

west belconnen

master plan report

September 2014



The Riverview Group



CANBERRA FIRST



Title West Belconnen
Urban Design Report

Prepared for: Riverview and LDA

Date: June 2014

Status: Final

Prepared by: RobertsDay Sydney

Approved by: Martine White

DISCLAIMER & COPYRIGHT

This document was prepared for the exclusive use of Riverview Projects (ACT) Pty Ltd (Riverview) and ACT Land Development Agency (LDA) . RobertsDay acts in all professional matters as a faithful advisor to its clients and exercises all reasonable skill and care in the provision of its professional services. The information presented herein has been compiled from a number of sources using a variety of methods. RobertsDay does not attempt to verify the accuracy, validity or comprehensiveness of any information supplied to RobertsDay by third parties. The development parameters (dwelling numbers, stages etc.) referred to in this report may vary over time. The figures contained herein are estimates; they represent a good approximation of likely development outcomes to a sufficient level of accuracy for the purposes of this report.

RobertsDay makes no warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, validity or comprehensiveness of this document, or the misapplication or misinterpretation by third parties of its contents. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favouring by RobertsDay. This document cannot be copied or reproduced in whole or part for any purpose without the prior written consent of RobertsDay.

© RobertsDay Pty Ltd, 2014

Level 4, 17 Randle Street Surry Hills NSW 2010

T: +612 8202 8000 www.robertsday.com.au

ABN 53 667 373 703 ACN 008 892 135

contents

- 01 Introduction
- 02 Sustainability
- 03 Context
- 04 Defining the Developable Area
- 05 Demographics & Housing
- 06 Design Approach
- 07 West Belconnen Master Plan
- 08 Indicative Staging
- 09 Guiding Principles
- 10 Conclusion
- 11 Bibliography



WEST BELCONNEN WILL BE AN
INNOVATIVE, SUSTAINABLE COMMUNITY OF
INTERNATIONAL SIGNIFICANCE
AN AFFORDABLE DIVERSE COMMUNITY THAT
BUILDS ON THE LEGACY OF WALTER BURLEY
GRIFFIN

01

introduction

1.1 West Belconnen

A commitment to environmental excellence and sustainability are the defining characteristics of the West Belconnen project that will create a series of villages located within a landscaped setting with views to the Brindabella mountain range.

West Belconnen will:

- Be an innovative sustainable community of international significance
- Reflect best practice contemporary planning and design practice to create a 21st century settlement, built on the legacy of Walter Burley Griffin
- Help to address housing demand in the regionRevitalise West Belconnen and bring growth into the broader area
- Be a genuine sustainable development
- Be part of the Green Building Council of Australia's, Green Star Community pilot rating program, with a goal of achieving 6 stars – a world leadership rating in sustainability
- Be the first cross border development between ACT/NSW
- Provide a diverse range of housing and lot sizes to suit a wide range of budgets, buyers and lifestyles
- Provide opportunities for first home owners
- Provide for housing affordability and diversity to ensure a diverse and socially sustainable community
- Provide a range of recreational opportunities as an integrated part of the project
- Incorporate all necessary infrastructure to support new residents as well as benefiting existing residents

1.2 Master Plan

RobertsDay has been engaged by Riverview Projects (ACT) Pty Ltd (Riverview) to prepare a Master Plan to provide the spatial expression of the proposed "Future Urban Area".

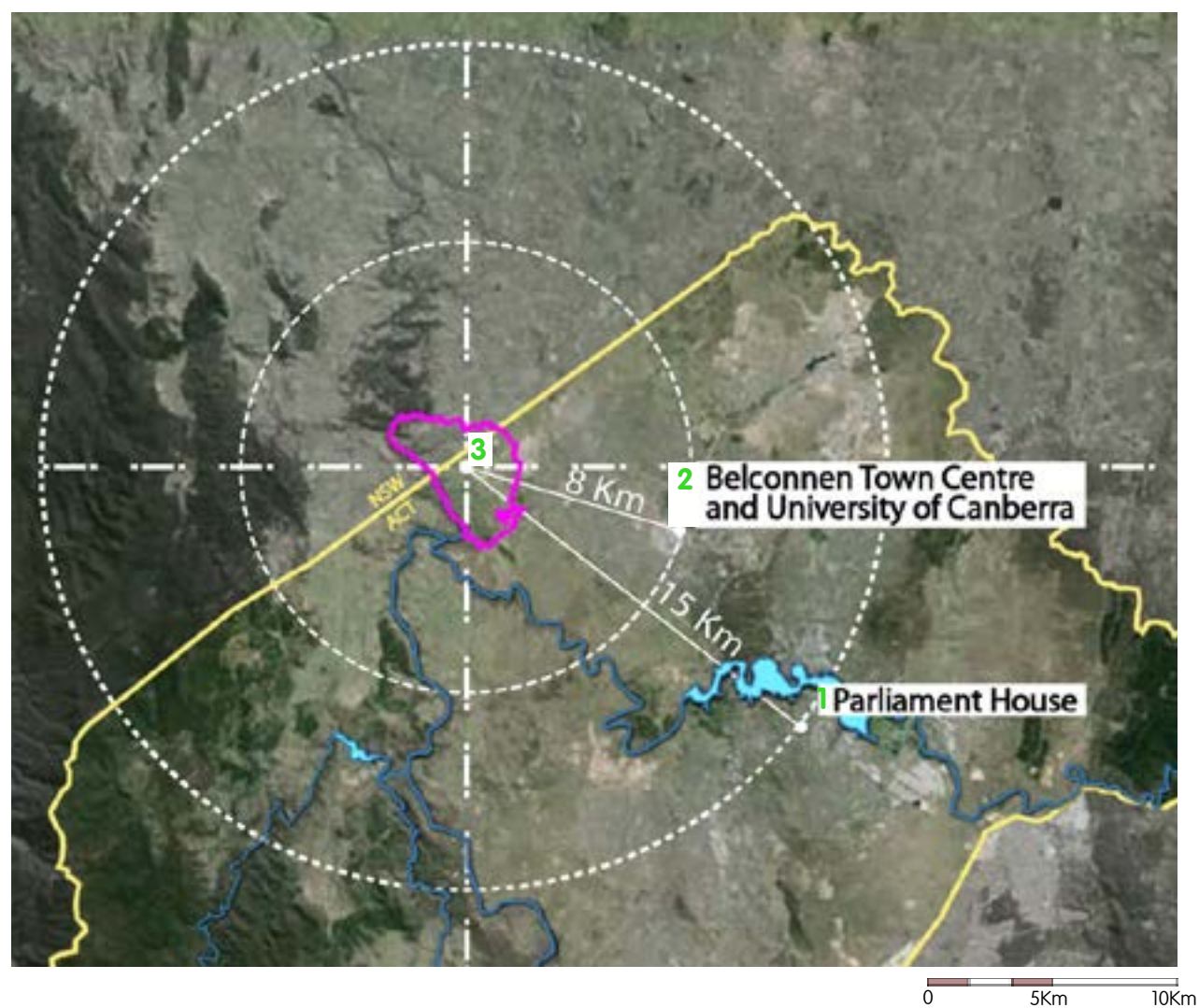
It provides an illustration of the potential for the development of the site, based on the technical studies and public consultation, and in accord with the structure plan. The Master Plan was developed by a multi-disciplinary team including the various specialists responsible for the preparation of the technical studies. Importantly, the master planning work was underpinned by a planning and design forum, held over a three day period and involving the multi-disciplinary team, government agencies and stakeholder groups.

The Master Plan is a non-statutory document; its purpose is to:

- Provide a readily understandable picture of the likely development outcomes as the structure plan is implemented over time, and
- As it was being developed, the master plan provided a mechanism for evaluating various options, opportunities and constraints presented by the technical studies and community input, to test these, and confirm the practicality and veracity of the content of the structure plan.

1.3 Study Area

The Study Area has an area of 1,600 hectares (ha) and is located 15 kilometres (km) from Parliament House and 8 kms from the Belconnen Town Centre and University of Canberra. It is adjacent to the suburbs of Holt and MacGregor and extends across the ACT/NSW border providing a unique opportunity to create the first ACT/NSW cross border development.



1



2



3

1.4 Land Use

The Study Area is comprised of approximately 27 lots or blocks. Blocks located within the ACT are leased from the Crown, whereas the lots within NSW are owned freehold by the respective parties.

The map below and table opposite identifies block area and land use of each land parcel within the Study Area.

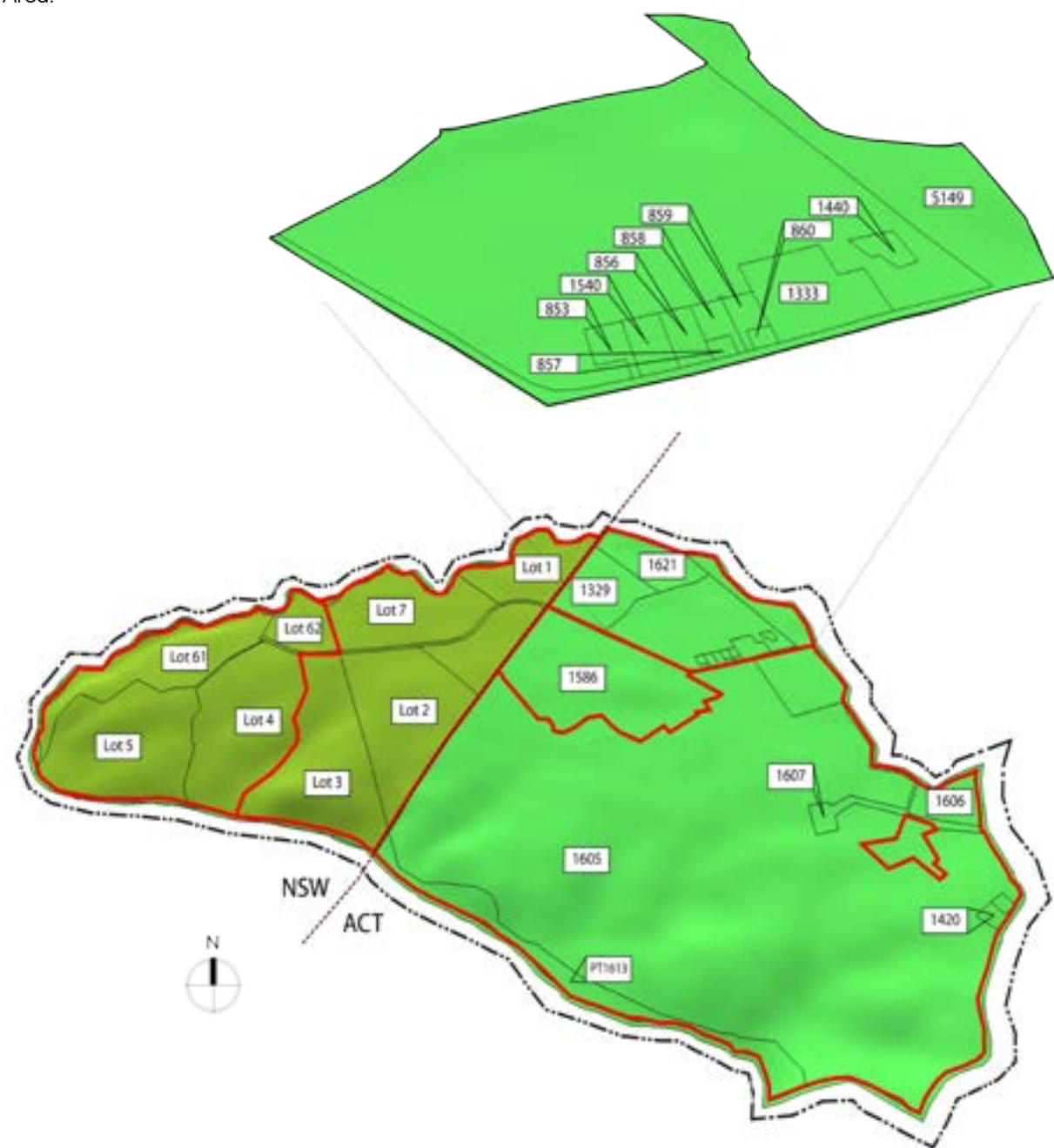


Table 1: Land Use

Parcel		Size (hectares)	Current Use
ACT	Block 1605	665.8	Agriculture (also includes Belconnen Farm precinct which is heritage listed)
ACT	Block 1606	12.5	Agriculture
ACT	Block 1607	8.1	ACTEW vent & bicentennial trail
ACT	Block 1420	2.7	Billabong Aboriginal Development Corp community and education services
ACT	Block 1613 (pt)	26.8	River foreshore (Incorporated in Woodstock Reserve)
ACT	Block 1332	94.4	Strathnairn Arts Association
ACT	Block 1329	41.4	Agriculture (poultry)
ACT	Block 1621	33.3	Unleased Territory land (horse agistment)
ACT	Block 1622	71.8	Unleased Territory land (horse agistment)
ACT	Block 853	0.7	Unleased Territory land (horse agistment)
ACT	Block 1540	0.9	Landscape supply business
ACT	Block 856	0.8	Plant nursery
ACT	Block 857	0.2	Unleased Territory land
ACT	Block 858	0.6	Kennels
ACT	Block 859	0.6	Veterinary surgery
ACT	Block 860	0.2	Unleased Territory land
ACT	Block 1333	4.2	Pony Club
ACT	Block 1440	0.8	ACTEW vent
ACT	Block 7 SEC 149 (pt)	17.8	Unleased Territory land (horse agistment)
ACT	Block 1586	108	Old Belconnen Landfill, includes Parkwood recycling estate (secondary industrial area), green waste recycling, asbestos disposal, hydrocarbon affected soil treatment area, emergency landfill site.
Total (ACT)		997.2	
State	Parcel	Size (hectares)	Current Use
NSW	Lot 1 DP771051	91.8	Agriculture
NSW	Lot 2 DP771051	80	Agriculture
NSW	Lot 3 DP801234	80	Agriculture
NSW	Lot 7 DP801234	80	Agriculture
NSW	Lot 4 DP771051	80	Rural residential (unoccupied)
NSW	Lot 5 DP77051	80	Rural residential (single residence)
NSW	Lot 61 DP801234	83	Gravel quarry and agriculture
NSW	Lot 62 DP801234	25	Commercial accommodation and function centre
Total (NSW)		599.8	
TOTAL		1596.9 Hectares	

1.5 West Belconnen Core Consultant Team

Consultation	Role
The Riverview Group	Project Manager
AECOM	Contamination, Traffic, Transport, WSUD, Air Quality
Alison Rowell	Golden Sun Moth
AT Adams Consulting	Urban Planning
BES (AUST) Pty Ltd	Transmission Lines/Transgrid
Biosis Pty Ltd	Indigenous Studies
Browns	Civil Engineering
CEE (Ian Wallis)	Poultry, LMWQCC & Sewer Vent odour Buffer Consultant
Chris Haley	Infrastructure - Peer Review
Colin Henson	Traffic & transport peer review
Content Group	Media
Cox	High Level Master Planning
Davis Langdon Australia	Quantity Surveyor
Deloittes	Risk Assessment
Douglas and Partners	Urban Capability
Dr David Shorthouse	Flora & Fauna - Peer Review
DSB Landscapes	Arborist
Eco Logical Pty Ltd	Bushfire Strategy
Edge Land Planning	Agricultural Consultant
Elton Consulting	Consultation, Social Planning, River corridor trust and Sustainability
Eric Martin and Associates	European Heritage
GHD	Landfill site, waste management
Kate Delaney, Dr Peter Ellyard	Futurists
Kevin Mills & Associates	Environmental
Knight Frank	Estate Master, Structure Plan, Cadastral Mapping
Kris Nash, David Hogg	Box gum grassy woodland
Land DATA	Site Survey
Lindsay Taylor Lawyers	Legal and regulatory Issues
McGregor Coxall	Landscape Architecture

Consultation	Role
MR Cagney	Active and Public Transport
Peter Haynes	Curatorial Advisor
Pilbrow Global	Local Community Liaison
Potent Marketing	Marketing
Roberts Day	Master Planning
Sarah Sharpe	Baseline environmental studies
SLR (Jamie Hladky)	Noise (traffic, substation)
Talforce consultants	Ginninderra Falls and commercial tourism options
Tony Carey Consulting	Strategy
TRC	Indigenous tourism options
University of Canberra	Demographic Studies
Urbis	Retail and Employments Studies
Will Osborne, David Wong	Pink Tailed Worm Lizard



1.6 Background

2007 to 2009 Early Consultation

Consulting with key groups in the community about the proposal for a ACT/NSW cross border residential development at West Belconnen commenced in 2007.

Key feedback from this early consultation identified support for:

- A diversity of housing, including affordable options
- Sustainable energy use at the scale of the household and community
- Good public transport to support reduced car movements
- Increased recreational opportunities for existing and future residents
- An integrated development that is a natural extension to the existing West Belconnen communities

2009 Sustainability Workshop

In 2009 the Riverview Group facilitated a Sustainability Workshop with key consultants at the Currumbin Eco Village to develop a sustainable urban framework for West Belconnen.

The main purpose of the workshop was to:

- Understand how the lessons learnt from the Currumbin Eco Village can be utilised in an urban context and inform the preparation of a Sustainability Strategy for West Belconnen
- Agree on a broad Sustainability Strategy for West Belconnen with consideration to Commonwealth and ACT sustainability policy and objectives

A key outcome of the workshop was the 2009 Sustainability Vision + Project Objectives + Guiding Principles (refer to Section 2: Sustainability).

2013 LDA + Riverview Partnership

In June 2013, the ACT Government announced an agreement with the Corkhill family companies to facilitate the planning and development of approximately 1,600 hectares at West Belconnen.

The LDA is the ACT Government's land development agency dedicated to achieving new standards of innovation, excellence and value in urban design and sustainable development. Its core business is developing and selling land on behalf of the ACT Government. The LDA mission is to:

"CONTRIBUTE POSITIVELY TO THE ECONOMIC AND SOCIAL DEVELOPMENT OF THE ACT BY BUILDING VIBRANT PROJECTS FOR THE DEVELOPMENT OF RESIDENTIAL, COMMERCIAL, INDUSTRIAL, COMMUNITY AND NON URBAN LAND."

The Corkhill family settled in Canberra in 1880 and has a long history of farming and engagement in the Canberra region. The family companies are committed to creating world class development reflecting the highest standards of urban design and sustainability.

They aim to:

"BUILD COMMUNITIES THAT MELD WITH THEIR SURROUNDINGS, LEAVE A LIGHT TOUCH ON THE ENVIRONMENT, RETAIN AND PROTECT THE NATURAL LANDSCAPE AND RESPECT THE HERITAGE AND HISTORY OF THE SURROUNDING LANDSCAPE".

Riverview has been appointed to project manage the planning and delivery of the West Belconnen project on behalf of the ACT Government with respect to the ACT land, and on behalf of the landowners within NSW.

David Maxwell, Director of Riverview and West Belconnen Project Director:

"THIS PROJECT IS AN OPPORTUNITY TO TRANSFORM THE WEST BELCONNEN SITE INTO A PLACE THAT CAN BE APPRECIATED AND ENJOYED BY FUTURE GENERATIONS. I WANT TO LOOK BACK IN 20 YEARS AND SEE AN INNOVATIVE 21ST CENTURY GARDEN SUBURB THAT IS INTEGRATED WITH THE EXISTING COMMUNITY AND PROVIDES A GREAT PLACE FOR PEOPLE TO LIVE."

The shared expertise and commitment to both innovation and sustainability provides the basis to create a community of international significance.

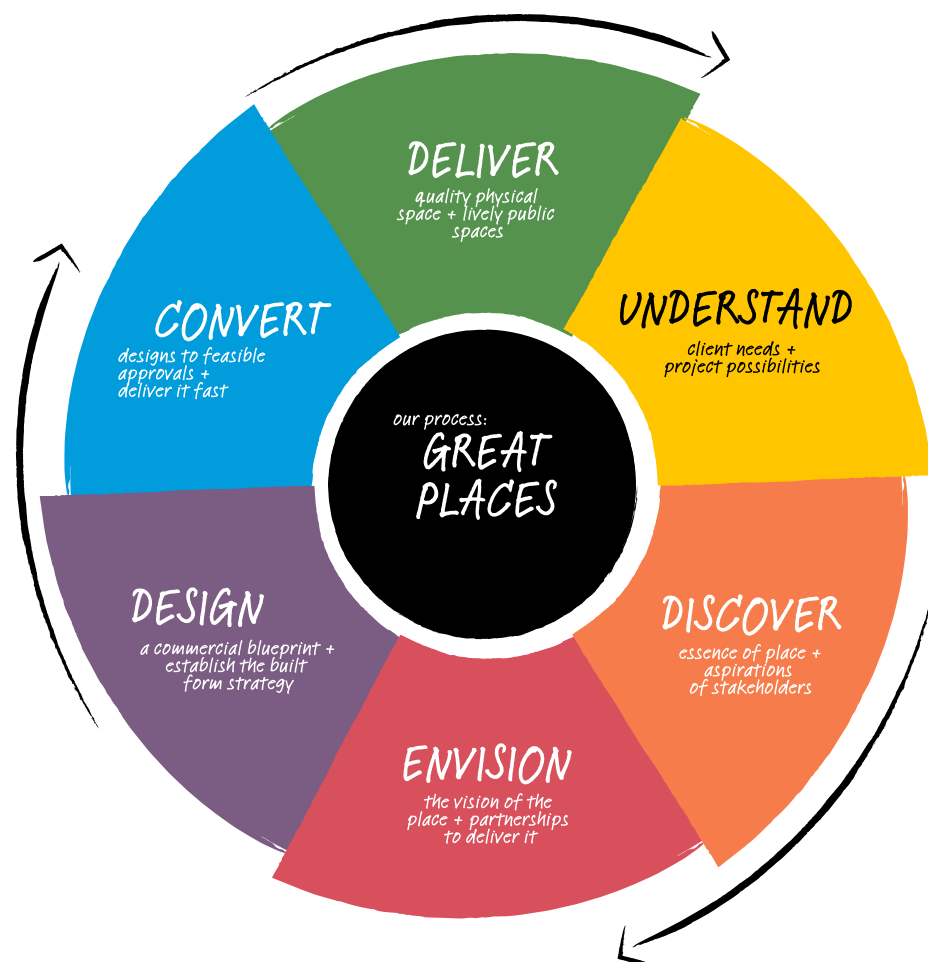
1.7 Great Places Process

The key to successful project delivery is a methodology that facilitates innovation whilst being focused on practical outcomes.

Our team used the "Great Places Process" (Process) to develop the West Belconnen Master Plan (Master Plan). This is an intuitive planning/design/place process that provides a simple and flexible methodology to guide the West Belconnen project through a series of practical steps aligned to the property development chain ensuring place making is at the heart of the visioning and design process.

Designed by RobertsDay, and reflecting 20 years of experience in designing and delivering Great Places, the Process provides an integrated place making approach that ensures we understand our client's needs and work with stakeholders to develop a shared Vision which ultimately results in the creation of a great place with a unique identity.

Our methodology will ensure that the 2009 Sustainability Vision remains central to decision making through all stages of the project, and that sustainability is integrated into the West Belconnen Master Plan providing the basis for genuine sustainable living at the scale of the community.



Understand

THIS PHASE PROVIDES THE PLATFORM TO UNDERSTAND OUR CLIENTS NEEDS AND PROJECT POSSIBILITIES.

A Team Introduction and Alignment workshop was convened in Canberra in September 2013 to:

- Familiarise the team with the Study Area and its local context
- Brief and align all consultants on the history of the project
- Explain the evolution of the Sustainability Vision and Objectives
- Outline the Sustainability Agenda and the registration of West Belconnen as a PILOT project for the Green Building Council of Australia Green Star – Communities rating



Discover

DURING THE THE DISCOVER PHASE WE IDENTIFY AND INITIATE RELATIONSHIPS WITH KEY STAKEHOLDERS, ASSESS AND DEFINE MARKET DRIVERS, MAP THE DNA OF THE PLACE AND USE GOOD AND BAD PRECEDENTS TO DEVELOP A COMMON UNDERSTANDING OF DESIRED OUTCOMES.

EXEMPLAR PROJECTS TOUR

Key members of the consultant team, the client group and representatives of the ACT Government spent two days touring selected residential communities in Melbourne and Adelaide gathering insights into a range of relevant projects. This provided a point of reference for ongoing discussions, a shared knowledge base and strengthened relationships between the consultant team and government officers.

Residential projects toured in Melbourne included:

- Edgewater
- Williams Landing
- Eynesbury
- Caroline Springs

Residential projects toured in Adelaide included:

- Playford Alive
- Lightsview

Main points of interest to West Belconnen were :

- Innovative urban design
- Contemporary housing typologies (including affordable housing)
- Innovative road, verge and open space treatments
- WSUD measures
- General sustainability innovations

In addition, we inspected the following rehabilitated landfill sites currently being used for a range of community uses including parks, community gardens, research, education, bike repair, organic cafes and other sustainability initiatives:

- Ceres
- All Nations Park

The Collingwood Childrens Farm was also inspected as an exemplar representative project that was developed from a community initiative.



Ceres



Ceres



Lightsview



Williams Landing



Lightsview

Discover (continued)

PLACE AUDIT

A Place Audit and Synoptic Survey was undertaken by RobertsDay over three days to strengthen our understanding of the site and its relationship to the existing community of West Belconnen and broader Canberra.

Places visited during the Place Audit included both established and contemporary Canberra suburbs to gather desirable, and not so desirable, precedents to inform our discussion on the ultimate form of the new West Belconnen community (as illustrated below).

Lessons Learnt from the Place Audit that informed the Master Plan included:

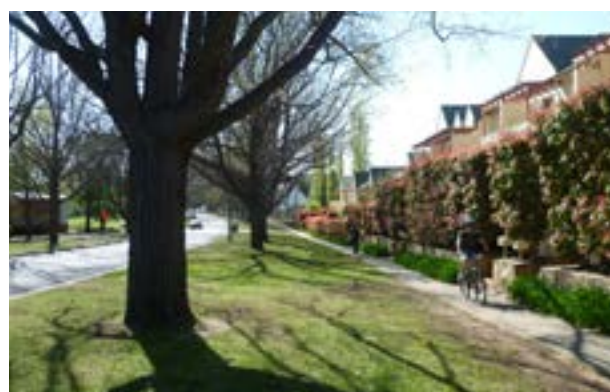
Ecology

Integrate wsud with best practice urban design to reinforce sustainability principles, raise awareness and create a unique place.



Place

Immersive, enjoyable public environments are created when components such as street, verge, landscape, footpath and building setback and type work together to achieve desired character.



Economy

Scale, access and a complementary mix of uses is required for a centre to be vibrant, active and adaptable over time.



Housing

Site specific, form-based design guidelines have a better chance of achieving high quality outcomes that balance quality public domain, solar access and affordability.



Health

Community gardens contribute to healthy living through fresh food access, physical activity and multi-generational gathering and interaction.



Access

Major avenues that follow topography create a memorable user experience and facilitate walking, cycling and public transport.



Discover (continued)

VISION, VALUES AND SUSTAINABILITY WORKSHOP

A Vision, Values and Sustainability Workshop was held in October 2013.

The aim of the workshop was to rigorously explore the opportunities and constraints of the site with a focus on identifying innovative outcomes for West Belconnen.

In five minute time slots, consultants presented their “5 Big Ideas”. An “Ideas Bombing” wall provided a further opportunity for workshop participants to share their ideas for the site.

Over 130 Big Ideas were presented including:

- Re-imagining Griffins legacy
- Ecological Urbanism
- Green Infrastructure
- Local Food Production
- Flexible Lifestyle
- Healthy Lifestyle
- Car Free Lifestyle
- Complete Streets
- Meanwhile Spaces
- Community Governance
- Loveability
- Extreme Sports
- “Belco Pride”

Many of these initiatives have been embraced by the team and are now embedded in the structure and intent of the Master Plan.

The principles of the Sustainability Vision and how we could work together to deliver the Vision was also discussed.



Envision

WE ENGAGE WITH THE COMMUNITY AND KEY STAKEHOLDERS TO UNDERSTAND THE ESSENCE OF THE PLACE AND THE ASPIRATIONS OF ALL STAKEHOLDERS. WE USE THIS PHASE TO DEVELOP STRATEGIES AND IDENTIFY PARTNERSHIPS THAT WILL BRING WEST BELCONNEN TO LIFE.

PLANNING DESIGN FORUM

In November 2013, a three day Planning and Design Forum (PDF) was convened to develop and strengthen relationships with all key stakeholders, ACT and NSW government officers and community representatives and to collaboratively progress the design of the Master Plan in an inclusive, transparent environment.

The PDF was preceded by a Community and Stakeholder Vision Workshop that provided a further opportunity for the community to discuss ideas for the proposed development. Key issues raised by the community included the capacity of both the existing road network and of the existing infrastructure to accommodate the increased population. Integrating

the proposed West Belconnen development with existing areas was seen as critical.

The PDF was held at the Canberra Institute of Technology, which is central to Belconnen, enabling participants to immerse themselves in the physical setting, gaining a deeper understanding of the unique attributes of the site and its context.

The Forum commenced with Riverview and LDA sharing their aspirations for the future community of West Belconnen and a presentation on the history of Canberra as a Garden City. A tour of the site was followed by an overview of the strategic context and planning approvals required to rezone the site.

The second day comprised a series of interactive workshops that combined the expertise of the decision makers, technical experts and community representatives to jointly resolve project challenges and explore design options that reflect the West Belconnen Sustainability Vision.

Whilst the technical discussions were occurring, the Master Plan was being developed by the design team, responding in real time to issues and solutions arising from the group sessions.

At the conclusion of the second day the draft Master Plan was displayed, as a work in progress, for review.

Design work continued throughout the third and final day and concluded with a presentation of the PDF process and draft Master Plan to all PDF participants and the broader community.

The draft Master Plan was further refined throughout the third day and presented at the closing presentation.

Some of the many topics covered over the three days included:

- Successful community based co-ops and their role in creating resilient communities
- The need for well located community facilities to enhance community well being

- The importance of providing a diverse range of housing
- Creating a strong community through providing for people of all incomes, family types, and stages
- Creating "Complete Streets" that not only provide for car movement but are social places for exchange, play and interaction and reduce the incidence of social isolation
- Using robust urban design principles to promote walking and cycling creating healthier and connected communities
- Opportunities for community gardens to provide local food production
- Transforming the "undevelopable" areas of the site into assets for the future community
- The need for local employment opportunities
- Alternative governance models for the stewardship of the Conservation Corridor, landfill site and land impacted by the transmission lines

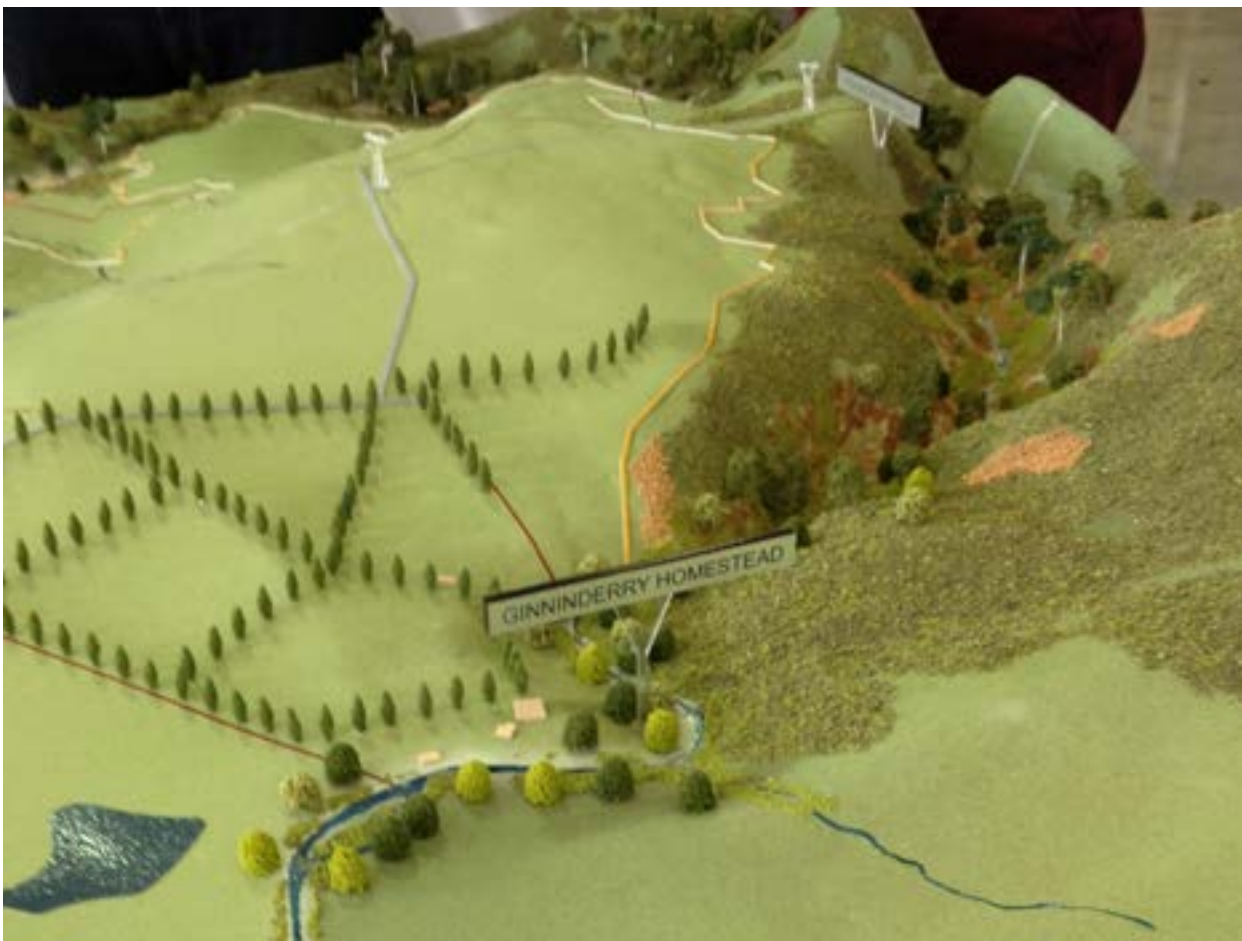


Technical session at the West Belconnen PDF



Technical session at the West Belconnen PDF

A 3D terrain model (shown below) of the West Belconnen site was on display throughout the Forum that enabled participants to develop an understanding of the scale, complex terrain and many other landscape features. This provided participants with a critical understanding of the Study Area and informed the discussions as to the potential development outcomes.



3D terrain model of the West Belconnen Site

The following images show the evolution of the draft master plan throughout the Planning Design Forum.



Draft Master Plan presented at the conclusion of Day 02 of the Planning Design Forum



Draft Master Plan at the completion of the Planning Design Forum

0 1.25Km 2.50Km

Design

DURING THE DESIGN PHASE WE COLLABORATIVELY WORK WITH ALL KEY STAKEHOLDERS TO EVOLVE THE DRAFT MASTER PLAN REFLECTING THE VISION AND EARLIER WORK UNDERTAKEN IN THE DISCOVER AND ENVISION PHASES

Following the PDF, the Master Plan continued to evolve as design principles were more robustly tested, technical studies progressed and new ideas generated. The consultant team met regularly to review and test the Master Plan and there were numerous meetings with officers from a range of Government departments. In addition, ongoing community consultation continued to generate valuable feedback.

The draft Master Plan opposite was presented to the LDA. It was modified to reflect feedback received and an updated version of the Master Plan was presented to the independent design review panel in accordance with the Green Building Council - Green Star rating criteria.

In addition, Rodney Moss, has continued to provide invaluable local and historical insight in a peer review capacity.

The more detailed EDP (Estate Development Planning) design of a neighbourhood within the proposed Stage 1 will continue to inform the urban design structure and the Precinct Code which will guide development throughout West Belconnen.



Draft Master Plan presented to the LDA for review

Convert

THIS PHASE INVOLVES PREPARING THE NECESSARY REPORTS AND DOCUMENTATION TO SECURE THE REZONING OF THE LAND.

This Urban Design report forms part of the suite of documents required to progress the rezoning of the site in both the ACT and NSW.

Twelve neighbourhoods have been identified in the Master Plan. Different character zones within each of the neighbourhoods will ensure the delivery of a range of lifestyle choices and provide a platform to create lively diverse communities.

A detailed site analysis identified a number of recurring development patterns linked to lot orientation and slope and a series of building types have been developed in response to these recurring conditions. This research has informed a comprehensive review of the existing development standards contained within the Estate Development Code, Single Dwelling Housing Development Code and the Multi Unit Housing Development Code to assess the suitability of these controls to deliver the West Belconnen Vision. Where necessary alternative standards for West Belconnen will be prepared and form part of an addendum to each of the existing Codes.

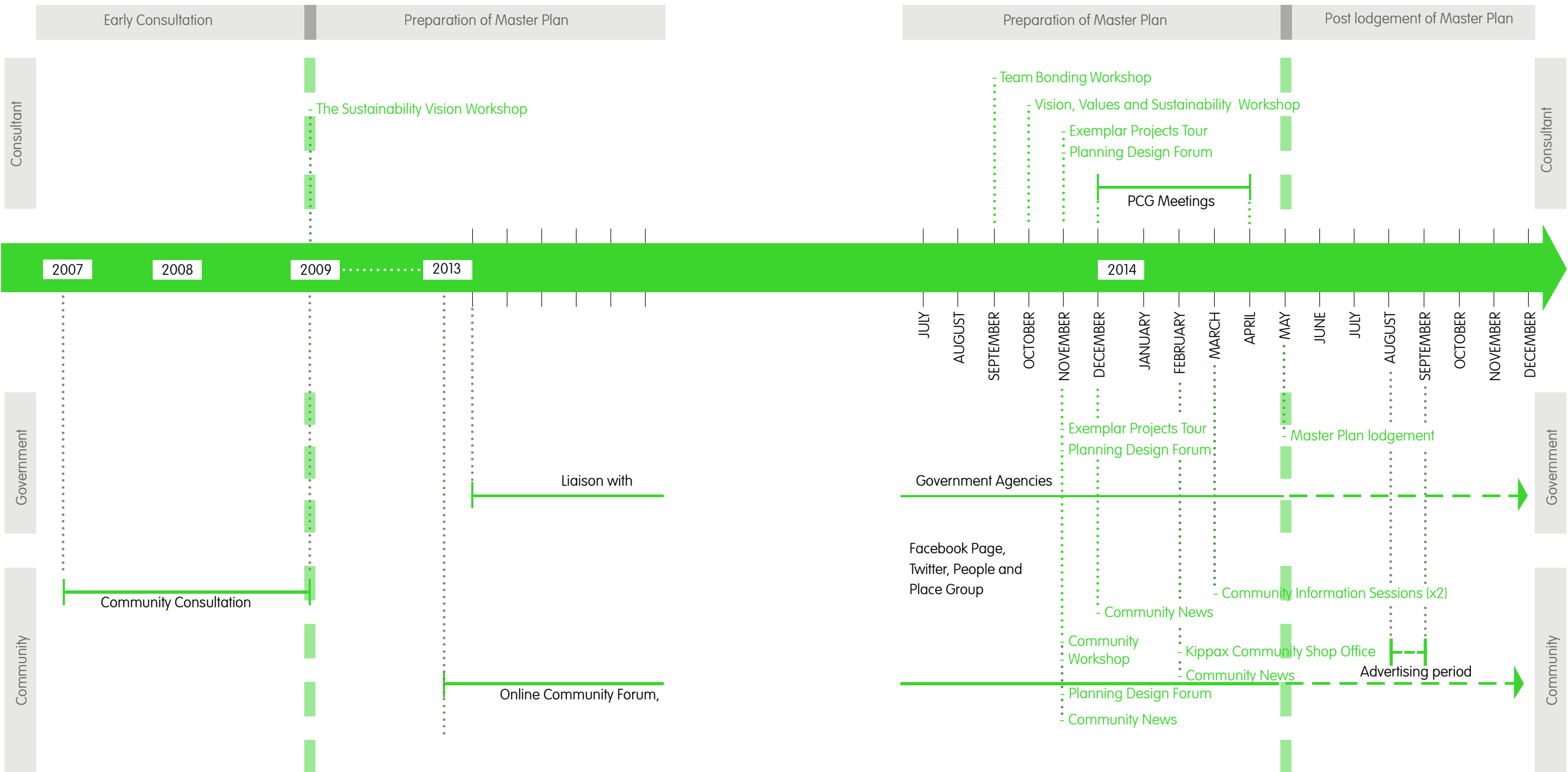
The Precinct Code will document the range of housing typologies, street types and landscaping required to create the distinctive character zones envisaged in the Master Plan.



1.8 Engagement Process

The preparation of the Master Plan has been a collaborative process, informed by the aspirations of the community, requirements of the ACT and NSW governments and the technical expertise of the multidisciplinary consultant team. Commencing in 2007, the engagement process has been

comprehensive and genuine. It has, and continues to, provide significant opportunities for all stakeholders to participate throughout the design process. Consultation with all stakeholders will be ongoing and the community will continue to be updated through the Community newsletters and other forms of social media.





02

sustainability

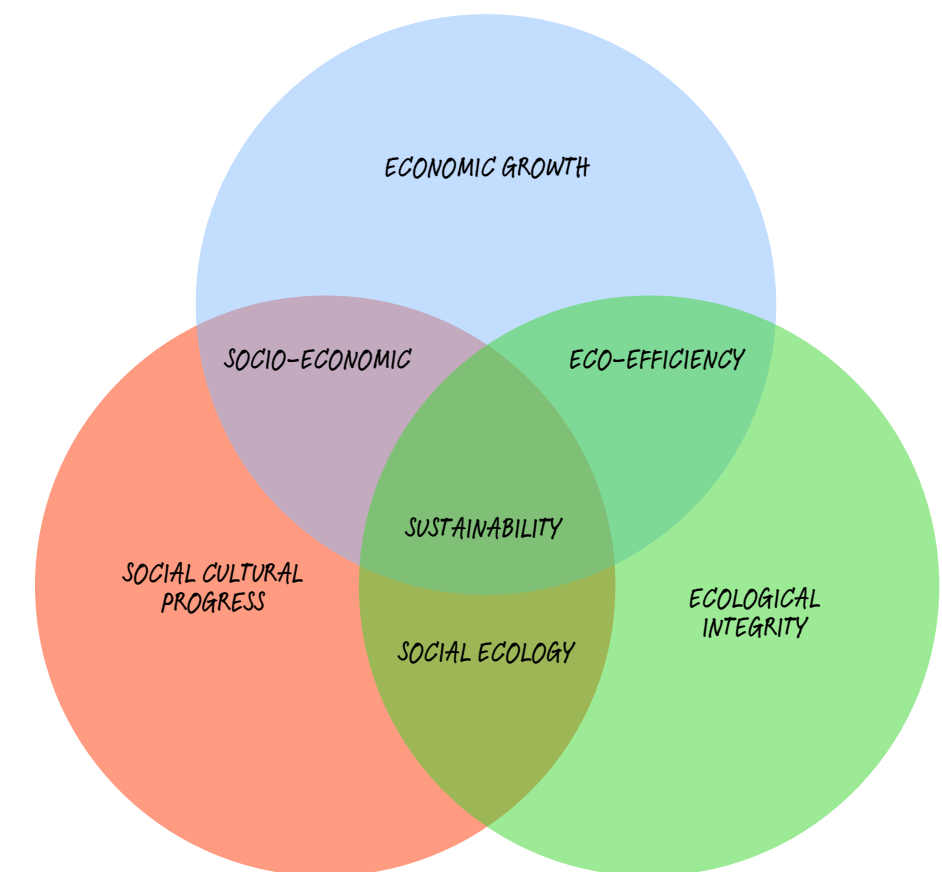
Sustainability is at the core of the West Belconnen project which is aiming to be a world leader in sustainable design.

The approach to sustainability at West Belconnen will ensure the creation of a community that will:

- Provide diverse, affordable, inclusive and healthy places to live, work and play
- Protect, maintain and restore the natural environment by reducing the development's ecological footprint
- Achieve real value for money through demonstrated whole of life cost savings
- Encourage opportunities for business diversity, innovation and economic development

2.1 2009 Sustainability Vision

"CREATING A SUSTAINABLE COMMUNITY OF INTERNATIONAL SIGNIFICANCE IN THE NATION'S CAPITAL."



2.2 Project Objectives

The 2009 Sustainability Vision included the following objectives.

TO ACHIEVE THE VISION WE WILL CHALLENGE CONVENTIONAL INDUSTRY THINKING. WE WILL EMPLOY PRACTICES, PROCESSES AND SYSTEMS THAT EMBODY INNOVATION AND DESIGN EXCELLENCE.

THE PROJECT HAS BEEN CONCEIVED AND WILL BE DELIVERED ON A FULLY INTEGRATED AND AUDITED TRIPLE BOTTOM LINE BASIS.

OUR PROJECT WILL:

- *BE SUSTAINABLE OVER TIME, SOCIALLY, ECONOMICALLY AND ECOLOGICALLY (WITH A LOW AND REDUCING ECOLOGICAL FOOTPRINT)*
- *RESPOND TO THE LOCAL AND GLOBAL ENVIRONMENT*
- *PROVIDE FOR FUTURE BENEFICIAL CHANGE TO OCCUR IN DESIGN, INFRASTRUCTURE AND REGULATORY MECHANISMS*
- *BE COST EFFECTIVE, REPLICABLE AND MEASURABLE*
- *ACT AS A NEW MODEL THAT OTHERS CAN FOLLOW*

2.3 Guiding Principles

There are also 31 Guiding Principles for Sustainable Results to guide decision making at West Belconnen. The Guiding Principles fall into the following five categories:

- Partnering
- Evaluation
- Ecological
- Social and Cultural
- Economic

A Sustainability Matrix, demonstrating the project response to the 31 Guiding Principles is included at Chapter 9.

2.4 Green Star Community Pilot

A commitment to environmental excellence and sustainability underpins the West Belconnen project. These values along with best practice design principles will help shape West Belconnen into an innovative, diverse and sustainable community.

West Belconnen will use sustainability as a tool to deliver a long term liveable and diverse community.

The development is part of the Green Star Community pilot run by the Green Building Council of Australia. Green Star certification has been available for individual buildings since 2002. However, in 2012, the certification programme was expanded to include communities at the precinct scale. The pilot programme seeks to recognise projects that have incorporated best practice measures and initiatives during the planning, design and construction phases to enable new communities to deliver long term sustainable urbanism.

The Green Star Communities rating tool evaluates precinct wide sustainability principles across five different measures including: liveability; economic prosperity; environmentally responsible community design, and governance

The Green Building Council has developed the tool in close collaboration with Commonwealth/State and Local government, public and private sector developers, professional services providers, academia and other relevant industry groups.

The Green Star Communities pilot rating tool evaluates the sustainability attributes of the planning design and construction of projects at the scale of the community. Communities are rated according to alignment with specific criteria that sit within a range of categories including 'Design'. Each credit criterion defines a clear performance target that a project must meet to earn points under that credit.

The following table identifies the credit criteria in the 'Design' category and outlines the West Belconnen Design Response.

Credit Criteria	Design Response
Site and Context Analysis - Two points are awarded where a comprehensive site context analysis is prepared. The comprehensive analysis needs to include consideration of: <ul style="list-style-type: none"> • The general site context: • The local site context: and • The site characteristics itself. 	Analysis has been undertaken to understand the site within the general context of the Canberra Spatial Plan and the NCA Open Space Plan. The 5 Peaks of West Belconnen have been identified as a key defining structural characteristic and opportunities for physical and social integration with the adjoining suburbs has been documented. The site's topography, natural, cultural and physical features have been considered as opportunities to create an authentic and context responsive design.
Site Planning and Layout - Three points are awarded where a project's site planning is subject to an independent design review process in accordance with the GBCA Best Practice Design Review Guide and is assessed as being satisfactory to proceed through the planning process.	The draft Master Plan was presented to the independent Design Review Panel on 15 May 2014 for consideration of 'Site Planning and Layout' in accordance with the Green Star Communities criteria. Feedback received from the review panel has been documented and will be considered with other submissions lodged during the statutory advertising period of the Master Plan. The 'Site Planning and Layout' was assessed as satisfactory.
Urban Design - Four points are awarded where a project's urban design is subject to an independent design review process in accordance with the GBCA Best Practice Design Review Guide and is assessed as being satisfactory to proceed through the planning process.	The independent Design Review Panel also undertook a preliminary review of the Urban Design of the Master Plan. Following the statutory advertising period the Master Plan will be modified to reflect agreed submissions and presented back to the independent Design Review Panel for a comprehensive review of the Urban Design.



03

context

3.1 Regional Context

The National Capital Authority (NCA) was established to manage the Commonwealth's interest on planning matters within the National Capital Boundary. In particular, the NCA acts as a custodian of the National Capital Open Space System (NCOSS) including Lake Burley Griffin, river corridors, mountains and bushland, and hills, ridges and buffer space.

Since Griffin's vision for Canberra, this open space system has guided the urban growth of Canberra through the Y-Plan and subsequent growth strategies where new development is visually contained by the natural landscape. Collectively, this Strategy has preserved Canberra's legacy as a 'city in nature' and protected against the incremental development of a monotonous sprawling city.

In order to ensure the proposed Master Plan is consistent with NCOSS, a detailed analysis of the open space system was undertaken. Three key opportunities were identified for West Belconnen to positively contribute to this Strategy.

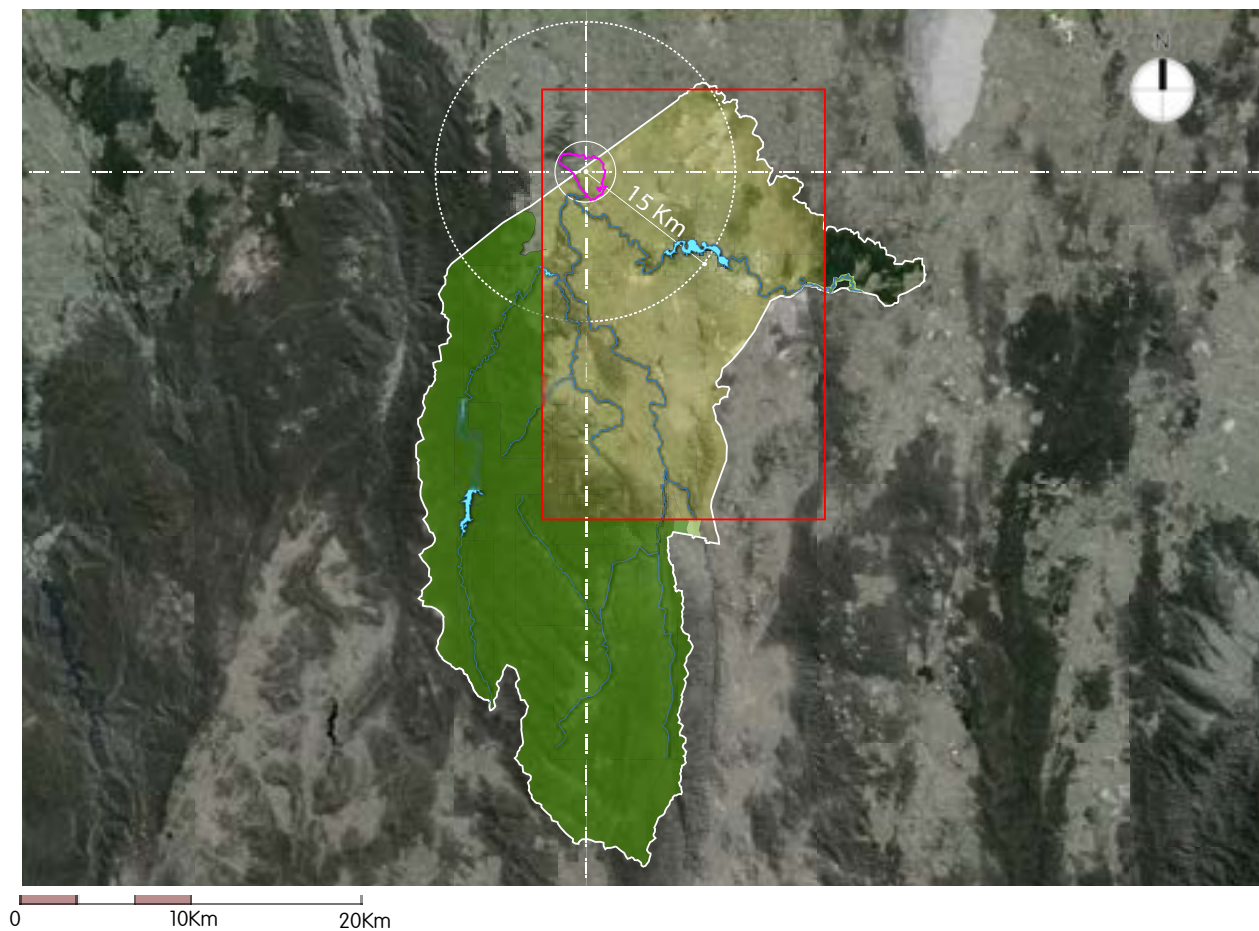
Firstly, the project's potential to establish the Murrumbidgee River Conservation Corridor with a management mechanism that establishes the community as custodians of this unique asset that will ensure that environmental outcomes are achieved and that all Canberrians will be able to access and enjoy the river in perpetuity.

Secondly, the opportunity to celebrate the site's high points and open space setting by creating three primary visual axes - Bush Axis, City Axis and Belconnen Axis – continues Griffin's legacy of bold visual connections to features that improve people's experience of the city and create a sense of belonging.

Finally, the opportunity to transform the landfill site into a city scale asset has the potential to significantly enrich the value of Canberra's open space system.

National Capital Plan Boundary

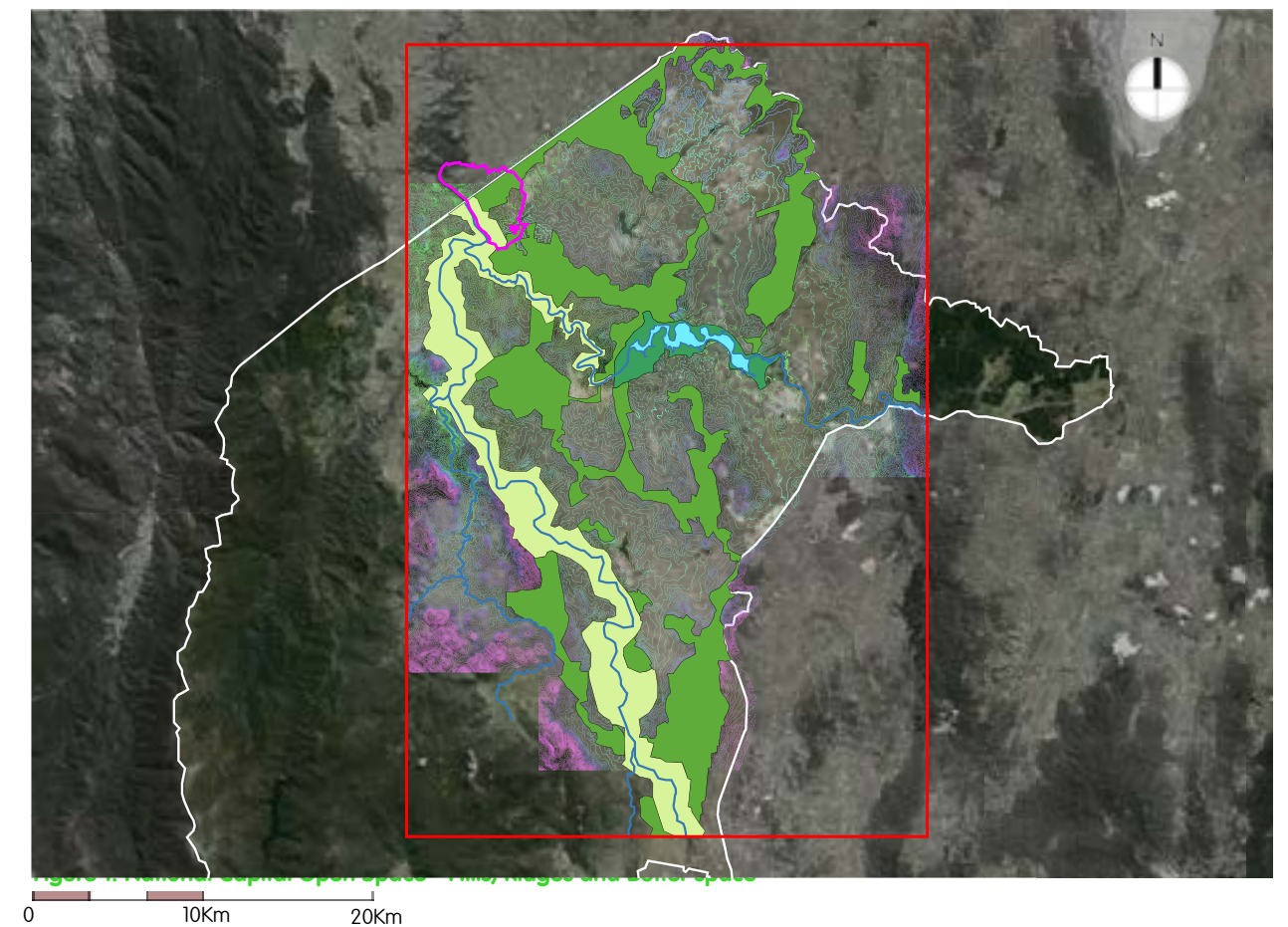
The diagram below illustrates the location of West Belconnen at a metropolitan scale. Situated at the edge of the National Capital Plan (NCA) boundary and approximately 15km from the city centre, it highlights the natural containment of Canberra by a series of ridgelines including the dramatic backdrop of the Brindabella Ranges. Further, it clearly illustrates the relationship between the urban footprint and large area of conservation lands (dark green) established by the NCA. It is noted the project is situated on the edge of the urban footprint and is a significant distance from the conservation lands.



Natural Landform and NCA Open Space System

The diagram below illustrates the natural landform of Canberra and the way which the landscape setting has been confirmed and given statutory status. The diagram overlays the National Capital Plan Zones (Hills Ridges and Buffers, River Corridors, Canberra Nature Park and Lake Burley Griffin) onto the city's footprint. These constitute the metropolitan open space network which provides the landscape structure for the city.

Within this context, the site is bounded by the important natural features of the Murrumbidgee River and Ginnderra Creek. Protecting the ecological performance of the two water courses is a key goal of the project. In addition, the project also benefits from distant views to the Brindabella Ranges. Similar to Griffin's vision for the city centre of visually connecting it the natural landscape, a similar opportunity exists for the project.



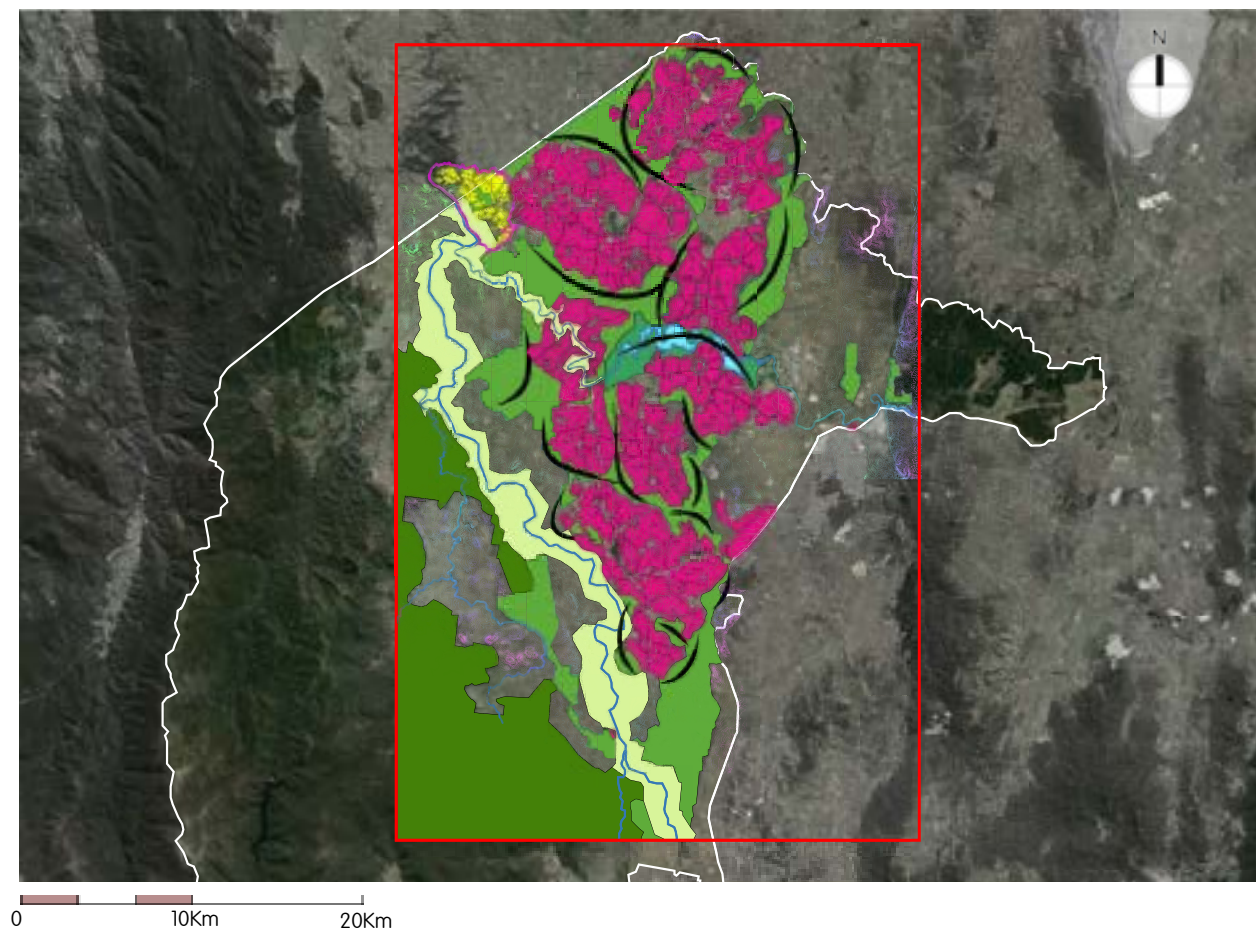
General Policy Plan - Urban Areas

The diagram below illustrates how urban Canberra is set against the backdrop of the NCA Open Space System. In particular, it highlights the contours and ridgelines that contain each of the separate towns that comprise the metropolitan area – the Woden Valley is clearly defined as a valley, inner north Canberra is set between the Black Mountain and Ainslie / Majura Ridges, and so on. Further, the more recent development of East Molonglo can be seen to be a logical northward extension of Weston Creek.

The diagram also shows the proposed West Belconnen urban development to the west of the existing urban area and extending across the ACT/NSW border. The urban development is bounded by the Murrumbidgee River and Ginninderra Creek and visually contained by inner hills immediately to the south and west of the

Murrumbidgee and to the North of Ginninderra Creek. The longer views to the Brindabellas are a dramatic feature of the site; the Brindabellas are closer to the urban area at west Belconnen than in many parts of the City.

The landscape buffer that will be formed by the River, the creek and the inner hills will be contained within statutory land use zones that will preclude development and provide for the landscape backdrop to endure into the future.

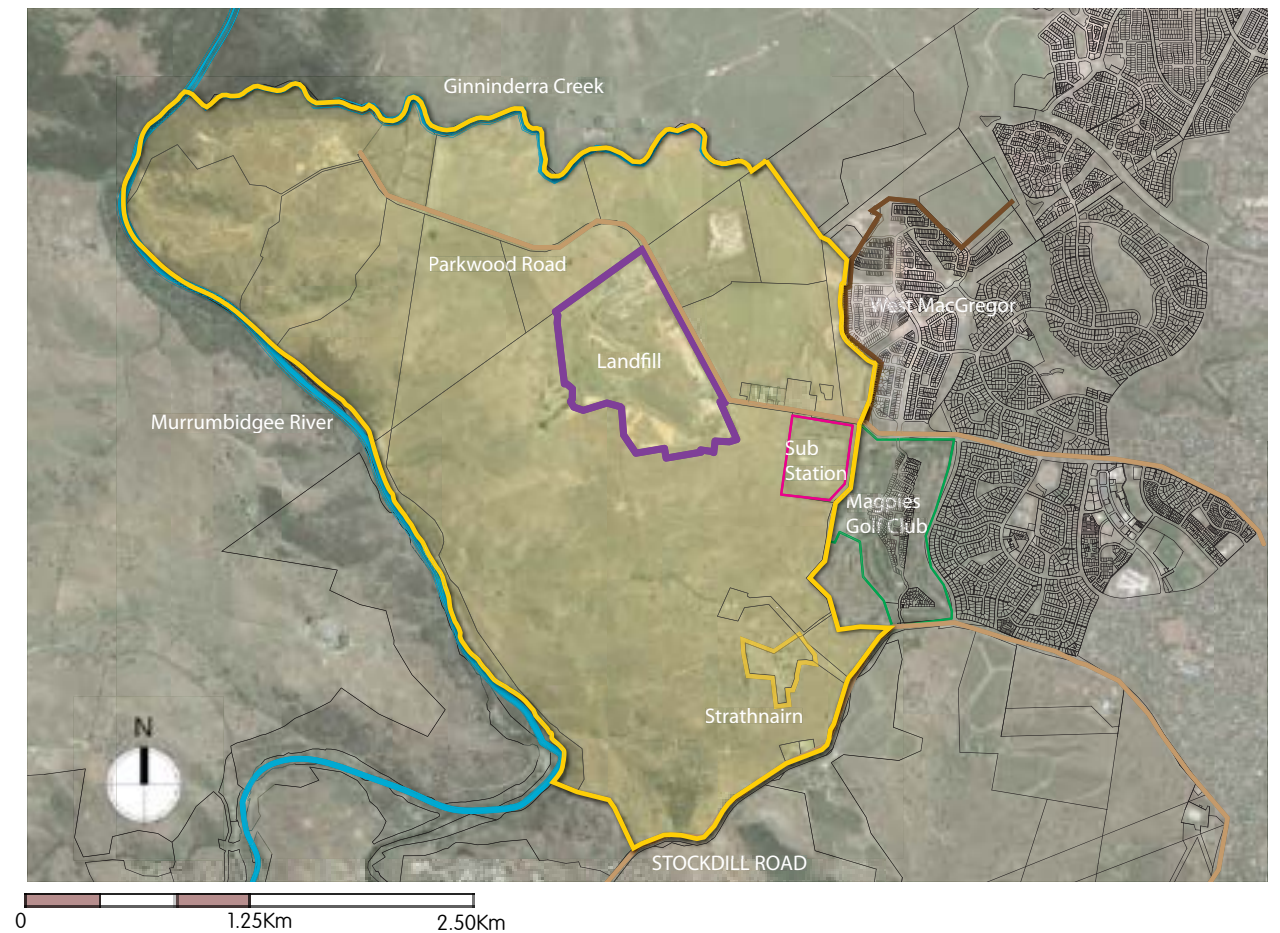


3.2 Local Context

An understanding of the key contextual and site characteristics has informed the design and structure of the Master Plan. The Study Area has an area of 1600 hectares (ha) including the landfill site.

It includes the land north of Parkwood Road between West MacGregor and the ACT border and the land south of Parkwood Road. It extends south around the Magpies Golf Club to Stockdill Drive and around the south side of the landfill site/Canberra substation down to the Murrumbidgee River. It also includes land beyond the landfill site in NSW on both sides of Parkwood Road, bordered on the north by Ginninderra Creek and on the south side by the Murrumbidgee River.

The Sub Station and Strathnairn do not form part of the Study Area.

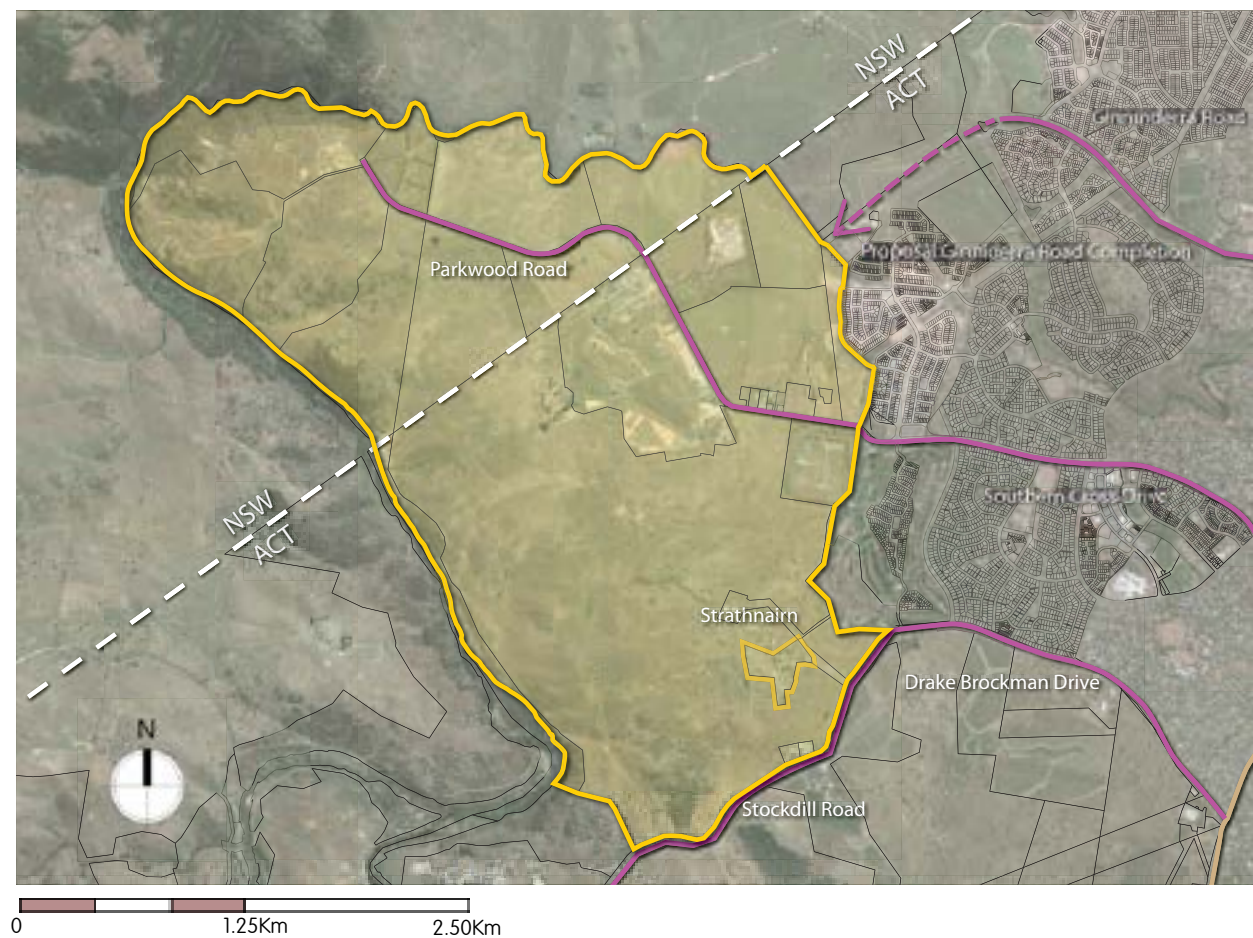


Major Roads

The Study Area is currently accessed by two existing arterial roads Drake Brockman Drive and Southern Cross Drive. Drake Brockman Drive is located on the southern boundary of Holt and intersects with Stockdill Drive at the Study Area boundary. Southern Cross Drive is located to the south of Macgregor and becomes Parkwood Road as it enters the Study Area. Parkwood Road/Southern Cross Drive links the Study Area to the Belconnen Town Centre, provides access to the existing recycling estate and landfill site and is the only constructed road within the Study Area.

A proposal to complete Ginninderra Drive located to the north of West Macgregor to connect with the Study Area is subject to further feasibility studies but would provide a third entry into the northern portion of the Study Area from the adjoining areas.

If the extension to Ginninderra Drive is not completed there will be additional traffic volumes on Southern Cross Drive and Drake Brockman Drive. In addition it will remove the opportunity to provide convenient access to the north of the site.

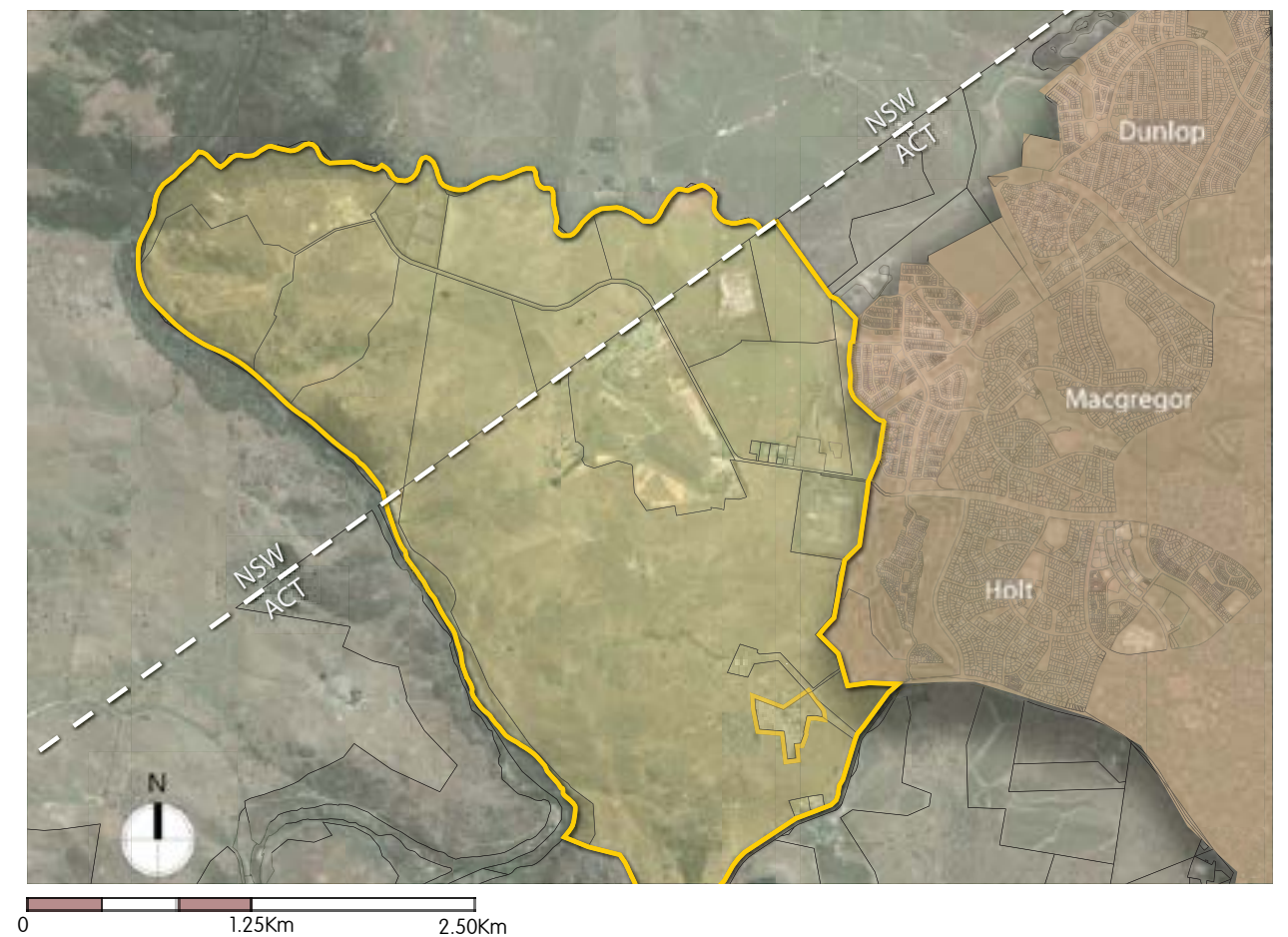


Existing Settlement

The Study Area adjoins the residential neighbourhoods of Holt and Macgregor.

The housing profile within these areas is limited and is largely comprised of single storey detached family homes, some duplexes and townhouses. Early residents of West Belconnen will utilize existing services and in doing so help to revitalise businesses within these areas creating an integrated community.

As the population of West Belconnen progressively increases, additional services will be provided benefiting both the new West Belconnen community and the adjoining neighbourhoods thus assisting the integration of the new with the existing community.

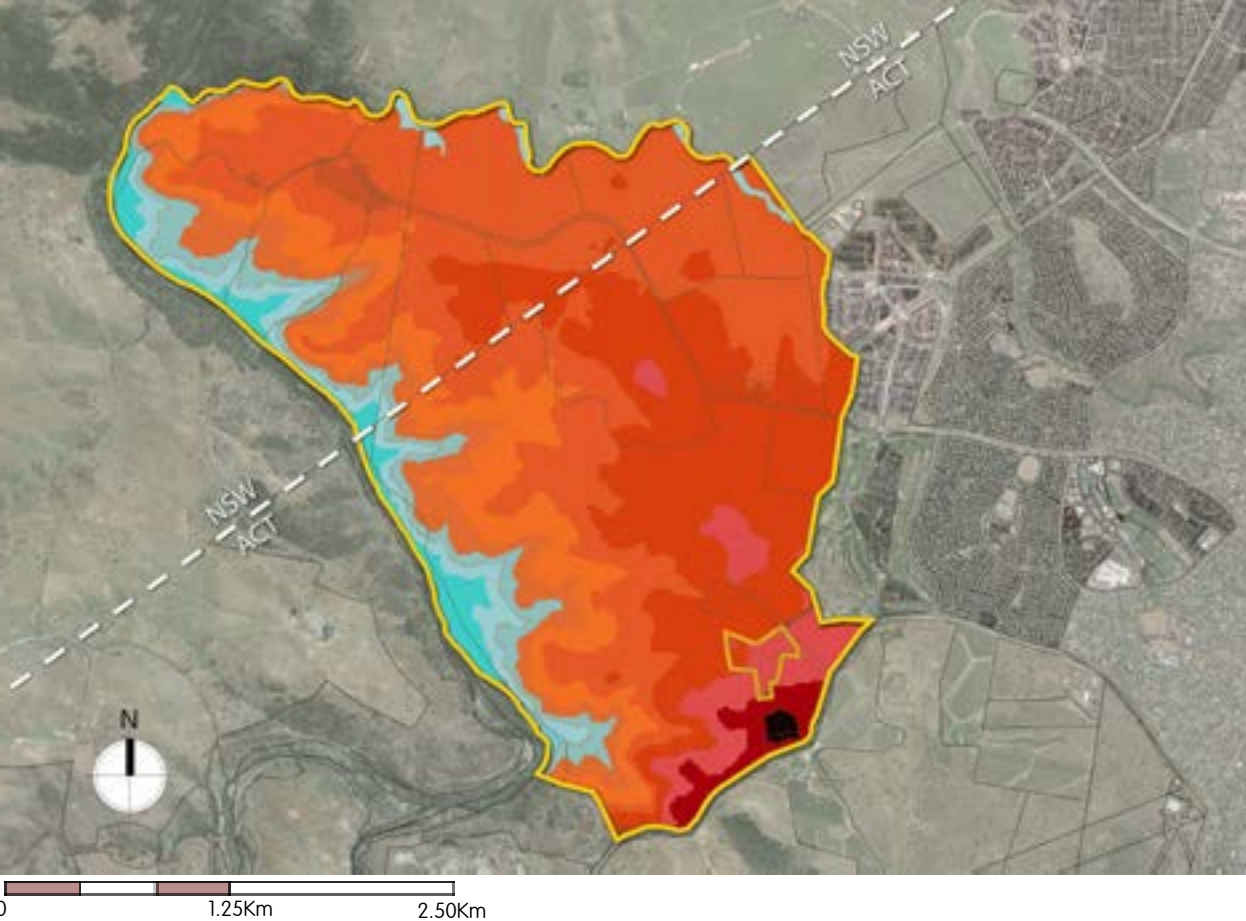
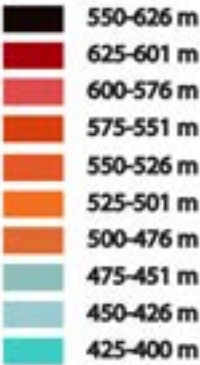


Topography

The topography of the Study Area has been a key consideration throughout the design process and has provided a number of opportunities to create and celebrate views through the sensitive siting of public open space and the movement networks.

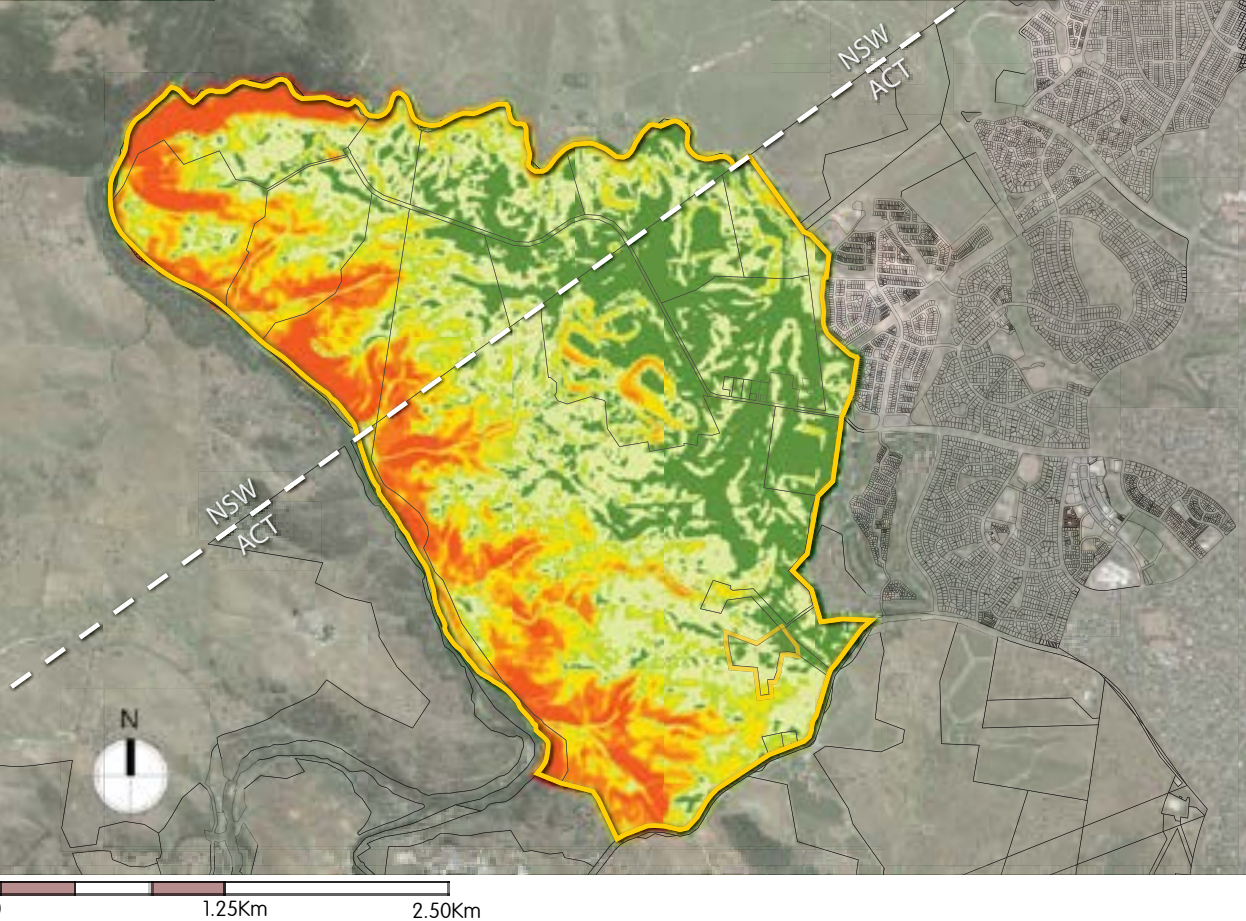
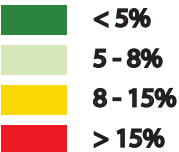
The natural character of the landscape provides the foundation for creating a strong sense of place.

Elevation across the site ranges from 625 metres (m) along the southern boundary of the Study Area to 425m along the banks of the Murrumbidgee River. A prominent ridge line, ranging between 560m to 585m, runs along the power line easement with 2 high points located within the landfill site.



Slope and Aspect

A detailed slope analysis has been undertaken to inform the master planning process. As the diagram below illustrates, approximately 70% of the developable area benefits from slope ranging from 0% to 8% and is north facing. Whilst there are pockets of steeper slope and south facing land within the development area, detailed design testing through the master planning process will demonstrate appropriate outcomes. The majority of slope above 15% is located within the proposed Conservation Corridor.



River System

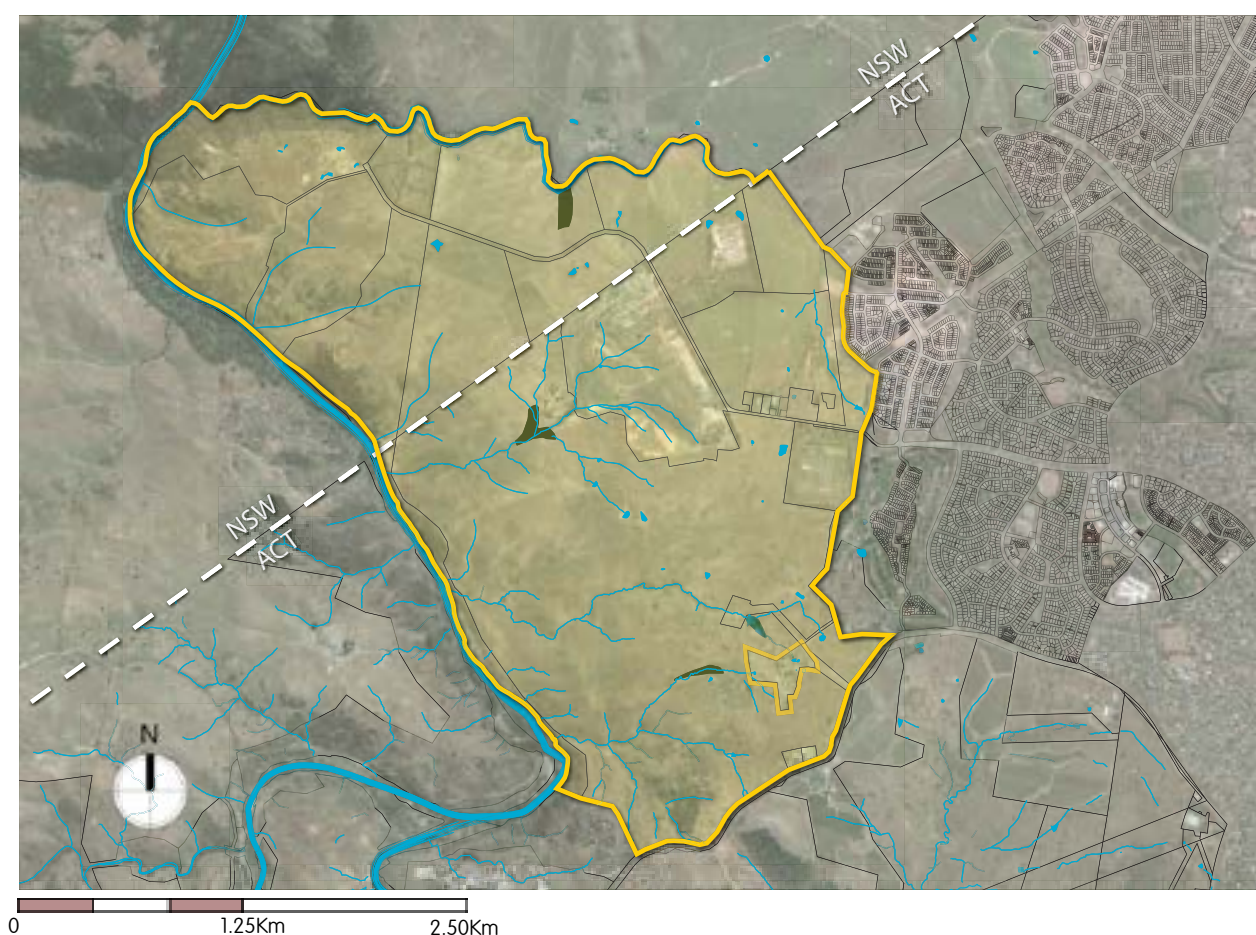
The Murrumbidgee River flows in a northerly direction along the western boundary of the Study Area and provides a diverse ecological, scenic, cultural and recreational resource. Protection of the Murrumbidgee River corridor has been a priority and has helped to define the area available for development.

Ginninderra Creek is a tributary of the Murrumbidgee rising within the Mulligans Flat Nature Reserve to the north east of Gungahlin and running along the northern boundary of the Study Area. The spectacular Ginninderra Falls and Gorge were a popular recreation area for Canberrans until a range of insurance and safety issues resulted in the land owners preventing public access in 2004. The West Belconnen proposal provides a unique opportunity to create a comprehensive riparian corridor with a management

framework that would protect the ecological and environment values of these significant assets and provide a spectacular recreational destination for Canberrians.

Spring Creek flows south of the landfill site in a westerly direction past Belconnen Farm discharging into the Murrumbidgee River.

A number of drainage lines traverse the site predominantly in the Conservation Corridor.



defining the developable area

4.1 Ecological Urbanism

Reflecting the principles espoused in the design approach referred to as “Ecological Urbanism” the Developable Area has been defined primarily through the delineation of the Conservation Corridor.

Ecological Urbanism draws from ecology to inspire an urbanism that is more socially inclusive and responsive to the environment and creates a dynamic integration between natural and urban systems.

Extensive field research was undertaken to define a Conservation Corridor adjacent to the Murrumbidgee River and Ginninderra Creek that would:

- Protect the important ecological features including the habitat for the threatened Pink Tailed Worm Lizard and the Yellow Box Red Gum Grassy Woodland
- Protect areas of indigenous significance and areas associated with European settlement and
- Provide public access and recreational opportunities
- Enable the integration of appropriate bushfire arrangements and asset protection zones.

Consequently, some 577 hectares of land within the Murrumbidgee River and Ginninderra Creek corridors has been set aside as a major conservation and recreation area to be maintained and managed for conservation, bushfire protection and recreation.

Dr David Shorthouse, Flora and Fauna Peer Review:

“I AM EXCITED ABOUT THIS PROJECT FOR TWO REASONS – THIS IS THE FIRST TIME IN THE ACT THAT ECOLOGICAL CRITERIA HAVE BEEN USED TO DEFINE THE BORDER OF A NEW URBAN AREA. IT’S GREAT TO SEE THE NECESSARY ECOLOGICAL SURVEYS HAVE BEEN COMPLETED FIRST, RATHER THAN DETERMINING THE URBAN EDGE AND THEN ASSESSING THE ENVIRONMENTAL IMPACTS. THIS PROVIDES THE OPPORTUNITY TO MAXIMIZE COMPATIBILITY BETWEEN THE ENVIRONMENT AND URBAN DEVELOPMENT.”

In addition to the Conservation Corridor, the following areas within the Study Area were initially considered as constraints to future urban development and excluded from the Developable Area:

- Landfill Site and associated uses
- Transmission Lines
- Belconnen Farm Heritage Precinct and View Corridor

However, the Master Plan process and further technical investigations have identified opportunities to meaningfully integrate some of these areas into the broader Master Plan, reflecting the goals and objectives of the Sustainability Vision, and creating innovative and valuable community assets that will make a significant contribution to the sense of place.

The Conservation Corridor and the identified constraints are discussed on the following pages.

4.2 Conservation Corridor

Bordered by the Murrumbidgee River and Ginninderra Creek, the Conservation Corridor will protect a number of Indigenous and European heritage sites and provide opportunities for recreation, conservation and fire management. It will connect with the open space network integrating the development into the natural environment in a manner that reflects the principles of Ecological Urbanism.

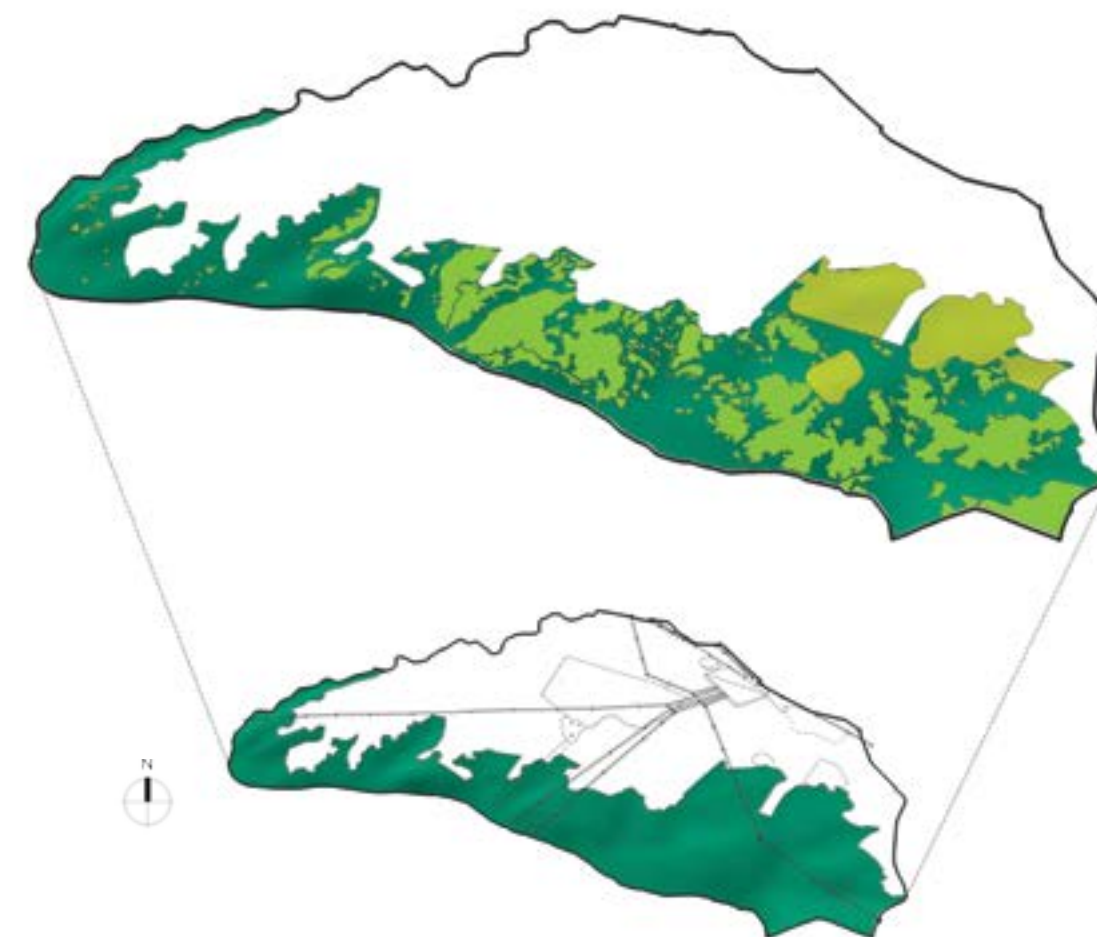
A range of models to manage the Corridor are being investigated including a Conservation Management Trust (CMT) that would draw on the proceeds of development and be administered by a Board comprised of representatives from the community and a range of key stakeholders. The CMT fund would be used to achieve conservation objectives, including appropriate bushfire management. It could be used to fund specific conservation works and activities including environmental research and education programs. (Elton.2014g)

The Conservation Corridor, integrated open space network, and a sustainable management framework will achieve a range of conservation outcomes including:

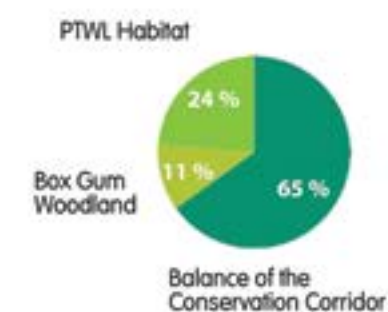
- Recognition and maintenance of the Conservation Corridor as a major conservation, bushfire protection and recreation area
- Establishment of conservation areas to protect important ecological features particularly habitats for threatened species including the Pink Tailed Worm Lizard (PTWL) and Yellow Box Red Gum Grassy Woodland

- Conservation and preservation of areas of Indigenous and European cultural significance on the site, allowing education and learning experiences
- Establishment of a network of green corridors for passive recreation
- Facilitation of regional-scale biodiversity conservation through a cross-border linking of riverine natural environments.

The Master Plan process provides an opportunity to explore the possibility of extending the Conservation Corridor to protect land adjacent to the Ginninderra Creek to provide additional recreational opportunities and potentially re-open Ginninderra Falls to the public.



11 %	Box Gum Woodland	74 Ha
24 %	PTWL Habitat	145Ha
65 %	Balance of the Conservation Corridor	358 Ha
TOTAL		577 Ha



4.3 Landfill Site and Associated Uses

Landfill Site

Significant work has been undertaken by GHD to understand the constraints and opportunities represented by the former landfill site, and further work is continuing to identify potential future uses. (GHD.2014b, 2014a)

The site is seen as an important future community asset that could accommodate a range of innovative and sustainable technologies with a strong research component. Initially, the site will provide recycling and re-use programs for the community. However, as the site is de-comissioned a range of future uses could be contemplated including playing fields, urban agriculture, fresh food markets, employment and research cluster with a focus on renewable energy, and community spaces.

As part of the Exemplar Projects Tour the touring team visited Ceres, a Not for Profit Centre of Education and Research in Environmental Strategies in Melbourne.

Located on 4 hectares of rehabilitated landfill in East Brunswick, Ceres has been an outstanding success and is the focus of the East Brunswick community with over 35,000 visitors annually.

Services offered by CERES include green technology displays and education, training programs and social enterprises (organic food market, café, permaculture nursery) food security demonstrations, sustainable agriculture, energy efficiency and water conservation.

Existing Recycling Precinct

It is envisaged that recycling precinct will remain (although with substantially improved environmental controls) providing a valuable employment base and service to the community. It is anticipated that over time the precinct will evolve into a more intense mixed use area that will become a hub for businesses focusing on renewable energy.

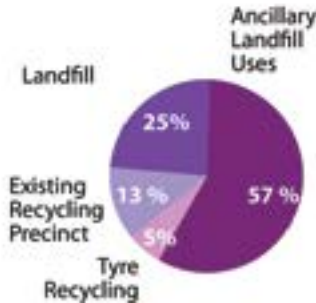
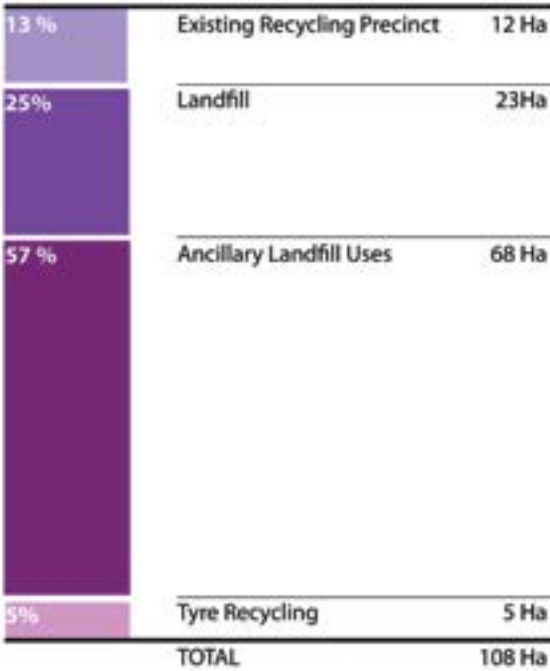
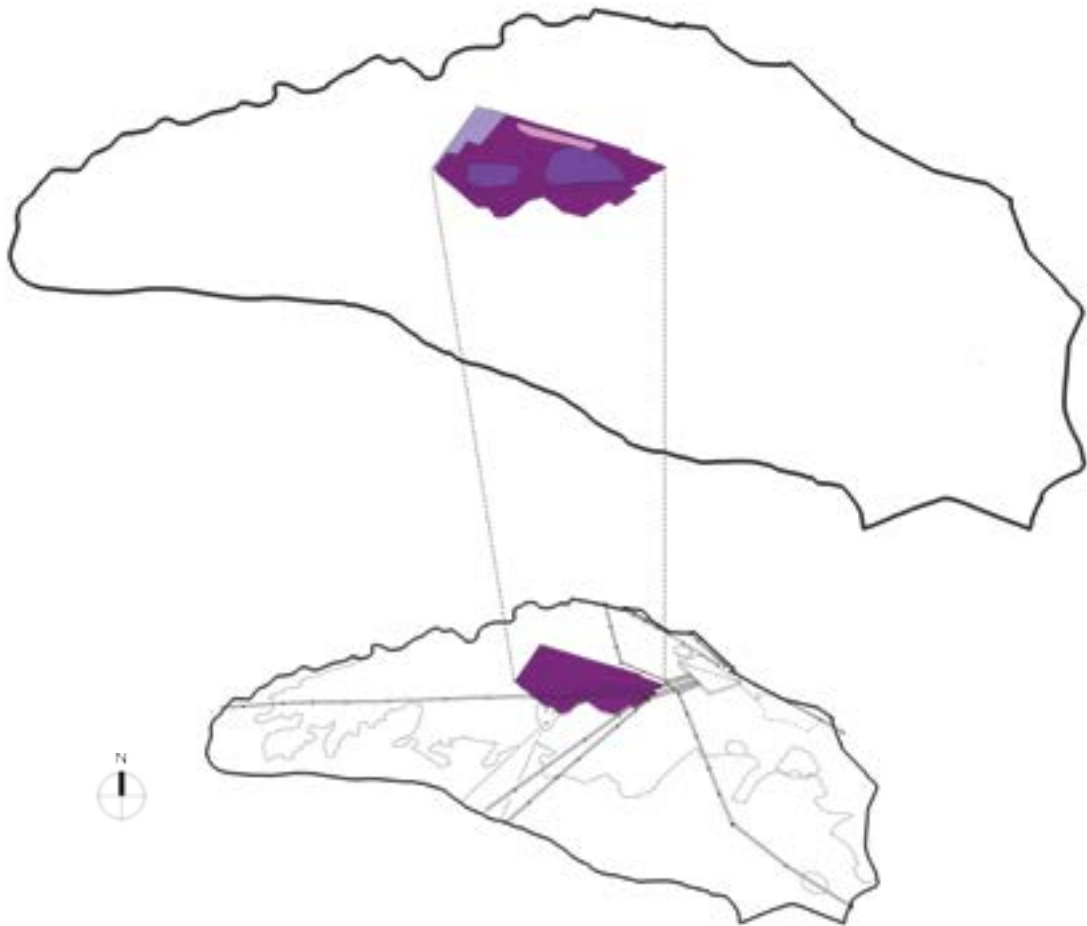
Ancillary Landfill Uses

Adjoining the landfill site are a range of leachate control areas, irrigation areas, dams, capped tyre and bushfire disposal pits and other uses that support the ongoing operation of the landfill site. These areas will ultimately be rehabilitated in association with the landfill site.

Tyre Recycling

A 5 ha portion of the industrial area has historically been used to dump old tyres. Current research suggests that these tyres could be excavated and recycled in a number of sustainable ways. Once the tyres have been remove this area could be rehabilitated and considered for a range of future uses.

The potential to “mine” the tyres is subject to further research.



4.4 Transmission Lines

Transmission Lines

A number of transmission lines traverse the site. No residential development can be located within the 60 metre easement associated with each of the transmission lines.

However, there is a significant opportunity to use the 95 hectares of land within the easements to create a series of green corridors linking the Conservation Corridor to the broader West Belconnen area through a series of pedestrian and cycle routes.

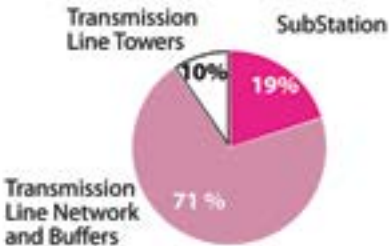
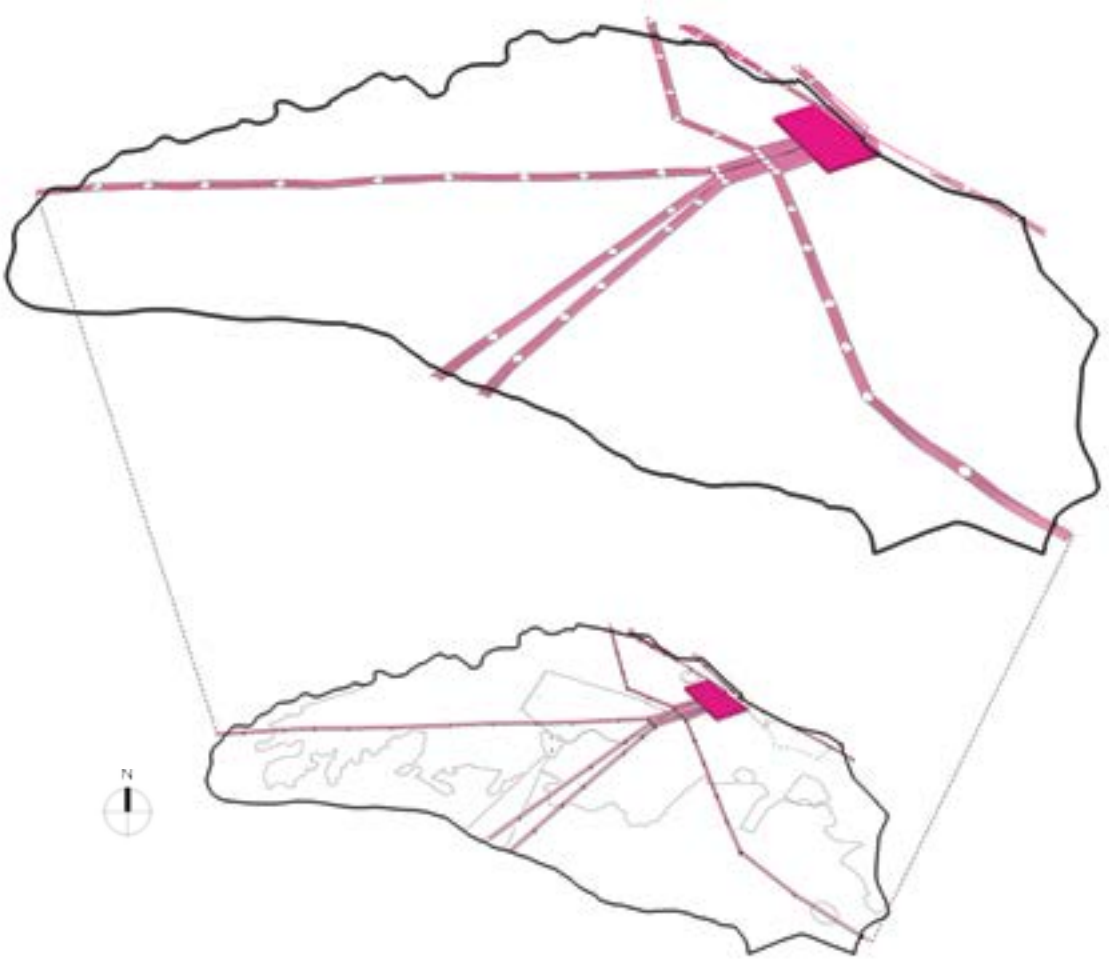
Other potential community based uses include urban agriculture, orchards, passive open space, solar panels and horse trails, all of which contribute to social sustainability.

Utilising the transmission line easements for food production for local consumption through a diverse range of urban agriculture pursuits may include:

- High value intensive perishable crops
- Broad acre crops
- Fish farming
- Green house production

Transmission Line Towers

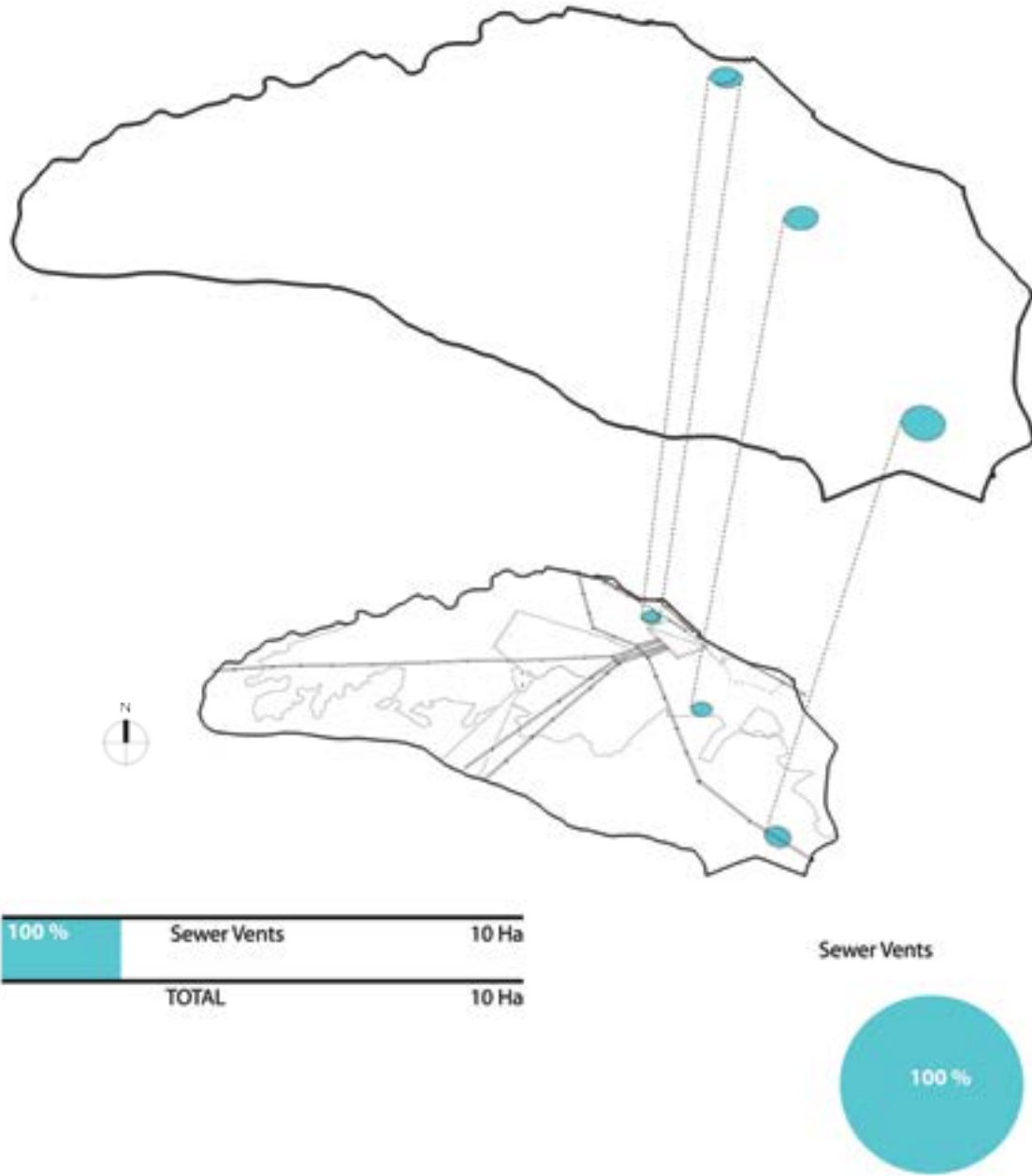
There are 61 transmission line towers that support the 330 kV and 132 kV transmission lines within the West Belconnen Study Area, 54 of which are contained within the developable area. Each tower has a 22m clear areas radius located within the transmission lines buffer. However, the land use opportunities that exist within the transmission line buffer are not available in the tower clear area as access to the towers must be maintained at all times for servicing and maintenance.



4.5 Sewer Vents

There are four sewer vents, one is located within the Conservation Corridor and the remaining three within the developable area.

At the present time, a 130m radius buffer is proposed by Actew Water for the vents located in the Conservation Corridor. No buffers have yet been determined for the remaining two vents. Further detailed assessment is required to verify preliminary findings by Actew Water that have indicated only low odour impacts from the other vents within the developable area. Ultimate treatment of the vents will inform highest and best use of surrounding development.(ACTEW.2014a)



4.6 Belconnen Farm Heritage Precinct and View Corridor

Belconnen Farm

The Belconnen Farm precinct, including a cottage built by the Campbell family in about 1860, and the surrounding structures represent an important piece of Canberra’s heritage reflecting the strong history of rural development. They are some of the few remaining rural structures in Canberra as most have been removed as urban development has occurred.

Eric Martin and Associates has completed a Conservation Management Plan (CMP) for Belconnen Farm to ensure the historical elements throughout the site are preserved to the specifications of the Heritage Council and to ensure the rural past of the subject site is recognized and celebrated.(EMA.2014a)

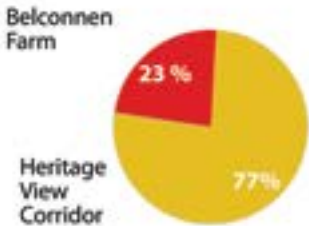
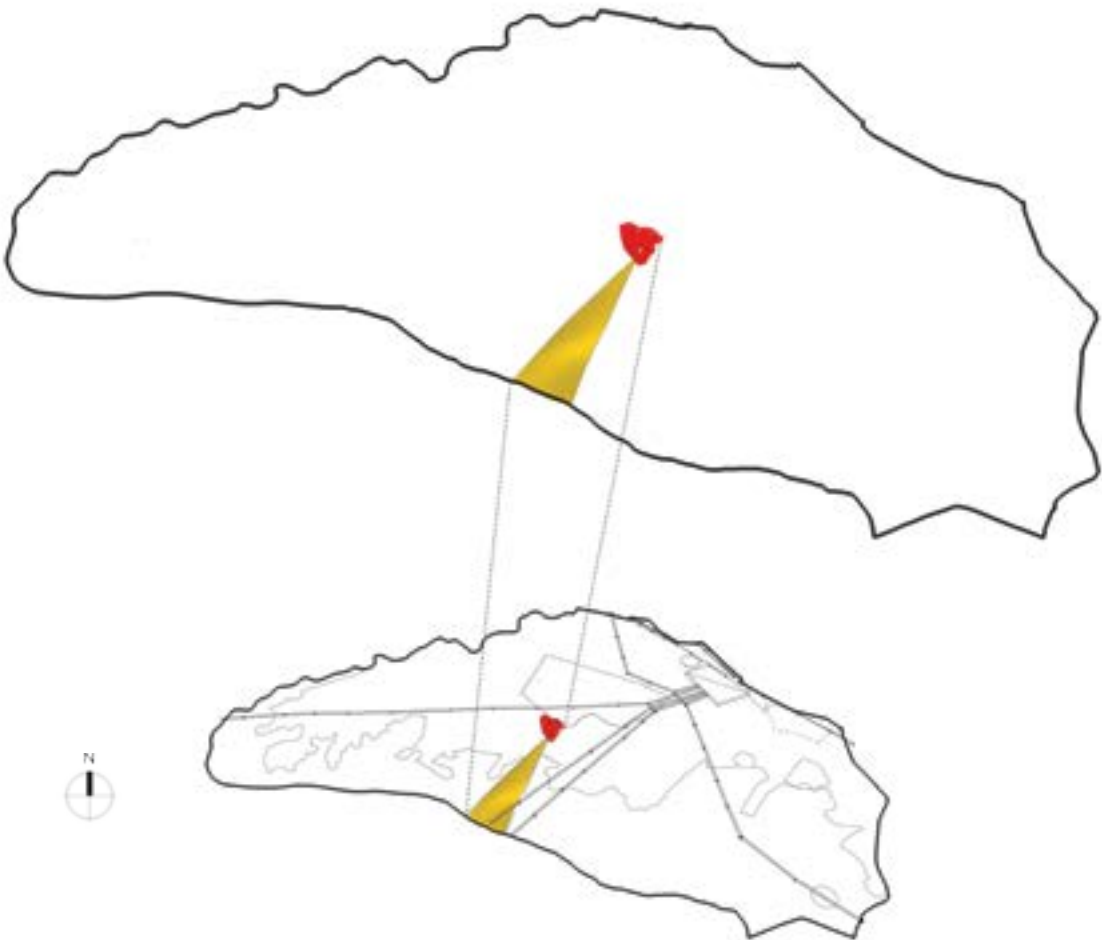
The CMP balances and co-ordinates the surrounding urban development with the Heritage Council requirements and responsibilities ensuring that the precinct will be a key community asset and focal point for residents and visitors.

The CMP recognizes and reflects the Sustainability Vision and identifies opportunities for Belconnen Farm to be adapted to accommodate a range of uses including accommodation, functions and community facilities.

Belconnen Farm and its identified curtilage is located in an area of open space that forms part of the broader open space network linking the Conservation Corridor through to the central parklands and beyond providing strong accessibility for not only the West Belconnen community but also the surrounding areas.

Heritage View Corridor

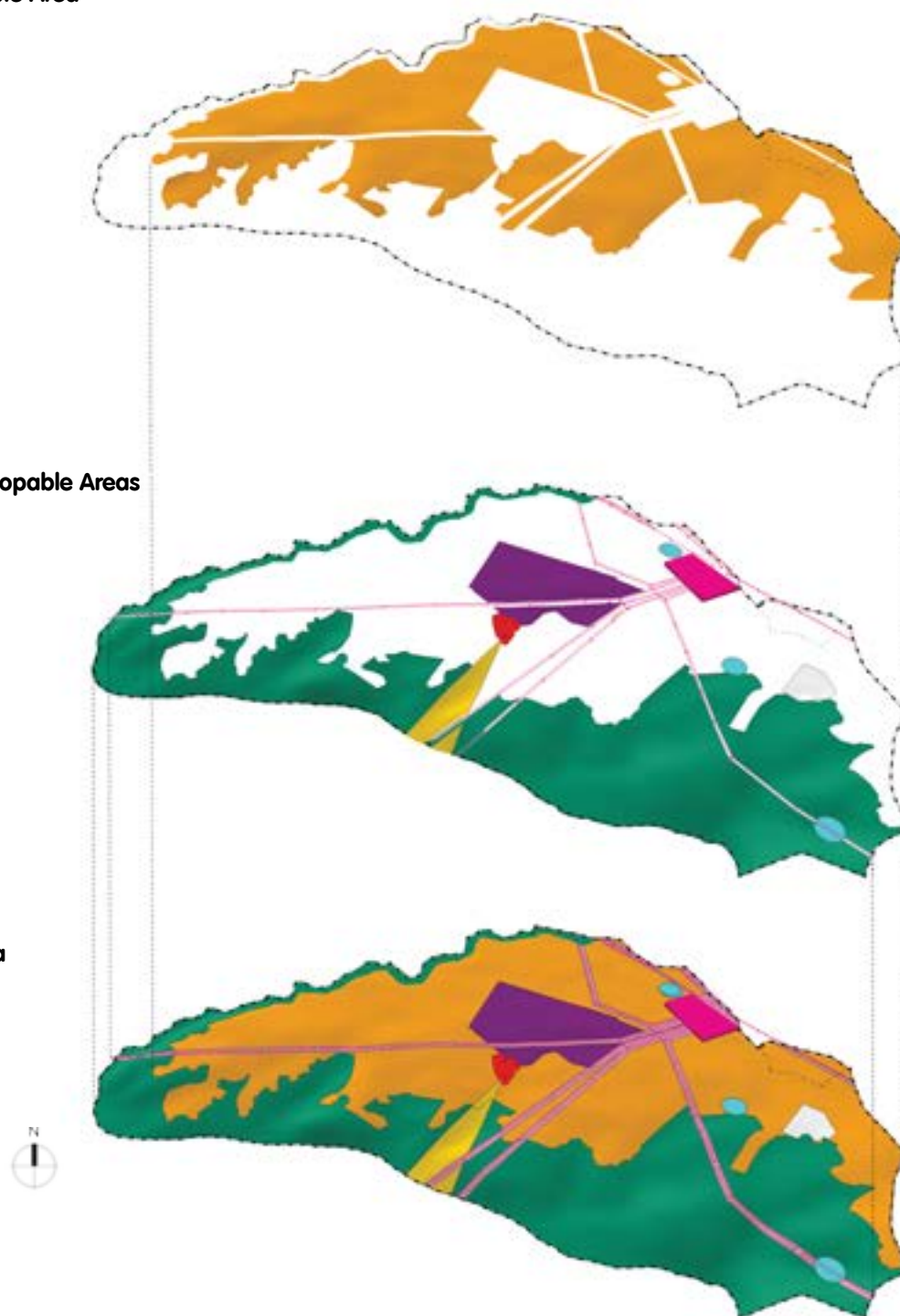
Protection of the Heritage View Corridor from Belconnen Farm will ensure views from the Farm to the distant Brindabella’s are preserved in perpetuity. The spectacular view provided by this heritage asset enhances the amenity of the Farmhouse and its use for a diverse range of community based activities.



Developable Area

Non Developable Areas

Study Area



Note: These areas represent the total area for each constraint as measured separately. However, the Heritage View Corridor, transmission lines and a sewer vent are either partially or wholly located within the Conservation Corridor. As a result, the combined areas of the constraints, as measured separately, is 863 ha which is greater than the actual total area of 827 ha.

The total site area is approximately 1600 ha of which 773 ha is developable.



05

demographics and housing

5.1 Demographic Analysis

The ANZSOG Institute for Governance at the University of Canberra has undertaken demographic analysis to inform the preparation of the Master Plan (ANZSOG.2013)

Key findings

- The desirability of Canberra - Queanbeyan is affected by housing affordability
- Canberra – Queanbeyan has the highest proportion of people with monthly mortgage repayments classified as “high”
- Despite issues associated with housing affordability, Canberra is considered to be one of the most economically competitive, productive and liveable urban centres in Australia
- Canberra – Queanbeyan is the most competitive major Australian city with a population between 200,000 and 1 million
- Until 2041, the Canberra region is likely to continue to attract more people from the major cities than its urban counterparts
- Future population projections for Canberra in 2041 range from 498,600 to 575, 500 depending on the growth scenario adopted
- Private vehicles are the most common form of transport used for work trips in the ACT, with an average of 1.7 cars per dwelling.
- 70% of journey to work trips are by private car, 6.6% by active transport (cycling or walking) and 5.7% by bus only and .75% by bus and car.
- 70% of dwellings across ACT are detached homes with semi detached, row or terrace homes on a single storey comprising 9.3%
- On average, households in the ACT were found to have 2.6 residents with 50.9% having only 1 or 2

- Household incomes across the ACT is much higher than the surrounding region

Implications for the Master Plan

- Canberra is a desirable but expensive place to live.
- The population is growing and more dwellings will be required to house the population
- Car dependency is high emphasizing the need to provide public transport options
- Limited housing choice exists. There is a need for a greater diversity of housing to address affordability and to reflect the low residents/dwelling figures

5.2 Housing Preferences

ORIMA Research conducted a community survey to establish housing preferences within the ACT region. (Orima.2014) These findings have been used to inform the structure of the Master Plan, the community types and the housing typologies permitted under the West Belconnen Precinct Code.

Housing Choice

The research identified that the most important factors influencing housing choice are:

- Proximity to social infrastructure
- Block size
- Affordability
- Proximity to public transport
- Proximity to town centres
- Value for money
- Proximity to schools

Affordability

- Almost half the respondents are looking to purchase a smaller dwelling
- Many are seeking a smaller block and a smaller house
- Potential purchasers interested in buying a home at a lower cost would consider :
 - Shared outdoor areas
 - A studio above a garage
 - Reduced on site parking

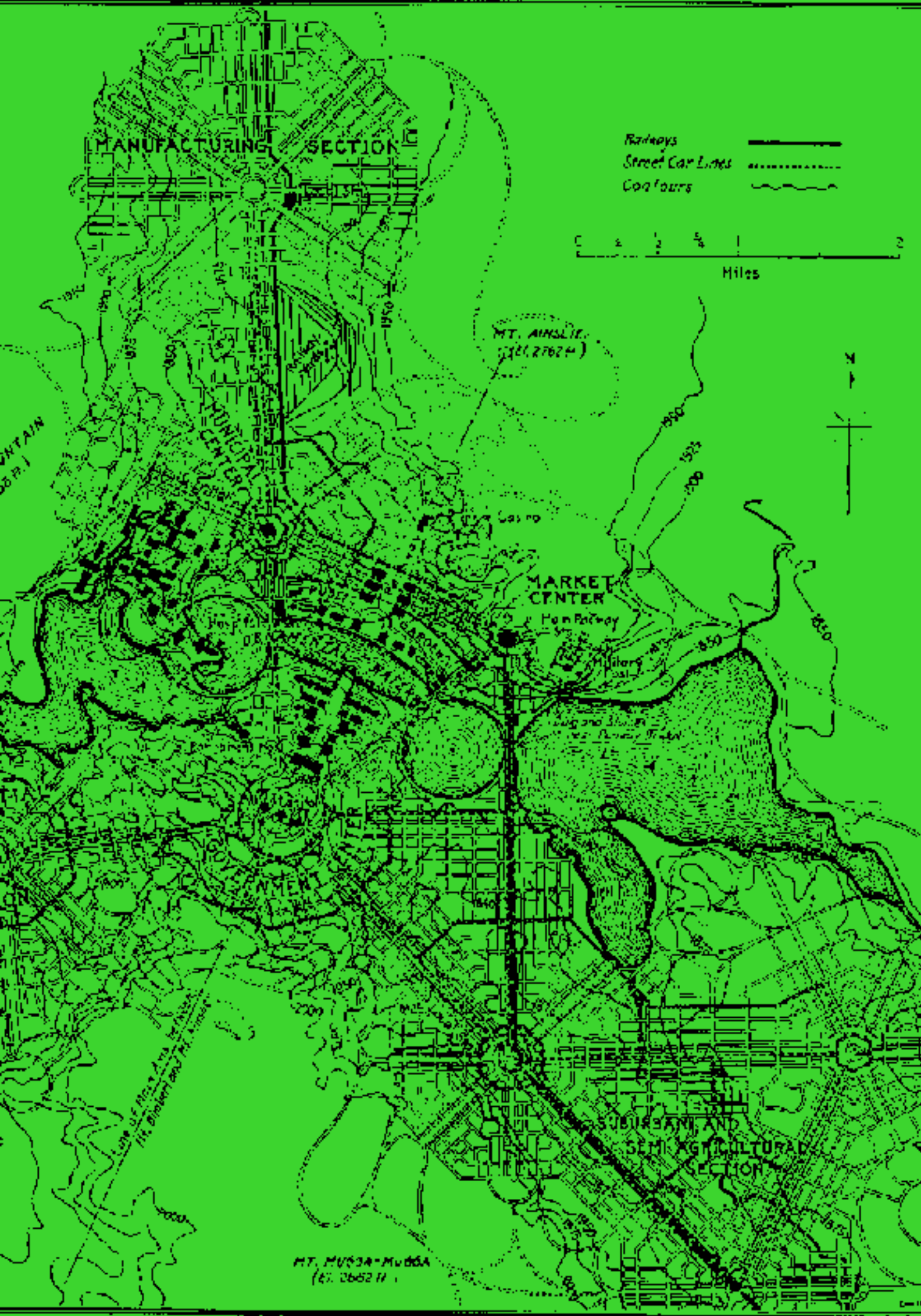
Lifestyle Preferences

- Most desired lifestyle preferences included:
 - A sense of space and openness
 - Opportunity for casual entertainment
 - Safety and security
 - A sense of community

Most important features to consider at West Belconnen:

- Adequate provision of community facilities
- Ensuring existing roads are able to accommodate increased traffic generated from the new development
- Provision of public transport





06

design approach

6.1 The Griffin Legacy

The West Belconnen Master Plan is based upon time proven urban design principles, including Griffin's legacy and the applicability of Garden City principles to address 21st century challenges.

In designing Canberra, Griffin aimed to "create a second nature – one that draws inspiration from its natural setting". His aspirations are reflected in a unique city form where garden suburbs are contained by ridges and river corridors, and important views are focused on hilltops by axial avenues and views.

Building on this unique response to nature, a detailed analysis of the site's setting revealed five peaks rising from the Brindabellas and ridgeline to the north. In addition, there is a prominent ridge running along the power line easement with two high points within the landfill area, a series of local ridges and knolls, a number of watercourses, undulating topography and significant trees.

There is a significant opportunity for the Master Plan to reflect Griffin's design philosophy by drawing inspiration from the 'natural setting'. In particular, there is immense potential to offer a variety of experiences and places within the site that connect people to the five peaks of West Belconnen.

Griffin's vision for Canberra was further underpinned by a number of key principles including walkable neighbourhoods, designated 'street car' (transit) lines, varied open space types including market gardens and urban agriculture, and a diversity of housing types. Griffin initially envisaged urban avenues defined by 3 to 4 storey terraces and apartments, but this density was diluted under John Sulman and the rise of cheap cars. With the majority of Griffin's principles now universally recognized as 'smart growth', and Canberra proactively addressing its historic car dependence by increasing densities and providing

new and expanded transit networks, the opportunity exists for the Master Plan to interpret these time proven design principles in the 21st century.

However, whilst the positive attributes outlined above provide a solid foundation for the Master Plan there are two issues associated with Griffin's legacy that must be addressed in the West Belconnen context.

Firstly, Griffin was significantly influenced by the City Beautiful Movement that has been critiqued for focusing on a 'helicopter view' of city design over the 'human scale' experience. Acknowledging this, the West Belconnen design process has focused on ensuring bold gestures are integrated with people experiences.

Secondly, whilst Griffin aimed to create a second nature it was largely aesthetic-led. Whilst beauty is a key ingredient to create places that people love, the West Belconnen Master Plan has intertwined natural and human systems to create an 'ecological urbanism' to improve the environmental, social and economic performance of the project.

Finally, all of Griffin's life work was inspired by the ideal of the 'democratic city' (http://en.wikipedia.org/wiki/Walter_Burley_Griffin). He envisaged co-operative and trust type mechanisms to manage the community gardens planned for Canberra and empower the community. The ideal of the democratic city has provided a platform for West Belconnen to consider unique governance frameworks and mechanisms for a diverse range of community assets including the Conservation Corridor.

Evolving Griffin's Legacy

West Belconnen reflects Griffin's legacy of place making by connecting the proposed settlement to regional landscape features.

The project establishes three key visual axes to visually connect the future community to the surrounding environment.

In addition, five local landscape peaks rising out of the Brindabella Range and environs have been identified. The Master Plan responds to the five peaks of West Belconnen by aligning major roads, local streets and public spaces to frame these peaks wherever possible. Sequential, unfolding views and vistas are a key feature of West Belconnen.



Within Canberra's City Centre, Griffin's three axes provide a visual connection to nature and surrounding environment, which has created a unique sense of place over time.



West Belconnen's highest point is reserved for a future park. Similar to Griffin's diagram, from this park three axes connecting the community towards the bush, city and existing community of Belconnen is created.

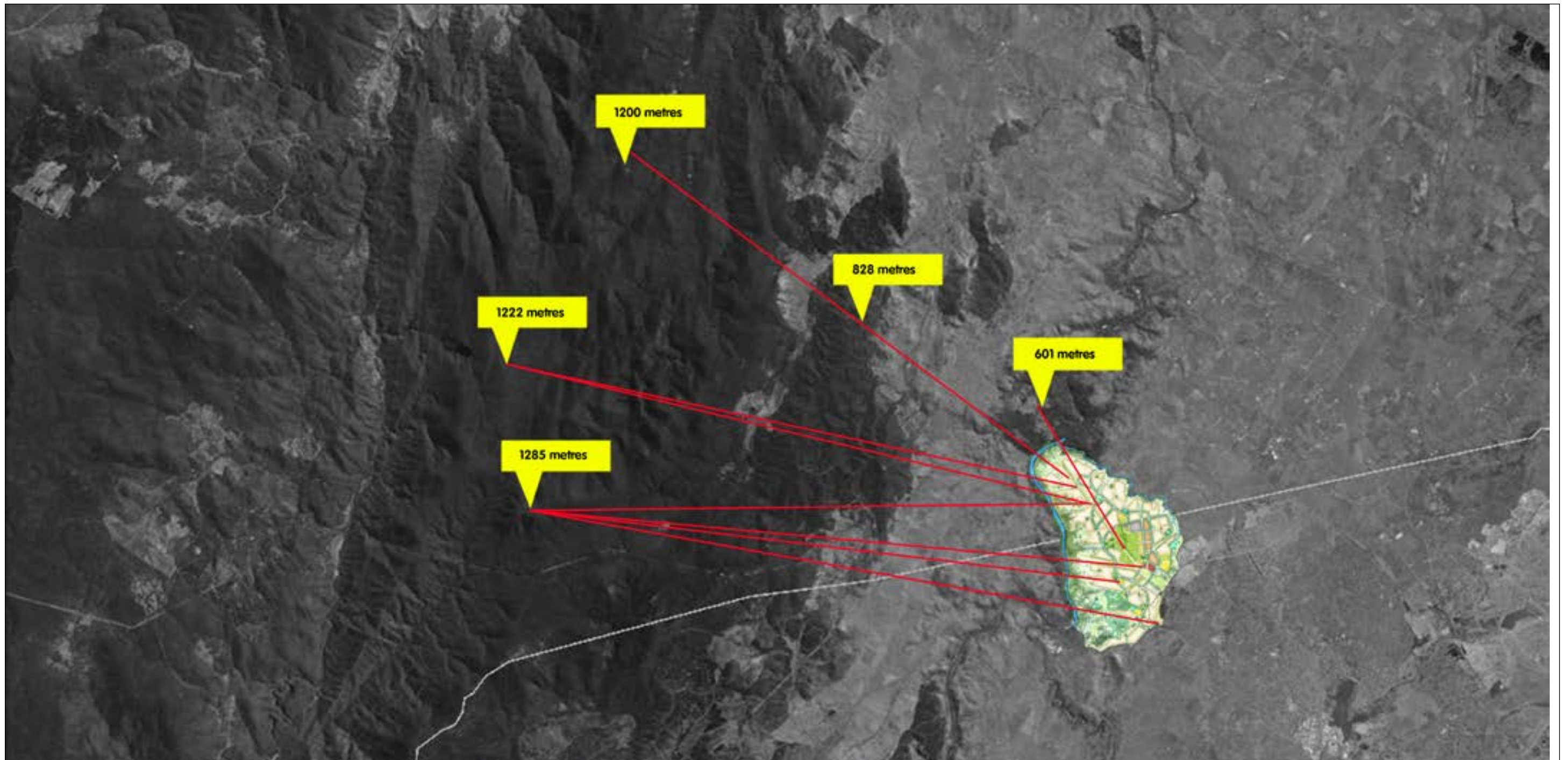


Griffins Grand Axis



West Belconnen's Grand Axis

Five Peaks of West Belconnen



Primary and secondary views towards the five peaks of West Belconnen and Brindabella Range

6.2 Design Principles

The West Belconnen Master Plan Principles reflect the design related 'Guiding Principles for Sustainable Results' and were established through stakeholder and project team consultation and design development:



Protect and regenerate the conservation corridor values including the Pink Tailed Worm Lizard and Box-Gum Woodland environment.



Enhance the conservation corridor experience and eco-tourism opportunities within it through a safe and sensitively connected network of streets, bus routes, cycle and pedestrian paths.



Create special places that celebrate the unique and diverse features of the Murrumbidgee River, Ginninderra Creek and Falls, Brindabellas, Belconnen Farm and Strathnairn as a destination for residents and visitors.



Create a WSUD strategy that is celebrated and integrated with the master plan structure and that maintains water quality going into the Murrumbidgee River.



Transform constraints such as transmission lines and the landfill site into opportunities to contribute to local food access, employment and 100% renewable energy.



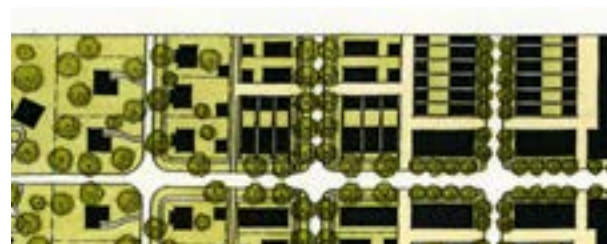
Celebrate the heritage of the site by weaving the heritage elements of the site including the Belconnen Farm and associated view corridor, Bicentennial National Trail components, Sturt and Campbell and Kilby heritage property boundaries, Parkwood Road alignment and heritage view lines.



Establish community types, neighbourhoods and character areas to accommodate a mix of uses and a range of densities that respond to Canberra's future needs and aspirations and are based on the commercial reality of the site's characteristics.



Design neighbourhoods with edges defined by natural and infrastructure edges and discernible centres for community gathering that support and encourage multi-generational interaction and the foundations of a real place.



Master Plan design that provides a flexible and dynamic framework for a changing market and to facilitate and promote innovation.



Design the West Belconnen mixed use centre to become the economic hub of the community, to complement but not compete with surrounding centres and to support the future social infrastructure needs of West Belconnen and surrounding residents.

west belconnen master plan

The proposed West Belconnen Master Plan has the potential to be Australia's largest, six star Green Star project – 'a project of international significance in the nation's capital'.

As a logical extension and completion of the Belconnen urban form, the project aims to transform 1,600ha comprised largely of agricultural land and a landfill site into a sustainable settlement for 30,000 people.

Inspired by Griffin's vision to create a 'city set in nature', the site's unique natural landform, and goal of protecting the Murrumbidgee River, the vision intertwines the natural and human habitat to not only coexist, but thrive in terms of ecological, social and economic performance.

At the scale of the entire City, the project's ecological integrity is underpinned by a significant public benefit being the creation of a linear open space system connecting the Murrumbidgee River and Ginninderra Creek into a continuous Green Belt including areas for conservation, recreation and urban agriculture. In particular, reopening public access to Ginninderra Falls will draw visitors from Canberra and beyond. It is noted this Green Belt will formally consolidate the open space system of the National Capital Authority through an appropriate management regime, such as a trust.

Protecting this Green Belt, a network of green infrastructure not only manages storm water, but also informs a place-led approach to enhancing the amenity of the new parks. Whilst not the project goal, a byproduct of this process is surplus water which will improve the long term water security of the settlement and can be used for a variety of purposes, such as irrigation.

Socially, the proposed master plan for West Belconnen provides for the changing demographic trends and lifestyle choices Canberra must accommodate by designing the human habitat as a series of compact, walkable, transit-ready neighbourhoods able to support a range of housing types, community infrastructure and uses. Rather than conventional sprawl, the 11,500 dwellings planned for West Belconnen will exist within these distinct neighbourhoods where healthy social diversity is achieved through different types of houses and price points. Further, by focusing on walking and integrating community infrastructure, both health and lifestyle affordability is improved.

Beyond affordability, West Belconnen is aiming to improve economic growth by fostering the emergence of new business sectors, such as renewable energies and urban agriculture; by providing value added infrastructure, such as solar power and water recycling; and, by removing inefficiencies from the development process, such as overly wide streets to deliver on-going savings and life cycle value.

7.6 Vision

"WEST BELCONNEN WILL BE AN INNOVATIVE, SUSTAINABLE COMMUNITY OF INTERNATIONAL SIGNIFICANCE – AN AFFORDABLE DIVERSE COMMUNITY THAT BUILDS ON THE LEGACY OF WALTER BURLEY GRIFFIN"

7.7 Master Plan Fast Facts

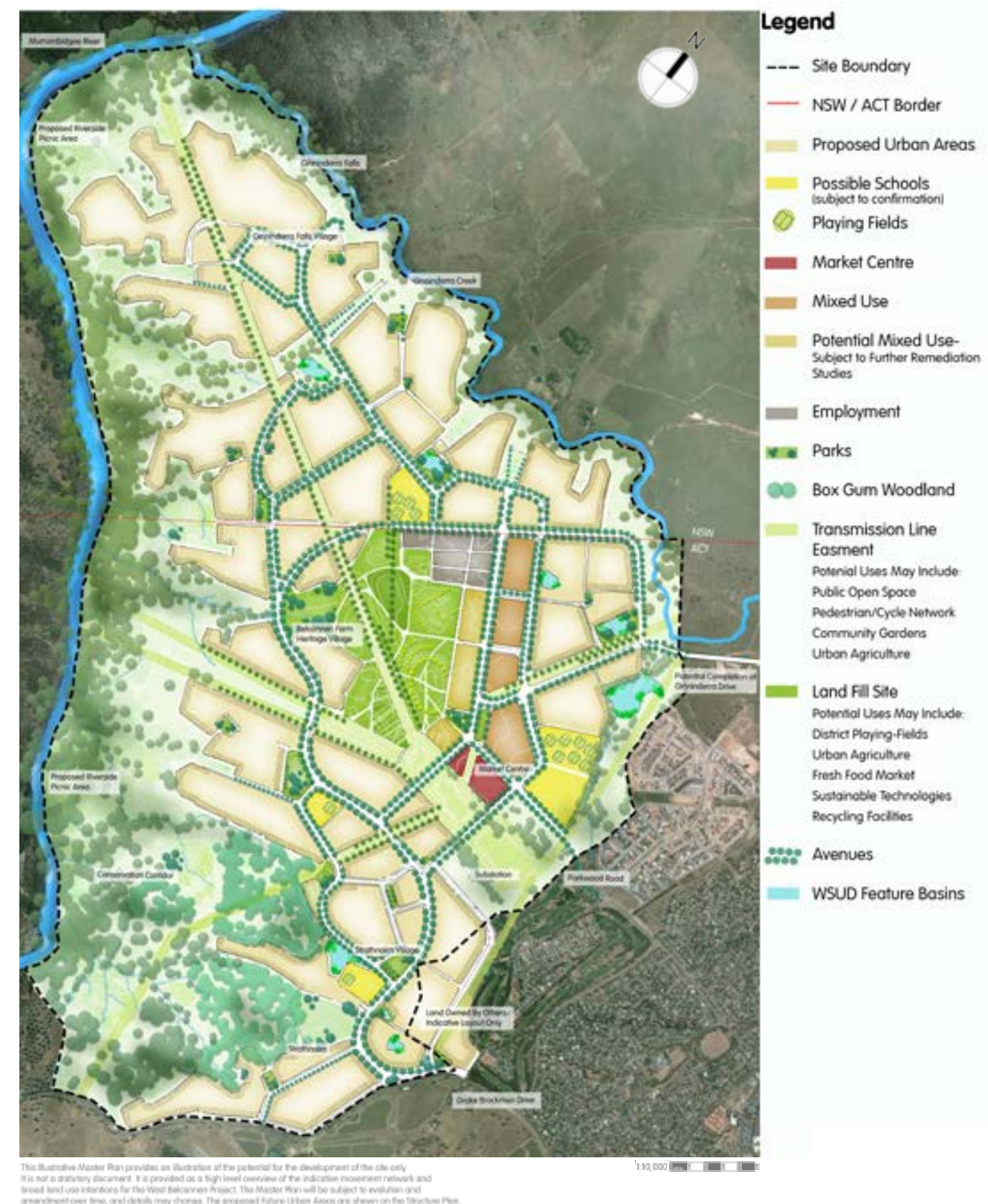
Dwellings	
NSW	5,000
ACT	6,500
Total Dwellings	11,500
Population	
Persons/dwelling	2.6
Total Population	30,000
Land Use	
Mixed Use Market Centre	1
District Community Centre	1
Local Community Centre	1
Library	1
Long Day Care	3-4
P- 6 Primary Schools + Oval	3
P- 10 School + Oval	1
Adult Community Education	1
District Playing Fields	1
Medical Centres	6-7
Religious Facilities	3
Licensed Clubs	3-4
Residential Aged Care	1

NOTE: Excludes further potential land use opportunities on the landfill site, within the Conservation Corridor and underneath the Transmission Lines as outlined elsewhere in this report

7.8 3D Axonometric Diagrams

The regional and local site analysis and other mapping have been presented as a series of 2D plans.

However, the Master Plan analysis has been presented in a series of 3D axonometric diagrams to clearly illustrate how the different elements of the Master Plan respond to the unique site conditions and collectively create an integrated system.



master plan overview



- ① Strathnairn
- ② Protected Box Gum Woodland
- ③ Conservation Corridor
- ④ Wetlands
- ⑤ Primary School
- ⑥ Drake Brockman Drive
- ⑦ Connected Public Open Space
- ⑧ Belconnen Farm Village
- ⑨ Main Street Retail
- ⑩ Mixed Use



- ⑪ P-10 School
- ⑫ Proposed Ginninderra Drive Completion
- ⑬ Central Park
- ⑭ Employment Land
- ⑮ Ginninderra Falls Village
- ⑯ Ginninderra Creek Corridor

7.9 An Integrated System

Underlying the West Belconnen Master Plan are a number of urban and natural systems grouped under seven key design themes being Ecology, Place, Housing, Health, Economy, Access and Learning.

Collectively, these systems create a complex network operating on different scales within the project.

Our approach has been to explore ways to integrate these systems with the programs they support.

For example, the project's 'complete streets' approach wholistically integrates pedestrian, bicycle, public transport and vehicle infrastructure to create the precondition for a sustainable transport system.

In addition, the place-led strategy creates an integrated storm water system which protects water quality in the Murrumbidgee River, recycled water, and provide a series of interconnected parks to benefit the new community.

This systems approach facilitates ongoing life cycle value by reducing materials, money and time associated with maintenance.

The diagram opposite illustrates the major systems, whilst the following pages provide greater detail on how these systems have been tailored to the project.

Access

Health

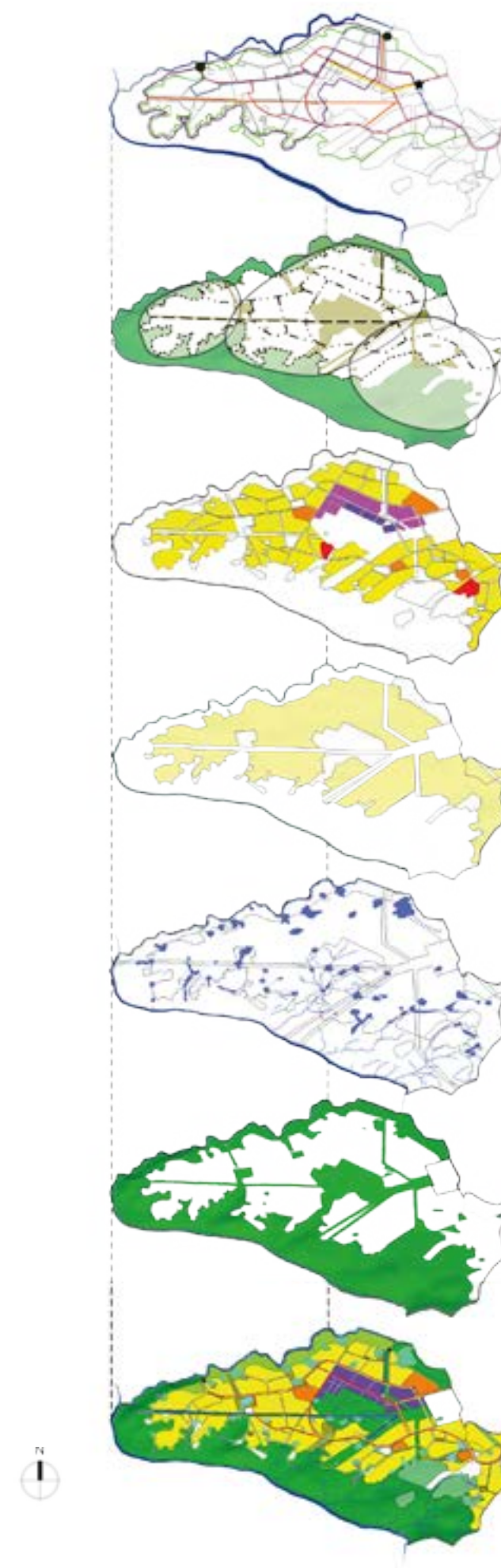
Place - Land Use

Place - Neighbourhoods

Ecology - Stormwater System

Ecology - Conservation

West Belconnen Master Plan



7.10 Ecology

Conservation Corridor

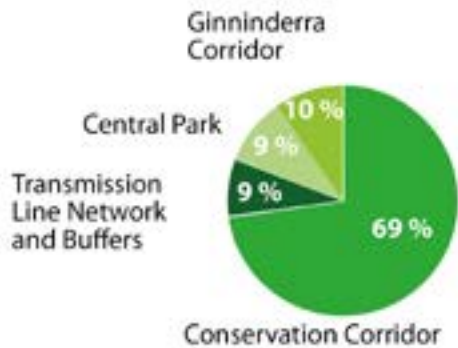
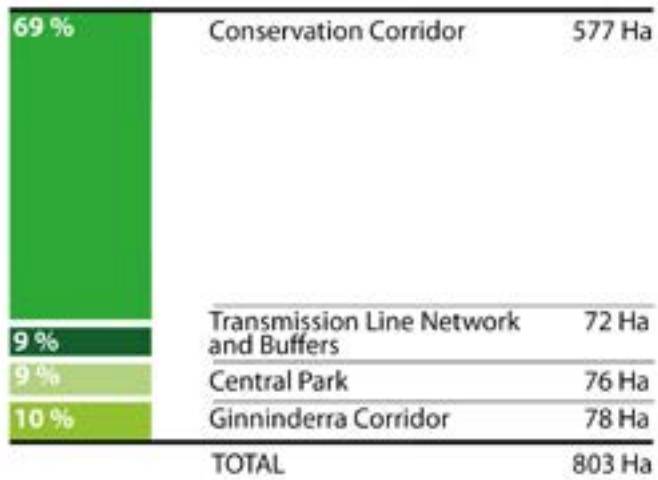
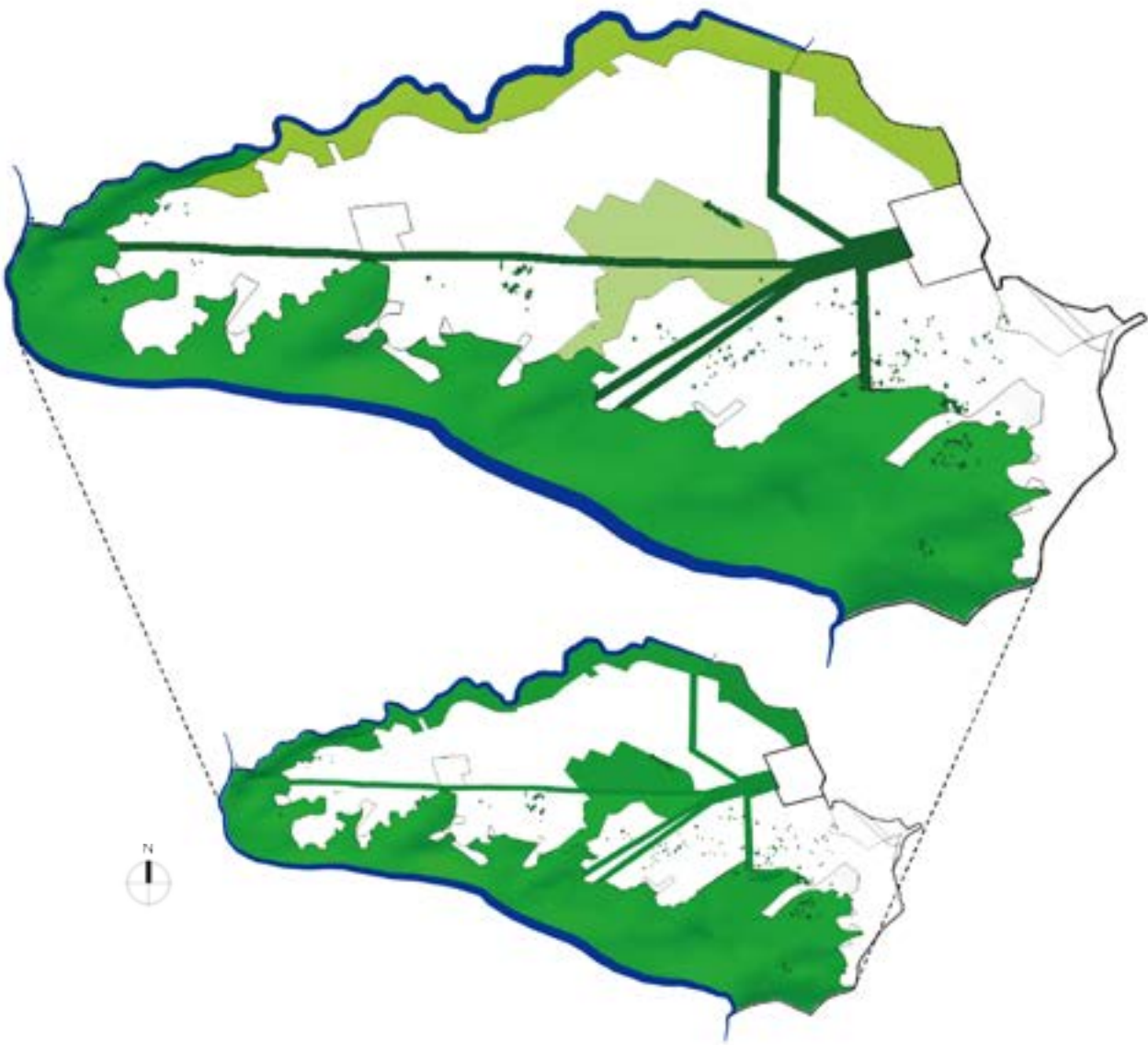
West Belconnen aims to improve the site’s ecological performance through three interconnected strategies.

Based on detailed ecological and site surveys, the project will establish the 577ha Conservation Corridor. This will provide a significant public benefit, consolidating the National Capital Plan Open Space System and provide a comprehensive open space and conservation management plan focused on retaining Box Gum Woodland and protecting the majority of the Pink Tail Worm Lizard’s habitat.

The Conservation Corridor, includes the Ginninderra Creek Corridor, creating a Green Belt around the proposed settlement.

Located along the Green Belt’s interface with the urban environment, the second strategy responds to the site’s topography and hydrology to create a series of interconnected basins and wetlands to capture, retain and in part re-use the increased stormwater runoff that will be generated by the project. This system ensures that the proposed development will not have an adverse impact on downstream environments, including the Murrumbidgee River.

Finally, West Belconnen improves the site’s ecology by not only providing for the potential retention of existing high quality trees, but through significant tree planting over time will provide additional habitat for fauna and improve air quality.



Stormwater System

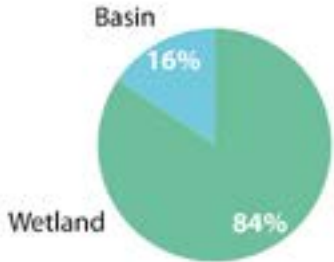
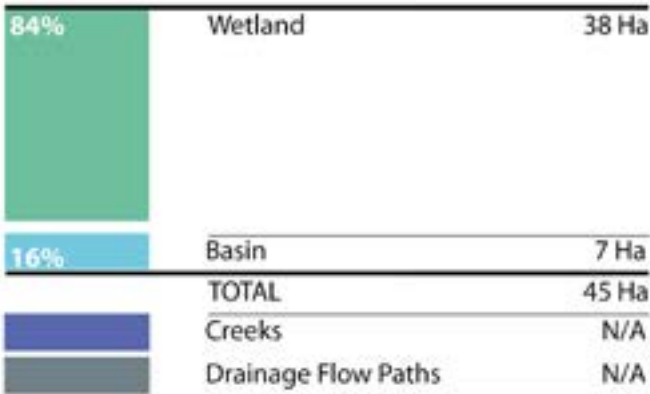
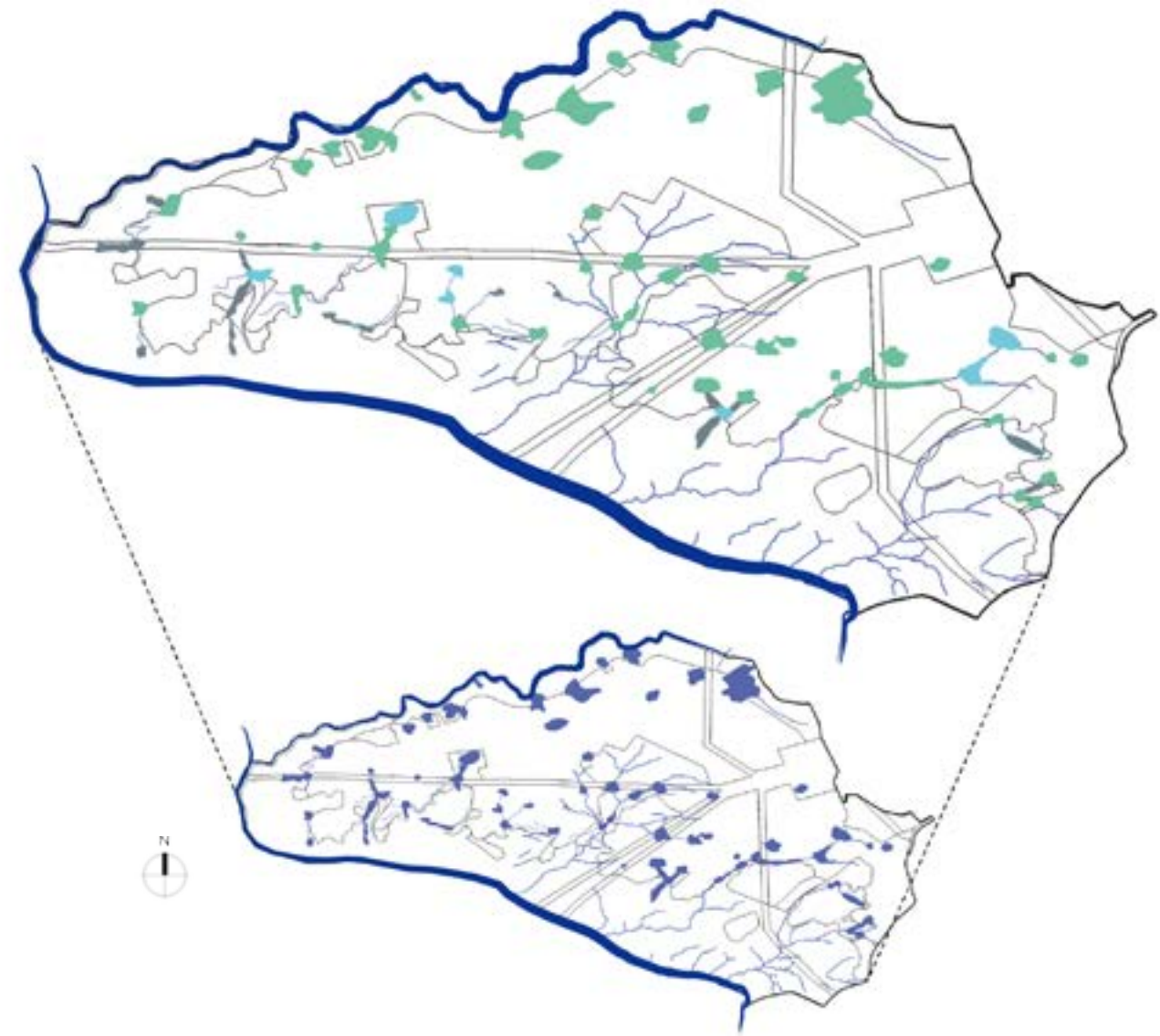
A key project objective is to ensure future development does not significantly impact the ephemeral hydrology of the Conservation Corridor or downstream water quality, particularly within the Murrumbidgee River.

In addition, and consistent with the Sustainability Vision, water has been treated as a resource, and not a waste product.

Reflecting these aspirations, a detailed analysis was undertaken of the site's landform and hydrology, which revealed nine primary ephemeral drainage lines and numerous secondary lines.

Using the natural drainage system, a comprehensive network of bioretention swales, wetlands and basins is proposed to capture, cleanse, recycle and infiltrate water on-site as well as discharging environmental flows in to the Murrumbidgee River and Ginninderra Creek.

Collectively, these measures will ensure West Belconnen will provide for groundwater recharge, flood reduction and site and regional water-quality enhancement.



7.11 Place

The Neighbourhood Unit

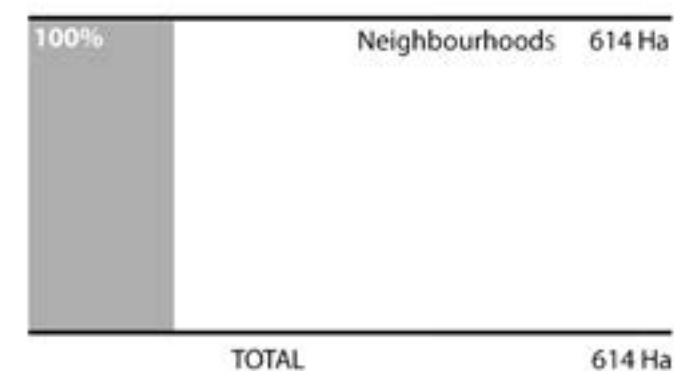
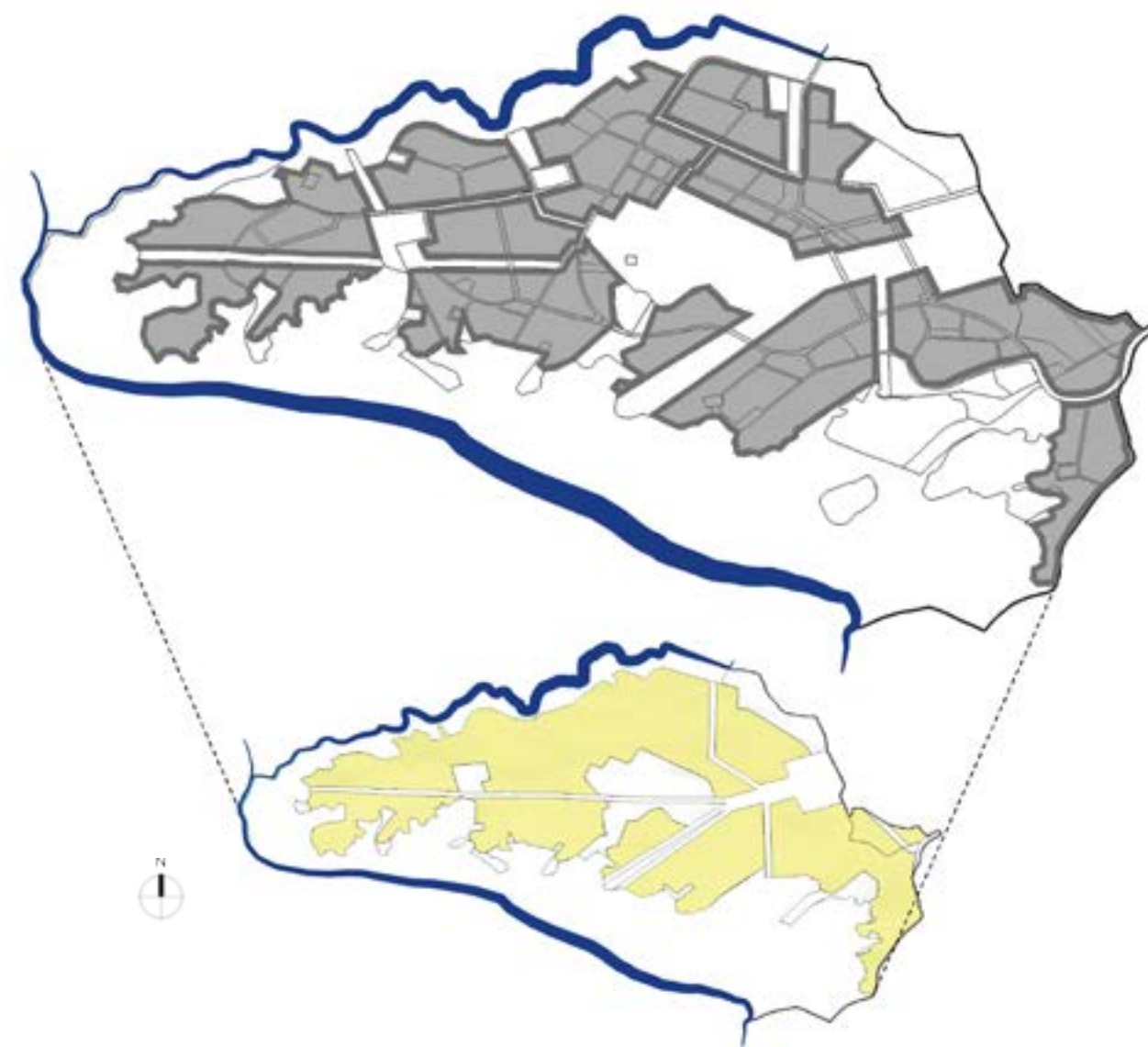
The neighbourhood unit is the fundamental human habitat and basis for creating great places which grow in value over time and can accommodate a range of lifestyle choices.

Griffin's Vision for Canberra was also informed by the neighbourhood unit on the basis that it provides the most sustainable way to design the human habitat.

West Belconnen will consist of twelve neighbourhoods underpinned by the following place attributes:-

- Contextual response to local influences, including topography, water courses and significant trees
- A diversity of housing types for a broad range of incomes
- A defined centre and edge, typically a five-to-ten minute walk
- The potential for an interconnected network of 'complete streets', designed to balance the pedestrian, cyclists, transit users and drivers
- Quality open space types located to celebrate views, the proposed storm water system and / or retain significant trees;
- Community infrastructure, with the potential to include public art to gazebos and meeting halls.

Based on the above attributes, the diagram opposite illustrates the location of the proposed neighbourhoods for West Belconnen. Typically, neighbourhoods which are free-standing, surrounded by open space or appear more organic are low to medium density suburbs. However, where neighbourhoods are clustered, such as along Parkwood Drive the opportunity exists to increase density and activity.



Land Use

A detailed demand analysis of commercial, retail and community uses was undertaken to inform the master planning of West Belconnen. (Urbis.2014)

Based on the projected resident population, approximately 10,000sqm of daily retail, four schools, a range of supporting community infrastructure, such as medical centres and the potential to incubate a range of employment generating uses over time will be required. (Elton.2014g) Given the project's focus and potential to re-use the landfill site, there is an opportunity to create a business precinct with a focus on renewable energies and sustainability.

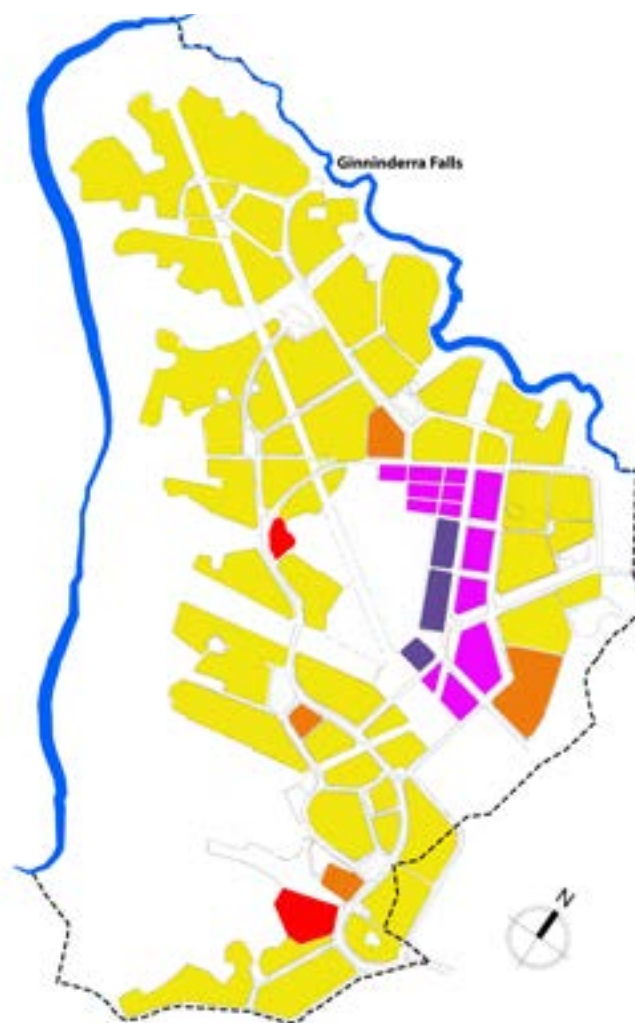
A key goal in locating these uses was to integrate them with the transport systems to promote sustainable transport, capitalise on the role of the 'movement economy' to support the viability of the businesses, with schools and other community infrastructure in locations where they could be shared amongst neighbourhoods.

The diagram opposite illustrates the overall allocation of the major uses for West Belconnen.

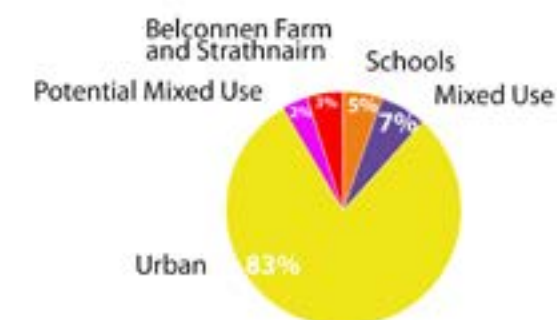
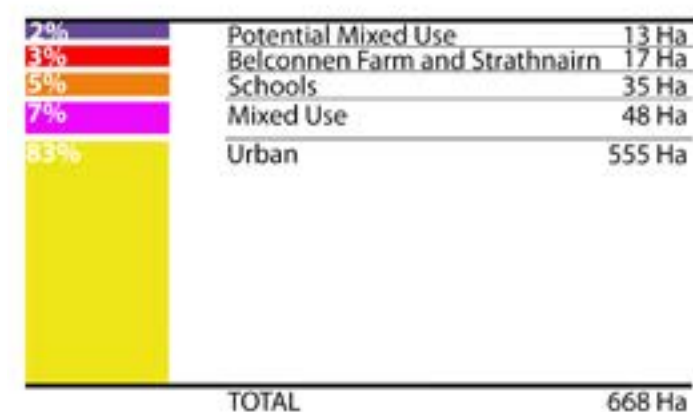
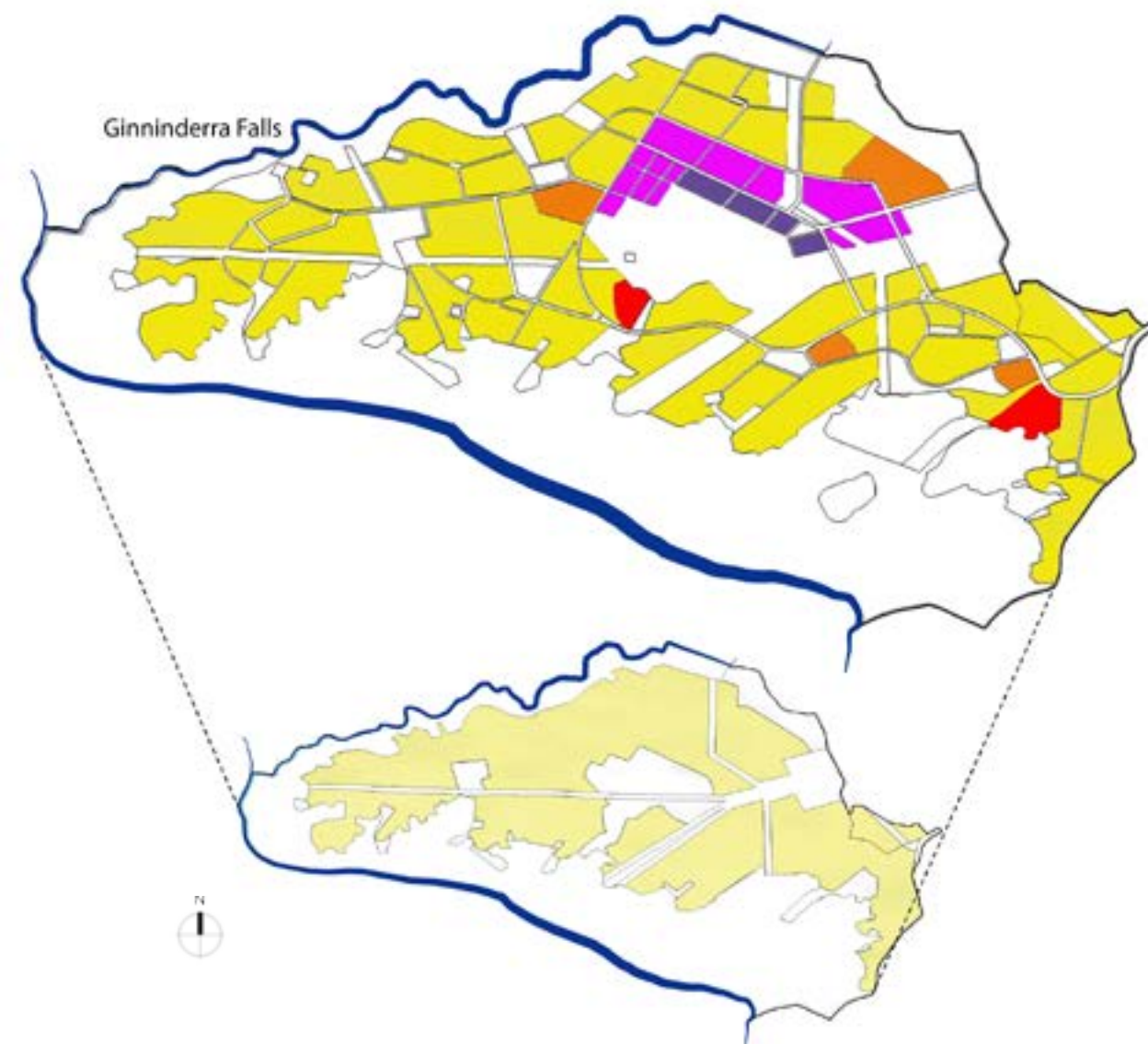
Building upon existing commercial uses and the future role of Parkwood Drive as a major transit thoroughfare, the southern half of Parkwood Drive is envisaged as the major mixed-use precinct for the project including a retail centre centrally servicing the project, new high school, community uses and a range of business opportunities. Coupled with the potential to include urban housing types, this area will create the most intense mix of uses and urban character within the project. Anchoring the northern end of the mixed use environment in NSW is a primary school.

Beyond this major mixed use area, the project also envisages the potential for two smaller, mixed use precincts where value will be created by building upon the existing places of Strathnairn and Belconnen Farm. The proposed primary school co-located with Strathnairn further strengthens its community focus.

Whilst the balance of the project is primarily residential,



the proposed neighbourhood structure anticipates and encourages other uses over time, subject to viability and community input. For example, tourist uses associated with the reopening of Ginninderra Falls may be feasible.



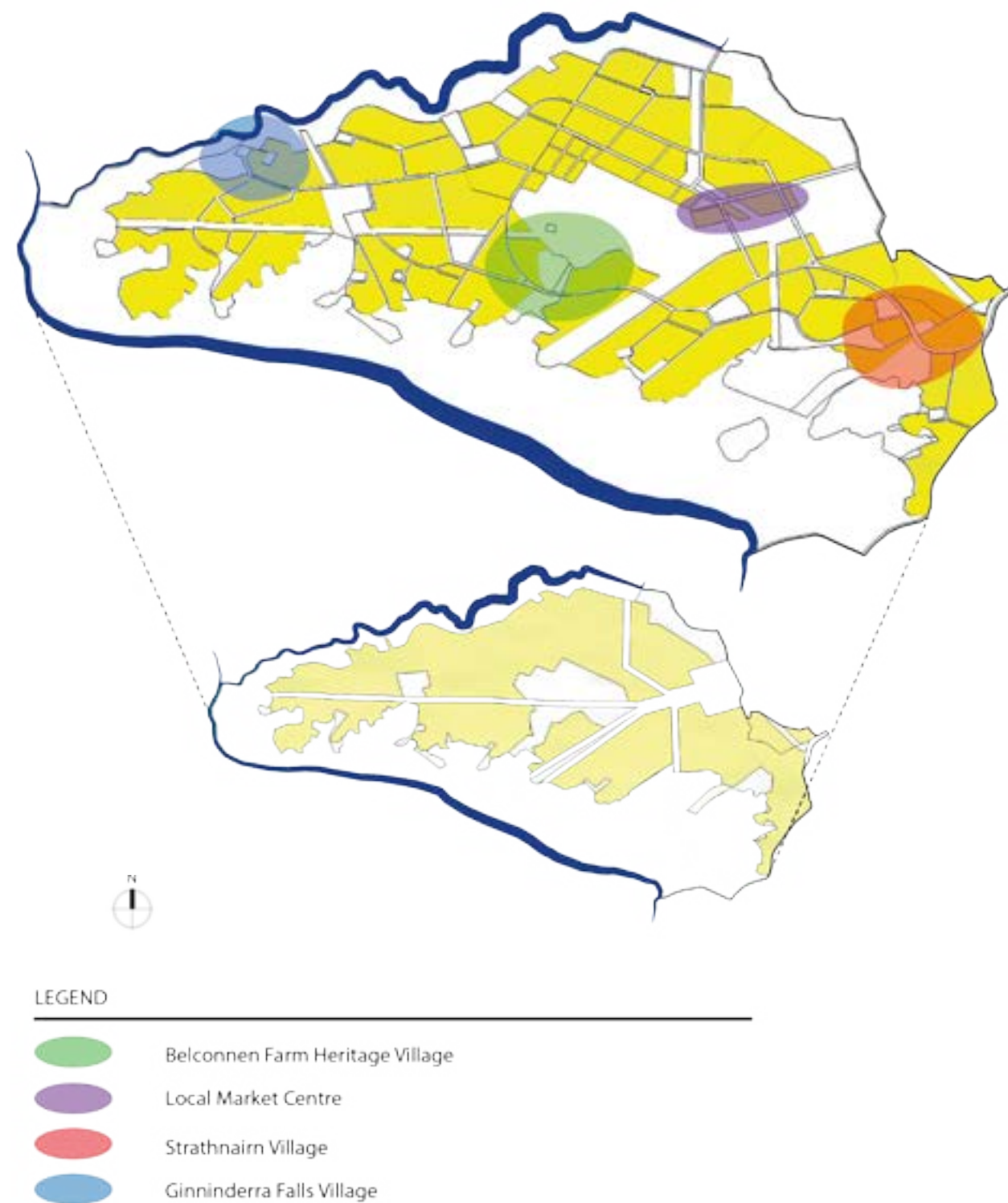
Special Places

West Belconnen will create value by creating Special Places. In addition to the diversity of recreational experiences offered within the Conservation Corridor, and underneath the transmission lines, West Belconnen envisages the creation of four Special Places: Ginninderra Falls Village, Belconnen Farm Heritage Village, Strathnairn Village, and the Local Market Village around the Parkwood Rycycling Estate.

By strengthening the public realm, public accessibility and complimentary uses at these existing places, the foundation exists to evolve a variety of distinct and authentic destinations.



West Belconnen's Special Places focus on improving the public realm, public accessibility and diversity of uses



7.12 Health

Physical Activity and Fresh Food

West Belconnen aims to foster community health by designing for physical activity and a reduced reliance on the motor vehicle. In particular, West Belconnen responds to research suggesting that walking for 20 to 30 minutes per day can significantly reduce the risk of cardiovascular disease.

The design of West Belconnen has been informed by the Heart Foundation's 'Creating Healthy Neighbourhoods' Guidelines:

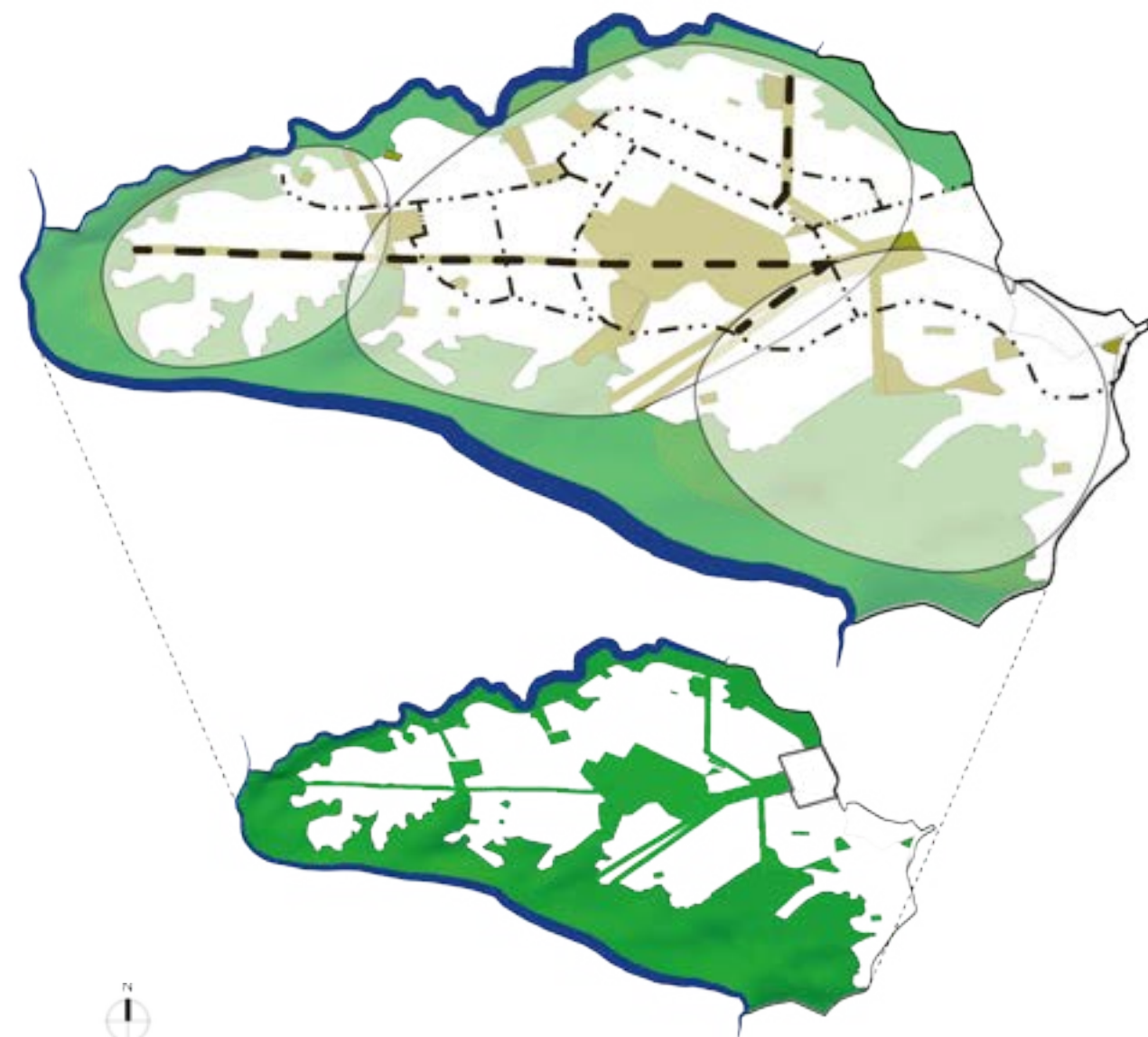
- All residents will be within a five minute walk of accessible and quality open space
- The majority of residents will be within a five-to-ten minute walk of public transport and daily needs. Using public transport contributes to daily exercise and reduces vehicle dependence
- Streets are designed to give priority to pedestrians and cyclists through a variety of techniques, ranging from footpaths, protected bike lanes and shared zones
- Open space underneath the transmission lines and shared by neighbourhoods will include rapid cycle connections to the river and creek corridors
- Providing over 10km of shared trails and paths within the river and creek corridor open space system
- Outdoor exercise stations will be incorporated into the open space system

The project also promotes a healthy lifestyle by integrating urban agriculture at all scales of the project. In addition, other benefits of urban agriculture include addressing food security, growing a local economy, and community building. The types of urban agriculture envisaged for West Belconnen include:






- Linear community gardens located within, or adjacent to, the transmission line corridors, as well as appropriate locations throughout the site.



- Neighbourhood specific community gardens integrated into public spaces
- Privately owned yard gardens in suburban areas, and roof gardens and balcony gardens in urban areas
- Centrally located 'community farm' located on the landfill site



LEGEND

- | | |
|---|----------------------|
|  | Green Belt |
|  | 3 Green Loops |
|  | Parks |
|  | Protected Bike Lanes |
|  | Rapid Cycle Route |

7.13 Economy

Land Use and Centres

The mix and intensity of land uses significantly contributes to economic prosperity and growth. At full development West Belconnen will be a self-sufficient community, particularly for daily needs. With a total population of around 30,000 people, an appropriate mix of retail, commercial and community uses will be required.

Community

West Belconnen will provide a range of social infrastructure to support the future population and benefit adjoining suburbs. Based on initial discussions with relevant government agencies, social infrastructure will include both district and local community centres, a library, 3-4 long day care centres, government and non-government schools, a range of medical centres, residential aged care, churches and licensed clubs.

Retail

Approximately 10,000m² of retail uses, including one full size supermarket, speciality retail, and cafes / restaurants is proposed. There may also be opportunities to incubate artisan and experience based retail uses.

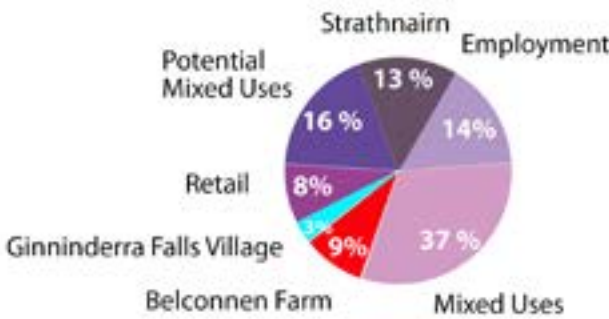
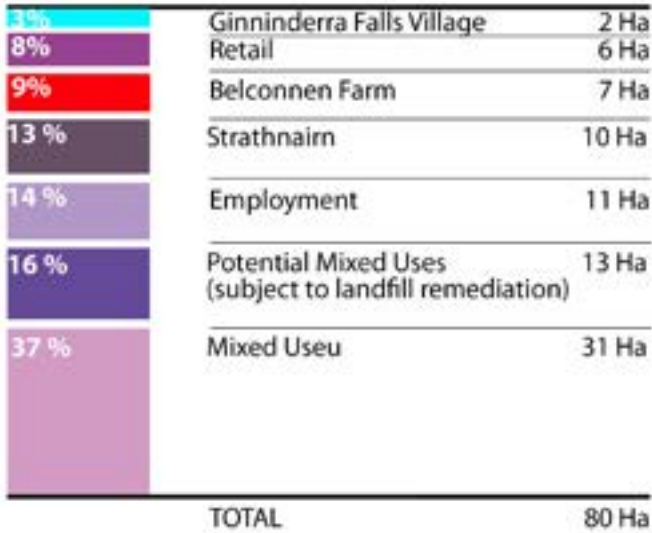
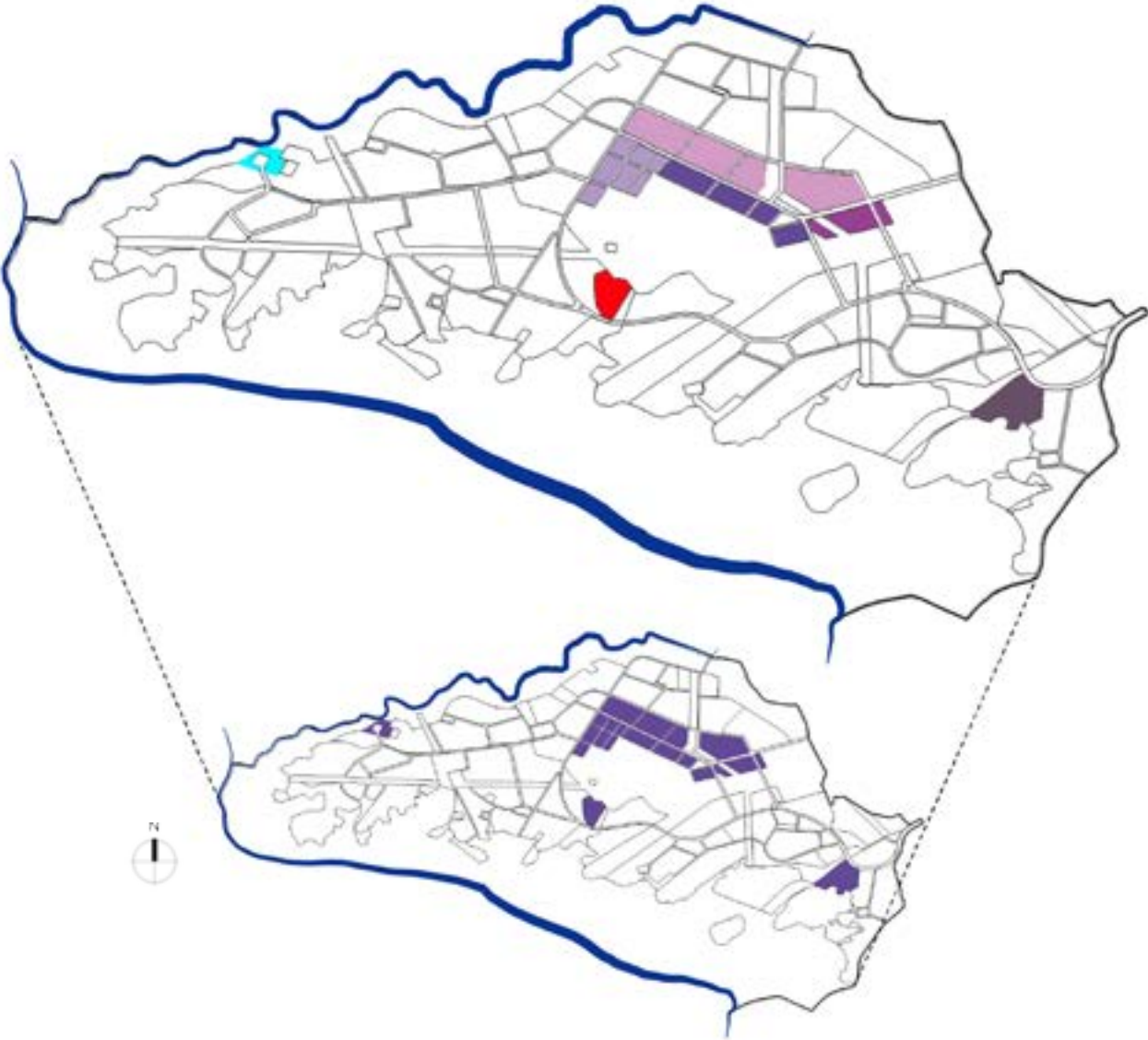
Employment

Within the Parkwood Road mixed-use zone approximately 11 ha of employment lands has been provided. It is envisaged that the existing industrial uses adjoining the landfill site will evolve over time into a hub for businesses focusing on recycling, renewable energy and the environment.



Centres

The majority of the above uses are located in the mixed use, main street based centre located on Parkwood Road and supported by public transport. In particular, the proposed high school and supermarket are located towards the southern end of Parkwood Road providing easy access for existing residents within adjoining areas. At a smaller scale, the three villages will also provide community and retail uses and some employment opportunities.



7.14 Access

Over the last four decades, the design of Canberra's suburbs has typically been based on a sparse street network where wide, high-speed vehicle thoroughfares separate suburbs. Unfortunately, this practice has resulted in these major thoroughfares being barriers to inter-suburb connectivity and walkability. Consequently, suburbs have become increasingly internalised over time resulting in additional issues, such as the poor viability of local shops and public transport.

In order to ensure West Belconnen does not perpetuate these issues, a key goal has been to limit major thoroughfares to two travel lanes where possible (excluding parking), and provide multiple routes to key destinations.

In addition, a 'complete street' approach has been adopted balancing the needs of pedestrians, cyclists, public transport users and drivers. As such, major thoroughfares (bus routes) include protected bike lanes for cyclists.

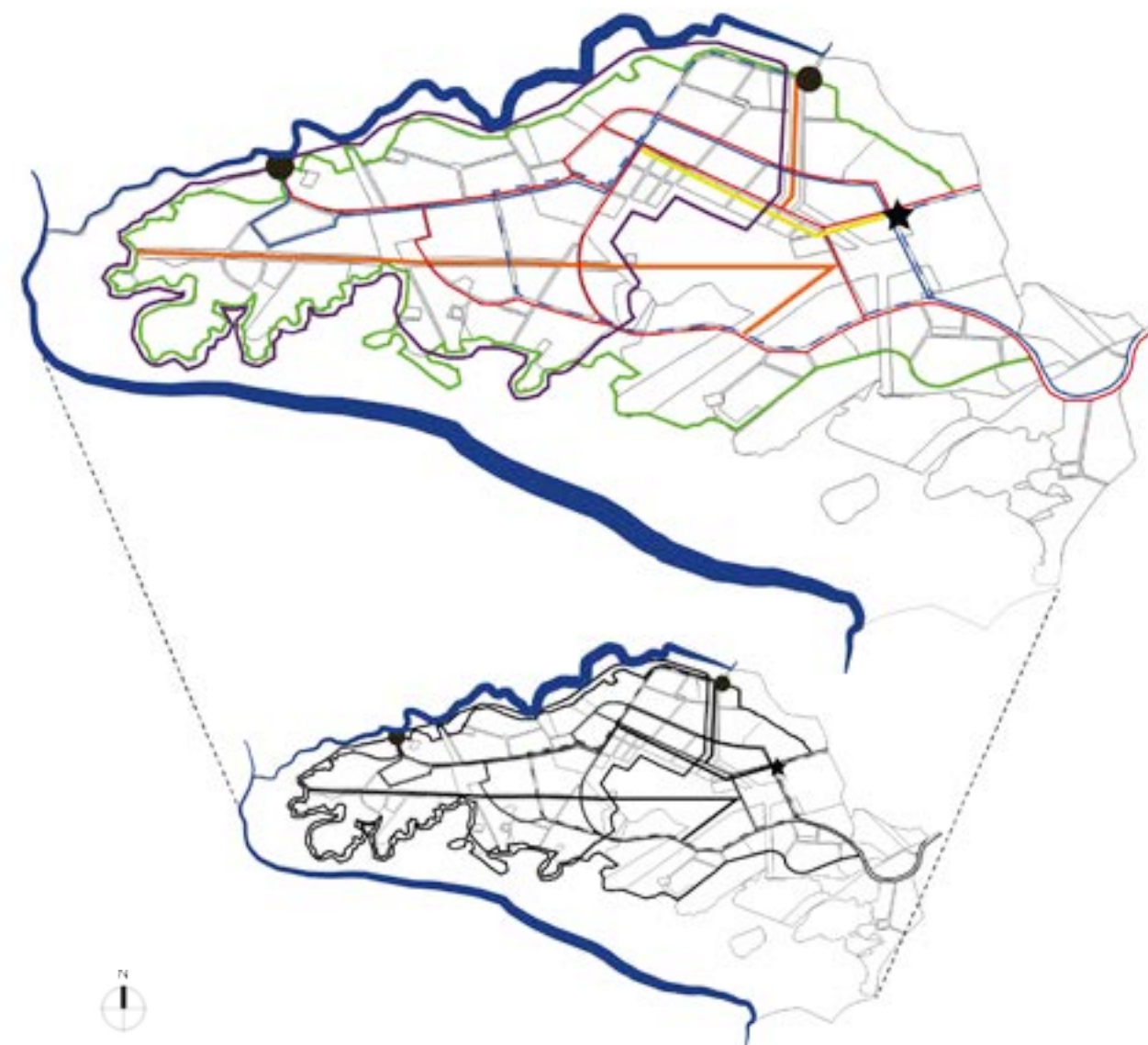
The proposed Master Plan provides multiple, 'Complete streets' to destinations.

Entering the site from either Drake Brockman Drive or Southern Cross Drive, the thoroughfare network splits into parallel routes. The opportunity to complete Ginninderra Drive provides the potential for another major entry into the site. Based on AECOM's modelling, the majority of these routes are typically two travel lanes (excluding on-street parking). (Aecom.2014a)

In designing the trajectory of the major thoroughfares, key influences which have been taken into account include topography, drainage lines, views, significant trees, the ACT/NSW border, and the location of land uses benefiting from major thoroughfare proximity, including mixed-use retail, employment, schools and district playing fields.



Further, given these thoroughfares establish a series of concentric loops connecting the extension of Drake Brockman Drive to Parkwood Road deep into the site, the delivery of major thoroughfares is integrated with the project's staging.

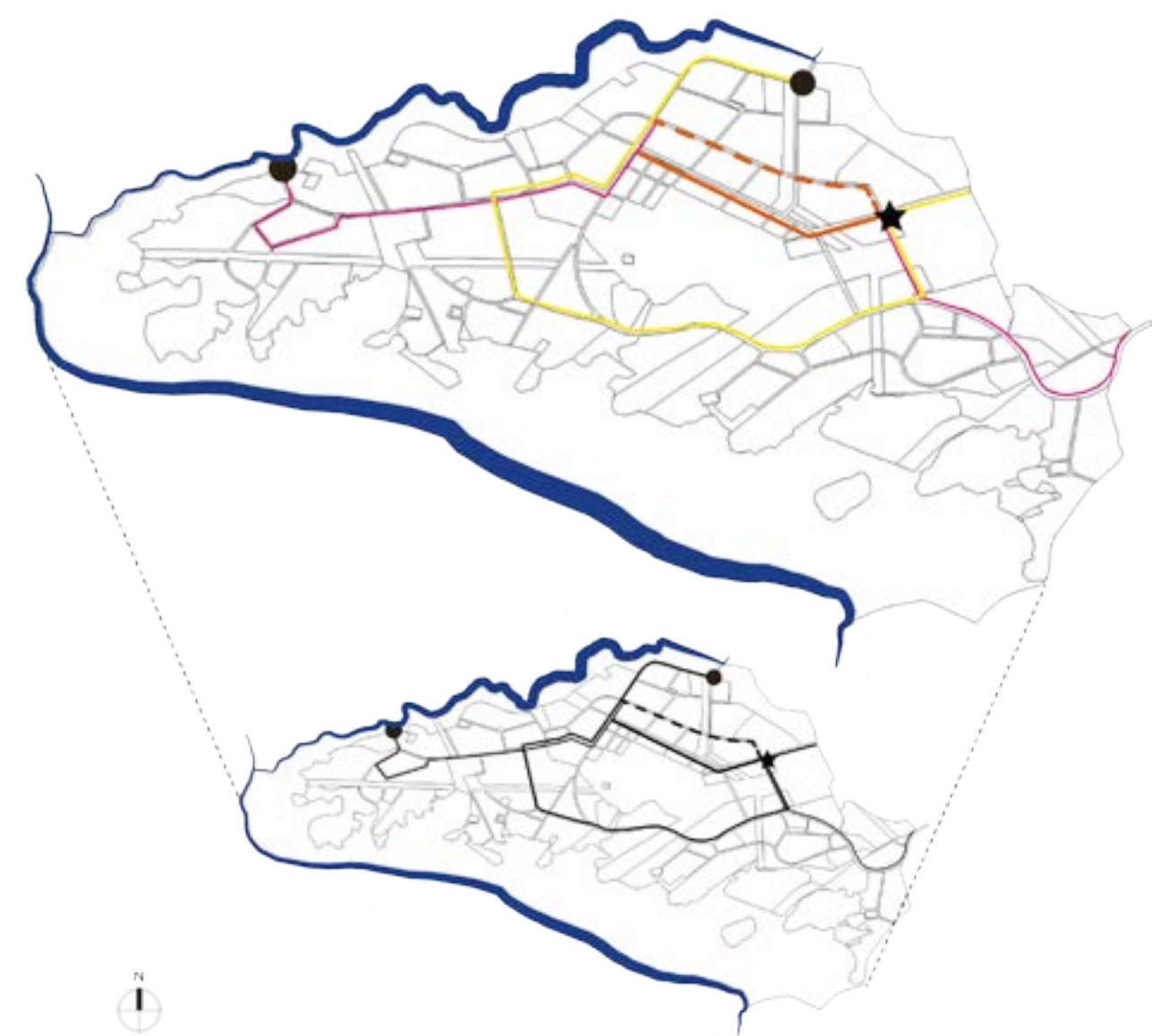


LEGEND		Km
●	Bus Terminus	-
★	Market Centre Bus Stop	-
—	Bus Routes	15.5
—	Short to Medium Term Market Centre Link	1.2
—	Protected Bike Lanes	15.0
—	Rapid Cycle Route	5.4
—	Shared Paths/Trails	20.5
—	Equestrian Loop Trail	14.8

Public Transport

West Belconnen provides twelve, transit-ready neighbourhoods serviced by two key bus routes. (MRC.2014)

The majority of residents will be within a five-minute walk of bus stops centrally located at neighbourhood centres, parks, schools and other destinations. By being integrated into a high quality public domain, bus stops are attractive, sociable and will be viewed as a positive experience.

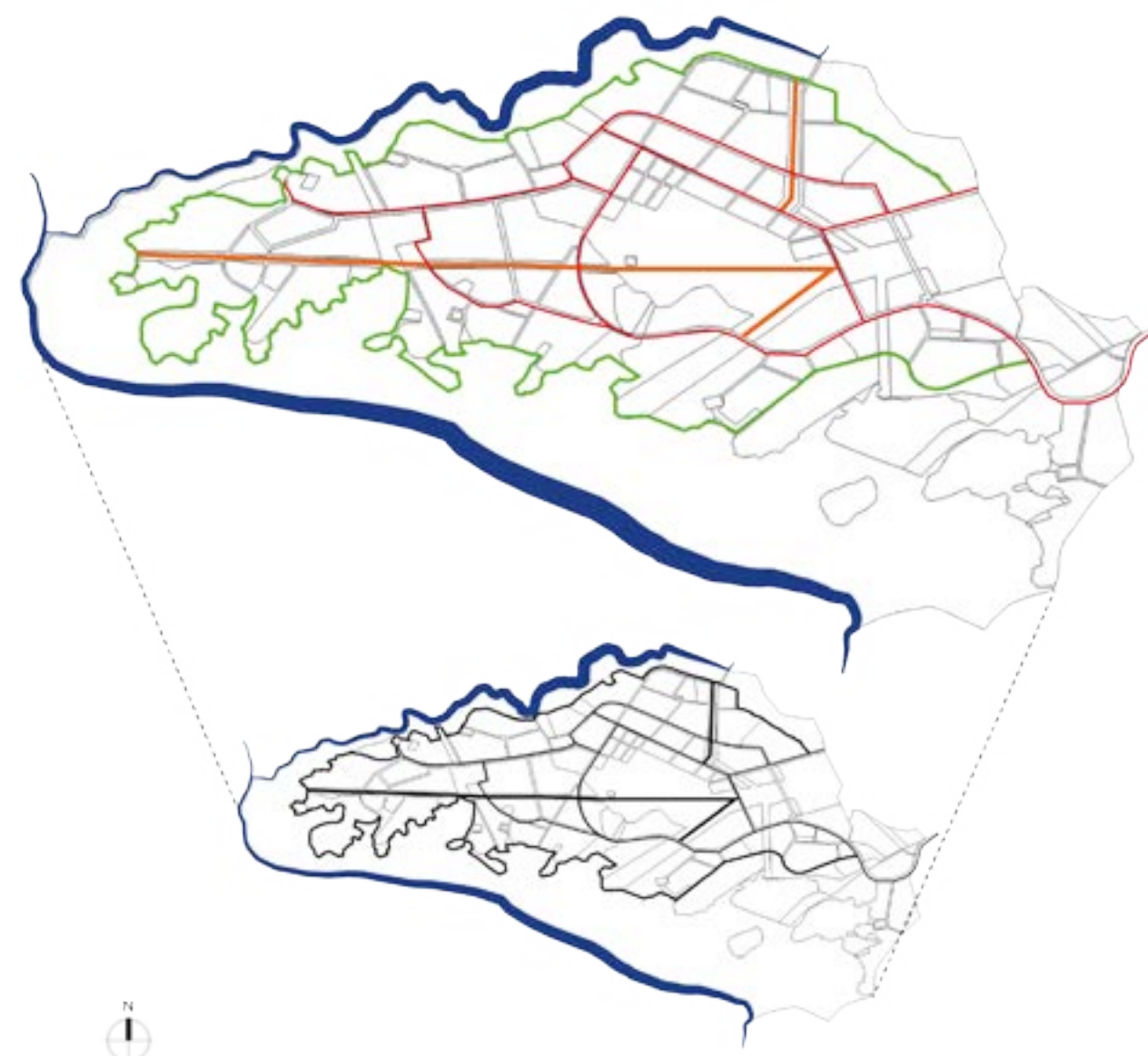


LEGEND		Km
●	Bus Terminus	-
★	Market Centre Bus Stop	-
— (Yellow)	Drake Brockman Drive Bus Route	7.6
— (Pink)	Southern Cross Drive Bus Route	7.1
— (Orange)	Short to Medium Term Market Centre Link	1.2
- - - (Orange)	Long Term Market Centre Link	1.1

Bicycle Network

West Belconnen aims to capitalise on Canberra's success as a cycling city by providing a comprehensive, urban cycling system. Whilst a comprehensive overview of the cycle network is outlined in the report by the project's transport planners MR Cagney Pty Ltd, its key attributes include:

- On road protected bike lanes on major boulevards and avenues (i.e. collector roads)
- Rapid cycle paths along transmission line corridors to provide safe and convenient connections from the edges of neighbourhoods to the major open space systems and other features of the project
- Shared cycle paths / trails appropriately located within the river and creek corridors to provide opportunities for recreational cycling
- The designation of key local streets as 'shared streets' connecting residents within neighbourhoods to other parts of the bicycle network



LEGEND		Km
—	On Road Protected Bike Lanes	15.0
—	Rapid Cycle Route	5.4
—	Shared Paths/Trails	20.5

7.15 Learning

Formal and Informal Education

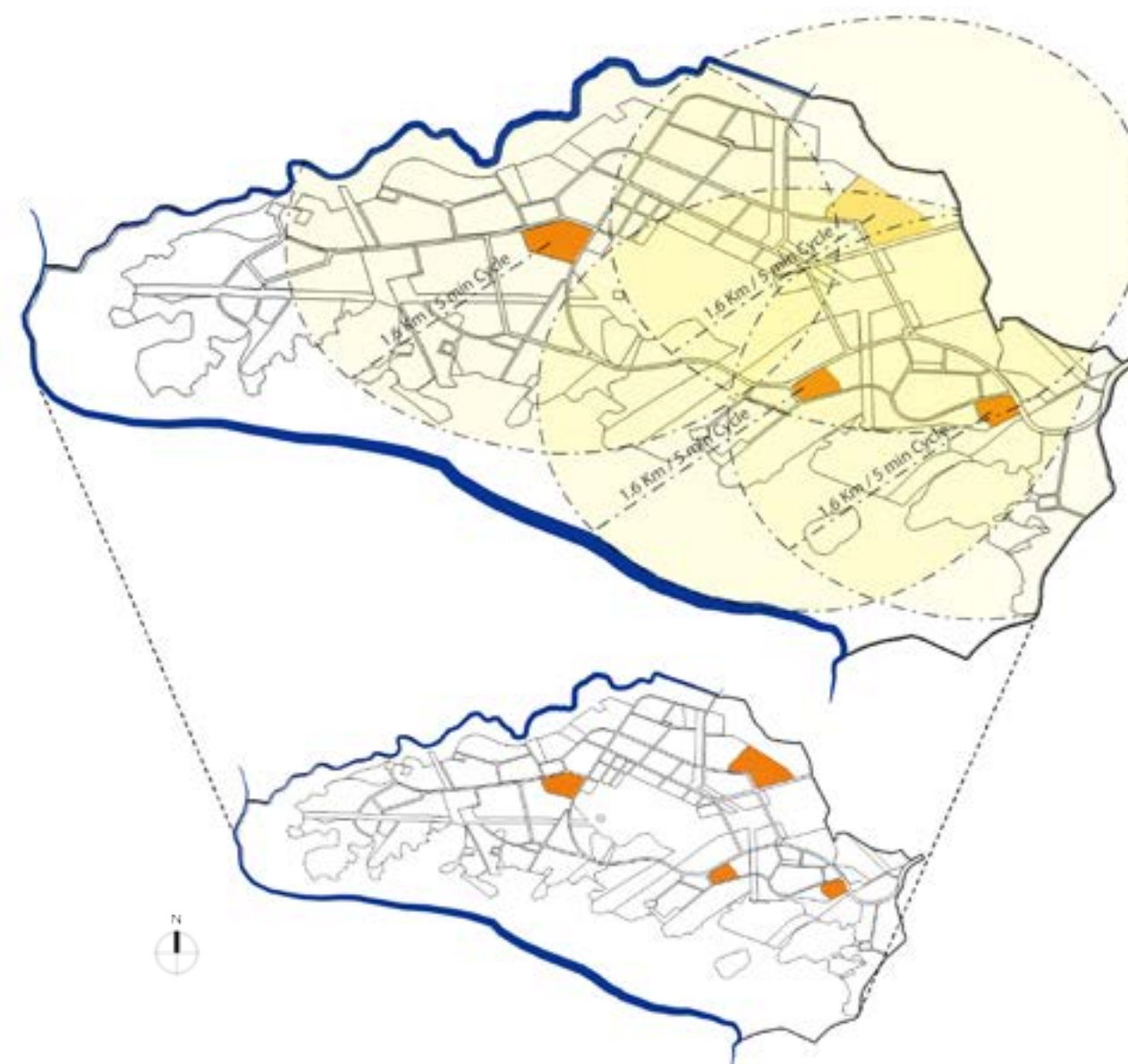
Four possible schools are proposed, including three primary and one P-10 high school are proposed to meet the demands of the future population. All schools include ovals which can be shared with the broader community.

In order to optimise sustainable transport to schools, reduce school generated vehicle trips, and capitalise on the broader community benefits of schools being integrated into walkable neighbourhoods, the location of the schools is based on four key criteria being:

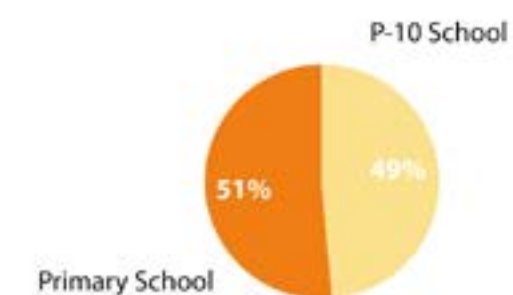
- Flat land
- Located on public bus routes
- Some located close to the project's entry, thereby providing the opportunity for children living in the adjoining suburbs to benefit from these schools
- Located to optimise the number of students and teachers who live within a five-to-ten minute cycle catchment (approximately 1.2 to 2.4km)
- Co-located with other commercial / retail or community uses to strengthen the long term viability of these centres and facilitate the sharing of community infrastructure, such as halls and meeting rooms
- Located with road access on 2 or 3 sides to facilitate separation of car and bus access

In addition to the formal education system, West Belconnen also envisages life long learning opportunities via a number of initiatives including:

- Environmental stewardship and awareness programs related to the Murrumbidgee River Corridor
- Skill sharing and capacity building programs in urban agriculture arranged through the Conservation Corridor Management Trust;
- Training for the emerging ecological industries and clean industries.



49%	P-10 School	17Ha
51%	Primary School	18 Ha
	TOTAL	35 Ha



7.16 Major Open Space System

Beyond improving the site's ecological performance, the proposed river and creek corridors create the opportunity to establish a continuous Green Belt around the settlement's perimeter.

Whilst respecting environmental conservation strategies, the Green Belt provides the opportunity for controlled public access with people being able to enjoy a range of recreation experiences including walking and cycling trails. In particular, the opportunity to reopen access to Ginninderra Falls and provide a new picnic area and camp ground on the foreshore of the Murrumbidgee River will benefit all of Canberra.

Responding to the landform and other key features of the corridor, a proposed trail network is designed to serve the widest range of visitors of all ages and of all levels of physical ability. Highlights of the trail network will include appropriate public access to parts of Ginninderra Falls and Murrumbidgee River. Further detail on the proposed trail network is outlined in the report by the project's landscape architect McGregor Coxall. (McGC.2014)

From this main trail, a series of 'low impact' informal paths break away, giving visitors an opportunity to discover the river and creek corridors in solitude.

In addition, a substantial trail along the length of the corridor at or near the water is envisaged.

Connecting into the Green Belt is a series of other open spaces, including the Belconnen Farmhouse, drainage lines, landfill and transmission lines.

When considered holistically, this secondary system of open space intersecting with the Green Belt creates three identifiable 'green loops' containing neighbourhood clusters. Within an easy walk or bike ride of residents living within a cluster, the green loops connect residents to a variety of recreation experiences close to where they live. Recreation activities within each loop may include urban agriculture, environmental stewardship, walking and cycling



trails, BBQ and picnicking facilities through to outdoor exercise stations to improve health. The Master Plan also provides horse access along a realigned Bicentennial National Trail.



LEGEND

- Green Belt
- 3 Green Loops
- Parks
- Bicentennial National Trail (BNT)

7.17 Housing Choice and Diversity

The character of West Belconnen's neighbourhoods will vary based on their density in response to location within the overall settlement and topography.

The draft Precinct Code for West Belconnen includes delineation and description of the desired character precinct within the site.

In particular, the neighbourhoods along the major thoroughfare of Parkwood Drive where land is relatively flat will be the most urban in character. These neighbourhoods will include a range of urban housing types including apartments, live/work buildings, terraces and cottages.

Densities within these urban neighbourhoods will generally range from 35-60dw/ha up to 80-100dw/ha within the higher density, mixed-use zone envisaged for Parkwood Road. This density is a net density calculation after all open space, roads and non-residential land has been deducted.

The balance of the neighbourhoods will be a graduation of 'sub-urban character' to provide an appropriate transition to existing suburbs and respond to steeper topography.

Whilst being sub-urban in character, these neighbourhoods also provide a diverse range of housing types including opportunities for terraces, cottages, and traditional family house.

Densities within these suburban neighbourhoods generally range from 10-20dw/ha to 25-45dw/ha.

The following benefits arise from the inclusion of a diverse range of housing types within West Belconnen's neighbourhoods:

- Strong social networks and bonds depend on a diversity of incomes and ages.

- Smaller lot affordable housing provides an optimal social environment when it is distributed throughout neighbourhoods, rather than being concentrated in specific areas.
- Life-cycle housing allows people to move within their neighbourhood without leaving established social networks.
- A diversity of housing types can quickly respond to market demand.



Development Patterns

As a noted previously, West Belconnen comprises twelve neighbourhoods with five character zones being Market Centre, Village, Village Edge, Garden Suburbs and Eco Living.

As discussed, a key determinant differentiating the character of these Neighbourhood Types is density.

Within neighbourhoods, density is a response to different slope and orientation conditions, as well as being the fundamental ingredient to create different character zones within neighbourhoods to accommodate a range of lifestyle choices and life long communities.

The proposed Development Patterns and Character Zones are outlined below and overpage.

In response to Canberra’s climate, there has been a focus on maximising solar access in planning regulations by restricting development on south facing land and on slope above 10 percent. Further, regulations largely prohibit street orientation deviating off the cardinal grid.

As a result, existing planning regulations have effectively created four permitted development patterns with additional restrictions based on slope and aspect.

Whilst maximising solar access is a valid objective, there has been significant industry concern in recent years in relation to the difficulty of implementing these controls on a site-by-site basis.

A detailed site analysis has also revealed that while large parts of the site enjoy relatively flat topography and a generally northely aspect, approximately 28% (234ha) of the developable area has a slope in excess of 10% and approximately 20% (160ha) of the developable area is south facing. Complying with existing controls in these particular circumstances whilst still creating a quality streetscape is extremely difficult and in some cases almost impossible.

In particular, a considered design response to the site’s slope suggests aligning streets perpendicular to the contours would result in improved streetscapes, good block access and avoid creating streets with the less desirable low side of the street as well as assisting with WSUD.

In addition, the place-led approach to designing West Belconnen identified a number of important views to connect people to the surrounding landscape, thereby continuing the legacy of Griffin. Although these views are not typically aligned on a cardinal orientation, their importance has been recognised through the design process by major stakeholders and the community.

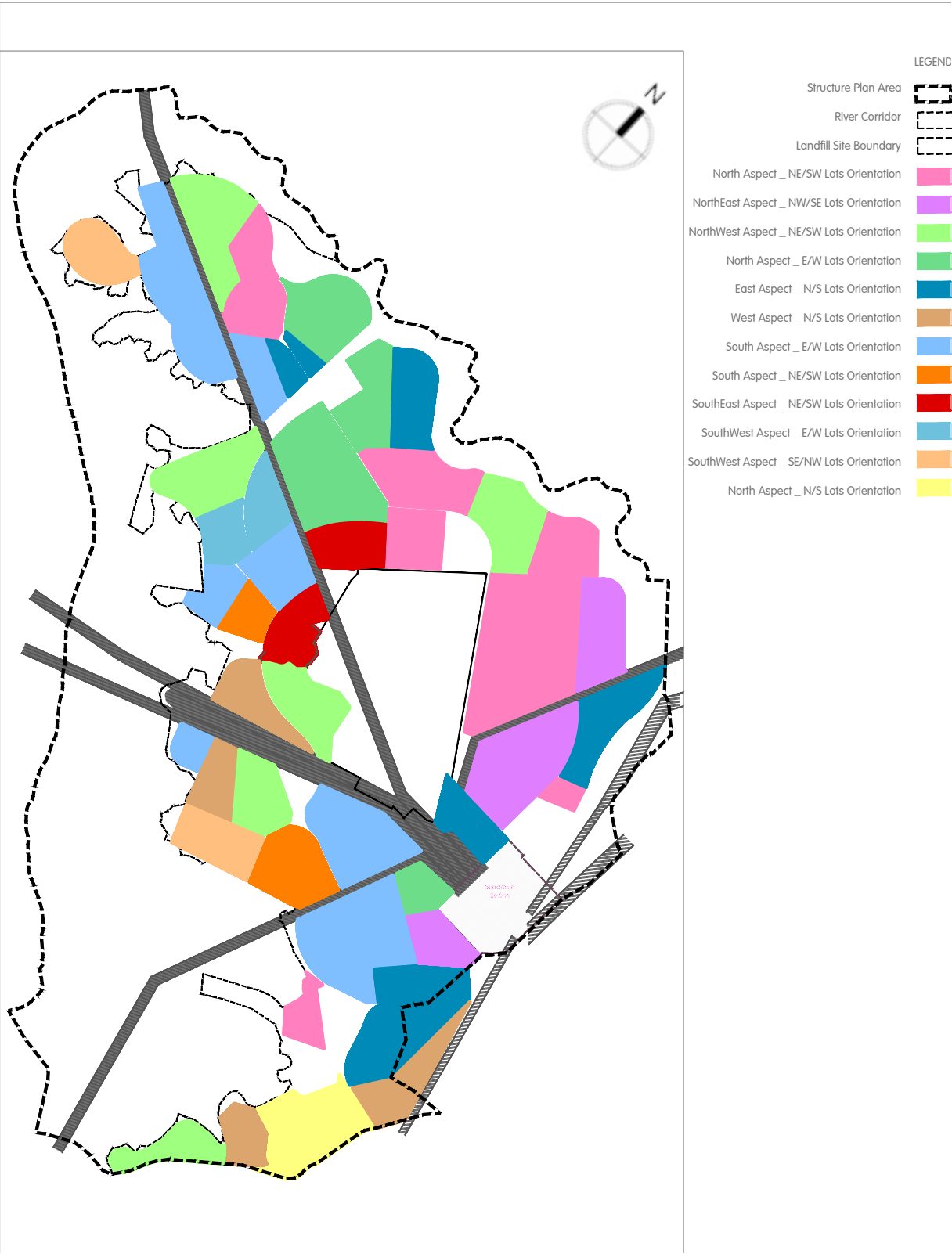
Based on the above and in order to balance solar amenity with a number of other important project specific facts, the West Belconnen design process has identified 12 different development patterns in terms of lot orientation and slope.

Integrating these elements into twelve recurring patterns, a range of building types appropriate for West Belconnen as been developed. At the date of submission, the Project Team as prepared a draft Precinct Code, incorporating proposed amendments to the applicable Development Codes (as advised by ACTPLA).

However it is hope the Project Team, working with ACTPLA/ESDD, will develop a ‘site wide development solution’, to give confidence to both Government and prospective purchasers that quality design outcomes, aligned with broader project and government objectives will be delivered.

In addition, specific building type controls responding to solar amenity and slope to provide increased amenity, will also play a significant role in reinforcing the different character zones.

The more authentic a character zone, the more successful it is for its target community.



Development Patterns

BUILDING TYPOLOGY TESTING

Significant building typology testing has been undertaken for West Belconnen. The following pages demonstrate the methodology and approach taken and the relationship of the proposed building typologies to the recurring development patterns identified at West Belconnen.

The following pages are only a small sample of the extensive testing that has been undertaken. Robert Day and Riverview look forward to ongoing discussions with ACTPLA where further detailed demonstrations of testing and key findings will inform a tailored, site specific Precinct Code for West Belconnen. For the purpose of this demonstration, we have identified a kit of parts that have been tested and varied in isolation and/ or together to achieve the objectives for the dwelling.

Front Fence



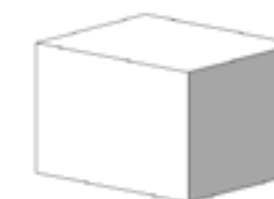
Habitable Room



Principle Private Open Space



Principle Building



Lot



The lot and dwelling can be deconstructed as a kit of parts that can be moved around to achieve the desired outcomes.



Development Patterns

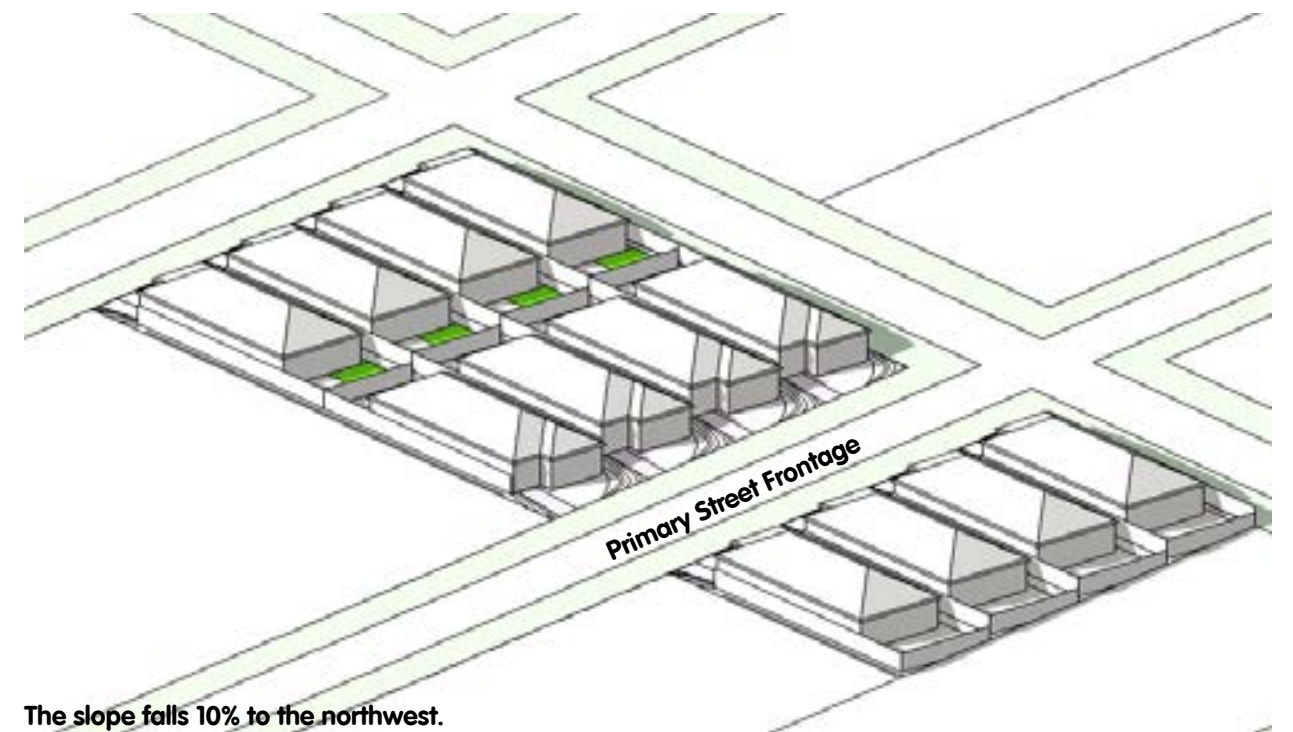
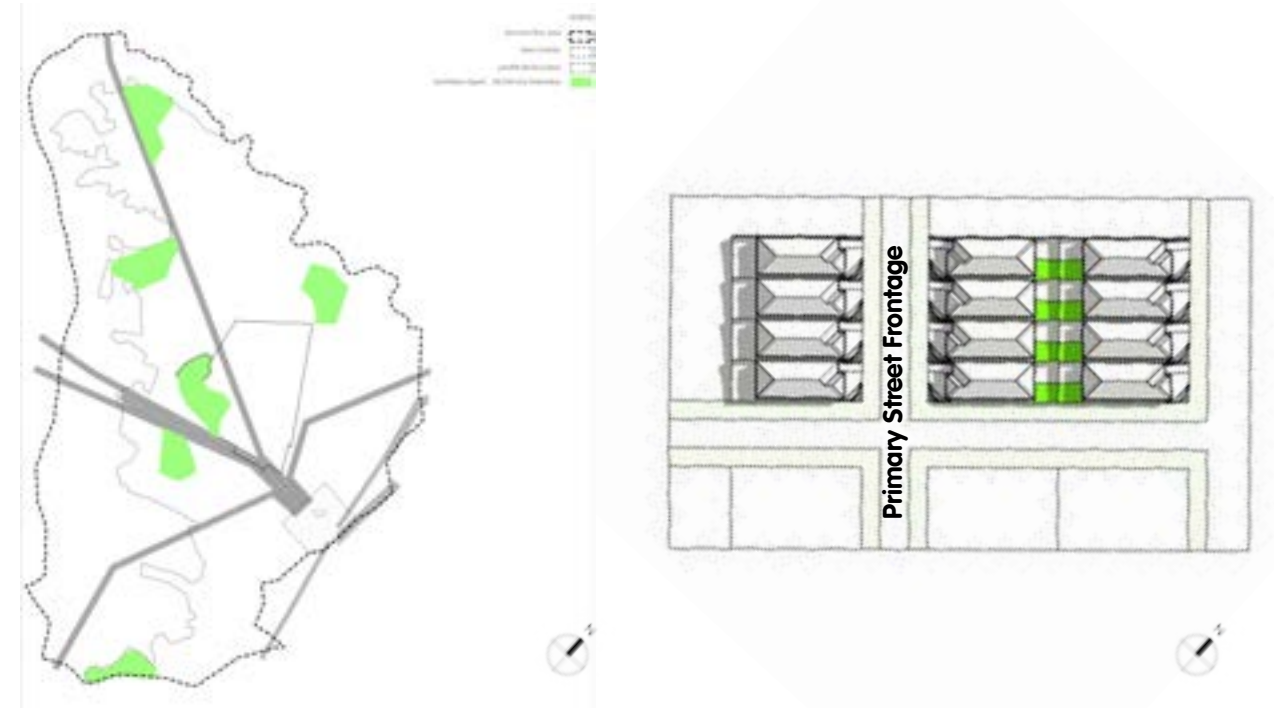
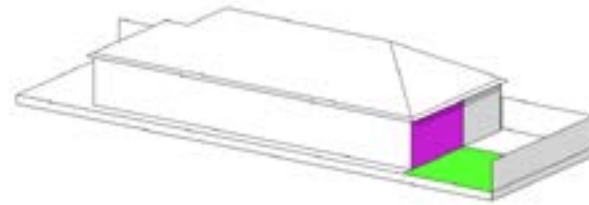
BUILDING TYPOLOGY TESTING

The cottage typology on a 10m wide lot is highly marketable product achieving a required price point at West Belconnen. Under the ACT Codes, this typology is not permitted where the following combination of site characteristics occur:

- Northwest aspect
- Slope greater than 10%
- Lots with a street bearing address towards the northeast and southwest

The combination of this unique aspect and orientation characteristic comprises 88 ha of the developable area (opposite), therefore it is important for us to understand how the cottage typology can be accommodated within this significant portion of the site.

Primary Street Frontage



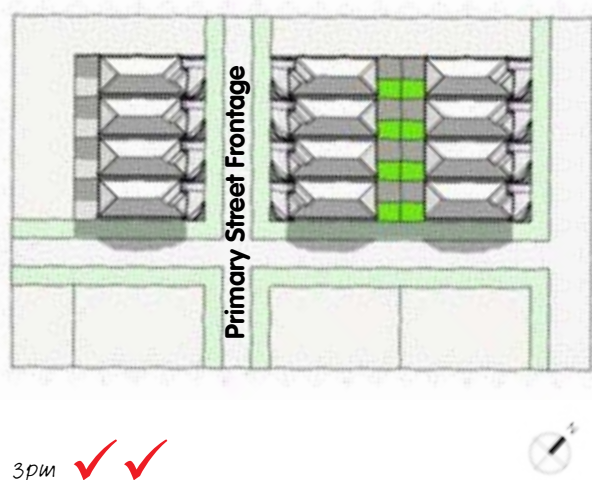
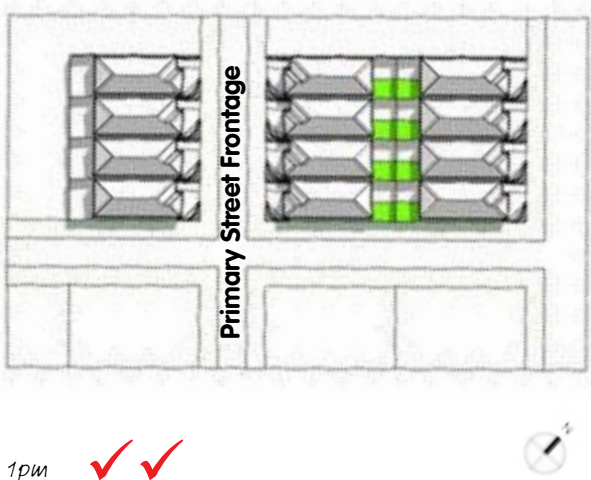
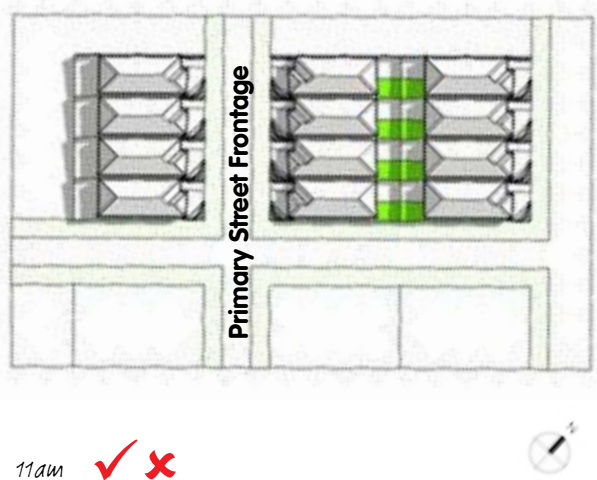
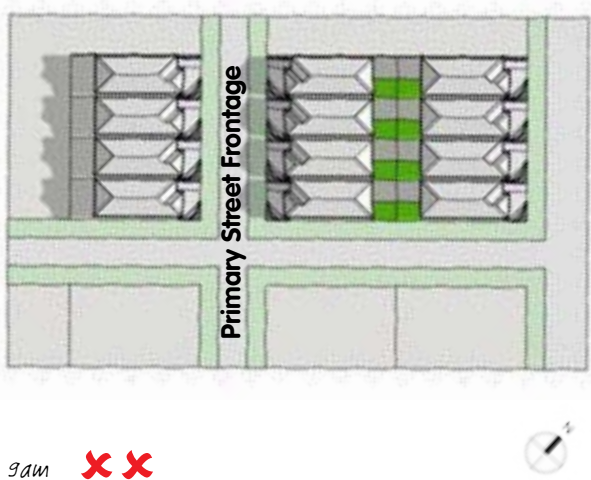
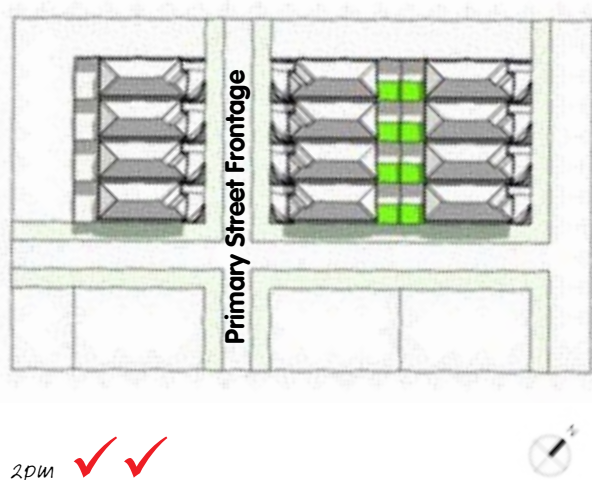
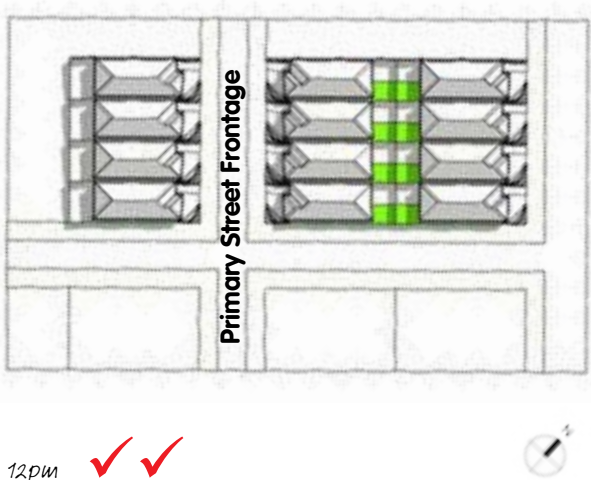
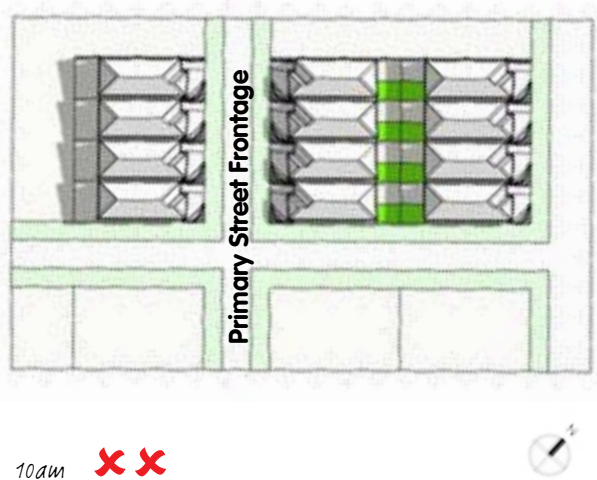
The slope falls 10% to the northwest.

Development Patterns

BUILDING TYPOLOGY TESTING

Testing the building typologies for solar access was an important step in demonstrating the ability for typologies to meet ACTPPLA's objectives. The following solar studies test the conventional requirement of 3 hours of direct sunlight per day on 50% of the required area between the hours of 9am and 3pm on the winter solstice.

The solar access assessment is conveyed with 'ticks' or 'crosses' to communicate compliance with the above standard for each side of the street.



Development Patterns

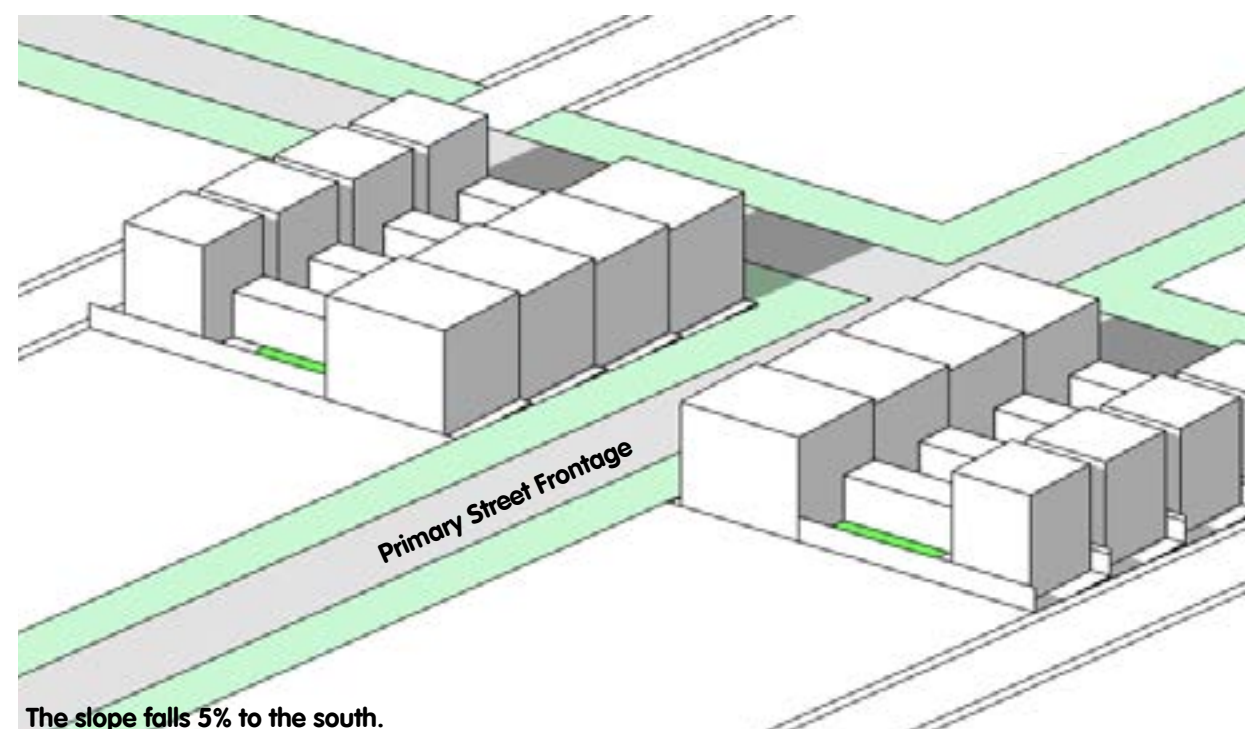
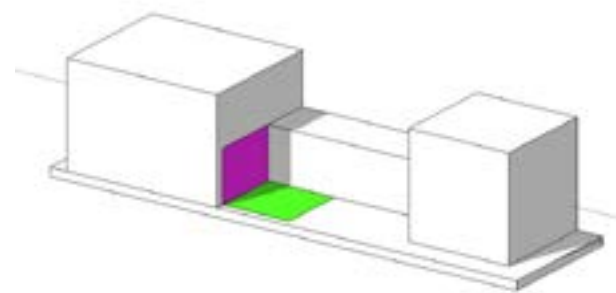
BUILDING TYPOLOGY TESTING

The delivery of compact lots and zero lot line dwellings, such as terraces, is critical to meeting the West Belconnen objectives for affordability and achieved the desired range of character zones. This is also one of the more challenging building typologies because typically there is a tendency to apply conventional suburban lot controls for solar access and principal private open space to an urban dwelling and character zone.

A large terrace with a 7.5m frontage, 2 storey principal building that is accessed via a rear lane with a studio above the garage has been tested where the following combination of site characteristics occur:

- Southern aspect
- Slope of 5%
- Lots with a street bearing address towards the east and west

Primary Street Frontage



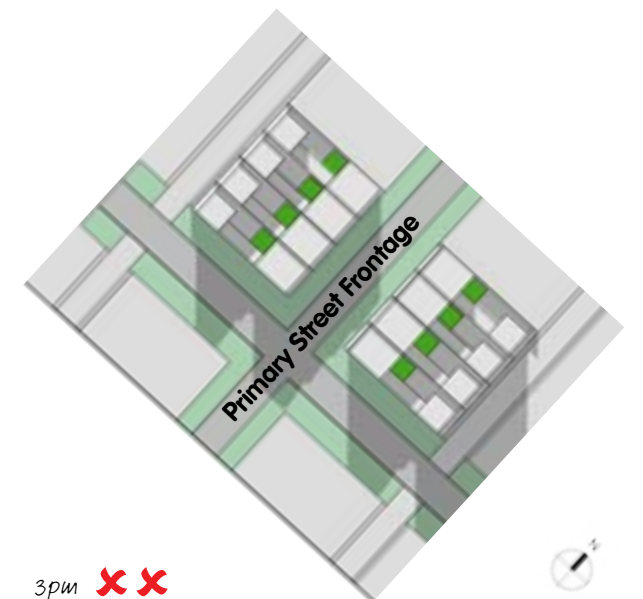
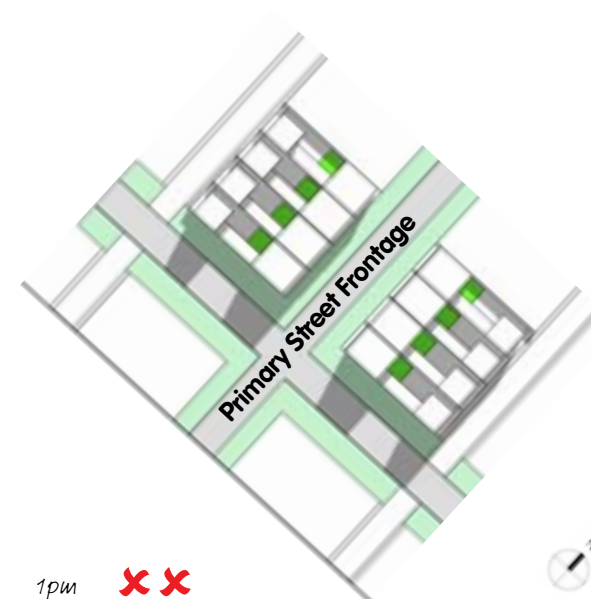
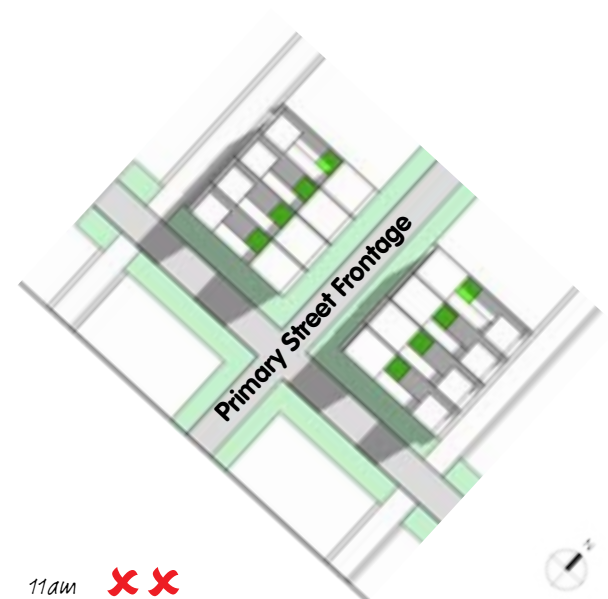
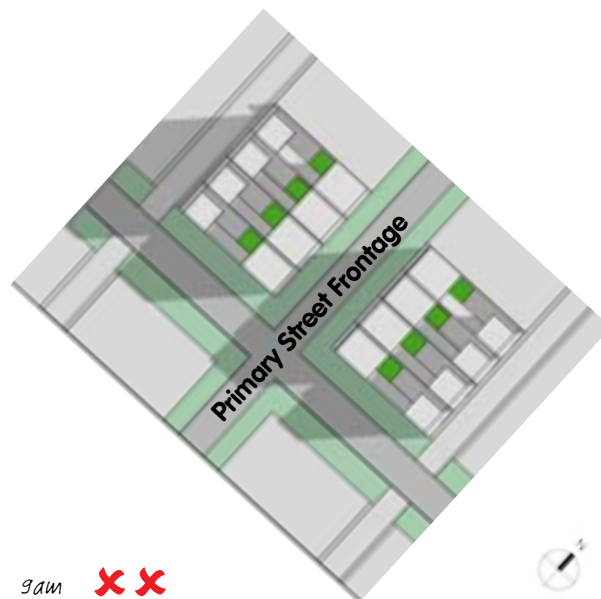
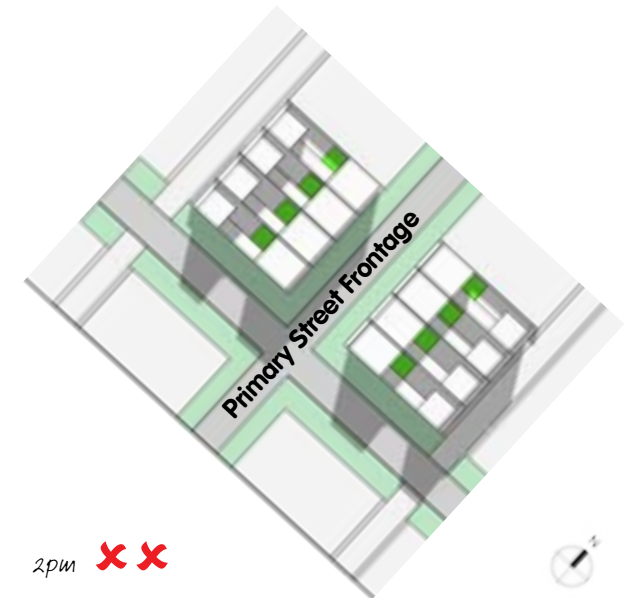
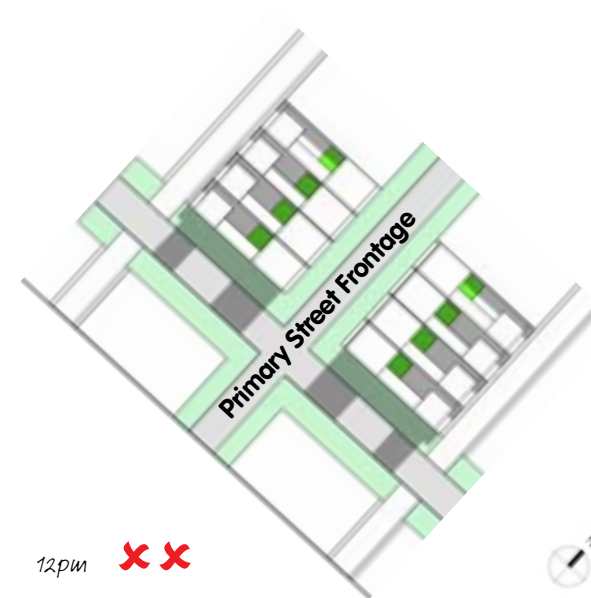
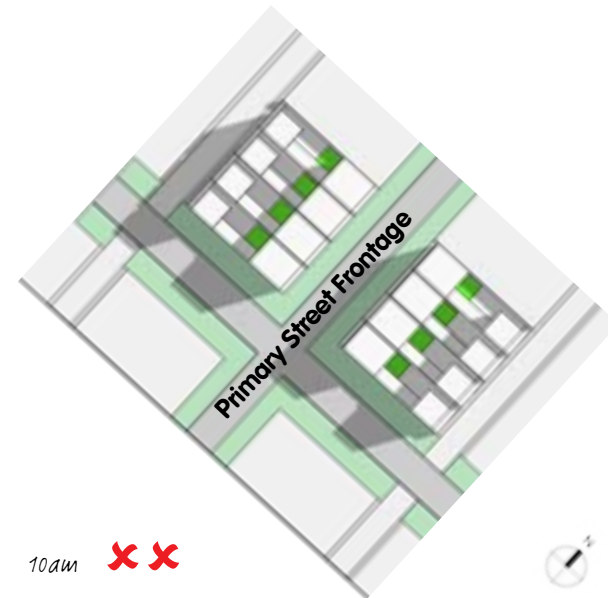
The slope falls 5% to the south.

Development Patterns

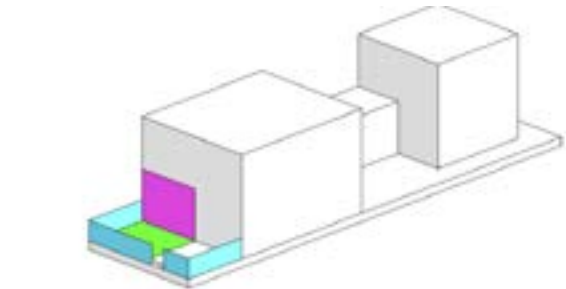
BUILDING TYPOLOGY TESTING

The following solar studies test the conventional requirement of 3 hours of direct sunlight per day on 50% of the required area between the hours of 9am and 3pm on the winter solstice assuming the traditional dwelling layout and configuration and principal private open space location for a terrace.

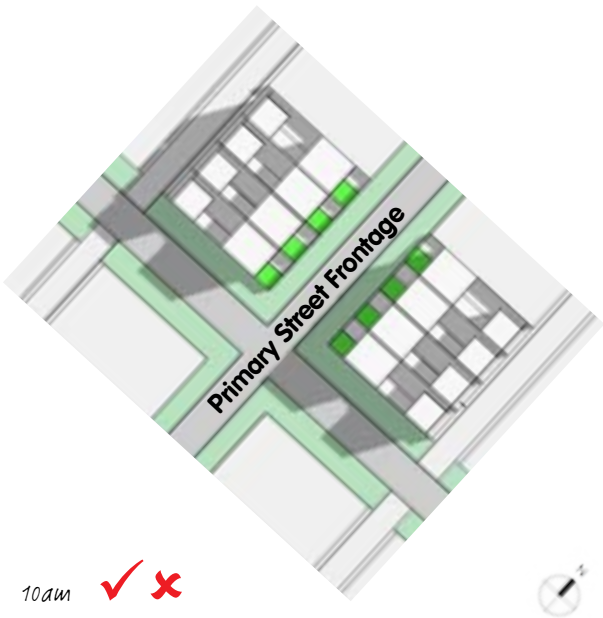
This testing demonstrates that this typology in a traditional configuration does not meeting conventional solar requirements. The balance of this section demonstrates that through the manipulation of the kit of parts for a terrace that improved solar access can be achieved through alternative dwelling configurations that also provide lifestyle responses.



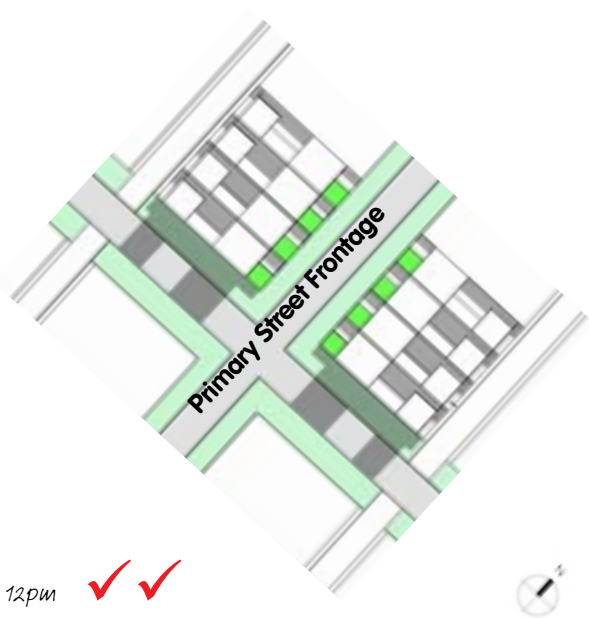
PRINCIPAL PRIVATE OPEN SPACE AT THE FRONT



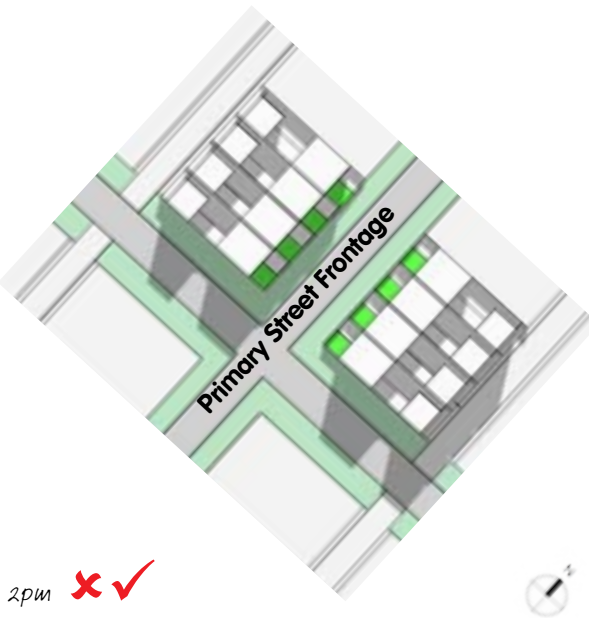
Primary Street Frontage



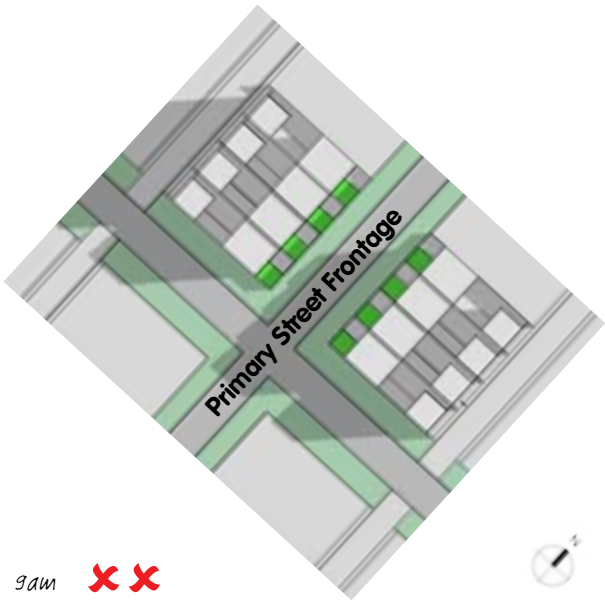
10am ✓ ✗



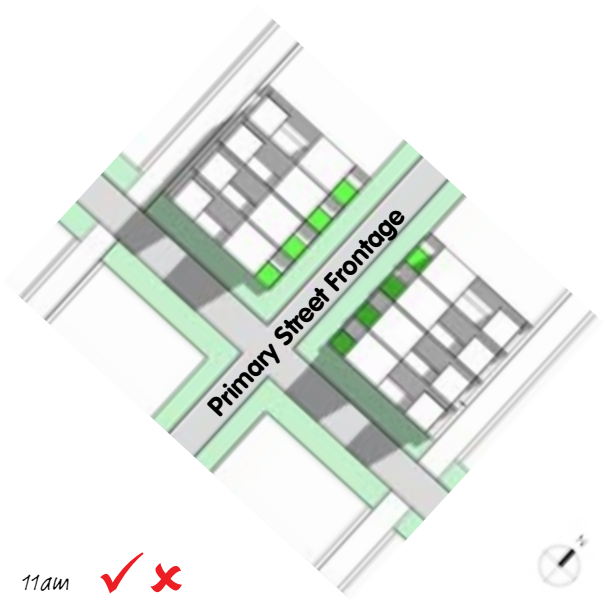
12pm ✓ ✓



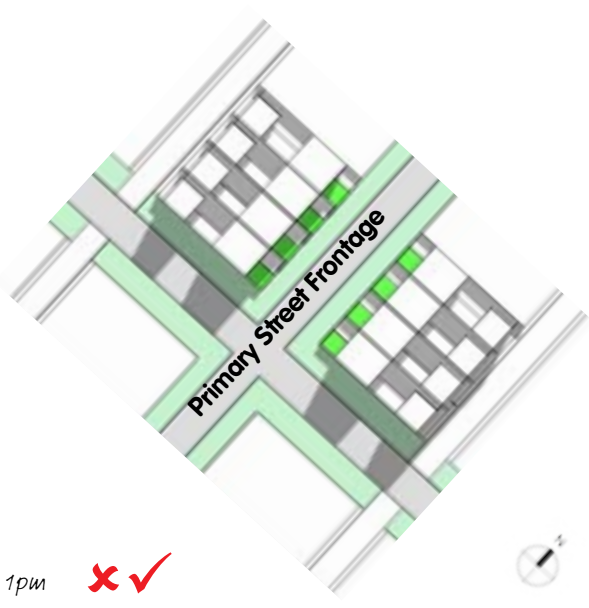
2pm ✗ ✓



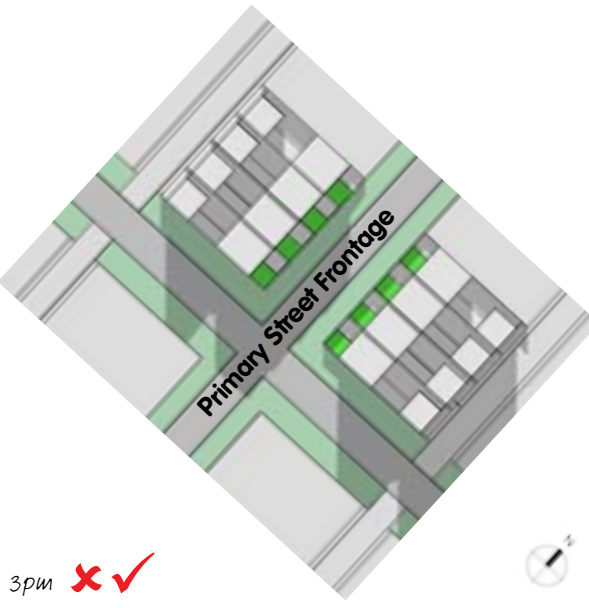
9am ✗ ✗



11am ✓ ✗



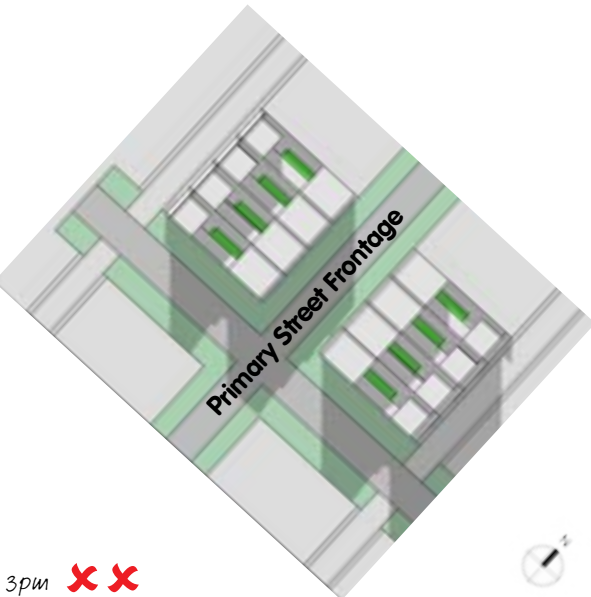
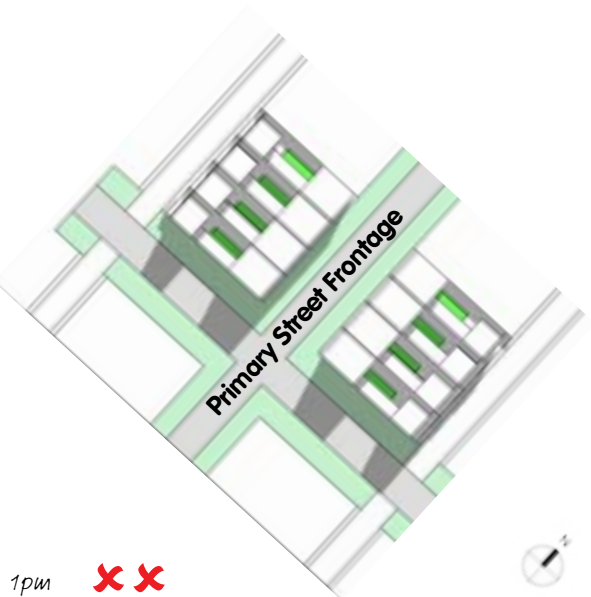
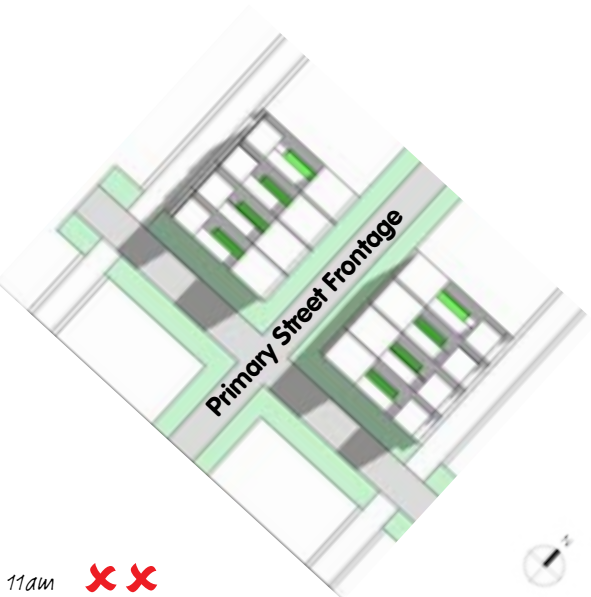
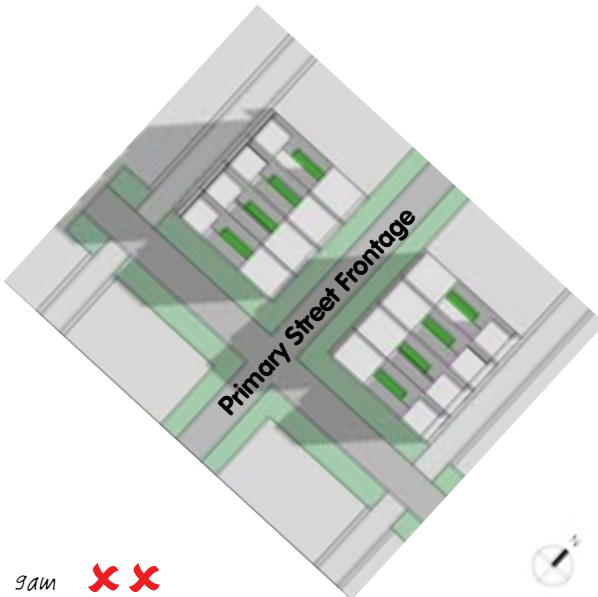
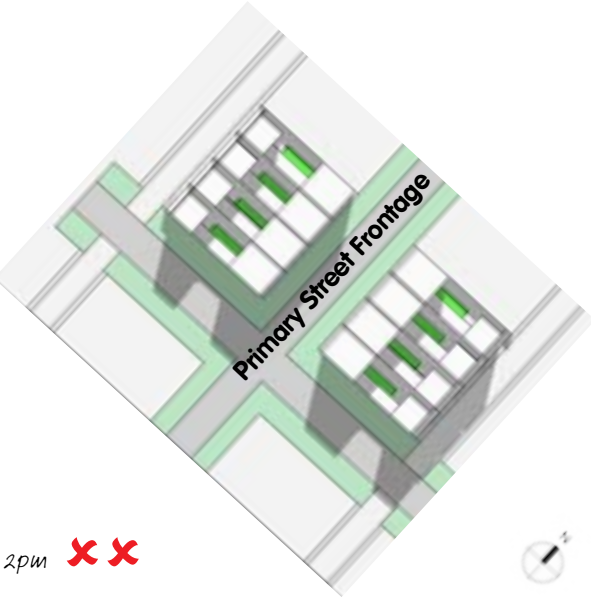
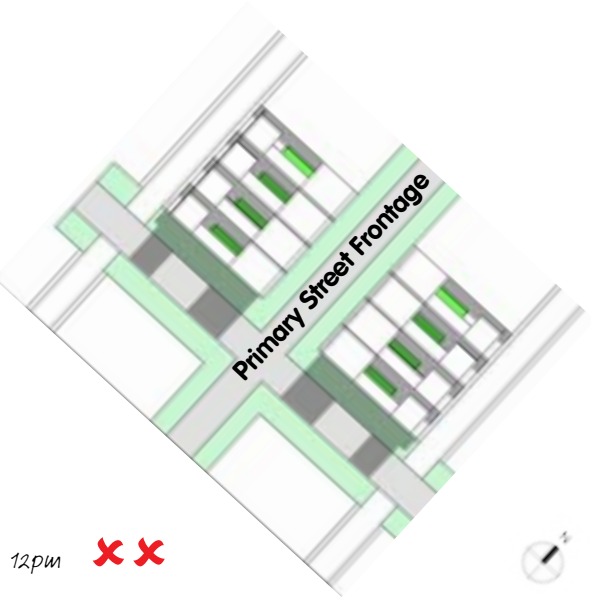
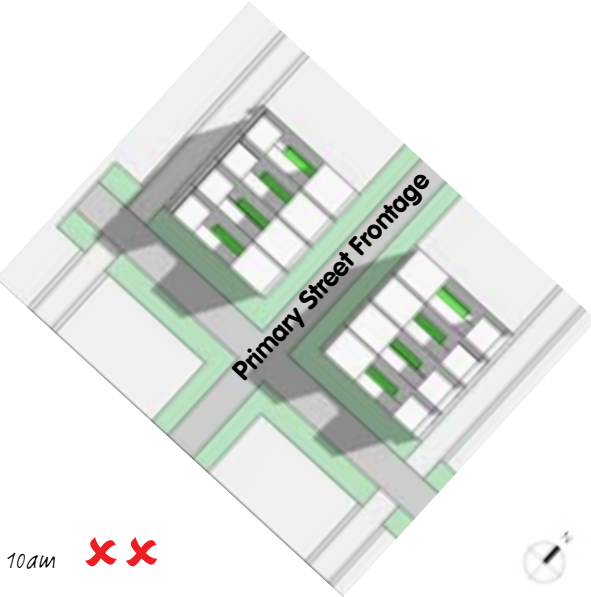
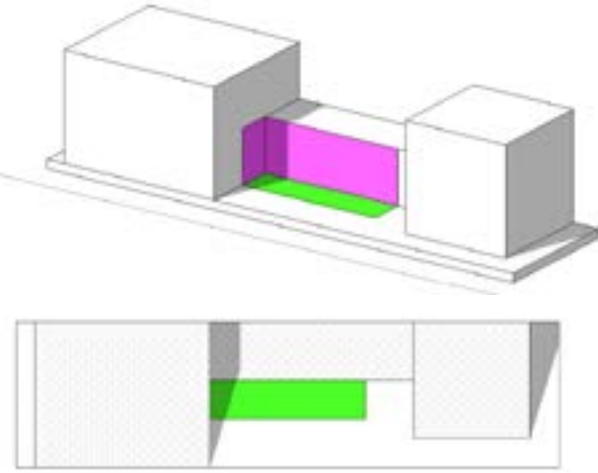
1pm ✗ ✓



3pm ✗ ✓

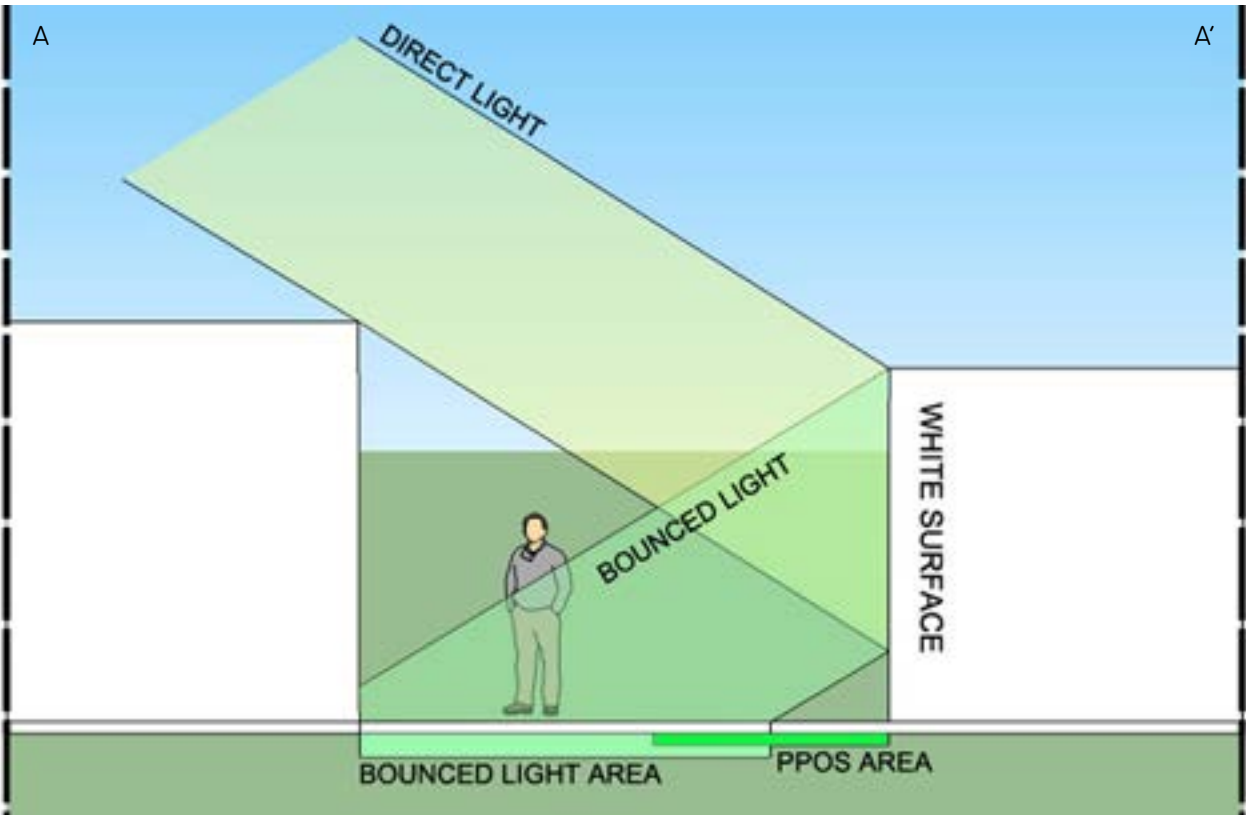
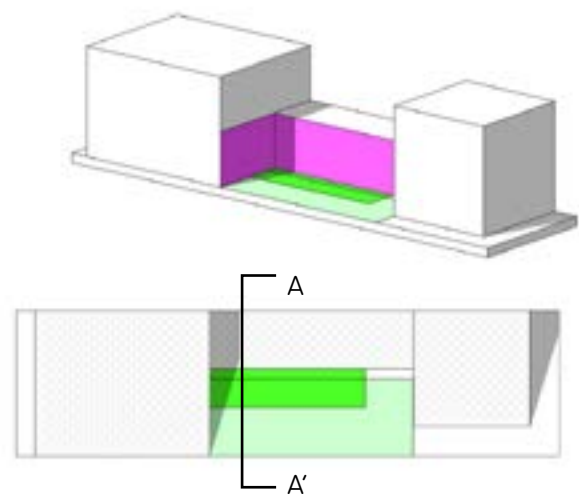
PRINCIPAL PRIVATE OPEN SPACE RECONFIGURATION

Primary Street Frontage

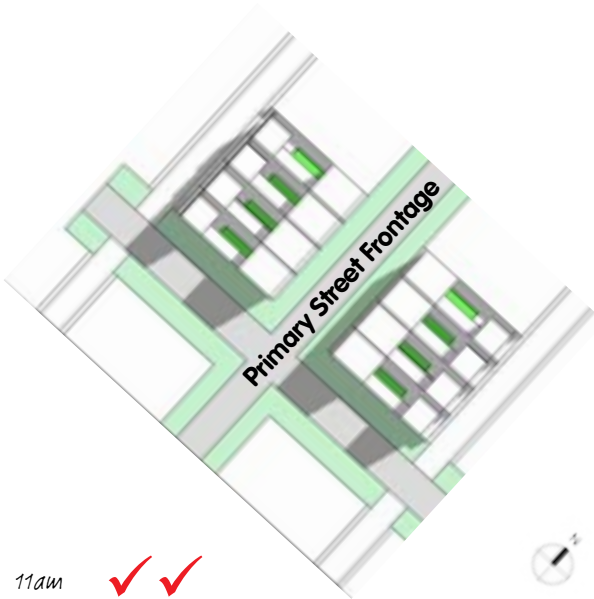


USING REFLECTIVE LIGHT

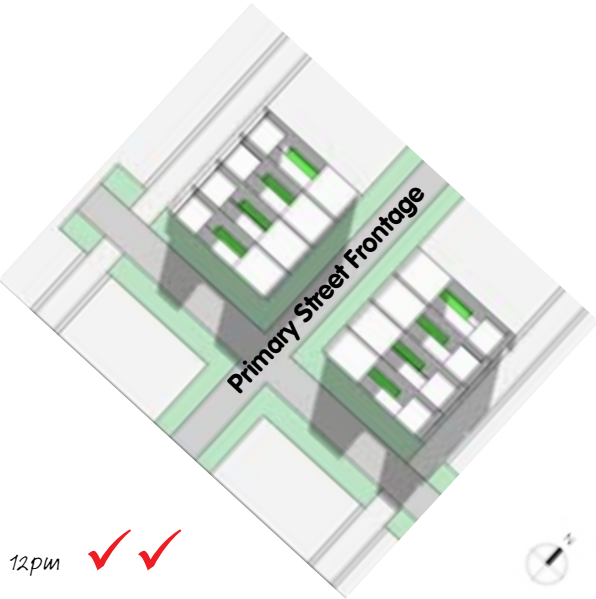
Primary Street Frontage



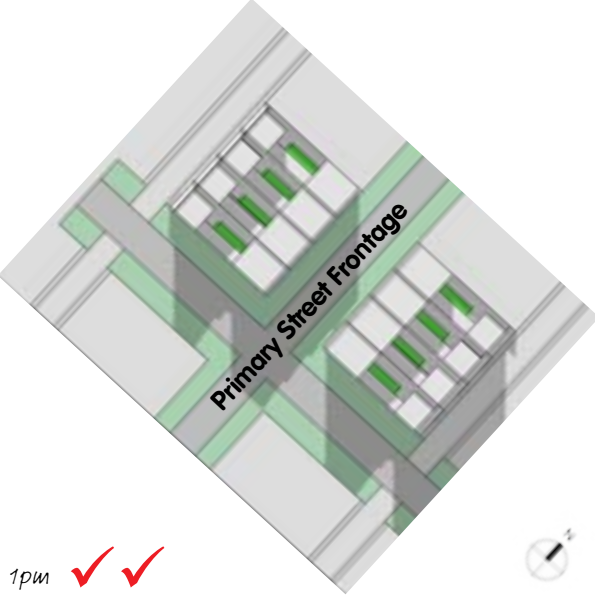
Demonstration of use of reflective light (Section A- A').



11am ✓✓



12pm ✓✓



1pm ✓✓

Character Zones

Conventional planning controls, characterised by a one size fits all approach, have seen a proliferation of lifeless residential subdivisions reliant on vehicular movements with little diversity, day time activity, character or sense of place.

In contrast, a Transect based approach provides a system of classifying the built environment, depending on its character, ranging from natural to urban. The Transect, when combined with traditional neighbourhood design principles, provides the opportunity to offer a variety of lifestyle choices within each neighbourhood resulting in diverse, socially inclusive, vibrant neighbourhoods.

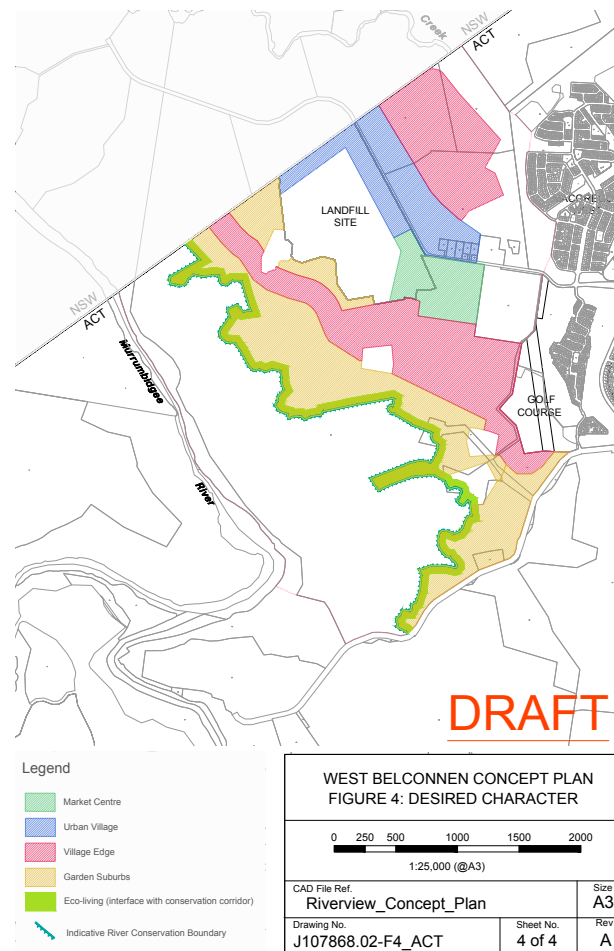
The West Belconnen Transect includes a range of Character Zones, ranging from the natural edge of the Conservation Corridor, through to a series of diverse neighbourhoods, mixed use centres and employment areas.

These Character Zones provide the structure for the logical ordering of the elements that make up the public and private components of the built form including streetscape, building type, private frontage and land use to create environments that have a consistent internal character and strong sense of place.

A Transect based design enables different urban intensities that look and feel appropriate to their locations within a neighbourhood structure and ensure a built form that is responsive to the environment.

This creates lifestyle choices and is an antidote to the one size fits all approach that is prevalent in most post war development.

Notwithstanding Estate Development Plan will facilitate a desirable mix of product within each neighbourhood. The plan opposite indicate the location of the character design



West Belconnen Character Zones



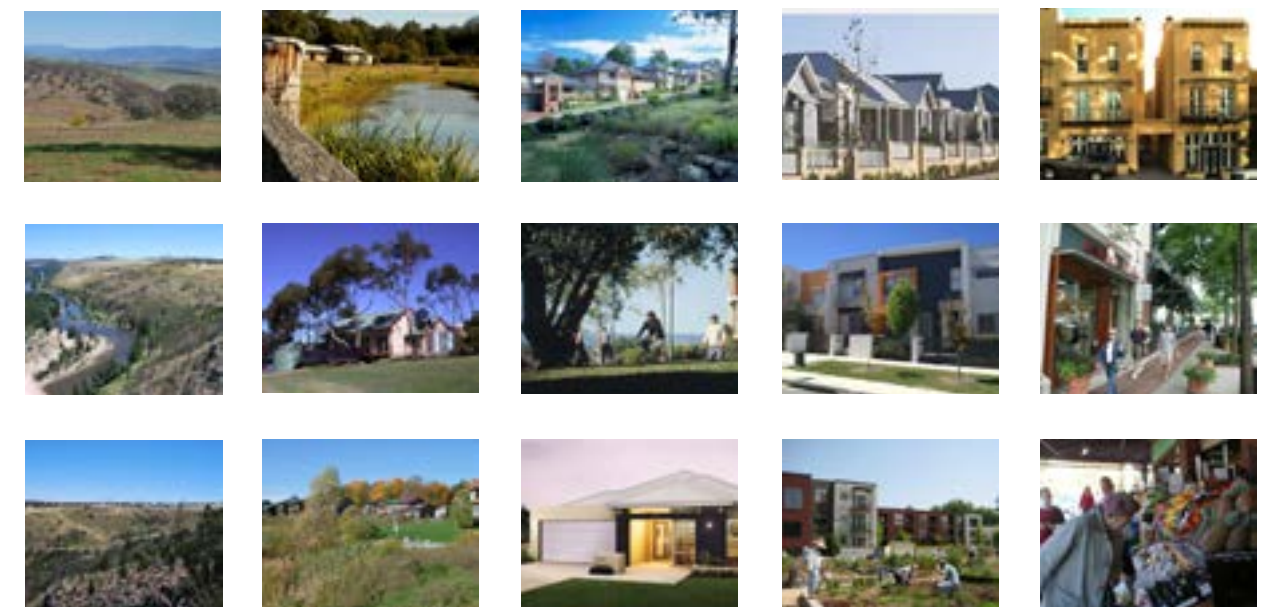
CONSERVATION
CORRIDOR

ECO- LIVING

GARDEN SUBURB

URBAN VILLAGE
AND EDGES

MARKET CENTRE



Conservation Corridor

Character Description

The ecological values of the Conservation Corridor have defined the developable area at West Belconnen.

The Corridor includes land adjacent to the Murrumbidgee River and Ginninderra Creek and constitutes the “natural zone” of West Belconnen. It contains habitat for the threatened Pink Tailed Worm Lizard and the Yellow Box Red Gum Grassy Woodland, areas of indigenous significance and areas associated with European settlement and opportunities for bushfire management.

The Conservation Corridor forms part of the broader integrated open space network and will provide a range of active and passive recreation opportunities for both the West Belconnen community and broader Canberra region.

The location of West Belconnen within a rural landscape, with views to the Brindabellas, bounded by Murrumbidgee River and Ginninderra Creek and adjoining a Conservation Corridor is a key attractor for potential residents. Whilst the Conservation Corridor will not provide residential living opportunities, it offers residents dedicated nature, ecology and recreational experiences on their doorstep and in perpetuity.

Wherever West Belconnen residents may choose to live they will all enjoy the shared asset of the Conservation Corridor.



Eco Living Character Zone

Character Description

The Eco Living Character Zone related to any part of the site where there is a direct or indirect interface with the Conservation Corridor adjacent to the Murrumbidgee River and Ginninderra Creek Conservation Corridor.

Eco Living Character Zone will ensure that the benefits of the Corridor interface are optimised for landowners in a manner that protects and enhances the values underpinning the Conservation Corridor itself.

Character Elements

- More informal streets
- One sided roads fronting the Corridor – flush kerbs / castellated kerbs permissible to enable run-off to bio swales
- Frontage roads integrated with pedestrian, cycle, fire management and (potentially) equestrian trails
- APZs and bushfire sensitive urban, building and landscape design
- Building materials and colour palettes to complement the natural elements of the Corridor
- Extensive use of passive watering and bio swales in open space / verges
- Frontage to ponds / wetlands



Garden Suburbs Character Zone

Character Description

The Garden Suburbs Character Zones adjoin Village Edge Character Zones, and will be often on land further from the Market Centre.

Garden Suburb Character Zones provide a more traditional suburban lifestyle, characterised by detached one and two storey homes (with potential for 3rd storey elements) on larger blocks, generally on more undulating land.

There may be small sub precincts of Village Edge type dwellings within Character Zones, but only where the land is reasonably flat and where such dwellings are immediately adjacent to open space or another urban amenity.

Character Elements

- Primarily residential land use
- One and 2 storey detached single dwelling homes only, with 3rd storey elements permissible
- Moderate setbacks for detached dwellings
- Village Edge setbacks and conditions apply to approved Village Edge sub precincts.
- Moderate verge widths with shared paths and canopy trees
- On street car parking –parallel only
- Rear lanes permitted but only to service Village Edge sub precincts
- Front verandas encouraged



Village Edges Character Zone

Character Description

The Village Edge Character Zone generally adjoins, or is near to, the Urban Village Character Zone and/or bus routes, and provides urban living opportunities but usually at a lower density than the Urban Village. It will provide opportunities for modest detached homes on compact lots, as well as townhouses, and sections of semi-detached and attached housing commonly referred to as "semis" or "terraces".

The higher density housing in this Character Zone will usually be adjacent to an area of parkland or other high value urban amenity.

Character Elements

- Primarily residential land use
- Building types to include cottages, terrace homes, semi-detached dwellings, mews and townhouses
- Single to 4 storey
- Reduced setbacks - when compared to traditional suburban areas
- Traditional verge treatments adjacent to cottage areas, but "Urban Village" precinct verge treatments adjacent to terrace housing permitted.
- Pocket parks and playgrounds
- Moderate and narrower verge widths with shared path and canopy trees
- On street car parking
- Some front fencing / walling permitted
- Front verandas encouraged
- Opportunities for private front courtyards as principal open space where north facing



Urban Village Character Zone

Character Description

The Urban Village Character Zone adjoins, or is located in close proximity to, the Market Centre and bus routes, and supports, and is supported by, the Market Centre.

It is typically high density, and will include mixed non-residential uses that are compatible with residential uses and will be supported by, or supportive of, residential (eg cafes, restaurants, medical and allied health services, personal services, professional offices, local shops, education, etc).

Character Elements

- Primarily residential land use but compatible mixed non-residential uses
- Building types to include apartments, terrace homes, mews, single dwellings
- One to 6 storey
- Nil to minimal building setbacks to all boundaries
- Extensive paving
- Moderate width verges with summer shade – trees and awnings
- Pocket parks and playgrounds
- Front verandas and balconies
- Verandas / balconies over verges
- Active frontages to non-residential uses
- Sheltered, safe and visible places to wait for buses
- On street car parking
- Front fences / courtyard walls
- Community meeting places"



Market Centre Character Zone

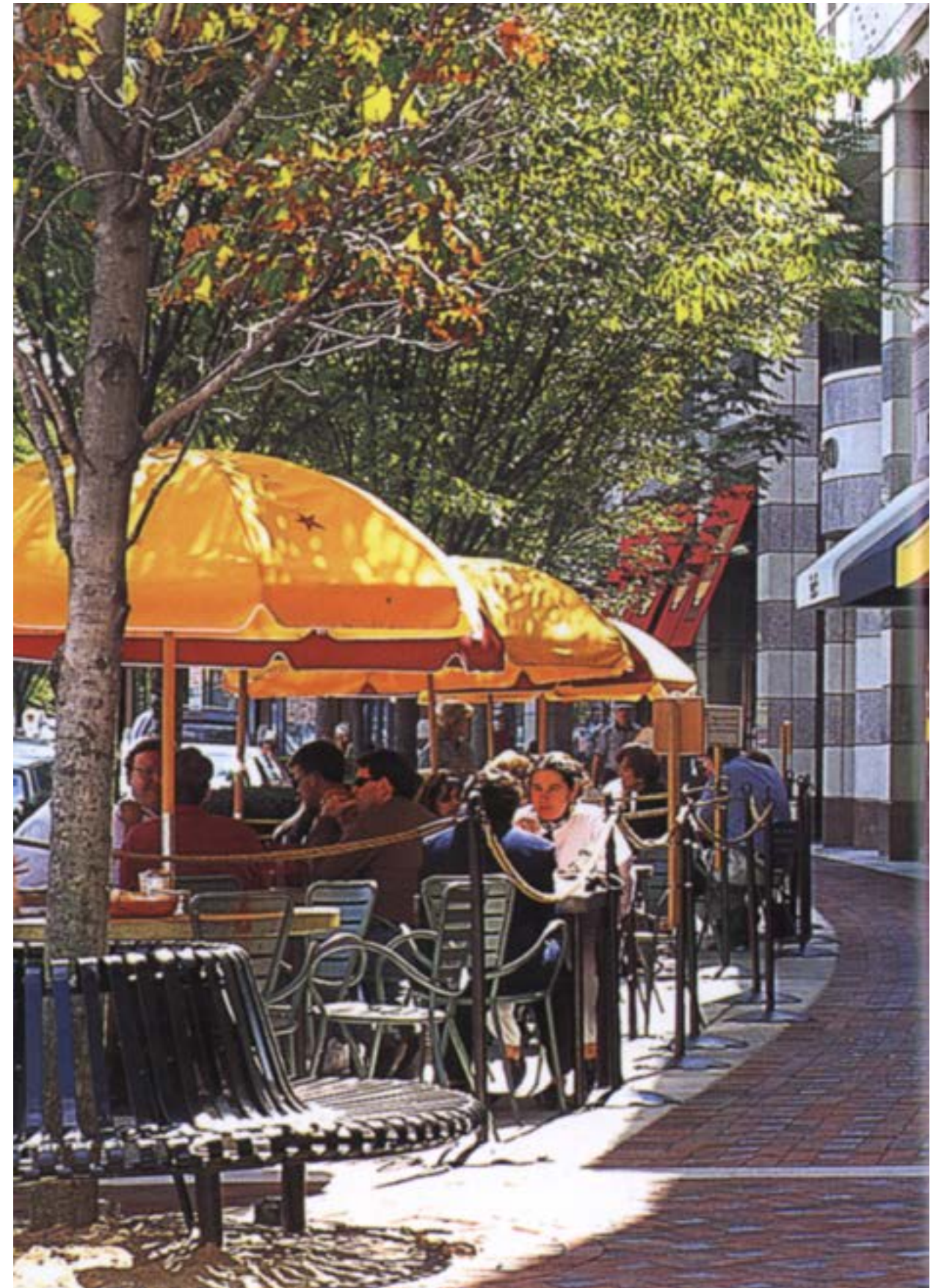
Character Description

The Market Centre Character Zone is the hub of economic and social activity. It will generally be highly engineered with a strong urban feel. It will also be the interface between retail, commercial, community, educational and residential activity.

This Character Zone will include a large area constrained by existing high voltage overhead power lines. The inclusion of this land provides an opportunity to locate large area land uses close to the Market Centre that would traditionally not be able to afford such a central location due to land values. Such uses may include plant nurseries, plant and equipment hire establishments, park and ride zones, a bus terminus, urban agriculture and other non-residential uses, all of which will add life and vitality to the Market Centre.

Character Elements

- One to 6 storey buildings
- Nil to minimal building setbacks
- Extensive paving
- Wide verges with summer shade from trees and awnings and other structures
- Active frontages – compulsory human scale awnings to retail precincts
- Market place for pop up stalls etc
- Verandas / balconies over verges
- Sheltered, safe and visible places to wait for buses
- On street car parking
- Diversity of land use
- Shared lanes and alleys, incorporating people places
- Town Square and multi-functional spaces and places



indicative staging

When completed, West Belconnen will accommodate approximately 11,500 dwellings and a population of 30,000 people within both the ACT and NSW.

The development of land for residential purposes will be accompanied by the commensurate provision of infrastructure, community services and employment responding to the needs of the future population.

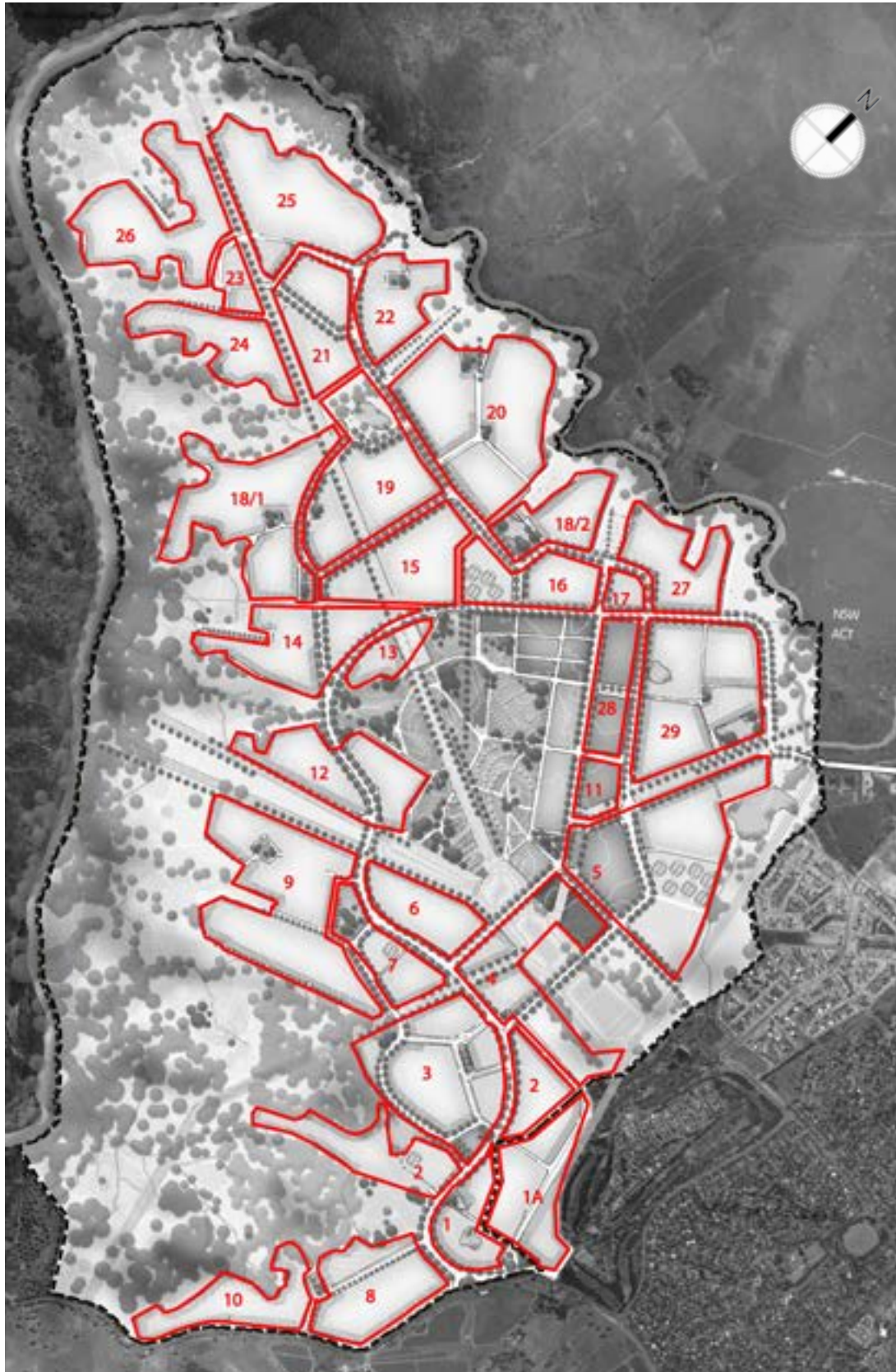
The first stages of development will occur in the southern portion of the Master Plan gaining access from Drake Brockman Drive and building the foundations of the Strathnairn Village Special Place. A primary school is located at the nexus of the first three proposed stages providing educational opportunities within a walkable catchment. Early residents will have access to existing schools in West Belconnen.

Stage One is likely to contain in the order of 400 lots.

A second development front is envisaged further north providing direct access from Southern Cross drive to the proposed mixed use centre.

Preliminary forecasting suggests that, depending on market conditions, between 300 to 400 lots could be released annually.

The Indicative Staging Plan provides a guide to the progressive release of land at West Belconnen.



Indicative Staging Plan

09

guiding principles

The 2009 Sustainability Vision includes a series of guiding principles developed to ensure the West Belconnen Vision is realised. The project response to each of these principles has been documented in the following sustainability matrix.

partnering principles

Guiding Principles for Sustainable Results	Project Response
Partnering is essential to this project and the scale and time frame will allow for positive partnerships to thrive and grow	<p>Riverview has partnered with landowners and key stakeholder groups including, the Ginninderra Catchment Group, Greening Australia, Friends of Grassland, the Conservation Council, Belconnen Community Service, the Belconnen Community Council, Canberra Community Housing, the Strathnairn Arts Association, ACT Government Agencies and Yass Valley Council to work together.</p> <p>Skill sharing and capacity building workshops with TAMS and ESDD have explored the design principles and implications of Complete Streets and Form Based Codes.</p> <p>A series of meetings with key NSW and ACT state and local government representatives have reviewed and evolved the Master Plan and to ensuring all decision makers are contributing to the evolution of the design.</p> <p>The Master Plan has been peer reviewed by the LDA independent Design Review Panel in accordance with the Green Building Council 6 star rating criteria. Further reviews will occur as the Master Plan Evolves.</p> <p>A group comprising representatives from the ACT Government joined the client and key consultants on the "Exemplar Projects Tour" developing a shared understanding of good and bad precedence and strengthening relationships between the client and decision makers.</p> <p>A comprehensive engagement process with all key stakeholders commenced in 2007 and has continued throughout the design process. In particular, the Planning Design Forum provided an opportunity for all stakeholders to work together to identify and resolve issues and ensure the Master Plan represented the aspirations of the broader community.</p>



partnering principles

Guiding Principles for Sustainable Results	Project Response
Engaging the community in design and governance is fundamental to the delivery of the project	<p>A comprehensive community engagement process has informed the preparation of the Master Plan and has included:</p> <ul style="list-style-type: none">• A 3 day Planning Design Forum including a Community and Stakeholder Vision Workshop• 2 Community Information Sessions• Ongoing newsletters providing progress on the project• People and Place Group• Dedicated project web site• Facebook page
Designing the project for community ownership and ultimate community control	<p>Trust and Co – op models that establish a framework to provide for community ownership and management of key community assets in perpetuity are being advanced. Assets likely to be managed by the broader community include the Conservation Corridor, community gardens and potential non residential uses on the landfill site.</p>
Supporting community housing through public and private partnership arrangements	<p>The West Belconnen project has explored innovative solutions to Canberra’s housing affordability problem and to creating sustainable diverse communities.</p> <p>Engagement with providers such as Canberra Community Housing will continue.</p> <p>As part of the Exemplar Projects Tour, the touring party met with representatives from Renew South Australia and toured Playford Alive gaining valuable insight into the provision of affordable housing in a greenfield setting.</p>
Collaborating with research and educational institutions to drive innovation	<p>The University of Canberra undertook demographic research to inform innovative housing typologies</p> <p>The University of Sydney + Ian Sinclair have been undertaking research on how to incorporate Urban Agriculture into the West Belconnen project</p> <p>An Employment and Research cluster with a focus on emerging industries in the fields of urban ecology and sustainability is being considered on a portion of the rehabilitated landfill site.</p>



evaluation principles

Guiding Principles for Sustainable Results	Project Response
Identifying realistic and costed initiatives	<p>Key members of the consultant team, client group and ACT government officers participated in a two day Exemplar Projects Tour of relevant projects in Melbourne and Adelaide. Briefings on each project provided a good understanding of commercial implications, sales rates, innovation, housing typologies and other associated issues.</p> <p>“Bio Streets” cross sections were peer reviewed and costed by AECOM to establish an understanding of the cost differential when measured against conventional street typologies.</p>
Providing independent peer review of project proposals and project outcomes	<p>Rodney Moss, provided guidance on the axial relationship of the project back to the Parliamentary Triangle and has provided critical guidance through the design process.</p> <p>The LDA’s independent Design Review Panel has peer reviewed the Master Plan on two occasions.</p>
Using recognized international and national benchmarks for sustainability performance to publicly report and raise awareness of project outcomes	<p>The project has been registered as part of the Green Star Community pilot run by the Green Building Council of Australia. The tool has been developed in close collaboration with state and local governments throughout Australia, public and private developers, professionals service providers, academia and other relevant service providers.</p> <p>At the Vision, Values and Sustainability Workshop the consultant team identified examples of world’s best practice in areas relevant to their disciplines as a basis for exploring best practice and innovation at West Belconnen.</p> <p>The Exemplar Project Tour visited a range of residential projects in Victoria and South Australia to review current best practice outcomes and review applicability in the West Belconnen context.</p>



evaluation principles

Guiding Principles for Sustainable Results	Project Response
Empowering resident and community monitoring and management of sustainability performance	<p>Work is advancing on establishing a Conservation Management Trust (CMT) and /or Co-ops to provide a framework for community management of the Conservation Corridor, other important natural and cultural heritage areas and to more broadly empower the community to assume responsibility for their community.</p> <p>The CMT could be used to achieve conservation objectives, including appropriate bushfire management and fund specific conservation works and activities including research and education programmes.</p> <p>Administration of the CMT could be through a Board that could include representatives from the ACT and NSW governments, bushfire and conservation agencies and the community including local indigenous groups.</p>



ecological principles

Guiding Principles for Sustainable Results	Project Response
Acknowledging the intrinsic value of all species and the special role and regional significance of the Murrumbidgee River and Ginninderra Creek	<p>The Conservation Corridor will be recognized and maintained as a major conservation area with public access to parts of it for recreation purposes.</p> <p>Conservation areas will be established to protect important ecological features, particularly habitat for the threatened Pink Tailed Worm Lizard and Yellow Box – Red Gum Grassy Woodland.</p> <p>Trees identified as hollow bearing, habitat, exceptional and high quality have been taken into consideration as part of the design process and wherever possible have been retained in areas of open space.</p> <p>Two stands of trees identified as having significant cultural heritage status located within proximity of the Belconnen Farm and Ginninderra Creek have been retained and/or located within dedicated open space.</p>
Respecting and supporting the ecosystem functions of air, soil and water recognizing the importance of living and non-living environmental resources	<p>Water sensitive urban design initiatives will protect water quality in both the Murrumbidgee River and Ginninderra Creek.</p> <p>Reduced vehicle dependence will promote alternative modes of transport lessening greenhouse gas emissions.</p>
Reducing greenhouse gas emissions through innovative products and place design, material selection and service provision	<ul style="list-style-type: none"> • Green travel plan • Promote walking and cycling • Reducing cut and fill across the site • Encourage the use of sustainable building materials • Extensive areas of open space absorb carbon dioxide and reduce greenhouse gas emissions
Fostering a deep sense of respect for and connection to the land, flora and fauna	The Riverview Group and other landowners along the Murrumbidgee River and Ginninderra Creek participated in a project to improve the biodiversity and water quality within the creek corridor, Other initiatives included the control of invasive willow species, fencing to control stock access to the creek, and planting of local native tube stock to improve habitat connectivity.

Guiding Principles for Sustainable Results	Project Response
Recognising our natural ecological limits and minimising our resource, water and energy consumption	<p>Concepts such as local food production, renewable energies and emerging industries will provide the framework for a sustainable community to evolve over time and ensure better utilization of resources.</p> <p>Innovative stormwater collection and treatment using green infrastructure</p> <p>Water recycling to reduce consumption from water supplies in the broader catchment</p> <p>Sourcing of household electricity from green sources including solar power</p> <p>Trust and Co-op model to manage recycling initiatives at the scale of a neighbourhood</p>
Using existing local infrastructure to deliver efficient renewable services and reusable resources	<p>Parkwood Road is incorporated into the road network proposed by the Master Plan</p> <p>Other community infrastructure will be collocated with Strathnairn and the Belconnen Farm creating a community focus</p> <p>Masterplan reflects and will utilise existing major road connections, sewer and water infrastructure and existing community infrastructure including schools.</p> <p>Land within the transmission line easements will be used for variety of community uses including cycling/ pedestrian routes and urban agriculture.</p> <p>Likewise the proposed "Future Urban Area" zone will enable the existing industrial estate to remain and continue to operate.</p>
Enhancing local opportunities for food production and production of materials	Opportunities for urban farming are being explored at a district scale in the land underneath and/or adjacent to, the transmission lines, at the neighbourhood scale and also on the scale of the individual house. Urban agriculture will promote healthy communities by bringing people closer to the source of their food, reduce food miles, strengthen community connections, and incubate educational, business and employment opportunities.

social and cultural principles

Guiding Principles for Sustainable Results	Project Response
Respecting and honouring Aboriginal and non aboriginal cultural, historical and spiritual values, including integrating with the existing rich, social fabric of Belconnen	<p>The Belconnen Farm precinct will be retained, rehabilitated and adaptively re-used for the benefit of the broader community in accord with the approved Conservation Management Plan.</p> <p>The Master Plan proposes to create an arts and community based hub in the vicinity of Strathnairn building on the reputation of the existing cultural facilities at this historic homestead.</p> <p>A number of sites of indigenous cultural significance have been identified particularly in proximity to the Murrumbidgee River and Ginninderra Creek. Whilst the exact location of these sites can not be made public they are to be managed, and where appropriate protected, in accordance with the recommendations of heritage experts and approved by government heritage agencies in the ACT and NSW.</p>
Designing for social equity, affordability, diversity and interdependence, honouring the difference and catering for the needs of individuals through all stages of life	<p>The Master Plan provides for a diverse range of housing types that will provide for a broad range of lifestyles through all life cycle stages.</p> <p>Up to 14 suburban to urban housing typologies, including studios above garages and mews housing are being developed.</p>
Maximising health, safety and comfort of the built environment to provide enduring quality of life	Place led design approach focussing on walkable neighbourhoods, pleasant micro climate, CPTED principles and Green Building Council 6 Star criteria.
Instilling awareness and supporting education of sustainability values, technology and lifestyles	The proposed research and employment cluster and co-op/trust models will adopt an advocacy role with the community.
Using creative and robust design solutions to create a continuing sense of place and beauty that inspires, affirms and enables	The Master Plan marries timeless design principles with specific site influences to foster and create a unique sense of place that connects people to nature. This ideal informed Griffin's legacy and has underpinned Canberra's growth.

Guiding Principles for Sustainable Results	Project Response
Designing neighbourhoods that support and encourage community interactions through imaginative, functional and enjoyable public spaces	<p>Walkable neighbourhoods frame a range of open spaces designed to foster community interaction.</p> <p>The integration of neighbourhood streets and WSUD elements have created a series of interconnecting wet lands and ephemeral basins to create a green necklace.</p>



economic principles

Guiding Principles for Sustainable Results	Project Response
Delivering a financial return to the ACT Government recognizing their sovereign interest in the land	
Recognising the opportunities provided by the project's scale and low capital base to achieve high level sustainability outcomes while delivering profitability to joint venture partners	A commitment to 100% renewable energy. A co-op model to facilitate urban agriculture and other pioneering initiatives is possible due to the scale of the project, the ownership/lessee arrangement and low capital base.
Building on existing infrastructure	<p>Land within the transmission lines and the existing landfill and recycling estate has been pro-actively considered as part of the design process and the Master Plan anticipates that they will be transformed into vibrant community assets.</p> <p>In addition, Strathnairn and Belconnen Farm will be retained in the Master Plan and used as the catalyst to create a neighbourhood focus.</p>
Ensuring long term economic viability through design excellence and community building	The Master Plan provides a robust transect based approach for the future development of West Belconnen. The structure anticipates that both community and housing types will evolve over time in response to market conditions and demand. In particular an increase in densities will support a more extensive and frequent public transport system.
Minimising obsolescence through design of enduring component life cycle, allowing for disassembly and change	The Master Plan deliberately avoids the specialisation of infrastructure, thereby improving the project's resilience and adaptability over time. In addition, rather than constructing separate infrastructure systems, the project intertwines the multi purpose systems to achieve whole of life costs. For example the "Complete streets" approach integrates pedestrians/cyclists/public transport and vehicles in a wholistic manner to avoid duplication of infrastructure and costs.
Integrating with the Belconnen commercial, retail and employment networks	West Belconnen residents will support the existing retail and commercial facilities in the adjoining suburbs of Holt and West Belconnen generally. As the population grows, new services will be progressively introduced at West Belconnen that will benefit not only the West Belconnen community but the broader area.



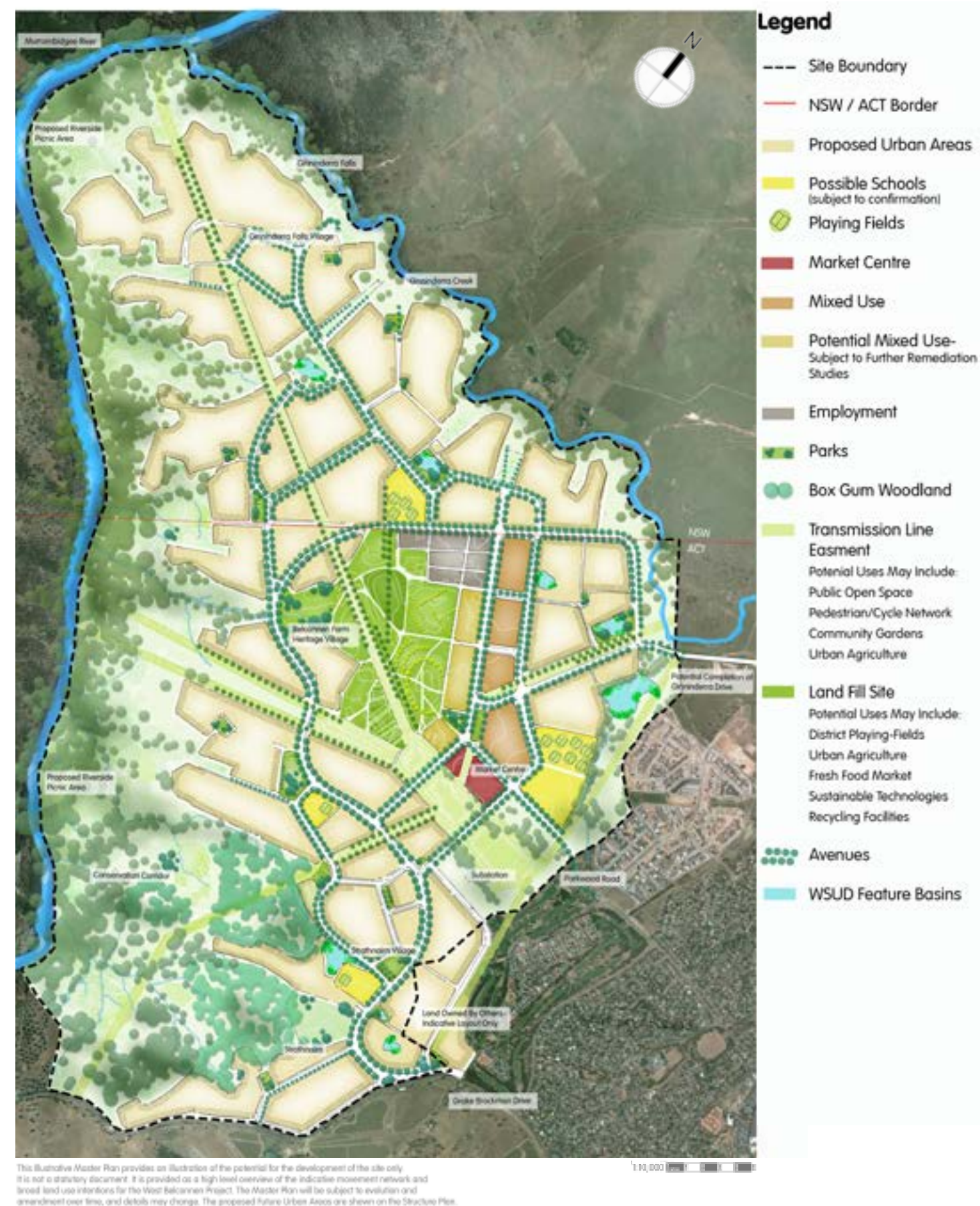
conclusion

The West Belconnen Urban Design Report is part of a suite of reports prepared to support the proposed rezoning of the West Belconnen site to facilitate the development of sustainable settlement for 30,000 people.

The West Belconnen Master Plan has been developed by a multi disciplinary team and informed by a range of technical reports.

Preparation of the Master Plan has also been guided by feedback from a comprehensive community and stakeholder engagement process and has been subject to review from the independent Design Review Panel established as part of the Green Star Communities pilot rating process.

The Master Plan will continue to evolve as the planning process progresses with ongoing community and stakeholder engagement and dialogue with representatives of NSW and ACT governments.



bibliography

ACTEW. (2014a). West Belconnen Odour Impact Investigations of Emissions from Vent Stacks of the Ginninderra Sewer Tunnel Preliminary Assessment Report, ACTEW Water, 27 May 2014.

Aecom. (2014a). West Belconnen Summary Traffic Report, Aecom, 24 June 2014.

ANZSOG. (2013). Housing and Sustainable Development in the Canberra Region, Research Report for The Riverview Group West Belconnen Project, Globalisation and Cities Research Program, ANZSOG Institute for Governance at the University of Canberra.

Elton. (2014e). West belconnen Community Plan Part 3 - Social Infrastructure, Elton Consulting, 17 June 2014.

Elton. (2014g). An Environmemntal Trust for West Belconnen, Elton, 22 May 2014.

EMA. (2014a). Belconnen Farm Conservation Management Plan, 28 March 2014, Final.

GHD. (2014b). Proposed Re-zoning of West Belconnen Land, ACT, West Belconnen Landfill Site - Landfill Related Advice, GHD, May 2014.

GHD. (2014d). Riverview projects (ACT) Pty Ltd Proposed Rezoning of West Belconnen Land West Belconnen landfill Site Landfill Related Advice, GHD. May 2014

McGC. (2014). West Belconnen Landscape and Open Space Strategy, McGregor Coxall, June 2014.

MRC. (2014). West Belconnen Integrated Sustainable Transport Plan, M R Cagney, June 2014.

Orima. (2014). Areport on housing preferences and community attitudes towards land development in the ACT region, February 2014.

Urbis. (2014b). Urbis, West Belconnen Development Employment and Economic Resilience Green Star Report, 11 March 2014.

