Designing for well-being + mobility in environments for later life

Project Framework

July 2014 DRAFT
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Designing for well-being and mobility in environments for later life

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Introduction

The DWELL research project has been funded by the UK Research Councils\(^1\) to carry out innovative research into housing and neighbourhood design with older people, and specifically how this could facilitate the mobility, connectivity and wellbeing of older people in Sheffield.

**Purposes of the Project Framework**

The DWELL Project Framework document builds on the original Design for Well-being bid documents (originally submitted in 2012), and sets out the baseline assumptions and guiding principles for the DWELL research project. The document has been generated through a detailed literature and policy review, alongside discussions with the DWELL Advisory Group and other stakeholders throughout the first 6 months of the project.

The Framework begins by outlining the key conceptual frame of 'relationality', as well as developing the conceptual definitions of mobility and wellbeing and our research methodology. Following this, the second section presents an ongoing review of recent policy and literature. Combined with this review are a series of our assumptions about the built environment – the way it is produced and used, an outline of the key changes that we and others view as important to enhancing well-being and mobility of older people, and an understanding of the drivers that effect (and mitigate against) these changes.

The Project Framework is a working document that will continue to be developed and refined throughout the project. They are intended to be read in tandem with the 'neighbourhood briefs' that are currently under development in collaboration with local participants in three neighbourhoods in the city of Sheffield, UK.

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\(^1\) The project is funded by the Engineering and Physical Sciences Research Council (EPSRC), the Economic and Social Research Council (ESRC), and the Arts and Humanities Research Council (AHRC) through the Lifelong Health and Wellbeing (LLHW) cross-council initiative.
Research aims

DWELL research aims to establish how better design can improve people’s mobility, and well-being in later life. It will do this through a participatory approach to design research. It seeks to address the challenges, but perhaps more importantly, exploit the positive opportunities presented by an ageing society, focusing particularly on enhancing mobility and improving mobility and well-being. This requires a deeper understanding of the role played by design of built environments (at various scales) in meeting these challenges.

There are two interrelated aims:

- develop a series of prototype design interventions for ‘age-friendly’ housing and neighbourhoods – in a way that will support the mobility of people as they grow older
- develop and promote an understanding of the changes required to implement age-friendly design interventions through institutional and professional frameworks, thereby seeking to improve the way in which design is embedded in the ongoing processes of place management, housing, and integrated service provision.

A further aim of the research is to determine the forms of housing and neighbourhoods that those approaching older age (aged 50+) envisage living in as they grow older. This will help develop a better understanding of the issues that will drive the design of the next generation of housing for future generations who are more likely to live to a very old age. Population projections have forecast that the over-85s will be the fastest-growing population group over the next 10-20 years, and that a much higher proportion of people might expect to live to the age of 100. As such, the experience and input of a range of age groups into this research will be crucial.

Conceptual approach

In research, a conceptual approach provides a lens through which a particular issue is viewed. A conceptual approach brings with it particular assumptions about the way we view the world (ontology) and about the way knowledge is created (epistemology). It influences the research questions which are asked, the methods used for investigation, and the way data is analysed.

This applies in particular to the early part of the DWELL project’s data collection with older people in their homes and neighbourhoods, but will also inform the brief writing and design work. Because of the DWELL project’s multi-disciplinary and collaborative nature we

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1 By 2035 it is projected that the number of people aged 85 and over will be almost 2.5 times larger than in 2010, reaching 3.5 million and accounting for 5 per cent of the total UK population (Office for National Statistics, 2012).
consider it vital for the team to consciously reflect on and articulate the conceptual approach used in the project, its assumptions and its resulting methods.

The approach which is related here is the result of literature reviews, professional experience and discussions between members of the DWELL team. The researchers have taken a fairly pragmatic approach to choosing the conceptual approach based on a) the aim of the project; b) its proposed methods (PAR); c) our own experiences and values in relation to research in general and ageing issues in particular; d) the ability to develop grounded yet flexible solutions in a fast paced world, and e) opportunities for innovative contributions to academic debates around governance, mobilities, environments and ageing.

If you have any questions or comments regarding the approach please get in touch with us at dwell@sheffield.ac.uk, or visit the project website at dwell.group.shef.ac.uk.
**A relational approach to housing and neighbourhood design**

Over the last decade a relational approach has been developed in several diverse disciplines such as geography (Thrift, Massey), environmental science (Ginn and Demeritt 2009), architecture, planning (Graham and Healey 1999), and sociology (e.g. Urry, 2000). It is based on recognition of the fast paced and constantly changing nature of 21st century societies. In a post-structuralist world there is no longer a single truth to be discovered. Instead there are multiple truths which are situated in their specific contexts. A traditional functionalist or structuralist approach considers societies or places in terms of static forms and generaliseable rules and norms. For example, it considers the architecture, environment and space as static and as the backdrop for and determinant of human action. In contrast, a relational approach situates spaces and places as emerging and fluid processes in their specific material and non-material, but ever-changing contexts. Back in 1999 Graham and Healey emphasised the way in which “spaces and times are effectively produced and created through social actions within and between places” (Graham and Healey, 1999, p. 627). They called for planners to acknowledge the complex web of socio-spatial relations which dynamically govern spaces, and to incorporate this into their planning practice in order to address the challenges faced by our fast-changing cities.

Thrift defines a relational approach to space as “undergoing continual construction as a result of the agency of things encountering each other in more or less organised circulations.” (2009; 86) He goes on to explain a relational view of space “in which space is no longer viewed as a fixed and absolute container within which the world proceeds. Rather space is seen as a co-production of those proceedings, as a process in process.” (2009; 86). This view of the world, or ontology, thus emphasises the value of studying specific everyday practices situated within their context as these processes create as well as express the lifeworld of individuals (epistemology). Through their cumulative effects these small-scale processes and interactions then come to constitute systems, cities or societies. Latour (2005) in particular studies the world in terms of interactions between the material and non-material: people and things (physical objects or policies and procedures), through their agencies and interactions, continuously re-constitute the world we live in.

**Why is this relational approach particularly suited to the DWELL project?**

I. Link with project approach and aims

The project takes a holistic view of older people’s environments as a seamless whole across different scales, from the home to the street and neighbourhood, to the city. The emphasis is on understanding and enabling movement between different scales. A relational approach can view movement across scales as part of a whole system approach and thus enable the development of an understanding of domains of mobilities as they for example contribute to different aspects of well-being. For instance movement across the private/public threshold between the home and the street enables a balance between an individual’s need for both solitary and sociable activity – a core component of well-being.

The project also aims to gain an understanding of the policies and practices which underpin the commissioning, design and management of housing and the wider built environment. A relational approach will enable an understanding to emerge about the underlying practices
and processes, and how these practices and processes are interlinked with the material conditions within neighbourhoods and the everyday lives of older people.

II. Conceptual links

1. Ageing and the lifecourse: The ageing process is accompanied by the individual’s increased awareness of the continual and dynamic relationship between continuity and change. Individuals speak of a high level of uncertainty regarding the ageing process and the future that lies ahead. Whilst some like to remain in control and plan ahead carefully and move house in anticipation of changing needs, many take no action until a crisis occurs which requires urgent action and may necessitate a sudden move. Research shows that older people adapt better to housing transitions or environmental change if they have had some control over the process and if they have been able to carefully prepare for the change. The paralysis that many people are subject to in relation to planning their future housing needs are potentially linked to the discourse around ‘ageing in place’ which is based on the assumption that change is bad and that older people should remain in their own homes as they grow older. This is linked to the idea that people develop an emotional and sensory attachment to their homes across the lifecourse which has a positive influence on their well-being in later life. There also seems to be an expectation that support will be provided to enable the person to stay in their own home. A relational approach will enable us to critically examine the interplay between these discourses, the house as a home and related practices and how these might play out for future generations of older people.

2. A relational approach to mobilities, well-being, ageing and the environment: Traditionally the term mobility as ‘movement through space’ has been understood in two main ways in the context of the ageing individual - firstly it was used in health research and medicine to describe and measure older people’s physical functioning, for example their ability to negotiate steps. In this context the emphasis is on the individual’s physical capacity to independently carry out activities of daily living which impacts on their well-being. The second meaning of mobility and ageing has been developed in the context of transport. Studies have investigated older people’s travel and transport needs and behaviours. Mobility is understood as movement from A to B, i.e. the goal-directed overcoming of distance between two points in space. Here the emphasis often was on the mode and patterns of travel, for example in relation to safe driving of older people or walking within neighbourhoods.

In the context of built environment design a combination of the two conceptualisations of mobility is often employed, the assumption being physical functioning is impaired and that barriers to physical movement are removed to enable the older person to carry out activities of daily living (ADLs). This has also been taken up by gerontologists (Peace) based on Lawton’s Environmental Press model (REF). Much empirical work on older people and the environment uses this ‘barrier’ approach which assumes that the environment can be designed to remove such barriers and thus enable mobility. Much of accessibility guidance is based on this approach to providing solutions in the built environment.
Since the ‘mobilities turn’ in the social sciences (Sheller and Urry 2006) a broader and more critical and nuanced conceptualisation of mobility has been developed in many fields, including ageing related studies by geographers.

The new mobilities paradigm promotes the idea of a world where people, objects and information are in continual inter-related motion. This new mobile world had to be understood in terms of ‘flows’ and processes. Rather than being a static structure, places thus gained meaning through an ever changing process of becoming constituted by the movements and interactions of people, objects and information within, between and through them (Urry 2007).

Mobility was thus understood on the one hand as empirical, i.e. as actual movement through space to overcome physical distance; and on the other hand as metaphorical, i.e. as engaging with difference through imagination, e.g. between self and other, or between here and there) (Frello 2008).

Researchers also began to examine the discursive and socio-political context in which mobility occurs (Frello 2008; Cresswell 2006; Adey 2006). Cresswell argued for example that the term mobility expressed the social character of movement which is produced and given meaning within certain ideologies. For example who can, should or wants to move, where and when is dependent on the provision of and access to transport, resources, social-cultural values and norms, networks etc.

Based on work carried out during by Ziegler (2010), mobility in later life is important for maintaining independence which also moderates the relationship between mobility and well-being. However, I also found that as people become less physically mobile the emphasis changed to a more social, emotional or psychological connection (even a spiritual connection) with the world. We know for example from the theory of ‘gerotranscendence’ (Tornstam 2003) that those older people who ‘age successfully’ undergo a change in outlook on life (a change in meta-perspective). Whilst these individuals may withdraw and value ‘solitude’ at times, and simple activities, they also begin to engage with the transcendent aspects of life, i.e. a connection with a higher consciousness, with nature or with humanity as a whole. A relational approach to mobility therefore defines it as engagement with the world. This mobility does not necessarily require physical activity or physical exertion or movement, but can include sitting in a chair and reminiscing (an engagement with the past), or watching the birds in the garden, the children on the playground, or reading the newspaper.

This relational understanding of mobility affects not only our understanding of mobility itself, but also how we understand older people’s interaction with the spaces around them.

An understanding of mobility as engagement with the world moves us away from a functionalist to a more critically phenomenological approach, which means that enabling older people’s mobility is not just a means to an end; it has to be understood in terms of the sensory, emotional and psychological experience of movement itself (Norbakke and Schwanen 2014); as well as being critically examined within their own context as the performance of social norms and related power relations.
In addition, the investigation of older people’s interaction with spaces around them benefits from this relational approach as it opens up a new way of looking at the changing processes of people’s engagement with the world as they age and as the environment around them changes. As people age their mobility and engagement with the world moves from more direct and physically based activities to more indirect, metaphorical engagement based on a psychological openness to difference (Ziegler and Schwanen 2011). Thus the question regarding design is how we can enable not only accessibility in terms of the physical design of steps or slopes, but also in terms of spaces that enable a more indirect or metaphorical engagement with the world in order to enable the ageing individual to maintain a psychological and emotional connection with people and places around them.

3. Understanding neighbourhoods: Much of an older person’s daily life is assumed to be carried out within the neighbourhood context (Scharf). Although it has become a truism among gerontologists, this assumption is however based on limited empirical evidence. It is generally assumed that older people spend more time in their neighbourhoods and will be more likely to access local facilities and services than other age groups. In addition it is assumed that older people will have developed social and support networks within this context which can enable them to remain living in their own homes for longer. Research based in Manchester (Ziegler 2012) has shown mixed results of older people’s relationships with their neighbourhoods for a number of reasons: neighbourhood physical layout, structure, relationships and mix of residents, especially in urban areas, can change drastically over an individual’s lifetime, leaving the older person adrift in an unrecognisable and alien physical and social environment; in addition, and in common with much of the population, older people are now highly mobile and no longer limited in their activities by distances; car travel and the free bus passes have contributed to older people spending more time away from their local environments. A careful and critical relational analysis can help to uncover some of these practices and processes and how they may challenge our assumptions about the meaning and possible future function of neighbourhoods in later life.

III. Links with Research Methods

1. Agency and participation: A relational approach emphasises that practices are performed by material and human actors and as such can be changed through a process of awareness raising and understanding. Rather than being the passive victims of an increasingly oppressive environment a relational approach understands older people’s well-being and mobility in the context of an interplay between their own actions, the physical environment and socio-structural processes. The DWELL project aims to involve participants in all aspects of data collection, analysis, design and dissemination of the research. As active agents participants in the project will be encouraged to critically reflect on their own practices in this context and to pro-actively develop actions which address all aspect of the system which affects their own well-being now and in the future. A relational approach considers that places are created through everyday practices in space and this material environment in turn influences everyday practices. In addition, within the research and design process we also have to be aware of these interlinked processes as they may influence the participatory process.
2. Co-design as relational practice: Building upon participatory research traditions in the social sciences and the emerging field of co-design, DWELL research employs expanded conception of participation. This approach foregrounds the importance of first-hand 'embodied' experience in understanding cities — grounding design and planning activities in the issues that local people feel are important in their city or neighbourhood. This approach highlights the knowledge held by people as experts of their own locality — alongside professional expertise, and views local people as positive agents of change. This approach offers a potentially challenge entrenched top-down 'expert-led' practices and decision-making processes.

Further details of the project's approach to co-design are set out in the Research Methodology section.

VI. Link with team values

1. Challenging ageist stereotyping and the politics of everyday life: Older people often say they feel disconnected from present day society. The dominant dualistic stereotyping of ageing in terms of either societal burden, decline and frailty or in terms of healthy and active ageing fails to adequately reflect most older people’s everyday experience (Warren, Walker). A relational approach will on the one hand aid in an understanding of how these stereotypes are continually reproduced (e.g. by segregating older people in care homes at the edge of town), but it will also allow us to challenge those stereotypes and through participants’ own reflections and agency develop new and alternative discourses, environments and practices which express the complex lived experience of being an older person in a post-modern urban environment. This may for example include the development of more participatory processes of governance and the recognition and celebration of older people as valuable members of a city such as Sheffield.

2. Recognising inequalities and diversity: Sheffield is a highly diverse and socially unequal city. The DWELL project deliberately chose to engage with this diversity because it represents current and future generations of older people. A relational approach can aid us in highlighting diverse everyday practices, experiences and local conditions and compare these between areas. It can also help us to critically reflect on the practices, processes and structures which re-produce place-based inequalities across the lifecourse. For example we may explore how people in different areas connect to their physical environment in terms of feelings of ownership and control, and on how processes of governance influence this relationship.

3. Recognising future uncertainties: relational researchers speak about the contingent nature of our modern world: because of increasingly globalised processes, even the local is subject to increasing levels of uncertainty. In addition, in our fast-paced world, change arrives fast and the ability of organisations to keep abreast of happenings is dependent on their vision and flexible approach. Whilst we now recognise that population ageing will have a significant impact on our society, there is still uncertainty of the exact effects this will have and what measures can be put in place to ‘deal with it’ in an austere economic environment. However, the future of the welfare state has been questioned, and many individuals feel equally uncertain about planning for their retirement (Age UK 2014). Rather than ignoring those
uncertainties, a relational approach can help us to uncover and understand them and their paralysing effect on individuals and society.

V. Link with academic debates: innovative contributions

1. Mobilities and ageing- balancing flows and stasis: Within the mobilities literature there is an emphasis on movement and flows. However there is now increasing critique of this over-emphasis which for example ignores the sedentary aspects, continuities and constants in older people’s lives and the built environment. Few mobilities researchers have specifically engaged with issues around ageing (except Schwanen, Gatrell, REF) on a conceptual level. His project may be able to contribute to the debate by developing a more balance approach which combines a sedentary and mobile metaphysics.

2. Mobilities as embodied practice in later life: Equally the project may contribute to debates around the embodied practices and sensory experiences which shape mobilities in later life and vice versa.

3. Co-design with older people: There is little evidence of the engagement of older people in design research, and specifically in co-design. This project may report on the relationalities of co-design with older people to broaden the evidence base and discussions in the literature.

VI. Link with solutions

Development of integrated, flexible solutions: Ageing is a highly individual and complex process subject to a variety of influences. Solutions which truly enable mobility and well-being in later life for all sections of society are therefore likely to be based on a holistic, yet flexible, approach which considers all aspects of built environments and processes, and on a critical reflection of societal and individual attitudes and practices.

Research methodology

The project proposes participatory design research as the overarching methodological framework. Design perspectives, tools, and methods are rigorously employed to understand the well-being and mobility of research participants in relation to their socio-spatial context.

Participants (people aged 50+)

Research with older people commonly refers to adults over retirement age (60 / 65 and over). However in recent years, and as part of a ‘lifecourse’ approach, many organisations (such as Age UK) have lowered the age of their clientele to 50+. While many people in their 50s and 60s are unlikely to describe themselves as ‘older’ or ‘old’, this approach enables organisations to take a long-term preventative approach to ageing and age-related issues.

The DWELL research project expands the range of participants to include adults aged 50 and over – as the project is seeking to gain a wide range of perspectives on the different ways in which the design of the built environment might impact on an individual’s well-being and mobility. For this reason participants in the DWELL project will NOT officially be referred to as ‘older people’. Instead we will be working with ‘residents over the age of 50’.
Design research

Design research can be described as a creative methodological approach where design methods and design thinking - also referred to as the ‘design process’ - are employed to produce new knowledge and insights (Fraser, 2013). Within the fields of architecture and spatial design, the design process can manifest in many different ways, although it might be thought of as broadly consisting of the following activities: mapping and surveying, developing a design brief (typically with a client, end-users, and other stakeholders); developing design concepts through research and prototyping (sketching, drawing, and model-making); a process testing of testing and reflection on the success of prototypical designs against the criteria set out in the brief (Lawson, 2006). Design research is therefore characterised by the cyclical processes of design and reflection, where ideas are (tentatively) put forward, tested, and refined. Fundamental to the production of knowledge within design research is an ability to reflect critically on the process - or as Schön describes – ‘reflection-on-action’ and ‘reflection-in-action’ (Schön, 1983).

When applied to complex urban site and urban problems (such as the design of age-friendly housing and neighbourhoods), design research requires the input and participation of a number of different stakeholders (including other academic fields, professionals, local authorities, and residents). The nature of the knowledge production involved in this process is therefore inherently interdisciplinary and collaborative, and involves an integrated process of mapping space and conceiving new transformations (Servillo and Schreurs, 2013a, p. 361). In order to develop appropriate methods and tools that specifically address a particular problem or urban context, a design research approach requires different stakeholders to work together over extended periods (Servillo and Schreurs, 2013b, p. 359). Although its collaborative nature is generally portrayed as a positive aspect of applied design research, it is important to be aware of the challenges of bringing together researchers, practitioners, and other stakeholders (including local residents) who may have competing priorities and demands. The particular challenges of working with groups and individuals of different social and cultural backgrounds, levels of education and expertise

Finally, design research can be characterised by the value it places on a range of research outputs and forms of dissemination. While this might include more traditional written reports and academic outputs, the knowledge produced by design research is also embodied within the design work itself, which may manifest in propositions, drawings, models, narratives, and prototypes. In this sense design research can be seen as a close relation of applied or ‘practice-based’ forms of research in the arts. Art or design practice can therefore be viewed as a form of research in its own right, but also as a process that generates research insights that might be documented, theorised and generalised (Smith and Dean, 2009).

Co-design (participatory design)

Community participation in the processes that shape urban built environments is an issue that has been discussed extensively within the fields of urban planning and regeneration. Nonetheless, terms such as ‘participation’, ‘community engagement’ and increasingly ‘co-production’ are used to describe a number of different processes and range of political and
practical objectives (Bailey, 2010, p. 318). Formal participation methods within the planning system are often articulated as a one-way process, with local people invited or 'induced' into participating by 'expert' design consultants or local planning authorities (Burby, 2003, p. 44). Much of the literature on participation within the field of urban planning is therefore focused around pragmatic concerns and methods to assess the effectiveness of top-down participatory policies on the ground (Tallon, 2013, pp. 5–6). Despite policy interventions from successive governments (see later discussion of Neighbourhood Planning), a range of critics have argued that levels of community involvement in the production of the built environment frequently fall short of the rhetoric (Burby; Bailey, 2010; Till, 2005). Others have warned of the limitations of 'outdated' modes of participation – for example those that impose hierarchical decision-making structures or those aimed at merely canvassing local opinion on the proposals of professional consultants (Baker et al., 2007).

Co-production (a relation of co-design) has already gained significant attention as an approach in the design of services in areas such as healthcare (Boyle and Harris, 2009). Compared to other fields of design, architecture and planning have been relatively slow in exploring the opportunities associated with co-design (Sanders and Stappers, 2008, p. 16). The approach of participatory design research or 'co-design' aims to extend these limited conceptions of participation, with end-users (i.e. local residents) involved as co-designers or co-producers of knowledge. A wide range of researchers and practitioners in this field have identified the value in designing with people - as experts of their own situation, needs, and local environment (Aked et al., 2010; Handler, 2014).

Examples of co-design within the context of urban built environments can be identified in the work of architectural practices such as Public Works and MUF, who often employ methodologies from art practice – including narrative and performance (Rendell, 2006). There are also a number of examples of participatory design research in an education context - with children, young people and teaching staff becoming involved with the co-design of new learning environments (e.g. Parnell et al., 2008). Limited documentation of applications in specialist housing - e.g. (Verma, 2013)

Narrative or storytelling have been identified as processes that has particular potential for participatory engagement with local places and environments. Authors such as Forester (1999) have highlighted the value of participatory settings that are open, evocative and demonstrative - with opportunities to address one another and avoid the narrow purposiveness of formal participatory methods. Others have built upon this work to propose storytelling as potentially productive tool within architectural and spatial (co) design (see Chiles, 2005; Till, 2005). In a participatory setting, storytelling or narrative can engage non-professionals on a more equitable footing - humanising the process of spatial negotiation and bringing more open-ended and imaginative ideas into play.

Within this research framework, design activities are combined with more recognisable qualitative research methods from a participatory action research (PAR) methodology. These two methodological approaches operate together, complementing and informing each the other throughout the research process. Participatory action research is defined as... and has been applied in many different contexts (REF). PAR principles encourage a critical engagement of all stakeholders in the research process, from analysing and questioning the
status quo to developing solutions through a collaborative and reflexive learning process (Kindon et al 2007).

A participatory approach therefore underpins all of the activities undertaken on the project. Participants are central to the research process as co-researchers, with involvement across the cycles of briefing, design, and testing. One of the additional aims of this project is to document and evaluate this process, and the outcomes of older people’s participation in the research and design processes (e.g. development of skills and mutual learning opportunities).

The DWELL project aims to make changes to how neighbourhoods and housing are designed to enable people to age better in their communities. PAR methods are particularly suited to a neighbourhood or community approach which aims to address specific ‘problems’ or issues and develop sustainable solutions by bringing together residents, researchers and professionals as equal stakeholders in the research process. The DWELL project will be based on the following PAR principles: PAR is a process of ‘becoming’, it is not static and has no fixed end point; it is a constant process of learning and negotiation; the relationship between participants, researchers and other stakeholders is based on respect and dialogue; knowledge is created through the interactions between participants, stakeholders and researchers; actions are based on the knowledge and reflections of all involved.

Researchers have discussed the specific issues of doing PAR with older people in a neo-liberal political environment (Ziegler and Scharf 2013) in which older people are increasingly regarded as resources for their communities which may be expected to replace services delivered through statutory agencies. Whilst PAR with older people is not without its challenges (e.g. Ray 2007), it can have a positive impact not only on participants, but also beyond through challenging societal stereotypes and norms, if it is carried out beyond a token effort and done sensitively and reflexively (Warren 2012).

**Phase I: Existing neighbourhood environments and mobilities**

Initial **data collection** will aim to establish current barriers and enablers of mobilities in urban neighbourhoods. Data collection methods will be developed in collaboration with participants based on the following principles: openness to all types of data, information and knowledge; the lay person is the ‘expert’; there is no single truth or reality; consideration of multiple and contradictory points of view. Methods may include focus groups, interviews, visual methods, diagrams or mapping, observations, questionnaires.

The data will be **analysed** in an interactive process between participants and researchers. The process is based on the following principles: A collective production of knowledge; is a situated and inductive analysis process grounded within the research process; results are verified by all participants; particular attention is given to differences, contradictions and tensions within the data which may reveal hidden conflicts and inequalities (e.g. in communities); data analysis can involve various scales, from the individual, to community, to the critical exploration of social norms and theories.

Throughout the data collection and analysis process opportunities for **reflection** by participants, researchers and stakeholders will be built in at regular intervals. The reflective process may include consideration of the relationship between researchers and participants;
the researchers’ positionalities; participants’ evaluation of goals, learning and the research process; changing power relations. Outputs of this phase may include for example: development of guidelines for collaborative action; information which will inform the design brief based on the data collected; evaluation of the collaborative research process; dissemination of findings to all stakeholders.

**Phase II: The (co)production of design proposals**

The second phase of participatory work will involve the production of initial design ideas and design responses to the issues identified in phase 1. The design methods employed will be developed in collaboration with participants based on their interests and skills, following the same participatory principles as established in phase 1. Specific design methods may include creative map-making, modelmaking, storytelling, collage, and manipulating photographs and architectural drawings prepared by the design-research team.

The design work produced by participants will be developed and drawn up by the design-researchers and iteratively reviewed by participants, researchers, and other stakeholders. The process is on the principles of collective production of knowledge – where proposals are not ‘owned’ by any one person but emerge through an inductive (and accidental) process of interpretation and discourse (see Till 2005). Particular attention is given to the contradictions, tensions and compromises that are inherent within all (co)design work, and the conflicts and inequalities (e.g. in communities) that may underpin these tensions.

The (co)design process will be documented and will include further opportunities for reflection by participants, researchers and stakeholders. Outputs of this phase may vary in scale and detail depending on the issues identified as important – it could involve the (re)design of public open spaces or walking routes, down to small-scale interventions to address mobility within the home.

**Institutional and professional partnerships**

Alongside the participatory engagement with local residents (set out above), the DWELL project seeks to develop meaningful collaborations with external stakeholders involved in service delivery (including housing, transport, health, and social care) and professional organisations involved in the production of the built environment (including planning and regeneration officers, social housing providers, private developers, architects, and landscape designers).

Of the different agencies and institutions, the local authority, Sheffield City Council (SCC), have been identified as the primary research partner in this research. The City Council are responsible for working with researchers to identify appropriate projects and opportunities that will provide a basis for research. This includes assisting with the identification of suitable case study neighbourhoods for research, providing data and policy documents to the University team, as necessary. As part of this process, the City Council will introduce the University team to other key stakeholders within the city, including council officers, developers, and other service providers. The City Council will also provide input into the brief writing and testing process, working alongside other partners. It is expected that brief writing and testing will be allied (in part) to specific projects and programmes funded by
SCC and their partners, and that the research team will respond (where appropriate) to the specific research questions identified by SCC as important in improving the health and wellbeing of older people.

The DWELL research team recognise that the local authority are ultimately responsible to the people of Sheffield, and have a range of statutory and contractual obligations that will need to be factored into the collaborative work. The collaborative nature of the research project means that the overarching objective of enhancing the environment for older people’s health and wellbeing is shared by both SCC and the University. As such, collaborative work will seek to identify projects and opportunities that are both beneficial to the Council and to the research aims of the project. However, it is also recognised SCC projects and the DWELL project may work according to different targets and timescales, and careful negotiation will be required to ensure that both types of projects are able to deliver according to their stated outcomes. Moreover, the scale of the issues faced by the local authority in reforming service delivery (see Part 2) means that the both SCC and the DWELL research team will need to be selective in the scope of projects and issues that can be realistically addressed within the project timescales. Clear communication of timescales and resources available will be the responsibility of both SCC and the DWELL research team.

Monthly meetings between DWELL researchers and SCC officers will be a platform to monitor the progress of the research and coordinate the ongoing research with emergent SCC opportunities / issues.
Part 2: Design for well-being and mobility in environments for later life – research and policy review

An ageing population

Much of the current discourse and policy around older people emphasises the challenges posed by long-term demographic and population changes. Like most other Western, industrialised, European societies, the UK population is steadily ageing. Between 2010 and 2051, the proportion of people in the UK aged 65+ is projected to increase from 17 to 24%. Perhaps even more significantly the proportion of the ‘very old’ (aged 85+) is projected to increase from 2 to 7 per cent (ONS).

The ageing of our society is often portrayed by the media and other institutions as an impending ‘crisis’ scenario. This scenario is typically framed in terms of the economic burden on the state (particularly in terms of the costs of health, care services, and pensions) and the required restructuring of the way that local and national services are provided and paid for. In the UK, a national debate has already begun around issues such retirement age and the future provision of health and care services, with implications for national / local policy and legislation (Filkin Report 2013). In the short to medium term a different set of challenges face policy-makers and service providers as steadily growing numbers of older people are living longer - potentially with mobility problems, complex care needs, and/or chronic health conditions. Additional pressures have been placed on a variety of service-providers as a result of so-called ‘austerity measures’, which have particularly impacted on local government funding and adult social care budgets. The National Audit Office has recently declared that the twin pressures of increased demand and squeezed budgets have rendered the existing service models for adult social care as ‘unsustainable’ (DoH and DCLG, 2014).

This somewhat pessimistic outlook can be contrasted to the alternative narratives of an aging society, particularly the notion that our ageing population reflects the levels of health and prosperity that we have achieved as a society. Often framed using the concept of the ‘active ageing’ this discourse highlights the fact that older people can not only expect to live longer, but are more likely to enjoy healthier and more active older years than any previous generation (e.g. http://www.healthyageing.eu/). This perspective also seeks to highlight the important contribution that older people make to society - both economically, socially and politically. A recent report by the RVS estimates that the over 65s make a net contribution to the British economy of around £40 billion per annum. It is also important to acknowledge the vital role that older people play as volunteers in their communities and as carers – particularly for partners or spouses - but increasingly for older parents and grandchildren.
A. Within the DWELL research project, older people are viewed as an asset to society, rather than a burden. This contribution is seen not just in terms of spending power or voluntary work, but in the vital knowledge and experience that older people can contribute. This knowledge is particularly important in the understanding places, and will be central to the processes of producing more inclusive or ‘age-friendly’ urban built environments - places that people want to live and grow old in.

In the media, narratives of active ageing are typically focused on around the current ‘baby boomer’ generation who are now reaching retirement age after benefitting from decades of increasing prosperity, healthcare, education, and social mobility. However there are competing narratives around baby boomers (sometimes also referred to as ‘third-agers’), with both positives (wealthy and healthy, high status, consumers) and negatives (as owning a disproportionate amount of housing wealth, and having benefitted from social policies at the cost of younger generations) (Nazroo, 2014). However economic analysis of the baby boomers’ contribution to the welfare state over a lifetime show that they will benefit approximately as much as they have contributed during their working lives (Hills REF). In spite of the many benefits which this generation is said to have received, social and economic inequalities remain arguably most evident in later life - manifested in the huge differences (in health outcomes, life expectancy, and measures of subjective well-being) between the most and least deprived sections of the population (Nazroo, 2014). Others have argued that the dualistic stereotyping of older people - either as active third agers’ or societal burden – mask the heterogeneous nature and everyday experience of old age (Walker).

B. Within the DWELL research project, wider social and economic inequalities are understood as important drivers in the way that cities are produced. For older people, underlying social and economic inequalities have significant and widespread impacts on health, well-being, and mobility.

Ageing in place within the neighbourhood

In recent years, local and national strategies that address the well-being and mobility of older people have been geared towards preventative measures and policies to promote ‘ageing in place’ (REF). This concept covers a range of strategic aims and specific policies to support and encourage older people to live independent and fulfilling lives within their own communities and neighbourhoods. This policy agenda often highlights the benefits of (supported) living at home in preventing or delaying the need for expensive residential care. The specific benefits include the value of continued access to social and support networks within the neighbourhood or community which are linked to feelings of place attachment, safety, security, identity and independence. Ageing in place policies are increasingly assuming that informal care will be delivered through neighbourhood networks based on the idea of the Big Society, which also tie into the wider agenda of reducing the burden on the state, particularly health and adult social care (ASC) bills.

At both national and local level, policy initiatives and public sector accounts are often not joined up, and therefore innovative or preventative measures can be obstructed by the ‘accounting problem’ – where savings accrue somewhere else in the system, making it more
difficult to justify the initial expenditure (Boyle and Harris, 2009, p. 23). Examples that relate to housing and neighbourhoods for ageing include the separation between adult social care and health budgets or between health and wellbeing boards and housing services. Pilot programmes such as the ‘Total Place Initiative’ have attempted to address some of these issues at local scale, but have found a number of barriers – particularly the devolvement of decision-making powers that would be required for this to be rolled out across local service delivery (Hambleton and Howard, 2013, p. 53). Within health spending, the ‘Better Care Fund’ has been established in 2013 to improve the integration between NHS and Local Government service commissioning. The aim of this efforts is to place people’s well-being as the focus of joined-up health and care services, and to gradually shift resources from acute care towards prevention.⁷ Over the coming years this initiative will potentially have a significant impact on the way that services are commissioned and delivered at local level, and it is important that the research project remains aware of these ongoing changes.

Local neighbourhoods have significance in terms of individual and communal identities, with evidence suggesting that the sense of belonging to a neighbourhood increases with age (Office for National Statistics, 2013). Older people are more likely to feel a sense of value in associations with other individuals and groups within a neighbourhood. Neighbourhoods may be defined in a number of different ways depending on historical or cultural reasons, pragmatic reasons (such as local service delivery), or natural geographical boundaries (topography or water courses). It is also important to acknowledge and understand that within each neighbourhood there may be a number of different ‘communities’. These communities may overlap within one neighbourhood but not necessarily mix – or extend across multiple neighbourhoods (eg. religious or ethnic communities).

C. In line with the participatory methodology set out in the opening section of this framework document, the definition of neighbourhood boundaries in the DWELL research will emerge through a bottom-up / relational process of working with local to people to understand how they conceive the socio-spatial scope of the neighbourhood.

For researchers and policy-makers, the investigating phenomena at a neighbourhood scale offers a way of joining up the home or street with larger scale of the city (for example in terms of planning policy or delivery of community health and adult social care services). While neighbourhoods exhibit variation (in topography, population structure, deprivation, housing age and types, tenure, and services and facilities), they tend to be sufficiently coherent in structure to allow policy-makers and service providers to derive local strategies and services that meet the specific requirements of the neighbourhood’s residents. Research evidence suggests that older people spend more time in their neighbourhood as their mobility decreases.(REF) The neighbourhoods is the scale at which people access a range of day-to-day facilities, services, and activities – including shops, healthcare, post offices or banking, and social events and clubs. The locations at which these facilities are

¹ See further details at <http://www.england.nhs.uk/ourwork/part-rel/transformation-fund/bcf-plan/>
delivered offer places to engage with both local residents and neighbourhood-scale organisations (political groups, societies, community fora, etc.).

D. A neighbourhood-based approach is central to the way in which DWELL research project can begin to understand the complexity of the city and to address real issues on the ground. Neighbourhoods provide a scale at which DWELL research can be readily carried out and understood - they are sufficiently diverse in terms of people (for example, different age groups) and offer a scale of built environment that is small enough to permit intensive participatory research.

At neighbourhood scale, a number of specific built environment characteristics and features have been linked to potentially positive or negative impacts on the mobility and well-being of older people. At a national policy level, the potential for neighbourhood design and management to support ‘ageing in place’ has been set out in the policy frameworks of ‘Age-friendly Cities’ (World Health Organisation, 2007) and ‘Lifetime Neighbourhoods’ (Bevan and Croucher, 2011) and a number of subsequent best-practice guidelines. A particular focus of neighbourhood-scale policy and research has investigated the health and well-being benefits of physical mobility (walking) in older adults, and in policy terms this considered a key aspect of independence and ‘active ageing’.

Other key characteristics of an ‘age-friendly neighbourhood’ or ‘Lifetime Neighbourhood’ include safety, attractiveness, ‘walkability’, the choice of accessible and affordable housing options (specialist/adapted housing), and the accessibility of range of local facilities, services, and green spaces (Idgo). These characteristics are discussed in further detail in Part 3 (built environment matrix).

Localism / Neighbourhood Planning

Neighbourhood-scale. Localism reforms and the potential Implications for the community participation in planning and urban design. A voluntary and partial decentralisation of planning powers to communities or neighbourhoods (Holman and Rydin, 2013, p. 72). Under the Localism Act 2011, Neighbourhood Plans (NP) have become the key mechanism of delivering this at neighbourhood scale, with the aim of engaging a wider cross-section of the local population in the in-depth and detailed work of making local planning decisions (DCLG, 2011a). In an urban context NP is usually carried out through ‘neighbourhood fora’ – which are made up of new and existing residents’ organisations, voluntary and community groups.

Neighbourhood plans have to developed in line with national planning policy framework (NPPF), with the strategic vision for the wider area set by the local authority, and with other legal requirements (DCLG, 2011a).

The design of urban environments for later life

The interdisciplinary field of urban design operates at the scale of streets and public spaces, neighbourhoods, districts, and entire city-regions, with urban designers typically seeking to produce urban spaces which are functional, desirable, and sustainable. Key contributions include the work of authors such as Jane Jacobs (1965) and Jan Gehl (2006, 2010), recent government-led initiatives such as the ‘Urban Renaissance’ programme led by architect
Richard Rogers (Urban Task Force, 2005), and the wide-reaching work of the Commission for Architecture and the Built Environment (CABE). Common aspects of these frameworks include a call for higher densities, higher quality streets and public spaces, prioritisation of pedestrians and cyclists, the ‘greening’ of the city, and encouraging mixed-use developments and mixed economies (night-time and day-time). Design for the ‘human dimension’ of cities has been central to the work of Gehl in particular, who has called for high quality streets, civic buildings, parks and public spaces, with informal places to sit, meet, and relax in the city centre as well commercial and cultural activities (Gehl, 2010). Much of this thinking has subsequently been accepted as good practice in urban design, and has been reiterated across a range of urban regeneration, planning and design literature and guidance (see Bevan and Croucher, 2011; Design Council and CABE, 2012; HCA, 2013).

In recent years those involved in the production of the built environment have become increasingly aware of the need to plan and design urban spaces for a range of user groups, including children, families, older people, and those with mobility impairments or sensory loss. Urban design practice and policy has been influenced by principles of ‘universal’ or inclusive design, which suggests that the design of spaces and buildings that consider the needs people with mobility impairments are more accessible for everyone. This approach recognises that policies that appear to have broad environmental or social value may exclude certain groups. For example – policies that prioritise walking and cycling over private car use may have a detrimental impact on the mobility of some older people who depend on their car because of a disability or impairment.

In the UK, this shift has been backed up by enforcement from local planning policies, Building Regulations (Part M), and legislation (the Disability Discrimination Act 2005), which requires public and private bodies to take reasonable steps to design spaces and buildings that are accessible to those for those with mobility impairments. Social policy and urban design practice have been brought together by the holistic concept of ‘age-friendly’ cities and neighbourhoods (World Health Organisation, 2007).

**The value of design**

Over the past 10-15 years, CABE have played a central role in pulling together a wide range of evidence supporting the value of high quality urban design and public spaces. The value of well-designed and managed urban public spaces has been demonstrated in terms of a range of benefits including health, wellbeing, the local economy, safety and crime prevention, social interaction, and physical activity (CABE 2001, 2002, 2004). Research and practice in this field
tends to employ a case-based approach to demonstrate where particular regeneration policies or projects are loosely evaluated by looking at wider / long-term positive impacts such as economic activity, crime levels, or pedestrian activity (CABE, 2002). Despite this, researchers have identified an ongoing barrier to investment in the design of sustainable neighbourhoods and public spaces that support well-being (Aked et al., 2010; Macmillan, 2006). The New Economics Foundation (nef) in particular have argued that a fundamental rethink is required of the way that the economic, social, and environmental values are understood and expressed, particularly across the lifetime of a proposed development (Aked et al., 2010).

Both Macmillan (2006) and nef have proposed collaborative ‘stakeholder value mapping’ as a potential tool for thinking about desired outcomes for a place based on local needs as well as available assets and resources. This type of map should involve all of the key stakeholders within a neighbourhood (including local residents, the local authority, private sector partners, voluntary and community groups, religious organisations, and housing providers) and can be used to translate the broad objectives of mobility, well-being, and sustainability into specific outcomes and plans (Aked et al., 2010, pp. 42–45).

Ageing in place within the home

This section sets out a broad overview of issues identified in housing research and policy literature in relation to older people. Details of aspects of well-being and mobility linked to the design of homes (both specialist and general-needs) are set out in further detail in Part 3 (Built Environment Matrix). See appendix 1 for a diagram setting out the common housing pathways and housing types for older people.

Housing issues and housing quality impact on lives of everyone - in many complex ways beyond the basic needs of shelter and safety. A wide range of research has demonstrated the fundamental importance of the home environment in contributing to feelings of security, independence, social status, and personal realisation – all important dimensions of well-being, mobility and identity (Centre for Social Justic, 2010, pp. 147–148). In this context it is vital to understand the house as a home – a place imbued with a powerful sense of meaning, identity, and place – as well as financial asset or liability (European Parliament, 1996).

Older people are likely to spend proportionally more time in the house\(^2\), and therefore for this group the role of the home in supporting an active and fulfilling life is even more important (Donald, 2009). A significant amount of research has been carried out to look at what people want from their home as they grow older. The majority of people in our society value a sense of choice and control over their lives - whether this to remain in their own homes (make changes and adaptations to their properties should their needs change), or to move to specialist housing that is not only appropriate for their needs but affordable (ILC et al., 2014).

\(^2\) People over 65 are likely to spend around 80% of their time in their home, and people over 85 this figure rises to around 90% (Adams, 2008).
This research is being carried out during a time where the demand for housing has dominated the national (UK) discourse. Housing inequalities, the housing shortage, and the ‘crisis’ of affordability has impacted across all ages of the population (Ball et al., 2011, p. 45). Meeting the housing needs of an ageing population therefore sits in the context of the need to build an estimated 250,000 homes in the UK each year to match rising demand across the demographic profile (KPMG and Shelter, 2014). Recent government policies (particularly ‘Help to Buy’) have been targeted at first-time buyers at the younger end of the private housing market, while the shortage of supply of age-appropriate and specialist housing for older people (or ‘last-time buyers’) has only recently begun to gain much more widespread attention (Ball et al., 2011).

**Issues and drivers affecting the housing choices of older people**

The motivations (‘pull’ factors) and pressures (‘push’ factors) of moving house in later life are still not fully understood (Roys and Building Research Establishment, 2012, p. 27). Recent research has indicated a number of competing push / pull factors that shape older people’s attitudes to housing and impact on their decision to move (Shelter, 2012).

Research has indicated that most older people do not want or intend to move home as they grow older – preferring to remain where they currently live for as long as possible (Ball et al., 2011, p. 5). The reasons for this preference vary between different individuals and households, but are typically linked to a strong emotional attachment to the home and the immediate neighbourhood (friends, family and neighbours) built up over the life course.

While acknowledging this preference, others have argued that lack of choice of attractive alternatives is a contributory factor in limited housing mobility among older people, and therefore the balance of ‘push’ and ‘pull’ motivations is currently unequal, and there is some evidence to suggest that many older people who wish to ‘downsize’ are unable to find suitable or affordable accommodation (Shelter, 2012, p. 14). On the other hand, not everyone who wishes to remain in their home is able to do so because homes cannot be adapted to suit the needs of the ageing individual. Other ‘push’ factors (such as family circumstance, wanting to be near children or grandchildren, declining health and/or physical mobility, losing a driving license or private car, financial situation, or a feeling of social isolation) can act as powerful determinants in a decision to move. Researchers have grouped older house movers into three broad (and overlapping) categories (Pannell et al., 2012, p. 8):

- **Lifestyle** – A decision primarily motivated by pull factors (over push factors), such as moving to a new place (whether the countryside, the coast, or an urban centre) to enjoy the attractions or freedoms that the place and the housing might offer for older people.
- **Planned** – Anticipating a lack of mobility or other needs (eg. not being able to manage a large garden) and moving or downsizing in advance. Alternatively, older people may anticipate a decline in physical mobility and/or move to be nearer family or friends.
- **Crisis** – a move into more accessible accommodation or housing with care precipitated by a unexpected change in life situation- such as a significant decline in health, an accident, or a bereavement.
It is generally assumed that if older people wish to relocate, a move nearby (within the local neighbourhood or community) is preferred into housing that is more accessible or meets changing mobility needs. However these assumptions remain largely untested, and it is likely to be highly dependent on the individual and their personal circumstances, others (family/friends/partners) involved in the decision process, and the affordability and choice of alternative housing available.

G. DWELL research project will work with people to understand existing how housing choices are shaped in later life (within a local context), as well as understanding how people might envisage their future housing options in retirement. The research team acknowledge the language of ‘choice’ that is typically used in these discussion can be misleading. Such a ‘choice’ rarely exists in reality as many older people are inhibited by economic, social, or health constraints.

Home ownership and ‘over-occupation’

Older people are more likely than other age groups to own their own home. Despite this, they may be unwilling or unable to free up the equity in their home, so this housing ‘wealth’ is often inaccessible for other expenses such as maintenance, improvement, or adaptations (Shelter, 2012). The wider shortage of supply of housing in the UK has contributed to an increasingly prevalent discourse about older homeowners as ‘over occupying’ or ‘under-utilising’ housing, particularly larger family houses (Shelter, 2011). This includes the use of pejorative terms such as ‘house blockers’ (PRP Architects, 2014). The people who are most likely to under-occupy, older households without children at home, are also those least likely to want to move (Shelter, 2011). In the public sector, the recent introduction of a housing policy targeting the ‘under occupation’ of housing (often referred to as the ‘Bedroom Tax’) has had widespread implications for people living in social housing – but has not yet affected those beyond state pension age.

It has been suggested that a greater supply of age-friendly/specialist housing might offer a ‘win-win’ situation for local authorities by accommodating older residents in more appropriate housing and at the same time freeing up larger ‘under-occupied’ family homes (HCA, 2009; Pannell et al., 2012, p. 31). This debate underlines some of the contradictory nature of housing and social policies (aging in place vs encouraging down-sizing), and is linked to the criticisms that the UK housing market has failed to deliver an adequate supply of suitable, attractive, and affordable specialist housing options for older people (Ball et al., 2011; Pannell et al., 2012).

Housing adaptations

There is strong evidence that adapting existing homes to make them suitable for frail older people or for those with disabilities or impairments supports them to remain living within

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3 74.1% of older households in England (where the Household Reference Person is Aged 65+) are owner-occupied, compared to 59.6% of all other households.
their own communities - a central plank of policies that promote ageing in place and independence (Hwang et al., 2011). In addition to the health and well-being benefits for individuals, potential savings have been identified in housing adaptations – both in deferring the need for full-time residential care, and in falls prevention (Adams and Ellison, 2009).

Some of the most common adaptations (such as handrails and grab-rails) are relatively straightforward to implement with a local ‘handyperson’ service. Others – such as the refitting of bathrooms (replacing baths with accessible showers), and the provision of through-lifts and stair-lifts – are significantly more costly and disruptive. The central role of occupational therapists within this process – in both identifying requirements and specifying housing adaptations - highlights the importance of joined-up services.

The cost of adapting properties for changing needs is very different depending on the housing tenure, and for those in private accommodation (private rented or owner-occupied) the cost of adaptations may be prohibitive. In the UK, guidance for landlords, private tenants, and homeowners on how to manage the cost and disruption of adaptations is available from the voluntary sector organisation Care and Repair.4

In the public sector, reforms to local authority housing (now known as ‘Housing Revenue Account’) have changed the way that adaptations are budgeted for. Increasing demand for adaptations has also put pressure on budgets - where Local Authorities and housing associations were previously able to offer adaptations to most people, they may now look to relocate tenants to more accessible forms of housing. Rehousing services may attempt to relocate people within the same neighbourhood, although this is not always possible – an issue also linked to the shortage of supply of choice and affordability of other forms of housing.

The cost of adaptations is not the only barrier. There is a persistent gap between the number of accessible homes and the number of older people with existing and developing mobility problems and impairments. Recent research from the BRE suggests that a large proportion (28%) of houses where someone over 60 is living with an existing mobility problem are not feasible to suitably adapt (Building Research Establishment, 2012).

Unfit housing and fuel poverty

There is huge variation across the UK housing stock in quality and age, with a significant proportion of UK homes constructed over 100 years ago. While all new homes (and homes that are substantially remodelled) are required to meet the much tighter energy efficiency targets set out in the UK Building Regulations (Approved Document Part L), around half of existing houses are not properly insulated (DECC, 2012, p. 21). Unfit housing poses a number of other serious public health hazards, including an increased risk of falls, fire safety concerns, and indoor pollutants.

The health and well-being benefits of properly insulated, damp-free homes have been quantified in terms of cost saving and quality of life improvements (Roys and Building

4See <http://www.careandrepair-england.org.uk>
The need to improve the thermal efficiency of existing homes is even more important in the context of rising global energy costs. In 2011 2.6 million households in England were classed as ‘fuel poor’, with energy efficiency (alongside household income and fuel prices) a key factor (DECC, 2013). Addressing energy efficiency of existing homes is therefore vitally important in order to protect those on modest incomes from future price rises, and even potentially freeing up income for other necessities such as food (DECC, 2012, p. 21). Under the new definition of fuel poverty, a smaller proportion of older households are classed as fuel poor (due to new ways of calculating income and housing costs). Nonetheless, older people spend proportionately more time at home, often in larger houses that are harder to heat efficiently. Poorly insulated, cold and damp homes contribute to a range of health problems and excess winter deaths (HCA, 2009a, p. 11).

In response to these issues the UK government has set out a number of policy measures, including a target for all social housing to be brought up to ‘Decent Homes’ standard (DCLG, 2006). A home is considered ‘decent’ if it passes the fitness standard, has no major repair to structure, efficient heating, and efficient insulation. At local and national level, a significant public health challenge remains to bring private homes up to this same standard of thermal efficiency and safety, particularly in the private rented sector (Insley, 2011).

‘General-needs’ new-build housing and Lifetime Homes

As the introduction to his section suggested, the housing choices of older people are affected by the context of rising demand for housing in the UK and year-on-year failure to match that demand with new homes (KPMG and Shelter, 2014). This has a knock-on effect on choice and affordability, potentially preventing downsizers and others from moving to housing that it more appropriate in terms of location, tenure or type (and thus freeing up larger family housing). With more and more people in the private rented sector, the housing shortage also has potential implications for central government finances (through increases in housing benefit) as well as lower security for tenants and less control over issues such as adaptations and energy efficiency (KPMG and Shelter, 2014).

The complexity of the new-build housing market (which is a product of the wider economy, the land market and the house-building sector) is such that it cannot be addressed in this framework document. However, with a growing reliance on the major house-builders to build the homes the country needs, government intervention and policy has largely been focused on removing or lowering perceived barriers to private house-building. A central plank of this is the recent streamlining of the planning process, including reforms to the National Planning Policy Framework (NPPF) which include a presumption in favour of ‘sustainable development’ (DCLG, 2012).

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5 Following the Hills review (2012), a household is considered ‘fuel poor’ if: (1) they have required fuel costs that are above average (the national median level), and (2) were they to spend that amount they would be left with a residual income below the official poverty line.

6 The majority of the approx. 100,000 – 150,000 new homes that have been built annually in the past few years have been developed by private housebuilders (DCLG).
At the same time as demanding government action to increase supply, housing campaigners and other institutions have called for the introduction of additional standards to increase the quality and space standards of new-build housing (REF). Although guidelines have been drawn up by some local and regional authorities (e.g. the London Housing Design Guide), the UK has no national minimum space standards for private developments, and has the smallest housing in Western Europe\(^7\). Internal space (or lack of it) has implications for the future flexibility and adaptability of housing for everyone, but particularly those with mobility impairments. This has been recognised in the design guidelines of Lifetime Homes - a set of standards for new-build housing that has emerged in the past ten years\(^8\). Alongside the higher standard of Wheelchair accessible homes, the Lifetime Homes standard is aimed at increasing the supply of accessible houses on the market and at making it easier for future generations to adapt their homes as their requirements for support change (Lifetime Homes, 2010).

Although a shift towards larger and more flexible homes would appear to be a positive development, questions have been raised over the additional costs associated with developing to Lifetime Homes standards, and whether this approach represents ‘value for money’ (Building Cost Information Service, 2012; Roys and Building Research Establishment, 2012). Further questions have been raised around the contribution of Lifetime Homes to the ‘ageing in place’ strategy, and whether a Lifetime Homes approach might actually encourage future over-occupation of larger ‘family’ houses. The drive to introduce design standards such as Lifetime Homes across the UK has also attracted political attention, with the recent Government Technical Standards Review seeking to eliminate the ‘red tape’ of additional regulation and design standards that have been perceived as slowing down the rate of private house-building (DCLG, 2014).

**City Centre Living**

In the UK, recent housing development within city centre locations has been predominantly targeted at younger and more transient markets. The focus on buy-to-let landlords and students has produced a large supply of apartments of a certain size, layout and quality. The focus on housing and activities for younger people risks excluding middle-aged and older people from the conversation around urban living and the function of city centres and public spaces. However at the same time, policy initiatives in the UK and Europe have highlighted the potential benefits of diversifying the age profile of people living in the city centre. Proponents of this policy have argued that living at higher density at the centre of the city offers older people better access to transport, services, cultural activities, leisure and social opportunities. High quality city-centre developments in London, Malmo, and Groningen have

\(^7\) Based on 2005 figures, the average new-build home in the UK was 85 m\(^2\). In comparison new homes averaged 87.7 m\(^2\) (15% bigger) in Ireland, 115.5 m\(^2\) (53% bigger) in the Netherlands, and 137 m\(^2\) (80% bigger) in Denmark (Roberts-Hughes and RIBA, 2011).

\(^8\) The concept of ‘Lifetime homes’ was developed around 16 Design Criteria with the aim of making new-build houses that are more suitable for older and disabled people (as well as families and others) and to make future adaptations more straightforward and less costly. More information at www.lifetimehomes.org.uk
been put forward as examples of projects that encourage so-called lifestyle movers to relocate back into urban centres (HCA, 2009b).

Research suggests that a key to encouraging older people to move into city centres is to respond to local demand by providing the right sort of developments. This demand is assessed by local authorities using tools such as the Strategic Housing Market Assessment (SHMA). However these tools are only useful if they are able understand the complex and changing attitudes and motivations of people in their middle to later years – not just now but in the next 10 -20 years. For example - the next wave of people approaching older age may have very different demands to the current generation (Scharf, 2014). Cities also risk of being trapped in a 'chicken-and-egg' situation, with demand for city centre living curtailed by a lack of options for older people, which feeds into a shortage of supply because of a perceived lack of demand. A number of specific incentives and mechanisms for encouraging development in urban centres were set out in the HAPPI 2 report (Best and Porteus, 2012).

Building upon recent work by the local authority (Strategic Housing Market Assessment) DWELL research will use scenario-building, asset mapping, and other participatory design research methods to explore the potential enthusiasm for city centre living within the case-study context of Sheffield – a city that currently has a relatively small proportion of older people living centrally.

Specialist Housing

'Specialist' housing (also referred to as ‘specialised’ housing or 'housing with care') is used to describe a wide range of housing types specifically built for older people - from ‘age-friendly’ or age-banded housing (with only limited differentiation for 'general needs' housing) through to full-time residential and nursing care. In the last ten years, increasing attention has been placed on models of 'housing with care' that fill the gap between these two ends of the spectrum. These models typically offer an independently accessed apartment (or other clusters of dwellings) with additional communal facilities or care/support services attached. **Sheltered Housing** and ‘**Extra-care**’ are two of the models that are most commonly referred to, although both terms are used to describe a range of housing types and care arrangements. However, the majority of schemes consist of a group of dwellings with some form of on-site services, such as support from a scheme manager (DCLG, 2008, p. 133). The most common housing types and pathways are set out in appendix 1 of this framework document.

Specialist accommodation and housing with care is high up on the agenda of local and national government, but is currently provided for by a relatively small number of private developers and currently accounts for around 5% of older people’ housing tenures - depending on the precise definition used (HCA, 2009b). Research has repeatedly identified a shortfall of specialist housing for older people compared to demand (Ball et al., 2011; Best and Porteus, 2012; Hartley, 2014). The Strategic Housing for Older People Analysis Tool (produced by the Housing LIN and Elderly Accommodation Counsel) predicts a shortfall of 240,000 units of specialist housing for older people by 2030 (Scharf, 2014, p. 2).
Reasons commonly cited in the literature for the shortage of specialist housing include: relatively high capital costs (and therefore risks) associated with building this form of housing, barriers in the planning process, a somewhat hesitant buying market (with added complications of family/friends in the decision-making process), and the concerns of prospective purchasers regarding high service charges (Ferreira, 2013; Hartley, 2014). There is also some suggestion that precise levels of demand are made more difficult to predict due to some confusion around the specialist housing options, particularly the multiple types of provider, tenure, level of care, type of care provider (external or integrated), and level of service charge.

In recent years ‘extra care’ has become popularised as a way of accommodating older people as they develop more complex care needs while supporting them to retain independence. Extra care has been seen as a way of offering potential cost savings to Local Authorities (compared to residential care), as the ‘housing’ and ‘care’ elements are paid for separately (Weis and Tuck, 2013). Larger extra care schemes (also referred to as retirement villages) offer residents a range of communal facilities, activities, and social events. Recent research has suggested that well-designed extra-care housing can offer benefits in terms of health and well-being, particularly in terms of sociability (Weis and Tuck, 2013). A comprehensive evaluation of the wider benefits of extra-care housing is not yet possible due to the relatively recent emergence of the schemes, although a range research and design guidance (EVOLVE toolkit) has been developed (Goswell et al., 2014; Lewis et al., 2010; Nicholson et al., 2008). Careful attention needs to be paid to the design and management of this model, including the mix of residents, tenures, and the financial viability of any on-site communal facilities.

Recent research has warned of the dangers of extra-care model becoming homogenous residential homes by stealth (PRP Architects, 2014, p. 33; Weis and Tuck, 2013, p. 1). These concerns are related to the balance of residents and care needs, but also the scale of scheme and relation to the wider community. For example, Callaghan and others have argued that access to nearby local neighbourhood facilities outside of the scheme is important to avoid residents becoming isolated. The concept on-site facilities that are shared with local residents can improve links between extra-care schemes and the wider community and help sustain communal facilities, although this may create tensions between extra-care residents and ‘outsiders’. These issues need be addressed with up-front information and careful management strategies (Callaghan et al., 2009, p. 19). Others such as PRP Architects have proposed the more flexible approach to care and support facilities associated with specialist housing, with their HAPPI + HUB model suggesting an integrated approach where community facilities and care services could be shared between a number of local specialist housing developments (PRP Architects, 2014).

Despite the increased attention, there is still limited choice for most older people, particularly given the budget restrictions of individual older people and the crisis situation that commonly precipitates a quick move (HCA, 2009b). This highlights an increasing reliance on private development models to meet the demand of specialist housing – and models such as Local Authority-run sheltered housing with a warden are seen as increasingly unaffordable and have been subject to re-structuring in many cities. Recent literature has called upon central and local governments to step in to ‘correct’ the market by acting to...
increase supply through planning policies and incentives (Ball et al., 2011; Best and Porteus, 2012).

I. The scope the research includes both general-needs housing and specialist housing. The so-called 'innovative models'. There is also an explicit focus on people with fewer care needs (ie. not residential / nursing care). The research is guided by a housing pathways approach – looking at the way in which people plan housing choices in later life and the issues that underpin future housing decisions. Further details of this are provided in appendix 1.
Other ‘innovative’ new-build housing models

**Self-provided housing** (also referred to as ‘self-procured’ or ‘self-build’ housing) offers a potentially attractive alternative to buying a new-build house that has been developed speculatively - particularly for people who have access to capital or those who have accumulated a significant equity in their existing property. By procuring the land, gaining planning permission, and managing the construction themselves (often with the assistance of expert consultants and contractors), self-providers can retain the ‘development gain’ (Parvin et al., 2011, pp. 37–38). Furthermore, a self-procured route can enable the end-user to take full or partial control of the processes of briefing and design, enabling them to procure a home that matches their requirements (eg. mobility needs) – both now and into the future. An emerging market of ‘custom-build’ housing developers is also looking to tap into this market by offering a range of services to self-providers– from ‘development-ready’ sites to a menu of customisable housing designs (National Self Build Association, 2014).

Despite the potential advantages of self-provided or custom-build housing, the market share of this form of housing remains comparatively low in the UK. There are significant cultural, social, economic, and political barriers to overcome if the self-provided housing market is to make an impact on the national shortage of supply and reach the levels of market share in other European and North American countries. 9 Recent UK government policy and guidance documents have stated the aim of removing or lowering some of these barriers – including an information campaign and a requirement for local councils to provide land for self-providers through the local planning system (DCLG, 2011b).

Private co-housing has also attracted a significant degree of attention from community groups, academics, designers, and policy-makers. With its roots in the co-operative movement, co-housing represents a distinctive approach to the self-provision of housing – whereby groups of individuals come together with the aim of meeting their collective housing needs. The larger-scale and collective nature of this type of housing means that certain costs can be spread amongst all members of the group – with the possibility of incorporating a range of shared communal facilities. This might include outdoor gardens or allotments, a common house for larger-scale dining and social events, workshops, and shared vehicles. In this sense, co-housing shares some of the characteristics of specialist housing schemes. In urban planning and design terms, the sharing of spaces and facilities offers further benefits in terms of site density, although the integration of co-housing within the existing residential neighbourhoods requires careful consideration.

While co-housing groups are often formed of people with prior access to capital (for example through the sale of a previous home), mechanisms such as a mutual home ownership schemes 10 can enable co-housing groups to adopt progressive levels of affordability (Chatterton, 2013). In addition, the co-housing model also offers the potential for mutual social and practical support between households and generations, and the emergence of alternative social structures (eg. childcare). Some authors have argued that

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9 Using figures from BuildStore, Parvin et al (2011) estimated the sector size at 10-12% of the UK housing supply, compared to 60% in Germany and France, and 42% in the US.

10 A cooperative controlled by residents that owns the buildings and land.
this can manifest in the form of greater gender equality than in mainstream forms of household (Vestbro and Horelli, 2012). These forms of informal social support have clear potential for older residents – although groups such as Older Women’s Cohousing Group\(^\text{11}\) have warned that the level of care and support that can be offered mutually should not be seen as replacement for proper social care services.

**Self-managed extra-care** or ‘Elderflowers’ model is an emerging form of housing with care that is managed by and for people in the 50+ age bracket. An alternative to mainstream Extra-care housing (with the buildings and care packages managed by a social landlord or private company), the Elderflowers concept would see the housing and communal / care facilities managed and run by a committee drawn from the residents themselves. Tenure would be leasehold only, with an overarching company owning the buildings. Social housing and owner-occupation is envisaged and there would be no difference in the management and appearance of these differing tenures. The economic viability tests of this model suggest a complex of about 200 dwellings, but smaller examples are possible if fewer communal facilities are on offer. The concept envisages a development of mixed housing units (including 1, 2 and 3-bed flats and houses) alongside additional facilities which are paid for by residents through a management charge. The additional facilities range from a launderette, swimming pool, café (open to non-residents), shared garden etc. No current examples have yet been constructed but the first Elderflowers group in Milton Keynes is actively looking for suitable sites within the town centre (Barac, 2013).

**Eco-housing** has been used to describe a broad range of environmental and low-impact approaches within planning, design, and construction. In technical terms, it is typically applied to housing that goes beyond the minimum standards for energy performance that are set out in the Building Regulations Approved Document L - Conservation of Fuel and Power (DCLG, 2013). The principles of low-impact new-build housing are a key part of the Government policy on energy and climate change, as domestic energy use contributes a significant proportion of the national carbon emissions.\(^\text{12}\) Eco-housing has been contributing to national and local targets for cutting carbon emissions, reducing national dependence on non-renewable energy sources as well as cutting energy bills for residents and addressing fuel poverty (while acknowledging that the majority of domestic emissions emanate from the existing housing stock).

The code for Sustainable Homes (CofSH), with Code 6 (the most difficult to achieve) also referred to as ‘zero carbon’. This technical approach includes a comprehensive range of measures including building fabric and insulation, environmental impact of materials, energy generation, water use (and recycling), daylighting and space standards, and ecological impact and enhancement (DCLG, 2010). A previous target for all new homes to reach Code 6 by 2016 was recently scrapped as part of the UK Government technical standards review, although the code remains in place as set of benchmarks for those wishing to plan or develop eco-housing (DCLG, 2014).

\(^{11}\) Older Women’s Co-Housing Group [http://www.owch.org.uk/](http://www.owch.org.uk/)

\(^{12}\) In 2013 the residential sector accounted for approximately 17% of UK carbon emissions (DECC 2014)
Alternative technical standards have also attracted significant interest in recent years – particularly the German standard known as ‘Passivhaus’, which has a greater focus on building fabric and air tightness. Eco-housing remains of interest to individuals and co-housing groups who self-procure higher quality/sustainable forms of housing, as well as speculative housing developers looking to attract a certain sector of the private market.

While multi-generational living might be considered to simply be a rediscovery of traditional notion of the extended family home or ‘granny annexe’, purpose-designed and ‘hybrid’ forms of multi-generation accommodation have recently begun to attract increased attention (REF). In private housing, this can manifest in several different forms – such as younger generations adapting their family house to incorporate a self-contained unit for elderly parents, or older generations adapting or extending their home to accommodate adult children (and their partners/families). While the different households may share a range of facilities, this form of housing is typically differentiated from the extended family home by the provision of a separate kitchen and bathroom. Depending on the living arrangement, sufficient space and careful design consideration is important in order to maintain privacy and dignity of all residents, as well as mitigating any tension between different households. Potential benefits of this living arrangement include mutual care and support, shared meals, and the preservation of close family bonds across generations. This form of multi-household dwelling - either as a subdivision of an existing house or as a new house within the same plot - has been described in terms of ‘gentle densification’ of urban neighbourhoods (Isthmus Research, 2013).

Beyond the single family example, multi-generation principles can be extended within certain forms of co-housing. A multi-generation form of social housing has been pioneered in Alicante, where a pilot project has brought together lower-income older people (over-65s) and lower-income younger people (under-35s). Tenants are selected particularly for this housing prototype based on need, but the younger adults are also assessed for their motivation, empathy and suitability to support older people, with preference given to those with relevant qualifications or experience in community/social work (World Habitat Awards, 2012). The scheme began with a small prototype (72 units) but its success has seen it extended to subsequent development of 172 units.

In Germany, the concept of the ‘Mehrgenerationenhaus’ is more commonplace and has even extended beyond housing. One particular example of multi-generation community facilities brings together an older person’s day centre with child-care facilities, offering opportunities for community members to meet and support one another within a care setting (Oltermann, 2014).

**This section has illustrated just a few of the ‘innovative’ approaches to age-friendly housing that have emerged in recent years. This selection will be further developed and expanded throughout the course of the DWELL research project.**

**Ageing in place and assistive technology**

In broad terms, assistive technology can refer to any device that enables or supports a person to perform a task. Devices designed to support physical mobility can play an
important role in supporting those with mobility problems to (re)engage with the local neighbourhood and the wider built environment, helping people to maintain independence and social links. The provision of assistive technologies for walking has previously been characterised by the use of walking aids such as sticks and frames. These may be recommended as a temporary measure to aid recovery (by physiotherapists) or to assist people with longer term mobility problems (by occupational therapists).

In recent years there has also been a significant expansion in mobility scooters, and these are now a common sight in both urban and rural areas. It is estimated that there are currently 330,000 mobility scooter users in the UK with around 60,000 new ones sold each year. They provide older people with the ability to remain living independently in their own homes and enabled them to access local shops and facilities (May et al 2010). Electric-powered scooters are legally classed as ‘invalid carriages’ and are aimed at people with a disability (DfT 2011). Scooters have recently also become a common means of transport for people of all ages with difficulty walking. Recent research has raised concerns in relation to the health impact of scooters as they are used increasingly by overweight and obese younger people (Thoreau 2011). Most scooters are driven on pavements (Class II), with some licenced to be driven on the road (Class III). Guidance exists as to their usage in public spaces and on public transport (DfT 2011). However as there is currently no regulation around the use of the devices (e.g. training or insurance), scooters have been attacked in the media as a menace to other pedestrians and road users. Accidents and even deaths caused by scooter users have been reported. Regardless of the arguments around the use and regulation of scooters, there increase has widespread implications on the urban design and planning of streets. These include scooter parking bays, street and pavement widths, level changes and other barriers, as well as charging and storage areas within houses, commercial and community buildings.

Within the home environment telecare is a commonly used assistive technology in the form of pendant alarms and emergency call buttons. In addition to physical adaptations to the fabric and fittings of the home, tele-care technologies have attracted attention from researchers and care commissioners as a way of retro-fitting homes with more advanced sensors. These might include open/close detectors, bed/chair sensors, occupancy and power usage. Data can be monitored to identify and assess any behavioural changes to determine changes in the need for help and support (Pol et al., 2013). In recent years, smartphones and tablets (with mobile data and GPS capability) have extended the possibility of home-based telecare services, including health monitoring and visual communication between older people, carers, family members, and medical staff.

The benefits of advanced telecare services for older people (which may include convenience, lower barriers to accessing support, increased communication with friends and family). Critics have also warned that new remote forms of assistive technology (such as video-telephony) may be used as ways of cutting face-to-face services, potentially putting vulnerable people at risk and increasing loneliness and social isolation.
<table>
<thead>
<tr>
<th>Domain of well-being and/or mobility (in relation to older people)</th>
<th>Built environment characteristics</th>
<th>Outline of issues and evidence base</th>
<th>Existing good practice guidance</th>
<th>Existing barriers to implementation</th>
<th>DWell empirical research methods</th>
<th>Potential policy / design interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Accessibility / walkability of the neighbourhood environment.</td>
<td>Topography, urban form, layout, density. Barriers to movement (e.g. uneven pavements, steps, busy roads). Extent and quality of footpaths and pavements. Benches / seating. Public toilets. Street lighting. Wayfinding / legibility.</td>
<td>• Health research and policy has highlighted benefits of physical mobility (walking), particularly at neighbourhood scale (JLC et al., 2014). • Lack of physical mobility is linked to social isolation, health problems, and difficulty accessing shops and local services. • Issues of neighbourhood accessibility have a particular impact on the growing number of people affected by dementia – in terms of wayfinding and navigation, particularly in confusing and cluttered urban environments. • ‘Walkable’ neighbourhoods are thought to encourage more physical mobility by removing / minimising barriers (e.g. vehicular traffic, uneven pavements, steps) and providing facilities that facilitate mobility (e.g. benches and public toilets). • There is currently limited direct causal evidence to link built environment characteristics with levels of physical activity in older adults (Van Cauwenberg et al., 2011). This is in part due to the complexity of the variables and predominance of cross-sectional studies. • It is also important to also consider perceptual barriers (e.g. fear, lack of confidence, isolation) alongside physical characteristics. • A number of different tools / rating systems have been proposed for auditing local built environments eg. ‘Neighbourhood Environment Walkability Scale (Badland et al., 2009) and the ‘Senior Walking Environmental Assessment Tool’ (Cunningham et al., 2005). • Further research is needed to demonstrate the impact of built environment modifications on levels of walking, fall reduction, and overall health and wellbeing for older people, particularly in the context of budget reductions (Adams et al., 2012).</td>
<td>• There is a broad consensus around the characteristics and features that make a neighbour more walkable / accessible: Cities for People (Gehl 2010) Lifetime Neighbourhoods (2011). Urban design compendium (3rd ed. 2013). Manual for Streets (HCA 2007). FDGO - design guides for older people (2007). Secured by Design (2014) Living Streets toolkits and guidance <a href="http://www.livingstreets.org.uk/professionals/street-design-and-management/">http://www.livingstreets.org.uk/professionals/street-design-and-management/</a> Age-friendly cities (WHO 2007) Building for Life 12 (CABE / Design Council, 2012) FDGO - Designing dementia-friendly outdoor environments (2007).</td>
<td>• Much of the urban environment is already determined by other demands (particularly transport and road networks). Therefore it is often a case of ‘retrofitting’ the existing streetscape (e.g. with pedestrian crossing points). • Competing demands for space and streetscape design between different user groups. • Competing priorities between high levels of pedestrian connectivity (permeable) and design against crime. • Costs associated with installing and maintaining public facilities (particularly public toilets). • In certain contexts (e.g. very hilly topography) some physical barriers to walking may be impossible to design out.</td>
<td>Mapping (GIS) of walking routes and topography. Walkalong interviews and / or a participatory ‘audit’ of existing streetscape.</td>
<td>• Local regeneration / planning policies to incorporate best practice streetscape (re)design and urban renewal programmes. • Local neighbourhoods to develop an age-friendly / walkability ‘action plan’ – identifying existing + potential routes / desire lines, rest points, meeting places, points of attraction, legibility, and pedestrian networks (see Old Moat, Manchester - Philipson et al 2013). • Local planning policies to ensure that the design of new developments enhances and contributes to the walkability action plan where possible. • The design of new housing to consider the prioritisation of pedestrians and safe walking routes from the front door through / across the site.</td>
</tr>
</tbody>
</table>
| 2 Accessibility of local shops, services, and facilities. | Topography Urban form, layout and density. Public transport network. Private / shared car ownership. Local economy. ‘Walkability’ of the neighbourhood (see 1) | • The importance of access from the home to ‘strong’ neighbourhood centres (with a range of local shops, community facilities and healthcare services) has been underlined by health researchers and is central to national / local planning policy (DCLG, 2012). • New housing can be planned and designed in a way that is integrated with economic uses and community facilities. This may be achieved by ‘vertical zoning’ – with ground floor commercial / community use and residential above. • Within urban neighbourhoods, planning and designing for higher-densities of mixed-use / residential development can increase footfall and the economic viability of a greater range of local services (Urban Task Force, 2005). | Lifetime Neighbourhoods (2011). Age-friendly cities (WHO 2007) Towards a Strong Urban Renaissance (Urban Task Force 2005) Building for Life 12 (CABE / Design Council, 2012) ‘Integrated by Design’ (PRP Architects, 2014) | • Costs associated with running and staffing local public services. In many local authorities, budget pressures are resulting in the closure or consolidation of neighbourhood facilities (e.g. libraries, sports centres). • The provision of privately-owned facilities (e.g. fresh food shops, post offices, cash machines, pubs) – which is reliant on the local / wider economy. • The costs associated with providing communal facilities within specialist housing developments are also acknowledged as less realistic in a | Walkalong interviews and / or a participatory ‘audit’ of existing services and facilities. Focus groups / interviews. Mapping (GIS) of existing community facilities and travel distances. Interviews with local policymakers and planners. | • Transport planning reform? • Community healthcare / ASC reform? (Better Care Fund) • Local planning policies to ensure that new housing sites (both specialist OP + general-needs) are within reasonable walking distance of a basic services (see Lifetime Neighbourhoods guidelines). • New specialist developments to incorporate well-planned / sustainable communal facilities to complement...
<table>
<thead>
<tr>
<th>3 Accessibility within the home environment</th>
<th>The distance that makes a neighbourhood centre 'accessible' from the home varies depending on the individual and the nature of the walking route. Figures in local policy have targeted a general needs distance of 800m (Sheffield City Council, 2013), while other authorities have targeted a distance of 400m when planning housing for older people (Newcastle City Council, 2013).</th>
<th>The availability of mobility aids) that is external storage (bins, the home between the street and the home. Steps / level changes existing homes. The accessibility of shops and services has been found to be positively associated with walking among older adults (Michael et al., 2006).</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Housing choice and control</td>
<td>The distance that makes a neighbourhood centre 'accessible' from the home varies depending on the individual and the nature of the walking route. Figures in local policy have targeted a general needs distance of 800m (Sheffield City Council, 2013), while other authorities have targeted a distance of 400m when planning housing for older people (Newcastle City Council, 2013).</td>
<td>The availability of mobility aids) that is external storage (bins, the home between the street and the home. Steps / level changes existing homes. The accessibility of shops and services has been found to be positively associated with walking among older adults (Michael et al., 2006).</td>
</tr>
</tbody>
</table>
refurbishment / new-build housing.

Design / layout of new housing typologies.

Cohousing and other innovative hybrid / models.

Independent for longer, maintain physical mobility, and prevent or delay the need for full-time residential care.

- Ongoing high demand for specialist housing care can push up prices for rent / sale, while in the social sector it can result in long waiting lists.

- A greater supply and choice of specialist housing can also have wider benefits in terms of 'freeing up' larger family housing that is currently under-utilised (HCA, 2009; Shelter, 2011).

- There is a danger that the language employed in current policy around housing ‘choice’ may over-emphasise the sense of agency and control that older people currently have (Handler, 2014, p. 76).

‘Housing markets and independence in old age’ report (Ball et al., 2011)

- ‘Breaking the Mould’ report (National Housing Federation, 2011)

- ‘New approaches to housing for older people’ (CH, 2014)

- ‘Integrated by Design’ (PRP Architects, 2014)

- The specialist housing sector has failed to respond to the diversity of the market – typically designing for an average / stereotypical / fictional ‘older person’ (Adams, 2009).

Discussions with local policy-makers and planners.

- General under-supply in the private housing market (see KPMG and Shelter, 2014).

- Shortage of suitable housing sites within many existing neighbourhood centres (7).

- The physical aspects of community infrastructure (community centres, religious buildings, sports centres and libraries. (see 2).

Social isolation has a range of negative impacts on health and wellbeing and can exacerbate other physical and cognitive issues (Bevan and Croucher, 2011, p. 18; Halpern, 1995).

- Social interactions within a neighbourhood can build confidence, foster a meaningful sense of place, and help to build informal support networks (HCA, 2009, p. 29).

- The physical community infrastructure (community centres etc.) is just one part of this – the social infrastructure is arguably much more important and plays a key role in supporting sociability and in providing informal and formal networks of care and support. This includes access to employment, volunteering, clubs and sports.

- Although retirement villages have been criticised as isolating older people from the rest of society, well-managed retirement communities can provide valuable support networks and facilitate a ‘communal lifestyle of shared interests and activities’ for many people (Bohe et al., 2014, p. 109).

‘Silver Linings’ report (Parkinson et al., 2013).


- ‘Breaking the Mould’ report (National Housing Federation, 2011)

- ‘New approaches to housing for older people’ (CH, 2014)

- ‘Integrated by Design’ (PRP Architects, 2014)

- Difficulties in quantifying the costs of social isolation (compared to falls etc.).

- Spaces for incidental encounters within circulation or outdoor spaces may have a cost implication and can be squeezed out by private / social developers.

- Reductions in funding for community facilities that support social interactions (e.g. libraries).

- The physical aspects of community and social infrastructure (community buildings and spaces) cannot work in isolation from social dimensions (particularly funding for community development and activity programmes).

Interventions (with OP and carers etc).

- Focus groups

- Mapping of existing community facilities (and travel distances).

- Local planning policy should ensure all new housing developments knitted into the existing urban networks and communities.

- New housing should be designed to encourage and support informal interaction with other residents (e.g. within common areas of apartments).

- Specialist housing should be planned, designed, and managed in a way that encourages interaction with other local residents (e.g. shared facilities open to use by the wider neighbourhood).

- The design of specialist housing should include high-quality guest accommodation to encourage family members to visit.

- Exploration of new ‘innovative models’ of housing design / ownership - that encourage mutually supportive (multi-generation) communities.

5 Sociability (interactions with neighbours, family members, friends + others)

Spaces for incidental encounters (semi-private spaces).

The accessibility of community infrastructure - community centres, religious buildings, sports centres and libraries. (see 2).

- The provision of specialist retirement ‘villages’, with space for family and friends to visit.

Cohousing, multi-generation housing, and other innovative hybrid / models.

Private / shared gardens, terraces, and balconies. Parks

Informal green space (cemeteries, churchyards, etc.).

Outdoor seating that is sheltered / shaded.

- Local open space in neighbourhoods has shown to have a range of benefits for both physical and psychosocial wellbeing (Sugiyama et al., 2008) - and those living within 10 minutes’ walk of a local open space were found to be twice as likely to achieve the recommended levels of healthy walking than those who live further away (Handler, 2014, p. 30; ‘FGO, 2007).

- Open space is therefore seen as ‘essential’ component of an age-friendly or ‘Lifestyle’ Neighbourhoods (Bevan and Croucher, 2011, p. 11).

- Private and semi-private outdoor spaces that are easily maintainable and accessible throughout the year (sheltered balconies or courtyards) offer a highly valuable


- ‘Silver Linings’ report (Parkinson et al., 2013).


- ‘Local Green Infrastructure’ report (Landscape Institute, 2011)

- Costs associated with providing and maintaining parks and public facilities / spaces.

- Public open space requirements sometimes seen as a barrier to private residential development (7).

Walkalong interviews. Focus groups.

- Mapping of existing open spaces (and travel distances).

- New housing sites to be located within 10 minutes’ walk from local open space.

- Where sites are beyond 10 minutes’ walk, local planning policy to require new open space is provided (e.g. through public open space requirements).

- New specialist / retirement housing design to incorporate manageable private outdoor space and/or shared gardens and growing spaces.

Access to outdoor / green space.
### 7 Environmental comfort and control

<table>
<thead>
<tr>
<th>Thermal efficiency (ease of heating and cooling). Levels of daylighting. Access to fresh air. Control of noise and temperature. Sustainable and low-energy strategies (with reduced running costs).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Older people</strong> spend more time at home, often in over-sized houses, and are facing rising energy costs. Poorly insulated and damp homes contribute to health problems and excess winter death (EWD) (HCA, 2009, p. 11).</td>
</tr>
<tr>
<td><strong>Well-being and health benefits of properly insulated, damp-free home</strong> have been quantified in terms of cost saving and quality of life improvements. Bringing homes up to Part L potentially offers the most significant cost-saving in terms of improving health and well-being (Roys and Building Research Establishment, 2012).</td>
</tr>
<tr>
<td><strong>Addressing energy efficiency also addresses issues of fuel poverty, potentially freeing up income for other necessities</strong> (DECC, 2012, p. 21).</td>
</tr>
<tr>
<td><strong>In newer apartments and specialist housing developments for older people, poor design can create a risk of overheating - causing serious health problems to elderly and vulnerable residents</strong> (Good Home Alliance - 2014).</td>
</tr>
<tr>
<td><strong>Building Regulations (Part E / Part L)</strong> of the Code for Sustainable Homes (DCLG) and HAPPI Report (HCA 2009)</td>
</tr>
<tr>
<td><strong>Costs and disruption of adapting and insulating existing dwellings, particularly privately owned / rented.</strong></td>
</tr>
<tr>
<td><strong>Resistance (from developers and house-builders) to adopting stricter standards on thermal efficiency and low-energy strategies.</strong></td>
</tr>
<tr>
<td><strong>An embedded cultural focus on capital cost (exchange value) of housing - over lifetime running costs.</strong></td>
</tr>
<tr>
<td>Interviews, home visits. Environmental data (thermal comfort). Comparative home energy use/ cost data.</td>
</tr>
</tbody>
</table>

### 8 Dignity and privacy

<table>
<thead>
<tr>
<th>Private and semi-private spaces (thresholds). Space for carers/ family members/ within the home. Houses and outdoor spaces that are easy to manage. Control of noise/ sound. Overlooking / relationship to neighbouring dwellings.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research found that the most significant privacy issues in UK housing are: sound from adjoining properties, insufficient internal space, and issues with overlooking (particularly in outdoor private spaces)</strong> (Popular Housing Group, 2003, p. 1).</td>
</tr>
<tr>
<td><strong>Research has suggested that loss of privacy is a key concern of older people regarding relocation to retirement communities or residential homes</strong> (Peace et al., 2011).</td>
</tr>
<tr>
<td><strong>Housing that is too small or inflexible to be easily adapted for changing family/individual circumstances can seriously impact on the dignity of residents, particularly where someone may be unable to use upstairs bedrooms / bathrooms, or need personal care</strong> (HCA, 2009, p. 13).</td>
</tr>
<tr>
<td><strong>Additional space requirements may have a cost implication and can be squeezed out by private / social developers.</strong></td>
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- Local parks management reform?
- Housing providers and designers (architects, engineers) to prioritise the use of low-energy/ passive systems (e.g. natural ventilation) and high thermal insulation wherever possible. The need for daylight and fresh air should be also provided considered within common parts / circulation spaces of apartment blocks.
- In apartments and adjoining housing development, additional attention should be paid to sound attenuation between dwellings (Part E).
- Local planning authorities to consider higher-specification energy efficiency targets (CoFSh) within local policy – particularly for specialist/ retirement housing.
- Further action at national / local scale to incentivise the insulation of existing housing stock and penalties for private landlords who fail to do so?
- National reform of the way that housing is marketed to highlight lifetime running costs?
### 9 Attractiveness / beauty
**Views / visual interest.**

- Greenery.
- General character of the neighbourhood / city.
- Visual appearance and materiality of new housing

- An important (and often overlooked?) characteristic of well-being and the built environment – subjective / qualitative, and difficult to frame in terms of policy or legislation. NPPF calls for developments that are ‘Visually attractive as a result of good architecture and appropriate landscaping’ (DCLG, 2012, p. 15).
- A traditional association between rural or ‘village’ character and attractiveness is reinforced in some research (Burton et al., 2013). However this is dependent on individual subjective response and is tied to culture, societal expectations and sense of place.
- Planning policies have generally tended to reinforce an approach to the design of new housing that matches existing character / materiality and scale of existing housing (DCLG, 2012, p. 15).
- Views of outdoor spaces and a visual connection to the mobilities of others (as well as wildlife, birds, etc.) becomes increasingly important as older people spend longer at home REF.


- Different individuals can have very different ideas of what makes an ‘attractive’ home, street, or neighbourhood – making it difficult to respond to a range of subjective judgements.
- In historic/conservation areas there can be a conflict between heritage/conservation agenda and the design of certain housing typologies and accessible neighbourhoods.

**Walkalong interviews.** Focus groups. Participatory design and evaluation processes

### 10 Safety and security
**Urban form**

- Housing typologies.
- Passive surveillance and ownership of space.
- Street lighting.
- Other anti-crime measures (e.g. CCTV)
- Home security measures (e.g. door entry system, alarm)
- General perceptions of the neighbourhood.

- The perceived risk of crime is often greater than actual crime levels – driven by media, politics and cultural background.
- The traditional association between high (or ‘irrational’) fear of crime in older age groups has been challenged as ageist (Pain 2002).
- However fear of crime has been linked to greater social isolation, a dependence on the media as an information source, less integration into the community, restricted mobility, and concerns about ability to recuperate from crime (Clarke and Lewis, 1982; Yin, 1980).
- Poorly maintained and poorly lit outdoor spaces (footpaths/green spaces) can increase fear of crime and damage the overall perception if the neighbourhood REF.
- The safety and security of individuals within their own homes (and fear of burglary) is also a core privacy issue for all age groups (Popular Housing Group, 2003, p. 16).

**Secured by Design (2014)**

- Perceptions of Privacy and Density in Housing (2003)

- While safety/security is a high-priority for both residents and building managers, there can be a conflict with other design guidance. This may include:
  - window size/opening (daylighting and fresh air),
  - road and building layouts (pedestrian connectivity vs escape routes)
  - seating (which can be seen as a focus for anti-social behaviour)
  - fencing / boundary treatments (which can limit informal social interaction)
- Existing houses / housing blocks may be difficult to adapt (to improve the natural surveillance of communal spaces etc.).

**Walkalong interviews.** Focus groups. Interviews (with OP and carers), home visits. Discussions with local police officers.

### 11 Identity, flexibility, and personal realisation
**The home / neighbourhood (as a component of place-identity).**

- ‘Aging in place’ in one’s own home/immediate neighbourhood is important in retaining one’s sense of identity, emotional security, and independence (Jacobs and Malpas, 2013; Peace et al., 2011).

**HAPPI Report (HCA 2009)**


- Additional space requirements may have a cost implication and can be squeezed out by private / social developers.

**Interviews**

- Home visits
- Participatory design and evaluation processes

- The design of homes should give residents opportunities to personalise and take ownership of outdoor and indoor spaces.
- In apartments and adjoining housing development, additional attention should be paid to sound attenuation between dwellings (Part E).
Indoor/outdoor space for personal or social hobbies, pets, etc.

Internal / external storage space for possessions and hobbies.

Access to transport (public and private)

Local community organisations and community spaces.

- Access to transport (public and/or private) plays an important role in retaining one's independence, whilst the private car has also been seen as important to one's identity and social status REF.
- Much of the newer housing is too small or inflexible to be easily adapted for changing family/individual circumstances, and lacks storage (HCA, 2009, p. 13).
- More time spent in the home impacts on requirements for more space, particularly where older people have downsized from much larger family homes with a lifetime's worth of possessions and furniture.
- Most people considering a move into retirement housing are looking for at least 2 bedrooms in order to accommodate guests or for other activities (National Housing Federation, 2011, p. 25).
- The marketing of new-build speculative housing generally focuses on no. of bedrooms rather than sq. m area – making ancillary areas such as storage space less saleable.
- The importance of personal identity within the home may become lost in top-down/‘paternalistic’ provision of social housing services and institutional forms of housing.
- Opportunities for residents to take ownership of their home (through personalisation etc.) may be squeezed out by private/social developers looking to provide a standard product.
- Greater involvement of end-users in the design process may enable developers, designers and other agencies to better understand the need for flexibility and storage spaces.
- Greater involvement of residents in the design of services (co-production) may enable housing providers to provide a more effective and efficient service.
- The expansion of co-housing and custom build (now part of the NPPF) may offer increased opportunities for individuals and groups to develop homes to suit their current and future requirements.
ExisƟng housing
Adapted housing
New-build general
needs housing
Self-build / custom
build housing
‘Lifetime’ Homes
Larger / Adaptable
Wheelchair Homes

MAINSTREAM HOUSING

Existing housing
Adapted housing
New-build general
needs housing
Self-build / custom
build housing
‘Lifetime’ Homes
Larger / Adaptable
Wheelchair Homes

SPECIALISED HOUSING

Age-banded
housing
Sheltered housing
50+
50+

CARE HOMES

Retirement Village
Close care
Extra-care housing
Residential home
Nursing home / Dementia Care
Hospital
Hospice

INCREASING CARE NEEDS / DECREASING INDEPENDENCE

Domiciliary care
Warden / alarm systems
On-site personal care / support
Nursing care
Palliative care

MAINSTREAM HOUSING (Planning use class C3 - dwelling house).
SPECIALISED HOUSING (Use class C3 / C2).
CARE HOMES (Use class C3 - residential institution).

KEY:
- Private housing / private sector
- Social housing / voluntary sector
- NHS
How can a participatory research and design process produce housing and neighbourhoods that better support older people’s mobility and well-being?

Based in 3 case-study neighbourhoods in Sheffield

Cycles of brief-writing / design / testing / review / reflection

Participation of local residents within a city-wide reference group

Participation of local residents within 3 case-study neighbourhoods

Aims:
- Improve future practices
- Original research contribution
- Empower participants
- Produce implementable proposals

Deliverables:
- Project on time / in budget.
- Project outcomes met.
- Dissemination of outcomes (academic publications, conferences, website)

Funding: ‘Lifelong Health and Wellbeing’ cross-council initiative

Planning & Development
Urban design
Housing
Adult Social Care
Public Health

School of Architecture
Dept of Town & Regional Planning
School of Health & Related Research

Links with other stakeholder organisations
- Housing Associations
- Private developers
- Voluntary, community and faith organisations
- Community healthcare services
- Older people’s groups

Advice & expertise.
- National experts & older people’s representatives

Survey & focus groups

Participation of local residents within 3 case-study neighbourhoods

Advisory group

The University Of Sheffield.
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