

# Infill Development for Older Australians in South East Queensland

An Analysis of the Preferences of Older People  
in the Urban Environment

Exploring innovative approaches in affordable,  
sustainable and liveable neighbourhoods and homes



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# Glossary

## **Accessible Housing**

A product, housing or environment that is 'accessible' meets prescribed government standards and regulations or agency requirements for being physically accessible to people with disabilities<sup>1</sup>.

## **Active Ageing**

Active ageing is the process of optimising opportunities for health, participation and security in order to enhance quality of life as people age<sup>2</sup>. Active ageing depends on a variety of influences or determinants that surround individuals, families and nations. They include material conditions as well as social factors that affect individual types of behaviour and feelings, such as health and social services, economics, personal determinants, and the physical environment. All of these factors, and the interaction between them, play an important role in affecting how well individuals age.

## **Adaptable Housing**

This housing is designed in such a way that it can be easily and relatively cheaply modified in the future to meet changing needs of occupants and visitors including those people who use a wheelchair. Compliance with the Australian Standard AS 4299-1995 Adaptable Housing must have at least one entry point that allows for wheelchair access<sup>1</sup>.

## **Affordable Housing**

Affordability is related to the income compared to the cost of housing. It can include the operational costs of a home as well as the initial cost/rental of house and land. As a rough guide, housing itself is considered affordable when low to moderate income earning households pay no more than 30% of gross household income on rent and no more than 35% for home purchase<sup>3</sup>.

## **Affordable Living**

Affordability is related to the income compared to the cost of living and not exclusively related to the value or cost of housing. It can include transportation and the operational costs of a home as well as the initial cost/rental of house and land<sup>4</sup>.

## **Age Friendly City**

An age friendly city is one that has an inclusive and accessible urban environment that promotes active ageing<sup>2</sup>.

## **Aged Care Facility**

Levels of aged care are defined as:

Residential aged care is a facility which provides accommodation that includes meals, cleaning services, furniture and equipment, as well as personal and/or nursing care. Low and high care are determined after assessment by an assessment team (ACAT in most of Australia). Low care includes services such as meals, laundry and cleaning as well as additional help with personal care and nursing care if required. High care refers to needing almost complete assistance with most daily living activities. It includes accommodation services as well as personal care. Medical needs are managed by nursing staff<sup>5</sup>.

## **Ageing in Neighbourhood**

Ageing in neighbourhood is the ability to continue to live in one's neighbourhood, in a familiar environment, safely, independently and comfortably regardless of age or ability. A prerequisite is availability of choice in housing and access to services so that people can move to accommodation that is more suitable as they age.

## **Ageing in Place**

Ageing in place is the ability to remain living in one's own home independently even if care needs change<sup>6</sup>.

## **Ecologically Sustainable Development**

While there is no universally accepted definition of ecologically sustainable development (ESD), the Commonwealth Government has adopted the following definition: 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'<sup>7</sup>. Two main features which distinguish an ecologically sustainable approach to development are: considering, in an integrated way, the wider economic, social and environmental implications of our decisions and actions for Australia, the international community and the biosphere; and taking a long-term rather than short-term view when taking those decisions and actions. This latter concept is expanded in the widely accepted Brundtland Commission (1987) definition of sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

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1 Quinn J et al, 2009

2 WHO, 2007, p.1

3 SCRC 2010, p.54

4 DIT 2010a, p.46

5 Productivity Commission 2011, p.xvi

6 Productivity Commission 2011, p.xvii

7 CoA 1992, p.6

## **Housing Density**

Housing density at the micro scale<sup>8</sup> is concerned with the measurement of the housing type as an indicator of the number of residents it could potentially house. Housing density is generally classified into three main types: low density (detached houses), medium density (semi-detached dwellings, row or terrace houses and townhouses) and high density (flats, units and apartments) and are constructed for the purposes of providing long term accommodation<sup>9</sup>. See Next Generation Planning Handbook for examples of these housing typologies<sup>10</sup>. Housing density at the macro scale is concerned with measuring dwellings per hectare at a city or regional scale<sup>5</sup>.

## **Human Scale Environments**

A Human scale environment allows pedestrians to comfortably walk from one location to another and interact with the built environment; creates an appropriate relationship between human beings and the size/function of surrounding buildings; and emphasises building features and characteristics which can be observed in close proximity, at the speed a pedestrian would travel.<sup>11</sup>

## **Infill Development**

New development that occurs within established urban areas where the site or area is either vacant or has previously been used for another urban purpose. The scale of development can range from the creation of one additional residential lot to a major mixed use redevelopment<sup>12</sup>.

## **Liveable Housing Design**

Liveable housing design means 'designing homes to meet the changing needs of occupants across their lifetime'. This includes, at minimum, core features that make home easier and safer to use for all occupants. A liveable home is designed to: be easy to enter and move around in; be capable of cost-effective adaptation; designed to respond to the changing needs of home occupants. The six core design elements are: safe level path of travel from parking area to entrance; step-free entrance to dwelling; unimpeded movement through doors and corridors; ground floor toilet; step-free shower recess; and reinforced walls in bathroom to support installation of grabrails at a later date<sup>13</sup>.

## **Liveability or Liveable Cities**

Liveable cities offer a high quality of life, and supports the health and wellbeing of people who live and work in them. Liveable cities are socially inclusive, affordable, accessible, healthy, safe and resilient to the impacts of climate change. They have attractive built and natural environments. Liveable cities provide choice and opportunity for people to live their lives, and raise their families, to their fullest potential<sup>14</sup>.

## **Universal Design**

The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design<sup>15</sup>. The seven principles of UD are: equitable use; flexibility in use; simple and intuitive; perceptible information; tolerance for error; low physical effort; and size and space for approach and use.

The Australian Disability (Access to Premises—Buildings) Standards 2010 set out requirements and technical specifications for ensuring dignified access to, and use of, public buildings, businesses and other types of buildings for people with disability and to ensure access to all. 'New buildings must comply with the Building Code of Australia and the Access to Premises Standard when they are constructed and older buildings must comply when the owner, person or business using the building does major renovations or changes. This way, over time all public buildings will become accessible. Other reference information for new buildings includes Australian standards AS1428.1 Design for Access and Mobility and AS4299 Adaptable Housing. The Building Code of Australia references these Australian standards as the minimal response for adaptability and accessibility for all members of the public'<sup>16</sup>.

## **Visitable Housing**

Housing that has three essential features which will allow a person in a wheelchair to visit. These are: a path of travel that is without steps to enter the dwelling, an entrance doorway and internal doorways that are wide enough for a wheelchair to fit through, and a wheelchair-accessible toilet on the entrance level of the dwelling.

Other design features (not part of the definition) that increase the visitability of housing include having power outlets, thermostats and light switches at a height that can be reached by a wheelchair user, having reinforcement in the bathroom walls so that grab bars can be installed, and having lever handles on doors<sup>17</sup>.

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8 Wright K, 2010, p.5

9 ABS, 1999

10 Council of Mayors (SEQ), 2011a, p.41

11 EWGCOG 2007

12 DIP 2009, p.166

13 NDUHD 2011, p.3-4

14 DIT, 2010, p.13

15 Centre for Universal Design, 1997

16 Queensland Government 2012

17 Quinn J et al, 2009

# Executive Summary

This research aimed to identify liveable, affordable and sustainable ways to accommodate older people in communities that are becoming more densely populated. The study used participatory methods with seniors: PhotoVoice to identify key supportive mechanisms and challenges for seniors in the built environment at both the neighbourhood and accommodation levels; as well as Charrettes to engage seniors in the design process. More than 42 people over 55 years and older from Brisbane and the Sunshine Coast participated in this study throughout its several stages for over a year, starting early in 2011. The resulting principles and accommodation typologies not only confirm seniors' innate understanding of some commonly accepted urban design principles, but they paint a vivid picture of what older people in a sub-tropical environment find appealing and supportive as they age.

Moreover the research identified that a new approach to seniors housing is needed. One that produces a holistic model of infill development to actively support ageing. The research proposed a new strategy called 'ageing in neighbourhood' discussed in more detail later.

## Design principles

By far the features that were most photographed by seniors were aspects relating to universal and accessible design in the home. In addition, important features were well-maintained safe walkways; outdoor environments including outdoor private space (patios and balconies); passive and active environmental features in the home; diverse housing options; places to meet; and access to services.

Participants prepared a presentation of these values for the design team to consider during the Charrettes. Their photos were translated into a collective vision of 15 principles that could be used to guide future design of neighbourhoods and accommodation for seniors. The principles, challenges and opportunities are described in detail on pages 21 to 71 and are not repeated here. Justification for these principles is founded both in the seniors' contributions and the academic literature.

What would a sustainable, affordable and liveable neighbourhood future look like for older people? Our participants certainly hoped for a future where inclusive, multi-generational communities predominate in our towns and neighbourhoods: where the contribution and presence of elders is respected, valued and celebrated. They wanted to be able to move with ease from their universally designed home, along evenly graded, well maintained and shaded walkways, that are safe from passing cars and cyclists in a peaceful green neighbourhood. As a time may come that they cannot use their car (or choose not to), it was important that shops, services and facilities are in close proximity. Human scale environments were important to our senior participants, so "village style" shops, services and facilities were a clear preference for ease of access (usually with public transport and car parking at level).

Their home would be on one level, ideally two bedrooms and a study which can be adapted to changing needs, and a number of private and shared outdoor spaces to be social or to relax, and to provide pleasant outlooks from the home. These homes would be sustainably designed: capturing prevailing breezes for through ventilation, natural sunlight, provide for privacy and noise considerations in higher density and provide solar and rainwater harvesting systems to save natural and financial resources. A safe and secure home and neighbourhood were also important. Although aged care was not in the forefront of the seniors' mind when considering a suitable neighbourhood and dwelling, choice, independence, integration and dignity were consistent themes discussed throughout a range of topics, including access to care services.

Also consistent with these themes was a need for sense of purpose and keeping mentally stimulated, and this manifested differently between participants; some preferred hobbies using a room at home, their garage or a home office. Others accessed extra resources and facilities externally such as at Mens' Sheds, or a public library. Others volunteered in their community, studied through University of the Third Age (U3A) or helped to care for grandchildren. This has implications for the importance of sufficient and adaptable space in dwellings, and consolidates the importance of universal design, which is safe for young children too. This also emphasises the importance of community facilities as key places for older people to be creative and engaged with others and the importance of recognising their contribution.

## Comparison with existing policies

In comparing our principles with international, national and more local standards, several themes were notably absent from these broader standards that are particularly relevant. These thematic areas could be used to extend current policies and guidelines particularly relating to seniors in a sub-tropical environment:

- ▶ proximity to public and shared outdoor space and generous accessible private outdoor space (patios, decks).
- ▶ shade – along walkways, public seating, viewpoints, and transport stops
- ▶ visual amenity and human scale of design
- ▶ physiological importance of through ventilation and natural sunlight throughout the year

In addition, an outstanding feature of the PhotoVoice findings was the prominence given to universal design features in the home. In spite of an increasingly aged population and voluntary commitments by developers and government agencies, minimal targets are barely being achieved. Including such features in the home translate to savings to the Australian economy simply by reducing fall hazards in homes, which in turn results in lower health care costs, reduced cost of government-subsidised home modifications, and less need for aged care residential accommodation or in-home assistance. If key features are designed in homes up front, then universal housing could be achieved with almost no additional cost and certainly much cheaper than modifying conventional housing at a later date. Arguably, universal housing design represents a more sustainable housing product over the life cycle of the asset, as it is predicated on accessible design for all ages and abilities, and therefore broadens the potential market segment for builders and developers alike. Contemporary universal design approaches are also attractive.

## Comparing perceptions of participants from the two communities

An important finding was from the comparison of perceptions of seniors in the city of Brisbane and the sprawling regional community of the Sunshine Coast. The differences directly responded to the characteristics of the environment in which residents found themselves. Concerns about security at both a neighbourhood and dwelling level in Brisbane most likely reflect more diverse and mobile communities, less familiarity with neighbours, and thus less sense of community in a big city. This suggested that the concept of 'ageing in neighbourhood' is of benefit in terms of fostering social inclusion in familiar surroundings. If the sense of community needs of seniors are being met, then those of other age groups may be met as well.

Likewise noise and air pollution and traffic congestion, accompanied by good public transport were characteristics of larger cities and commented on by Brisbane participants. On the other hand, the Sunshine Coast residents valued the open green space characteristic of this area, and were the greatest advocates of useable private open space as well. These seniors also relied on their vehicles and rarely used public transport due to connectivity and frequency issues, so the issues of trading-off car park spaces to achieve greater affordability, was not quite as appealing.

## Design challenges and collaborative design outcomes

The design principles imposed the following key challenges on the design brief, prompted discussion of trade-offs, and consequently influenced the resulting accommodation typologies.

The physiological need for light and through-ventilation gave rise to a perimeter form of design, that is, units built around the perimeter of the block, surrounding a courtyard, that are one unit deep to allow for through-ventilation. This had implications for the height of complexes due to shading and maintaining visual contact with the ground.

The number of units in a complex influences the ability to foster a sense of community. This in turn affects the size, scale, and design of multiple dwelling developments. For instance, larger complexes might be divided into medium rise clusters that have separate entries, therefore facilitating opportunities to know your neighbours. While not unanimous, most participants tended to favour complexes with less than 25 units.

To achieve affordable dwellings, trade-offs may be required between provision of car spaces and communal on-site open space. This makes sense in areas close to public transport but other alternatives were investigated for places such as the Sunshine Coast where public transport is not as well developed.

Accessibility and universal design has implications for two or more storey developments with stairs or lifts. The typologies included a range of options.

Consideration of the location of open space on smaller lots is needed in order to achieve through-ventilation, light, casual surveillance, and passive environmental design.

Consideration of through-ventilation influenced design in other ways. To achieve adequate privacy in units, common corridors where people walk past units need to be limited. Providing a second bedroom with good air circulation needs thought.

The cost of land in areas with access to services and public transport (typically calculated as a 400–800m or 5 minute walk) may affect the economic return and therefore the density or height. Noise in such areas is also a prime concern of seniors.

## Emergence of the “ageing in neighbourhood” concept

Generally, housing choice for older Australians provides choices on opposite ends of the housing continuum: residential aged care (ranging from low to high care) or ageing in place (remaining in ones’ home even if care needs change). In light of the academic literature and the outcomes of this research, it would appear that a viable model of housing for older people would be the provision of a range of options within a community. The neighbourhood model that incorporates a range of housing typologies to allow “ageing in neighbourhood” is one of the key conceptual outcomes of this research. This concept stems from a range of research findings which says that location is vitally important to seniors not just the dwelling itself. An attachment to locality or a community that is familiar is important to older people as age increases. Other factors mentioned above are also important to health and well-being outcomes.

The advantage of this model is that these typologies could be developed in a suburb over time, overlayed with home care and support services that already exist in the suburb. It is important to note that the neighbourhood characteristics should closely satisfy the principles agreed by the senior participants. Shady streets, evenly graded and well maintained footpaths in flat areas and character housing contribute to the attractiveness of such environments. Thus the concept is broadly applicable to locations which meet some basic prerequisites, which can then be supported by an increasingly greater choice in housing.

## Conclusion

Infill development is by its nature, piecemeal, and unless managed carefully, will not deliver desirable outcomes for a neighbourhood such as improved connectivity, security, adequate outdoor space, and sense of community. These elements of neighbourhood are relevant to all ages, not just older people.

- ▶ Low to medium rise development and clustering of small numbers of units can facilitate relationship building and contribute to sense of community and sense of security, supported by design that enables opportunities for interaction.
- ▶ Sustainable and universal design features can give a viable economic return on investment.
- ▶ Embracing and using the natural environment in the neighbourhood, multi-dwelling complexes and in the home, contributes visual amenity, shade, privacy, noise reduction, and a comfortable lifestyle in the subtropics. Physiological needs are the drivers for design that makes use of natural light and prevailing breezes.
- ▶ Perceptions of visual amenity may be related to human scale development and line of sight.
- ▶ Active seniors may eventually need to transition to greater care, so dwelling design needs to be responsive, flexible, and ‘universal’ to support ‘staying in neighbourhood’. A spectrum of infill options which responds to the diverse range of needs and preferences of individuals, at an appropriate density for the neighbourhood, will provide housing choice. In absence of being able to predict the future, additional choice goes a long way towards ‘future-proofing’ a neighbourhood.

Planners, developers and care providers should take heed, because as seniors become more aware of the range of possibilities, their expectation is that their voiced needs will be addressed.

Given the marked difference in housing preferences and amenity drivers between metropolitan Brisbane and the Sunshine Coast, how the ‘ageing in neighbourhood’ concept is applied will differ in each location. ‘Ageing in neighbourhood’ implies that there is likely to be a shift in the way providers select sites and deliver services in future, focusing on existing communities with services and infrastructure in place.

# Introduction

**'No other person can be as expert about your life, your values, your hopes than you are. And any process that tries to define the future and does not find a way to include your expertise on your life is doomed to fail.'**

*Gary Lawrence, former chief planner for the city of Seattle<sup>18</sup>*

This report is based on a research project conducted in partnership with people 55 years and older in Southeast Queensland to design liveable, affordable and sustainable neighbourhoods and accommodation in infill areas. The research shares a new-found understanding of older people's needs and preferences for shaping the built environment in the sub-tropics. Importantly, it illustrates the preferences of older people through their own photos and words, and provides examples of innovation achieved through a collaborative design process.

This book is intended to be used by developers, non-profit care providers, planners, builders, and policy-makers as a guide to how to meet the challenge of providing liveable safe spaces for older people in a densifying community. It provides justification for a change from 'business as usual', to delivering an accessible product to an increasingly knowledgeable and discerning seniors' market.

## Emerging issues...

The global trend in consolidating growth within urban centres (often referred to as smart growth and new urbanism) has been widely accepted by Australian policy-makers as a way to reduce our carbon footprint, improve sustainability, and protect existing green space<sup>19</sup>. However, this has, to some extent, contributed to the scarcity of land on the urban fringes in some areas, in turn affecting housing affordability<sup>20</sup>. Consolidating growth often means increasing density of dwellings in urban cores and encouraging mixed used development. Some approaches have been less than successful as they do not create a liveable, human scale environment<sup>21</sup>. Adequate open space, a pedestrian-friendly environment, traffic-calmed side streets and 'urban oases' provide a suitable backdrop for higher-density housing that is integrated into existing urban landscapes through an inclusive planning process<sup>22</sup>.

Each of Australia's major cities have targets of at least 50% of new housing to be provided by infill redevelopment over the next 20 years<sup>23</sup>. However putting this into effect requires a major cultural shift from the car dependent and job poor dispersed outer suburbs. With backyards becoming smaller and houses bigger<sup>24</sup>, Australians have generally resisted higher density living. So what will entice Australians to move into higher density neighbourhoods or into multiple dwelling complexes? Clearly such neighbourhoods will need to provide the amenity of access to services and transport. Housing complexes will need to be designed to meet the ongoing needs of permanent residents, not just short-term renters.

Furthermore a key barrier to infill development is the higher price of appropriate and sufficient land and the higher construction costs of multiple dwelling units<sup>25</sup>. Delivering affordable housing in a compact urban form requires a conscious effort to both avoid inner city ghettos of lower standard accommodation, and prevent gentrification of the inner city due to higher cost units<sup>26</sup>. Planning regulations have a strong role in delivering socially diverse communities.

To this can be added the challenge of accommodating the active and involved 'boomer' generation, the bubble of older people currently approaching or in early retirement<sup>27</sup>. This relatively well educated group may wish to 'downsize', but not by much, and will put pressure on community planning, the housing market, and service delivery systems due to a strong desire to age in-community. Many seniors prefer to age in place with only 5.3% of people aged 65 years or over living in retirement villages; for those 75 and over, the current market penetration rate is around 10%<sup>28</sup>. A number of 'push-pull' factors have been documented as reasons older people move to age-segregated retirement communities<sup>29</sup>. Pushing factors

18 [http://sca21.wikia.com/wiki/Inspiring\\_Quotes\\_11](http://sca21.wikia.com/wiki/Inspiring_Quotes_11)

19 Dreier et al 2001, cited in Costley 2006, p.164

20 Beer et al. 2007, p.16

21 Gehl 2010

22 Alexander & Tomalty, 2002, p.404

23 National Housing Supply Council 2010, p.110

24 Hall 2010, Maher 1995, p.8-9

25 National Housing Supply Council 2010, p.110

26 Murray 2011

27 Abbott, et al. 2009, Quine & Carter, 2006; Humpel and O'Dwyer 2009; Skladzien and O'Dwyer 2010

28 Productivity Commission 2011

29 Bekhet et al 2009

include failing health, reducing responsibility and maintenance, little support, and loneliness. 'Pull' factors are location and attractiveness of the facility, familiarity and reputation of the facility, security and friendships. Of great importance though is that older people feel in control of the decision that they make, and that they feel they have choice. In many communities in Australia however, the choice is limited with few options other than staying in an unmanageable house or moving to a retirement village.

Globally agreed direction on how to address this planning issue is found in the World Health Organisation's<sup>30</sup> *Guide for Age-friendly Cities* and its Checklist which aim to make cities friendly for people of all ages. Its *Framework for Active Ageing* argues that older people must direct their future lifestyles, as social participation and inclusion are connected to good health and well being<sup>31</sup>.

These challenges provide the motivation and inspiration for this study. How can older people be accommodated in infill areas of communities in ways that are liveable, sustainable and affordable? How can they be involved in this research, give voice to their perspectives, and so influence their future living environment? The remainder of this book responds to these questions. This study aims to develop liveable housing options for seniors which enable staying in their neighbourhood.

The project engaged a segment of older people in a bottom-up design process that captured their perspectives on the neighbourhood and home environments and brought them together with planning design professionals to achieve feasible models for infill development attractive to older people. By including seniors in the research and design process, it addresses both a *methodological gap* in the literature about *how* to develop accommodation for seniors; as well as our understanding of *design outcomes* that are both appealing and affordable in densifying areas. In other words both the *research process and outcomes* advance our knowledge base. Importantly it also reflects global trends to achieve more sustainable lifestyles.

The next chapter, 'Context' explains the rationale for choosing the case studies and their characteristics, the methods chosen, and scope of the work given existing policies and guidelines. The chapter on 'Design Principles' report on priorities for achieving liveable communities, developed in collaboration with the age 55+ participants using PhotoVoice. Their perspectives are supported with contemporary evidence-based research. The challenges and opportunities of each principle for designers are presented to provoke thought in moving to the participatory design workshops also referred to as Charrettes. The 'Design Outcomes' chapter illustrates the iterative process used in engaging the older participants with a design team of architects and planners, and the challenges for the designers, developers and planners in delivering housing products to the market that are affordable, liveable, and sustainable. A range of design solutions are offered, an outcome of collaboration between the senior participants and the design team. These include single level 'backyard' infill, a version of 'secondary dwellings', and a range of two to six storey developments in different settings, some on the Sunshine Coast; some in Brisbane. Each design is annotated to explain how it meets the principles and accompanied by an explanation by the designers about the intent and challenges. An outcome of the research is the identification of neighbourhood characteristics that are compatible for seniors, illustrated by one particular suburb in Brisbane.

The book concludes with a discussion about the significance of this work for large cities, regional centres, as well as small towns, and the special features identified for sub-tropical environments. The benefits of the research methods are also elaborated. Planners and developers are encouraged to incorporate these ideas in new developments to meet the existing and foreshadowed need. Only in this way will infill communities be developed that are attractive to older people based on closer integration of accommodation with the services, facilities, and transport while establishing a vibrant village style living.

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30 WHO, 2007

31 WHO, 2002

# Context

## The Case Studies

Two case study locations were selected for this study, Brisbane and the Sunshine Coast in Queensland Australia (Figure 1<sup>32</sup>).

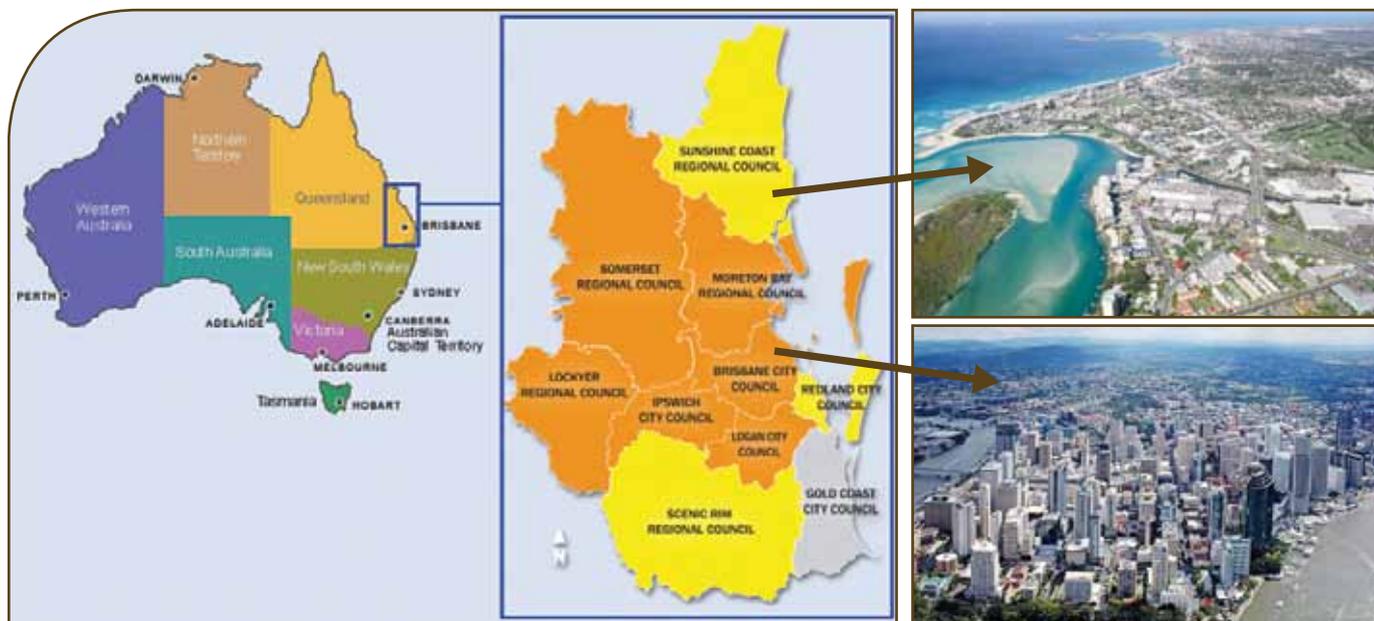


Figure 1: Case Study Site Locations.

Brisbane, with a population of over a million, is a metropolitan area characterised by low density suburbs sprawled over an area of 1,340.3 km<sup>2</sup>. The community is preparing for rapid changes with Council policy steering towards higher density living. This appears to appeal to those residents who wish to live close to a vibrant inner city with its services and activities, but is received with hesitation by others accustomed to a low density suburban lifestyle and wary of potential social issues around higher density living. Its vision includes terms such as ‘a youthful and enthusiastic city’, delivering ‘active and healthy communities ... and an enduring legacy of livability for future generations’<sup>33</sup>.

In contrast, the regional city of the Sunshine Coast of 330,000 population has an even lower density, with rural landscapes and national parks a feature of this coastal community. Its Council aims to be ‘Australia’s most sustainable region - vibrant, green, diverse’<sup>34</sup>. It is comprised of predominantly low density three to four bedroom detached housing, and demographics suggest a significant housing mismatch, given its large proportion of single or dual occupancy households<sup>35</sup>, many of whom are over 55 years old. As a sea change location, the Sunshine Coast is already home to a larger than average older population: 17% in 2010, compared to Brisbane’s 11%, and the trend is expected to continue (Table 1). A significant impact is that the number of potentially frail aged people 75+ is estimated to nearly double over the projection period<sup>36</sup>.

The differences in size, spatial arrangements, densities, housing types and demographics of these two communities offer the opportunity to understand values and the ability to test design ideas in different settings within a sub-tropical environment.

32 SEQ map – <http://feww.wordpress.com/category/environmental-disaster/>; Brisbane image - [http://www.railsnw.com/tours/australia/australia\\_tours\\_brisbane.htm](http://www.railsnw.com/tours/australia/australia_tours_brisbane.htm); Sunshine Coast image - courtesy of Sunshine Coast Council

33 BCC 2005

34 SCRC 2009a, p.5

35 SCRC 2009b

36 SCRC 2009b, p.71

**Table 1: Comparison of Demographics: Brisbane and the Sunshine Coast**

Demographics	Brisbane	Sunshine Coast
Population as at 20 June 2010 <sup>37</sup>	1,067,279	330,934
% Queensland total	23.6%	7.3%
Population 65+ as at 30 June 2010 <sup>38</sup>	122,610	56,163
% Region total	11.5%	17%
Projected population in 2031 <sup>39</sup> (all age cohorts)	1,272,272	508,177
Projected population over 65 in 2031	212,486 <sup>40</sup>	116,730 <sup>41</sup>
% Region total	16.2%	23%
Area km <sup>2</sup>	1,340.3	3,126.3
% of Qld <sup>42</sup>	.1%	.2%

## Approach

The investigation used a case study approach with two qualitative research methods, PhotoVoice and design Charrettes. It allowed engagement in a dialogue around images taken by participants over 55 years of age about what are desirable aspects of neighbourhood and home environments and what aspects may provide challenges as they get older. It thus provided an in-depth understanding about liveable and sustainable communities from the perspectives of older people in two different geographical locations in Southeast Queensland, Australia<sup>43</sup>. The participants built consensus about the ideas and images that were most important to them. They briefed the design professionals about these views and partnered with the designers during Charrettes to develop designs for real neighbourhoods in the case study areas.

**Thus the research involved two stages with a different method used at each stage:**

- ▶ to gain understanding of older peoples' perspectives using PhotoVoice and develop principles to guide design, during May and June 2011; and
- ▶ to apply the principles and embed participants' perspectives in design typologies using a two-phase design Charrette process, during August and September 2011.

## Why use PhotoVoice and Charrettes?

Involvement of older adults as partners in the research process itself is still relatively rare. A small but growing body of studies, however, suggests that participatory research with older adults may help in understanding and addressing some of the complex health and social problems faced by elders. Furthermore, with the growing emphasis on incorporating the preferences of elders in service delivery and public policy decision making, such approaches offer many benefits, including better meeting needs, individual and community capacity building and empowerment<sup>44</sup>.

While PhotoVoice has been used extensively in the past in community development and health studies to influence decision-makers<sup>45</sup>, more recently it is being used by planners and researchers to understand community values and perspectives to input into planning processes<sup>46</sup>. PhotoVoice involves participants taking photos according to a theme and discussing and reaching a consensus in a group about the message they wish to convey to decision-makers, using their photos and storyline or captions. This "participant elicited data" provides a richer insight into often complex, contextual issues and puts the participants in control of the responses. Furthermore, visual data has been found to identify problems and strengths

<sup>37</sup> OESR, 2010a

<sup>38</sup> OESR 2011a

<sup>39</sup> OESR 2010b

<sup>40</sup> OESR, 2011b

<sup>41</sup> OESR, 2011c

<sup>42</sup> OESR, 2010a

<sup>43</sup> Yin, 2008

<sup>44</sup> Blair and Minkler 2009; Carlson et al 2006; Catalani and Minkler 2010

<sup>45</sup> Wang & Burris, 1997; Baker and Wang 2006

<sup>46</sup> Baldwin, 2008; Baldwin & Chandler, 2010

omitted from data gathered using other means<sup>47</sup>. The visual images evoke emotional engagement. A large sample is not as important as the quality of the participation and capturing the dialogue to distill important points.

While PhotoVoice has been used in research with youth, children, and minority groups<sup>48</sup>, to our knowledge, it has only once been specifically used with older persons in relation to the built environment – to assess barriers to walkability for older people in Ottawa Canada<sup>49</sup>. Previous studies commonly used questionnaires, focus groups and in depth interviews to seek seniors’ views.

The second method used, the design Charrette is another participatory method. It is defined as a ‘time-limited, multiparty design event organised to generate a collaboratively produced plan for a sustainable community’<sup>50</sup>. It brings together key stakeholders, often with opposing views, to become members of the design team in an atmosphere of mutual respect, to create a design for a neighbourhood or complex. Charrettes are often run in staged workshops, over weekends or for a couple of days with a few days’ break for designers to do further work which is then brought back to the larger ‘team’ for input. Charrettes create a common language for solutions, are efficient and inexpensive, and reveal policy contradictions<sup>51</sup>, as evidenced in this project.

Charrettes have been used with entire communities, key stakeholders, children, design students, and people with disabilities. In a case in Atlanta, the goal was to design diverse communities that would provide better lifestyles for all generations, particularly the elderly. On a completely different scale from our research, it involved 1500 architects, urban planners, transportation and mobility professionals, health professionals, ageing and accessibility experts, developers, land owners and government officials in a 9-day Charrette. The participants developed a set of guidelines, based on the principles of new urbanism, that emphasized lifelong mobility, social interaction, healthy living, dwellings and services. However it did not directly involve seniors<sup>52</sup>.

Similarly a comprehensive process of Charrettes were used in Southeast Queensland to develop the ‘Subtropical Design in Southeast Queensland Handbook’ which applied principles in developing practical on the ground solutions. However that set of Charrettes involved creative teams of design experts working together collaboratively, not with the potential inhabitants of the dwellings.

Feedback about the methods from our participants revealed that they felt valued, their views were taken into account, and they learned a lot about their own needs as well as future options as a result of being involved in the research (see pages 104 to 106).

## Stage One – PhotoVoice

In each of Brisbane and the Sunshine Coast, participants aged 55 years and older were sought from a range of organisations associated with older people including University of the Third Age (U3A) and National Seniors. Twenty-four people aged 55+ participated in the PhotoVoice process on the Sunshine Coast and 18 people in Brisbane. While a mix of age groups and socio-economic backgrounds was sought, participants were neither targeted nor excluded on the basis of income or assets. Over half of the participants were aged 65–74 but ages ranged from 55 to 92 (Table 2).

**Table 2: Participant Age Profile by Location**

Age Bracket	Brisbane	Sunshine Coast
55-64	3	4
65-74	8	16
75-84	7	4
85+	0	2
Total	18	26*

\*Two participants could not continue

47 Lorenz and Kolb 2009

48 Carlson et al 2006; Castleden et al. 2008; Strack et al 2004

49 Lockett et al 2005

50 Condon 2008 p.1

51 Condon 2008

52 Saporta 2009

The participants were given two weeks in which to use digital cameras to take up to 20 photographs around four questions that illustrate their perceptions of the built environment:

**at a neighbourhood level –**

- ① What makes a neighbourhood or street a good place to live in?
- ② What are the barriers to having a good neighbourhood or street to live in?

**and at the accommodation level –**

- ① What kind of housing design features (internal and external) will you need to support you as you get older?
- ② What are the barriers in the home environment as you get older?



Figure 2: Briefing of participants in Brisbane.

These photos were then discussed in a workshop environment in each of Brisbane and the Sunshine Coast. Participants shared and discussed their photos in small groups led by a trained facilitator. Each group selected photos and attached captions to develop a visual narrative to illustrate their shared perspectives on preferred accommodation and neighbourhood concepts. Following the PhotoVoice workshops, the researchers turned the narrative into powerpoints and three volunteer participants from each group refined them into a presentation to be presented at the first Charrette. The PhotoVoice images, themes and dialogue were thus used as input into stage two of the research.



Figure 3: Senior participants sharing photos.

Meanwhile the researchers thematically classified each photograph from the presentations in the context of its caption, according to WHO's Age Friendly Cities criteria<sup>53</sup>. The WHO criteria were developed on the basis of focus groups of older people, caregivers, and service providers in 33 cities in developed and developing countries. The number of photographs in each criteria (or theme) was tallied. In some cases, the photo and comments were not reflected in any of the WHO criteria and a new theme was created e.g. private outdoor space. The themes were also tagged according to the three main project categories (sustainability, affordability and liveability). Each photo was coded to identify location (BNE or SC), the question to which it responded, and to retain anonymity of participants. Thus outcomes from each case study location also provided a comparison between a city and smaller regional centre. The method used to identify patterns in content and link visual images with verbal narratives about place, was similar to that used by Baldwin<sup>54</sup>. The outcomes resulted in design principles to test with the participants during the Charrettes.

## Stage Two – Charrettes

In each of Brisbane and the Sunshine Coast, two participatory design Charrettes were held with seniors and design professionals and facilitated by the researchers. Each Charrette lasted about six to seven hours with breaks for coffee/tea and lunch. In the first design Charrette, a representative of each 'design table', presented the group's selected photos by theme.



Figure 4: Senior participant Dennis presenting on the theme of transportation.

53 WHO 2007

54 Baldwin 2008

Participants were asked to work with the design team in groups to develop innovative housing designs for four hypothetical sites. The sites were selected to provide different opportunities to test typologies of different scale and context.

**On the Sunshine Coast the rationale for each case study site was as follows:**

- ▶ A site near the University of the Sunshine Coast (USC) Campus – explores integration of integrating older people in a intergenerational learning environment, adjacent to a future town centre.
- ▶ A cluster of four contiguous low density housing sites – explores a collaborative form of secondary dwellings in a neighbourhood of single family detached housing.
- ▶ A central city site- explores a location close to the centre of town, with good access to facilities and the beach.
- ▶ The 7 ha not-for profit organisation site in a newer suburb – allows age-segregated independent living and higher care in an intergenerational ‘campus’ setting.

**In Brisbane, the following case study sites were chosen:**

- ▶ An inner city site near Brisbane General Hospital in a higher density urban renewal area.
- ▶ A cluster of four contiguous low density housing sites in a middle suburb.
- ▶ A Transit Oriented Development (TOD) site in an inner suburb close to public transit and the Brisbane River.
- ▶ Locations in a middle suburb, typical of low scale infill in the older suburbs.



Figure 5 and 6: Designer Cassie being advised by senior participants at Charrette 1 at Sunshine Coast site design in process.

By the end of the first Charrette, the designers had produced sketches for each site based on the advice of the participants. In addition, participants were asked to complete a short preference survey to explore ‘trade-offs’ about themes such as density, shared communal space, and parking. To gain further insight into priorities about neighbourhood and home environments, participants were asked to allocate 15 dots on butchers paper about themes identified in the PhotoVoice workshop analysis.

Two weeks after the first Charrette, the design team presented draft housing models to the participants in a second Charrette, and asked further questions to test the assumptions about the trade-offs older people may weigh up when deciding on where to live should their needs change. Following further dialogue, each design group of seniors and designers refined the designs and presented the resulting visual models to the remainder of the forum for feedback and comments. The participants also critiqued the housing designs against the draft principles for neighbourhoods and dwelling environments, which directly informed the chapter on ‘Design Principles’.

Three months later, the participants in each location reassembled to review and comment on the typologies that the design team had developed based on outcomes of the Charrettes. Discussion of the typologies and participants’ reactions are described in Chapter Four.



Figure 7: Designer Phil with seniors at the Sunshine Coast Charrette 2.

## Scope of the Research

The intention of this research is to provide guidance to planners, developers and decision-makers about how to create liveable, affordable, and sustainable infill development that appeals to older people and enhances their quality of life. A number of policies at all levels of government and internationally support this broad intent. In addition, comprehensive guidelines already exist that give direction for good practice design in a range of circumstances. To ensure that the outcomes of this research contribute to and expands on this already voluminous work, the following overview highlights some of the existing work of particular relevance to the built environment for those aged 55+ and discusses how this study substantively adds to the work. It is not intended as a comprehensive review of international policies and literature supporting sustainability, ageing and affordability in general.

## Policies

Much of the inspiration for this work is based on WHO's *Guide for Age-Friendly Cities* which states that in order to be sustainable, cities must support their residents' needs to ensure their wellbeing and productivity. Older people in particular require supportive and enabling living environments to compensate for physical and social changes associated with ageing.

Additionally, older people must be consulted and included on discussions and decisions that affect them in the urban and regional settings<sup>55</sup>.

Valuable policy approaches at the National and State level in Australia support this intent to different extents. Nationally the most significant recent policy direction is provided by *Our Cities, Our Future*. Its Action Plan proposes to facilitate the supply of 'affordable and accessible housing in attractive, inclusive developments, located close to centres and public transport'; increase the supply of 'adaptable housing that is built to universal design standards to ensure access for the elderly...'; and 'support urban developments that supports ageing in place, is socially inclusive and is integrated with surrounding community facilities'<sup>56</sup>. As part of this, the Council of Australia Governments (COAG – federal and State government representatives) has agreed to national criteria for strategic planning of capital cities. If implemented, this will significantly improve the living conditions for older people in these major centres. The next logical progression is to extend the program to include all urban settlements in the country.

The Australian Local Government Association (ALGA), in its policy directive, *Age-friendly Built Environments*, acknowledges the role of local governments in shaping age-friendly communities through the planning, assessment, and building approval responsibilities of its members, Local Councils<sup>57</sup>. Strategies propose improved walkways, signage, lighting, shape, safer street crossing, mixed use developments on a human scale, mobility and alternative transport options, as well as a recommendation that seniors input to design.

55 WHO, 2007

56 DIT 2011, p.83

57 ALGA 2006

While some coordinated efforts to advance age-friendly communities have surfaced, such as by ALGA and the National Dialogue (referred to under guidelines below), there is no national approach or commitment to best practice in achieving age-friendly communities across the three levels of government<sup>58</sup>. With the *National Strategy for an Ageing Australia*<sup>59</sup> now more than ten years old, there appears to be a role for COAG, in extending the positive initiatives of *Our Cities, Our Future* to include seniors in ensuring a revised policy direction meets their needs.

Similar to other States in Australia, the Queensland government's policy stance on affordability issues is expressed in a Housing Affordability Strategy<sup>60</sup>. It foreshadowed a *State Planning Policy for Housing and Residential Development* which requires larger communities to undertake a housing needs assessment as a basis for future planning. It also led to the formation of the Urban Land Development Authority (ULDA) with a mission to bring housing to the market quickly and deliver a diverse range of housing options for the changing needs of the community including housing that is affordable for households on low to moderate incomes<sup>61</sup>. The ULDA is a planning and development authority that also works with external developers and other stakeholders to deliver its outcomes. The ULDA employs both regulatory and non-regulatory approaches and targets in relation to accessible housing<sup>62</sup>. *Positively Ageless, the Queensland Seniors Strategy 2010–20* values the contribution that seniors make and espouses a vision 'to encourage the development of age-friendly communities that suit varying needs, choices and levels of participation, and for the right services to reach the most vulnerable and disadvantaged seniors at the right time'<sup>63</sup>. While it includes valuable actions to support awareness raising and participation in civic affairs, there are no actions directly related to improving the built environment for older people.

At a regional level, the *South East Queensland Regional Plan 2009–2031* provides generic direction and overarching support for seniors' (and others') well-being through its vision for SEQ. It articulates a future that is affordable, prosperous, liveable and resilient to climate change, with inclusive communities; sustainable, well designed development that reinforces the subtropical character; valued and protected ecological and culturally significant landscapes; and access to a range of quality open space and recreational opportunities<sup>64</sup>.

Also at the regional level, the Liveable Compact Cities Project<sup>65</sup> put forward measures for greater uptake of medium density development, including best practice guidelines (described below), policy and engagement tools, and market based recommendations. Of particular relevance to this project about infill development, is the suggestion to:

further explore the development of voluntary Queensland Planning Provisions (QPP) compliant code provisions, to enable greater diversity of medium density development including, for example, medium density development on 600–800m<sup>2</sup> blocks<sup>66</sup>.

In the city of Brisbane, one of our case study locations, Council's draft *Seniors' Strategy 2012–2017* incorporates some of the recommendations of the Lord Mayor's Taskforce into Retirement and Aged Care, which was tasked with investigating opportunities for Brisbane City Council to support older citizens to 'age-in-place and participate more fully in their local communities'<sup>67</sup>. The outer ring suburbs of Brisbane are highlighted as priority area for ageing-in-place; it was suggested that services, facilities and planning processes will need to pay particular attention to people in different stages of ageing over the next 30 years<sup>68</sup>. Brisbane City Council has drafted strategic priorities, based on research findings and consultation, that suggested older residents in the Brisbane area were, amongst other things, increasingly at risk of social isolation, seeking more variety of local door-to-door transport options and 'affordable universal housing options that support "ageing in place", better walkways, opportunities for inter-generational and inter-cultural skills exchange and are willing to be involved in meaningful volunteering and in making the city a better place'<sup>69</sup>. In support of this, Brisbane City Council has a range of initiatives and programs that underpin the intent of the strategic priorities.

In addition, Council has also recently released the *Draft Brisbane Access and Inclusion Plan 2012–2017*, which focuses on practical ways of making services, facilities and infrastructure accessible, and how attitudes towards disability can create inclusion in events, activities and programs<sup>70</sup>.

At our other case study location, the Sunshine Coast Council has been comprehensively addressing the range of relevant issues. The *Affordable Living Strategy* was informed by a *Housing Needs Assessment* and other Council research which identified the area as having the highest levels of housing stress in Queensland, as well as a need for greater housing

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58 Productivity Commission 2011

59 CoA 2001

60 DIP 2007

61 ULDA 2011a

62 ULDA 2011b

63 Qld government 2010, p.8

64 DIP 2009, p.10

65 Council of Mayors (SEQ) 2011b

66 Council of Mayors (SEQ) 2011b, p.38

67 BCC 2011, p.5

68 BCC 2011, p.9

69 BCC 2011, p.15

70 BCC 2011, p.6

choice and adaptable housing<sup>71</sup>. Most importantly the *Affordable Living Strategy* recognises that affordability requires consideration of a range of interrelated elements, including housing choice, location and access to essential services and facilities, public and active transport, and energy efficient design. It includes targets to achieve greater housing diversity, affordability, aged care accommodation, and importantly, 'to increase universally designed and adaptable housing to 19% of housing stock on the coast by 2031'<sup>72</sup>. Furthermore Council's *Positively Ageing Strategy*<sup>73</sup> includes actions to ensure that older people's needs are incorporated into place-making and projects; and that planning supports age-friendly communities through access to infrastructure, facilities, recreation and public transport, and walkways. Councils' *Access and Inclusion Plan 2011–2016* applies to people of all ages but commits to five main areas in order to improve access and inclusion: pedestrians, parking and transport; community facilities, amenities and open space; planning and services; training, employment and participation; and communication and community<sup>74</sup>.

## Guidelines

A range of recent voluntary guidelines provide advice on designing for age-friendly communities. For the most part they are produced collaboratively, recognising the need for multi-party agreement in order to achieve adoption.

This project has underlined the importance of universal design as a mechanism to better enable people to remain independent in their communities and age-in-place. In spite of evidence of the increasing need for, and benefits of, universally designed homes, builders have been reticent about incorporating such features in building stock. Even the recent Productivity Commission's report<sup>75</sup> encourages voluntary adoption rather than regulation, in contrast to pleas from care providing associations<sup>76</sup>.

The Productivity Commission's rationale, based on purported additional costs however, is not confirmed in other literature<sup>77</sup>. Building industry representatives have advised that if the Key Design Features are designed in up front, then universal housing could be achieved with almost no additional cost<sup>78</sup>. It has been estimated that if 20% of new homes included universal housing design, the cost savings to the Australian health system would range from \$37 million to \$54.5 million per annum; with 100% adoption this increases to \$187 to \$273 million per annum<sup>79</sup>. The reduction in costs to government health and community sector spending is primarily due to reduced fall hazards in homes, resulting in reduced health care costs, reduced cost of government-subsidised home modifications, and reduced need for aged care residential accommodation or in-home assistance<sup>80</sup>. Furthermore as grandparents provide care for 18% of all children aged 0–11 years, universal housing will help them to stay living in their own homes for longer<sup>81</sup>.

One of the most significant achievements in progressing accessible housing nationally, is a collaborative process, the National Dialogue on Universal Housing Design (NDUHD), which brought together industry associations such as the Housing Industry Association and Master Builders, large developers such as Lend Lease and Stockland, and non-profit associations. They agreed on an aspirational target that all new homes will be of an agreed Universal Housing Design standard by 2020, with interim targets to be set within that 10-year period. The NDUHD has produced useful *Liveable Housing Design Guidelines* (NDUHD 2011). Its members 'hope that home owners will see the benefits of Universal Housing Design principles when renovating an existing home'. They recommend that all 'government providers of social housing should commit to delivering all new public housing to an agreed Universal Housing Design standard'<sup>82</sup>.

Landcom, a government development authority and social housing provider in NSW, utilises a non-regulatory approach with an aim to include a proportion of universal housing in each of its projects, with the proportion varying according to location. It recognises for example, that a greater proportion of universal housing may be more appropriate in areas with direct and convenient access to services that would particularly benefit older people. Where topography is steep however less universal housing might make sense<sup>83</sup>. Landcom aims is to influence the design of mainstream housing so that a greater proportion of new homes built will be suitable for older people to live in for a longer period of time. The Key Design Features and best practice principles in Landcom's guide are derived from the Australian Standard for Adaptable Housing (AS 4299–1995).

At a broader level, developing age-friendly communities is also a feature in *Healthy Spaces and Places* which involved collaboration of ALGA, the National Heart Foundation of Australia and the Planning Institute of Australia, supported with

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71 SCRC 2009b

72 SCC 2010, p.14. This Strategy is inter-linked with Council's other strategies such as the *Integrated Transport Strategy*.

73 SCC 2011a

74 SCC 2011b

75 Productivity Commission 2011

76 Ward et al 2011

77 Judd et al 2010

78 Landcom 2008

79 Judd et al 2010, pp.188-9

80 NDUHD 2010

81 Landcom 2008

82 NDUHD 2010, p.7

83 Landcom 2008

Government funding. This national guide aims to support and complement planning and design initiatives of the three levels of government. It recommends that retirement accommodation should be integrated into the community, well placed to encourage active living by residents including walking to facilities and using public transport.

In Queensland, the *Smart and Sustainable Housing Design Objectives*<sup>84</sup> and the Urban Land Development Authority's (ULDA) *Accessible Housing Guidelines* provide design objectives, acceptable outcomes and planning and design elements respectively<sup>85</sup>. In addition, consolidated development is supported by Queensland government's *Transit Oriented Development: A Guide to Community Diversity*<sup>86</sup>.

One of the most recent policy guides to inform planning and development in SEQ is the *Next Generation Planning Handbook*, which provides guidelines at different scales (district, neighbourhood, street, lot) and form-based codes that can be used in planning schemes<sup>87</sup>. It aims for a consistent approach in planning schemes to address affordability and encourage smart growth.

In a subtropical climate, successful design allows people to manage how they experience the local climate. Design will be increasingly required to deliver solutions for climate variation and adaptation in response to peak weather events such as drought, flooding and severe storms. The pre-eminent document on subtropical design, the *Subtropical Design Handbook*, is increasingly referenced by municipal planning schemes as it articulates design principles that aim to ensure development is 'sustainable, well-designed, and the subtropical character of the region is recognised and reinforced'<sup>88</sup>. Key design principles that resonate with our study include integrating with nature, developing outdoor meeting places, and diversifying the build environment.

## Implications for our Research

A number of excellent policies and guidelines exist however none are specifically oriented to infill development; neither are they specifically oriented to older people. In addressing issues and needs for older people, designs that improve how we consolidate development will improve the lifestyle, health and well-being for all ages.

This study addresses three drivers for designing for seniors: liveability, affordability, and sustainability. The previously mentioned policies and guidelines also address these themes with ULDA's approach focussed on housing diversity and affordability, subtropical design addressing sustainability issues, and liveability addressed in the *Next Generation Handbook*, *Universal Design* and WHO's guidelines. During the study we elicit input from our elder participants to understand their perspectives and to design neighbourhoods that address these issues.

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84 DPW 2008

85 ULDA 2011c

86 DIP 2010

87 Council of Mayors (SEQ) 2011a

88 Centre for Subtropical Design 2010, p.2