arcc

Ageing & mobility in the built environment

● Acknowledgements

The following projects are to be commended for their collaborative work with each other and stakeholders to synthesise and target their research findings. This work will make it simpler for stakeholders to find those 'unknown unknowns', to create a marker for the latest research across a range of themes rather than promoting individual results only:

BESIDE

- Ian Harrison
- Marianne Dee

BIOPICCC

- Sarah Curtis
- Jonathan Wistow

CO-MOTION

- Mark Bevan
- Howard Cambridge
- Steve Cinderby

CYCLE BOOM

- Tim Jones
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- Sarah Wigglesworth
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MOOD, MOBILITY AND PLACE

- Catharine Ward Thompson
- Katherine Brookfield
- Máire Cox
- Mark Cherrie

MYPLACE

- Peter Wright
- Kellie Morrissey

STREET MOBILITY

- Jenny Mindell
- Jemima Stockton

In addition to the researchers, many thanks are also due to the stakeholders who contributed their time and expertise in guiding the preparation of these materials. By attending the ARCC network workshop in London in April 2017, they made valuable contributions to the development of this synthesis that includes interdisciplinary engineering, social science and design research for wellbeing in the built environment.

Are you interested in improved health and wellbeing for our ageing society?

There are two big issues facing our cities; the global population is booming, and more people are living longer. Both of these have a huge impact on our cities and cannot be ignored if we are to ensure a sustainable urban environment.

According to the United Nations, these demographic trends will be among the "most significant" social transformations facing the modern era, impacting nearly all countries. The proportion of citizens living in urban areas is expected to increase by nearly two-thirds by 2050, and is widely recognised as an immense additional pressure on capacity to sustain the urban environment and infrastructure.

Changes in population demographics have resulted in an increased number of 'third age' citizens living in cities. As highlighted by the UK Housing our Ageing Population: Panel for Innovation (HAPPI panel) and subsequent HAPPI reports by the All Party Parliamentary Group on Housing and Care for Older People, there is a clear opportunity to improve the quality of life for the UK's ageing population.

Also, to challenge the negative perceptions towards older persons as they enjoy the longer post-working life period, referred to as their 'third age'. There is also an opportunity to raise the aspirations of older people themselves to demand a higher quality built environment that does support their ageing and mobility.

Led by the ARCC network, the research projects included in the following work were funded under the cross research council Lifelong Health and Wellbeing programme, specifically the Design for wellbeing funding call and also including the ARCC BIOPICCC project. These are all relevant to decision-makers interested in improving the health and wellbeing of our ageing society.

Funded by the EPSRC, ESRC and AHRC, the research findings include consideration of green space, the importance of choice, using technology and toolkits, the value of cycling and mobility scooters, the positive interactions within various forms of accommodation, as well as road set-ups that allow for easy crossing that reduce community severance.
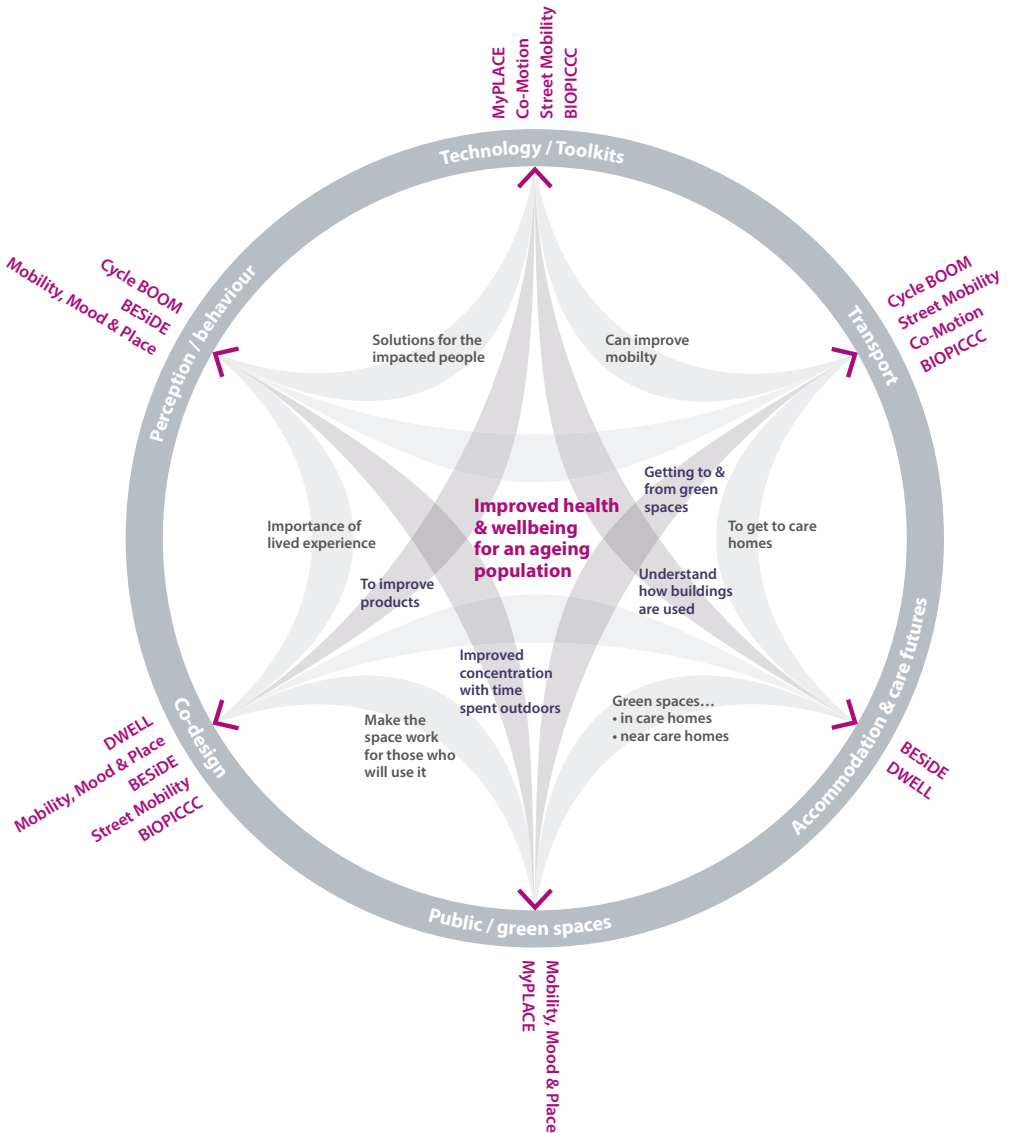
The central aim of these diverse research projects is to better support the various stages of planning, design, and management of housing, neighbourhoods and public spaces, and how they can be improved to support the wellbeing and mobility of older people.

In order to help stakeholders with their decision-making, the information in this booklet covers the breadth of areas related to this topic, and is intentionally in headline format. It is available as an online resource at www.arcc-network.org.uk/ageing/

The projects span multiple themes:

- Understanding behaviour & the impact of perception
- Accommodation & care futures
- The importance of choice – co-design
- Transport
- Green spaces
- Technology/toolkits

The ARCC network has undertaken this synthesis exercise on behalf of the research projects featured below:

Technology / Toolkits
MyPLACE
Co-Motion
Street Mobility
BIOPICCC

Transport
Cycle BOOM
Street Mobility
Co-Motion
BIOPICCC

Perception / behaviour
Cycle BOOM
BESiDE
Mobility, Mood & Place

Accommodation & care futures
BESiDE
DWELL

Co-design
DWELL
Mobility, Mood & Place
BESiDE
Street Mobility
BIOPICCC

Public / green spaces
Mobility, Mood & Place
MyPLACE

Solutions for the impacted people

Can improve mobilty

Getting to & from green spaces

To get to care homes

Importance of lived experience

Improved health & wellbeing for an ageing population

Understand how buildings are used

To improve products

Improved concentration with time spent outdoors

Green spaces…
• in care homes
• near care homes

Make the space work for those who will use it

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Understanding behaviour & the impact of perception

● What does the research tell us?

The key challenge for those looking at the big picture of our increasingly ageing population and the impacts of the built environment on their health and wellbeing is to consider a shift in their perceptions. Instead of seeing our ageing population as a problem to be solved through solutions such as specialist housing, the aspirations and knowledge (and spending power) of older people should be viewed as an opportunity to deliver the next generation of mainstream high quality and sustainable homes, and to regenerate our neighbourhoods and urban centres.

Changes in an older person's life such as giving up driving, starting to live alone, or living with a physical impairment or sensory loss have an impact on mobility. Mobility, however, is enabled or constrained not only by the design of the built environment, but also by the impact of the attitudes and behaviours of service providers and the wider public.

To get a good understanding of how older people utilise their spaces, there are systems of sensors and smart devices to collect data about residents' movement and activities. In tandem with qualitative methods, such as walking interviews, this can tell you how time is spent, where physical activity and social interactions occur. This can be particularly valuable data when making decisions around design or building requirements.

Even a short walk can lift the mood if the environment is sufficiently varied. Green spaces seem to be restorative, offering a respite from the tiring demands that busy urban places make on our directed attention. Older people walking between different types of urban environments show changes in their emotional response to place, based on brain activity patterns.

66 It is important to capture the voice of the users – older people themselves are the voice of authority, with insights into the importance of having and retaining some control over their way of life, and the need for satisfactory relationships within the constraints of a communal lifestyle **99** **BESiDE**

● What we can do about it?

It is critical to remember that older people range in their needs, they are not a homogenous group.

There needs to be a stronger emphasis on addressing the impact of attitudes and behaviours amongst service providers and the wider public on mobility in later life – and at this strategic level, the opportunity exists to explore the need for more explicit national guidance in the way we plan and design our homes and neighbourhoods for an ageing society and the role of awareness raising strategies and techniques to support the adoption locally by local authorities and their partners. This, in turn, requires greater leadership in engagement with industry leaders and local stakeholders, including older people, to respond to reviews, act on innovative practice and engender change.

Accommodation & care futures

● What does the research tell us?

The design and layout of where older people live can help them to be more active day-to-day. Designing for these varying mobilities follows these five principles that allow ageing individuals to balance continuity and change; movement and stillness; independence and interdependence; and maintain openness and active involvement in decision-making.

There needs to be a wider focus in the housing market beyond first time buyers – downsizing or rightsizing in later life has an important role to play in supporting people to make the positive choices to improve their quality of life and future. A dramatic expansion of this form of housing could also play a vital role in creating and sustaining age-friendly mixed-age neighbourhoods and communities that support people to remain active and engaged throughout their third and fourth age.

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future wellbeing. A dramatic expansion of this form of housing could also play a vital role in creating and sustaining age-friendly mixed-age neighbourhoods and communities that support people to remain active and engaged throughout their third and fourth age.

Some specialist housing is lacking in terms of design ambition and quality, and is geared towards somewhat conservative notions of what older people want and need, rather than the aspirations of future generations. This includes the location of specialist schemes (often on the fringes of towns and villages), space provision in private apartments (often too small to accommodate guests and extended families), the environmental design (poor daylighting and ventilation), the types and provision of communal spaces (often based around the nursing home concept of the residents 'lounge'), and the overall approach to fit-out and interior design (very prescriptive and institutional in feel). There is a risk that many of these schemes will not appeal to future generations and may become hard to let, hard to sell or require expensive remodelling or refurbishment.

66 We may be reaching a tipping point in terms of attitudes towards downsizing. There is clearly strong demand amongst a substantial proportion of third-agers, but the supply and choice of downsizer homes is being stymied by a lack of innovation and a failure to deliver joined up housing policy. 99 DWELL

● What we can do about it?

PROJECTS:

BESiDE
DWELL

For those operating at the strategic level, it is important to create links with local authority housing and planning departments, housing associations, developers, architects and local community networks such as access groups in looking at particular age-friendly design and building requirements that will impact on the positive ageing and mobility in the built environment.

When observing a week in the life of a care home, five characteristics were concluded of supportive care home buildings … legible, traversable, interconnected, aesthetic and diverse. How applicable are these for independent living too?

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The importance of choice – co-design

In recognising that older people are not a single homogenous group, it is also important to recognise that they have tremendous lived experience that can positively influence the discussions around their surroundings and lifestyles.

● What does the research tell us?

Capturing the voice of the users – community residents themselves were the voice of authority, insights into the importance of having and retaining some control over their way of life, and the need for satisfactory relationships within the constraints of a communal lifestyle.

When co-designing for age-friendly buildings, spaces and communities, there are many opportunities relating to technology that will improve skills and enhance the understanding of all involved. These range from simple drawings and model-making activities to community mapping, the use of Photovoice, and more technological solutions such as GIS.

Investing time in relationship building is critical, and often this does not mean just attending a care home and asking questions straight out, as these discussions can be too remote for residents to engage with. There are techniques around supported conversations, the use of craft, and picture cards that will help you engage with older residents.

66 Third sector organisations are increasingly turning to community-level initiatives to increase service user participation in the design of services. 99 **MyPLACE**

● What we can do about it?

Talking to older people directly about what is significant to them (as both service users and local assets in terms of local knowledge and informal support) needs to be integrated with the more formal and technical knowledge of professionals, service providers and academics.

PROJECTS:

BESiDE
BIOPICCC
DWELL
Mobility, Mood and Place
Street Mobility

Co-design in the built environment for positive ageing and mobility can include a range of experts including the older people themselves, plus planning, design, health, geography, sociology, gerontology, transport specialists, developers, futurists, technology developers, and the list goes on! Design examplar from Mobility, Mood and Place can be found on their website.

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Transport

From across these research findings, those relating to improving transport are specifically relating to cycling, walking and also mobility scooters. But there are also findings relating to the resilience of these transport systems, particularly how important they are in ensuring continuous care for our older populations, whether this be in a care home, access to a range of services in primary or secondary medical care as well as social and community facilities, or care on the move services.

66 Resilient transport systems and mobility infrastructures are highly significant for continuous access to care for chronic illness, especially given that 'extreme events' such as flooding are becoming more common across the country. 99 **BIOPICCC**

When choosing where to walk, older people value things like colour and wildlife, opportunities for social contact, and familiar places, especially those linked to key memories.

Older people are more likely to have mobility limitations, and people with mobility limitations were significantly more likely to report that various problems often or always affected their ability to walk locally.

Greater consideration in policy needs to be given to 'care on the move' and the role that transport and the wider built environment play as sites where care and support takes place.

66 In addition to the benefits of physical activity cycling offers the potential for positive experience through engaging with landscape, fostering personal relationships and maintaining social contact with the outside world. In combination, this can provide a significant contribution to health and wellbeing. 99 Cycle BOOM

Specifically relating to cycling are the following points:

- Despite this, cycling remains desirable among a small but significant minority of older people who have or are managing to prolong cycling under specific circumstances of their choosing 'partial cycling', and cycling is regarded as dangerous and the majority of the older population is therefore reluctant to cycle.

- Cycling also often becomes more difficult for people as they get older because of an ageing body, unsupportive built environment and technology ill adapted to their needs. To perform everyday cycling mobility often requires tremendous physical and emotional labour and therefore a willingness and ability to develop resilience. Older people's cycling is therefore precarious and a generation that has already acquired cycling skills and a positive regard to cycling is diminishing.

- There is a significant potential market of older people contemplating cycling as part of a personal project for healthy ageing particularly given the growth in the availability and popularity of power-assisted cycles (e-bikes).

Incorporating technology with the transport options, a mobility scooter pilot study developed new sensors and low cost mobile devices to provide an improved basis for understanding the issues faced by mobility scooter users. A pilot study also identified a number of key areas for future research into improvement to urban planning as well as mobility scooter design that could provide solutions for improved wellbeing and mobility for scooter users. The key areas included the themes of technology, safety and accessibility.

In looking at walking as a method of transport, there are barriers to increasing the rates of walking amongst old people. One particular barrier is that of community severance, where the set-up of the road prohibits effective walking:

- When faced with a busy road, older people were more likely to report a time waiting to cross of over 30 seconds.
- Older people have a strong aversion to using footbridges and underpasses.
- Older people attach a higher value to their ability to walk to where they need to get without severance.

66 Busy roads will deter people from walking along them or crossing on foot, and this severance also reduces the desirability of streets as social spaces. **99** **Street Mobility**

● What we can do about it?

PROJECTS:

BIOPICCC
Cycle BOOM
Co-Motion
Street Mobility

In urban areas where the 'car is king', it is important to improve the transport and mobility options for our older populations by considering that this multi-tiered process requires a lot of planning and design. These discussions should start early and include the voices of the older populations as well as incorporating the findings from this research to mitigate problems experienced when cycling and using mobility scooters as well as ensuring that road planning takes into account the ease at which pedestrians can cross from one section to another.

Green spaces

Access to green spaces, particularly in an urban context, may have beneficial implications not only the health of our ageing population, but all of the others stages along the way. That feeling of freshness and the positive effect on mood and brain activity has been shown through this research.

● What does the research tell us?

Four qualities of place really make a difference to quality of life: access for all, access to nature, access to others and access to light.

The mundane matters and the commonplace counts! Everyday things, such as pavement quality, benches and street lighting, can make all the difference as we get older.

Even a short walk can lift the mood if the environment is sufficiently varied. Things like colour and wildlife, opportunities for social contact, and familiar places, especially those linked to key memories, are highly valued.

Well-designed environments can support older adults who have experienced a stroke to engage in, and return to, the activities they value.

Healthy ageing is influenced by local environments throughout our lives, beginning in childhood. Features of the environment – such as nearby access to public parks – can have lifelong positive associations with healthy ageing and in particular, with better cognitive health in later life.

> **66** Green spaces seem to be restorative, offering respite from the tiring demands that busy urban places make on our directed attention. Older people walking between different types of urban environments show changes in their emotional response to place, based on brain activity patterns. **99**   **Mood, Mobility and Place**

● What we can do about it?

PROJECTS:

Mobility, Mood and Place
MyPLACE

There are implications for the way we design our public spaces to ensure that people of all ages, and levels of mobility, can continue to get out and about. This may be at a strategic policy level, or decisions at the local authority level, and especially relevant to those who are providing the ways in, out and around public green spaces, including the easy of which people can cross roads to access these spaces.

Technology & toolkits

An evidence review by Age UK of the benefits of technology for older people identified areas including:

- reducing loneliness and isolation
- being in control
- living independently
- participating and contributing.

However, it cannot be assumed that any technology will necessarily be easy for an older people to learn. A very useful approach is the co-design of applications and toolkits that will involve people at all stages of their design, this will ensure technologies such as smartphones and tablets are useable and acceptable.

● What does the research tell us?

Diverse approaches to participatory mapping offer the potential for more inclusive ways of taking forwards public engagement in identifying local priorities for changes to the design and regulation of the built environment.

In fact, carers themselves are ready to engage with technology when it makes sense in the context of their lives and when it ameliorates the lives of those they care for. Although some carers were hesitant about places advertised as 'dementia-friendly' because although they did not want to have places created for them which would effectively segregate them.

❝ The design and evaluation of a "Walking for Wellbeing" application for smartphone, which allows older adults to plan walking routes in their local area, highlights how this process can be used to develop an app to prototype. ❞ Co-Motion

● What we can do about it?

Co-design! Co-design! Co-design! It is important not to create solutions on behalf of those intended to receive the benefit. For example, with wearable research devices – to enable people to engage with care home residents, the off-the-shelf wearables or monitoring devices were personalised as appropriate for them.

In particular research looking at an application that would list dementia-friendly places within a given locality, the overall response was generally positive. But found the lack of depth and specific information in the current application somewhat disappointing. They indicated that longer reviews and more targeted information would be welcome.

PROJECTS:

**Co-Motion
MyPLACE
Street Mobility
BIOPICCC**

By using technology to map activity 'hot spots' in the care home, it creates an understanding of when and where different types of physical activity and social interaction take place. This is valuable information that can be used by those planning the care facilities to understand what the environment needs to support an ageing population.

Toolkits looking at local level resilience planning can help organisations providing health and social care services; emergency planning forums; voluntary organisations, especially those involved in the care of older people; community groups; and older people and their carers.

And next steps…

The information provided includes important considerations across a number of themes that are also very closely intertwined, as you will see from the diagram on page 5. Some of the findings may be stating the obvious, however, these research projects not only create new knowledge, but sometimes reaffirm the status quo. Both are equally important.

Beyond introducing this suite of findings, the ARCC knowledge exchange network would encourage readers to look across the different themes, and further into each of the research projects as there are many important contributions towards using our built environment to improve health and wellbeing for the ageing population.

Adaptation and Resilience in the Context of Change (ARCC) network

UKCIP delivers the ARCC network to provide a UK-wide network to develop and exchange knowledge and evidence to inform policy and practice. Funded by the Engineering and Physical Sciences Research Council (EPSRC), the network supports the creation of robust built environment and infrastructure sectors within the UK, to deliver benefits to society, the economy and the environment.

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