



CLIENTS | PEOPLE | PERFORMANCE



City of South Perth

Report for Waterford Triangle Urban Design Study

Urban Design Plan & Design Guidelines

November 2010





Contents

1.	Introduction	1
1.1	Study Background	1
1.2	Study Area	1
1.3	Other Documents	2
1.4	Application	2
2.	Urban Design Framework	3
2.1	Land Uses & Residential Density	3
2.2	Built Form	4
2.3	Streetscapes	7
2.4	Open Space	12
2.5	Services	13
2.6	Community Involvement	13
3.	Urban Design Plan	14
3.1	Apartment Precinct	14
3.2	Terrace Precinct	15
3.3	McKay Street Precinct	15
3.4	Park Terrace Precinct	15

Figure Index

Figure 1: Study Area	1
Figure 2: Land Use Plan	3
Figure 3: Indicative Urban Design Plan	14

Appendices

- A Waterford Triangle Urban Design Guidelines

1. Introduction

1.1 Study Background

The Waterford Triangle Urban Design Study is being undertaken jointly by the Department of Commerce and the City of South Perth. It will build on the findings of the work undertaken in Stage 1, which comprised a community engagement study to gain an understanding of the needs and aspirations of the community in respect to the study area. The study will explore and give form to the aspirations of the residents, landowners and other stakeholders of The Waterford Triangle.

This Urban Design Plan (and associated Design Guidelines) represents the culmination of an extensive community consultation and engagement process to ensure the final plan reflects the needs and aspirations of the local community. The Urban Design Plan (UDP) and associated Urban Design Framework is intended as a guide to future development through outlining appropriate land uses, residential densities, streetscapes, built form, traffic and service infrastructure enhancements and other factors to build on and contribute to the local community's sense of identity and pride in their neighbourhood.

1.2 Study Area



Figure 1: Study Area



1.3 Other Documents

This UDP should be read in conjunction with the following Waterford Triangle Urban Design Study documents:

- ▶ Site Analysis report;
- ▶ Community Forum 1 Consultation Report & Urban Design Brief;
- ▶ Community Forum 2 Consultation report; and
- ▶ Waterford Triangle Urban Design Guidelines.

1.4 Application

The UDP graphically represents design intent and combined with the Town Planning Scheme and Design Guidelines provides clear policy guidance to the Council in the application and exercise of its discretion on development control and civil works within the Waterford Triangle.

The City of South Perth Planning Scheme is the statutory means of delivering the Urban Design and managing the ongoing redevelopment of sites within the Waterford Triangle. A Scheme Amendment will be required to formally incorporate the UDP and Design Guidelines into the Town Planning Scheme and give effect to the proposals within these documents. In addition the City will need to consider the issue of staging the redevelopment of the improvements in the public domain (i.e. roads and parks) so that this is synchronised with the redevelopment of adjacent private land.

2. Urban Design Framework

The Urban Design Framework described below is intended to provide the context and general design response to each of the technical elements addressed within the Urban Design Guidelines in [Appendix A](#). The Urban Design Guidelines are modelled to provide more prescriptive details that will assist in achieving the desired urban design outcomes for the Waterford Triangle.

2.1 Land Uses & Residential Density

The land uses within the Waterford Triangle will remain predominantly residential in character, with an intensification of development density and variation of built form. Waterford Triangle is currently a residential area with significant numbers of student tenants due to its close proximity to Curtin University. This framework seeks to recognise and enhance this relationship whilst also providing more suitable and flexible dwelling types tailored to suit a variety of needs (see Section 2.2).



Figure 2: Land Use Plan

The Waterford Triangle houses a variety of households from students to the elderly. The 'as built' residential density is relatively low being constrained by the applicable R20 coding and lot sizes. An increase in the residential density of the area will allow an increased population that can take advantage of the good transport links the area enjoys, the proximity to high quality educational facilities and the Canning River. The provision of a variety of appropriate housing types for the ultimate users will support the overall design and sense of place expectation of the community. New developments should seek to contribute to the creation of an overall sense of an urban village within the Waterford Triangle.

A range of residential densities are proposed that include minimum and maximum densities related to required site areas. The inclusion of a minimum residential density for any new development will ensure that the density outcomes envisaged for the Waterford Triangle are achieved through redevelopment and co-ordinated design. It will assist in avoiding under-utilisation of a strategic residential area.

It has been identified that a small-scale local commercial premises could offer the Waterford Triangle residents the opportunity to meet and provide a social focus. An appropriate site for this is on the corner of Conlon Street and Townsing Drive. This would involve a reconfigured intersection to liberate some land no longer required for road purposes. As this site is outside of the Waterford Triangle study area and the City of South Perth boundaries, further discussion is required between the City of South Perth, the Town of Victoria Park and the local community to progress the concept.

It is envisaged that this tenancy may take the form of a small 'corner shop' or local café or perhaps even a small-bar type development to provide the local community with somewhere to access their day-to-day needs (i.e. bread, milk, newspaper), to socialise and would function as a community meeting place.



Example of a local café serving a residential neighbourhood in Nedlands

The location identified is considered best because it is away from Manning Road, yet is well connected by foot and cycle path network to the neighbourhood. This location will offer residents a short and sociable walk to the shop, increasing neighbourly interaction within the Waterford Triangle.

The existing park area is to be retained and enhanced. Additional green space is to be developed by reconfiguring existing public and private land to improve the flow and function of open spaces within the precinct. The reconfiguration of the intersection of Townsing Drive with both Conlon Street and Manning Road will provide for additional green spaces to make an attractive gateway as well as formalised car parking for the proposed commercial tenancy. Additional green public spaces are proposed to be 'returned' within the road reserves as part of the creation of 'living streets' (see Section 2.3).

2.2 Built Form

A variety of built form is proposed across the different precincts of the UDP that will best achieve the different objectives within the study area. The proposed precincts and accompanying design guidelines will create an 'urban village' that facilitates increased community interaction, fosters community relationships and provides a more attractive and sustainable living environment. It will be a village of combined and different parts rather than a general redevelopment site.



2.2.1 Building Heights

Currently the building height within the Waterford Triangle is relatively uniform at one storey, with a small number of two storey developments. This has contributed to an unremarkable built form and a lack of architectural cohesion between dwellings. This can contribute to a limited sense of place and streetscape identity.

A greater variety of building heights should be encouraged to increase the density and efficiency of land uses to take advantage of the wider strategic context. Greater building heights should be concentrated in key strategic development areas within the Waterford Triangle that will maintain the suburban residential character of the remaining areas.

2.2.2 Ground Levels

In Perth there is evidence that redevelopment for higher density housing in apartment type development can result in poor relationships between new housing and the streets and spaces immediately adjacent to them. The proposed increase in residential density for the Waterford Triangle and introduction of different types of housing development raises the potential for apartment and other buildings designed to consciously divorce themselves from the street and from neighbouring development. This is sometimes an attempt to create a degree of exclusivity for residents but occurs at the expense of people using the streets and spaces adjacent to the buildings.

The sensitive design and careful attention to matching levels with finished ground levels can enhance the sense of community ownership of streetscape areas, increase passive surveillance and security and therefore contributes towards a different, 'village' character.

2.2.3 Site Coverage

Site coverage will determine the overall urban form of the Waterford Triangle through the ratio of the ground covered by buildings to the amount of land available for open space between the buildings. The current low ratio of site coverage in the Waterford Triangle results in open, suburban landscapes with large private open spaces and garden areas. It has been identified that the open-nature of the streets has possibly created a sense of isolation and detachment for residents of the Waterford Triangle.

The study has identified opportunities for increased site coverage and a greater intensity and efficiency of development in the private realm whilst maintaining the valued attributes of green spaces, trees and fresh-air by careful and landscape considerate architecture and urban design.

2.2.4 Setback Areas

Currently the Waterford Triangle is a low density residential neighbourhood of properties with houses set well back from wide road reserves. The large front setbacks combined with the straight wide roads and verges result in a sense of isolation between properties and for pedestrians. There is inconsistent standard of landscaping of the streets within the Waterford Triangle whereby some properties and the street verges are well tended and cared for and yet others are not. The streets are generally looking unkempt and many of the houses falling into disrepair.

Anecdotally the high proportion of short-term and casual tenants has led to a loss of attachment to place in this neighbourhood and that is reflected in the lack of effort from residents to tend to the gardens. It has been suggested that the current aging stock of detached houses with large gardens is no longer



meeting the practical needs, resources and interests of many of the people choosing to live in Waterford Triangle.

One of the primary issues of concern identified by residents within the Waterford Triangle is the poor existing appearance of the general streetscapes and the maintenance of the front setback areas of residential properties. Front yards are generally not maintained neatly. The need for abundant and convenient car parking by multiple tenants has resulted in the front yards and road verges and their landscaping becoming poorly maintained.

The manner in which the housing development addresses the street invariably influences the experience of people using these spaces. It is therefore appropriate that redevelopment more positively addresses the street areas and design guidelines need to reflect this.

An intensification of housing density and attention to residential design guidelines in The Waterford Triangle may result in a better matching with the needs of some key residents such as students, busy singles and couples. The need to improve the streetscape raises the opportunity to consider a reduction in the horizontal scale of street-related spaces, to achieve a more personable and human space for walking and socially engaging with neighbours.

Articulation of the street façade is encouraged as is the averaging of setbacks to achieve architectural interest and outlooks from housing into the street spaces. Better lighting of doorways and pathways is a pre-requisite of reduced setbacks and/or other variations to development standards. Where buildings address the street they should be generally no taller than two storeys, with taller portions of apartment buildings permitted to be located behind a podium element

New developments should address the street spaces by creating a human scale of development, with variety and visual interest and a clear line of sight to entrances to houses and clear transitional edges to private space which may still be appreciated from the street. Combined with the establishment of *living streets* (see Section 2.3.1) this will establish superior streetscapes and encourage community life and spirit and build a sense of neighbourhood identity and belonging.

2.2.5 Sustainability Elements

In Perth's climate of long, hot summers and cold winters, it is essential that buildings are designed and orientated for cross-ventilation, optimum solar access and natural day-lighting in habitable rooms. A building's orientation is critical in allowing cross ventilation and natural cooling throughout summer as well as ensuring that as much winter sun as possible is utilised by habitable rooms and major living areas of a residence (both inside and out).

Design of housing needs to address these principles not only to improve the energy efficiency of the building (and thereby reduce energy-related carbon emissions) but to also increase the level of comfort for residents of the building and result in a more liveable and sustainable neighbourhood. In addition yard areas need to be accessible to moving airflow and sunshine for a period of the day even in winter. This allows for areas of fresh-air for play and repose which is a big influence on community well-being. Reference to the R Codes provides good guidance as well as illustrated examples of how to achieve good outcomes for orientation solar access, cross ventilation and privacy.

The proposal to increase in dwelling density and bulk of buildings also raises the opportunity and responsibility to design for renewable energy, water recovery and re-use and passive solar energy for individual householders. This design approach is appropriate and responsible given a society aware of a



drying climate and concerned about ecological impacts and long-term consequences of inappropriately designed development.

The Waterford Triangle should endeavour to incorporate the highest possible sustainability principles into all elements of design. It is important to adopt fit-for-purpose design to minimise dependence on non-renewable sources of energy. Demonstrated water conservation and quality management is especially relevant given the proximity of the area to the Canning River system and associated wetlands and drainage lines. Appropriate design will not only conserve resources but will make the new housing in the Waterford Triangle comfortable, affordable and with a reduced long-term impact on the environment.

2.2.6 Materials

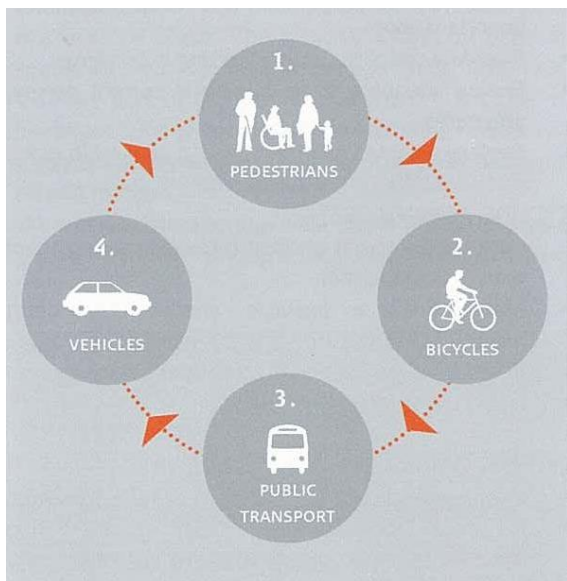
The Waterford Triangle comprises houses which were built in the 1960's through to the 1980's. There is a melange of styles, materials and colours of individual developments when viewed as an entire street, contributing to a general lack of cohesion in the Waterford Triangle. Given the increase in density of development it is important to select forms, colours, materials and finishes for new buildings which harmonise with abutting properties to build-up a composite visual character of the area.

Without attempting to over prescribe design details, the combination and selection of materials and colours for new developments in the Waterford Triangle will need to tone with and complement neighbouring residences to create harmonious streetscapes and contribute to the identity of the community. Appropriate materials and colours contribute to the increased energy efficiency of buildings and reduce running costs for lighting, heating, repair and maintenance; particularly in the case of coloured roofing materials where dark colours can be a significant contributor to heat absorption and the resultant requirements for mechanical cooling. Use of locally sourced products and materials not only reflects local identity but reduces the amount of energy used to transport to site

2.3 Streetscapes

2.3.1 'Living Streets'

The UDP proposes more pedestrian friendly streetscapes, or 'living streets', with a focus on slowing traffic movements and reclaiming parts of the road reserves for Water Sensitive Urban Design (WSUD) features, green space and pedestrian gathering spaces. The objective is to re-order the usage hierarchy of the roads towards pedestrians rather than cars. The road reserves should be thought of in terms of 'people capacity' as opposed to 'vehicular capacity' with the needs of pedestrians coming before those of vehicles. This is especially relevant in the Waterford Triangle where a high proportion of university students in very close proximity to Curtin University may walk and cycle rather than drive to the university.



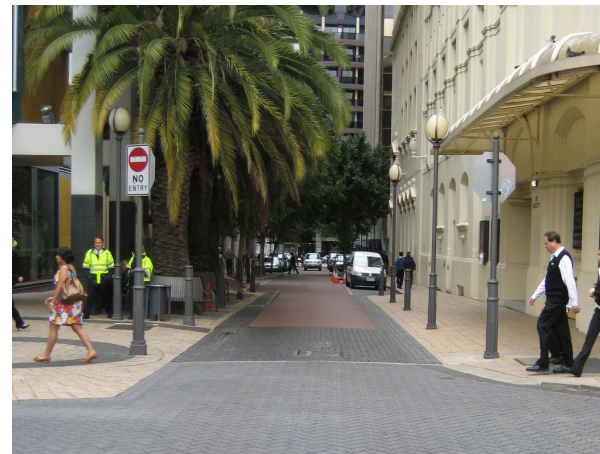
Re-ordering the road user hierarchy

Source: Gehl Architects, 2009



Example of a road reserve re-organisation

To achieve this, the UDP reallocates road reserve space from vehicles to walking, cycling and open space. The sealed carriageway should be narrowed to 5.5-6m within the existing 18-20m road reserves. Current and forecast future traffic volumes suggest that this is a suitable carriageway width. This will release up to 6m on either side of the carriageway for on-street parking, pedestrian areas, green zones and WSUD features. Other features such as variation in road pavements and colour, flush kerbing, public art features, bicycle racks, sitting benches and interactive information boards could contribute to enhancing the pedestrian environment associated with the road reserves.

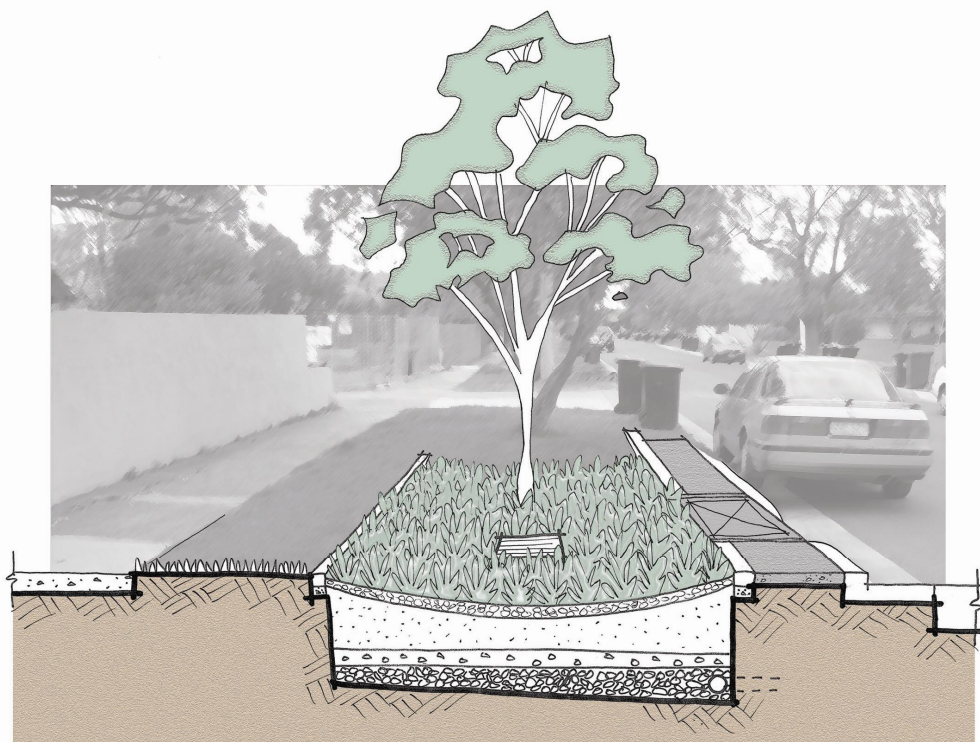


The intention is to create community gathering points in the enhanced streetscapes to increase community activity and ownership of the public spaces. High speed through-traffic movements will be discouraged, increasing the amenity and safety of the area. Pavement areas will be varied with brick or other contrasting treatments to slow traffic and visually diminish the dominance of the roadway.

2.3.2 Water Sensitive Urban Design

The Waterford Triangle is a source of stormwater discharge into the Canning River and nearby wetland areas. At present there is no WSUD capability in the existing drainage system. The landscape design of public space and drainage systems offers significant opportunity to enhance the natural environment within the study area, adding biodiversity and habitat, as well as providing many off-site advantages.

Whilst this also may provide a constraint in possible required conditions for discharging water, it provides a great opportunity to link with the proposed development in this area in filtering surface water before it reaches the river and wetlands.

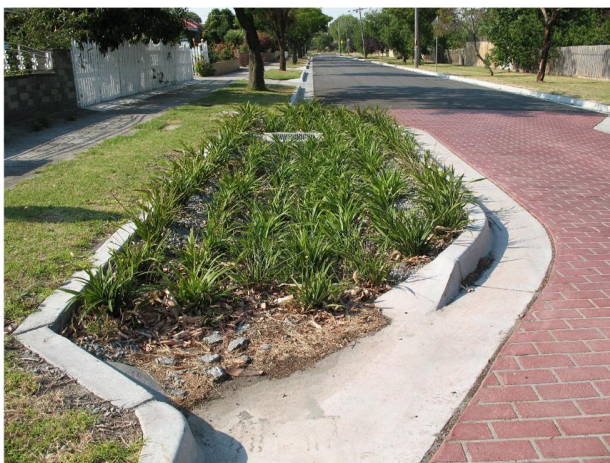


Indicative WSUD cross section

Stormwater quality and quantity management using WSUD principles applied and monitored within the Waterford Triangle may provide a blueprint for better local engineering specifications for 'rain gardens', swales and storm sediment and gross pollutant traps throughout the City of South Perth. Municipal management of roads and drain systems might also benefit from adopting the principles of the Waterford Triangle as a pilot study.

Specifically, best management practices might include; disposing of storm water on site, removing contaminants prior to discharge and/or collecting and reusing storm water. Consultation with local residents during the design and implementation stages may serve to raise awareness of the consequences of garden and public space management for the health of the downstream environment.

The specific nature and viability of various opportunities will need to be explored further once development options have been established. These initiatives may also be linked with the community garden concept to provide water to the garden, manage the use of nutrients and chemicals as well as ensuring that any nutrients do not discharge from the garden into the broader environment.



Example WSUD street side features

The establishment and community monitoring of water in a 'Living Stream Program' is another opportunity to combine the garden operations, local water management and residential behaviour as an interactive educational experience.

2.3.3 Parking & Access

The Waterford Triangle currently has amenity problems caused by poor and random car parking behaviours and access arrangements. Unregulated on-street parking and vehicle access has been identified as a concern for the local residents and this activity has degraded verges and impacted streetscapes. The Waterford Triangle will need to ensure that streetscapes are not cluttered by cars by way of high-quality landscaping.

Throughout the Waterford Triangle the preference is for car parking to be on-site and behind the building lines to remove visual clutter from streetscapes. Apartment housing is encouraged to make provision for common parking areas which offer security, weather protection and opportunity to clean cars in a manner which does not cause damage to landscape and the environment. Where housing is multi - storey development, under croft or service court parking layouts are preferred. Visitor parking shall be provided within areas immediately adjacent to entrances, and where possible off-street parking is linked to pedestrian routes and does not dominate the street frontage.

The proposed changes in the road reserves and the promotion of 'living streets' will alter the current on-street parking and access arrangements within the Waterford Triangle. The proposed road treatments will assist in preventing informal and *en-masse* on-street parking within the area. As part of the new road reserve treatments, specified on-street bays are proposed to be incorporated into WSUD and other landscaped features.

Time restrictions on street car parking within the Waterford Triangle may need to be considered to ensure that street parking is not monopolised by university students. This has been identified as a major problem with the current parking arrangements. A 2-3 hour time limit would limit use by students, whilst also providing a reasonable time for visitors to the area (this is similar to parking near UWA).

This will ensure a regulated on-street parking system that does not impede traffic flows, pedestrian movements and cyclists whilst 'tidying up' the streetscapes and reducing the amount of parked cars on the streets.

On street parking combined with landscaped features



The safety of residential vehicle access from individual houses directly onto Manning Road is identified as a major community concern. The solution is to devise a low-speed access laneway to service all properties accessed from Manning Road. Both a rear laneway or a front service road were considered however due to concerns about unsightly garages facing Manning Road the rear laneway option was favoured.

The main objective of the rear access is to improve the safety of access for the properties along Manning Road and to remove the need for driveways directly onto Manning Road. The preferred laneway alignment is just inside the existing property boundaries adjacent to the central open space area and links from Conlon Street through to Garvey Street. It is proposed to be 3m wide which is sufficient for one-way flow with several passing areas of 5.5m incorporated within the road.

As it is to the rear of private properties, private land will need to be relinquished and it will need to involve agreements with private land owners and the City of South Perth to implement and this could be a pre-requisite for redevelopment to higher codes. Developer contributions will need to be considered as individual properties are redeveloped to recover construction costs for the City of South Perth. Just as the costs of improving the road reserves, lighting and open space are dispersed across the entire Waterford Triangle area, and so it is appropriate for overall contributions to offset the cost of implementing the laneway.

Consideration was given to aligning the laneway within the public reserve, however ultimately the laneway is indicated on private land for two main reasons. Firstly, to ensure that this option did not reduce the area allocated to open space. Having the laneway on the reserve would reduce the width of the entrances to the public open space off Conlon and Garvey Streets considerably, reducing already narrow openings and bringing cars and pedestrians in close proximity to together. Secondly, it is important to make a direct connection to Garvey Street to ensure that all lots accessed from Manning Road can access the laneway. Placing the laneway in the reserve would not allow this to occur and the remaining houses would still be disadvantaged by access onto Manning Road. In addition, removing open space disadvantages the community as a whole for the benefit of a small number of landowners (as opposed to a community wide benefit).

Any redevelopment will need to ensure that house frontages onto the laneway properly address the park as visually attractive frontages and are not dominated by garages and solid boundary fencing. Lot frontages should be 10m in width as a minimum and urban design guidelines are proposed to ensure redevelopment properly addresses the park and yet provides good access. It is important for landscaping design and pavement treatments on this edge to promote a slow and safe speed for traffic, to also provide an informal and attractive edge to the park.



It is not feasible to establish a rear laneway for the houses fronting Manning Road between Garvey and McKay Streets because the boundary alignments are not straight and would create difficulty for cars to manoeuvre. In this section a front service roadway within the Manning Road setback can provide better safety and avoid multiple driveways directly onto Manning Road. This would be provided in a similar manner with cross-easements and general contribution towards construction.

2.4 Open Space

2.4.1 Central Space

The central open space area is in need of an upgrade to offer a wider range of activities and uses and to ensure the local community can enjoy an attractive and interactive space whilst feeling safe and welcomed. The current open space has only a children's playground as the predominate facility. Additional activities and equipment are required to attract all age groups to the park to interact and enjoy the space. This equipment might include fitness apparatus, BBQ facilities and a basketball or tennis half court. This will widen the appeal of the central park area to other age groups and users than just families with young children. Additional lighting is also required to improve the safety of the park.

A new connection is proposed from the central open space through to Manning Road and towards the Canning River. This connection aligns with suitable pedestrian connections planned in the new subdivision under construction on the opposite side of Manning Road. It also creates a more direct access route and visual connection through to Keaney Place and McKay Street.

The central area could also benefit from selective tree clearing as required to increase the amount of sunlight reaching the ground level of the park (as well as the houses on the southern and eastern sides of the park). If these trees were either pruned or replaced with more appropriate species, the amount of sunlight into the park would increase, improving visibility and safety as well as functionality and appeal.

2.4.2 Road Reserves

Additional open space areas are proposed within the re-configured road reserves. As part of the 'living streets' philosophy of re-ordering the street hierarchy and promoting pedestrian movements and community interaction, small gathering areas are proposed within the public domain. Small landscaped areas with benches and other features such as WSUD gardens or public art are encouraged to promote community members to stop and sit and communicate with each other. This will have an added benefit of increasing passive surveillance opportunities within the community.

2.4.3 Community Gardens

The City of South Perth is encouraged to pursue the idea of a community garden further with the local community, who have expressed interest during the consultation process for this study. A portion of the central park could be utilised to increase the amenity and appeal of the area, whilst at the same time ensuring design is appropriate to maintain a sense of community and safety.

The creation of an eco-friendly community garden within the open space can serve as a gathering point for residents and others to meet and forge positive relationships, particularly as this park is centrally located within the study area. Eco-friendly local food production can be achieved using bio-dynamic management and low-chemicals to prevent pollution of the local water-cycle.



Based on experiences elsewhere community gardens can bring many positive community outcomes including the creation of a focal point, providing fresh produce and assisting people to reconnect locally with the food production process. Community gardens also provide the personal connection and affinity for public land albeit in a transactional manner. Residents collaborating to grow produce also grow personal relationships, creating a unique sense of belonging at the local neighbourhood level.

Community enthusiasm for gardening may inspire involvement in individual gardens for each street and encourage a spirit of community pride to maintain their own gardens to a higher level, contributing to improvements in the overall streetscapes of the area.

2.5 Services

Initial consultation with service authorities has indicated that any redevelopment and increases in density from the current situation may likely require reinforcement to the individual systems and infrastructure. The waste water system in particular will require consideration as redevelopment is planned. As earthworks south of Manning Road have commenced for the new subdivision, it is anticipated that the current tankering arrangements will cease as the sewerage is connected to the gravity sewers for that development. This connection is likely to be required before any increase in density can be accommodated within the Waterford Triangle. At this stage of the Water Corporation's planning, an upgrade of the existing sewerage system is not necessary to accommodate the proposed densities. Consultation with the service authorities by the City of South Perth will be required to ensure the coordination of any infrastructure upgrades and implementation of possible developer contribution schemes.

Lighting of footpaths, parks and road crossings needs to be improved throughout the Waterford Triangle. Power should be undergrounded and consideration given to encouraging solar power generation on all new private and public buildings. These initiatives for conserving power, water and lowering the carbon footprint should attract development bonuses.

Drainage should be modified to create a hybrid of WSUD and pipe-drains so that stormwater is managed to reduce nutrients and gross pollutants discharging from the Waterford Triangle. Examples shown in Section 2.3 of how to create swales and rain gardens in road reserves show how the City of South Perth might re-design local drains apace with development.

2.6 Community Involvement

The community has been highly involved in the design process and this level of interest and commitment needs to be fostered so that many of the ideas advanced in the UDP can be implemented with working groups, review panels and local 'champions'. The key point is that the UDP will not succeed without ongoing community interest and Council co-ordination of resident involvement in consultation. Suggestions have included Review Panels and Resident Associations to partner with the City of South Perth in looking after the living streets and new park facilities.

3. Urban Design Plan

The Urban Design Plan illustrated below in Figure 3 provides a conceptual representation of what the outcome of the urban design framework and design guidelines may produce. Various different precincts have been identified within the Waterford Triangle that have different objectives and different design outcomes. These are based on adjacent land uses, proposed building heights and residential densities and interaction with the surrounding area. The specific design requirements are outlined within the Urban Design Guidelines.



Figure 3: Indicative Urban Design Plan

3.1 Apartment Precinct

The Apartment Precinct will create a precinct of multiple dwellings in landscaped grounds located close to Curtin University. A variety of dwelling sizes should be developed to provide more appropriate accommodation for students as well as couples, the elderly and others who prefer smaller apartment style living in a strategic location. These dwellings will also provide an option for those who do not have the time, money or inclination to maintain large private garden areas associated with detached or semi-detached housing. The provision of smaller apartment dwellings will contribute to the resolution of current visual and maintenance issues of streetscapes and private garden areas.

The built form in this area will be limited to five stories, with the upper three levels being setback from the first two levels in a podium style development. This will control the bulk of the built form at the street level

and pedestrian scale so as to not create major overcrowding and overshadowing. Views to the river and escarpment may also be possible from upper floor apartments.

3.2 Terrace Precinct

The objective of the Terrace Precinct is to provide for single or grouped dwellings with a three storey height limit that will increase housing density whilst also maintaining the low-key residential character of the area. Single and grouped dwellings will be encouraged with reduced setbacks. Multiple dwellings will be permitted if certain criteria are met. This terrace form will offer a more united residential form which relates well to the street environment and offers opportunities for energy efficiency applications.



Terrace style housing examples

New development within this precinct will need to maintain the residential character of the area whilst also ensuring that key frontages (e.g. Manning Road and the central park area) are suitably addressed to provide increased passive surveillance options and attractive interfaces with the 'living streets'.

3.3 McKay Street Precinct

The built form on McKay Street, east of the intersection with Keaney Place, will be generally the same as the Terrace Precinct, however multiple dwellings will not be permitted to ensure a compatible relationship to the housing opposite. The key goal of this precinct is to improve efficiency of housing stock whilst ensuring a compatible street frontage with the adjacent side of the road that is outside of the Waterford Triangle study area. This recognises the importance of the street as the source of local identity.

3.4 Park Terrace Precinct

The Park Terrace Precinct is intended to be developed in the same way as the Terrace Precinct with one additional objective; to increase the usage of this park area by reducing the private open space requirements for new developments given that the properties within this Precinct have direct access and frontage onto the central park area.

Development that directly abuts the central park area will also need to address the public open space aspect of the adjoining land. Currently the park is surrounded by blank fences and walls that do not allow any surveillance from outside the park inwards, or from inside the park outwards. This results in a sense of isolation and insecurity for park users.

New developments should provide more open frontages onto the park area and have habitable rooms or balconies facing the park area. Increasing the level of passive surveillance opportunities into the park will increase the safety and security of the park area, encouraging more positive utilisation of the area. This will also provide opportunities for passive surveillance of these properties from the park area, supporting crime prevention, particularly when houses are un-occupied.

Development addressing public open space





Appendix A

Waterford Triangle Urban Design Guidelines





GHD

GHD House, 239 Adelaide Tce. Perth, WA 6004
P.O. Box 3106, Perth WA 6832
T: 61 8 6222 8222 F: 61 8 6222 8555 E: permail@ghd.com.au

© GHD 2010

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	Scott Jeffrey	Ross Montgomery		Anna Kelderman		30/07/2010
1	Scott Jeffrey	Anna Kelderman		Anna Kelderman		10/09/2010
2	Scott Jeffrey	Ross Montgomery		Anna Kelderman		13/10/2010
3	Scott Jeffrey	Ross Montgomery		Anna Kelderman		15/11/2010