Design Outcomes: Designing with Older People

‘The common pool is created, where people begin suspending their own opinions and listening to other people’s ... At some point people begin recognising that this common pool is more important than their separate pools’

David Bohm

This chapter illustrates the results of the iterative process used in engaging participants aged 55+ with a design team of architects and planners. It identifies 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 achieve affordability, liveability and sustainability. Each is accompanied by an explanation from the designers about the intent and challenges. An outcome of the research is the identification of neighbourhood characteristics that are most compatible for seniors, illustrated by one particular suburb in Brisbane.

Ageing in Neighbourhood

A key challenge of the research design brief for both participants and designers was how to increase density through infill while still retaining key elements of liveability. This dilemma was raised frequently during the PhotoVoice phase and forced the design team to examine trade-offs to meet this challenge. The majority of workshop participants were comfortable with lower-density housing options and the corresponding set of amenities they currently experience. While they accepted that some change will be required in the level of support or care necessary for a continuous quality of living as one ages, many participants did not necessarily equate this with a need for a change in their current housing situation. Most indicated they would prefer to modify their home if required before seeking out alternative housing options. However, it was also agreed that not all seniors may have own their own home and have the freedom to modify it, or that circumstances may change on the death or illness of a partner.

In response to the locations and settings provided in the Charrette process, a range of low-medium infill housing options emerged. These were evaluated against the principles. While higher density housing over eight storeys was definitely not supported, medium housing densities were found to provide a range of amenities that can support the ageing process well. Based on the evidence collected throughout the project (surveys and Charrettes), it was found that to enable greatest flexibility for future ageing, the participants preferred low to medium density housing with walkable access to public transport and human scale shops and services within an age-diverse community.

The project team has coined the term ‘ageing in neighbourhood’ to describe the complex set of preferences expressed by participants. The term ‘ageing in neighbourhood’ acknowledges that significant change can occur in the ageing process, but that any corresponding uncertainty and stress experienced by seniors may be reduced if they can stay in familiar surroundings and a ‘whole of neighbourhood’ approach is taken. The term implies that ‘care’ is not just a technical or medical term but one that draws on the strength of co-located facilities and shared community concern and necessarily includes the nature and structure of neighbourhoods.

When considered in the context of infill housing, the ‘ageing in neighbourhood’ concept implies that a range of housing options and amenities (employment, shopping, social, community and transport services) can be accessed by the ageing, over an extended period of time and within a geographical area. This in turn offers significant advantages to seniors. It is clear that an ‘ageing in neighbourhood’ approach will also deliver benefits for a broad range of people and is necessary to deliver a ‘community’ in its truest sense. This is well illustrated in the neighbourhood layout shown in this chapter (figure 102). However first, we explain how the designs emerged and the challenges that the designers experienced in delivering outcomes to meet the agreed principles.

The design principles imposed the following key challenges on the design brief 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 surrounding a courtyard that are one unit deep to allow for through-ventilation.
- 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.
- To achieve affordable dwellings, trade-offs may be required between provision of car spaces and communal on-site open space.
- Consideration of location of open space on smaller lots is needed in order to achieve through-ventilation, light, casual surveillance.
- Accessibility and universal design has implications for two storey developments with stairs or lifts.
- To achieve adequate privacy in units while allowing through-ventilation, there needs to be limited common corridors where people walk past units.
- Impacts on through ventilation due to preference for a second bedroom (as opposed to a study or office).
- The cost of land in areas with access to services and public transport (typically calculated as a 400-800m or five minute walk) may affect the economic return and therefore the density or height.

All of the designs are consistent with relevant planning schemes for Brisbane City Council and Sunshine Coast Council in terms of height and density. Building setbacks and parking facilities are within the scope of matters that are often subject to negotiation.

Selected sites

Four sites in each of the Sunshine Coast and Brisbane were chosen to demonstrate regional and metropolitan housing preferences in low density middle suburbs and higher density inner city locations under pressure to densify. Although real sites were used for the design exercise with the senior participants, and they are only hypothetical scenarios, we do not identify them in this report in order to minimise concerns of local people about potential development. For each scale of development, the site context is illustrated with an aerial map. The sketches made during Charrettes and perspectives of accommodation made between Charrettes are illustrated.

Low Density: Garden House

This typology provides a transition to increasing density while retaining character in existing higher amenity multi-generational neighbourhoods. A fairly common approach to infill in low density suburbs is through subdivision of a larger lot into two to allow an additional home, or construction of a ‘secondary’ dwelling of 45-60 sm on a larger size lot. Definitions of secondary dwellings vary but generally have three elements in common. They are subordinate to the principal dwelling; on a single lot; and cannot be separately titled201.

An advantage of ‘secondary dwellings’ is that they allow a house to be used in a more flexible form. They provide an income to the landowner and affordable yet home-like accommodation to a renter, or a granny flat for a relative. Alternatively the homeowner could move into the secondary dwelling and rent the main house in order to increase income and reduce maintenance. Another benefit is that they can be introduced in heritage or character neighborhoods without overtly detrimentally affecting these qualities.

A number of local governments do not require planning approval (i.e. as-of-right) if secondary dwellings meet certain requirements. Rules about secondary dwellings vary among local governments, some specifying a maximum size such as 60sm, occupation by a relative or staff, design must be consistent with local character, and off-street parking provided202.

Secondary dwellings are normally not allowed to be subdivided to receive their own title or become strata titled, however a development application for Dual Occupancy could be lodged and may have to meet additional requirements. This option could provide a more immediate return to the landowner rather than an income stream, and would enable the purchaser of a secondary dwelling to invest in relatively low cost housing.

A major criticism of infill via secondary dwellings is the cumulative effect of many secondary dwellings in a suburb resulting in increased number of cars parked on-street, reduction of private open space and backyards, greater site coverage leading to increased run-off, and an additional demand on infrastructure services. Undertaken in a piecemeal fashion, little provision is made for collective benefits for the broader community, for example through additional allocation of open space.

201 Andrea Young Planning Consultants 2010, p.6
202 Andrea Young Planning Consultants 2010
Importantly this approach to infill has been found to achieve ‘inadequate density and quality to contribute to the sustainable regeneration of established suburbs’\(^{203}\). A precinct-approach to infill redevelopment in the middle suburbs could provide a diversity of housing types that responds to the market yet allocates adequate public open space, improved social amenity, infrastructure upgrades and higher residential yields\(^{204}\). This reinforces the project team’s concept of a planned approach to ‘ageing in neighbourhood’ to deliver affordable, sustainable, and liveable outcomes.

There are two key barriers to incorporating secondary dwellings to achieve higher but compatible density: planning terminology applying to secondary dwellings is confusing (e.g. Brisbane)\(^{205}\); and inconsistent rules apply within local government areas, a legacy of historical boundaries (e.g. Sunshine Coast).

A unique variation on the ‘secondary dwelling’ was tested in the Charrettes in a beach suburb on the Sunshine Coast and middle suburb location in Brisbane – suburbs with older housing stock and appropriately sized lots of 670m\(^2\). The Garden House design involves parts of four lots backing onto each other being subdivided into one new lot, which could be jointly owned, or sold to a third party such as a housing authority or care provider. While our participants queried the logistics of this occurring, they proposed features for a design which provided a compromise of privacy and independence, yet the support that might be needed by the type of people attracted to this facility. One scenario suggested that ageing house owners (neighbours) could jointly develop the dwelling complex and move into it and sell or rent their houses, removing the burden of maintenance while staying in the same neighbourhood. Alternatively, this design response could be flexible and temporary if necessary, by ‘dropping’ in a prefabricated unit.

**Sunshine Coast and Brisbane Sites**

This hypothetical site in a high amenity low density residential beach suburb on the Sunshine Coast comprised four parcels of traditional 670m\(^2\) privately owned lots (2700m\(^2\) total). The land has good access to highly desirable open space (beach), high property values, and strong reasons for seniors to remain within community. Car use is a current priority although bus access is good. The hypothetical site in Brisbane was in a middle suburb with high amenity and included four lots at 600m\(^2\) (total 2400m\(^2\)). The Charrettes explored issues of ageing in community with multi-generational users and character issues of attached housing infill within a suburban model. There is a chance to explore options for reinvesting existing private equity to redevelop sites for future capital gain (for the next generation) and a model of sharing of seniors’ resources within one facility that may be linked or services as part of a network. The following schematics show the evolution of the design for this site through the first and second Charrettes on the Sunshine Coast. The Brisbane design was similar but not refined in the second Charrette so only the Sunshine Coast version is shown.

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203 Murray 2011, p.2
204 Murray 2011
205 BCC 2000, chapter 3, p.71 and p.74
Charette team explored a range of communal housing types with separate access. Preferred type was communal house centrally located to ‘parent’ lots with access to existing houses. Shared cooking, dining, lounge area with 4 ‘studio’ rooms with private open space. Range of tenure, provider delivery and care options available including live-in carer.

**Key Learnings**

- Range of formats possible in this setting attached and semi-attached
- Degree of attachment and format relies on level of co-operation between lot owners – ‘intentional community’
- Formats not dependent on car access but assume independent access from each lot with some reliance on host dwelling
- Low-scale built form supported
- Range of low/medium care possible
- Support services considered necessary for format - care requirements at lower end of spectrum
- Degree of future flexibility/re-use depends on format
- Requires policy change from local govt although not incompatible with ‘granny flat’
- Tenure issues regarded as impediments.

**Key Design Issues**

- Ownership, lot reconfiguration, boundary setbacks/BCA issues limit
- Attachment. Separate ‘granny flats’ explored but not supported
- Not having street frontage limits flexibility and requires relationship with parent lot.
- Double of density, possible 25-30 du/Ha (nett) – not a strategy for density increase
- Format suitable as transitionary use and suitable for prefab

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Figure 87: Garden House.
How the design team responded to the challenges

A number of issues were raised during the Charrette process which the designers tried to accommodate.

- A ‘drop-in’ kit formation in a modular design could allow flexibility in application;
- If the model was sited at end of the block access to the lot from the street could provide a sense of independence and privacy.
- The articulated or separated buildings with private open space could give the four individuals independence and privacy, while providing shared space for companionship.

How the designs rated according to the principles...

In Southeast Queensland, safe well maintained shady streets and walking paths generally exist in suburbs with older infrastructure (P1) although this typology might not be located within easy walking distance to shops and services (P2). However access to public transport may be within 800m (P4). Existing vegetation may need to be modified to enable development, so landscaping design would need to ensure sufficient shade and privacy at the dwelling level (P3). As such developments will likely be scattered throughout the neighbourhood, no major changes would be needed to road and intersections (P6). It provides an option for residents whose home may no longer be suitable for them and modification is not practicable or economical, yet enables them to stay in their neighbourhood (P7). Familiarity with surroundings, existing services, neighbours and personal networks would promote personal security (P8).

At the dwelling scale, the level of consolidation and density would be acceptable. Visual amenity is retained by keeping the dwelling designs consistent with the surrounding single family detached dwellings. A separate road entry could provide access to the site (P9). The accommodation could incorporate universal design and access on one level yet avoid an institutional environment (P10). In fact it could accommodate those who need medium to high level of support provided by a non-profit organisation model due to cost effective service delivery. Site configuration can be flexible and should be able to cater for northerly aspect and incorporation of rainwater tanks and solar power. Most importantly separate buildings allow for cross ventilation or separate air-conditioning as care needs change. (P11). The design caters for private outdoor space for each unit, as well as shared indoor and outdoor spaces (P12). The Garden House provides a range of possible floor plan formats – attached and semi-detached. This can be designed dependent on the level of co-operation between owners or on the basis of higher care needs in a domestic environment, with an optional live in or part time carers room (P13). Maintenance could be economically coordinated by residents or through either a Body Corporate or care provider (P14). Security will be enhanced by overlooking neighbours, fellow residents and technology (P15).

During the focus groups in Brisbane and the Sunshine Coast, participants endorsed the shared house yet independent living elements of the concept but were not convinced that delivery across four individually owned lots were feasible. It was suggested that it might be appropriate for single people, and might also work for students. A covered walkway would be needed between units and common area in case of inclement weather.

A review of local government planning schemes may be required to enable this solution. Local governments and not-for-profit care providers could even play a direct role by leasing ‘drop-in’ modules and units.
Low to Medium Rise Designs

Medium density housing includes townhouses and multiple dwelling complexes up to 4-6 storeys. One of the biggest drivers for this level of density is retaining access to local shops and services, public transport, and familiar networks for those wishing to age in their existing neighbourhood. This theoretically achieves the need for social networks while delivering a dwelling with less maintenance. However it might involve trade-offs in order to keep the complex affordable: car parking spaces and lifts increase construction and maintenance costs.

While the concept of townhouses was quite acceptable to the senior participants, the two storeys and staircases were not in keeping with universal design principles. This could be addressed by having one bedroom and bathroom on the ground floor or single storey terrace housing. Building standards require installation of lifts in any building of three storeys and over, but providing lifts in buildings of 4–6 storeys are more economical. Thus participants were encouraged to consider four storeys and above. They were also asked specifically to think about the need for and use of communal space, both indoors and outdoors. While some concerns were raised about lifts in event of emergency, they allow for 100% visitability with the opportunity for wheelchair accessible dwelling on all floors.

Some of the biggest conflicts within multi-density strata title developments in Australia are use of common property, breaking of by-laws, parking, and noise. In addition, a recent study in Newcastle found that more than any other factor, tenure affected the greatest differences between residents of multiple dwellings. Renters were perceived by owner-occupiers as taking less care with both common property (including lifts, foyers, pools, and gardens) and private property. Apart from tensions around tenure, however most residents felt that their neighbourly relations allowed them to feel respected and that the environment was harmonious. Such experience was dependent on ‘striking a balance’ between privacy and contact with the balance not being the same for each resident. The possibility of titling to allow for a number of different housing providers could be considered.

Another factor is determining the right sized group to negotiate and interact with in this type of development. Clustering of apartments (i.e. 12 dwellings) with a shared entry point may provide a more manageable and personal scale of interaction in low to medium rise developments. In addition, many of our participants clearly favoured inter-generational living. These complexes could be restricted to older people, but within the context of a multi-generational neighbourhood; or multi-generational residents of workers, students, and seniors.

Sunshine Coast and Brisbane Sites

The Sunshine Coast parcel is a 1.37Ha of flat land located on the edge of the University within the emerging Town Centre. The hypothetical site affords access to university services, existing schools and retirement villages, future retail and community services. Within this site is the opportunity to explore seniors and student/carer mixed accommodation, mixed-use development (offices, shops), intergenerational living and education as an investment attractor.

In Brisbane three different sites were explored in the same neighbourhood.

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206 Easthope and Judd 2010
207 Baker 2011
208 Baker 2011
In Brisbane, one of the medium density sites consists of two traditional single detached residential parcels (total 1500m²) in an emerging medium density residential area. It is located within a short walk to local shops and with good access to the train station and 800m to the Brisbane River. Two to three storey low-medium density residential development is possible. In exploring the issues of ageing within community, the groups considered the types of affordable medium density housing for seniors with access to public transport and the role of cars. Low-rise requires a cost effective development scenario and exploration of apartment types, lifts, and unit numbers. This design featured a two storey walk-up development where each unit is on one floor.

The charette team explored the idea of a 5 storey, mixed-use development on university land in a JV between the university, a NFP housing provider and a commercial third party. Buildings included street based retail, ground floor university admin (3000m²), U3A learning space, second floor ‘kinesthetic teaching/learning zone’ with communal green roof and 3 levels of apartments.

**Key Learnings**
- Strong support for seniors living ‘on campus’
- Co-location with town centre, U3A and mix of attractors (coffee shops, cinemas, wi-fi, visiting academic accom) considered highly desirable
- Connection with younger people considered attractive means to ‘staying young’
- Need to provide ‘active/doing spaces’ to balance thinking spaces
- Opportunity to teach and learn with all age groups
- Market will attract high-end
- Need for upper level common areas
- Proximity to aged support/health services considered important
- No direct relationship with aged-care facility necessary although could be co-located
- Regular public transport and mix of uses needed before car ownership not necessary
- Market demand likely to be high therefore need to mixed tenure important.

**Key Design Issues**
- Education as a use and a community is a strong amenity
- Model reliant on interaction in shared public space
- Collaborative work/learning/employment spaces important
- Clustering of units (around 20) necessary to ensure intimate communities and legible street address – manages concerns about student noise
- 5 storeys considered an appropriate scale
- Shared car accommodation OK
- Storage for downsizers critical.

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**Figure 90: Low to medium rise near university, Sunshine Coast.**
The second site was 3650m² in the same suburb and currently includes an existing takeaway shop and 70’s brick apartments. The land is a short walk to the train station, other shops, church and community uses, a library and schools. Bounded by 3 streets, the corner block has principal frontage to a major road, the ‘main street’. The investigation explored the vertical and horizontal mix of residential and retail uses over 3 and 5 storeys. Questions about the optimal clustering of apartments, preferred apartment access (lift, stairs or balcony), and the location and format of car parking were discussed.

Figure 91: Brisbane A – two storey low rise.

This group explored a seniors only apartment complex option overlooking a central private communal green space. The small cluster (12) of 2 storey units were arranged to allow light and ventilation with parking reduced as a trade off for increased amenity and sense of place.

**Key Learnings**
- Desire for smaller clusters of units (e.g. 12)
- ‘Seniors only’ was a preference for this group as site was located within an existing neighbourhood which provided access to a range of other community members
- Straight stair to entrance of 2nd storey units shared between 2 units and could be retrofitted for stair lift and/or dumb waiter to assist with mobility issues
- Light and cross-flow ventilation key design issues for seniors to allow ease of reading and climatic adjustments
- Orientation is a key concern
- Communal open space highly valued asset
- Desire for additional private open space (deck, balcony etc) still high
- Car parking not essential when located close to existing services and transport. Seniors wanted choice. Option of parking separately titled to individual units.

**Key Design Issues**
- 2 storey unit format limited. Straight stair allowed for access, lifts would be required for additional levels
- On-site green space requires larger sites or less car parking
- Car parking requirements vs. seniors’ desire for cars. Current standards require additional spaces which may not be wanted/used by seniors
The third site was 3250m² and currently houses a Club with a large carpark. The land faces a ‘park and ride’, is across the street from the train station and is surrounded by existing shopping, church and community uses, library, schools. The site is designated as mixed-use development up to 5 storeys, Charette work explored issues of proximity to rail (‘How close is too close?’), amenity trade-offs, mixed-use development of 3 and 5 storeys, and the impact and format of car parking.

**Figure 92: Brisbane B medium rise.**

Two groups examined opportunistic infill, mixed-use development to 3 and 5 storeys facing the major road. Group 1 explored the whole of the site testing the extent of retail uses, car parking an upper level seniors living. Group 2 explored a similar suite of uses but focusing on a side street.

**Key Learnings**

- A mix of uses was supported by seniors
- Perimeter format at 5 storeys challenging on these sites due to car parking and side setbacks
- Double-loaded units considered by group most efficient form of layout
- At grade car parking is possible up to around 25 units (40 x 60m site)
- Outlook over at grade car parking is not acceptable
- Rooftop communal open space is acceptable but not equitable above 3 storeys
- Mixture of 3 storey walk-up and 5 storey lift is acceptable given tenure and market mix
- Reduction in car numbers is an acceptable ‘trade off’ in a well serviced location.

**Key Design Issues**

- Mix of heights and amenities offers choice
- Corner sites offer best chance of achieving seniors principles in 5 storeys
- Car parking, onsite open space and the perimeter format is a ‘triangular tussle’ constraining density. Car parking requirements need to be reduced below 1 space per unit) for seniors ‘principles’ to be achieved, otherwise communal open space is compromised or expensive basement car parking required
- Car parking layout limits design flexibility and location of lifts/fire stairs
- Efficient layout balanced against achievement of seniors preferences
- Two or more ‘six-pack’ sites required which may limit viability unless incentives offered
Two charrette groups examined opportunistic infill development around a community club site. Group 1 explored the opportunity for 5 storey, perimeter from, mixed use development on the assumption the community club and some at grade parking might stay. Group 2 explored a staged development rebuilding the community club as part of a mixed-use facility with aged care and independent living units (ILU).

**Key Learnings**

- Close proximity to range of particular range of services highly desirable
- A range of 3 and 5 storey perimeter form, mixed-use infill buildings are possible and consistent with seniors’ expectations and the character of the neighbourhood
- Clustering of around 20–35 units respectively consistent with preferred scale
- Perimeter form is consistent with seniors demands for on site communal space, ventilation and light. 1 bed + studio ‘seniors apartments’ suit perimeter form
- Leveraging of existing community parks is critical to achieving outlook/amenity
- Mixed use at ground level helps shield at grade car parking
- Combination of aged care/assisted apartments with suite of community club facilities attractive to seniors, provided ILU apartments also on offer.

**Key Design Issues**

- Minimum dimension for sites is around 35–40m with preferred site size 40 x 60m
- Need for single lift imposes additional balcony access/common area
- Central courtyard requires concrete deck over at grade car parking adding costs
- Car parking, onsite open space and the perimeter format is a ‘triangular tussle’ constraining density. Car parking requirements need to be reduced for seniors ‘principles’ to be achieved, otherwise expensive basement car parking required
- Basement parking suits “commercial” mixed use developments (such as a community club) but seriously impacts on the affordability of seniors ILU apartments.

Figure 93: Brisbane C– 3-5 storey mixed use.
How the design team responded to the challenges...

As far as possible, the design team responded to the seniors’ physiological needs with ‘dual aspect’ apartments which allowed through ventilation and natural light around internal courtyards, known as ‘perimeter design’. It enabled ‘perimeter surveillance’ (views both externally and internally to the complex), as well as privacy as no-one would need to walk past another’s door. Limiting the sizes of each cluster aimed to provide a greater sense of community and security. A main apartment with an adjacent studio unit, referred to as a ‘dual-key unit’ design, could be applied across a range of accommodation configurations.

The university site on the Sunshine Coast was designed to illustrate intergenerational living as well as specialist amenity attractors such as education.

A townhouse or terrace design was explored with participants, but the sketch was not progressed in Charrettes as it was not considered different enough from the norm. Both a single and two-storey version are included in the final typologies (pages 92, 93) as terrace housing does provide freehold title, does not require a body corporate, and has ground level entry and garden space. In the townhouse design, the staircase was straight to accommodate insertion of a chair lift if required as a transitional arrangement. In addition a flexible storage space was provided in which a lift could be installed if needed.

The design team reduced the amount of car parking in order to deliver both communal and private open space, yet maintain affordability. This would need to be negotiated with Council, based on proximity to public transport.

How the designs rated according to the principles...

As the area in the vicinity of the university is undergoing development, measures such as pathways, public transport, pedestrian and driver safety and security (P1,4,5,6,8) could be put in place to meet key neighbourhood principles. The location is in close proximity to new shopping facilities, university activities, and green open space on the grounds of the University (P1,2,7). At the dwelling scale, the complex is divided into clusters to achieve higher density while minimising concerns with size and consequent noise (P9). The northerly aspect and the size can take advantage of sustainable design features (P11). Shared and private open space can provide good views of the university grounds (P12). All other principles can be met, with one of the buildings intended to be universally designed (P10).

Participants considered the university site favourably, with multi-generational living within the same complex if not within the same building. The possibility of volunteering at the university and inter-generational and cultural exchange appealed. Families could be accommodated in larger units at the ends of apartment blocks.

The Brisbane sites A, B and C (figures 91, 92, 93) are in an existing suburb, adjacent to the centre of town, shopping, library and transport (P2, 4). Since parks are still a few blocks away, on-site communal green space would be beneficial (P3). Existing footpaths at both locations, some not well shaded, enable access to public open space within walking distance (P1, 3). Special provisions are needed to mitigate noise from the busy streets and address pedestrian and driver safety (P5,6, 9). Some of the complex designs take advantage of the northerly aspect and all are of a size that enables incorporation of sustainability features (P11). Again other principles can be met, with compromises in car parking to enable sufficient communal open space (P12).

The two-storey terrace house in Brisbane was considered by many participants as not being ‘inherently applicable to older people’. Stairs were not suitable for seniors in spite of a stair-climber option (difficult to carry a walker) or lift (expensive). Some however enjoyed the sense of space, exercise, and a feeling of security sleeping in an upstairs bedroom.

The Brisbane A two storey low rise complex appealed to the focus groups held in both Brisbane and the Sunshine Coast due to each unit being on one floor and the relatively small size of the complex. Those who could not cope with stairs would aim to live on the ground floor. Participants suggested re-orienting the complex on the site to take better advantage of the northerly aspect and reduce noise from the main street. Concerns were raised about the amount of car parking and the need for secure mobility scooter parking. As this might be suitable for people of all ages, an on-site manager might be needed.

The dual key option was a popular feature of the three-storey courtyard as it would allow the ability to transition within the complex with space for a carer. Operational costs of lifts might be offset by solar power feed to the grid. Similar to the previous sites, concerns were raised about noise and the possible need for an on-site manager.

There was little support for the Brisbane site C complex, mainly because of its proximity to the train and active multiple uses typical of a club venue. Concerns were also raised with 3-5 storey mixed development due to lack of through ventilation and noise, and car parking vs open space trade-offs. Preference was for the 5-6 storey perimeter courtyard units.
High Rise Designs

Higher density living is not as widely accepted in Australian cities as in many other countries. So few seniors have experienced the associated lifestyle. None of the higher density designs in either Brisbane or the Sunshine Coast appealed to our participants yet they illustrate concepts such as TOD and inner city living that might be more acceptable and worthy of consideration in other circumstances. Participants commented on the lack of familiarity with living in such spaces and how older residents from more densely populated countries might find it quite acceptable. They suggested that over the next generation a transition might occur with greater acceptance of high rise in Southeast Queensland.

The issue of trade-offs was part of the conversation. Participants commented that if a high-rise dwelling had a great view of the ocean or river, the perceived negative aspects could be accommodated. Likewise if this was all that was available at an affordable price, some older people would make the compromise.

Of interest was that high density (that is, over 6 storeys) was not acceptable among our participants in either the ‘big city’ or regional community. This was clear during the Charrettes, as well as the final review focus group. While we have included the results of the Charrettes, we did not develop a final ‘typology’ as this was not considered by our participants as appropriate or attractive to seniors.

Sunshine Coast and Brisbane Sites

The inner city site (8700m²) in the centre of a Sunshine Coast town is adjacent to shops, supermarket, community facilities, health services, and public transport. It currently fills an important role as low-cost rental accommodation. It was selected to test the issues of ageing within community. The charrette process explored the integration of private commercial uses, retail/big-box shopping and higher density private/public housing within a regional town centre. A mix of small lot and terrace housing provided a useful mix on this large site. It could provide both non-profit and for-profit delivery possibly in partnership with Local Government.

The two Brisbane sites are proposed for urban renewal. Site A is a large single parcel of sloping land (total 4800m²) within an emerging urban TOD community with shops, employment, services, major hospital and future supermarkets. It has good access to public transport with a station nearby. A 12–20 storey development is possible with a mix of uses. This challenging site was deliberately selected to explore issues of affordable mixed-tenure housing for seniors and integration with the city centre. Preferences for a high-density typology housing format, the role of a high care service with high amenity/views across Brisbane was topical. The ‘trade-offs’ between integrating community/seniors health/care services in sloping area with noise impacts are important issues.

The second Brisbane site B is a constrained inner city parcel likely to be developed by a not-for profit company for mixed tenure housing. A 9–10 storey development is possible with some mix of uses. Several issues (noise, density) constrain development but the site is within an emerging TOD community with new housing, shops, supermarkets and offices and a high amenity open space park. The Charrettes interrogated issues of desirable, affordable, high density, mixed-tenure housing typology with amenity trade-offs.

Figures 94, 95 and 96: Left – Sunshine Coast inner city site; Right – Brisbane inner city urban renewal site A; Brisbane inner city redevelopment site B.

The following schematics illustrate the evolution of design through the Charrettes.
The workshop team explored a medium to high-density mixed use development with residential/retail/commercial uses for seniors. The tower might contain hotel uses (with some permanent stay) with seniors access to associated recreation facilities (pool, spa, gym). An internal street allows small lot and terrace houses provide tenure and scale diversity.

**Key Learnings**
- Support for co-location with hotel and mix of uses
- Co-location with a mix of uses within the town centre considered desirable
- Access to on site open space considered essential, however support for sharing facilities with other uses
- Mixed-tenure housing supported, market will likely require broad range
- Proximity to aged local support/health services considered important
- No direct relationship with aged-care facility necessary although could be co-located
- Health resort idea supported (informal aged care)
- Terrace/townhouses and 1 bed & 2+1 units
- Private car ownership not considered necessary
- Not ‘business-as-usual’

**Key Design Issues**
- Dual key unit typology coined to maximise flexible use, tenure, care options
- Urban setting allows for density and strong urban form
- Reduced reliance on car travel allows for consolidated basement parking
- Legibility and street address an issue requiring ‘public’ street
- Mix of housing types help integrate surrounding uses
- Single small lot housing without stairs preferred by men
- Two-storey terraces (with potential for travelator) preferred by women
- Site size determines tower type and minimises options for clustering
- Hotel typology (double-loading) does not easily deliver passive ESD outcomes
The team explored a high density perimeter form of development comprising of 4 buildings ranging 5-15 storeys, providing approx. 230 apartments. Despite significant amenity challenges, the development has access to a train station, services and employment. The design facilitates views to Mt Cootha, the River and CBD. The perimeter form is centred around a communal courtyard.

**Key Learnings**
- Urban location close to city and heavy rail station
- Design controls allow a very high density development
- Hill top location enables impressive views from upper levels
- Scale of project provides many opportunities for living options and tenures
- Development in perimeter form creates a strong edge to a new park
- Perimeter form creates a private shared open courtyard space that can incorporate community facilities, BBQ, aviary etc
- Scale of project enables cost effective provision of community rooms, cafes, gym, located to overlook park and a mens shed in the basement car park

**Key Design Issues**
- Expensive form of construction in an expensive area may limit affordability
- Not too close to services, with challenging slope for seniors
- Unlikely scale of development for a community housing provider
- Little precedent for private sector support for all ages housing incorporating special facilities for older persons
- Complex tenures

Figure 98: Inner city urban renewal site A, Brisbane.
The workshop group examined a development on the premise of mixed tenure, mixed size (building form and dwelling size) and mixed generations. A third of the 90–100 apartments were dedicated to seniors.

**Key Learnings**
- Mixed tenure arrangements could support a range of affordable housing options NRAS funded affordable housing, NFP owned units or subsidised housing for key workers
- Desirable access to rail station, bus services, open space, community garden, shops and employment – all within walking distance
- Universally designed apartments for ‘ageing in place’ with bedroom and living room decks and views
- Mixed community of ages with families (possibly intergenerational)
- 2 building clusters with separate addresses
- Good security
- Community spaces/common room on every second floor for residents (reading room/library, gym, lounge area, roof garden, games room, study space)
- Significantly reduced parking provided for service providers, visitors, residents and caretaker (reduced costs)

**Key Design Issues**
- Dual aspect form gives good ventilation and helps manage noise amenity issues
- Communal open space compromised by at-grade car parking
- Building height and form does not support onsite open space
- Dual building approach compromises efficiency
- Model illustrates the importance of active frontages and strong street presence
- Scale of development challenging to many seniors and does not foster intimate clustering

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**Figure 99: Inner city urban redevelopment site B, Brisbane.**
How the design team responded to the challenges...

Acknowledging that high rise was not a preferred choice for seniors, the designers queried how to make the typology more liveable and attractive. Communal spaces were designed on each level of the Brisbane Site B, and the Brisbane Site A complex featured a ground floor common area opening onto outdoor shared space.

How the designs rated according to the principles...

The Sunshine Coast High Rise is close to the community centre (P7) and thus walking paths (P1) and public transport (P4) are available. Since the beach is a few blocks away, communal green space would still be required (P3).

The Brisbane Site B typology setting could meet most of the neighbourhood principles: its best features are accessibility – to outdoor riverside boardwalk (P3), public transport (P4), and future shops and other facilities (P2). Depending on how the general area is developed, personal security may become an issue (P8). Brisbane Site A was an exception in that steep slopes would need to be negotiated in much of the neighbourhood. This would particularly affect access to public transit and the hospital which would be the major attraction for residents moving to this site (P 1,2,4,5). Currently there are no shops nearby, however the entire area is under redevelopment so new neighbourhood amenities may be provided.

In terms of dwelling principles, appropriate features and management would need to be included to reduce impacts of noise and nuisance behaviour from high density living (P9). Such complexes could deliver Universal Design (P10) and versatile spaces, visual amenity, security and maintenance (P9, 13, 14, 15). However building of over 6 storeys are problematic in delivering sustainability features (P11) and the site would need to be large enough to accommodate sufficient communal indoor and outdoor space (P12).

None of these sites appealed to the senior participants, indicating that while there may be a need for this type of housing, it would have to be very affordable to attract the elderly. The topography and view of a ‘concrete jungle’ were criticisms of Site A.

Large Site Multi-use Complex

Finally a large 8 hectare hypothetical Sunshine Coast site provided scope for multiple uses and a range of affordable accommodation types suitable for all ages. While the site is not typical of constrained ‘infill’ opportunities, it is surrounded by an existing low density residential community, has significant vegetation, and is proposed for development.

The parcel is adjacent to a school (P–12) and traditional retirement village and is 600m from a future train station with retail and housing uses approved nearby. The land was selected to explore issues of integration and active engagement with school and community uses, the impact of a mixed care/service provider model on built form, and relationships between and arrangement of a range of low-medium density uses. Sketches illustrating the design process through the Charrettes follow.
Groups explored the layout of a range of seniors housing types, community and shop uses across the 8 ha parcel. Existing vegetation and overland flow constraints are used for amenity features and wayfinding.

**Key Learnings**
- Large parcel of land allows for a positive range of housing types and uses
- Significant population can be housed using current building format which makes it difficult to challenge ‘business-as-usual’ scenario
- Community facilities, hall, coffee shop, nursing home, apartments, affordable and low-rise houses all possible and community integration generally supported.
- The site is challenging due to vegetation and connections onto site.
- Seniors found it difficult to move away from ‘business as usual’ (BAU) view of a more dense retirement community
- Opportunity to view superlots with a range of cooperative providers
- Questions raised as to how might the site become a true community focal point?

**Key Design Issues**
- Large infill sites reinforce BAU for housing and insular approach to local neighbourhood
- Integration of use mix likely to be horizontal not vertical unless useful Constraints on development are present, or site divided up into a number of parcels
- Real opportunities for interaction with community is the key challenge
- Whether these are ancillary to the housing use or provide destination/focus for neighbourhood critical issue to success of integration
- Sites without a street based/public mix of uses mean the delivery of these services/uses falls to site developer or NFP provider
- Opportunity for larger infill sites to deliver infrastructure/change outcomes to benefit local community.

Figure 101: Large site multi-use complex, Sunshine Coast.
How the design team responded to the challenges...

The size of the site allowed the design team greater flexibility. While multiple uses were proposed for the site, participants tended to advocate for traditional segregation of independent living units from higher levels of care. The natural features of a waterway, treed areas, and small hill were incorporated into the design with meandering shaded pathways.

How the designs rated according to the principles...

This large site provides the opportunity to ensure most of the design principles are met, such as walkways, outdoor open space, and security (P1,3,5,8). Some facilities such as cafe, community centre, and health services might be located on-site and will contribute to sense of community (7), however it is further from public transport and shopping (P2,4). Parts of the complexes are north facing and are at the maximum height for sustainability features such as solar power (P11).

Participants indicated that the position, the scenic amenity, open space and sustainable design features would be important. Attractive features were multi-aged and multi-generational living, ability to transition to higher care, or for couples who have different care needs. Ground floor cafe and communal areas are essential.

The Suite of Age-Friendly Designs

Following the development of a range of site specific designs, the design team and seniors then collaboratively reviewed the new 3 dimensional models against the Design Principles; derived from the PhotoVoice phase. The strategic impact that such principles have on the shape and configuration of housing is complex. The Charrette process allowed the seniors to appreciate these complex relationships, and choose design strategies that best suited an ageing client group. A range of issues such as ownership, building height and character, mixed-use, unit design, communal open space, access to natural light and ventilation, car use and accommodation and solar power, were considered. The resultant 3D models were then critiqued by seniors and a series of building typologies for low to medium density housing emerged. These typologies provide several integrated solutions to the challenges of infill development as expressed by the senior participants.

Whilst the initial designs were inspired by an individual site context, it should be noted that the following typologies are not specific designs for individual sites. They should be regarded as generic housing models. A range of innovative ideas are featured below and are intended to promote further discussion about preferred infill housing for seniors. They may then become useful as a starting point for a design to be tailored to a specific site.

Each typology is described and rated on seven factors:

- **Maintenance** refers to the requirements for individuals or a body corporate to maintain the site and buildings and is affected by building materials and amount and size of common areas, either walkways or ground area.
- **Proximity to services** refers to how close the accommodation is likely to be to services and facilities. Ratings assume that a higher rise building is more likely to be located near services because of zoning provisions.
- **Private outdoor space** refers to the inclusion of one or more adequately sized balconies or patios in the design.
- **Sense of community** directly reflects the number of units and their groupings in a complex.
- **Sustainable design** represents how the building design enables residents to live without reliance on active (generally carbon-intensive) energy systems such as mains water and power, electrical heating, cooling and drying, and private car ownership. This approach also considers the embodied energy of construction materials and efficiencies of unit numbers.
- **Versatile flexible space** refers to a flexible floor plan that enables the adaptive use of apartments over time to accommodate a range of users or support services. This includes moveable (non load-bearing) walls, dual-key apartments and multi-use rooms.
- **Density and character** refers to the number of units per site and the appearance and amenity of the building within its context (ie: the street.).

There is an implicit assumption that all typologies incorporate the principles of universal design.
Infill Development for Older Australians in South East Queensland

**Shared Care** TYPE 1 — garden house

**DESCRIPTION**
- 40-50m deep "parent lots" are pooled in 2 or 4 and subdivided to provide a rear communal lot of approx. 30 x 30m. The remaining lots are 25 to 35m deep.
- Communal housing at the rear of existing detached house lot with 2 or 4 studio dwellings each suitable for seniors with care provided.
- Each has own bathroom and patio area with shared kitchen, dining and lounge facilities.
- Allows existing lots owned by seniors to be retained and equity leveraged for shared care.

**LOCATION**
- Traditional, established residential suburbs, with high scenic amenity and strong property values.
- Within 400m of local convenience shopping and greater distances from a neighbourhood centre.
- Simple infill dwelling form provides housing variety within detached housing precincts compatible with scale of surrounding houses.
- Possible mid-block. Ideally with street frontage.

**LOT SITE & DIMENSION**
- 300m² total parent lots
- 900m² lot developed at the rear

**HEIGHT**
- Single storey

**DWELLING SIZE**
- 32m² studios with own bathroom and patio area

**DENSITY**
- Typology only marginally increases density across neighbourhood.

**SUITABILITY**
- Highly suited for seniors who need higher care, but want to remain "in neighbourhood" with family and friends nearby.

**CAR PARKING**
- 1 parking space provided for each studio, accessed from street frontage or via parent lot.

**TITLING**
- Community title, reconfiguration or alternative design scheme required.
- Range of tenure, provider delivery and care options available including live-in carer.
Compact Freehold Living  TYPE 2A — 1 storey seniors terrace house

DESCRIPTION
- Single storey freehold terraces with rear lane access.
- May incorporate Type 1 ‘garden house’ at the rear in a redevelopment.
- Single level without stairs but with perception of decreased security typically preferred by male participants.

LOCATION
- On quieter residential streets.
- 3-5 minute walk from local or neighbourhood centres (250-400m) and public transport.

LOT SIZE & DIMENSIONS: 105m² (8.0m x 13.5m)
- Clusters could be developed on urban residential sites 30-40m wide x 40m deep (1200-1600m²) with central lane way.
- HEIGHT: Single storey.

DWELLING SIZE
- Terraces 100-110m²
- Can be configured as 2 bedroom dwelling or as 1 bedroom plus studio.
- Dual key option possible, and allows a variety of ownership options for seniors (couples, singles, with carers).

DENSITY: 30-40 ds/ha.

SUITABILITY
- Allows good accessibility on a single level.
- Allows for private garden.
- Feedback from seniors suggests it is more suitable for men than women.

CAR PARKING
- Single car park provided in car port accessed via rear lane.

TITLING
- Freehold title or as part of a community title.
- Groups of terraces clustered with access via rear lane.

Infill Development for Older Australians in South East Queensland
Compact Freehold Living  TYPE 2B — 2 storey seniors terrace house

DESCRIPTION
- Compact 3 bedroom row house
- 8m wide access from rear lane
- Planning arrangement enables 3 bedroom upstairs only with a generous open plan living room

LOCATION
- On busier streets or quieter streets
- 3-5 minute walk from local or neighbourhood centres (350-400m) and public transport

LOT SIZE & DIMENSIONS: 132m² (6m x 22m)
- Clusters could be developed on urban residential sites 30-40m wide x 40m deep (2200-3600m²)

HEIGHT: 2 storeys

DWELLING SIZE
- Terraces 110-125m²
- Can be configured as 3 bedroom dwelling or as 2 bedroom plus studio

- Dual key option possible and allows a variety of ownership options for seniors (couples, singles, with carers)

DENSITY: 40-50 da/ha

SUITABILITY
- Very cost effective solution
- Designed for 2 storey townhomes, lifts if necessary
- Allows for private garden
- Feedback from seniors suggest it is more suitable for women than men due to stairs and better security outcomes.

CAR PARKING
- Single car park provided in carport access via rear lane

TITLING
- Freehold title or as part of a community title
- Groups of terraces clustered with access via rear lane.
Communal Open Space v. Cars  TYPE 3 — 2 storey apartment complex

**DESCRIPTION**
- Medium density development of 12 units comprising 2 storey 'fourplexes' (2 ground floor, 2 upper floor).
- On-grade shaded parking (reduced provision) towards the front of the site.
- Can be configured as all 2 bedroom dwellings or as 2 bedrooms plus studio.
- Site planning enables creation of shared outdoor gathering places.
- Access to dwellings from within the site and from the street.

**LOCATION**
- Between 3 - 5 minute walk (250-400m) of neighbourhood centres, located on busier streets.

**LOT SIZE & DIMENSION:** 450m² (40m x 40m)
- Can be developed on 2 large residential lots.

**HEIGHT:** 2 storeys.
- Scale keeping with surrounding detached houses.

**DWELLING SIZE:**
- 12 units approx 80-100m² each.

**DENSITY:** 50-70 du/ha.

**SUITABILITY**
- Cost effective development form with minimal common areas requiring maintenance.
- Ground floor accessible units for disabled.
- Low-cost body corporate further offset by PV solar.

**CAR PARKING**
- 50% parking provision (12 units, 6 car parks).
- On-grade car parking provided in carport to reduce costs.
- Streetscape of car parking needs careful consideration.

**TITLING**
- Units part of a community title scheme.
- Car parking may be separately titled to units.
Balanced Approach (Low Rise)  TYPE 4 — 3 storey courtyard units

DESCRIPTION
- Compact apartment arrangement creating upper level naturally ventilated shared courtyard space above ground car parking with building over
- Naturally ventilated, single-storied apartments clustered in a balcony access from around an upper floor courtyard
- Can contain mixed-use at ground level

LOCATION
- Close to or adjacent to developments of similar types such as mixed use facing busy streets
- Within 3 minute walk / 250m from neighbourhood centres and public transport
- On streets where medium density development is appropriate that directly lead to neighbourhood or higher order centres

LOT SIZE & DIMENSION: 1600m² (40m x 40m)
- Developed on 2 residential lots as a small scale infill development

HEIGHT: 3 storeys of apartments

DWELLING SIZE
- 14-17 units each 80-110m²
- Apartments can be configured as 3 bedroom dwellings or as 2 bedrooms plus studio
- Dual key allows a variety of ownership options for seniors (couples, singles, with carers)

DENSITY: 65-75 du/ha

SUITABILITY
- Relatively cost effective solution with the cost of lifts spread between 15 apartments
- Lifts allow good access to units for disabled
- Format suitable for PV solar to offset costs

CAR PARKING
- Street facing apartments or mixed-use screen on-grade car parking areas behind

TITLING
- Units part of a community title scheme
- Car parking may be separately titled to units
Mixed Use  TYPE 5A — 3-5 storey mixed use courtyard units

**DESCRIPTION**
- Infill 3-5 storey development
- Integrating retail on the ground floor, sleeping on grade parking with residential units above
- Could incorporate ‘seniors only’ section with separate entry and shared lift
- Communal open space located on rooftop

**LOCATION**
- Close to or adjacent to developments of similar types such as mixed use facing busy streets
- Within 3 minute walk /250m from neighbourhood centres and public transport
- On streets where medium density development is appropriate that directly lead to neighbourhood or higher order centres

**LOT SIZE & DIMENSION:** 2700m² (45m x 60m)
- Developed on 1 - 3 residential lots as a small scale infill development

**HEIGHT:** 3-5 storeys

**DWELLING SIZE**
- 24-28 units 80-110m²
- Can be configured as 3 bedroom dwellings or as 2 bedrooms plus studio
- Dual key allows a variety of ownership options for seniors (couples, singles, with carers)

**DENSITY:** 70-80 du/ha

**SUITABILITY**
- Relatively cost effective solution with the cost of single unit lifts spread across apartments
- Lifts allow good access to units for disabled
- Format suitable for PV solar array to offset body corporate costs
- Design allows for mixed tenure and clustering

**CAR PARKING**
- On-grade (1 per unit) parking sleeved behind retail and screened from secondary street

**TITLING**
- Units as part of a community title scheme
Mixed Use TYPE 5B — 5 storey mixed use courtyard units

DESCRIPTION
- Compact apartment arrangement creating upper level naturally ventilated shared courtyard space above ground car parking with building over.
- Naturally ventilated apartments clustered in a balcony access from around an upper floor courtyard.
- Contains mixed use at ground level.

LOCATION
- Close to or adjacent to developments of similar types such as mixed use facing busy streets.
- Within 3 minute walk ±250m from neighbourhood centres and public transport.
- On streets where medium density development is appropriate that directly lead to neighbourhood or higher order centres.

LOT SIZE & DIMENSION: 1600m² (40m x 40m)
- Developed on 2 large residential lots as a small scale infill development.

HEIGHT: 5 storeys

DWELLING SIZE
- 28 - 30 units 80-110m²
- Can be configured as 3 bedroom dwellings or 3 2 bedrooms plus studio.
- Dual key allows a variety of ownership options for seniors (couples, singles, with carers).

DENSITY: 110-120 du/ha

SUITABILITY
- Relatively cost effective solution with the cost of lifts spread between 28 apartments.
- Lifts allow good access to units for disabled.
- Format suitable for PV solar to offset costs.
- Maximum cluster of units preferred by seniors.

CAR PARKING
- Street facing apartments or mixed-use screen on-grade car parking areas behind.

TITLING
- Units as part of a community title scheme.
Specialist Integration  TYPE 6 — 5-6 storey mixed use apartment complex

DESCRIPTION
- Medium to high density mixed aged care facility
- Vertical stacking of aged care, offices, community cafe and independent living in a single complex
- Footprint scaled to suit 32 room aged care module on one level with dementia

LOCATION
- Urban scaled project appropriate for larger sites in strategic locations within new or existing urban centres
- Within 3 minute walk /250m from neighbourhood centres and public transport

LOT SIZE & DIMENSION
approx. 640m² (80m x 80m)

HEIGHT 3-6 storeys

DWELLING SIZE
- 28 - 27 independent living units 80-110m²
- Can be configured as 3 bedroom dwellings or as 2 bedrooms plus studio
- Dual key allows a variety of ownership options for seniors (couples, singles, with carers)

DENSITY 150 - 170 du/ha

SUITABILITY
- More expensive form of construction which suits care provider delivery
- Large scale project, suitable response to high value urban site
- Mixed of funded aged care beds and mixed tenure independent living units
- Enables flexible housing and choice throughout ageing to suits a range of users
- All care amenities can be serviced vertically to ILUs as well as aged care to enable transitional delivery of care options

CAR PARKING
- Basement parking required
- Service delivery through front access

TITLING
- Mixed tenures
Discussion of Key Findings

A key outcome of this research was an emerging understanding that most of the typologies could be accommodated in a neighborhood that is transitioning to a somewhat higher density. Planning and design issues and dilemmas associated with liveability, sustainability and affordability (including density and diversity) became apparent and are discussed. The significance of this work for large cities, regional centres, as well as small towns is elaborated especially in terms of the special features identified for sub-tropical environments. The chapter concludes with a discussion about the benefits and drawbacks of the participatory research approach and the limitations of this study.

Infill development enables a transition to ‘ageing in neighbourhood’

The principles were translated through the Charrette-developed typologies and support the concept of ‘ageing in neighbourhood’. An important outcome of the research is that the typologies not only reinforce our participants’ preferences, but when collectively arranged deliver a holistic model of a neighbourhood which could be a supportive and caring community, one which allows ‘ageing in a caring community’.

While sites in four different locations in each of Brisbane and the Sunshine Coast were the subject of the design Charrettes, it became clear that most of the typologies could be portrayed in a typical middle suburb location to demonstrate liveability in the neighbourhood context. Such a typical suburb might include a main street with local shopping, a supermarket, small-scale medical services, a library, an RSL or similar, churches, a school and a train or bus station. In such a neighbourhood, the existing range of centrally located housing is low to medium density within a 400m radius (a 5 minute walk) and includes single detached houses, 2 storey townhouses, and 3 storey ‘6-pack’ apartments. Within the broader suburb are single family character housing, parks along either the Brisbane River, a Creek or beach, as well as assisted retirement living and high care complexes.

The following diagram locates seven different low to medium density-housing typologies on infill development sites within such a suburb in Brisbane. The opportunistic placement of the buildings responds to the existing street structure, character and density pattern. Importantly it demonstrates that the existing lot pattern and development opportunities of this neighbourhood naturally support a more diverse medium density housing future that would be suitable for seniors. It is important to remember that each of the typologies were developed collaboratively with seniors participants in the Charrettes and they respond directly to the issues and principles raised during the PhotoVoice sessions.

This infill pattern illustrates the concept of ‘ageing in neighbourhood’ and adopts the following characteristics:

**Density and arrangement**
- Several building typologies with a range of housing types and densities from 40–150 dwelling units/hectare (du/ha) (net);
- Existing lot pattern and neighbourhood centre or community hub function naturally cap medium density thresholds;
- Arrangement of typologies reinforces existing patterns with lower density on perimeter, and higher density towards the centre.

**Existing structure/character**
- A range of built form intensity from 1–5 storeys, arranged to be compatible with and respectful of existing neighbourhood character;
- Arrangement of typologies focus on key amenity areas – existing parks and open space connections, main street hierarchy, retail and community services, clubs and public transport (station and bus) stops;
- Response to lot patterning and 3–5 storey development allows at-grade car parking behind buildings and can optionally include mixed-use to grow neighbourhood services and employment commensurate with housing growth.

**Built form/character and access**
- All typologies acknowledge the primacy of the street with its principal orientation and residential entry points;
- All development respects residential setbacks to facilitate on-site vegetation, light and air access;
- Medium density development in dual aspect perimeter form with a central community courtyard space promotes passive sub-tropical design principles;
- Unit typologies aim to be accessible, universal and encourage multi-generational use.

**Parking and Compliance**
- Development generally complies with current local government requirements, but manages a transition to reduced car parking based on TOD principles;
- General reduction in onsite car parking requirements (0.5–1.0 per unit including visitors) consistent with reduced car demand in return for public transport amenity;
- Existing specialist care sites to 5 storeys may permit basement car parking;
- Typologies respect natural market-based development thresholds.
Specialist care services

- Assisted living care services are a potential part of all typologies and more easily delivered in a more consolidated environment;
- Specialist high-care facilities are possible within the neighbourhood, in an integrated built form intended to limit perceived impacts of ‘aged-care ghettoism’;
- Structure acknowledges that autonomous retirement uses and hospital-based care is located on the fringe of the neighbourhood, but within the suburb.

This outcome demonstrates that the principles developed by this project have produced a range of meaningful new infill building housing typologies for seniors. Moreover, it shows that when these same typologies are arranged at a neighbourhood level, which respect the existing ‘place’ identity and structure consistent with the neighbourhood principles, the results can produce a holistic model of infill development that actively supports ageing. The broader applicability of this concept is discussed later, but first we illustrate how a range of typologies or scales of accommodation might be incorporated in a neighbourhood to provide a diversity that provides choice for older people. The different designs illustrated in this neighbourhood are the Shared Care Garden House; Compact Freehold Living one and two storey seniors terrace units; Communal Open Space vs Cars illustrated in a two storey apartment complex; Balanced Approach of three storey courtyard units; Mixed Use Courtyard Units of three to five storeys; and Specialist Integration in a 5–6 storey mixed use complex. Each has been described above and compared with the principles.

Figure 102: Choice of housing typologies enable ‘ageing in neighbourhood’.
In light of the academic literature and the outcomes of this research, a viable model of housing for older people could ensure the provision of a range of options within a community. The extent to which all options are provided in the same neighborhood as in Figure 102, depend on the spatial area, topography, locational characteristics and population. The neighborhood model that incorporates a range of housing typologies developed as part of this research is one of the key conceptual outcomes of this research. The ageing-in-neighbourhood approach could be developed as a neighbourhood strategy by or in collaboration with local government. The advantage is that the range of housing typologies could be introduced over time, overlayed with home care and support services that already exist in the suburb.

It is important to note that the middle suburbs chosen were considered particularly appropriate for this hypothetical scenario as the neighbourhood characteristics closely satisfied the principles agreed by the senior participants. Lack of hills, shady streets, and character housing contribute to the attractiveness of the environment. Nevertheless the concept is broadly applicable to locations meeting some basic prerequisites, where seniors value the characteristics of their existing neighbourhood and familiarity with local services and networks. These too should also be supported by greater choice in housing.

"Hot spots" for older people

In the 2006 Census, 3.5% of Brisbane residents stated they had a disability that required assistance some of the time and 9.2% of Brisbane residents stated they spent time providing unpaid care or assistance to a person because of a disability, illness or old age. Thus accessible and supportive communities and dwellings would benefit a sizeable portion of Brisbane residents on a regular basis, most of whom live in the middle to outer suburbs209. In addition to those immediately impacted, children and young families would also be beneficiaries of accessible and supportive design in homes and communities. The ability to age-in-place, as confirmed by gerontology research, is associated with personal well-being in later age. For long-time elderly residents, neighbourhood life may substitute for family contacts210 and provide opportunities for seniors to be part of diverse, multi-generational neighbourhoods211. However, despite evidence of the needs of specific groups and benefits of proactive design, time-standardised practices have produced “Peter Pan” neighbourhoods built to serve residents who will never age, will never face unexpected disabilities or economic fallouts, will always be able to count on substantial affluence and valid driver’s licenses, acting according to frozen-in-time lifestyles212.

In Brisbane, the top 10 neighbourhoods where larger populations of older and disabled people reside have been identified as Brighton, Taigum-Fitzgibbon, Chermside, Nudgee, and Wooloowin on the North side, Wynnum West on the East side, Carina Heights, Rocklea and Inala on the South side and Kenmore Hills on the West side213. Referred to in North American literature as Naturally Occurring Retirement Communities (NORCs), they are generally defined as communities with a large proportion of older persons residing within a specified geographic area, and differ from retirement living in that NORC communities were not designed with the provision of services to older persons in mind214. Such neighbourhoods evolved as a generation aged together. Such information, though, can be used advantageously by care providers and Councils and thus benefit residents. For example, as Municipal Council capital works and asset maintenance budgets are limited and subject to change, works programs in areas with high senior and disabled populations could prioritise works that support age-friendly communities by applying our seniors’ Design Principles. This would contribute towards ensuring residents have a pleasant and accessible neighbourhood to live in with a range of housing options to age in neighbourhood, as a starting point for an age-friendly city.

Outcomes in relation to the three themes

Participants in this research had clear ideas about the types of neighbourhoods and dwellings that appealed to them, and whilst there were a range of differences, the principles contained in this book are an expression of consensual ideas. Some of the challenges in achieving these aspirations in the built form and in the neighbourhood context were instructive. They revealed the barriers that exist from the perceptions of developers, planners, and even older people themselves; each a discrete group wrestling with their own expectations, often with differing priorities in terms of desired outcomes.

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 reflect more diverse and mobile communities, less familiarity with neighbours, and less sense of community often characteristic of a big city. This suggested that the benefits of ‘ageing in neighbourhood’ are universal in that if the needs of seniors are met, then those of other age groups can be met as well. Likewise noise and air pollution and traffic congestion, accompanied by good

209  BCC 2011, pp.17-18
212  Antoninetti, 2008, p.349
213  BCC 2011, p.17
214  Colello K, 2007, p.1
public transport are characteristics of larger cities. The Sunshine Coast residents’ valued the open green space which typify this area; they were the greatest advocates of useable private open space as well. These seniors also relied on their vehicles and rarely used public transport, so the issues of trading-off car park spaces to achieve greater affordability, did not appeal.

What is evident from the findings of this research is that there is a need for greater choice and flexibility in the housing models that are available. There is also a need for accessibility and adaptability of the design (universal and adaptable design), the types of tenure, and greater security and confidence for owner-occupiers and renters in strata title regimes. The transition to other models of living can be difficult for older people, more so, if this coincides with the death of a partner, illness or mobility issues, all of which can present significant threats to independence and safety at home as one becomes more frail. Therefore, flexible options and being empowered to select the type of housing, care services and the environment that suit an individual’s lifestyle will be attractive, and not just for older Australians.

An unexpected outcome was discussion around an ideal size of ‘community’. While not unanimous, most participants tended to favour complexes with less than 25-30 units.

**Liveability**

**Connectivity and Walkability**

Participants emphasised the importance of safe, evenly graded and maintained walking paths for exercise; opportunities to interact with people of all ages and to access services, facilities and public transport. Walking or cycling provides tangible health benefits by increasing daily physical activity levels, improving social wellbeing and other benefits such as less cars on the road and a greater sense of community\(^{215}\). Whilst planning policy encourages walkable, pedestrian friendly neighbourhoods, the provision for car spaces also contributes to the expense of dwellings, particularly in high amenity urban infill areas. One of the ways to best facilitate uptake of active transport is through mixed use planning and a permeable path network, which significantly increases the preference for residents to walk instead of drive.

**The importance of universal design**

The largest number of photos taken on any one theme represented aspects of universal design. There is empirical support for the assumption that environmental factors are not only related to negative health events, such as falls\(^{216}\), but also to positive health-related outcomes such as subjective well-being and independence in daily activities\(^{217}\).

Clearly this is a message that cannot be ignored. Some major developers claim to provide accessible and/or universally designed dwellings at an affordable price point. Industry support for the Liveable Housing Design Guidelines and the 10% target across the Urban Development Areas (UDAs) by ULDA are an indication of progress. However, this contribution to new housing only, will unlikely address the need when 25% of the Australian population will be over 75 years old by 2030. Promising inroads towards more age-friendly neighbourhoods can occur, with State and Local government collaborating with seniors to provide greater housing options. Goals and incentives for age-friendly neighbourhoods and housing can be built into strategic goals and performance measures of planning schemes and development assessment codes. Other planning tools can be used such as community improvement or local area plans facilitating redevelopment of areas; as-of-right secondary dwellings in certain areas; building height, density, and application fee incentives in exchange for facilities, parkland and streetscaping; and development conditions on site layout and building features\(^{218}\). Developers (including non-profit or public housing providers) and purchasers need to recognise that the future on-sale market will be reduced for buildings without at least adaptable design features.

**Valuing age diversity**

Our participants were almost evenly split between those who find age-segregated communities (i.e. retirement villages) attractive for their peace and security, and those who seek vibrancy of intergenerational interaction in a multi-demographic neighbourhood. Cultural background and physical health may play a large part in these views.

The concept of ‘diversity’ is often celebrated in the lexicon of planning and urban design professionals as the virtuous mix of ages, cultures, genders, housing (in terms of size and architectural massing), incomes and lifestyle. It often also refers to a diversity of land uses, such as adequate space for public parks and gardens as well as housing, proximate public transport, preservation of natural assets and heritage, and employment provided by nearby industry. Benefits of diversity are promotion of mutual understanding among populations of different backgrounds and providing a vibrant active neighbourhood through different but compatible lifestyles and land uses.

However, while diversity may be a commendable goal, it will not be achieved simply by provision of increased housing choice.

215  ALGA et al 2009, p.1
216  Gitlin 2003
217  Oswald et al 2007
218  MMAH and OPPI 2009
or appealing to a diverse demographic. Implicit in the notion of diversity are inter-related concepts of moral commitment, positive social contact and solidarity. It appears that ‘social diversity’ and ‘place diversity’ are important and inter-related aspects that are rarely considered in unison by the planner, with the danger of mixed developments becoming commodified ideals of a village atmosphere but without the supporting social infrastructure. Building a sense of community relies on strong social networks and positive social contacts supported by good urban design. Standard planning scheme templates adopted in many jurisdictions, while delivering structural consistency and streamlined processes, risk devaluing the uniqueness and vitality of neighbourhoods.

The challenge of density and livability for seniors

“Density” is a term that can refer to the macro-scale of a neighbourhood and micro-level of a multiple dwelling complex (see glossary). The rationale for consolidating town centres is to provide more efficient economical services such as public transport to a consolidated population which in turn is considered more environmentally sustainable. Such densification is intended to prevent extension of urban sprawl into good quality agricultural land and valuable green open space. Infill development is a way to achieve this.

Individual perceptions vary about higher density living. On the macro-scale, most of our participants valued access to services and facilities, but also to green space. Some favour the convenience of CBD locations due to the locational advantage to work or city life. To others, poorly designed higher density developments hold deeply embedded stigmas associated with the concrete towers of social housing of the 1970’s in the outer suburbs of some Australian and international cities. Having access to services, though, means living in a more compact environment which raises certain challenges at the micro-scale: privacy, noise, negotiation about common space, and sustainability. To our participants, increased density seemed acceptable to some extent, providing that negative aspects of noise and pollution could be avoided.

Noise conflicts are a particular concern with higher density living; different lifestyles, age groups and expectations contribute to noise conflict in higher density living. Reliable and fair modes to co-exist harmoniously and reconcile differences is important. Design needs to allow people to get to know each other in communal spaces while retaining a sense of privacy. Studies have shown that residents that spoke to and helped each other had less complaints. A well-managed body corporate and an agreed set of by-laws, ideally decided in participation with the residents is essential. Our participants raised concerns about the cost, complexity, and effectiveness of body corporates, elaborated with entertaining stories of conflicts.

We invited conversation about what is a good size for a neighbourhood. On the dwelling scale, participants strongly objected to buildings over 5-6 storeys high and generally favoured complexes of 12 to 25 units, designed to ensure privacy yet knowing your neighbours. The crux of the issue may also be to design for a human scale that enables visual contact with the ground.

Affordability

It has been argued that higher density can exacerbate segregation by housing type and class because laws, lending policies, and industry behaviour favour large, uniform types of developments. As urban areas become more attractive to people of all ages (referred to as “proximity-related benefits”), competition becomes greater, and market forces in turn determine a higher price per dwelling. The risk is that low income or senior residents will be excluded from the neighbourhood as affordable housing and universal design are not a priority in a competitive housing market. Part of the brief for this study, and one of its greatest challenges, was to find ways of delivering affordable housing in infill areas. Many factors influence affordability: the location and amount of land, size of dwelling, number of walls, and building materials. In addition, small dwellings on small freehold lots can minimise maintenance while avoiding body corporate fees. In searching for solutions, we focussed on potential areas where trade-offs could be made - the number of storeys and units in a complex, car parking, and lifts, all of which contribute to per unit cost of a dwelling.

The two storey townhouses and two storey walk-up unit development in a middle suburb exemplified cost efficiency and a low risk profile. Both could easily be built by small-scale local builders. Savings resulted from no basement, no lift or pool (around $7-10,000/annum alone savings on total body corporate fees), and minimal common areas which mean less contract cleaning areas. Security costs can be minimised by including CPTED provisions from the start.

One of the critical factors in providing affordable housing is the cost of car parking spaces in multi-dwelling developments. The space that car parking subsumes in high value infill land means that multi-dwelling developments may have to be built to higher levels (8 storeys) to sell more apartments. It could also mean building out the maximum developable area with limited provision for shared open space at ground level other than entry areas and cursory landscaping treatments.

It was estimated that the cost for two storeys without basement cars may be around $1300/1800 per square metre (m²), whereas three to four storeys and higher might be around $2400/m². The general difference between construction costs of

219 Talen 2006 p234
220 Talen 2006, p245
221 Easthope & Judd, 2010:22
222 Gehl 2010
223 Pendall and Carruthers 2003
at grade ($600/m²) and basement ($1200/m²) parking is an additional saving of $250/m² per apartment. Thus savings are greater if less than one car space per unit is provided, and at grade.

This project responded by providing just half the car parking spaces in one of the typologies, titled separately from the dwelling. This would not comply with Council requirements for car parking however it meant that more land could be contributed to high quality private and/or shared open spaces and residents could determine whether a car was in fact an economical or necessary option, in light of the proximity to services, facilities and public transport. Options for stimulating ready take-up by seniors might include access to:

- a communal car;
- community shuttle bus;
- recouping costs spent on car accommodation they will not use by leasing spaces to local retailers/local commerce;
- assistance with daily tasks outside of the home such as grocery shopping; and
- a safe, well connected and maintained walking and cycling network.

It should however, be noted that none of these factors are really under the control of the developer. It could be reasonably argued that local and state governments and not-for-profit organisations have a critical role in achieving quality increased density outcomes in infill areas, by taking a leadership role in provision of alternative options to support affordable housing. Councils may need to revisit the 1:1 car parking to dwelling ratio in planning schemes for locations that are attractive not only to seniors but to other users (couples, single parent families).

**Sustainability**

While it is assumed that increased density is the solution to the environmental problems of urban sprawl, there seems to be a point where increased density can compromise energy efficiency – particularly if the complex is poorly designed and air conditioning is required much of the time. For example, according to one study, high-rise developments in Sydney had higher greenhouse gas emissions per person than detached dwellings or townhouse/villas due to the energy consumption of common areas such as lifts, corridors and pools and the lower occupancy rates of apartments. In contrast, townhouse/villa developments had the lowest greenhouse gas emission levels compared to other dwelling types when measured per household or per capita. This does not mean that density is always counter-productive to energy efficiency. The operational costs and Greenhouse Gas Emissions (GGE) can be affected by the design and can either enhance energy efficiency or burden residents with its costs. High density, for example, might have little place for drying clothes so all units might need a dryer; on the other hand, each complex might provide a bank of communal washers and dryers, which save on embedded energy and life cycle costs of equipment. Appliance ownership, household size, dwelling size and dwelling type all affect energy consumption. Of course, these emissions might be balanced by the savings from lower individual transport demands and solar power purchased in bulk.

The advantages of using solar photovoltaic (PV) on medium density complexes means that unit owners can band together as a single purchaser of energy and negotiate a bulk purchase of power at a cheaper rate. Clearly medium density has more purchase power than lower density duplexes. A body corporate could negotiate power purchase, distribute it using a master metering system (with individual meters), pay for maintenance, and the savings on power fed back into the grid could be used to offset communal area costs.

The use of solar PV on units is not limited by the number of units but by the amount of roof space, the orientation and the metrics associated with how it is controlled and maintained.

A 2KW system preferable for a two-bedroom unit, requires about 12 panels and occupies approximately 20-24m² of roofspace. The three storey perimeter courtyard unit typology would have a total roof area of about 800m² (on a 35x40m² site). If a conservative roof area of 24m² per unit is applied for each unit, there is enough room on the roof for around 30-33 units. Our three storey typology has around 14-17 units, a 5 storey version around 28-31 units. It therefore appears that for the perimeter form of development, which satisfies many of the seniors’ sustainability preferences, there is an upper limit to using PV on smaller infill sites. This also coincides with the seniors’ preference of medium density housing of 3-5 storeys or 14-30 units.

**Feedback on the process**

Participatory research is intensive and requires a strong commitment to involving participants throughout the study. It demands respect for participants, to value their input. It also requires effective interaction and explanation of terminology that might not be familiar to non-planning professionals. From the researchers’ and design team’s perspectives, participatory approaches contribute an additional dimension of understanding and in-depth insight into the issues, challenges, and potential solutions. It makes the research ‘real’ and more useable.

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224 All prices are estimates based on March 2012 values
225 Myors et al. 2005, cited in Wright 2010
226 Rickwood 2009, cited in Wright 2010
Feedback from participants (B=Brisbane; SC=Sunshine Coast) through direct comments at workshops and 19 responses to a final survey indicated that the participatory research approach was greatly appreciated. The process was rewarding, informative, and broadened their horizons.

I think the whole exercise was well conducted and of greater help than anticipated.... I really enjoyed taking part in this research. (SC)

It was very interesting and informative. I found the simulated planning and discussion fascinating and enlightening.(B)

I thoroughly enjoyed participating I learned a great deal more to consider later. (B)

It was terrific to hear about all the possibilities and opened my eyes to the incredible range of things that different people came up with, especially future needs. (SC)

It’s certainly broadened my views and given me some insight into what’s involved in future planning. (SC)

It opened up many issues that I had not realised and helped me realise the whole process is extremely complex. (B)

In particular, participants valued being able to express their views and to debate ideas within the small groups and with the project team.

You took great care to capture what we portrayed. (SC)

...our ideas and photos were captured with respect. (SC)

Photovoice process was both clear and comprehensible. It was also an enjoyable task ... our ideas and photos were captured with respect. (SC)

Everybody was able to have their say and good discussion followed. (SC)

it was good to interact with people involved in working in town planning and council representatives. (SC)

...the fact that most of us were eager to attend each meeting and that we were happy to do what was asked of us, is proof of the pleasure and educative benefits derived from the whole process. (SC)

I was pleasantly surprised that there was so much consensus among the groups about the things that were important to us, and many photos were of similar things. (SC)

I enjoyed interaction with design professionals. (B)

...benefits from sharing concepts with others in a group - a positive exercise with interesting people with diverse ideas. (B)

The design staff ... did an exceptionally good job of drawing plans to represent group’s suggestions. They were able to interpret and represent our ideas in a clear professional manner. Very good team. (B)

I appreciate the design staff listening with my opinions and joining in on ensuing discussions. worthwhile experience thoroughly enjoyable. Would love to be involved in future projects. (B)

Cassie was excellent in interpreting our ideas on paper and helping us solve difficult aspects of the design. Full marks to Cassie. (B)

Many people underestimated what they could contribute, as illustrated by this participant:

I felt at the beginning that I wouldn’t have much to contribute. As others started the process, though, it was surprising how it got me thinking about my preferences. (SC)

Participants fed back some useful suggestions about the process:

Perhaps there was insufficient time to explore options for the designs. (B)

I was able to photograph buildings, parks, roads, and features of houses however some things could not be easily captured in a photo, e.g. a floor plan, a site plan, or a problem like “not enough natural light”. (SC)

I would have loved to be given some parameters and allowed to work on a design all by myself! Maybe take it home and bring it back to the next session. I doubt that the time allowed at the workshop really accomplished much. (SC)

Some things were difficult to capture in a photo e.g floor plans of good design, north facing aspect, good natural lighting. (SC)

I can appreciate that social and economic constraints do have a place in design but, in the end I did feel that these issues prolonged the whole workshop, maybe the process should be divided into two stages? (B)

The group was not representative across the socio-economic spectrum. (B)

In terms of outcomes, comments from participants indicated that they felt better prepared for their future. They learned a lot about development constraints and options and what to ask for when changing homes.

Since being involved with this research, I have looked at our home and seen where changes could be made to make it more suitable if we have problems with mobility as we get older. (SC)

If I had to move out of my present home then I think I would have a better idea of what to look for in new accommodation. (SC)

It gave me greater understanding of what can be done to improve facilities in different types of living conditions both for single people and couples ... If the ideas are adopted, I think it will greatly benefit older people. (SC)

I was able to take on board the idea of possible problems in years to come e.g. stairs which turn at right angle, getting food shopping upstairs. (SC)
... I learned of some new and innovative ideas that might meet those [my] needs. (SC)
It was interesting to see how the ideas we had discussed in the photovoice process could be put into practice in design. Not everyone is looking for the same type of accommodation so various types were considered....I am looking at the design of my home and planning changes which might need to be made in the future.(SC)
I have a much clearer concept of what would be most important to me and what compromises I may need to make. (B)
It started me thinking about alternatives. (B)
It made me more optimistic of alternative models being developed, not only for myself but for other seniors, particularly those with greater financial challenges. (B)
If the study brings results from Council and developers then it will have been very worthwhile. (SC)
I consider that many of the designs could be implemented into future homes and environment. (SC)

While considerable feedback was gained about individual typologies at the final focus groups in February 2012, some written comments about the typologies were as follows.

One design stood out for me from rest of the other submissions and that was the design for Corinda. May I add not because it was at that suburb but I felt it was ideally suited for an infill in most places and was a design that would lend itself to most of the ideas the group submitted.(B)

Special Mention to Deike Richards for putting in their time and effort, some of the designs submitted had areas which were appealing but for me personally the simple design won out. (B)
They also felt that their input was taken on board, as illustrated by the following:
The dot exercise was an added feature to cement design principles. Well thought out.(B)
The final session on 15th February was excellent, I was really pleased to learn that our ideas and input have been taken account of, and incorporated in the designs that were put forward.(SC)

Aspects that were of concern are described by the following comments. It should be noted that some of these were received prior to final focus group where the typologies were presented and explained.

I saw nothing that was creative or innovative... (SC)
Housing for lower income seniors were close to noisy environments which were disappointing. (B)
I’m not sure how many of the principles that were decided on earlier were incorporated into the end results. (B)
I feel that most of the ideas were lost between the Charrette and the design stage, looking at what was produced ended up mostly standard commercial designs; where was the focus placed on the essential items highlighted in the Charrettes such as, fire safety, housing, stairs & lifts, ventilation, lighting, noisy environments, and security. (B)

For the project team, our own preconceived ideas about the benefits of densification were tested, and designing to achieve the very worthwhile principles, combined with seniors’ preferences, proved to be complex and stretched our abilities. The principles confirmed the strong and urgent messages for developers about the importance of private outdoor space, visual amenity and universal design – also that concepts of natural aspect and sustainability are important to seniors, because of perceived cost-savings, as well as for physiological and ethical reasons. Concepts about flexibility were also tested. The use of sustainable design features have implications for long-term residents and housing providers who can offset lifecycle costs.

Our group of participants was not representative of all seniors in all ages, locations, and contexts. For example, only a very small number of the participants were from a low socio-economic status, possibly because we invited candidates to self-select or volunteer through seniors groups and local networks. This may have been the reason that affordability and rental issues did not feature as prominently as expected. While the general consistency of our results with other studies is reassuring, future participatory work of this nature might consider targeting older people from lower socio-economic backgrounds, possibly through housing provider groups. Future studies could also explore perceptions of older people living in high rise buildings.

In addition, in future work of this type, taking participants on a tour of display accommodation or a development that features excellent universal, sustainable, and affordable design and includes diversity in high and low rise might provide tangible experience to draw on in discussions about the range of possibilities.

Finally, a challenge in participatory research is keeping participants engaged throughout the project. We were fortunate that 95% of our participants stayed with us through the Photovoice and Charrettes, with about half attending the final feedback focus group.
Conclusion

‘We are happier in many ways when we are old than when we are young.
The young sow wild oats, the old grow sage.’

by D Enright, The Wicked Wit of Winston Churchill

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 when they cannot (or choose not to) use their car, it is 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 at level, with public transport and at level car parking) and social networking.

Many of our participants preferred a home 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, 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 resources and money. A safe and secure home and neighbourhood was also important. Although aged care was not in the forefront of the seniors’ minds 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.

In summary, the senior participants indicated that the following feature were of most importance to them:

- A sense of community in neighbourhoods and opportunities for multi-generational interaction
- A universally designed home and neighbourhood
- A variety of green, clean and safe public open spaces, natural amenities and facilities.
- Safe, evenly graded, well maintained and shaded walkways providing active transport options that are important for health, enjoyment and connectivity to shops, facilities and public transport (particularly if no longer driving)
- Village style shops, services and facilities in close proximity to home
- Adequate space at home, ideally with the option to adapt the floorplan as needs changed
- A choice of shared and private outdoor space in accommodation
- A home that provides through ventilation, natural sunlight wherever possible, solar and rainwater harvesting systems as they all save money and resources
- A home that considers options for privacy and noise attenuation in an urban or a higher density area
- The importance of security features at the dwelling level and perceptions of personal safety in the neighbourhood

These were largely expressed through the Principles developed in collaboration with the seniors. Additional key messages included:

- Expression of individual identity through housing choice, diversity and differing needs for social contact and privacy at the accommodation level
- Human scale’ of accommodation translated through visual design and in appropriate numbers and massing of units in medium density housing
- A preference for a ‘pick and mix’ aged care services, case managed so that the overall care is co-ordinated, with seniors making independent choices on the options that best suit their needs at any given time.

This research aimed to identify greater diversity of housing choice for seniors through a range of new housing typologies, particularly in neighbourhoods that matched their preferences. One of the unexpected watershed moments for the research and design team from analysis of the outcomes of both the PhotoVoice and Charrette phase was that, from a design and planning perspective, the housing typologies most preferred by the senior participants were actually the best fit (in terms of grid layout and average lot size) with a neighbourhood that also met their needs (see Figure 102). This means that not only do age-friendly infill neighbourhoods and dwellings have practical application in a spatial context, they are also well within reach.

There are however some challenges and potential solutions for planners and policy makers, design and development professionals and seniors themselves to consider, as outlined below.
The future age-friendly infill neighbourhood

Given the wealth of policies and guidelines that already exist at the two scales of neighbourhood and the home, the obvious question then becomes why have we not been able to achieve affordable and sustainable infill developments thus far, especially those that are liveable for seniors?

This research has revealed the clear and important relationship people have between their neighbourhood and home: it affects their happiness, wellbeing, sense of security and sense of place. However few mechanisms actually work to support the importance of this relationship at the neighbouring and housing scale. A strategic design framework for achieving a range of housing and care options in-neighbourhood is ideal. this research likewise confirms the relationship between affordable, liveable, sustainable development of infill areas. It is indisputable that Australian homes built with a northerly aspect that allow natural light and ventilation, enabling individual control over resource consumption, in socially inclusive safe neighbourhoods with shady green spaces, are more liveable and affordable.

Visions for the future embrace the logic of age- friendly neighbourhoods and increased housing choice, that go beyond the current of options of residential villages or ageing in an unsuitable home. There is currently a gap in the spectrum of modes of living for older people which are in some ways on opposite ends of the scale. Older people should be enabled to transition easily to the mode of living that suits them depending on their needs, whether they choose to re-locate or have care services come to them, in a way that is not financially prohibitive. Location and housing choice are at the core.

Planning regulations

One way to effect positive change towards age-friendly communities might be more adaptable and responsive planning regulations and building codes which can respond to demographics and associated needs, which fluctuate over spatial and temporal scales. For example, the principles of smart growth are accepted and supported at a national and state level in Queensland planning. However, while smart growth encourages consolidated urban forms around key transport nodes (to encourage greater public transport use and therefore more sustainable outcomes), development assessment has not generally provided for relaxation of parking space provision requirements per dwelling for nearby developments. Because car parks add a significant construction cost to the dwelling, trade-offs are often made on visual and natural amenity, shared and private outdoor space, and environmentally sustainable features, all design aspects so critical to seniors – and perhaps the vast majority of people given the choice. These risk being lost through the need to meet parking requirements.

The Brisbane City Council allows for flexibility in on-site car parking provision for residents and their visitors in medium and high density living. In the medium and high density Codes, resident and visitor parking must be provided according to: the number, size and type of dwellings proposed; the availability and acceptability of kerbside parking adjacent to the site; local traffic or parking management; and the likely preference of the occupier or target market. However in both Codes, the resident parking provision may be reduced from the rate specified in the Acceptable Solution where public transport is available within a reasonable walking distance. In addition, off-street parking may be provided where qualifying for a subsidy for aged persons or persons with disabilities accommodation at a rate of 1 car space per 3 dwellings. Consideration could also be given to relaxation on car park requirements in areas where community or flexi-car options are provided.

Finally, suburbs with high senior populations or identified as potentially age-friendly, could provide priority zoning for universally designed dwellings within a walkable catchment to services, facilities and public transport. Planning scheme policies should reflect their strategic intent for more affordable living and walkable communities. Support of this policy by industry could be encouraged by providing incentives such as reduced timeframes or application fees for universally designed (or a percentage thereof) developments. This has the additional benefit of using price mechanisms to respond to strategic intent rather than rely on the temporal scale imposed on changes to planning schemes.

How to make it happen

Significantly, each stakeholder needs to take responsibility for their part in achieving these goals.

Potential residents need to be clear about what they want and demand it from the market. No more internal staircases. Easy access from a garage. Universal or adaptable design. Useable private outdoor space. Accessibility to services with modifications to reduce noise if necessary.

Developers and the construction industry need to be proactive and start providing standard design features that improve resident comfort and enjoyment as well as reduce operational costs. Universal design and passive and active sustainability features are clearly affordable in the long-term and broaden the future appeal and marketability of accommodation.

227  BCC 2000, p.192
228  BCC 2000, p.182
Planners and policy makers at various levels of government need to identify potential age friendly communities – being locations (centres) that fulfil the neighbourhood level principles – i.e. access to services and facilities, walkability (considering typography), and public transport. Local government planners and policy-makers need to proactively plan for infill development that acknowledges the relationship between the neighbourhood and the home to provide more accessible, enjoyable human scale environments. This includes small scale services and facilities in close proximity to meet everyday needs that are easily accessible by foot or public transport, as well as retaining and enhancing nearby open space. Incentives could be provided in municipal planning schemes through reduced application fees for developments that are age-friendly within 400m to 800m to key services, facilities and transport, or for housing development that demonstrates universal design, commensurate with the percentage of dwellings that are universally designed. Maintenance of walking paths, age-friendly public and community transport and opportunities for increased civic engagement and multi-generational mentorship could be prioritised in the budget.

Finally, urban designers and architects need to stretch themselves and their clients to meet sometimes incompatible goals. 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.

The gradual acceptance of medium density development reflects an emerging Australian trend in the residential mix where such neighbourhoods and accommodation are gaining legitimacy as ‘homes’. This means that ‘although the suburban dream is still alive and well, it is no longer the only permissible dream’


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