PART 2:
DEVELOPING THE FRAMEWORK

CREATING
STRONG
COMMUNITIES

HOW TO MEASURE THE SOCIAL SUSTAINABILITY OF NEW HOUSING DEVELOPMENTS

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Introduction

This is the second part of a report describing the development of a framework to measure the social sustainability of new housing and mixed-use developments.

The work was commissioned by the Berkeley Group and carried out by Social Life and Tim Dixon, Professorial Chair in Sustainable Futures in the Built Environment at the University of Reading. It forms part of a work environment programme undertaken by the Berkeley Group to understand the importance and relevance of social sustainability to the housing industry.

Part one of the report discusses what social sustainability means for housing providers, presents the findings that can be drawn from testing the measurement framework, and sets out a series of lessons learned.

This second part explains in detail how the measurement framework was developed for Berkeley. It includes a detailed description of the iterative development process followed by the project team, and how it was tested. It reports on the evidence base used to develop the framework; how indicators were selected; methods of primary data collection; data treatments for secondary analysis; and strategies for testing the framework. It explores the practical and methodological issues that emerged during the development of the framework, and how these were addressed.

The strategic purpose of the project is to enable Berkeley to:

• Understand what supports quality of life and strong communities and further improve the quality of all the places they build;

• Manage the risk of creating places that are commercially successful but not genuinely sustainable;

• Reap the benefits of being one of the first developers in the industry[ii] to make a commitment to social sustainability and lead the debate in this emerging area.

The project began in February 2012. Berkeley commissioned the work from Social Life, a new social enterprise taking forward the Young Foundation's body of work on social sustainability and placemaking, and Professor Tim Dixon, initially of the Oxford Institute for Sustainable Development at Oxford Brookes University and more recently of Reading University.

The aim of the work was to build on an initial paper, written by Professor Dixon, "Putting the S-word back into sustainability"[i], which explored why the social dimensions of sustainability deserve more attention and started to identify the operational issues surrounding implementation of this agenda.

The brief for the work was to define, develop and test a framework for measuring quality of life and community strength in new housing developments, using social sustainability as a frame for describing the many factors at work:

• Refining Berkeley's definition of social sustainability;

• Creating a limited set of useable and practical metrics capable of capturing the dimensions of social sustainability in Berkeley's definition;

• Testing these on four Berkeley developments.

An important objective of the work was that the emerging framework should be capable of being mainstreamed across the business, and potentially, the house building industry. This had implications for its cost and practicality, which shaped the thinking of the project team from the outset.

The work was carried out in two phases. The first phase, between February and April 2012, involved scoping a framework for assessing the social sustainability of Berkeley developments and creating an appropriate definition of social sustainability.

This phase was informed by the following activities:

• Three workshops with a working group of senior Berkeley stakeholders;

• A review of existing, comparable frameworks for measuring the social dimensions of sustainability;

• Understanding the range of different developments within Berkeley's portfolio to create typologies for testing;

• A detailed review of relevant national statistics.

The framework that emerged uses data from national surveys and is supplemented by two primary data collections: first, a random household survey of residents living on Berkeley developments to fill gaps in the existing datasets and build an accurate picture of the views, perceptions and experiences of current residents; and second, a site survey of Berkeley developments undertaken by an appropriately qualified urban planner.

This mixed method approach combines the robustness of national data and established methods of small area data analysis, with a pragmatic collection of primary data.

The second phase, carried out between April and August 2012, involved testing the framework on four Berkeley developments, which were selected as representative of the range and different types of communities built by the Group.

The focus of this project was investigating social sustainability on four developments completed between 2007 and 2012.

The communities are:

• Empire Square in Bermondsey, south London, near London Bridge, a former warehouse site with 567 homes, 30% affordable housing, granted planning consent in September 2002.

• The Hamptons, in Worcester Park in London's southwest suburbs, a former sewage works with 645 homes, 33% affordable, granted outline planning consent in December 2002. Final phase consented in September 2009.

• Imperial Wharf, near Chelsea Bridge, a former gas works with 1,428 homes, 47% affordable housing, granted outline planning consent in 2000.

• Knowle Village, near Portsmouth, a former hospital for the mentally ill with 701 homes, 31% affordable housing, granted planning consent in October 2003.

CONSTRUCTING THE MEASUREMENT FRAMEWORK: APPROACH

There were seven key steps involved in constructing the measurement framework:

• The first step was constructing a definition of social sustainability.

• The second step was to review existing, comparable frameworks for measuring and assessing different dimensions of sustainability and sustainable development, to establish whether a new framework was needed, or whether there was an existing indicator set that could be adapted for this project.

• The third consideration was to determine the point in the development cycle at which social sustainability could be measured.

• The fourth step was to agree the parameters and overall shape of the framework.

• The fifth element was to agree the aspects of social sustainability for which Berkeley (as a developer of new housing and places) can be reasonably held 'accountable'.

• The sixth step was to determine what should be measured within the boundaries of Berkeley developments and what should be measured within the wider neighbourhood.

• Finally, we considered how to incorporate a typologies perspective into the overall analysis.

The work started with a rapid review of what is known about social sustainability and a review of evidence about the different factors that are known to support local quality of life, well-being and social connections. This evidence was derived primarily from a thorough review of practice and research carried out in 2011, which is summarised in the Social Life report: "Design for Social Sustainability"[iii]. This work was supplemented by additional analysis of policy and academic research published since 2011.

This work included analysis of existing frameworks used by built environment professionals to measure different dimensions of sustainability. From there, the project team agreed the parameters for the overall framework, including its scope and remit, and how different typologies of development could be incorporated.

1.0   Developing the framework

1.1   Understanding social sustainability

Social sustainability is a complex construct that brings together a number of different but inter-related ideas about equality, access to opportunities, and the sustainability of communities, all of which are influenced by a range of factors. It is acknowledged to be a dynamic concept that can change from year to year as a result of local social activity or external political or economic influences.

Academic researchers have developed a number of conceptual definitions of social sustainability over the past decade. These bring together philosophical questions about social justice, equality, and access to opportunities, with practical concerns about quality of life, the capacity of communities to support themselves, and the provision of facilities and services.

Professor Tim Dixon, in previous work for the Oxford Institute for Sustainability Development (OISD) at Oxford Brookes University, defined social sustainability as:

"Concerning how individuals, communities and societies live with each other and set out to achieve the objectives of development models which they have chosen for themselves, also taking into account the physical boundaries of their places and planet earth as a whole. At a more operational level, social sustainability stems from actions in key thematic areas, encompassing the social realm of individuals and societies, which ranges from capacity building and skills development to environmental and spatial inequalities. In this sense, social sustainability blends traditional social policy areas and principles, such as equity and health, with emerging issues concerning participation, needs, social capital, the economy, the environment, and more recently, with the notions of happiness, well-being and quality of life."[iii]

Efforts to translate theoretical ideas into practice in the context of housing and urban planning include early work by the City of Vancouver, and previous work by Social Life.

The City of Vancouver in Canada, an early adopter of the concept of social sustainability in its Dockside Green development,[iv] agreed this definition of social sustainability in 2005:[v]

"A sustainable Vancouver is a community that meets the needs of the present without compromising the ability of future generations to meet their own needs. It is a place where people live, work, and prosper in a vibrant community of communities. In such a community, sustainability is achieved through community participation and the reconciliation of short and long term economic, social and ecological well-being."

Social Life's previous work on social sustainability argued it should be seen as:

"A process for creating sustainable, successful places that promote well-being, by understanding what people need from the places they live and work. Social sustainability combines design of the physical realm with design of the social world – infrastructure to support social and cultural life, social amenities, systems for citizen engagement and space for people and places to evolve."[vi]

This definition was used as the starting point for this project.

1.2   A definition for this project

The project team worked with a group of stakeholders from Berkeley to explore the types of investments that can support social sustainability in local areas. While many of the features of a thriving neighbourhood - like community groups or local festivals - are created by local people without specific external support, there are a range of practical interventions that can be designed into the development process, provided when a community is first built, or post-occupancy. These include:

- Providing support and facilities that help residents to meet and engage with each other, from youth centres and community development workers, to voluntary active elderly clubs, allotments and games areas.

- Making sure there are good and affordable transport links to jobs, hospitals and shops.

- Spatial and social integration of a new development with the wider neighbourhood.

- Providing high quality, shared spaces in the public realm, where people have the opportunity to socialise with their neighbours, if they choose to.

- Creating environments that are safe, and feel safe, to residents.

- Setting up channels of communication with the people who make decisions about an area (including councils and property management agencies) so that residents have a say and can make a difference to their neighbourhood.

- Running one-off events like street parties and fêtes that help people in the area get to know each other and develop a sense of community.

Contextualising these ideas and approaches alongside Berkeley's work and existing policies and processes was critical for this project: to ensure that the terminology resonated within the business, but also to ensure that the precise definition of social sustainability created was relevant to a developer building mixed-use, mixed-tenure developments aimed at a wide spectrum of incomes, in London and the South East of England.

Berkeley has positioned 'placemaking' as core to its business strategy, Vision2020[vii]. Placemaking has a strong overlap with the social sustainability agenda, and it emerged as critical for this project, and for Berkeley, to be able to distinguish between the two.

A series of discussions, involving a number of senior Berkeley staff, explored the differences between the process of placemaking, and the resulting outcome of social sustainability; as well as the need to capture the 'placekeeping' dimension of social sustainability. It was agreed that whilst both placemaking and social sustainability refer to the creation of good quality places that can become thriving communities, "placemaking" focuses on the process, and "social sustainability" on the outcomes.

The following statements were agreed with Berkeley and adopted to shape the work:

"Social sustainability encompasses the aspects of placemaking that relate to people and communities.

Social sustainability is one outcome of placemaking. Other outcomes are well designed places, strong partnerships between key agencies, economic development and environmental sustainability."

IMPLICATIONS FOR DEVELOPMENT OF THE FRAMEWORK

The definition of social sustainability that has been created and adopted for this project is:

"Social sustainability is about people's quality of life, now and in the future. It describes the extent to which a neighbourhood supports individual and collective well-being.

Social sustainability combines design of the physical environment with a focus on how the people who live in and use a space relate to each other and function as a community. It is enhanced by development which provides the right infrastructure to support a strong social and cultural life, opportunities for people to get involved, and scope for the place and the community to evolve."

1.3   Reviewing comparable sustainability measures

A rapid review was undertaken of existing, comparable frameworks that measure or assess the social dimensions of sustainability.[viii]

Twelve individual frameworks were considered in detail; although many more exist that capture a wide range of sustainability issues (for example a review for the SUE-MoT consortium included 100 sustainability tools). These 12 frameworks were considered to be relevant because either they explicitly set out to measure social sustainability, or social dimensions of sustainable development; they were practical or applicable, and not wholly theoretical.

TABLE 1: FRAMEWORKS INCLUDED IN THE REVIEW

Organisation/Author	Title of publication
Action for Neighbourhood Change; Sean Meagher	A Neighbourhood Vitality Index: An Approach to Measuring Neighbourhood Well-being
Arup; Alisdair I McGregor & Cole Roberts	Using the SpeAR Assessment Tool
Baltimore Neighbourhood Indicators Alliance	Vital Signs
Canadian Policy Research Networks	Vancouver Social Development Plan
Commission for Architecture and the Built Environment (CABE)	Building for Life
Department for Environment, Food and Rural Affairs (DEFRA)	Measuring Progress: Sustainable Development Indicators
GHK International; Geoffrey Dobilas & Fraser Battye	Measuring Neighbourhood Vitality
igloo	igloo Footprint TM
Leadership in Energy and Environmental Design (LEED)	Green Building Rating System
Leadership in Energy and Environmental Design (LEED)	LEED for Neighbourhood Design
New Economics Foundation (NEF)	Good Foundations: Towards a low carbon, high well-being environment
Oxford Institute for Sustainable Development; Tim Dixon & Andrea Colantonio	Measuring Socially Sustainable Urban Regeneration in Europe

The purpose of the review was first, to establish whether relevant measurement frameworks existed, in the UK or internationally, that could be adapted or evolved to suit the needs of Berkeley; second, to understand the range of indicators that were being used in different contexts; and third, to learn from others' attempts to quantify social sustainability.

The review identified the following issues and practical lessons, which were relevant to the development of a social sustainability measurement framework for Berkeley.

FINDINGS

The majority of sustainability measurement tools are focused on environmental and/or economic drivers (see figure 1 for a visual representation of the review), although there is increasing interest in understanding how the social life of new and existing communities can be measured and improved.

There are two notable exceptions. First, work by Andrea Colantonio and Tim Dixon carried out at Oxford Brookes[ix], and second, the Social Sustainability Survey developed by Liam Magee and colleagues at RMIT University in Australia[x].

In both cases, the researchers developed frameworks with the specific intention of measuring the social sustainability of local communities.

FIGURE 1: REVIEW OF SUSTAINABILITY MEASUREMENT AND GUIDANCE TOOLS FOR NEW HOUSING SETTLEMENTS, SOCIAL LIFE/YOUNG FOUNDATION 2011
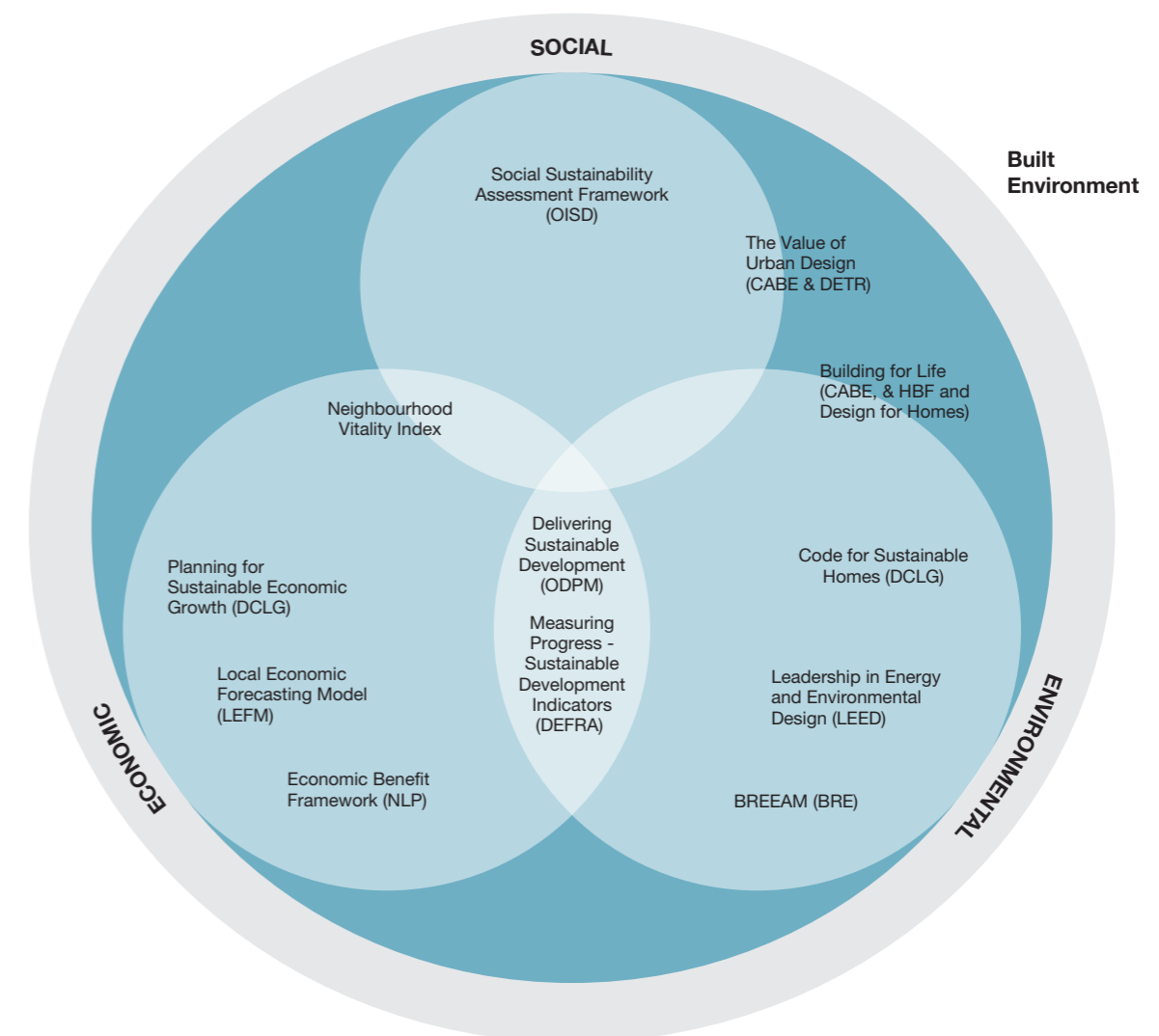
1.3 Reviewing comparable sustainability measures

The RMIT University Social Sustainability Survey was published in 2012, after this initial review and early work on developing a framework for Berkeley was concluded. The RMIT University work has been extensively tested between 2006 and 2010 in urban and rural communities in Australia, South East Asia and the Middle East. In terms of the themes or spheres of social sustainability explored in the RMIT Survey, there is some overlap with the framework developed for Berkeley. In particular, questions exploring life satisfaction, satisfaction with the neighbourhood, personal safety and personal relationships. Other questions, such as concerns about political corruption and violence are relevant only to the communities in what RMIT calls the 'Global South'. RMIT's findings about the efficacy of the Survey as a measurement instrument also reveal similarities with this Berkeley project, in particular, around the challenges of using mixed research methods.

The review established there are two broad methodological approaches in existing social sustainability frameworks.

These are first, frameworks built on factors that predict social sustainability, such as levels of poverty, access to education and inclusive design. Examples of this kind of framework include Building for Life[xi], and the Baltimore Neighbourhood Indicators Alliance, Vital Signs[xii]. Although these frameworks often make good use of existing data and are simple to apply, they do not take adequate account of outcomes as experienced by residents or other users of the space.

And second, frameworks based on residents' everyday experience, which focus on how predictive factors are played out in everyday life. These frameworks attempt to measure the 'softer' elements of social sustainability (such as relationships, well-being and neighbourhood satisfaction); and the outcomes of policy interventions and/or development processes on lived experience (see for example OISD, Measuring Socially Sustainable Urban Regeneration in Europe[xiii], and Action for Neighbourhood Change, A Neighbourhood Vitality Index[xiv]. The issue with this approach is practicality. Collecting the necessary data is time-consuming and costly, making frameworks difficult to apply on a larger scale beyond a single development.

A particular challenge for this project, therefore, is developing a framework and set of indicators that is able to capture the complexity of individual and collective experiences of place, and is robust yet simple enough to complete and replicate for meaningful comparisons.

Best practice lessons:

- **Scale and type of development**
  Frameworks need to take account of diversity between places - priorities will differ based on the nature of development. With this in mind, measurement tools should be adaptable to reflect context (OISD, Measuring Socially Sustainable Urban Regeneration in Europe)[xv].

- **Measuring for comparison**
  Establishing benchmarks and/or mechanisms through which places can be easily compared is key; success should be understood in relative terms (see LEED, LEED for Neighbourhood Design)[xvi].

- **Awareness of diversity**
  It is important to understand how particular groups experience the space. Demographic analysis is significant in establishing not only the broader sense of community well-being, but also how particular groups are experiencing the space (see DEFRA, Measuring Progress: Sustainability Development Indicators[xvii] and, Action for Neighbourhood Change, A Neighbourhood Vitality Index)[xviii].

- **Pre-and post-development**
  Measurement tools and indicators should include assessment of pre-and post-development processes, linking outcomes with development aims and objectives (see nef, Good Foundations, for a helpful discussion of this issue; "We break down the development process into three broad stages: place shaping, the process of agreeing a vision for a development project; placemaking, the process of embedding development objectives into design and delivery; and reviewing impact, the process of evaluating change.")[xix]

- **Overarching framework**
  Categorisation of measurement tools helps to focus areas of analysis (and avoid omissions). The Vancouver Social Development Plan provides a useful framework based around three core areas; Basic Needs, Individual Capacity, and Social or Community Capacity.

- **Data visualisation**
  Converting large data sets into an attractive and coherent visual tool allows for simple comparisons between factors, and encourages engagement from a variety of stakeholders (see Arup, Spear Assessment Tool,[xx] Figure 2).

FIGURE 2: ARUP, SPEAR ASSESSMENT TOOL, VISUAL REPRESENTATION OF DATA
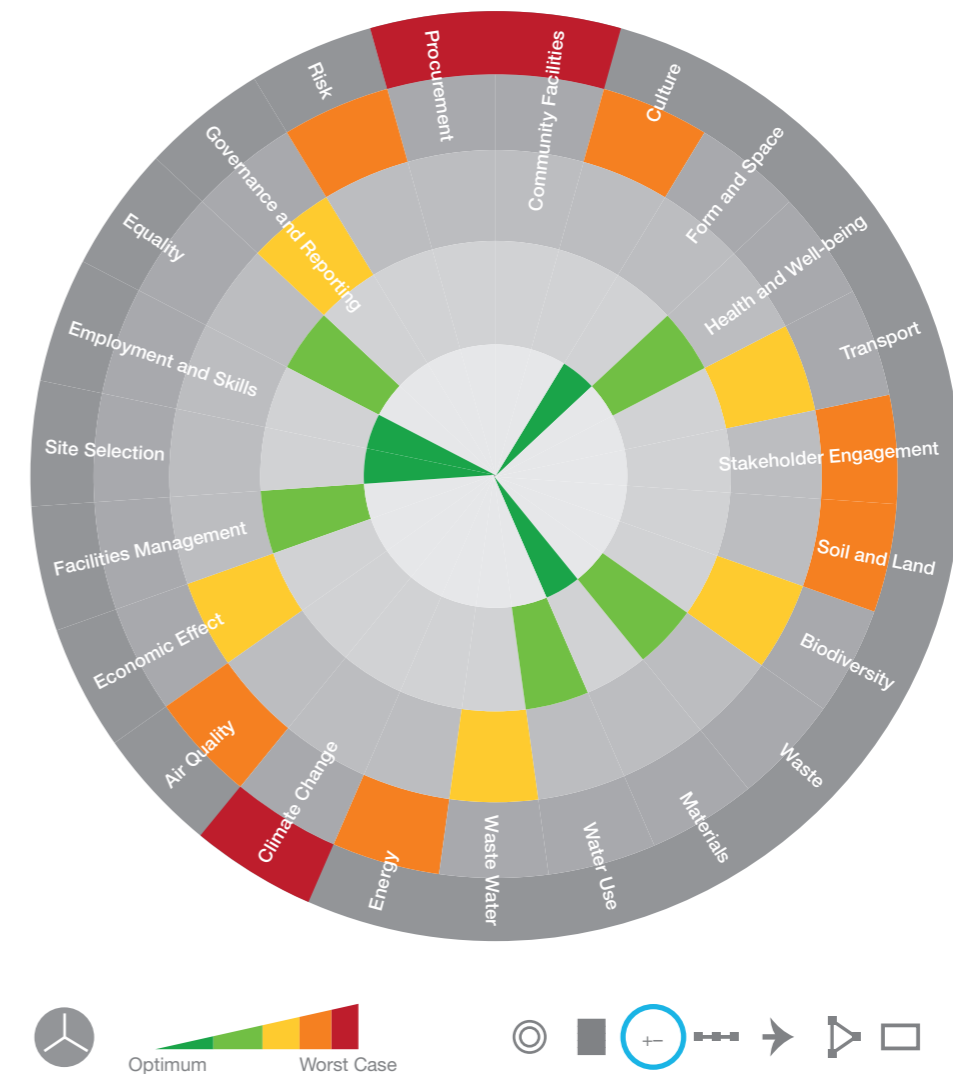
IMPLICATIONS FOR DEVELOPMENT OF THE FRAMEWORK

Analysis of the rapid review concluded that the aim for the Berkeley framework should be to combine the best of the practicality and replicability of the frameworks that predict social sustainability, whilst capturing the everyday life and outcomes for residents.

The aim, therefore, in taking forward a social sustainability framework for Berkeley is to combine good use of existing data and 'knowledge of what works' to measure the predictive elements of social sustainability with an understanding of lived experience (both individual and collective) in a way that allows for easily replicated assessment at a relatively low cost.

1.4 What measurements should be taken?

The development process is lengthy, from initial site selection, through master planning, consultation, the formal planning process, breaking ground and then the completion of each phase, often involving new planning applications (see figure 3). In theory, a social sustainability measure is possible at every critical point in the development process; for example, metrics could be designed for use early in the process indicating whether the right conditions are being created to support social sustainability, such as considering socio-spatial integration, mix of housing tenure, and planning for community involvement in decision-making; other metrics could be deployed as the site is built to measure how initial plans are impacting on outcomes. The final measurement – after completion – needs to capture how residents experience the community that emerged.

The long-term aim of this project is to enable Berkeley to understand and measure the social sustainability of its developments, so future communities created by the Group have the greatest chance of social, environmental and economic sustainability.

To achieve this, assessments and measurements need to be carried out at two stages:

• pre-development, using a set of metrics for site selection, to understand how external factors such as transport links and existing infrastructure interact with social factors, such as local demographics and local needs, to create the conditions for creating socially sustainable places. These metrics would point to what needs to be put in place and strengthened in a development to improve the chance of future success, both in terms of what Berkeley can deliver, and the responsibilities of other stakeholders, including local government;

• after completion, to capture the extent to which a development can be considered to be socially sustainable by measuring performance against a pre-determined set of indicators.

Testing the framework and assumptions on Berkeley developments that have been completed at least for two years (or for very large schemes, where the main phase had been completed) will offer valuable insights, and generate a body of knowledge specific to the type of developments that Berkeley builds.

There is clearly great value in developing a framework that can inform site selection, master planning and community consultation, to enhance the future viability of schemes. If the credibility of the post-completion social sustainability framework developed in this project can be demonstrated, then a site selection social sustainability metric can be created, with interim indicators to demonstrate whether developments are "on track" to be socially sustainable.

FIGURE 3: MEASURING ALONG THE DEVELOPMENT TIMELINE

IMPLICATIONS FOR DEVELOPMENT OF THE FRAMEWORK

It was agreed that this project would focus on developing a framework for assessing the social sustainability of Berkeley developments two or more years after completion. If, after testing on a selection of developments, the framework was agreed to be robust, then a site selection metric and a suite of light touch indicators at each stage of development could be devised.

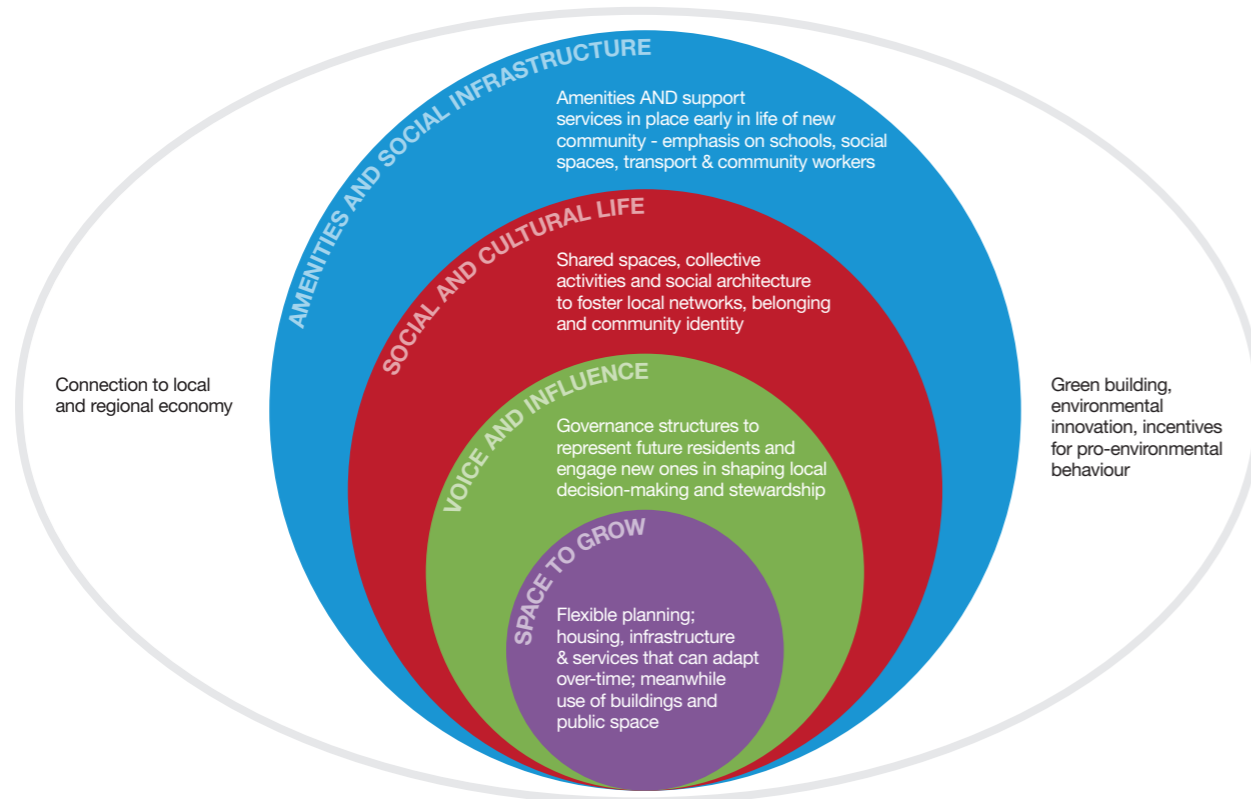## 1.5 Choosing a shape for the overall framework

Having determined there was no existing framework that could be used or adapted for this project, and that the framework should focus on measuring resident experience at least two years after completion, it was important to create some organising principles to shape the framework.

Between 2010 and 2011 the Social Life team (then at the Young Foundation) carried out a large-scale review of available evidence about what makes communities, in particular large-scale new communities, flourish socially. This work was commissioned by the Homes and Communities Agency (HCA), and was an attempt to consolidate the available, but disparate, evidence to make the case for investment in community infrastructure. The evidence gathered in the full review was published on futurecommunities.net[xxi], a website hosted by the HCA.

This work underpinned the development of the social sustainability framework (see figure 4) in the Social Life report "Design for Social Sustainability"; which has four key dimensions:

• Amenities and social infrastructure

• Social and cultural life

• Voice and influence

• Space to grow

FIGURE 4: OUR STARTING POINT. SOCIAL LIFE'S FRAMEWORK FROM DESIGN FOR SOCIAL SUSTAINABILITY: A PRACTICAL FRAMEWORK FOR BUILDING COMMUNITIES[XXII]

AMENITIES AND SOCIAL INFRASTRUCTURE
Amenities AND support services in place early in life of new community - emphasis on schools, social spaces, transport & community workers

SOCIAL AND CULTURAL LIFE
Shared spaces, collective activities and social architecture to foster local networks, belonging and community identity

VOICE AND INFLUENCE
Governance structures to represent future residents and engage new ones in shaping local decision-making and stewardship

SPACE TO GROW
Flexible planning; housing, infrastructure & services that can adapt over-time; meanwhile use of buildings and public space

Connection to local and regional economy

Green building, environmental innovation, incentives for pro-environmental behaviour

The purpose of this work was to create a practical resource to support local authorities, public agencies and built environment professionals involved in creating new communities; specifically, to think beyond physical space and the natural environment and consider how the social life of new places can be supported through practical interventions by a range of different actors, including residents themselves.

TABLE 2: SOCIAL SUSTAINABILITY IN PRACTICE: ACTING ON THE FOUR DIMENSIONS

Amenities and infrastructure	Public space; schools; playgrounds; provision for teenagers and young people; services for older people; healthcare; transport links; shared spaces that enable neighbours to meet; space that can be used by local groups; and whether a development/neighbourhood can adapt to meet future resident needs and aspirations.
Social and cultural life	How people feel about their neighbourhood; sense of belonging and local identity; relationships between neighbours and local social networks; feelings of safety, quality of life and well-being; how people living in different parts of a neighbourhood relate to each other; how well people from different backgrounds co-exist.
Voice and influence	Residents' perceptions of their influence over the wider area and whether they will get involved to tackle problems. The existence of informal groups and associations that allow people to make their views known, local governance structures; responsiveness of local government to local issues.
Space to grow	Ability of places and facilities to adapt and flex to meet changing needs; public space that can be adapted to meet changing needs and wishes; future options for residents to shape public and shared space; flexible stewardship strategy; scope to local management and governance.

1.5 Choosing a shape for the overall framework

EVOLVING THE FRAMEWORK FOR BERKELEY

"Space to grow" was omitted from the Berkeley framework as a stand-alone dimension, with the key questions being absorbed into other sections. A new dimension: "change in the neighbourhood over time" was added in its place.

i) Space to grow

Space to grow is an important element of the concept of social sustainability: for a new community to be successful and sustainable, the place – the public space, the housing stock and amenities, and the social infrastructure – has to be able to adapt over time. Many aspects of social life that make communities flourish cannot be planned in advance. Needs evolve, residents voice unexpected wishes, social trends change – ten years ago for example the interest in allotments and domestic cultivation of food was far less mainstream than today. Rigid planning that seeks to create a blueprint for the future can frustrate later efforts to adapt and evolve.

However, enabling this type of flexibility is the responsibility of many different agencies, not only housing developers. The concepts included in the dimension "space to grow" were therefore incorporated into other elements of Berkeley's social sustainability framework. Specifically, the aspects of "space to grow" focusing on the physical dimensions of a place ("is the public and private space able to be adapted to meet future needs?") were incorporated into "amenities and infrastructure"; and whether or not a community, or groups of residents, or even individual residents had the ability to shape a place in the future through individual or collective action was incorporated into the "voice and influence" dimension.

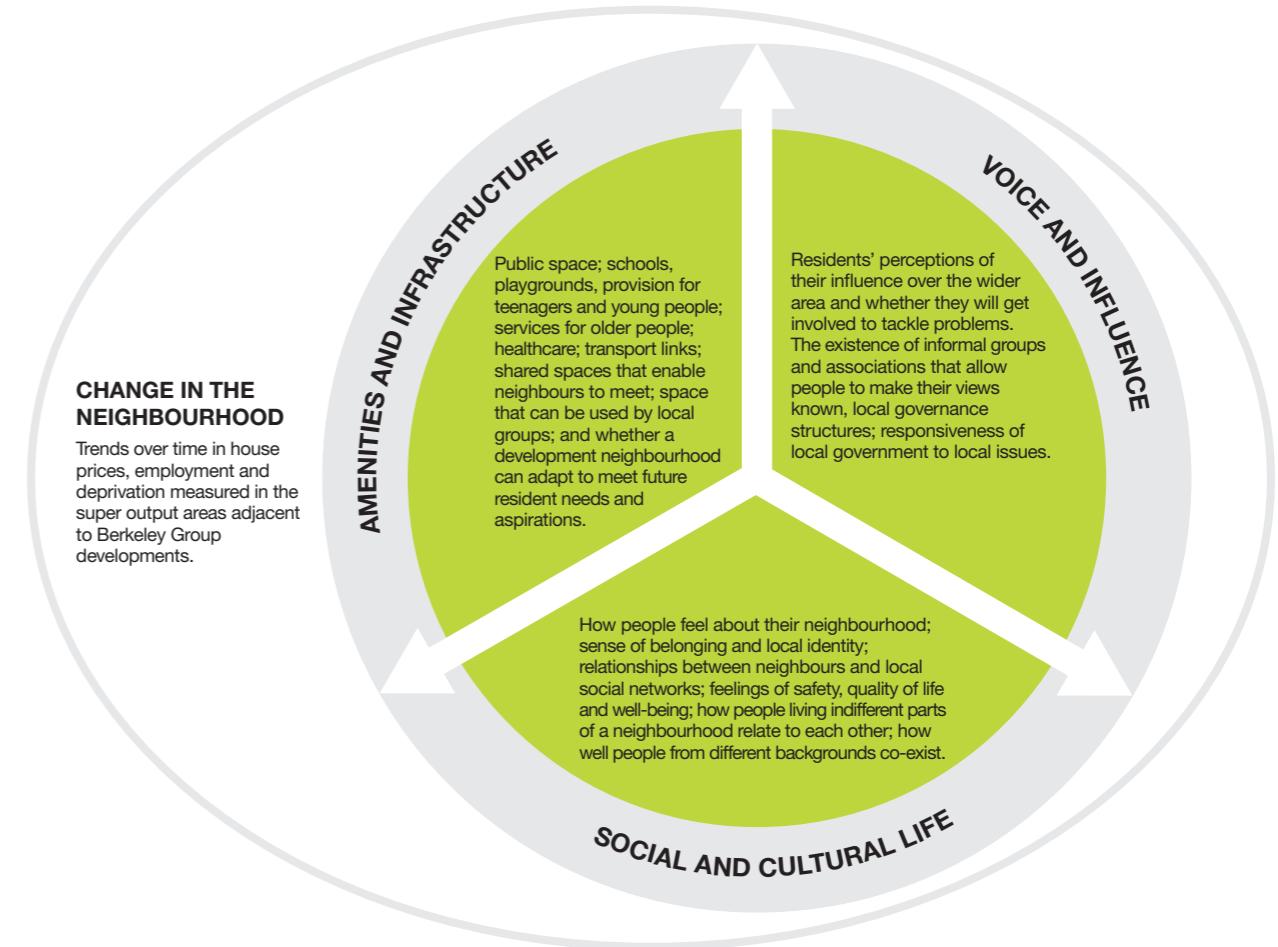**ii) Change in the neighbourhood**

An additional dimension was added into the framework: the impact of the development on the wider neighbourhood over time. This dimension captures changes in the wider neighbourhood in house prices, in demographics, and in socio-economic characteristics. It was agreed that these concepts are particularly relevant for a developer like Berkeley that frequently builds housing and mixed-use developments in areas that are regenerating, whether these are deemed specific 'regeneration projects' or not.

Private housebuilders are key partners in area regeneration projects, the hypothesis being that the development of new housing for sale or private rent, alongside better quality affordable housing, will change tenure balance, boost house prices and attract a different group of more affluent residents into areas that have suffered long-term economic blight; and, that this in turn will have a knock-on impact on prosperity and opportunity for other residents.

The terms regeneration and gentrification are contested and prompt considerable debate among academics and policymakers, especially in the context of sustainable development. Summarising these debates is beyond the scope of this project, so this report will not go further than acknowledging the importance of understanding and measuring change in neighbourhoods over time. However, a review of existing work in this area commissioned by the Joseph Rowntree Foundation concluded that "research suggests that well managed, mixed-tenure communities have the potential to facilitate social interaction between residents without imposing on residents' privacy. They may help counteract social exclusion and adverse neighbourhood effects associated with mono-tenure estates".[xxiii]

Measuring this dimension is important because it will enable Berkeley to determine how its developments impact on the surrounding neighbourhoods, and specifically, whether the development has generated any positive improvements for the wider area. Census data can be used to analyse trends over time in economic activity and deprivation levels, including health and education outcomes. The relevant release from the 2011 census, due in December 2012, will enable a 10-year comparison to be made. However, it will not be possible to fully model this dimension of the framework until this data is made available. At the time of writing, it is only possible to refer to data from 1991 to 2001, which is not an appropriate timeframe for the four developments included in the test.

FIGURE 5: THE FOUR KEY DIMENSIONS - WHAT THEY MEAN IN PRACTICE

AMENITIES AND INFRASTRUCTURE

VOICE AND INFLUENCE

SOCIAL AND CULTURAL LIFE

CHANGE IN THE NEIGHBOURHOOD
Trends over time in house prices, employment and deprivation measured in the super output areas adjacent to Berkeley Group developments.

Public space; schools, playgrounds, provision for teenagers and young people; services for older people; healthcare; transport links; shared spaces that enable neighbours to meet; space that can be used by local groups; and whether a development neighbourhood can adapt to meet future resident needs and aspirations.

Residents' perceptions of their influence over the wider area and whether they will get involved to tackle problems. The existence of informal groups and associations that allow people to make their views known, local governance structures; responsiveness of local government to local issues.

How people feel about their neighbourhood; sense of belonging and local identity; relationships between neighbours and local social networks; feelings of safety, quality of life and well-being; how people living in different parts of a neighbourhood relate to each other; how well people from different backgrounds co-exist.

It is important to acknowledge the issue of time in relation to the four dimensions of Berkeley's social sustainability framework (see figure 5) and to the process and timescale of developing a new community.

- "Amenities and infrastructure" captures past attempts to lay the foundations for a thriving community through design and provision of services.

- "Social and cultural life" illustrates the present, how people experience the development.

- "Voice and influence" illustrates the residents' potential to shape their future.

- "Change in the neighbourhood" captures the impact over time, of a new community on the surrounding neighbourhoods and wider area.

IMPLICATIONS FOR DEVELOPMENT OF THE FRAMEWORK

The three dimensions of the framework that can be immediately populated with data will be the focus of development and testing; these are: "voice and influence", "amenities and infrastructure" and "social and cultural life".

1.6 What can a housebuilder be held accountable for?

The social sustainability of any single community is dependent on many factors, some of which are affected by local action, planning and decision making, and others which are beyond the scope of local agencies (for example, the state of the global economy).

The social sustainability framework for Berkeley incorporates a range of factors and services that necessarily involve a range of different actors; from provision of amenities like schools, health care and community buildings, to nurturing a sense of belonging, influencing feelings of safety, and understand residents' perceptions of their own ability to tackle problems.

Clearly, local authorities are critical, providing parking and street scene services, social welfare provision and youth services, as well as having the strategic view of the wider area; also significant are health services, education providers, the police, community organisations, the local third sector, local businesses, major local employers, and residents themselves.

1.6.1 What can a housing developer reasonably be held accountable for within the three core dimensions?

A key question for the project was what can a housing developer like Berkeley reasonably be held directly accountable for within the three core dimensions of the proposed social sustainability framework? And, what are they able to exert some influence over but not control directly?

Amenities and infrastructure

- Design is important in shaping the look and feel of a development, and a body of research evidences the relationship between design and actual and perceived crime.[xxiv]

- Good design also facilitates neighbourliness, by creating public spaces where residents can congregate and meet, without feeling compelled to get too close to their neighbours; through this it also encourages people from different backgrounds, possibly living in different housing tenures, to meet and develop "bridging" social capital[xxv] – the relationships within a neighbourhood that give a community strength through the power of social bonds.

- Clearly, housing developers have significant influence over the design and build quality of housing and public spaces in a development.

- The provision of local facilities is partly the result of local government and other public sector decision-making, but housing developers do have a role in providing community facilities within developments, and ensuring that there is scope for adaptation and flexibility within the development to allow for space to grow in the future.

Social and cultural life

- Measures taken early in the life of a new housing development can be critical in building thriving communities: community facilities provided early in the process can help residents to bond and develop a sense of belonging and local identity soon after moving in.

- Local festivals and events as well as the activities of community development staff (either specialist, or through other staff like managing agents providing this function) help build identity and belonging. These are all factors within a developer's control.

- However, many factors within the local social life of the community are dictated by the social needs of residents. Some of these relate to service provision, whether for example, older people have appropriate support, or whether younger, vulnerable teenagers have access to meaningful opportunities.

- Other issues associated with the complex impact of poverty and social exclusion on a wider community are more challenging for a housing developer to tackle; such as problems associated with crime, neighbourhood blight, poor environment, homelessness and overcrowding, and drug use.

Voice and influence

- Residents' perceptions of whether or not they can influence the problems and experiences that concern them (ranging from parking, to maintenance of communal spaces, planning and licensing issues, and problems with neighbours) are directly influenced by the activities of housing developers, particularly those like Berkeley that enter into complex management arrangements.

- Housing developers can dictate the extent to which future residents can be involved and engaged in decision-making and governance through the management arrangements they establish and how these enable and empower residents.

- There is growing interest from communities, local government and some housing developers, in creating stewardship and governance functions that are resident-led. There is scope here for housing developers to consider creating and supporting asset-linked governance structures to empower local communities.

- The existence of formal or representative democratic or public governance structures, such as parish councils, community councils or neighbourhood forums, are beyond the remit of a housing developer.
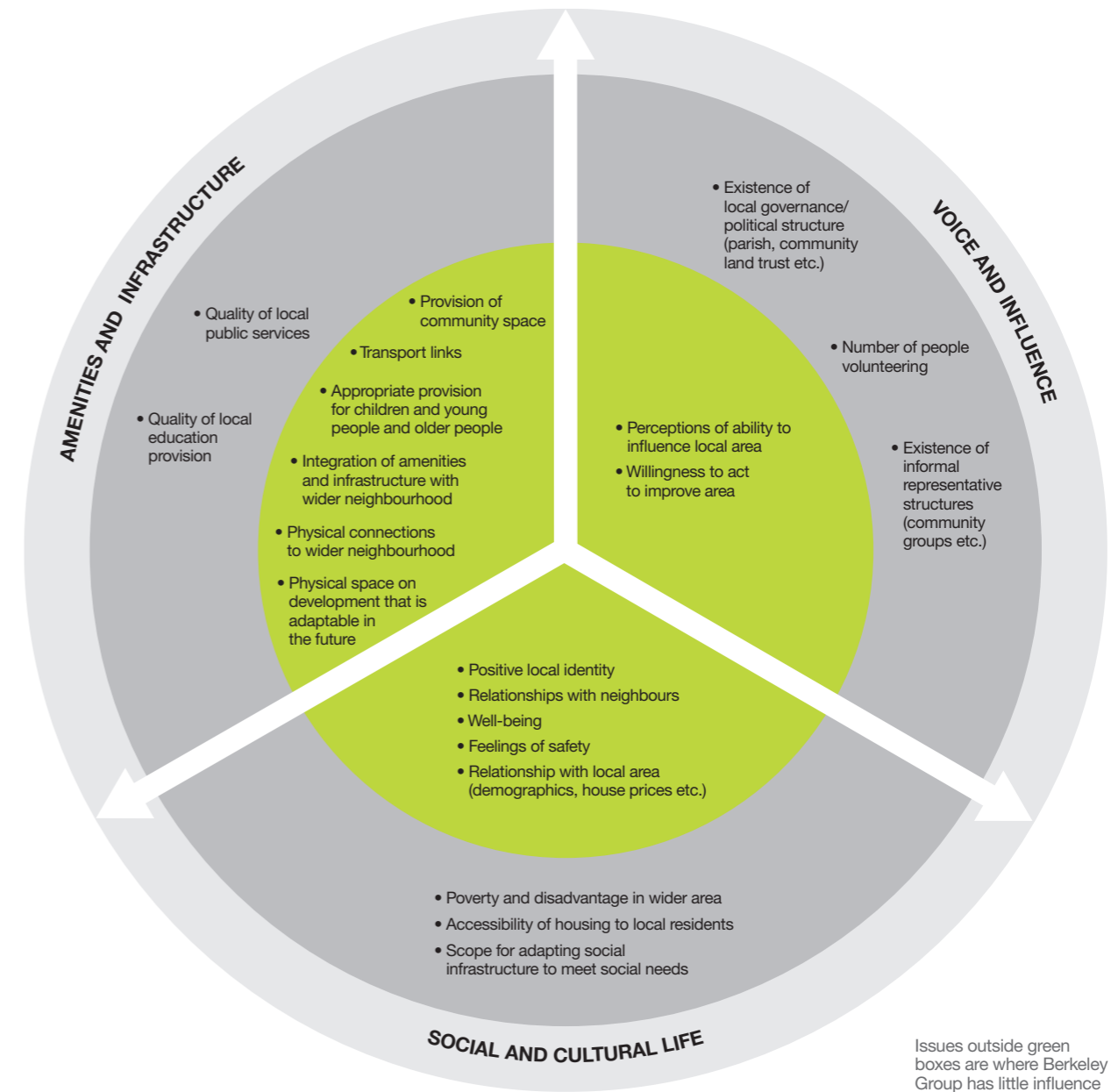
1.6.1 What can a housing developer reasonably be held accountable for within the three core dimensions?

IMPLICATIONS FOR DEVELOPMENT OF THE FRAMEWORK

The diagram on the following page shows how key factors in the Social Life social sustainability framework were excluded from the Berkeley social sustainability framework because they were deemed to be reasonably beyond the scope of a housing developer. The factors that were excluded were:

Amenities and infrastructure

- Quality of local public services

- Quality of local education provision

Social and cultural life

- Poverty and disadvantage in the wider area

- Accessibility of housing to local residents

- Scope for adapting local social infrastructure to meet local needs

Voice and influence

- Existence of formal local governance below local authority level (eg parish or community councils)

- Number of people volunteering

- Existence of informal community structures that focus on specific interests (parents' groups, carers' support groups etc)

FIGURE 6: WHAT CAN BERKELEY BE HELD ACCOUNTABLE FOR?

AMENITIES AND INFRASTRUCTURE

VOICE AND INFLUENCE

SOCIAL AND CULTURAL LIFE

- Existence of local governance/ political structure (parish, community land trust etc.)
- Quality of local public services
- Provision of community space
- Transport links
- Number of people volunteering
- Appropriate provision for children and young people and older people
- Quality of local education provision
- Integration of amenities and infrastructure with wider neighbourhood
- Perceptions of ability to influence local area
- Willingness to act to improve area
- Existence of informal representative structures (community groups etc.)
- Physical connections to wider neighbourhood
- Physical space on development that is adaptable in the future
- Positive local identity
- Relationships with neighbours
- Well-being
- Feelings of safety
- Relationship with local area (demographics, house prices etc.)
- Poverty and disadvantage in wider area
- Accessibility of housing to local residents
- Scope for adapting social infrastructure to meet social needs

Issues outside green boxes are where Berkeley Group has little influence

1.7 The red line issue: what should be measured within a development? What should be measured in the wider neighbourhood?

A key question for Berkeley has been to what extent is the social sustainability of its developments connected to the social sustainability of the surrounding neighbourhoods and wider area?
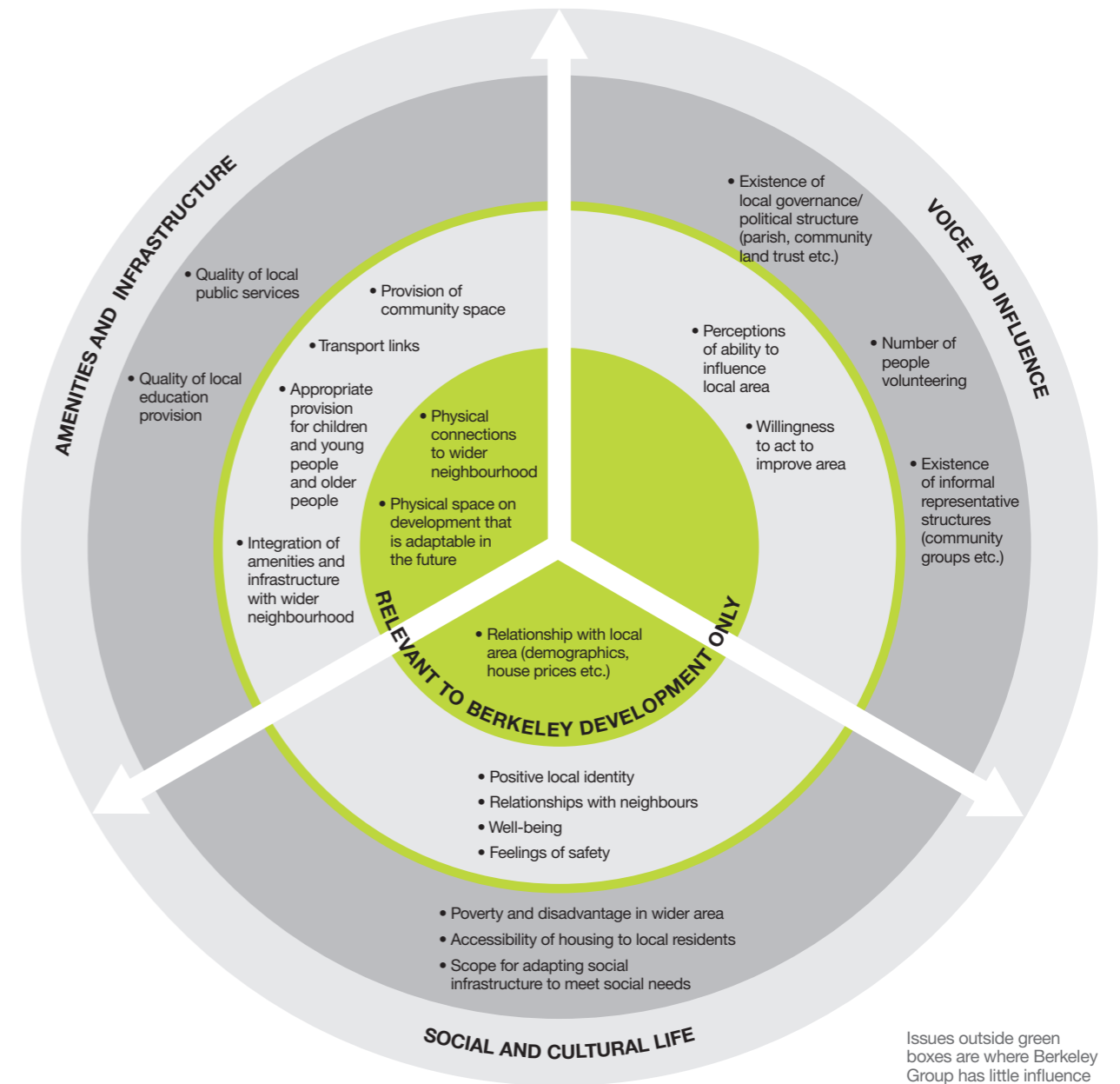
Certain facilities, like leisure centres, health centres, and schools, will almost inevitably be shared with residents living in adjacent streets. Likewise, feelings of safety, a sense of belonging, and the extent to which residents identify with a particular place, will be associated with the wider neighbourhood.

Figure 7 illustrates an analysis of the factors within the emerging social sustainability framework that can be considered to be "red lined" within each development. The implication is that the majority of factors within the social sustainability framework are relevant to the experience of both Berkeley residents, and residents of the wider neighbourhood.

IMPLICATIONS FOR DEVELOPMENT OF THE FRAMEWORK

If most indicators being considered for inclusion in Berkeley social sustainability framework are relevant both to the development and the surrounding neighbourhood, then a question arises about the data collection strategy. What data can realistically be collected from residents of Berkeley developments and from the wider community, given the constraints of the project and the need to create a practical, useable and replicable measurement framework?

FIGURE 7: WHAT IS RELEVANT WITHIN BERKELEY DEVELOPMENTS AND WITHIN THE WIDER NEIGHBOURHOOD?

AMENITIES AND INFRASTRUCTURE

VOICE AND INFLUENCE

RELEVANT TO BERKELEY DEVELOPMENT ONLY

SOCIAL AND CULTURAL LIFE

- Quality of local public services
- Provision of community space
- Transport links
- Quality of local education provision
- Appropriate provision for children and young people and older people
- Physical connections to wider neighbourhood
- Integration of amenities and infrastructure with wider neighbourhood
- Physical space on development that is adaptable in the future
- Existence of local governance/ political structure (parish, community land trust etc.)
- Perceptions of ability to influence local area
- Number of people volunteering
- Willingness to act to improve area
- Existence of informal representative structures (community groups etc.)
- Relationship with local area (demographics, house prices etc.)
- Positive local identity
- Relationships with neighbours
- Well-being
- Feelings of safety
- Poverty and disadvantage in wider area
- Accessibility of housing to local residents
- Scope for adapting social infrastructure to meet social needs

Issues outside green boxes are where Berkeley Group has little influence

1.8 Social sustainability is context specific: developing typologies for Berkeley communities

Berkeley operates across London and the South East of England. The range of developments the Group has recently completed, or is planning, is considerable – from large scale urban regeneration developments, such as those at Kidbrooke, in south east London, or Woodberry Down in north London; to small infill developments in rural areas.

Social sustainability will inevitably have a different meaning in each context, so developing a workable framework makes it necessary to develop a "typology" of communities (see figure 8), and analyse what social sustainability means in each.

An initial decision was taken to omit the Berkeley Group's student accommodation from the social sustainability framework. The presence of student accommodation can have an impact on the wider neighbourhood, but the perceived 'headline' issues that tend to emerge, of transience and sometimes of anti-social behaviour, are different to those raised by residential developments. It was also agreed to exclude smaller developments (eg less than 20 homes, often in rural areas) as developments of this size are unlikely to develop a specific neighbourhood or community identity, or be able to support dedicated facilities and infrastructure in the same way as a larger development.

Analysis and discussion with Berkeley internal stakeholders suggests that four different typologies can be used to understand the spread of different types of development within their portfolio: rural and semi-rural dwellings, suburban dwellings, urban dwellings and urban regeneration schemes (see figure 8).

FIGURE 8: TYPOLOGIES

Rural/semi-rural settings   Urban regeneration   Urban dwellings   Suburban dwellings

Isolating the key factors that differentiate the four typologies enabled the project team to understand what social sustainability could mean for different resident groups (see table 3).

A key variable is the age of residents: families with young children, for example, will have different needs from their neighbourhood than older affluent single people. A second differentiating factor is transport: the needs of residents of rural developments, possibly some distance from shops, school and work, are different from those living in urban areas with access to a range of good public transport.

TABLE 3: THE FOUR TYPOLOGIES, KEY DIFFERENTIATING FACTORS

Development type	Berkeley Group examples	Considerations for metrics: key factors differentiating typologies
Rural/semi-rural new build	Edenbrooke (Fleet); Holborough Lakes (Kent); Queens Acre (Beaconsfield)	Demography - older residents (retired), families (children and young people) Geography - regional transport hub, local amenities
Urban regeneration	Kidbrooke Village; Woodberry Down	Demography - older residents (retired), families (children and young people), young professionals Geography - local transport hub, hyper local amenities
Urban dwellings	Goodman's Fields; Casplan Wharf; Marine Wharf	Demography - professionals (single and couples), (fewer children and young people) Geography - local transport hub, hyper local amenities
Suburban dwellings	Cambridge Riverside; The Waterside at Worcester; The Hamptons (Surrey)	Demography - families (children and young people), older residents (retired), professionals (commuters) Geography - regional transport hub, local amenities

The Berkeley Group includes separate companies, such as St George and St James. Although each part of the business has a separate identity and tends to build developments with a particular architectural style, these differences did not emerge as critical when analysing the Group's outputs.

Overall, apart from the wider geographical differences, the particular social circumstances of different neighbourhoods and developments were reported to be more significant to the typologies.

IMPLICATIONS FOR DEVELOPMENT OF THE FRAMEWORK

Benchmarking developments by typology proved difficult as there is not enough evidence and data available to understand the particular challenges, or benefits, to social sustainability of developing housing within the four broad contexts of urban, rural, suburban and urban regeneration. It was therefore agreed that the critical benchmark for developments was the neighbourhood they were located within.

In order to capture what is different between typologies, particular attention needs to be given to capturing two sets of information: firstly data about whether developments meet the needs of children and families; and secondly about transport, including access to public transport, service frequency and, where possible, traffic flows.

In testing the framework, four sites were chosen, each from one of the four typologies. The intention was to test the extent to which social sustainability manifests itself differently in different situations, and how Berkeley can consider developing guidance and benchmarks for developments in different contexts.

1.9 Expert group

A group of experts was invited to provide feedback on phase one of the project. They were invited to take part because of their experience of working on social sustainability, housing, new communities, measurement frameworks and national data sets.

The group included: Dinah Roake (ATLAS/Home and Communities Agency), Dr Nicola Dempsey (University of Sheffield), Paul Allin (formerly at the Office for National Statistics), and Stephen Burns (Peabody).

The main points of feedback provided by the group are described below. This is not a comprehensive description of all the feedback received; instead it summarises some of the more salient and actionable points. These insights were used throughout the framework development process to guide our judgments and approach.

Combining data:

Questions were raised about how we intend to combine data from different sources. In particular, it was argued that the more subjective assessments of a site surveyor should be kept separate from residents' survey responses. The dangers of relying on site survey work, without adequate input from residents, were also highlighted.

Resident involvement:

Building on this point, comments touched on the nature of residents' involvement in developing the framework. It was suggested that the indicators should be co-designed with local people to help build a better understanding of what relevant factors respondents value most. This was beyond the scope of the project; however we did include some additional time for more substantial qualitative conversations with local stakeholders and residents to discuss their on-site experiences in more detail.

Site selection:

The expert group also stressed the importance of selecting pilot schemes that will provide for interesting analysis and comparisons. With this in mind, it was suggested that sites be chosen to reflect and/or challenge: (1) the different development typologies defined in phase one; (2) the changing planning policy context over time; and (3) Berkeley's perceptions about successful schemes.

Time:

Feedback on our working definition of social sustainability (developed for the purposes of this project) highlighted some concerns about understanding the concept as static (i.e. measurable at a particular moment in time). Comments emphasised the inherently long-term nature of sustainability, and underlined the need to consider "placekeeping" as well as "placemaking".

Feeding back into practice:

Moving beyond the principal measurement function of an assessment framework, the expert group asked how practitioners might be able to translate site-specific findings, and broader lessons, into future design and implementation work.

2.0 Populating the framework with indicators

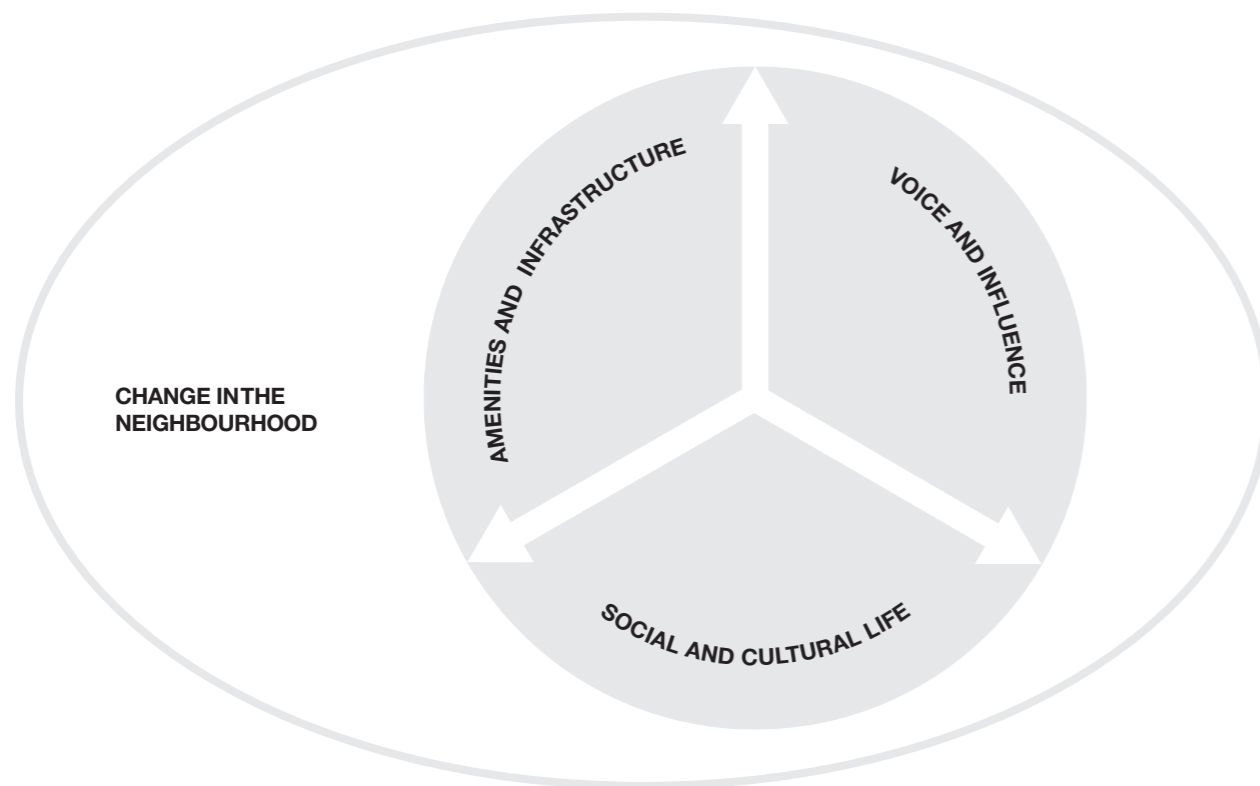This section explores the process used to populate the framework with indicators.

It explains the way that existing data has been used and analysed; and how new data has been generated through resident surveys using validated, pre-existing questions, supplemented by a small number of new questions created to fill data gaps.

It also discusses how the social sustainability assessments were created by combining scores for different questions to create the composite indicators.

The section reports on three dimensions of the social sustainability framework, namely "amenities and infrastructure", "voice and influence" and "social and cultural life". As the data needed to complete analysis of the "change in the neighbourhood" dimension does not become available until December 2012, it is not included in this report.

The three dimensions (see figure 9) are populated with 13 indicators (see figure 10) comprised of a total of 45 questions.

2.1 Populating the framework with indicators: the approach

The aim of this project is to develop a framework that can be mainstreamed across Berkeley's development portfolio at a reasonable cost.

To balance the need to restrict costs and maintain robustness, a strategy was developed to combine existing data from national surveys carried out by government and research councils, with primary data collected specifically for this project.

Using existing data allowed the project team to mine robust, high quality data; while bespoke survey work allowed the team to accurately capture the experiences of residents.

Where possible, questions were used in the primary data collection that replicated those used in existing, well-respected national surveys. This enabled findings from the primary research to be compared to existing datasets.

Therefore, the approach has two complementary strands:

• Primary data collection through a random, household survey of residents, using quota sampling based on housing tenure and basic demographic profiling, plus a site survey undertaken by an appropriately qualified urban planner.

• Secondary analysis of existing datasets: the Understanding Society Survey, the Citizenship Survey; the Crime Survey for England and Wales (formerly known as the British Crime Survey); and the Taking Part Survey.
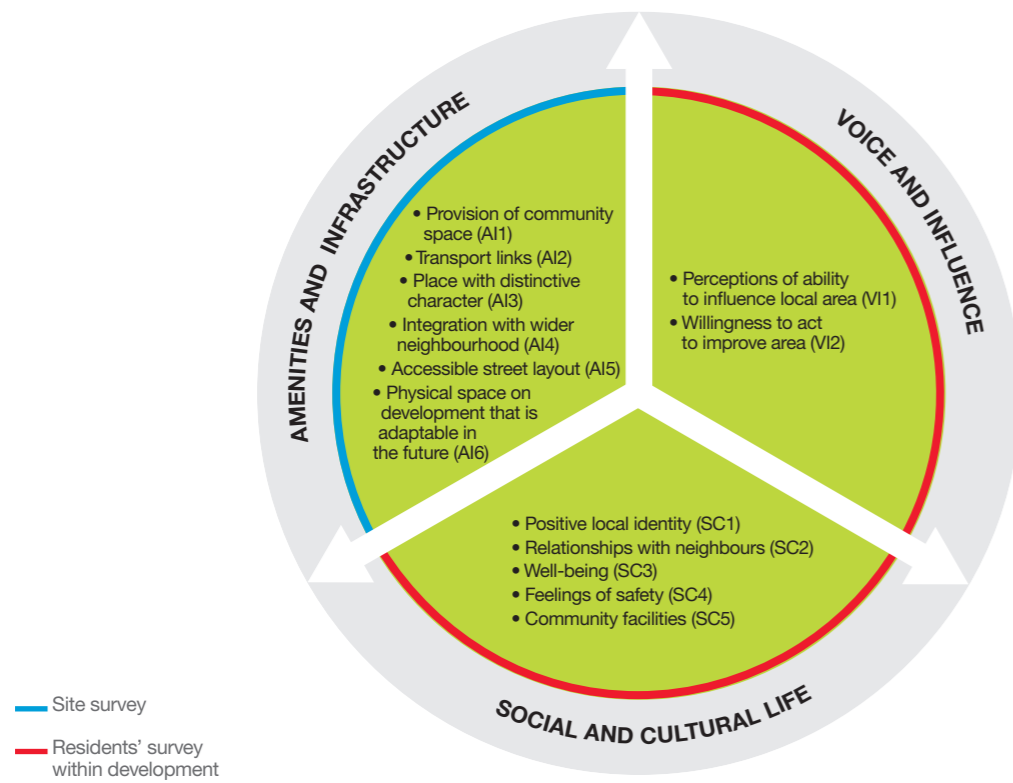
FIGURE 9: SOCIAL SUSTAINABILITY MEASUREMENT FRAMEWORK

FIGURE 10: PROPOSED INDICATORS
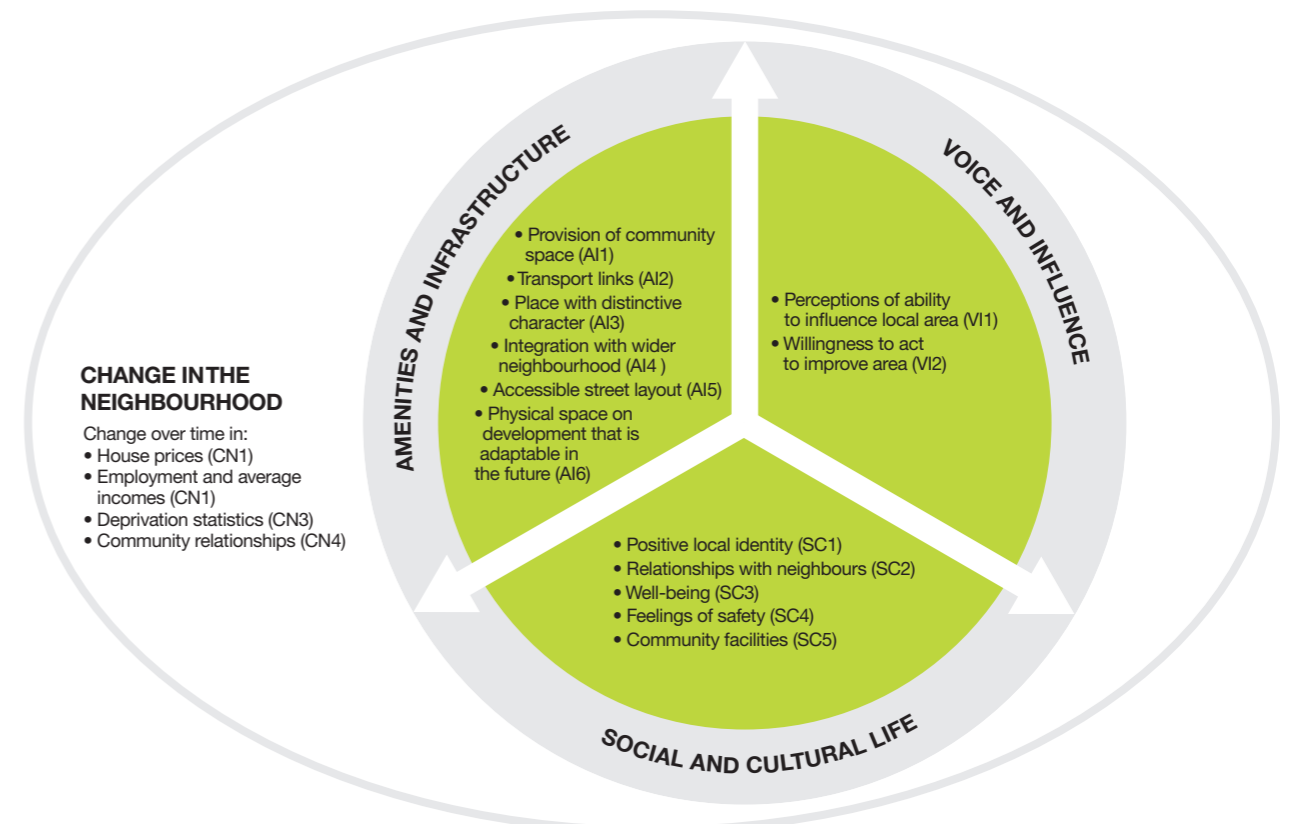
2.2 Primary data collection strategy

This had two key elements: a survey of residents, and a site survey.

FIGURE 11: PRIMARY DATA COLLECTION SOURCES

— Site survey

— Residents' survey
within development

A full list of all the questions used in the primary data collection exercises is included in section 2.5 of this report.

2.2.1 The residents' survey

An important consideration for the residents' survey was balancing brevity (to ensure it was practical, affordable and replicable) and robustness. As well as cost, it was important not to create a survey that was so lengthy it would prevent a good response rate.

Data was gathered for two purposes. First, to inform the social sustainability 'score' for an area by collecting data to enable a comparison between the experience of people resident in Berkeley communities and large-scale national datasets for comparable places in the UK; and second, to understand the profile of the area, capturing descriptive and socio-economic characteristics such as gender, age, ethnicity and family composition.

Using existing data generated through high quality national surveys funded by government had two key benefits. First, boosting the robustness of the data. Questions used within relevant national datasets (see table 5) were mirrored, as far as practicable.

These questions have been developed over time, and cognitively tested to make sure questions are not leading or biased.

Second, as well as ensuring robustness, this strategy enabled residents' survey responses to be benchmarked against national surveys, using two geo-demographic categorisations, the Office of National Statistics (ONS's) Output Area Classification, and Index of Multiple Deprivation, to 'match' Berkeley communities against areas where similar social groups live (see section 2.3 of this report).

Developing indicators

The first step was to trawl available data sets for potential questions that matched the issues identified in the framework, and also to identify questions or sets of questions developed by government to measure specific issues, such as anti-social behaviour and well-being.

FIGURE 12: EXAMPLES OF RELEVANT QUESTIONS FROM NATIONAL SURVEYS
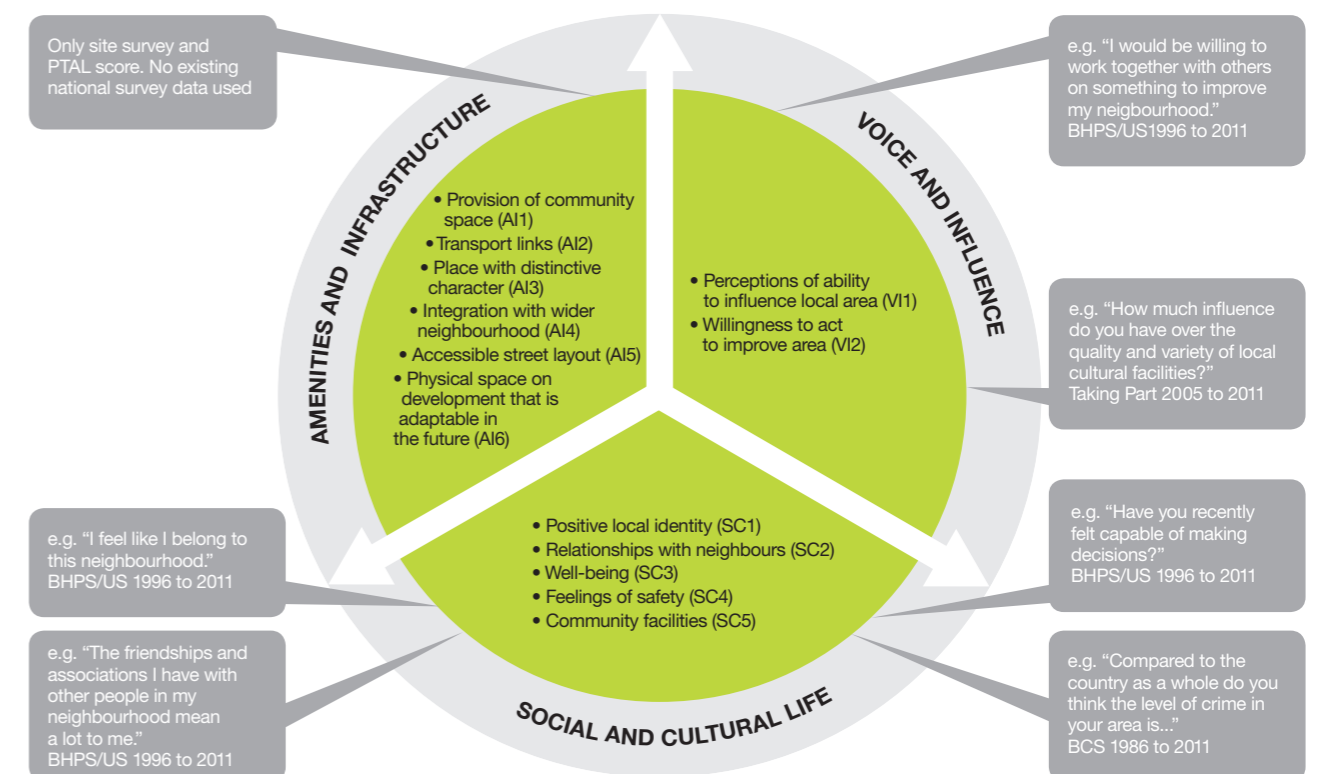
Four datasets were selected which, when taken together, covered the range of indicators in the emerging framework (see table 4). These were the Understanding Society Survey, the Crime Survey for England and Wales, Taking Part and the Citizenship survey.

TABLE 4: NATIONAL SURVEYS INCLUDED IN THE ANALYSIS

British Household Panel Survey/Understanding Society (BHPS/US)

• Institute for Social and Economic Research (ISER), 1996 to present

• 100,000 individuals in 40,000 British households

• Can be matched to OAC

• Data used from 2008-2009 Innovation Panel Waves 1-2

Taking Part (TP)

• Department of Culture, Media and Sport, 2005 to present

• 14,000 participants

• Can be matched to OAC

• Data taken from 2010-2011 survey

Crime Survey for England and Wales (formerly British Crime Survey (BCS))

• Home Office,1986 to present

• 51,000 participants

• Can be matched to IMD areas

• Data taken from 2010-2011 survey

Citizenship Survey (CS)

• Department for Communities and Local Government, 2001 to 2011 (biannual to 2007, annual 2008 to 2011)

• 11,000 participants

• Can be matched to IMD areas

• Data taken from 2009-2010 survey

The questions selected from the four datasets included a mixture of direct measures, quantifying a measurable issue (for example, whether respondents borrow items from their neighbours) or proxy measures, indicators that have been established through thorough testing to assess an underlying issue, such as well-being (see table 5).

TABLE 5: RESIDENTS' SURVEY QUESTIONS FROM NATIONAL DATASETS, BY SOURCE

Indicator	Question code	Question	Data source
Social and cultural life dimension			
Positive local identity (SC1)	SC_1a	I plan to remain a resident of this neighbourhood for a number of years.	Understanding Society survey
Positive local identity (SC1)	SC_1b	I feel like I belong to this neighbourhood, by this I mean 15-20 minute walk from your home?	Understanding Society survey
Positive local identity (SC1)	SC_1c	How important is where you live to your sense of who you are?	Understanding Society survey
Relationships with neighbours (SC2)	SC_2a	If I needed advice about something I could go to someone in my neighbourhood.	Understanding Society survey
Relationships with neighbours (SC2)	SC_2b	I borrow things and exchange favours with my neighbours.	Understanding Society survey
Relationships with neighbours (SC2)	SC_2c	I regularly stop and talk with people in my neighbourhood.	Understanding Society survey
Relationships with neighbours (SC2)	SC_2d	The friendships and associations I have with other people in my neighbourhood mean a lot to me.	Citizenship survey
Relationships with neighbours (SC2)	SC_2e	To what extent do you agree or disagree that this local area is a place where people from different backgrounds get on well together?	Citizenship survey
Relationships with neighbours (SC2)	SC_2f	Generally speaking would you say that most people can be trusted, or that you can't be too careful in dealing with people?	Understanding Society survey
Well-being (SC3)	SC_3a	Have you recently felt like you were playing a useful part in things?	Understanding Society survey
Well-being (SC3)	SC_3b	Recently I have been feeling reasonably happy.	Understanding Society survey
Well-being (SC3)	SC_3c	Overall, how satisfied or dissatisfied are you with your local area as a place to live?	Citizenship survey
Well-being (SC3)	SC_3d	Satisfaction with life overall.	Understanding Society survey

TABLE 5: RESIDENTS' SURVEY QUESTIONS FROM NATIONAL DATASETS, BY SOURCE

Indicator	Question code	Question	Data source
Social and cultural life dimension			
Feelings of safety (SC4)	SC_4a	How safe do you feel walking alone in this area after dark?	Crime Survey for England & Wales
Feelings of safety (SC4)	SC_4b	How safe do you feel walking alone in this area during the day?	Crime Survey for England & Wales
Feelings of safety (SC4)	SC_4c	Compared to the country as a whole do you think the level of crime in your local area is…	Crime Survey for England & Wales
Voice and influence			
Perceptions of ability to influence local area (VI1)	VI_1a	In the last 12 months, has any organisation asked you what you think about…	Taking Part survey
Perceptions of ability to influence local area (VI1)	VI_1b	Do you agree or disagree that you can influence decisions affecting you local area?	Citizenship survey
Perceptions of ability to influence local area (VI1)	VI_1c	How important is it for you personally to feel that you can influence decisions affecting your local area?	Citizenship survey
Willingness to act to improve area (VI2)	VI_2a	I would be willing to work together with others on something to improve my neighbourhood.	Understanding Society survey
Willingness to act to improve area (VI2)	VI_2b	In the last 12 months, have you taken any of the following actions to try to get something done about the quality of your local environment?	Taking Part survey
Willingness to act to improve area (VI2)	VI_2c	To what extent do you agree or disagree that people in this neighbourhood pull together to improve this neighbourhood?	Citizenship survey

The indicators selected from national datasets provided good but incomplete coverage of the dimensions in the social sustainability framework. Specifically, no questions existed to cover key gaps on perceptions of provision of facilities for children of different ages, perceptions of provision of health facilities, and perceptions of provision of social and sporting facilities.

Although no benchmark could be established for these indicators, it was decided that these were important issues that should be investigated through seven questions created for the residents' survey (see table 6).

TABLE 6: CREATED QUESTIONS WITHIN THE RESIDENTS' SURVEY

Community Facilities Indicator	Question code	Question
Social and cultural life dimension		
Community facilities (SC_5)	SC_5b	How satisfied are you with the quality of facilities for children and young people in your local area? 0-4yrs
Community facilities (SC_5)	SC_5c	How satisfied are you with the quality of facilities for children and young people in your local area? 5-11yrs
Community facilities (SC_5)	SC_5d	How satisfied are you with the quality of facilities for children and young people in your local area? 11-15yrs
Community facilities (SC_5)	SC_5e	How satisfied are you with the quality of facilities for young people in your local area? 16-18yrs
Community facilities (SC_5)	SC_5f	How satisfied are you with the quality of health facilities in your local area?
Community facilities (SC_5)	SC_5g	How satisfied are you with the quality of sport and leisure facilities in you local area?
Community facilities (SC_5)	SC_5h	How satisfied are you with the facilities in your local area to socialise with friends and family?

As far as possible, the project team attempted to replicate the manner of asking individual questions from the original survey. However, because the residents' survey contains indicators from a range of sources it was not possible to mirror the order in which questions were originally constructed. Instead, the questions were sequenced to ensure they flowed as well as possible from the point of view of the respondent.

The residents' survey also needed to capture the appropriate demographic data to enable comparison with the four national datasets used in the secondary analysis. Because each of the four national surveys collects demographic data differently, this inevitably made this section of the residents' survey relatively lengthy.

An open-ended question was also included in the survey, asking residents to identify the three factors they believed to contribute most to their quality of life.

The full questionnaire is included in Appendix E.

2.2.2 Primary data collection: the site survey

Alongside the residents' survey, a site survey was developed to assess the provision of appropriate amenities and infrastructure.

This captured the contribution of the physical assets of the development to its longer term social sustainability; the implications of design and structure for the social life of the community; and the existence of facilities that enable residents to come together to carry out activities, socialise and join together to take collective action (for example community centres).

The site survey drew heavily on CABE's "Building for Life" assessment tool, using questions that had been well tested and that the industry is familiar with (see table 7). Mirroring the approach taken to the residents' survey, questions were selected that have been widely used in a similar context.

TABLE 7: QUESTIONS USED IN THE SITE SURVEY FROM THE BUILDING FOR LIFE FRAMEWORK

Indicator	Question code	Question
Provision of community space (AI_1)	AI_1a	Does the development provide (or is it close to) community facilities, such as a school, parks, play areas, shops, pubs or cafés?
Provision of community space (AI1)	AI_1b	Is public space well designed and does it have suitable management arrangements in place?
Place with a distinctive character (AI_3)	AI_3a	Does the scheme feel like a place with distinctive character?
Integration with wider neighbourhood (AI4)	AI_ 4a	Is there an accommodation mix that reflects the needs and aspirations of the local community?
Integration with wider neighbourhood (AI_4)	AI_4b	Is there a tenure mix that reflects the needs of the local community?
Accessible and safe street layout (AI_5)	AI_5a	Do the buildings and layout make it easy to find your way around?
Accessible and safe street layout (AI_5)	AI_5b	Does the scheme integrate with existing streets, paths and surrounding development?
Accessible and safe street layout (AI_5)	AI_5c	Are the streets pedestrian, cycle and vehicle friendly?
Accessible and safe street layout (AI5)	AI_5d	Are public spaces and pedestrian routes overlooked and do they feel safe?
Physical space on development that is adaptable in the future (AI_6)	AI_6a	Do internal spaces and layout allow for adaption, conversion or extension?

However, Building for Life does not fully cover all the issues included in Berkeley's social sustainability framework; therefore, new questions were created to fill gaps (see table 8).

TABLE 8: CREATED QUESTIONS USED IN THE SITE SURVEY

Indicator	Question code	Question
Provision of community space (AI_1)	AI_1c	Have the community facilities been appropriately provided?
Integration with wider neighbourhood (AI_4)	AI_4c	Does the design of the local environment promote engagement with the wider community?
Accessible street layout (AI_5)	AI_5e	Does the design of the local environment adequately support the needs of people with limited physical mobility?
Physical space on development that is adaptable in the future (AI6)	AI_6b	Do external spaces and layout allow for adaption, conversion or extension?

2.3 Secondary analysis of existing data: benchmarking

Existing data was taken from the most recent years available for the four national surveys used. These were 2008-2009 for Understanding Society (the Innovation Panel, Waves 1-2), 2009-2010 for the Citizenship Survey and 2010-2011 for the Crime Survey England and Wales (then the British Crime Survey) and Taking Part.

Benchmarks were developed taking the averages that would be expected for residents from comparable places based on geo-demographic profiling. The preference was to use Output Area Classifications (OACs),[xxvi] devised by the Office for National Statistics (ONS) to identify social groups typical of UK population as the basis for the benchmarking strategy.

OACs are based on cluster analysis to find an algorithmic 'best fit' for the fewest groups that explain most of variation in UK population. OAC classifications are based on mathematics not researcher bias. They have been analysed down to "output area" level, approximately 100 households or 250 individuals.

However, not all of the national surveys selected are capable of analysis by OAC, because of limitations in the way they are coded. In these cases, an alternative categorisation using the English Indices of Multiple Deprivation (IMD) was used.[xxvii]

The Indices of Multiple Deprivation are used extensively by central and local government to analyse patterns of deprivation and to compare different local areas. IMD categorisations are based on lower level super output areas (LSOAs). LSOAs were originally built using 2001 Census data from groups of Output Areas (typically four to six), with a minimum size of 1,000 residents and 400 households, averaging 1,500 residents.[xxviii]

Use of OAC and IMD geo-demographic classifications enabled the data to be analysed and benchmarked to different geographies. At the outset of the project the aim was to benchmark Berkeley developments against four different geographies: comparable places; London (where relevant); the relevant local authority; and nationally (i.e. across Britain for the Understanding Society Survey; England and Wales for the Citizenship Survey; England and Wales for the Crime Survey for England and Wales; and England only for Taking Part).

An attempt was made to benchmark residents' survey responses against data from national surveys at the local authority level. This involved comparing data for the London Borough of Southwark with Empire Square residents' survey data, data for the London Borough of Sutton with The Hamptons residents' survey data, data for the London Borough of Hammersmith and Fulham with Imperial Wharf residents' survey data, and data for Winchester City Council with Knowle Village residents' survey data.

The benchmarking was based on national survey data from one single year and analysis found that not enough responses were collected across all of the local authorities in this single year to create a representative sample of local authority residents (see Appendix D for more information).

It would be possible in the future to create local authority comparisons by combining the responses in national surveys over a number of years to produce a sample size sufficiently representative of the area. However, this was beyond the scope of this project.

2.3.1 Other data

One other source of data included in the framework was "Public Transport Accessibility Level" data (or PTAL data), commonly used in London to inform planning decisions. PTAL is a simple, easily calculated metric that uses the distance from any point to the nearest public transport stop, and service frequency at those stops. The result is a grade from 1-6 (including sub-divisions 1a, 1b, 6a and 6b), where a PTAL of 1a indicates extremely poor access to the location by public transport, and a PTAL of 6b indicates excellent access by public transport.[xix]

A PTAL score is generated for each new development as part of the planning approval process.

However, as PTAL is not widely used outside of Greater London it was not an appropriate measure for Knowle Village, a semi-rural new development in Hampshire. This raised a number of questions for the project team about how to assess what appropriate transport provision means in semi-rural and suburban developments, and also how to make a meaningful comparison between different locations without automatically penalising rural or semi-rural developments. The project team also felt that measures of resident satisfaction with the available transport options should be considered alongside objective measures of distance from, and frequency of, public transport.

As transport connections are a crucial element of social sustainability the project team felt it was appropriate to take into account additional sources of data to assess the transport links for Knowle Village. The project team decided to also consider additional data sources about transport provision at The Hamptons, to enable comparison between the two sites and to determine what could be learnt from experimenting with different data sources.

For Knowle Village the additional sources of data were taken from internal records detailing Berkeley's contributions to local transport and pedestrian networks, and included information about the provision of improved highways, footpaths and bus services.

For The Hamptons, the additional sources of data included "Does car ownership increase car use? A study of the use of car parking within residential schemes in London". This work was commissioned by the Berkeley Group and carried out by WSP.[xxx] This report included data from two surveys of the travel habits of people living at The Hamptons. The surveys explored employment locations and travel to work patterns, shopping behaviours and travel patterns, and attitudes to different types of transport including walking, cycling, car clubs and public transport.

2.3.2 Constructing benchmarks

Benchmarking the data generated by the residents' survey against existing data is possible for those questions in the residents' survey that have been replicated from national surveys. However, this does not include all the questions in the Berkeley social sustainability framework.

A first stage in constructing benchmarks was to devise an approach to quantifying trends in responses. This was complicated by the number of different scoring approaches in the questions taken from the four national surveys.

Interpreting responses to different questions recorded in different ways is likely to be confusing; for example, comparing two examples, one on a five point scale from "strongly agree" to "strongly disagree", and another on a seven point scale "completely satisfied" to "completely dissatisfied".

Additionally, presenting all the response choices discretely can be misleading as there may be minor differences between specific responses: for example, rates of response to strongly agree and to agree may show different patterns compared to the baseline.

Figures 13 and 14 give examples of the challenges interpreting trends over multiple responses and challenges comparing between questions with different response sets.

FIGURE 13: FIVE-POINT SCALE PERCENTAGE "STRONGLY AGREE" TO "STRONGLY DISAGREE" 'I LIKE TO THINK OF MYSELF AS SIMILAR TO PEOPLE IN THIS NEIGHBOURHOOD'. SOURCE: UNDERSTANDING SOCIETY SURVEY.

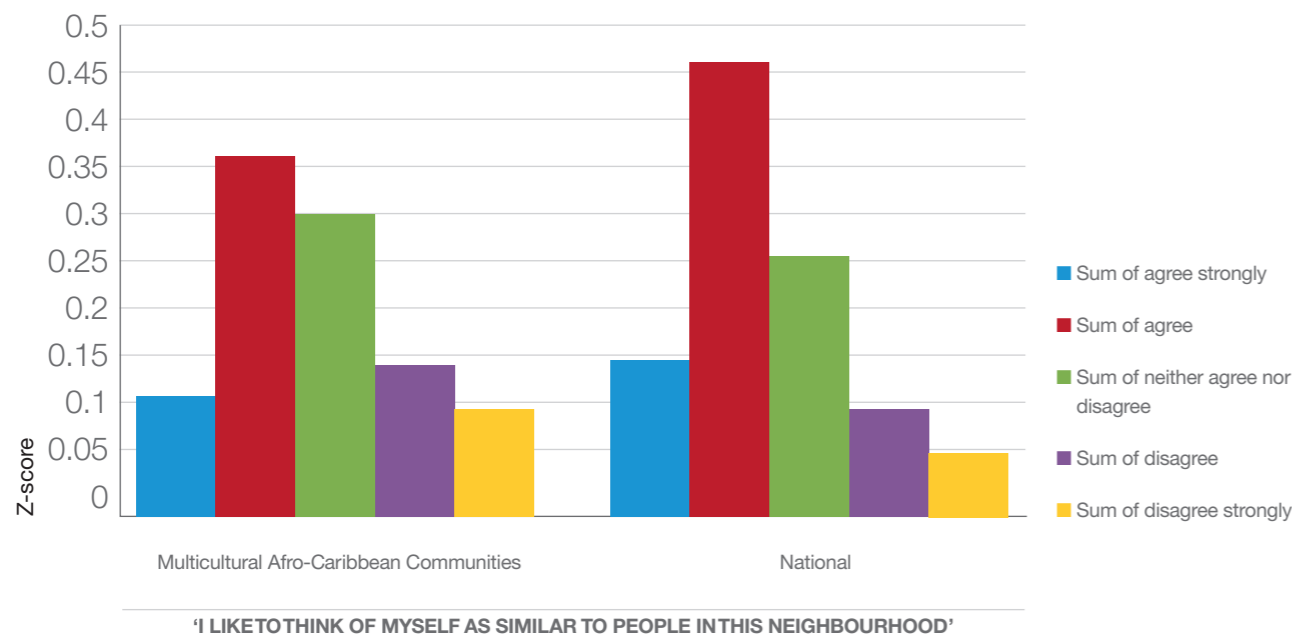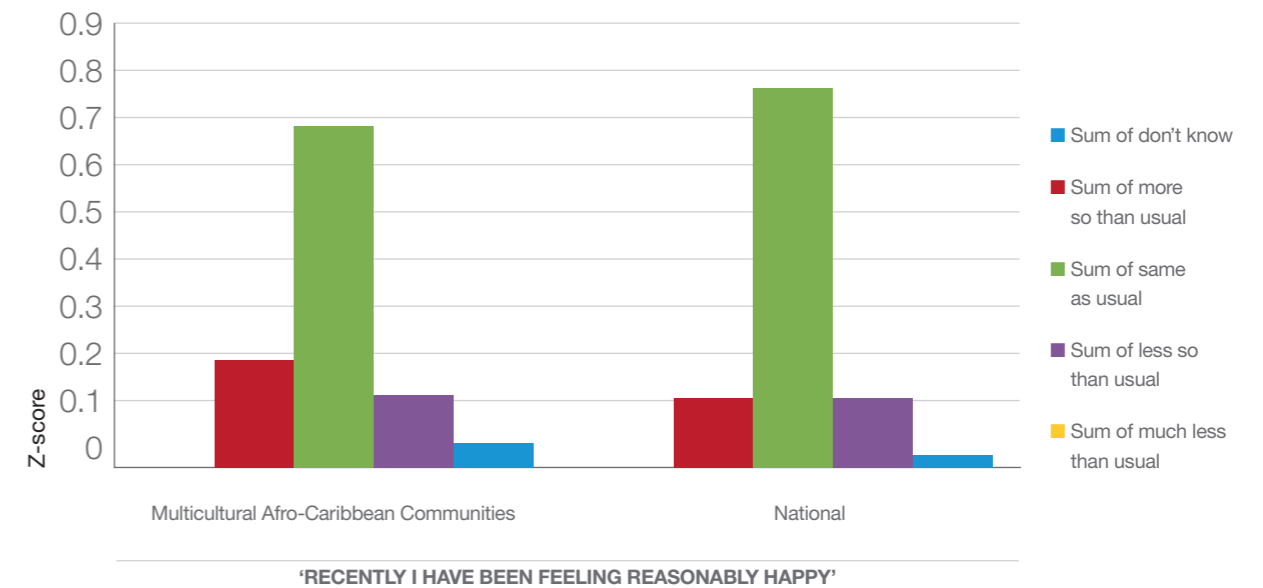'I LIKE TO THINK OF MYSELF AS SIMILAR TO PEOPLE IN THIS NEIGHBOURHOOD'

FIGURE 14: FOUR-POINT SCALE PERCENTAGE, "STRONGLY AGREE" TO "STRONGLY DISAGREE" RESPONSES TO QUESTION: 'RECENTLY I HAVE BEEN FEELING REASONABLY HAPPY'. SOURCE: UNDERSTANDING SOCIETY SURVEY.

'RECENTLY I HAVE BEEN FEELING REASONABLY HAPPY'

To populate the social sustainability framework, the focus is on identifying the main trends in responses. To do this, the average of all responses was analysed. For example, if strongly agree = 1 and strongly disagree = 5 on a five point scale and most responses are concentrated around the response agree (where agree = 2) the average might be 2. If responses are slightly more commonly strongly agree the average might be 1.9 and if the responses are slightly more commonly neither agree nor disagree the average might be 2.1.

This approach is complicated by the fact that many responses are different scales. This means that the average of responses to different questions will be different and potentially misleading: completely neutral responses on a five-point scale will be 2.5 and completely neutral responses on a seven-point scale will 3.5.

To overcome this problem and place all responses on the same scale, responses are standardised to the same scale. The standard deviation is calculated for all responses by calculating the difference between each score and the average of all scores, taking into account the variation in all the scores. This figure can then be used to calculate how much each score differs from the average according to a standard normal distribution that applies to all sets of numbers. This standardisation is known as the z-score.

Z-scores most commonly vary from 3 to -3, in almost all circumstances 68 per cent of all responses will be between 1 and -1. Although the differences in numbers generated are small and in decimal places, the condensation of the data means that differences are likely to be statistically significant and reflect actual systematic differences in responses.

Figure 15 shows an example of results presented in z-scores, showing the difference between scores for OAC and national averages. This is based on the OAC classification of the area in which Imperial Wharf is located, which is "Multiethnicity". Figure 15 shows that this OAC group, compared to the national average, scores higher on many of the indicators relating to relationships with neighbours but lower on well-being (in this diagram "0" represents the "Multiethnicity" OAC' benchmark). Consequently, residents of Imperial Wharf would need to report high scores on relationships with neighbours to exceed their baseline, but only moderate well-being scores.

FIGURE 15: EXAMPLE Z-SCORES FOR OAC GROUP MULTIETHNICITY SHOWING DIFFERENCE BETWEEN THIS OAC GROUP AND SCORES NATIONALLY FOR NEIGHBOURHOOD AND WELL-BEING QUESTIONS, WHERE 0=NATIONAL AVERAGE. SOURCE: UNDERSTANDING SOCIETY SURVEY.

01	Plan to remain resident of this neighbourhood for a number of years	04	I borrow things and exchange favours with my neighbours	07	Felt you were playing a useful part in things
02	Feel like I belong to this neighbourhood	05	If I needed advice I could go to someone in my neighbourhood	08	Been feeling reasonably happy
03	Friendships in my neighbourhood mean a lot to me	06	Regularly stop and talk with people in my neighbourhood	09	Most people can be trusted or you cannot be too careful with people
				10	Satisfaction of your life overall

2.4 Testing statistical significance

This project investigates whether residents of Berkeley developments report higher or lower responses to questions important to social sustainability than others from comparable socio-geographic groups. To make sure that results from the z-score analysis were robust, statistical significance testing was carried out.

For any question, the average response of residents may accurately represent the views of all residents as a whole. However, it is known that people tend to vary in their responses and therefore it is possible that differences in the average of responses may be caused by random variation rather than underlying differences in views. To test whether differences in responses are likely to be due to chance or real underlying differences, social sciences employ a convention of a standard of evidence, to establish that results are unlikely to be due to chance.

The convention in social sciences is that the probability should be less than 5% or 5 times in one hundred that the difference in results is likely to have occurred by random variation. Results of less than 5% probability or $p<.05$ are known as statistically significant and may be reported.

In this study we wish to identify if Berkeley residents' responses are higher or lower than comparable responses. To take one example, if residents' responses vary from national responses the same or less than all responses vary from each other, then it seems likely residents' responses are no different from the national. In other words, the responses of residents seem to be explained by natural variation seen in all responses, and residents' responses are part of the same background noise caused by the differences between all people.

If resident responses differ from national responses more than all responses differ from each other, then it seems likely residents' responses are in general quite different from national responses. To identify whether responses are meaningfully different from a comparison group, social scientists often examine whether the variation between all individuals is greater or lesser than the variation in responses between groups we suspect are different.

In other words, we are testing whether the difference between residents and the national average is greater than the background noise. If the difference is the same or less it is likely the results are due to the background difference between all people. If the difference is more, it is likely the group of interest is responding differently from the comparison group. This comparison is often known as the F-Ratio.

To test whether responses from residents were different from the average, a one way Analysis of Variance (sometimes described as an ANOVA) was carried out, with the survey questions as dependent variables, and whether respondents were residents, or part of national or comparable place groups, as the independent variable. For each level of comparison, analysis of national and comparable place groups was carried out, selecting only those individuals that were members of the required comparison group. See Appendix B for relevant data tables.

This statistical approach was used in analysing and presenting findings from the resident survey.
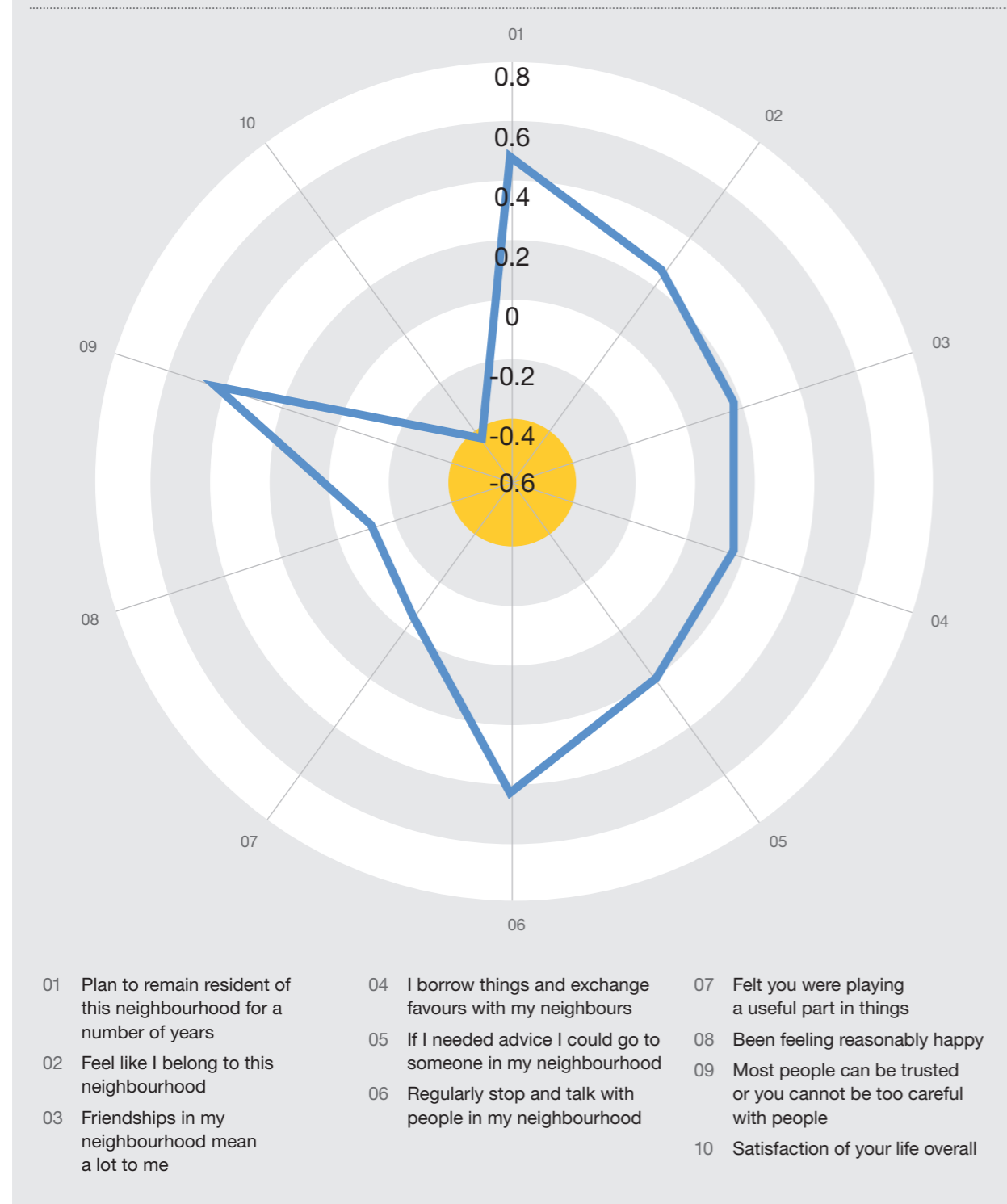
2.4.1 What do non-significant results mean?

Results which are found to be not significant are still informative and useful in understanding community strength and quality of life in the four developments that were studied. These results tell us a great deal about how best to carry out a survey to gather data that is most informative of social sustainability.

In this study we wanted to know if Berkeley residents reported significantly different social views, attitudes and behaviours than non-Berkeley residents. Significant results mean that Berkeley residents responded reliably higher or lower than non-Berkeley residents.

There are two main reasons results can be non-significant: first, results are non-significant when there are no underlying differences in results between a test group (e.g. Berkeley residents) and control group (e.g. non-Berkeley residents) and both have been measured accurately. Second, results are often not significant when there are underlying differences but they are small or subtle and difficult to detect, meaning that differences cannot be identified due to lack of sensitivity or accuracy in measurement. This is known as a Type II Error and is most common in social sciences due to the challengesof measuring human behaviour.

Therefore non-significant results may be due to there being no underlying difference or that any difference is so small they were not detected using the methods employed.

Since it is expected that Berkeley residents share some social views, attitudes and behaviours with non-Berkeley residents it is not surprising the results of a number of questions are non-significant. However, to be confident that non-significant results reflect real similarities between Berkeley residents and others and exclude the possibility that they are due to limitations in the precision in measurement, it is important to examine whether this study is likely to capture small and subtle differences.

Part of the purpose of testing the social sustainability measurement framework was to examine how well individual questions explain social sustainability and distinguish between the social strengths and weakness of Berkeley developments compared to other residential environments. It is likely some questions selected relate to social views, attitudes and behaviours that are not related to the quality of the residential environment and are therefore outside the influence of developers.

Before carrying out this work it was not possible to identify which questions are reliably independent of the built environment.

As this work is the first of its kind, this study gives us the opportunity to identify questions less well related to the influence of residential design. Therefore, these non-significant results should be further examined to provide information to develop the residents' survey for future use.

To develop the next iteration of the framework, each non-significant result should be examined to determine whether these results are due to limitations of the question to distinguish between Berkeley residents and others, or whether non-significance is due to other factors. Questions which are found to distinguish poorly between people who tend to reside in Berkeley developments and similar people elsewhere can be removed from future surveys.

Results are often found to be non-significant where there is a large amount of variation in responses, so many that it is not possible to identify whether responses are reliably different. Large amounts of variation in surveys occur when questions are poorly worded (for example the meaning is ambiguous); however, in this project questions were taken from national surveys which have been developed and tested to provide reliable results.

The most common cause of large amounts of variation in data is that the sample sizes or number of respondents is too small. This is a problem because people naturally tend to differ in their views, attitudes and behavior. To adjust for this variation it is necessary to record as much data as possible so that the sample includes a range of people representative of the natural variation between people.

In this study we attempted to collect as many responses as possible using one-to-one interviews within the resources available. In total we collected 593 responses, and after data cleaning we had around 130 responses in each development. In contrast the largest national surveys recorded 46,000 responses. It therefore is likely some non-significant results are due to insufficient sample sizes.

For future surveys, it may be possible to use alternative methods to increase sample size. This pilot used face-to-face interviews as these have the highest return rate and guarantee a minimum number of responses can be recorded. An approach that may not increase cost is to use multiple methods of collecting responses from residents, including self-completed web based and paper questionnaires alongside face-to-face interviews. Using multiple methods of collecting results is well established and carried out by the national surveys and the methodologically most advanced academic surveys such as the British Birth Cohorts survey and the Avon Longitudinal Survey of Parents and Children.

2.5 The full list of indicators

Table 9 includes the full list of indicators used in Berkeley's social sustainability framework, by indicators and questions.

TABLE 9: INDICATORS USED IN THE SOCIAL SUSTAINABILITY FRAMEWORK

Indicator	Question code	Question	Data source
Social and cultural life dimension			
Positive local identity (SC1)	SC_1a	I plan to remain a resident of this neighbourhood for a number of years.	Understanding Society survey
Positive local identity (SC1)	SC_1b	I feel like I belong to this neighbourhood, by this I mean 15-20 minute walk from your home?	Understanding Society survey
Positive local identity (SC1)	SC_1c	How important is where you live to your sense of who you are?	Understanding Society survey
Relationships with neighbours (SC2)	SC_2a	If I needed advice about something I could go to someone in my neighbourhood.	Understanding Society survey
Relationships with neighbours (SC2)	SC_2b	I borrow things and exchange favours with my neighbours.	Understanding Society survey
Relationships with neighbours (SC2)	SC_2c	I regularly stop and talk with people in my neighbourhood.	Understanding Society survey
Relationships with neighbours (SC2)	SC_2d	The friendships and associations I have with other people in my neighbourhood mean a lot to me.	Citizenship survey
Relationships with neighbours (SC2)	SC_2e	To what extent do you agree or disagree that this local area is a place where people from different backgrounds get on well together?	Citizenship survey
Relationships with neighbours (SC2)	SC_2f	Recently I have been feeling reasonably happy.	Understanding Society survey
Well-being (SC3)	SC_3a	Have you recently felt like you were playing a useful part in things?	Understanding Society survey
Well-being (SC3)	SC_3b	Generally speaking would you say that most people can be trusted, or that you can't be too careful in dealing with people?	Understanding Society survey
Well-being (SC3)	SC_3c	Overall, how satisfied or dissatisfied are you with your local area as a place to live?	Citizenship survey
Well-being (SC3)	SC_3d	Satisfaction with life overall.	Understanding Society survey

TABLE 9: INDICATORS USED IN THE SOCIAL SUSTAINABILITY FRAMEWORK (CONTINUED)

Indicator	Question code	Question	Data source
Social and cultural life dimension			
Feelings of safety (SC4)	SC_4a	How safe do you feel walking alone in this area after dark?	Crime Survey for England & Wales
Feelings of safety (SC4)	SC_4b	How safe do you feel walking alone in this area during the day?	Crime Survey for England & Wales
Feelings of safety (SC4)	SC_4c	Compared to the country as a whole do you think the level of crime in your local area is...	Crime Survey for England & Wales
Community facilities (SC_5)	SC_5a	How satisfied are you with the quality of facilities for children and young people in your local area? 0-4yrs	Created question
Community facilities (SC_5)	SC_5b	How satisfied are you with the quality of facilities for children and young people in your local area? 5-11yrs	Created question
Community facilities (SC_5)	SC_5c	How satisfied are you with the quality of facilities for children and young people in your local area? 11-15yrs	Created question
Community facilities (SC_5)	SC_5d	How satisfied are you with the quality of facilities for young people in your local area? 16-18yrs	Created question
Community facilities (SC_5)	SC_5e	How satisfied are you with the quality of health facilities in your local area?	Created question
Community facilities (SC_5)	SC_5f	How satisfied are you with the quality of sport and leisure facilities in you local area?	Created question
Community facilities (SC_5)	SC_5g	How satisfied are you with the facilities in your local area to socialise with friends and family?	Created question
Voice and influence			
Perceptions of ability to influence local area (VI1)	VI_1a	In the last 12 months, has any organisation asked you what you think about...	Taking Part survey
Perceptions of ability to influence local area (VI1)	VI_1b	Do you agree or disagree that you can influence decisions affecting you local area?	Citizenship survey

TABLE 9: INDICATORS USED IN THE SOCIAL SUSTAINABILITY FRAMEWORK (CONTINUED)

Indicator	Question code	Question	Data source
Social and cultural life dimension			
Perceptions of ability to influence local area (VI1)	VI_1c	How important is it for you personally to feel that you can influence decisions affecting your local area?	Citizenship survey
Willingness to act to improve area (VI2)	VI_2a	I would be willing to work together with others on something to improve my neighbourhood.	Understanding Society survey
Willingness to act to improve area (VI2)	VI_2b	In the last 12 months, have you taken any of the following actions to try to get something done about the quality of your local environment?	Taking Part survey
Willingness to act to improve area (VI2)	VI_2c	To what extent do you agree or disagree that people in this neighbourhood pull together to improve this neighbourhood?	Citizenship survey
Amenities and infrastructure			
Provision of community space (AI_1)	AI_1a	Does the development provide (or is it close to) community facilities, such as a school, parks, play areas, shops, pubs or cafés?	Building for Life
Provision of community space (AI1)	AI_1b	Is public space well designed and does it have suitable management arrangements in place?	Building for Life
Provision of community space (AI_1)	AI_1c	Have the community facilities been appropriately provided?	Created question
Transport links	AI_2	Public transport accessibility.	PTAL plus site specific documents
Place with a distinctive character (AI_3)	AI_3a	Does the scheme feel like a place with distinctive character?	Building for Life
Integration with wider neighbourhood (AI4)	AI_4a	Is there an accommodation mix that reflects the needs and aspirations of the local community?	Building for Life

TABLE 9: INDICATORS USED IN THE SOCIAL SUSTAINABILITY FRAMEWORK (CONTINUED)

Indicator	Question code	Question	Data source
Social and cultural life dimension			
Integration with wider neighbourhood (AI_4)	AI_4b	Is there a tenure mix that reflects the needs of the local community?	Building for Life
Integration with wider neighbourhood (AI_4)	AI_4c	Does the design of the local environment promote engagement with the wider community?	Created question
Accessible and safe street layout (AI_5)	AI_5a	Do the buildings and layout make it easy to find your way around?	Building for Life
Accessible and safe street layout (AI_5)	AI_5b	Does the scheme integrate with existing streets, paths and surrounding development?	Building for Life
Accessible and safe street layout (AI_5)	AI_5c	Are the streets pedestrian, cycle and vehicle friendly?	Building for Life
Accessible and safe street layout (AI5)	AI_5d	Are public spaces and pedestrian routes overlooked and do they feel safe?	Building for Life
Accessible street layout (AI_5)	AI_5e	Does the design of the local environment adequately support the needs of people with limited physical mobility?	Created question
Physical space on development that is adaptable in the future (AI_6)	AI_6a	Do internal spaces and layout allow for adaption, conversion or extension?	Building for Life
Physical space on development that is adaptable in the future (AI6)	AI_6b	Do external spaces and layout allow for adaption, conversion or extension?	Created question

2.6 Consolidating the questions into indicators

The majority of indicators are made up of a number of different questions. It is probable that different questions have different significance in explaining social sustainability, and there is as yet no evidence available that provides any rationale for weighting. To obtain this would require significant new research and exploration.

Consequently, each question was given the same weight in constructing the indicator. Following the same approach, the three core dimensions of the framework – "voice and influence", "social and cultural life" and "amenities and infrastructure" – were also given equal weight.

2.7 Visualising the framework

A key learning from the review of frameworks was the need to visualise the framework in a way that makes it accessible and useable to practitioners and policy makers.

The range of data involved – coming from different sources including site surveys, residents' survey, existing survey data and PTAL transport scores – could only be combined if a way could be found to generate comparable scores.

The RAG (red-yellow-green) approach generated two benefits: first, to create an easily understandable graphic representation of the social sustainability "score" for a development; and second, to present the results as a range of responses rather than a single figure. The range approach is more appropriate for an experimental metric, avoiding spurious accuracy.

FIGURE 16: A HYPOTHETICAL RAG RATED SITE ASSESSMENT
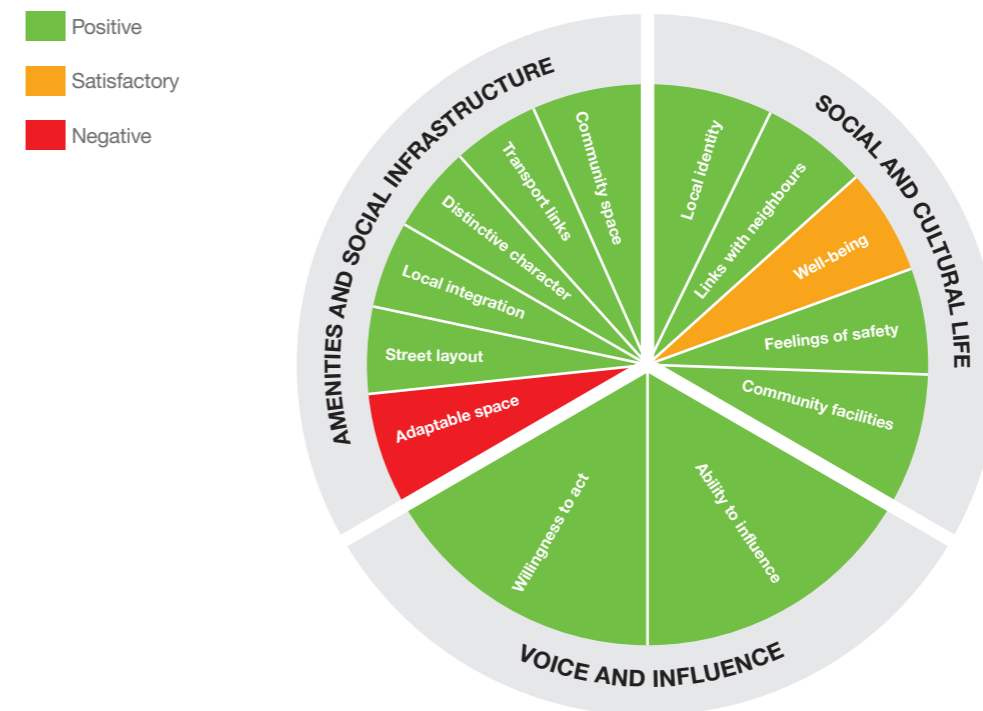
2.8 Scoring the data

The different elements of data were scored appropriately with the aim of generating scores where "green" was significantly above average, demonstrating good performance, and "red" significantly below average, signaling concern. Therefore, "yellow" represents scores that are the same or very close to the average or cannot be distinguished from the average statistically, possibly because responses are too varied or because there are too few responses.

Where questions and indicators draw on questions used in other surveys or frameworks, benchmarks or established scoring methods were used. For the small number of created questions, a score was generated based on the range of results in this exercise.

Table 10 explains the scoring for each different kind of data.

TABLE 10: SCORING BY DATA SOURCE

Data source	Scoring approach
Residents' survey: questions taken from national surveys	Questions benchmarked against geographical areas (National and London) and comparable places (OAC and IMD) using z-score approach described in section 2.3.2. The mean of the z-scores for each question within an indicator provided the overall score for each indicator. An F-ratio comparison was applied to test the statistical significance of data sets underpinning each question (see section 2.4 for further explanation). The overall score was RAG Rated: Statistically significant responses above the benchmark = green Responses are the same as or similar to the benchmark, or they are not statistically significant = yellow Statistically significant responses below the benchmark = red
Residents' survey: questions created for this project	For each created question responses were awarded a score between 1 (very dissatisfied) up to 5 (very satisfied). The mean of the scores for each question within an indicator were combined across all four developments to provide an overall mean score for each indicator. With no established benchmark available for comparison, responses on each development were RAG Rated: Better than overall mean score across all developments = green The same as or similar to the overall mean score across all developments = amber Poorer than overall mean score across all developments = red

TABLE 10: SCORING BY DATA SOURCE (CONTINUED)

Data source	Scoring approach
Site survey: questions taken from Building for Life	The Building for Life scoring protocol was used. Each of the questions is given a value of 1, 0.5 or 0. • 1 = there is sufficient evidence that the design meets the criteria • 0.5 = a specific part of the design meets the criteria, but another does not • 0 = there is not enough evidence that the design meets the criteria, or the evidence shows that the design does not meet the criteria. The mean of the scores for each question within an indicator were combined to provide an overall mean score for each indicator. This overall mean score was RAG Rated: ≥0.75 = green ≥0.5 but <0.75 = yellow <0.5 = red
Site survey: questions created for the project	Questions were scored in the same way as those taken from Building for Life
Public Transport Accessibility Level (PTAL) Additional secondary data about resident travel patterns for Knowle Village and The Hamptons.	PTAL scores are graded between 1 (extremely poor access to public transport) and 6 (excellent access to public transport). The PTAL scores for Empire Square and Imperial Wharf were RAG Rated: ≥5 = green ≥3 but <5 = yellow <3 = red For Knowle Village and The Hamptons additional data sources were used. These included pre-existing resident surveys of transport patterns. An assessment of appropriate provision was made based on the travel patterns reported by residents and the range of transport options provided for them (including public transport, car parking, and sustainable transport options).

3.0 **Testing the framework**

This section describes how the social sustainability framework was tested on four Berkeley developments.

It describes the four test sites; the process of gathering primary data using a residents' survey and site survey; and how this was tested against the lived experience of residents.

3.1 Selecting four test sites

Four test sites were chosen to reflect the range of Berkeley developments, by typology set out in section 1.8: rural/semi-rural, suburban, urban regeneration, urban (see table 11). Three sites are in London: Empire Square in Bermondsey, south London; Imperial Wharf in Fulham; and The Hamptons in Worcester Park in south west London suburbs; and Knowle Village near Portsmouth.

TABLE 11: THE FOUR TEST SITES

Name of development	Typology	Where	Brief description
Empire Square	IW – Regeneration	In London Borough of Southwark, south London. Inner city.	Former warehouse site, 567 homes, 30% affordable housing
The Hamptons	Suburban dwellings	In London Borough of Sutton, south west London. Suburbs.	Former sewage works, 645 homes, 33% affordable housing
Imperial Wharf	ES – Urban	In London Borough of Hammersmith and Fulham. Inner city.	Former gas works, 1,428 homes, 47% affordable housing
Knowle Village	Rural/semi-rural	In Winchester City Council area, Hampshire. Rural.	Former hospital for the mentally ill, 701 homes, 40% affordable housing

3.2 Gathering primary data

Primary data was collected through two bespoke surveys: a residents' survey and a site survey.

3.2.1 Residents' survey

The market research company ComRes was commissioned to carry out the residents' survey. A balance needed to be struck between robustness, pointing towards a larger sample, and cost, pointing towards smaller scale research. It was decided that a total of 500 residents would be surveyed, 125 on each development. It was agreed that 500 was a sample size that should generate statistically significant results, yet was not prohibitively expensive.

The sampling approach was challenging as no demographic information was available on the age, gender or ethnicity of homebuyers in the developments. The initial aim was to sample based on tenure type (affordable and private), cost of the property when purchased, and number of bedrooms. However, it proved impossible to get comparable information about size and cost of properties, so tenure alone was used as the basis of the sample.

A face-to-face methodology was chosen to reach residents in each of the four developments. It was felt this approach would be more likely to achieve the response rate required, rather than telephone interviewing or using email or web based approaches. Interviewers visited properties at a range of times during the day and at weekends to ensure that a range of respondents could be interviewed including those who work, study or are unemployed.

Properties were selected within the developments to meet quotas based on affordable and private housing tenure. Within the developments, interviewers selected properties from different floors within the buildings, different sides of the building, and different parts of the developments, to ensure that a range of views were heard. If the resident of a property was not available to be interviewed at that time, interviewers made two call backs to these properties at different times during that day.

For further details about sampling and quotas see Appendix A.

3.2.2. Site survey

Three experienced and accredited Building for Life surveyors were invited to tender to conduct the site surveys. Matrix Partnership was appointed to carry out the work, which took place in July 2012, and involved site visits and desk-based research.

The site survey was based on the original Building for Life framework, with ten criteria omitted and four added (see section 2.2.2 of this report for more information). In the site survey, the Building for Life criteria were interpreted in the normal way following current Design Council/CABE guidance.

Four new criteria required the development of new guidance:

i) Have the community facilities been appropriately provided?

This question was added to examine how community facilities were delivered. The intention was to move beyond a focus on provision to include analysis of the suitability of new facilities based on site specific circumstances.

Assessment of this included:

• Whether community facilities are accessible and open to all residents of the development?

• Whether community facilities are provided with a broad programme of activity to support involvement from a mix of residents?

• Whether community facilities are provided early on in the site's development?

• Whether residents are actively encouraged to make use of community facilities?

ii) Does the design of the local environment promote engagement with the wider community?

This was intended to focus on the way in which the physical design enabled Berkeley residents to interact and develop a shared identity with the wider communities and neighbourhoods surrounding the sites.

Assessment of this included:

• The degree to which community engagement was embraced as part of Berkeley's planning and design process.

• Whether the designs were informed by the local community, and whether they were responsive to key issues and priorities raised by the local community.

• Whether streets connect with their surroundings – enabling people to walk through area and casually meet their neighbours.

• Whether external open spaces are accessible and welcoming to the wider community (including, for example, facilitating shared community sports use).

• Whether other facilities are provided, such as a gym or café, that promote social interaction.

iii) Does the design of the local environment adequately support the needs of people with physical disabilities?

This explored whether design went beyond statutory minimum as Part M of the Building Regulations requires all buildings to make provision for this to some extent. Assessment included whether best practice measures were followed, including those identified in, for example, Habinteg's The Wheelchair Housing Design Guide[xxxi] or CABE's Inclusive by Design,[xxxii] (or incorporate Lifetime Homes guidance).[xxxiii]

iv) Do external spaces and layout allow for adaption, conversion or extension?

This indicator was designed to explore "space to grow" considerations. It included:

• The degree to which the design of public spaces is flexible enough to accommodate different programmes of activity.

• The management of public open spaces – whether, or the degree to which, the management regime enables spaces to be adapted to community needs.

• The design and management of communal private spaces (such as communal gardens for apartment blocks).

• Whether the size and design of private gardens allows for personalisation and flexibility of uses.

To inform the site surveys, desk-based research was carried out exploring documents prepared during the early stages of planning and design. This included the design and access statement (DAS); both architectural and landscape-related drawings related to the design of buildings and open spaces respectively (the site plan, landscape plan, elevations, sections and sample housing type layouts with furniture shown); an accommodation schedule that conveys tenure mix and typology; information related to management arrangements; information about community facilities.

3.3 Testing strategies

This social sustainability framework is experimental, bringing together data from different sources, combining them in new ways to express an assessment of the complex and multi-faceted concept of social sustainability. It was important to develop a strategy to ensure that the results of the surveys could be tested against the experience of those who live in and use the developments.

With more resource, it would have been possible to convene focus groups and carry out more systematic qualitative research. However, given the constraints of this project, a more limited approach was taken, which had three key elements:

• Contextual interviews with local stakeholders.

• An open-ended question within the residents' survey.

• Analysis of underlying patterns within the data.

3.3.1 Contextual interviews

Contextual interviews were carried out with a broad range of local stakeholders, including some with a formal responsibility over on-site operations (see Table 12) as well as residents and other more temporary inhabitants of the space, e.g. representatives from nearby schools, nurseries, care facilities, gyms, pubs, restaurants and religious institutions. A day and a half was allowed for interviews at each site, these were a mixture of face-to-face and telephone interviews. A total of 31 interviews were carried out across the four sites.

TABLE 12: CONTEXTUAL INTERVIEW STAKEHOLDER GROUPS

Contextual interview stakeholder groups interviewed
Residents' Group representative
Representative from Housing Association working on site
Representative from Estate Management team
Local Authority employee with on-site experience *(only Knowle Village)*

The interviews explored the respondents' experience of the development, and probed particular local issues that were relevant to the social sustainability of the area. The results were anonymised.

3.3.2. Enabling residents to give their own definitions of social sustainability

One open-ended question was included in the residents' survey: "Overall, what three factors about living in this neighbourhood contribute most to your quality of life? Please give as much detail as possible."

This information allowed residents to provide their own definitions and ideas about what informed their experience of living in the area.

3.3.3. Analysis of underlying trends

A wealth of primary data was generated by the residents' survey. It was not in the scope, or timescale, of this project to carry out a full analysis of the dataset. However, an initial investigation focused on the impact of housing tenure on some of the underlying trends in the data.

Housing tenure was selected because the different housing options offered to residents of different tenures emerged as a salient issue in contextual interviews. In all the four sites, affordable housing, ranging from social housing for rent to various types of subsidised home ownership (shared ownership, HomeBuy, NewBuy and particular schemes offered by the London Borough of Hammersmith and Fulham), was located in different parts of the development to the privately owned housing. As well as being managed and maintained under different arrangements, affordable housing was often visually different from the private housing.

In some cases, the amount of analysis that could be carried out on individual questions was limited by the small numbers of respondents. Analysis concentrated on five questions chosen to detect differences in the experience of local life between residents of different tenures. The questions were all taken from national surveys.

- Plan to remain resident for number of years (responses "strongly agree" to "strongly disagree") Understanding Society Survey

- I feel like I belong in this neighbourhood (responses "strongly agree" to "strongly disagree") Understanding Society Survey

- To what extent do you agree or disagree that this local area is a place where people from different backgrounds get on well together? (responses "definitely agree" to "definitely disagree") Citizenship Survey

- Overall how satisfied or dissatisfied are you with your local area as a place to live? (responses "very satisfied" to "very dissatisfied" Citizenship Survey

- To what extent do you agree or disagree that people in this neighbourhood pull together to improve this neighbourhood? (responses "definitely agree" to "definitely disagree") Citizenship Survey.

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Social sustainability is about people's quality of life, now and in the future. It describes the extent to which a neighbourhood supports individual and collective well-being.

Social sustainability combines design of the physical environment with a focus on how the people who live in and use a space relate to each other and function as a community. It is enhanced by development which provides the right infrastructure to support a strong social and cultural life, opportunities for people to get involved, and scope for the place and the community to evolve.