PLACE-BASED SUSTAINABLE URBAN RENEWAL

A CASE STUDY OF THE TUGGERANONG DISTRICT, AUSTRALIAN CAPITAL TERRITORY

2016

Tayanah O’Donnell, Bob Webb, Renee Duarte, Lain Dare, Hamish Sinclair, Melinda Dodson and Jo Mummery
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# CONTENTS

Executive summary .................................................. 6
   Background .................................................... 6
   Purpose ........................................................ 6
   Research Findings .............................................. 7
   Opportunities .................................................. 8
1. Introduction ..................................................... 10
   1.1 Overview .................................................. 10
   1.2 The importance of place .................................. 10
   1.3 Sustainability .............................................. 11
   1.4 Australian Capital Territory planning directions .... 11
   1.5 Tuggeranong District, ACT ............................. 12
2. Methods ........................................................... 16
   2.1 Overview and rationale ................................. 16
   2.2 Geographic Information Systems ..................... 16
   2.3 Interviews ................................................ 16
   2.4 Focus groups ............................................ 18
3. Geographic Information Systems Data Analysis .......... 19
   3.1 Demographic profile of the Tuggeranong District ... 19
   3.2 Dwellings and land use ................................ 22
   3.3 Social and economic analysis .......................... 22
   3.4 Residential density ..................................... 30
   3.5 Employment analysis ................................... 35
   3.6 Transport analysis ...................................... 37
   3.7 Participation in Energy Efficiency Improvement Scheme 39
EXECUTIVE SUMMARY

Background
This report is the culmination of a research collaboration between Canberra Urban and Regional Futures (CURF) at the University of Canberra and the Environment and Planning Directorate of the Australian Capital Territory (ACT) Government examining revitalisation and retrofitting in low density suburbs. The Tuggeranong District (or ‘Tuggeranong Valley’ as it is locally known) in the south of Canberra was selected as a case study due to several key characteristics including population size, prevalence of low density residential housing and an aging built environment. These characteristics of the Tuggeranong District bear similarities with the sprawl of many middle suburbs of larger cities in Australia, Canada, and the United States. It is argued that these greyfields sites are often prime opportunities for city planning to undertake more mixed use, varied density, and other infill activities in order to revitalise and retrofit places (Newton, 2015). The Tuggeranong District was first formally established in the 1970s, and now comprises 19 residential suburbs, a main town centre, and several other commercial and retail centres of varying ages.

Purpose
In exploring the revitalisation and retrofitting of low-density suburbs using the Tuggeranong District as a case study, this report draws on Geographic Information Systems (GIS) analysis of social, economic and demographic characteristics of the District, complemented by an in-depth qualitative study. One-on-one interviews with community representatives and focus groups with householders enabled the exploration of values and a vision for the District and perceptions on revitalisation, retrofitting, and long-term sustainability. This led to the identification of two critical opportunities that can inform approaches to revitalisation and retrofitting. These are:

1. An understanding of how people identify with the places they live in and use, and
2. Identifying characteristics for an integrated sustainable development approach to urban renewal at various scales and locations.
In respect of the Geographic Information Systems findings

The GIS analysis of the Tuggeranong District indicates that has some distinctive features relevant to renewal, including:

- A slight decline in overall population
- An aging population when compared to the ACT
- Lower density housing with a higher detached and much lower multi-unit proportion of dwellings
- Higher car dependency with more vehicles per dwelling than other Districts in the ACT
- People travelling outside the District, and longer distances, for work or education.

In respect of the District

- Participants positively valued the District for its beautiful and aesthetic landscape setting (mountains, river, and parks), spacious urban feel and personal connections and histories to the area
- Participants recognised the need for a distinct identity for Tuggeranong, but struggled to clearly articulate what this identity could be
- Participants recognised the need for social connectedness and cohesion in building an identity for the District
- Participants valued the potential for urban renewal.

In respect of the Town Centre

- Perceptions of the Tuggeranong Town Centre were overall less positive. The Town Centre is seen as tired, rundown and neglected, with too many empty shops and office spaces, and lacking in community-enhancing connectedness including to the natural features
- Lake Tuggeranong was identified by all participants as a centrepiece in place-making and enabling place-based sustainable urban renewal, but suffers from poor water quality and limited accessibility
- Participants future visions included people centred revitalisation in the Town Centre through bringing people out into the open urban spaces and onto the streets, and using public spaces in new ways
- Participants expressed a desire to create communities over consumers.

In respect of Group and Local Centres

- Erindale Group Centre was seen as “vibrant” with a variety of beneficial community amenities
- Kambah Group Centre perceived as “tired” though still central to promoting community cohesion for that suburb
- Perceptions on local centres were mixed. One dominant theme was that if they had “something special” they were useful to their communities.

RESEARCH FINDINGS

1. In respect of the Geographic Information Systems findings
2. In respect of the District
3. In respect of the Town Centre
4. In respect of Group and Local Centres
OPPORTUNITIES

IN RESPECT TO THE DISTRICT

Community responsiveness to revitalisation in Tuggeranong will be best achieved using measures that are people centric, promote social connections and cohesiveness, and integrate sustainability (including re-purposing buildings) in ways that promote community driven place-based sustainable urban renewal. There was a strong desire expressed in residents having stronger and more diverse community-based ownership and leadership of the necessary changes.

The lack of articulation by its residents and community representatives on an identity for Tuggeranong indicates an opportunity to develop and promote a distinctive identity and ‘branding’ for Tuggeranong, potentially aided by a cultural mapping exercise.

Whilst there are many features of Tuggeranong in common with the rest of Canberra (evidenced by the Geographic Information Systems (GIS) analysis), it is crucial to continue to identify and map the characteristics that are distinctive and in many respects unique to the District in order to better understand and better plan for and with the community.

IN RESPECT TO THE TOWN CENTRE

Well-designed intensification and medium density retrofitting have a useful sustainability role to play in Tuggeranong, especially in and around the Town Centre and along main transport corridors. This should be complemented by other sustainability initiatives including integrated transport options that encourage active living, and by encouraging community participation in climate adaptation and mitigation, particularly in storm water management.

Two Town Centre locations were identified by all participants as favourable options for urban renewal: Lake Tuggeranong, and the walkway linking the Tuggeranong Public Library with the Hyperdome (locally referred to as “the Gazebo”).

The “Gazebo” laneway, linking Ankertell Street to Lake Tuggeranong

Image: Tayanah O’Donnell
Lake Tuggeranong was seen as a central feature of both the District and the Town Centre, but requiring a number of revitalisation measures. Water quality was identified as a significant issue. Integrating storm water management, water quality, and adaptation measures would be useful in improving water quality. The economic and social sustainability of the Lake could be enhanced with options including the provision of pop-up businesses along the foreshore, increasing the number and frequency of sporting and recreational activities on and near the Lake, and repurposing lakeside buildings to face the Lake.

Suggestions for the ‘Gazebo laneway’ and surrounds included provision for activities that would bring people outside, exploring options for allowing short term leasing of ground floor shops, the provision of community led art projects in conjunction with the Tuggeranong Community College, re-purposing the carparks between the walkway and the College with cultural attractions, allowing residential development on the upper floors of Town Centre buildings, making Ankertell Street more pedestrian focussed, and re-purposing sidewalks to encourage walkability.

IN RESPECT TO GROUP AND LOCAL CENTRES
Increasing density was viewed as favourable provided it met design guidelines to “fit the natural aesthetic environment of Tuggeranong”. Kambah residents considered such infill to be best suited in close proximity to commercial centres.

A focus on social connectedness and cohesion could be met by the provision of unique uses of the current local centres. Many (including Kambah Village) are viewed as tired and run down. Repurposing and improving the current infrastructure was viewed favourably.

OVERALL
A focus on approaches that appreciate the importance of ‘people in place’ and participatory and inclusive ‘people centred design’ can provide an opportunity to focus on integration across multiple goals. It can also foster local community, citizen and business led innovative renewal action to complement and in some cases lead top-down initiatives.

Important to place-based sustainable urban renewal is government strategy and planning whether at whole of city, district, town centre, suburb or household scales that provides opportunity for community leadership. Because of the broad nature of both sustainability and renewal, governments need to enhance integrated strategy, planning, decision-making and implementation across policy areas, sectors and agencies, and overtly test proposed policies and initiatives across various sustainability goals as well as with the community.

Developing a community-led and distinctive sustainable urban renewal strategy could aid in developing a shared understanding of what is meant by ‘sustainability’ and ‘sustainable development’ within and for the community. This will aid in developing the important synergies and trade-offs between the various goals, which will inevitably be required.
1. INTRODUCTION

1.1 Overview

The purpose of this report is to investigate sustainable urban renewal for the Tuggeranong District of the ACT as an example of a relatively mature low-density district. The data collection had two components: Geographic Information Systems modelling of the social, economic and demographic characteristics of the Tuggeranong District; and exploring community perceptions relevant to past values and future visions of Tuggeranong via semi-structured, one-on-one interviews with key community representatives. The District comprises 19 residential suburbs, a main town centre and several group and local centres. Canberra itself is a growing capital city, with a current population of around 400,000. The scope of project was designed in collaboration with the Environment and Planning Directorate, ACT Government.

In defining sustainability, this report relies on a triple bottom line framework, which considers social, environmental, and economic pillars as underpinning overall wellbeing of human populations, and for future as well as current generations. As such it also encompasses concepts such as liveability, prosperity, and resilience. This approach also underpins the recently adopted UN Sustainable Development Goals, which require an integrated decision-making process across areas of policy and practice.

Integrated approaches to planning for cities and their suburbs in the context of sustainability are aided by a detailed understanding of local geographical and cultural nuances. These factors can intersect in ways that provide both challenges and opportunities in developing long term futures for people and places. Exploring understandings of these challenges and opportunities can better inform the city’s future planning for sustainability, prosperity and lifestyles.

1.2 The importance of place

As places prepare for a changing, resilient, and sustainable future, a critical measure of success is a focus on people oriented outcomes (Harper and Wright, 2015). Such outcomes include the reconsideration of social, cultural and economic fabric of communities, moreover a cognisable shift to the knowledge creation that is derived from person to person interactions as a more people centred approach to smart or knowledgeable cities (Harper and Wright, 2015). A person centred approach has the additional element of not only recognising the human element of encouraging growth of sustainable places but also the importance of place attachment in driving community-led participation in planning (Manzo and Perkins, 2006) as a key platform in driving people centred change.

The built and natural environment is another factor of relevance for people in place, as these aspects are critical in how people move, use, and feel about and within their place and spaces (Kyle and Chick, 2007). In many western cities, the rise of retrofitting and revitalisation of suburbia aims to contain urban sprawl by progressive and sustainable planning to diversify land use; create a range of density options (including infill options); and improve the type, design and quality of the built environment (Newton and Newman, 2015). These changes to suburbs (and cities) can also be attributed to a number of factors, including the costs associated with developing greenfield sites, the lack of availability of land suitable for a suburban market, and escalating numbers of vacant grey-field properties, particularly since the global financial crisis of 2008 (Dunham-Jones and Williamson, 2009). A combination of these factors can influence and shape the places within the urban and suburban environment.

In the ACT, place-making has seen resurgence in planning following extensive community engagement undertaken by the Government (Statement of Planning Intent, 2015). Following this consultation, for which 170 community submissions were received, a core set of principles that derive their authority under the Planning and Development Act 2007, were released in late 2015.

1. Creating sustainable, compact and liveable neighbourhoods with better transport choices
2. Delivering high quality public spaces and streets through place-making
3. Delivering an outcome-focused planning system to reward design excellence and innovation
4. Engaging with the community, business and research sectors to optimise planning outcomes.

More recently, planning policy has focused on urban consolidation, public realm, and improved transport links, influenced by land economics, sustainability, traffic congestion, and incorporating social sustainability aims. Recognising changing demographics, urban form and land use patterns of Canberra suburbs, the ACT Government’s Time to Talk survey used a mixed mode method to consult over 30,000 Canberrans (Elton Consulting, 2011). The results of the survey showed a desire to see Canberra become a sustainable city, whilst maintaining neighbourhood and
landscape amenity associated with the “Bush Capital” character of Canberra. Critically, the balance between the competing demands of urban growth, sustainable outcomes and the quality of the built environment continues to be at the forefront of community concerns (Dodson, 2014; Hurlimann, 2010; Marcus and Sarkissian, 1986; Vischer, 2008).

The demand for housing diversity to cater for a changing household demographic, with “ageing in place” solutions were among the factors promoted in favour of the provision of medium density housing options (Sarkissian, 2004; Elton Consulting, 2011). In a study of ten compact housing villages, houses achieved on average 31 per cent space savings; 57 per cent electricity savings and eight per cent goods savings (Metzler, 2005; Williams, 2005). Research has also found that ownership of cars, laundry appliances, and gardening tools was reduced through pooling of resources in housing clusters (Metzler, 2005).

This type of intensification (Brewer and Grant, 2015) cannot be undertaken at the expense of place-based identity. Rapport (1975) and others (Schmidt et al., 1979; Llewelyn-Davies, 2000; Neuman, 2005) have found that density perceptions and crowding are not about high-rise so much as being related to levels of desired and actual interactions between people. This perception of density, often based on visual assessment, may influence perceptions regarding what constitutes proximity to neighbours, overshadowing and privacy concerns. Thus, community desires to interact with people need to be balanced with privacy considerations.

The findings discussed in this paper support the above assessments. It is also argued that these issues need to feed into a broader narrative that connects and balances place-based renewal and sustainable renewal.

1.3 Sustainability

In order to address renewal options for low density suburbs in a sustainable way, it is necessary to address the question “what constitutes long term sustainability” how to develop a shared understanding of this concept connected to triple bottom line goals. In the ACT, reference to sustainability can be found in the Planning and Development Act 2007, guiding much of the planning objectives for the Territory. The 2012 Planning Strategy seeks to provide an overarching sustainable city framework, integrating sectors including examples such as transport and climate change adaptation. These frameworks draw on triple bottom line—social, economic and environmental replace

contributions to an integrated sustainability agenda to which there are a number of competing demands in an increasingly urbanised climate (Seto, et al., 2010; Newton, 2013). Alignment with multiple sustainability goals and consideration of trade-offs and synergies has implications for ‘integrated’ planning and decision-making, and can provide a high level framing for consideration of renewal strategies (Bai, et al., 2010).

The United Nation’s Sustainable Development Goals (UN SDGs) to 2030, recently adopted by all UN members’ national governments including Australia, provide a comprehensive framework for such assessment (UN SDG, 2015). The goals are consistent with the original and much cited definition of sustainable development in the Brundtland Commission report ‘Our Common Future’ (UN WCED, 1987) which states: “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

1.4 Australian Capital Territory planning directions

Canberra’s long term planning policy is to promote sustainable development consistent with the social, economic and environmental aspirations of the people and in accordance with sound financial principles (s6, Planning and Development Act 2007), consistent with growing evidence base (see for example Rogers and Ryan, 2001; Hacking and Guthrie, 2008) more recently, promoting a human or people centric approach to planning (Scott and Storper, 2015; Miller et al., 2015).

Historically, planning in Canberra has reflected a city in the landscape approach with a strong focus on ensuring development complimented the local natural environment. By the 1960s, spatial planning for metropolitan Canberra had followed a “Y Plan” approach for development in the ACT, with a city centre and the creation of town centre nodes. The separation of town centres was to encourage distinct identities for each of the nodes (Tomorrows Canberra, 1970). It also encouraged widespread car usage and dispersed planning (Freestone, 2010; Nakanishi, 2015). More recently, planning in the ACT is seeing a return to medium density in areas concentrated around commercial centres and transport corridors, while retaining the ‘city in a landscape’ underpinning.

Planning in the Australian Capital Territory is governed by both the ACT Planning and Land Authority (ACTPLA), an ACT Government authority, and the National Capital Authority (NCA), a Commonwealth Government agency. Key legislative and policy frameworks are outlined in Table 1.1.
Table 1.1: Legislative and policy frameworks relevant to the Tuggeranong District

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>Plans</td>
<td>The Canberra Plan (2008)</td>
</tr>
<tr>
<td></td>
<td>Territory Plan (2008 and updates)</td>
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<td></td>
<td>Tuggeranong Master Plan (2012)</td>
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<tr>
<td></td>
<td>Erindale Master Plan (2012)</td>
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<tr>
<td>Policies</td>
<td>ACT Planning Strategy (2012)</td>
</tr>
<tr>
<td></td>
<td>AP2: A new climate change strategy and action plan for the Australian Capital Territory (2012)</td>
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<td></td>
<td>ACT Climate Adaptation Strategy (Draft 2016)</td>
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<td></td>
<td>Transport for Canberra (2012)</td>
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<td></td>
<td>ACT Nature Conservation Strategy 2013–2023</td>
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<td></td>
<td>ACT Waste Management Strategy 2011–2025</td>
</tr>
<tr>
<td>Legislation</td>
<td>Planning and Development Act 2007</td>
</tr>
<tr>
<td></td>
<td>Climate Change and Greenhouse Gas Reduction Act 2010</td>
</tr>
<tr>
<td></td>
<td>Energy Efficiency (Cost of Living) Improvement Act 2012</td>
</tr>
<tr>
<td>Regulations</td>
<td>Planning and Development Regulation 2008</td>
</tr>
</tbody>
</table>

1.5 Tuggeranong District, ACT

Developed from the 1970s, Tuggeranong was planned as the third new centre in a polycentric planning model for the city of Canberra with initial plans for the District to extend west of the Murrumbidgee River and to service a population of up to 200,000 people. It was originally intended that the Town Centre be geographically centred within the district but environmental constraints associated with the floodplain surrounding the Murrumbidgee River has seen the Town Centre remain on the western edge of Lake Tuggeranong. In 2016, the ACT Land and Development Agency announced it was engaging in community consultation regarding development of land between the Tuggeranong Town Centre and the Murrumbidgee River.

Since the 1980s, when Lake Tuggeranong was formed close to the Town Centre, activity around the lake has increasingly intensified and now includes major shopping centres, government offices, several community facilities, recreational activities, and ongoing residential development. As the Tuggeranong District originally attracted young families to live in the District and has since begun to experience an ageing population, it has come to epitomise the low density, middle to outer suburb common to cities throughout the western world. A location map of the Tuggeranong District is located in Figure 1.1.

TUGGERANONG DISTRICT: OVERVIEW

Covering almost 16,000ha, the Tuggeranong District is one of the largest and the southernmost urbanised district in Australia’s capital city. One third of the District is dedicated to urban land uses, including residential, commercial, industrial, infrastructure and open space, whilst the remaining two thirds of the District comprises rural land uses and National Park.

Commercial development within the District includes the Tuggeranong Town Centre and group centres in Erindale, Chisholm, Calwell, Kambah, and Conder, as well as various local shopping centres that service suburbs throughout the District (usually at least one local centre in each of the 19 suburbs). These commercial centres provide goods, services and employment opportunities.

The majority of residential development in Tuggeranong has been governed by suburban, low-density growth dominated by
detached dwellings. Exceptions to this are the compact medium density development, comprising townhouses or semi-detached dwellings in the newer southern suburb of Banks, and relatively higher proportions of multi-unit dwellings close to local or group centres. The highest population and dwelling densities are evident in Banks, Bonython and Isabella Plains, whilst the lowest densities are evident in Fadden, Macarthur and Theodore.

In 2011 the Tuggeranong District had a population of 86,900 (ABS, 2015). This may be attributed to migration patterns within the ACT, housing demand and affordability, and demographic changes. There is also a decreasing level of ‘natural increase’ (births minus deaths) (ACT Government, 2009), which is resulting in an ageing population. As a result of these trends, many suburbs within the District are experiencing a gradual decline in population numbers (see Section 3.1). The suburb of Greenway is experiencing an increase in residents, due to the construction of a mixed-use development adjacent to the Tuggeranong Town Centre.

The socio-economic profile of Tuggeranong is similar to that of the rest of the ACT. It is a family-oriented district, with the majority of households consisting of family compositions in single dwellings throughout the suburban areas. Single person households are typically located closer to urban centres that contain higher density development. Ninety per cent of Tuggeranong’s population are employed in full-time or part-time work, with the main industry of employment being government administration. Other common industries include trades and community services, such as education and healthcare. Household incomes in the Tuggeranong District are on par with those for the whole of ACT, with over two thirds of properties owned (outright or with a mortgage). Unsurprisingly, the areas with highest mortgage repayments and rents correlate with the highest household incomes, such as Fadden, north-western Bonython and western Kambah, whilst lowest mortgage and rent payments are found in areas of lowest household incomes, such as Gordon/Conder, Wanniassa and Richardson.

In 2011, the ACT Planning and Land Authority undertook a SWOT analysis of various aspects of the town and group centres in Tuggeranong. This analysis informed the master plan processes for the Tuggeranong Town Centre and Erindale group centre, both of which were completed in 2012. The SWOT analysis was designed to address the question ‘what is the future of these two areas?’ (ACTPLA, 2011, p2) process, and found that a strategic, long term vision for the future of Tuggeranong required a holistic and integrated planning model and approach to ensure sustainable development and related community aspirations were achieved. The 2012 master plan process updated the Tuggeranong Lakeshore Master Plan of February 2001 and the Erindale Policy Plan (1983).

The Tuggeranong Master Plan (ACT Government, 2012) identified key land uses in the Tuggeranong Town Centre, providing goods, services and employment to the surrounding district, including:

- the Hyperdome shopping mall
- the Australian Government Department of Human Services
- Lake Tuggeranong College and public library
- community facilities such as the health centre, arts centre and Salvation Army church
- recreational facilities including a skate park, swimming pool, parkland and oval
- car parks.
Figure 1.1. Location map, Tuggeranong District precinct maps and codes, effective 28 March 2014
Figure 1.2. Tuggeranong Town Centre
2. METHODS

2.1 Overview and rationale

This project undertook a mixed method approach to explore the key characteristics of the Tuggeranong District, and the perceptions of community members. These methods include an analysis of key quantitative data using GIS, and qualitative analysis of semi-structured interviews and focus groups. The use of both quantitative and qualitative data enables a comprehensive exploration of community sustainability, renewal and revitalisation in the Tuggeranong District. Analysis of quantitative data provides a broader understanding of key social, economic, and demographic indicators of the Tuggeranong population, including social trends of renewal and retrofitting across suburbs within the district. The qualitative data enables an exploration of perspectives on renewal and retrofitting from the point of view of those who live and work in the District. In addition, participants were asked what they valued about Tuggeranong, and for their perspectives of a vision for Tuggeranong. The full list of questions for the interviews and the focus groups is contained in Appendix 2. The study was approved by the University of Canberra Human Research Ethics Committee (H15-191).

The analysis in this paper combines the GIS analysis and the analysis of the qualitative data collected via semi-structured interviews and focus group data. These themes are discussed in the context of place-based sustainable urban renewal. The core themes identified have then been contextualised by relevant literature and experience.

2.2 Geographic Information Systems

This an analysis of key characteristics of the Tuggeranong District utilises Geographic Information Systems relying on data derived from data collections including those held by the Australian Bureau of Statistics (ABS), including the Socio-Economic Indexes for Areas (SEIFA). These data provide profile information for Tuggeranong, enabling the analysis of density of suburbs, transport nodes and uses, types of employment, areas of social and economic advantage and disadvantage, income, and home ownership.

2.3 Interviews

These interviews enabled study participants to share experiences and preferences using natural conversation approaches. Interviews took place between October and November 2015 and lasted between 40 and 60 minutes in duration, with supplementary interviews in May 2016. Interviews were audio recorded and fully transcribed. Due to the need for anonymity, data is de-identified so as study participants cannot be identified. The interviews were conducted in locations that best suited the participant, typically at the participant’s home, work, or at a convenient public location. Interview questions (Appendix 2) were used to guide the interview, with actual question and probes used determined by the participants experience and interests. This flexible approach to the interview questions is important as the interviewer cannot fully anticipate the types of issues that may arise during an interview by use of predetermined questions. In addition, during the course of an interview there can be more useful ways to express issues and explore participant responses by asking additional questions (probes) that render the interview more like a conversation, allowing for more free communication and exchange of ideas (Denzin et al., 2003). As such, interviews are a useful method for identifying issues, values and challenges on a particular topic or topics, the result of which can indicate key themes. The interview and focus group data was thematically analysed according to identified common themes derived from the literature and empirical findings (see Silverman, 2006).

Interview participants were selected using a purposive sampling process, where key community stakeholders were initially targeted so as to provide a strong contextual understanding of the Tuggeranong District. Key stakeholders included representatives from community organisations, the local business community and elected politicians (see Table 2.1). A snowball sampling method was used following initial interviews, where study participants identify other community members who may be interested and suitable to talk with, based on study objectives. To ensure a diversity of interests were represented, a maximum variation sampling procedure was used whereby participants were asked to identify people with differing perspectives (Guba & Lincoln, 1989). Interviews were conducted until the saturation point, where no new information emerges (Strauss & Corbin, 1998; Silverman, 2006).

Table 2.1. Stakeholder interviews

<table>
<thead>
<tr>
<th>Identified community representatives</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Groups &amp; Organisations (including registered charities)</td>
<td>8</td>
</tr>
<tr>
<td>Local Businesses</td>
<td>3</td>
</tr>
<tr>
<td>Elected Officials</td>
<td>2</td>
</tr>
</tbody>
</table>
Kambah Village

Oxley

Banks Sports Oval
2.4 Focus groups

Focus groups targeting Tuggeranong residents were undertaken in late May 2016 to explore householder perspectives towards urban renewal and retrofitting. Three Tuggeranong suburbs were selected based on the GIS analysis. They were Kambah, Oxley, and Banks. These three suburbs were selected to provide a spatial cross-section of the Tuggeranong District, and a diversity of socio-demographic conditions, population, residential density and age of housing stock.

Focus groups for each suburb were held at the Tuggeranong Arts Centre from 6.30 to 8.30pm, with light supper provided. Participants were recruited using a range of techniques (Table 2.2) designed to provide maximum awareness across the community of the focus groups and the opportunity to participate in discussions about urban renewal in Tuggeranong. Despite the efforts in recruitment only six participants attended one of the three planned focus groups, all of which were from Kambah.

The focus groups were facilitated discussions that addressed core themes regarding participants perceptions of key concepts including revitalisation and retrofitting, and defining long term sustainability. In addition, extended discussions were had to detail what participants valued about the District, and in describing their vision for the District. The facilitation encouraged open discussion around the core interests of the participants, which provided a rich and detailed understanding of residents’ perceptions of renewal and revitalisation for their suburb. Focus group data for the Kambah residents group was thematically analysed.

Table 2.2 – Recruitment techniques for focus group participants

<table>
<thead>
<tr>
<th>Recruitment Technique</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local newspaper advertising (Chronicle) including basic details (date, time, RSVP details)</td>
<td>The Chronicle is an important media in local communities due to its wide distribution</td>
</tr>
<tr>
<td>Letterbox flyers distributed by Australia Post and research team (approx. 6500 flyers) to the three suburbs</td>
<td>Direct distribution to each letterbox (except mailboxes identified as not accepting junk mail) to advise suburb residents of the study and focus group opportunity</td>
</tr>
<tr>
<td>Radio Interview on ABC666</td>
<td>Radio provides listeners with a good idea on what the study is and how they can get involved. The accessible interview style of radio can help to encourage and attract participants, de-mystifying the focus group process</td>
</tr>
<tr>
<td>Community Noticeboards – A4 colour flyers were placed on community noticeboards at local shops and service centres, including the Tuggeranong town centre and Erindale centre</td>
<td>Community notice boards are an important information source for local residents, providing a simple, cost effective information source</td>
</tr>
<tr>
<td>School newsletter advertising</td>
<td>School newsletters are read by parents residing on the selected suburbs. These newsletters provide cost effective opportunity to reach part of the target audience</td>
</tr>
<tr>
<td>Social media – Twitter</td>
<td>Social media is a cost effective method to distribute information to residents</td>
</tr>
<tr>
<td>Community Organisation Website – advertising on the Tuggeranong Community Council website</td>
<td>Utilising local organisations and their communication facilities can be an effective tool, leveraging resources and providing localised legitimacy to the process and its objectives.</td>
</tr>
</tbody>
</table>
### 3. Geographic Information Systems Data Analysis

An analysis of the spatial, demographic and socio-economic characteristics of the Tuggeranong District was undertaken to develop a community profile of Tuggeranong. This section provides detailed findings derived from the analysis of this data, as follows: section 3.1 provides a demographic profile of the District, including population growth, distribution and structure. Section 3.2 discusses dwelling distribution followed by an analysis of social and economic profiles in Section 3.3, which includes the distribution of household incomes, rents and mortgages, as well as overall socio-economic advantage and disadvantage. Residential density trends are discussed in Section 3.4. Section 3.5 provides information on employment across the District, including work status, occupation and industry of employment. Section 3.6 offers insights into transport patterns, such as number of vehicles per dwelling, mode of travel to work and main transport routes and options within the District. Finally, Section 3.7 highlights the District’s performance regarding the uptake of energy efficiency initiatives in residential, commercial and education sectors.

#### 3.1 Demographic profile of the Tuggeranong District

##### Population Growth and Distribution

Tuggeranong is one of the most populated districts in the ACT, second only to Belconnen (ACT Government, 2009). Population growth in the Tuggeranong District has remained static over the last decade, with less than 1 per cent growth (Figure 3.1). This pattern is in contrast to the population in the ACT overall, which has experienced considerable growth (15.5%), increasing at an annual rate of 1.6 per cent.

Table 3.1 shows the number of people in each suburb from 2001 to 2011, as determined by the ABS population census. Kambah has the largest population in the District, with over 15,000 people, followed by Wanniassa and Gordon, with almost 8000 people each. Most suburbs are experiencing a decrease in population (less than 10% loss), with the exception of Banks, Bonython, Conder and Greenway, all of which have experienced relatively substantial increases in resident numbers. The 50 per cent population increase in Greenway (from less than 1000 in 2001 to 1500 in 2011) can be attributed to the mixed-use development adjacent to the Tuggeranong Town Centre in the Southquay precinct, which will contain 1000 dwellings and over 3000m2 of commercial space once complete.1

<table>
<thead>
<tr>
<th>Suburb</th>
<th>2001</th>
<th>2006</th>
<th>2011</th>
<th>% change*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks</td>
<td>3,618</td>
<td>4,907</td>
<td>5,060</td>
<td>39.9</td>
</tr>
<tr>
<td>Bonython</td>
<td>3,453</td>
<td>3,363</td>
<td>3,838</td>
<td>11.1</td>
</tr>
<tr>
<td>Calwell</td>
<td>6,020</td>
<td>5,929</td>
<td>5,833</td>
<td>-3.1</td>
</tr>
<tr>
<td>Chisholm</td>
<td>5,648</td>
<td>5,378</td>
<td>5,238</td>
<td>-7.3</td>
</tr>
<tr>
<td>Conder</td>
<td>4,347</td>
<td>5,051</td>
<td>5,313</td>
<td>22.2</td>
</tr>
<tr>
<td>Fadden</td>
<td>3,295</td>
<td>3,214</td>
<td>3,083</td>
<td>-6.4</td>
</tr>
<tr>
<td>Gilmore</td>
<td>2,968</td>
<td>2,905</td>
<td>2,843</td>
<td>-4.2</td>
</tr>
<tr>
<td>Gordon</td>
<td>7,433</td>
<td>7,869</td>
<td>7,766</td>
<td>4.5</td>
</tr>
<tr>
<td>Gowrie</td>
<td>3,273</td>
<td>3,226</td>
<td>3,072</td>
<td>-6.1</td>
</tr>
<tr>
<td>Greenway</td>
<td>970</td>
<td>1,130</td>
<td>1,454</td>
<td>49.9</td>
</tr>
<tr>
<td>Isabella Plains</td>
<td>4,371</td>
<td>4,317</td>
<td>4,315</td>
<td>-1.3</td>
</tr>
<tr>
<td>Kambah</td>
<td>16,069</td>
<td>15,579</td>
<td>15,449</td>
<td>-3.9</td>
</tr>
<tr>
<td>Macarthur</td>
<td>1,575</td>
<td>1,582</td>
<td>1,460</td>
<td>-7.3</td>
</tr>
<tr>
<td>Monash</td>
<td>5,742</td>
<td>5,549</td>
<td>5,423</td>
<td>-5.6</td>
</tr>
<tr>
<td>Oxley</td>
<td>1,832</td>
<td>1,788</td>
<td>1,785</td>
<td>-2.6</td>
</tr>
<tr>
<td>Richardson</td>
<td>3,333</td>
<td>3,232</td>
<td>3,133</td>
<td>-6.0</td>
</tr>
<tr>
<td>Theodore</td>
<td>4,157</td>
<td>4,109</td>
<td>4,020</td>
<td>-3.3</td>
</tr>
<tr>
<td>Wanniassa</td>
<td>8,175</td>
<td>7,933</td>
<td>7,785</td>
<td>-4.8</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>86,279</strong></td>
<td><strong>87,061</strong></td>
<td><strong>86,870</strong></td>
<td><strong>0.7</strong></td>
</tr>
</tbody>
</table>

*Note: negative values indicate a decrease in population; positive values indicate an increase.

Nearly 78 per cent of people living in the Tuggeranong District are Australian-born, including 21 per cent of the total population in the District identifying as Aboriginal and/or Torres Strait Islander. The remaining population comprises a mix of ethnicities, including English (3.7%), New Zealanders (1.2%) and smaller proportions of Indians (1%), Filipinos and Scottish (both 0.7%) (Figure 3.2).

![Figure 3.2 County of birth of residents in the Tuggeranong District](image)

The highest concentrations of population are throughout the southern region of the District, in the suburbs of Banks, Conder, Bonython/Calwell, Richardson and Gilmore (Appendix 4, Figure A4.1). High numbers of population can also be seen throughout the northern suburbs of the District, in particular the suburbs of Kambah, Wanniassa, Macarthur and Greenway. Higher numbers of residents tend to be correlated with the location of commercial centres and multi-unit or compact dwelling types, discussed in Section 3.3.

### Population Structure

The structure of Tuggeranong’s population is the same as that of ACT and similar to that of Australia (Table 3.2 and Figure 3.3). The majority of residents (56%) are of working age (i.e. 25–64 years old), whilst 34 per cent are children and young adults (up to 24 years) and the remaining 10 per cent are in the older generation (65 years and over). The median age in Tuggeranong is 35, which is again the same as the median age for the ACT overall (ABS, 2015).

#### Table 3.2. Proportions of age groups in Tuggeranong, ACT and Australia in 2014

<table>
<thead>
<tr>
<th>District</th>
<th>0–14 (%)</th>
<th>15–24 (%)</th>
<th>25–64 (%)</th>
<th>65+ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuggeranong</td>
<td>19.8</td>
<td>14.2</td>
<td>55.8</td>
<td>10.2</td>
</tr>
<tr>
<td>ACT</td>
<td>18.7</td>
<td>14.3</td>
<td>55.3</td>
<td>11.7</td>
</tr>
<tr>
<td>Australia</td>
<td>19</td>
<td>13.3</td>
<td>52.7</td>
<td>15</td>
</tr>
</tbody>
</table>

Source: ABS, 2015

There is approximately double the number of children (0–14 years) than elderly (65+ years) in Tuggeranong, demonstrating that it is a family-oriented district, however there is also a shift towards an ageing population. This can be evidenced by the proportion of young people reducing by 6 per cent and the number of older people increasing by almost 4 per cent between 2001 and 2011 (Table 3.3). In addition, Figure 3.4 shows that whilst the children and young adult populations are reducing and stabilising respectively, the proportions of working age and older generations are both increasing. The total percentage of younger people (including children under 15 years and young adults up to 25 years old) was only a third of the total population in 2011. Combining the dominant age group of working age people (56%) with those aged 65 years and over, the total proportion of people aged over 25 years in the Tuggeranong District is 64 per cent of the District’s population (Table 3.3 and Figure 3.4). This may contribute to an increased ratio of aged population in the District.
Table 3.3. Number and proportion of people in each age group within the Tuggeranong District for each census year between 2001 and 2011 (based on ABS 2015 data)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>0–14 years</td>
<td>23,123</td>
<td>26.8</td>
<td>19,761</td>
<td>22.7</td>
<td>17,812</td>
<td>20.5</td>
</tr>
<tr>
<td>15–24 years</td>
<td>13,152</td>
<td>15.2</td>
<td>14,008</td>
<td>16.1</td>
<td>13,487</td>
<td>15.6</td>
</tr>
<tr>
<td>25–64 years</td>
<td>46,314</td>
<td>53.7</td>
<td>48,210</td>
<td>55.3</td>
<td>48,762</td>
<td>55.9</td>
</tr>
<tr>
<td>65 years +</td>
<td>3,757</td>
<td>4.4</td>
<td>5,141</td>
<td>5.9</td>
<td>6,838</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>86,346</td>
<td>100</td>
<td>87,120</td>
<td>100</td>
<td>86,899</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: ABS, 2015

Figure 3.4. Number and proportion of people in each age group within the Tuggeranong District for each census year between 2001 and 2011 (based on ABS 2015 data)

Source: ABS, 2015

Figures 3.5 shows that young people are typically located in the south of the District. The suburbs with the highest proportion of children aged 0–14 years are Banks (25%), Conder (24%) and Theodore (23%), whilst Oxley and Macarthur have the most young adults (both 19%). Greenway has the lowest proportion of young people (11% and 12% for children and young adults, respectively). Whilst there is a strong trend of children grouped spatially throughout the District, young adults tend to be more scattered.

In contrast there is a distinct spatial trend of working age and older people being concentrated in the north of the District (Figure 3.6). Greenway has the highest proportion of 25–64 year olds at 62 per cent, followed by Kambah, Fadden and Gowrie (all 57–58%). There is a moderate number of working age people in the suburbs that have a high number of children. Greenway has the highest proportion of older people aged 65 and over, with almost 14 per cent, closely followed by Monash at 13 per cent. Other suburbs in the northern extent of the District have a high percentage of older people in relation to other suburbs in the District (8.5–10.5%), including Kambah, Wanniassa, Fadden and Gowrie.

These spatial trends demonstrate that whilst the suburbs of Tuggeranong are likely to remain family-oriented with relatively high numbers of young people and working age parents, the demographic profile of the District is tending towards an ageing population.
3.2 Dwellings and land use

DISTRIBUTION OF DWELLINGS
The highest number of dwellings can be found in the suburbs of Greenway, central Kambah, Bonython and the north-western corners of Calwell and Banks, followed by east Wanniassa, Chisholm/Gilmore and Conder. These areas have a higher proportion of multi-unit dwellings, such as apartments and townhouses, and tend to be situated close to a village or town centre. Figure 3.7 highlights the location of urban centres (core, business and services land use zones) and suburban cores throughout the Tuggeranong District. Mapping of land use types and zoning is found in Appendix 2 Figure A2.2.

Table 3.5 provides the average net densities for each suburb within the District. Residential density within the Tuggeranong District is relatively low.

Of all occupied private dwellings in the Tuggeranong District, almost 86 per cent are separate houses, whilst 11.6 per cent are townhouses or other type of semi-detached dwelling, and only 2.6 per cent are units (ABS, 2015). Most households (79%) are families, a further 18 per cent are single person households and the remaining 3 per cent are group households (ABS, 2015). This pattern can be seen in the average number of people per household across the District (Appendix 2, Figure A2.3). Greenway and the southern parts of Kambah and Wanniassa have two or less people per household, which correlates with urban centres that contain a higher concentration of multi-unit dwellings. Households of three–four people will typically reflect family compositions in single residential dwellings. The average number of people per household in the Tuggeranong District is 2.8, compared with 2.6 for the ACT (ABS, 2011).

There is a higher concentration of high to very high socio-economic status around the Erindale group centre, whereas Tuggeranong Town Centre has a range from very low to very high levels of socio-economic status amongst the population. This may have an impact on how the group and town centres are used and perceived by the community.

3.3 Social and economic analysis

The socio-economic profile of Tuggeranong is similar to that of the rest of the ACT. The most disadvantaged households with a weekly gross income of less than $600 comprise 11.4 per cent of the Tuggeranong population compared with 12.9 per cent of the ACT population, whilst the highest earners make up 23.1 per cent of Tuggeranong, and 23.7 per cent the overall ACT populations. The suburbs of Fadden, Gilmore, Calwell, Conder, Bonython, northern Gordon and western Kambah have the highest household incomes in the Tuggeranong District, whilst central Kambah, Richardson and parts of Wanniassa, Monash/Isabella Plains and Conder/Gordon/Banks have lower household incomes (Figure 3.8). Personal, family and household incomes in the Tuggeranong District are on par with those for the whole of ACT (ABS, 2015; Table 3.4).

<table>
<thead>
<tr>
<th>Table 3.4. Median weekly incomes for Tuggeranong and the ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuggeranong($)</strong></td>
</tr>
<tr>
<td>Personal</td>
</tr>
<tr>
<td>Family</td>
</tr>
<tr>
<td>Household</td>
</tr>
</tbody>
</table>

Source: ABS, 2011
Figure 3.5. Proportion of suburbs in the Tuggeranong District that have a) 0–15 and b) 15–24 year olds

Source: ABS, 2011

Figure 3.6. Proportion of suburbs in the Tuggeranong District that have a) 25–64 year olds and b) people aged 65 years and older

Source: ABS, 2011
Figure 3.8. Median total household income per week at SA1 level

Legend

Median total weekly household income

- 0
- 1 - 1,500
- 1,501 - 2,000
- 2,001 - 2,500
- >2,500

Source: ABS, 2011
In terms of residential tenure, 27.6 per cent of occupied private dwellings in the Tuggeranong District are owned outright, whilst nearly half (48%) are owned with a mortgage (which is 10 per cent higher than for the ACT) and a further 22.7 per cent are rented (ABS, 2011). Median rental payments are typically average throughout the District, with only western Kambah, Fadden, south-eastern Conder and north-western Bonython displaying higher than average weekly rents (Appendix 2, Figure A2.4). The lowest rents are in central Kambah, south Wanniassa, Richardson and Gordon/Conder. Similarly, Fadden, north-western Bonython, Conder, Banks and small areas in Calwell and Gilmore have higher than average monthly mortgage repayments, whilst most other suburbs throughout the District typically have average mortgage repayments (Appendix 2, Figure A2.5). Unsurprisingly, the areas with highest rent and mortgage repayments correlate with the highest household incomes, whilst the lowest rents and mortgage repayments are found in the areas of lowest households incomes.

SOCIO-ECONOMIC DISTRIBUTION

Figure 3.9 highlights that the most advantaged people are located in Fadden/Macarthur, western Kambah and in the south-eastern suburbs of Calwell, Theodore and Conder, whilst disadvantaged populations are situated in the suburbs of Richardson, Isabella Plains, central Kambah and Banks/Gordon. It is interesting to note that socio-economic status can vary widely within a suburb; also that there tends to be a higher concentration of high to very high advantage around the Erindale group centre, whereas Tuggeranong Town Centre has a range of very low to very high levels of advantage/disadvantage. There does not appear to be any correlation between the socio-economic standing of a local area and the success of its local centre.

Comparison of Tuggeranong to ACT and to National SEIFA

The SEIFA Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) provides a snapshot of the social and economic conditions of people and households within an area (ABS, 2014), in this case the Tuggeranong District. Relative advantage, or lack of disadvantage, is indicated by a higher score and reflects many households with high incomes, or many people in skilled occupations. Lower scores indicate relative disadvantage, which are a reflection of many households with low incomes or many people in unskilled occupations (ABS, 2014).

In comparison with the rest of the ACT, Tuggeranong has pockets of relative advantage but overall it is less advantaged than other districts in the ACT, particularly the Inner South of Canberra Central and Gungahlin (Figure 3.10).

However, Tuggeranong’s IRSAD ranking within Australia tells a very different story. Most of the District is relatively advantaged, with the most advantaged areas (with deciles between 8 and 10) being the same as those identified as advantaged in the ACT ranking (Figure 3.11). There are only a couple of minor pockets that are somewhat disadvantaged (with a decile of 3–5), and these exist where there is a commercial centre with little to no residential land use. This suggests that socio-economic status is not only a function of location, but also the number of people. These maps also show that whilst Tuggeranong is relatively disadvantaged compared with the rest of the ACT, it is actually in a state of relatively high socio-economic advantage compared with the rest of Australia.
Figure 3.9. Index of relative advantage and disadvantage

Source: ABS, 2011
Figure 3.10 Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) – ranking of Tuggeranong District in relation to the ACT
Figure 3.11. SEIFA Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) – ranking of Tuggeranong District in relation to Australia

Source: ABS, 2011
3.4 Residential density

Residential density is an indicator of how a population is dispersed throughout an area. Residential density for the Tuggeranong District is measured in this study by net population and dwelling densities. Net density is calculated for residential land uses only, as opposed to gross density, which is calculated over the whole land area, including urban and non-urban land uses where people do not live. For this reason, net density was calculated for both population and dwelling densities in the Tuggeranong District (Flannery et al., 2015).

Density figures were extracted for residential land use types only and mapped using threshold values representing very low to very high residential densities. Appendix 4, Figure A4.2 shows residential, urban and non-urban land use types across the Tuggeranong District.

The highest population and dwelling densities can be found in Banks, Bonython and Isabella Plains, whilst the lowest densities are in Fadden, Macarthur and Theodore (Table 3.5). These patterns are evident in the maps of net population and dwelling densities (Figures 3.12 and 3.13), and can be correlated with socio-economic advantage and disadvantage.

Table 3.5. Net population and dwelling densities for the suburbs of Tuggeranong

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Population density (net)</th>
<th>Dwelling density (net)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks</td>
<td>27.49</td>
<td>9.42</td>
</tr>
<tr>
<td>Bonython</td>
<td>22.98</td>
<td>8.77</td>
</tr>
<tr>
<td>Calwell</td>
<td>18.95</td>
<td>6.73</td>
</tr>
<tr>
<td>Chisholm</td>
<td>17.58</td>
<td>6.33</td>
</tr>
<tr>
<td>Conder</td>
<td>18.94</td>
<td>6.00</td>
</tr>
<tr>
<td>Fadden</td>
<td>14.93</td>
<td>5.26</td>
</tr>
<tr>
<td>Gilmore</td>
<td>17.21</td>
<td>5.96</td>
</tr>
<tr>
<td>Gordon</td>
<td>20.53</td>
<td>7.57</td>
</tr>
<tr>
<td>Gowrie</td>
<td>18.07</td>
<td>6.46</td>
</tr>
<tr>
<td>Greenway</td>
<td>5.34</td>
<td>2.75</td>
</tr>
<tr>
<td>Hume</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Isabella Plains</td>
<td>21.12</td>
<td>7.13</td>
</tr>
<tr>
<td>Kambah</td>
<td>16.16</td>
<td>6.19</td>
</tr>
<tr>
<td>Macarthur</td>
<td>13.07</td>
<td>4.43</td>
</tr>
<tr>
<td>Monash</td>
<td>20.28</td>
<td>7.64</td>
</tr>
<tr>
<td>Oxley</td>
<td>16.9</td>
<td>5.93</td>
</tr>
<tr>
<td>Richardson</td>
<td>18.19</td>
<td>6.33</td>
</tr>
<tr>
<td>Theodore</td>
<td>14.28</td>
<td>4.89</td>
</tr>
<tr>
<td>Wanniassa</td>
<td>16.93</td>
<td>6.40</td>
</tr>
<tr>
<td>Tuggeranong District Average</td>
<td>17.84</td>
<td>6.45</td>
</tr>
</tbody>
</table>
Figure 3.12. Net population density in the Tuggeranong District

Source: ABS, 2011
Figure 3.13. Net dwelling density in the Tuggeranong District

Source: ABS, 2011
**DWELLING STRUCTURE**

The ABS identifies and measures three types of dwelling structure: detached, compact/row terrace and multi-unit. Each can be considered to represent low, medium and high residential density respectively. Table 3.6 and Figure 3.14 show that Tuggeranong has a considerably higher proportion of low density detached housing (85%) than the ACT and Australia (72% and 76% respectively). By stark contrast, only two per cent of housing in the Tuggeranong District is multi-unit high density, which is significantly lower than both ACT (12%) and Australia (14%). Similarly, Tuggeranong has a lower proportion of medium density compact/row terraces (12%) than the Territory average (16%).

With regards to dwelling size, Tuggeranong tends to have larger dwellings than its state and national counterparts, thus low density suburbs that are dominated by large detached dwellings on individual parcels of land. On average, Tuggeranong has a larger number of bedrooms and people per dwelling than the ACT and Australia (Table 3.7). Although this is a common trend for Australians in general, Table 3.7 and Figure 3.15 show that Tuggeranong still has a considerably larger proportion of three and four bedroom houses (92%) than both the ACT (80%) and Australia (74%). In keeping with the low-density development trend within the District, Tuggeranong has very low proportion of dwellings (less than 10%) with two or less bedrooms, which are more typical of compact and multi-unit types of development.

Table 3.8 and Figure 3.16 highlight that Tuggeranong is a car dependent district, which is also true of the ACT and Australia in general. The majority of households (64%) own two or more vehicles. This is slightly higher than ACT and Australian figures, although more than half of households in these jurisdictions (55% and 53% respectively) have two or more cars. Less than a third of households in the Tuggeranong District only own one vehicle, which is lower than its state and national counterparts at 36–37 per cent. These statistics are closely correlated with the use of vehicles for method of travel to work.

---

**Table 3.6. Proportion of existing detached, compact/row terrace and multi-unit dwellings in Tuggeranong, ACT and Australia, based on 2011 census data (based on ABS 2015 data)**

<table>
<thead>
<tr>
<th>Population</th>
<th>Detached</th>
<th>Compact/row terrace</th>
<th>Multi-unit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Tuggeranong</td>
<td>27,903</td>
<td>85.2</td>
<td>4,012</td>
<td>12.2</td>
</tr>
<tr>
<td>ACT</td>
<td>96,532</td>
<td>72.1</td>
<td>20,937</td>
<td>15.6</td>
</tr>
<tr>
<td>Australia</td>
<td>5,864,874</td>
<td>76.3</td>
<td>765,980</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Source: ABS, 2011

**Table 3.7. Number of bedrooms and people in dwellings in Tuggeranong, ACT and Australia in 2011**

<table>
<thead>
<tr>
<th>District</th>
<th>Percentage (# bedrooms)</th>
<th>Average</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4 or more</td>
<td>Bedrooms</td>
</tr>
<tr>
<td>Tuggeranong</td>
<td>0.1</td>
<td>1.1</td>
<td>5.8</td>
<td>50.3</td>
<td>41.9</td>
<td>3.4</td>
</tr>
<tr>
<td>ACT</td>
<td>0.3</td>
<td>5.2</td>
<td>13.5</td>
<td>43.4</td>
<td>36.5</td>
<td>3.2</td>
</tr>
<tr>
<td>Australia</td>
<td>0.5</td>
<td>4.7</td>
<td>19.1</td>
<td>43.6</td>
<td>30.3</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: ABS, 2011

**Table 3.8. Number of vehicles per dwelling in Tuggeranong, ACT and Australia in 2011**

<table>
<thead>
<tr>
<th>No.cars</th>
<th>None</th>
<th>1</th>
<th>2</th>
<th>3 or more</th>
<th>Not stated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuggeranong (%)</td>
<td>3.7</td>
<td>30.6</td>
<td>41.8</td>
<td>22.1</td>
<td>1.7</td>
</tr>
<tr>
<td>ACT (%)</td>
<td>6.2</td>
<td>36.7</td>
<td>38.8</td>
<td>16.3</td>
<td>2</td>
</tr>
<tr>
<td>Australia (%)</td>
<td>8.6</td>
<td>35.8</td>
<td>36.1</td>
<td>16.5</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: ABS, 2011
Figure 3.14. Proportion of existing detached, compact/row terrace and multi-unit dwellings in Tuggeranong, ACT and Australia, based on 2011 census data

Figure 3.15. Number of bedrooms and people in dwellings in Tuggeranong, ACT and Australia in 2011

Source: ABS, 2011
3.5 Employment analysis

The proportion of Tuggeranong’s population employed full-time is 65.5 per cent, 25 per cent work part-time, a further 6.5 per cent are currently away from work and only 3 per cent are unemployed (ABS, 2011). These proportions are comparable with those for the ACT.

Of those who are employed, the most common occupations include professionals (22%), clerical and administration (also 22%), managers (14%) and tradespeople (nearly 13%) (ABS, 2011), see Figure 3.17.

Tradespeople can be identified as common in the Tuggeranong District, with a higher proportion in Tuggeranong than in the ACT overall (Figure 3.17). There is a lower percentage of professionals and managers in the Tuggeranong District than the ACT, however there are higher numbers of people in all other types of employment, such as sales, community services and labour.

The most common industry of employment in the Tuggeranong District is central government administration at just over 20 per cent, which is accounted for by the Department of Human Services in Tuggeranong Town Centre. Other industries include Defence (4.4%), education (3.8%), hospitality (3.4%) and healthcare (2.9%), demonstrating the ACT’s high rate of employment in the government and defence industries. The number of people employed in other industries, such as education, hospitality and healthcare, in Tuggeranong is between 3–4 per cent, which is very similar to rates of employment in these industries within the ACT and Australia overall.

Appendix 2, Figure A2.6 spatially maps a SEIFA Index of Education and Occupation across the District. This map shows that there is a correlation between level of education, type of occupation and socio-economic status. Fadden, Macarthur, west Kambah and Greenway have high levels of education and occupation, which directly relate to areas of high socio-economic advantage. Higher levels of education are generally associated with higher incomes through employment opportunities that offer greater responsibilities and earning capacities, which may explain this correlation existing in these suburbs.
Figure 3.17. Occupations of employed people in Tuggeranong, ACT and Australia

Figure 3.18. Industry of employment for residents in Tuggeranong, compared with ACT and Australia

Source: ABS, 2011
3.6 Transport analysis

The most common method of travel to work is by car, with nearly 69 per cent as drivers and a further 7 per cent as passengers (Figure 3.19 ABS, 2015). This is not unexpected as Canberra is typically a car dependent city. The proportion of people who use private transport to travel to work is higher in Tuggeranong (76% altogether) than in the ACT and Australia (69% and 65%, respectively), which may be related to several factors, such as distance to workplace, accessibility of alternative transport modes and individual preferences. The number of people who are passengers in private vehicles in the Tuggeranong District suggests that car pooling or car sharing may be increasing in popularity. In contrast, the number of people who currently catch a bus (less than 5%) or walk to work (less than 1.5%) is very low, whilst the results for cycling were even more negligible. The proportions of people who use these modes of travel are lower in Tuggeranong than the ACT, which indicates a distinct lack of active travel within the District.

The main transport routes are along Athllon Drive and Drakeford Drive, the two main arterial roads connecting western Tuggeranong to Woden Valley and Weston Creek Districts, as well as Erindale, Ashley and Johnson Drives through the centre of Tuggeranong (Figure 3.20). The traffic model shown in Appendix 2, Figure A2.7 highlights the projected increasing volumes of traffic and resultant congestion along these routes over the next two decades. This suggests travel by private vehicle will become more difficult in the District without improvements to infrastructure and alternative modes of transport.

There is an extensive bus system throughout the Tuggeranong District, however the figures in Figure 3.19 above indicate that it is not widely used. The main bus route that links the District to the city centre and northern Canberra is the Blue Rapid along Athllon Drive (Figure 3.20). The bus system is also supported by two ‘Bike and Ride’ and several ‘Park and Ride’ stations within the District, one of which is not on the main transport routes but on an arterial road that joins the Monaro Highway to Queanbeyan. Furthermore, green corridors tend to align with the main transport routes, rather than between transport routes, which may contribute to the lack of active transport modes within the District (as green corridors encourage walking and bike riding between urban centres and neighbourhoods).

Figure 3.19. Mode of travel to work for the Tuggeranong District, ACT and Australia

![Mode of travel to work](image)

Source: ABS, 2011
Figure 3.20. Transport networks in the Tuggeranong District
3.7 Participation in Energy Efficiency Improvement Scheme

The Energy Efficiency Improvement Scheme (EEIS) came into effect in January 2013 to implement cost-effective energy savings in ACT households and businesses. The scheme requires the main electricity retailer in the ACT, ActewAGL, to meet energy saving targets and is delivered by the ACT Government through the ACTsmart program for businesses, schools and households. Figures 3.21-3.23 provide information on Tuggeranong’s participation in the ACT Government’s EEIS, with comparative data across Canberra by district for the calendar years 2013 and 2014 and until September in 2015, followed by summaries of each of the ACTsmart programs. Figure 3.21 shows that Tuggeranong has had decreasing participation in the EEIS over the last three years. With almost 7000 households receiving assistance from the Government in 2013, Tuggeranong had the highest participation rate of all ACT districts when the scheme was established. However in 2014, the number of Tuggeranong households participating in the scheme rose considerably for all other districts, yet reduced in Tuggeranong. Rates dropped again in 2015 for all but Gungahlin District, and only 3000 households were participating in the scheme during 2015.

The same trends can be seen in the installation of devices in each district through the EEIS, as shown in Figure 3.22. Over 70,000 devices were installed in Tuggeranong in 2013, and this reduced to just over 40,000 in 2015. Whilst Tuggeranong has more households participating in the EEIS than its neighbouring districts of Woden Valley and Weston Creek, in the last two years it has had lower participation rates than Belconnen and Canberra Central, and more recently, Gungahlin.

Figure 3.23 highlights that non-priority households have much higher participation rates in the EEIS than priority households, with typically only one quarter of households being considered as priority. Tuggeranong has the second highest participation rates; altogether approximately 15,500 households within the District have participated in the scheme between 2013 and 2015, following Belconnen with approximately 16,500 households participating in the scheme over the same time period. There are 44 businesses currently signed up to the ACTsmart Business Energy Program that have claimed rebates for energy efficient refrigeration, HVAC (heating, ventilation and air conditioning), lighting and hot water systems. Whilst the majority of these businesses are based in Greenway (20), Wanniassa (9) and Kambah (7), a further eight businesses are situated throughout the District in Banks, Bonython, Gowrie, Gordon and Theodore (Figure 3.24). LED lighting is the most commonly rebated item, with over 60 per cent of upgrades, followed by refrigeration (almost 20%).

HES (Home Energy Service) provides free energy efficiency advice to residents over the phone.

The Outreach program is available for low income residents identified through charity organisations such as St Vincent de Paul and Communities@Work. Services are provided for free and include home visits to assess energy efficiency, retrofitting such as draught proofing, and updating appliances with those that have a higher energy efficiency rating.

Currently over 900 households are participating in the ACTsmart Residential Outreach Program. Kambah has the most participating residences (199), followed by Wanniassa (116). Fadden and Macarthur have the lowest participation rates, with less than five residences each (Figure 3.25). All other suburbs have between 15 (Greenway) and 83 (Gordon) residences that have received energy efficiency assistance through the Outreach program. These differences could be due to both size of the suburbs (Kambah and Wanniassa are the largest suburbs in the District) and socio-economic status, as priority is given to low income households (e.g. Fadden and Macarthur are the most advantaged suburbs in the District).

The most common appliances that were provided to households through the Outreach program included heated throw rugs, CFL or LED lighting, front loader washing machines, refrigerator freezers, heaters and draught stoppers. Other appliances included automatic powerboards, fans, clothes drying racks, temperature monitors and shower timers. Window treatments included the installation of blinds or curtains, and retrofitting activities involved ceiling or cavity wall insulation, double glazing windows and draught sealing of internal or external doors and windows.
Figure 3.21. Number of households by district receiving activities from the EEIS

Source: ACT Government, 2015a

Figure 3.22. Number of devices installed through the EEIS by district

Source: ACT Government, 2015a
Figure 3.23. EEIS delivery by household type and district

Source: ACT Government, 2015a

Figure 3.24. Number of households participating in the ACTsmart business program

Source: ACT Government, 2015b
Figure 3.25 Number of households participating in the ACTsmart residential program

Source: ACT Government, 2015c
Focus Group Venue - Tuggeranong Arts Centre

Image: Tayarah O’Donnell
4. COMMUNITY PERSPECTIVES

4.1 Introduction

Previous sections have noted the importance of understanding local community perceptions and aspirations as part of any urban development or renewal project. These community perceptions are distilled from the 13 interviewees as representative of a range of experiences and interests in both the District and the Town Centre, and the Kambah residents focus group. We sought to explore perceptions ranging from the local, group, and town centre scales as well as for the District as a whole.

4.2 Residents’ focus groups

The undertaking of focus groups in Tuggeranong suburbs was a critical aspect of this project in order to understand how people engage with their localities in line with current thinking on people in place in how future sustainable cities can be better developed (Harper and Wright, 2015).

There was participation in the Kambah focus group, with zero participants for Oxley and Banks, despite an extensive recruitment process and an accessible and familiar location in their neighbourhood, (the Tuggeranong Arts centre). Interview responses in this project indicate that people in Tuggeranong may feel consultation fatigue with a number of different agencies working in the District to a similar theme. In addition, many interview participants in this study felt that “our views on the 2012 Masterplan weren’t really considered” and that “nothing has happened since the 2011 Masterplan, so what’s the point of talking more about it”. This may explain in part the apparent apathy of some residents to further engage on what may be broadly perceived as planning issues.

4.2.1 Kambah Residents

The Kambah residents’ focus group was held on Monday evening May 23, 2016. A total of six participants (four women, two men) attended for approximately 2 hours. The same questions as asked of interview participants were asked in the focus group. The focus group was facilitated by Lain Dare and Tayanah O’Donnell. All but one participant had lived in the District since the 1970’s. One participant had young children attending local schools.

Highlights from the Kambah focus group include:

- Participants identified social connectedness and cohesion as a critical aspect of revitalisation
- Participants had difficulty in articulating an identity for Tuggeranong.

Participants lamented that the “sense of community” seemed to be disappearing from Kambah; for some residents, it had disappeared altogether and they preferred to engage with people at different locations including at Wanniassa commercial locations. The “rural” feel of the Kambah Shopping Village was viewed positively and as “very symbolic” of the suburb as “the gateway to Tuggeranong.” However, due to its run down appearance and many empty shops, the centre was “not a magnet” and “needs more people” to make it a thriving community space. Examples of “inviting” community spaces included a restaurant referred to as Biginelli’s, which all agreed had “a real sense of community” with the “place being packed”. When asked specifically about revitalisation and retrofitting, participants confirmed that the reuse of buildings where fit for purpose would be ideal, but quickly returned to discussing the role of social cohesion.

Our analysis of this data indicates that for the residents of Kambah, revitalisation and retrofitting is less about the buildings and more about bringing people together. The built environment which would facilitate these social connections ought be “tidied up”, “refreshed” with places “needing a coat of paint” and in public spaces, that “the grass is cut regularly”. Retrofitting old buildings was seen as positive provided that it didn’t “detract from the character of the place,” though some modernisation and “bringing in new flavours” was noted as important. Finally, a balance between an aesthetically pleasing built environment and an energy efficient built environment was seen as important for Kambah, and it was considered that financial incentives for retrofitting older homes would be successful, particularly to encourage the reduction of wood burn heaters.

In response to broader visions for Tuggeranong, and linking to a sense of place and identity of Tuggeranong, a focus on bringing people out into public spaces was discussed extensively. Participants greatly value the natural environment and access to visual amenity offered by the Brindabella mountain ranges and other green spaces. Participants expressed a desire for infill to be
located in places along transport lines or close to amenities. A desire for infill within Kambah to “reflect the feel of the place” was observed, and support for street art was unanimous. “Development that brings people together, creating small communities, and especially connecting young people” was discussed as a way to bring community-led revitalisation to the District, which could in turn contribute to an identity and long-term vision.

Long term sustainability was discussed by participants with reference to social cohesion and in relation to air and water quality. It was noted that the effect on air quality resulting from the use of wood heaters in the District was contributing to low sustainability, as was the water quality of the Lake. One participant said that the Lake “sometimes smells like a teenage boy” and this was seen as detrimental to both the physical environment and the recreational uses of the Lake. It was agreed that upgrading residential heating would assist in improving air quality, and a focus on the water quality of the lake would improve the Lake, meaning more people would be likely to use it and the surrounding areas.

One participant said that “the Lake should be like SouthBank in Brisbane” and noted that ‘the gazebo’ (referred to in Section 1) needed significant work. These areas could be “fixed” to “create a sense of pride in Tuggeranong” including by focusing on the “spaces between buildings” and by increasing residential use above commercial buildings in the TownCentre, which may encourage more people to use the public areas. Longer term, it was hoped that more night life across the whole District would be encouraged, and that “somehow” the negative perception of Tuggeranong that “feeds off the north/south thing that happens in Canberra” could be diminished.

4.3 Synthesis of themes arising from the qualitative data

The following summary of qualitative data is a synthesis of identified themes that were evident across the interview and focus group data. These data are grouped into three main categories:

1. Current issues
2. Future aspirations
3. Actions going forward.

These data may be constrained due to a number of the one-on-one interviewees being people who have been in representative roles or other positions in and for the Tuggeranong District, where they may have been exposed to some or all of the identified themes. This can have the advantage that the views are likely to be reasonably informed and thoughtful; but the disadvantage that it is not possible to confirm if they represent the views of the broader community, or the views of those who are less directly involved. Despite this, the degree of consistency between responses is very strong and was validated in large part with the Kambah focus group.
### Table 4.1 Perceptions of the Town Centre and District

| Features of the District that were viewed positively | • Natural and environmental aesthetics  
• Proximity to environmental attractions and amenities  
• Amenity potential of Lake Tuggeranong  
• The larger house and land sizes (low density)  
• Strong familial associations within the area (generational). |
|---|---|
| Features of the District that were viewed negatively | • Lacks a distinct brand or identity  
• There is a lack of young people and a diversity of groups taking a community representation role  
• Ageing population  
• Travel distances to and from work  
• Minimal public transport  
• No hospital  
• No tertiary education  
• Concrete drains and waterways  
• Under-developed recreational facilities. |
| Features of the Town Centre that were viewed positively | • A few good community meeting places  
• Locally committed local businesses  
• Lake Tuggeranong and Tuggeranong Park have potential to bring people out into place. |
| Features of the Town Centre that were viewed negatively | • The Centre itself is on the edge of the District with relatively low residential development. Responses to SouthQuay were mixed due to the geographical location of this development  
• Described as “dull, boring, no vibe, decaying and neglected, dead”  
• Too many dying old trees, neglected amenities such as street lights and public spaces, and poor condition of roads  
• The inward focus of the mall “creates consumers not communities”  
• Minimal connection to the lake and surrounding facilities  
• The lake itself is of poor water quality and the facilities surrounding it do not make good use of the recreational and economic amenity it offers. |
**Table 4.2 Future aspirations**

**Visions for the District and Town Centre**
- A better focus on people, rather than buildings
- The community to be recognised as the key stakeholder in a joint vision with government
- That a unique brand and identity for the District be developed and promoted
- That regional connections (within ACT and outside of ACT) be recognised and developed
- That the Town Centre is thriving with economic confidence and vitality – for businesses, community, and employment
- That revitalisation be achieved through recognising the importance of engaging people in place
- Turn the malls inside out and better connect consumer activity with the recreational opportunities that may become available on the Lake Foreshore
- Upgrade and diversify community meeting places
- Enhance visual amenity of the built environment, including the use of art
- Enhance green spaces
- Forge links with higher education for the benefit of community engagement
- Retrofit and repurpose existing buildings to intensify residential development inside the Town Centre
- Commitment to an integrated transport system which includes rail, bus, and road.

**Table 4.3 Forward actions**

<table>
<thead>
<tr>
<th>Short term actions for the Town Centre:</th>
<th>Medium and longer term actions for the Town Centre:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Develop and implement a strategy to fix the identified issues in and for Lake Tuggeranong to improve the amenity</td>
<td>• Connect Ankertell St to the Lake</td>
</tr>
<tr>
<td>• Fix the short term amenity issues like decayed paint and potholes.</td>
<td>• Make better use of green space to encourage people in place</td>
</tr>
<tr>
<td></td>
<td>• Encourage a community atmosphere including with the use of pop-up ventures and creative use of empty office space</td>
</tr>
<tr>
<td></td>
<td>• Take advantage of immediate opportunities to repurpose buildings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short term actions for the District:</th>
<th>Medium and longer term actions for the District:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Start joint community, business, and government branding in creating an identity for Tuggeranong</td>
<td>• Reinvigorate and incentivise local community groups to positively encourage local leadership from a wide range of contributors</td>
</tr>
<tr>
<td>• Clarify the roles and distinctiveness of each of the group centres in the District</td>
<td>• Encourage partnerships between business, community, education, and government in developing a distinct brand and identity for Canberra and the Region</td>
</tr>
<tr>
<td>• Clarify intensification/infill options for relevant centres within the District</td>
<td>• Develop new holistic and realistic plans and planning for both the Town Centre and the District, incorporating genuine community engagement.</td>
</tr>
<tr>
<td>• Clarify West Tuggeranong options</td>
<td>• Clarify employment and transport plans.</td>
</tr>
</tbody>
</table>
5. SNAPSHOT OF URBAN RENEWAL

Urban regeneration has a long history of project-based interventions to revitalise urban centres (Leary and McCarthy, 2013). The following comprises a selection of urban renewal snapshots of places that have the following similar characteristics to the Tuggeranong District:

- Population size
- Low density residential housing
- Aging built environment.

These urban renewal snapshots have been identified following a desktop review of urban renewal, urban regeneration and urban revitalisation projects.

5.1 Australian examples

The following details a selection of Australian examples of urban renewal in places with similar characteristics to Tuggeranong.

**NEW SOUTH WALES**

Parramatta (Sydney)

City of Parramatta, population 178,000 is a growth node of the greater Sydney metropolitan area. The local council, supported by the State and Federal Government funding, has taken major investment in infrastructure as its key to revitalisation of the city with major projects totalling over $2.5 billion. Parramatta Square is a six stage redevelopment precinct covering three hectares and involves a green star set of high rise mixed use development projects around a public domain tentatively valued at $2 billion. The revitalisation of Parramatta Road is proposed to alleviate a high density traffic congested corridor by turning it into a tree lined boulevard at a cost of $364.2 million (SMH, 2015). Parramatta Council also approved a river foreshore plan in June 2015, which aims to revitalise the river front with a new river quay, vibrant new outdoor entertainment areas and terraces and a world-class public square. This will invest a further $200 million investment in the public realm. The projects have 10 to 20 year life cycles and are currently in feasibility study phasing as part of the need to develop business case and sale value propositions.

**QUEENSLAND**

Ipswich

The City of Ipswich, population 147,000, has experienced decline of traditional industries and failed retail strategies (Huston et al., 2013) and is now engaged in major project retail led revitalisation program to lift itself from the shadow of nearby Brisbane (Ipswich City Council, 2009).

The regeneration project “Retail Stage One” sought to revitalise the city centre by replacing the existing mall with an entertainment focused precinct of land uses in a $150 million upgrade. Of note was the recognition by government of the importance of connection between the land use and water such that the Mayor stated “all great cities around the world embrace their river; you don’t turn your back on it” (Queensland Times, 2014). Brisbane City identified priority projects to be delivered by Urban Renewal Brisbane (Brisbane City Council, 2015), which follow the pathway of the Australian Council for New Urbanism (www.ACNU.org).

**WESTERN AUSTRALIA**

Gosnell

The City of Gosnell with a population of just over 120,000 approached town centre revitalisation in Gosnells based.

This town centre revitalisation plan proceeded on a public transit oriented approach to revitalisation by relocating train and bus station to a central co-located position with improved street connectivity. The town square was redesigned and the riverside park provided with tree tops walk. A small business centre and community facility integrated with the local library was also linked to improved public realm and streetscapes and the inclusion of public art in the form of an art walk of 16 closely linked locations featuring variation of mosaics, water feature, urban art, and sculptures. The program was augmented by a top-down policy guidance and supporting statutory controls on design of new developments.

5.2 International examples

The following details a selection of international examples of urban renewal in places with similar characteristics with Tuggeranong.
FRANCE
The French Government established a national top-down approach to urban renewal under the auspices of a National Urban Renewal Authority (ANRU, Agence Nationale pour la Rénovation Urbaine). The ANRU policies are built upon three pillars that act on social cohesion, the upgrade of urban infrastructure and living environment, and economic development and employment (Boisseuil, 2015). In addition to renewal projects such as Paris/Montmartre, Rennes, Nancy, La Rochelle, Le Creusot and Bordeaux, the Lille-Roubaix regional approach provides polycentric renewal guidance.

ROUBAIX
Lille city region is polycentric with interdependent city centres, Roubaix is a regional capital city of 100,000 people located approximately 15 km from Lille. Roubaix’s decline has in recent years been reversed through a locally driven regeneration program focused on the town centre. Redevelopment projects were focused on clustering of uses in telecommunications and specialty textiles (Roubaix teleport) and the establishment of a tax free (enterprise) zone with tax breaks and grants to small firms along with larger developments financed by a public-private partnerships (Kuklowsky and Provan, 2011).

In addition, initiatives to bring retail vitality back to the town centre were supported by efforts to create safe and attractive public realms, the development of a cultural strategy and reconnecting the city to the regional economy of Lille. These approaches recognised the importance of coordinated action between city and region, and that regeneration of the economy required a change of image to attract investment. Reimaging the city was considered achievable through promoting culture and identity as an integral part of the regeneration strategy to build social cohesion and build community confidence (Colomb, 2007).

THE NETHERLANDS
The Dutch approach to renewal recognises differences in scale (Musterd and Ostendorf, 2008).

Kop van Zuid, Rotterdam
Located on the peninsula directly opposite the centre of Rotterdam City the 70,000 residents Kop van Zuid are cut off from the city, by the River Maas. The area was once seen as one of the “most repelling parts of the city” (Ungureanu 2010, pg16).

The core elements to regeneration of the area were: “building high-grade business locations, the construction of expensive houses to draw more affluent citizens to live in the city, the promotion of the metropolitan feeling by stimulating art, culture and spatial quality, the improvement of access, and the achievement of spin-off effects to the surrounding area” (van Hoek, 2007) and the generally beneficial outcomes of which have created a positive image:

- through the achievement of high quality of new buildings
- raising the status of the wider area (and its value as a place to invest)
- improving the quality of life of existing residents and their self-image
- attracting a wider range of people to live there with a move towards rebalancing the population
- expanding the demand for local shops and services
- securing integration at least at the primary and nursery school levels and possibly in some of the shops
- contributing to Rotterdam being seen as a cosmopolitan city, where people from different backgrounds mix and get on
- encouraging a richer culture, for example in terms of street life and ethnic food
- leading to higher levels of entrepreneurship
- improving the attractiveness of Rotterdam in general and Rotterdam south in particular for private housing instead of social housing only (van Hoek, p3).

The project used a mixed-use development scheme of residential, commercial, educational and leisure uses augmented by the use of a number of famous architects to design new buildings for the site. The neighbourhood has now attracted a whole new range of inhabitants in the area. “Kop van Zuid is not just a successful regeneration scheme, but it has helped to change the industrial image of the city by giving it a tremendous aesthetic advantage” (Ungureanu, 2010).
SWEDEN
Urban redevelopment of Älvstraden in Gothenburg (Sweden) is using the development vehicle of local authorities, building contractors, and trade and industry co-operation through private and public partnership to attract capital, qualified labour and tourists to the project (Cadell et al., 2005). The focus of upgrading the city centre, through seven precincts along both sides of the river, involves redeveloping central industrial areas and harbour sites. It is portrayed as a window display exemplar of sustainable urban development.4 However the urban renewal project is also highly contested as both an innovative example of urbanising and reinventing the city centre and harbour areas through branding and an example of gentrification (Thörn, 2011). While public participatory practise in Gothenburg is regarded as high the city’s own assessment on its effective participatory dialogue found that 56 per cent of consultation was advisory in purpose and only 10 per cent was found to be influential on processes (Tahvilzadeh, 2015). The project followed traditional survey plan methodology though with innovative public engagement that fulfils the promise of urban regeneration and is also portrayed as city branding, gentrification and enchantment engineering. The area had functioned as a recycled industrial area with flea markets, immigrant associations and small businesses and as a meeting point for people from the poor suburbs.

UNITED KINGDOM
Gateshead (Newcastle upon Tyne) has a population of approximately 80,000 and the Gateshead Council has sought to regenerate the town centre (Bailey et al., 2004) through a cultural led program of revitalisation projects such as “the Angel of the North” installation. This is now supported by a core strategy for Gateshead and Newcastle upon Tyne (Planning for the Future—Core Strategy and Urban Core Plan for Gateshead and Newcastle upon Tyne 2010–2030) that combines the two cities growth potential and establishes a single city brand. Regeneration is aimed at urban densification and waterfront/dockland redevelopment along with building façade, signage and signalisation upgrades. This built on the cultural and historical image of the city but was primarily focused on a consumer led revitalisation strategy that included an upgraded mall and repurposing of the railway station as a luxury hotel (Rich, 2013).

UNITED STATES OF AMERICA
Since 1993 the US Federal Government, through the Department of Housing and Urban Development (HUD), has sought to manage urban renewal based on four key principles of strategic vision for change, community based partnerships, economic opportunities and sustainable community development.

Recent policy analysis by the Lincoln Institute for Land Policy (Mallach and Brachman, 2013) focused on urban regeneration opportunities for 18 industrial centred cities. It identified that revitalisation cannot be achieved solely by megaprojects such as signature buildings, stadiums or other such concentrated development efforts. Instead, “it must be multifaceted and encompass improvements to the cities’ physical environments, their economic bases, and the social and economic conditions of their residents”. Four key themes emerge from the evaluation: identify existing assets that provide competitive advantage; historic landmarks and cultural identity can play a role; social capital is essential; link economic growth and urban well-being (Rich, 2013).

SCRANTON
Scranton, Pennsylvania, population 76,089, US Census, 2013, is a former coal mining community that took a creative cities (Landry et al., 2000) approach to revitalisation (Rich, 2013). The downtown revitalisation program US$28 million involved redevelopment of the bridge and streetscape improvements along with building façade, signage and signalisation upgrades. This built on the cultural and historical image of the city but was primarily focused on a consumer led revitalisation strategy that included an upgraded mall and repurposing of the railway station as a luxury hotel (Rich, 2013).

ROCHESTER
Rochester City, Minnesota, population 106,769 US Census, 2010, has recently been voted as the best place to live in America.6 The city’s Urban Renewal Agency aims to stimulate urban economic growth and revitalise urban neighbourhoods through the redevelopment of slums that improve housing opportunities and attract new investment.7 A number of renewal plans have been developed such as the Midtown renewal plan to focuses on retail led regeneration using business district incentivising (Brunetta and Caldarice, 2014). Focus is also placed on precinct based planning, such as the waterfront revitalisation plan and on hard infrastructure redevelopment.
6. ANALYSIS

In this section the findings from the GIS analysis and interviews are synthesised and combined with insights from other relevant research and practice. This analysis may offer insights into place-based sustainable urban renewal approaches for Tuggeranong, and other like urban settlements.

6.1 Overview

The GIS analysis of the Tuggeranong District demonstrates that while in many respects it is quite similar to the rest of Canberra, there are also some distinctive variations. These include:

• a slight decline in the population
• population is ageing slightly more than overall ACT
• lower density housing with a higher detached and much lower multi-unit proportion of dwellings
• higher car dependency
• a higher proportion of clerical/administrative and blue collar occupations and a lower proportion of professional and managerial occupations
• a higher proportion of dwellings with mortgages.

The interviews with a range of Tuggeranong community members provided more fine grained and grounded perceptions of the District and especially of the Town Centre. A number of consistently-held perceptions were identified:

In respect of the District, it is positively valued for its beautiful and aesthetic landscape setting (mountains, river, parks), spacious urban feel and personal connections and histories as an established area. This provides an opportunity to develop and promote a distinctive identity and ‘branding’ for Tuggeranong. Whilst there are many features in common with the rest of Canberra it is crucial to confirm, build on, and respond to those characteristics that are distinctive and in many respects unique to the District.

Less positively, it is felt that younger people have moved away, too many people have to travel out of the District for work and education, and that development, infrastructure and services (including transport) are receiving less attention than other parts of Canberra.

In respect of the Town Centre, criticism was particularly strong, it being seen as tired, rundown and neglected, with too many empty shops and office spaces, and lacking in community-enhancing connectedness including to the natural features. The lake could be a centrepiece but suffers from poor water quality and surroundings and limited accessibility. The future visions expressed for the Town Centre involved revitalisation through bringing people out into the open urban spaces, and onto the streets, and using spaces in new ways. Several potential initiatives and opportunities were identified: for example rehabilitating and reconnecting the town with the lake and waterways; connecting the malls and the ‘high street’ more effectively including:

• repurposing under-utilised buildings
• providing mixed residential intensification
• pop-up events
• facilities that promote the use of arts and culture
• provision of more trees
• neighbourhood community gardens
• enhanced tertiary education
• enhanced community facilities.

More generally, government commitment to long term services would enable the above improvements. A desire was expressed by many to have stronger and more diverse yet also more concerted community-based ownership and leadership of the necessary changes. The interviewees were positive about the potential for change, but also seeking support and guidance to facilitate and galvanise local and government action. While the interviewees intuitively related to ideas of ‘revitalisation’ and ‘retrofitting’ they were generally far less clear on both the concept and range of possible approaches to ‘sustainability’. It would be useful to further explore with the local communities what is meant by ‘sustainability’ and why and how it leads to important synergies and trade-offs between multiple goals that are important to those communities.

Thus a consistent picture emerges from the combined analyses, that the Tuggeranong District has many inherent strengths, but also some quite distinctive challenges, not least of all how to develop a more vibrant and sustainable future. It is perceived as lacking a vision, strategy and actions to build on the strengths, in order to bring renewal to those aspects that reflect the relative maturity of the District, and that are seen as suffering from neglect. There is also limited focus on what urban ‘sustainability’ should mean in this suburban context. On the other hand there appears to be optimism in the community about potential for improvement provided there is the necessary facilitation and support, including from local communities and government.
6.2 Interpretation and implications of the findings

The Tuggeranong findings exemplify many of the urban challenges faced more broadly in Australia and internationally. This section discusses the implications of these findings and in doing this also draws on other relevant research and practice. Some key themes identified from the above are summarised and discussed below.

6.2.1 Envisioning future renewal, distinctive local identity and drivers of change

Exploration of how people perceive their geographical places paves the way for appreciation of community values, visions and the unique identity of those places. For the Tuggeranong community, exploring alternative scenario development and future planning of ‘place’ in this way would enable a more open dialogue between the community and decision makers.

Canberra is a planned city designed with a central hub (Civic), and several nodes (town centres) surrounded by suburbs. The importance of the town centres as central yet important points of difference within the one city is an important context for urban renewal strategies and guidelines. In 2002, the Organisation for Economic Co-operation and Development (OECD, 2002) published “Urban Renaissance. Canberra: A Sustainable Future.” It describes a vision for the future of Canberra based on a commitment to a small number of key, significant and long-term projects to which such vision can be anchored, noting that “most corners of the community” needed to be invested in it. It was recognised that such vision requires a 20–30 year life cycle, traversing political, economic, and social life cycles. In this context, for a city such as Canberra with its polycentric design of city, as part of a longer term renewal strategy and good strategic planning for ongoing vitality in cities (Gehl, 2010).

In addition to the many local challenges identified, participative envisioning with the community also needs to take account of other stresses and drivers of change, many of which may be outside the direct control of the local or broader ACT communities and government. Such change drivers can include demographic and social trends and patterns; environmental factors including climate change; the role of technology; economic and employment changes (e.g. globalisation, technology impacts, youth unemployment); ageing infrastructure, resource constraints, and institutional drivers, barriers and change.

The future vision and pathways for each District in Canberra were always envisaged as being closely linked but also separated to enable “each can have its own identity” (NCDC, 1970, p227). As such, it is arguable that each District in Canberra has developed its own identity. These different identities were raised by the participants in the Kambah focus group who struggled to clearly articulate the identity of the Tuggeranong District but observed that each District was “very different” and distinct. Accordingly, mapping the cultural geography of the Tuggeranong District in order to uncover connections and community cohesiveness which may form a Tuggeranong identity is critical to ensuring social inclusion, economic variety, and longer term strategic planning that caters for a variety of preferential uses in the District.

Interventions may be required to facilitate greater resilience and sustainability (Newton, 2013; Pearson et al., 2014). The need to respond to these issues spans cities and suburbs across Australia, Europe, the USA and Canada (Girling and Helphand, 1997; Despres et al., 2004; Smith et al., 2013). Some examples can include demographic trends where identified that are relevant to suburban reform: the ageing of the baby-boomer generation; the generational cycle of housing affordability and appeal of particular places of residence, the growth of single and non-family households; and growing ethnic diversity (Dunham-Jones, 2005).

Similarly, recognition that cities are responsible for more than 80 per cent of human-induced greenhouse gas emissions, and that there is a wide range of opportunities to reduce those emissions, is a key driver of urban and suburban reform that is of critical importance. This is particularly so in the ACT with legislated mitigation reductions by year 2020.

6.2.2 The importance of strategy recognising ‘people in place’

There is a need to develop future renewal directions and actions from the perspective of the prevailing local ‘culture’ (broadly defined). A focus on ‘people in place’, and ‘place making’ is necessary to understand and where possible meet (or facilitate) local needs and preferences, and gain local ownership and buy-in to improve sustainability, liveability and renewal. The qualitative data clearly related very closely to local place and identity.

Researchers have long focussed on place as a means of grounding approaches to empirical research and practice, and as an integrating concept across disciplines that simultaneously acts to help define characteristics of a place. Examples of these contexts include natural resource management (Cheng et al.,...
2010); indigenous relationships with place (Castree, 2004), politics (Agnew, 2015), urban neighbourhoods and community activism (Anguelovski 2015); a focus on the physicality of the surrounding environment (Stedman, 2003); landscape and landscape change (Davenport and Anderson, 2005; Brandenberg and Carroll, 1995; Kyle and Chick, 2007). “Place” is therefore a concept that is subject to geographical, social and cultural meanings (Castree, 2005). Participants in this study identified Tuggeranong with reference to two significant or primary themes: the natural environmental aesthetic, and with reference to activity on or around Lake Tuggeranong including that of the built environment. With various methods of change reshaping cities around the world (Lees, 2000), the intersections between people and place remain important when considering how to engage people with and in their places (Lees, 2000; Hamnett, 1991; Smith and Williams, 1986).

A place-based approach can have multiple benefits. Attributes of places, including their physical and material environments but moreover the connection with other people and a sense of community, can drive a sense of belonging and ownership (Manzo and Perkins, 2006). In a tradition derived from people centred design (Lynch, 1961; Krier, 1978; Gehl, 2010), small scale changes in both social structures and local economic activity can “bring life” to the “forgotten lane ways”. These forgotten laneways can be readily identified by the relevant community; indeed participants in this project literally identified the “laneway” connecting the Hyperdome with the Lake as an area in need of revitalisation, and in the Kambah focus group, several areas and ideas for injecting life as a way to revitalise the suburbs were discussed while emphasising social cohesion and connectedness. A place-based approach also provides a focus on recognition of the importance of connectivity between people and place for overall prosperity (Harper and Wright, 2015). The increasing importance of an identifiable culture of a place, which makes “the city more attractive to mobile capital and mobile professional workers” (Hall, 2000, p640), is contingent on social inclusion which in turn will further drive a sense of place.

Focusing on people in place can also help drive sustainability. People are at the centre of the city and part as a diverse ecosystem where sustainable consumption and production of goods and services may be centrally controlled, but can be facilitated and influenced. This combined with a broader sustainability framing and a focus on multiple scales for effective engagement of stakeholders, provides a critical foundation on which a rethinking of the “middle suburbs” of Australian cities can take place (Newton et al., 2012).

6.2.3 Understanding sustainability and integrated planning
The Brundtland report made it clear that long term sustainability requires integrated decision-making across social, economic and environmental issues. However, the United Nation’s Sustainable Development Guidelines (SDGs) take this one step further, being explicit about the need for multiple supporting goals. With some grouping of the SDG goals and targets and translation to the urban context the criteria for sustainable development for cities and settlements can be expressed as:

- healthy lives and a sense of wellbeing (an overarching goal)
- inclusive/empowered, equitable, peaceful, safe, and just societies
- strong, sustainable, innovative and inclusive economic development and livelihoods
- environmental assets and natural resources maintained for the future
- sustainable consumption and production patterns (including a circular economy and reduced greenhouse gas (GHG) emissions, other emissions and wastes)
- affordable access to quality and sustainable critical infrastructure and services (food, water, sanitation; transportation and energy; health, education and welfare)
- resilience to change, disruption and disasters (including climate adaptation)
- effective, inclusive and accountable institutions.

Any proposed intervention can be assessed against its contribution (or otherwise) to sustainable development criteria and may exhibit both trade-offs and synergies between goals. The concept of sustainable development, properly understood and applied, remains the most powerful basis to support integrated decision-making, also being consistent with triple bottom line intent and assessments (Dernbach and Cheever, 2015). Application to practical urban renewal policies is also evident, especially demonstrating the value of up-front shared visioning to facilitate the effective resolution of potentially conflicting stakeholder objectives (e.g. Hunt and de Laurentis, 2015). The recent adoption of the UN SDGs provides an opportunity to re-assert the value and application of long term sustainable development approaches, nationally and locally.

In a global context, current overall outcomes for Australia (and the ACT) can be considered to be relatively high on most of the criteria, with the notable exceptions of sustainable consumption and production, and the related use of natural resources and
generation of wastes, where Australia has one of the highest resource footprints, GHG emissions and waste profiles in the world. It is also important to note that there are still significant groups in Australian society who suffer disadvantage and vulnerability on many of the other criteria, not least of all in our cities, as detailed in successive Australian State of Australian Cities reports.

The current ACT Government strategy and policy documents and intent, whilst sometimes using different language, are broadly consistent with the above goals. The challenge is more one of integrated strategy, design, decision-making and implementation at the next level down across Directorates and other planning agencies (such as the Land Development Agency, ACTPLA, and TAMS) as well as between across divisions within each Directorate. Equally important is strategies that encourage and facilitate empowered responses in the private and community sectors, particularly by citizens. It is desirable that these are consistent with the desired overall goals. Participants in this study were generally unclear on both the concept and range of possible approaches to ‘sustainability’.

Two very relevant aspects of the concept of sustainability were mentioned by just a few of the interviewees i.e.:

- There are various sustainability dimensions—the need for the sustainability of population and demographics (e.g. need younger people); of business; of employment and livelihoods; of education; of built and natural environment; of the capacity to handle change including but not only climate change
- More generally that sustainability involves longer term and continuing revitalising; with the overall objective of being sustainable for future generations.

In addition several responses referred to the need to respond to energy efficiency, renewables, water efficiency and climate change risks, and the potential for increased density and improved public transport. These seemed to be driven by the need to revitalise the centres and improve liveability, access and connectedness, all of which feed into a broader concept of sustainability.

6.2.4 Both bottom-up action and top-down planning are necessary
Participant responses raised a number of issues and opportunities for both bottom-up approaches to community engagement and action and supportive top-down government strategies.

Bottom up approaches to planning of cities and their suburbs have a number of benefits, including community ownership, long term community engagement, and empowerment within communities (Jacobs, 1961). Such approaches have proven particularly effective in areas suffering disadvantage, where for example youth involvement in arts based projects has proven to be an effective form of community engagement (Forester, 1999; Cameron and Coaffee, 2005; Sasaki, 2010; Lydon and Garcia, 2015; Iveson, 2013).

While urban revitalisation has been the focus of planners and governments for many decades, social innovation can remain challenging (Drewe et al., 2008). Jacobs (1961) argues for a tactical urbanism which sees a central role for inclusive community planning of urban environments (see also Lydon and Garcia, 2015; Iveson, 2013). A common theme with tactical urbanism is the use of creative and art led approaches to social inclusion, particularly with youth (Forester, 1999; Cameron and Coaffee, 2005; Sasaki, 2010; Mould 2014). People centred design (Lynch, 1961; Krier, 1978; Gehl, 2010) is a tradition that flows directly out of the Jacobs’ narrative. There is also an important role for government in working with the community in co-creating the narrative of change, and encouraging, facilitating and empowering local responses.

It is noted that Master Plans (like the Tuggeranong Master Plan) tend to cover the important ‘urban planning’ responses, but not the broader and more integrated sustainable renewal responses that are required. Thus it is necessary to drive sustainable renewal through both facilitative top-down planning (including community engagement and facilitative processes; and key supporting infrastructure and services investment) and local community, citizen and business led entrepreneurial/innovative action to complement and in some cases lead planning initiatives.

6.2.5 Urban renewal, revitalisation and retrofitting options
The broader concept of sustainable urban renewal can include both revitalisation and retrofitting at various scales (metropolitan, CBD, suburb, town centre, neighbourhood, precinct, building). Overwhelmingly, participants responded clearly and positively to the idea of revitalisation especially as it related to the Town Centre and to some extent the broader District. They related mostly to retrofitting of individual buildings (e.g. the use of solar power, glazing of windows, and increasing the energy efficiency of buildings).
Moving forward it may be useful to consider these categories of renewal responses. The first of these has already been discussed above.

- Revitalisation, which can include the following two categories of retrofitting, but with an additional emphasis on the people, place and cultural elements, and related social infrastructure
  - Retrofitting suburbs, with an emphasis on the built environment, and at the spatial scale above individual buildings (districts, suburbs, town centres, precincts, neighbourhoods)
  - Retrofitting buildings, with an emphasis on individual buildings.

A useful framework to consider ‘retrofitting suburbs’ is provided by Dunham-Jones and Williamson (2014) who describe a typology of approaches for retrofitting of the built environment, classified by three principal retrofitting strategies:

- Re-inhabitation: The adaptive reuse of existing structures for more community-serving purposes, often as “third places” for social interaction, and sometimes for mixed use
- Redevelopment: Replacing existing structures and/or building on existing lots, generally with a more compact, walkable, connected mix of diverse uses and public spaces that support a less auto-dependent and more socially engaged lifestyle. This is often referred to as brownfields (previous industrial/commercial use) or greyfields (previous largely residential and related use) redevelopment. It can include distributed energy and water infrastructure with smart systems, and improved waste reduction and reuse moving towards a local ‘circular economy’
- Regreening: Demolition of existing structures and revitalisation of land, as either parks, community gardens, or reconstructed wetlands. Regreening is sometimes a phasing strategy for eventual partial redevelopment. It can include public and private realm investment in green and blue (living) infrastructure; urban forests and local food production; and aspects of water sensitive urban design.

A number of studies have started to document the sustainability benefits of suburban retrofitting initiatives, including recognising the different opportunities which can arise from varying urban forms and community preferences (for example, Ghosh and Head, 2009; Girling and Helphand, 1997). Boarnet et al. (2011) tease out the implications for walking trips in different urban forms, and also find that highly pedestrian-oriented neighbourhoods can support a larger than expected business core. It is broadly expected that retrofitting suburbia, particularly where opportunities exist in medium density areas with access to transport, can deliver benefits in housing choice, density, transit feasibility, and accessibility while maintaining the stock of affordable housing (Dunham-Jones and Williamson, 2014). There are of course significant challenges in realising benefits, especially from suburban retrofitting. Suburbs developed at very low densities, with less connected streets and few footpaths, and which are completely automobile dependent, have less promise of walkable integration and fewer ready opportunities for environmental sustainability without greater policy intervention (Dunham-Jones and Williamson, 2014). Residents’ resistance to change can also constrain retrofitting approaches that have the potential to improve sustainability outcomes (Chow, 2005).

6.2.6 The contribution of intensification/ increased density

Within the above context there is a need to better understand the relevance increasing density in the Tuggeranong District. The GIS analysis confirmed that it is generally a very low density district, and while the findings of the interviews and Kambah focus group expressed some support for targeted intensification in the Town Centre and along transport corridors it was deemed less appealing across the suburbs where the green space, ease of access to nature and appreciation of the natural environment, and the overall ‘bush feel’ were considered central to the identify of those places.

There can be significant benefits from intensification, including opportunities to contain urban sprawl and associated land shortages and greenfield development costs, the use and enhanced value of currently underused land, provision of more diversified housing and mixed use options, and reduction in use of land, resources and energy, greenhouse gases, car ownership and household goods. However, good design and implementation is also essential. Medium density suburban retrofitting can become contentious, with a wide body of research outlining occupant and...
community concerns and design deficiencies (Howley and Scott, 2009; Downton, 2008; Metzler, 2005; Sarkissian, 2004; Vischer, 2008; Elton Consulting, 2011; MacKenzie, 2013; Horne, Wood and Berry, 2009; Pullen et al., 2009; Williams, 2005; Howley et al. 2009). The Kambah focus group observed that input into the built design of new and retrofitted structures was particularly important in retaining “the feel of the place”. Thus the design of medium density housing requires the careful consideration (Marcus and Sarkissian, 1986).

6.2.7 The relationship with climate change mitigation and adaptation

The ACT Government has been proactive in addressing climate change mitigation and adaptation and it is necessary to ensure that these and other suburban renewal strategies are mutually supportive. In 2015, it launched six priority areas for climate adaptation. In addition, the ACT Government has recently released a Draft Climate Adaptation Strategy for public comment (ACT EPD, 2016).

CLIMATE CHANGE MITIGATION

Urban revitalisation and retrofitting including well-designed intensification, can be very supportive of climate mitigation. Whilst energy efficiency of individual homes has improved over the last decade, there is much more that can be done in the transformation of urban and suburban regions to deliver greater environmental and economic benefits (Deakin et al., 2012; Pullen, 2010). Deakin et al. (2012) for example outline an approach for the integration of a mass retrofit proposal into an urban regeneration strategy to establish low carbon zones, and the benefits that may arise for greenhouse gas emission targets.

The the potential of retrofitting to contribute to low carbon objectives goes well beyond incremental adaptive reuse or renovation. Significant reductions in carbon emissions, accompanied by gains in social capital, and changes to systemic growth patterns can be achieved by retrofitting larger suburban lots and locations with a denser, walkable, synergistic mix of uses and housing types. For example, research suggests that compact development can contribute up to a 30 per cent cut in carbon emissions alone (Checkoway, 1980; Dunham-Jones and Williamson, 2014). Integrated transport provides better opportunity for positive health outcomes, particularly when integrated with walking and cycling options.

CLIMATE CHANGE ADAPTATION

Climate adaptation strategies can also be linked to revitalising and retrofitting strategies. The recent release of the Draft Adaptation Strategy includes many proposed actions relevant to urban renewal: it includes reference to climate consideration in new estates and urban renewal; climate wise buildings and estate planning; landscape conservation; tree lined pathways; caring for land and water; water quality and stormwater measures; resilience to climate driven events and supporting healthy living. Place-based sustainable urban renewal including revitalisation and retrofitting provides many opportunities to be mutually reinforcing with climate adaptation co-benefits.

Climate change risk areas and responses identified for the ACT can be translated through to the Tuggeranong District, contextualised by revitalisation and retrofitting strategies. Examples include:

- **Climatic variability and change**: For Tuggeranong this is not significantly different from the rest of the ACT, though as elsewhere it will have enhanced risks from local ‘urban heat island’ effects (town centre and other concentrated developments), bush fires (especially at the urban edges), and flash flooding (e.g. exposed concrete stormwater drains)
- **A proactive sense of ownership and place**: Tuggeranong stakeholders strongly identified Lake Tuggeranong as both a recreational and economic asset requiring renewed care and management. Retrofitting options could include water quality and treatment options, along with revitalisation considerations with respect to both lakeside and on-lake recreational activity
- **Water supply and recycling**: Tuggeranong benefits from overall ACT strategies, but suburban retrofitting is also an opportunity to introduce water sensitive urban design (WSUD), green/blue infrastructure, stormwater recycling etc
- **Natural resources and ecosystems**: Tuggeranong includes and is adjacent to several key natural assets (including Namadgi); revitalisation of public spaces and suburbs is an opportunity to enhance the connection and protection/development of natural assets within and throughout the urban areas
- **Food and agriculture**: farmers markets, and local and community gardens/plots have been raised as revitalising as well as sustainability and resilience opportunities
- **Settlements and infrastructure**: this is the main area likely affected by revitalisation and retrofitting strategies. For example any increased density of development needs to manage current and potential UHI (urban heat island)
impacts, which can require responses at various scales (the city scale, neighbourhood/precinct scale and individual building scale). It also involves integrated urban planning approaches (e.g. to land use and transport)

- **Community adaptive capacity/ resilience**: renewal can enhance community support networks and spirit; householder behaviours (e.g. water, energy consumption and waste management); and community and householder preparedness for extreme events

- **Disaster and emergency management**: Tuggeranong benefits from overall ACT strategies, but needs also to check that local capabilities and resources are in place; part of revitalisation can be developing community networking and engagement

- **Community health and wellbeing**: this is determined in part by elements of all the above, and in part by the effectiveness of health and support infrastructure and services.

There are challenges in integrating climate change adaptation at the suburban scale. Smith et al. (2013) find that many professionals and householders expect governments to take the lead on adaptation, and that local leadership often does not exist in this area in part due to the complexity of climate change and a lack of experience in taking collective adaptation action. However, research on climate change in Canberra by the ACT Government has highlighted research that a majority of Canberrans supporting action on climate change including adaptation (Norman et al., 2014). Linking both mitigation and adaptation to a sense of identity may provide a path for community-led mitigation and adaptation strategies.
7. LINKING PLACE-BASED AND SUSTAINABLE URBAN RENEWAL

The above discussion identifies a number of key themes and issues which may inform a place-based sustainable urban renewal strategy:

- Envisioning alternative future renewal scenarios jointly with the Tuggeranong community, taking account of external and internal drivers of change.
- As part of this, it is necessary to develop a shared understanding with the local communities of what is meant by ‘sustainability’ and ‘sustainable development’, and why and how it leads to important synergies and trade-offs between various goals that are important to those communities.
- Government and planning whether at whole of city, district, town centre, suburb or household scales. Because of the broad nature of both sustainability and renewal, governments need to enhance integrated strategy, planning, decision-making and implementation across policy areas, sectors and agencies, and overtly test proposed policies and initiatives with the community.
- Well-designed intensification and medium density retrofitting have a useful sustainability role to play, especially in and around the Town Centre. However, because in practice Tuggeranong overall is likely to remain an essentially low density district with high car dependence for some time to come, sustainability initiatives for the Town Centre and the District need to emphasise additional and emerging approaches to sustainability. These include renewable energy and energy efficiency at distributed suburban and individual building scales; facilitating adoption of electric vehicles and other emerging car-travel based technologies; mixed mode transport; water sensitive urban design; distributed food production; and encouraging more sustainable cultural change including citizen consumption and waste generation behaviours.
- In this respect there are also many opportunities for synergies with the climate change mitigation and adaptation strategies being progressed by the ACT Government.

7.1 Options for further research

It is considered that delving more deeply into perceptions of householders across the District would enable a more fine-grained analysis place-based sustainable urban renewal. This is helpful for Tuggeranong and other Canberra Districts, in enabling a basis of comparison to renewal of middle suburbs elsewhere in Australia. Options for further research include:

- Additional interviews with either individuals and/or special interest groups. We note however that special interests groups formed a significant profile in the 2011 community consultation exercise by Elton Consulting in the District; while this remains a sound research method for middle suburbs elsewhere, there is significant risk that the Tuggeranong community is fatigued with numerous exercises in community engagement and consultation on ‘planning issues’. There was discussion of this fatigue in both the interview data as well as off record by a number of participants and others who elected not to participate.
- Running focus groups again with some changes to delivery, including: advertising for a longer period of time; offering a small financial incentive (for example, $20 gift card); changing the time and day of the focus group; and broadening the selection basis to allow for all suburbs.
- Setting up a shopfront stall(s) and asking passers-by to fill in a short questionnaire.

In addition, mapping the cultural geographies of the Tuggeranong District ought to be undertaken in order to start uncovering Tuggeranong’s identity. This would provide a platform for re-engaging the community, promoting community cohesion in developing a long term vision for the Tuggeranong District.

7.2 Options for a targeted sustainable renewal strategy

Research findings canvassed in this report indicate that in places like Tuggeranong – that is, spatially large, low density, car dependant, and with an aging housing stock and population – would benefit by facilitating engagement on both mitigation and adaptation sustainable measures that cut across a number of planning priorities. In the context of Tuggeranong, this includes:

- Address the water quality of the lake, which links with storm water management, green waste, and potential social and economic future uses of the Lake.
- Engage with the community on how to best design current building stock to achieve a balance between energy efficiency and aesthetic appeal.
- Target reduction of the use of wood heaters in the District, including by offering incentives to more marginalised members of the community.
- Ensure social cohesion and building a sense of community by offering public spaces which allow the community to create its own identity.
• Ensure that new housing stock, or complete repurposing of buildings, meet the latest energy efficiency ratings
• Integrated transport (including light rail) is seen as a positive forward step in a community that is very car dependent. This could be further developed with the community and include other forms of active transport.

As with all sustainable renewal strategies, cross-agency and cross-institutional communications and efforts are absolutely critical to ensuring optimal successes.

7.3 Concluding comments

There will always be many challenges in progressing place-based sustainable urban renewal, some of which have been identified in this report.

There are also multiple opportunities and encouraging signs for and within the Tuggeranong District. The findings from this study suggest many potential revitalisation and retrofitting actions could bring about place-based sustainable urban renewal. The interviewees were optimistic about the potential for improvements and about their valuing of the District.

IN RESPECT TO THE DISTRICT
Community responsiveness to revitalisation in Tuggeranong will be best achieved using measures that are people centric, promote social connections and cohesiveness, and integrate sustainability (including re-purposing buildings) in ways that promote community driven renewal. There was a strong desire expressed by residents in having stronger and more diverse community-based ownership and leadership of the necessary changes. The lack of articulation by its residents and community representatives on an identity for Tuggeranong indicates an opportunity to develop and promote a distinctive identity and ‘branding’ for Tuggeranong.

Lake Tuggeranong was seen as a central feature of both the District and the Town Centre, but requiring a number of revitalisation measures. Water quality was identified as a significant issue. Integrating storm water management, water quality, and adaptation measures would be useful. In addition, economic and social sustainability of the Lake could be enhanced with options including the provision of pop-up’s along the foreshore, increasing the number and frequency of sporting and recreational activities on and near the Lake, and repurposing lakeside buildings to face the Lake.

Suggestions for the Gazebo laneway and surrounds included provision for activities that would bring people outside, exploring options for allowing short term leasing of ground floor shops, the provision of community led art projects in conjunction with the Community College, re-purposing the carparks between the walkway and the College with cultural attractions, allowing residential development on the upper floors of Town Centre buildings, making Ankertell Street more pedestrian focussed, and re-purposing sidewalks to encourage walkability.

IN RESPECT TO GROUP AND LOCAL CENTRES
Increasing density was viewed as favourable provided it met design guidelines that “fit the aesthetic of Tuggeranong” including a focus on the natural environment. Kambah residents considered such infill to be best suited in close proximity to commercial centres. A focus on social connectedness and cohesion could be met by the provision of unique uses of the current centres. Changing the built environment was not favourably viewed, rather “tidying up” current infrastructure was preferred.

The evidence presented in this report is that there are many opportunities for place-based sustainable urban renewal of the Tuggeranong District and Town Centre.

The future vision and pathways for each District in Canberra were always envisaged as being closely linked but also separated to enable “each can have its own identity” (NCDC, 1970, p227). A key finding of this report is that the Tuggeranong community be afforded the opportunity to co-develop Tuggeranong’s identity. Developing a targeted place-based sustainable urban renewal strategy for the Tuggeranong District may support these outcomes.
8. REFERENCES


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*Territory Plan 2008* (ACT).


18 September 2015

Mrs Tayanah O’Donnell  
Canberra Urban and Regional Futures  
University of Canberra  
Canberra ACT 2601  

Dear Tayanah,

The Human Research Ethics Committee has considered your application to conduct research with human subjects for the project titled Retrofitting and revitalising low density suburbs and town centres for long term sustainability.

| Monitoring: | You must, in conjunction with your supervisor, assist the Committee to monitor the conduct of approved research by completing and promptly returning project review forms, which will be sent to you at the end of your project and, in the case of extended research, at least annually during the approval period. |
| Discontinuation of research: | You must, in conjunction with your supervisor, inform the Committee, giving reasons, if the research is not conducted or is discontinued before the expected date of completion. |
| Extension of approval: | If your project will not be complete by the expiry date stated above, you must apply in writing for extension of approval. Application should be made before current approval expires; should specify a new completion date; should include reasons for your request. |
| Retention and storage of data: | University policy states that all research data must be stored securely, on University premises, for a minimum of five years. You must ensure that all records are transferred to the University when the project is complete. |
| Contact details and notification of changes: | All email contact should use the UC email address. You should advise the Committee of any change of address during or soon after the approval period including, if appropriate, email address(es). |

Approval is granted until 1 March 2016.

The following general conditions apply to your approval.

These requirements are determined by University policy and the National Statement on Ethical Conduct in Human Research (National Health and Medical Research Council, 2007).

Yours sincerely  
Human Research Ethics Committee

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Hendryk Flægøl  
Research Ethics & Compliance Officer  
Research Services Office  
T (02) 6201 5220 F (02) 6201 5466  
E hendryk.flægøl@canberra.edu.au  

www.canberra.edu.au  
Postal Address:  
University of Canberra ACT 2601 Australia  
Location:  
University Drive Bruce ACT  
Australian Government Higher Education Registered  
Provider Number (CRICOS): 00217K
APPENDIX 2: INTERVIEW QUESTIONS

Q1. Can you define what revitalisation means to you?
Q2. Can you define what retrofitting means to you?
Q3. Can you define what long term sustainability means to you?
Q4. What are your perceptions of current Tuggeranong Town, Group and Local centres?
Q5. What do you value about Tuggeranong?
Q6. What is your vision for Tuggeranong?
Q7. What action could be taken to achieve this vision?
Q8. Who needs to be involved in achieving this vision?
Q9. Is there anybody else we should talk to?
APPENDIX 3: FOCUS GROUP RECRUITMENT MATERIAL

TUGGERANONG FUTURES FOCUS GROUPS

Are you interested in a sustainable future for the suburbs and town centre of Tuggeranong? We are looking for residents of Kambah, Banks and Oxley to join us for a light supper and share their views on revitalisation and retrofitting in the Tuggeranong District.

RSVP: curf@canberra.edu.au or (02) 62012757

Kambah Residents
Tuggeranong Arts Centre 6:30 – 8:30pm Mon 23 May

Banks Residents
Tuggeranong Arts Centre 6:30 – 8:30pm Tues 24 May

Oxley Residents
Tuggeranong Arts Centre 6:30 – 8:30pm Wed 25 May

Participants must provide proof of address.
APPENDIX 4: ADDITIONAL GIS MAPS

Figure A2.1. Population across the Tuggeranong district at the SA1 level

Legend
Population (total persons)
- Division
- District
- ACT Border

Source: ABS DataPack, 2011
Figure A2.2. Land use types in Tuggeranong district
Figure A2.3. Average household size (people per household) at SA1 level

Source: ABS DataPack, 2011
Figure A2.4. Median weekly rent across the Tuggeranong district at SA1 level

Source: ABS, 2011
Figure A2.5. Median monthly mortgage repayments across the Tuggeranong district at SA1 level

Source: ABS, 2011
Figure A2.6. Index of Education and Occupation

Source: ABS, 2011
Figure A2.7. Volume capacity plot for project traffic flow in 2021 and 2031
Figure b. Land use zoning in the Tuggeranong district

Source: Territory Plan, ACT Government
Figure d. Total dwellings in the Tuggeranong district at the SA1 level

Legend
Dwellings (total private dwellings)
- 0 - 60
- 61 - 120
- 121 - 180
- 181 - 240
- 241 - 300

Division
District
ACT Border

Source: ABS DataPack, 2011)
Figure h. Index of Relative Socio-Economic Disadvantage
Figure 1. Index of Economic Resources

Source: ABS, 2011
Figure 1. Urban forest in Tuggeranong District, street audit 2010–2012
APPENDIX 5: NEW EXPERIMENTAL ARCHITECTURAL TYPOLOGIES (NEAT) HOUSING DESIGN

BY MELINDA DODSON

Debates regarding the merits of medium density suburban retrofitting and the corresponding critiques of urban sprawl go back at least half a century in Australia (Boyd, 1963; Greig, 1995; Stretton, 1970; Troy, 1996).

Consolidation and retrofitting; describing the increasing density of existing urban areas through urban renewal, became an explicit agenda of governments in major Australian cities in the mid to late 1970s (Troy and Lloyd 1981, Troy 1996). The emerging environmental political movement at the time in part created a demand for a more compact city. Pursued through increased local environmental activism, demanding accountability of local authorities, to ensure environmental justice was being pursued in land development (Gleeson and Lowe 2000). Similarly, as the state retreated from direct funding of housing and development, in the face of critiques by free market advocates, the housing and construction industry argued for a reduction in centralised planning control.

Criticism of top down post-war planning reflected the broader rejection of the State in the affairs of individuals. The most ardent criticism of planning lay in the failure of bureaucracy to stem corruption, ineptitude and duplicity (Pennington, 1999). Most common; a failure to ‘liberate the plethora of community values and interests that had been either ignored or actively suppressed by the rational instrumental [logic] of planning’ (Gleeson and Lowe 2000).

From this time, consolidation emerged as the most desirable means of achieving the environmental and housing goals compatible with the objectives of both the emerging green movement and the housing industry (Troy 1996, Smith, 1997). As a result, development codes for house setback, verge widths and provision of private open space were pared back under political pressure to achieve often dubious sustainability objectives and efficiency targets (Gleeson and Lowe, 2000). These changes, intended to open up opportunities for urban renewal and densification of existing urban areas, have not fundamentally shifted a housing market that remains dominated by land release of greenfield sites on the urban edge. The result, the construction of new greenfield suburbs with narrow streets and verges, smaller blocks and reduced sets backs with little open space. Indeed, the back yard has been replaced by residual ribbons of green verge circumscribing a perimeter fence (MacKenzie 2009, Hall, 2010).

More recently, under the Development Assessment Forum (DAF) established in 1998, the rewriting of development codes in planning regulation cemented this shift in market power to the private sector. Under the DAF reforms to streamline the development process in Australia, the approval application procedures have been progressively standardised to reflect a universal approach to design that focuses on reducing red tape and expediting development. Standardising of development codes has had the effect of diminishing local planning authorities’ to regulatory rather than a strategic planning function (Gleeson, 2006). However, the overall cost and size of housing has not reduced commensurately (ABS, 2008). In effect the goal of achieving a more suitable medium density urban form has been lost in the pursuit of fewer regulatory costs to development.

These regulatory changes, intended to open up opportunities for urban renewal and densification of existing urban areas, have not fundamentally shifted Australia’s housing market that remains dominated by land release of greenfield sites on the urban edge. The resulting new greenfield suburbs have narrow streets and verges, smaller blocks and reduced sets backs with little open space. Indeed, the back yard has been replaced by residual ribbons of green verge circumscribing a perimeter fence (Hall, 2010; A. MacKenzie, 2009). Many of the changes to urban development since the 1970s have seen a higher density of housing per hectare but failed to address the impacts of smaller lots and reduced setbacks on housing design. Although house sizes have doubled since the late 1970s, both block size and household occupant numbers have shrunk (per capita averages (ABS)). Despite the advances in environmentally sustainable development theory and subsequent legislating the use of green materials and building practices, energy consumption environmental improvements in greenfield development have not occurred (Horne, Wood and Berry, 2009).

As a result, the spatial organisation of residential development in Australia has changed significantly since the early 1990s and
accelerated during the long boom from the late 1990s until the
global financial crisis in 2008. Although house sizes have doubled
since the late 1970s, both block size and household occupant
numbers have shrunk (per capita averages (ABS 2010)). Despite
the advances in environmentally sustainable development theory
and subsequent legislating the use of green materials and building
practices, energy consumption environmental improvements in
residential development have not occurred (Horne, Wood et
al. 2009).

Case study: NEAT Housing competition

Background to Compact Housing Occupant Satisfaction Fieldwork
Compact housing suburban retrofits represent one measurable
aspect of sustainable architecture, with substantial empirical
research on associated resource, energy and land use reductions
(ASBEC, 2010; Horne, Wood and Berry, 2009; Metzler, 2005;
Pullen et al., 2009; Williams, 2005).

In Canberra, medium density compact housing (that is smaller
houses on smaller blocks) remains persistently contentious. "Not
in my backyard..." it has been blamed for changing neighborhood
class, loss of landscape, and new development has been
prone to disappoint rather than inspire (Elton Consulting, 2011;
De Botton, 2008).

There is another problem; the end occupants are often not known
during the design process, and social researchers describe recurring
systemic design errors with this housing type (Sarkissian, 2004).
Examples are:

• noise from neighbours
• washing lines visible from the street
• insufficient storage space
• overlooking windows
• and lack of space for children to play.

In what ways therefore can an architect improve compact house
design? How do people live in compact houses? Using social
research techniques, the researcher’s (Melinda Dodson) fieldwork
covered in-progress and completed Canberra compact houses,
of around 100sqm in size.

Interviews, spatial mapping and photographic tours with household
occupants were conducted, with comments including:
• we need privacy within our house
• we need a flexible house—because households grow and
  shrink and change
• and we need privacy from our neighbours.

Occupants stressed that the smaller the house, the more critical
these issues become (Dodson, 2014).

The next step was to analyse this fieldwork data, using design.
Specifically using the fieldwork data as design criteria to
inform Melinda Dodson Architects (MDa) entry into the New
Experimental Architectural Typologies (NEAT) compact housing
competition:

"This housing ideas competition is an opportunity ... to demonstrate
how Canberra can continue to develop as an exemplary, sustainable,
innovative and affordable city. Over the past years, planning rules and
regulations have been incrementally suppressing the options available
for alternative housing typologies. Competitors were invited to be
innovative, exciting and challenge the status quo." (NEAT, 2014)

Can a house be designed for expansion and contraction within
planning controls, which, on the one hand, seek to support
development opportunity, but within deemed acceptable limits?
These include limiting the impact of development on neighbours,
the environment and infrastructure.

Above: Diagram by Melinda Dodson depicting limits to development opportunity
“Why haven’t some of our brightest architects and engineers come up with beautiful and functional ways of creating basic houses with ‘options’: bolt-on bedrooms, dens, conservatories— that can be added or subtracted as the household expands and shrinks?” Demographer Hugh Mackay, describing a need for solitude leading to our “escape” into various corners of big houses, and putting out the call for creative solutions to address this need in a compact form.

Compact Housing Design Response Incorporating Occupant Satisfaction Fieldwork Findings
MDa was the first prize winner of the NEAT compact housing competition with an entry featuring the HI-lo precinct of houses. The design sought to address a range of retrofitting and livability issues and is organised around shared edible gardens across two levels: at “HI” and “lo” level.

Cars access the precinct but share space with pedestrian paths and private garden space. HI, lo and HI-lo houses are clustered in groups, offering many permutations for expansion and contraction of household occupant numbers, hobbies, home and work life over time. HI and lo houses are primary residences. The HI-lo house is a secondary residence, colloquially known as a “granny flat”, and acts as an adjunct room(s) to the primary residence; thereby offering size and functional flexibility to occupants.

The HI house features upper-level living, with loft above. The upper-level northern courtyard and surrounding communal landscape, offers resident privacy from the street and a range of spaces to access. Houses comprise social, retreat and utility spaces on multiple levels. Houses have two front doors, at “HI” and “lo” level, with floor layouts flexible for single level living on each. Variations might include home office studio, tenant or carer at “lo” level with living above or vice versa. Images of the NEAT scheme can be found later in the document.

Planning rules observed by the NEAT scheme:
- privacy and overlooking interfaces between dwellings
- percentage of accessible / adaptable dwellings
- solar access for living “social spaces”—indoor and outdoor
- noise interfaces between dwellings
- private open space / public open space
- neighborhood context.

Planning rules challenged by the NEAT scheme:
- maximum one metre boundary setback / articulation zone
- garages / carports are not required but optional
- several driveways preferable to a single driveway for precinct
- carpark space setbacks are no different to house setbacks
- number of car spaces is flexible, with minimum of one per house
- visitor cars spaces provided on the verge as part of a landscape solution.

**Case study: affordable compact housing North Canberra**

On another recent project the practice, MDa sought to challenge planning rules as follows:

- Reduced set-backs traded against enlarged principle private open space (PPOS). Reducing to 0–1m setback in some instances to the street such that the conserved site area is then given over to rear yard PPOS. The design itself offers a more defensive presentation to the street (i.e. smaller windows associated with utilitarian rooms edging the street) and therefore the amenity / privacy for occupants is maintained, as is street surveillance.

- For a second house type, the PPOS is not immediately adjacent the living room. While the PPOS is at ground floor, the upper level living features instead an upper level balcony. Upper level living was the key objective of this house type as it translates to vertical separation of key social rooms/spaces from the street and affords good northern aspect. The PPOS (as distinct from the balcony) is accessible from a ground floor habitable room (i.e. a downstairs study / rumpus).

- Irregular shaped PPOS: For the a third house type the PPOS does not conform to the 4m x 4m dimension size but design amenity is maintained.

The above items represent design strategies that MDa believe assist the design of affordable compact housing—essentially by designing within a small block while seeking to maximise PPOS. A similar aim in the design was to locate car spaces such that driveways can informally be an extension of PPOS, if desired by the occupant. In our schemes, the standard parking to bedroom ratios are incorporated into the designs, but on the basis that driveways are flexible use zones within each site.
With 61 entries submitted, the site plan, analysis diagrams, floor plans, sections, and 3-dimensional views by MDA of Hi-lo and Hi-lo houses receiving First Prize in the NEAT Housing Competition.
Bibliography

Town centre and Lake Tuggeranong. Taianah O'Donnell.