
Exploring the economic value embedded in housing built to universal design principles

Bridging the gap between public placemaking and private residential housing

Sarah Sinclair, Ashton de Silva & Foula Kopanidis

What's next...



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Longevity Group Australia Ltd is building development company which designs, builds and delivers innovative homes for empty nesters. Longevity builds townhouses and apartments that are designed to the “Livable Housing Guidelines” and more recently to their own “longevity better life standards” in conjunction with architectural practice Hayball. Longevity homes are designed to keep people in their communities in housing that will support them to age in place.

The Placemaking Economics Group (PEG) specialises in the analysis of economic, cultural and social aspects of people’s residential choices and the wellbeing implications of those choices; that is: ‘Why do we live where we live?’.

The RMIT Centre for Urban Research is a dynamic hub for interdisciplinary urban research. Through its research, the Centre is directly responding to the globally important need to shape cities and regions that are environmentally, socially and economically sustainable.

Abstract

In this report, we explore the public value implicit in housing incorporating universal design principles. Value is conceptually demonstrated by identifying housing design and location attributes, associated with increases in ageing well outcomes via the reduction in the need for, the level of, and the time spent on care to support ageing in place. To do this a survey instrument is developed to capture the experiential knowledge of in home care service providers and their observations of the impact of the home on the ageing well outcomes of the seniors they care for and also on their capacity to provide care. We find that certain housing design and location feature have value that extends beyond that experienced solely by its residents, facilitating community capacity and social engagement, physical wellbeing and ease of delivery of public services such as care support.



About the authors

Dr Sarah Sinclair

Sarah is an applied economist in the school of Economics Finance and Marketing at RMIT University. Her research examines the economic decision-making of specific household cohorts over the life cycle. Sarah's current research relates to the consumption choice of households, given certain life events and situations, their interactions with society and place, and how public policy frameworks can influence those choices. These life events and situations include family formation and expansion, partnership dissolution and the role of child support in the wellbeing of children and retirement planning, particularly the role of housing in facilitating positive ageing.

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Executive Summary

At the heart of community are the residential homes where people reside – although predominantly in private ownership in the Australian context, the structure and design, location and accessibility of these homes, contribute to community capacity and social cohesion. The COVID 19 Pandemic stay at home restrictions, the failures in the aged care system, and the increasing prevalence of telehealth, have highlighted the role of the private residence and the neighbourhood context, in supporting physical cognitive and social wellbeing outcomes of older Australian households.

Housing, is predominantly exchanged in a private market setting and so the interaction of both demand and supply factors, influence the shape, form and locations of housing. Market mechanisms do not appear to reflect the full potential benefits of housing built to Universal design principles (as represented in Australia by the Livable housing guidelines (LHG)). Suitable housing to age in place remains undersupplied in the market (COTA 2017). The focus of this report is to reflect on the attributes in the general housing stock that best support the needs of an ageing population.

As agreed at the National dialogue on universal housing design convened in 2010, the agreed targets for voluntary uptake of Livable Housing Guidelines (LHG) for all new residential housing were to be 100 per cent to Silver level by 2020. This has not occurred.

Barriers to supply of Livable Housing are reported to include perception of higher costs, lack of communication of benefits or lower costs of using LHG, lack of benefits to the builder via higher demand from consumers and insufficient Government initiatives. Planning and development approvals can be problematic. Age specific housing development is often disadvantaged relative to other housing or commercial development. Planning rules that constrain the development of smaller, higher density residential properties inhibit downsizing, and innovative housing proposals often face NIMBY opposition.

Consumer Demand constraints - The **future** benefits of LH for the individual include improved accessibility, cost effectiveness and better well-being due to more comfortable ageing. However, we find that these benefits are not fully understood or realised by consumers due to information asymmetry, affordability, uncertainty about future needs, limited retirement planning, and a general preference for current consumption over future consumption (Productivity Commission 2015).

For many older Australians, the home they choose to age in are the homes they purchase at an earlier point in the lifecycle, most likely

a life stage when the household members are physically competent and less dependent on their housing environment.

Downsizing is still uncommon for older Australians and financial constraints such as stamp duty and age pension eligibility create lock in effects.

Retirement planning is inherently complex and many seniors are reluctant to plan for their possible future ill health and end of life needs. However, this creates a risk of decisions being prompted by crises, rushed and made at a time when the person is vulnerable.

Uncertainties about longevity, health, and finances collectively can mean the family home can become a form of self insurance even if it is not a suitable environment to age in.

Addressing the lack of provision of suitable housing stock will require **public, private, non-profit and community sectors** to strategically shape the physical and social character of the residential home to generate age friendly environments (Not just for the aged but for all life stages).

In this research a **survey instrument is developed to capture the experiential knowledge of in home care service providers (both paid and unpaid) and their general observations of the impact of the home design and locations on the ageing well outcomes of the seniors they care for and also the impact of home design on their capacity to provide care.**

We find that certain housing design and location feature have value that extends beyond that experienced solely by its residents, facilitating community capacity and social engagement, physical wellbeing and ease of delivery of public services such as care support.

The public value implicit in universal designed housing is conceptually demonstrated by associated increases in ageing well outcomes and **reduction in the need for, the level of, and the time spent on, care to support positive ageing outcomes** (ie. generating efficiency gains in achieving ageing well outcomes).

Key Findings

Caregivers believe Universal design features impact on the level of care needed to support ageing well. When caregivers were asked if they believe home design influences the level of care required in the home there was a very strong agreement with 95% of the sample overall agreeing. 97% of those providing informal care agreed that the home design had a significant influence on the level of services required. The response was unanimous across those providing specific levels of care.

This represents a significant economic value considering the marginal differential in the annual government subsidy of moving from a level 1 home care package to level 2 is \$6,717 – level 2 to 3 = \$18,304 and level 3 to 4 = \$17,469.

The location of the home and relative access to amenities also was deemed to have impact on the level of care needed with 95% of the sample strongly agreeing. Location as an important determinant of the level of care particularly resonated with informal care givers (100%). Keeping in mind that much informal care is provided by family members, friends and neighbours.

Caregivers believe the home design impacts on their capacity to provide care.

Carers were also asked to assess how the design of the home impacted on their capacity to deliver services in the home. While 88% agreed overall, 97% of informal care workers strongly agreed and it was clear that good design supported the delivery of cognitive (96%), physical, social and medical needs (94%).

74% of the sample believed home design is very important to support ageing well in place.



82% of social care providers and 80% of specialist care providers strongly agreed. It was also deemed very important by 80% of those delivering level 3 care. Housing location as a determinant of ageing well was considered very important to 82% of social needs providers and 83% of those providing level 4 care services.

Efficiency in delivery of care services

Time spent with a client or family member delivering services can be impacted by housing attributes and location.

77% of those delivering physical care agree that the home design impacts on the time needed to support Activities of Daily living ADLS. Of those caring for persons with higher needs 79% of those delivering level 3 care and 81% of level 4 agree that the design of the home impacts on the time needed to deliver the necessary care.

The attributes deemed most important (of the 17 listed) by the different levels and types of care provision observed are summarized in the tables on the next page.

Table 1: Top seven Livable housing attributes % deemed very important by those delivering different levels of care

Attributes	No formal care	Entry level	Level 1	Level 2	Level 3	Level 4	All levels
Level Dwelling Access	89%	80%	85%	85%	85%	94%	90%
Wide Internal Doors & Corridors	78%	80%	85%	81%	80%	94%	90%
Internal Stairways	78%	80%	85%	85%	85%	94%	90%
Level Dwelling Entrance	78%	75%	85%	77%	75%	82%	80%
Entry from Parking	78%	75%	81%	81%	80%	88%	80%
Reinforcement of Bathroom and Toilet walls	78%	75%	81%	81%	80%	94%	90%
Non slip Flooring	68%	75%	81%	77%	80%	82%	80%

Table 2: Housing attributes ranked very importance for different care need groups

LHA attributes - % deemed very important	All respondents
Dwelling Access	85%
Internal Stairways	83%
Dwelling Entrance	80%
Hobless Shower	80%
Reinforcement of Bathroom and Toilet walls	80%
Non slip Flooring	78%
Internal Doors & Corridors	76%
LHA attributes - % deemed very important	Physical C
Dwelling Access	85%
Internal Stairways	81%
Dwelling Entrance	77%
Reinforcement of Bathroom and Toilet walls	77%
Internal Doors & Corridors	77%
Hobless Shower	74%
Entry from Parking	74%
LHG attributes - % deemed very important	Social C
Dwelling Access	94%
Dwelling Entrance	94%
Internal Stairways	88%
Reinforcement of Bathroom and Toilet walls	88%
Hobless Shower	88%
Entry from Parking	88%
Downstairs Toilet	88%
Kitchen Space	88%
Laundry Space	88%

LHA attributes - % deemed very important	Medical C
Dwelling Access	83%
Dwelling Entrance	83%
Internal Stairways	83%
Reinforcement of Bathroom and Toilet walls	80%
Hobless Shower	80%
Internal Doors & Corridors	80%
Non slip Flooring	80%
Entry from Parking	77%

LHA attributes - % deemed very important	Cognitive C
Dwelling Access	87%
Dwelling Entrance	83%
Internal Stairways	83%
Reinforcement of Bathroom and Toilet walls	83%
Hobless Shower	83%
Internal Doors & Corridors	83%
Non slip Flooring	83%
Laundry Space	83%
Tapware	83%

A general theme around the importance of access and accessibility for all groups emerges, however for some groups – those with medical and cognitive needs – flooring, laundry space, kitchen space and tapware become more important. Interestingly these are not included in the seven core design elements of the LHG silver level.

This research highlights that for older cohorts, more attention needs to be paid to their specific housing needs. The findings highlight which attributes can create the most value in supporting wellbeing in the home and reducing the level of services required. Subsequent work is needed to identify both market and non market mechanisms to ensure a greater provision of these specific attributes in the general housing stock, supporting our ageing population to age well in their own homes.

Market mechanisms are most likely to be demand driven as this growing cohort transition to homes they want to age in place in.

Providing information to consumers on which attributes are most likely to support their future needs is vital to stimulating demand in the market and subsequently supply. A range of policy support may also be necessary in light of the public and social value embedded in well-designed housing capital.

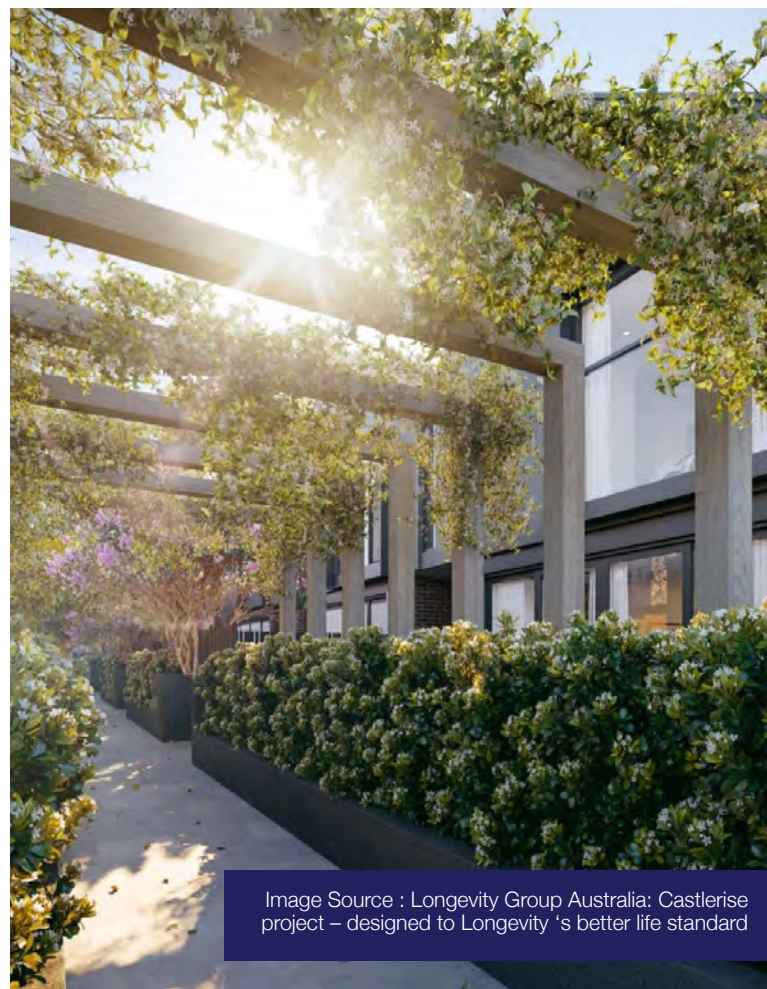


Image Source : Longevity Group Australia: Castlerise project – designed to Longevity 's better life standard

Introduction

There are over seven million Australians between 50 and 75 years of age. This cohort, known as the “new middle agers” have different quality-of-life aspirations from their predecessors and are generally healthier. 70% of those over 65 report having good, very good or excellent health, yet one in five report experiencing disability in the form of severe or profound core activity limitation (AIHW 2017). The transition of baby boomers to older ages signals both a quantitative change in numbers aged over 65 but also, a shift in attitudes, resources and expectations relating to post retirement years. (Hugo, 2014).

This cohort has the potential through size and influence to drive significant change in societal attitudes, resource allocation and lifestyle expectations of their senior years (Hugo, 2014). Recognising the emergence of this cohort, Policymakers (have drawn on World Health Organization (WHO) concepts to establish Age Friendly City (AFC) initiatives with the aim to support healthy ageing (World Health Organisation, 2015). At its core, the success of an AFC initiative depends upon Co-design and Co-creation, bottom-up and top-down political commitment and a life-course approach that encourages intergenerational solidarity. **In 2010 it was estimated that 96% of new homes in Victoria lacked basic accessibility features** and that this lack of accessibility imposed significant costs on the community. (Department of Planning and Community Development, 2010) (DPCD 2010). Recent improvements in funding of residential capital via the specialist disability accommodation fund (SDA) goes some way to meeting the requirement of those with particularly high needs. The objective being that participant purchasing power “will drive greater competition, stimulate innovation and create incentives for providers to be more responsive to the needs and preferences of participants”(SDA 2018) NDIS recipients will stimulate a market for specialist disability accommodation (SDA) however the impact on the broader housing market will be minimal.

The focus of this report is to examine the housing attributes that best support ageing well- informing both “New middle agers” so that their buying power can be harnessed to drive housing innovation, and policymakers so they consider best forms of capital expenditure to support the delivery of public care services and the housing needs of an ageing society.

Housing is a key element of healthy ageing. A National Dialogue, although not explicitly linked with AFC objectives, was convened in 2010 focusing, in part, on healthy ageing. It focused on universal

housing design principles bringing together key stakeholders from government, industry and seniors community groups. The intent of the dialogue was to develop a strategic plan to increase the provision of housing that embodies universal design features thereby enabling healthier ageing. It has been estimated that the current voluntary approach will achieve at best 5% of the National Dialogue’s 2020 target (Department of social services DSS 2010).

Narratives supporting the lack of provision of universal designed residential homes have been many, these include:

- developers profit margins
- a focus (by developers and consumers) on short term outcomes,
- consistent housing policy failure
- a depletion in social housing¹
- Australians homeowner aspirations and the perception of the home as an economic asset.

Reflecting on these narratives we suggest a common underlying theme is a lack of understanding of the (potential) value of housing exhibiting universal design features. Private Value to the consumer and value generated through positive externalities. In Australia, Livable Housing Guidelines (LHG) are an endorsed representation of universal design principles - a set of design features that enable and facilitate the needs and abilities of all Australians. This research explores barriers to realising a deeper market for housing featuring LHGs. Our exploration begins by considering a broader placemaking perspective. This includes two dimensions of its potential value; private and public. In addition, utilising the experience of care workers we outline the potential form and size of various aspects of economic value.

¹ Consumers will not want to add “common good” features to homes that they don’t perceive will add economic value or immediate use value to themselves. (Ward Margaret & Bringolf Jane, 2018)

Structure of the report

Section 1 Housing in an Age Friendly city outlines the role of housing in the creation of age friendly cities, the crossover between private market mechanism and the broader social objectives of well-designed housing are examined. These are briefly discussed in the context of placemaking.

Section 2: presents the Livable Housing Guidelines (LHG), objectives and a review on the outcomes of the aspirational targets set in 2010. We explore the low levels of provision of this type of housing in the development of new housing and consider some of the reported reasonings for this from both a demand and supply perspective.

Section 3: Conceptualizing Carer's Value of Livable housing, results from a purposely designed survey are presented. The survey instrument was developed to:-

- capture the experiential knowledge of care service providers and their general observations of the impact of the home design and locations on the ageing well outcomes of the residents.
- estimate the time and services needed to support clients where there is a poor person – environment fit (limited LHG attributes)

In this final section we discuss the results of the survey, assess if there is evidence for benefits generated from specific housing attributes.



Housing in an Age Friendly city

Section 1

“Place is no fixed thing, it concerns the material environment; how we move in, absorb, shape, and are shaped by it; and how we as social agents interact with and within it, gather and attach particular meanings to it, and forge relationships and identities” (Eckenwiler, 2016 pg 1944).

The “place” focus of this report is the residential neighbourhoods and communities in the state of Victoria, in particular Metropolitan Melbourne. Currently more than 15% of Victorians (3.7 million) are over 65 and this is expected to grow to 22% (8.7 million) by 2056 – 10 % of those over 60 experience chronic loneliness (DHSS 2020) while those at risk of social isolation can be as high as 50%. It is thought that reduced intergenerational living, geographical mobility and less cohesive communities has added to the higher level of loneliness in older communities (Fakoya, McCorry, & Donnelly, 2020). An effective way to reduce loneliness is for people to feel connected to their community (Holt-Lunstad, Robles, & Sbarra, 2017) - in essence belong to a “place”(Yen, Shim, Martinez, & Barker, 2012). More generally, the intersection of community and spatial location (and its attributes) is characterised (in part) by the notion of placemaking. Placemaking has various definitions, underlying these various definitions is the understanding that society, location features, economics as well as built form contribute (and interact with) the wellbeing of the (local) community/ies. It is a dimension of built-form – housing, that is the primary focus of this research. Ethical Placemaking calls for an understanding of the need for a fit between life stages and the related social and physical environments. It is well understood in social epidemiology literature that place related factors can greatly impact health outcomes (Eckenwiler, 2016; Holt-Lunstad, 2018; Zuniga-Teran et al., 2017).

This research explores a broader concept of placemaking bridging the divide between the public and private domains (and acknowledging the deep interactions between both) to support societies in fostering the conditions in which people can care, be cared for, and socially connect in their latter years.

Placemaking is traditionally viewed as being determined only within the public realm and applied to the creation and activation of public spaces. The health and wellbeing effects of public placemaking are well researched and documented.

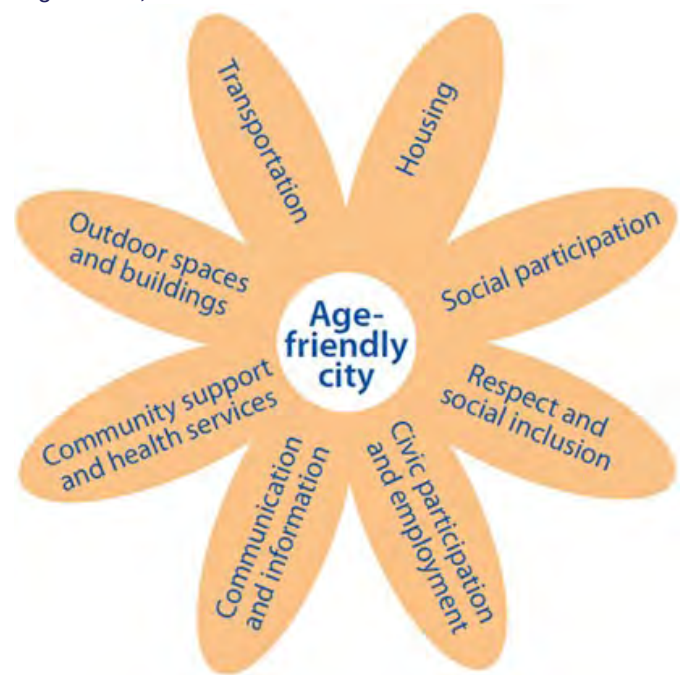
Yet there is little research on the private aspects of creating meaningful places that facilitate human interaction, health and wellbeing.

Housing and ageing well

At the heart of community are the residential homes where people reside – although predominantly in private ownership in the Australian context, the structure and design, location and accessibility of these homes, contribute to the community and social cohesion concepts promoted by placemakers, health promotion experts and place management agents.

The importance of the residential home to senior members of the community is emphasized in the World Health Organizations Age Friendly Cities objectives (WHO 2007) elements illustrated in Figure 1 below.

Figure 1: Age-friendly city elements. Source: World Health Organization, 2007



The eight age friendly domains are inter-related but the built environment factors such as housing, transportation and outdoor spaces and buildings capture physical attributes that can enable or disable the success of the other domains.

Housing, is an age friendly element that is predominantly exchanged in a private market setting and so market mechanisms, the interaction of demand and supply, deeply influence the shape, form and locations of this age friendly element.

There is little discussion relating to the home “capital” central to the production of desirable living conditions to age in place successfully. The built asset provides services directly to the householders but good design may have value that extends beyond that of its residents, facilitating community capacity and both social and cultural capital and ease of delivery of public services such as care support.

“In creative placemaking, partners from public, private, non-profit, and community sectors strategically shape the physical and social character of a neighbourhood, town, city, or region”(Beske, 2018).

As pointed out by Kendig et al., (2014) mainstream actions of Government to implement key elements of the age friendly cities agenda have been limited (Kendig, Elias, Matwijiw, & Anstey, 2014). Market mechanisms don't appear to have incorporated the potential benefits of supplying dwellings that correspond to LHG. The challenge is therefore, how can the shortfall in well-designed residential housing be addressed? Importantly the solution does not rely on one group only, it will require public, private, non-profit and community sectors to strategically shape the physical and social character of the residential home to generate age friendly environments together.

The findings in our research are aimed at igniting and facilitating interactions between the relevant parties.



Liveable Housing Guidelines (LHG)

Section 2

A key milestone laid out in National dialogue on universal design's strategic plan (Department of Social Services, 2010) was the development of a national standard of design elements that can be applied in new housing to improve function for all and avoid costly retrofitting should household circumstances change.

The livable housing guidelines are a non-statutory standard incorporating specific design criteria intended to support the development of mainstream housing to meet the changing needs of residents over their lifetimes.

The initiative was launched in Australia on the 13th July 2010, and the guidelines provide technical advice and guidance on the features of a house that ensure it will better meet the needs of those living in the home.

The guidelines have three performance levels: Silver, Gold and Platinum. A minimum of 7 criteria must be satisfied to meet the minimum standard – Silver accreditation. The seven core design features elements in the Silver level are.

- A safe continuous and step free path of travel from the street entrance and/or parking area to a dwelling entrance that is level.
- At least one, level (step-free) entrance into the dwelling.
- Internal doors and corridors that facilitate comfortable and unimpeded movement between spaces.
- A toilet on the ground (or entry) level that provides easy access.
- A bathroom that contains a hob less shower recess.
- Reinforced walls around the toilet, shower and bath to support the safe installation of grabrails later.
- Stairways that are designed to reduce the likelihood of injury and also enable future adaptation.

The Gold level provides for more generous dimensions for most of the core livable housing design elements and introduces additional elements in areas such as the kitchen and bedroom. All elements are featured in the platinum level. This level describes design elements that would better accommodate ageing in place and people with higher mobility needs.

The table on the right provides a summary of the full suite of design elements we will refer to and ask carers to assess in the context of seniors wellbeing.

A summary of the liveable housing attributes referred to in this report

1	Dwelling access: A safe continuous and step free path of travel from the street entrance and / or parking area to a dwelling entrance that is level.
2	Dwelling entrance: There is at least 1 level, step-free entrance into the home
3	Direct and level entry from parking space to the house. Enter and exit the dwelling easily
4	Internal doors & corridors: Internal doors and corridors are wider than standard to facilitate comfortable and unimpeded movement between spaces. 1 to 1.2m.
5	Toilet: The ground level has a toilet with 1200 mm clear circulation space
6	Shower: Easy and independent access for occupants. Hob less, shower recess
7	Reinforcement of bathroom & toilet walls: Grabrails can be installed where needed.
8	Internal stairways: Continuous handrail on one side of the stairway
9	Kitchen space: Clearance in front of fixed benches and appliances
10	Laundry space: Ease of movement between fixed benches appliances
11	Bedroom space: There is a space on the ground (or entry) level that can be used as a bedroom with 1m a 1.5m clearance space
12	Switches and Power Points: Switches should be aligned to door handles and power points should be a minimum of 300mm above floor
13	Door and tap hardware: Doorways should feature door hardware 900-1.2 metres above finished door
14	Tapware are easy to use with a lever mechanism
15	Family/living room space: There is enough free room to accommodate residents to move in and around the room with ease
16	Window sills are installed at a height that enables home occupants to view the outdoor space
17	Flooring: Floor coverings should be slip resistant

Outcomes of the National Strategy on Universal Design

The agreed interim targets for voluntary uptake of the Guidelines for all new residential housing were:

- a. 25 per cent to Silver level by 2013
- b. 50 per cent to Silver level by 2015
- c. 75 per cent to Silver level by 2018
- d. 100 per cent to Silver level by 2020

Despite an aspirational target to have 100% of all new housing to provide specified minimum access features by 2020 it appears the results have been disappointing. A report by the ANUHD and Rights and inclusion Australia RIA finds that, despite government support and the sustained efforts of Livable Housing Australia, the housing industry, has failed to show signs of voluntary systemic transformation. A generous estimation is that the current voluntary approach will achieve less than 5% of the National Dialogue's 2020 target." (Australian Network for Universal Housing Design, 2015) p.10. A positive observation is that a more targeted approach to meeting the housing needs of those with severe disability is been addressed via the Specialist Disability Accommodation (SDA) funding available to eligible NDIS participants with extreme functional impairment or high support needs (SDA 2018). Housing industry members advocate for a voluntary approach to improving housing stock outlined in the National Dialogue agreement and prefer this to regulation under the National Construction Code/Building Code of Australia (NCC/BCA). It is noted that evidence of the progress outside of LHA's formal certification process is difficult to verify. The actual outputs are variously unavailable, hidden, or difficult to obtain.

Supply of Livable housing

In 2010, it was estimated that 96% of new homes in Victoria lacked basic accessibility and that this lack of accessibility imposed significant costs on the community (DPCD 2010). To identify some of the issues in the low levels of provision of LH, the ANHUD followed up initial National strategy participants to get some insights on market development progress.

Response rates were low, however some general themes they identified were: -

1. Perception of higher costs,
2. Lack of communication of benefits or lower costs of using LHG
3. Lack of tangible benefits to the builder via increased demand from consumers

4. Insufficient Government initiatives

According to the Victorian Government report on visitable and adaptable features in housing regulatory impact statement, higher supply costs of basic features appear to be a 'false perception' (DPCD 2010). The estimated extra over cost of basic accessibility features if implemented at the design stage are only 0.1% to 0.3% of total unit costs (DPCD p. 68) whereas retrofitting accessibility features to an existing home can cost 22 times as much. Basic accessibility features include a clear path of travel from the street to a level entry, wider doorways and passages; a toilet suitable for people with limited mobility on the entry level; and reinforced bathroom walls to allow grab rails to be fitted inexpensively if needed later.

Consumer demand for livable housing

Environmental gerontology is a field of research that seeks to understand the relationship between older persons and their physical and social environments. It places emphasis on the day to day activities and given that older people spend around ¾ of their daytime in the home and immediate home environment, housing as an ecological environment has become a focus of research in this space.

"The house is both a physical structure constructed through established cultural practices as well as a place infused with pronounced intimacy with one's partner, social interactions, and the symbolization of attachment, normalcy, and loss" (Wahl Hans-werner & Oswald Frank, 2010).

Older people have a desire to age continue to live independently in their own homes and communities and that is connected with maintaining control, personal autonomy and flexibility around lifestyle choices (Olsberg & Winters, 2005). Ageing well has been conceptualised as a person environment dynamic, where the physical environment can impose significant constraints in late life, or it may also enhance opportunities for aging well, as new housing solutions and new technologies support declining competencies. (Lawton & Nahemow, 1973; Oswald et al., 2007; Peace, Holland, & Kellaher, 2011).

However, for many older Australians the home they choose to age in are the homes they choose to purchase at a different point in the lifecycle, most likely at a point in the lifecycle when the household members are physically competent and less dependent on their housing environment. Downsizing and housing transition is still uncommon for older Australians. According to the 2015 Productivity Commission's survey, about one in five older Australians have sold

their property and purchased a less expensive home since turning 50, and about 5 per cent have sold and moved to renting. The primary reasons for not selling the family home are a very strong desire to age in the family home and the lack of suitable options – noting the key motivations for moving from the family home are linked to securing more age appropriate accommodation, either in terms of size and characteristics, or location

Most older Australians will not downsize during their retirement and when they do, it tends to happen relatively early in retirement - over 85 per cent of older Australians who downsize do so before they turn 70.

Indeed, decisions around housing are not always well planned

or informed - There is some evidence that cognitive constraints and imperfect information are affecting financial planning of older Australians. Many people are reluctant to plan for their possible future ill health and end of life needs. However, this creates a risk of decisions being prompted by crises, rushed and made at a time when the person is vulnerable. Even where this aversion to planning is overcome, retirement decisions are inherently very complex. The Productivity Commission's survey of older Australians found that **about one-third are uncomfortable with their own financial planning for retirement.** Surveys also show that some people have limited knowledge about retirement decisions, such as managing longevity, the cost of aged care, and the operation of various government policies. These uncertainties collectively can mean the family home can become a form of self insurance even if it is not a suitable environment to age in.



The Value of Livable housing

Section 3

According to the National Dialogue and drawing on evidence from international contexts such as lifetime homes in the UK:- “Universal Housing Design can result in a reduction in government health and community sector spending due to reduced fall hazards in homes, resulting in fewer accidents. This can lead to benefits including reduced health care costs, less expenditure on home modifications and home assistance, in addition to freeing up carers to return to the workplace.”

The Australian Housing and Urban Research Institute (AHURI) has estimated that **if 20 per cent 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. Assuming 100 per cent adoption in new homes, the cost savings ranged from \$187 to \$273 million per annum**. Australian Housing and Urban Research Institute (2010) *Dwelling, Land and Neighbourhood Use by Older Home Owners*, pp. 188-189.

Appropriate housing to age in place is under supplied in the Australian residential housing market. We suggest that the quantity of LHG housing is under supplied in the market because the true value has both a private and public component once the importance of the attributes in the process of healthy ageing is considered. Specifically, we suggest that the quality of the home environment can create benefits which are both private and social. Residential home design attributes (as measured by the LHG) can create an environment that supports ageing well outcomes and maintains agility to adapt to the needs of its residents' overtime.

Current supply in the market is driven by private demand for housing with these specific attributes. Livable housing thus has market value, social value and future value for the individual. Market value is directly observed. The valuation of social value extends beyond those directly experienced by the home owner and can be captured by evaluation methods similar to other types of positive externalities. The future benefits of the LH for the individual include improved accessibility, cost effectiveness and better well-being due to more comfortable ageing. However, these benefits are not fully understood or realised by consumers due to information asymmetry, uncertainty and the general preferences for the current consumption over the future consumption (Hsiao 1995).

There are a number of ways that a social value of Livable housing exceeding market value to the consumer can be imagined and subsequently measured.

1. Well-designed housing may reduce the need for care as it

increases independence in the home and in reduces the hazards and accidents and falls in the home.

2. Livable housing may reduce the level of care required as capabilities decrease through supporting autonomy in the home
3. The home is becoming more important in the care giving process, with the support of telehealth and smart technologies. The home is thus capital in the care giving process and as such can support the ease and efficiency of care provision when required within the home
4. Housing location may support the development and maintenance of social capital, supporting community engagement and connection.

There is both a social and private value in the increased wellbeing outcomes if LHG housing can be shown to reduce the need for care (generating efficiency gains in ageing well outcomes). Identifying specific social value in livable housing over and above the market value it may justify calibrations in policy settings to provide incentives to new housing providers to incorporate more of these features into home designs.

These incentives may be via streamlined planning process amendments like those recently implemented for Residential aged care facilities, where they are no longer assessed as standard residential buildings but rather as unique built form designed to support appropriate outcomes. The streamlined planning process would reduce costs for producers and increase the supply of LHG housing in the market. In addition identifying the specific attributes that support older people to age independently in their homes or with reduced levels of care also has private value for the consumer and provides valuable market information to a consumer wanting to plan ahead for housing that will support their needs through all stages of ageing – both in good and deteriorating health.

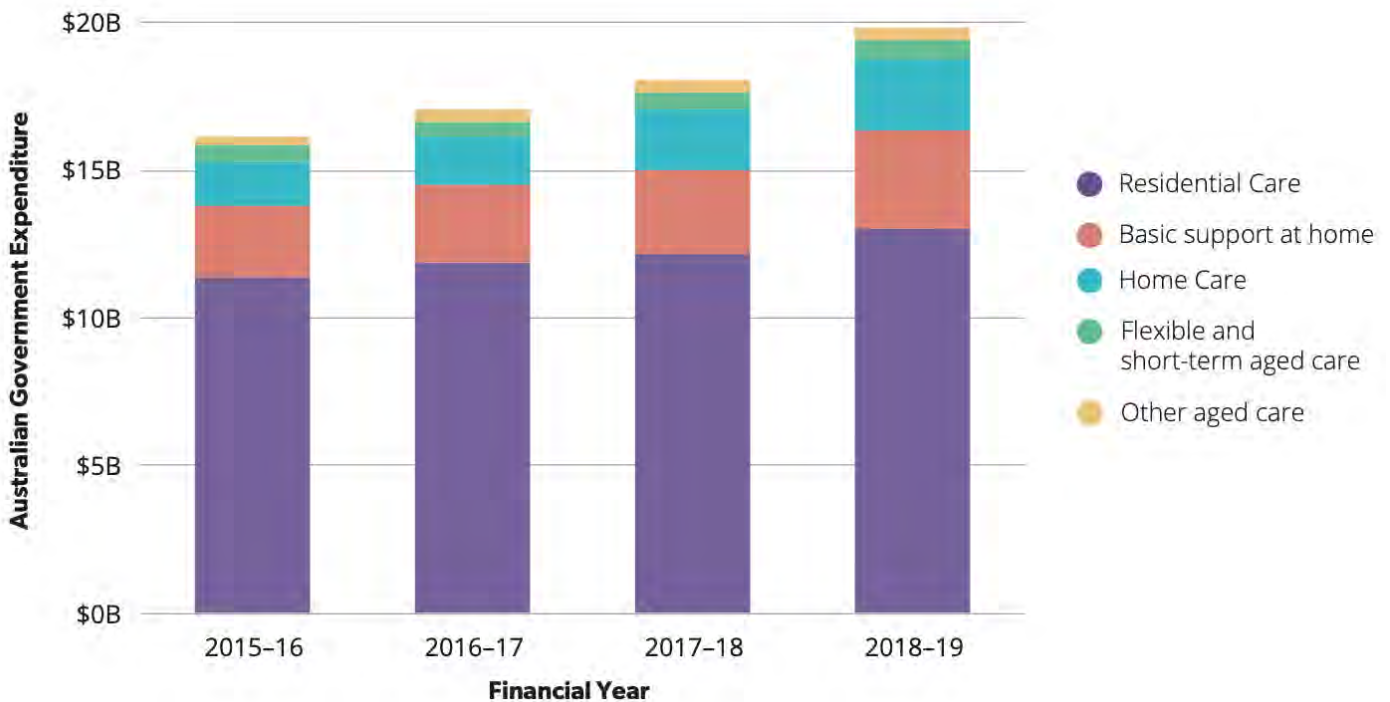
Use and cost of home care support services in the Australian Seniors community

Most older Australians 95.3% live in households, of these 3.9 million Australians 1.3 million reported needing assistance with everyday activities and of these only two thirds had their needs met. 49 per cent of older people reported having a disability (ABS 2019). Much of the care and support for older people is provided by family members, friends or neighbours. Over one third of primary carers themselves reported having a disability (ABS 2019). But not everyone's care needs can be fully met through family care and support and 80 per cent of older people will access some form of government funded aged care service before death (AIHW 2015).

Government recurrent expenditure on aged care services was \$18.4 billion in 2017-18 or \$4572 per older person. This increased to 19.9 billion in 2018/19. 66% of which was on residential care.

The 2015 ABS Survey of Disability, **Ageing and Carers** reported that **50% of men and 52% of women aged 65 and over had some form of disability while 15% and 22% of women reported needing help with self care, mobility or communication.** This proportion was higher for those aged 85 and over (78% of men and 80% of women). 39% of all older Australians reported needing assistance with at least one activity most commonly related to health care tasks (22.9%), such as taking medications, and property maintenance (20.2%). Two third of aged care consumers accessed basic support at home.

Australian Government expenditures for aged care 2015/16 – 2018-19
Source: 2018-2019 - report on the operation of the aged care act 1997



Types of Home care and support

Commonwealth Home Support Program

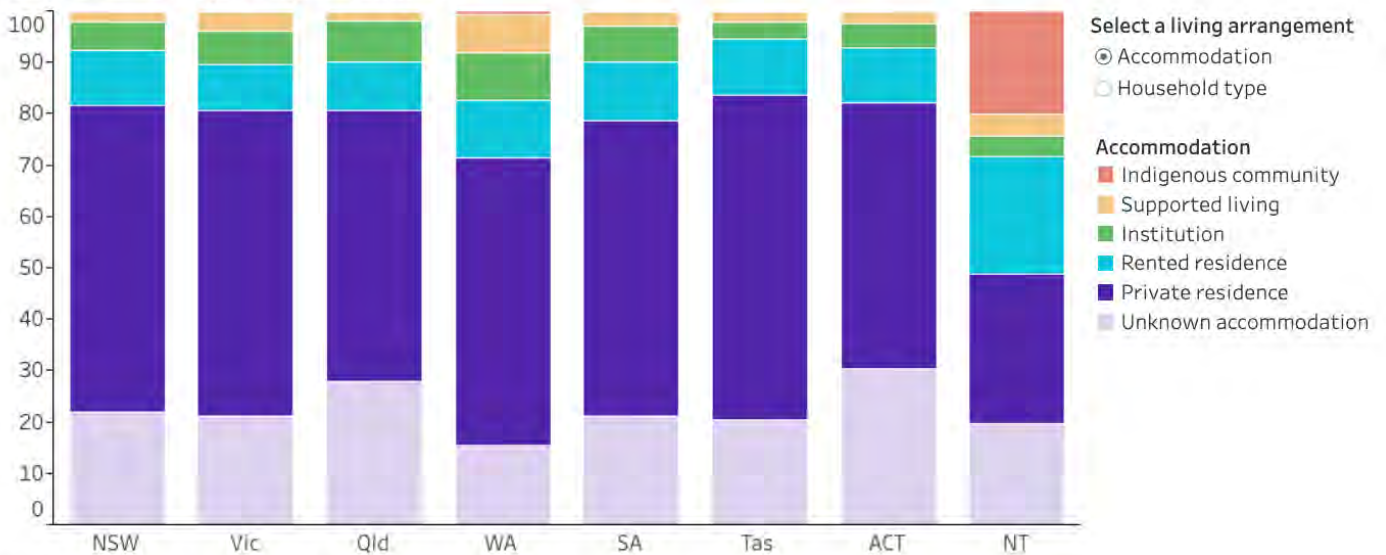
Governments provide services to help older people remain, or return to living independently, in their homes. Carers can also access respite care through home care and home support programs: the **Commonwealth Home Support Program** (CHSP) provide basic

maintenance and support services to people in the community whose independence is at risk — services include centre-based day care, domestic assistance and social support.

Currently (July 2020) almost 841,000 older Australians access a Commonwealth home support package (Gen Aged care data).

Living arrangements of people using CHSP
 Source: GEN-agedcaredata.gov.au

Accommodation of people using CHSP, 2018-19



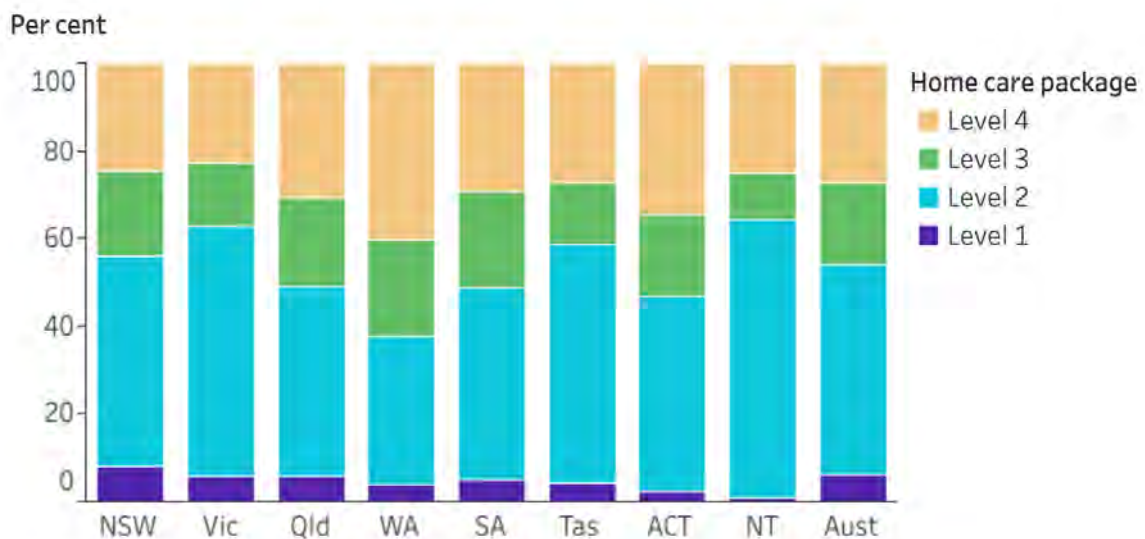
Note: Unknown or not stated are included in this graph because numbers are high.

The Home care packages program

The home care packages program provides support to older people with complex needs to help them stay at home. Approved aged care providers work with care recipients to deliver the services required in home. There are four levels of care ranging from low level care needs (Home Care Package Level 1) to high care needs (Home Care Package Level 4).

Services provided under these packages are tailored to the individual and might include personal care (such as showering), support services (such as cleaning) and/or clinical care (such as nursing and allied health support). There is high demand for these services and it may take time to access the services at the approved level. **As at July 2020, 150,756 people were recipients of Home Care Packages, of which 56.1 per cent received a Home Care Package Level 2.**

Proportion of people using home care packages, by level and state, 31 March 2019
 Source: GEN-agedcaredata.gov.au



GEN-agedcaredata.gov.au

Table 4: The number of allocated home care packages across the forward estimates
Source: Home care packages program report -3rd quarter 2019-2020

Package level	2019-20	2020-21	2021-22	2022-23	2023-24
1	11,240	13,950	15,155	15,488	15,488
2	64,974	69,571	69,571	69,571	69,999
3	33,689	37,724	37,724	37,724	37,724
4	40,853	41,353	41,352	41,352	41,983
Total	150,756	162,597	163,802	164,135	165,194

Informal care provision

In the ABS Survey of Disability, Ageing and Carers (SDAC), a carer is defined as a person who provides ongoing help to, or supervision of, people with disability or a long-term health condition, or people aged 65 and over. Survey results showed that 23% of all carers are themselves aged over 65 in 2015. Some 620,000 (18%) older Australians provided care—and over 1 in 3 older carers (234,000 people) were primary carers. More than half (52%) of older carers themselves had some degree of disability. Unlike younger carers, the majority of whom were women, older carers were made up of a

similar proportion of men and women (52% and 48%, respectively). However, this changes as age increased, with men becoming more likely to be carers than women. Men accounted for 56% of carers in the 75–84 year age group and 66% of carers aged 85 and over. Despite this, women made up the majority of older primary carers (57%).

The number of informal carers increased from 521,000 older people in 2009 to 620,000 people in 2015. The largest increase was in the number of carers aged 85 and over, which increased by around 42% (AIHW, 2018b).

SURVEY of Carers

Section 4

In this section, we outline the current context, a profile of our carer respondents and the experience they have of observing and caring for people in their own home environments. We examine how the current housing stock and its location can impact on Aging in Place and the level of care services required and the time spent on delivering those services. We also delve into the rationale carers provide to support their evaluation of home design attributes through an assessment of some free text response highlighting the caring experience at the coal face.

To explore the Livable housing design attributes which are deemed most important in supporting care and wellbeing, a survey instrument is developed to capture the experiential knowledge of care service providers and their general observations of the impact of the home design and locations on the ageing well outcomes of the residents. This care can be formal care delivered through Commonwealth Home Support Programme (CHSP) or a Home Care Package (HCP), professional, medical care providers such as occupational therapists, nurses and doctors, or unpaid care provided in home by family or friends informally. In all instances the respondent has experience of observing how home design can help or hinder a senior person's independence or ability to receive care to support their physical, medical, social and cognitive wellbeing.

Specifically, our aims are;

- To examine how home design attributes and location impact on the time and quality of care services delivered to older people in their homes and increases efficiency in the delivery of publicly funded in home care.
- To gain an insight and understanding of the housing attributes in new housing stock which should be prioritised to increase the likelihood of maintaining a person's wellbeing as they age.

Current Context

The impact of COVID in aged care and findings from the Royal Commission into Aged Care Quality and Safety's Interim Report that aged care system has 'failed to meet the needs of its older, vulnerable, citizens' has highlighted serious concerns about the quality of care provided in aged care facilities. The findings have prompted a rethink of how to best accommodate for older Australians to remain in their own homes despite possible needs levels rising due to fragility and physical and cognitive decline. Recent COVID response initiatives

such as the Australian Federal Government's Homebuilder payment nod to supporting accessibility and safety in housing. An amount of AUD 25,000 is offered for home renovations that adhere to a criteria of work that improves the accessibility, liveability and safety of the home. However, what do we know about the relative importance of housing design attributes to support the objectives of accessibility, livability and safety?

Which attributes do we need to be including when building and renovating our residential housing stock to best meet the needs of our families and communities?

Carer Respondents: their observation of the needs and care requirements of seniors at home

From the overall sample (n = 57), almost 90% of carers provided 'in home care', with the majority of care considered informal (unpaid) at 82% ; with paid care at 18%. 20% of the respondents provided specialist services such as occupational therapy, medical and nursing care. 76% of the carers report that they provide support with their client's physical needs. Of the ADLS – (Activities of daily living), of basic self-care tasks undertaken on a daily basis, transferring required the greatest support (73%) followed by grooming (66%); walking assistance (64%); selecting attire (64%) and assistance in dress (60%), 41% and 46% provide support with bathing and toileting.

The majority of carers (76%), delivered support for medical needs in particular with the management of their health conditions (76%) and medications (73%) and managing allergies (43%). Almost 60% of carers supported an older person with cognitive needs, in particular with management of cognitive decline as dementia (86% of those with Cognitive needs) and help with behavioural management and

engagement with surrounding (62%). When care was provided for social needs, (46%), the emphasis was on social and community participation and connecting with the family. Specialist services predominantly medical were provided by 20% of carers.

Twenty percent of older Australians were provided with entry level support under the Commonwealth Home Support Program (see Table 1). In terms of the level of home support for the older person is receiving within their home, Level 2 (provide regular assistance) is the most observed level of care delivered in our sample (64%), followed by Level 1 care to those whose needs are minimal, and are generally independent (61%); Level 3 (require coordinated assistance) (45%) and Level 4 (require complex nursing) (41%). 17% of the respondents provided care across all levels 1-4.

Table 5: Respondents caring for Seniors across levels of Home Care Packages (HCP)

Respondents caring for Seniors across levels of Home Care Packages (HCP)	%
Informal unpaid care	33%
Home care packages (entry)	45%
Level 1	61%
Level 2	64%
Level 3	45%
Level 4	41%
Care provided to all levels 1-4	17%

In terms of better understanding the level of care associated with the ADLs, the results suggest different levels of home support care require prioritising specific daily activities and self-care task. For example Level 2 group carers provide the highest proportion of help with the task of feeding, choosing attire, grooming and transferring, whereas both Level 3 and 4 showed to have delivered care and help with toileting, continence, dressing, bathing and walking. The profile of the type of help and number of priorities required across the levels (1-4) is consistent with the assumption that the level of care is aligned with the relative mobility and activity level of the seniors.

To explore the influence housing design, and efficiency in delivery of services (need for services and time spent delivering them), a series of questions relating to the various **levels of HCP provided to older Australians were proposed based on their physical, social, medical and psychological needs.**

Specifically, the survey examined:

Whether the design of the home:

1. Influences the level of services needed



Image Source : Longevity Group Australia: Casterlise project – designed to Longevity’s better life standards

2. On the impact and capacity of a carer to provide care
3. In supporting aging people to age well in place

The influence of location and access to services and amenities on:

4. The level of support services required and impact on service delivery
5. Supporting aging people to age well in place

Design of the Home: Influence on the level of services needed

The design of the home was considered overall very relevant on the level of services required (95%), particularly for providers of informal care (97%) and carers catering for cognitive needs (95%).

This represents a significant marginal cost of we consider the annual government subsidy paid by Government independent of the basic daily rate paid by the client. There is a strong consensus of agreement on the impact of home design across all levels of care (see Table 2).

Table 6: Home care packages annual subsidy by package level from 1 July 2019 – June 2020

Source: Home care packages program report July 2020

Package level	Home care services for people with:	Annual subsidy amount by the Australian Government
1	Basic care needs	13,950
2	Low-level care needs	69,571
3	Intermediate care needs	37,724
4	High-level care needs	41,353



Table 7: Design of a home influences the level of services needed

The design of a home influences the level of services needed	
	Agree
Overall sample n=45	95%
Informal care providers n=31	97%
Specialist care providers n=10	90%
Social needs providers n=17	94%
Cognitive needs providers n=24	95%
Physical needs n=32	94%
Medical needs	100%
Service levels	
<i>Provides care where no services accessed n=10</i>	100%
Provides entry level services n=20	100%
Provides level 1 care n=27	100%
Provides level 2 care n=27	96%
Provides level 3 care n=20	100%
Provides Level 4 care n=18	100%
Provides care to all levels of needs	100%

Table 8: How important is housing design in supporting people to age well in place

How important is housing design in supporting people to age well in place		
	Very important %	Important %
Social needs providers n=17	82%	6%
Specialist care providers n=10	80%	10%
Overall sample n=42	74%	19%
Physical needs n=32	72%	19%
Informal care providers n=31	68%	26%
Cognitive needs providers n=24	67%	25%
Medical needs providers	74%	19%
Service levels		
<i>Provides care where no services accessed n=10</i>	70%	10%
Provides entry level services n=20	75%	20%
Provides level 1 care n=27	74%	19%
Provides level 2 care n=27	78%	15%
Provides level 3 care n=20	80%	15%
Provides Level 4 care n=18	78%	11%
Provides care to all levels of needs n=10	70%	20%

Design of the Home: The impact and capacity of a carer to provide care

Similarly, home design appeared to influence the capacity of a carers to provide care in an informal role (97%) and in catering for cognitive needs (97%). In terms of service levels, both Entry level and Level 3 care where the older person requires coordinated assistance for social, physical, medical and psychological needs were on par with the level of importance .

Design of the Home: Supporting aging well in place

Housing design as a facilitators of ageing in place was considered very important for carers providing for social (82%) and medical needs (80%); as for aging Australians requiring level 3 home care (80%).

Home Location : The Level of support services required and the impact on ageing well

In terms of the care levels, location of the home was considered very important for informal care providers (100%) for those seniors within both Level 1 & Level 2 home care. One explanation is that this group of seniors who may require a minimal amount of assistance with ADL are still able to commute and engage in social interaction within their suburb and local community. Location was also considered important for those seniors within the Level 3 and 4 care who have a demand for a higher level of care of services provided.

Home Location: Supporting to age well in place

In terms of perception of home design as facilitating ageing in place, carers ranked providing social needs (82%); and medical needs (80%.) as the most important. Location appeared to be very important for the providers of home care to older Australians who require Level 4 home care.

Table 9: The location of the home influences the level of support services required

The location of the home influences the level of support services required	
Overall sample n=42	95%
Informal care providers n=31	100%
Specialist care providers n=10	90%
Social needs providers n=17	94%
Cognitive needs providers n=24	96%
Physical needs n=32	94%
Medical needs	97%
Service levels	
Provides care where no services accessed n=10	100%
Provides entry level services n=20	90%
Provides level 1 care n=27	96%
Provides level 2 care n=27	96%
Provides level 3 care n=20	95%
Provides Level 4 care n=18	94%
Provides care to all levels of needs n=10	90%

Table 10: How important is housing location in supporting people to age well in place

How important is housing location in supporting people to age well in place		
	Very important %	Important %
Social needs providers n=17	82%	6%
Informal care providers n=31	71%	26%
Cognitive needs providers n=24	71%	25%
Specialist care providers n=10	70%	30%
Overall sample n=42	69%	26%
Physical needs n=32	66%	28%
Medical needs	74%	23%
Service levels		
Provides care where no services accessed n=10	80%	10%
Provides entry level services n=20	80%	15%
Provides level 1 care n=27	78%	19%
Provides level 2 care n=27	78%	19%
Provides level 3 care n=20	80%	15%
Provides Level 4 care n=18	83%	11%
Provides care to all levels of needs n=10	80%	10%

Home Design Attributes for Consumers and Policymakers

To assess the home design attributes prioritised for consumers and policymakers, two questions were posed:

Which LH attributes most important depending on Level of care services delivered?

Which LH attributes most important depending on Type of care services delivered?

Carers were asked a series of questions relating to specific housing attributes on the basis of their experience and observations of older people in their homes the factors that can enable or disable their independence, social, physical and psychological wellbeing.

Level of Care Services

The LH housing attributes deemed very important to support an older person's successfully ageing in place in their own homes primarily revolved around two themes; one of accessibility in and around the home, (dwelling access (90%); internal stairways (90%) internal doors and

corridors (90%), dwelling entrance and parking (80%) flooring (80%) and; management of space for personal hygiene, (reinforcement of bathroom and toilet 90%) and shower (80%). Other housing attributes deemed very important included downstairs toilet (76%), kitchen space (70%); and lever tapware (70 %). Overall in terms of the level of care theme of accessibility in and around the home was consistently considered by carers as the most important set of attributes for supporting older people to successfully age in place (see Table 7), and in particular for older people requiring Level 4 care that demands a high degree of complex nursing care due to increasing vulnerability and fragility.

Table 11: LHA attributes - % deemed very important for different care levels

LHA attributes - % deemed very important for different care levels	No formal care	Entry level	Level 1	Level 2	Level 3	Level 4	All levels
Dwelling Access	89%	80%	85%	85%	85%	94%	90%
Dwelling Entrance	78%	75%	85%	77%	75%	82%	80%
Entry from Parking	78%	75%	81%	81%	80%	88%	80%
Internal Doors & Corridors	78%	80%	85%	81%	80%	94%	90%
Downstairs Toilet	67%	65%	77%	73%	70%	76%	76%
Hobless Shower	67%	70%	81%	77%	75%	88%	80%
Reinforcement of Bathroom and Toilet Doors	78%	75%	81%	81%	80%	94%	90%
Internal Stairways	78%	80%	85%	85%	85%	94%	90%
Kitchen Space	67%	65%	73%	73%	70%	82%	70%
Laundry Space	67%	60%	69%	69%	65%	76%	60%
Bedroom Space	67%	60%	65%	65%	60%	76%	60%
Switches and PowerPoints	56%	60%	58%	62%	60%	71%	60%
Door and Tap Hardware	44%	60%	62%	65%	65%	71%	60%
Tapware	55%	65%	69%	69%	70%	76%	70%
Family/Living Room Space	55%	60%	69%	65%	65%	71%	60%
Window Sills	55%	50%	58%	58%	50%	65%	60%
Nonslip Flooring	68%	75%	81%	77%	80%	82%	80%

Type of Care Services impacted by attributes

Similarly, the LH attributes considered most important for the type of care services delivered centre on the theme of accessibility in and around the home (dwelling access 85%, internal stairways 83%). In terms of the type of care, it appears those older people who require support with cognitive needs (as dementia, behavioural management and management of surroundings) also requires in addition attributes

to cater for the management of space for personal hygiene (toilet, 83%, shower, 83%). See Table 12.

Of interest, window sills as an housing attribute featured as less important for those seniors with fewer needs. However, for those seniors with specifically cognitive and social needs, window sills on average became more important as a corridor and point of contact with the external community.

Table 12: LHA attributes - % deemed very important

LHA attributes - % deemed very important	All resp	Physical C	Social C	Medical C	Cognitive
Dwelling Access	85%	85%	94%	83%	87%
Internal Stairways	83%	81%	88%	83%	83%
Dwelling Entrance	80%	77%	94%	83%	83%
Reinforcement of Bathroom and Toilet Doors	80%	77%	88%	80%	83%
Shower	80%	74%	88%	80%	83%
Non slip Flooring	78%	71%	82%	80%	83%
Internal Doors & Corridors	76%	77%	82%	80%	83%
Entry from Parking	73%	74%	88%	77%	78%
Downstairs Toilet	73%	71%	88%	76%	78%
Kitchen Space	71%	71%	88%	73%	78%
Lever Tapware	68%	66%	82%	67%	83%
Family/Living Room Space	68%	61%	76%	67%	78%
Laundry Space	66%	65%	88%	70%	83%
Bedroom Space	66%	68%	82%	67%	74%
Door and Tap Hardware	63%	61%	76%	67%	78%
Switches and Powerpoints	59%	58%	76%	60%	74%
Window Sils	56%	52%	65%	60%	65%

Table 13: Time spent delivering services

Does the presence or absence of the LHA attributes listed impact on the time you spend delivering services and supporting the person you care for	Agree
Overall sample n=42	68%
Informal care providers n=31	66%
Specialist care providers n=10	67%
Social needs providers n=17	53%
Cognitive needs providers n=24	65%
Physical needs n=32	77%
Medical needs	70%
Service levels	
<i>Provides care where no services accessed n=10</i>	45%
Provides entry level services n=20	63%
Provides level 1 care n=27	56%
Provides level 2 care n=27	64%
Provides level 3 care n=20	79%
Provides Level 4 care n=18	81%
Provides care to all levels of needs n=10	67%

Carers supporting rationale for the implications of housing design?

To explore the impact of housing design (and the presence or absence of the LHA attributes) and location on the time carer's spent on delivering services and supporting older people, and the reasons supporting this, qualitative data via open ended questions were collected.

Level of Care Services

When asked specifically which aspects of care they felt was impacted by design 68% of respondents of this question said that LHA design impacted on time spent delivering support for physical needs and ADLS.

"Enables easier movement within the residence for wheelchairs and hoists"

"Doors especially need to be wider as it is hard to provide support to take someone to the toilet when going through an standard door frame (falling hazard). I don't agree anyone should have stairs of any kind in their home if they have decreased functionality. Handrails provide assistance to carers. Rugs should be banned tripping hazards. The one thing is with old people the more space they have the more clutter they want i.e. in lounge room this is a tripping hazard for caregiver and takes longer to get around. Walking long distances from cars to accommodation takes time. trying to get wheelchairs even walkers over entry steps proves time consuming. Between clients you are rarely on time because in general everything is time consuming."

"More time needed to support without these" i.e LHA attributes."

"A well designed home makes practical care more efficient to conduct, allowing me time to focus on the person."

"Spaces to small means takes longer to complete tasks."

"Better or optimum access reduces time required to complete necessary jobs."

"It is very difficult and time consuming when trying to deliver personal care services to a client with mobility issues in confined spaces. Trying to fit into a standard shower recess with a client puts a physical strain on the carer. Very difficult for carer to assist client to mobilise either with four wheeled walker or wheelchair when there is a lack of space or steps in the dwelling."

"Without bathroom or bedrooms accessible on ground floor means that time helping the person around the house to these areas has to be taken into account with the activity, without handrails on stairs would impact how that person can/can't use the stairs and thus the time/effort involved for the carer."

"We also have another house to run. We want to get things done quickly." The better the design the more that the person can do for themselves and less that the carer has to do."

"It can have a huge effect on the quality of life for a person."

"A well designed home makes practical care more efficient to conduct, allowing me time to focus on the person."

Location

68% respondents said that home location specifically impacted on delivering support for physical needs and ADLS.

52% of carers identified time savings from good location in the delivery of care for social needs.

14% of carers identified time savings from good location in the delivery of care for cognitive needs (particularly when associated with other needs).

Summary

To accommodate for the healthy ageing of the over seven million Australians between 50 and 75 years of age, this research highlights that more attention needs to be channelled into identifying, understanding, and ensuring the provision of well-designed liveable housing attributes are embedded in general housing stock. Current government aged care expenditure is currently close to 20 billion AUD and expected to increase to 25 billion by 2023, 66% of that spending is on residential care. Any measures that support Seniors desires to age well in their own home and reduce the need for, the level of, and the time spent on care delivery can generate significant private and public economic value, through offsetting aged care costs.

To identify these potential efficiencies, we draw on carers experiential knowledge of seniors who receive care support in their homes, to

1. identify the role of housing attributes in supporting or hindering seniors autonomy or level of independence across a range of care domains.
2. gain an insight into the particular housing attributes which yield the largest marginal benefit in terms of supporting ageing well outcomes for specific needs be they physical, social, medical or Cognitive.

The carers in our study predominately saw themselves in an 'informal role' in supporting seniors with ADL's, and ; in the delivery of services encompassing home care packages program (Entry Level to Level 4 care;) and level of services required to meet specific needs (cognitive physical, social and medical). For this study, the most commonly observed level of home support in terms of home care package, was identified as Level 2. This is reflective of the fact that 43% of all home care packages in Australia are delivered at level 2, whereby regular assistance was required by seniors for the activities of personal care, shopping, meal preparation, social support and medication management.

In meeting the first objective, carers reported housing design attributes and housing location were both instrumental in facilitating care and efficiency of the care services provided for successful aging in place for senior Australians. Qualitative comments such as ..'a well-designed home makes practical care more efficient to conduct, allowing me time to focus on the person" further reinforces the notion that appropriate fitting of housing design attributes could potentially enhance both the time and quality of the publicly funded care services carers delivered.

In meeting objective two, specific housing attributes considered essential and prioritised to increase the likelihood of maintaining senior's wellbeing as they age primarily revolved around two themes; one of accessibility in and around the home, and management of space for personal hygiene, irrespective of the level and type of care required.

However, as the level and type of home care increased for seniors, so did perceived need for housing attributes, which then were viewed by carers, as an essential fabric of the home, that lay the foundations for successful aging in place, rather than mere desirable options.

A consistent pattern emerges for Australian housing consumers that want to choose houses with attributes that will meet all likely future needs, and for builder that want to meet that future demand and these are:

A level, step free path of travel from the street entrance and/or parking area to the home and at least 1 level, **step-free entrance** into the home

Single level preferable however, if there is a stairway ensure there is a continuous handrail on one side of the stairway and the stair design can support future adaptation (ie stair lift)

Internal doors & corridors that are wider than standard to facilitate comfortable and unimpeded movement between spaces. 1.2m.

A Hob less shower recess Easy and independent access for occupants.

Reinforcement of bathroom & toilet walls: Grabrails can be installed where needed.

Ground level toilet – important for social care

Non slip flooring and lever taps

In a location that is close to community amenities such as shops and medical services

Given these findings, it is recommended houses targeted specifically to older Australians must prioritise and feature residential home design attributes that support accessibility and ease of movement within spaces that support personal hygiene and also consider location of the home in the context of a larger community. By ensuring inherent value and quality from both housing design and location in turn creates an environment that supports ageing well outcomes and maintains the agility to adapt to the needs of its senior residents' overtime.

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