

## 2.2 Achieving more sustainable development forms

- 2.2.1 Sustainability encompasses social, economic and environmental factors. When considered holistically, good design and planning can help achieve socially inclusive places which promote vitality, ensure the viability of services and decrease energy demands and reliance on car based trips.

### Walkable neighbourhoods

- 2.2.2 The creation of attractive places in which to live and work lies at the heart of sustainable development practice.

*'A successful and sustainable local neighbourhood is a product of the distances people have to walk to access daily facilities, the presence of a sufficient range of such facilities to support their needs, and places and spaces where a variety of activities can take place.'*<sup>5</sup>

- 2.2.3 Historically places developed which had shops and other services within walking distance of the majority of the population, as most movements were pedestrian based. As a result, the density of development in the most 'accessible' parts of the settlement was higher. Such an arrangement provides the basis for a modern interpretation of this traditional form – the 'walkable neighbourhood'. This term describes an area within which it is possible and indeed desirable to walk (and cycle or use of other sustainable means) to access services and facilities. Typically this is based on maximum distances of 400 metre (5 minute) and 800 metre (10 minute) walking catchments. This 'catchment' area can be used to help structure districts of new settlements or urban extensions or to help work out how development can be successfully tied into existing areas. Research has shown that *'the maximum distance that people are prepared to walk is generally considered to be around 2000 metres although the optimum is 800 metres (a comfortable ten-minute walk)'*<sup>6</sup>.
- 2.2.4 When defining the catchment of an area or planning how new services and facilities can be best integrated to serve development, the actual walking catchment must be defined as opposed to the theoretical one. The accessibility and therefore availability of services and facilities will be influenced by how directly they connect with the rest of the development area and whether any barriers to movement, such as railway lines, main roads etc. exist. In addition, proposals should undertake a comprehensive analysis of the site and surrounding area to establish the proximity of existing services and facilities. This will need to be included in the **Design and Access Statement** required in support of a planning application.

### Movement framework

- 2.2.5 The movement framework describes the way in which the different modes of walking, cycling and public transport, along with private vehicles (including servicing and deliveries) all fit together. The aim should be to make it easy and more attractive to

<sup>5</sup> Llewelyn-Davies (2000) The Urban Design Compendium. [www.nationalarchives.gov.uk](http://www.nationalarchives.gov.uk), p39

<sup>6</sup> Rudlin and Falk (1999) Building the 21<sup>st</sup> Century Home, Architectural Press, p220

walk, cycle or take the bus through the provision of well integrated, safe and connected routes as well as secure and convenient cycle parking. The way in which routes and associated facilities are planned will inform the location of activity nodes and the appropriate distribution of density. Crucial to creating sustainable development forms is making services and facilities accessible to the widest number of people, whilst reducing dependence on the private car.

- 2.2.6 A thorough understanding of the context of a development and the relationship to existing services and facilities, including public transport connections and links to cycle networks, will be crucial in achieving well-integrated and well-connected sustainable forms of development. This should be demonstrated in the Design and Access Statement required in support a planning application.

### **Land use and ‘activity nodes’**

- 2.2.7 The term ‘activity node’ describes a location where services and facilities are centred due to good accessibility on foot, by bicycle or public transport and where population density is increased to take advantage of proximity to the services and facilities provided. The location of an activity node is influenced by where movement corridors pass and by how they connect to the wider area.
- 2.2.8 The range of services and facilities that an activity node provides is one of the most important factors in helping to ensure vitality and viability of places. The scale of the node and the range of services and facilities supported is based on the catchment population and numbers of people living in and passing through an area. A more vibrant and sustainable form of development will result from blurring the distinction between uses and designing places that make walking, or cycling, to the local centre and bus stop as convenient as possible.
- 2.2.9 The activity node will consist of a ‘*series of interlinked activity generators – bus stops, supermarkets, community/religious buildings, cafes, shops and small scale offices*’<sup>7</sup>.

### **Density profile**

- 2.2.10 As with traditional settlements, population densities should increase around key activity nodes and along the main public transport corridors. When considering the development density of a site, it should be remembered that the density will not be uniform across a site but will need to respond to the constraints and opportunities that exist and in particular, increase around key activity nodes and along public transport links and access points.

### **Development blocks**

- 2.2.11 Land use, density and movement are interlinked and thereby form the basic structuring principles of a sustainable community or place. A connected grid essentially allows for

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<sup>7</sup> Barton, Grant and Guise (2003) *Shaping Neighbourhoods, A guide for health, sustainability and vitality*. Spon Press, London and New York, p198

the creation of a 'permeable' neighbourhood which offers a choice of route to all users whilst focusing key services and facilities on the main routes.

- 2.2.12 The spaces in between the 'network' formed by the streets are called 'development blocks'. When considering change over time, it is often the street network which remains as the enduring element of places, whilst buildings come and go. It is therefore important to consider the planning and integration of new and existing routes in development proposals.
- 2.2.13 Two aspects of the development block, the size and shape, must be considered which will be dependent on the location of the block in terms of its surrounding context.
- 2.2.15 **Development Block: Size.** Closer towards the centres of towns and cities, and especially in the historic cores of places, block sizes are typically smaller due to the greater frequency of streets brought about by the need to maximise accessibility. In more central areas a robust block size capable of accommodating a range of uses and able to adapt over time will be 60-80m. Further out from the core a block size of between 80-90m represents the more robust size. When considering residential development blocks, a typical dimension of 100m x 200m will create a development parcel capable of accommodating a variety of residential dwelling types and capable of accommodating a variety of parking, garden spaces and other functions in the block interior. When considering more rural settlements, the overall scale or extent of the settlement will be important in determining how accessible a place it is. The same principles of finer grain and smaller development parcels on high streets and other accessible routes will apply. Many South Cambridgeshire villages have a linear morphology with the main shops and services organised along the principal street with a series of smaller development parcels extending back from this route.
- 2.2.16 **Development Block: Shape.** Good urban design principles advocate the creation of a 'deformed grid' to produce a series of connected streets and with buildings orientated to front on to streets and spaces. Whilst uniform rectangular blocks may be the easiest form to plan and develop, in reality and especially when fitting new development into existing settlements, blocks will need to be 'deformed' to meet the constraints of the site such as existing roads, topography and watercourses, as well as to help create a higher degree of visual interest.

### **Mixing uses**

- 2.2.17 Mixed use developments can happen at a variety of scales, from an individual building through to a block or development site. Such mixing of complementary uses can occur horizontally, with complementary uses occurring side by side, or vertically with different uses on different floors of the same building. In the past, planning has tended to 'zone' individual uses rather than the mixed approach of more traditional places, which has resulted in the fragmentation of places and the increased dependence on the private car to access services and facilities. 'Good neighbour principles' need to be adhered to and the servicing requirements of different uses and users needs to be considered. However, when well resolved, the result will be a development that promotes the vitality and

viability of places through extending uses throughout the day and which are ultimately more resource and energy efficient.

### **Robust and adaptable places and buildings**

- 2.2.18 One of the fundamental ingredients of a 'sustainable place' is the ability to accommodate change over time and so reduce the need for demolition and rebuilding.
- 2.2.19 Consideration needs to be given to different scales, from the large-scale such as the overall layout and size of development blocks, through to the small-scale, which considers building depths and internal organisation of dwellings. Consideration will be applicable to both new developments as well as the redevelopment of existing buildings and places.
- 2.2.20 The rate and scale at which places develop is significantly faster today than in the past. The gradual evolution of settlements through the building and rebuilding of plots within development blocks still occurs, but in the case of urban extensions and new settlements, the scale and rate of development means that it is difficult to predict the nature and demand of users into the future. Buildings therefore need to be adaptable to be capable of reuse and conversion to meet the changing social and technological needs of communities as they grow and as places respond to changing market and economic conditions. Buildings and communities also need to be adaptable to our changing climate, giving consideration to issues such as rising temperatures and extreme weather events such as flash flooding and storms.
- 2.2.21 **Building size:** The depth and width of buildings will have a marked effect on the sustainability of a development in terms of the flexibility of the building and therefore the potential for it to adapt to future needs, as well as the way in which it performs in relation to overall energy efficiency.
- 2.2.22 The depth of a building has direct implications in terms of lighting, ventilation and robustness. A shallow building can reduce the need for artificial lighting and mechanical ventilation, therefore reducing energy demands. In terms of optimum depths of buildings, it is generally acknowledged that 9 to 13m creates the most robust and adaptable form.
- 2.2.23 **Increased floor to ceiling heights at ground floor level:** In some instances where future needs in terms of services and facilities, such as shops, cannot be accurately predicted or at the time of construction there is insufficient demand to make retail space viable, the design of buildings with increased floor to ceiling heights at the ground floor (typically 3.75m) can allow for the building to be adapted relatively easily to retail uses, with adequate clearance for service provision and other needs.
- 2.2.24 **Adaptable internal space:** Enabling the internal layout of buildings to be altered with relative ease is an important consideration in making buildings adaptable for different uses in the future. The most important consideration in the design of the structure is to ensure that there is maximum flexibility for the alteration of internal partitions, for

example by ensuring that the load bearing elements of the building are in the external frame of the structure.

2.2.25 **Built form and climate change adaptation:** The layout of development from overall block scale down to individual buildings can impact on the microclimate that a site experiences. At the early stages of masterplanning solar orientation, prevailing wind direction, topography and drainage need to be understood to positively inform the scale and massing of development, orientation of private amenity space and location of open spaces.

2.2.26 Opportunities for adaptation exist at a range of different scales from conurbation or catchment scale, right down to the scale of individual buildings. The Town and Country Planning Association (TCPA)<sup>8</sup>, describes these opportunities as follows:

- **Conurbation or catchment scale:** Climate change adaptation at this scale will potentially serve the whole city and is likely to include a variety of land uses. Opportunities for creating cost-effective and integrated solutions as part of an overarching climate change strategy may be greatest at this scale.
- **Neighbourhood scale:** This scale involves developments of discrete groups of dwellings, including a mix of uses, and can vary in size from an individual block to a large estate. Consideration will need to be given to adapting the public realm and spaces between buildings and developments. Solutions can be developed through a site brief or masterplan.
- **Building scale:** Smaller developments including individual dwellings, apartment blocks or commercial buildings provide opportunities for integrating climate change adaptation into or around buildings. Attention will need to be given to the design of the building, its surroundings, and how it is used and managed, in order to maximise current and future climate adaptation potential. Design or building codes provide useful tools.

Further consideration of climate change adaptation is given in section 3.4 of this SPD.

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<sup>8</sup> TCPA (2007) Climate change adaptation by design: A guide for sustainable communities.