Strategy for 2050 Evidence Study: Future Communities and Meeting Housing Need

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by IBI Group
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Future Communities and Meeting Housing Need

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Introduction

The Future Communities and Meeting Housing Need Evidence Study looks at the shape of homes and neighbourhoods that we will need over the next two to three decades. How will future communities want to live? What sorts of homes will we need to meet the demands of our future population structure?

The Milton Keynes Futures 2050 Commission was initiated by Milton Keynes Council in September 2015 to establish a long-term vision and agenda for the future success of Milton Keynes. The Commission published its report “Making a Great City Greater” in July 2016, which was unanimously supported by the Council at their meeting of 20th July 2016. This report identified where additional evidence is required to explore the issues around different policy areas and to help inform and support the preparation of a Strategy for 2050.

Rather than focus on the immediate and near-term, this document forms an evidence paper taking a long term view of issues and trends. However, conclusions and recommendations for the Strategy for 2050 are sensitive to the emerging policy directions for Plan: MK, which will be addressing many of these areas through the plan period to 2031. This evidence is helping to justify policies over the longer Strategy for 2050 horizon, which may require a change in policy direction.

This report covers a range of ideas of future housing neighborhoods including their form, management and funding. International case studies are included to illustrate where some of these ideas are already being put into practice. References for background evidence and research are included as footnotes.

This evidence paper puts forward appropriate policy recommendations for inclusion in the Strategy for 2050.

An overview

As a starting point for this forward view to 2050, it is instructive to reflect on just how much has changed in the last 33 years. In 1984 we were seeing the beginnings of the internet, CDs were the new technology replacing vinyl records and mobile phones weighed a ton. In the following years no-frills airlines ushered in an era of cheap international travel, DNA analysis became standard in crime detection and social media created alternative platforms for news and gossip.

Our high streets have changed just as dramatically - Banks became wine bars, major retail chains have disappeared along with record shops and many independent booksellers. Community hospitals have closed as have local libraries. For most of us coffee was instant in 1984 and no one used laptops in cafes.

In comparison, however, our homes have hardly changed. Despite increasing diversity of family make-up and a revolution in the technologies we have in our homes and even changes in construction standards, materials and methods, the basic products from housebuilders today would be instantly recognisable to the Milton Keynes citizen of 30 years ago.

The success of innovative housing solutions shown in our case studies, suggests that there may be latent demand for a wider choice of housing types and tenures.

The global trends that are shaping the homes and neighbourhoods of the future have been mapped out in “Making a Great City Greater” and include:

- Climate change
- Impacts of new technology
- Demographics
- Economy

However, we would like to suggest one more important pressure: changing citizen aspirations and expectations. Consumer trends provide us with valuable insights into this question. There are six dimensions that, done right, will increase overall citizen experience of a product or a service:

Usefulness (“Make it work”). Consumers expect that products and services will help them efficiently to accomplish their daily tasks. This means solving current things that annoy them in their daily routines, minimizing risks, uncertainties or challenges, or producing tangible benefits and outcomes for them.

Convenience (“Make it easy”). In a time-starved world, convenience is a key driver to meet customer expectations. Providing a product or a service at the right time in the right place is often more important than the price of the product or service itself. To be convenient, it needs to be easily accessible and painless, simple and intuitive to use. How convenient is a neighbourhood and its local amenities?

Personalisation (“Make it yours”). Each user will increasingly expect products and services tailored to his/her needs – without the fuss of selection every time the product is bought or the service accessed. Instead of a “one-size-fits-all” approach, customized or predictive products and services are the ones valued more and more by consumers.

Choice (“Make it varied”). Because of personalization, a large choice and variety of products and services is required to meet each individual’s criteria. But instead of all of the choices being “pushed” to consumers indiscriminately, it is the tailored choices that users should be able to “pull” on an as-need basis.

Engaging (“Make it enjoyable”) Consumers are increasingly looking for enjoyable, gratifying, and entertaining experience – both in their spare time and for day-to-day activities. Things that make an otherwise unremarkable daily task simpler to perform also go a long way.

Involvement (“Make it matter”). Finally, users want involvement and participation; they want to shape the conversation about things that matter to them, and this necessarily implies a two-way conversation. A product or a service can engage in issues that go beyond its immediate value proposition to enhance the perception of the value it brings to users and the larger population.

1.0 More Accessible and benefits of Higher Density Development

1.1 The Issues

Accessibility and Density

The United Nations predicts that by 2050 about 64% of the developing world and 86% of the developed world will be urbanized. “Urban areas especially cities are now home to slightly more than half of the world’s seven billion people. Current urbanization trends indicate that an additional three billion people will be living in urban areas by 2050.”

https://unhabitat.org/urban-knowledge/guo/

Government policy set out in the National Planning Policy Framework (NPPF) promotes development in existing urban areas including the use of ‘brown-field’ land as the first choice for accommodating the new homes that the UK will need.

By 2015, 82.6% of the UK population was living in urban areas. “if cities continue to track UK growth rate, then the expectation would be of extra 5.2m city dwellers by 2037 and a further 4.1m by 2062, i.e. extra 9.3m over the 50 years.” (Source “People in cities: the numbers” Foresight, Government Office for Science 2014).

Milton Keynes will be near the top of UK growth rankings, aiming to grow from 267,000 (2026) to 309,000 by 2026. The city has the experience of 50 years of rapid population growth to draw from.

The choice of urban living has historically involved a trade-off between the greater access to nature and open space versus proximity to social, cultural and economic networks. Research in the USA typifies this accessibility balancing-act as it influences house-buyer’s willingness to trade off house size against travel time to work and amenities. Respondents indicated their willingness to sacrifice larger suburban homes for reduction in commute time and improvement in walkability.

The trend towards urban living is now a well-established part of the chosen lifestyles of many Millennials who have traded larger homes for closer proximity to urban activity and the immediacy and spontaneity that cities offer. Higher densities however place increased demand on urban quality as local shops and amenities become extensions of our living space and parks and public realm become our shared ‘garden’.

However, increased urban density brings a number of other advantages:

- Knowledge economy benefits from density and proximity. Research by the Brookings Institute in the USA and the work of Richard Florida argue that more complex, mixed-use urban places better support innovation and integrating start-ups within wider supply chains “The Rise of Innovation Districts: A New Geography of Innovation in America”. (Brookings Institute May 2014)
- Increased demand for vibrancy, walkability and mixed-uses support higher densities by reducing walking distances to amenities and services and increasing the diversity of activities within a neighbourhood.
- Higher density buildings are innately more energy-efficient because, proportionate to internal floor area, terraced houses and apartments have reduced external wall area through which heat can be lost.
- Public transport efficiency is reliant on density because vehicles have to travel less distance to serve more customers.
- Energy infrastructure efficiencies rely on density because the proportion of distribution infrastructure to properties served, is reduced as density increases.
- Service delivery efficiencies rely on density by reducing travel distances between customers.

Land scarcity and affordability pressures push higher densities as development tries to fit more homes on to available plots.

1.2 Opportunities

If this increased urbanisation is to be sustainable, the challenge will be to ensure access to services and amenities off-sets the disadvantages of higher densities and smaller homes. For this trade-off to continue as an attractive proposition, planning and design must provide for:

- Communal spaces and facilities, not just traditional park spaces but places to congregate or even hold a party.
- Contact with nature – so important for health and wellbeing: Even at higher densities, everyone should be able to grow plants.
- Spaces of quiet repose and tranquillity.
- Plentiful opportunities for social interactions – the paradox of density is the continued incidence of loneliness and isolation. There are design opportunities to support interaction from the moment a resident leaves their front door.

TOD

Over the last twenty years, the concept of Transit-Oriented Development, or TOD, has gained traction, first in the USA but now influencing other countries. In the UK, the London Plan adopts similar principles by relating development density directly to Public Transport accessibility (PTAL).

TOD is an approach to development that focuses land uses around a transit station or within a transit corridor.

"Transit Oriented Development *is the exciting fast growing trend in creating vibrant, liveable, sustainable communities. Also known as TOD, it's the creation of compact, walkable, pedestrian-oriented, mixed-use communities around high quality train systems."* (Transit Oriented Development Institute http://www.tod.org/).

A TOD typically includes a central transit stop (such as a train station, light rail or bus stop), surrounded by a higher density, mixed-use area. Lower-density areas often surround this centre. A TOD is also typically designed to be more walkable than other built-up areas, through using smaller block sizes and reducing the land area dedicated to cars.

Typically, TODs are characterized by:

- A mix of uses
- Moderate to high density
- Pedestrian orientation/connectivity
- Transportation choices
- Reduced parking
- High quality design

Homebuyers, renters and employers are increasingly drawn to areas with convenient access to transit and other urban amenities such as neighborhood shopping and services. Take up of car ownership is slowing in Europe and USA as younger population rely more on public transport.

- Transit-oriented development is a response to current conditions:
- Rising energy prices
- Road congestion
- Climate change
- Shrinking household sizes
- Increasing demand for urban living

As part of the Transit Oriented Development Corridors suggested in 'Making a Great City Greater', Milton Keynes should be therefore considering:

- Relate highest density to train/bus services.
- Balance denser development on urban extension sites with densification/mixed use development of Central Milton Keynes.
- Localised densification to strengthen and diversify local centers around bus and rail transport as focus for walkable clusters of neighbourhood grids.

- Identify and plan for the (re)development of underused / disused / end-of-life brown- and grey-field land, e.g. in city center
- New but denser green-field communities linked to frequent transit, i.e. as TOD
- Ensure public open spaces are accessible from high-density areas
- Plan and roll-out a walkability and place-making strategy for MK

Autonomous vehicles may counter the location efficiency of high density if travel is no longer downtime but attitudes might well be polarised between say an exec in a countryside home and other staff living in an urban micro-flat.

Issues of space allocated to using and storing cars – what happens if technologies lead to changed behaviour? What else can we do with parking spaces? Time to rethink the domestic garage and/or driveway.

Do we need to incentivise developers to build higher density housing in suburban areas, giving larger incentives for the "first-in" or "innovative approach" projects e.g. through S106 weighting?

1.3 Recommendations

Issue	Action	Impact
Reduce trip generation and encourage active transport choices.	Co-location of amenities and services in infrastructure investment plans	Shift to more active modes
Encourage alternative housing and accommodation models for example co-housing (refer to Section 4)	In planning policy and council land.	Provision for a spectrum of housing need into old age.
Change citizen behavior and unlock benefits of higher densities.	Support development of end-user apps	More people getting more exercise.
Shifts in travel behavior arising from Connected Autonomous Vehicles (CAVs) and changing status of cars within the home.	Review parking standards in town centre and at home	Future proof development against over/under parking provision
Encourage alternative workplace options and social amenities (e.g. co-working, cafes, incubators, etc.).	Planning policy and council investment programmes.	Lifestyle to attract knowledge economy employers and talented workers.
Leverage public open data generated by public agencies and MK residents e.g. consumption and rainfall data to manage water supply.	Support development of end-user apps. Smart City Apps can help realise the density benefits of accessibility and efficiency. E.g. Toronto "Water Optimiser" relates Also TfL open data, MK Energy Co	Shift to more sustainable behaviour patterns.
Allow for "soft" densification of family neighbourhoods,	Review residential policy	Incremental densification of existing residential and mixed-use neighbourhoods.
Evolving user needs	Explore strategies with partners for integrated approaches across transportation, land use and place-making	Futureproof the public realm, the mobility system and the building fabric.

2.0 Healthier Homes and Neighbourhoods

2.1 Issues

Although healthcare has improved significantly with new medical advances so that now cancer and cardiac outcomes are better; and service improvements have resulted in shorter waits and much higher patient satisfaction, our National Health Service and local authority care services are facing multiple challenges, which cumulatively question the sustainability of these services.

Issues associated with an ageing population - increased incidence of long-term, chronic illness including diabetes, obesity and dementia - together risk overwhelming resources. NHS England "Five Year Forward View" (October 2014).

- Worldwide, the number of people over 65 will more than triple to 2.1 billion by 2050. By 2030 one in three people in UK will be aged 55 and over.
- Alongside a continued rise in people living with chronic conditions.
- Number of obese children doubles during primary school years. Just 17% of year 6 pupils are doing the recommended 60 minutes of physical activity every day.
- Almost two thirds of adults are overweight or obese.
- By 2025, five million people will have diabetes - 24,000 people with diabetes in England & Wales died early (BBC 2013).
- Most notably, the year-on-year increase in life expectancy that has been apparent for most of the Twentieth Century has now stalled – our children will not expect to live longer than we do (evidence).

Although Milton Keynes has a relatively young population, overall whole population life-expectancy is shorter than the UK average. 'Health Inequalities in Milton Keynes' (Milton Keynes Council), shows that the three conditions with the greatest impact on life expectancy in Milton Keynes are:

- Circulatory diseases;
- Cancer - early deaths are higher in Milton Keynes than the national average; and
- Respiratory diseases.

Yet many of these health conditions are related to life-style choices and could be avoided if different choices are made notably changes in diet and activity. In recent years, two important documents have highlighted the importance of the design and planning of our homes and neighbourhoods in respect of our wider health and well-being.

In Milton Keynes, only 19% of individuals achieve the Chief Medical Officers guidelines for physical activity and only 34% of adults take part in a sport once a week for 30 minutes and over a quarter of adults are obese (MK Cycling Strategy 2013).

The Marmot Review into the health implications of spatial planning provided evidence on the relationship between aspects of spatial planning, the built environment, health and health inequalities. The report concluded that the following all have a significant impact on health:

- Pollution
- Green and Open Space
- Transport
- Food
- Housing
- Community Participation and Social Isolation
- Socio-economic status

Marmot warns that there is a social gradient in health: those living in the most deprived neighbourhoods die earlier and spend more time in ill health than those living in the least deprived neighbourhoods. Therefore "universal action is needed, but with a scale and intensity that is proportionate to the level of disadvantage."

Deprivation is increasing in Milton Keynes and 'Making a Great City Greater' references the Government's 2015 Index of Multiple Deprivation to show that deprivation in Milton Keynes is increasing relative to the rest of England.

The NHS Five Year Forward View was published on 23 October 2014 and sets out a new shared vision for the future of the NHS based around the new models of care. The Forward View states that "the NHS needs to adapt to take advantage of the opportunities that science and technology offer patients, carers and those who serve them. But it also needs to evolve to meet new challenges: we live longer, with complex health issues, sometimes of our own making. One in five adults still smoke. A third of us drink too much alcohol. Just under two thirds of us are overweight or obese."

NHS England Five Year Forward View (2014): "the future health of millions of children, the sustainability of the NHS, and the economic prosperity of Britain all now depend on a radical upgrade in prevention and public health." … "if the nation fails to get serious about prevention then recent progress in healthy life expectancies will stall, health inequalities will widen, and our ability to fund beneficial new treatments will be crowded-out by the need to spend billions of pounds on wholly avoidable illness."

The NHS's response is to place greater emphasis on prevention and to forge new partnerships with local communities, local authorities and employers to model new care delivery systems.

One outcome of the Forward View has been the 'Healthy New Towns' programme, launched in 2016. The pilot studies across ten towns sets out to rethink how we live, and how health and care services can be delivered. The demonstrator towns provide a testbed for this ambitious initiative, potentially impacting on 76,000 homes - over 200,000 people and their supporting community infrastructure.

The programme's initial findings include:

- For our healthcare systems to remain sustainable, a new and radical approach is required to match diminishing resource with the varying demands of declining public health and rising morbidity, increasing life expectancy and the expectations of those who are in the fortunate position of regarding health as a 'resource for everyday life'.
- Sustainability of our healthcare systems - transition from treatment to prevention and wellbeing.
- Reversal of recent tendency towards increasingly centralised healthcare – telecare and tele-medicine support new models of care and more distributed service delivery e.g. hub and satellite model.
- Adaptability of homes will move beyond 'lifetime homes concepts to embrace 'assistive technologies as a platform for telecare.
- Healthy Communities are characterised by healthier and more flexible homes, which support their occupants continuously through their lives;
- Healthy environments should promote active living and active mobility (walking and cycling);
- Connected neighbourhoods that feature a strong sense of community and inclusive public realm;
- The importance of healthy workplaces;
- Need for flexible physical and digital infrastructure;
- Making digitally enabled assistive technology available in a variety of environments including potential for fitting in people's homes.
- Provision across all ages, from new-born to seniors as well as the needs of specific demographics such as ethnic and economic groups.

Healthy Lives, Healthy People (2010)

Marmot Review (2010)

The objective of Healthier Places is to have Healthier People. This means not only helping those with recognised health conditions but helping currently healthy people stay that way longer and into later life. The relationship between the healthy citizen, their urban environment and the supporting care and health services they receive can be distilled into objectives of having a population that is **Active** yet **Sustained**; **Independent** yet **Supported**:

Active – in mind, body and spirit, encouraging physical and mental exercise as part of our everyday routines. This includes active travel – walking and cycling but also sport and

recreational activity such as gardening. Mental stimulus is also important – from learning and skills to jobs (paid and voluntary).

- Move from leisure walking/cycling to active commuting. Are Redways attractive and convenient means to access jobs, schools and shops? Commuter cyclists typically travel at faster speeds than leisure cyclists – does existing infrastructure create conflicts with pedestrians and are more direct routes needed to encourage commuting?
- Walkability policies to improve walking routes by improving lighting, providing seats (for older and disabled people to rest, drinking water and public toilets (especially important for the elderly, parents with infants and diabetics).
- Align decision making across planning, transport, public health, environmental and health/care services. (Marmot)
- Thinking and memory skills were most improved when people exercised the heart and muscles on a regular basis, a review of 39 studies found. This remains true in those who already showed signs of cognitive decline. Taking up exercise at any age is worthwhile for the mind and body.
- NHS recommends: 75 minutes of vigorous aerobic activity every week, and strength exercises on two or more days a week or At least 150 minutes of moderate aerobic activity such as cycling or fast walking every week, and strength exercises on two or more days a week.
- Regular cycling cut the risk of death from any cause by 41%, the incidence of cancer by 45% and heart disease by 46%. Glasgow University (BMJ 2017) - Should cycling be considered as the new default mode? Whilst not everyone is able to cycle, new electric-assisted bikes (e-bikes) are a fast growing market (Halfords saw sales increase by 130% in 2017 – an estimated 30-35,000 bikes per year (Guardian 26 May 2017)), making cycling more accessible to the less athletic rider. Making cyclin the priority mode in decision making, infrastructure investment and streetscape design would start to redress decades of underfunding.
- Exercises such as T'ai Chi were recommended for people over the age of 50 who couldn't manage other more challenging forms of exercise, the study in the British Journal of Sports Medicine said. Doing moderate exercise several times a week is the best way to keep the mind sharp if you're over 50.
- We experience our environments in a multi-sensory way, a complex system of perception, memory and consciousness. Mental illness, ageing and increase in conditions such as dementia all make stimulation of our senses important to our wellbeing. Architects, landscape designers and master-planners will therefore need to place greater emphasis on sensory factors in their designs.
- Leverage investment in a new university by linking MK: U to local schools and adult learning. Case Study: Imperial College Molecular Science Research & Innovation Hub, London

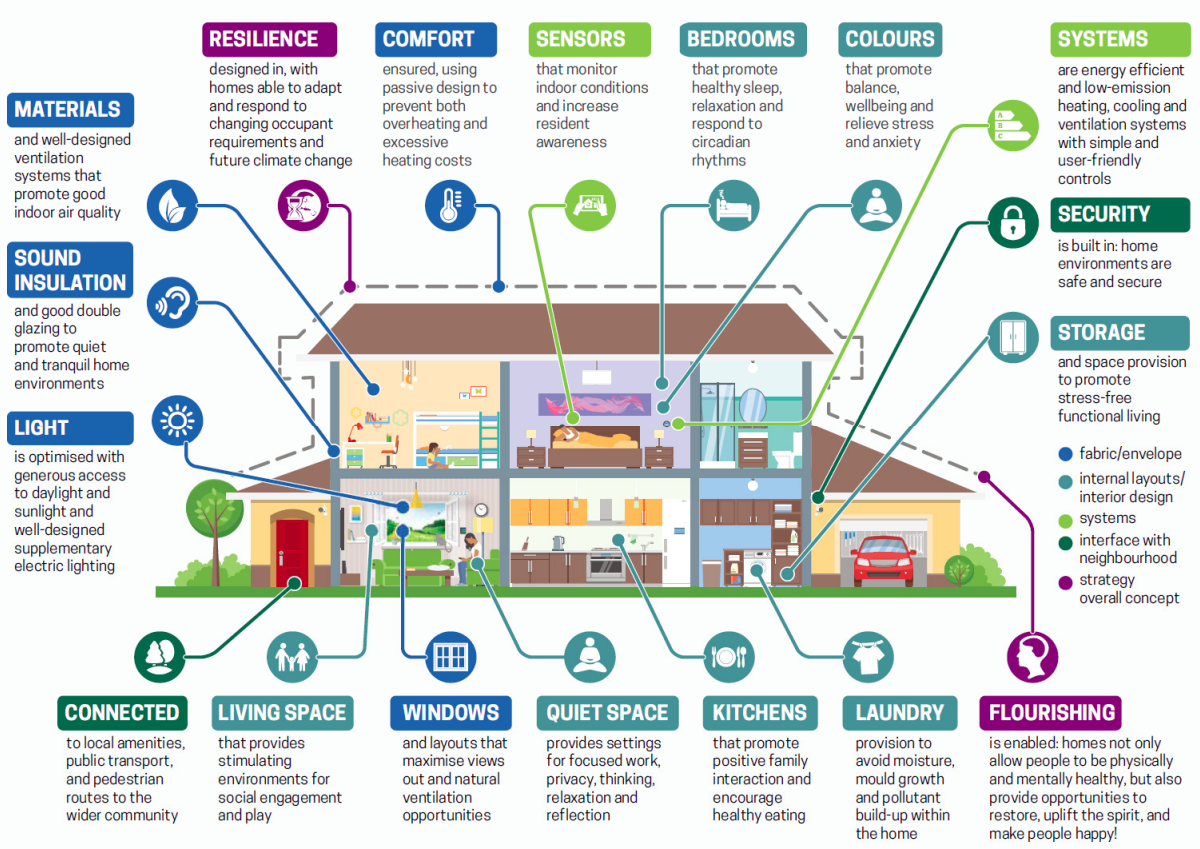
Sustained – through the air, food, water and light healthy bodies demand. Healthy people also need to be economically sustained through rewarding employment.

Embrace importance of design and planning for wider health and wellbeing:

- Design to minimise air and noise pollution especially around housing, schools and care accommodation. In Milton Keynes, road corridors have been created with generous tree planting to protect homes. Whilst the transition to electric/alternative fuel vehicles will overcome air quality issues in the longer term, nevertheless, noise may remain a problem. Therefore densification along these corridors suggested in Section 1 should ideally be focused rather than continuous and include a mix of uses to mitigate noise.
- Milton Keynes has generous provision of green and open space. New development should include accessible provision for sport, active leisure, exercise circuits and outdoor gyms along with play and activity for all ages. Green spaces can include productive landscapes that provide access to fresh food e.g. allotments and community orchards.
- Transport – prioritising public & active transport – all as parts of an integrated system.
- Housing design: The quality of local housing conditions along with homelessness have been shown to have a substantial effect on health and wellbeing, both of which have

regularly been associated with preventable diseases such as respiratory, cardiovascular, cancer, and poor mental health. There is a need for a mixture of specialist and supported accommodation for vulnerable people and those with special needs that also includes a home where citizens can grow and age in including:

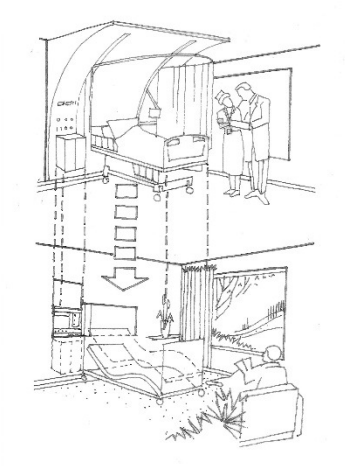
- Salutogenic (health-giving) principles: Ergonomic/anthropometric (based on human body) data;
- Dual aspect for air, light and shade;
- Biophilic design (that which recognises wellbeing benefit from our contact with nature) can include plants to filter air, opportunity to grow food, contact with wildlife.
- Assistive technologies (see below).



(Energy Saving Trust, 2015).

Independent – to age in place and remain connected to our friends and family, and empowered to make decisions in the care we receive and the choices facing our communities.

- USA Village Movement – mutual assistance for senior citizens supporting their ability to 'age in place' within their familiar communities and social networks.
- Assistive technologies: Telecare/Telemedicine – A Hospital in the Home?



Supported – through health and social care, education and training, multi-cultural spiritual support and financial services.

Make neigbourhoods where people are better supported through:

- Social interaction
- Community healthcare
- Housing quality
- Education
- Service providers

Emphasis on prevention and self-management
New sustainable care delivery systems.
Telecare – Hospital in the home

2.2 Opportunities

The necessary steps to making healthier places start with rising awareness – healthier lifestyles can benefit everyone. For public policy makers, the greatest potential gains are to be found not by preaching to the converted (e.g. those who already play sport or attend a gym) but the wider population. For this sector, getting people to exercise as part of their daily routine is perhaps an easier task than asking people to dedicate part of their busy lives to their health regime. This will require providing for a wide range of fitness and exercise levels: from gardening, gentle walks, e-bikes, and cycle commuting, through to sports and organised exercise activities.

Moving to active travel (walking and cycling) for our daily commutes to work or school would mean that the NHS recommendations of 30 minutes daily exercise would translate into a walking commute of 1.5 km. each way. This is considerably further than conventional planning suggests people are willing to walk.

For Milton Keynes, this suggests that people should be encouraged to walk beyond the roughly 1km grid square that represented the neighbourhood scale in the town's masterplan. Whilst walking routes within the neighbourhood grids are often attractive, the choice, convenience and quality of routes that connect between adjacent grid squares across the main roads should be reviewed and improved and a distribution of neighbourhood amenities shared across clusters of grids could be considered.

Transport for London's publication 'Healthy Streets for London - Prioritising walking, cycling and public transport to create a healthy city' (2017) suggests that the ten factors that encourage people to walk further are:

- Welcoming places for everyone to walk, spend time in and engage in community life.
- Reduce the volume and dominance of motor traffic and improve the experience of being on our streets
- Improving air quality

- People should feel comfortable and safe
- Reducing the noise impacts of motor traffic
- Making streets easier to cross
- Providing places to stop and rest
- Shade and shelter
- Pavements and cycle paths that are not overcrowded, dirty, cluttered or in disrepair.
- Things to see and do - People are more likely to use our streets when their journey is interesting and stimulating, with attractive views, buildings, planting and street art and where other people are using the street

Milton Keynes has invested in walking and cycling routes, which form an important and integral component of the city's masterplan yet cycling is no higher a proportion of overall journeys than elsewhere in England and Wales and walking is lower (MK Cycling Strategy 2013). Existing walking and cycling routes are excellent for leisure but because they are often indirect ways to get around, separated from public transport routes and may feel less safe at night, they are less suited for active commuting.

Networks of walking routes should provide a choice of routes and direct, legible connection to destinations. Co-location of local shops, services and amenities allow people to combine trips. People are more likely to try walking if walking routes relate to bus routes in case they get tired.

Cycling in London doubled between 2000 and 2010 (TfL 'Cycling Revolution London' 2010). TfL Strategy 2013 set out an ambitious programme, which aimed to double numbers cycling in capital in 10 years. This would be achieved through:

- Flagship routes (cycle Super highways) with segregated lanes as part of a 'cycling grid' with lower volume routes and 'Quietways' - low-traffic back streets and other routes so different kinds of cyclists can choose the routes which suit them
- Creating green corridors, even linear parks, with more tree-planting, more space for pedestrians and less traffic.
- Relate cycle routes to public transport routes and support mixed-modal journeys. Give priority to routes already congested for other modes.
- Bike Hire.
- Diversify cycling – wider age, gender and ethnic spread to 'normalise' cycling.
- Review junction design for cycling safety.
- 80,000 additional cycle parking spaces
- Five-fold increase in investment. Investment targeted where it will have most impact on increasing take-up of cycling.

London is not the only success story. Bristol has seen a 40% increase in cycling in the last ten years and in Stoke on Trent the figure is 62% (Sustrans 'Summary of Outcomes of the Cycling Demonstration Towns and Cycling City and Towns Programmes' 2017).

Other opportunities to build homes and neighbourhoods that better support healthy living cover a wide range of issues across design, service delivery and technology, include:

- Design Advice and Guidance
- Digital Technologies
- Models of Care
- Planning Policy
- Leadership and Organisational Structure
- Partnership working
- Behavioural Change
- Active Mobility
- Public Realm
- Healthy Homes

2.3 Recommendations

Issue	Action	Impact
Test public policies in related areas, e.g. NHS Healthy New Towns	Propose MK as a “living lab”	Maintain MK position as leader in urban development.
Importance of design and planning for wider health and wellbeing: • Air quality and mitigation measures e.g. using plants for natural filtration/oxygenation, • Provision of green and open space for play, sport and relaxation, • Transport – esp. public & active transport, • Cycling facilities including bike stands and public charging points for e-bikes • Local food production and opportunities for community gardening, • Housing quality – space standards, accessibility, daylight, ventilation and passive heating and cooling, • Community participation, governance and volunteering, • Sensory factors including contact with nature, city greening and soundscape.	Align decision making across planning, transport, public health, environmental and health/care services. (Marmot). Planning tools to raise standards e.g. design guidance/code. Review briefs and specifications for council building procurement.	Aim for reduction in long-term / chronic illness especially obesity, diabetes, and cardio-vascular illness. Aim for reduction in incidence of mental illness and stress-related illness.
Move from leisure walking/cycling to active commuting.	Transport and infrastructure investment to promote healthier streets, spaces and active mobility. Walkability policies to improve walking routes (lighting, seats, water and public toilets).	Achieve shift to active travel modes and away from private car journeys.

3.0 More inclusive and Cohesive

3.1 Issues

Milton Keynes, like many other places, faces the challenge of avoiding the emergence of neighbourhoods that are isolated or divided – whether by age, wealth, ethnicity, or education.

Demographic pressures including an ageing and migratory (nationally and internationally) population are likely to continue even if immigration numbers are more constrained. The net results are already resulting in increasingly diverse communities - England and Wales has become more ethnically diverse with rising numbers of people identifying with minority ethnic groups (ONS https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/ethnicityandnationalidentityinenglandandwales/2012-12-11)

Ethnic minorities are set to make up a fifth of the UK population in 40 years, a University of Leeds study predicts. BBC July 2010. It says the proportion of black, Asian and other ethnic minorities will rise from 8% of the population, as recorded in the 2001 census, to 20% by 2051.

Milton Keynes is seeing this increased diversity locally. 'Making a Great City Greater' concludes that households without children are already the majority of total households and will become an increasing percentage. The percentage of Milton Keynes's population who identified as black and minority ethnic (BME) has doubled since 2001 and represent over 40% of school children.

Concerns around the potential disruption of social cohesion suggest communities will need to be better supported through provision and management of appropriate infrastructure.

Increasing household diversity will require more varied and adaptable housing typologies and increased choice of type and size of home within developments. The principle of Lifetime Neighbourhoods that can accommodate and respond to changing needs is now established.

In particular, our ageing population raises the importance of 'ageing in place' for health, wellbeing and social cohesion. "90 percent of senior citizens said they wanted to stay in their homes as long as possible."

Whilst older people will undoubtedly want to socialise with their own age group, when asked, they also state a preference to remain part of the life and activity of a wider community and enjoy the external stimuli this brings.

The number of homes built specifically for older people each year has fallen from 30,000 in the 1980s to fewer than 8,000 in recent years (HAPPI 3 2016). Two-thirds of local authorities in the UK have no elderly accommodation policy or site allocation at all, while less than 10 per cent have both an elderly persons' housing planning policy and allocated site for such housing.

Retired tenants are now becoming a larger part of the rental market and they now account for around 8% of all private tenants, this shows an increase from 5.2% in the last ten years. The diminishing home-ownership amongst younger families will work through to retirees by 2050.

The rise of home-working and more flexible employment patterns could contribute to reduced social interaction that workers traditionally found in the workplace. Automation and shifting employment patterns may result in unemployed/underemployed population especially for those with obsolete skills (involving repetitive work e.g. financial services, insurance etc.). With more retirees and others outside the conventional employment market- how do we benefit from their skills, experience and passions?

Do we have the community infrastructure and design of homes that supports people to make a positive contribution to society? How do we avoid increasing experience of isolation and loneliness?

3.2 Opportunities

Multi-generational communities are starting to be viewed as preferential to segregated seniors communities, which have been disparagingly referred to as 'Grey Ghettos'. Examples of multi-generational communities in France, New York, Scandinavian and Spain (see Case Study) show the benefits for both seniors and students or young professionals living within the same development.

Less formalised examples (see St Clements Heights Case Study) simply co-locate care and family accommodation so developments start to provide the wider spectrum of housing solutions promoted by the Governments HAPPI agenda.

As well as considering the physical form of development, we should put in place policy and structures which recognise and value the contribution that retirees and those out of full-time work can make to society. Charities and community groups up and down the country rely heavily on voluntary contributions of the time and experience of older people. Keeping people active in mind as well as body is essential to wellbeing and independent living and it is important that an increasing proportion of society does not feel redundant.

Smart-technologies can assist in empowering the citizen e.g. social media as a tool for promoting community cohesion in new settlements/communities.

A survey of seniors' preferences undertaken by IBI for development company, Century Group in Vancouver, identified the following design principles:

- Seniors want to be part of a walkable community and close to amenities, and therefore the best location for seniors housing is in the heart of a community that allows easy access to public transit, shopping, healthcare providers, and family. Urban sites are ideally suited for seniors
- As residents age they wish to stay in their communities and with their social and support networks.
- Parking demand tends to be low for seniors housing, but can vary considerably depending on the location of the seniors community (suburban vs. urban) and the type of housing and services (younger seniors vs. assisted living vs. dementia care). In addition, some seniors may require parking for a vehicle that they seldom use but do not wish to part with.
- The outdoor space surrounding the seniors' residence is an important extension of the interior spaces and a valuable and marketable amenity. Research has proven the benefits of residents having access to landscaped open space. It can improve a person's physical and mental well-being, and strengthen their immune system. For memory care residents, outdoor space can stimulate their senses: smell, sound, touch and sight.
- Seniors today expect independence and "elegant assistance" – care must be taken to not make the systems of assistance and supervision so visually obvious as to be off-putting.

In the USA, the 'Village Movement' supports seniors through mutual assistance to 'age in place' rather than relocate to a 'retirement community'. Such networks are essential to support older people but also offer retired people with time on their hands a useful way of contributing to their neigbourhood. More than 110 Villages now exist in the United States, with another 120 or so in development (http://villagesnw.org/the-national-movement/).

Guiding Principles:

- Intergenerational design that is not age-defining, but age-friendly
- Create a holistic approach towards well-being and healthy aging
- Prepare for all occasions by creating accessible design that is not visually debilitating
- Integrate the living atmosphere with the larger community
- Create spaces that allow for choice and personalization
- Multi-generational communities.
- More varied, "age-agnostic" housing typologies,
- Increased choice and adaptability of type and size within neighbourhood.
- Wellbeing and healthy ageing.

Social media to empower and connect citizen. In the future, social media technology could provide usefull tools for community cohesion. Technology can help accelerate the assimliation of new ressidents with existing communities by augmenting highly localised networks including communities of interst, user groups as well as build awareness of neighbourhood performance on issues such as energy useage or recycling, thereby influencing lifestyle choices and citizen behaviour.

Redefine relationship of City and Citizen - Connect People to Place and Connect People to each other

Case Study: Municipal Project for Intergenerational Housing and Community Services *(MPIHCS) in* Alicante

https://www.bshf.org/world-habitat-awards/winners-and-finalists/municipal-project-for-intergenerational-housing-and-community-services-in-alicante/

Initiated in 2003 by the Municipal Housing Board of Alicante (PMV), the MPIHCS works to address the specific housing needs of low-income older people and young people

Initiative came about as a result of previous experience with the construction of a housing complex for older people. It was found that despite high quality housing, residents still felt vulnerable and unable to integrate into society. Municipality began to fill vacancies with young people -> positive results led to the creation of the wider, more ambitious city-wide intergenerational housing project, with a total investment of 50m euros

- Provision of 244 affordable, intergenerational housing units on 3 different sites in central urban areas, with the intention of extending to other neighbourhoods in the future.
- Facilities: library, computer centre, areas for social events and workshops, solarium, roof garden, laundry, local health and recreational services for residents.
- Older residents maintain independence and stay in their own homes as they age
- 78% of residents over the age of 65, 22% of residents under the age of 35
- Good Neighbour Agreement – each young person helps taking care of four older people + act as liaison if problems arise

Lessons learned:

- Relationship and coexistence between generations is gratifying in both directions
- Feelings such as loneliness and vulnerability of older people are the factors that most influence them regarding quality of life; intergenerational housing solves this
- Part of the success of the project depends on the skills and involvement of the young people, so making the right choice in the selection process is key
- It is necessary to dedicate time to know the requirements, aspirations, fears, and skills of the residents before establishing the specific social programmes to be developed
- Necessary to give older residents an active role in activities + absolute responsibility to decide what to do at any time (recognise that they're not just elderly with housing problems but are fully capable of leading their own lives)

Case Study: St Clements Heights, Sydenham
The site was occupied by St Clements Heights, a collection of buildings operating as Alms-houses by the St Clement Danes Holborn Estate Charity that provides 'residential accommodation for poor women of not less than 50 years of age, and poor men of not less than 60 years of age.' In a deal with residential developer Crest Nicholson, the charity sold off part of their site in return for new care accommodation for their residents.

Instead of creating two, separate developments, the partnership agreed that the offer of both family housing and care accommodation would be enhanced if the two tenures were integrated around a central community square. Planning permission was obtained for the construction of five, 3-5 storey buildings comprising 50 one and two bedroom Alms-houses, 20 four bedroom family houses, and 26 two and three bedroom self-contained apartments.

Case Study: Jentex Village, Ramsgate, Kent

Received planning permission in 2015 – promotes a radical mixed community within a rural setting that places a 56-unit extra care scheme among a mixed house-type development of 25 family houses and 31 houses for older people. 30% of housing is affordable.

3.3 Recommendations

Issue	Action	Impact
Social isolation especially for older people.	Housing and planning policy to provide a spectrum of housing into old age. Avoid segregated retirement enclaves. Promote mixed generation communities. Remove barriers to participation and community initiatives (Marmot). Assess proposals for their support of social interaction	Older people feel valued and part of the wider community. Younger people can benefit from greater contact with their elders.
Identify and make available land for innovative development models.		Provide a spectrum of housing types and tenures to site all needs including older people.

4.0 More Affordable

4.1 Issues

In England and Wales overall, the housing affordability ratio more than doubled between 1997 and 2016. In 1997, house prices were on average around 3.6 times workers' annual gross full-time earnings, whereas in 2016 workers could typically expect to spend around 7.6 times annual earnings on purchasing a home in England and Wales. The median price paid for residential property in England and Wales increased by 259% between 1997 and 2016; median individual annual earnings increased by 68% in the same time period. ONS

https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/housingaffordabilityinenglandandwales/1997to2016

A survey carried out for the Local Government Association (LGA) by estate agents Savills showed that just 20% of those aged 25 own their own property, compared with 46% two decades ago.

If the promise of a property-owning democracy is a fading dream, what alternative tenure models will be relevant for Milton Keynes? How can choice be offered to meet the widely varying needs of different households when the development industry works with such limited range of business models and when even the Government admits that the housing market is 'broken'? (Housing White Paper 2017)

Providing for an increasingly diverse range of households will require new models of housing type and tenure. In recent years, a number of alternative models have started to emerge from the fringes and are being looked at afresh.

- Increasing difficulty for young households to access housing.
- Housing is major factor in attracting and retaining talent required to support economic growth.
- Changing household needs unmet by existing housing types and models
- How can we meet people's widely varying needs and budgets?
- Who will be the housing providers of the future?

4.2 Opportunities

Consider new models, which redefine how housing is paid for and how people live. These can include:

Co-housing.

Co-housing emphasises communal living, often for people with shared interests or lifestyles. Developments usually focus around a large, common 'house' for people to come together to eat and socialize, with private self-contained units. Individual space is reduced in favour of communal living areas thereby reducing housing costs. The concept aims to maximise community whilst allowing for privacy; within a safe, independent, caring neighbourhood. Promoters claim a very strong sense of belonging that encourages friendly, cooperative and helpful behaviour, including self-policing.

Sometimes owned and managed by residents with consensual decision making through committees.

First began in Denmark, with presence in Sweden, the Netherlands, Germany, and US. Now growing in France, Spain, Belgium, and Italy. Gaining popularity across Canada, Australia, New Zealand, and Japan. Established projects have reflected communities of common interest e.g. women only, above 50 years old, LGBT groups etc. Communities range from new developments built to modern eco standards to conversions of other properties in urban, rural, and semi-rural locations

http://www.cohousing.org/ (USA)

However, developers such as at London's 'The Collective' are now using a more commercially orientated version of the co-housing model to attract young graduates looking for a place to live with a more vibrant social life. Marketing for the Collective claims "our living spaces are designed on each floor to bring people together. Ranging from quiet places to work, themed dining rooms and a roof garden for socialising." This is a variant on the PRS model where private space is traded for better communal facilities and (relatively) affordable rental costs.

UK Cohousing has worked with DCLG to ensure that the Community Housing Fund is available to cohousing groups.

Case Study: Springhill Cohousing Community in Stroud, UK

Springhill Cohousing is the first new build cohousing scheme in the UK. Cohousing Company Ltd. formed

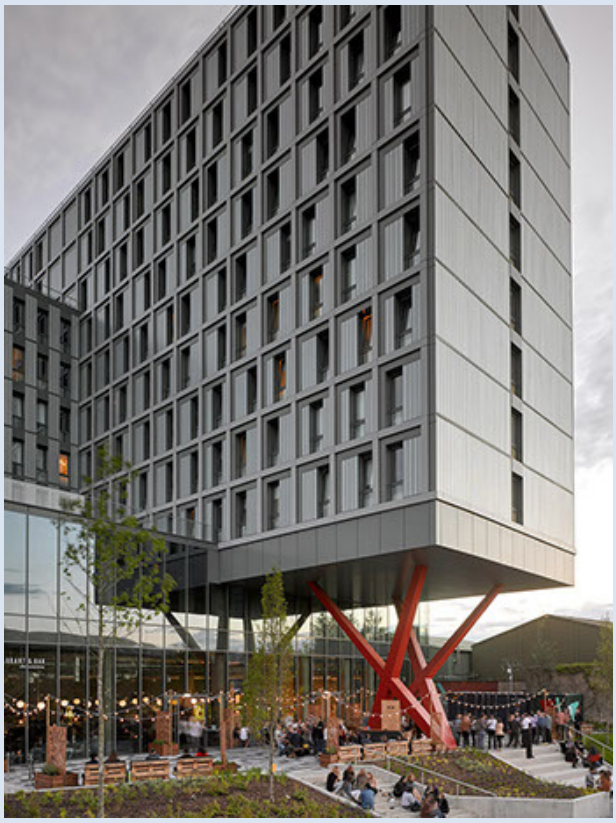
New householders invited to become directors. Ownership of the site transferred to the company Co-housing Co. managed the finances, legal agreements, recruited members and coordinated the project.

Plots were 30% pre-sold (to members) before completion on the land purchase in April 2001.

Project based on the Danish model for cooperative housing with common spaces for people to come together to eat and socialize

- 35 units ranging from studios to 5-bed flats
- Mix of housing for different household types and ages
- Owned and managed by residents – cook, eat, childcare, gardening, administration all together
- 3 storey Common House with a kitchen were meals are cooked and served at least 4 times a week; also where shared meals and community-based social activities happen (singing, dancing, tai chi groups, workshop, laundry)

Intergenerational benefits – people look out for each other; elderly help other families take care / look out for their children.



Case Study: The 'Collective' in London's Old Oak Opportunity Area claims to be the world's largest co-living building in fact. Co-living at The Collective Old Oak has been designed for those who want to make the most of London life. "Our living spaces are designed on each floor to bring people together. Ranging from quiet places to work, themed dining rooms and a roof garden for socialising. You'll also get access to useful and convenient facilities such as a gym, spa and restaurant – all in your own home. With regular events such as inspirational talks, networking and film nights through to spontaneous BBQ's." Residents share communal kitchens, dining rooms, gardens and lounge areas. The model deliberately seeks to recreate a student halls vibe and unsurprisingly, is aimed at recent graduates.

Co-living building with 550 Micro-units, Communal Facilities including Kitchens, Spa, Gym, Restaurant, Games Room, Cinema, Library and Disco Launderette, and a Co-working Incubator Hub

The architects, PLP claim the design creates a new hybrid typology, redefining the architecture of living and working to suit the unique community of people that will develop here. The project reinvents collective living for today, laminating together a series of complimentary programs and atmospheres to form a strategy for the future of housing.

Public sector landowners

In recent years, public sector land owners have been encouraged to free up land for development through site disposals – often facilitated by the HCA. However, public bodies are starting to see long-term benefits in retaining stewardship of land, benefitting from value uplift and delivering on other, related objectives e.g. affordable housing, public health and approaches that provide a sustainable revenue stream in preference to a one-off capital receipt. Local authorities are actively progressing projects in partnership with the private sector to provide housing and provide a long-term asset (see Southend Case Study). The NHS is considering a similar model for promoting healthier neighbourhoods on surplus hospital sites.

Case Study: Southend Better Queensway. Southend-on-Sea Borough Council is engaged in the transformation of the Queensway Estate – a predominantly residential area facing numerous challenges but located at a strategically important gateway into Southend's town centre. The Council-owned housing estate includes four tower blocks along with low-rise housing. The local population includes a very high level of benefit claimants and has experienced anti-social behaviour. The site is bisected by the Queensway ring road, which has excess capacity and potential to be downsized.

The Council is seeking a development partner to build 1,200 new homes (town houses and apartments) integrated into blocks around parking podia and communal courtyards. The Council are looking for a long-term return on their land – upwards of 50% of the non-affordable stock is expected to be built to rent.

Crowd-funding

Crowd-funding has been effectively used to fund everything from tech start-ups to election campaigns. Surprisingly (given the history of building societies in the UK), this approach has seen little application to housing. However, we are now seeing the emergence of crowd-funding platforms such as Property Moose, The House Crowd, Property Partner, and CrowdProperty. These offer peer-to-peer finance merged with buy-to-let, promising access to the housing market without any of the associated hassle.

Kevin McCloud's (presenter of Grand Designs) design-led housing development firm, HAB Housing Limited raised over £1.9 million from the public via an online equity crowdfunding platform.

These platforms offer properties online, you sign up to buy one with a group of other people inside a company specifically created for the purpose, you become a buy-to-let landlord, but with no control over the management of the properties such as:

- Who tenants are;
- What the rent is;
- How the property is managed; or
- How costs are calculated.

Moreover, most crowdfunding firms reserve the right to borrow against the property should the revenues from the house not cover costs.

The approach covers a range of investment types:

- Buy to let
- Buy to sell
- Private equity
- Loan
- Private rental.
- Shared ownership.
- Subsidised ownership.

Risks:

- Net value of stake falling.
- High crowdfunding fees in addition to legal costs, advertising etc. The House Crowd charges 5% up front and a profit share for their management company from the rent and gains of around 25%.
- Liquidity – near impossible to sell your shares when necessary; must work within the parameters set by the company; price might not be desirable; what are the shares worth?

https://www.ft.com/content/bff453da-be7d-11e4-a341-00144feab7de

http://moneyweek.com/property-crowdfunding-may-look-tempting-but-its-very-risky/

Case Study: HAB Housing Limited – Kevin McCloud's (presenter of Grand Designs) design-led housing development firm raised over £1.9 million from the public via online equity crowdfunding platform Crowdcube (people fund a business in return for a share in the company).

- Approx. 650 individuals now own a combined share of 25.39% of the equity in the business.
- Money will be used to fund expansion of the business in the custom-build housing market.

HAB hopes to offer investors a 5% dividend by the end of 2016, but investors have also been offered preferential terms on a HAB custom-build home

https://www.dezeen.com/2013/09/30/kevin-mccloud-hab-housing-developer-breaks-world-record-crowdsourced-equity-investment/ (2013)

Community Land Trusts

There are over 225 CLTs in England and Wales that bring innovation to house building in terms of raising finance and engaging people in housing

A form of community-led housing where local organisations are set up and run by ordinary people to develop and manage affordable homes as well as other assets important to the community (e.g. community gardens, enterprises, food growing area, workspaces etc.).

CLTs aim to balance the needs of individuals to access land and maintain security of tenure with a community's need to maintain affordability, economic diversity and local access to essential services

In some cases, house prices are linked to local wages rather than the market rate.

The National CLT Network is part of a broad alliance of organisations promoting this approach

https://www.bshf.org/our-programmes/community-led-housing/the-community-led-housing-alliance/

CLTs are not a legal form in themselves but are defined in law. CLTs are:

- Set up to benefit a defined community;
- Not-for-private-profit;
- Local people living and working in the community must have the opportunity to join the CLT as members; and
- Members control the CLT (board being elected from membership).
- Funding for CLTs is available:
- Home Building Fund (October 2016) = CLTs can now access a £3bn loan fund
- Community Housing Fund = £60m / year (same scheme as mentioned in Cohousing)
- Provide development loans to community-led providers including CLTs. Can be up to £250m for up to 5 years, interest charged at commercial rates
- Provide infrastructure loans for site preparation and the infrastructure needed to enable housing to progress

- Applicants must be planning to build at least 5 homes in England that wouldn't progress quickly, or at all, without this finance

Case Study: Stretham and Wilburton Community Land Trust
https://www.designcouncil.org.uk/sites/default/files/asset/document/Stretham%20CLT.pdf

- Manor Farm Development, Stretham, Cambridgeshire
- East Cambridgeshire District Council's planning policy in its Local Plan allowed development on exception sites outside of the village envelope subject to certain criteria e.g. demonstrating local housing need and causing no harm to the setting and character of the village -> included requirement to engage with the local community in shaping future development
- Exception sites policy meant that local groups proposing affordable and local needs housing had sole negotiation rights with landowners who were interested in putting forward sites for housing

- planning permission was granted in 2014 for a three-phase development of 75 new homes. It includes 23 affordable rented homes, 52 for market sale and land that has been reserved for a new doctors' surgery, workplaces and a new village green. Work began on site in 2015. Funding for the affordable housing has come from a mix of cross-subsidy from the market homes and a commercial loan from a bank specialising in support for social enterprises.

4.3 Recommendations

Issue	Action	Impact
Targeted new housing typologies/models. Open new routes to housing and wider choice to meet housing needs.	Acquire/assemble & partner/ development. Release of council land for innovative development models.	Diversification of tenure.
Level the 'playing field' in competition for land to open up market for innovative housing delivery.	Explore policy formulation and planning obligations to identify land and support delivery of mixed tenure/use (including a spectrum of provision for ageing population) and innovative typologies. Seek out and support developers working with innovative funding models e.g. through Developers' Panel or partnership working. Review disposal procedures and criteria for public sector land.	Increase the range and type of developer active in MK.

5 More Easily Maintained

5.1 Issues

Demographic changes (aforementioned in Sections 1 and 3) and external forces translate to intensified pressure on housing providers and in particular, the expanding rental sector. Furthermore, rising management and ongoing maintenance costs as a result of additional homes needing to be managed can hinder economic growth, placing stress on existing infrastructure and raise business costs. It would therefore be in the interest of the public sector to lower overall running costs by maximising the use of current and future assets, making use of new technology available, and recognising the commercial value of data.

Defined processes and technologies need to be embedded into procedures to enable effective collaboration between people and digital information. Applicable to a multitude of systems, this can facilitate decision making throughout the lifecycle of built assets and simplify future asset maintenance, from basic appliance repairs to the transfer of service history.

For a more sustainable future for residents and the local authority, Milton Keynes needs to be a proponent of building new technology, materials, and approaches into the designs of new developments to enhance the flexible use of assets. A state of balance between quality and quantity can be realised when complemented by a culture change; a step forward to creating cities where citizens are healthier, both physically and emotionally.

5.2 Opportunities

The Easily Maintained Communities of the Future will

1. Offer homes and neighbourhoods that are more **adaptable** to **changing demographics** and **life circumstances.**

   Looking 10 to 15 years ahead, Milton Keynes is expected to face a significant increase of 20,000 in the proportion of people over 65. The higher rate of growth of older age groups compared to other age categories translates to a higher dependency ratio on the working population. Consequently, the city's evolving structural growth suggests the need for a greater provision of residential care, and intensified demand and strain on health and social care services from this point forward.

   Citizen wellbeing and quality of life are central to truly sustainable neighbourhoods of the future. Communities will reside in neighbourhoods that embrace a full representation of demographics and generational cohorts, where homes will be better designed with built-in flexibility so that all ages and stages of life are catered for.

   Milton Keynes is best positioned to influence the development community to 'design in' and 'fund in' asset management solutions from the outset so as to better meet the projected population growth of the city, alleviate the current housing shortage and prevailing homelessness, and relieve pressure on the public health care system.

1. Be **digitally connected** and **data driven**

   A competitive city in the 21st century requires city-wide operational and technical platforms to enable the shift to digital, and to support data collection and sharing. In order for Milton Keynes to further strengthen its reputation as an economic powerhouse and fulfil its potential as a leader in digitisation, Milton Keynes first needs to achieve a more effective use of both current and future assets.

   Smart technologies and 'big data' generated by personal, home, and mobile devices will allow for the development of efficient and customised urban solutions that are tailored to the conditions of Milton Keynes. The digitisation of assets can help deliver better informed decision making, optimise integrated responses, and more proactive, preventative, and data driven management that relates to services ranging from healthcare to urban mobility.

   The wealth of data collected will build on initiatives such as the MK:Smart City Data Hub and the related Urban Data School that aims to bring data literacy education to local primary and

secondary schools, as well as contribute in real time to a future Milton Keynes Mobility (MKM) that offers on-demand integrated transportation. It is imperative that Milton Keynes becomes the exemplary Smart City; a centre to place to test, develop, and become thought-leaders in the very latest future-city innovations. It would also be pertinent to reflect and align with a key message and image of the proposed Milton Keynes University (MK:U) positioned at the heart of the Cambridge-MK-Oxford Growth Corridor: A focus on a new distinctive Smart City technology curriculum.

2. Encourage and implement initiatives that contribute to the local **economy**

   Building on and celebrating Milton Keynes' heritage as a centre for computing, digital, and cyber innovation, it would be of great benefit for data to be made accessible to citizens, businesses, and innovators for product development, and community-led digital connectivity initiatives be promoted. In line with national efforts to raise the level of STEM skills, digital skills, and numeracy, community participation can help ensure that homes and neighbourhoods are productive and inspiring places to live, learn, play, and work. The Learning 2050 project is aiming to increase the focus on STEM in schools, to help students be ready for the future world of work, or to be able to access MK:U.

   Adding to the expansion of the circular and sharing economies, such efforts have the potential to attract investment in the knowledge intensive sectors driving the growth of the UK economy, and place UK in an advantageous position to compete in the advanced industries driving global economic growth.

3. Be led by **citizen perspectives** to build **integrated and cohesive communities**

   New business models will emerge as we progress towards 2050; citizen and city expectations will evolve in tandem with the new offerings available. As we do not yet know how these will change, it is vital that engagement with citizens is carried out so that local perspectives can be obtained and needs understood, as opposed to that of the 'organisation' and its constituent function.

   It is a universal expectation that services of higher standards be delivered with each progression or advancement in society, in the past and in the future. Subsequently, institutions will need to be better set up to deal with a diverse group of stakeholders in a multi-functional and multi-data environment. They have a role to play in helping guide infrastructure and offer opportunities for individual and community needs to be satisfied, introducing measures such as the circulation of information regarding local facilities and events to maintain public involvement, and instigating a move towards localised services (e.g. energy companies).

   Advocating a sense of shared responsibility, community empowerment will be driven by insights derived from neighbourhood-wide data, of which citizens can use to inform their choices at both an individual and community level. Stakeholders will also be involved from the outset in developing an appropriate community stewardship approach, and in the management and nurture of communities in the long term towards self-sufficiency.

5.3 Recommendations

Issue	Action	Impact
Enable the shift to digital and data – an 'operating system' for MK.	Build city-wide operational and technical platforms that bring together city data feeds, citizen access to information, and organisational change within service providers including the council.	Redefine the relationship between the city and your citizens so that they are more aware and empowered to choose healthier, more sustainable lifestyles.
Leader within the city and effective operation and maintenance of assets	Streamline and future-proof operations with intelligent systems.	Change culture and business transformation
Stewardship and efficient asset management	Require the development community to 'design-in' and	Whole-life building data

	‘fund-in’ asset management solutions. Use of Building Information Management (BIM) to rise to Level 6 – Project Lifecycle and Facilities Management.	from design to operation.

6.0 More Sustainable

6.1 Issues

Clear evidence of climate change is accepted by the UK Government. If global emissions are not reduced, average summer temperatures in the south east of England are projected to rise by over 2˚C by the 2040s and up to nearly 4˚C by the 2080s

Climate models tell us that by the end of this century, without an extremely significant reduction in the amount of greenhouse gases we produce, the world is likely to become more than 3 ˚C warmer than in the 19th century. (https://www.gov.uk/guidance/climate-change-explained).

The UK government is working to adapt to the effects of climate change and reduce greenhouse gas emissions by investing in low-carbon energy sources, improving fuel standards in cars and increasing energy efficiency wherever possible. The climate change challenges facing the UK economy, environment and public health have been laid out in the government's latest Climate Change Risk Assessment, published January 2017.

Climate Change is expected to result in:

- Warmer – The UK is already affected by rising temperatures. The average temperature in Britain is now 1˚C higher than it was 100 years ago and 0.5˚C higher than it was in the 1970s (ibid). Overheating of homes will become an increasingly common problem. The 2003 heatwave was connected to 2,000 extra deaths in the UK; and
- Wetter – Warming is expected to cause more intense, heavy rainfall events (ibid). Flood risk increases. For Milton Keynes this has implications for areas of identified flood risk (e.g. in north of the city) and potential conflicts with objectives of growth, density and efficient transport strategy. Areas at risk of flooding across the Borough are identified in Milton Keynes Local Flood Risk Management Strategy (2016).

Despite a sustained reduction over the past decade, Milton Keynes is in the top-10 UK cities for its per-capita carbon emissions (Centre for Cities, Cities Outlook 2016). A new Carbon economy based on transition to renewable energy has emerged reflecting concern about energy security internationally and declining domestic reserves – North Sea energy production has dived by nearly 40% between 2010 and 2014. Meanwhile costs are increasing: it is nearly five times more expensive to extract a barrel of North Sea oil than it was in 2002 (The Economist March 2014). Renewable energy sources are therefore promoted by government policy including current trends towards district/community heat and power. The implications of the carbon economy are covered by other reports for the MK Futures 2050 evidence base.

6.2 Opportunities

Issues of resilience will be increasingly important to city design and planning. How will homes and neighbourhoods be equipped to cope with climate change? Impacts are likely to include overheating in summer. Future design for housing will therefore need to address issues of solar orientation and through ventilation, avoiding south-facing single-aspect homes, providing solar shading (e.g. brise-soleil sun screening on building elevations), inset balconies and use of planting to provide shade to streets and buildings.

Design for flood areas will need to balance protection of homes with loss of flood plain capacity. Raising land levels to build homes above the flood level risks moving flood water to other areas (usually downstream).

More innovative design approaches are required if development is to be safely accommodated and principles of compact development are maintained. Rather than designing out water to defend against flooding, future development might prefer to design water in as part of the infrastructure. Design with water landscapes. This is likely to mean designing homes and access/egress that stand clear of flood levels while other areas e.g. car parking or gardens are designed to survive flood events.

Other opportunities include:

- Opportunities for innovation and industry.
- Material storage planning

- Waste planning and Recycling
- Zero carbon targets
- Energy: Domestic consumption and production, Local energy production
- Changes in social practices
- Energy efficiency
- Battery storage
- Changes in construction practices:
  - Off-site manufacture,
  - Modular,
  - Sustainably sourced materials)

6.3 Recommendations

Issue	Action	Impact
Sustainable building materials and construction techniques	Demand smart specification for product sourcing (local, renewable), recycling, and low-carbon/energy efficiency.	All construction materials to be from recycled and/or sustainable sources.
Water / energy usage, recycling etc.	Use apps to raise awareness and influence citizen behavior	Increase community recycling, reduce water usage and fuel poverty.
Address overheating to increase resilience to climate change and protect residents' health and wellbeing.	Design standards for homes to address orientation, solar gain, shading and ventilation.	Reduce hospital admissions due to hyperthermia
Design for flood risk. Make a virtue out of living by water and a seasonal waterscape.	Collaboration with industry, insurers and Environment Agency to agree design approaches that build in resilience to flood events.	Maximise development potential of sites in flood risk areas to deliver compact urban areas and efficient infrastructure.

7.0 Conclusions

Our future looks increasing complex and rapidly changing – successful places will need to design-in the ability to change.

The neighbourhoods of the future will increasingly be shaped by citizens' preferences:

- Higher levels of empowerment, engagement and sense of community
- Live, learn, work and play within neighbourhood – evolving from Mixed use to Multi-use
- Demographic diversity across all life stages – More choice of tenures and types

Made possible by supporting/enabling hard and soft infrastructure:

- Neighbourhood-wide data informs citizens' choices – individually and communally.
- Homes and Places adaptable for all ages and stages of life.
- Customer-focused service delivery across housing, education, health and transport.

Instead of the 'predict and provide' planning policy of the last few decades, can we move to a new paradigm of town planning that values and facilitates the adaptability and ultimately, increased resilience that comes from the agility of incremental change?

Milton Keynes is Britain's planned city and that is both its strength and failure. The city is efficient but rarely exciting. It satisfies our needs but not our souls. Aren't the places we most enjoy the ones with the opportunity for the unexpected, and where people can experiment and take risks?

The increasing pace of change makes current local planning cycles increasingly hard to sustain. If the city is to be resilient, decision making has to be capable of responsive and incremental change. That resilience doesn't come from top-down planning alone, it is likely to require a finer grain of decision making, including a bottom-up influence that allows for entrepreneurs and creatives to imagine better futures.

Our planning system will therefore need to evolve to become a facilitator of change - less prescriptive about normative, 'rule-of-thumb' measures of urban form and become better at assessing a proposal's likely impact on quality of life and especially our health and wellbeing.

These various objectives are not mutually exclusive, they are interrelated and complementary, and thoughtful design can help deliver against many (or even all) these points.

The scale of growth in MK and the flexibility afforded by its design are a benefit. The city could strengthen its commitment to innovation, providing environments that encourage quality of life and delivering excellence in design mean there is the opportunity to create a place that can lead the way in making successful, thriving communities.