway

Circulation
- Rationalise movement patterns throughout the precinct
- Exploit transit opportunities.
- Pedestrian focus for streetscape design
- Maintain public access and permeability arrangements
- Promote movement across the rail line

Character
- Respect and celebrate areas intrinsic character
- Architectual/Design solutions to maintain "claremont character"
- Ensure landscape quality is retained
- Promote clustered development to aid vegetation/open space retention.
- Maximise safety and sense of security
- Retain existing historic station structures

1. Strengthen entry point/gateway on Davies Road
2. Planting of preferably local indigenous plants
3. Pedestrian focus for streetscape design
4. Retain Claremont Tennis Club
5. Take advantage of golf course views
6. Development/density to consider close proximity to train station
7. Increase activity/surveillance along Shenton Road/Train station
8. Strong public/private interface with Oval/open space
9. Provide robust interface with RAS site (allow for potential future development uses)
10. Development to consider retention/relocation of significant existing trees
11. Maintain historic railstation elements and celebrate through sensitive development
12. Suitable interface with weatherboard workers cottages
13. Consider historic vista (Langford Street)
14. Consider historic vista (Mary Street)
15. Maintain Oval/recreation - historic element
16. Provide active public plaza/square
17. Realigned Shenton Road to enable robust development opportunity

VALUES AND PRINCIPLES PLAN

Claremont North East Precinct Structure Plan

Source: Taylor Burrell Barnett

FIGURE TWELVE

12

NOTES

- NOTED STOREYS (e.g. 3) ARE MEASURED FROM EXISTING GROUND LEVEL
- GROUND FLOOR LAND USES ONLY DEPICTED ON THIS PLAN
- P.O.S - PUBLIC OPEN SPACE
- P.A.W - PUBLIC ACCESS WAY

LEGEND

- RESIDENTIAL
- COMMERCIAL
- RETAIL

LAPSLEY ROAD
LANEWAY
MEWS
PROPOSED ROAD
P.A.W
GRAYLANDS
RAS SHOWGROUNDS
P.O.S
ROAD
DAVIES ROAD
CLAREMONT FOOTBALL OVAL 125 x 175m
MEWS
P.O.S
P.O.S
P.O.S
ROAD
SHENTON ROAD
TOWN CENTRE 220m
PERTH 9km

EXISTING CLAREMONT FOOTBALL CLUB CLUBROOMS SUBJECT TO REDEVELOPMENT

PROPOSED LIVING ROOFS/ROOFTOP GARDENS

EXISTING CLAREMONT LAWN TENNIS CLUB TO BE RETAINED

RETENTION OF EXISTING LANDMARK TREES

BUS BAYS (x 2)

SIGNAL CONTROLLED INTERSECTION

PLAZA

KISS AND RIDE (TRAIN STATION DROP OFF)

ACTIVATED FACADES THROUGH STRUCTURED WALKWAYS

RETENTION OF GOODS SHED STRUCTURE - POTENTIAL REMOVAL OF BRICK ADDITION

POTENTIAL POLICE DEPARTMENT OFFICE

CURRENT PTA DESIGN ALIGNMENT FOR PSP

WAREHOUSE INTERFACE

MAIN RAS SHOWGROUNDS ENTRY POINT

INITIAL DESIGN FOR UNDERPASS CONNECTION

PROPOSED PARK AND RIDE WITH ROOFTOP GARDEN ABOVE

PUBLIC SPACE INTERFACE INCORPORATING DUAL USE PATH

RELOCATION OF EXISTING FIGS EASTWARDS TO PUBLIC OPEN SPACE

PRINCIPAL SHARED PATH

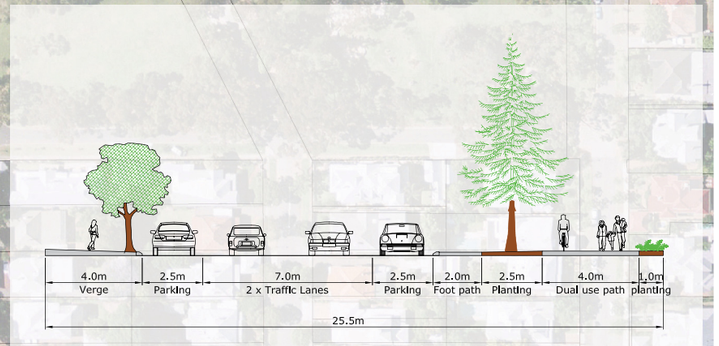
PRINCIPAL SHARED PATH CALMING DEVICE

EXISTING AT GRADE CROSSING

POTENTIAL LANDMARK STRUCTURE

ULTIMATE PREFERRED PSP ALIGNMENT

EXISTING TRAIN STATION



SHENTON ROAD SECTION LOOKING EAST

DEVELOPMENT PRINCIPLES PLAN

Claremont North East Precinct Structure Plan

Source: Taylor Burrell Barnett

FIGURE THIRTEEN 13

PLACES FOR PEOPLE

For places to be well-used, they must be safe, comfortable, varied and attractive. They also need to be distinctive and offer variety, choice and fun.

ENRICH THE EXISTING

New development should enrich the qualities of existing urban places. This means encouraging a distinctive response that arises from, and complements, its setting (context), including how urban design interprets and builds upon historic character.

MAKE CONNECTIONS

Places need to be easy to get to and be integrated physically and visually with their surroundings. This requires attention to how to get around by foot, bicycle, public transport and the car – preferably in that order.

WORK WITH THE LANDSCAPE

Places that strike a balance between the natural and man-made environment and utilise each site's intrinsic resources - the landform, landscape and ecology - to maximise amenity and sustainability.

MIX USES AND FORMS

Stimulating, enjoyable and convenient places meet a variety of demands from the widest possible range of users, amenities and social groups. They also weave together different building forms, uses, tenures and densities.

DESIGN FOR CHANGE

New development needs to be flexible enough to respond to future changes in use, lifestyle and demography. This means creating flexibility in the use of property, public spaces and infrastructure, and introducing new approaches to transportation, traffic management and parking.

5.3 SUSTAINABILITY OBJECTIVES

The State Sustainability Strategy (2003) (the Strategy) outlines the importance of meeting the needs of current and future generations, through the integration of environmental protection, social advancement and economic prosperity. Section 4 of the Strategy expresses the need for the consideration of sustainable practices and principles in the design and development (and redevelopment) of urban areas. Specifically, the Strategy identifies opportunities to improve public access and transport, restore amenity and create urban forms that support the development and maintenance of a sense of community, as well as achieving environmental gains.

Key principles of sustainability have been central in the development and design of the Claremont NEP Structure Plan. The Structure Plan sees the integration of key social, environmental, economic and governance goals to create an urban environment that meets existing and future needs of local residents and the community. The Structure Plan has the following features, which serve to meet the requirements for a sustainable urban redevelopment:

- Transit oriented development, based around the Claremont Train Station;
- Medium density residential accommodation;
- Well-designed solar orientation;
- Village Green-style POS, via the retention and increased accessibility of Claremont Football Oval playing arena;
- Provision of cyclist-friendly infrastructure, including cycle storage bays;
- High-quality public realm, located adjacent to the Claremont Train Station;
- Mixed Use Development;
- Retention of significant vegetation;
- Retention and celebration of heritage buildings; and
- Encouragement of pedestrian movement within walkable catchment of train station and town centre.

The Structure Plan has endeavoured to fulfil the State Government's objectives to create communities that balance social, environmental, economic and governance outcomes as follows.

5.3.1 SOCIAL SUSTAINABILITY

The Structure Plan incorporates specific design features aimed at achieving social sustainability. The retention of the existing Claremont Football Oval playing arena will provide the precinct with a village green-style area of POS. The provision of this facility, with high levels of passive surveillance from the surrounding residential accommodation and pedestrian path system, will create a safe and attractive public environment that will serve to promote a healthy lifestyle. The use of Claremont Football Oval for local and metropolitan sporting competitions will be preserved and will serve to create a central community meeting and socialising place.

The Structure Plan focuses on the provision of high-quality facilities for cyclists and pedestrians, to promote increased physical activity. Wide pavements with shading, regular street crossings, good street lighting, maps and signage will be incorporated into the design to promote walking and cycling. In addition, end-of-trip facilities, such as bike lockers and secure parks are included, to promote non-vehicular travel.

The transit plaza, located on the northern side of the Claremont Train station, will be a high quality public realm and will perform a crucial role in promoting the use of the abutting transit systems. The area is framed by mixed use commercial/office and residential land uses, which will serve to activate the area and provide for informal surveillance. This public space is situated to act as the conduit between the NEP and the Town Centre, strengthening social ownership and providing meeting/lingering experiences, where all forms of public transport services converge. The pedestrian and cyclist-friendly nature of the NEP will act to encourage reduced personal car usage and will increase a sense of community. The proposed commercial uses along the Shenton Road frontage will also provide important street activation.

5.3.2 ENVIRONMENTAL SUSTAINABILITY

Some of the most fundamental principles of environmental sustainability are included in the Structure Plan. These features serve to subtly promote behavioural change through design, with a focus on reducing the non-renewable resource consumption habits of residents. In addition, more efficient use of the available land is a cornerstone of the Structure Plan.

The Structure Plan has been produced with the goal of maximising natural solar exposure, via the specific orientation of lots and buildings to allow for northern exposure to dwellings. The incorporation of solar orientation in the Structure Plan design, along with potential for capturing cooling summer breezes, is aimed at reducing the need for residents to use artificial means of heating and air conditioning at various times of the year. This design feature promotes reduced electrical consumption, which in turn helps to reduce annual greenhouse gas emissions resulting from electricity generation.

The Structure Plan incorporates TOD principles, aimed at increasing public transport patronage and reducing private car use. The design of the area as an attractive, accessible and pedestrian-friendly urban environment facilitates increased use of the train system. In doing so, reduced use of and dependence on private vehicles reduces greenhouse gas emissions. In this way, the design of the precinct based on TOD principles comprehensively satisfies the requirements of environmental sustainability through reduced resource consumption and noise and air pollution.

Development will have a high regard for environmentally sustainable outcomes through management of energy, water, indoor air quality, landscape and construction. It is envisaged that the NEP will embrace the requirements for energy rated buildings and appliances and will demonstrate achievement of a 'five-star' rating against a recognised sustainability performance rating system.

The Structure Plan sees the provision of residential accommodation at a higher density than is currently present in the local area. Increasing density in urban redevelopments is acknowledged as crucial to house the ever-expanding Perth population. The provision of higher densities in brownfield sites reduces the demand for development of agricultural land or natural vegetation on the urban fringe and utilises existing surrounding infrastructure. It is in this way that the Structure Plan promotes the more efficient use of land and meets environmental sustainability objectives.

An arboricultural report (refer **Appendix 6**) was conducted to identify trees worthy of retention within the early stages of developing the Local Structure Plan. The design development phase and DPP identifies potential for retained and relocated prominent trees to ensure the retention, as much as possible, of the existing landscape.

5.3.3 ECONOMIC SUSTAINABILITY

The Structure Plan identifies the need to provide local employment and retail opportunities for residents and the community. The adequate provision of these facilities promotes the retention of money in the area and serves to ensure sustained economic viability into the future. A total of 2,600 m^2 of retail floorspace is provided in the Structure Plan. In addition to this, 11,700 m^2 of commercial floorspace is included. Both of these uses will be located in close proximity to the town centre, which will serve to consolidate a vibrant local economic focus.

The design features of the Structure Plan will also serve to reduce personal living expenses for residents. The inclusion of energy efficient solar orientation and the promotion of non-car based modes of travel will reduce the cost of living for residents. Savings made on heating and fuel bills will allow residents the capacity to provide greater financial support to local businesses. This in turn will improve the economic viability of local businesses and ensure their continued service to the community.

5.3.4 SUSTAINABLE GOVERNANCE

The development of the NEP Structure Plan has involved extensive consultation and collaboration between the ToC, the DPI, LandCorp, various consultants, community groups, local residents, landowners and a peer review panel. The result of this process has been the development of a Structure Plan that balances the needs and addresses the concerns of the various stakeholders involved, where practicable.

The formulation of the Structure Plan has also had strong regard for significant state and local government policies, as outlined within section 3.2 of this report. The Structure Plan has been developed in line with the objectives of these policies in providing for open space, heritage, liveability, density and transit oriented design.

5.3.5 SUSTAINABILITY INDICATORS

Key sustainability principles have been applied within the overall design of the precinct, to the extent possible within the confined nature of the site. In an urban renewal environment, many of the most effective tools in achieving sustainable development will actually appear in the design of the built form. It is envisaged that a set of indicators will be prepared to measure and report the development's progress towards achieving key sustainability objectives in relation to the overall planning for the site and development of the new buildings.

6 DEVELOPMENT GUIDING PRINCIPLES

A series of concept plans have been prepared throughout the design and consultation phases of the Structure Plan preparation. These concept plans have been instrumental in testing the Structure Plan recommendations and principles and the final consulted design recommendation has now been developed into a Development Principles Plan (DPP) (refer **Figure 13**). The role of the DPP is to graphically illustrate the vision and form for the development of the NEP, particularly the public realm, and to provide the rationale for the formulation of the Structure Plan. The DPP has been rigorously tested and reviewed by ToC technical staff, informal Elected Member briefings, the Peer Review Panel, relevant government agencies and the consultant team. It is, therefore, a critical component to the successful development of the site and plays an important role in defining the character proposed in the Structure Plan.

6.1 DEVELOPMENT OBJECTIVES

The synthesis of the design principles and the sustainability objectives led to the formulation of a series of development objectives. The development objectives have been paramount throughout the design process of the NEP Structure Plan. The development objectives recognise the importance of the heritage and natural attributes of the site and the opportunity to provide for a mixed use TOD outcome.

The development objectives focus on:

- Transit Oriented Development – providing a mix of landuses with opportunities to live and work in close proximity to public transport, providing cyclist facilities and designing for bus networks, with a reduced provision for motor vehicles;
- Movement Network – developing strong transport linkages to the train station, bus network and pedestrian/cycle network;
- Heritage buildings – maintaining heritage buildings and views of the train station heritage precinct;
- Environmentally and historically significant trees – maintaining or relocating significant trees within the subject area, where possible; and
- Creating places – providing public spaces, thoroughfares and opportunities to promote active building facades to integrate development with the street.

6.2 HOUSING CHOICE YIELDS

Advice has been provided by Colliers International (**Appendix 4)** regarding suitable dwelling mix for the Structure Plan area. It is recommended that in order to meet the objective of a TOD and reduce vehicle movements by establishing an environment catering for live/work, amenity and leisure, the residential component should provide for a dwelling mix that allows all socio-economic groups, including employees in the town centre, to live locally.

It is therefore recommended that the housing mix should include a proportion of one-bed apartments and studios; and two bed apartments. The larger apartments should be limited to certain areas of the concept – the north and upper levels of apartment complexes.

The product mix within sub-precincts will be an important consideration, as it is likely that where one bedroom apartments are provided within a complex, there may be a market resistance to integration with high quality penthouses and three bed apartments. Therefore, land use planning should be compartmentalised, to produce an appropriate mix of residential stock relative to location, product and pricing. This will be addressed in more detail through the preparation of the Design Guidelines.

To provide a focal point and increased density towards the train station and within the 'core' area, taller buildings are identified on the corner of Shenton Road and Davies Road.

6.3 BUILT FORM AND PUBLIC REALM

Careful attention has been given to the built form and public realm identified on the DPP. The uniqueness of the project, to facilitate development surrounding a football oval, has provided a substantial opportunity for residences overlooking open space, but the obvious challenges relate to interface and interaction with the oval. The 'circular edge' forming the internal boundary of buildings, with two of the four edge roads extending on angles within a relatively small area, has also provided challenges to designing and developing sustainable built form. Key elements of public realm are identified in **Figure 14**.

The nominated heights have therefore been formulated after a critical review of the development opportunities of the various specific locations. The project area is naturally split into two discrete areas, with Shenton Road as the divider. On the southern side of Shenton Road is the transit plaza, a very special and sensitive site located immediately adjacent to the railway line and within the historic station precinct. To the north of Shenton Road is predominantly residential use with commercial along the Shenton Road frontage.

The location and nature of built form on the DPP defines the public realm experience. Integrating the football oval into the public realm/open space network has been carefully achieved through a combination of using building edges to frame public spaces, and through the location and nature of the punctuations between the built form.

6.3.1 HEIGHT AND BULK

In respect of the project's unique location abutting the established Claremont Train Station and therefore the ability to promote TOD best practice principles, a maximum population ratio has been sought, whilst maintaining key design principles. Such principles have required a design approach to height and bulk which remains sensitive to the Claremont character.

There was an established acceptance of moderate building height within the community as an outcome of the UDC consultation processes, which have been the basis of the Structure Plan design phase.

The general overarching principles for application of height and bulk within the NEP serve to provide 'human scale' streetscapes, to ensure non-dominating development to the oval village green and to address overshadowing.

Methods to achieve this are for podium style development to be applied to taller elements along Davies and Shenton Roads (particularly), such that height above four storeys is set back 6-8 metres to mask upper storeys from street users. Higher built form has also been set back from the POS elements to reduce visual impact and promote architectural articulation to these facades.

DEVELOPMENT PRINCIPLES PLAN - PUBLIC REALM

Claremont North East Precinct Structure Plan

Source: Taylor Burrell Barnett

0m 10 20 30 40 50m

FIGURE 14

Taller building elements have been described on the DPP (Figure 13) in both extent and location, following the consultation phases. This addresses concern over potential extent of bulk and height of four, five and six storey elements and identifies extent of taller elements desirable for vertical articulation of the project, whilst maintaining a desirable level of massing.

Six storey development has been located specifically at the landmark corner of Shenton and Davies Roads, to provide 'announcement' of the NEP project area from the Town Centre and to maximise dwelling opportunities closest to the transit hub. A secondary location of six storeys to the north of the project area on Davies Road takes advantage of high visual amenity in the form of north-westerly views of the lake and golf course.

The scale of development at the 'hub' of the NEP is appropriately illustrated within the massing model images prepared by Oldfield Knott (shown below). These massing model images are to assist in visualising the nature and scale of development. There is no finish or materials included, as this will be the subject of more detailed work associated with the Design Guidelines (as discussed in more detail in section 8.0).

The intended building heights are all nominated on the face of **Figure 13** Development Principles Plan. To illustrate the proposed height and scale, cross sections have been prepared in various locations throughout the NEP. These cross sections are included within **Figures 15 and 16** and clearly illustrate the podium style development along Shenton Road (refer **EE** and **FF**) and the scale of development relative to the Claremont Football Oval (refer **HH**).

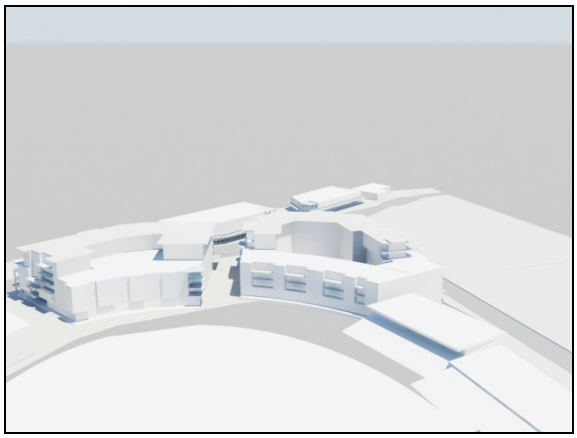


Image 1: Aerial view from centre of oval looking to the south-west.

Key features:

- North-facing balconies overlooking the oval.
- Increased setback to apartments next to Claremont Football Club to increase depth of POS.
- Greater height on corner of Shenton Road and Davies Road (on southern side).

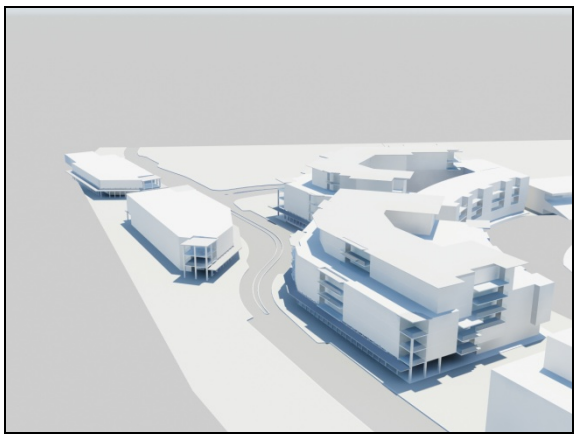
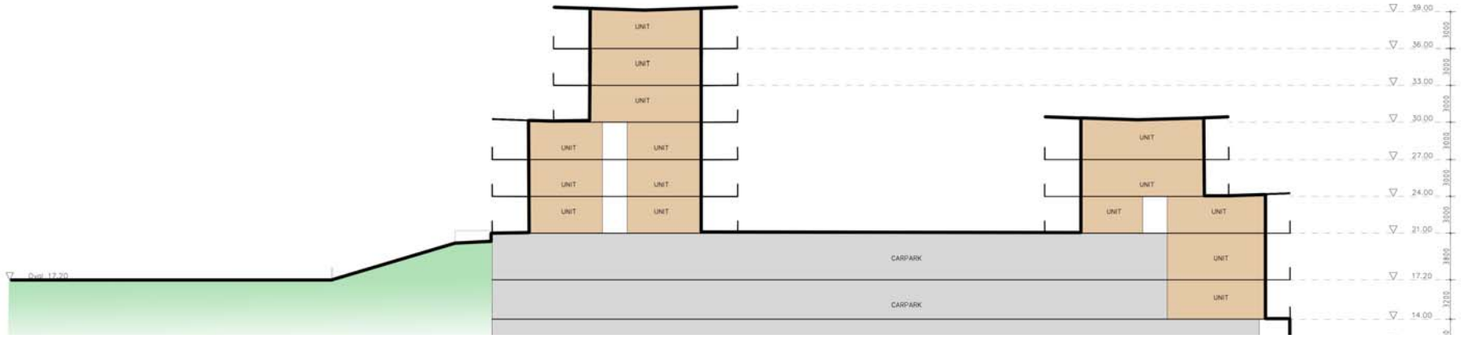


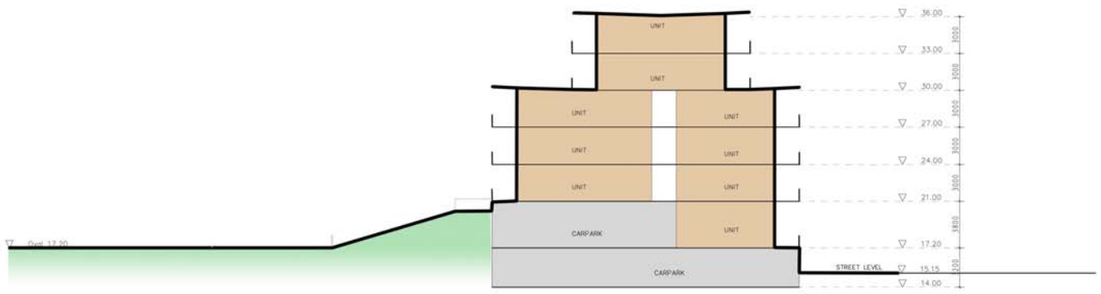
Image 2: View looking west along Shenton Road towards the intersection with Davies Road.

Key features:

- Podium style development – greater height setback from Shenton Road.
- Articulation at corners and areas of public realm, including balconies for overlooking and surveillance.



SECTION A-A



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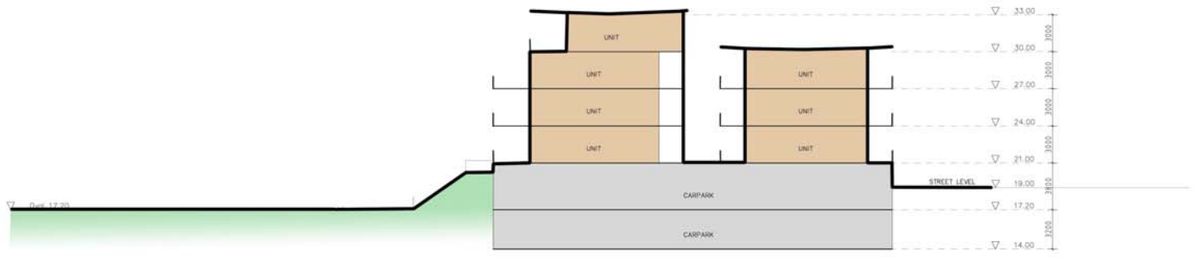
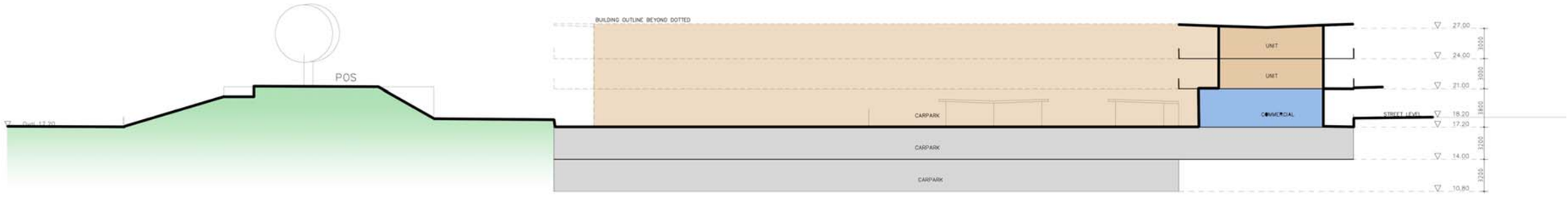
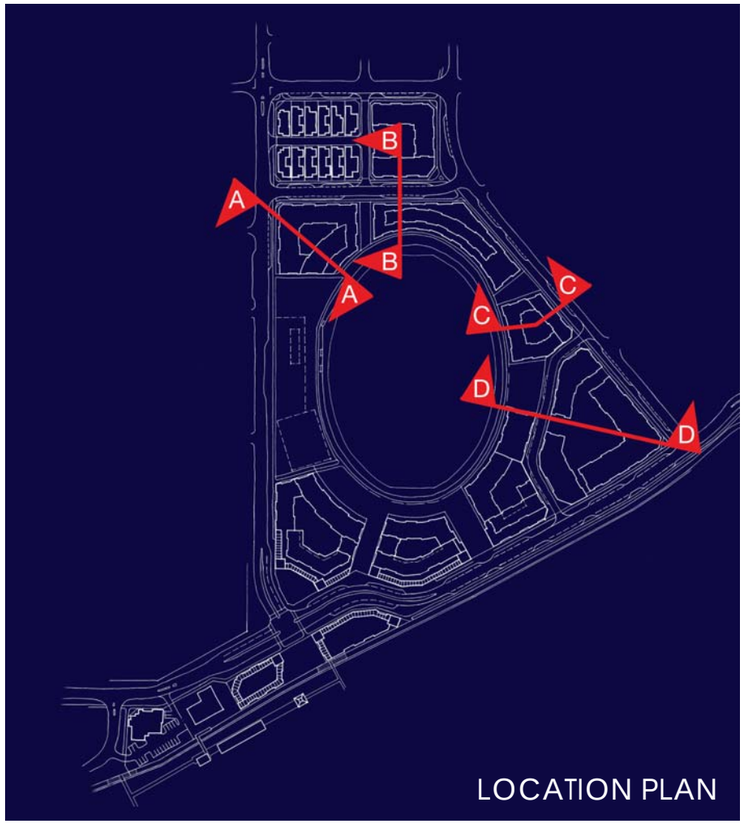


SECTION C-C



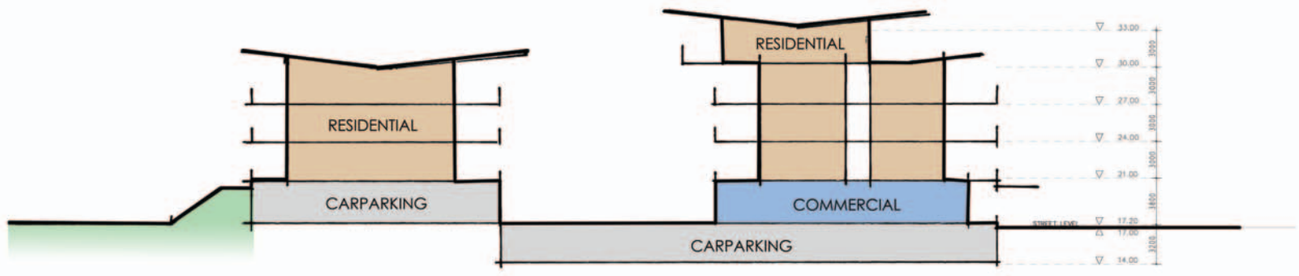
SECTION D-D



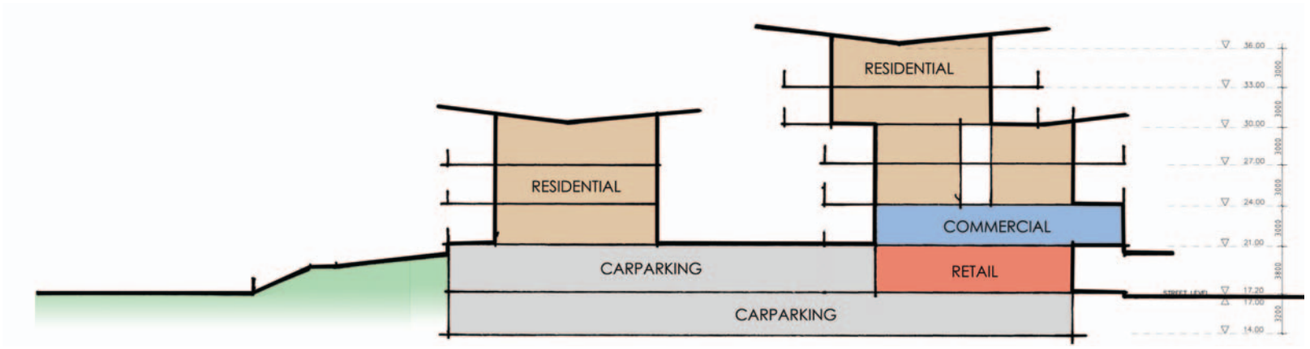
DEVELOPMENT PRINCIPLES PLAN - CROSS SECTIONS AA - DD

Claremont North East Precinct Structure Plan

Source: Taylor Burrell Barnett



SECTION E-E



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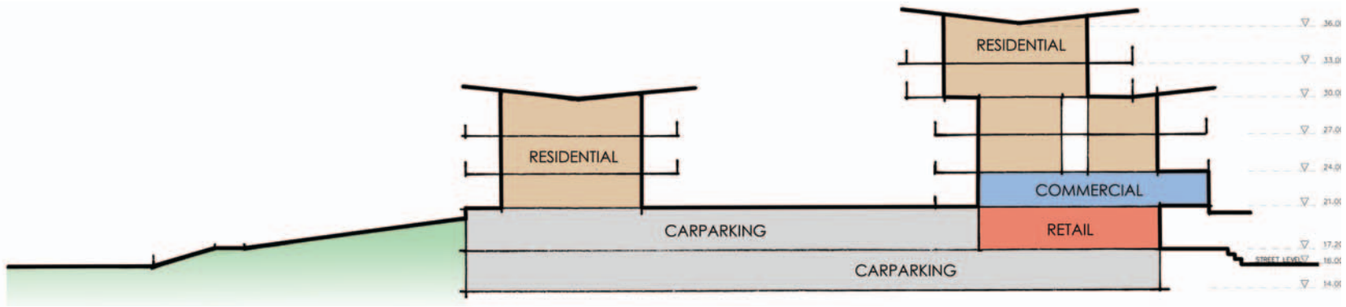

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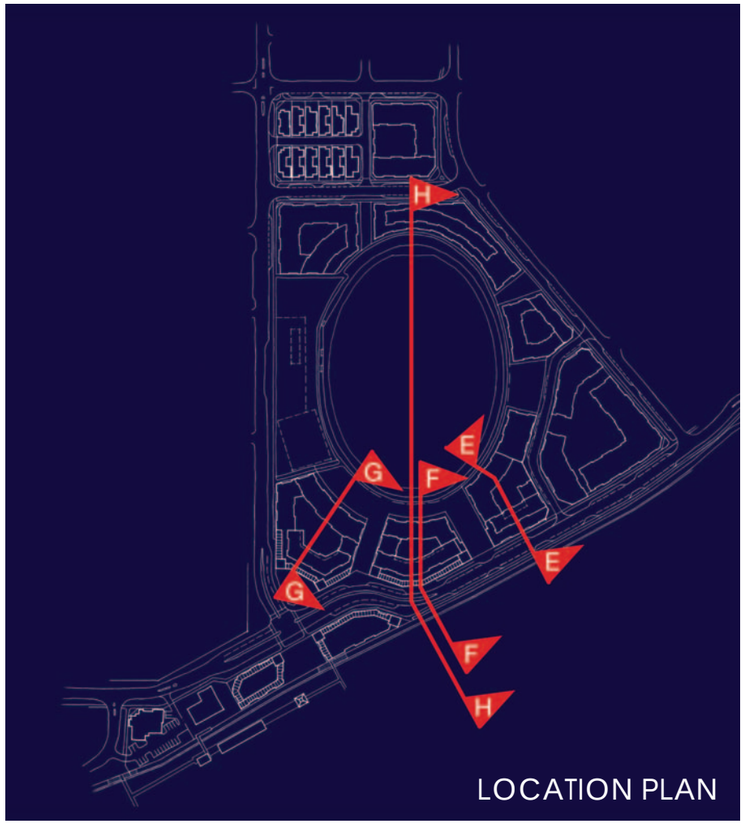


LOCATION PLAN

DEVELOPMENT PRINCIPLES PLAN - CROSS SECTIONS EE - HH

Claremont North East Precinct Structure Plan

Source: Taylor Burrell Barnett

FIGURE SIXTEEN

16

Image 3: Ground view looking east at intersection of Davies Road and Shenton Road.

Key features:

- Structured/covered walkways for sheltered pedestrian activity.
- Podium style development.
- Articulation at corners.

6.3.2 NORTH-FACING BUILDINGS

Building orientation, positioning and exposure to solar access have all been considered in the DPP. Where achievable, open space punctuations are positioned to aid solar penetration (informed by a solar analysis). In particular the north-eastern POS extending from Graylands Road has been designed in a 'wedge' configuration to improve the solar exposure, particularly for the development on the southern side of the open space. Heights have also been distributed over the site in a manner which maximises exposure to the northern sun. A shadow diagram has been prepared (refer **Figure 17**) to illustrate that the shadow cast at 12 noon on 21 June is at an acceptable level. The positioning of the additional heights, i.e. 5-6 storeys on the southern side of the sub-precincts and along the Shenton Road frontage, ensures that north-facing balconies enjoy exposure to the winter sun.

6.3.3 INTERFACE/INTERACTION WITH THE OVAL

The design of the interface with the oval is fundamental to the experience of residents and visitors to the NEP. A highly legible open space network is interconnected through pedestrian path systems which, through a dual use path, serve as the land use interface between the oval and residential development.

Open space punctuations into the oval increase interaction points and interface opportunities with abutting residential areas.

Development immediately abutting the oval 'outer ring' have their building lines set back on the DPP to encourage outdoor living areas and activity, supplemented by balconies, to maintain excellent surveillance opportunities of the oval.

Design guidelines shall address controls on signage and lighting to protect amenity of residents and visitors to the oval.

6.3.4 VIEWS AND VISTAS

Views of key elements have been woven into the project and identified on the DPP. Particularly, public vistas of the oval are provided to each surrounding road, through radial open space connections. In the north of the project area, a view line is provided to Motteram Avenue from the project area and to Mary and Langford Streets in the south.

SHADOW DIAGRAM

Claremont North East Precinct Structure Plan

Source: Taylor Burrell Barnett

0m 10 20 30 40 50m

FIGURE SEVENTEEN 17

A strong view line provides a visual connection between Davies Road and Leura Avenue through the proposed plaza. This space provides for a wide vista of the heritage precinct and town centre from the project area and conversely announces the project from the town centre.

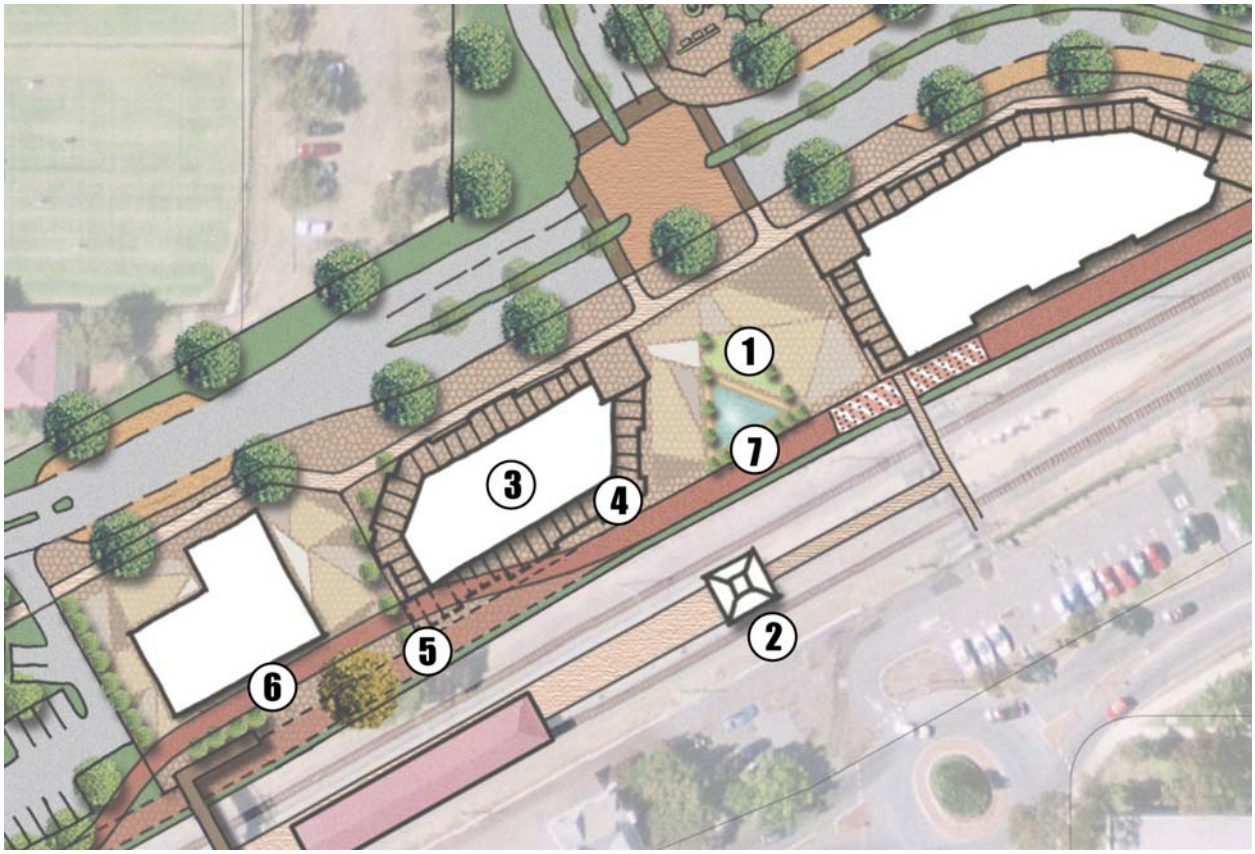
Higher density development is proposed not only to take advantage of proximity to the train station, but also where views can be obtained. Greater height is provided north of the CFC building where dwellings will be able to be designed to take advantage of views across the golf course and Lake Claremont, as well as internal views over the oval/village green.

6.3.5 PLAZA DESIGN

The plaza is considered to be a special space, providing excellent visual connectivity across the rail line. Acting as a link between the project area and the town centre, the plaza provides a visible destination situated in the heritage listed precinct.

The plaza has been located to provide a highly legible connection between the northern and southern railway precincts focussed on the primary view line of Leura Avenue and Davies Road. Via the existing eastern at-grade pedestrian crossing, rail patrons and Town Centre visitors are directed through the plaza along the activated façade of the eastern plaza building, which provides opportunity for high patronage, social ownership and surveillance.

Given the special qualities of the plaza, a fine grained site analysis was undertaken for the plaza area (illustrated and described in detail below).



1. The location of the plaza adds a high level of robustness and rigour to the plan in the form of potential future connectivity of Davies Road and Leura Avenue in the event that the rail line is ever sunk, whilst in the meantime providing excellent visual connectivity across the rail line.

2. A new 'gateway' structure is proposed for the end of platform area, which will provide announcement of the precinct and aid the integration of the town centre and NEP. This structure should be encouraged to draw together architectural elements of the heritage precinct, Town Centre, as well as the NEP, to provide a key central structure. If lit at night it would have the ability to provide a key focal point for the area and increase safety and surveillance at the crossing. The plaza also provides a southerly view to the historic Station Masters house from the Davies Road and Shenton Road intersection.

3. The commercial building within the plaza precinct (west) has been sensitively located in relation to the goods shed and a 12-15 metre separation is identified, to provide for alfresco 'spill over', pedestrian movement and lingering, whilst the space remains intimate, unique and desirable. This western plaza commercial building will be a unique architectural example, sensitive to its location abutting heritage elements, it should not dominate the goods shed but rather support and frame it. A covered walkway/colonnade on the western façade of the commercial building will govern the interaction between the two buildings.

4. Pedestrian movement between the plaza and the footbridge is provided in several alignments, all of which are encouraged through covered walkways. This will promote activity and movement.

5. The plaza design carefully provides for freedom of pedestrian movement choices throughout this western portion, whilst maintaining separation from bicycle movements following the final stage of construction of the PSP on its ultimate preferred alignment (abutting the rail fence line), whilst preserving the historic Camphor Laurel tree.

6. Current PTA design alignment for PSP.

7. The PSP abuts the plaza as it passes through the heritage precinct and will be speed-calmed in this key pedestrian focussed environment.

6.4 PROVISION OF PUBLIC OPEN SPACE

The DPP proposes a diversity of POS experiences that promote a highly connected, walkable environment with a range of passive recreation opportunities (see **Figure 13**). These range from larger gathering and meeting spaces to smaller, more intimate spaces for individuals or small groups.

6.4.1 PROPOSED AREAS OF PUBLIC OPEN SPACE

Claremont Football Oval forms the centrepiece of open space within the development area, and will provide a 'village green' purpose, with multi-storey residential apartments of varying heights built around the perimeter on 3 sides to visually frame and contain the oval. The CFC will complete the enclosure on the western edge.

A series of radial open space linkages of varying sizes are proposed to connect the Claremont Football Oval to the surrounding roads, providing good public access to the oval. One of these on the eastern edge will incorporate a children's playground and barbecue/picnic area, centred around 2 retained mature trees.

An outer ring of open space is provided to the full circumference of the oval. This ring varies in width and experiences culminating in a high amenity urban landscape park feature on the southern edge of the oval. This provides a strong public realm open space network in this south western precinct, with excellent northern exposure.

A plaza to the north of the train station is proposed as a meeting point and safe walk-through space linking the NEP with the town centre. This plaza will celebrate and respect the strong heritage values of the station precinct. Another smaller plaza/landscaped area is proposed on the opposite corner to connect the train station plaza to the new commercial, retail and residential area. Colonnades and well landscaped street verges in this urban core will promote a high quality pedestrian oriented environment.

Roof top gardens/living roofs are proposed, to promote high amenity private realm open space, in support of public amenity sought for the project. This will provide excellence in sustainable architecture and minimise impact on residential amenity whilst addressing an interpretation of Claremont character principle.

As mentioned, Claremont Football Oval will remain almost unchanged in nature including size and function. The oval is managed through a licence arrangement with the ToC. Given that the oval will remain as a regional recreation reservation, it is proposed that the administration of the oval also remain generally unchanged, except for consequential changes due to its changed usage as a village green.

6.4.2 RATIONALE FOR DETERMINATION OF PUBLIC OPEN SPACE PROVISION

The rationale for determining location of POS provision has been based on a comprehensive site analysis that has taken into consideration the requirements of the Structure Plan in terms of land use, access, circulation and site servicing and infrastructure.

Many of the public open spaces have been determined to provide a safe and legible network of green space linkages connecting to major amenities and facilities, as well as providing passive recreational opportunities. Two of the parks have been located to incorporate existing mature trees, which will provide visual and physical amenity, along with a retained strong sense of place.

The urban core in the station precinct will incorporate pedestrian plazas that will provide meeting and resting areas and facilitate pedestrian movement. These plazas will also incorporate significant retained trees, or trees relocated from within the site.

6.4.3 LANDSCAPE DESIGN

The landscape design for the NEP will be simple, robust and elegant in terms of form, function and materials selection, to ensure a timeless quality that will successfully integrate the new development with the heritage character of the station precinct and the Town Centre to the south.

6.4.3.1 Plazas

Two plaza spaces of differing scales are proposed in the NEP. The plaza at the train station will function as a place for resting and meeting, as well as a public walk-through space, and will also accommodate small community events such as markets, performances and so on. It is intended that the plaza is developed with high quality hard and soft landscaping, with formal spaces integrating public art and green spaces.

Alfresco dining should 'spill over' into the plaza to ensure it is a space for people to pause in a formal and informal way. Images for the spaces envisaged at the plaza are shown.

The design will respect and celebrate the cultural heritage of this precinct, and there is potential for the Goods Shed to be restored into a facility such as an art gallery, coffee shop or some other appropriate commercial use.

The Plaza space proposed at the north-east intersection of Davies Road and Shenton Road will create a visual entry statement to the redevelopment area, whilst also creating a resting/meeting place for shoppers, visitors and other uses of the nearby commercial and retail facilities. This plaza will also offer a visual and pedestrian link to the NEP from the train station and Leura Avenue.

A third public urban space is proposed abutting the eastern side of the Goods Shed, which promotes strong view lines to this historic structure, respectful of cultural heritage of this precinct structure along with the train station. The space will provide for movement, alfresco/hospitality uses and lingering opportunities in a unique setting of intimacy compared to the primary transit plaza, affording respect to the goods shed structure.

6.4.3.2 Roof Top Gardens – Sustainable Architecture

Sustainable Architecture through the use of roof top gardens is proposed, to enhance the environment by reducing green house emissions, air borne pollutants, energy requirements, noises and storm water run off.

These rooftop gardens will also add visual amenity to this precinct, as they will be visible from the ground as well as the upper levels of surrounding apartments.

6.4.3.3 Public Access Ways

Public access ways will provide safe, attractive pedestrian thoroughfares through the built form to the oval from adjacent roads. These will be formal in character and will include arbors and avenues of trees to provide a shady, protected environment. Due to the level changes across the site, many of these access ways will include steps and terracing. Universal access will also be planned into the spaces at the detailed design phase. Seating nodes for resting and meeting will be provided at regular intervals.

6.4.3.4 Colonnade/Covered Walkways

Within the urban core of the station precinct, a colonnade is proposed along the front (north) of the buildings, to provide a shaded, protected space fronting retail and commercial premises, and to provide visual and physical connections to the plazas.

6.4.4 STREETSCAPE DESIGN

As with the landscape of public open spaces within the NEP, the streetscapes will also be simple, robust and elegant in terms of form, function and materials selection, to ensure a timeless quality that will successfully integrate the new development with the heritage character of the station precinct and the Town Centre to the south.

Street tree planting will be critical in providing a high level of visual and shade amenity for residents and pedestrians. The existing avenue of Norfolk Island Pines along Davies Road will be retained and reinforced with additional planting of Norfolk Island Pines to fill in the gaps and to create a continuous avenue. Shenton Road will be relocated further south to abut the rail reserve, and an avenue of Norfolk Island Pines will be established along the southern verge (adjoining the rail reserve) that will replicate the character of Gugeri Street on the southern side of the rail line, and will also create an attractive visual edge to the NEP that will assist in screening the railway reserve. Smaller shade trees will be used along the northern verge of Shenton Road. Avenues of shade trees will be established on all other streets across the precinct.

High quality street furniture including street lighting, seats and rubbish bins will be used to create a consistent streetscape with a high level of user amenity, and will provide a character to the NEP commensurate with the existing Claremont character.

6.4.5 RETENTION OF VEGETATION

There are many mature trees within the NEP and it is estimated that more than half of the trees will either be retained in their current location, or will be re-used in the project area as transplant specimens. This will be a considerable achievement, given the proposed density of the development and the anticipated earthworks required across the site.

Some of these trees have been identified as 'Significant Trees' in a report prepared for the ToC. Of these Significant Trees, there are several that are deemed to be in poor or declining condition and not worthy of retention in subsequent arbor assessments. Those that are worthy of retention will either be retained in their current location, or relocated to nearby locations on site and incorporated into POS where possible. There are numerous Coral Trees on the site, many of which will be re-used in the project area as transplant specimens that will provide instant amenity and shade. There are several other mature trees that will most likely be able to be retained in open space (this will be subject to detail design investigation), however every endeavour will be made to accommodate the trees.

Refer to Arbor Logic Reports (**Appendix 6**) for further information on the 'Significant Trees' and transplant potentials.

6.4.6 PUBLIC ART

Public art will be an important and integral component of the landscape design within this development. Artworks will provide numerous benefits to the community, including the following:

- Enrich the built environment;
- Contribute to the creation of a local identity;
- Develop community pride;

- Interpret and express in a creative way the unique characteristics of this area (including natural, cultural and social characteristics);
- Provide landmarks as points of reference and orientation; and
- Contribute to the safety of a place and reduce vandalism.

A public art strategy and program will be developed to ensure the implementation of meaningful and relevant artworks throughout the development. Opportunities will be explored to involve local artists in specific projects.

6.5 RETAIL/COMMERCIAL/MIXED USE DEVELOPMENT

A report was prepared by Pracsys (**Appendix 5**) on behalf of the ToC to identify the current and future demand for retail and commercial floorspace and the appropriate mix of retail/commercial and residential product for the NEP.

Maximising residential density in the NEP by developing a diverse range of well-designed dwelling options creates the opportunity for residents to live near to where they work and recreate. The NEP will provide the opportunity for Claremont to develop as a more well-rounded primary activity centre, with a range of commercial, health and community services in addition to its current specialised retail offering. It is not suggested that Claremont diversify toward producer services businesses, but rather retain a consumer services focus, targeted toward the established local catchment population.

The current 45,000 m² of retail floorspace in Claremont is supported largely by resident expenditure, with some daily worker spending and approximately 30% visitor expenditure. Based on future dwelling targets for Claremont and surrounding local government areas, and assuming visitors will continue to account for approximately 30% of all expenditure, future retail demand is estimated to support 67,600 m² of retail floorspace. Discounting the Claremont Quarter redevelopment, this leaves an additional 3,000 m^2 to 4,000 m² that could be accommodated within the NEP development. Retail floorspace should operate primarily as convenience/dining retail for workers in the commercial offices, not competing with the comparison retail located in the current Town Centre and diluting the expenditure available.

Recognising that almost a third of total retail expenditure is estimated to come from visitors from outside the immediate catchment, developing in a unique and differentiated fashion is vital for Claremont's success. Given the scale and mix of user groups and estimated expenditure, the Claremont NEP can be expected to operate as an attractive, diverse and vibrant precinct. If the principles of place activation are thoroughly addressed from the outset to maximise amenity, capitalise on attractions and encourage accessibility, the precinct should develop in a way that is consistent with its role as a sought-after inner sector place to live, work and recreate.

6.6 MOVEMENT NETWORK PRINCIPLES

The proposed movement network is intended to facilitate slow-speed vehicle traffic movement through the project area, which is in keeping with TOD principles. The key features of the proposed street layout include Shenton Road being realigned southerly adjacent to the rail line, which will increase the development area in the vicinity of Claremont Football Oval and provide an edge to the rail line. As Shenton Road travels westerly, its alignment will be 'cranked' to a more northerly alignment, aiding a slower vehicle environment and announcing the Plaza precinct and key pedestrian area. Shenton Road will also be redesigned to improve pedestrian and cyclist connectivity. Moreover, in anticipation of additional bus services from the north accessing the precinct, tandem bus bays are proposed to the east of the transit plaza.

To future-proof the design, a further two bus bays are planned to the west of the transit plaza, which will initially be used for disabled car parking, pick-up and set-down, and as taxi bays. Shenton Road will also have one lane of traffic in each direction, with parallel parking on each side of the street where possible.

Traffic signals are proposed at the intersection of Davies Road and Shenton Road. Signals are an appropriate treatment for this intersection, for the following key reasons:

- The existing stop sign control on Davies Road will not provide a sufficient level of service when development is completed.
- Signals will assist with managing vehicle movements through the precinct.
- Signals will provide pedestrians with a safe crossing phase across Shenton Road immediately adjacent to the transit plaza.

Both Davies Road and Graylands Road are to be redesigned with one traffic lane in each direction (as per existing) but with parallel parking on both sides where possible, and 1.2 metre wide on-street cycle lanes on both sides. Traffic lanes will also be designed to a width of 3.3 metres to allow for buses.

A number of new accesses and laneways are also proposed within the precinct. These will provide rear access to development and car parking facilities associated with development. Existing perimeter roads and proposed roads should all include on-street car parking, where possible, and footpaths on both sides.

The existing PSP adjacent to the railway line is to be enhanced to provide safer use by both pedestrians and cyclists. In the section to the east of the Shenton Road 'dog-leg', it is proposed that a separate footpath be provided adjacent to the on-street car parking and that this be separated from the PSP by an avenue of mature trees. The section of the PSP in the vicinity of the train station will require careful, detailed design to ensure the safety of pedestrians, especially people with disabilities, when crossing the PSP to access the train station and town centre.

7 STRUCTURE PLAN

The Claremont NEP Structure Plan is illustrated at **Figure 18**. This Structure Plan provides the formal framework for implementation of development across the precinct, and is supported by the DPP presented in Section 6.

7.1 LAND USE AND YIELDS

The proposed Structure Plan comprises predominantly multiple dwellings as is appropriate for a TOD. At the interface with the existing single storey cottage lots on the northern side of Lapsley Road, two-storey townhouse development is proposed in the Structure Plan.

The Structure Plan provides for 12 single lots averaging 281.5 m^2, and in the order of 500 apartments with an average apartment size of 125 m^2.

Due to the restrictive nature of the Residential Design Codes when dealing with apartment style development, a density coding has not been identified, rather target dwelling yields are nominated. These are identified on a sub-precinct by sub-precinct basis and will be further refined in relation to setbacks and open space requirements through the preparation of Detailed Area Plans and Design Guidelines for the Structure Plan area.

This approach is in accordance with Element 7 Activity Centres and Employment of *Liveable Neighbourhoods*, which recommends the provision of target dwelling yields, with dwelling targets varying dependent on the locational requirements of each Structure Plan, such as the distance from a train station or an activity centre. Higher target yields will thus be provided for lots closer to the Shenton Road and Davies Road intersection.

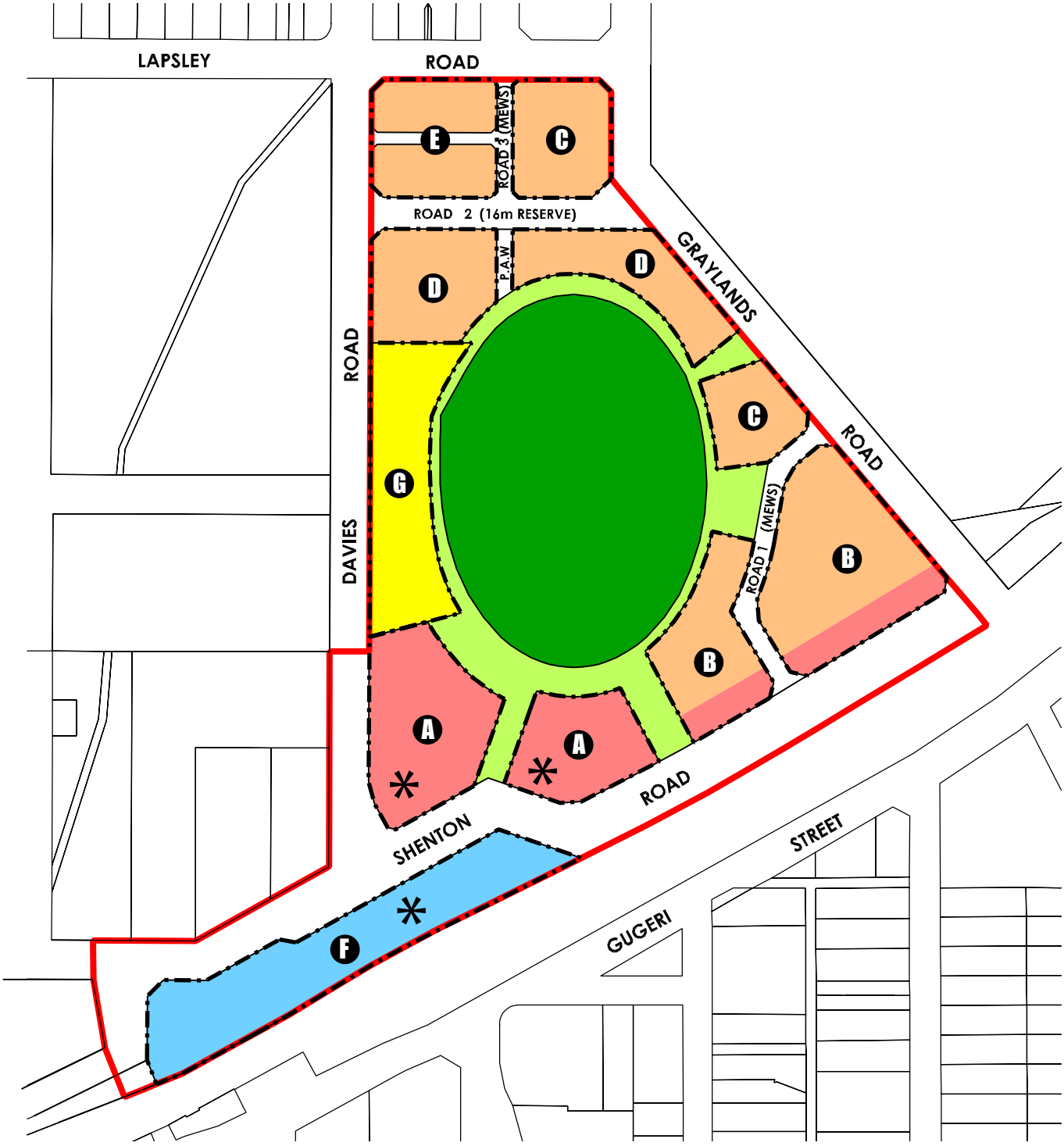
Consideration has also been given to providing a degree of flexibility in the Structure Plan, given that the yield will ultimately depend on the type of apartments built, which are likely to range from one to three bedrooms. The target yields are therefore minimum yields and a percentage of flexibility will be afforded to the dwelling targets, with greater flexibility being granted to increasing rather than decreasing the yields. The target dwellings may be subject to further minor variation at the discretion of the ToC, if the Council is satisfied that a reduced or increased dwelling yield will not compromise the provision of a TOD precinct, and the proposal does not exceed the prescribed height limits. Reduced dwelling yields will, however, not be permitted in excess of 5% less than the target yields.

It is also necessary to recognise that an increased commercial floorspace will result in a reduction of the residential yields. Any increase of the commercial floorspace will need to demonstrate activation of the NEP.

In summary therefore, the dwelling yields have been calculated on the basis of:

- average size dwelling 125 m^2;
- ground floor retail and commercial in specified precincts;
- car parking as per sections 9.5 and 9.6; and
- defined areas of open space and public realm.

It should be noted that any variation to the above is likely to have a direct impact on the minimum and target dwelling subject to Council approval. Any substantial change may require a modification to the Structure Plan.



LEGEND

- NORTH EAST PRECINCT BOUNDARY
- SUB-PRECINCT BOUNDARY
- * • MAXIMUM TOTAL RETAIL FLOORSPACE 2600m²
  • MAXIMUM 800m² SUPERMARKET

LAND USES

- RESIDENTIAL
- MIXED USE
- RETAIL COMMERCIAL
- CLAREMONT FOOTBALL CLUB

REGIONAL RESERVES

- PUBLIC OPEN SPACE

REGIONAL RESERVE

- PARKS AND RECREATION

PRECINCT TARGET DWELLING YIELDS

	TARGET DWELLING YIELD	MINIMUM DWELLING YIELD
A	137 DWELLINGS	130 DWELLINGS
B	157 DWELLINGS	149 DWELLINGS
C	58 DWELLINGS	55 DWELLINGS
D	163 DWELLINGS	154 DWELLINGS
E	12 DWELLINGS	11 DWELLINGS
F	N/A	N/A
G	N/A	N/A
TOTAL	527 DWELLINGS	499 DWELLINGS

PROPOSED STRUCTURE PLAN

Claremont North East Precinct Structure Plan

Source: Taylor Burrell Barnett

0m 10 20 30 40 50m

FIGURE EIGHTEEN 18

7.2 BUILDING HEIGHT

As mentioned, the building height and articulation framework has been formulated to reflect the overall design vision, with podiums constructed at street edges to provide physical and visual containment for the streetscape, and taller elements set back from the development edges.

The built form proposed is based on a low rise to low/medium rise development outcome, including two to three storey dwellings and predominantly three to four storey apartments, with five to six storey elements in discrete locations. The maximum heights are illustrated in **Figure 19**.

Height along Shenton Road will gradually increase towards the intersection of Shenton and Davies Road, at the core of the precinct. This distribution of height provides the sense of arriving at a 'destination point'. This will be further emphasised through landscaping and built form, controlled through the DAP and Design Guidelines.

Height along Graylands Road will be three storeys at the street edge, with up to five storeys set back from the lot boundary.

Heights are considered in more detail on a sub-precinct basis in section 7.5 of this report. The sub-precinct planning provides clear direction as to the basis on which the heights will be considered by the ToC whilst allowing flexibility for future development plans within the framework of the design principles.

[Note that height is calculated from the existing ground level, which ranges from 11 metres AHD to 21 metres AHD.]

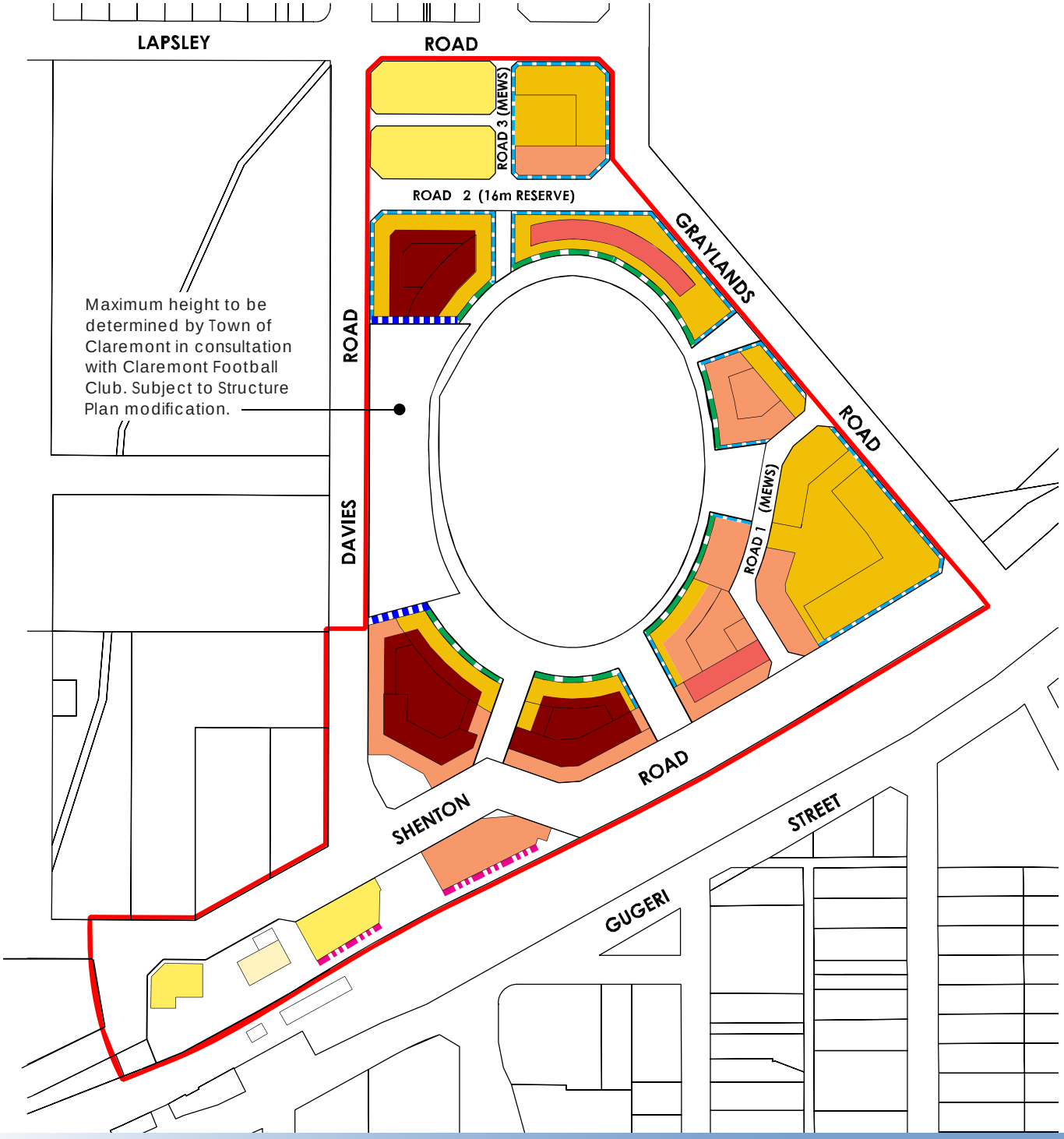
7.3 COMMERCIAL/MIXED USE/RETAIL

7.3.1 RETAIL/COMMERCIAL

The retail/commercial node between Shenton Road and the train station will provide an important commercial core for the precinct. The development intent of the retail/commercial node flanking the transit plaza and wrapping around the corner of Shenton Road and Davies Road is similar to that for the Claremont Town Centre, although importantly it is not intended to compete with the high-end retail offerings available across the rail line. Instead, the objective is to provide local services.

Commercial uses will also be concentrated around the train station and plaza area, where businesses will be able to benefit from the close proximity to the train station and the Claremont Town Centre. Despite the obvious barrier of the train station between the town centre and the NEP, strong pedestrian linkages will be provided via the existing at-grade access over the railway line and overpass. These linkages will maximise exposure for commercial development and will create a high quality pedestrian environment, through the provision of a public plaza and covered walkways.

The maximum retail floorspace within the NEP is 2600 m^2, to be located on the ground floor as identified on the Structure Plan. Within the 2600 m^2 of retail floorspace the maximum supermarket size is 800 m^2. Commercial floorspace may be located on the second and third storeys and within the goods shed (subject to appropriate heritage approval) in the retail/commercial node between Shenton Road and the train station.



LEGEND

NORTH EAST PRECINCT BOUNDARY

MAXIMUM HEIGHTS

- 1 STOREY
- 2 STOREY
- 3 STOREY
- 4 STOREY
- 5 STOREY
- 6 STOREY

MINIMUM SETBACKS

- minimum 2m setback to dwelling (balconies not incl; no black facades to POS)
- minimum 3m setback to dwelling (balconies not incl.)
- minimum 4m setback to dwelling to incorporate public access
- minimum 2m setback to dwelling from PSP

NOTE:

1. This plan shall be read in conjunction with the Development Principles Plan and section 7.0 of the Structure Plan Report, which designates the proportion of high building elements permissable.

2. The building setbacks shall be in accordance with this plan except where detailed area planning and design guidelines determine alternative interface requirements with public realm.

Source: Taylor Burrell Barnett

0m 10 20 30 40 50m

BUILDING HEIGHTS AND SETBACKS

Claremont North East Precinct Structure Plan

FIGURE NINETEEN 19

7.3.2 MIXED USE

There is currently no mixed use land use classification within LPS3. For the purpose of the NEP, mixed use is intended to accommodate a mixture of residential development with small scale retail/commercial uses. The predominant uses will be residential, hospitality based retail i.e. cafes and restaurants, office and limited other retail. The objectives of the mixed use areas are to:

- Provide a diversity of land use;
- Allow appropriate businesses to locate and develop in close proximity to residential uses;
- Allow for services to be provided locally; and
- Provide a high level of amenity.

On this basis, mixed use development is nominated for Sub-Precinct A, and a 15 metre frontage in Sub-Precinct B along Shenton Road. The location of mixed use along Shenton Road will provide an active street frontage, and commercial uses will have exposure from the road and train passengers. It is anticipated that Shenton Road will cater for a large number of pedestrians as it provides a direct route to the train station from the park-and-ride, as well as from proposed dwellings within the eastern portion of the development.

Commercial floorspace in the order of 11,700 m^2 has been allocated to the NEP, and is proposed to be located within the transit plaza, and along the frontage of Shenton and Davies Roads.

7.4 PUBLIC OPEN SPACE REQUIREMENTS

The location of the POS and the design philosophy is identified on the DPP and has been discussed previously within this report.

The POS is based on a series of interconnecting spaces and whilst there is the opportunity for different open space experiences in different locations, it will function as one overall interconnected space (see **Figure 20**). Each area of POS will provide varying degrees of intimacy and amenity through their own unique landscaping.

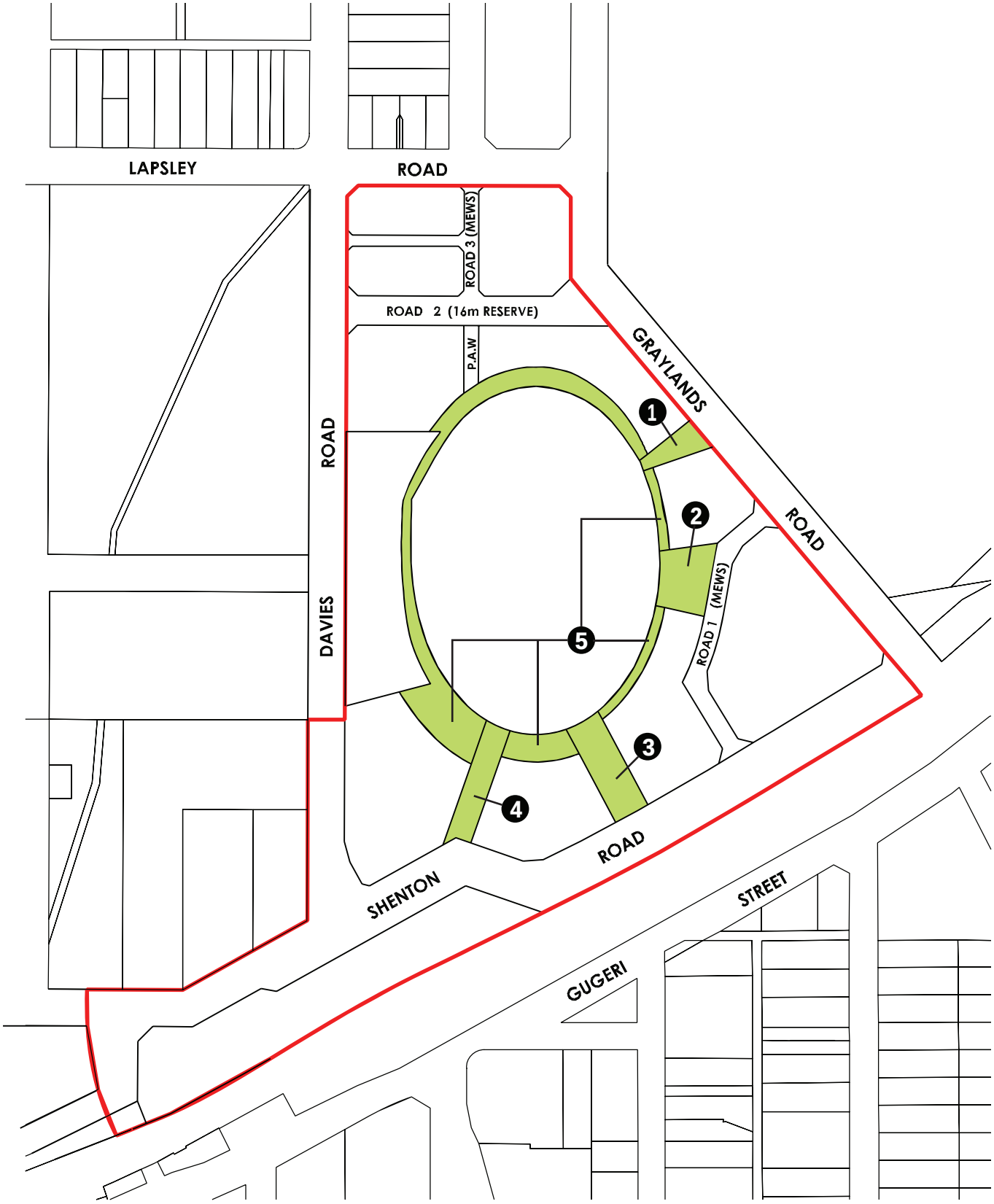
THE RACE (450 m^2)

The Race creates a 'wedge' linking Graylands Road and the oval. It forms an important amenity area for the development sites flanking the open space. Pedestrians walking through this area of POS from Graylands Road will experience an increasingly intimate enclosure which will open up into the oval/village green.

THE EMBANKMENT (930 m^2)

The Embankment has been designed as a more active open space area termed 'picnic play' in recognition of its function, and will be developed with children's play equipment and a barbeque area. It will provide a safe recreation area for all residents within the NEP, which will allow park users to enjoy an aspect over the oval. The Embankment incorporates two existing mature trees which will provide instant shade and visual amenity.

The location of the Embankment allows the potential for a view corridor from Graylands Road, along the mews, into the open space and through to the oval/village green.



LEGEND

NORTH EAST PRECINCT BOUNDARY

PUBLIC OPEN SPACE

PUBLIC OPEN SPACE PRECINCTS & AREAS

1. THE RACE (450m²)
2. THE EMBANKMENT (930m²)
3. FIG TREE LINK (1140m²)
4. TIGER WALK (925m²)
5. THE OUTER (4410m²)

Source: Taylor Burrell Barnett

0m 10 20 30 40 50m

PUBLIC OPEN SPACE PLAN

Claremont North East Precinct Structure Plan

FIGURE TWENTY 20

FIG TREE LINK AND TIGER WALK (1140 m^2 & 925 m^2)

Fig Tree Link and Tiger Walk provide linkages into the NEP from the south, with Fig Tree Link containing a large relocated fig tree at its northern end. Tiger Walk will predominantly have a pedestrian function, as it provides the best access to the oval from the train station and town centre. Fig Tree Link is afforded a greater width which will accommodate a relocated fig tree and landscaping, offering a high quality of amenity for development flanking this open space.

OUTER RING (4410 m^2)

The key open space linkage is the Outer Ring which joins all the pockets of open space to form one contiguous area of POS. This linkage provides for accessibility across the precinct, and encourages activity and passive surveillance around the oval/village green. The width of the outer ring varies from 5m along the eastern side of the oval to 25 m just south of the CFC site. The larger areas of POS on the southern side of the oval will provide a recreational area which could be used during football games and community events. The 5 m width (where currently there is little spectator use for football games) is to allow full public movement around the oval.

7.4.1 PUBLIC OPEN SPACE PROVISION

The proposed development will consist of predominantly multiple dwellings with only small areas of private open space in the form of balconies. The area and quality of open space are therefore important to the amenity of residents within the NEP. Consequently, the development proposes 17.4% POS, which is well in excess of the 10% WAPC requirement. Some of the buildings will also offer roof top gardens for residents to enjoy and adding to the 'green' spaces.

The POS calculation, based on the gross subdivisible area (GSA), includes only the land on the northern side of Shenton Road as there is no residential development proposed on the southern side of Shenton Road. It should also be noted that the Claremont Football Oval, plus a 5 metre wide setback roughly to the location of the existing low fence, is located within the 'Parks and Recreation' reservation and is excluded from the GSA and the open space calculations.

Gross Residential Area (area north of Shenton Road)		**7.1909 ha**
Less Deductions		
Claremont Football Club Land	5144 m^2	
Parks & Recreation Reserve (oval inside fenceline)	2.02 ha	
Commercial	1500 m^2	**2.6844 ha**
Nett Residential Area		**4.5065 ha**
10% POS	4506 m^2	

POS Provided:

The Race	450 m²
The Embankment	930 m²
Fig Tree Link	1140 m²
Tiger Walk	925 m²
The Outer	4410 m²
Total Public Open Space	**7,855 m² or 17.4%**

7.5 DEVELOPMENT PRECINCTS

The Claremont NEP has been divided into sub-precincts to nominate preferred land uses, target dwelling yields and height. It is intended that these sub-precinct requirements will be used as the basis for the formulation of Detailed Area Plans and Design Guidelines.

7.5.1 SUB-PRECINCT A

7.5.1.1 Location

The extent of Sub-Precinct A is depicted on the Structure Plan.

7.5.1.2 Desired Future Character

The section of Shenton Road contained within this sub-precinct is to be a leafy boulevard with an activated residential street edge, comprising retail with commercial at the ground level and possibly extending over the second and third storey, and residential above. The leafy boulevard will provide a shared vehicle pedestrian space, leading pedestrians through the heart of the Claremont NEP. Covered walkways will be required to be provided to shelter pedestrians and to screen building height and bulk.

This sub-precinct should accommodate uses at the ground level which activate the street frontage and enter into the public realm, such as alfresco dining or products for sale. This will provide for an active street frontage, and will highlight this area as the central core of the development.

Sub-Precinct A forms the 'arrival' point of the NEP and buildings must address the street with well detailed facades.

PREFERRED USES

A mix of preferred uses within Sub-Precinct A includes:

- Hospitality retail including restaurant/café;
- Retail;
- Commercial;
- Civic and Community;
- Entertainment; and
- Residential (first floor and above).

DEVELOPMENT REQUIREMENTS

Dwelling Yields:

- The target dwelling yield is 137.

Height:

- Maximum building height, upper level setbacks and side setbacks are to be determined by reference to the Building Heights Plan (**Figure 19**).
- A colonnaded ground floor to be provided in accordance with the adopted Public Realm Plan (**Figure 14**).

The proportion of the higher building elements within Sub-Precinct A must be in accordance with the building mass as illustrated in the DPP (**Figure 13 extract below**).

Extract Figure 13

Further development requirements will be detailed within the Detailed Area Plans and Design Guidelines and will be based on the principles established within the DPP.

7.5.2 SUB-PRECINCT B

7.5.2.1 Location

The extent of Sub-Precinct B is depicted on the Structure Plan.

7.5.2.2 Desired Future Character

Shenton Road will have two different types of street character which will be delineated by the proposed dog-leg in the road. Within Sub-Precinct B, to the east of the dog-leg, a generous road width will be provided to allow parking along the street. Trees will line either side of the street to soften the view of the rail line to the south and the residential apartments to the north.

This sub-precinct should accommodate uses at the ground level which activate the street frontage and enter the public realm, creating an attractive pedestrian environment for users of the park-and-ride accessing the train station.

Residential uses may only be permitted at ground level when designed as adaptable buildings to commercial building standards to allow/enable conversion to commercial use over time.

7.5.2.3 Preferred Uses

A mix of preferred uses within Sub-Precinct B includes:

- Commercial/Office (ground floor);
- Commercial;
- Residential; and
- Park-and-ride (at basement level).

DEVELOPMENT REQUIREMENTS

Dwelling Yields:

- The target dwelling yield is 157.

Height:

- Maximum building height, upper level setbacks and side setbacks are to be determined by reference to the Building Height Plan (**Figure 19**).
- A colonnaded ground floor, or covered awnings/walkways to be provided in accordance with the adopted Public Realm Plan (**Figure 14**).

The higher building elements within Sub-Precinct B must be in accordance with the building mass as illustrated within the DPP (see **Figure 13 extract** below).

Extract Figure 13

Further development requirements will be detailed within the Detailed Area Plans and Design Guidelines and will be based on the principles established within the DPP.

7.5.3 SUB-PRECINCT C

7.5.3.1 Location

The extent of Sub-Precinct C is depicted on the Structure Plan.

DESIRED FUTURE CHARACTER

Graylands Road will contain varying heights ranging from three to four stories. A height limit of three storeys where the development abuts Lapsley Road will ensure adequate interface to the existing factory building.

PREFERRED USES

The preferred use within Sub-Precinct C is:

- Residential.

DEVELOPMENT REQUIREMENTS

Dwelling Yield:

- The target dwelling yield is 58.

Height:

- Maximum building height, upper level setbacks and side setbacks are to be determined by reference to the Building Height Plan (**Figure 19**).

The proportion of the higher building elements within Precinct C must be in accordance with the building mass as illustrated within the DPP (**Figure 13 extract below**).

Extract Figure 13

Further development requirements will be detailed within the Detailed Area Plans and Design Guidelines and will be based on the principles established within the DPP.

7.5.4 SUB-PRECINCT D

7.5.4.1 Location

The extent of Sub-Precinct D is depicted on the Structure Plan.

7.5.4.2 Desired Future Character

Precinct D, located at the northern end of the oval and extending from Graylands Road through to Davies Road, will provide a unique residential environment.

This high point adjacent to the oval and the 'outer ring' within the western street block provides excellent views north, west and south. The sub-precinct flanks an important public accessway to enable integration with the green spine providing connectivity across Lapsley Road and beyond into the existing residential areas.

7.5.4.3 Preferred Uses

The preferred use within Sub-Precinct D is:

- Residential.

7.5.4.4 Development Requirements

Dwelling Yield:

- The target dwelling yield is 163.

Height:

- Maximum building height, upper level setbacks and side setbacks are to be determined by reference to the adopted Building Height Plan (**Figure 15**).

The proportion of the higher building elements within Precinct C must be in accordance with the building mass as illustrated within the DPP (**Figure 13 extract below**).

Extract Figure 13

Further development requirements will be detailed within the Detailed Area Plans and Design Guidelines and will be based on the principles established within the DPP.

7.5.5 SUB-PRECINCT E

7.5.5.1 Location

The extent of Sub-Precinct E is depicted on the Structure Plan, located within the north-western corner of the NEP fronting Lapsley Road and Davies Road.

7.5.5.2 Desired Future Character

Sub-Precinct E is a small portion of the NEP focussing on integration with the existing residential development. It will contain two-storey townhouse development which will front existing cottages to the north. Design requirements for the sub-precinct will ensure that the character of these cottages is blended with the NEP character.

A quality streetscape will be provided on the southern side of Lapsley Road to merge the NEP with the existing neighbourhood.

7.5.5.3 Preferred Uses

The preferred uses within Sub-Precinct E include:

- Residential; and
- Home Occupation.

7.5.5.4 Development Requirements

Dwelling Yield:

- The target dwelling yield is 12 (subject to the appropriate road closure).

Height:

- Maximum building height of two storeys.

Further development requirements will be detailed within the Detailed Area Plans and Design Guidelines and will be based on the principles established within the DPP.

Extract Figure 13

7.5.6 SUB-PRECINCT F

7.5.6.1 Location

The extent of Sub-Precinct F is depicted on the Structure Plan. It is bounded by the railway line to the south, Shenton Road to the north and Claremont Crescent to the west.

7.5.6.2 Desired Future Character

The character of Sub-Precinct F shall provide for an integration of the town centre, heritage buildings and the NEP, creating a focal point for the NEP. Sub-Precinct F should accommodate uses at the ground level that activate building frontages and encourage this activity to enter into the plaza and other abutting public realm areas. This will provide a highly desirable core public space and sustainable building developments. The western section of Sub-Precinct F is identified as the potential location of a police commercial building of multiple storeys. This building must respond appropriately to the specific character setting of its location including the existing cottages to the west.

A key element of the sub-precinct is also the historic goods shed. The use of the building and its immediate curtilage must have an emphasis on community-oriented outcomes to create a strong sense of the site's cultural significance and heritage.

7.5.6.3 Preferred Uses

A mix of preferred uses within Precinct F includes:

- Office;
- Commercial ;
- Hospitality/retail (including cafes and restaurants);

- Civic and community; and
- Retail.

7.5.6.4 Dwelling Yields

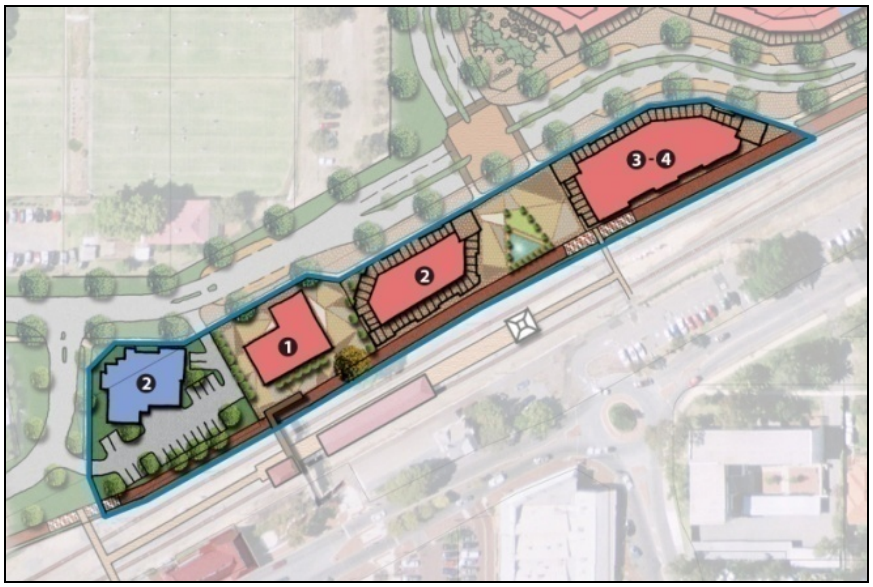
N/A

7.5.6.5 Development Requirements

Height:

- Maximum building height, upper level setbacks, side setbacks, etc are to be determined by reference to the Building Height Plan (**Figure 19**).

The preparation of higher building elements within Sub-Precinct F must be in accordance with the building mass as illustrated within the DPP (**Figure 13 extract below**).



Extract Figure 13

Further development requirements will be detailed within the Detailed Area Plans and Design Guidelines and will be based on the principles established within the DPP.

7.5.7 SUB-PRECINCT G

7.5.7.1 Location

Sub-Precinct G comprises the Claremont Football Club (clubrooms and administration) extending along Davies Road.

7.5.7.2 Desired Future Character

The character of the redevelopment of the CFC must be consistent with the character of the NEP and in particular respect the built form, both north and south of Sub-Precinct G. The 'ends' of the building both north and south are therefore important for the integration of the CFC within the NEP.

7.5.7.3 Preferred Uses

The preferred uses within Sub-Precinct G include:

- Office
- Recreation (indoor)
- Restaurant
- Retail Store

7.5.7.4 Development Requirements

Height and Setbacks:

- Building height and setbacks will be the subject of a structure plan modification and must be consistent with the height of the NEP. The CFC redevelopment must not dominate the adjoining sub-precincts. In particular, building height is to respect the landmark qualities of Sub-Precinct A.

8 DESIGN GUIDELINES AND DETAILED AREA PLANS

A Built Form Design Guidelines document (the Guidelines) will be compiled as an illustrative document to support the Structure Plan. It is expected that the ToC will adopt the Guidelines as a Local Planning Policy and that Council will use the Guidelines as one of a raft of measures, including the Structure Plan and LPS3, to control development in the precinct to achieve the desired development outcomes.

The role of the Guidelines will be to guide the development of built form in the Claremont NEP, using principles supported by illustrative diagrams and photographs. The Guidelines will be a tool both for developers to understand in more specific terms the development vision, and for the ToC to provide clear criteria against which development proposals can be assessed. The Guidelines will also set parameters for the future football facility on Davies Road to ensure that any development of this site is consistent with the vision for the Claremont NEP.

The Guidelines document will define the proposed character of the Precinct's various streetscapes and open spaces and will illustrate how the interface between the built form and street should be treated in order to create pleasant public spaces.

The intent of the Guidelines will also be to establish a framework for achieving quality built form through prescribing the nature of the architecture.

Key principles of the Guidelines are likely to include:

- Building Height – should aim to create a low to mid-rise urban form character with a structured arrangement of taller buildings to announce key landmarks.
- Street Edge Alignment – buildings to generally align with lot frontages to define the public realm of streets, public open spaces and semi-private courtyard spaces.
- Maximum Setbacks – street setback zones (or 'projection' zones) will provide an area between building and street that allows for landscaping, terraces, balconies, entry porches, and other building and roof projections to be located.
- Overlooking and views – Access to views should be maximised in order to enhance a sense of place whilst recognising the need to protect the amenity of residents within and adjoining the NEP.
- Public Art – encourage private development to incorporate public art through free-standing artworks, and in the detailing of built and landscape elements such as fencing, street furniture and paving.
- Corner Treatments – encourage articulated buildings that reinforce corner locations.
- Material Usage – promote innovative use of building materials, discouraging use of reflective glass, superficial and superfluous detailing, and excessive colour palettes.
- Noise Attenuation – building design should have regard to the State Planning Policy – Road and Rail Transport Noise (Draft) and should allow residents to maintain access to views, breezes and external amenity without being impacted by noise.
- Energy Conservation – opportunities to conserve energy should be maximised.
- Rooftop spaces – consideration should be given to utilising rooftop spaces such as rooftop gardens and communal spaces.

- Sustainability – provide a mix of housing types, size and density, as well as good access to open space and transport; design should promote management of energy, water quality and quantity, indoor air quality and landscape.
- Universal access – access to the public and private spaces to be available to all members of society in accordance with legislative requirements including the seven principles of universal design found on the Disability Services Commission website.
- Signage – signage implemented commensurate with the setting recognising requirements of the CFC within a residential/mixed use environment.
- Crime Prevention Through Environmental Design – designing public spaces and buildings to provide good sightlines, lighting and surveillance

The Design Guidelines will be augmented by the preparation of Detailed Area Plans in accordance with clause 75P of the Town of Claremont Consolidated Planning Scheme No. 3.

These Detailed Area Plans will consider measures which address the following:

- Ensure building heights and setbacks are suitably articulated.
- Suitable levels of residential development private open space provision.
- Consider building orientation to maximise passive climate responsiveness and surveillance of public realm.
- Consider building access locations to maximise activation and integration with public spaces.
- Encourage excellent development outcomes through considered variations to R-Code standards.
- Ensure adequate active street frontages and passive surveillance along Shenton Road and Graylands Road.
- Provide adequate grade separation between buildings and open space to ensure optimal passive surveillance of open space is provided.
- Encourage location of habitable rooms overlooking the open space, to ensure optimal passive surveillance of open space.
- Provide appropriate lighting of open space to ensure approaches to residential buildings from open space are visible at all times.
- Ensuring eaves are provided over the footpath to the east of the proposed colonnade.
- Include requirements for end-of-trip cycling facilities associated with office commercial uses in development within Claremont NEP.
- Each precinct containing multiple dwellings being required to contain a minimum of 15% studio or single bedroom dwellings and 20% two bedroom dwellings.
- Encourage provision of street trees where possible.

8.1 SUSTAINABILITY APPRAISAL

The widely accepted international definition of 'sustainable development' is:

> *'development which meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland Commission, 1987).*

It is intended that a Sustainability Appraisal of subsequent NEP Design Guidelines and/or Detailed Area Plans will be undertaken. As such, it is the role of this Local Structure Plan to provide the framework for that Sustainability Appraisal to be undertaken.

8.1.1 SUSTAINABILITY OBJECTIVES

Sustainability Appraisal will play an important role in determining the achievement of sustainability objectives by future Design Guidelines and/or Detailed Area Plans. The principles to be applied to Sustainability Appraisal of future Design Guidelines and/or Detailed Area Plans will focus on:

- The Environment;
- Society and Community;
- The Economy; and
- Governance.

These sustainability objectives are further detailed within section 5.3 of this report.

9 MOVEMENT NETWORK

9.1 ROADS

Roads within the precinct are to be designed for slow speed traffic movement. Davies Road, Graylands Road and Shenton Road will have one lane in each direction, with embayed parallel parking on both sides, where practicable. Shenton Road contains a dog-leg alignment just east of Davies Road which will force traffic to slow down within the core area of the precinct. Traffic coming from the east to the west will also be forced to slow down given the curvature of the road from the underpass. Cross sections of Shenton Road are provided within **Appendix 7** of this report.

Resealing the existing pavements with new red asphalt will enhance the look and durability of these pavements. Those types of pavements can be used for intersections, car bays, new pavements and thresholds in the new roads within the redevelopment area.

New kerbing will be required to replace defective and damaged kerbs and to match the resealed pavements. An alternate form of decorative kerbing could be adopted for the new kerbs if required to be different for ToC current standards.

9.2 PROPOSED TRAFFIC VOLUMES

At full development it is estimated that the Claremont NEP TOD could generate around 4,800 trips per day (see calculations below).

In general, residential vehicle trip rates depend on the availability of public transport, and the quality of walking and cycling infrastructure. In TODs, access to and the quality of such infrastructure and services is anticipated to be excellent. The NEP, for example, is entirely within the walking catchment of Claremont Train Station. Given these characteristics, trip generation may be up to 2,500 trips less on a daily basis than would be expected in more traditional developments of the same size.

Residential trip generation associated with the proposed apartments was calculated assuming 1.8 persons per residential unit, 50% car driver trips and 3.5 trips overall per person per day. Another 15% non-home based trips are assumed. In the analysis, four car driver trips were conservatively assumed, per apartment per day (i.e. 1.8 x 0.5 x 3.5 x 1.15 = 3.62).

Residential trip generation associated with the proposed townhouses was calculated again assuming 1.8 persons per residential unit and 3.5 trips overall, per person per day. However, because of the level of car parking provided, 60% rather than 50% car driver trips were assumed. Another 15% non-home based trips were assumed. In the analysis, five car driver trips were conservatively assumed, per dwelling per day (i.e. 1.8 x 0.6 x 3.5 x 1.15 = 4.35).

For commercial/office uses, six vehicle trips per 100 m^2 gross floor area (GFA) were assumed. For retail uses, 30 vehicle trips per 100 m^2 GFA were assumed. Vehicle trip generation associated with the CFC is indicative only, pending confirmation of floor-space and parking requirements. Vehicle trip generation associated with the various land uses within the precinct is:

TABLE 3: VEHICLE TRIP GENERATION

Land Use	Vehicle Trips per Day
Apartments: 497 x 4 trips per day	1,988 vehicle trips/day
Townhouses: 12 x 5 trips per day	60 vehicle trips/day
Commercial/office: 11,700 m^2 GFA @ 6/100 m^2	702 vehicle trips/day
Retail: 2,600 m^2 @ 30/100 m^2	780 vehicle trips/day
Football club/s (weekday)	500 vehicle trips/day
Park-and-ride: 175 bays @ 3 daily trips/bay	525 vehicle trips/day
Total daily vehicle trips	**4,555**

These will not all be additional vehicle trips, as there are vehicle trips associated with the present use of the football club, park and-ride, and ToC car parking to the west of the train station.

9.3 ROAD SAFETY AND MANAGEMENT

Road safety will be managed through design: the allocation of additional space within the road reserve will help to balance the function of streets as shared space, particularly along Shenton Road. Specific design features that will contribute to this aim include street trees and other plantings, medians and street furniture.

The 'dog-leg' alignment will assist with moderating traffic speeds as will provision of embayed car parking and the installation of traffic signals at the intersection of Shenton Road and Davies Road. The traffic signals will also provide pedestrians with a controlled crossing point adjacent to the transit plaza and will give direct access to the commercial and retail hub of the NEP.

The design of Davies Road and Graylands Road will provide adequate verge widths for pedestrians and street furniture. Traffic lane width will be restricted based on the requirements of buses. On-street cycle lanes on both sides of these roads will add to cycling safety, connectivity and amenity.

9.4 PUBLIC TRANSPORT

Use of public transport for both inbound and outbound trips will be encouraged in the NEP through the provision of quality infrastructure and good access to services. In particular, a high-quality interface between Claremont Train Station and the surrounding pedestrian and cycling networks is anticipated.

For consistency with the principles of TOD, the NEP will first and foremost be developed as a walkable rail catchment, with some limited provision of park-and-ride as a secondary consideration. The proximity of the NEP to the Claremont Train Station will be exploited through the development of sufficient activity intensities (mixing of uses and development densities) within the development area, particularly within a 400 metre radius of the station.

The ToC will work with the PTA to ensure that rail and bus infrastructure and services adapt to meet the increased demand that is likely to follow redevelopment of the NEP. In the longer term, this will include developing the Claremont-Scarborough bus connection and increasing the frequency and/or capacity of services along the Fremantle-Perth rail line (particularly during peak periods).

Bus set-down and pick-up for the potential Claremont-Scarborough service has been incorporated into the street network design for the precinct. The carriageway widths along Graylands Road and Davies Road, for example, are sufficient to allow bus movements. Furthermore, bus bays on the southern side of Shenton Road, in the vicinity of the transit plaza, are planned. To future-proof the NEP, embayed parking to the west of the transit plaza will be of sufficient width and length to accommodate future bus pick-ups and set-downs if required.

The provision of a TransPerth service centre within a retail outlet in the transit plaza is also being considered to make timetables, ticketing, security and other information and services available to transit users. An appropriate level of signage will also be provided within the precinct to direct people to public transport pick-up and set-down points.

9.5 CAR PARKING

It is proposed that the development be based on reduced dependence on and use of cars. This is reflected in the recommendations for car parking supply and management for both residential and non-residential land uses. The following car parking policy and maximum rates of car parking provision have been assumed in the design of the precinct.

- Residential car parking to be limited to a maximum of 1.2 parking bays per apartment and two per townhouse.
- Single bedroom dwellings and studio apartments will be limited to a maximum of one (1) parking bay.
- Unbundling of bays from the sale of apartments should be used to obtain an appropriate and efficient allocation of car parking based on demand (see below), although owners/tenants would retain the right to purchase a minimum of one bay. It is anticipated that car parking for townhouses will be provided on-site. Any trading of parking bays will be restricted to within an individual building or strata scheme.
- Commercial/office car parking to be limited to 1.5 bays per 100 m^2 GFA, with 40% tenant and 60% public short term parking.
- Retail parking to be limited to two bays per 100 m^2 GFA, all of which is public short term parking.
- 200 park-and-ride bays provided in a suitable structure sleeved by other land uses.
- Car parking for the CFC to be provided at a rate not exceeding that for commercial/office uses (i.e. 1.5 bays per 100 m^2 GFA).

An appropriate number of taxi bays, disabled bays and pick-up/set-down bays will be provided in addition to these requirements.

The approach has been to maximise the percentage of public short term car parking while limiting non-residential private parking. This enables car parking to be shared between residential, office and retail visitors.

On this basis, the recommended car parking supply for the precinct is shown in **Table 4**:

TABLE 4: CAR PARKING REQUIREMENTS

Land Use	Maximum Car Parking Bays
Residential	**620**
Tenant commercial/office	**70**
Visitor commercial/office	**106**
Visitor retail	**68**
Park-and-ride (provided in an off-street structure)	200
Total precinct	**1,064**

*plus car parking associated with the CFC; on-street disabled car parking; taxi bays; pick-up/set-down bays.

Through development of the NEP, there will be a loss of existing free parking bays on land owned by the ToC to the west of Claremont Train Station. It is noted that this existing car parking is 'cash in lieu' parking associated with the Claremont Town Centre. However, retention of this free parking – which also is not subject to any dwell time limits – is not consistent with TOD and car restraint, and its loss will be compensated for by parking provided elsewhere in the precinct; particularly on-street parking provided along Shenton Road.

9.6 CAR PARKING MANAGEMENT STRATEGIES

The following management strategies are proposed to facilitate the implementation and management of car parking in the Claremont NEP.

Car parking should be unbundled from the sale of residential units (with the exception of the townhouses) to facilitate the efficient distribution of parking bays for residences within the Claremont NEP. Whilst residents should still retain the option to buy one bay, over time the remaining bays should become tradable commodities and be bought and sold at market prices. Any trading of parking bays will be restricted to within an individual building or strata scheme.

Off-street visitor parking can either be supplied in a single structure or dispersed throughout the precinct under individual buildings. Each strategy has relative merits – centralised parking can help prevent vehicles cruising throughout the precinct looking for empty bays and dispersed parking can better serve individual tenants – however, centralised parking may be most appropriate in this instance, as it is easier to comprehend by occasional visitors.

All on-street and public off-street parking (other than park and ride) should be charged at commercial rates that favour short term over long term parking. For on-street parking, this pricing strategy should be supported by maximum length of stay regulations at certain times. The key reasons for charging for parking are as follows:

- Applying charges to some parking bays and not others can put some business tenants at a competitive disadvantage.

- Parking charges regulate demand for bays (i.e. price influences demand, therefore supporting reduced supply).
- Dwell time limits cannot be effectively managed without parking charges - parking receipts show how long vehicles can dwell in a bay thereby assisting enforcement.
- Free parking is inconsistent with TOD and related aims to reduce the use of cars: free parking is a subsidy for car use.
- Free parking disadvantages public transport users, who have to make a direct payment (i.e. pay a fare) to access the precinct.
- International research shows that car restraint policies (including appropriate parking charges) are vital for supporting TOD and encouraging a switch from the car to other modes.

Users should be informed of parking tariffs and limited dwell times through clear signage across the NEP.

A charge in accordance with Public Transport Authority policy should be levied on park-and-ride patrons to reflect the superior covered parking and security arrangements provided. The park-and-ride car park should be exclusively for the use of park-and-ride patrons at times to be determined by the PTA.

There is an opportunity to apply SmartRider technology to the use of the park-and-ride. For example, the SmartRider card could be used to pay for parking and may be the means for the PTA to ensure that users of the park-and-ride actually then use public transport services (infringements should be issued for illegal use). The PTA would also retain the option to subcontract management of the park-and-ride to the ToC.

9.7 ENABLING ALTERNATIVE MODES OF TRANSPORT

Access to public transport will be a high priority across the precinct. In particular, significant consideration is being given to the design of the transit plaza, to effectively interface the pedestrian and cycling networks with rapid transit. Access to ancillary bus services is also a high priority.

In addition to the car parking recommendations, a *minimum* level of cycle parking is also recommended for the precinct. Cycle parking is important, because cycling is an equitable and sustainable mode of travel, and the NEP is framed by a PSP along its southern border thereby facilitating regional cycle access. Cycle parking requirements vary according to land use as shown in **Table 5**:

TABLE 5: CYCLE PARKING REQUIREMENTS

Land Use	Bays required
Residential	1 cycle bay per apartment
Commercial/office tenant	1 cycle bay/200 m^2 GFA
Commercial/office visitor	1 cycle bay/500 m^2 GFA
Retail	**1 cycle bay/200 m^2 GFA**

The following minimum supply of cycle parks is therefore derived:

TABLE 6: MINIMUM CYCLE PARKING REQUIRED

Land Use	Bays required
Residential	503
Commercial/office tenant	59
Commercial/office visitor	24
Retail	17
Total	**603**

A good practice example for provision of cycle parks associated with residential tenancies includes lengthening car parking bays by one metre and providing a secure cage at the end of the bay. If not used for storing cycles, the cage can function as a storage space for scooters. Commercial tenant cycle parks would largely be provided within buildings as part of end-of-trip facilities (which also include sufficient showers and lockers to serve the tenancy of each building). Visitor cycle bays should be provided adjacent to buildings and distributed throughout the precinct depending on the location of commerce and retail.

Additional scooter and motorcycle parking can be provided in the vicinity of the transit plaza. There is opportunity, for example, for part of an embayment west of the transit plaza to be utilised for this purpose.

9.8 FOOTPATHS

Footpaths are proposed along both sides of streets and accesses across the NEP. Along Shenton Road, verges will vary from four metres to seven metres in width, thereby providing ample room for street furniture and shade trees and allowing universal access. The PSP will be extended along the southern side of the section of Shenton Road parallel to the rail line, whilst a separate two metre wide footpath will be sited adjacent to the embayed car parking.

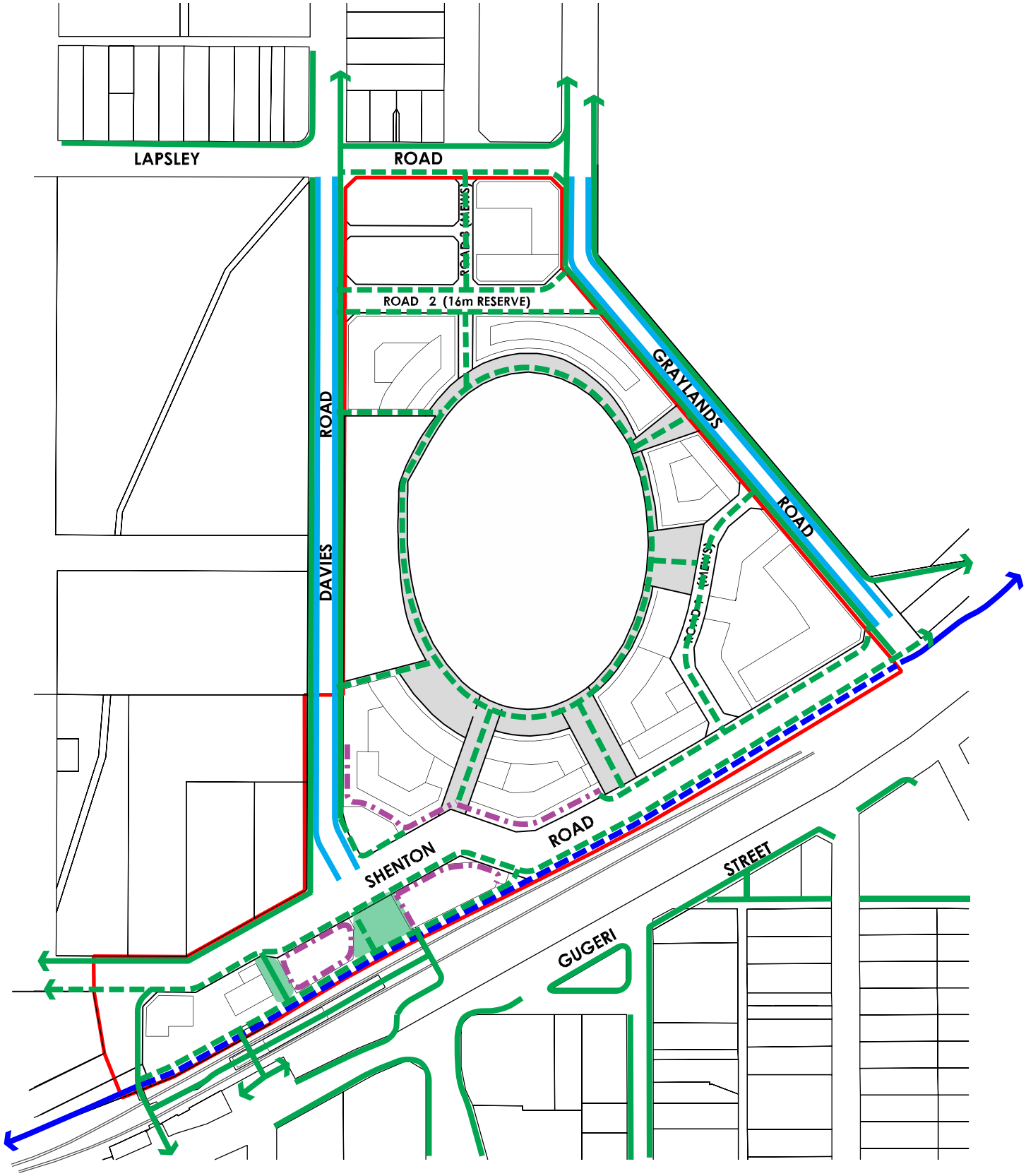
Davies Road and Graylands Road will be characterised by footpaths on both sides. The verge widths will vary from 2.5 to 3 metres, depending on provision/retention of bus bays. A movement network plan is provided within **Figure 21** of this report, and depicts the location of all the existing and proposed paths.

9.9 UNIVERSAL ACCESS DESIGN

Universal access design within the NEP is critical. Key design elements will include wide pavements with shade for comfortable access; regularly spaced and well designed street crossing points; breaks in raised street medians, to allow road crossings by wheelchairs and to act as pedestrian refuges; ramped kerbs at crossing points for wheelchairs and prams; and tactile paving along kerb lines and at crossing points.

The provision of disabled car parking bays on the southern side of Shenton Road, a short distance to the west of the train station, is important to facilitate disabled access to public transport. In addition, the at-grade access to the train station platform towards the eastern end of the transit plaza will perform a crucial function.

Additionally, individual buildings and public open space within the precinct will need to be built to allow universal access and provide parking for motorised wheelchairs.



LEGEND

- NORTH EAST PRECINCT BOUNDARY
- PROPOSED PEDESTRIAN ACCESS THROUGH PLAZA
- EXISTING PEDESTRIAN ACCESS (FOOTPATH)
- PROPOSED PEDESTRIAN ACCESS (FOOTPATH)
- PROPOSED PEDESTRIAN ACCESS (COLLONADE)
- PROPOSED CYCLE PATH (DEDICATED ON-STREET CYCLE LANE)
- EXISTING CYCLE PATH (PRINCIPAL SHARED PATH)
- PROPOSED CYCLE PATH (PRINCIPAL SHARED PATH)

Source: Taylor Burrell Barnett

0m 10 20 30 40 50m

MOVEMENT NETWORK PLAN

Claremont North East Precinct Structure Plan

FIGURE TWENTY-ONE 21

9.10 ROADWORKS

The major change to the existing road network is the proposed realignment of Shenton Road towards the Railway Reserve as shown on the Structure Plan.

The intersection of the new alignment of Shenton Road and the existing underpass will be specially designed to provide for traffic access and safety.

Parking embayments shown along the new alignment will provide street level public parking on both sides of proposed Shenton Road.

All the existing services currently within the existing Shenton Road Reserve, including a DN 535 Steel water main will be relocated to the new alignment.

The existing road pavements of Davies Road, Lapsley Road and Graylands Road will have additional car parking embayments constructed to provide street level public parking. Existing street trees will be protected where possible during the installation of these embayments.

The Proposed Road and the Mews, shown on the Structure Plan, will be designed to include embayment car parking where feasible. Both brick paving and other special road treatments will be used for the pavements on these roads.

10 INFRASTRUCTURE AND SERVICING

10.1 URBAN STORMWATER MANAGEMENT

Roof runoff from the proposed building developments will be collected in rainwater tanks wherever possible, with overflow to infiltration in the adjoining landscaped areas, and with any further overflow to the adjacent roads.

The new roads shown on the Structure Plan, ('Proposed Road' to the north and 'Mews' to the south-west) will be kerbed and drained with a combination of gully pits and side entry pits via underground pipes with an outlet to the existing drainage system or to landscaped swales where available. Drainage pits will have infiltration through the base of the pits to the groundwater. This piped system will be designed to accommodate up to the one in five year annual recurrence interval (ARI) storm events.

Drainage to existing Davies, Lapsley and Graylands Roads will be improved with the addition of Gullies and Side Entry Pits at suitable intervals, with infiltration through the base of the pits to the groundwater, and extensions of underground pipes to outlets to the existing drainage system.

Stormwater runoff events from the one in five year piped flow up to the one in 100 year ARI events will be accommodated within the road pavements, the landscaped swales in POS areas around the oval and ultimately to the oval area and underground storage. Some areas will discharge in these rare but extreme events along the road pavements to lower roads and areas such as the tennis courts, and Lake Claremont, replicating the current situation.

10.1.1 STORMWATER DISPOSAL

Water sensitive urban design principles will be adopted to maximise infiltration and local recharge to the local groundwater aquifer wherever possible.

Underground storage will be required to compensate for the loss of the existing drainage sumps, to store the volume up to the one in 100 year storm event, and to reduce peak outflows in the one in ten year storm events to the pre-development flow rates. The oval and other POS areas will need to be used for this underground storage where surface swales are not sufficient or available.

For the more frequent, low intensity, storm events, (i.e. ecological flows) disposal to landscaped swales is a best practice water sensitive design principle that will be adopted where possible in the limited areas available on the Structure Plan.

The details of infiltration sites and rates of discharge will be included in the future LWMS but will include the limited open space areas within the proposed building sites as shown on the Local Structure Plan, the POS areas around the oval and use of the oval area in extreme events. All the constructed drainage pits will have a permeable base to promote infiltration at source.

The Structure Plan area has shown to be generally free draining and the indicated depth to the local water table indicates that there will not be any significant constraint to infiltration of the storm water flows. As nutrient loads will naturally be filtered along the swales and through the soils prior to recharge to the aquifer, it is not considered necessary, at this stage, to provide any additional surface nutrient stripping facilities.

The finished earthworks level for all lots on the site will be constructed at least 500 mm above the calculated 1 in 100 year storm event.

10.2 MAINTENANCE

The road drainage pits will require at least annual maintenance, at the end of summer before significant rainfall events, and after all rainfall events that carry a high silt or debris load, such as during the period of construction of the buildings, to maintain the permeable base. More regular maintenance will be required during construction to manage silt and debris loads, if blockages and subsequent flooding is to be avoided.

The swales require regular maintenance, to keep them free of silt, litter and debris, so they are able to operate satisfactorily during storm events with infiltration and surface flows.

Underground storages will need to be maintained at limited intervals to ensure satisfactory operation. Access chambers will be included in these storages for maintenance inspections and access.

Road sweeping during the period of construction of the buildings will need to be carried out at least weekly to reduce the silt, litter and debris load on the drainage system. Each building site should be required to contain all their silt, litter and debris wholly in suitable receptacles within the site boundaries during the period of construction.

10.3 UTILITIES

10.3.1 WATER SUPPLY

The existing DN100CI water main in Davies Road and the existing DN100 RC water main in Lapsley Road provide only the minimum diameter allowed in new subdivision design. The DN200 CI water main in Graylands Road, will be sufficient to serve the new development.

A new DN200 main will be installed along Davies Road, fronting the development, and a linking DN200 main will be installed along the Proposed Road to join the existing DN200 CI main in Graylands Road and the existing DN150 CI main in Davies Road.

The existing DN 535S water main in Shenton Road will provide an adequate water supply for the proposed redevelopment, and will connect to new DN200 mains. The DN535S main will require relocation, along with the relocation of the section of Shenton Road shown on the Structure Plan, and will be located within the new road reserve.

The adoption of grey water/wastewater recycling for non-potable water uses within the new developments, and other water saving arrangements such as Five Star Plus appliances and low water gardens, will reduce the demand on the public water supply system. These elements will be considered and included in the formulation of the Design Guidelines.

10.3.2 SEWER

The existing DN225 VC sewer in Lapsley Road, which also takes sewer flows from the RAS showground site and has previously been identified by the Water Corporation as under capacity at peak loads, will be replaced with a DN375 sewer.

This new DN375 sewer will connect to the existing DN380VC Davies Road Collection Sewer on the opposite side of Davies Road.

A new DN150/225 reticulation sewer will be located along the Proposed Road and along Graylands Road to connect to the existing DN610 RC Claremont Main Sewer in Shenton Road. The sewer along Davies Road will be located within the road pavement, on a Trunk Services alignment, to avoid damaging the existing street trees.

New DN150/225 reticulation sewers will be located in Shenton and Graylands Roads, fronting the development area, and with downstream outlet connections to the DN610 RC Claremont Main Sewer.

The two existing main sewers will provide an adequate outlet from the development. Sewer flows will be reduced by the extent of grey water and wastewater recycling included in the proposed development.

10.3.3 UNDERGROUND POWER AND STREET LIGHTING

All existing LV and HV overhead power lines within the roads surrounding the redevelopment area are required by current Western Power standards to be replaced with underground power cables, and all new power reticulation cables required to serve the redevelopment must be underground.

The existing 132 KV overhead line in the current Shenton Road Reserve will be relocated to the new road reserve and placed underground. Subject to discussion and a special agreement with Western Power, the line may be relocated as an overhead line, on the railway side of the new road reserve, if this cost saving is required to be pursued. The benefits to the streetscape, aesthetics and tree growth should be considered, along with the cost of undergrounding this high voltage line.

New power transformers on the undergrounded HV lines in the surrounding roads will provide the required LV power to each of the development sites.

High thermal efficiency and renewable energy supply options will be included in the proposed buildings across the precinct to provide a high level of energy efficiency.

10.3.4 TELECOMMUNICATIONS

The proposed development allows for a complete telecommunications system to be installed, providing a broadband connection to each building, from a head end on the site which has a connection to existing Telstra line.

A fibre to the premises line around the oval will enable each building to connect to the system.

Various telecommunications providers will be able to access the head end, so any subscriber is not limited to using Telstra.

Services such as free and pay TV, high speed internet, and video on demand can be provided for the head end without the need for any building to install an aerial.

10.4 SITEWORKS

The significant differences in existing levels at the bunds to Claremont Football Oval, the retaining walls at the PCYC and Davies Road, and between Shenton Road and the present informal park-and-ride, will be addressed by bulk earthworks at the detailed design stage.

Bulk earthworks and significant retaining walls for the new roads within the development area and to provide for particular building requirements will be required to suit restrictive lot boundaries and the existing surrounding road levels. The interface between the football oval and adjoining buildings will require bulk earthworks to match up the site levels.

Bulk earthworks will need to take into consideration any trees that are to be retained. Trees identified for relocation will need to be prepared and transplanted in advance of site works.

11 CLAREMONT NEP AT A GLANCE

The redevelopment of currently under-utilised land within close proximity of the Claremont Train Station creating the Claremont NEP will provide a desirable lifestyle for singles, couples and retirees with its central location supported by existing and proposed services and amenities.

11.1 KEY FACTS

- 9.4 ha of new residential development
- 7 km from Perth
- 10 km from Fremantle
- Development will encompass a football oval/village green
- Immediate proximity to the Claremont Train Station and town centre
- An estimated 503 apartment dwellings
- A range of one to three bedroom apartments of varying sizes.
- 12 townhouses
- Commercial floorspace of 11,700 m²
- Retail floorspace of 2,600 m²
- Public Open Space Areas totalling 7855 m²
- Retention of Claremont Football Oval 2.02 ha

11.2 KEY DATES/DECISIONS

The key dates and decisions leading to the formulation of the proposed Structure Plan are outlined below.

2005 and 2006 - the Urban Design Centre (UDC) prepared the NEP Development Concept report, which included substantial community consultation and subsequent detailed analysis of community survey results (by Curtin University).

July 2006 - Council formally received the community survey results at its meeting of 4 July 2006. At the same meeting, Council resolved to request the Minister for Planning and Infrastructure direct LandCorp to proceed with an economic impact study (feasibility study) for the proposed project.

September 2006 - the Minister for Planning and Infrastructure announced that the State Government and the Town of Claremont had agreed to form a partnership to progress planning for a public transport oriented, urban renewal development in Claremont.

December 2006 - Planning consultants, Taylor Burrell Barnett, were engaged to assist in refining the preliminary design scenario, with the UDC also engaged to ensure design principles determined through the community consultation process were maintained.

April 2007 - Results of this design refinement process, in the form of a Feasibility Design review report, subsequently enabled LandCorp to prepare a preliminary economic analysis to determine the feasibility of various design scenarios.

October 2007 - Following approval by relevant State Government agencies, the Town subsequently initiated statutory advertising for Amendment 107, with the scheduled date for conclusion being 15 November 2007 (a period being not less than 42 days).

October 2007 - Taylor Burrell Barnett completed a Design and Planning Assessment Report for the Town of Claremont.

2 October 2007 - At its Ordinary Meeting, the Council of the Town of Claremont considered the Design Development and Planning Assessment Report. Council resolved to forward this Report to the Minister, along with advice regarding key land stakeholder project implications and a request to consider formalising the State and Local Government partnership framework for implementation of the North East Precinct project.

6 March 2007 – Technical Consultants were engaged by the Town of Claremont to provide inputs into the Metropolitan Region Scheme Amendment and/or the Local Structure Plan.

6 May 2008 – A design workshop was held to formulate a concept plan for the area.

June-August 2008 – Refinement of the concept plan and preparation of the Structure Plan was undertaken on behalf of the Town of Claremont, with input from LandCorp, DPI, PTA and other relevant agencies and Stakeholders.

16 September 2008 – Town of Claremont resolves to adopt the proposed Structure Plan for public advertising (21 days).

11.3 KEY IMPLICATIONS FOR THE PROPOSED STRUCTURE PLAN

- The UDC preferred concept provided the basis for the preparation of the proposed Structure Plan in accordance with the Local Planning Scheme provisions.
- The feasibility work undertaken by LandCorp, combined with the Design Development and Planning Assessment report, established the parameters to ensure the viability of the development of the NEP.
- The informal park-and-ride located on the northern side of the Claremont Train Station to be redeveloped and replacement parking to be accommodated within the NEP.
- Basement car park preferred to ensure minimal impact on the amenity of the adjoining residential development.
- Appropriate amendments to be progressed to both the MRS and the LPS to facilitate the development with the Claremont Football Oval to be retained within the 'Restricted Parks and Recreation' reservation.
- Shenton Road to be realigned in a configuration more suitable to a TOD.

12 IMPLEMENTATION

There are various statutory processes required to deliver and facilitate development of the Claremont NEP, and these are documented below. Many are statutory processes which are time consuming and, where possible, these should be undertaken concurrently with the MRS rezoning.

12.1 METROPOLITAN REGION SCHEME

12.1.1 AMENDMENT

The Amendment to the MRS for the Claremont NEP initiated by the WAPC in August 2008 to include the entire site, with the exception of the Claremont Football Oval, within the 'Urban' zone will now proceed through the formal process with advertising for 90 days likely to extend from November/December 2008 to February/March 2009, with gazettal anticipated towards the end of 2009.

Support has also been given to the concurrent LPS zoning to 'Development' zone available under section 126(3) of the Planning and Development Act, 2005.

12.1.2 REMOVAL OF 'OTHER REGIONAL ROADS' RESERVATION

The proposed MRS Amendment to rezone the subject land to 'Urban' will remove the 'Other Regional Roads' reservation from Shenton Road and Claremont Crescent. It is proposed that Shenton Road is realigned between Claremont Crescent and Graylands Road to provide more space for public activities around the train station, to aggregate the thin strip of PTA land and to provide a buffer between housing and the railway.

The removal of the 'Other Regional Road' reservation along Shenton Road is a critical element of the project to provide for a pedestrian and focussed development. The Amendment was supported on the basis of the Stage 1 transportation analysis. The Stage 2 analysis, including modelling, is currently underway and will be available prior to the advertising of the MRS Amendment.

12.2 STRUCTURE PLAN ADOPTION

Once the Amendment to the MRS and concurrent Amendment to the LPS have been finalised and gazetted, this Structure Plan can be adopted by the ToC and endorsed by the WAPC as a formal Structure Plan pursuant to clause 75E(2) of LPS3. This will provide the ToC with a high level of statutory control, where the Structure Plan effectively carries the force and effect of LPS3. Whilst the ToC may adopt the proposed Structure Plan, the WAPC is not likely to endorse the proposed Structure Plan until the land is appropriately zoned.

12.3 DEVELOPMENT CONTRIBUTION PLAN

A Development Contribution Plan has been prepared for the Structure Plan area in accordance with LPS3. The Development Contribution Area is subject to a separate amendment to be identified on the Scheme Map as DCA1 and included within Schedule 1 of the Scheme Text. In the interim, the Development Contribution Plan is required to be prepared under section 75G(4) of LPS33, and has been prepared in accordance with (draft) Statement of Planning Policy 3.6 Development Contributions for Infrastructure.

The purpose of the Development Contribution area is to:

- provide for the equitable sharing of the costs of infrastructure and administrative costs between owners;
- ensure that cost contributions are reasonably required as a result of the subdivision and development of land in the Development Contribution Area; and
- coordinate the timely provision of infrastructure.

Details of the cost apportionment will be detailed as part of the preparation of Schedule ZZ to the Council's Town Planning Scheme No. 3. Reviews of the Development Contribution Plan will be conducted by Council when appropriate and the estimated infrastructure cost will be reviewed at least once a year to reflect changes in funding and revenue.

A copy of the Development Contribution Plan Report is included as **Appendix 9.**

12.4 DESIGN GUIDELINES

The Design Guidelines are an important component of the overall Structure Plan guiding framework; however, they should not be regarded to be as prescriptive as the Structure Plan, where the underlying intent is as important as the stated provisions. In cases where it can be demonstrated that the intent of the Design Guidelines can be more effectively achieved in a different way, then Council should have sufficient flexibility to consider such cases on their merit.

It is recommended that the Claremont NEP Design Guidelines are prepared and adopted as a Local Planning Policy pursuant to clause 82 of LPS3.

12.5 LOCAL WATER MANAGEMENT STRATEGY

The Department of Water (DoW) will require the preparation of a Local Water Management Strategy (LWMS) as a prerequisite to any subdivision and/or development of the Structure Plan area. The LWMS should be prepared in accordance with DoW requirements.

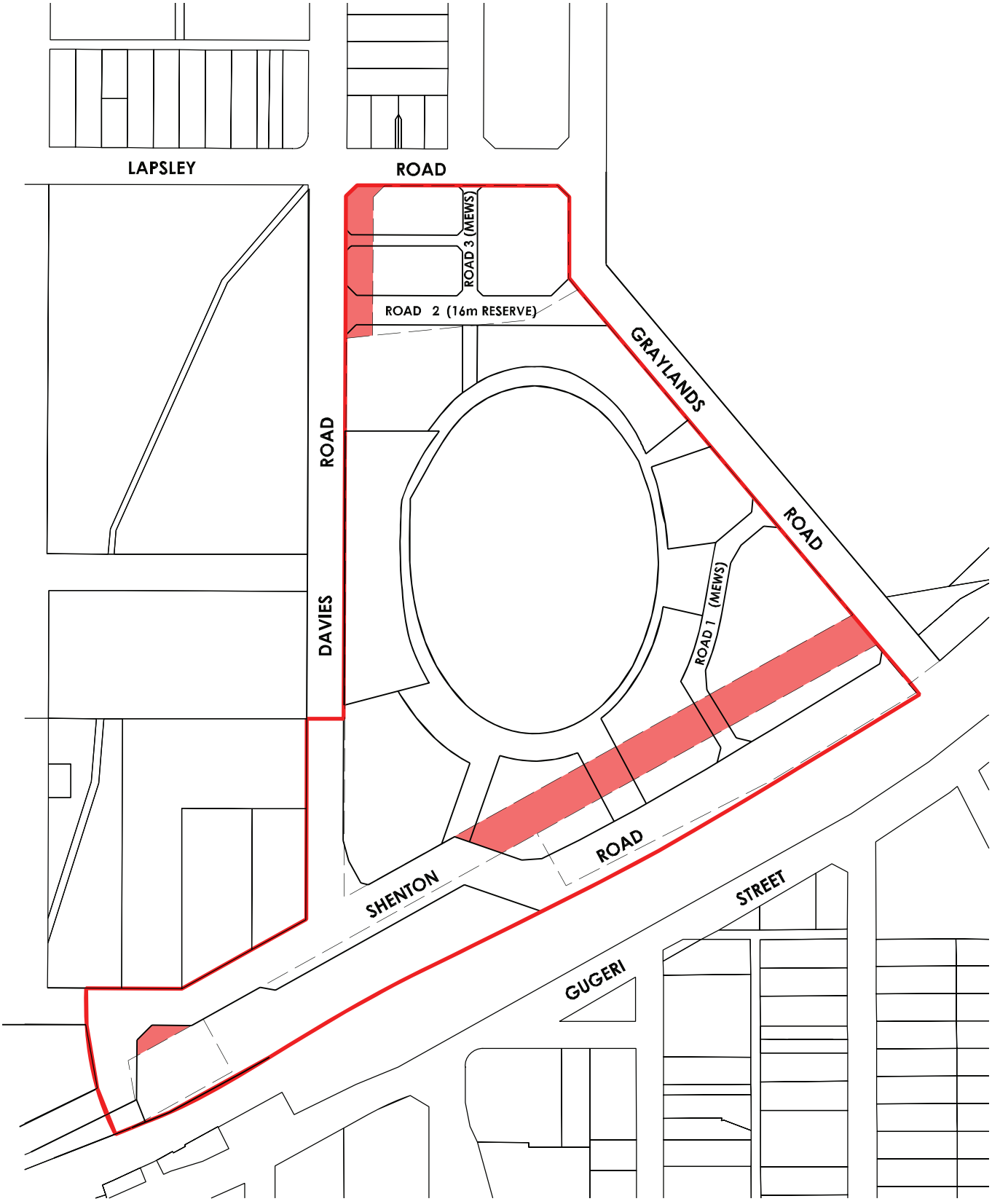
12.6 LAND ASSEMBLY

Following finalisation of the MRS Amendment, concurrent LPS3 Amendment and adoption of the Structure Plan, subdivision and amalgamation applications can be lodged with the WAPC in the normal manner to assemble the land appropriately to facilitate the development of the NEP. Initially, and prior to the commencement of the major infrastructure works, amalgamation is likely to occur to enable land rationalisation.

The subdivision/amalgamation process will be necessary to create some key elements of the project, such as the realignment of Shenton and Davies Road and creation of the new subdivisional road running parallel to Lapsley Road.

To expedite approval procedures, subdivision applications are likely to be lodged concurrently with Council's consideration of the Structure Plan.

Road closures will also be required for portion of Claremont Crescent, Davies Road and Shenton Road to facilitate development, as illustrated within **Figure 22** Road Closure.



LEGEND

NORTH EAST PRECINCT BOUNDARY

ROAD CLOSURE

Source: Taylor Burrell Barnett

0m 10 20 30 40 50m

ROAD CLOSURE PLAN

Claremont North East Precinct Structure Plan

FIGURE TWENTY-TWO

22

12.7 ADVICE TO PURCHASERS

As outlined in section 6.4, the proposed POS network is based on a series of interconnecting spaces which will function as one overall interconnected space. As this open space consolidation incorporates the oval, there will be the requirement for periodic closure of the POS to provide for certain events associated with the Claremont Football Club.

In this regard, formal advice must be provided to prospective purchasers at time of Development Application or subdivision stage of the subject land.

13 CONCLUSION

The Claremont NEP Structure Plan offers a significant opportunity for the implementation of best practice urban regeneration and sustainable TOD. The vision for the Claremont NEP is that of an attractive inner urban, transit oriented area containing a mix of medium to high density housing types, retail and commercial uses, with excellent access to public transit and the Claremont Town Centre.

Development within the precinct will complement the street character and public spaces. Dwelling yields and architecture are intended to keep building height to a human scale at the street, to ensure that the streets and other public spaces will provide an appealing, liveable environment.

The NEP project has been the subject of considerable discussion and consultation over a protracted period of time. Over that time, the development concept has undergone various changes in design and direction. The proposed Structure Plan design has evolved as a result of the extensive consultative process with the local community, stakeholders, State Government, peer review and the local authority. The extensive research and consultation that has been undertaken in exploring the various design concepts means that the current Structure Plan is supported by a thorough and comprehensive information base.

The Structure Plan reflects the uniqueness of the site encircling the Claremont Football Oval. The distribution of heights over the site helps to define the location of the train station and town centre and takes advantage of views of the oval and over Lake Claremont.

The future provision of Design Guidelines and Detailed Area Plans, to be read in conjunction with the Local Structure Plan, will provide a clear guide for future development of the NEP to ensure that the vision for this exciting project is achieved to the highest standard.

The Claremont NEP Structure Plan is commended to the ToC and the WAPC for formal adoption as a basis for supporting the various implementation actions necessary to deliver the vision.

APPENDIX 1
MINUTES OF DESIGN WORKSHOP

CLAREMONT NORTH EAST PRECINCT

DESIGN WORKSHOP

6 May 2008

MEETING NOTES

Attendees

Terry Pearson	Town of Claremont
Sofia Boranga (SB)	Town of Claremont
Ben Rose (BR)	Town of Claremont
Jill Gaynor (JG)	LandCorp
Ian Robson	PTA
Steve Beyer	PTA
Dale Bastin	DPI
Emmerson Richardson (ER)	SKM
Ryan Falconer (RF)	SKM
Frank Iemma (FI)	Oldfield Knott
John Tuzee (JT)	Plan E
Catherine Della-Bosca	Plan E
Bob Kelliher	GHD
Georgia Moore (GM)	Pracsys
Matthew Todd	Strategen
Kerrie Gorman	Strategen
Bill Burrell	Taylor Burrell Barnett
Karen Wright (KW)	Taylor Burrell Barnett
Mark Bancroft (MB)	Taylor Burrell Barnett
Louise Howells	Taylor Burrell Barnett

Design Outcomes

Meeting Commenced:	**Action**
Shenton Road	
• Shenton Road is to be 20.5m – 21m wide to accommodate for a two lane road, parallel parking, PSP and landscaping	SKM to detail cross section
• Shenton Road is to be realigned along the existing railway fenceline and will contain a crank in its alignment towards the train station area to slow down traffic, announce the pedestrian focussed precinct, as well as increase the developable area next to the train station.	SKM to detail design
• Two bus bays (each 18m in length) will be required and are likely to be located along the southern side of Shenton Road east of Davies Road close to the train station.	

Car Parking	
• PTA advised requirement to accommodate a minimum of 200 park and ride bays in the precinct. Multideck facility to be investigated to accommodate. • If car parking for park and ride is required to be located within the site, the preferred location is the corner of Graylands and Shenton road and will be framed by development to provide an active edge. The land area for the carpark (if required) should generally be in the order of 50X50 metres to accommodate 200 bays and 2-3 storeys high (if 3 storeys, 1 storey will be commercially leased) • The location of the carparking area is approximately 300m from the train station. This location is considered ideal is it maintains a suitable walking distance without severely impacting on the ability to provide development and dwellings close to the train station. • The location of the carparking will also increase pedestrian activity along Shenton Road, and subsequently improve the viability of non-residential ground floor development along Shenton Road frontage. • Access to car parking is likely to be from a mews in the form of an elbow shape to connect Shenton and Graylands Road's. There is also potential for vehicle access from Graylands Road (car access should not be provided off Shenton Road). Pedestrian access to Shenton Road should be provided from the "internalised" car park through "sleeved" development. • The current parking, kiss and ride area to the west of the heritage shed (council land) is likely to be replaced with commercial development. Kiss and ride should be relocated onto Claremont Crescent and Shenton Road, north of the transit plaza.	
Police Station	
• The options for the location of a police station were investigated. A possible location was the current parking, kiss and ride area, given its availability and potential to proceed without the timeframe restrictions associated with Shenton Road realignment. • The alternative preferred location is in the far eastern section of the development area, west of the potential decked carpark, where it will have vehicle access to Shenton Road and a mews connecting Graylands Road and Shenton Road as well as pedestrian access to Shenton Road. The police station in this location would frame the western edge of the car parking area.	
Transit Plaza	
• The transit plaza is likely to be located east of the historic shed. This location is in close proximity to the train station, maintains vistas of the shed and provides the opportunity for re-use of these structures. • Davies/Shenton Road intersection to be realigned further east to improve area of transit plaza and provide strong viewline terminus. • Appropriate activities are required adjacent to the plaza to ensure interest, activation and surveillance.	
Built Form	
• Building plates were formulated by all groups with attention to delivery of reasonably sized development parcels and access arrangements. Building heights were likewise explored and notated in particular locations dependant on visual amenity available, proximity to open space and sensitivity to existing development. Height is subject to further investigation.	

- Densities were not discussed in detail other than the overarching principle of optimising dwelling numbers/population within this TOD precinct and providing as greater mix of dwelling sizes as achievable. Affordability was likewise a key issue and must be considered when investigating dwelling size, mix and location.

Specific area notes follow:

- Commercial/retail floorspace is to be located around the transit plaza and around the train station, as well as on the corner and wrapping around Davies and Shenton Road. Opportunity to extend mixed use along Shenton Road.

- There is a possibility of investigating the use of the land between Davies Road and the eastern boundary of the tennis courts to allow for development and activation of both edges to Davies Road. This land is currently used for informal parking. Retention of informal parking along Davies Road inappropriate for development of the NEP.

- One concept option investigated the potential for the significant palm and pine trees at the corner of Shenton and Davies Road to be retained and surrounded by development with colonnade edges. Further consideration is needed to this option given the poor solar access/potential overshadowing and south-westerly orientation of this plaza – potential negative effect on extended activity throughout all seasons. It is also opposite the proposed transit plaza, thus creating the issue of having two high quality 'public spaces' in close proximity.

- The corner of Shenton and Davies Road was noted as an iconic/landmark site. Given the significance of this corner site, the design/development frontage and the possible retention or relocation of the trees should both be investigated further.

- The area immediately north of the Football club is considered to have particularly high amenity with views over the golf course, oval, and to the north of the site. This area should contain greater height to take advantage of views, with greater height next to the football club facility which will step down to the north to minimise impact on lower height development along Lapsley Road.

- A road is to run parallel to Lapsley Road as shown in the UDC Plan. Two storey development (likely to be townhouses) preferred fronting Lapsley Road with rear access in the form of a mews, so northern living and outdoor areas can be optimised. Possibility for height to increase to the south of the mews to take advantage of northern and western views. The mews to connect with a north/south road which will extend from the existing north/south road intersecting Lapsley from the north (between the industrial building and weatherboard cottages). The purpose of this road will be to break up the length of the mews and to allow for good pedestrian access to the oval from the north.

- Opportunity for medium height development to be located on the corner of Lapsley Road and Graylands road where the land fronts industrial uses.

- Development to frame the potential multi-deck carpark on the corner of Shenton and Graylands roads on all edges to provide active edge to surrounding streets.

- Pedestrian activity will be encouraged around the oval through the location of a footpath and open space areas around its perimeter and open space punctuations to the oval. Access from existing and proposed development north of the oval to the train station should be considered in the design.

- Building height around the oval is be articulated and should vary quite significantly in places to ensure that a 'colosseum' effect is not produced which along with visual impact could also adversely effect wind patterns and oval use for football.

Ongoing Investigations	Discussion	Action
Composite Concept Plan to be prepared from both tables and distributed to project team	Comment by 30 May 08	TBB
SKM to confirm parking ratios and overall parking requirements for office, retail and commercial development.	Comment by 30 May 08	SKM
Investigation into extension of at-grade carpark to the south of the rail line.	Issue of grass trees to be considered by Council	ToC
Investigation into the feasibility of the multi level car park for park and ride on the corner of Shenton and Graylands Road.	Follow up on feasibility with PTA SKM to discuss with PTA	PTA
Follow up with Oldfield Knott on the history of the Dockers facilities to inform the possible location and requirements of the WCE facilities at the site,	Ongoing	TBB
Follow up Oldfield Knott in regard to the feasibility/costs associated with the construction of buildings at different heights.	Ongoing	TBB
Determine what level of public access will be permitted to the oval and its cartilage should the WCE relocate to Claremont Oval.	Ongoing	TBB
Determine significant tree retention/relocation and design constraints from Arbor study.	Ongoing	TBB/Plan E
Liaise with Strategen regarding the impact of noise on the development of the site.	Ongoing	TBB
Seek advice on the concept, land use and range of development from Colliers	Ongoing	LandCorp
Investigate the implications of the WCE at the oval	Ongoing	ToC/TBB

APPENDIX 2
PRECINCT TRANSPORT PLAN

Claremont North East Precinct (NEP) transport study

PRECINCT TRANSPORT PLAN

- Final
- 15 September 2008

Claremont North East Precinct (NEP) transport study

PRECINCT TRANSPORT PLAN

- Final
- 15 September 2008

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Contents

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Executive summary

At full development, the major components of the Claremont North East Precinct (NEP) Local Structure Plan are:

- Approximately 515 residential dwellings:
  - 12 townhouses (each with three bedrooms)
  - 503 apartments (averaging 125m^2 in floor area, although a diverse range of units are anticpated)
- Approximately 11,700m^2 gross floor area (GFA) of commercial (office) buildings
- Approximately 3,400m^2 GFA of retail

Key aspects of the Plan from a traffic and transport perspective are:

- The NEP is directly adjacent to Claremont Train Station and the entire development area is within the walkable catchment (one kilometre walk/ an 800 metre radius) of the station.
- Transit Oriented Development (TOD) planning principles are being applied in the Claremont NEP to exploit the excellent access to rapid transit, meaning relatively high activity intensity is proposed.
- A high-quality internal pedestrian and cycling realm is anticipated in the Claremont NEP.
- Reduced levels of car parking and appropriate car parking management strategies are proposed, which balance the need for car restraint with regional access needs (particularly relating to Park and Ride) and disabled access requirements.

It is proposed that the development be based on reduced dependence on and use of cars. This is reflected in the recommendations for car parking supply for both residential and non-residential land uses. The following car parking policy and maximum rates of car parking provision have been assumed in development of the precinct.

- Residential car parking to be limited to a maximum of 1.2 parking bays per apartment and two per townhouse. Unbundling of bays from the sale of apartments could be used to obtain an appropriate and efficient allocation of car parking based on demand, although owners/ tenants would retain the right to purchase a minimum of one bay. By separating the cost of car parking bays from the purchase of units, residents will not have to purchase a bay they might not otherwise use. It is anticipated that car parking for townhouses will be provided on-site.
- Commercial/ office car parking to be limited to 1.5 bays per 100m^2 GFA, with 40% tenant and 60% public short term parking.
- Retail car parking to be limited to two bays per 100m^2 GFA, all of which is public short term parking.

- A maximum of 200 Park and Ride bays provided in a suitable structure sleeved by other land uses.
- Car parking for the football club to be provided at a rate not exceeding that for commercial/ office uses (i.e. 1.5 bays per 100m^2 GFA).

An appropriate number of taxi bays, disabled bays and pick-up/ set-down bays would be provided in addition to the car parking supply mentioned above.

The approach has been to maximise the percentage of public short term car parking while limiting non-residential private parking. This enables car parking to be shared between residential, office and retail visitors.

On this basis, the recommended car parking supply for the precinct is:

- Residential car parking – maximum 628 bays
- Tenant commercial/ office car parking – maximum 70 bays
- Visitor commercial/ office car parking – maximum 106 bays
- Visitor retail car parking – maximum 68 bays
- Park and Ride (provided in an off-street structure) – maximum 200 bays
- **Total precinct car parking supply – up to 1,072** (plus car parking associated with the Claremont Football Club; on-street disabled car parking; taxi bays; pick-up/ set-down bays).

Sinclair Knight Merz has established the likely traffic generation from the precinct based on its location, TOD characteristics (i.e. relatively high activity intensity and walkability), and car restraint policies. The total weekday traffic movement per day generated from site is estimated to be:

Residential	Apartments @ 4 per day	2,012 trips/ day
	Townhouses @ 5 per day	60 trips/ day
Office (11,700m^2 GFA @ 6/ 100m^2)		702 trips/ day
Retail (3,400m^2 GFA @ 30/ 100m^2)		1,020 trips/ day
Football club/ s		500 trips/ day
Park and Ride		525[1]
Total Daily Trips		**4,819 trips/ day**

[1] This assumes an average of three vehicle trips per park and ride bay per day.

These will not all be additional vehicle trips, as there are current vehicle trips associated with the Claremont Football Club, Park and Ride (~300 parking bays), and Council car parking area to the west of the train station (70 parking bays).

As a result of excellent access to the regional public transport system, good walking and cycling networks and limitations to car parking, it is estimated that traffic generated could be up to 2,500 less on a daily basis than would be expected in a comparably-sized conventional development with a lower level of access to public transport, poorer quality local walking and cycling conditions and insufficient car restraint.

Traffic access to and from the development will function adequately assuming the following key intersection treatment:

- Installation of traffic lights at the intersection of Shenton Road and Davies Road.

In addition, it is anticipated that Shenton Road will be realigned and redesigned as a slow-speed neighbourhood connector, which would be consistent with sustainable transport planning in the NEP. However, these matters are tied up with the amendments to the Metropolitan Region Scheme presently being pursued. The amendments involve the:

- Rezoning of around 9.4 hectares of land within the NEP from 'Parks and Recreation' to 'Urban', to facilitate TOD.
- Removal of the 'Other Regional Road' (ORR) reservation from Shenton Road and Claremont Crescent between West Coast Highway and Gugeri Street.

The removal of the ORR reservation in particular, is addressed at length in the Strategic Issues Paper already prepared and in the Road Network Analysis Study presently being conducted by Sinclair Knight Merz for the Department for Planning and Infrastructure.

As noted above, the NEP is directly adjacent to Claremont Train Station and the entire site is within a one kilometre walking distance of the station. There are also some ancillary bus services that are within easy walking distance of the precinct, including the 28 service on the north side and five services on the south side of the rail line. Proximity to rapid transit and local services, constrained and carefully managed car parking supply, implementation of the above infrastructure improvements and development of quality pedestrian and cycle infrastructure within the precinct will ensure that access to/ from the Claremont NEP can occur in a satisfactory manner without adverse traffic impacts.

1 Introduction

Sinclair Knight Merz (SKM) was contracted as part of the State Government's Local Government Assistance Programme to develop a Transport Plan for the Town of Claremont's North East Precinct (NEP) (see Figure 1)[2]. The Precinct Transport Plan is being prepared for presentation to the Claremont NEP working group, which comprises representatives from the Town of Claremont (ToC), Public Transport Authority (PTA), DPI and LandCorp, and will inform the structure planning for the NEP. All members of the working group have been actively involved in the development of the PTP.

The NEP is being developed as a Transit Oriented Development (TOD) and as such, the street layout, car parking supply and traffic management, and design of the pedestrian and cycling realms must be consistent with the objectives of TOD to minimise car dependence and use, and facilitate walking, cycling and use of public transport.

The key points addressed in the PTP include:

- Applying TOD principles to encourage sustainable transport;
- The proposed development yield;
- Developing the internal street network layout and linkages to the external street network;
- Car parking requirements and associated management strategies for the NEP;
- Access to public transport and strategies for promoting its use;
- Designing the walking and cycling networks; and
- Projected traffic generation, traffic impacts and traffic management.

The implementation of the PTP requires amendments to the Metropolitan Region Scheme (MRS). This matter is addressed in the following section and is the subject of a Strategic Issues Paper written in May and a Road Network Analysis Study Report being prepared by SKM for the DPI.

[2] The most recent concept plan received by SKM from Taylor Burrell Barnett is dated August 2008.

- **Figure 1 – The Claremont NEP concept plan (August, 2008)**

(Source: Taylor Burrell Barnett, 2008)

2 Transit Oriented Development (TOD)

2.1 Characteristics of TOD

There is a suite of design features that characterise TOD. TODs have high relative densities and significant mixing of land uses, and are therefore activity intense environments. Generally, TODs include a range of housing options, including apartments and townhouses. The inclusion of some smaller units (i.e. one or two bedrooms) can also provide some diverse and affordable housing opportunities. TODs are anchored by fast and reliable rapid transit (usually rail) and crucially, the highest densities within the precinct tend to be nearer to the major transit node to maximise walk-on patronage. Apartments can therefore be expected closer to the transit node and townhouses towards the fringes of the precinct.

A highly permeable street network is also typical. This provides more direct connections between places than is common in conventional developments characterised by curvilinear streets and culs-de-sac. At the micro scale, provision of footpaths on both sides of internal streets, high-quality pedestrian street lighting, street furniture and other related features add to pedestrian amenity. An appropriate combination of on-street (such as marked cycle lanes) and off-street facilities (such as shared paths) also add to safety and comfort for cyclists. At the transit node, the interface between pedestrian and cycling infrastructure and transit is particularly important, with ease of access to transit services being one of the most fundamental aspects of design.

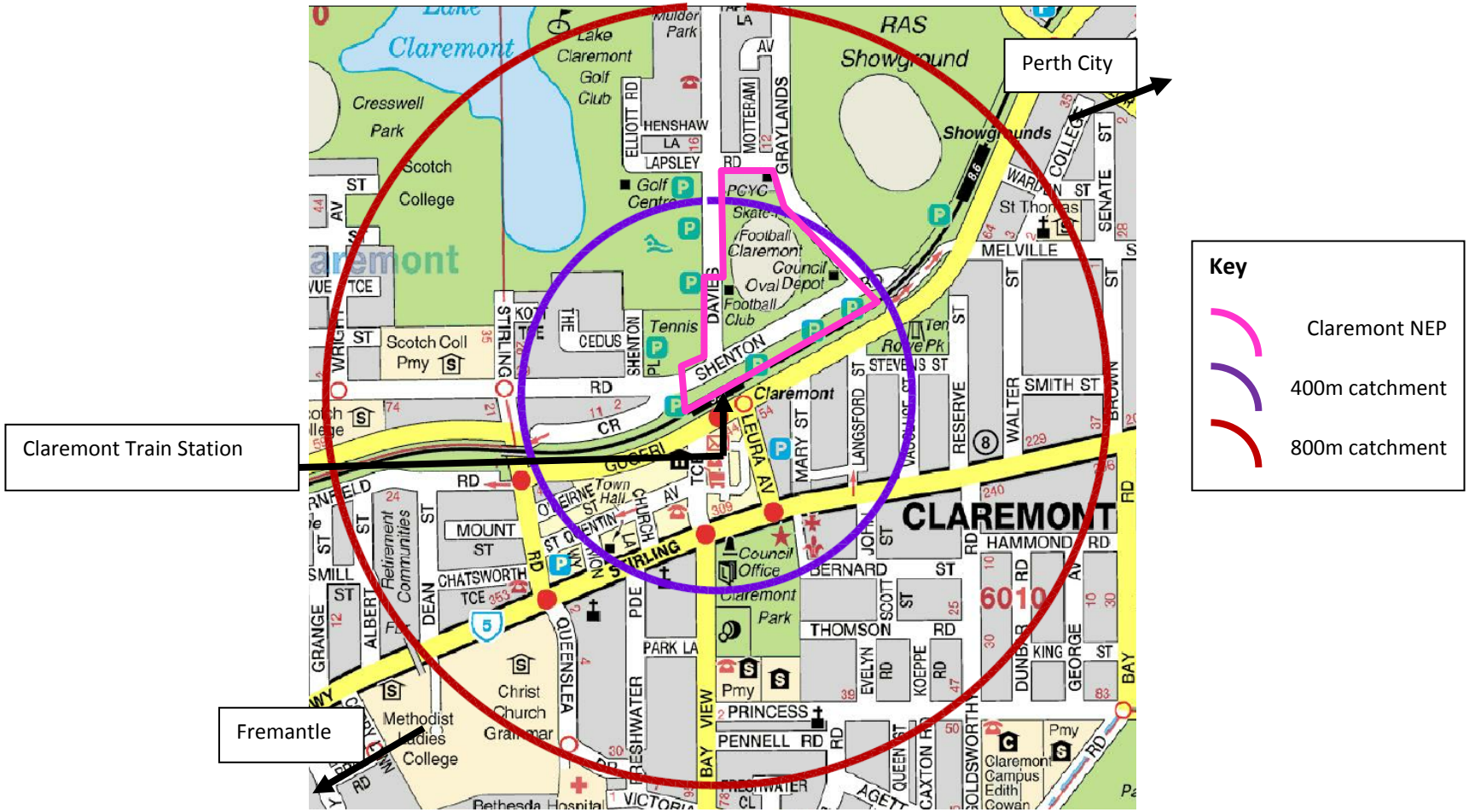
Within the TOD, low speed traffic resulting from street design and activity intensity is a positive. TODs will generally have a flatter internal street hierarchy, which encourages vehicles to decant from the precinct via a number of routes rather than a single point of egress. The high intensity of development will inevitably result in some level of congestion but this will self regulate as people will choose walking, cycling or public transport if congestion results in too much inconvenience for car travel. In addition, some congestion is to be expected in inner city areas and can be considered a natural consequence of economic activity and vibrancy. These positives associated with some vehicular travel should, however, be balanced against the need to limit vehicle emissions and pollution, and intrusion within the pedestrian domain. Thus, at the core of TOD planning is achieving an activity intensity that is appropriate for the context and designing the transport network to a high standard.

The opportunities for TOD in Claremont's North East Precinct (NEP) are well recognised. Claremont is categorised as an activity centre under Network City (2004) and has a strategic location adjacent to rapid rail transit (refer to Figure 2). Also, a Principal Shared Path (PSP) runs parallel with the railway line, which is along the southern boundary of the NEP. There are

significant opportunities to enhance this path and exploit the existing walking and cycling links to the east and west.

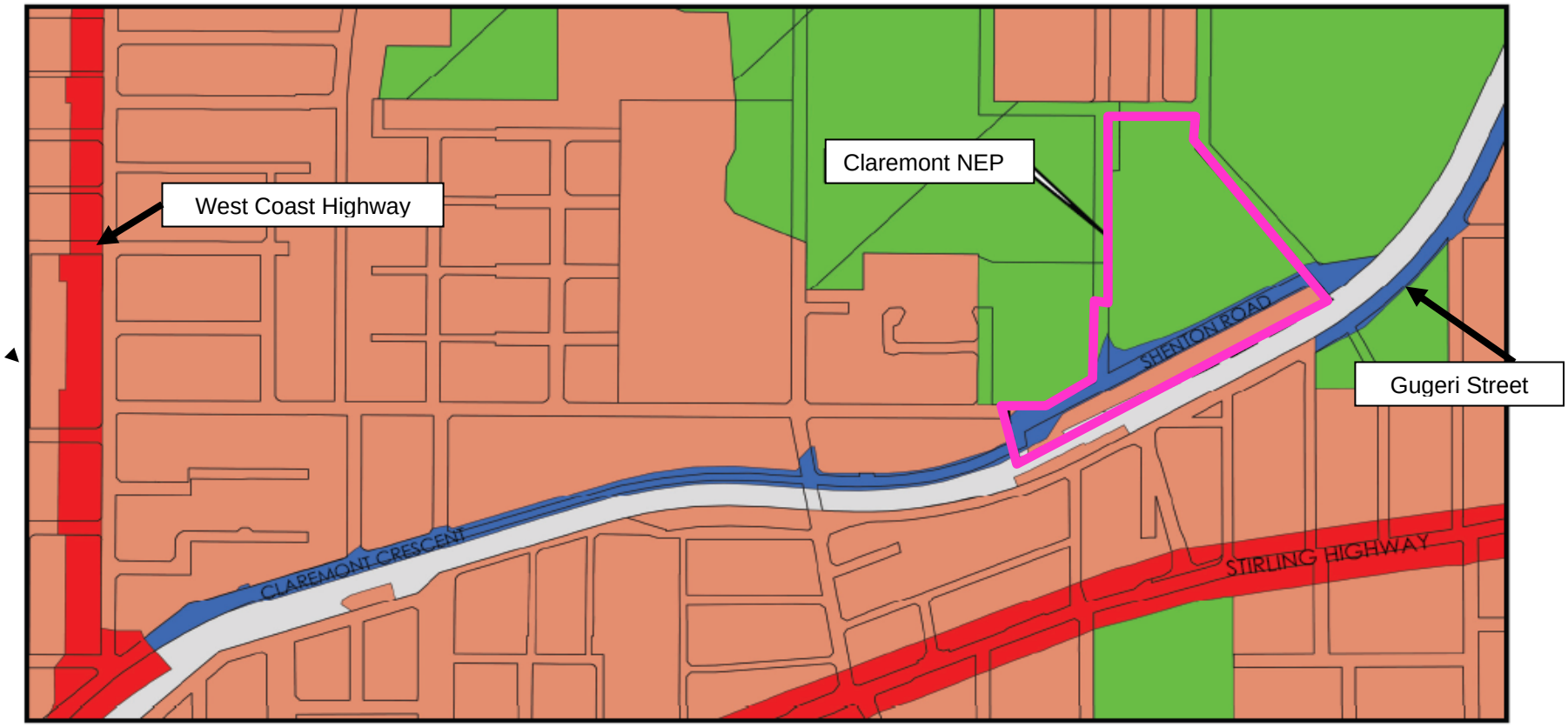
At the request of the Minister for Planning and Infrastructure, the ToC, DPI and LandCorp are progressing TOD in the Claremont NEP. An amendment to the MRS is required to rezone the Claremont NEP to 'Urban' under the MRS and 'Development' zone within Claremont Town Planning Scheme No. 2. Moreover, Claremont Crescent and the section of Shenton Road between Claremont Crescent and Gugeri Street are reserved as 'Other Regional Roads' (ORR) under the MRS and this has been recommended to be amended (see Figure 3). The recommended removal of the ORR reservations is addressed in the Strategic Issues Paper prepared in May 2008 (see Appendix 1) and is the subject of the Road Network Analysis Study presently being conducted by SKM for the DPI. The related MRS amendment is proposed to be advertised during 2008 in parallel with the development of the Local Structure Plan for the Claremont NEP.

- **Figure 2 – The Claremont NEP is strategically located near to Perth City and is adjacent to the Fremantle-Perth rail line**



(Source: Map reproduced with permission of UBD. Copyright Universal Publishers Pty. Ltd. DG 07/04)

- **Figure 3 – Metropolitan Region Scheme Map depicting the NEP, and the Parks and Recreation and ORR (blue road) reservations**



(Source: Metropolitan Region Scheme, 1963)

2.2 Planning for reduced car dependence and added transport choice

TODs are intended to be environments where there is both reduced dependence on cars for inbound and outbound trips, and increased opportunity for alternative mode use for discretionary trips. Planning for these transport-related outcomes will become more important over time; particularly because of rising fuel prices and the implications of greenhouse gas emissions/ climate change. For example, if development is planned for the private motor vehicle to be the only realistic transport option, residents, visitors and commercial tenants and visitors will be greatly disadvantaged as fuel price increases continue. Providing excellent access by and to other modes gives people important choices.

Public transport, walking and cycling access anticipated for the Claremont NEP is discussed in sections 6 and 7. However, important TOD planning principles relating to traffic and transport that are linked with these intentions include:

- Reducing the dependency on and use of cars through a combination of good, safe access to public transport and the regional cycle network, and limitations on the amount of car parking provided for residential, commercial and retail tenants and visitors.
- Providing a mix of residential development with office/ commercial, retail and other activities to encourage a higher proportion of walking and cycling for short trips, and provide a range of destinations within the walkable catchment of Claremont Train Station.
- Creating a direct and permeable street layout to ensure efficient and legible pedestrian/ cyclist movement to, from and within the precinct.
- Using street design and traffic management devices (such as intersection controls) to restrain cars (i.e. control vehicle speeds).

2.3 TOD car parking principles

Car parking supply in TODs must be carefully controlled. This is because an oversupply of car parking, especially free parking, can induce vehicle trips, which in turn can increase local congestion, reduce the ease and safety of movement for pedestrians and cyclists, and diminish vibrancy within the precinct.

In TODs, car parking should be capped at a rate below what would commonly be found in comparably-sized suburban developments. The reasons are two-fold; less car parking reduces vehicle trips and TOD supports other mode use. There is a range of innovative ways to accommodate car parking demand, including planning for shared used of parking (i.e. between complementary businesses) and unbundling residential parking from the sale of apartments. The provision of some Park and Ride bays can be considered about 300 to 400 metres distance from,

rather than immediately adjacent to Claremont Train Station. This ensures that vehicles using the Park and Ride do not congest the hub of the precinct and compromise pedestrian and cyclist amenity.

The need for varied parking requirements in TODs has been recognised in several strategic State policy documents. For example, *Network City* (2004) indentified the need to:

"Set maximum limits for car-parking, rather than just minimum limits." (strategy 6-2, action 6-2bxiv)

"Coordinating more frequent public transport services, reduced parking supply and increased parking fees at major activity centre." (strategy 6-6, action 6-6aii)

These strategic directions are also reflected at an operational level through policy such as the Western Australian Planning Commission's Development Control Policy 1.6, which recommends, when developing planning provisions as part of a local planning strategy process, local governments should have particular regard to:

"The development and application of scheme parking standards that reflect the availability within the precinct of transit facilities and that provide discretion to vary standards."

"The potential to use planning provisions to provide incentives for appropriate development in transit oriented precincts, including reduced parking standards."

The Claremont NEP Local Structure Plan presents a significant opportunity to apply good planning practice, so car parking contributes to rather than compromises the broader redevelopment objectives. The following principles have therefore informed the development of a car parking policy and management strategy:

- A maximum number of residential car parking bays should be provided, based on an average number of bays per residential unit, but the sale, lease or rental of parking bays should be unbundled from the sale or rental of apartments. This increases flexibility in the number of parking bays that are available to residential tenants at any point in time: resident may even choose not to keep a car at all and instead exploit the alternative mode opportunities on offer. Crucially, *tenants are not required to pay for car parking bays they might not otherwise use*. Over time, parking spaces, like residences, will normalise to a market price. Residential parking bays, like apartments could be bought, sold or rented for residential use, but should not be made available for use by workers commuting to the TOD. This will require that residential parking bays are marked as such and a covenant is placed on the title.
- A maximum amount of non-residential parking should be established based on the TOD development footprint and the commercial yield of the planned development.

- The majority of parking for non-residential uses should be public, short-term parking targeted at visitors and customers. Shared use of public parking allows for a more efficient and balanced use of parking over different times of the day and week. A maximum of 40% of the permitted non-residential parking should be allocated as tenant private parking. On-street parking will supplement off-street short-term visitor parking (residential, commercial and retail visitors).
- All non-residential parking should be managed through a combination of pricing and limits on the parking dwell time (both on-street and off-street).
- Suitable locations should be identified for scooter and motorcycle parking, including facilities within parking structures.
- A minimum number of parking bays for bicycles should be provided per residential unit within the TOD.
- A minimum number of parking bays for bicycles should be provided for commercial/ office development within the TOD. The majority of these bays should be private secure bays for tenants, located within buildings, but a proportion should be provided for public visitor bicycle parking. Sufficient end of trip facilities (i.e. showers) for use by employees should also be provided.

Car parking requirements for the NEP are discussed in more detail in section 5. These requirements are complemented by a car parking management strategy. Cycle parking requirements are discussed further in section 7.

2.4 TOD traffic generation rates

Traffic generation associated with different land uses in TODs will be lower than for comparable uses in conventional suburban developments. This is because a lower frequency of car use is anticipated in TODs, due to the activity intensities that characterise them and management policies advocating car restraint, and is offset by increased use of alternative modes. In section 8, SKM has estimated traffic generation associated with the various land uses in the Claremont NEP. Some robust assumptions were also made regarding traffic distribution, particularly during peak hours. Overall, SKM has made conservative estimations regarding traffic generation and as such, actual traffic volumes may be lower.

3 Preliminary development yields

Preliminary residential and non-residential yields have been developed by Oldfield Knott and Taylor Burrell Barnett (TBB), based on the concept plan proposed by the attendees of the design workshop held on 6 May and since refined (refer to Table 1). Whilst the residential units may have a maximum average size of 125m^2, it is anticipated that a diverse range of housing will be provided, including one or two bedroom affordable units.

The yields may be subject to change as the concept plan undergoes further iterations. Furthermore, it is not yet known whether the West Coast Eagles will be relocating to Claremont and more generally, what the floor-space requirements for the Eagles and the Claremont Football club will be.

- **Table 1 – Preliminary development yields**

Land use		Units/ GFA
Residential	Stand-alone dwellings (probable 3 bedroom)	12
	Apartments (average 125m^2)	503
Office/ commercial		11,700m^2 (9,945m^2 NLA)
Retail		3,400m^2 (2,890m^2 NLA)
Football clubs		*To be advised*

4 Street network layout

4.1 Preliminary street layout

On Tuesday 6th May, a preliminary schematic design for Shenton Road east of Davies Road was developed at the design workshop held at the ToC, by the multi-disciplinary consulting team and representatives of the DPI, Landcorp, the PTA, and the ToC. The schematic was since refined to show Shenton Road west of Davies Road and in particular, the location of disabled parking bays, taxi bays and pick-up/ set-down facilities[3]. Furthermore, a concept design was developed for Shenton Road east of Graylands Road to show how a connection via the rail underpass to Gugeri Street could be retained. In SKM's opinion, the median proposed along Shenton Road on the arc east of Graylands Road important for traffic safety. The local context is shown as Figure 4; the refined schematic layout for Shenton Road is shown as Figure 5; and the alignment of Shenton Road through the rail underpass is shown as Figure 6. The cross-sections (Figures 7-13) apply as shown on Figure 5.

- **Figure 4 – Local context**

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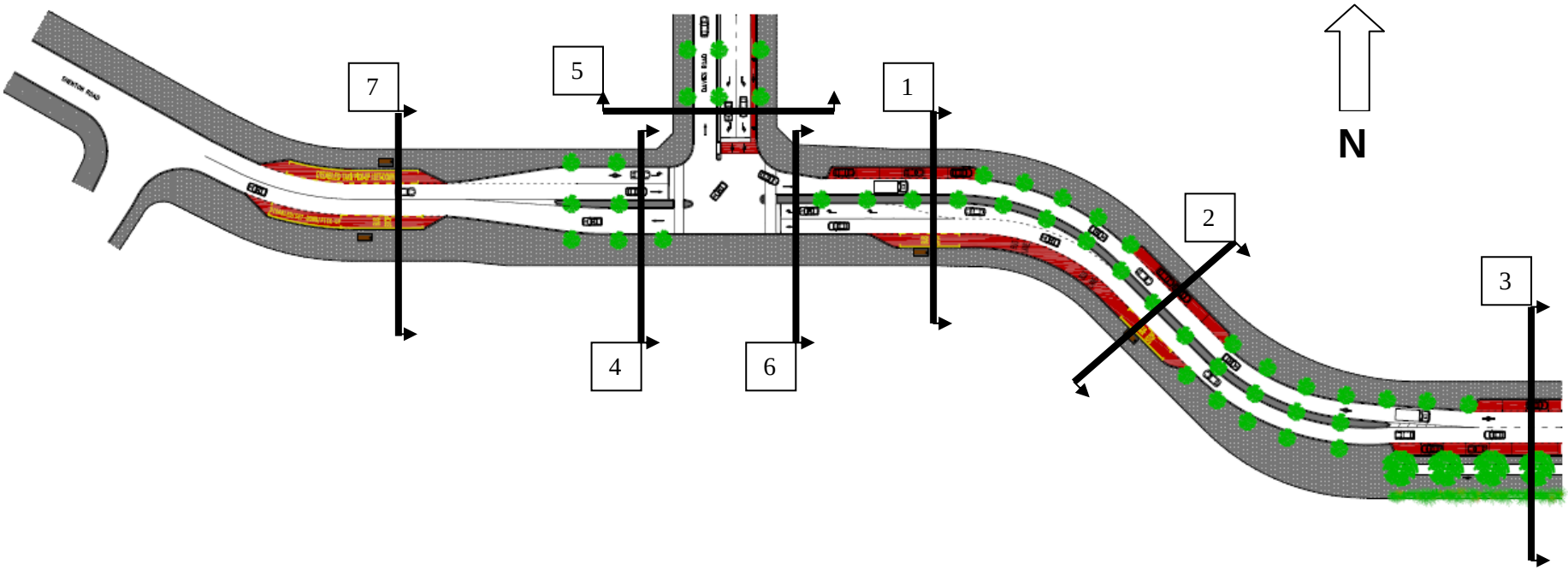
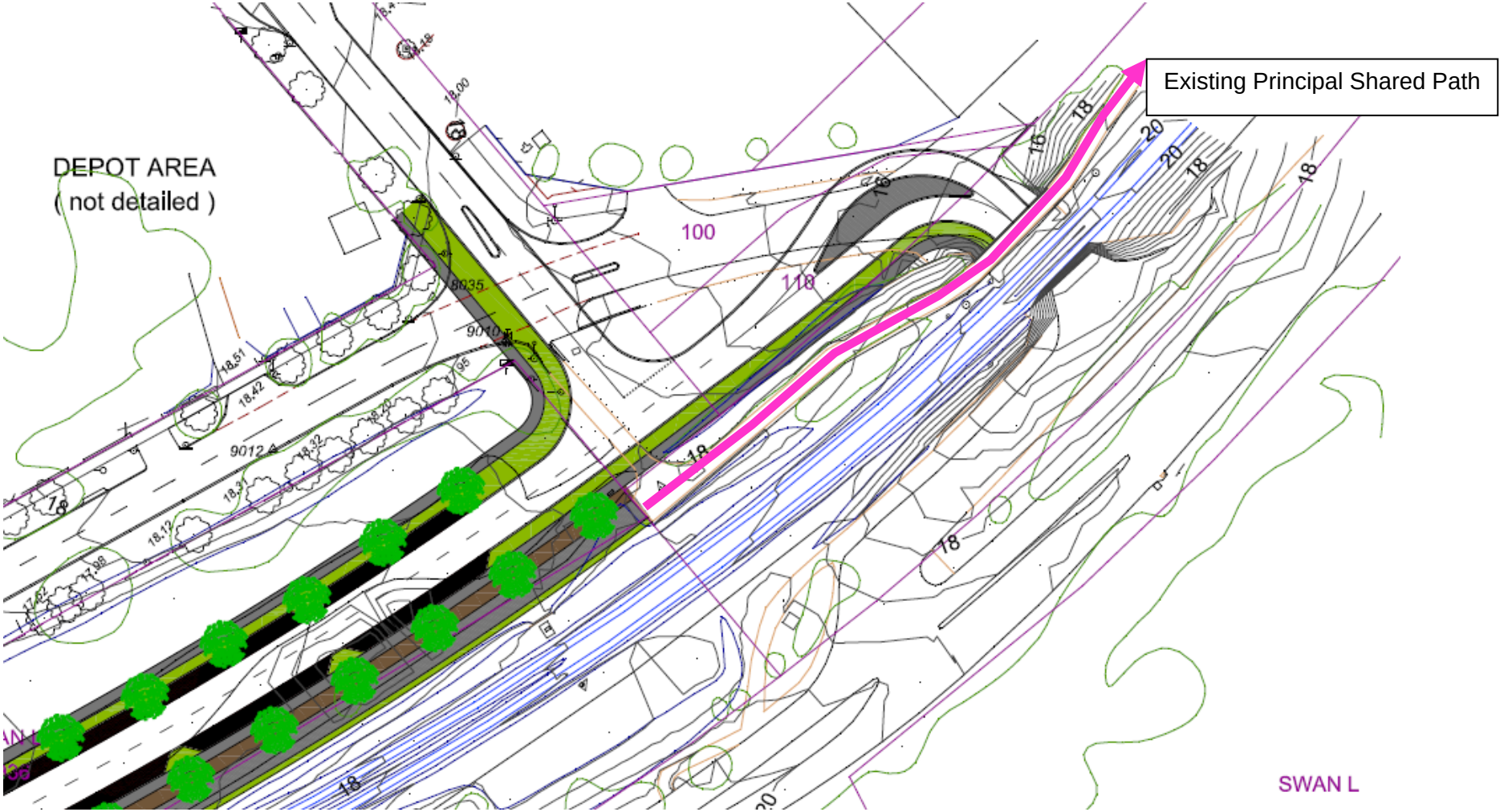
[3] The bays west of Davies Road are designed with a width of three metres and a sufficient length to future-proof the redevelopment in the event that they will be used by buses at a later time.

- **Figure 5 – Schematic layout of Shenton Road in the vicinity of Davies Road**



- **Figure 6 – Concept design of Shenton Road through subway Claremont**



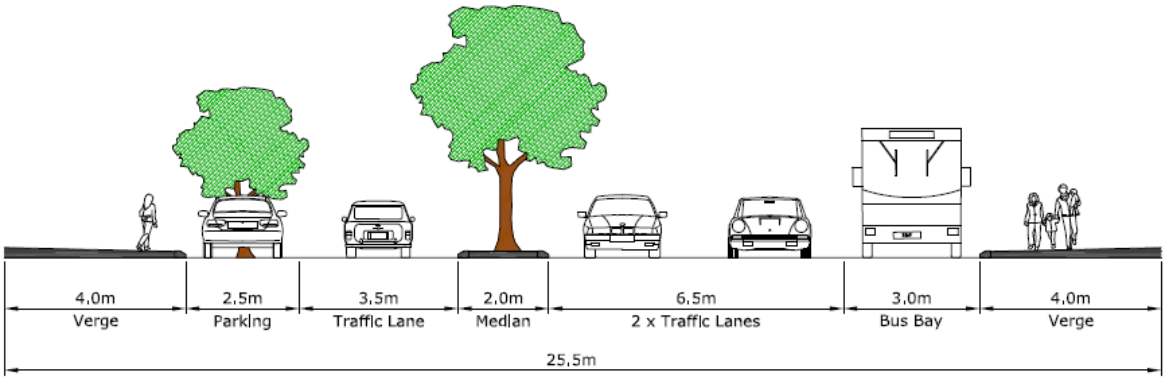
The key features of the proposed street layout are:

- Shenton Road to be designed as a neighbourhood connector, as at present, but its alignment and design will encourage low speed traffic (refer to Figure 5 for the proposed alignment).
- Shenton Road to have one lane of traffic in each direction, with parallel parking on each side, where possible.
- Traffic signals to be installed at the Davies/ Shenton intersection, to manage traffic and provide a safe and certain pedestrian crossing point between the commercial/ retail hub and Claremont Train Station (this will be the principal desire line for pedestrian movement). Cycling will be supported by the provision of a queue jump facility for cyclists on Davies Road at the intersection with Shenton Road.
- A distinct 'dog leg' to be designed into Shenton Road immediately to the east of the railway station. This will enable the section of Shenton Road to the east of the railway station to be realigned adjacent to the railway reserve, whilst facilitating efficient development blocks and contributing to a lower speed environment.
- Two bus bays to be provided on the south side of Shenton Road to the east of the proposed traffic signals at the Davies/ Shenton intersection, to provide a convenient terminal stop for a potential future Scarborough to Claremont high-frequency bus service. The bus service could approach Claremont via Graylands Road and depart via Davies Road (see section 6). The proposed bus bays are of sufficient dimensions to accommodate an articulated bus, if necessary.
- The Principal Shared Path (PSP) adjacent to the railway to be enhanced to provide safer use by both pedestrians and cyclists. In the section to the east of the 'dog leg', it is proposed that a separate footpath be provided adjacent to the on-street car parking and that this be separated from the PSP by an avenue of mature trees. Crucially, the section of the PSP in the vicinity of the railway station will need to be designed as per the PTA's policy "Cycle Access To, Through and Within Train Station Precincts". A preliminary concept design is shown on Figure 1 (the PSP is coloured brown).
- Parking for people with disabilities, a small number of set-down/ pick-up (5 minute) short stay parking bays and a taxi rank to be provided on both sides of Shenton Road, between Davies Road and Claremont Crescent. To enhance universal access, the disabled bays must be on the southern side of Shenton Road. The embayment on the south side of Shenton Road is shown with a width of three metres and of sufficient length to also accommodate the existing 28 bus service, which stops at this location. The embayment on the north side is also shown with a width of three metres and of sufficient length to accommodate additional bus services in the future, if required.
- Future bus services accessing the North East Precinct can utilise the proposed bays to the east or west of the intersection of Davies Road and Shenton Road. Bus access requirements would

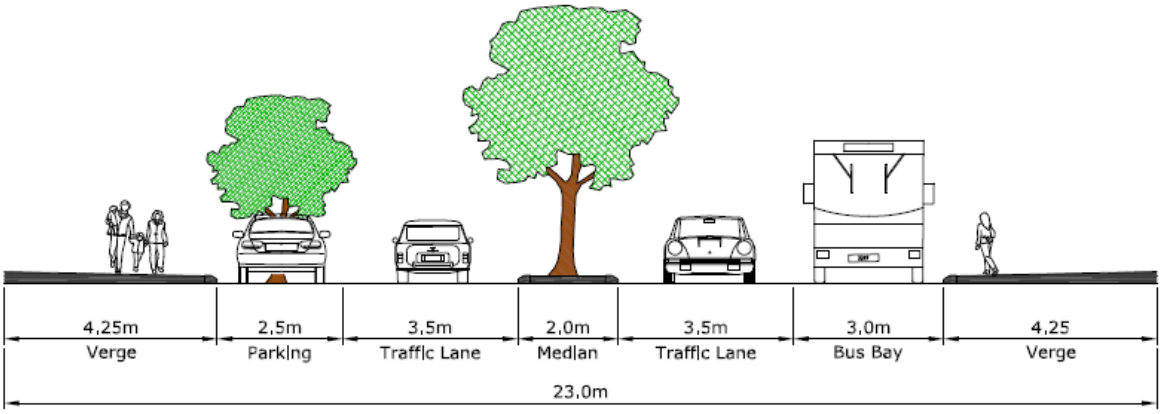
need to be balanced with the need to provide disabled parking bays, pick-up and set-down, and taxi bays in the vicinity of the train station.

- Trees may be provided within the verges along Shenton Road west of the Shenton/ Davies intersection, assuming they do not compromise lines of sight for drivers.
- Figure 6 shows an alignment of Shenton Road extending north and west from the underpass to minimise land take from the development area whilst still accommodating traffic flow (including the occasional heavy vehicle). The depicted median within this arc is, in SKM's opinion, important for traffic safety, as it will ensure the separation of opposing traffic.
- New internal laneways and mews should be designed with footpaths on both sides and on-street car parking, where practicable.

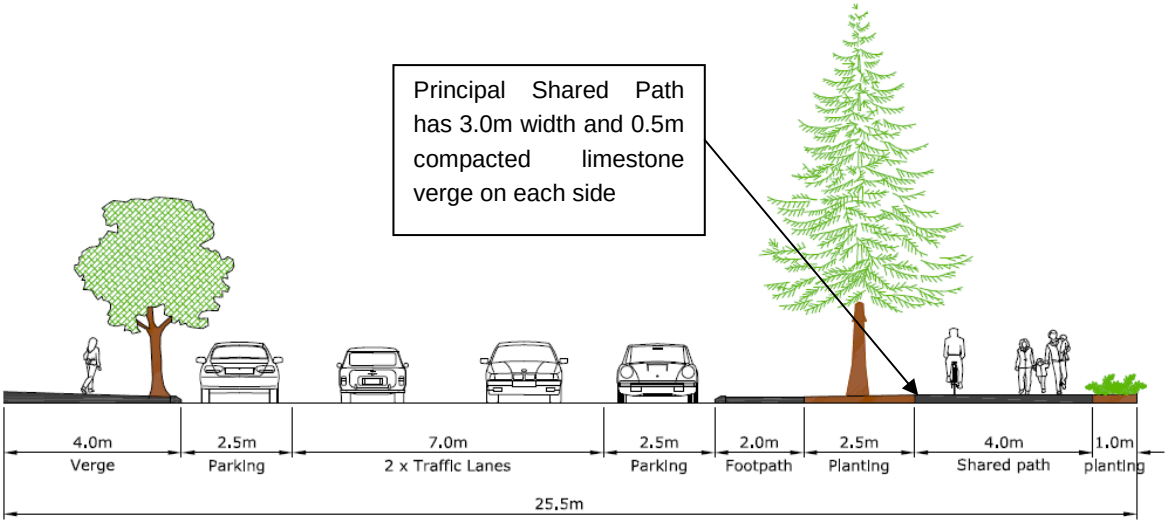
- **Figure 7 – Cross-section 1: Shenton Road, north of the transit plaza, facing east**



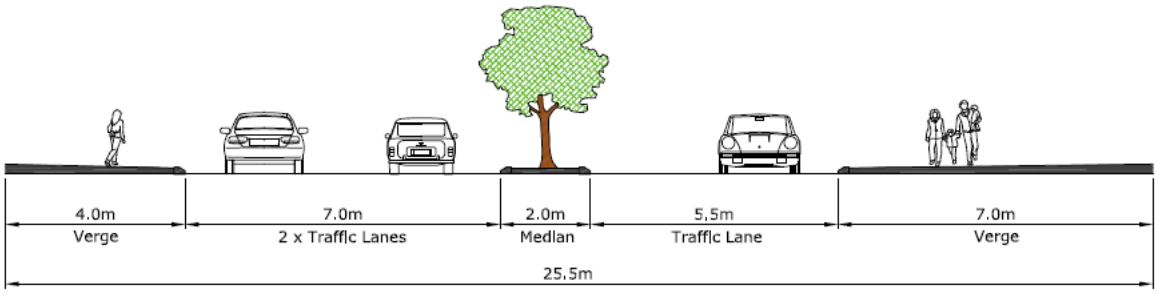
- **Figure 8 – Cross-section 2: Shenton Road, on the dog-leg, facing east**



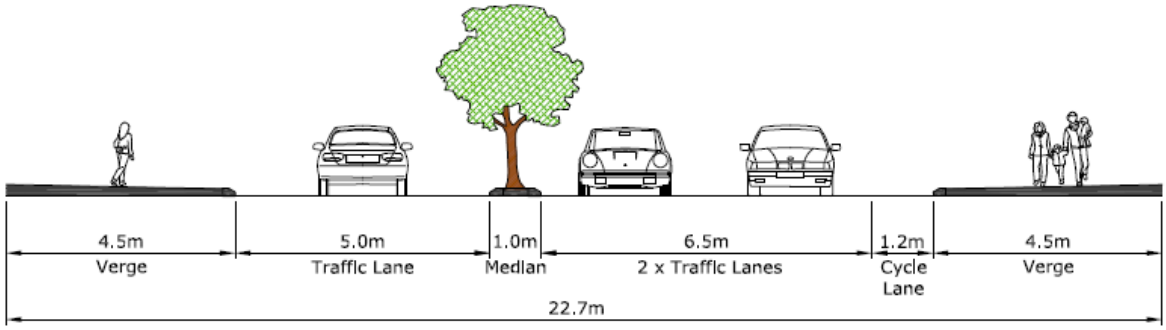
- **Figure 9 – Cross-section 3: Shenton Road, east of the dog-leg plaza, facing east**



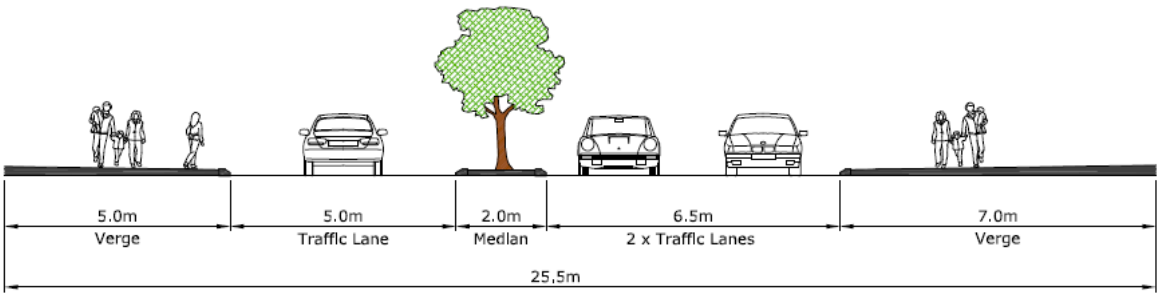
- **Figure 10 – Cross-section 4: Shenton Road, west of the Shenton/ Davies intersection, facing east**



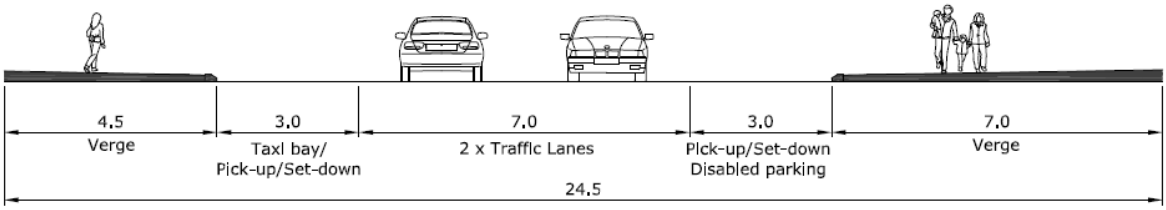
- **Figure 11 – Cross-section 5: Davies Road, north of the Shenton/ Davies intersection, facing north**



- **Figure 12 – Cross-section 6: Shenton Road, east of the Shenton/ Davies intersection, facing east**



- **Figure 13 – Cross-section 7: Shenton Road, west of the Shenton/ Davies intersection in the vicinity of the existing heritage goods shed, facing east**

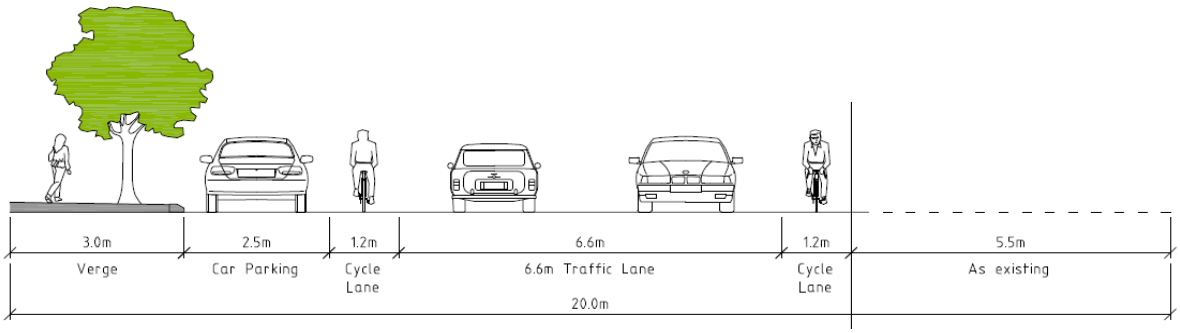


In addition, indicative mid-block cross-sections were developed for both Graylands Road and Davies Road (see Figures 14 and 15). The cross-section relating to Graylands Road, which is a 20 metre wide road reserve, includes a 5.5 metre wide section that is labelled 'as existing'. It is anticipated that on-street car parking and a verge area will be developed within this width as part of the redevelopment of the Royal Agricultural Society site (abutting to the east) in the future. In the short term, the eastern side of Grayland Road may be retained as verge.

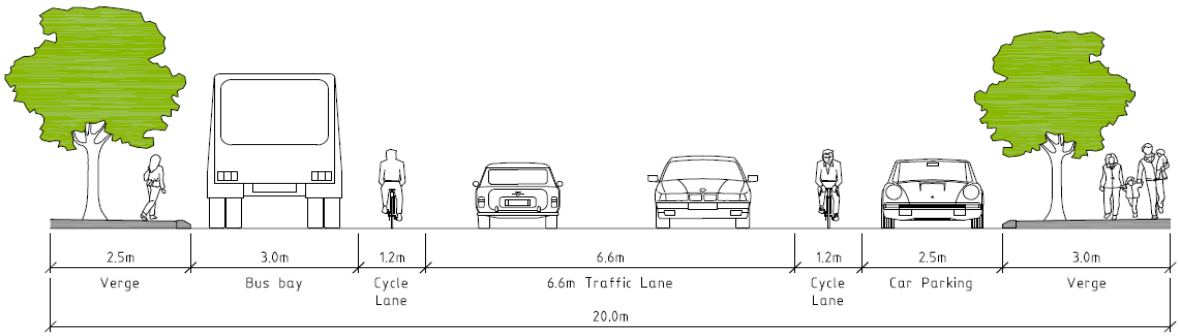
A cross-section was also developed for Davies Road to show how bus bays may be accommodated for the existing 28 service (see Figure 16). This latter cross-section is applicable as viewed from either the north or the south, depending on the side of the road the bus bay is on.

As depicted, on-street cycle lanes are recommended along both sides of both Davies Road and Graylands Road. The traffic lane widths are shown as 3.3 metres to accommodate current/ future bus services (including a potential Scarborough-Claremont service). No bus bays are planned along Graylands Road as any future bus stops may be adequately provided on street.

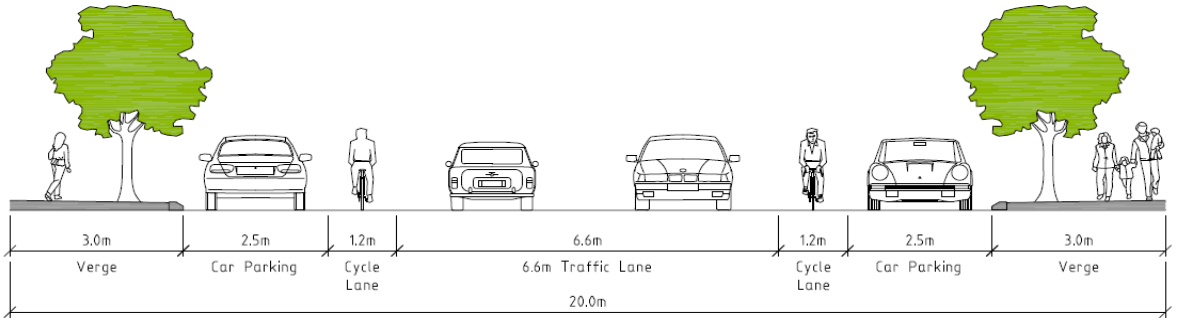
- **Figure 14 – Indicative mid-block cross-section for Graylands Road, viewed from the south**



- **Figure 15 – Indicative mid-block cross-section for Davies Road**



- **Figure 16 – Cross-section for Davies Road depicting a bus bay (viewed from either the north or south)**



5 Car parking requirements

5.1 Requirements

It is important to limit parking provision in TODs, as an oversupply of car parking bays is inconsistent with the aims of such development to reduce dependence on and use of cars. Accordingly, the following limitations on parking provision in the Claremont NEP are proposed:

- Residential parking:
  - An average of 1.2 parking bays per apartment (maximum), with parking provided in basement structures either on-site or on nearby sites
  - A maximum of two bays per townhouse
- Commercial/ office parking – a maximum of 1.5 bays/ 100m^2 GFA, with 40% for tenants and the remaining 60% for the public (mainly short term bays)
- Retail parking – two bays/ 100m^2 GFA, all of which is public parking
- Park and Ride – 200 bays maximum

These provisions do not include car parking for football uses. It is proposed that parking for the administration/ office needs for football should be in accordance with the rates for commercial office parking outlined above. The car parking supply for football uses will need to be added to that summarised below when more detail of the land associated with football uses is known.

The provision of an average of 1.2 bays per apartment (unbundled) assumes that residential tenants will have differing needs with respect to parking. For example, it is anticipated that 12.5% of the apartments will be 'affordable', thus the respective tenants are likely to have a reduced need for parking. Other tenants will then be able to bid for the unbundled spaces and where required, some may be able to secure two bays.

Provision of two bays per townhouse is in accordance with conventional policy (it is the parking requirement for single houses under the Residential Design Codes Variation 1) and is to ensure the marketability of the residences. Both bays would be provided on site.

Preliminary concept plans show that two levels of car parking can be provided in a multi-storey car park near the corner of Graylands Road and Shenton Road for the exclusive use of Park and Ride patrons during working days. Initial advice from Oldfield Knott is that 175 Park and Ride bays could be provided at this location. This car park could also provide about two storeys of public, mainly short term, parking to supplement on-street parking for office, retail, residential visitors and other uses. More recently, the feasibility of providing car parking under Shenton Road (once it has been realigned) has been discussed. There are no obvious issues associated with this from a

transport planning perspective, as access to such an underground structure may be provided from anticipated basement parking structures and/ or the planned Park and Ride structure.

As a result of redevelopment of the NEP, there will be a loss of 70 existing free parking bays on land owned by the Town of Claremont to the west of Claremont Train Station. It is noted that this existing car parking is cash in lieu parking associated with the Claremont Town Centre. However, retention of this free parking – which also is not subject to any dwell time limits – is not consistent with TOD and car restraint, and its loss will be compensated for by parking provided elsewhere in the precinct; particularly on-street parking provided along Shenton Road.

In summary, the car parking needs of the NEP are:

- Residential car parking – maximum 628 bays
- Tenant commercial/ office car parking – maximum 70 bays
- Visitor commercial/ office car parking – maximum 106 bays
- Visitor retail car parking – maximum 68 bays
- Park and Ride (provided in an off-street structure) – maximum 200 bays
- **Total precinct car parking supply – up to 1,072** (plus car parking associated with the Claremont Football Club; on-street disabled car parking; taxi bays; pick-up/ set-down bays).

Recent concept plans show that 1,082 car parks exclusive of on-site bays for the townhouses and on-street parking - preliminary analysis of the local street network suggests that at least 100 bays may be provided on-street - can be provided in the precinct. This is around 10% more than the maximum level of car parking recommended by SKM. An oversupply of car parking in the NEP is not favourable. Commercial and retail visitor parking is better provided on street than within car parking structures and car parking should not be provided in the transit plaza area - aside from the on-street disabled bays, pick-up and set-down area, and taxi stand - as vehicle movements in and out of the parking structure would compromise the interface between the train station, feeder bus services and the pedestrian realm.

The commercial and retail parking provisions are intended to minimise non-residential private parking and maximise short term public parking. The reason for this is to encourage commuter trips by public transport and cycling, rather than as car driver. Short term public parking can also be shared by visitors to residential units, offices, retail and other land uses.

The PTA has been actively involved in discussions on the provision of an appropriate level of parking for Park and Ride. The PTA's position has been to promote a reasonable level of parking to meet the needs of its train patrons. The PTA's current (in principle) position is that it will provide the land between Shenton Road and the rail reserve for the TOD in return for development of a number of features that support public transport usage at Claremont, including up to 200 car

parking bays in a multi-storey car park and the provision of bus bays along Shenton Road. The current concept plan shows 175 bays in such a structure, although this is subject to review. SKM has requested written confirmation of the PTA's position, but a response is yet to be received.

A minimum level of cycle parking is also recommended. This is discussed further in section 7.

5.2 Car parking management strategies

The recommendations in section 5.1 limit car parking and therefore discourage car use (compared with similar-sized conventional developments). The following parking management strategies are proposed to facilitate the implementation and management of car parking in the Claremont NEP.

- As previously discussed, the sale of parking bays should be unbundled from the sale of apartments, thus allowing tenants to choose whether or not they wish to rent or own a bay. However, tenants should retain the option to purchase or rent a minimum of one bay. Purchases and rentals of bays can be managed through a council of owners or similar strata management committee.
- Access to car parking associated with townhouses, which will be provided on-site (to a maximum rate of two on-site bays per townhouse), should be from rear laneways and mews. This will ensure garages do not dominate property frontages.
- Off-street visitor parking can either be supplied in a single structure or dispersed throughout the precinct under individual buildings. Each strategy has relative merits: centralised parking can help prevent vehicles circulating throughout the precinct looking for empty bays and can simplify enforcement, whilst dispersed parking can better serve individual tenants.
- All public on-street and off-street parking (other than park and ride) should be charged at commercial rates that favour short term over long term parking. The pricing strategy should be supported by maximum length of stay regulations for all on-street visitors parking during weekdays. In particular, on-street parking should be subject to a maximum dwell time limit of two hours or less, to dissuade car commute trips, spill-over parking from the Claremont Town Centre, and overflow Park and Ride by commuters from outside the NEP. For off-street public parking, the tariff could be used to encourage short stay parking. This could be achieved by increasing the hourly rate after four hours of parking. The key reasons for charging for parking are as follows:
  - Applying charges to some parking bays and not others can put some business tenants at a competitive disadvantage.
  - Parking charges regulate demand for bays (i.e. price influences demand, therefore supporting reduced supply).

- Dwell time limits cannot be effectively managed without parking charges: parking receipts show how long vehicles can dwell in a bay thereby assisting enforcement.
- Free parking is inconsistent with TOD and related aims to reduce the use of cars: it is effectively a subsidy for car use.
- Free parking disadvantages public transport users, who have to make a direct payment (i.e. pay a fare) to access the precinct.
- International research shows that car restraint policies (including appropriate parking charges) are vital for supporting TOD and encouraging a switch from the car to other modes.

- Car parking charges should not apply following the afternoon peak and before the morning peak, to support evening traffic (especially residential visitor traffic) to the NEP.
- Users should be informed of parking tariffs and limited dwell times through clear signage within the Claremont NEP.
- A charge of about $4-$5 per day (and indexed to the consumer price index) should be levied on Park and Ride patrons to reflect the superior covered parking and security arrangements provided. The Park and Ride car park should be exclusively for the use of Park and Ride patrons at times to be determined by the PTA.
- There is an opportunity to apply SmartRider technology to the use of the Park and Ride. For example, the SmartRider card could be used to pay for parking and may be means for the PTA to ensure that users of the Park and Ride actually then use public transport services (infringements should be issued for illegal use or a different charging strategy could be implemented if people do not use public transport). The PTA would also retain the option to subcontract management of the park and ride to the Town of Claremont.
- No surface car parking, aside from kerbside bays, should be provided in the NEP.
- Some dedicated parking for scooters and motorcycles may be provided in the vicinity of the transit plaza. There is opportunity, for example, for part of an embayment west of the transit plaza to be utilised for this purpose (where possible, the embayment/ s may be lengthened).
- The DPI and ToC may support the formation of a car sharing club in the NEP, although the commercial viability of such a programme will be market driven (e.g. Nexus). Shared vehicles may be parked free of charge and in priority locations within the precinct.

6 Strategies for promoting public transport

6.1 Overall concept

Use of public transport for both inbound and outbound trips should be encouraged through provision of quality infrastructure within the NEP and good access to services.

6.2 Existing public transport services

Aside from the rail service, there is one existing bus service that operates through the NEP (the number 28 bus) and five services that access the Claremont Town Centre on the south side of the rail line (refer to Figure 17). The 28 bus service originates at the Claremont Town Centre on the south side of the Fremantle-Perth rail line and loops through Mount Claremont and Subiaco, eventually terminating at the WACA in East Perth. The service skirts the NEP via Davies Road and operates every 30 minutes during peak periods and every hour otherwise.

Rail services presently operate at 10 minute intervals during peak periods, every 15 minutes during the day and every 30 minutes in the evening. From Claremont, the journey time to Perth City (assuming stops at all stations except The Showgrounds) is 15 minutes and to Fremantle is 14 minutes.

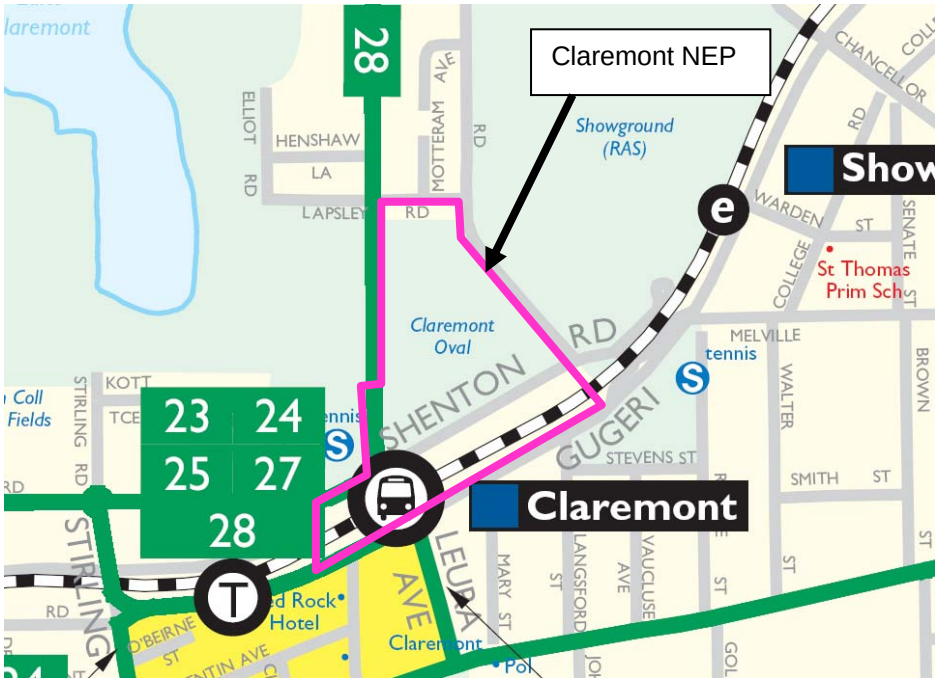
6.3 Strategies

For consistency with the principles of TOD, the NEP should first and foremost be developed as a walkable rail catchment, with some limited provision of Park and Ride as a secondary consideration (see section 5):

- Exploit the proximity of the NEP to the Claremont Train Station by developing a quality interface between the rail services, and feeder bus services, the pedestrian network and the cycling network. Walking infrastructure within the NEP should be of high quality and the access opportunities provided by the PSP along the northern boundary of the rail reserve should be maximised.
- Maximise rail patronage by ensuring sufficient activity intensities (mixing of uses and development densities) within the NEP, particularly within 400 metres of the rail station (refer to Figure 2).
- Maximise accessibility by restricting traffic speeds along Shenton Road and providing regular, safe crossing points for pedestrians and cyclists.

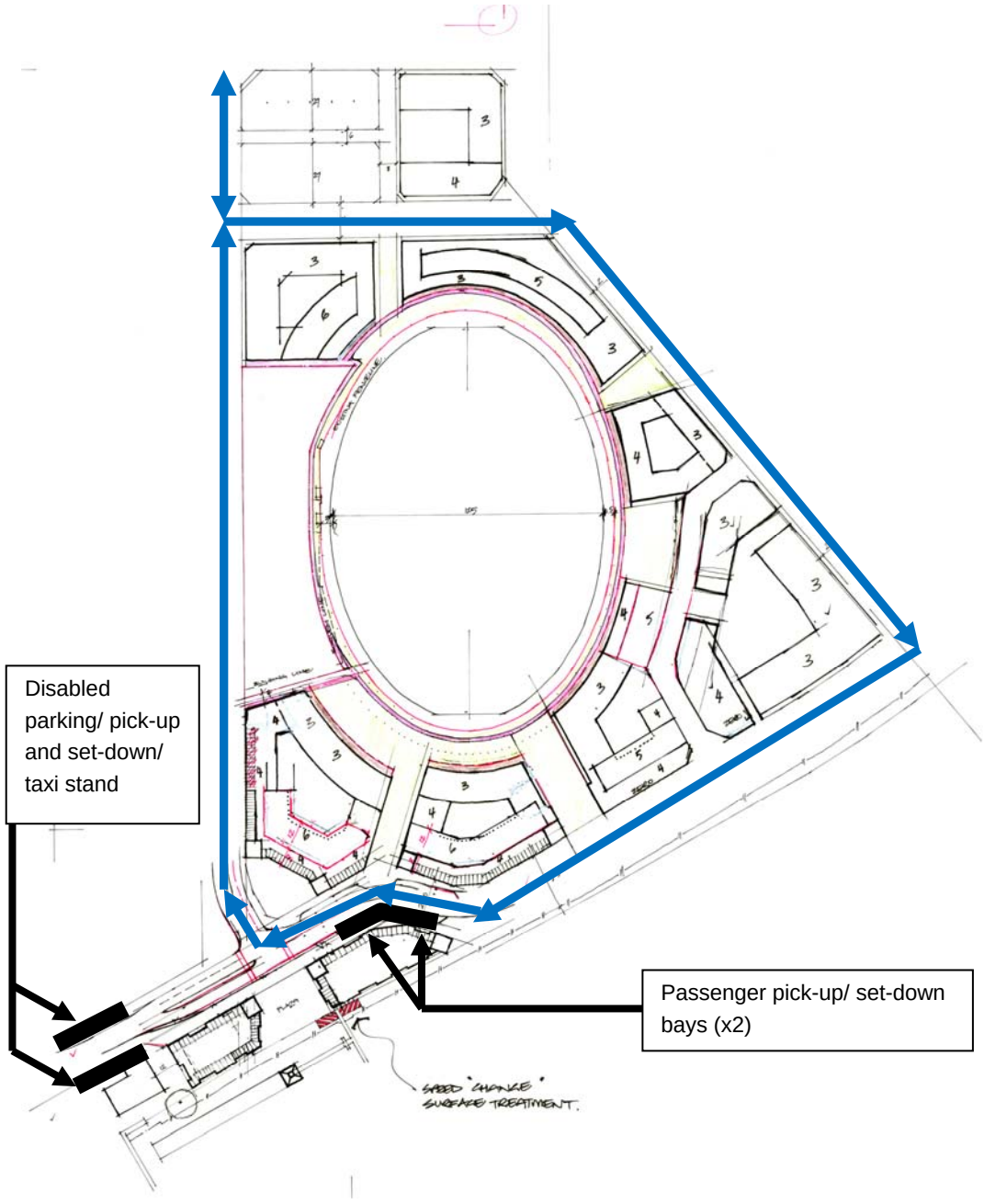
- Over the longer term, ToC should work with the PTA to ensure that rail and bus infrastructure/ services adapt to meet the increased demand that is likely to follow development of the NEP. This may include developing the Claremont-Scarborough bus connection and increasing the frequency and/ or capacity of services along the Fremantle-Perth rail line (particularly during peak periods).
- Develop bus set-down and pick-up areas for the proposed Claremont-Scarborough service. Bus embayments are provided adjacent to the station and these will ensure that the street network design is sufficiently robust for any future bus services to be accommodated within the NEP (including articulated vehicles). Figure 18 depicts the preferred route for a Claremont-Scarborough service (shown as the series of blue arrows). Refer also to the location of disabled parking; short term set-down/ pick-up bays; and a taxi stand (see section 4).
- Consider provision of a TransPerth service centre within a retail outlet in the transit plaza to make timetables, ticketing, security and other information and services available to transit users.
- Provide an appropriate level of signage to direct people to public transport pick-up and set-down points. The opportunity to provide a live service timetable in the transit plaza should be investigated.

- **Figure 17 – Existing public transport services in the vicinity of the Claremont NEP**



(Source: http://www.transperth.wa.gov.au/LinkClick.aspx?fileticket=mcDjrTUV7K4%3d&tabid=283&mid=978, accessed 08/07/2008)

- **Figure 18 – Preferred passenger set-down/ pick-up circuit for proposed Claremont-Scarborough bus service, and location of a taxi stand, disabled parking and short term set-down/ pick-up parking bays**



(Source: Taylor Burrell Barnett, 2008)

7 Walking and cycling

7.1 Overall concept

Walking and cycling for local and daily trips should be encouraged as a sustainable alternative to private car use through the provision of a safe, connected and enjoyable pedestrian/ cycling environment.

7.2 Cycle parking requirements

SKM recommends a *minimum* level of cycle parking for the precinct. Cycle parking is important, because cycling is an equitable and sustainable mode of travel, and the NEP is framed by a PSP along its southern border, thereby facilitating regional cycle access. Cycle parking requirements vary according to land use as follows:

- Residential – one cycle bay per apartment
- Commercial/ office tenant – one cycle bay/ 200m^2 GFA
- Commercial/ office visitor – one cycle bay/ 500m^2 GFA
- Retail – one cycle bay/ 200m^2 GFA

The following *minimum* supply of cycle parks is therefore derived:

- Residential – 503 cycle bays
- Commercial/ office – 83 cycle bays (59 for tenants and 24 for the public)
- Retail – 17 cycle bays
- Total – 603 cycle bays

A more preferred level of cycle parking would be two bays per apartment, which would require 1,006 residential cycle bays and 1,106 in total.

7.3 Strategies

High-quality walking and cycling experiences are integral to TOD. The following strategies would contribute to ensuring these occur:

- Develop a connected street network and network of pedestrian/ cyclist only accesses including access to public open space (i.e. Claremont Oval) (see Figure 1).

- Provide on-street cycle lanes on both sides of Davies Road and Graylands Road. These should be differentially coloured so they are highly visible to both cyclists and motorists. The provision of on-street cycle lanes will provide an opportunity for the Town of Claremont to then work with MRWA to extend the on-street cycle network northwards from the precinct (i.e. towards Alfred Road).
- Develop the pedestrian realm with regard to Crime Prevention Through Environmental Design (CPTED) Principles, with particular focus on maximising passive surveillance of public spaces.
- Develop specific infrastructure that is supportive of walking and cycling. The key elements include:
  - Wide pavements with shade for comfortable access.
  - Regularly spaced and well designed street crossing points.
  - Breaks in raised street medians, to allow road crossings by wheelchairs and to act as pedestrian refuges.
  - Ramped kerbs at crossing points for wheelchairs and prams.
  - Tactile paving along kerb lines and at crossing points.
  - Incorporating universal access into street design, public transport infrastructure and building design.
  - Regularly spaced, high quality pedestrian lighting for safety and security at night.
  - Avoiding blind access-ways, blank facades and high fences to maximise passive surveillance.
  - Coverings (i.e. awnings) along retail/ commercial frontages (particularly along Shenton Road) to protect pedestrians from bad weather.
  - Shelters in the transit plaza, particularly near to the bus bays and rail platforms.
  - Additional, regularly spaced, street furniture including benches and drinking fountains.
  - Clear maps and signage to direct pedestrians and cyclists to key facilities, including Claremont Oval.
- Provide direct pedestrian access to the rail platform through the transit plaza.
- Exploit the transit plaza as an area for people to socialise after alighting from/ before boarding transit services.
- Provide end-of-trip facilities for pedestrians and cyclists within the transit plaza (i.e. cycle lockers and secure parks). The ToC should also encourage new businesses to provide these facilities in their buildings in line with the relevant Austroads Standards.
- A good practice example for provision of cycle parks associated with residential tenancies includes lengthening car parking bays by one metre and providing a secure cage at the end of the bay. If not used for storing cycles, the cage can function as a storage space for scooters and similar).

- Provide visitor cycle bays adjacent to buildings and distributed throughout the precinct depending on the location of commerce and retail.
- Link the PSP along the northern boundary of the rail reserve through the proposed transit plaza to preserve east-west continuity. This will support regional cycle trips and may be accomplished through clear path markings and path design as per the PTA's policy "Cycle Access To, Through and Within Train Station Precincts". Sight lines will have to be carefully considered within the transit plaza to avoid conflict between pedestrians accessing the rail platform and cyclists travelling along the PSP.
- Incorporate short signal phase times at the Shenton/ Davies intersection to minimise pedestrian wait times. This is important because this intersection will be the major crossing point for people leaving/ entering the NEP from the bus pick-up/ drop-off points, the rail station and the Claremont Town Centre on the south side of the rail line. Bicycle signals may also be installed at this intersection.
- Design active building frontages, particularly along Shenton Road, to provide visual interest for pedestrians and encourage transactions.
- Use development policy to ensure complementary land uses become established in different parts of the NEP (i.e. cafes and impulse retailers along Shenton Road).
- The ToC/ DPI should liaise with new businesses about the formulation of Green Transport Plans (GTPs) for employees. When GTPs are not appropriate (i.e. businesses are too small), businesses should be provided with relevant transit/ walking/ cycling information (i.e. maps and timetables) for dissemination to employees. Businesses should also be encouraged to pass on cost savings from reduced car parking supply to employees through provision of free SmartRider transit cards.
- It is recommended that the DPI and ToC consider undertaking a TravelSmart programme with new residents as soon as is practicable after they move into the NEP, before their new transport patterns become habitual.

8 Managing vehicle movements

8.1 Existing streets and their functions

As previously discussed, Claremont Crescent and the section of Shenton Road from Claremont Crescent as far as Gugeri Street are reserved as ORRs under the MRS. Under Main Roads Western Australia's (MRWA) Functional Road Hierarchy, they are classed as District Distributor (A), whilst Graylands Road is classed as a Local Distributor and Davies Road as a Local Access Road. Recent traffic counts (see below) indicate that Claremont Crescent, Shenton Road and Graylands Road function at a lower level than they are classed/ reserved.

8.2 Existing traffic volumes

Based on MRWA data for 2003/ 2004, the following daily vehicle movements occur within the NEP and its surrounds:

- Shenton Road
  - Subway Claremont - 5,540
  - West of Davies Road - 10,220
- Claremont Crescent
  - At the railway bridge - 4,910
  - West of Stirling Road - 6,600

More recent traffic counts conducted by the ToC (September-December 2007) found the following average weekday daily traffic movements:

- Shenton Road
  - Near subway Claremont – 6,965
  - West of Claremont train station – 8,408
- Davies Road, close to Shenton Road – 6,468
- Lapsley Road, east of Motteram Avenue - 687
- Graylands Road, outside Showgrounds South Gate Two - 2,867

8.3 Projected traffic generation by the NEP

At full development it is estimated that the Claremont North East Precinct TOD could generate around 4,800 trips per day. There are no other forecasted increases to traffic volumes within the NEP between now and full development.

The estimated trip generation per land use is shown in Table 2. In general, residential vehicle trip rates depend on the availability of public transport, and the quality of walking and cycling infrastructure. In TODs, access to and the quality of such infrastructure and services is anticipated to be excellent. The NEP, for example, is entirely within the walking catchment (800 metre radius) of Claremont train station (most of the site is within 400 metres of the station) (see section 6). Given these characteristics, trip generation may be up to 2,500 trips less on a daily basis than would be expected in more traditional developments of the same size.

Residential trip generation associated with the proposed apartments was calculated assuming 1.8 persons per residential unit, 50% car driver trips and 3.5 trips overall, per person per day. Another 15% non-home based trips were assumed (i.e. 1.8 x 0.5 x 3.5 x 1.15 = 3.62). In our analysis, we conservatively assumed four car driver trips, per apartment per day. Residential trip generation associated with the proposed townhouses was calculated again assuming 1.8 persons per residential unit and 3.5 trips overall, per person per day. However, because of the level of car parking provided, 60% rather than 50% car driver trips were assumed. Another 15% non-home based trips were assumed (i.e. 1.8 x 0.6 x 3.5 x 1.15 = 4.35). In our analysis, we conservatively assumed five car driver trips, per dwelling per day.

For commercial/ office uses, six vehicle trips per 100m^2 GFA were assumed. For retail uses, 30 vehicle trips per 100m^2 GFA were assumed. Trip generation associated with the football clubs is indicative only, pending confirmation of football club floor-space and car parking requirements.

The generated vehicle trips will not all be in addition to existing traffic volumes, as there are current vehicle trips associated with the Claremont Football Club, Park and Ride (~300 parking bays), and Council car parking area to the west of the train station (70 parking bays).

- **Table 2 – Trip generation associated with different land uses**

Residential	Apartments @ 4 per day	2,012 trips/ day
	Townhouses @ 5 per day	60 trips/ day
Office (11,700m^2 GFA @ 6/ 100m^2)		702 trips/ day
Retail (3,400m^2 GFA @ 30/ 100m^2)		1,020 trips/ day
Football club/ s		500 trips/ day
Park and Ride		525[4]
Total Daily Trips		**4,819 trips/ day**

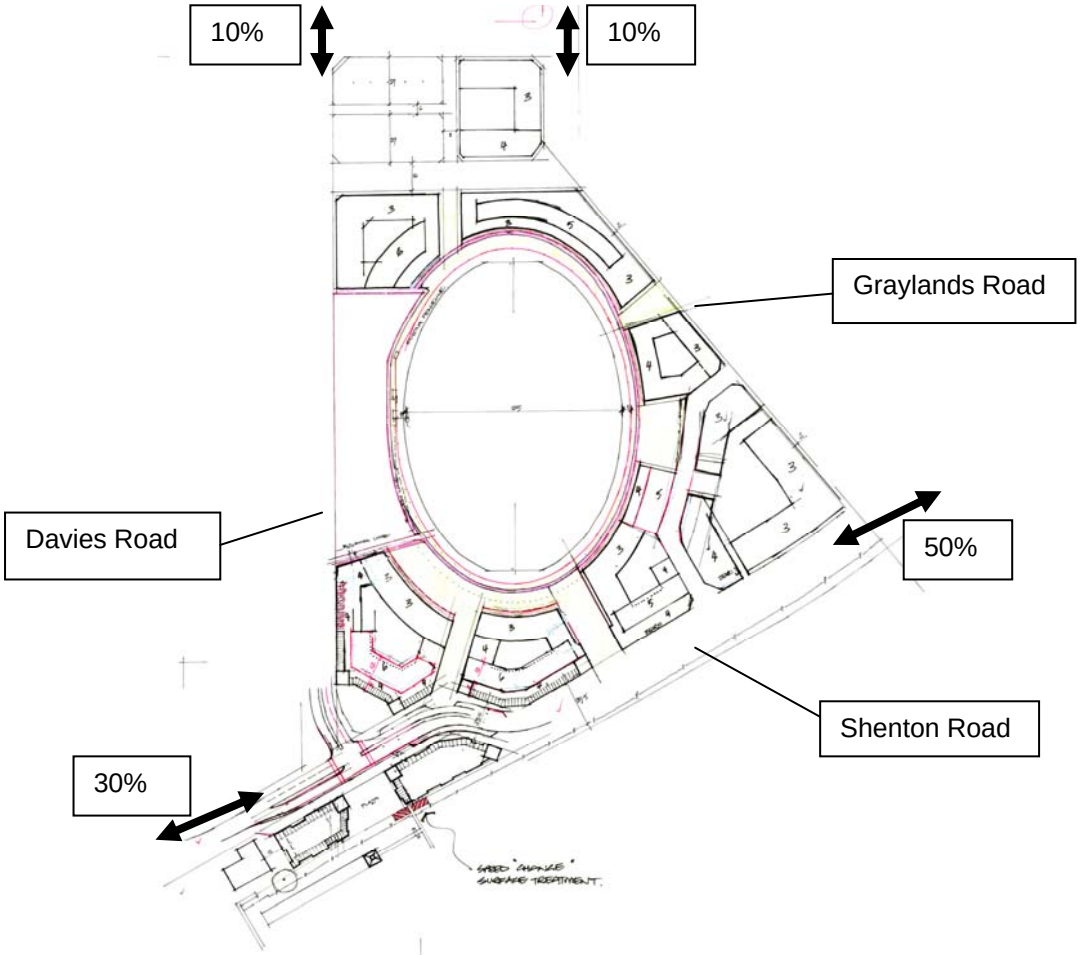
8.4 Traffic distribution and assignment

8.4.1 Daily traffic distribution and assignment

Traffic assignment and distribution has been assumed based on yields per land parcel within the NEP and is shown on the most recent concept sketch plan received from Taylor Burrell Barnett. Figure 19 shows the probable assignment and distribution of generated daily traffic (in percentages). The majority of traffic is anticipated to enter and exit the precinct via Shenton Road east.

[4] This assumes an average of three vehicle trips per Park and Ride bay per day.

- **Figure 19 – Traffic assignment and distribution: percentages of daily traffic movements**



(Source: Taylor Burrell Barnett, 2008)

8.4.2 Traffic distribution and assignment in morning and afternoon peak hours

The following proportions of the daily forecast traffic volumes are assumed to occur in the AM peak hour:

Residential	8% (2,072 x 0.08 = 166 trips)
Commercial	12% (702 x 0.12 = 84 trips)
Retail	5% (1,020 x 0.05 = 51 trips)
Football club/ s	8% (500 x 0.08 = 40 trips)
Park and Ride	20% (525 x 0.2 = 105 trips)
Total generated AM peak hour traffic	**446 trips**

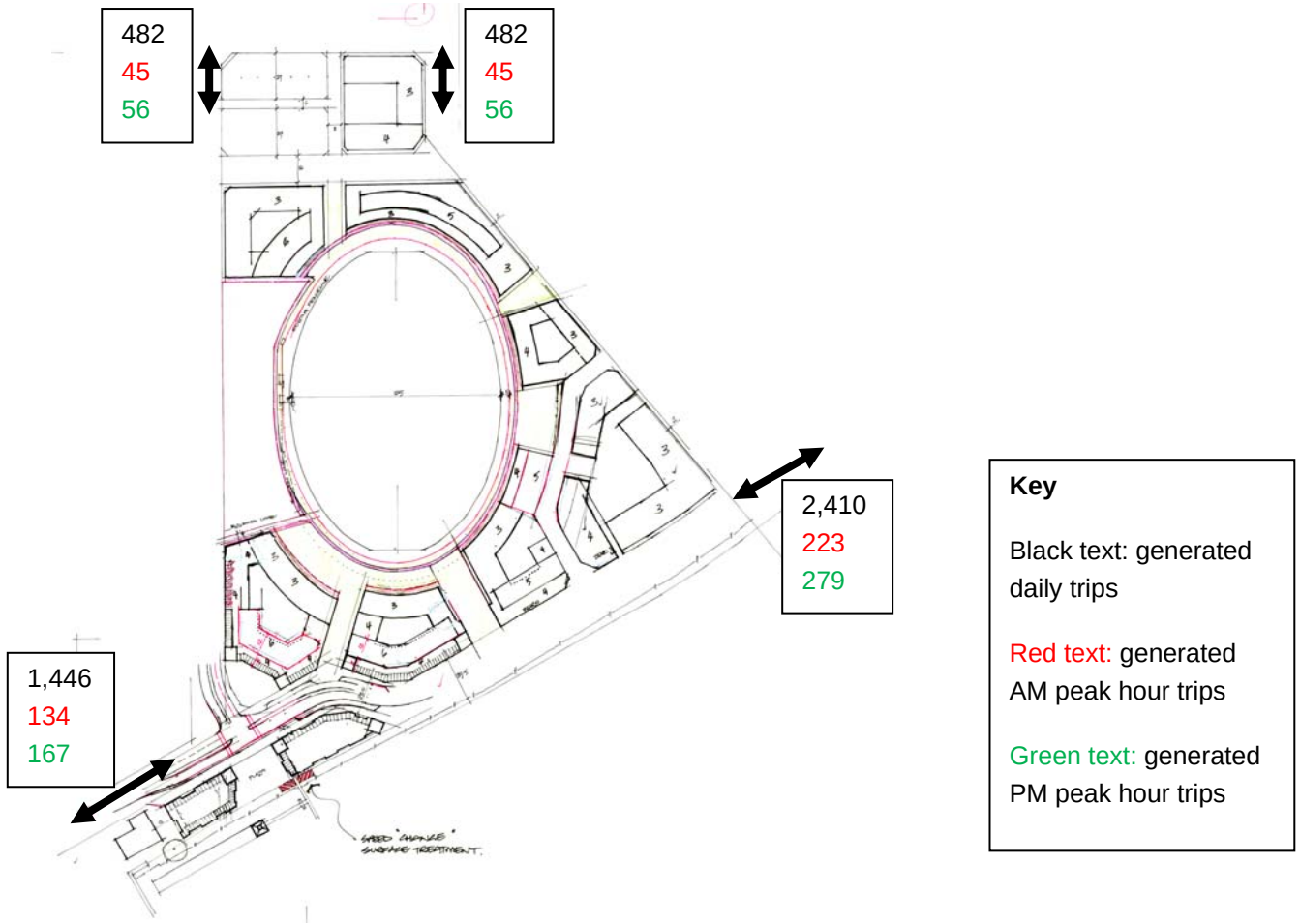
The following proportions of the daily forecast traffic volumes are assumed to occur in the PM peak hour:

Residential	10% (2,072 x 0.1 = 207 trips)
Commercial	12% (702 x 0.12 = 84 trips)
Retail	10% (1,020 x 0.1 = 102 trips)
Football club/ s	12% (500 x 0.12 = 60 trips)
Park and Ride	20% (525 x 0.2 = 105 trips)
Total generated PM peak hour traffic	**558 trips**

The relatively low proportion of commercial trips in both peaks reflects the constrained car parking supply. Given there would be fewer commercial bays available and that most would be allocated as short term public bays, not for tenants, vehicle commute trips are discouraged. This would lead to a flatter distribution of commercial trips throughout the day. The same logic applies to trips generated by the football club/ s.

Based on these proportions, 446 generated vehicle trips may be expected in the AM peak hour and 558 in the PM peak hour. During morning and afternoon peak hours, traffic typically follows the pattern shown in Table 4. Table 5 assigns the trips generated by the various land uses during peak hours based on the distinction of inbound from outbound trips. Based on the pattern of distribution and peak hour flows described in Table 5 and the distribution percentages shown in Figure 19, Figure 20 shows the morning and afternoon peak hour, and daily generated traffic volumes entering and exiting the precinct via the four points of ingress/ egress.

- **Figure 20 – Traffic assignment and distribution: generated daily, morning peak hour and afternoon peak hour traffic volumes**



(Source: Taylor Burrell Barnett, 2008)

- **Table 4 – Directional movements of peak hour traffic generated by different land uses**

Land use		In	Out
Residential	**AM peak**	10%	90%
	PM peak	80%	20%
Commercial/ retail/ football club(s)	**AM peak**	85%	15%
	PM peak	20%	80%
Park and Ride	**AM peak**	100%	0%
	PM peak	0%	100%

- **Table 5 – Inbound and outbound trips occurring during the morning and afternoon peak hours**

Land use	AM peak		PM peak	
	Inbound	Outbound	Inbound	Outbound
Residential	17	149	166	41
Commercial	71	13	17	67
Retail	43	8	20	82
Football club/ s	34	6	12	48
Park and Ride	105	0	0	105
Total	**270**	**176**	**215**	**343**

8.5 Traffic impacts

SKM considers that the generated traffic will have a low impact on both the local and regional street network. In particular, trips will be sufficiently distributed throughout the day, as a function of constrained parking supply, to avoid more serious impacts during peak hours. Moreover, even with the reconfiguration of Shenton Road and design for slow traffic movement, the volume of traffic anticipated should be adequately catered for by the proposed local street network.

The forecasted increase to traffic volumes along Davies and Graylands Roads is small. For example, daily traffic movements along Davies Road at full development should be less than the present daily movements along Shenton Road. Daily volumes along Graylands Road may be about half this level again.

At full development, daily traffic volumes along Shenton Road should be approximately the same as presently found along Alfred Road and about half those presently found along Gugeri Street, west of Chancellor Street.

The opening of the railway underpass in Karrakatta is likely to affect sub-regional traffic flows independent of redevelopment in the NEP. The opening of the underpass is likely to divert

some traffic along Alfred Road and is likely to reduce daily traffic volumes through the precinct (particularly along Shenton Road).

Traffic management should be in the interest of pedestrian safety. Accordingly, the intersection of Davies Road and Shenton Road should be signalised. This will assist with controlling traffic speeds through the precinct and will be in keeping with the high numbers of pedestrian movements anticipated in the vicinity of the transit plaza. Crucially, signalisation will provide pedestrians with a safe, controlled crossing point along the principal desire line for travel: between the commercial and retail hub of the NEP and the transit plaza.

8.6 Management strategies

Estimated traffic volumes on all of the streets within the precinct are forecast to be low-moderate. Vehicle movements can be managed through a range of additional strategies.

- Limit excessive traffic generation through control on the supply of car parking (refer to section 5).
- Enhance the public transport service by developing a high-quality bus/ rail interface and providing additional bus services to the centre (i.e. a potential Scarborough to Claremont regional route). In the longer term, increases to the capacity of the Fremantle-Perth rail service will need to be negotiated with the PTA.
- Improve safety and accessibility for walking and cycling by providing a well-connected street system and through street design (see sections 4 and 7).
- Design Shenton Road for slow-moderate traffic speeds through the Claremont NEP.
- Install traffic signals at the Davies/ Shenton intersection to assist with the management of vehicle speeds and provide pedestrians with a controlled crossing point adjacent to the transit plaza.
- Provide a choice of routes through and to car parking within the Claremont NEP.

Appendix 1 – Strategic Issues Paper

Claremont North East Precinct (NEP) Strategic Issues Paper

Removal of 'Other Regional Road' designation from Claremont Crescent and a portion of Shenton Road

1. Preamble

This Strategic Issues Paper relates to the proposed deletion from the Metropolitan Regional Scheme (MRS) (1963) of the 'Other Regional Road' (ORR) reservation for Claremont Crescent and the portion of Shenton Road between the Shenton Road underpass and the intersection with Claremont Crescent (refer to Appendix 1).

In 2002, the Western Australian Planning Commission's (WAPC's) Transport Committee authorised the Department for Planning and Infrastructure (DPI) to negotiate with the Town of Claremont (ToC) regarding possible amendments to the MRS that would maintain regional connectivity whilst permitting removal of Claremont Crescent and Shenton Road from the MRS. Since 2002, the State government has adopted Network City as its overarching planning strategy for Perth and Peel. This policy notes that "the major elements of Network City are activity corridors, activity centres and transport corridors".

The Minister for Planning and Infrastructure has requested government agencies to work collaboratively with the ToC to develop Transit Oriented Development (TOD) in the Claremont North East Precinct (NEP). This is considered to be a demonstration project for implementation of Network City principles.

The recent work in relation to development of a TOD in the Claremont NEP reinforces the Transport Committee's resolution of 2002 to consider an amendment to the MRS that would remove Claremont Crescent and a portion of Shenton Road from the MRS.

This Strategic Issues Paper is intended to provide background on the movement network and to also present preliminary supporting evidence for the MRS amendment. It has been prepared at this time so that relevant WAPC committees can be aware of these transport issues at the same time as they are considering the MRS amendment to rezone the Claremont NEP to urban under the MRS and Development zone within Claremont Town Planning Scheme No. 2. A more comprehensive transport study will be undertaken whilst the proposed MRS amendment is being advertised. This study will be undertaken by the DPI and will further assess future traffic movement and volumes within the area and the ability of the surrounding network to accommodate this traffic.

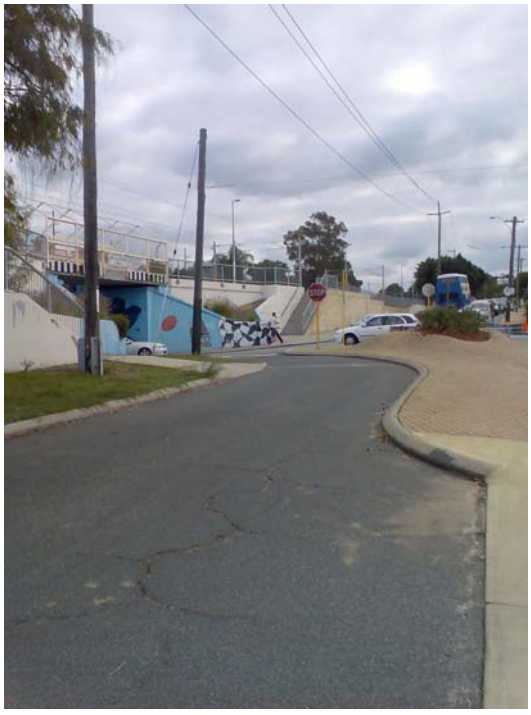
2. Key strategic transport and land use planning issues

The Minister for Planning and Infrastructure has requested that the DPI and the ToC progress the necessary statutory planning for a TOD in the Claremont NEP, immediately to the north of the Claremont Railway Station. Most of the proposed developable land within the NEP is on the north side of Shenton Road, with only a thin strip of developable land adjacent to the railway station.

The TOD planning and transport planning is being undertaken concurrently in accordance with the Network City policy and the WAPC's Development Control Policy 1.6: Planning to Support Transit Use and Transit Oriented Development. Planning for the Claremont NEP is well advanced with a Local Structure Plan for the area being progressed concurrent with the MRS amendment. At a technical design workshop held at the ToC on 6 May 2008, it was agreed that Shenton Road be redesigned as a low speed road with parking on both sides for the safe, comfortable movement of pedestrians between the proposed development, the Claremont Railway Station and the Claremont Town Centre. It is proposed that Shenton Road be designed as a neighbourhood collector with one lane of traffic in each direction.

To the west of Claremont Railway Station, the MRS designates Claremont Crescent an ORR, from Shenton Road at the Claremont Rail Station to Servetus Street. Currently, Claremont Crescent is not connected across Stirling Road immediately adjacent to the railway underpass. Claremont Crescent, immediately to the east of Stirling Road is closed to all vehicular movement, except left turning traffic from the east to the south: i.e. Claremont Crescent onto Stirling Road (see Figure 1). It would be extremely difficult to design and engineer a road system capable of safely moving significant volumes of through traffic along Claremont Crescent at this location, without impacting on the function of Stirling Road as an important crossing point of the railway.

- **Figure 1 – The intersection of Claremont Crescent and Stirling Road, viewed from the east**



Immediately to the east of Servetus Street, Claremont Crescent has been traffic calmed through the Swanbourne village centre. This section of Claremont Crescent has been developed to provide for the safe movement of local traffic at slow speed rather than to cater for faster moving regional traffic.

Overall, the existing transport function of Claremont Crescent and the current planning for a TOD at the Claremont NEP combined, suggest that a strong case exists to remove the 'Other Regional Road' MRS reservation from Claremont Crescent and Shenton Road.

A number of issues, including existing and potential future traffic volumes along Claremont Crescent and Shenton Road and the importance of these roads for regional traffic movement, are discussed in the following sections.

3. Current traffic volumes along Claremont Crescent and Shenton Road

In 2003/ 2004, traffic counts undertaken by Main Roads Western Australia found that Shenton Road carried 5,540 vehicles per day at Subway Claremont (the underpass linking Shenton Road and Gugeri Street) and 10,220 vehicles per day west of Davies Road. Over the same period, Claremont Crescent carried between 4,910 (at the railway bridge), 6,600 (west of Stirling Road) and 9,590 (to the east of Servetus Street), vehicles per day.

More recent traffic counts conducted by the Town of Claremont (September 2007) found an average of 8,408 weekday vehicle trips along Shenton Road, to the west of Claremont Train Station and 6,965 near the underpass.

These traffic flows are variable and fairly low. They do not demonstrate a strong regional traffic movement on this part of the network, which would typically be associated with an ORR.

4. Future estimated traffic (2031)

No traffic modelling for Shenton Road and Claremont Crescent is available for the year 2031.

The Network City planning policy intends for most future development in the western suburbs to be TOD to reduce dependency on cars and to maximise use of the existing railway. Under these circumstances, it is unlikely that traffic volumes along Claremont Crescent and Shenton Road would increase, other than marginally, unless major engineering works were to be undertaken to develop Claremont Crescent and Shenton Road as a major road. In this case, there could be substantial diversion of traffic from other roads in the area.

The proposed TOD in Claremont's NEP may result in increased traffic volumes of some sections of Shenton Road of between 1,500 to 2,000 vehicles per day, based on conceptual development yields provided by Pracsys. This traffic is local traffic generated by the TOD.

Further traffic modelling to 2031 may be undertaken as part of the future strategic transport study referred to in section 1 of this paper.

5. Ability of the street network in the area to meet regional traffic needs

The 'Primary Regional Roads' in the network in this area are:

- Stirling Highway – caters for movement between Perth City and Fremantle
- West Coast Highway – caters for the north/ south regional traffic along the coast

The 'Other Regional Roads' are:

- Thomas Street/ Winthrop Avenue – provides a strong connection between Wanneroo Road and Stirling Highway in Nedlands on a basically north/ south alignment
- Hay Street/ Underwood Avenue/ Rochdale Road – provides an east/ west connection between Perth City, West Perth and Thomas Street and West Coast Highway
- Aberdare Road/ Railway Road/ Shenton Road/ Claremont Crescent – provides a secondary east/ west connection between Thomas Street and West Coast Highway (Servetus Street)

Other important roads in the local network are:

- Broadway Road and Davies Road – for north/ south traffic
- Alfred Road – for east/ west traffic

Overall, these roads provide a reasonable level of connectivity for local and regional movement in an old established area. Both the north/ south and east/ west connectivity are limited by the railway. This will be improved before the end of 2008, with the construction of a new underpass linking Stubbs Terrace to Railway Road in Karrakatta. This will assist in improving east/ west connectivity via Aberdare Road, Railway Road, Stubbs Terrace and Alfred Road.

If Shenton Road and Claremont Crescent were to be deleted from the MRS, further changes may be required to maintain connectivity. In 2002, some of these possible changes were foreshadowed by the WAPC Transport Committee. Options to consider are:

- Include Railway Road between Hay Street, Subiaco and Aberdare Road as an ORR;
- Include Stubbs Terrace (linked to Railway Road via the new Karrakatta underpass) and Alfred Road as an ORR, or alternatively;
- Include Gugeri Street between Shenton Road and Leura Avenue, and Leura Avenue between Gugeri Street and the Stirling Highway as an ORR;

It is not presently clear if either of these routes need to be classified as ORRs. This matter will need to be considered further as part of the DPI's more comprehensive transport study.

6. The importance of Shenton Road and Claremont Crescent within the Regional Road Network

Based on the most recent traffic data available, Shenton Road is of low importance within the regional road network. Stirling Highway, which is no more than 500 metres south and runs approximately parallel to Shenton Road and Claremont Crescent, is a Primary Regional Road and, according to MRWA traffic counts from 2003/ 2004, carries 27,680 vehicles per day. There is efficient access to Stirling Highway from Railway Road for east/ west traffic via Leura Avenue, which intersects at a roundabout with Gugeri Street, south of the proposed TOD.

Claremont Crescent is closed to through traffic at the intersection of Stirling Road and currently performs no regional traffic movement function.

Further to the north, Underwood Avenue, Stephenson Avenue and Rochdale Road have ORR designations and provide east-west thoroughfare. Possible proposed reconfigurations of Stephenson Avenue would occur well to the north of the proposed TOD, so increased traffic is unlikely to percolate into the area.

The reclassification of Shenton Road and Claremont Crescent from ORR to local road would have no material impact on the capacity and connectivity of the existing network. Parts of Claremont Crescent and Shenton Road would continue to provide important local connections and contribute to local connectivity. In this regard, they would be supported by other important local roads such as Alfred Road, Davies Road and Broadway.

7. Compatibility with development of a TOD in the North East Precinct

The present "Other Regional Road" designations of Claremont Crescent and a portion of Shenton Road are not compatible with the proposed Claremont North East Precinct TOD for several key reasons:

1) Rather than providing site access, ORRs are intended to cater for vehicle movements, which will severely restrict access within the TOD. Moreover, plans to provide on-street parking along Shenton Road would conflict with the function of the ORR.
2) There is a presumption that ORRs can be upgraded to four lanes in the future to increase capacity for through traffic (regional traffic). If the ORR designation remains, the capacity of Shenton Road may be increased from two to four lanes (i.e. from one to two lanes in each direction). This would not be consistent with traffic management within a TOD because increased capacity may induce vehicle traffic and lower speed restrictions would be difficult to apply.
3) The ORR reserve currently extends onto land proposed for development as part of the Claremont NEP TOD. This land cannot be developed whilst the designation remains.
4) Shenton Road would be a significant barrier between the TOD and Claremont Rail Station if it is not redesigned as a local road and capacity remains at one traffic lane in each direction.

Overall, Shenton Road needs to be reclassified in the MRS as a local road (and serve the function of a neighbourhood connector, as defined by the Liveable Neighbourhoods design code) to maximise TOD opportunities and restrict traffic speeds. Traffic speed control is crucial in TODs to heighten pedestrian and cyclist safety, and in this context, for the new development to be linked with the Claremont Railway Station.

8. The impact on local traffic movements of the opening of the Karrakatta railway underpass

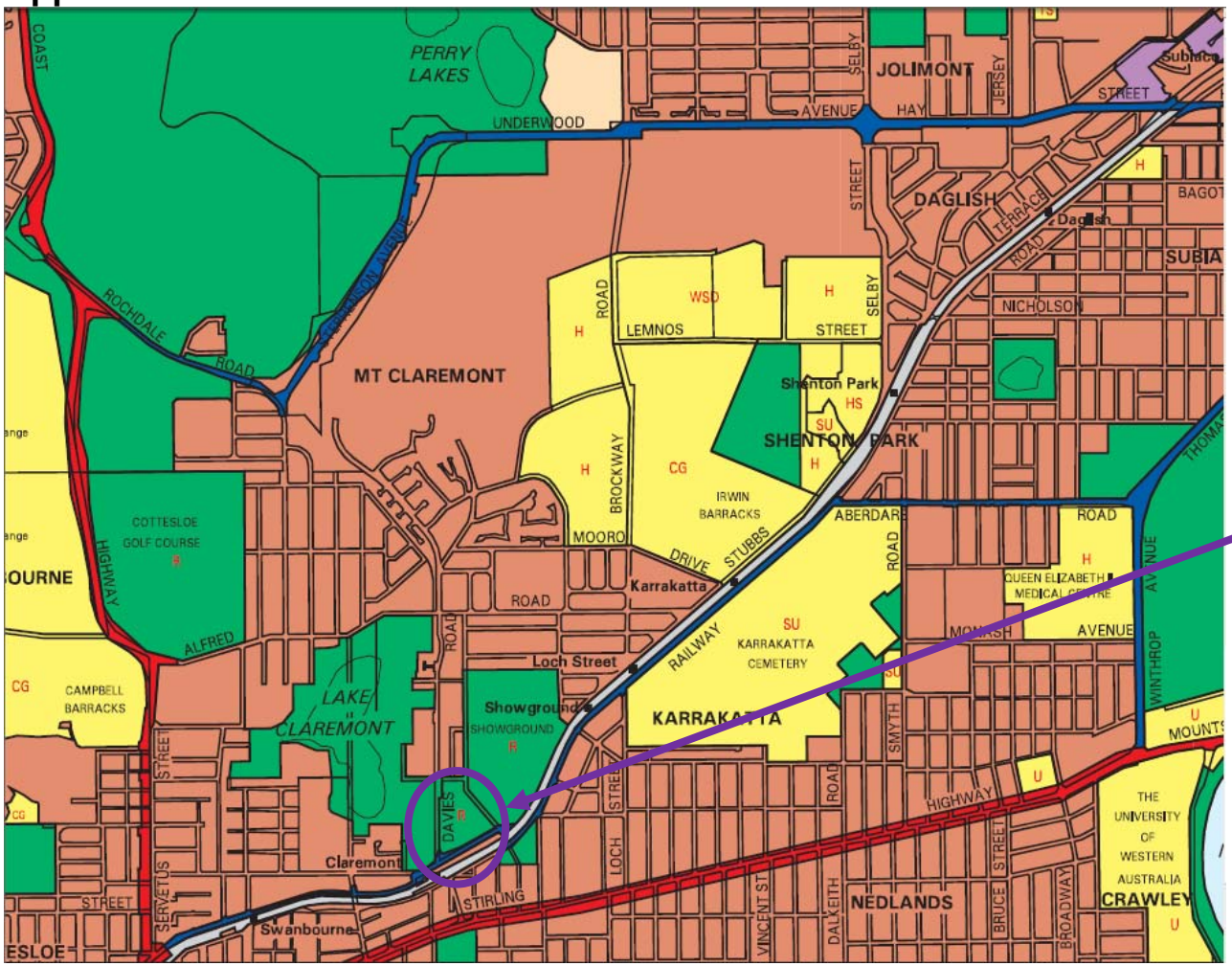
The construction of the Karrakatta underpass is independent to the planning associated with the Claremont TOD, but is likely to influence the volume of traffic using Shenton Road. The underpass will link Alfred Road with Railway Road, well to the east of the proposed TOD. Alfred Road, which is classed as a local road under the MRS, runs approximately parallel to Shenton Road and Claremont Crescent, about 1.2 kilometres to the north. Alfred Road carries 10,590 vehicles per day west of Ashton Avenue (MRWA traffic count 2003/ 04).

Following the completion of the underpass, some traffic is likely to divert from Railway Road west of the underpass to Alfred Road. This will further weaken the case for Shenton Road and Claremont Crescent to remain an ORR.

9. Conclusion

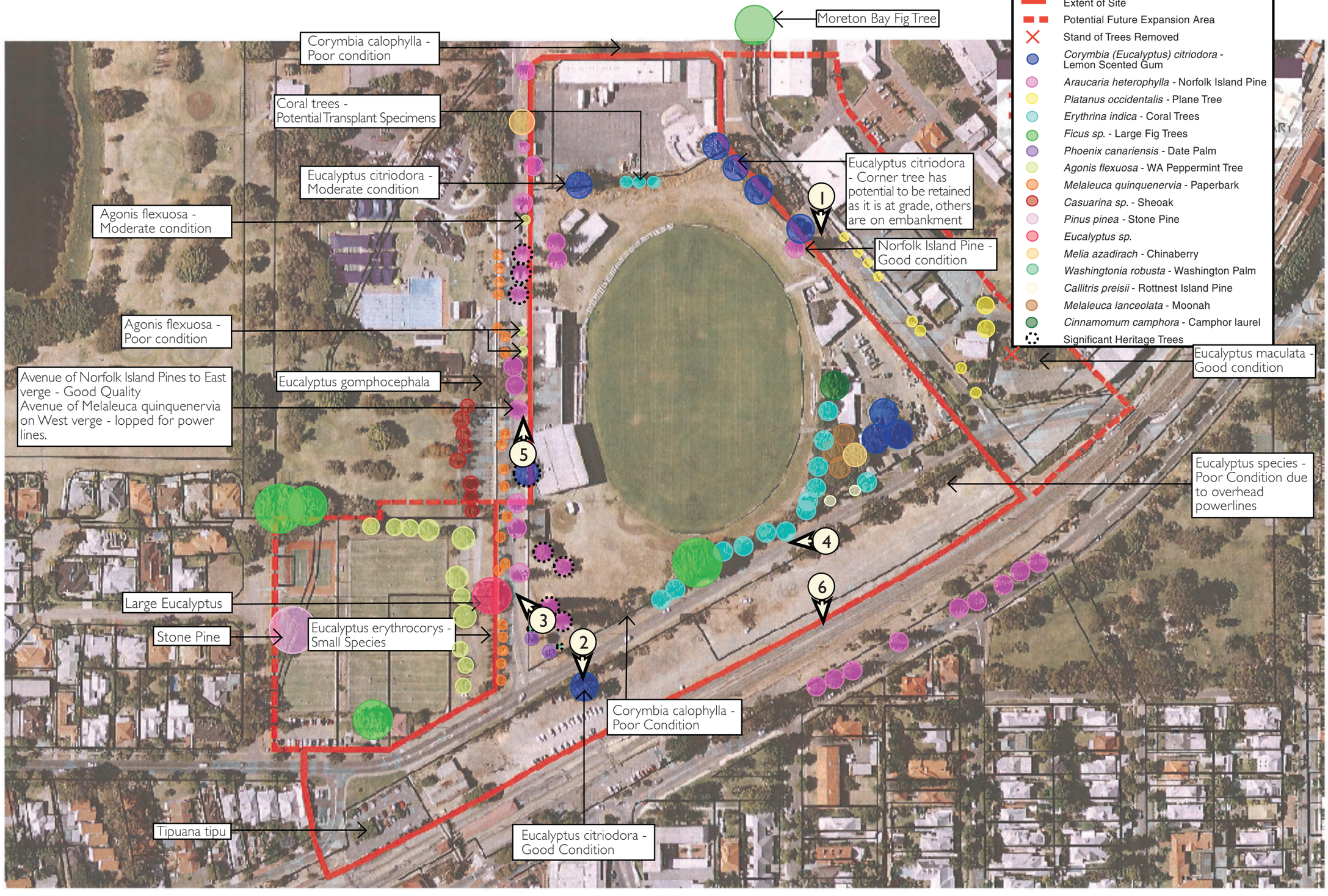
Claremont Crescent and Shenton Road currently do not provide a strong regional function in the metropolitan road network. The future development of TOD in the Claremont NEP requires that Shenton Road be designed as a slow speed road with one lane of traffic in each direction and parallel parking on both sides. It is apparent that this cannot occur if Claremont Crescent and the relevant portion of Shenton Road remains an ORR in the MRS.

Appendix 1



Claremont North East Precinct (location of proposed TOD)

APPENDIX 3
SIGNIFICANT TREE SURVEY (PLAN E)



CLAREMONT NORTH EAST PRECINCT - TREE SURVEY

Project no. 08014-01 NTS North

PLAN E

Weatherboard workers cottages

Industrial Factories - provide unattractive interface.

Lake Claremont

Norfolk Island Pines along Davies Rd are dominant visual element.

Claremont Showgrounds

Views towards neighbouring suburbs.

Claremont Swimming Pool

Golf Course - Provides attractive outlook.

Claremont Football Oval

Views towards cluster of historic buildings and streetscapes in Claremont Town Centre.

3m Embankment around football oval.

Residential Street - Mature Street Trees; good aesthetic value (almost semi-rural character).

Bore and Mini Pillar

Norfolk Island Pines along Gugeri St are dominant visual element.

Claremont Tennis Club

Valley Vistas.

Rail line creates a barrier between site and Claremont Town centre.

Street corner - Strong 'Heritage' values.

Shed - Strong 'Heritage' values.

Weatherboard workers cottages - strong 'Heritage' value.

Claremont Train Station - Strong 'Heritage' value

Claremont Town Centre - Cluster of Federation Style buildings and complementary streetscape.

LEGEND

- Extent of Site
- Potential Future Expansion Area
- Embankment
- Federation Style Architecture/Heritage Value
- Crest
- Hostile Edge
- Views
- Drainage Sump
- Fence Line
- Industrial Factories
- Rail Line
- Norfolk Island Pine Trees

CLAREMONT NORTH EAST PRECINCT - SITE ANALYSIS

Project no. 08014-01 NTS North

PLAN E

APPENDIX 4
COLLIERS ADVICE

COLLIERS INTERNATIONAL

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Our Ref: V511895_080617

18 June 2008

Jill Gaynor
Senior Project Manager
LandCorp
Level 3, Wesfarmers House
40 The Esplanade
PERTH WA 6000

Dear Jill

RE: COMMENT: CLAREMONT NORTH EAST PRECINCT (NEP) CONCEPT PLAN

INSTRUCTIONS

We refer to your email instructions of 9 June 2008 to prepare comment on the Claremont North East Precinct – Design Development cognisant of Claremont North East Precinct, 6 May 2008, Design Workshop Notes and Pracsys, April 2008, Draft Economic Review.

We confirm that we have completed our review and submit the following comment as requested.

PREAMBLE

In preparing the review and comment we found it difficult to formulate a discussion without a starting point such as a direction/vision for the site and statement of objectives. We are not aware of and/or have not been supplied a vision statement or set off outcomes based criteria for the site so the comment was guided by the analysis and observation contained within the Pracsys Report together with images and land use patterns illustrated in Concepts supplied.

Our previous involvement with the project was from a financial feasibility perspective, which identified that residential uses enabled a more favourable financial outcome but this was not necessarily the best town planning/urban design solution with longevity, and nor did it meet community aspirations for the site.

We identified a number of factors, which we feel warrant further investigation and discussion.

RETAIL/COMMERCIAL USES

Pracsys utilise as a guide Network Cities and the contingent Activity Corridor/Centres framework and then analyse spatial uses in terms of retail/commercial and marries this with comparison data on traditional retail centres overlaid with a local and regional demographic analysis.

In our opinion, the Pracsys report identifies an opportunity to create a commercial hub to the north side of the rail line. At the moment, and as pointed out by Pracsys, the Claremont Town Centre's strength is boutique retailing optimising on the wealth effect/discretionary spend of surrounding suburbs but it lacks the commercial element typically found in centres of this nature.

Having said that, the Pracsys report has not or does not seem to have given consideration to the extensive service commercial, retail/showroom and commercial offices to Stirling Hwy spread from Claremont to Nedlands (Hampden Road), which in our opinion provides the 'missing' spatial uses referred to by Pracsys. The dated nature of many improvements on Stirling Highway suggests ongoing re-development is likely through natural market forces therefore creating an ideal opportunity for a Network Corridor. Accordingly, there are two competing opportunities to expand 'non retail' – commercial uses in a mixed use environment but clear direction is required from a statutory planning policy perspective and local government as to which Centre/Corridor will take precedent.

Having said that, the Stirling Hwy commercial and service commercial uses are fragmented and very reliant on the road network – car and bus services. Our knowledge of the area suggests that much of the commercial offering is sustained by business owners who do in fact live/work in the same locality but often draw on a wider employment base. Accordingly, there is the opportunity to initiate a competitive through concentration of these uses (vis a vis West Perth) in the NEP, taking advantage of existing employee amenity and transport infrastructure. Should this opportunity be investigated further, it needs to be addressed cognisant of the fact Stirling Highway is likely to expand through normal market forces as a Network Corridor. Establishing both may be possible but could create issues of over supply and therefore, timing of statutory planning and delivery (staging) will be critical.

Pracsys concludes by stating that the town centre should continue to promote/maintain the competitive advantage it has in terms of boutique retail but should not add any further retail space in this category, as it is already well catered for; presently and in known expansion plans. The conclusion sets the scene for additional 'other retail', which is interpreted as being 'Non Food Specialties' and 'Retail Services'; refer table below, together with a dining offering by way of café/restaurants.

In principle we agree but sense from the data that there is a better opportunity to create a commercial office component in a mixed-use environment similar to West Perth but note there is a short-term risk due to the emerging office supply cycle 2009 – 2012. Despite this there is no known competing supply of office of any scale in the locality and the high wealth demographic of the area is likely to support the space in terms of small and medium businesses.

In conclusion, we would suggest the planning intent for NEP illustrate and expand on the opportunity for a mixed land use comprising residential, commercial and/or retail, with language and policy enabling flexibility to adapt to future market conditions. The planning intent should enable commercial office development to 5 – 8 stories similar to West Perth optimising the existing and growing employee amenity base and transport connections of bus/rail.

Additional comment on residential uses is tabled below.

Retail Specialties

Food Specialties
Cafes / Restaurants

Retail Services
Hairdressing & Beauty
Dry Cleaning & Laundry
Film Processing & Photocopying
Key Cutting
Shoe Repairs
Optometrist
Video Rentals
Watch Repairs
Other

Non-Food Specialties
Women's/Children's Apparel
Men's Apparel
Jeaneries & Unisex
Footwear
Fashion Accessories
Jewellery & Fine Gifts
Assorted Giftware
Electrical, Sound, Computers
Phones & Mobile Communications
Music, Videos & Games
Furniture & Hardware
Homewares
Pharmacy
Discount & Other Pharmacy
Cosmetics & Beauty Products
Newsagency & Magazines
Books & Stationery
Discount Variety
Other Retail

RESIDENTIAL LAND USE

A residential use framework has already proven workable in the town centre with the Hawaiian – Multiplex development. From a financial and economic delivery point of view residential land uses have in recent years underpinned the success of mixed use precincts. In terms of product users, the short term local market is of an aging profile and typically "baby boomers", but more recently there has been the emergence of high wealth DINKs and individuals who seek the live work lifestyle and amenity offered by apartment living in town centres. An in situ resident population is also desirable in terms of enabling 24/7 activation in nodes or main streets.

The TBB residential yield concept shows the average apartment dwelling at 120 sqm. The concern with this is that it will not create affordability in terms of price point and in fact will target a market limited to a local high wealth demographic. Moreover it suggests a lack of diversity in product and demography.

If an objective of the TOD is to reduce motor vehicle movements by establishing an environment catering for live/work, amenity and leisure, then the residential component will have to accommodate more than just those wealthy persons that live locally. It will need to provide an accommodation mix that allows employees in the centre to live locally as well. The Pracsys report clearly identifies that most employees in the Claremont Town Centre are from other suburban areas.

Therefore, the product mix should include in the higher density modules, a greater proportion of one-bed apartments and studios (40 sqm to 65 sqm); and two bed apartments (75 sqm to 105sqm). The larger apartments, which will probably be three bed and town houses, should be limited to certain aspects of the concept – the north and upper levels of apartment complexes.

Moreover, the product mix within sites will be an important consideration as it is likely that where high-density studios occur, there may be market resistance to high quality penthouses and three bed apartments in the same complex. Therefore land use planning should be compartmentalised to address an appropriate mix of residential stock relative to location, product and pricing.

Additionally, we sense that around the oval a lower pricing regime will emerge due to potential effect of oval (stigma associated with light, noise and anti social behaviour vis vie Roberts Rd Subiaco). Despite this, the adjacency to oval provides the best location to introduce affordability and diversity into the precinct. Affordability is not meant to mean social housing. It is relative affordability, meaning price point and is product driven.

Therefore, to optimise market flexibility, density should be driven by plot ratio and massing not R Code. This will enable a higher proportion of smaller product, which is not compromised by a fixed number of units emerging from an R Code. It also allows design flexibility to respond to changing market conditions.

CLOSING

Having considered the reports and concepts supplied, we are of the opinion;

1. There is an opportunity to provide a higher commercial office component together with 'other non retail' addressing the Town Centre deficiencies identified by Pracsys,
2. The obvious location for this is Sites 11 and 12 and potentially 9 and 1.
3. The commercial uses may be utilised as a 'buffer' between Oval and Residential to Davies, Shenton and Graylands Roads but caution that to put it too far out of sight will undermine the prestige – pride of ownership effect,
4. The retail offering is best focused towards the juncture of Davies and Shenton Road and more particularly sites 11, 12 and on the train station (not numbered on concept),
5. Residential density should not be driven by R Codes. The density should be performance/outcomes based and driven by a planning intent, plot ratio, height and massing.
6. Strong apartment pricing has until recently enabled delivery of medium and high density residential property and underpinned the strength of underlying land values. Capacity constraints in the building industry together with strong demand have resulted in high cost escalation. This has until recently been absorbed in product pricing. The recent events on financial markets and rising interest rates has seen a significant reduction in consumer/business confidence and softening of the residential market over 2007 and into 2008. The combined effect implies land prices for medium density development sites will soften through 2008 and into 2009, and impact on feasibility of projects such as NEP.

We trust the above review and comment assists in the concept design. Should you have any queries in relation to the above please do not hesitate to contact the undersigned.

Finally, and in accordance with our normal practice, we confirm that this correspondence is confidential to **LandCorp for concept design and feasibility purposes only.** No responsibility is accepted to any third party and neither the whole of the report or any part or reference thereto, may be published in any document, statement or circular nor in any communication with third parties without our prior written approval of the form and context in which it will appear.

Yours faithfully
Colliers International (WA) Pty Ltd

John Del Dosso AAPI MPM
Colliers International (WA) Pty Ltd
Certified Practising Valuer
Licensed Valuer No. 40276
for the State of Western Australia

APPENDIX 5
PRACSYS REPORT

report

Town of Claremont

Claremont North-East Precinct
Economic Review

August 2008

feasibility | strategy | impact

pracsys.

Disclaimer

This draft report has been prepared for the Town of Claremont. The information contained in the report has been prepared with care by the authors and includes information from apparently reliable secondary data sources which the authors have relied on for completeness and accuracy. However, the authors do not guarantee the information, nor is it intended to form part of any contract. Accordingly all interested parties should make their own inquiries to verify the information and it is the responsibility of interested parties to satisfy themselves in all respects.

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Tables

Figures

1. Executive Summary

Vibrant centres need, and feature, a permanent concentration and constant flow of people to engender activity. Vibrant centres require a strong residential presence; a diverse range of recreation and entertainment options; iconic physical attractions; an attractive built and/or natural environment; and diverse employment opportunities. The vision for Claremont is for a vital Primary Activity Centre, a place with a mix of uses and various attractions in which people enjoy interacting.

The Department for Planning and Infrastructure's *Network City: community planning strategy for Perth and Peel* aims to increase residential dwellings in existing urban areas, particularly those on good transport routes with access to wide-ranging types of amenity. This enables people to live, work and recreate within an activity centre, reducing travel times and associated social and environmental costs.

Maximising residential density in the Claremont North-East Precinct (NEP) fits with Network City principles of transit-oriented development, enabling residents to access the Perth CBD and other centres by train. It also starts to address the problem of imbalances in employment self-sufficiency, in which people work within the inner sector, yet must live in the north-west or south-west corridors and commute long distances to work. Developing a diverse range of well-designed dwelling options in land that is not being fully utilised, gives inner city employees (typically the growing population of knowledge workers) the opportunity to live near to where they work and recreate.

Claremont operates well as a specialised retail centre, extracting substantial visitor expenditure from across the Perth metropolitan area. However, compared to an average Primary centre, it lacks a mix of amenity, with disproportionate focus on retail goods. As the Primary activity centre for a large western suburbs catchment, Claremont should provide a greater range of commercial, health and community services. The NEP development provides the opportunity for these types of services to be accommodated within an integrated activity centre, easily accessible by the local catchment. Primary centre benchmarks indicate approximately 30,000m² of floorspace that could be attributed to health/welfare, office/business, entertainment/recreation and service industry land uses.

Recognising that Claremont's role is to service a consumer catchment, rather than compete with strategic employment centres such as the Perth CBD, it is not suggested that Claremont pro-actively attract footloose knowledge-intensive producer services (KIPS). These KIPS operate most efficiently around strategic industry agglomerations where knowledge transfer benefits arise, and often require physical infrastructure (such as university research functions) which Claremont does not possess. Similarly, it isn't recommended that Claremont increase producer services such as manufacturing, storage and distribution, due to land values and road access difficulties.

The current 45,000m² of retail floorspace in Claremont is supported by resident, worker and visitor expenditure. Based on future dwelling targets for Claremont and surrounding local government areas, and assuming visitors will continue to account for approximately 30% of all expenditure, future retail demand is estimated to support 67,600m² of retail floorspace. Expansion is already underway, with the Claremont Quarter redevelopment of the town centre taking total retail floorspace to 64,000m², leaving an additional 3,000 to 4,000m² that could be accommodated within the NEP development. This retail floorspace should operate primarily as convenience/dining retail for workers in the commercial office buildings and new residents in the precinct, but should not compete with the fashion/jewellery/homewares comparison retail located in the current town centre.

It must be recognised that around 30% of retail expenditure captured within Claremont is estimated to originate from visitors from outside the immediate catchment. This means that it is vital for the retail and entertainment on offer to differentiate from that found in other centres to create a unique visitor destination. Questions of access, particularly by public transport, and car parking are also very important to maximise ease of entry into and throughout the precinct.

2. Introduction

The NEP development is a project aimed at revitalising a nine hectare parcel of land north of the Claremont train station to create a vibrant mix of residential, commercial and community uses. The land that includes rail reserve, the Claremont Football Oval, the Council Depot, Claremont Lawn Tennis Club and PCYC, is currently underutilised, yet occupies a prime transit oriented development location.

The Department for Planning and Infrastructure's Network City Strategy (2004) aims to increase residential dwellings in existing urban areas, particularly those on good transport routes with access to wide-ranging types of amenity. This enables people to live, work and recreate within an activity centre, reducing travel times and associated social and environmental costs.

The NEP, located just north of the Claremont train station in the high amenity inner sector, could accommodate a range of diverse dwellings, convenience retail and commercial services. There is also the potential for a public plaza at the train station and a village green at Claremont Oval, to maintain public open space and create more areas for community use.

Pracsys has been commissioned by the Town of Claremont to provide economic input into the delivery of the structure plan. The economic review of floorspace, employment and expenditure within the Town of Claremont addresses two key points:

1. What is the current and future demand for retail and commercial floorspace?
2. What type and mix of retail/commercial/residential product is most appropriate for an inner urban transit oriented development site to serve the need and complement the character of the immediate catchment?

3. Population projections

Table 1: Claremont Population Projections

	Dwellings	Residents	Occupancy rate
DPI Housing Target 2031	*5,697*	*11,394*	*2.0*
Current Town of Claremont	4,299	8,942	2.0
Claremont Residences	77	146	1.9
Claremont NEP	515	876	1.7
Additional to reach target	806	1,451	1.8
TOTAL	5,697	11,394	1.9

Source: ABS Census and DPI Population Targets, 2007

The Town of Claremont contained 4,299 dwellings and 8,942 residents at the time of the 2006 ABS Census. Putting Network city principles into practice, the Department for Planning and Infrastructure has developed housing targets in which inner and middle sector local governments are encouraged to increase residential density within inner urban areas to fully utilise existing infrastructure and reduce travel times. In Claremont, the target for 2031 is 1,398 additional dwellings. The Claremont Residences currently under construction and the Claremont North-East Precinct will contribute up to 592 dwellings toward this target. If fulfilled, the dwellings will accommodate approximately 2,473 new residents, making possible a successful and vibrant mixed-use activity centre.

4. Classifying Claremont within the Activity Centres framework

Claremont is considered a Primary population-driven Activity Centre under the developing Activity Centres framework. The updated framework begins by classing centres as strategic or population-driven, relating to their catchment, the export-orientation of their product, and the knowledge-intensity of employment. Strategic centres such as the CBD should be large and well-connected to maximise knowledge-transfer and agglomeration benefits, and reduce infrastructure duplication. In contrast, population-driven centres should be dispersed throughout the metropolitan area, in close proximity to their local catchment population, enabling quick multi-purpose shopping trips. Under the Metropolitan Centres Policy, Claremont was classified as an 'Other Regional Centre' with a retail floorspace limit of 50,000m². The new framework classes all Regional Centres with a population-driven focus as 'Primary Centres', and all District Centres as 'Secondary Centres'. Primary Activity Centres are multi-purpose centres, providing a mix of office, community, service and entertainment facilities with a predominantly retail focus. Primary Centres are the main regional centres for consumer transactions, providing convenience and comparison retail; domestic, community and health services; and professional and business services such as banking to a large catchment population. Guidelines suggest a 100,000m² retail floorspace maximum.

Table 2 below separates employment into consumer services, producer services, knowledge-intensive consumer services (KICS), knowledge-intensive producer services (KIPS) and strategic drivers. Retail and consumer services have a high transaction frequency and must locate in close proximity to their customer base in order to deal directly with them. Producer services deal directly with other businesses, rather than consumers. KICS are those specialist services providing a skilled service directly to consumers, typically having a high productivity and lower transaction frequency. KIPS involve businesses dealing directly with other businesses and generally have a higher monetary value due to the intellectual property or knowledge involved. Drivers are jobs in industries in which Perth or Western Australia has a comparative advantage, deemed strategic due to growth and development through exports and the inflow of funds. See Appendix A for a more detailed explanation of the employment planning terms.

Table 2: **Employment type classification**

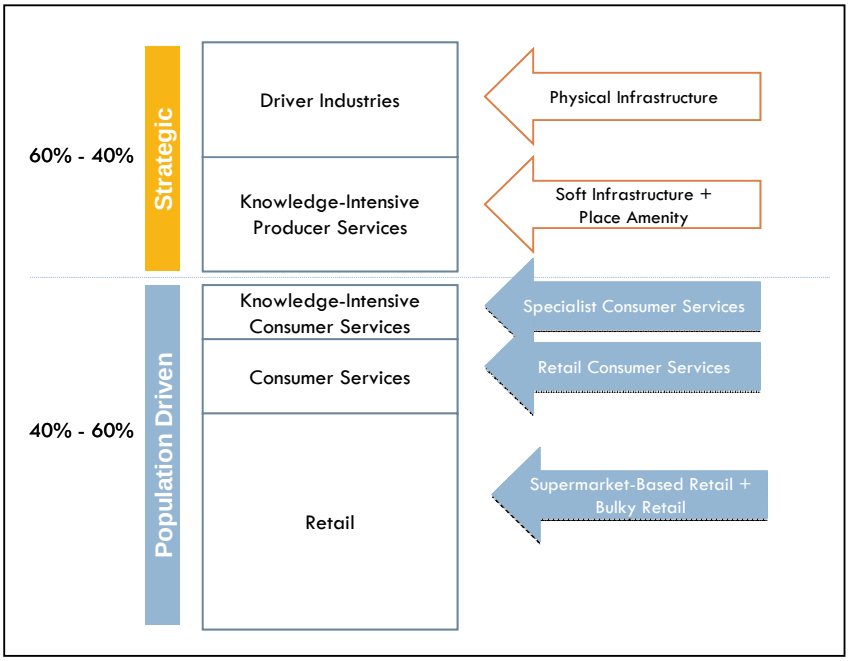
Employment type	Claremont		Perth (City)		Perth Metro	
Consumer Services	2,569	51%	31,456	29%	234,480	38%
Producer Services	492	10%	24,141	23%	200,960	32%
KICS	1,525	30%	18,192	17%	95,935	15%
KIPS	422	8%	25,232	24%	70,552	11%
Strategic Driver	32	1%	8,004	7%	19,510	3%
Total Employment	5,040	100%	107,026	100%	621,436	100%

Source: Census working population profiles, ABS 2006 and Pracsys analysis, 2008

Compared with the City of Perth and Perth metropolitan averages, Claremont has a high concentration of retail and consumer services employment. 51% of employment is in consumer services and an additional 30% falls within KICS. Employment in producer services is very low, and employment in KIPS is lower than the Perth metro average of 11%. This indicates that Claremont is a population-driven centre, located in the centre of a broad local catchment and focused predominantly on providing goods and services to the consumer population. The prevalence of KICS indicates a mature centre, as KICS businesses are attracted to locate in centres with well-established catchment populations and high levels of amenity. Presence of KICS such as accountants, lawyers and specialist

medical suites are also likely to reflect the higher income levels associated with the inner western suburbs.

Figure 1: Centres Framework



Source: Pracsys Diagrams, 2007

Figure 1 demonstrates the population-driven or strategic nature of these employment types, with Claremont's employment profile predominantly population-driven. In addition, the lack of physical infrastructure such as a port, industrial land, or a university means that Claremont is not a strategic industry attractor and is therefore not ideal for the knowledge-intensive producer services which serve them.

Table 3: Primary Centre Averages

PLUC	Primary Centre Averages			
	Floorspace (m^2)	Employment	Floorspace to Employee Ratio	Floorspace as % of Retail
Primary/Rural	184	1	200	0%
Manufacturing/Processing/Fabrication	5,105	86	59	8%
Storage/Distribution	8,711	50	174	14%
Service Industry	9,582	130	74	16%
Shop Retail and Other Retail	61,022	1,687	36	100%
Office/Business	26,814	989	27	44%
Health/Welfare/Community Services	10,175	280	36	17%
Entertainment/Recreation/Culture	11,738	138	85	19%
Residential	2,197	8	279	4%
Utilities/Communications	2,404	39	62	4%
TOTAL	137,932	3,408	40	226%

Source: DPI Commercial Land Use Surveys, 2001-02

Table 3 compares floorspace area of other planning land uses (PLUCs) to retail floorspace in an average Primary Centre. Each PLUC, including Office/Business, Health/Welfare and Service Industry are shown as a percentage of the retail floorspace, to determine the 'retail-ness' of the centre. In the average Primary Centre, Office/Business uses occupy 44% as much floorspace as retail, while Entertainment/Recreation/Culture occupies 19% as much floorspace as retail. In an average Primary Centre, for every 100m² of retail floorspace, there is 126m² of other land uses.

5. Identifying gaps in amenity and opportunities for successful Primary Centres

Using DPI commercial land use survey (2001/02) data, floorspace and employment in Claremont by PLUC can be analysed to determine gaps in services amenity when compared to a successful Primary Centre. Claremont is currently 60% of the size of an average Primary Centre, and three times the size of an average Secondary Centre. However Claremont differs from the average Primary Centre due to its retail dominance.

Table 4: Claremont Amenity Mix

PLUC	Town of Claremont			
	Floorspace (m²)	Employment	Floorspace to Employee Ratio	Floorspace as % of Retail
Primary/Rural	0	0	0	0%
Manufacturing/Processing/Fabrication	1,432	30	48	3%
Storage/Distribution	1,994	12	166	4%
Service Industry	5,189	92	56	11%
Shop Retail and Other Retail	45,604	1,387	33	100%
Office/Business	15,594	471	33	34%
Health/Welfare/Community Services	3,074	49	63	7%
Entertainment/Recreation/Culture	8,277	125	66	18%
Residential	0	0	0	0%
Utilities/Communications	240	8	30	1%
TOTAL	81,404	2,174	37	179%

Source: DPI Commercial Land Use Surveys, 2001-02

In Claremont, Office/Business represents 34% of retail floorspace, Health and Community Services occupies 7%, and Service industries make up 11% of retail floorspace. For every 100m² of retail, there is only 79m² of other land uses.

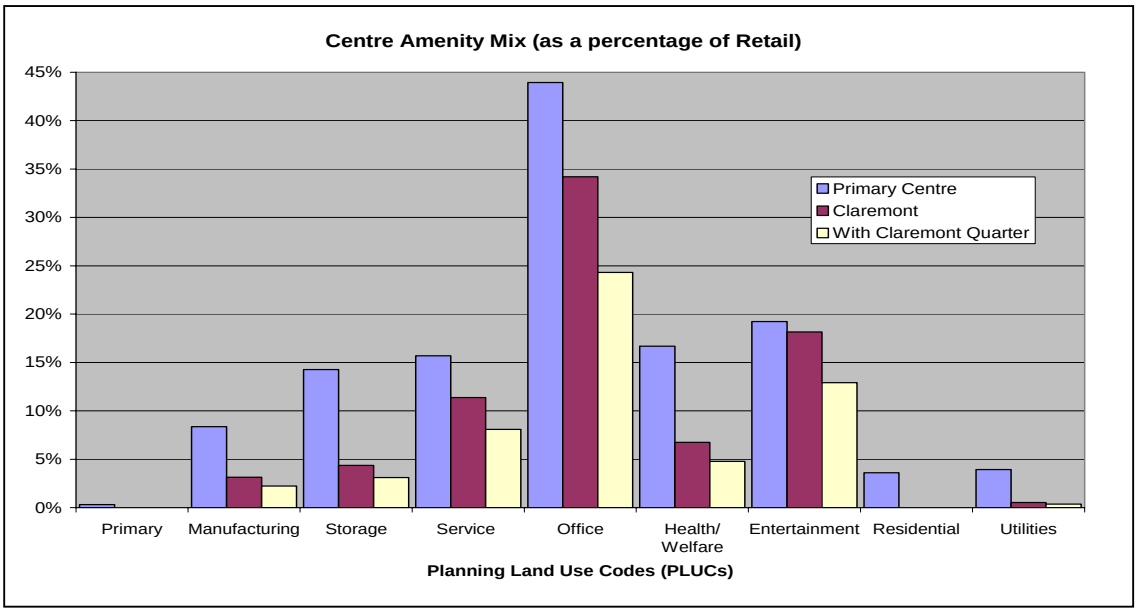
Table 5: Claremont Amenity Mix after Claremont Quarter retail expansion

PLUC	Claremont (with Claremont Quarter Redevelopment)			
	Floorspace (m²)	Employment	Floorspace to Employee Ratio	Floorspace as % of Retail
Primary/Rural	0	0	0	0%
Manufacturing/Processing/Fabrication	1,432	30	48	2%
Storage/Distribution	1,994	12	166	3%
Service Industry	5,189	92	56	8%
Shop Retail and Other Retail	64,154	1,944	33	100%
Office/Business	15,594	471	33	24%
Health/Welfare/Community Services	3,074	49	63	5%
Entertainment/Recreation/Culture	8,277	125	66	13%
Residential	0	0	0	0%
Utilities/Communications	240	8	30	0%
TOTAL	99,954	2,731	37	156%

Source: DPI Commercial Land Use Surveys, 2001-02 and Multiplex/Hawaiian dwelling figures

The Claremont Quarter redevelopment currently underway is projected to increase retail floorspace in Claremont by 18,550m² by 2011. This will have the effect of making the centre even more retail-oriented with only 24% Office, 5% Health and 8% Service Industry. Figure 2 graphically compares Claremont currently and Claremont after the retail expansion with the average Primary Centre, showing Claremont's increasing deficiencies in non-retail land uses.

Figure 2: Comparing Centre Amenity Mix



Source: Pracsys Analysis, 2008

Table 6 below shows the additional floorspace required in each PLUC in order for Claremont to achieve the same mix of amenity as an average Primary Centre, with the Claremont Quarter retail expansion. To achieve Office/Business equal to 44% of the retail floorspace, Claremont would require

an additional: 12,500m² of commercial floorspace, 7,600m² of Health/Community floorspace and 4,000m² of Entertainment/Culture. The table indicates that while Claremont has room to grow as a Primary Centre, additional retail floorspace should not be considered until a more balanced mix of other land uses is achieved. This involves accommodating more commercial and domestic services, as well as community and cultural/civic/entertainment uses.

Table 6: Claremont floorspace requirements to achieve Primary Centre mix

PLUC	Claremont with Primary Centre mix			
	Original Floorspace (m²)	Primary Centre Mix	Resulting Floorspace	Additional Floorspace Required
Primary/Rural	0	0%	0	0
Manufacturing/Processing/Fabrication	1,432	8%	5,368	3,936
Storage/Distribution	1,994	14%	9,158	7,164
Service Industry	5,189	16%	10,074	4,885
Shop Retail and Other Retail	64,154	100%	64,154	-
Office/Business	15,594	44%	28,190	12,596
Health/Welfare/Community Services	3,074	17%	10,697	7,623
Entertainment/Recreation/Culture	8,277	19%	12,341	4,064
Residential	0	4%	2,309	2,309
Utilities/Communications	240	4%	2,527	2,287
TOTAL	99,954	226%	144,819	44,865

Source: Pracsys Analysis, 2008

6. Employment self-sufficiency imbalances

Employment self-sufficiency is defined as the proportion of jobs located in a geographic area (region, corridor, local authority, etc) relative to the residents in that same area who are employed in the workforce. For example, if the area has 1,000 employed residents and 450 local jobs available, then its employment self sufficiency is 45%. The reason this measure is so important to the sustainability of the urban system is that if residents are travelling out of their residential area for employment, they are utilising scarce transit infrastructure (roads, public transport) and creating negative externalities in doing so (eg: pollution).

Table 7: Employment self-sufficiency by ANZSIC Industry

	Town of Claremont			
ANZSIC Industry	Residents	Jobs	SS (%)	Gap
A Agriculture, Forestry and Fishing	50	23	46%	-27
B Mining	178	16	9%	-162
C Manufacturing	149	80	54%	-69
D Electricity, Gas, Water and Waste Services	31	9	29%	-22
E Construction	152	184	121%	32
F Wholesale Trade	114	75	66%	-39
G Retail Trade	396	1,214	307%	818
H Accommodation and Food Services	304	382	126%	78
I Transport, Postal and Warehousing	63	27	43%	-36
J Information Media and Telecommunications	56	29	52%	-27
K Financial and Insurance Services	190	124	65%	-66
L Rental, Hiring and Real Estate Services	109	176	161%	67
M Professional, Scientific and Technical Services	574	396	69%	-178
N Administrative and Support Services	103	74	72%	-29
O Public Administration and Safety	186	112	60%	-74
P Education and Training	455	948	208%	493
Q Health Care and Social Assistance	634	849	134%	215
R Arts and Recreation Services	83	137	167%	55
S Other Services	108	221	205%	113
TOTAL	3,934	5,076	129%	1,142

Source: Census of Population and Housing, ABS, 2006

Table 7 shows employment self-sufficiency in the Town of Claremont. There are 3,934 working residents and 5,076 jobs (ABS Census 2006), resulting in a self-sufficiency rate of 129%. At first glance, this appears that all working residents have the opportunity to work within the Town, and an additional 1,142 employees travel in from other local government areas each day to work. However, comparison of the types of jobs located in Claremont and the jobs in which the residents are employed shows that working residents must travel elsewhere to work in certain industries. For example, 178 residents work in mining-related industries, yet there are just 16 mining-related jobs in Claremont, creating an industry-level self-sufficiency of 9%. Similarly, 574 residents are employed in professional services, yet there are only 396 of this type of job within Claremont, meaning 178 people travel elsewhere for work. In contrast, there are 1,214 retail jobs and only 396 Claremont residents working in retail, meaning the area must import at least 818 workers for the retail industry. By looking at employment by industry and calculating the imports and exports of labour, it can be determined that at

least 726 residents must leave the precinct for work and 1,871 workers must commute to Claremont, leaving 3,205 residents that could find local work in their industry or a possible self-containment rate of 81%.

Knowing this, the Town of Claremont could target specific industries to locate within the Claremont North-East Precinct (NEP). Providing commercial office space for professional and financial services and ICT could create opportunities for residents to live and work within the precinct. In addition, the residential dwellings created through the precinct development could accommodate people that currently travel to Claremont for work. Providing a diverse mix of dwelling types may enable workers in lower productivity jobs to live in the area. Furthermore, increasing residential density around TODs, particularly in areas with easy access to the CBD, mean that many of the negative externalities associated with employment self-sufficiency imbalances are reduced. Residents are able to travel to employment centres on public transport, accessed by foot, easing congestion and travel times.

7. User Expenditure

The amount of retail and entertainment floorspace that can be supported within an activity centre is determined by the pool of expenditure available for capture from user populations. This retail floorspace can form the amenity for resident, worker and visitor comparison good, dining, entertainment and recreation requirements, as well as local resident and worker convenience shopping needs. Using CPI adjusted ABS household expenditure surveys, it is possible to estimate average annual household expenditure on convenience retail and other retail (includes meals out, clothing, homewares, books) for dwellings within the Town of Claremont and surrounding local government areas.

Table 8: Current and future residential expenditure

Current (2006)	Dwellings	Convenience $/HH/yr	Other Retail $/HH/yr	Total Expenditure
Average annual household expenditure		*$11,960*	*$10,556*	
Town of Claremont (4.9km²)	4,299	51,416,040	45,380,244	96,796,284
Nedlands, Cottesloe, Peppermint Grove	11,971	n/a	126,365,876	126,365,876
Total	16,270	51,416,040	171,746,120	223,162,160

Future	Dwellings	Convenience $/HH/yr	Other Retail $/HH/yr	Total Expenditure
Average annual household expenditure		*$12,857*	*$11,348*	
Town of Claremont	5,697	73,246,329	64,649,556	137,895,885
Nedlands, Cottesloe, Peppermint Grove	16,444	n/a	186,606,512	186,606,512
Total	22,141	68,136,120	251,256,068	324,502,397

Source: Household expenditure surveys, ABS, 2003-04

While Claremont residents are likely to purchase groceries and convenience goods within the Claremont town centre, it is assumed that other local government residents shop at supermarkets closer to home. For comparison goods and entertainment/dining, however, Claremont is the Primary Activity Centre nearest to Nedlands, Cottesloe and Peppermint Grove. Average annual convenience expenditure for fourth income quintile households is approximately $11,960 per annum, and expenditure on other retail is around $10,556 per year. Based on ABS Census 2006 current dwelling

numbers, total retail expenditure is estimated at $223,162,160. Using DPI housing targets data and taking inflation into account, 22,141 future dwellings in Claremont and surrounding LGAs will spend an estimated $324,502,397 per annum on retail goods and services.

Table 9: Current and future worker expenditure

User	Number	Visits	Expenditure ($)
Workers – current	1,871	591,236	11,824,720
Workers – future	3,371	1,065,236	25,299,355

Source: Household expenditure surveys, ABS, 2003-04 and Pracsys Analysis, 2008

From calculations in table 7, it was determined that at least 1,871 employees are travelling into Claremont each day for work from outside the local government area. Using ABS surveys and benchmark data, an estimated total of $11,824,720 could be spent by workers on lunch, shopping and after-work dining each year. With approximately 30,000m² of commercial and mixed use floorspace possible in the NEP, an additional 1,500 workers could be accommodated with estimated total spending of $25,299,355.

8. Demand for Retail

Table 10 shows the total turnover required by retail tenancies in Claremont in order to support the current 45,600m² of floorspace, at average turnover of $7,500 per square metre. This turnover of $342 million will be made up of retail expenditure by Claremont's user groups, including residents, workers and visitors.

Table 10: Expenditure required to support current floorspace

Current Retail floorspace (m²)	Average turnover ($/m²)	Total turnover required ($)
45,600	7,500	342,316,000

Source: Retail benchmarks, CB Richard Ellis, 2007 and Pracsys Analysis, 2008

Table 11 demonstrates expenditure by residents and workers, as calculated previously in Tables 7 and 8. In order to reach required turnover of $342 million, an additional $107 million is attributed to retail spending by visitors to Claremont, which equals 31% of total turnover.

Table 11: Current demand for retail

Users (catchment)	Retail expenditure ($)	% of total turnover	Floorspace supported (m²)
Claremont residents	96,796,284	28%	12,906
Other residents	126,365,876	37%	16,849
Claremont workers	11,824,720	3%	1,577
Remainder (visitors)	107,329,120	31%	14,311
Total	342,316,000	100%	45,642

Source: Pracsys Analysis, 2008

Table 12 demonstrates future demand for retail, based upon increases in dwelling and worker numbers, and taking inflation into account for household expenditure estimates. Assuming visitors continue to account for 31% of retail spending, total future expenditure is estimated at $507 million. At

$7,500 per square metre, this supports approximately 67,600m² of retail floorspace, which is consistent with floorspace projections following the Claremont quarter expansion. The demand also allows for up to 3,000m² of additional retail floorspace within the NEP; however this must be on the understanding that a range of other land uses should also be developed to create a full amenity set.

Table 12: Future demand for retail assuming same user % breakdown

Users (catchment)	Retail expenditure ($)	% of total turnover	Floorspace supported (m²)
Claremont residents	137,894,176	27%	18,386
Other residents	186,601,579	37%	24,880
Claremont workers	25,299,355	5%	3,373
Remainder (visitors)	157,154,325	31%	20,954
Total	506,949,434	100%	67,593

Source: Pracsys Analysis, 2008

Total visitor expenditure equates to approximately two million visits per year, rising to around 3.5 million in the future situation. This is consistent with visitor destinations in Perth, with Hilary's Marina estimated to attract 2.5 million visits per year. Demand for retail floorspace is quite dependant on visitor spending, making it essential that Claremont continue to develop as a unique shopping and entertainment destination with sufficient amenity and interest to attract visitors from a significantly wide catchment. It is also vital that the six principles of place activation are thoroughly addressed in order to encourage accessibility, pedestrian movement, purpose of place and control of strategic sites.

9. Economic Activation

Economic Activation of a place is determined by the frequency and concentration of transactions that occur there. The people present at any place at any point in time constitute the 'users' of the place. The users can be characterised as residents, visitors or local workers. The population and expenditure base of each group forms the economic base of the place and drives the commercial vitality of office and retail tenants.

Activating the Claremont North East Precinct (NEP) will involve clustering retail tenancies around a core precinct or central 'heart'; concentrating commercial development in close proximity to the major train station transport node; and encouraging mixing of uses (residential and commercial buildings with visitor amenity) to maximise the frequency of economic transactions.

There are six principles of place activation that have been developed into a coherent framework to apply to urban renewal projects. These principles are outlined below.

1. Purpose of Place

- Address the question – what does this place represent to its target user population (residents, workers, visitors)?
- Successful places usually emanate from a single point, so establish a core precinct, while the periphery will take care of itself
- Send signal to fringe area land owners and tenants and create competition
- Enhance land economics by using design to maximise frequency and concentration of transactions

2. Access – Arrival Points

- Decisions about access begin 5km from the place
- Do not allow transport networks to bypass the place – does the design funnel people and traffic into the core?
- Congestion and mix of transport nodes is good
- Arrive at the ‘’front door’ of the place, not around the back

3. Origins – Car Parking and Transport Nodes

- Parking is the driver of pedestrian movement
- Strategic distribution of car parks and transport nodes will maximise pedestrian movement
    - Location is more important than numbers
    - Space the car parks around the centre
- Street parking is important (for commercial areas)
    - Charge no fees
    - Relax time limits

4. Exposure – Pedestrian Movement

- Economic activation is driven by frequency and concentration of transactions
- Channel movements
    - Concentrate transactions by pushing people past as many shop windows as possible
    - Rents and sales are directly related to pedestrian traffic (eg: Butcher will pay three-times the rent to be at supermarket entry)
- Minimise possible routes from origin to destination points (eg: car park to main attraction) as architectural “permeability” is not always a good thing

5. Destinations – Major attractions

- Identify main destination – what will bring users into the core?
- Assess user behaviour
    - Number of visits
    - Timing of visits (time of day, seasonality)
- Give major destinations special treatment
    - Understand what they need
    - Build centre around them
- Amplify the impact of attractions by creating support amenity and infrastructure to maximise frequency, length of stay and expenditure

6. Control – Strategic Sites

- Tenure control is vital for overall development success – which sites (supporting what uses) must stay in public ownership?
- Identify active frontages and take control of key sites

- Corner sites drive uses on either side
- Not all areas in a place need to be active – be selective
- Have a plan and stick to it

Purpose of Place

Claremont NEP will be a place for people to live, work and recreate. It has a strong residential focus with 515 dwellings and a possible 876 residents, introducing a currently lacking residential density to Claremont.

For residents, the site offers top quality residential living in an established inner urban amenity centre, with significant public open space including the Claremont oval village green and public piazza adjacent to the train station.

There will be a substantial injection of 11,700m² of office space into Claremont, with room to accommodate up to 780 workers, as well as approximately 3,400m² of retail space involving predominantly convenience retail and services for the local residents, workers and commuters.

The site is designated as a place for transit-oriented development due to the proximity to the Claremont and showgrounds train stations. Development around transport nodes allows residents to easily access employment in the CBD and other inner sector employment nodes, while commercial office space is accessible for employees travelling from outer sectors.

Claremont is currently lacking certain industries of employment, occupied by working residents of the local government area. These include financial and insurance services and professional, scientific and technical services. By providing office space to accommodate knowledge-intensive producer services (KIPS) jobs, the precinct can contribute to the employment self-sufficiency of Claremont, allowing people to work in close proximity to their place of residence.

In addition, in industries such as education, health care and retail trade, employees are travelling into Claremont each day to work. Providing a diverse mix of dwelling types, including more affordable one-bedroom apartments, may enable workers in lower productivity jobs to live in the area.

The Claremont NEP should position itself as a diverse, modern transport-oriented development site with a mix of residential and commercial uses and active ground floor retail frontages.

Access and Arrival Points

With the Claremont train station located adjacent to the North East Precinct; residents, workers and visitors are able to easily access the precinct by train. The realignment of Shenton Road allows for two new mixed use buildings with retail activation to be located north of the station, surrounding an open piazza. Passengers disembarking form the train can walk through this public realm to access the precinct, creating a ‘front door’ or sense of arrival. As the main arrival point and mode of transport, access from the train station must be visually attractive and easily navigable.

While the Shenton Road realignment increases the developable land area within the precinct, the function of the road remains predominantly the same, carrying significant traffic movements directly through the site. There is to be a Mews, accessible from Graylands Road, cutting through the developable land to the east of the precinct, providing access to the proposed multi-level car park and the residential dwellings in the south-east corner. This maintains the traffic flow on Shenton Road and provides alternative arrival points. A new road running between Graylands and Davies Roads at the

north of the precinct has been proposed, which increases the permeability of the site and improves access to Claremont Oval.

Visual and physical access across the train line to the Claremont town centre is important, in order to link the NEP to the established activity centre. A safe, well-lit crossing will enable new residents of the NEP to access comparison retail and entertainment on Bayview Terrace, contributing to the success of Claremont as a whole.

Origins – Car Parking and Transport Nodes

With the growing number of residents and encouragement of higher density housing in inner urban areas, it is expected that employment self-sufficiency will also increase. This means that there is more chance for people to live in close proximity to where they work, reducing travel times and reliance on cars. In addition, transit-oriented development enables residents and workers to catch the train to and from work, as well as places of recreation.

The location of the NEP to the north of the established Claremont primary centre means that much amenity is accessible by foot – including groceries and convenience goods, dining and entertainment and comparison goods such as fashion, homewares and jewellery. This further reduces the everyday car requirement.

With the removal of PTA park & ride land along the train line to accommodate the Shenton Road realignment, a multi-storey car parking facility has been proposed within the lot on the corner of Shenton Road and Graylands Road. This location is within a walkable 400 metres from the train station and resulting pedestrian movements contribute to the ground floor activation of Shenton Road. In addition, it leaves more desirable land parcels available for higher order uses, such as commercial office and retail next to the station, and residential dwellings overlooking public open space to the north west of the site. PTA has indicated that provision of approximately 200 car bays would be necessary to balance the loss of current parking space and continue to encourage journey to work rail travel by western suburbs residents.

It is proposed that approximately 1.1 car bays will be allocated to the average apartment, with the option of bundling to purchase additional bays if required. The 11,000m² of office space will operate at a ratio of about one car bay for every 100m² of floorspace, plus additional short-term visitor parking. This implies a low car dependency, with the majority of office workers required to catch the train or another mode of public transport to work.

At night and during weekends, it is assumed that the car bays used by workers during the week will be largely available for visitor use, which would include visitors to the WAFL games held at Claremont Oval. Ensuring cars must travel past retail tenancies to access car parks, and locating car park exits near shops and cafés is a must for activating the central retail core.

Exposure – Pedestrian Movement

Placing the retail tenancies in close proximity to one another concentrates users in one area and creates a vibrant active feel. It also improves the commercial viability of the retailers by maximising passing traffic, raising awareness and potentially enticing expenditure. The concept plan clusters retail and commercial uses around the intersection of Shenton and Davies Roads, adjacent to the train station, which will be the area of highest pedestrian movement. It also ensures that passengers disembark the train immediately into the main activated node, drawing them into the precinct to carry out economic and social transactions.

The retail located within the NEP is to be primarily convenience and dining for local residents and workers, so as to not compete with the established Bay view Terrace main street. Thus, the majority of

the estimated expenditure is derived from residents and workers in the precinct, and within a 1km radius. This means that these users can access the retail hub by foot, which is particularly relevant for precinct's office workers, who will be attracted to the active node for coffee, lunch, after-work drinks and dinner.

Permeability and walkability is promoted throughout the site, particularly with regards to the Claremont oval, in order to retain a feeling of public ownership. Tree-lined landscaped footpaths travel around the perimeter of the site, connecting all lots to the train station and bringing pedestrians from outer origins into the heart of the precinct.

Locating the park & ride multi-storey car park at the south east corner of the site facilitates pedestrian movement along Shenton Road. This improves the commercial viability of ground floor tenancies, and requires commuters to access the train station via retail uses around the central node, with double-sided active frontages.

Destinations – Major attractions

As the primary function of the Claremont NEP is residential dwellings and commercial office in line with transit-oriented development, the major users will be residents and workers, rather than visitors. However, one type of visitor that will access the precinct on a regular basis is the commuter, catching the train to and from work. The primary destination within the site for the commuter is the train station and area immediately surrounding it. This location – the mixed-use buildings with a public piazza – should be designed around the needs of the commuter, enabling them to access coffee shops and a newspaper in the morning and groceries or a drink after work.

This public realm should also operate in the same fashion to cater for the local residents and workforce, creating a 'precinct heart' or central meeting point for the NEP community.

The other visitor attractor is Claremont Oval, which currently houses the Claremont Football Club, as well as being open to the public and hosting community events. On weekends when WAFL games are played, visitor numbers will increase, either accessing the oval by train or bus, or by car. As visitor parking bays will be limited, football fans will increasingly rely on public transport, which reinforces the active train station/piazza node. By providing a range of restaurants and bars in the immediate area, it becomes amenable for this visitor population to continue their day out, enjoy and meal and a drink and not have to consider extra trips and parking.

In addition, the unique development surrounding Claremont Oval is an attractor in its own right. Many of the apartments and commercial office space will have views out across the oval, or the public open space of the tennis club and golf course to the west. The development is an opportunity to increase total users within the currently underutilised high amenity site.

Control – Strategic Sites

Maintaining a form of tenure control may contribute to the success of the Claremont NEP as a unique, active, mixed-use precinct. To create a successful central core, convenience retail and restaurants must locate around the public piazza, adjacent to the train station and commercial office buildings. Allowing retail options to locate in alternative nodes will cause competition for the available expenditure, as well as dilute the activity that should emanate from the central heart of the precinct.

The urban form located between the Claremont train station and the oval should create a link drawing people from the train to the precinct. This space could contain convenience retail such as walk-up coffee shops, newsagents or florists, attractive to people on their way to work.

To be most effective as a transport-oriented development site, it is important for the commercial office to be located on the southern edge of the precinct, with the majority clustered at the south-west corner, adjacent to the train station. The proximity will impact upon workers' decisions to access the office by train, as well as improve daily business to business transactions using public transport.

The principles state that corner sites drive uses on both sides, and it is more difficult to activate a one-sided street. For this reason, the retail uses along Shenton Road from the piazza eastward will be the most commercially viable, due to ground floor uses on both sides of the street, with the possible multi-level car park an anchor at the east end. If the tennis club could be satisfactorily relocated in the future, concentration of retail and commercial uses in the corner of that site facing the train station and the piazza would be likely to have a significant impact on reinforcing the activated central core.

It is important to keep areas of passive public open space for people to enjoy the natural amenity of the oval, outdoor areas and iconic trees. Creating an area in which people feel comfortable to spend time without necessarily spending money, contributes to the feeling of public ownership and vibrancy where people from all walks of life can interact.

As the central meeting point and main activated node, the public piazza surrounded by retail must be designed and maintained in a way that makes it a desirable place to spent time, interact and relax. Seating, public art and natural landscaping can contribute to the activation of this key node. In addition, public access to Claremont oval for community recreation can be maintained, through lot permeability and extension of green pathways. Requiring different heights and urban form also assists in reducing the barrier effect of private buildings surrounding the oval.

10. Conclusion

Maximising residential density in the Claremont NEP by developing a diverse range of well-designed dwelling options creates the opportunity for residents to live near to where they work and recreate.

The Claremont NEP will provide the opportunity for Claremont to develop as a more well-rounded Primary Activity Centre, with a range of commercial, health and community services in addition to the specialised retail offering. It is not suggested that Claremont diversify toward producer services businesses, but rather retain a consumer services focus, targeted toward the established local catchment population.

The current 45,000m² of retail floorspace in Claremont is supported largely by resident expenditure, with some daily worker spending and approximately 30% visitor expenditure. Based on future dwelling targets for Claremont and surrounding local government areas, and assuming visitors will continue to account for approximately 30% of all expenditure, future retail demand is estimated to support 67,600m² of retail floorspace. Discounting the Claremont Quarter redevelopment, this leaves an additional 3,000 to 4,000m² that could be accommodated within the NEP development. Retail floorspace should operate primarily as convenience/dining retail for workers in the commercial office, not competing with the comparison retail located in the current town centre and thus diluting the expenditure available.

Recognising that almost a third of total retail expenditure is estimated to come from visitors from outside the immediate catchment, developing in a unique and differentiated fashion is vital for Claremont's success.

Given the scale and mix of user groups and estimated expenditure, the Claremont North-East precinct can be expected to operate as an attractive, diverse and vibrant precinct. If the principles of place activation are thoroughly addressed from the outset to maximise amenity, capitalise on attractions and

encourage accessibility, the precinct should develop in a way that is consistent with its role as a sought-after inner sector place to live, work and recreate.

Appendix – List of Terms for Employment Planning

Retail
Retail jobs have high transaction intensity and are driven by the needs of the local population. Retail tenancies must locate in close proximity to their consumer catchment, to facilitate the purchase of retail goods on a frequent basis. This can be daily or weekly for convenience goods such as groceries and newspapers, or less frequently for comparison goods such as clothing and homewares. Retail is generally concentrated within centres with a supermarket anchor, to maximise transactions and reduce the number of consumer trips required.

Consumer Services
Consumer services also have a high transaction frequency and must locate in close proximity to their customer base in order to deal directly with them. Like retail tenancies, consumer services often locate in centres to minimise trip generation and benefit from convenience good attractors. Consumer services can include real estate agents, travel agents, shoe repair, dry cleaning services and beauty salons.

Producer Services
Producer services deal directly with other businesses, rather than consumers. Like retail; wholesale producer services must locate close to the businesses they serve, due to the frequency of transactions required. For example, the Coles distribution warehouses must occupy a central location in order to carry out daily delivery of goods to supermarkets. Producer service industries include manufacturing, construction, and distribution.

Knowledge Intensive Consumer Services (KICS)
Knowledge intensive consumer services are those specialist services that deal directly with consumers, yet typically have a higher productivity and lower transaction frequency. KICS provide a skilled service to consumers that usually require a higher level of education or training. Depending on the scale of their catchment, KICS may choose to locate within District centres, or larger business districts with greater soft infrastructure and amenity levels. Examples of KICS include general practitioners, accountants, veterinarians and legal services.

Knowledge Intensive Producer Services (KIPS)
Knowledge intensive producer services involve businesses dealing directly with other businesses, rather than consumers. Transactions are less frequent, however generally have a higher monetary value, due to the intellectual property or knowledge involved. KIPS businesses often locate near their client businesses, although with low transaction frequency and good communications infrastructure, they are to an extent ‘footloose’. This means they can choose to locate in places with relevant physical infrastructure, high retail amenity, or soft infrastructure such as access to a solid education base. Examples of KIPS are engineers, architects, medical scientists and computer software developers.

Driver Jobs
Drivers are jobs in industries in which Perth or Western Australia has a comparative advantage – deemed strategic due to growth and development through exports and the inflow of funds. Driver jobs are producer services, however they occur in strategic industries such as mining, oil and gas and marine. Driver jobs are likely to be hands on, involving the physical construction of a marine vessel or operation of machinery on a mine site- as opposed to the mathematical or scientific analysis carried out by KIPS. In WA, strategic industries tend to require physical infrastructure, such as the port, airports or teaching hospitals.

APPENDIX 6
ARBOR REPORTS

8th May 2008

Town of Claremont
Plan E
414 Rokeby Road
SUBIACO WA 6008

ATTENTION: Catherine Della-Bosca

RE: Tree Transplants at Claremont Oval

Dear Catherine,

Further to my site inspection, the following is a brief of my findings in regards to the transplanting of the various trees on the Site.

Flame Trees (*Erythrina indica*)

These specimens are very readily transplantable.

No preparation time is required, and they can be transplanted at any time of the year.

Given their size, they could also be relocated to another location off site if desired.

Hills Figs x 2 (*Ficus hillii*)

These specimens can be transplanted.

However, given their size and age 9 – 12 months preparation time will be required.

Furthermore, relocating the trees can only be undertaken during the autumn, winter or spring periods.

To maintain the integrity of the trees and their current aesthetics it is also best that they simply be relocated on site to within 'slew' range of the crane (i.e. approximately 50 metres of there currently located).

Relocation to a new location off site will severely compromise the canopy of the tree due to the amount of canopy that would need to be removed to enable their transportation on roads.

Norfolk Island Pines x 2 (*Araucaria heterophylla*)

These specimens can be transplanted.

However their location may impeded on the viability of transplanting these trees due to the logistics involved and access for the appropriate plant machinery required.

Further feasibility studies and discussions with a reputable transplant company will be required if these trees are still desired to be transplanted.

Given their size and age 9 – 12 months preparation time will be required.

They can be relocated at any stage of the year barring periods of excessive heat temperatures; i.e. 36 degrees or higher.

If you have any queries regarding the above, or if I can be of further assistance, please do not hesitate to contact me.

Yours sincerely

JASON ROYAL

8th May 2008

Town of Claremont
C/o Plan E
414 Rokeby Road
SUBIACO WA 6008

ATTENTION: Catherine Della-Bosca

RE: Tree Transplants at Claremont Oval

Arboricultural Assessment

Dear Catherine,

Further to your request, I have recently undertaken an inspection of the ten identified specimen trees situated at Claremont Oval, initially discussed in the Heritage Assessment December 2006.

The following is a brief of my findings and recommendations.

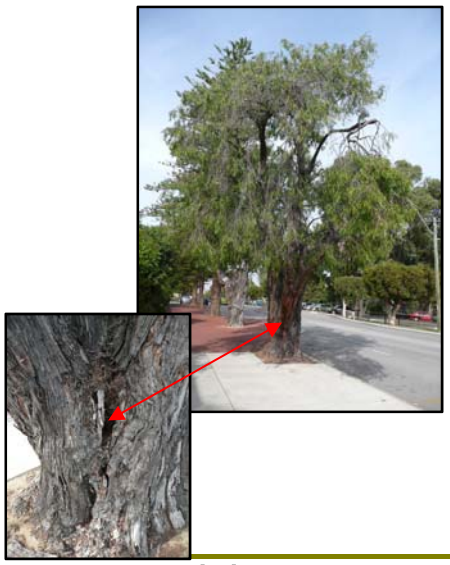
Tree 1; West Australian Peppermint (*Agonis flexuosa*)

This Specimen is situated in the verge area near to the 'north-western' entrance to the ground.

The Specimen shows reasonably good health as adjudged by its current leaf and overall canopy condition, although the volume of 'photosynthetic' mass within its canopy is considered to be relatively low for a specimen of this maturity.

Its structural form is fairly typical for an old WA Peppermint, with noticeable signs of decay within its main stem structure. This decay does not however appear to have affected its structural integrity at this stage.

Given its size it is considered to be in excess of 80 – 90 years of age.



Tree 2; West Australian Peppermint (*Agonis flexuosa*)

The specimen is situated in the verge area near to the 'north-western' entrance to the grounds.

The specimen shows reasonably good health as adjudged by its current leaf and overall canopy condition.

Its structural form is however considered to be potentially hazardous, with a noticeable split in its main stem structure (as seen in the smaller image to the left). Although there was no noticeable movement in this union at this stage, the integrity of this union is expected to deteriorate over time as the (natural) decay pathogens present within the main stem structure continue to further affect its woody tissue.

The future of this specimen is expected to be limited to 5 – 10 years before it requires removal due to its structural condition.

Tree 3;West Australian Peppermint (*Agonis flexuosa*)

The specimen is situated in the verge area near to the club entrance.

The specimen shows reasonable health, although the amount of 'photosynthetic' foliage mass present within its canopy is considered to be low for a specimen of this species at this maturity; possibly due to the soil environment in which it is located.

Closer inspection of its main stem structure showed large columns of decay and evidence of borer activity.

However, based on the available visual evidence, the decay within its stem structure does not appear to have affected its structural integrity at this stage.

Similar to tree 2, the future of this specimen is expected to be limited to 5 – 10 years before it requires removal due to its structural condition.

As with the other Peppermints, given its size it is considered to be in excess of 80 – 90 years of age.

Tree 4;Lemon Scented Gum (*Corymbia citriodora*)

The specimen is situated in courtyard area of the fitness club.

This is a reasonably good specimen, and it shows reasonably good health as indicated by its leaf and overall canopy mass condition.

The structural form of the specimen's upper canopy indicates that it has been previously height reduced (lopped) at some stage in the past. The resultant regrowth however shows to have typical form at the points of attachment for regrowth on a specimen of this species, and there is little decay present at the points of previous reduction.

It is important to remember that this species has the propensity for unpredictable stem failure; despite any best management practices.

No canopy or other management works are considered necessary at this stage.

A 4 metre radius of its main stem is recommended to be treated as a tree root protection zone in the event of any development activity being undertaken in the vicinity of this tree.

In the event of any stem failures occurring, then its future management will need to be reassessed.

Tree 6; West Australian Peppermint (*Agonis flexuosa*)

The specimen is situated within club grounds, near to the oval.

The specimen shows relatively poor health as adjudged by its current leaf and overall canopy condition, with large sections of its canopy having no live leaf mass present.

Its structural form is fairly typical for an old WA Peppermint, with noticeable signs of decay within its main stem structure. This decay does not however appear to have affected its structural integrity at this stage. Evidence of borer were also noted in its main stem structure.

Given its declining state, the future of this specimen is expected to be limited to 5 – 10 years before it requires removal due to either its poor health and/or its structural condition.

If it is retained, then the removal of all major deadwood from its canopy is recommended to occur.

A 4 metre radius of its main stem is recommended to be treated as a tree root protection zone in the event of any development activity being undertaken in the vicinity of this tree.

Tree 5; West Australian Peppermint (*Agonis flexuosa*)

The specimen is situated within club grounds, near to the oval.

The specimen shows very good health as adjudged by its current leaf and overall canopy condition.

Its structural form is fairly typical for an old WA Peppermint, with noticeable signs of decay within its main stem structure. This decay does not however appear to have affected its structural integrity at this stage.

No canopy or other management works are considered necessary at this stage.

A 4 metre radius of its main stem is recommended to be treated as a tree root protection zone in the event of any development activity being undertaken in the vicinity of this tree.

Trees 7 & 8; Norfolk Island Pine (*Araucaria heterophylla*)

These specimens are situated within the club grounds, near to the south-western entrance.

Together they provide a highly prominent feature for the area.

Both show very good health as adjudged by their current leaf and overall canopy condition.

Their structural form is also good and typical for specimens of this species.

Specimens of this species can be transplanted if desired. A 9 – 12 months preparation time will be required, before being relocated.

However, given their size, relocation will possibly be limited to an area within 'slew' range of the crane used to relocated the tree so to avoid removal of excessive amounts of their canopy mass which could compromise their aesthetic amenity and future health potential and life span.

A 4 - 5 metre radius of each specimen's main stem is recommended to be treated as a tree root protection zone in the event of any development activity being undertaken in their vicinity.

Trees 9 & 10; Cotton Palm (*Washingtonia robusta*)

These two specimens are situated outside of the club grounds, near to the south-western entrance. As with the Norfolk Island Pine, they provide a prominent feature for the area (along with two Canary Island Date Palms on the verge area nearby).

They both show very good health and typical structural conditions.

Specimens of this species can be transplanted if desired. No preparation time will be required before being relocated.

Future management of specimens of this species is typically limited to the annual removal of dead fronds.

A two metre radius of each Palm is recommended to be treated as a tree root protection zone in the event of any development activity being undertaken in their vicinity.

Trees 11 & 12; Canary Island Date Palm (*Phoenix canariensis*)

These two specimens (both male) are situated outside of the club grounds, near to the south-western entrance. As with the Cotton Palms nearby, and the Norfolk Island Pine just inside the grounds entrance, they provide a prominent feature for the area.

They both show very good health and typical structural conditions.

Specimens of this species can be readily transplanted if desired. No preparation time will be required before being relocated.

Future management of specimens of this species is typically limited to the annual removal of dead fronds and any seed pods if necessary.

A two metre radius of each Palm is recommended to be treated as a tree root protection zone in the event of any development activity being undertaken in their vicinity.

If you require any further information regarding these trees, or if you have any queries regarding the above, please do not hesitate to contact me.

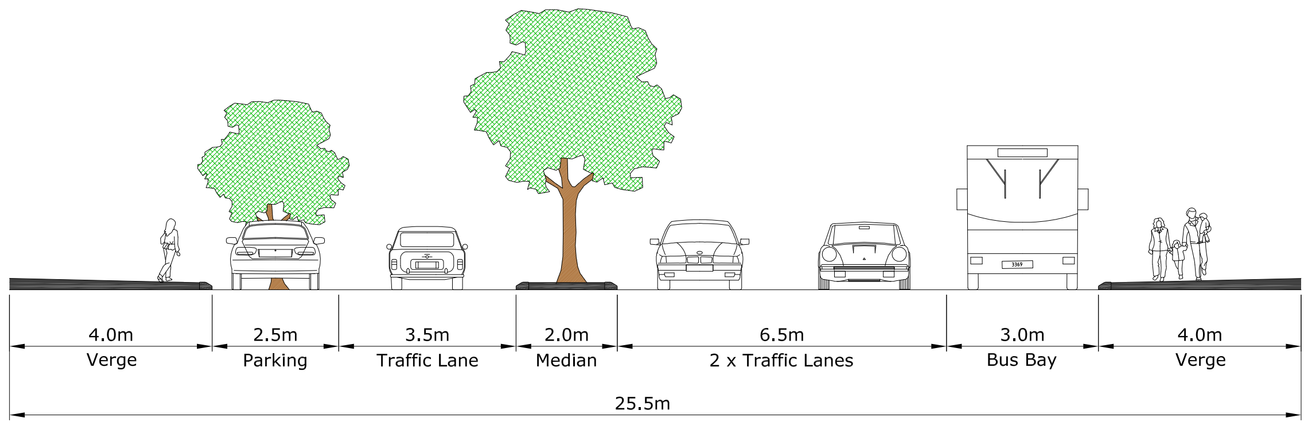
Yours sincerely

JASON ROYAL

APPENDIX 7
SHENTON ROAD CROSS SECTIONS

080529_DE03181_Claremont North

1



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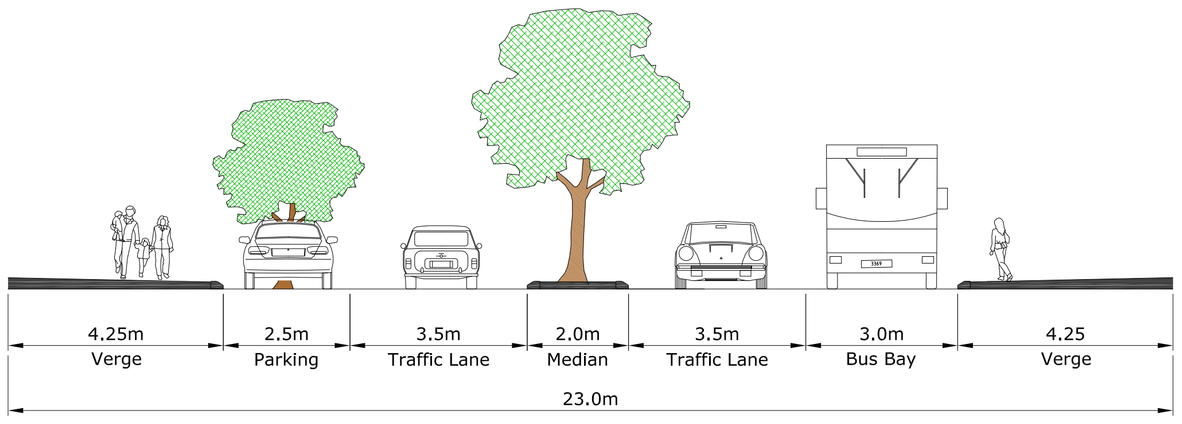

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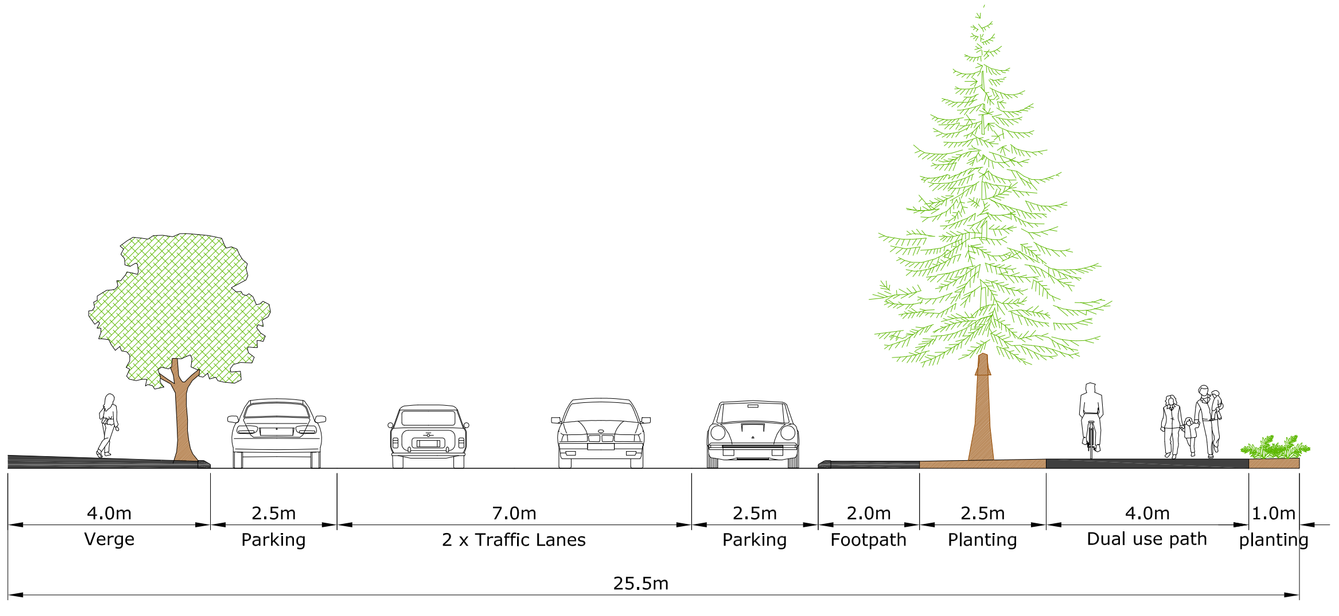

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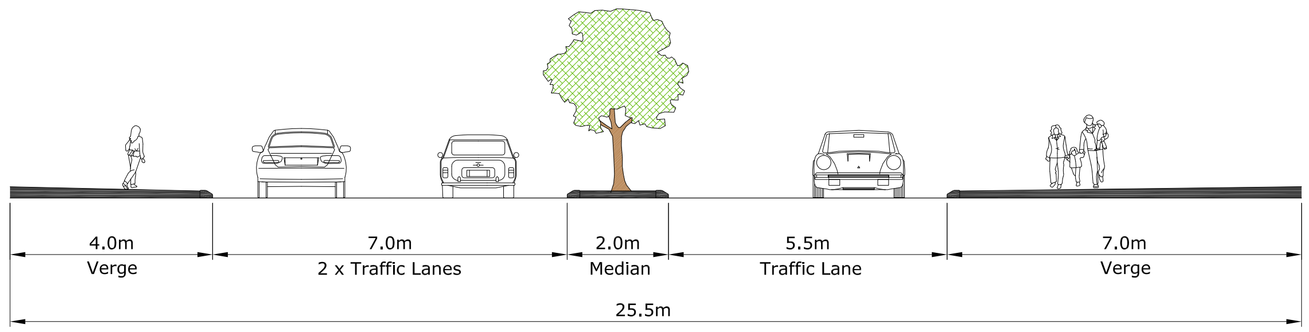

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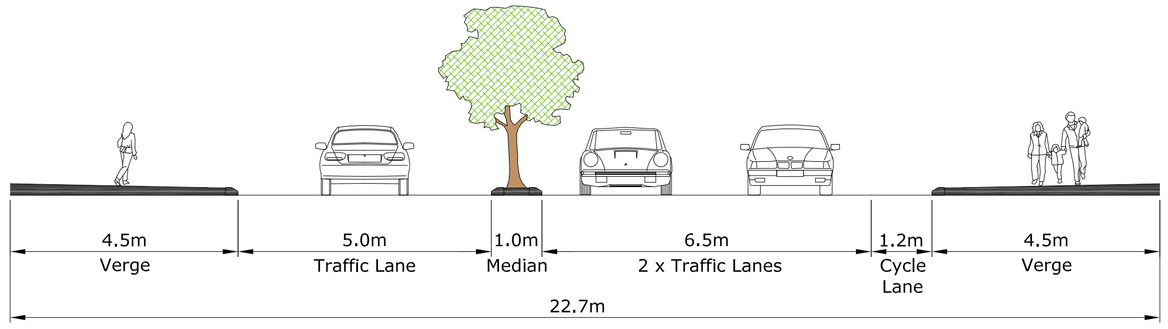

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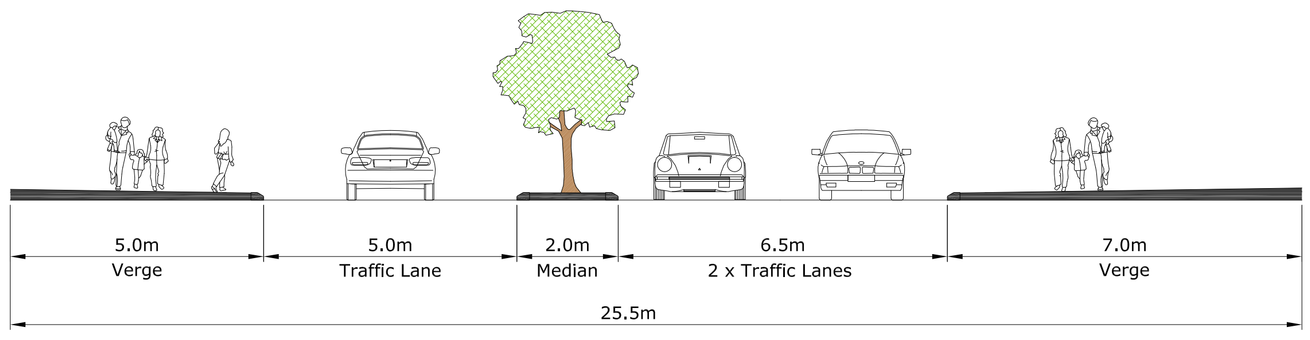

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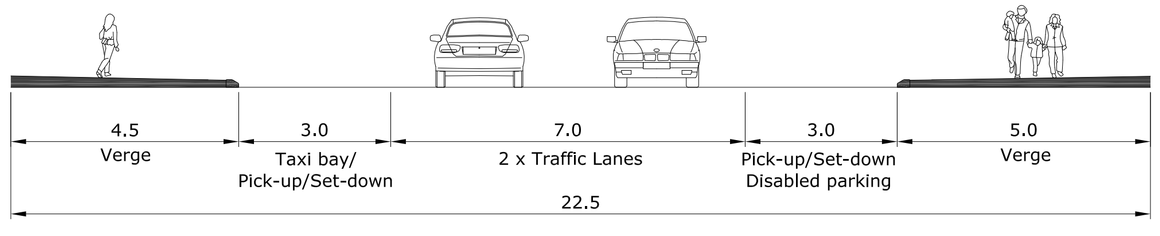
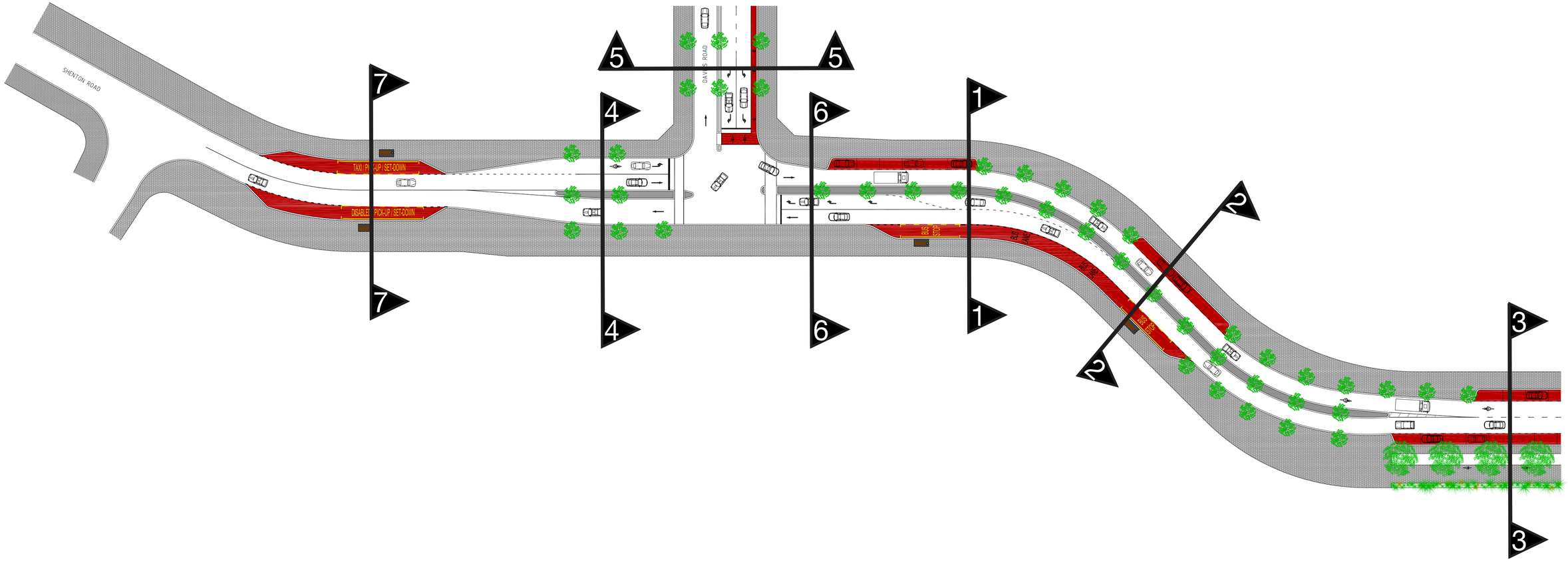


SKM
Sinclair Knight Merz Pty Ltd
A.C.N. 001 024 095
Durack Centre 263 Adelaide Tce
Perth Western Australia 6000
Ph (08) 9268 4400

CLAREMONT NORTH-EAST PRECINCT
CONCEPTUAL X-SECTIONS

13/08/08
A1

DE03181/SCL


SHENTON ROAD
DAVIS ROAD
TAXI / PICK-UP / SET-DOWN
DISABLED PICK-UP / SET-DOWN
BUS STOP
BUS STOP
BUS STOP
1
2
3
4
5
6
7

APPENDIX 8
SERVICING REPORT

23 April 2008

Ms Louise Howells
Taylor Burrell Barnett
PO Box 8186
SUBIACO WA 6904

Our ref: 61/22179/75808
Your ref:

Dear Louise

Claremont NE precinct
Initial Report - Condition and Capacity of Existing Infrastructure

As requested in your email dated 25 March 2008, we advise our assessment of the current condition and capacity of the existing infrastructure for the proposed redevelopment of the Claremont North East Precinct as follows:

Sewer Reticulation

A plan of the existing sewers as shown on the Water Corporation basesheet, is attached.

The existing DN380RC Davies Road Collection Sewer traverses north to south through the Tennis Club site and the existing DN 610RC Claremont Main Sewer runs in Shenton Road south of the Tennis Club site.

The existing DN225 VC sewer in Lapsley Road also takes sewer flows from the RAS showground site and has previously been identified by the Water Corporation as under capacity at peak loads. Pipes of this type and age are also prone to failure when disturbed. To cater for the proposed redevelopment, a new reticulation sewer will be required along Graylands Road to serve the proposed developments fronting that road. This sewer can be designed to also take excess flows from the existing DN225 VC line. The existing DN225 VC sewer is likely to be in substandard condition, which is acceptable while untouched, but is likely to require removal and replacement due to extra lot junction connections required to serve the proposed individual lots shown on the redevelopment plan, Figure 5.

To service the redevelopment, new reticulation sewers will be required in Davies, Shenton and Graylands Roads, with downstream outlet connections to the Davies Road Collection Sewer and the Claremont Main Sewer. These main sewers will provide an adequate outlet from the redevelopment.

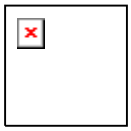
Grey water and wastewater recycling should be considered for the proposed redevelopment.

Water Reticulation

A plan of the existing water mains as shown on the Water Corporation basesheet, is attached.

The existing DN100CI water main in Davies Road and the existing DN100 RC water main in Lapsley Road provide only the minimum diameter allowed in new subdivision design, and are likely to be required to be upgraded for the proposed higher density redevelopment.

The existing DN 535S in Shenton Road will provide for the proposed redevelopment and will connect to new reticulation mains and to the upgrading of the existing DN100 lines. This main will require relocation with any relocation of Shenton Road and must be located within a dedicated road reserve.



The adoption of grey water/wastewater recycling for non-potable water uses within the new developments, and other water saving arrangements such as Five Star Plus appliances, low water gardens etc, will reduce the demand on the water main system, and should be considered in the redevelopment proposals.

Power Reticulation

All existing overhead power lines within the redevelopment area are required by Western Power standards to be replaced with underground power cables, and all new power reticulation cables require to serve the redevelopment must be underground.

Where existing roads are realigned, the overhead power lines will need to be relocated to the new road alignment and placed underground.

The cost to underground existing overhead lines increases as the voltage increases. Accordingly, the existing 135 KV overhead lines in the carpark adjacent to Shenton Road may be allowed to be relocated closer to the railway lines, without undergrounding, subject to a special discussion and agreement with Western Power, if this cost saving is required to be pursued.

The benefits to the streetscape, aesthetics and tree growth should be considered, along with the cost of undergrounding this high voltage line.

Renewable energy options should be considered for the buildings within the redevelopment area.

Street Lighting

All existing streetlighting will be replaced along with overhead cables which are replaced with underground cables for the redevelopment area. A standard range of Western Power decorative designs is currently available for the new streetlights.

Alternate decorative streetlights may be installed, provided the Town of Claremont undertakes with Western Power for the maintenance of these poles and lights.

Road Pavements

The existing road pavements are trafficable but will need to be upgraded to match to the new roads required by the redevelopment and to repair some existing defects.

Resealing the existing pavements with new red asphalt, or with brickpaving, will enhance to look and durability of these pavements. Those types of pavements can be used for intersections, car bays, new pavements and thresholds in the new roads within the redevelopment area.

New kerbing will be required to replace defective and damaged kerbs and to match to the resealed pavements. An alternate form of decorative kerbing could be adopted for the new kerbs if required to be different for the Town of Claremont current standards.

Footpath Pavements

The existing concrete and brick paved footpaths exhibit various degrees of damage and deterioration, which will need to be repaired to match to the redevelopment.

Where tree roots have intruded into the paths in some roads, the installation of root guards should be considered along with the path repairs.

The existing precast slab footpath in Lapsley Road does not meet current standards and should be replaced, even though this path may be outside the boundary of the redevelopment.

Refer attached photographs.

Drainage

A copy of the Town of Claremont existing drainage plan is attached.

The existing drainage system will need upgrading, with additional inlet pits, junction pits, pipes and additional storage / detention due to additional impervious areas resulting from the redevelopment and to make up for deficiencies in the existing system.

Existing drainage basins in the Shire Depot and Shenton Road will need removing, replacing or relocating to accommodate the redevelopment proposals.

Underground storage/detention/infiltration tanks could be located in road verges or in proposed parking or POS areas (including the football oval) to supplement the existing system, which currently relies on drainage infiltration sumps and outlet connections to Lake Claremont to the north and to the Swan River to the south.

Stormwater harvesting and permeable pavements could be considered in the redevelopment proposals.

The Drainage Management Plan will address these issues and provide a selected range of options for drainage facilities.

Existing Levels / Earthworks

The significant differences in existing levels; at the bunds to Claremont Oval, the retaining walls at the PCYC and Davies Road, and between Shenton Road and the Railway carpark, will need to be addressed in the redevelopment proposals. Bulk earthworks and significant retaining walls may be required to suit restrictive lot boundaries and any particular building requirements.

Refer attached photographs.

Please call if you have any queries.

Yours sincerely

GHD Pty Ltd

Robert Kelliher
Senior Professional
6222 8625

Attachments: Water Corporation basesheet showing existing water and sewer reticulation
Town of Claremont basesheet showing existing drainage facilities.
Photographs

APPENDIX 9
DEVELOPER CONTRIBUTION PLAN REPORT

Attachment A3.3
Development Contribution Plan Report

Development Contribution Area	The Development Contribution Area is to be identified on the Scheme Map as DCA1.
Purpose	The purpose of this Development Contribution Plan is to: a) provide for the equitable sharing of the costs of infrastructure and administrative costs between owners; c) ensure that cost contributions are reasonably required as a result of the subdivision and development of land in the Development Contribution Area; and d) coordinate the timely provision of infrastructure.
Period of the Plan	10 years, to commence from the date of Gazettal of the Claremont North East Precinct Local Structure Plan.
Operation of the Development Contribution Plan	The Development Contribution Plan has been prepared in accordance with (Draft) State Planning Policy 3.6 Development Contributions for Infrastructure. It will come into effect on the date of Gazettal of the Amendment to the Local Planning Scheme to incorporate the Development Contribution Plan.
Application Requirements	Where a subdivision or development application or an extension of land use is lodged which relates to land to which this Development Contribution Plan applies, Council shall take the provisions of the Development Contribution Plan into account in making a recommendation on or determining that application.
Principles	Development contributions will be applied in accordance with the following principles: 1. Need and the nexus. The need for the infrastructure included in the development contribution plan must be clearly demonstrated (need) and the connection between the development and the demand created should be clearly established (nexus). 2. Transparency. Both the method for calculating the development contribution and the manner in which it is applied should be clear, transparent and simple to understand and administer. 3. Equity. Development contributions should be levied from all developments in a development contribution area, based on their relative contribution to need. 4. Certainty. All development contributions should be clearly identified and methods of accounting for escalation agreed on at the commencement of a development. 5. Efficiency. Development contributions should be justified on a whole-of-life capital cost basis consistent with maintaining financial discipline on service providers by precluding over recovery of costs. 6. Consistency. Development contributions should be applied uniformly across a development contribution area and the methodology for applying contributions should be consistent. 7. Right of consultation and review. Developers have the right to be consulted on the manner in which development contributions are determined. They also have the opportunity to seek a review by an independent third party if they believe the contributions are not reasonable. 8. Accountable. There must be accountability in the manner in which development contributions are determined and expended.
Items included in the Development Contribution Plan	Administration Costs • Costs to prepare the Development Contribution Plan • Costs to prepare and review estimates

	• Costs to prepare the Cost Apportionment Schedule • Valuation costs • Administrations costs: – Costs to prepare the Local Structure Plan in accordance with Council's Local Planning Scheme including: • Local Structure Plan and report • Design Guidelines • Landscape Master Plan • Local Water Management Strategy • Urban Water Management Strategy • Council costs, including legal costs – Costs to prepare Amendments to Council' Local Planning Scheme, including the Metropolitan Region Scheme. Infrastructure Elements • Utilities: – Water – Power (underground and standard) – Sewer – Gas – Stormwater Drainage – Telecommunications – Greywater – Street Lighting – Closed Circuit Television (or other security / surveillance infrastructure) – Computer data line – Public Art – Public Amenities (toilets, showers, bike sheds, lockers) • Road, verge and footpath upgrading: – Lapsley Road – Graylands Road (Alfred Road to Shenton Road only) – Davies Road (Alfred Road to Shenton Road only) – Land and construction for Shenton Road (Stirling Road to Shenton Road Underpass / Subway) – Traffic management – Landscaping and tree planting – Relocation of trees – Claremont Crescent intersection with Shenton Road – Shenton Road – Greylands Road intersection treatment – Traffic signals (Shenton Road and Davies Road intersection) – Stirling Road Underpass / Subway – Plaza – Taxi Rank – Principal Shared Path
Review	Details of the cost apportionment will be detailed as part of the preparation of Schedule ZZ to the Development Contribution Plan to be prepared upon Amending Council's Local Planning Scheme. The Development Contribution Plan will be reviewed when considered appropriate by Council, having regard to the rate of subsequent development in the Development Contribution Area since the last review and the degree of development potential still existing. The estimated infrastructure costs shown at Schedule ZZ will be reviewed at least annually to reflect changes in funding and revenue sources and indexed based on Department of Housing and Works Building Cost Index.